

TECHNICAL MANUAL
OPERATOR, ORGANIZATIONAL, DIRECT AND GENERAL
SUPPORT MAINTENANCE MANUAL
COMPRESSOR, RECIPROCATING, AIR
WHEEL MOUNTED, 2 WHEEL
PNEUMATIC TIRES: GED, 4 CFM, 3000 PSI
(210.9000 KGS PER SQ CM)
(WALTER KIDDE MODEL 893811)
NSN 4310-00.997-6004

HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 1975

WARNING
SAFETY PRECAUTIONS
BEFORE OPERATION

Remove snow, ice and mud or any other encumbrances from all parts of the unit.

Fill fuel tank to minimize moisture condensation in tank.

DURING OPERATION

Exercise extreme care when working with pneumatic equipment, to prevent injury to personnel and damage to equipment.

Perform all testing in an assigned area, cleared of all unauthorized personnel. Ensure that all equipment is properly cleared and secured. Clamp all pneumatic equipment being tested, firmly in a vise or other suitable testing fixture. Use a heavy metal shield, equipped with suitable glass windows to protect personnel when proof testing.

Do not attempt removal or disassembly of any component while the system is pressurized. Do not tamper with any relief valves. Do not exceed specified operating limits.

AFTER OPERATION

Exercise caution when removing spring-loaded relief valve caps or retainers to prevent injury to personnel.

Remove snow, ice and mud or any other encumbrances from all parts of the unit.

Fill fuel tank to minimize moisture condensation in tank.

WARNING

Clean all parts in a well ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent (Fed. Spec. P-D-680 and P-S-661) used to clean parts is potentially dangerous to personnel and property.

Do not use near open flame or excessive heat.

Flash point of solvent is 100° to 138°F (380 to 590C).

WARNING

This compressor is not suitable for the supply of air for charging cylinders with BREATHABLE AIR.

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 plugs or ear muffs which were fitted by a trained professional.

Noise Hazard Warning Signs. Signs conforming to provisions of AR 385-30 will be posted in the area to provide notification of NOISE HAZARD in accordance with TB MED-251.

The signs should read

WARNING
NOISE HAZARD EQUIPMENT
HEARING PROTECTION REQUIRED



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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual is for your use in operating and maintaining the Air Compressor, Model No. 893811, manufactured by Walter Kidde & Company, Inc., Belleville, New Jersey. The publication contains maintenance information for operator, organizational, direct support and general support maintenance personnel.

1-2. Maintenance Forms and Records

- a. DA Form 2404 (Equipment Inspection and Maintenance Worksheet).
- b. DA Form 2407 (Maintenance Request Used for Requesting Support Maintenance).
- c. DA Form 2407-1 (Continuation Sheet Used for Requesting Support Maintenance).
- d. For further information refer to TM 38-750

(The Army Maintenance Management System (TAMMS)).

1-3. Reporting of Errors

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

1-4. Destruction of Army Material to Prevent Enemy Use

a. Place as many of the following charges as the situation permits and detonate them simultaneously with detonating cord and suitable detonator.

- (1) One 1/2-pound (.22 kg) charge between the compressor and the air receiver tank.

NOTE

The above step is a minimum requirement for this method.

- (2) One 1/2-pound (.22 kg) charge between the engine or motor and the air receiver tank.

b. For further information refer to TM 750-244-3 (Procedures for Destruction of Equipment to Prevent Enemy Use.).

1-5. Administrative Storage

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

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

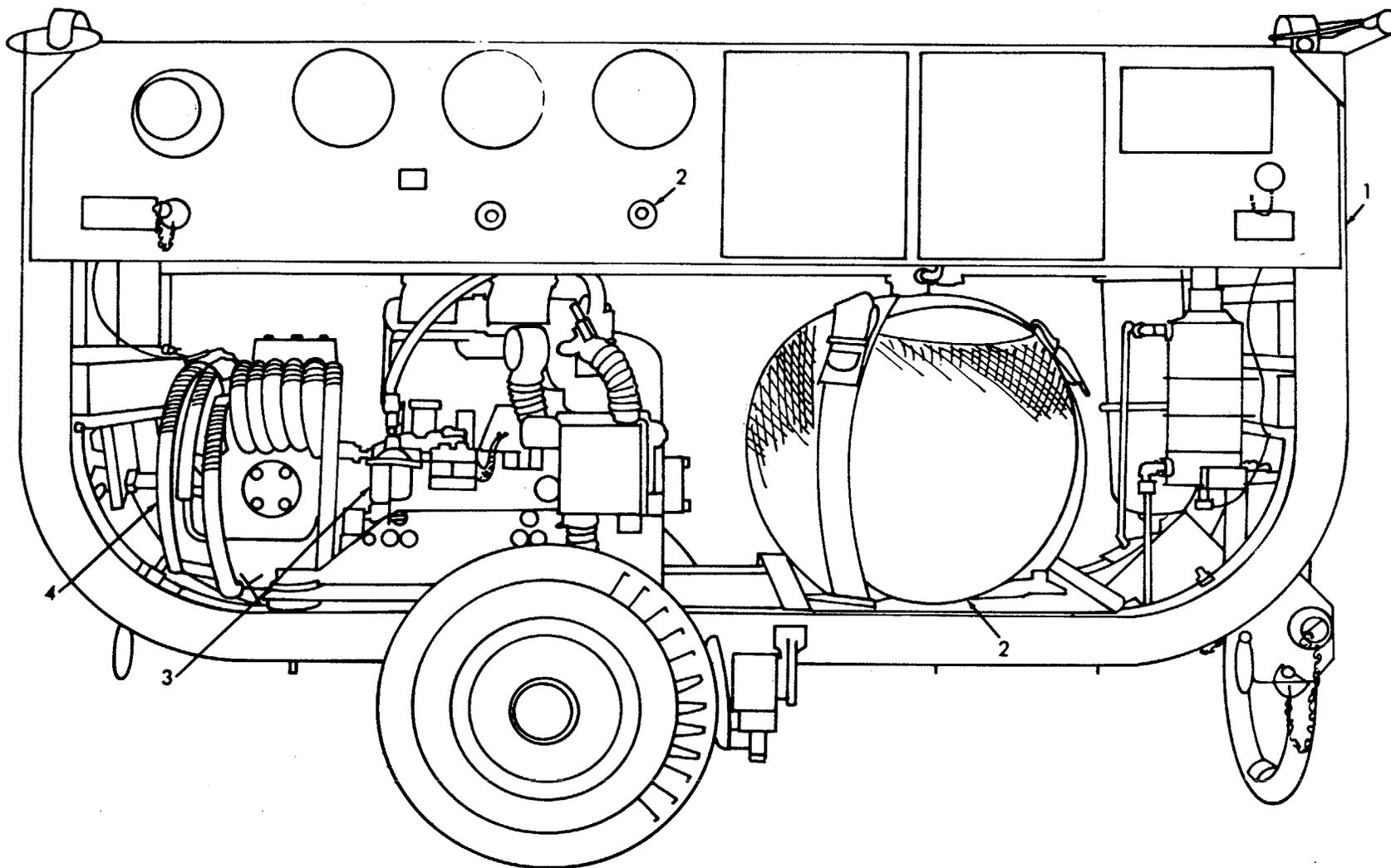
c. Establish a fire plan and provide adequate firefighting equipment and personnel.

d. For further information refer to TM 740-90-1 (Administrative Storage of Equipment).

Section II. DESCRIPTION AND DATA

1-6. Description

a. *General.* The air compressor delivers 4.0 scfm compressed air at a delivery pressure of 3000 psig (210.9000 kgs per sq cm) for pneumatic pressure application. The air compressor is completely self-contained and consists of a two-cylinder, four-cycle gasoline engine drive, a four-stage, reciprocating, radial air compressor, all the necessary accessory components required for operation, protection and transportation of the unit. The air compressor consists of the following groups, see figure 1-1.



TS014501

- 1. Frame ay
- 2. Pneumatic accessories

- 3. Gasoline engine
- 4. Compressor/cooler ay

Figure 1-1. Air Compressor
1-2

- (1) Frame assembly
- (2) Gasoline Engine
- (3) Pneumatic accessories
- (4) Compressor/cooler assembly

b. *Frame Assembly.* The frame assembly consists of the pneumatic system mounting frame assembly with wheels and a roof assembly. The frame assembly includes the handle, retractable tow bar and support foot, and lifting and tie-down rings. The roof assembly includes the instrument panel and engine fuel tank brackets. Constructed of square tubular aluminum, the frame assembly provides protection for the pneumatic system and facilitates transportation.

c. *Gasoline Engine.* The gasoline engine is comprised of the engine and those detailed components required to support the gasoline engine, when in operation. The gasoline engine is a four-cycle, two-cylinder power plant which provides 3.75 horsepower at 3600 rpm using unleaded gasoline as the combustion medium. An integral sump provides lubrication for the engine. The engine is Government Furnished Equipment.

d. *Pneumatic Accessories.* The pneumatic accessories consists of those detailed components used to support the air compressor assembly group in the pneumatic system, during operation. This group includes the pressure regulator, gages, sphere, moisture separator, dehydrator housing and cartridge, check valve filter, shut-off valves, back pressure valve, unloader valve, hoses and required fittings.

e. *Compressor/Cooler Assembly.* The compressor/cooler assembly consists of those component parts directly used to produce and cool the high pressure compressed air. The component parts are the compressor, the intercoolers, aftercooler, interstage relief valves, fan and inlet filter. The compressor is a four-stage radial reciprocating compressor with an operating pressure of 3,000 pounds per square inch (210.9 kgs per sq cm) rotating at a maximum speed of 3600 revolutions per minute, in the surrounding temperature range of -25°F. (-32°C) to +125°F. (25°C).

f. A complete description, of applicable parts oriented to specific maintenance, of each group is contained in the section in this manual covering the maintenance for each group. For purposes of orientation, the tow bar end of the ground cart will be considered as the "front". The term "left" or "right" will be used in reference to the unit while viewing the unit from the "front" end.

1-7. Differences in Models

This manual covers only the Walter Kidde air compressor.

1-8. Tabulated Data

a. Compressor Specifications.

Length, overall (tow bar stowed)	54 in.	absolute, surrounding temperature of +60°F(16°C) and a speed of 3600 rpm
	(137.16 cm)	
(tow bar extended)	78 in.	Temperature range (operating) -25°F- +125OF (-32 °C) - (52 °C)
	(198.12 cm)	Temperature range (storage) 65 ° F-+160 ° F (-54 °C) - (72 °)
Width, overall	26 in.	Lubrication Pressure feed
	(66.64 cm)	Lubricating oil MIL-L-6085A, use following Formulation only:
Height, overall	34 in.	
	(85.36 cm)	
Weight, dry (max.)	249 lb.	
	112.95 kgm)	

b. Compressor.

Type	Reciprocating, radial	401D manufactured by Lehigh Chemical Products Co., Formulation L245X manufactured by Anderson Oil Company, NSN 9150-00-753-4667 or equivalent
Stages	4	
Cylinders	4	
Bores:		
1st stage	2.625 in. (6.67 cm)	Oil sump capacity 3/4 pint approx. (.355 liter)
2nd stage	1.250 in. (3.18 cm)	Inlet air filter 40 micron
3rd stage	0.625 in. (1.59 cm)	c.. Moisture Separator.
4th stage	0.300 in. (.76 cm)	Operating pressure 3300 psi (232 kgs per sq cm)
Stroke	0.750 in. (1.91 cm)	Proof pressure 4950 psi (348 kgs per sq cm)
Rotation (facing fan end)	Counterclockwise	Minimum burst pressure 8250 psi (580 kgs per sq cm)
Speed (rated)	3600 rpm max.	Minimum accumulated water capacity 13.5 cu. in. (221.26 cc)
Operating pressure	3,000 psi (210.93 kgs per sq cm)	
Capacity	4.0 scfm with an inlet condition of 29.92 in. Mercury	

Temperature range.....	-66°F to +160°F (-54°C) - (71°C)
Dump	Timer controlled (automatic at compressor stop)
<i>d. Relief Valves.</i>	
Type.....	Spring loaded
1st stage.....	Open 100 psi, close 85 (7.03 kgs per sq cm) - (.5976 kgs per sq cm)
2nd stage.....	Open 425 psi, close 300 psi (3.30 kgs per sq cm) - (21.09 kgs per sq cm)
3rd stage	Open 1350 psi, close 1150 psi (94.90 kgs per sq cm) - (80.85 kgs per sq cm)
4th stage.....	Open 3900 psi, close 3450 psi (274.17 kgs per sq cm) - (242.54 kgs per sq cm)
Sphere.....	Open 3900 psi, close 3450 psi (274.17 kgs per sq cm) - (242.54 kgs per sq cm)
Unloader.....	Open 3200 psi, close 2800 psi (224.96 kgs per sq cm) - (196.84 kgs per sq cm)
<i>e. Back Pressure Valve.</i>	
Back pressure setting	1750 psi + 125 psi (123.03 kgs per sq cm) - (8.79 kgs per sq cm)
<i>f. Sphere.</i>	
Service pressure.....	3000 psi (210.93 kgs per sq cm)
Burst pressure	6667 psi (468.68 kgs per sq cm)
<i>g. Dehydrator.</i>	
Type.....	Silica Gel
Capability	Reduced compressed air dew point to -65°F at 100°F (-51°C) - (38°C) saturated inlet air conditions NSN 4440-00-580-7293
Cartridge	
<i>h. Regulator.</i>	
Temperature range.....	-65°F to + 160°F (-54°C) - (71°C)
Operating pressure:	
Inlet	3750 psi (263.63 kgs per sq cm)
Outlet	0 to 3500 psi (246.05 kgs per sq cm)
Proof pressure	5840 psi (410.55 kgs per sq cm)
<i>i. Gasoline Engine.</i>	
Cylinder	2
Cycles	4
Hp (max.)	3.75 at 3600 rpm
Fuel.....	Unleaded gasoline, Type II, MILG-3056C
Model	Military Standard 2A-016 - III
GFE.....	NSN 2805-00-072-4871
<i>j. Fuel Capacity.....</i>	
	3 gallons

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. OPERATING PROCEDURES

WARNING

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

2-1. General

The location and purpose of the controls and instruments used during operation of the pneumatic system are included in this section.

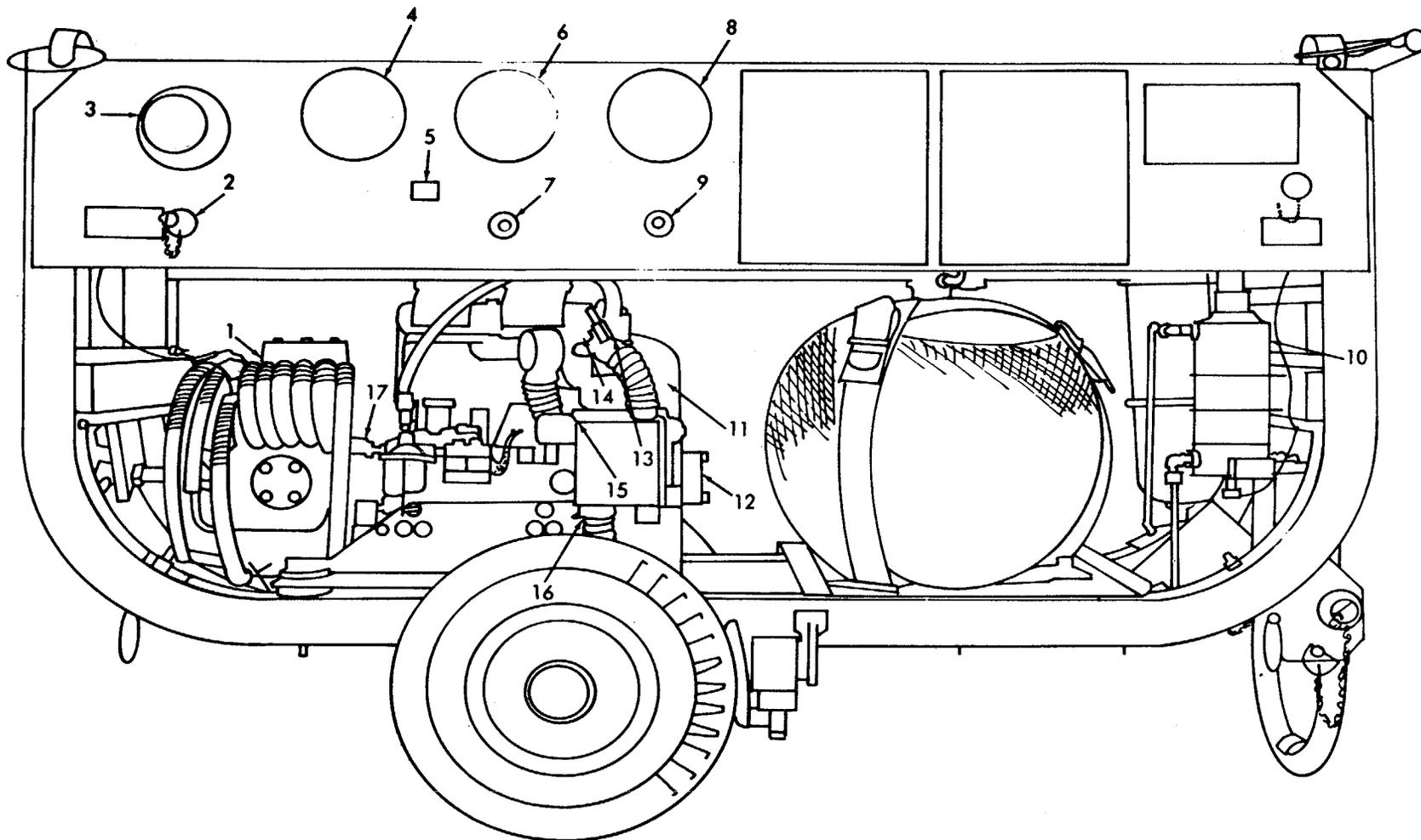
2-2. Controls

See Figures 2-1 and 2-2.

- a. *ON-OFF Toggle Switch (11, fig. 2-1).*
 - (1) *Location.* The on-off toggle switch is located on the flywheel housing above the engine air cleaner.
 - (2) *Purpose.* The on-off toggle switch is used to short the electrical system to ground, stopping the engine.
- b. *Fuel Shutoff Valve (17, fig. 2-1).*
 - (1) *Location.* The fuel shutoff valve is located on the fuel strainer housing on the left side of the gasoline engine.
 - (2) *Purpose.* The fuel shutoff valve cuts off the fuel supply from the fuel tank to the engine.
- c. *Pressure Regulator (3, fig. 2-1).*
 - (1) *Location.* The pressure regulator is mounted on the extreme left hand side of the instrument panel.
 - (2) *Purpose.* The pressure regulator is used to control the flow of pressurized air to the container being pressurized.
- d. *Servicing Valve (2, fig. 2-2).*
 - (1) *Location.* The servicing valve is located on the discharge hose assembly.
 - (2) *Purpose.* The servicing valve is used to shut off the delivery air when the container being serviced has reached pressurized capacity.
- e. *Manual Drain Valve (7, fig. 2-1).*
 - (1) *Location.* The manual drain valve is mounted on the instrument panel below the high pressure discharge gage.
 - (2) *Purpose.* The manual drain valve is used to drain the pneumatic system.
- f. *Reservoir By-pass Valve (9, fig. 2-1).*
 - (1) *Location.* The reservoir by-pass valve is mounted on the instrument panel below the reservoir pressure gage.
 - (2) *Purpose.* The reservoir by-pass valve is used to divert pressurized air to the sphere (reservoir) and isolate the sphere from the pneumatic system.
- g. *Starter Pulley (12, fig. 2-1).*
 - (1) *Location.* The starter pulley is located on the front of the gasoline engine, facing the sphere.
 - (2) *Purpose.* The starter pulley is rotated with the starter rope and is used to start the gasoline engine.

2-3. Instruments (Figure 2-1)

- a. *Reservoir Pressure Gage (8).*
 - (1) *Location.* The reservoir pressure gage is mounted on the instrument panel above the reservoir by-pass valve.
 - (2) *Purpose.* The receiver pressure gage indicates the accumulated pressure in the sphere and sphere to regulator line.
- b. *High Discharge Pressure Gage (6).*
 - (1) *Location.* The high discharge pressure gage is mounted on the instrument panel to the left of the receiver pressure gage.
 - (2) *Purpose.* The high pressure discharge gage indicates the pressure of the compressed air being supplied to the unit being serviced.
- c. *Low Discharge Pressure Gage (4).*
 - (1) *Location.* The low discharge pressure gage is mounted on the instrument panel between the high discharge pressure gage and the regulator.
 - (2) *Purpose.* The low discharge pressure



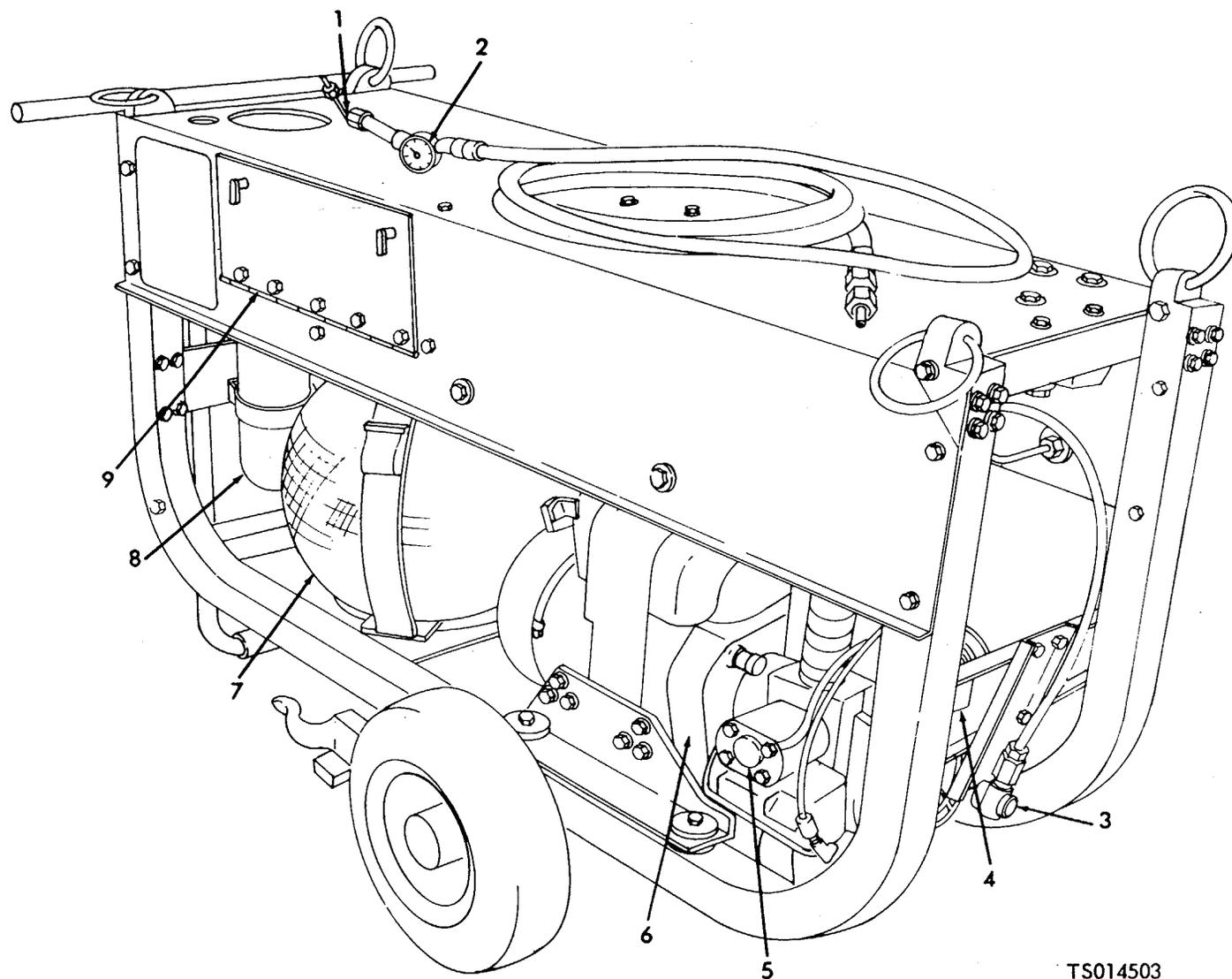
- 1. Compressor air inlet filter
- 2. Servicing connector
- 3. Pressure regulator
- 4. Low discharge pressure gage
- 5. Hourmeter
- 6. High discharge pressure gage

- 7. Manual drain valve
- 8. Reservoir pressure gage
- 9. Reservoir by-pass valve
- 10. Moisture separator
- 11. On-off toggle switch
(not visible)

- 12. Starter Pulley
- 13. Engine choke lever
- 14. Engine throttle
(not visible)
- 15. Engine temperature control
- 16. Engine air filter
- 17. Fuel shutoff valve

TS014502

Figure 2-1. Air Compressor, right hand view.



TS014503

- | | | | | |
|--------------------|----------------------|-------------------------------|---------------|------------------------|
| 1. Charging chuck | 3. Right angle drive | 5. Compressor/cooler assembly | 7. Sphere | 9. Storage compartment |
| 2. Servicing valve | 4. Lubrication plate | 6. Engine | 8. Dehydrator | |

Figure 2-2. Air compressor, three-quarter rear view
2-3

gauge indicates the delivery pressure below 600 psi (42.1800 kgs per sq cm).

d. *Hourmeter (5).*

(1) *Location.* The hourmeter is mounted on the instrument panel below and between the high and the low discharge pressure gauges.

(2) *Purpose.* The hourmeter through a shafting arrangement indicates the proportional hours of operation for periodic maintenance and surveillance purposes.

Section II. OPERATION OF AUXILIARY EQUIPMENT

2-4. General

The dry chemical type fire extinguisher is suitable for use on all types of fire and is effective in areas where ambient temperature is 25°F (-40°C) and above. If winterized the fire extinguisher may be used in temperatures below -25°F. (-32°C).

2-5. Operation

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

Section III. OPERATION UNDER USUAL CONDITIONS

2-6. General

This section contains instructions for operating the air compressor under usual conditions of climate and service. Usual conditions are considered to be operation in warm weather (50°F) (10°C) or above.

2-7. Starting Engine

a. *Before-Operation Service.* Before starting the engine, perform before-operating services as follow:

(1) *Visual Inspection.* Inspect the compressed air and oil lines for loose connections or leakage. Tighten loose air connections. Inspect for loose bolts and nuts and tighten as necessary. Inspect to see that no object obstructs moving parts to prevent damage.

(2) *Lubricants.* Check oil level in the oil sump. Add oil as necessary. Check lubricant reserve and replenish as required. Lubricate angle drive every 300 hours.

(3) *Fuel.* Check level of gasoline in fuel tank. Fill tank, as required.

(4) *Intercoolers, Aftercoolers and Fan.* Inspect cooling tubes for distortion, dents and loose connections. Check the fan for dents, bends, looseness or other defects.

b. *Starting the Engine.*

(1) Set engine inlet temperature control (15, fig. 2-1). See legend on filter.

(2) Close the pressure regulator (3) and the manual drain valve (7). Open the reservoir by-pass valve (9).

(3) Open the fuel shutoff valve (17, fig. 2-1) and position the on-off toggle switch (11) to ON.

(4) Move the engine choke lever (13) to CHOKE and the throttle (14) to GOVERN.

(5) Crank engine once with the starter rope to prime the fuel system.

(6) Open the choke to about halfway and repeat cranking. When engine starts, open the choke fully.

(7) Repeat the starting procedure if necessary.

2-8. Operation

a. *General.* The air compressor contains all fittings and charging hoses required for connecting the air compressor to the unit being serviced.

WARNING

Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment during operation of the compressor or when the system is under pressure. Do not tamper with any pressure relief valves.

b. *Compressor, Operation.* The gasoline engine is directly coupled to the air compressor, therefore, starting the gasoline engine also starts air compressor.

c. *Reservoir Charge Operation.*

- (1) Close the pressure regulator.
- (2) Open air reservoir bypass valve.
- (3) Start engine and observe the reservoir pressure gage.
- (4) Stop engine when pressure indicated on gage reaches 3000 psi (210.93 kgs per sq cm).
- (5) Close air reservoir by-pass valve.

d. *Pneumatic System Service From Sphere.*

- (1) Connect servicing hose assembly to system being serviced, then to compressor air-out disconnect.
- (2) Open reservoir by-pass valve.
- (3) Close the discharge line service valve and adjust regulator to required pressure (indicated on the high or low outlet pressure gage).
- (4) Charge pneumatic system being serviced by opening service valve and valve in pneumatic system being used. Shut system valve when the system has been charged.
- (5) Back off the pressure regulator.
- (6) Disconnect charging hose assembly and store.
- (7) Close air reservoir by-pass valve.

e. *Pneumatic System Service By-passing Air Reservoir.*

- (1) Connect servicing hose assembly to system being serviced, then to compressor air-out disconnect.
- (2) Start engine.
- (3) Close the discharge line service valve and adjust regulator to required pressure (indicated on the high or low outlet pressure gage).
- (4) Charge pneumatic system being serviced by opening service valve and valve in pneumatic system being used. Shut system valve when the system has been charged.
- (5) Back off the pressure regulator.
- (6) Disconnect charging hose assembly and store.
- (7) Stop engine.

WARNING

Confine compressor discharge pressure on low and high pressure within specified operating limits.

2-9. Stopping Engine

Move on-off toggle switch to OFF to stop engine and compressor operation. Close fuel valve on gasoline filter.

NOTE

If the engine is to stand for a long period drain fuel tank after stopping engine, then, drain carburetor.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS**2-10. General**

This section covers special instructions for the operator for operating and servicing the air compressor cart in areas where extremes in temperature and humidity and adverse conditions are encountered. These instructions supplement the instructions supplied for usual operating conditions.

2-11. Operation in Extreme Cold

a. *Temperature Range and Problems.* In extremely cold temperature (to -25°F) (-32°C), lubrication thickens and congeals and fuels refuse to vaporize making starting difficult. Lubricate engine in accordance with current lubrication order LO 5-2805-257-12.

b. *Starting in Extreme Cold.* Keep fuel tank filled at all times to prevent condensation. Drain and service fuel filter more frequently than under normal conditions. Start the engine and compressor in extremely cold temperatures as follows:

- (1) Connect the electrical heater in the moisture separator to a 28 vdc power source for 1/2 hour prior to starting engine. A cannon-type plug on the instrument panel is provided for this connection.
- (2) Use Type II gasoline in accordance with MIIIG-3056C.
- (3) Starting the engine:
 - (a) Set engine inlet temperature control (15, fig. 2-1). See legend on filter.
 - (b) Close the pressure regulator (3) and the manual drain valve (7). Open the reservoir by-pass valve (9).
 - (c) Open the fuel shutoff valve (17, fig. 2-1) and position the on-off toggle switch (11) to ON.
 - (d) Move the engine choke lever (13) to CHOKE and the throttle (14) to GOVERN.
- (4) Use an external heat generator to preheat the engine and compressor.
- (5) Direct heat across the engine crankcase from the muffler side of the engine, then, direct the heat over the compressor stages and oil sump.

Perform this treatment while trying to slowly turn the engine by pulling on the starter rope. Continue heating until the engine turns freely.

(6) With the engine free turning, direct the heat for one-half minute on the engine cylinder near the exhaust outlet, then, immediately pull on the starter rope to start the engine. Repeat until the engine starts. If the engine does not start in five turns repeat the procedure.

(7) After the engine is started and warmed up, open the choke fully.

(8) If the compressor relief valve(s) pop, direct the heat over the intercooler and after-cooler tubing, exercising care not to apply excessive heat near the nylon control oil tubing.

c. Protection of the Compressor.

(1) General. Store the air compressor in a sheltered, enclosed or if possible heated area. Remove snow, ice, mud or any other encumbrance from all parts of the unit as soon as possible before and after operation. Drain fuel from fuel tank and carburetor if the unit is to be idled for a long period.

(2) Lubrication. Damage to the air compressor during cold weather operation most often occurs due to improper circulation of the thickened oil. Engine lubricants prescribed for use below 10°F (-12°C) will provide satisfactory engine lubrication for the lowest anticipated temperatures. Refer to LO 5-2805-257-12. No load operation should be carried out at the lower engine speed, until the engine and compressor have warmed up.

(3) Fueling. Fill fuel tank in preparation for use and to minimize moisture condensation immediately after completion of unit operation.

2-12. Operation Under Sandy or Dusty Conditions

a. Cleaning. Clean the engine and compressor thoroughly after each operation. Clean engine and compressor air inlet filters as required to maintain efficient operation. Service the engine air cleaner when the red signal reaches the service level, proceeding as follows:

(1) Loosen and remove all mounting hardware.

(2) Wipe out the inside of the air cleaner cover and body with a clean rag.

(3) Remove the element from the air cleaner body and blow it out with compressed air from the clean side to the dirty side.

b. Fueling. Exercise care when filling engine fuel tank and compressor oil sump. Make certain that no sand, dirt or dust enters the fuel tank or oil sump. Clean the engine fuel tank filter and the oil sump strainer as required to maintain efficient operation and to minimize wear or damage to the unit.

c. Protection of the Compressor. Store the unit in a sheltered or enclosed area.

2-13. Operation in Salt Water Areas

a. Operation. Avoid operating the compressor in exposed areas. Provide shelter from salt spray. Keep manuals in protected storage.

b. Cleaning. Wash the compressor with fresh water to remove residual salt. Wipe dry with clean lint-free cloth. Clean compressor and gasoline engine air filters as required to maintain efficient operation. For engine air cleaner service, see paragraph 2-12a.

c. Fueling. Exercise care when filling engine fuel tank or oil sumps to prevent salt water from contaminating fuel or lubricant. Clean the engine fuel tank filter and oil sump strainer as required to maintain efficient operation.

d. Protection of the Compressor. Touch up all exposed areas with olive drab paint, MIL-C-704 to minimize salt corrosion. Store the unit in a sheltered or enclosed area.

2-14. Operation at High Altitude

a. Operation. Check that compressor air inlet filter is clean to ensure adequate inlet air supply.

b. Operation in Extreme Cold. If operation is conducted at extremely cold temperatures, refer to paragraph 2-11 for cold weather operating instructions.

2-15. Operation in Extreme Heat

a. Operation. Check that the compressor air inlet filter is clean to ensure an adequate air inlet supply. Inspect intercoolers and aftercooler for bent fins or obstruction which might impede the flow of cooling air to the compressor and engine. Check oil sumps for adequate lubricant to prevent overheating. If humidity is excessive, replace dehydrator cartridge more frequently than under usual conditions.

b. Cleaning. Wipe down compressor and engine after each operation with clean cloth to remove dirt and moisture.

c. Fueling. Exercise care when filling engine fuel tank to prevent moisture from entering fuel supply tank. Clean the engine filter at shorter intervals than usual to eliminate condensed moisture from fuel supply.

d. Protection of the Compressor. Touch up all exposed areas with olive drab paint MIL-C-704 to prevent corrosion caused by humidity. Store the compressor in a dry sheltered or enclosed area. Ensure that manuals are protected from mildew and rot.

CHAPTER 3 OPERATOR'S MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

3-1. General Lubrication Information

Refer to LO 5-2805-257-12 for engine lubrication and LO 5-4310-335-12 for compressor lubrication.

- a. After each day's operation, check the oil level in the compressor oil sump with the dipstick and if required, add compressor oil until sump is up to full mark.
- b. Drain and refill the compressor crankcase after 200 hours of operation under normal conditions.
- c. The time intervals are for normal operating usage. Reduce the time intervals under extreme operating conditions, such as excessively high or low temperatures, prolonged operating periods, operation in sand or dust or immersion in water.
- d. Lubricate the right angle drive at the rear of the cart every 300 hours with grease per MILG-10924C. Wipe fitting with clean cloth before lubricating. Note and record the hour-meter reading at the time of lubrication, on the lubrication plate.

3-2. Detailed Lubricating Information.

- a. Care of Lubricant. Do not allow lubricant to become contaminated. Make sure that all lubricant containers are tightly closed when not in use.
- b. Cleaning. Before lubricating, clean oil holes and surrounding area with a lint-free cloth prior to lubricating.
- c. Lubrication Points and Application. See figure 3-1 for Lubrication Chart. Fill sump with recommended compressor lubricating oil, using formulation only: Formulation 401D manufactured by Lehigh Chemical Products Co., Formulation L245X manufactured by Anderson Oil Company, NSN 9150-00-753-4667 or equivalent.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

3-3. General

The operator of the air compressor is to perform regular preventive maintenance services to insure proper operation and lessen the possibility of mechanical failure of the compressor. The services are to be performed before, during and after operation and at regularly scheduled intervals. Maintenance -services are based on normal operating usage and may be reduced or extended depending on operating conditions.

3-4. Preventive Maintenance Checks and Services

Refer to Table 3-1 for the preventive maintenance checks and services.

Section III. TROUBLESHOOTING

3-5. General

- a. This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the compressor. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help to determine probable causes and corrective action to be taken. 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 action. If a malfunction is not listed or is not corrected by tested corrective actions, notify your supervisor.

3-6. Operator Maintenance Troubleshooting

Refer to Table 3-2 for troubleshooting pertaining to operator's maintenance.

LUBRICATION

ORDER

L05-4310-335-12

**COMPRESSOR, RECIPROCATING AIR, WHEEL MOUNTED, 2 WHEEL,
PNEUMATIC TIRES, G.E.D. 4 CFM, 3000 PSI,
(WALTER KIDDE MODEL 893811)**

Reference: L05-2805-257-12, and C9100-1L

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

Clean fittings before lubricating.

Relubricate after washing.

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

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

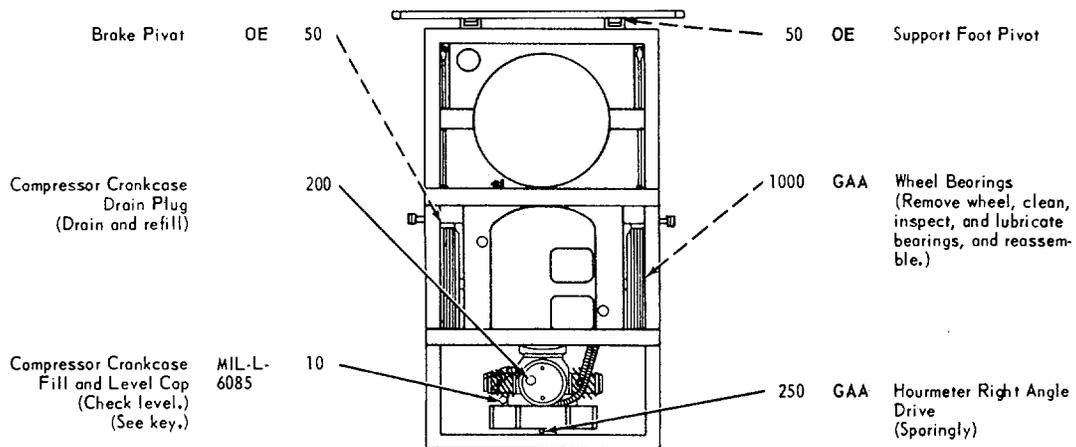
Drain crankcase when hot. Fill and check level.

FOLD

FOLD

LUBRICANT ● INTERVAL

INTERVAL ● LUBRICANT



TS014504

Figure 3-1. Compressor Lubrication Chart (sheet 1 of 2).

-KEY-

LUBRICANTS	CAPACITY	ALL TEMPERATURES	INTERVALS
OE-OIL, Engine, Heavy Duty		OE 30	Intervals given are in hours of normal operation.
Oil Can Points			
MIL-L-6085-LUBRICATING OIL		FSN 9150-753-4667	
Compressor crankcase	3/4 pt		
GAA-GREASE Automotive & Artillery			

NOTE:

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

OE-MIL-L-2104 GAA-MIL-G-10924
 OAI-MIL-L-6085

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

BY ORDER OF THE SECRETARY OF THE ARMY:

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

OFFICIAL:

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

2. OIL CAN POINTS. Every 50 hours lubricate brake pivot points, support foot pivot, control linkage and all exposed adjusting threads with OE.

FOLD

FOLD

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Figure 3-1. Compressor Lubrication Chart (sheet 2 of 2).

Table 3-1. Preventive Maintenance Checks and Services

B - Before Operation			D - During Operation	A - After Operation	WORK TIME (M/H)
INTERVAL AND SEQUENCE NO.			ITEM TO BE INSPECTED PROCEDURE		
B	D	A			
1			VISUAL INSPECTION Inspect the compressed air and oil lines for loose connections or leakage. Tighten loose air connections. Inspect for loose bolts and nuts to tighten as necessary. Inspect to see that no object obstructs moving parts to prevent damage.	0.2	
2			LUBRICANTS Check oil level in the oil sump using a dip stick. Add oil as necessary. Check lubricant reserve and replenish as required. Lubricate angle drive every 300 hours.	0.1	
3			FUEL Check level of gasoline in fuel tank. Fill tank as required.	0.1	
4			INTERCOOLERS, AFTERCOOLER AND FAN Inspect cooling tubes for distortion, dents and loose connections. Check the fan for dents, bends, looseness or other defects. Correct all defects that impair operation.	0.1	
	5		Monitor the air compressor continuously during operation. Observe any loose fittings or developed leakage. Check for leakage at the control oil tube (nylon) connectors. Report all defects beyond the scope of operator's maintenance for subsequent maintenance action, identifying type and location of defect or deficiency.	0.2	
	6		UNUSUAL NOISES In particular, any development of noise from normal operation must be singled out for investigation. If the noise is severe, or if the defect is detected and considered detrimental to the unit, stop operation immediately and correct the cause.	0.2	
	7		UNUSUAL OPERATION Detect any vibration, over-heating smoking or any other cause that would indicate a deviation from acceptable normal operation. Locate and correct the cause. If the cause of unusual operation cannot be corrected, shut down the compressor for subsequent maintenance action.	0.1	
	8		VISUAL INSPECTIONS Inspect the air compressor for any obvious signs of damage, looseness of wear. Tighten all loose nuts or bolts. Check for leakage at the control oil tube (nylon) connectors.	0.1	
	9		PROTECTION Store the compressor in a sheltered or enclosed area. Secure the air compressor in position using the supplied frame assembly tie-down rings as required.	0.1	

Table 3-2. TROUBLESHOOTING

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE FAILS TO START OR IS HARD TO START	<p><i>Step 1.</i> Visually or using a suitable measuring device, check to see if there is fuel in the fuel tank. Replenish the fuel supply by filling the fuel tank (3 gallon capacity) with unleaded gasoline, type If, MIL-G-3056C. If the engine still fails or is hard to start, go to step 2.</p> <p><i>Step 2.</i> Inspect for a dirty air filter. The engine air filter requires service when the red signal reaches the service level. Clean the air filter as follows:</p>	<p>a. Loosen and remove all mounting hardware.</p> <p>b. Wipe out the inside of the air cleaner cover and body with a lint-free cloth.</p> <p>c. Remove the element from the air cleaner body and blow it out with compressed air from the clean side to the dirty side.</p> <p>d. Replace the element in the air cleaner body.</p> <p>e. Install and tighten all mounting hardware.</p>
2. ENGINE STARTS BUT FAILS TO CONTINUE RUNNING	<p>Visually or using a suitable measuring device, check to see if there is a sufficient fuel supply. Replenish the fuel supply by filling the fuel tank (3 gallon capacity) with unleaded gasoline, type II, MIL-C-3056C as required.</p>	
3. LOW FLOW OR LONG PUMP TIME	<p>Visually inspect the compressor for leaking fittings or loose air connections. Tighten any leaking fitting or loose connections. If the leak continues after tightening then refer to organizational maintenance.</p>	
4. INSUFFICIENT SPEED AND OVERHEATING (COMPRESSOR)	<p><i>Step 1.</i> Check oil level either with the .dip stick or by visually inspecting the sight gage. Bring oil to its correct level by adding oil</p> <p><i>Step 2.</i> Inspect intercooler for bent fins or any obstruction that may prevent flow of cooling air. Straighten bent fins and remove any obstructions.</p>	

CHAPTER 4 ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

4-1. Inspecting and Servicing the Equipment

- a. General.** New compressors that are processed to meet military requirements for domestic and overseas shipment make necessary the performance of certain services before the unit is placed in operation.
- b. Unpacking.**
 - (1) Unpack the unit as close as possible to where it will be used.
 - (2) Cut the steel straps and lift the top of the wooden crate from the base.
 - (3) Remove the dust protection wrapping from the air compressor.
 - (4) Remove the anchor ties from the air compressor tie-down rings.
 - (5) Wheel the air compressor from the mounting base of the shipping crate.
 - (6) Remove the technical manuals from storage compartment.
 - (7) Fill the fuel tank with unleaded gasoline, Type II, MIL-G-3056C.
 - (8) Fill the compressor and engine oil sumps with the proper lubricating oil. Rotate the engine by hand several times to circulate the lubricating oil in the compressor.

Section II. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

4-2. Tools and Equipment

Tools, equipment and repair parts issued with or authorized for the air compressor are listed in TM 5-4310-335-34P and for the engines are listed in TM 5-2805-257-24P.

4-3. Special Tools and Equipment

No special equipment or tools are required by organizational maintenance personnel for performing maintenance on the pumping unit.

4-4. Maintenance Repair Parts

Repair parts and equipment are listed and illustrated in TM 5-4310-335-20P.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-5. General

The maintenance instructions included in this section apply to organizational maintenance personnel responsible for the air compressor ground cart. Preventive maintenance services herein are aimed at detecting the first signs of component failure and taking the appropriate corrective action in order to minimize expensive repair or replacement and time-consuming maintenance activity. Institute corrective action as described in Table 4-1. Direct maintenance activity beyond the scope of organizational maintenance to direct support field maintenance.

4-6. Preventive Maintenance Checks and Services

The necessary preventive maintenance checks and services to be performed are listed in Table 4-1. The item numbers indicate the sequence of minimum inspection requirements. A quarterly interval is equal to 250 hours of operation or 3 calendar months, whichever occurs first.

Table 4-1. Organizational Preventive Maintenance Checks and Services

B - Before Operation	D - During Operation	A - After Operation	
SEQUENCE NUMBER	ITEM TO BE INSPECTED PROCEDURE		WORK TIME (M/H)
1	BEFORE-OPERATION SERVICES Check and perform the services listed in daily before-operation services.		0.1
2	LUBRICATION Inspect the unit for missing or damaged lubrication fittings and for signs of insufficient lubrication. Correct deficiencies noticed.		0.5
3	PUBLICATION See that all manuals and instructions pertaining to the air compressor cart are available, legible and in satisfactory condition. Keep the manuals in the duck cloth bag when not in use.		0.1
4	MOUNTING Inspect all major components for secure and acceptable mounting hardware. Tighten all loose nuts or bolts, reject and replace any cracked, broken, stripped or defective mounting component.		0.3
5	FRAME ASSEMBLY GROUP Inspect the frame assembly group for satisfactory condition. Check the wheels for proper lubrication by rotating wheels and listening for quiet wheel bearing action. Lack of lubrication or defective bearings will be detected by bearing noise. check the wheels for proper tire inflation pressure using a tire pressure gauge. The tire pressure should be approximately 20 psi (1.406 kgs/sq cm) when towing the air compressor at 5 mph (8.046 km/hr) on a macadam surface. Reference LO 5-4310-335-12 for wheel bearing lubrication.		0.5
6	GASOLINE ENGINE GROUP Inspect the condition of the fuel tank after draining and cleaning. Inspect the fuel tank cap and fuel tank to filter hose for damage. Tighten any loose connections. Refill fuel tank with proper fuel. Check spark plugs and electrical wiring for cracks, damage or other defects.		0.5
7	PNEUMATIC SYSTEM ACCESSORIES Check the various components of the pneumatic system accessories group for tightness of fit and secureness of clamping. Tighten and secure any loose fittings or component. Inspect the pressure gages located on the instrument panel of the frame assembly for pressure indication on zero position. Inspect and replace if necessary, the moisture separator and sphere safety cap tape. Inspect the air reservoir pad, replace if necessary. Check the service hose, chuck and female quick disconnect, replace defective components.		0.5
8	COMPRESSOR/COOLER ASSEMBLY Check the air compressor intercoolers and aftercoolers for secureness of fitting and clamping. Tighten fittings and clamps. Check all tubing for deformation and damage. Inspect the inlet air filter for dirt, clogging and damage. Replace inlet air filter if necessary. Check the lubricating oil for grit, dirt and contamination, replace if necessary. Inspect the dipstick and replace if necessary.		0.5

Section IV. TROUBLESHOOTING

4-7. General

a. This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the air compressor. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help to determine probable causes and corrective action to be taken. Perform the tests/inspections and corrective 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 action, see your supervisor.

4-8. Organizational Maintenance Troubleshooting

Refer to table 4-2 for Troubleshooting pertaining to Organizational Maintenance.

Table 4-2. TROUBLESHOOTING

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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1. ENGINE FAILS TO START

Step 1. Check to see If there is fuel in tank.

If fuel tank is empty, refill tank. If engine still fails to start, go to, step 2.

Step 2. Check the service indicator first. If it shows in the red then remove air cleaner element. If engine starts, air cleaner needs servicing. If engine still falls to start, go to Step 3.

WARNING

Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (590C).

Service the air cleaner as follows:

- a. Replace or clean element when restrictive indicator changes to "Red."
- b. Loosen the two retaining bolts connecting air cleaner cover to the body.
- c. Remove cover and element from body.
- d. To clean filter element, blow from clean to dirty side or wash in detergent and water.
- e. Do not use gasoline or other detergent.
- f. Use care when cleaning filter. Do not puncture filter.
- g. Turn wing bolts one quarter turn to tighten. Do not use wrench.

NOTE

Do not wash element in a cleaning solvent.

h. Reinstall element and tighten retaining bolts .

Step 3. Inspect Ignition system. The order of inspection is as follows:

- a. Inspect spark plugs cables for stripped threads, damaged insulation or short. Replace a damaged spark plug cable.
- b. Clean spark plugs for insecure insulation, carbon build-up or cracked porcelain. Clean spark plug and set gap to 0.030 in. plus or minus 0.002 in. Replace a damaged spark plug.
- c. Test the ignition switch in the "ON" and "OFF" position. A continuity light can be used to test the switch.

Disconnect the two wires to the switch. Place switch in the "ON" position and attach test light clips to the contacts on switch. If a switch lights, switch is good. Replace a defective switch.

Breaker point assembly adjustment.

- a. Remove breaker point cover assembly.
- b. Adjustment of the breaker points is as follows:
 - (1) Rotate engine flywheel until the cam follower of the lower contact assembly is positioned on the highest point of the ignition cam.
 - (2) Measure the point gap with a feeler gage. The proper gap is 0.018. If gap is more or less than 0.018 adjustment is necessary.
 - (3) Loosen the screw (2) that secure the stationary plate and move the stationary plate until the desired 0.018 inch gap is reached.
 - (4) Tighten screws. reverse gap and adjust if necessary.
 - (5) Rotate the engine flywheel to turn the ignition ram 180° and adjust the upper contact assembly in a similar manner.
- c. Ignition timing instructions are a follows:

Table 4-2. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		<ol style="list-style-type: none"> (1) Remove breaker point cover assembly. Inspect point gap and adjust if necessary. (2) Loosen screw and slide timing hold cover to expose timing marks on flywheel. (3) Remove rocker arm cover nearest flywheel. (4) Rotate flywheel counterclockwise and observe intake valve and rocker arm continue to rotate flywheel until valve closes, and stop when the ignition mark on the flywheel is aligned with pointer. (5) If points of breaker point assembly are not just beginning to open, the ignition cam must be reset on the lower breaker point assembly. (6) Loosen the screw and rotate the ignition cam counterclockwise until points begin to open. Then tighten screw. (7) Install rocker arm cover. Install breaker point cover assembly and close timing hole cover. Tighten screw. <p>d. If spark plug cables require replacement, loosen connector nut on each end of cable, remove and replace cable. If spark plug needs replacing, remove spark plug. Before installation of new spark plug measure the electrode gap with a wire or leaf thickness gage. A slight drag should be felt, when monitoring the correct measurement. The desired clearance is 0.028 to 0.033 Inch. Adjust the gap by bending the outside electrode until the gap is properly set.</p> <p>e. If the ignition switch is defective or damaged, replace it, as follows:</p> <ol style="list-style-type: none"> (1) Tag and disconnect electrical leads. (2) Remove nut front outside of flywheel fan cover and push switch through cover. (3) Remove ignition switch.
	If engine still fails to start, go to Step 4.	
	<i>Step 4.</i>	<p>Check fuel filter to see if it is clogged or filter element is dirty. Remove outlet line from the filter to check flow of fuel. If no fuel or a very small flow of fuel is noticed at the outlet side of the filter, remove and clean the fuel filter. If fuel flow is sufficient, go on to Step 5.</p>
		WARNING
		<p>Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (59°C).</p> <ol style="list-style-type: none"> a. To remove and clean the fuel filter, shut off fuel at top of filter then loosen thumbscrew holding bowl to the filter, swing the ball to one side and remove the bowl. Remove and clean the filter in an approved cleaning solvent. Inspect the gasket and replace the fuel filter if necessary. b. After cleaning install the gasket firmly into the filter head. Install clean filter element and then install the bowl. Swing bail under bowl and tighten thumbscrew. Turn on fuel. Check for leaks.
	<i>Step 5.</i>	<p>Remove fuel line from fuel pump to carburetor. Turn engine over using the starting rope. If fuel flow is coming out of the fuel pump in a steady spurt, go on to step 6. If no fuel is seen coming out or a weak flow is noticed, remove and repair or replace the fuel, pump. Disconnect fuel line and blow out line with compressed air.</p>
		WARNING
		<p>Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (59°C).</p> <ol style="list-style-type: none"> a. Remove the fuel pump, first disconnect the fuel lines. Remove two screws that attach fuel pump to engine. Remove fuel pump and discard gasket. b. Clean with an approved cleaning solvent and dry thoroughly. Inspect body for cracks, breaks, evidence of leakage and stripped or damaged threads. Inspect plunger arm for cracks, breaks, distortion and excessive wear. Inspect spring for cracks, breaks, or distortion, Test fuel pump for proper operation by holding fuel pump and work plunger arm up and down. By holding a finger lightly over the inlet side of the pump, you should feel a suction. Test pump outlet pressure by attaching a pressure gage to the outlet side of the pump. The pressure reading should be 3.0 to 4.5 psi. Inspect fuel lines and fitting for cracks, breaks, evidence of leakage abnormal bends, dents and stripped threads. Repair or replace any damaged or defective parts.
	<i>Step 6.</i>	<p>Check the carburetor and throttle controls for adjustment. Adjustment is as follows:</p> <ol style="list-style-type: none"> a. With engine stopped, turn main adjustment needle and idle mixture needle fully clockwise to close. b. Turn main adjustment needle three quarters of a turn counterclockwise, and idle mixture needle one-half turn counter clockwise. Start engine and run until warm. Check packing nut for tightness. Tighten as required. c. Apply load and observe engine exhaust. If exhaust is black, close main adjustment needle. If engine misfires or seems low in power, open main adjustment needle until it delivers maximum power with minimum exhaust smoke. d. If engine application has a throttle and speed adjustment, regulate idle mixture in a similar manner. e. Regulate Idle RPM by turning Idle speed regulating screw clockwise or counterclockwise. <p>If adjustment of the carburetor and throttle controls does not resolve the problem, replace the carburetor and/or throttle controls.</p> <ol style="list-style-type: none"> (1) Remove the two screws and remove throttle control housing cover. (2) Remove screw and disconnect throttle lever from shaft.

Table 4-2. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		<ul style="list-style-type: none"> (3) Disconnect fuel line from carburetor. (4) Compress clamp and disconnect governor rod housing from throttle housing. (5) Remove the two nuts and remove carburetor and gasket from intake manifold. (6) Remove the two screws and remove air cleaner duct elbow from carburetor. (7) Remove the two screws and remove the throttle housing. (8) Spread control rod clevis and remove throttle lever. (9) Remove screw and remove throttle control from carburetor.
		WARNING
		Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (59°C).
		(10) Clean the carburetor and throttle controls with an approved cleaning solvent and dry with filtered compressed air. Wipe thoroughly with clean dry cloth if air is not available.
		(11) Inspect for defects, cracks, and damage. Replace controls on carburetor if defective or damaged.
	<i>g.</i>	The installation is as follows:
		<ul style="list-style-type: none"> (1) Install throttle control to carburetor. (2) Attach throttle clevis to control rod clevis. (3) Attach rear cover and gaskets and throttle housing to carburetor. It is held with two screws. (4) Attach air cleaner duct elbow to carburetor by use of two screws. (5) Attach the carburetor and gasket to intake manifold. (6) Connect fuel line to carburetor. (7) Attach throttle lever to shaft. It is held with one screw. (8) Attach the throttle control housing cover with two screws.
2.	ENGINE STARTS BUT FAILS TO CONTINUE RUNNING	
	<i>Step 1.</i>	Check the service Indicator first. If it shows in the red then remove air cleaner element. If engine starts, air cleaner needs servicing. If engine still fails to continue running, go to Step 2. Service the air cleaner as follows:
		<ul style="list-style-type: none"> <i>a.</i> Loosen the two retaining bolts connecting air cleaner body to the cover. <i>b.</i> Remove cover and element from body. <i>c.</i> Blow out with compressed air, from clean side to dirty side of element. If compressed air is not available, wash with a detergent and water. <i>d.</i> Wipe inside of cover and body.
		NOTE
		Do not wash element in a cleaning solvent.
	<i>e.</i>	Reinstall element and tighten retaining bolts.
	<i>Step 2.</i>	Check fuel filter to see if it is clogged or filter element dirty. Remove outlet line from the filter to check flow of fuel. If no fuel or a very small flow of fuel is noticed at the outlet side of the filter, remove and clean the fuel filter. If fuel flow is sufficient go to Step 3.
		WARNING
		Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (59°C).
		To remove and clean the fuel filter, shut off fuel, loosen thumbscrew holding bowl to the filter swing the bail to one side and remove the bowl. Remove and clean the filter in an approved cleaning solvent. Inspect the gasket and replace if necessary.
	<i>Step 3.</i>	Remove fuel line from fuel pump to carburetor. Turn engine over using the starting rope. If fuel flow is coming out of the fuel pump in a steady spurt, go on to Step 4. If no fuel is seen coming out or a weak flow is noticed, remove and replace the fuel pump.
	<i>a.</i>	Remove the fuel pump. First disconnect the fuel lines. Remove two screws that attach fuel pump to engine. Remove fuel pump and discard gasket.
		WARNING
		Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (59°C).

Table 4-2. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	b.	Clean with an approved cleaning solvent and dry thoroughly. Inspect body for cracks, breaks, evidence of leakage and stripped or damaged threads. Inspect plunger arm for cracks, breaks, distortion and excessive wear. Inspect spring for cracks, breaks, or distortion. Test fuel pump for proper operation by holding fuel pump and work plunger arm up and down. By holding a finger lightly over the Inlet side of the pump, you should feel a suction. Test pump outlet side of the pump. The pressure reading should be 3.0 to 4.5 psi. Inspect fuel lines and fittings for cracks, breaks, evidence of leakage, abnormal bends, dents and stripped threads. Replace a damaged or defective pump.
	Step 4.	Check the carburetor and throttle controls for adjustment. If the adjustment of the carburetor and throttle controls does not resolve the problem, replace the carburetor and/or throttle controls. Remove the carburetor and throttle controls.
		WARNING
		Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (59°C).
	a.	Clean the carburetor and throttle controls with an approved cleaning solvent and dry with filtered compressed air. Wipe thoroughly with clean, dry cloth if air is not available.
	b.	Inspect for defects, cracks, and damage. Replace controls or carburetor if defective or damaged.
	c.	Reassemble in reverse of removal procedure. Use new gaskets throughout. Tighten all nuts, bolts, and screws securely.
3.	ENGINE MISSES OR RUNS ERRATICALLY	
	Step 1.	Remove the spark plug cable from the spark plug. Hold the spring located at the spark plug end of the cable approximately 1/4 inch from the spark plug or any part of the engine. Turn the engine over using the starting rope. If a spark jumps from spring to engine, then remove spark plug, reconnect cable and ground spark plug to the side of the engine. Turn engine over and see if there is a spark at the electrode end of the plug. If there is a good strong spark at the spark plug then go on to Step 2. But if no spark is seen at the spark plug or cable, then the contact assembly, condenser, and engine timing should be checked. If spark plug cable requires replacement, loosen connector nut on each end of cable, remove and replaceable. If spark plug needs replacing, remove spark plug. Before installation of new spark plug measure the electrode gap with a wire, or leaf thickness gage. A slight drag should be felt when monitoring the correct measurement. The desired clearance is 0.028 to 0.033 inch. Adjust the gap by bending the outside electrode until the gap is properly set.
	Step 2.	Check fuel filter to see if it is clogged or filter element is dirty. Remove outlet line from the filter to check flow of fuel. If no fuel or a very small flow of fuel is noticed at the outlet side of the filter, remove and clean the fuel filter. If fuel flow is sufficient, go on to Step 3.
		WARNING
		Dry cleaning solvent P-D-680, or P-S-661, 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) - 138°F (59°C).
		To remove and clean the fuel filter, shut off fuel at top of filter then loosen thumbscrew holding bowl to the filter, swing the bail to one side and remove the bowl. Remove and clean the filter in an approved cleaning solvent. Inspect the gasket and replace if necessary.
	Step 3.	Check the service indicator first. If it shows in the red, then remove air cleaner element. If engine starts, air cleaner needs servicing. Service the air cleaner as follows:
	a.	Loosen the two retaining bolts connecting air cleaner body to the cover.
	b.	Remove cover and element from body.
	c.	Blow out with compressed air, from clean side to dirty side of element. If compressed air is not available, wash with a detergent and water.
	d.	Wipe inside of cover and body.
		NOTE
		Do not wash element in a cleaning solvent
	e.	Reinstall element and tighten retaining bolts.
4.	ENGINE OVERHEATS	
	Step 1.	Check engine air circulation. Clean cylinder head, cylinder and oil pan fins with a wire brush. Clean duets, covers and deflectors with compressed air.

Table 4-2. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
NOTE		
All ducts, covers, and deflectors must be installed during engine operation.		
<i>Step 2.</i> Check oil level in engine.		
Add oil to engine if needed.		
5. ENGINE SURGES OR OVERSPEEDS	Governor adjustment is as follows:	
	<i>a.</i> Remove the front throttle housing cover and gasket.	
	<i>b.</i> Open clevis and disconnect it from the throttle lever.	
	<i>e.</i> Hold the throttle 1/16 inch from the open position.	
	<i>d.</i> Loosen the locknut below the clevis and screw the clevis up or down until the clevis pin aligns with the hole in the throttle lever.	
	<i>e.</i> Connect the clevis to the throttle lever and tighten locknut.	
	<i>f.</i> Install the gasket and front throttle housing cover.	
	<i>g.</i> To regulate engine speed, turn nut on control rod assembly clockwise to increase, or counterclockwise to decrease engine speed.	
NOTE		
Eliminate surging or poor speed regulation by adjusting the main adjustment needle on the carburetor.		
6. INSUFFICIENT AIR FLOW OR LONG PUMP UP TIME	<i>Step 1.</i> Check the engine for proper governed speed.	
	Adjust the engine governor.	
	<i>a.</i> Remove two screws and remove the front throttle housing cover and gasket.	
	<i>b.</i> Loosen setscrew and release the governor control rod. Push the throttle lever down as far as possible, hold the governor control rod in downward position and move the throttle lever up about 1/16 inch.	
	<i>c.</i> Tighten the setscrew and inspect the linkage for free play by manually operating the carburetor throttle shaft.	
	<i>d.</i> To regulate the speed of the engine, turn nut on control rod assembly clockwise to increase or counterclockwise to decrease engine speed.	
	<i>e.</i> Install the front throttle housing cover and gasket and secure with two screws.	
	<i>Step 2.</i> Check for air leaks.	
	Tighten all connections and/or replace defective parts.	
	<i>Step 3.</i> Check for insufficient inlet air to the compressor.	
	Replace the inlet air filter.	
	<i>a.</i> Remove four screws and washers that secure the cup and protective cap.	
	<i>b.</i> Remove the protective cap, cap, packing and the inlet air filter.	
	<i>Step 4.</i> Check for an overheating compressor covered by bent intercooler fins or other obstructions. Straighten the intercooler fins. Remove any obstructions from the cooling area.	
7. EXCESSIVE OIL CONSUMPTION	Check for oil leaks as leaking oil seal, gasket or tubing.	
	Replace defective seal or gasket. Tighten or replace leaking tubing.	
Section V. RADIO INTERFERENCE SUPPRESSION		
4-9. Definitions	<p data-bbox="318 1642 1471 1726"><i>a.</i> Interference. The term "interference" as used herein applies to electrical disturbances in the radio frequency range which are generated by the compressor assembly and which may interfere with the proper operation of radio receivers or other electronic equipment, or enable the enemy to locate the equipment.</p> <p data-bbox="318 1730 1471 1810"><i>b.</i> Interference Suppression. The term "interference suppression" as used herein applies to the methods used to eliminate or effectively reduce radio interference generated by the compressor assembly.</p>	
4-10. General Methods Used to Attain Proper Suppression	Essentially, suppression is attained by providing a low resistance path to ground stray current. Methods used include shielding the ignition and high-frequency wires, grounding the frames with bonding straps, and using capacitors and resistors.	

NOTE

Do not pull on cable or twist braided shielding. Gently work cable from side to side and free the rubber seal. Do not use sharp metal tools to install rubber seals.

4-11. Interference Suppression Components

- a. Spark Plugs. The integrally shielded plugs are located in the cylinder heads.
- b. *Spark Plug Cables.* The high-tension spark plug cables are encased in a braided wire shield. They are connected at one end to the spark plugs and at the other end to the crankshaft bearing cover.
- c. *Bonding Strap.* The bonding strap is connected to the governor and the breaker point cover assembly.

4-12. Replacement of Suppression Components

- a. *Spark Plugs.* In order to replace spark plugs disconnect the connector nuts and using a spark plug socket, remove the spark plugs. When installing the spark plugs torque to 25 to 27 ft. lbs.
- b. *Spark Plug Cables.* Remove the spark plugs. Remove the screws and clamps securing the flywheel housing cover and remove the flywheel housing cover. Remove the cover on the flywheel housing by removing the two screws that attach the cover to the flywheel. Loosen the connector nut and remove the spark plug cable

4-13. Testing of Radio Interference Suppression Components

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

Section VI. MAINTENANCE OF FUEL TANK

4-14. Fuel Tank

- a. *General.* The fuel tank is located in the roof assembly and is used to store the fuel required to operate the engine.
- b. *Removal.* Unscrew and remove fuel cap, disconnect the fuel line at the filter and drain the fuel into a suitable container. Remove the gasoline filter.
- c. *Cleaning.* Clean the fuel tank with approximately one pint of gasoline, removing any loose sediment or dirt. Rinse the fuel filter thoroughly with gasoline until clean. Air blow the filter if necessary to eliminate foreign matter.
- d. *Inspection.*
 - (1) Check the fuel tank for evidence of dirt.
 - (2) Check the filter to fuel tank hose for damage and secureness of fit.
- e. *Replacement.* Replace the fuel tank.
- f. *Installation.*
 - (1) Reinstall the filter and reconnect the fuel line to the filter.
 - (2) Pour fuel into fuel tank until full.
 - (3) Replace the fuel tank cap onto the fuel tank fill port.

Section VII. MAINTENANCE OF PNEUMATIC SYSTEM ACCESSORIES

4-15. Dehydrator Cartridge

- a. *General.*
 - (1) Remove and replace the dehydrator cartridge (9, fig. 6-5) in accordance with the following schedule:

Ambient Temperator Range (°F)	Change Interval (Hours)
-65 (-54°C) to 0 (-18°C)	4500
0 (-18°C) to 70 (21°C)	200
70 (21°C) to 100 (38°C)	65
100 (38°C) to 125 (52°C)	25

- (2) The dehydrator cartridge is located within the dehydrator housing (11, fig. 6-5). It is used to reduce the moisture content of the compressed air to a dew point of -65°F (-54°C) at 100°F (38°C) ambient saturated inlet air conditions. Perform maintenance by proceeding as follows:

NOTE

The dehydrator cylinder need not be disassembled from the frame assembly for cartridge replacement. A hole is provided in the roof assembly for access and withdrawal of the cartridge.

- b. *Removal.*
 - (1) Unscrew and remove the dehydrator cylinder cap (5) from the cylinder body.
 - (2) Withdraw and discard the expended

cartridge. Discard the preformed packings (7, 8 and 10) and backup ring (6).

NOTE

Before installing new cartridge ensure that inside of cylinder is clean by wiping with a lint-free cloth.

c. *Inspection.*

- (1) Inspect the threads on the cap and cylinder body for damage.
- (2) Inspect the cap and body for distortion, bulging or damage.

d. *Replacement.* Replace the preformed packings and backup ring.

- e. *Installation.* Install a new cartridge in the dehydrator cylinder and screw cap assembly down to a moderately tight fit using a handtool between the cap lugs. The cutters inside the cylinder cap and body will puncture the cartridge as the cap is screwed down. Record the hourmeter reading on the cartridge instruction plate.

4-16. Moisture Separator and Sphere Safety Cap Tape

- a. *General.* The cap tape (1, fig. 6-6) is wrapped around the safety disc outlet port located on the top of the moisture separator (10, fig. 2-1) and on the sphere tee. In these locations, the cap tape prevents dust, water, dirt, grit, debris and any other foreign material from entering or clogging the safety disc outlet ports; and, by its presence indicates the integrity of the safety disc. Maintenance is performed when performing the maintenance procedure on dehydrator cartridge and performing the following:
- b. *Inspection.* Inspect the cap tape for lack of adhesion or damage.

NOTE

Removal of the cap tape is not recommended unless replacement is required as determined by inspection.

c. *Removal.* Remove the cap tape.

d. *Replacement.* Replace defective cap tape.

e. *Installation.* Wrap cap tape around the safety disc outlet orifice.

4-17. Sphere Pads

- a. *General.* The sphere pads (21, fig. 5-4) are located between the air reservoir sphere (23) and the frame assembly bracket. The pads are used to protect the sphere.

b. *Removal.*

- (1) Disconnect the tube (1) at the tee fitting (4) on top of the sphere.
- (2) Loosen the strap (9) and move the sphere assembly to the side away from the pad requiring replacement.

c. *Inspection.*

- (1) Inspect the pads for permanent set, deterioration or damage.
- (2) Check the sphere for dents, nicks, scratches and any other defect. Check the safety disc cap tape for adhesion and replace if any of these defectives appear.

d. *Replacement.* Remove the defective pads from the sphere mounting brackets. Scrape off residual adhesive from the brackets.

e. *Installation.*

- (1) Apply adhesive per MILC-4003 to the pad and position on the brackets centrally within 0.06 inch (.1524 cm).
- (2) Position the sphere on the pads and orient the tee to the sphere tube. Secure in place with the strap.
- (3) Connect the tube to the tee and torque the tube nut to 135 inch-pounds (1.53 kg-m)- 150 inch-pounds (1.73 kg-m).

4-18. Service Accessories (Fig. 2-2)

- a. *General.* The service accessories consisting of the female quick disconnect, service hose and chuck are stored in the frame assembly compartment when not in use. The accessories are not assembled to the pneumatic system until actual service is required. The service accessories connect the air compressor pneumatic system to the unit being serviced.

b. *Removal.* Disassemble the chuck from the hose.

c. Disassemble the female quick disconnect from the hose.

d. *Inspection.* Check the threaded areas and locking parts of the chuck, hose and quick disconnect for excessive wear, cracks, deformation or damage.

e. *Replacement.* Replace all defective components which may impede the performance of this equipment.

f. *Installation.* Assemble the quick disconnect to the hose.

g. Assemble the chuck to the hose.

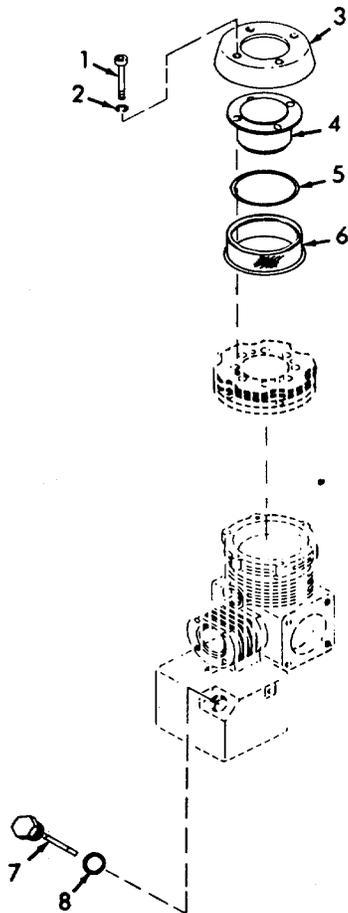
Section VIII. MAINTENANCE OF COMPRESSOR/COOLER ASSEMBLY

4-19. Air Compressor Inlet Air Filter

- a. *General.* The inlet air filter is located at the top of the first stage of the air compressor (1, fig. 2-1). The purpose of the inlet air filter is to separate all dust, grit, dirt, debris and other foreign matter larger than 40 microns in size from the inlet air in order to protect the air compressor stages.
- b. *Removal.* Remove the screws (1, fig. 4-1), washers (2), protective cap (3), cap (4), packing (5) and the inlet air filter (6).
- c. *Cleaning.*

WARNING
Clean all parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent (Fed. Spec. P-D680 and P-S-661) used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100 to 138°F (380 to 590C). Clean the filter by agitating in a suitable cleaning solvent, Federal Specification P-D-680.

- d. *Inspection.* Inspect the filter for deterioration, clogging and damage.
- e. *Replacement.* Replace a filter which will not separate foreign matter.
- f. *Installation.* Position the filter on the air compressor first stage head. Install the packing on the cap and install through center of filter into the 1st stage head. Place the protective cap over the cap and secure with four washers and four screws. Torque the screws to 17 inch-pounds (.20 kg-m) 22 inch-pounds (.28 kg-m)



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- | | |
|-------------------|-----------------|
| 1. Screw | 5. Packing |
| 2. Washer | 6. Inlet filter |
| 3. Protective cap | 7. Dipstick |
| 4. Cap | 8. Packing |

Figure 4-1. Inlet air filter and dipstick.

4-20. Dipstick and Oil Strainer

- a. *General.* The dipstick and oil strainer are located in the air compressor oil sump. The dipstick is used to determine the level of the lubricating oil in the oil sump, and, the oil strainer is used to filter out any foreign particle that would be injurious to the air compressor from the air compressor lubricating system.
- b. *Removal.*
 - (1) Turn counterclockwise and lift the dipstick (7, fig. 4-1) from the oil sump; remove preformed packing (8) from dipstick. Determine presence of oil in sump. Discard the packing.

NOTE

If lubricating oil is present in oil sump collect the lubricating oil in a suitably sized container. Check lubricating oil for presence of grit, dirt or foreign matter.

- (2) Unscrew the magnetic drain plug and remove with preformed packing from oil sump.
- (3) Disconnect the oil supply tube (27, fig. 7-1) from the fitting (29) in the bottom of the crankcase.

- (4) Remove the fitting and oil strainer (30). Discard the preformed packings (31).
- c. *Cleaning.* Clean the oil strainer by immersing suitable solvent. Air blow to clean the strainer and dry thoroughly using filtered compressed air. Clean the oil sump and dry thoroughly.
- d. *Inspection.*
 - (1) Inspect all threaded components for satisfactory thread condition.
 - (2) Inspect the dipstick for deformation and damage. A deformed or damaged dipstick will not give a true reading of oil level.
 - (3) Inspect the oil strainer for damage or clogging of strainer filtering element.
- e. *Replacement.* Replace defective oil strainer and dipstick. Replace preformed packings.
- f. *Installation.*
 - (1) Position preformed packing on dipstick; then, insert measuring end of dipstick into oil sump and secure in place by turning.
 - (2) Position preformed packing on oil strainer and screw oil strainer into oil sump. Tighten securely.
 - (3) Apply teflon tape to fitting and screw fitting into oil strainer Tighten securely and orient fitting to oil supply tube
 - (4) Screw nut of tube to fitting and torque to 135 inch-pounds (1.52 kg-m) - 150 inch-pounds (1.73 kg-m).
 - (5) Position preformed packing onto drain plug and screw drain plug into drain port of oil sump.
 - (6) Remove dipstick from oil sump and fill oil sump to mark on dipstick with air compressor lubricating oil.

Section IX. MAINTENANCE OF AXLES, BRAKES, AND WHEELS

4-21. Wheel and Hub Assembly

- a. *Removal and Disassembly.*
 - (1) Remove hub caps (1, fig. 4-2), cotter pins (2), castellated nuts (3), plain hexagon nuts (4), lockwashers (5), flat washers (6) and thrust washers (7).
 - (2) Remove outer bearings (8), inner bearings (9), and bearing seals (10) leaving wheels (11).
 - (3) Remove inner tube (12) and tire (13) from wheel (11).

WARNING

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

- b. *Cleaning, Inspection and Repair.*
 - (1) Clean all metal parts of the wheel and hub assembly with cleaning solvent, Federal Specification P-D-680, and dry thoroughly using compressed air.
 - (2) Inspect the wheel and hub for dents or other damage. Inspect seals and bearings for damage or wear. Inspect tires for uneven tread wear, punctures, cracks, ply separator, dry aged rubber including mold or rot, or other damage. Inspect tubes for defective valve and other damage.
 - (3) Remove dents and scratches on metal parts. Replace worn Or damaged seals and bearings. Replace defective wheel, tire or tube.
- c. *Installation.*
 - (1) Install inner tube (12) and tire (13) on wheel (11).
 - (2) Install outer, bearings (8), inner bearings (9), and bearing seals (10) on spindle.
 - (3) Position wheel on spindle (7), aline to studs and secure with flatwashers (6), lockwashers (5), hexagon nuts (4). Install castellated nut (3), cotter pin (2), and hub cap (1).

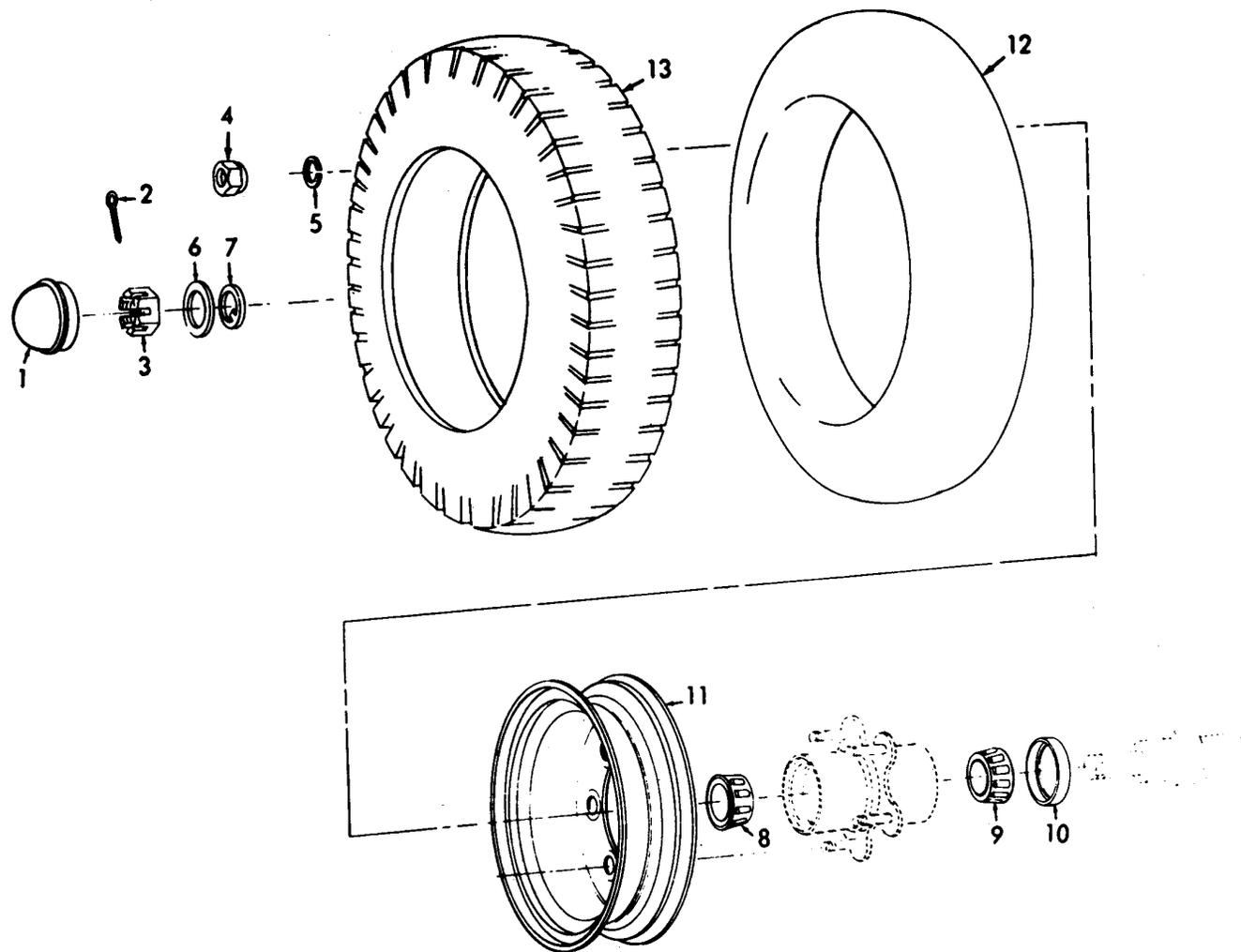
4-22. Axle Assembly

- a. *Removal.*
 - (1) Remove hexagon locknuts (1, fig. 4-3), flatwashers (2), machine bolts (3), and flat- washers (4).
 - (2) Remove axle spindles (5) leaving steel axles (6).

WARNING

Dry cleaning solvent, P-D-680 or P-S- 661, used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100°F - 138°F. (38°C. - 59°C.)

- b. *Cleaning, Inspection and Repair.*
 - (1) Clean all metal, parts of the axle assembly with cleaning solvent, Federal Specification



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1. Hub cap
2. Cotter

3. Nut
4. Nut

5. Lockwasher
6. Flatwasher

7. Thrust washer
8. Bearing

9. Bearing
10. Seal

11. Wheel
12. Inner tube
13. Tire

Figure 4-2. Tire wheel and hub assembly
4-12

P-D-680 and dry thoroughly using compressed air.

(2) Inspect the axle for scoring and wear.

Replace a worn or damaged axle.

c. *Installation.*

(1) Insert axle spindle (5) into axle (6).

(2) Secure axle to frame with locknuts (1), bolt (3), and flat washer (4).

4-23. Brakes Assembly

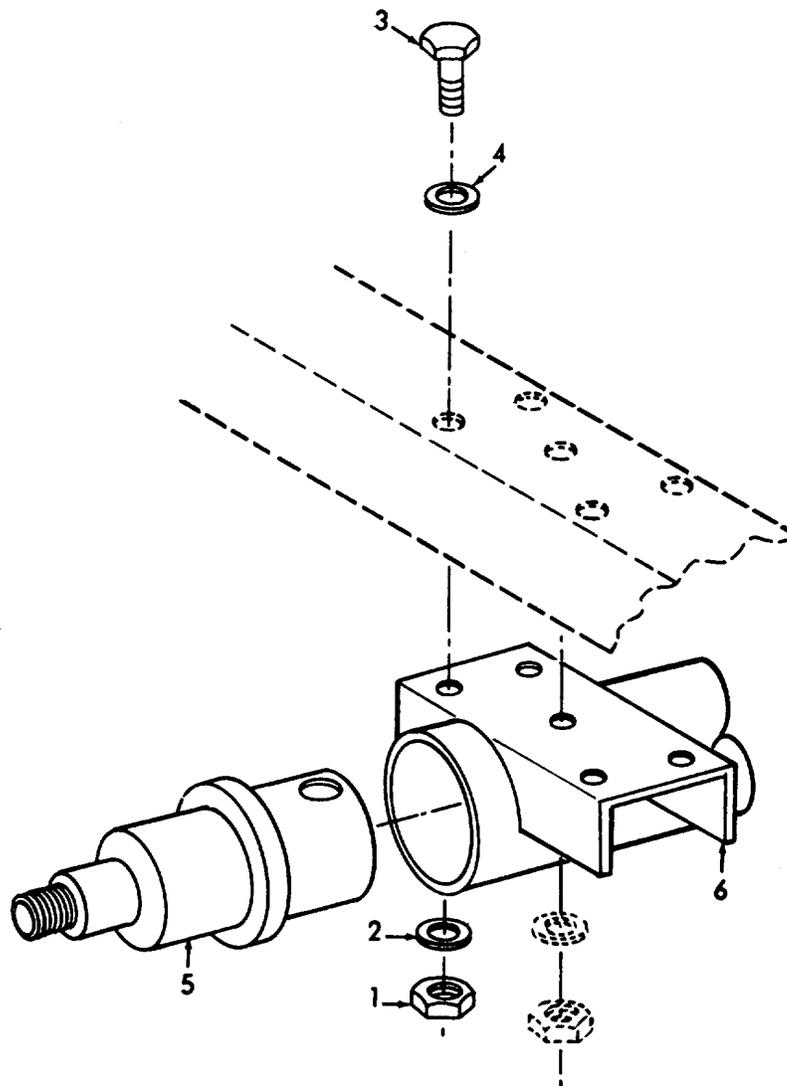
a. *Removal.*

(1) Remove self-locking nuts (1, fig. 4-4), flatwashers (2), machine bolts (3), flatwashers (4), and spacer (5).

(2) Remove self-locking nuts (6), flat-washers (7), stop (8), machine bolts (9), right brake (10) and brake mounting block (11).

(3) Remove self-locking nuts (12), flat-washers (13), machine bolts (14), flatwashers (15) and spacer (16).

(4) Remove self-locking nuts (17), flat-washers (18), stop (19), machine bolts (20), left brake (21) and brake mounting block (22).



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1. Locknut

2. Flatwasher

3. Bolt

4. Flatwasher

5. Spindle

6. Axle

Figure 4-3. Axle assembly.

CHAPTER 5

**DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE INSTRUCTIONS**

Section I. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

5-1. Tools and Equipment

Tools, equipment and repair parts issued with or authorized for the air compressor are listed in TM 5-4310-335-34P.

5-2. Special Tools and Equipment

No special tools are required to perform DS and GS maintenance.

5-3. Maintenance Repair Parts

Repair parts and equipment are listed and illustrated in TM 5-4310-335-34P

Section II. TROUBLESHOOTING

5-4. General

- a. This section contains troubleshooting information locating and correcting most of the troubles which may develop in the air compressor. Each malfunction for any individual component, unit or system is followed by a list of tests or inspections which will help to determine probable causes and corrective action to be taken.
- 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 see your supervisor.

5-5. Direct Support and General Support Maintenance Troubleshooting

Refer to table 5-1 for troubleshooting pertaining to direct support and general support maintenance.

Table 5-1. TROUBLESHOOTING

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

WARNING

Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).

1. ENGINE MISSES OR RUNS ERRATICALLY

Step 1. Check for cracked cylinder head, leaking cylinder head gasket and/or burned or sticking valves. Check for a broken valve spring.

Remove ten screws and remove the cylinder head covers and deflectors. Remove the rocker arm cover retaining screw and remove the rocker arm cover gasket and discard. Remove the spark plug. Remove seven screws, disconnect ignition switch leads, and remove flywheel fan cover. Remove carburetor and throttle controls, as follows

- a. Remove screw (3) and remove throttle control housing lever.

Table 5-1. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		<ul style="list-style-type: none"> b. Remove screw and disconnect throttle lever from shaft. c. Remove nut (2) and remove carburetor and gasket from intake manifold. d. Remove screw (2) and remove air cleaner duet elbow from carburetor. e. Remove screw (2) and remove throttle housing from carburetor. Remove rear cover and gaskets from throttle housing. f. Spread control rod clevis and remove throttle lever. g. Remove screw and remove throttle control from carburetor. Remove bolts and remove the intake manifold. Remove screws and remove the exhaust manifold-muffler. Loosen nuts on breather line and remove the line from air cleaner to cylinder head. Remove the rocker arms, cylinder head pushrods, and pushrod housings, as follows: <ul style="list-style-type: none"> a. Remove nuts (4). b. Remove clip and slide shaft from cylinder head. c. Remove nuts and adjusting screw. d. Remove push rod housing.
		NOTE
		Remove push rods and packing from housings.
		<ul style="list-style-type: none"> e. Remove cylinder head.
		NOTE
		Remove and discard cylinder head gasket.
		NOTE
		Remove needle bearings from rocker arm shaft.
		WARNING
		<p>Dry cleaning solvent, P-D-80 or P-S-661, 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 (39°C) - 138°F (59°C).</p> <p>Inspect parts for defects, damage, cracks, breaks deterioration. Warps and dents. Remote carbon deposits, grease, other materials or sum. Remove any burrs or nicks. Clean parts with dry cleaning solvent, P-D-680.</p> <p>Dry parts thoroughly with compressed filtered air and place on clean shop towels or cloths and tag. Replace parts if damaged or defective with standard replacement parts or equivalent.</p> <p>Cheek the valve springs for proper compression. Replace a damaged or defective valve spring.</p>
		NOTE
		The valve springs should test to the following dimensions:
		Free length 1.275 in
		Load at compressed length of 1.095 in. = 20 lbs ±1 lb.
		Load at compressed length of 0.880 in. = 44 lbs ±2 lbs.
		Grind valves and lop them to the seat inserts Individually to insure a sealed fit between the valve and valve inserts. Install the valves and valve springs into the cylinder head.
		Install the cylinder head, pushrod housings onto the engine. Install new head gaskets and packings. Install the breather line to air cleaner and cylinder head. Install the manifold muffler. Install the intake manifold. Install the carburetor and throttle controls.
		<ul style="list-style-type: none"> a. Remove screw (2) and remove throttle control housing cover. b. Remove screw and disconnect throttle lever from shaft. c. Remove nut (2) and remove carburetor and gasket from intake manifold. d. Remove screw (2) and remove air cleaner duet elbow from carburetor. e. Remove screw (2) and remove throttle housing from carburetor. Remove rear cover and gaskets from throttle housing. f. Spread control rod clevis and remove throttle lever. g. Remove screw and remove throttle control from carburetor.
	Adjust the carburetor as follows:	<ul style="list-style-type: none"> a. With engine stopped turn main adjustment needle and Idle adjustment needle fully clockwise to close. b. Turn main adjustment needle three-quarters of a turn counterclockwise, and idle adjustment needle one-half turn counterclockwise. Start engine and ran until warn. c. Apply load and observe engine exhaust. If exhaust is black, close main exhaust needle. If saline misfires or seems low in power, open main exhaust needle. Adjust main adjustment needle until engine delivers maximum power with minimum of exhaust smoke. d. If engine application has a throttled speed adjustment, regulate idle mixture in a similar manner. e. Regulate engine idle rpm by turning idle speed regulating screw clockwise or counterclockwise.

Table 5-1. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Adjust the governor.	<ul style="list-style-type: none"> a. Remove the front throttle housing cover and gasket. b. Open clevis end disconnect it from the throttle lever. c. Hold the throttle 1/16 inch from the open position. d. Loosen the locknut below the clevis and screw the clevis up or down until the clevis pin aligns with the hole in the throttle lever. e. Connect the clevis to the throttle lever and tighten locknut. f. Install the gasket and front throttle housing cover. g. To regulate engine speed, turn nut on control rod assembly clockwise to increase or counterclockwise to decrease engine speed. 	<p style="text-align: center;">NOTE</p> <p>Eliminate surging or poor speed regulation by adjusting the idle adjustment needle on the carburetor. Connect ignition switch leads. Install the flywheel cover. Install the spark plug. Install the rocker arm cover, using a new gasket. Install the side cylinder cover.</p>
Step 2.	Check for a broken piston, piston rings excessively worn, broken, or stuck.	<p>Remove cylinder head and valve mechanism as follows:</p> <ul style="list-style-type: none"> a. Remove nuts (4). b. Remove clip and slide shaft from cylinder head. e. Remove nut and adjusting screw. d. Remove push rod housing.
		<p style="text-align: center;">NOTE</p> <p>Remove push rods and packing from housings.</p>
	a. Remove cylinder head.	<p style="text-align: center;">NOTE</p> <p>Remove and discard cylinder head gasket.</p>
		<p style="text-align: center;">NOTE</p> <p>Remove needle bearings from rocker arm shaft.</p>
		<p>Drain crankcase oil. Remove twelve screws and remove oil pan. Remove and discard oil pan gasket. Remove washer tango out and remove connecting rod bolt and oil dipper bolt. Remove connecting rod cap and discard washer. Remove piston and connecting rod assembly. Disassemble the piston and connecting rod assembly.</p>
		<p style="text-align: center;">WARNING</p> <p>Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).</p>
		<p>Clean all parts with dry cleaning solvent P-D680. Remove carbon deposits from piston grooves and clean out the carbon, sludge, and grim deposits from ring grooves. Clean the other parts thoroughly and dry with compressed filtered air. Inspect pistons for cracks and scoring. Measure the diameter across the smallest point using a micrometer. Measure the piston ring groove for wear. Replace parts if damaged or defective. Inspect rings for excessive wear and gap clearance. Replace defective rings. Inspect piston pins for wear and damage. Check clearance between piston pins end pistons. Inspect connecting rod for cracked or warped condition. Check connecting red clearance to the crankshaft journals. Replace a defective connecting rod. Reassemble the piston and connecting rod assembly. Use a ring expander and install the piston rings.</p>
		<p style="text-align: center;">NOTE</p> <p>On installation of the connecting rod and piston into the engine, be sure to rotate the crankshaft and check to see if the oil dipper bolt is on the correct side. If the oil dipper bolt stops the rotation of the crankshaft, it is on the wrong side. Change holes with the connecting rod bolt and crankshaft should rotate.</p>
		<p>Install connecting rod and piston into the engine. Use new lockwasher under the connecting rod bolt and oil dipper bolt. Bend tangs of washer up to bolt heads. Replace the oil pan gasket and oil pan. Use proper torque on oil pan capscrews.</p>
		<p>Refer to Step 1 and install the cylinder head and valve mechanism.</p>

Table 5-1. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. ENGINE OIL CONSUMPTION EXCESSIVE	WARNING	Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).
<i>Step 1.</i>	Check piston rings for wear or stuck.	Refer to Step 1 of Malfunction 1 and remove cylinder head and valve mechanism. Drain crankcase oil. Remove eight screws and remove oil pan. Remove and discard oil pan gasket. Bend washer tangs out and remove connecting rod bolt and oil dipper bolt. Remove connecting rod cap and discard washer. Remove piston and connecting rod assembly. Disassemble the piston and connecting rod assembly.
	WARNING	Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).
		Clean all parts with dry cleaning solvent P-.D.680. Remove carbon deposits from piston grooves and clean out the carbon, sludge, and gum deposits from ring grooves. Clean the other parts thoroughly and dry with compressed filtered air. Inspect pistons for cracks and scoring. Measure the diameter across the smallest point using a micrometer. Measure the piston ring groove for wear. Replace parts if damaged or defective. Inspect rings for excessive wear and gap clearance. Replace defective rings. Inspect piston pins for wear and damage. Check clearance between piston pins and pistons. Inspect connecting rod for cracked or warped condition. Check connecting rod clearance to the crankshaft Journals. Replace a defective connecting rod. Reassemble the piston and connecting rod assembly. Use a ring expander and Install the piston rings.
	NOTE	On installation of the connecting rod and piston into the engine, be sure to rotate the crankshaft and check to see if the oil dipper bolt is on the correct side. If the oil dipper bolt stops the rotation of the crankshaft, it is on the wrong side. Change holes with the connecting rod bolt and crankshaft should rotate.
		Install connecting rod and piston into the engine. Use new lockwasher under the connecting rod bolt and oil dipper bolt. Bend tangs of washer up to bolt heads. Replace the oil pan gasket and oil pan. Use proper torque on oil pan capscrews. Refer to Step 1 and install the cylinder head and valve mechanism.
<i>Step 2.</i>	Check front and rear oil seals for oil seepage or leakage. Remove flywheel cover.	
	WARNING	Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).
		Remove starter flange retaining screws and remove starter flange. Bend lockwasher tang down on flywheel retaining nut and remove flywheel retaining nut. Using a suitable puller, remove the flywheel. Remove the rotor, coil, and noise filter. Using a suitable puller, remove the front crankshaft oil seal. Remove the rear seal in the same manner. Clean the parts with dry cleaning solvent P-D-680 and dry thoroughly with compressed air. Dry the coil and rotor with a clean cloth. Before installation, inspect rotor for burned or pitted contacts, wear, alignment, and worn bearing. Inspect for damaged, cracked insulation, loose rivets and spring coil clamps. inspect coil and wires for continuity or breaks. Replace any defective part.
3. ENGINE EXCESSIVELY NOISY	<i>Step 1</i> Check for broken valve spring or bent valve.	Remove five screws and remove the two side cylinder head covers. Remove the rocker arms cover retaining screw and remove the rocker arm cover. Remove the rocker arm cover gasket and discard. Remove the spark plug. Remove the flywheel fan cover. Remove carburetor and throttle controls, as follows:
	<ol style="list-style-type: none"> Remove screw (2) and remove throttle control housing cover. Remove screw and disconnect throttle lever from shaft. Remove nut (2) and remove carburetor and gasket from intake manifold. 	

Table 5-1. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		<ul style="list-style-type: none"> d. Remove screw (2) and remove air cleaner duct elbow from carburetor. e. Remove screw (2) and remove throttle housing from carburetor. Remove rear cover and gaskets from throttle housing. f. Spread control rod clevis and remove throttle lever. g. Remove screw and remove throttle control from carburetor.
		<p>Remove the intake manifold. Remove the exhaust manifold-muffler. Loosen nuts on a breather line and remove the line from air cleaner to cylinder head. Remove the rocker arms, cylinder head, pushrods, and pushrod housing as follows:</p> <ul style="list-style-type: none"> a. Remove nuts (4). b. Remove clip and slide shaft from cylinder head. c. Remove nut and adjusting screw. d. Remove push rod housing.
		NOTE
		Remove push rods and packing from housings.
	e. Remove cylinder head.	
		NOTE
		Remove and discard cylinder head gasket.
		NOTE
		Remove needle bearings from rocker arm shaft.
		WARNING
		Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).
		<p>Inspect parts for defects, damage, cracks, breaks, deterioration, warps and dents. Remove carbon deposits, grease, other materials or gum. Remove any burrs or nicks. Clean parts with dry cleaning solvent P-D.680. Dry parts thoroughly with compressed filtered air and place on clean shop towels' or cloths and tag. Replace parts if damaged or defective with standard replacement parts or equivalent. Check the valve springs for proper tension. Replace a damaged or defective valve spring.</p>
		NOTE
		The valve springs should test to the following dimensions:
		Free length 1.275 in.
		Load at compressed length of 1.095 in. = 20 lbs ±1 lb.
		Load at compressed length of 0.880 in. = 44 lbs ±2 lbs.
		Grind valves and lap them to the seat inserts individually to insure a sealed fit between the valve and valve inserts. Install the valves and valve springs into the cylinder head. Install the cylinder head, pushrods and pushrod housing onto the engine. Install new head gaskets and packings. Install the breather line to air cleaner and cylinder head. Install the manifold-muffler. Install the intake manifold. Install the carburetor and throttle controls as follows:
	Adjust carburetor as follows:	
		<ul style="list-style-type: none"> a. With engine stopped turn main adjustment needle and idle adjustment needle fully clockwise to close. b. Turn main adjustment needle three-quarters of a turn counterclockwise, and idle adjustment needle one-half turn counter. clockwise. Start engine and run until warm. c. Apply load and observe engine exhaust. If exhaust is black, close main exhaust needle. If engine misfires or seems low in power, open main exhaust needle. Adjust main adjustment needle until engine delivers maximum power with minimum of exhaust smoke. d. If engine application has a throttled speed adjustment, regulate idle mixture in a similar manner. e. Regulate engine idle RPM by turning idle speed regulating screw clockwise or counterclockwise.
	Adjust the governor as follows:	
		<ul style="list-style-type: none"> a. Remove the front throttle housing cover and gasket. b. Open clevis and disconnect it from the throttle lever. c. Hold the throttle 1/16 inch from the open position. d. Loosen the locknut below the clevis and screw the clevis up or down until the clevis pin aligns with the hole in the throttle lever. e. Connect the clevis to the throttle lever and tighten locknut. f. Install the gasket and front throttle housing cover. g. To regulate engine speed, turn nut on control rod assembly clockwise to increase or counterclockwise to decrease engine speed.

Table 5-1. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		NOTE
		Eliminate surging or poor speed regulation by adjusting the idle adjustment needle on the carburetor. Connect Ignition switch leads. Install the flywheel cover. Install the spark plug. Install the rocker arm cover using a new gasket. Install the side cylinder covers.
	<i>Step 2.</i> Camshaft gear worn.	
	Remove the camshaft. Remove plug and rubber seal ring. Use one of the oil pan retaining screws and screw it finger tight into the threaded hole in the camshaft axle. Use a pair of pliers and pull out the camshaft axle. Remove retaining ring from the axle.	
		NOTE
		The purpose of the retaining ring is to keep the axle from going too far into the camshaft. Remove the camshaft from the engine. Remove the valve tappets from the engine.
		WARNING
		Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C). Inspect parts for defects, damage, cracks, breaks, deterioration, .warp, and dents. Remove carbon deposits, grease, or material or gum. Remove any burrs or nicks. Clean parts with dry cleaning solvent P.D.680. Install the camshaft and valve tappets into the engine. Install a new rubber seal ring before replacing the machine plug. Make a cheek of the cylinder head and valves before replacing. Install the cylinder head, pushrod and pushrod housing onto the engine. Install new head gaskets and parking. Install the breather line to air cleaner and cylinder head. Install the manifold-muffler. Install the intake manifold. Install the carburetor and throttle controls.
	Adjust the carburetor as follows:	
	a. With engine stopped turn main adjustment needle and idle adjustment needle fully clockwise to close	
	b. Turn main adjustment needle three-quarters of a turn counterclockwise, and idle adjustment needle one-half turn counterclockwise. Start engine and run until warm.	
	c. Apply load and observe engine exhaust. If exhaust is black, close main exhaust needle. If engine misfires or seems low in power, open main exhaust needle. Adjust main adjustment needle until engine delivers maximum power with minimum of exhaust smoke.	
	d. If engine application has a throttled speed adjustment, regulator idle mixture in a similar manner.	
	e. Regulate engine idle RPM by turning idle speed regulating screw clockwise or counterclockwise.	
	Adjust the governor as follows:	
	a. Remove the front throttle housing cover and gasket.	
	b. Open clevis and disconnect it from the throttle lever.	
	c. Hold the throttle 1/16 Inch from the open position.	
	d. Loosen the locknut below the clevis and screw the clevis up or down until the clevis pin aligns with the hole in the throttle lever.	
	e. Connect the clevis to the throttle lever and tighten locknut.	
	f. To regulate engine speed, turn nut on control rod assembly clockwise to increase or counterclockwise to decrease engine speed.	
		NOTE
		Eliminate surging or poor speed regulation by adjusting the idle adjustment needle on the carburetor. Connect ignition switch leads. Install the flywheel cover. Install the spark plug. Install the rocker arm cover using a new gasket. Install the side cylinder covers.
4.	LOW FLOW OR LONG FILL TIME (COMPRESSOR)	
	<i>Step 1.</i> Inspect compressor for insufficient speed.	
	a. Check oil level with dipstick and bring oil level up to operating level	
	b. Check for insufficient ambient cooling air and operate unit under prescribed condition.	
	c. Check for bent fins on the intercoolers and straighten all bent fins.	
	<i>Step 2.</i> Inspect for insufficient inlet air to compressor.	
	Clean a clogged inlet port	
	<i>Step 3.</i> Check for leaky fittings, intercooler connections, valves, or any external air leakage. Inspect the entire unit for loose connections.	
	Tighten all fittings and connections. If the leak persists then replace the fitting, connection or valves.	

Table 5-1. TROUBLESHOOTING (Continued)

MALFUNCTION**TEST OR INSPECTION****CORRECTIVE ACTION**

- Step 4.* Inspect for low interstage pressure.
- Check for restriction of 1st stage inlet. Remove restriction.
 - Inspect for leaky 1st, 2nd, or 3rd stage relief valves. Replace faulty parts.
- Step 5.* Check for leaking or popping of 2nd stage relief valve assembly.
Inspect for clogged intercoolers and clean or replace faulty components.
- Step 6.* Inspect for low oil pressure.
- Check for faulty packing in oil pump and improper pressure setting of spring in oil pump relief assembly. Install new packing. Rotate retainer to obtain proper pressure setting.
 - Inspect for loose connections in oil supply tubes and external leakage. Tighten all connections and if this does not correct the malfunction, replace connections.
 - Check for low oil level in oil sump. Fill oil sump as described in the lubrication order.
 - Inspect for oil leakage. Illuminate all leakage.

WARNING

Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).

- Inspect for a clogged oil strainer. Clean the strainer by Immersing ill suitable solvent. Air blow to clean and dry thoroughly using compressed air.

5. LOW OIL PRESSURE (COMPRESSOR)

- Step 1.* Inspect for faulty packing in oil pump and improper pressure setting of spring in oil pump relief valve assembly.
Install new packing. Rotate retainer to obtain proper pressure setting.
- Step 2.* Inspect for loose connections in oil supply tubes and external leakage.
Tighten all connections and if this does not correct the malfunction, replace connections.
- Step 3.* Check for low oil level in oil sump.
Fill oil sump as described in the lubrication order.
- Step 4.* Inspect for oil leakage.
- Inspect for a damaged oil seal. Replace a leaking oil seal.
 - Inspect for leaky packing. Replace packing.
 - Check the entire piece of equipment for leakage. Replace all broken or malfunctioning parts.

WARNING

Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).

- Step 5.* Check for a clogged oil strainer.
Clean the strainer by immersing In suitable solvent. Air blow to clean the strainer and dry thoroughly using compressed dr.

6. HIGH OIL PRESSURE (COMPRESSOR)

- Step 1.* Inspect for improper pressure setting of spring in oil pump relief valves assembly.
Rotate retainer to obtain proper pressure setting.

WARNING

Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) 138°F (59°C).

- Step 2.* Check for a clogged oil strainer.
Clean the strainer by immersing in suitable solvent. Air blow to clean the strainer and dry thoroughly sun compressed air.

Table 5-1. TROUBLESHOOTING (Continued)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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7. OIL LEAKAGE

- Step 1.* Inspect for damaged oil seal.
Replace a leaking oil seal.
- Step 2.* Inspect for leaky packing.
Replace packing.
- Step 3.* Check the entire piece of equipment for oil leaks.
Replace all broken or malfunctioning parts.

8. LOW INTERSTAGE PRESSURE

- Step 1.* Check for restriction of 1st stage inlet.
Remove any restrictions.
- Step 2.* Inspect for leaky 1st, 2nd, or 3rd stage relief valve.
Replace faulty parts.

9. INTERSTAGE PRESSURE

Inspect for clogged intercoolers.

WARNING

Dry cleaning solvent, P-D-680 or P-S-661, 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 (39°C) - 138°F (59°C).

Clean the intercoolers with cleaning solvent P-D.680 and dry thoroughly with compressed air. If the intercooler is still clogged, then replace.

10. EXCESSIVE AND CONTINUOUS DUMPING OF MOISTURE SEPARATOR

- Inspect for an oil system failure.
Replace defective tubes or tubing, if the problem is still present, then replace the oil pump.

11. INSUFFICIENT SPEED AND OVERHEATING OF COMPRESSOR UNIT

- Step 1.* Inspect parts for lack of lubrication, and check the oil level.
Fill the oil sump as described In the lubrication order. If a lack of lubrication is still a problem then inspect the oil system in detail and correct all leaks and replace oil pump if necessary.
- Step 2.* Check for insufficient surrounding cooling air.
Operate the unit under the prescribed conditions.
- Step 3.* Inspect for bent fins or intercoolers.
Straighten all bent fins.

12. INABILITY OF COMPRESSOR UNIT TO TURN OVER OR REACH SPEED

- Step 1.* Inspect basic compressor for failure.
Remove gasoline engine from basic compressor and cheek each for freedom of movement.
- Step 2.* Inspect gasoline engine for failure.
Remove gasoline engine from basic compressor and check each for freedom of movement.
- Step 3.* Inspect for broken spline.
Check spline condition.

Section III. GENERAL MAINTENANCE

5-6. General

This section contains maintenance data pertinent to direct support and general support maintenance personnel.

5-7. Repair and Replacement Standards

- a. Repair and replacement standards are listed in TM 5-2805-257-14 on the engine.
- b. Torque wrench data is listed in Table 5-2.

Table 5-2. Recommended Wrench Torques and Tolerances

Component	Torque Value inch-pounds	Component	Torque Value inch-pounds
Moisture Separator:		Bolts, Compressor Mounting	
Cylinder	50 (.5809 kg-m)	Adapter	40 (.4702 kg-m)
Cap, Safety	1200 (13.83 kg-m) (retorque after 24 hours)	Plug, Piston Pin Assembly	65 (.7607 kg-m) 200 (2.3234 kg-m) 250 (2.7660 kg-m)
Seat	50 (.5809 kg-m) 65 (.7607 kg-m)	Compressor/Cooler Assembly:	
Locknut	500 (5.78 kg-m)	Nut, Fan	150 (1.7288 kg-m) 170 (1.1964 kg-m)
Nuts, Bulkhead	65 (.7607 kg-m) 80 (.9404 kg-m)	Nuts, 1st Intercooler	190 (2.1851 kg-m) 210 (2.6969 kg-m)
Sphere:		Nuts, 2nd Intercooler	135 (1.5328 kg-m) 150 (1.7288 kg-m)
Plug	375 (4.33 kg-m)	Nuts, 3rd Intercooler	135 (1.5328 kg-m) 150 (1.7288 kg-m)
Safety Plug	275 (3.17 kg-m) (retorque after 24 hours)	Nuts, Aftercooler Tube	135 (1.5328 kg-m)
Basic Compressor:	150 (1.7288 kg-m)	Bolts, Compressor to Engine Mounting	60 (.6915 kg-m) 80 (.9404 kg-m)
Screw, Protective Cap	17 (.2075 kg-m) 22 (.2766 kg-m)	Cart, Frame Assembly:	
Screw, 1st head	30 (.3596 kg-m) 35 (.4011 kg-m)	Bolts, Engine Mounts to Engine	60 (.6915 kg-m) 80 (.9404 kg-m)
Screw, 2nd head	60 (.6915 kg-m) 65 (.7607 kg-m)	Bolts, Engine Mounts to Frame	0 (.6915 kg-m) 80 (.9404 kg-m)
Screw, 3rd head	30 (.3596 kg-m) 40 (.4702 kg-m)	Nuts, Sphere Mount Plate	120 (1.3830 kg-m)
Screw, 4th head	60 (.6915 kg-m) 65 (.7607 kg-m)	Nuts, Front and Rear Support	
Screw, Oil Pump Housing	25 (.2904 kg-m) 35 (.4011 kg-m)	Brackets to Frame	120 (1.3830 kg-m)
Screw, Adapter Splined Crankshaft	235 (2.7245 kg-m)	Nuts, Control Oil Supply Tubing	
		Connectors	11 (.1259 kg-m) 13 (.1521 kg-m)

Section IV. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS AND ASSEMBLIES

5-8 Roof Assembly

a Removal.

- (1) Disconnect all lines and fittings, (air, fuel and oil), connected to the roof assembly and its components (fig. 5-5).
- (2) Remove locknuts (1, fig. 5-1), flat- washers (2 and 3) and capscrews (4) securing roof assembly to the frame and axle assembly.
- (3) Remove locknuts (5), flatwashers (6 and 7) and capscrews (8) securing roof assembly (9) to the frame and axle assembly.

b Inspection. Inspect metal parts for dents, breaks and cracks, burrs, rough edges or other damage. Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.

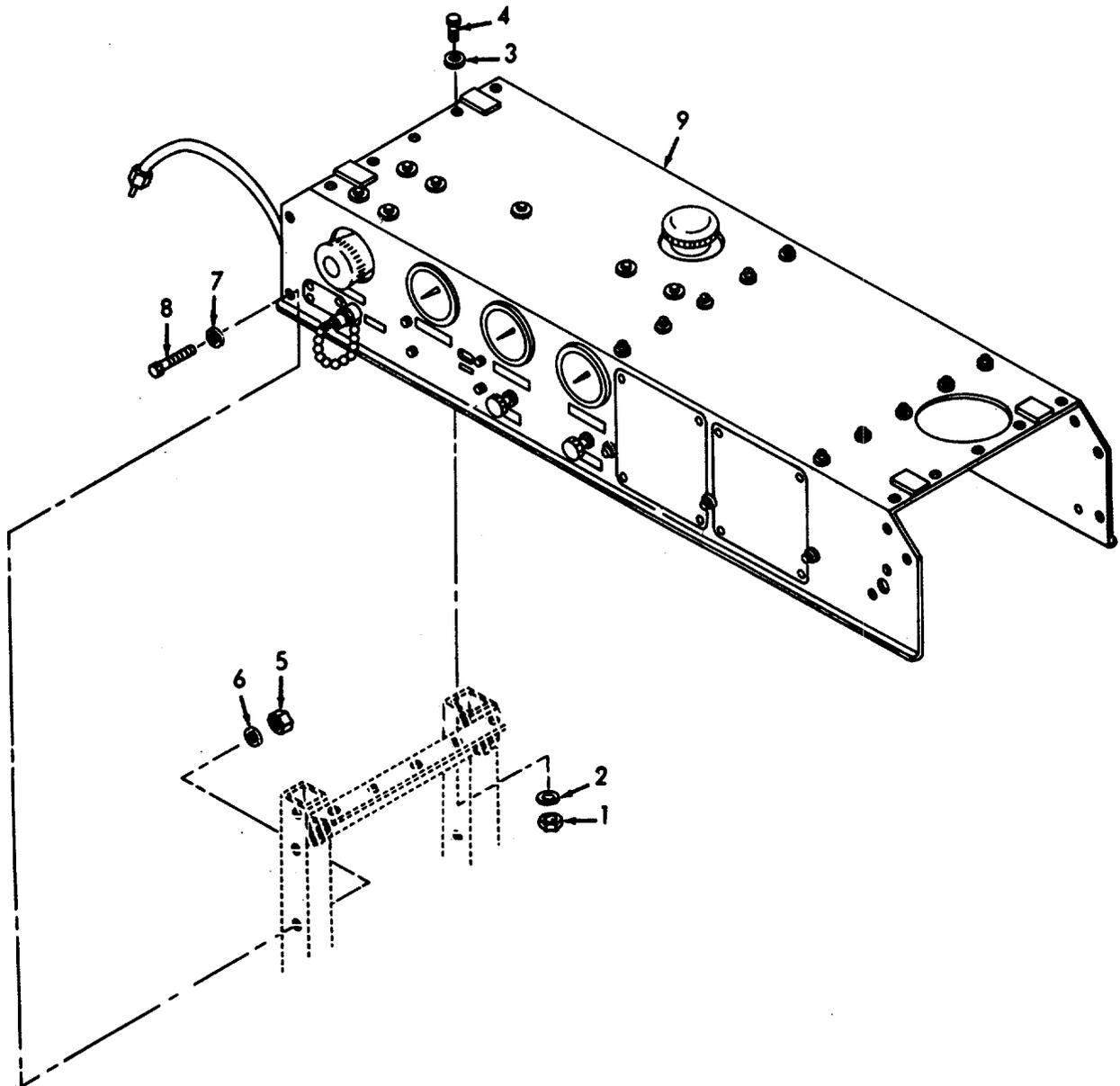
c Installation

- (1) Install locknuts (5, fig. 5-1), flat- washers (6 and 7) and capscrews (8) securing roof assembly (9) to the frame and axle assembly.
- (2) Install locknuts (1), flatwashers (2 and 3) and capscrews (4) securing roof assembly (9) to the frame and axle assembly.
- (3) Connect all lines and fittings, (air, fuel and oil), connected to the roof assembly and its components (fig. 5-5).

5-9 Dehydrator

a Removal.

- (1) Disconnect pipe elbows, dehydrator inlet and outlet (1 and 2, fig. 5-2).
- (2) Remove locknuts (3), flatwashers (4), spacers (5), flatwashers (6), bolts (7), and bracket (8).
- (3) Remove locknuts (9), flatwashers (10 and 11), bolts (12) and bracket (13).
- (4) Remove nuts (14), flatwashers (15) and U-bolt (16) freeing dehydrator (17) from frame and axle assembly.



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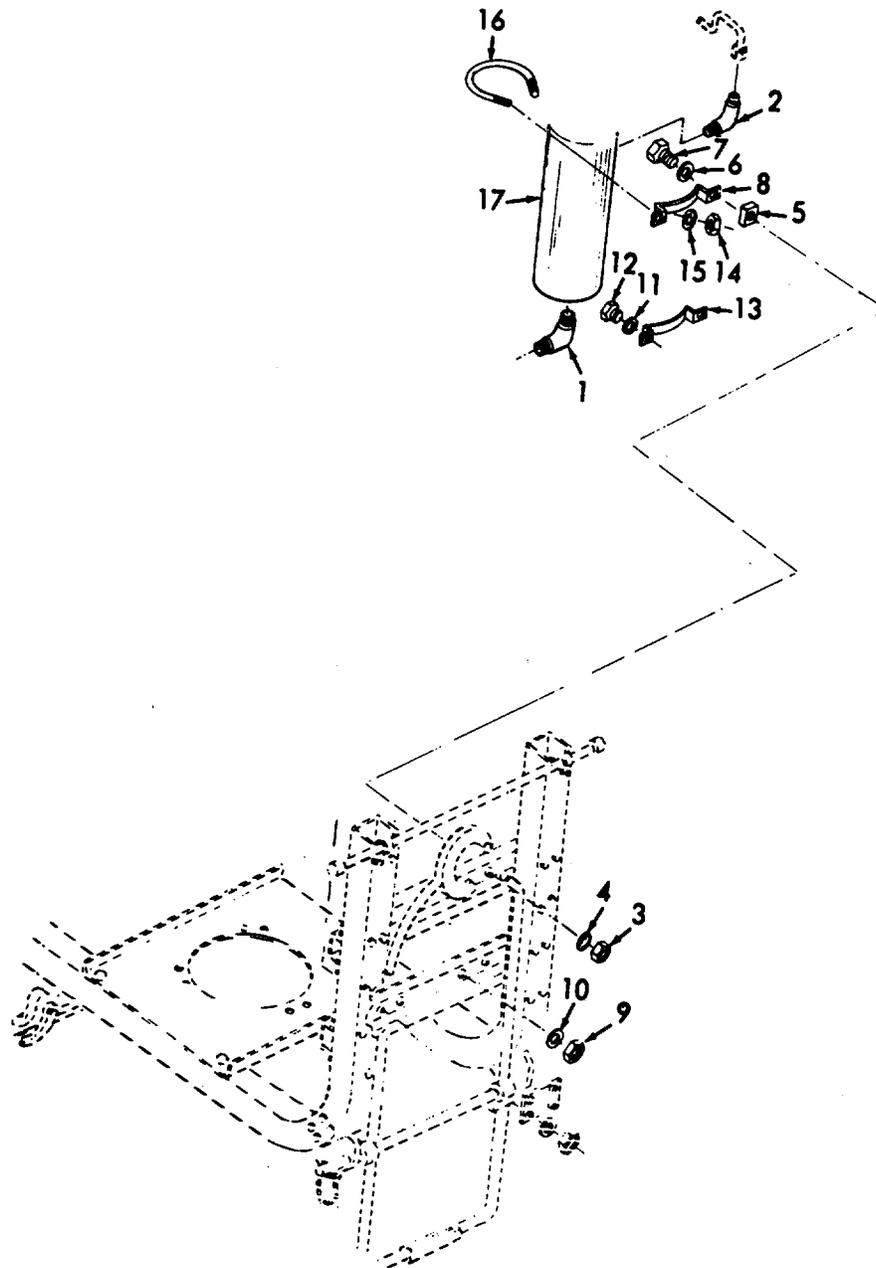
- | | | | | |
|---------------|---------------|---------------|---------------|------------|
| 1. Locknut | 3. Flatwasher | 5. Locknut | 7. Flatwasher | 9. Roof ay |
| 2. Flatwasher | 4. Capscrew | 6. Flatwasher | 8. Capscrew | |

Figure 5-1. Roof Assembly

WARNING

Dry cleaning solvent, P-D-80, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100°F 138°F (38°C to 59°C).

- b. *Cleaning.* Clean the dehydrator with cleaning solvent, Fed. Spec. P-D-680, and dry thoroughly using compressed air.
- c. *Inspection.* Inspect metal parts for dents, scratches, breaks, and cracks, warpage or other damage. Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.



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- | | | | | | |
|------------|---------------|------------|----------------|----------------|----------------|
| 1. Elbow | 4. Flatwasher | 7. Bolt | 10. Flatwasher | 13. Bracket | 16. U-bolt |
| 2. Elbow | 5. Spacer | 8. Bracket | 11. Flatwasher | 14. Nut | 17. Dehydrator |
| 3. Locknut | 6. Flatwasher | 9. Locknut | 12. Bolt | 15. Flatwasher | |

Figure 5-2. Dehydrator

d. Installation.

- (1) Install nuts (14, fig. 5-2), flatwashers (15) and U-bolt (16) securing dehydrator (17) to the frame and axle assembly.
- (2) Install locknuts (9), flatwashers (10 and 11), bolts (12) and bracket (13).
- (3) Install locknuts (3), flatwasher (4), spacers (5), flatwashers (6), bolts (7), and bracket (8).
- (4) Connect pipe elbows, dehydrator inlet and outlet (1 and 2).

5-10. Moisture Separator and Sphere

a. Removal.

- (1) Remove outlet tube (1, fig. 5-3), elbow (2), nut (3), ring (4) and packing (5).
- (2) Remove elbow (6), nut (7), ring (8) and packing (9).

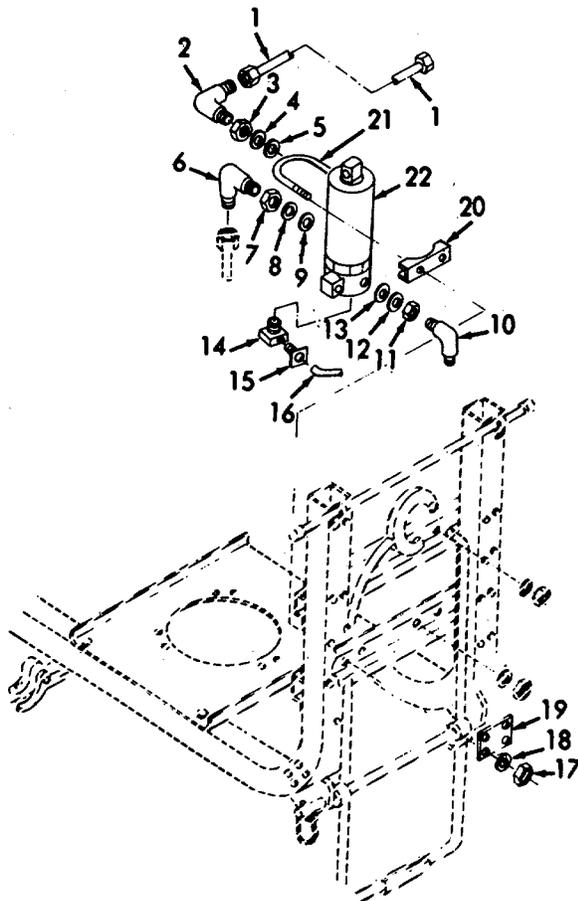
- (3) Remove elbow (10), nut (11), ring (12) and packing (13).
- (4) Remove nylon fitting (14), locknut (15) and nylon tubing (16).
- (5) Remove nuts (17), flatwashers (18), warning plate (19), saddle (20) and U-bolt (21) freeing moisture separator (22) from frame and axle assembly.
- (6) Remove tube (1, fig. 5-4), safety disc fitting (2), packing (3), tube tee (4), hexagon nut (5), backup ring (6) and packing (7 and 8).
- (7) Remove strap (9), locknuts (10), flat-

washers (11), machine screws (12), footman loop (13) and bracket (14).

- (8) Remove locknuts (15), flatwashers (16), cushion clamp (17), flatwashers (18), machine screws (19), footman loop (20), pads (21) and bracket (22) securing sphere (23) to the frame and axle assembly.

WARNING

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

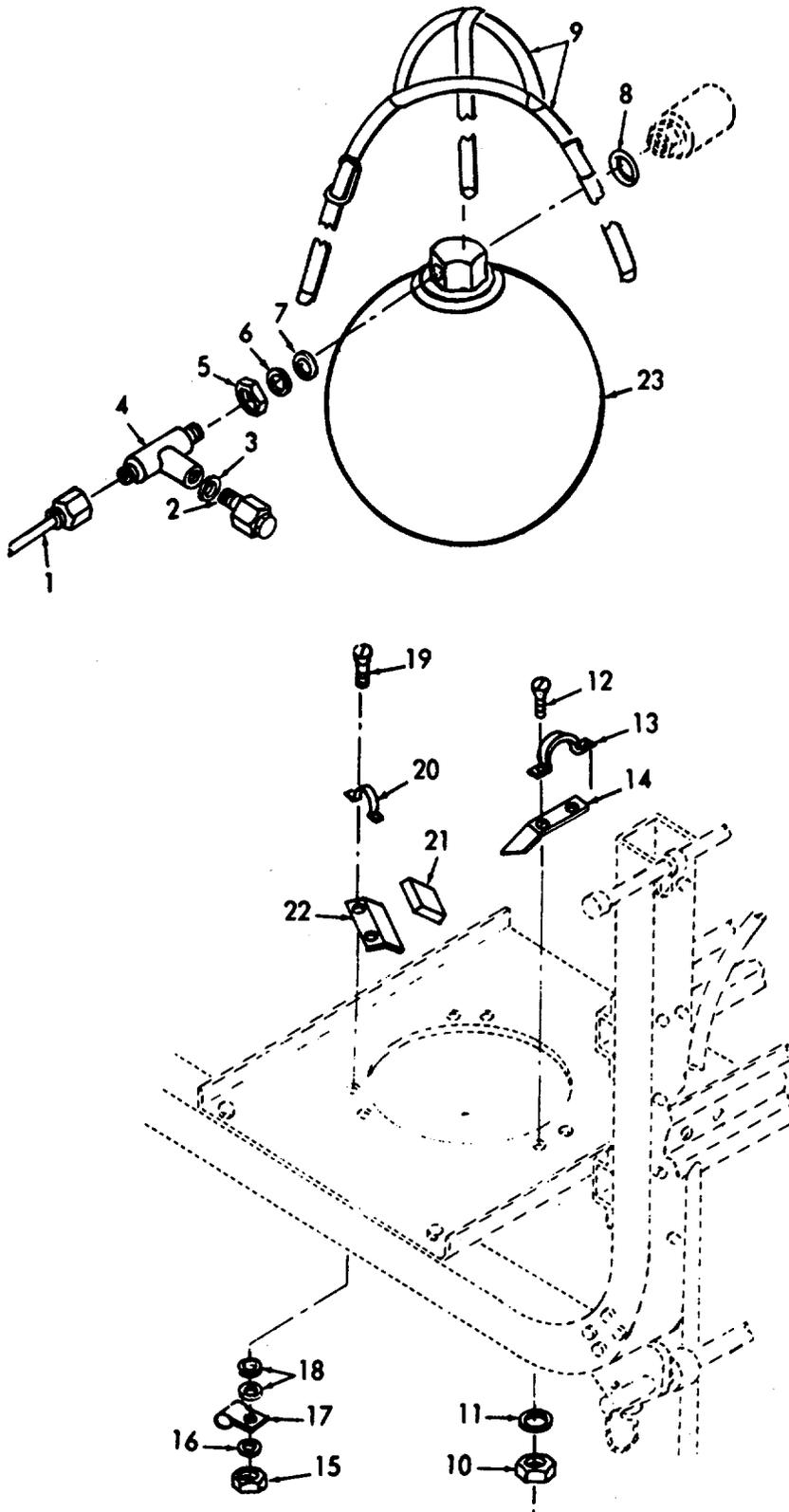


TS014512

- | | |
|----------------|------------------------|
| 1. Outlet tube | 12. Ring |
| 2. Elbow | 13. Packing |
| 3. Nut | 14. Fitting |
| 4. Ring | 15. Locknut |
| 5. Packing | 16. Nylon tubing |
| 6. Elbow | 17. Nut |
| 7. Nut | 18. Flatwasher |
| 8. Ring | 19. Warning plate |
| 9. Packing | 20. Saddle |
| 10. Elbow | 21. U-bolt |
| 11. Nut | 22. Moisture separator |

Figure 5-3. Moisture Separator

- b *Cleaning.* Clean the moisture separator and sphere with cleaning solvent, Fed. Spec P-D-680, and dry thoroughly using filtered compressed air.
- c *Inspection.*
 - (1) Inspect metal parts for dents, scratches, breaks, cracks, burrs, warpage, rough edges or other damage.
 - (2) Inspect packing and tubing for cracks and deterioration.
 - (3) Inspect tee, screws, and nuts for thread damage.
 - (4) Inspect clamps washers, and straps for corrosion, cuts or fraying.
 - (5) Inspect sphere mounting pads for dry rot, splits or other damage.
 - (6) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.
- d. *Installation.*
 - (1) Install locknuts (15, fig. 5-4), flatwashers (16), cushion clamp (17), flatwashers (18), machine screws (19), footman loop (20), pads (21), and bracket (22) securing sphere (23) to the frame and axle assembly.
 - (2) Install strap (9), locknuts (10), flatwashers (11), machine screws (12), footman loop (13) and bracket (14).
 - (3) Install tube (1), safety disc fitting (2), packing (3), tube tee (4), hexagon nut (5), backup ring (6) and packing (7 and 8).
 - (4) Install nuts (17, fig. 5-3), flatwashers (18), warning plate (19), saddle (20) and U-bolt (21) securing moisture separator (22) to frame and axle assembly.
 - (5) Install nylon fitting (14), locknut (15) and nylon tubing. (16).
 - (6) Install elbow (10), nut (11), ring (12) and packing (13).



TS014513

- 1. Tube
- 2. Disc fitting
- 3. Packing
- 4. Tube tee
- 5. Hexagon nut
- 6. Backup ring
- 7. Packing
- 8. Packing
- 9. Strap
- 10. Locknut
- 11. Flatwasher
- 12. Machine screw
- 13. Footman loop
- 14. Bracket
- 15. Locknut
- 16. Flatwasher
- 17. Cushion clamp
- 18. Flatwasher
- 19. Machine screw
- 20. Footman loop
- 21. Pad
- 22. Bracket
- 23. Sphere

Figure 5-4. Sphere
5-13

- (7) Install elbow (6), nut (7), ring (8) and packing (9).
- (8) Install outlet tube (1), elbow (2), nut (3), ring (4) and packing (5).
- (9) Apply torque as applicable, see table 5-2 for torque values.

5-11 Engine Assembly

- a *General.* The gasoline engine is located over the axle, at approximately the midpoint of the air compressor. The engine is secured to the frame assembly by heavy right-angled engine mounting brackets, rubber shockmounts, bolts, washers and nuts. The gasoline engine provides the required rotational force to drive the air compressor.
- b *Maintenance.* Field maintenance personnel are authorized to replace the gasoline engine and the compressor/cooler assembly. In addition, field maintenance personnel are authorized to perform adjustment and/or replacement of the gasoline engine contact assembly, spark plugs, condenser, carburetor and air cleaner assembly, rope starter, muffler assembly, fuel tank with fitting, filler cap assembly and fuel line assembly after removal of the gasoline engine from the air compressor. Refer to TM 5-2805-257-14 for engine maintenance.
- c *Removal.*

NOTE

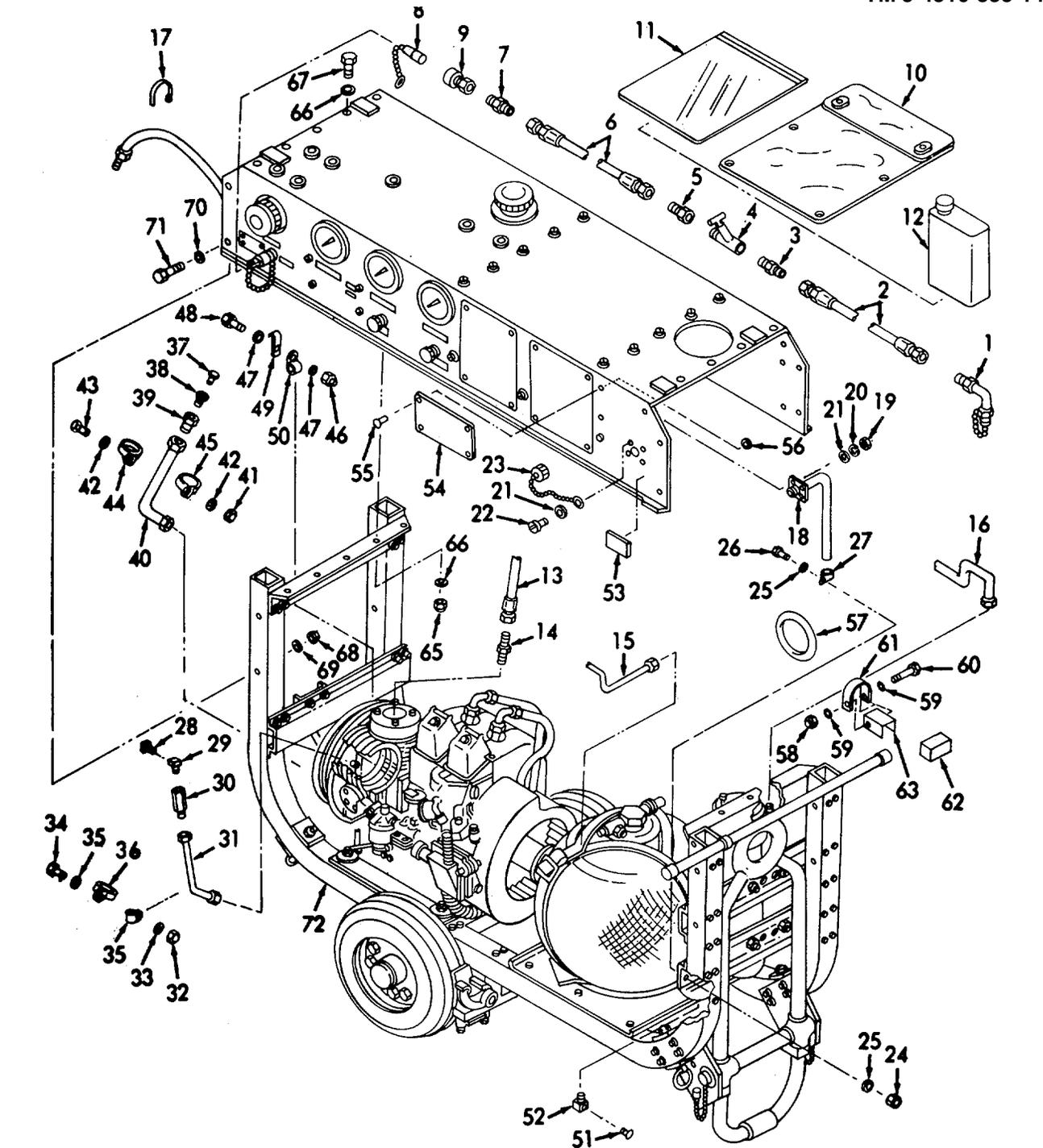
Provide suitable support under engine before removing mounting hardware.

- (1) Disconnect the fuel supply line (13, fig. 5-5) at the fuel line filter and drain the fuel tank into a suitable container. Drain the oil from the engine crankcase by removing the plug in the crankcase bottom.
- (2) Block up the right hand side of the compressor preparatory to removing the right hand wheel and hub assembly. Remove the hub cap of wheel and hub assembly (170, fig. 5-6), cotter pin (171), nut (172) and washers (173 and 174). Remove the wheel and hub assembly.
- (3) Support the engine with suitable blocks and remove the bolts (66 and 69, fig. 5-6), spacers (70), and flashers (64, 65, 67 and 68).
- (4) Remove the right hand engine mount (191, fig. 56) from the assembly by removing nuts (192 and 199), washers (193 and 200). The cup washers and shockmount components may be lifted up as a unit.
- (5) Disconnect the spark plug leads from the plugs, to provide additional clearance.
- (6) Slide the engine (63, fig. 5-6) sideways to the right side of the air compressor, and remove the engine, tipping it as necessary.
- (7) Remove the screw (62, fig. 5-6) and the splined crankshaft adapter (61).

WARNING

Dry cleaning solvent, P-D-680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100F° - 138F° (38°C to 590C).

- d *Cleaning.* Clean the engine with cleaning solvent, Fed. Spec. P-D-680, and dry thoroughly using compressed air.
- e *Inspection.*
 - (1) Inspect metal parts for dents, scratches, breaks, cracks, burrs, rough edges or thread damage.
 - (2) Inspect engine externally for damage or defective parts.
 - (3) Inspect crankshaft spline coupling for scoring and wear.
 - (4) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.
- f *Installation.*
 - (1) Install the engine, tipping it as necessary, and slide the engine (63, fig. 5-6) sideways to the left side of the air compressor.
 - (2) Connect the spark plug leads to the plug.
 - (3) Install the right-hand engine mount (191) on the assembly by installing nuts (192 and 199), washers (193 and 200). The cup washers and shockmount components may be lowered as a unit.
 - (4) With the engine supported with suitable blocks, install the bolts (66 and 69), spacers (70), and washers (64, 65, 67 and 68).
 - (5) With the right-hand side of the compressor blocked up preparatory to installing the right hand wheel and hub assembly. Install the hub cap of wheel and hub assembly,
 - (6) Connect the fuel supply line (13, fig. 5-5) at fuel line filter.
 - (7) Tighten all bolts, nuts and connections. Refer to the torque values listed in table 5-2.
 - (8) With the engine securely mounted in the frame and the fuel supply hose connected, replenish the fuel supply in the tank. Refill the engine crankcase with the specified lubricant (see the lubrication order).
 - (9) Install the splined crankshaft (61) on



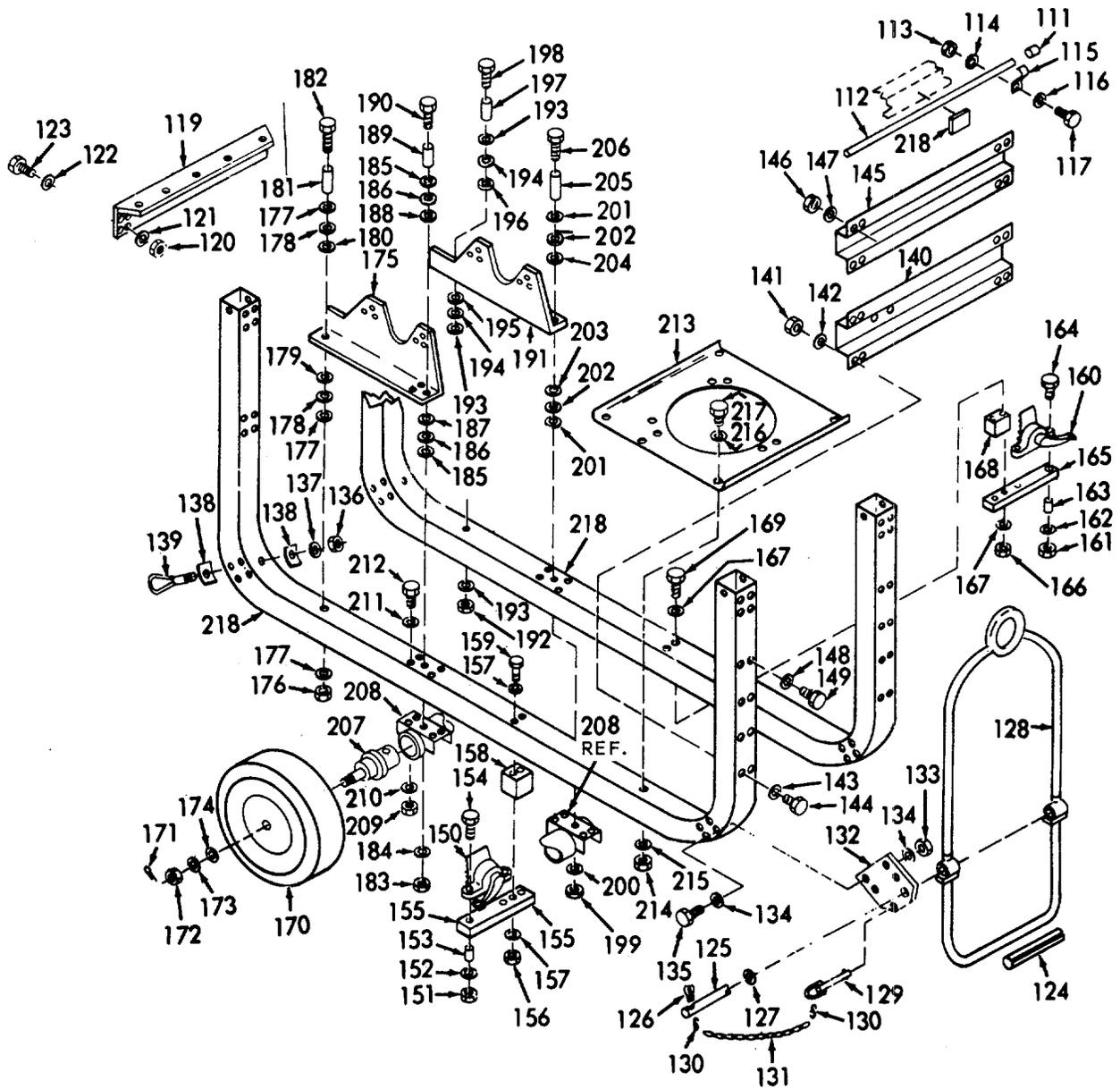
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- | | | | | |
|---------------------|---------------------------|---------------------------|---------------------------|------------------------|
| 1. Chuck, charging | 15. Tube, sphere | 29. Fitting, 90° elbow | 43. Screw, fillister head | 58. Nut, lock |
| 2. Hose | 16. Tube, dehydrator | 30. Connector | 44. Clamp, cushion | 59. Washer, flat |
| 3. Nipple | 17. Tie wrap | 31. Tube, oil pressure | 45. Clamp, cushion | 60. Screw, hex head |
| 4. Valve, servicing | 18. Cable | 32. Nut, hex lock | 46. Nut, lock | 61. Strap lifting ring |
| 5. Fitting | 19. Nut, hex | 33. Washer, flat | 47. Washer, flat | 62. Pad, mount |
| 6. Hose | 20. Washer, lock | 34. Screw, fillister head | 48. Screw, fillister head | 63. Cover |
| 7. Nipple | 21. Washer, flat | 35. Clamp, cushion | 49. Clamp | 64. Roof assembly |
| 8. Plug | 22. Screw, fillister head | 36. Clamp, cushion | 50. Clamp, cushion | 65. Nut, hex lock |
| 9. Coupling | 23. Cap, protection | 37. Nut | 51. Nut | 66. Washer, flat |
| 10. Case | 24. Nut, hex lock | 38. Connector | 52. Fitting, 90° elbow | 67. Screw, hex head |
| 11. Envelope | 25. Washer, flat | 39. Connector | 53. Plate, instruction | 68. Nut, hex lock |
| 12. Oil, compressor | 26. Screw, hex head | 40. Tube | 54. Nameplate | 69. Washer, flat |
| 13. Hose, fuel | 27. Clamp, cable | 41. Nut, hex lock | 55. Rivet | 70. Washer, flat |
| 14. Fitting | 28. Nut | 42. Washer, flat | 56. Washer, flat | 71. Screw, hex head |
| | | | 57. Ring, lifting | 72. Frame assembly |

Figure 5-5. Air Compressor Assembly

- | | |
|------------------------------|----------------------------------|
| 1. Plate, tire pressure | 57. Washer, flat |
| 2. Plate, lubrication | 58. Washer, lock |
| 3. Rivet | 59. Bolt, hex head |
| 4. Washer, flat | 60. Nipple |
| 5. Packing, preformed | 61. Adapter, crankshaft |
| 6. Valve, relief sphere | 62. Screw, crankshaft adapter |
| 7. Packing, preformed | 63. Engine, gasoline 3 hp |
| 8. Plug | 64. Washer, flat |
| 9. Disc | 65. Washer, lock |
| 10. Gasket | 66. Bolt, hex head |
| 11. Body | 67. Washer, flat |
| 12. Packing, preformed | 68. Washer, lock |
| 13. Ring, backup | 69. Bolt, hex head |
| 14. Nut, hex | 70. Spacer, engine mount |
| 15. Tee | 71. Tube, moisture separator out |
| 16. Sphere | 72. Elbow |
| 17. Strap, sphere | 73. Nut, self-locking |
| 18. Pad, mounting | 74. Washer, flat |
| 19. Bracket, sphere mounting | 75. U-bolt, dehydrator |
| 20. Nut, self-locking | 76. Cap, dehydrator |
| 21. Washer, flat | 77. Packing, preformed |
| 22. Clamp, cushion | 78. Ring, backup |
| 23. Screw, flat head | 79. Packing, preformed |
| 24. Footman, loop | 80. Packing, preformed |
| 25. Bracket, sphere mounting | 81. Body, dehydrator |
| 26. Nut, self-locking | 82. Cartridge |
| 27. Washer, flat | 83. Bracket, dehydrator |
| 28. Screw, flat head | 84. Nut, self-locking |
| 29. Footman, loop | 85. Washer, flat |
| 30. Tube, aftercooler | 86. Spacer |
| 31. Union | 87. Bolt, hex head |
| 32. Aftercooler | 88. Bracket, dehydrator |
| 33. Nut, self-locking | 89. Nut, self-locking |
| 34. Washer, flat | 90. Washer, flat |
| 35. Screw, fillister head | 91. Bolt, hex head |
| 36. Clamp, cushion | 92. Packing, preformed |
| 37. Nut, self-locking | 93. Ring, backup |
| 38. Washer, flat | 94. Nut, hex |
| 39. Screw, fillister head | 95. Elbow |
| 40. Clamp, cushion | 96. Moisture separator |
| 41. Bracket | 97. Nut, self-locking |
| 42. Washer | 98. Washer, flat |
| 43. Nut, self-locking | 99. Saddle, moisture separator |
| 44. Washer, flat | 100. U Bolt, moisture separator |
| 45. Screw, fillister head | 101. Plate, warning |
| 46. Clamp, cushion | 102. Bracket, angle drive |
| 47. Drive, right angle | 103. Nut, self-locking |
| 48. Washer, flat | 104. Washer, flat |
| 49. Coupling | 105. Bolt, hex head |
| 50. Tube, relief valve | 106. Bracket, support front |
| 51. Valve | 107. Nut, self-locking |
| 52. Nut, self-locking | 108. Washer, flat |
| 53. Washer, flat | 109. Washer, flat |
| 54. Screw, fillister head | 110. Bolt, hex head |
| 55. Clamp, cushioned | |
| 56. Compressor/cooler ay | |

Figure 5-6. Engine and Compressor Assembly (sheet 1 of 2) (Continued).



TS014516

Figure 5-6. Engine and Compressor Assembly (sheet 2 of 2) (Continued)

111. Cap, protective	165. Block, brake mounting
112. Handle	166. Nut, self-locking
113. Nut, self-locking	167. Washer, flat
114. Washer, flat	168. Spacer
115. Clamp, handle	169. Bolt, hex head
116. Washer, flat	170. Wheel and hub ay
117. Bolt, hex head	171. Pin, cotter
118. Pad, mounting	172. Nut, castle
119. Support, top	173. Washer, flat
120. Nut, self-locking	174. Washer, thrust
121. Washer, flat	175. Bracket, engine
122. Washer, flat	176. Nut, self-locking
123. Bolt, hex head	177. Washer, flat
124. Pad	178. Washer, cup
125. Tube, spreader	179. Ring, shock mount
126. Pin, cotter	180. Bushing, shock mount
127. Washer, flat	181. Spacer
128. Tow bar	182. Bolt, hex head
129. Pin, quick release	183. Nut, self-locking
130. Hook chain	184. Washer, flat
131. Chain	185. Washer, flat
132. Bracket, tow bar mounting	186. Washer, cup
133. Nut, self-locking	187. Ring, shock mount
134. Washer, flat	188. Bushing, shock mount
135. Bolt, hex head	189. Spacer
136. Nut, self-locking	190. Bolt, hex head
137. Washer, flat	191. Bracket, engine
138. Support, tie-down	192. Nut, self-locking
139. Tiedown	193. Washer, flat
140. Bracket, support bottom	194. Washer, cup
141. Nut, self-locking	195. Ring, shock mount
142. Washer, flat	196. Bushing, shock mount
143. Washer, flat	197. Spacer
144. Bolt, hex head	198. Bolt, hex head
145. Bracket, support top	199. Nut, self-locking
146. Nut, self-locking	200. Washer, flat
147. Washer, flat	201. Washer, flat
148. Washer, flat	202. Washer, cup
149. Bolt, hex head	203. Ring, shock mount
150. Brake	204. Bushing, shock mount
151. Nut, self-locking	205. Spacer
152. Washer, flat	206. Bolt, hex head
153. Stop, nut and brake	207. Spindle
154. Bolt, hex head	208. Axle
155. Block, brake mounting	209. Nut, self-locking
156. Nut, self-locking	210. Washer, flat
157. Washer, flat	211. Washer, flat
158. Spacer	212. Bolt, hex head
159. Bolt, hex head	213. Plate, sphere mounting
160. Brake	214. Nut, self-locking
161. Nut, self-locking	215. Washer, flat
162. Washer, flat	216. Washer, flat
163. Stop, nut and brake	217. Bolt, hex head
164. Bolt, hex head	218. Frame

Table 5-6. Engine and Compressor Assembly (sheet 2 of 2) (Continued)

the rear of the engine shaft with the screw (62). Tighten and torque the attaching screws to 235 inch-pounds (2.72 kg m).

5-12. Compressor/Cooler

- a. *General.* The compressor is attached to the gasoline engine. The compressor assembly consists of the compressor, fan, relief valves, fittings, clamps, intercoolers, aftercooler tube and tubes required to produce and cool the compressed air delivered by the air compressor.
- b. *Removal.*
 - (1) Disconnect the flexible drive shaft from the angle drive (47, fig. 5-6).
 - (2) Remove rear support bracket (106, fig. 5 6) by reversing the attaching nuts (107), washers (108 and 109) and bolts (110). Coupling (49) may remain on either the angle drive (47) or the compressor crankshaft.
 - (3) Disconnect the aftercooler (32, fig. 5-6) at the union (31). Remove nut (43), washers (44), screw (45) which secure clamp (46) to the aftercooler.
 - (4) Disconnect the 4th stage relief valve tube (50, fig. 5-6) at the tee and at the relief valve (51). Remove the tube.
 - (5) Place a suitable container under the compressor magnetic drain plug. Remove the plug and drain the sump.
 - (6) Disconnect the nut (28, fig. 5-5), securing the flexible tubing to the oil pressure tube elbow (29).
 - (7) Disconnect the nut (37, fig. 5-5) securing the flexible tubing to the oil supply tube elbow.
 - (8) Remove the four bolts (59, fig. 5-6) and washers (58 and 57) which secure the compressor to the engine (63).
 - (9) Slide the compressor-cooler assembly (56, fig. 5-6) to the rear of the cart sufficiently to disengage the splines of adapter (61). Remove the assembly from the compressor.

WARNING

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

- c. *Cleaning.* Clean the compressor/cooler with cleaning solvent, Fed. Spec. P-D-680, and dry thoroughly, using filtered compressed air.
- d. *Inspection.*
 - (1) Inspect metal parts for dents, scratches, cracks, breaks, burrs, rough edges or other damage.
 - (2) Inspect tubing for cracks and deterioration.
 - (3) Inspect crankshaft coupling for scoring.
 - (4) Inspect compressor/cooler externally for damage and defective parts.
 - (5) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.
- e. *Installation.*
 - (1) Coat the external splines of the crankshaft adapter with grease, MIL-G-23827.

CAUTION

Exercise extreme care during installation to preclude damage to the intercoolers or relief valves.

- (2) Install the assembly to the compressor. Slide the compressor/cooler assembly (56, fig. 5-6) to the front of the cart sufficiently to engage the splines of adapter (61).
- (3) Install the four bolts (59) and washers (58 and 57) which secure the compressor to the engine (63).
- (4) Connect the nut (37, fig. 5-5), securing the flexible tubing to the oil supply tube elbow.
- (5) Connect the nut (28), securing the flexible tubing to the oil pressure tube elbow (29).
- (6) Connect the 4th stage relief valve tube (50, fig. 5-6) at the tee and at the relief valve (51). Install the tube.
- (7) Install nut (43), washers (44), screw (45) which secure clamp (46) to the aftercooler. Connect the aftercooler (32) at the union (31).
- (8) Install rear support bracket (106) by reversing the attaching nuts (107), washers (108 and 109) and bolts (110).
- (9) Connect the flexible drive shaft to the angle drive (47).
- (10) Replenish the compressor oil supply after all lines are securely connected. Refer to table 5-2 for torque values.

CHAPTER 6

REPAIR OF ROOF ASSEMBLY AND PNEUMATIC
SYSTEM ACCESSORIES

Section I. ROOF ASSEMBLY

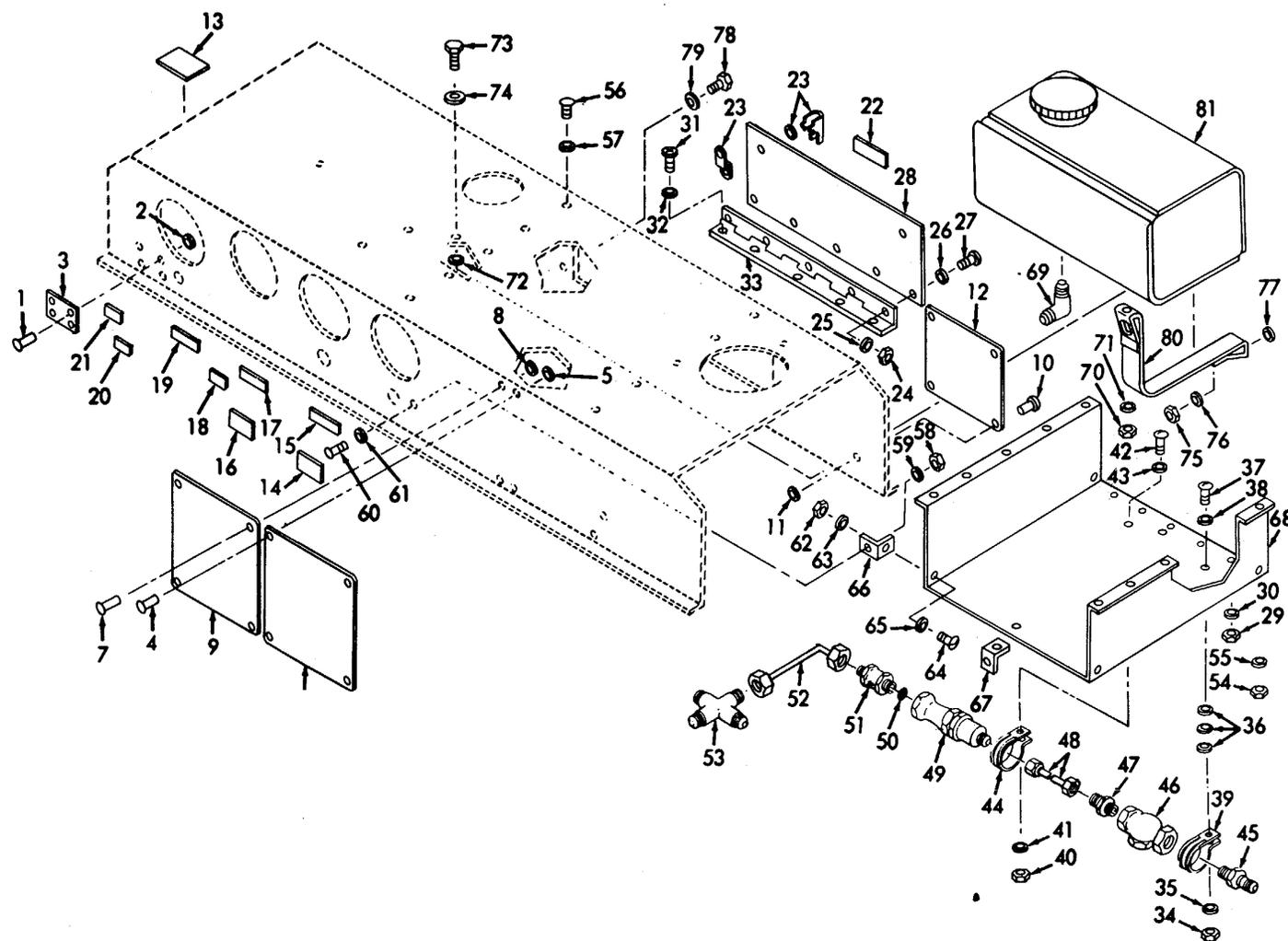
6-1. Roof Assembly and Components

- a. *Removal.* Refer to figure 5-5 and remove the roof assembly.
- b. *Disassembly.*
 - (1) Roof Assembly Components.
 - (a) Remove round head rivet (1, fig. 6-1), pop rivet washer (2) and warning plate (3).
 - (b) Remove round head rivet (4), pop rivet washer (5) and instruction plate (6).
 - (c) Remove round head rivet (7), pop rivet washer (8) and schematic plate (9).
 - (d) Remove round head rivet (10), pop rivet washer (11) and instruction plate (12).
 - (e) Remove pads (13).
 - (f) Remove identification plates (14 through 22).

NOTE

Warning, instruction, data, or ID plates need not be removed unless damaged or illegible.

- (g) Remove latches (23), locknuts (24), flatwashers (25 and 26) and screws (27) freeing door (28).
- (h) Remove locknuts (29), flatwashers (30), screws (31), and flatwashers (32) freeing hinge (33).
- (i) Remove locknut (34), flatwashers (35 and 36), binder head machine screw (37, fig. 6-1), flatwasher (38) and cushioned clamp (39).
- (j) Remove locknut (40), flatwasher (41), binder head machine screw (42), flatwasher (43) and cushioned clamp (44).
- (k) Remove nipple (45), filter (46), nipple (47), tube (48), back pressure valve assembly (49), preformed packing (50), check valve assembly (51), tube (52), and cross (53).
- (l) Remove locknuts (54), flatwashers (55), fillister head machine screws (56) and flat-washers (57).
- (m) Remove locknuts (58), flatwashers (59), fillister head machine screws (60), flat-washers (61), locknuts (62), flatwashers (63) binder head machine screws (64), flatwasher (65) and tray brackets (66 and 67) freeing tray (68).
- (n) Remove elbow fitting (69).
- (o) Remove locknuts (70), flatwashers (71 and 72), hex head machine screws (73) and flatwashers (74).
- (p) Remove locknuts (75), flatwashers (76 and 77), hex head machine screws (78), flat-washers (79) and tank straps (80) freeing fuel tank assembly (81).
- (q) Remove tube clamps as necessary, tag and disconnect all air lines and fittings.
- (r) Remove bulkhead elbow (82), hex bulkhead nut (83), backup ring (84), preformed packing (85), bulkhead tee (86), hex bulkhead nut (87), backup ring (88), preformed packing (89), bulkhead elbow (90), hex bulkhead nut (91), backup ring (92), preformed packing (93) and regulator (94).
- (s) Remove locknuts (95), flatwashers (96), hex head machine bolts (97, fig. 6-1), flat-washers (98), hex head machine bolts (99), lock-washers (100), flatwashers (101) and regulator brackets (102 and 103).
- (t) Remove plug (104) and preformed packing (105).
- (u) Remove bulkhead nut (106), washer (107 and 108), outlet fitting (109), adapter coupling (110) and dust cap (111).
- (v) Remove protector gage (112) and 0-600 gage (113).
- (w) Remove locknut (114), washer (115), fillister head machine screws (116), washer (117) and timer box assembly (118).
- (x) Remove gage connector (119) and 0-4000 gage (120).
- (y) Remove shut-off valve (121).
- (z) Remove gage connector (122) and 0-5000 gage (123).

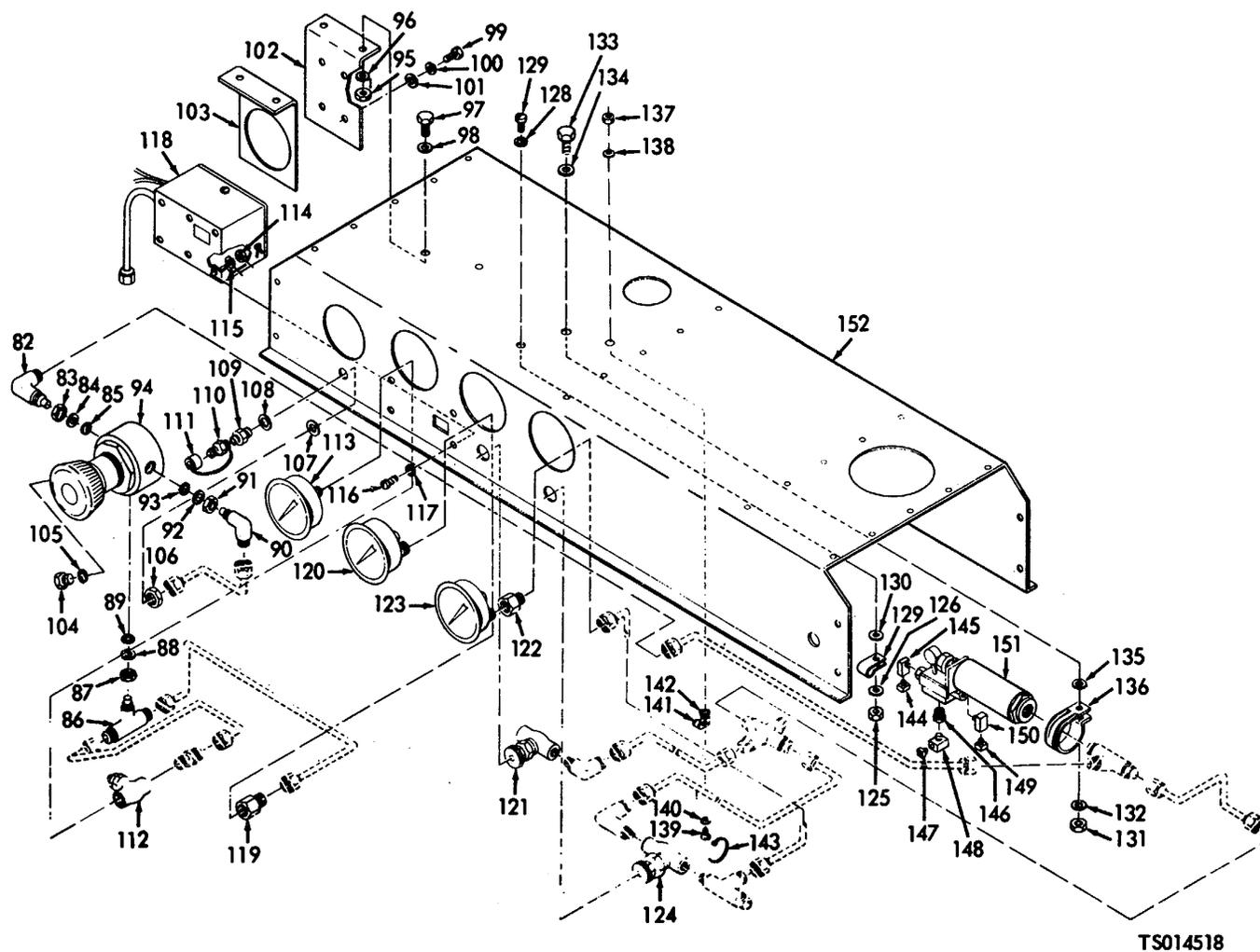


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Figure 6-1. Roof Assembly (Sheet 1 of 2)

- | | | | |
|------------|----------------|----------------|------------------|
| 1. Rivet | 21. Plate | 40. Nut | 61. Flatwasher |
| 2. Washer | 22. Plate | 42. Screw | 62. Nut |
| 3. Plate | 23. Latch | 43. Flatwasher | 63. Flatwasher |
| 4. Rivet | 24. Locknut | 44. Clamp | 64. Screw |
| 5. Washer | 25. Flatwasher | 45. Nipple | 65. Flatwasher |
| 6. Plate | 26. Flatwasher | 46. Filter | 66. Bracket |
| 7. Rivet | 27. Screw | 47. Nipple | 67. Bracket |
| 8. Washer | 28. Door | 48. Tube | 68. Tray |
| 9. Plate | 29. Nut | 49. Valve ay | 69. Fitting |
| 10. Rivet | 30. Flatwasher | 50. Packing | 70. Nut |
| 11. Washer | 31. Screw | 51. Valve ay | 71. Flatwasher |
| 12. Plate | 32. Flatwasher | 52. Tube | 72. Flatwasher |
| 13. Pad | 33. Hinge | 53. Cross | 73. Screw |
| 14. Plate | 34. Nut | 54. Nut | 74. Flatwasher |
| 15. Plate | 35. Flatwasher | 55. Flatwasher | 75. Nut |
| 16. Plate | 36. Flatwasher | 56. Screw | 76. Flatwasher |
| 17. Plate | 37. Screw | 57. Flatwasher | 77. Flatwasher |
| 18. Plate | 38. Flatwasher | 58. Nut | 78. Screw |
| 19. Plate | 39. Clamp | 59. Flatwasher | 79. Flatwasher |
| 20. Plate | 41. Flatwasher | 60. Screw | 80. Strap |
| | | | 81. Fuel tank ay |

Figure 6-1. Roof Assembly (Sheet 1 of 2) (Continued).

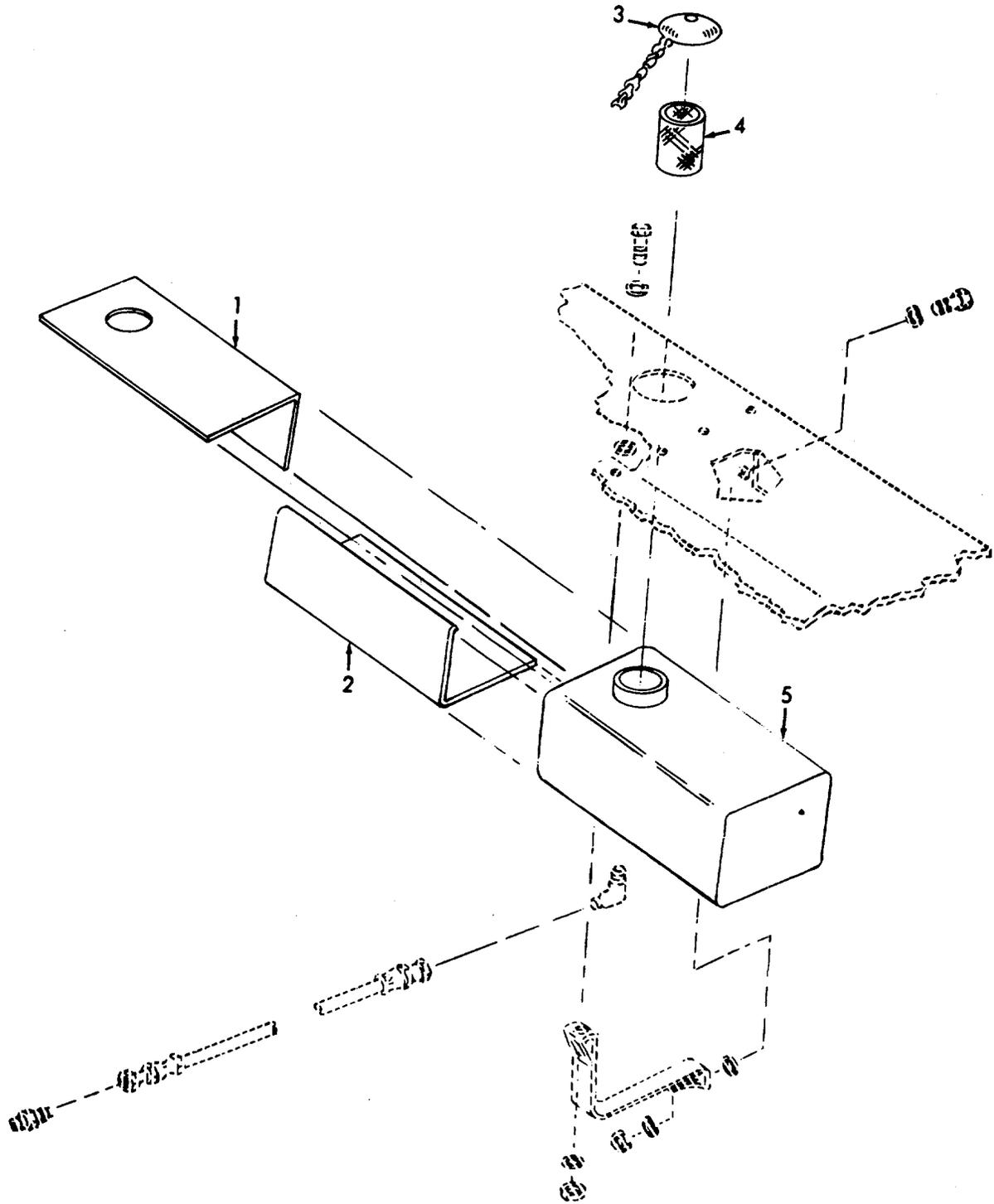


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Figure 6-1. Roof Assembly (Sheet 2 of 2)

- | | | | |
|----------------|-----------------|----------------|--------------|
| 82. Elbow | 100. Lockwasher | 118. Box ay | 136. Clamp |
| 83. Nut | 101. Flatwasher | 119. Connector | 137. Nut |
| 84. Ring | 102. Bracket | 120. Gage | 138. Washer |
| 85. Packing | 103. Bracket | 121. Valve | 139. Screw |
| 86. Tee | 104. Plug | 122. Connector | 140. Washer |
| 87. Nut | 105. Packing | 123. Gage | 141. Clamp |
| 88. Ring | 106. Nut | 124. Valve | 142. Clamp |
| 89. Packing | 107. Washer | 125. Nut | 143. Wrap |
| 90. Elbow | 108. Washer | 126. Washer | 144. Nut |
| 91. Nut | 109. Fitting | 127. Screw | 145. Elbow |
| 92. Ring | 110. Coupling | 128. Washer | 146. Bushing |
| 93. Packing | 111. Dust cap | 129. Washer | 147. Nut |
| 94. Regulator | 112. Gage | 130. Clamp | 148. Elbow |
| 95. Nut | 113. Gage | 131. Nut | 149. Nut |
| 96. Flatwasher | 114. Nut | 132. Washer | 150. Elbow |
| 97. Bolt | 115. Washer | 133. Screw | 151. Valve |
| 98. Flatwasher | 116. Screw | 134. Washer | 152. Roof |
| 99. Bolt | 117. Washer | 135. Washer | |

Figure 6-1. Roof Assembly (Sheet 2 of 2) (Continued).



TS014519

1. Blanket

2. Blanket

3. Cap w/chain

4. Screen

5. Fuel tank

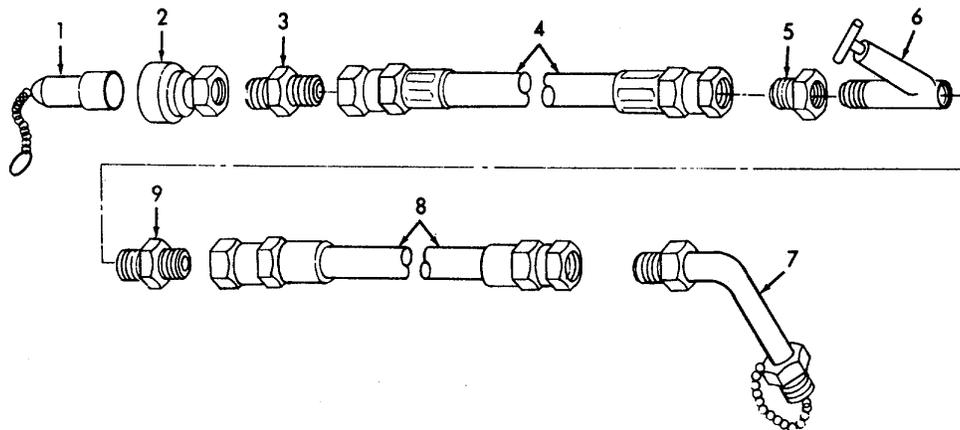
Figure 6-2. Fuel Tank Assembly

- (aa) Remove shut-off valve (124).
- (ab) Remove locknut (125), flatwasher (126), fillister head machine screw (127), flat-washers (128 and 129) and cushioned clamp (130).
- (ac) Remove locknut (131), flatwasher (132), screw (133), flatwashers (134 and 135) and cushioned clamp (136).
- (ad) Remove locknut (137), flatwasher (138), fillister head machine screw (139), flat-washer (140), cushioned clamps (141 and 142) and tie wrap (143).
- (ae) Remove tubing locknut (144), elbow (145), reducer bushing (146), tubing locknut (147), elbow (148), tubing locknut (149), elbow (150) and unloader valve (151) leaving roof (152).
- (2) *Fuel Tank Assembly.*
 - (a) Remove insulator blankets (1 and 2, fig. 6-2).
 - (b) Remove cap with chain (3) and screen (4) leaving fuel tank (5).
- (3) *Charging Chuck Assembly.*
 - (a) Remove protection plug (1, fig. 6-3), hose coupling (2), pipe nipple (3), charging hose (4), fitting (5) and servicing valve (6).
 - (b) Remove charging chuck (7), charging hose (8) and pipe nipple (9).
- (4) *Heater Cable Assembly.*
 - (a) Remove the plain hexagon nut (1, fig. 6-4), flatwashers (2 and 3), fillister head machine screw (4) and protection cap (5).
 - (b) Remove lock hexagon nuts (6), flat-washers (7 and 8), hexagon head machine bolts (9), and cable clamps (10).
 - (c) Remove plain hexagon nuts (11), flat-washers (12 and 13), fillister head machine screws (14) and heater cable assembly (15) attached to moisture separator.

WARNING

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

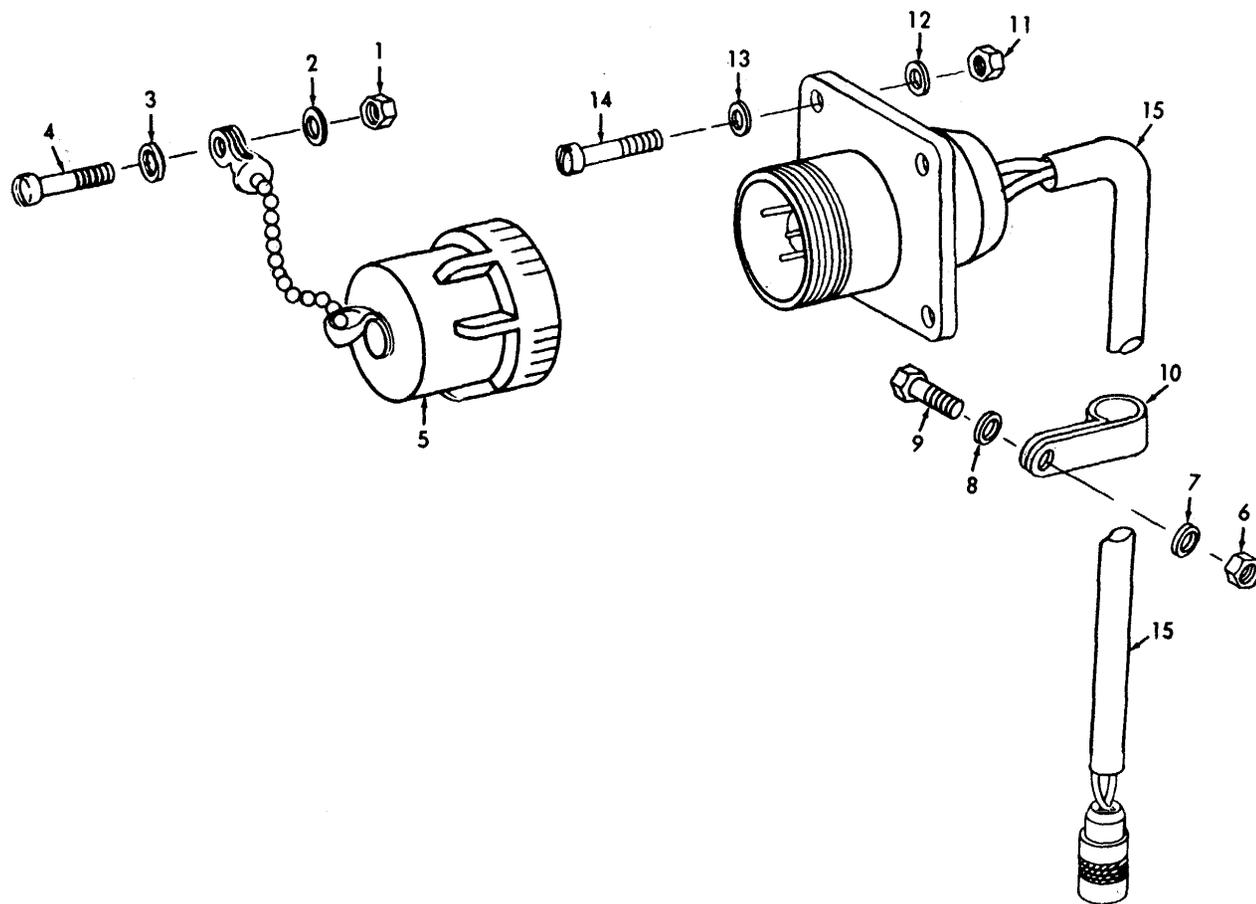
- c. *Cleaning.* Clean all tubing and fittings using cleaning solvent, Fed. Spec. P-D-680, and dry thoroughly using compressed air.
- d. *Inspection.*
 - (1) Inspect metal parts for dents, scratches, breaks, cracks, burrs, rough edges or other damage.
 - (2) Inspect plates for legibility.
 - (3) Inspect fuel tank strap for fraying, cuts and wear.



TS014520

- | | | | | | |
|-------------|-----------|------------|----------|---------|-----------|
| 1. Plug | 3. Nipple | 5. Fitting | 7. Chuck | 8. Hose | 9. Nipple |
| 2. Coupling | 4. Hose | 6. Valve | | | |

Figure 6-3. Charging Chuck Assembly
6-7



TS014521

- | | | | | | | | |
|---------------|---------------|--------|---------------|-----------|----------------|----------------|---------------------|
| 1. Nut | 3. Flatwasher | 5. Cap | 7. Flatwasher | 9. Bolt | 11. Nut | 13. Flatwasher | 15. Heater cable ay |
| 2. Flatwasher | 4. Screw | 6. Nut | 8. Flatwasher | 10. Clamp | 12. Flatwasher | 14. Screw | |

Figure 6-4. Heater Cable Assembly

- (4) Inspect gages for cracks or discolored glass.
 - (5) Inspect flexible shaft for scoring.
 - (6) Inspect service hose for fraying or wear.
 - (7) Inspect all threaded parts for defective or damaged threads.
 - (8) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.
- e. *Repair.*
- (1) Remove dents and scratches from metal parts; weld minor breaks and cracks (roof mounting brackets, etc.).
 - (2) Replace damaged or defective parts as necessary.
- f. *Assembly.*
- (1) *Roof Assembly Components.*
 - (a) Install tubing locknut (144, fig. 6-1), elbow (145), reducer bushing (146), tubing lock- nut (147), elbow (148), tubing locknut (149), elbow (150) and unloader valve (151) on roof (152).
 - (b) Install locknut (137), flatwasher (138), fillister head machine screw (139), flat- washer (140), cushioned clamps (141 and 142) and tie wrap (143).
 - (c) Install locknut (131), flatwasher (132), screw (133), flatwashers (134 and 135) and cushioned clamp (136).
 - (d) Install locknut (125), flatwasher (126), fillister head machine screw (127), flat- washers (128 and 129) and cushioned clamp (130).
 - (e) Install shut-off valve (124).
 - (f) Install gage connector (122) and 0-5000 gage (123).
 - (g) Install shut-off valve (121).
 - (h) Install gage connector (119) and 0-4000 gage (120).
 - (i) Install locknut (114), washer (115), fillister head machine screws (116), washer (117) and timer box assembly (118).
 - (j) Install protector gage (112) and 0-600 gage (113).
 - (k) Install bulkhead nut (106), washer (107 and 108), outlet fitting (109), adapter coupling (110) and dust cap (111).
 - (l) Install plug (104) and preformed packing (105).
 - (m) Install locknuts (95), flatwashers (96), hex head machine bolts (97), flatwashers (98), hex head machine bolts (99), lockwashers (100), flatwashers (101) and regulator brackets (102 and 103).
 - (n) Install bulkhead elbow (82), hex bulk- head nut (83), backup ring (84), preformed packing (85), bulkhead tee (86), hex bulkhead nut (87), backup ring (88), preformed packing (89), bulkhead elbow (90), hex bulkhead nut (91), backup ring (92), preformed packing (93) and regulator (94).
 - (o) Install tube clamps where removed, remove tags and connect all air lines and fittings.
 - (p) Install locknuts (75), flatwashers (76 and 77), hex head machine screws (78), flat- washers (79) and tank straps (80) securing fuel tank assembly (81).
 - (q) Install locknuts (70), flatwashers (71 and 72), hex head machine screws (73) and flat- washers (74).
 - (r) Install elbow fitting (69).
 - (s) Install locknut (58), flatwashers (59), fillister head machine screws (60), flatwashers (61), locknuts (62), flatwashers (63), binder head machine screws (64), flatwashers (65) and tray brackets (66 and 67) freeing tray (68).
 - (t) Install locknuts (64), flatwashers (55), fillister head machine screws (56) and flatwashers (57).
 - (u) Install nipple (45), filter (46), nipple (47), tube (48), back pressure valve assembly (49), preformed packing (50), check valve assembly (51), tube (52), and cross (53).
 - (v) Install locknut (40), flatwasher (41), binder head machine screw (42), flatwasher (43) and cushioned clamp (44).
 - (w) Install locknut (34), flatwashers (35 and 36), binder head machine screw (37), flat- washers (38) and cushioned clamp (39).
 - (x) Install locknuts (29), flatwashers (30), screws (31), and flatwashers (32) freeing hinge (33).
 - (y) Install latches (23), locknuts (24), flatwashers (25 and 26) and screws (27) freeing door (28).
 - (z) Install identification plates (14 through 22) if they were removed.
 - (aa) Install pads (13).
 - (ab) Install round head rivet (10), pop rivet washer (11) and instruction plate (12).
 - (ac) Install round head rivet (7), pop rivet washer (8) and schematic plate (9).
 - (ad) Install round head rivet (4), pop rivet washer (5) and instruction plate (6).
 - (ae) Install round head rivet (1), pop rivet washer (2) and warming plate (3).
 - (af) Apply torque as applicable, see table 5-2 for torque values.
 - (2) *Fuel Tank Assembly.*

- (a) Install cap with chain (3, fig. 6-2) and screen (4) on the fuel tank (5).
- (b) Install insulator blankets (1 and 2).
- (c) Apply torque as applicable, see table 5-2 for torque values.
- (3) *Charging Chuck Assembly.*
 - (a) Install charging chuck (7, fig. 6-3), charging hose (8) and pipe nipple (9).
 - (b) Install protection plug (1), hose coupling (2), pipe nipple (3), charging hose (4), fitting (5) and servicing valve (6).
 - (c) Apply torque as applicable, see table 5-2 for torque values
- (4) *Heater Cable Assembly.*
 - (a) Install plain hexagon nuts (11, fig. 6-4) flatwashers (12 and 13), fillister head machine screws (14) and heater cable assembly (15) to moisture separator.
 - (b) Install lock hexagon nuts (6), flat-washers (7 and 8), hexagon head machine bolts (9), and cable clamps (10)
 - (c) Install the plain hexagon nut (1), flat-washers (2 and 3), fillister head machine screw (4) and protection cap (5).
 - (d) Apply torque as applicable, see table 5-2 for torque values.

Section II. PNEUMATIC SYSTEM ACCESSORIES

6-2. Dehydrator Assembly

- a. *Description.* The pneumatic system accessories group includes all of the interconnecting tubing and hoses, with associated preformed packings and backup rings, shut-off valves, pressure gauges, regulator, quick disconnects, relief valves, check valve, back pressure valve, unloader valve, dehydrator housing, sphere, timer box and moisture separator. These components are located at various points in the air compressor providing the means of conveying and controlling the compressed air delivery from the air compressor.
- b. *Disassembly.*
 - (1) Remove tube elbow (1, fig. 6-5), outlet tube (2), tube elbow (3) and dehydrator tube (4).
 - (2) Remove dehydrator cap (5), backup ring (6), .preformed packing (7 and 8), dehydrator cartridge (9) and preformed packing (10) leaving dehydrator body (11).

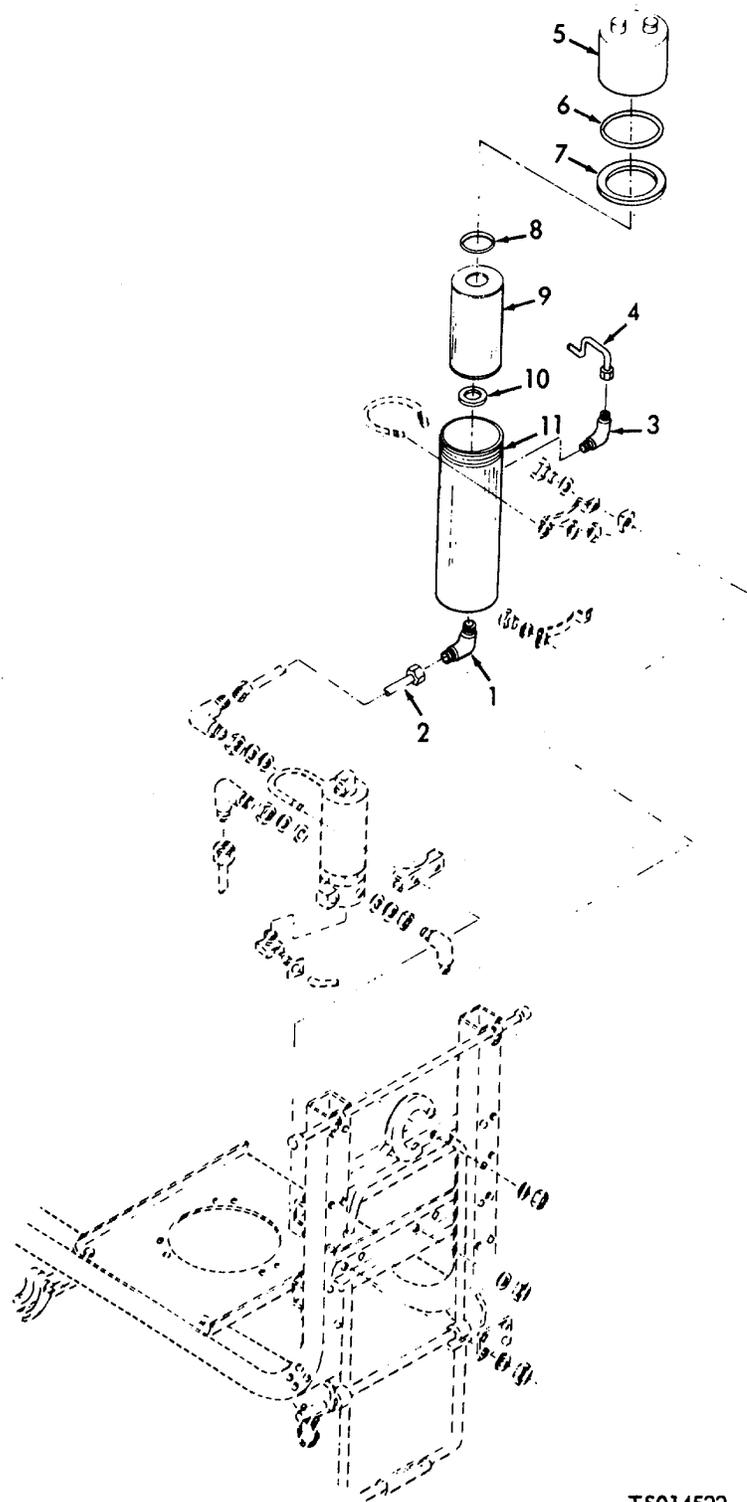
WARNING

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

- c. *Cleaning.* Clean the dehydrator assembly using cleaning solvent, Fed. Spec. P-D-680, and dry thoroughly using filtered compressed air.
- d. *Inspection.*
 - (1) Inspect cap and body for distortion, bulging or damage.
 - (2) Inspect tubing and elbows for cracks, deterioration, or thread damage.
 - (3) Inspect preformed packing for deterioration.
 - (4) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.
- e. *Repair.*
 - (1) Replace damaged cap or body.
 - (2) Replace cartridge and preformed packing.
 - (3) Replace other damaged or defective parts as necessary.
- f. *Assembly.* Assemble the dehydrator assembly in the reverse order of the disassembly and the following instructions. Install a new cartridge in the dehydrator cylinder and screw cap assembly down to a moderately tight fit using a hand tool between the cap lugs. The cutters inside the cylinder cap and body will puncture the cartridge as the cap is screwed down. Record the hour meter reading on the cartridge instruction plate.

6-3. Moisture Separator Assembly

- a. *Disassembly.*
 - (1) Remove cap tape (1, fig. 6-6) and plug (2) from shell (8).
 - (2) Remove ring (3), safety disc (4) and retainer (5).
 - (3) Remove plug (6) and packing (7) from shell (8).
 - (4) Loosen locknut (11) and separate shell (8) from body (21).
 - (5) Remove screws (9) and baffle (10).
 - (6) Remove locknut (11) from body (21) and remove packing (12), back-up ring (13), and inlet tube (14).
 - (7) Remove seat (15) and packing (16).
 - (8) Remove cylinder (17), seat assembly (18), packing (19) and spring (20).



TS014522

1. Elbow
2. Tube

3. Elbow
4. Dehydrator tube

5. Dehydrator cap
6. Ring

7. Packing
8. Packing

9. Cartridge
10. Packing

11. Body

Figure 6-5. Dehydrator Assembly

NOTE

Overhaul of the moisture separator does not require removal of the thermostat (24), electrical connector (27) or nameplate (33), unless replacement of damaged parts is necessary. In this case steps (9) through (13) provide instructions for the removal of these parts.

- (9) Remove screws (22, fig. 6-6) and washers (23) which secure the thermostat (24) to the block (30). Pull the thermostat from the block, unsolder the wires and remove thermostat (24). Remove tubing from wires.
- (10) Remove screws (25) and washers (26). Pull out connector, unsolder the connector wires and remove connector (27).
- (11) Remove screws (28), washers (29) and mounting blocks (30).
- (12) Chip the litharge and glycerin cement from the wire end of the heater cavity, and using a drift pin, tap the heater (31) out of the cavity.
- (13) Remove screws (32) securing name-plate (33) to body (21).

WARNING

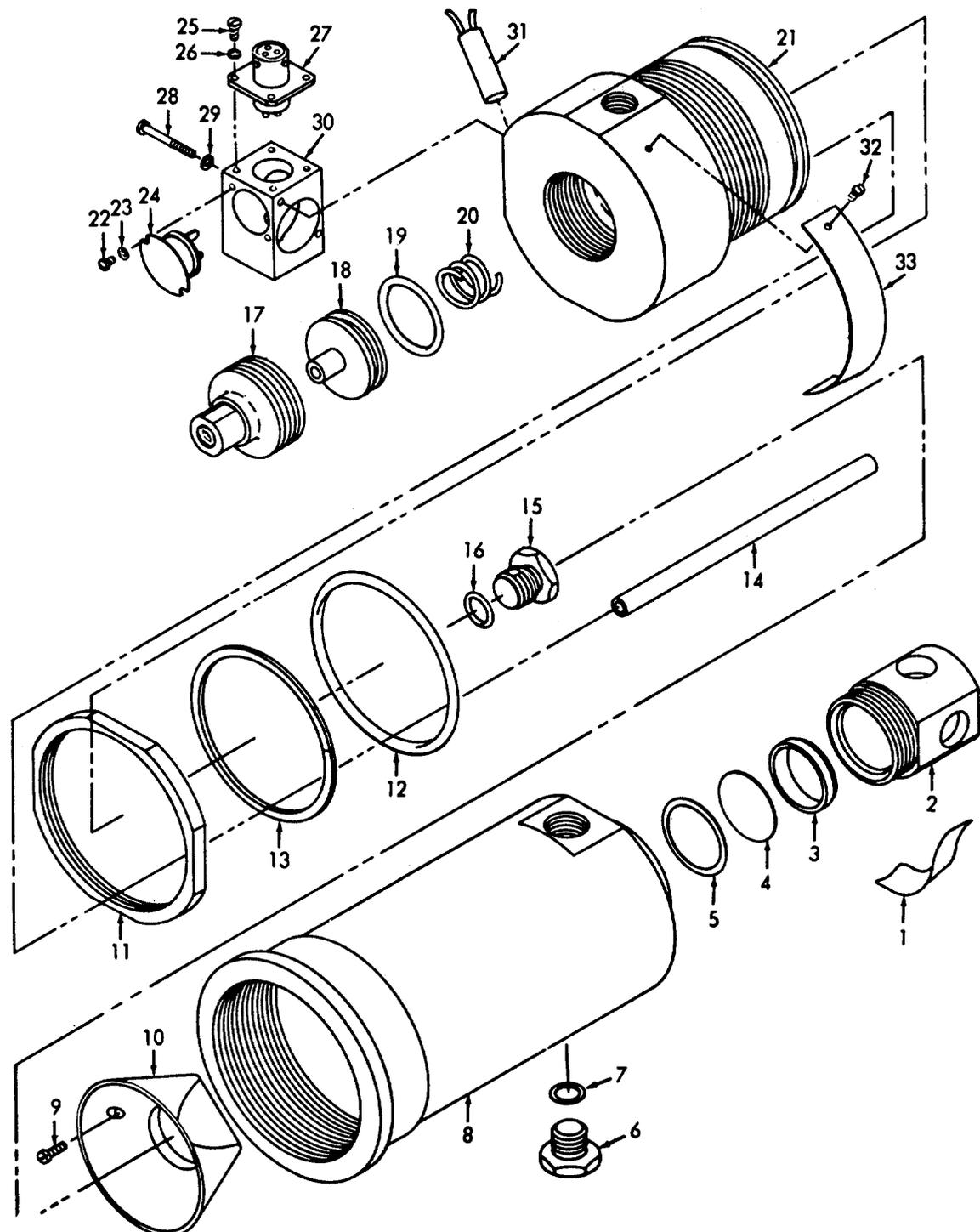
Dry cleaning solvent, P-D-680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100°F. - 138°F. (38°C to 59°C).

- b. *Cleaning.* Clean all metallic parts of the moisture separator assembly using cleaning solvent, Fed. Spec. P-D-680, and dry thoroughly using filtered compressed air.
- c. *Inspection.*
 - (1) Inspect metal parts for dents, scratches, breaks and cracks (body, shell, baffle, etc.).
 - (2) Inspect hardware for burrs and rough edges and thread damage.
 - (3) Inspect preformed packing and tubing for breaks, cracks or other damage.
 - (4) Inspect other parts for damage.
 - (5) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.
- d. *Repair.*
 - (1) Replace damaged metal parts (body, shell, baffle, etc.).
 - (2) Remove burrs and rough edges on hard-ware, replace hardware if thread-damaged.
 - (3) Replace damaged or defective parts as necessary.
 - (4) Replace all preformed packing.
 - (5) Replace cap tape.
- e. *Assembly.*
 - (1) Apply grease, MIL-G-4343B to all preformed packings, backup rings and male threads.
 - (2) Install preformed packing (19, fig. 6-6) on seat assembly (18). Assemble spring (20), seat assembly (18) and cylinder (17) into body (21). Torque the cylinder to 50 inch-pounds (.5809 kg-m).
 - (3) Place preformed packing (16) on seat (15) and screw seat into body (21). Torque to 50 (.5809 kg-m) - 65 (.7607 kg-m) inch-pounds.
 - (4) Apply Loctite sealant to end of inlet tube (14) and insert tube end with sealant into body (21).
 - (5) Install baffle (10) in shell (8) and secure with two screws (9).
 - (6) Place preformed packing (7) on plug (6) and screw plug into the shell. Torque the plug to 200 inch-pounds (2.3234 kg-m).
 - (7) Install nut (11), preformed packing (12) and backup ring (13) on body (21).
 - (8) Apply grease, MIL-G-4343B to the inside of the shell from the top thread to one inch above the thread. Screw body (21) into shell (8), maintaining the gaging dimension of 0.284 inch (.7214 cm) between the lower face of the shell and the upper shoulder of the body. Torque the locknut to 500 inch-pounds (5.7809 kg-m).
 - (9) Install a suitable metal plug with sealing gasket in the safety outlet port of the shell. Proof pressure test the partially assembled moisture separator, in an environmental chamber using clean filtered air and MIL-L-6085A oil.

WARNING

Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment when the system is under pressure. Do not tamper with any pressure relief valves.

- (10) Connect a short length of tubing to the drain port and connect a non-recoil fitting to the end of the tubing. Apply 4900 psig (344.4700 kgs per sq cm) - 5000 psig (351.5000 kgs per sq cm) air pressure to the inlet port and 60 psi (4.2180 kgs per sq cm) - 100 psi (7.0300 kgs per sq cm) oil pressure to the sensing port for one minute. No leakage in excess of 3 cc/hr is permitted except at the dump port.



TS014523

- | | | | | | | |
|-------------|------------|----------------|--------------|----------------|----------------|---------------|
| 1. Tape | 6. Plug | 11. Locknut | 16. Packing | 21. Body | 26. Washer | 30. Block |
| 2. Plug | 7. Packing | 12. Packing | 17. Cylinder | 22. Screw | 27. Connector | 31. Heater |
| 3. Ring | 8. Shell | 13. Ring | 18. Seat ay | 23. Flatwasher | 28. Screw | 32. Screw |
| 4. Disc | 9. Screw | 14. Inlet tube | 19. Packing | 24. Thermostat | 29. Flatwasher | 33. Nameplate |
| 5. Retainer | 10. Baffle | 15. Seat | 20. Spring | 25. Screw | | |

Figure 6-6. Moisture Separator Assembly

CAUTION

Hold unit in 30 degree vertical position with safety outlet up.

- (11) Relieve the inlet pressure; the drain will discharge air when the inlet pressure has decayed. Examine the tested unit; there shall be no indication of permanent deformation.
- (12) Check the moisture separator for leak- age by applying 3000 psi (210.90 kgs per sq cm) pressure to the inlet port and 40 psig (2.8120 kgs sq cm) - 50 psig (3.5150 kgs per sq cm) oil pressure to the sensing port of the cylinder. Air leakage shall not exceed 3 cc per minute at the dump port, 3 cc per hour at other points. There shall be no oil leakage.
- (13) Complete the reassembly of the unit by removing the test plug and adapter. Install safety disc retainer (5), safety disc (4), safety disc ring (3) and safety plug (2). Torque the plug to 1200 inch-pounds (13.82 kg-m). Retorque after 24 hours. Install cap tape (1) around the safety plug outlets.
- (14) Reassemble the electrical components 31, 28 through 30. Prior to soldering wires slip protective tubing over the leads. Back pot the electrical connections with potting compound. Use a compound composed of litharge and glycerine to fill the cavity at the wire end of the heater, and at the mounting block.
- (15) Test the electrical circuit of the moisture separator by checking the electrical continuity between the two pins of the electrical connector with the unit at room temperature. An open circuit shall be indicated.
- (16) Using a 500 volt dc megger, check the resistance between either connector pin and the body. Resistance shall be 50 megohms minimum. Apply a potential of 800 volts rms at 60 cps between pins shorted together and case grounded. Raise gradually in 10 seconds, maintain for one minute and gradually reduce to zero in 20 seconds. Leakage current shall not exceed 500 micro-amperes.
- (17) Lower the temperature of the unit to 35°F. (1.67°C). Again check the electrical continuity between the two pins. The -resistance shall be 8-12 ohms. Slowly increase the temperature of the unit. The circuit must be open before the unit reaches 84°F (28-80°C).

6-4. Sphere Assembly*a. Disassembly.*(1) *Sphere Assembly Components*

- (a) Remove plug and bleeder (1, fig 6-7) and preformed packing (2).
- (b) Remove bottle fitting (3) and gasket (4) leaving sphere (5).

(2) *Sphere Relief Valve.*

- (a) Remove cap seal (1, fig. 6-8), cap (2), helical spring (3), spring retainer (4), ball (5), relief valve piston (6), backup retainer (7), preformed packing (8) and relief nut (9).
- (b) Remove adapter (10), preformed packing (11), helical spring (12) and seat (13) leaving relief valve body (14).

WARNING

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

b. Cleaning. Clean all metallic parts of the sphere assembly using cleaning solvent, Fed. Spec. P-D-680 and dry thoroughly using filtered compressed air.*c. Inspection.*

- (1) Inspect metal parts for dents, scratches, breaks, cracks, pitting or other damage.
- (2) Inspect preformed packing, gasket and seal for deterioration.
- (3) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.

d. Repair.

- (1) Replace threaded parts if thread damaged.
- (2) Replace preformed packing, gaskets and seal.
- (3) Replace other damaged or defective parts as necessary.

e. Assembly.(1) *Sphere Assembly Components.*

- (a) Assemble the sphere in the reverse order of disassembly, observing the following precautions.
- (b) Apply grease, MIL-G-4343B to pre- formed packing (2) (fig. 6-7) and threads of plug and bleeder (1), before assembling the sphere. Torque the plug to 375 inch-pounds (4.3288 kg-m).
- (c) Test the reassembled sphere as follows:
 1. Plug the ports of the fitting and apply a pressure of 3000 psi (210.93 kgs per sq cm).

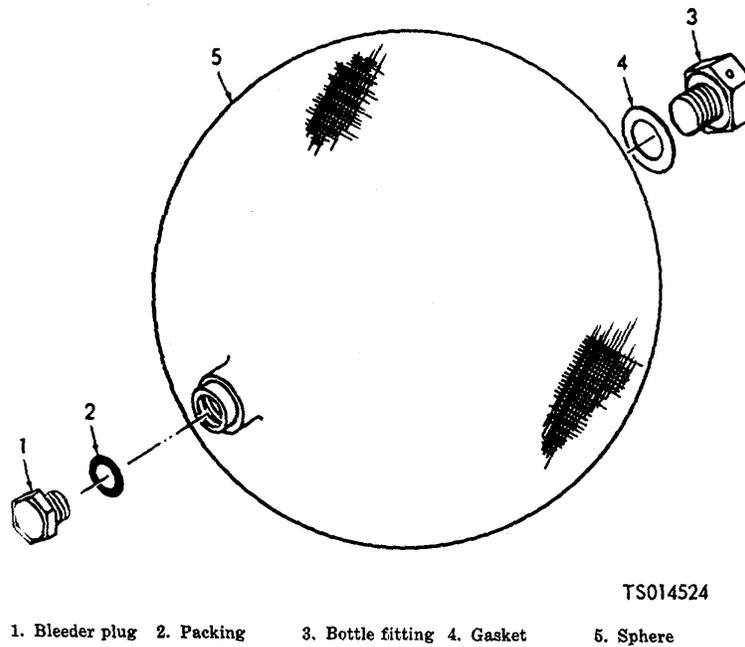


Figure 6-7. Sphere Assembly Components

2. No leakage is permissible.
- (2) *Sphere Relief Valve.*
- (a) Assemble the valve in the reverse order of disassembly, observing the following precautions.
 - (b) Lubricate the preformed packings (8 and 11, fig. 6-8) threads of adapter (10) and ID and threads of body (14) with grease, MIL-G- 4343B.
 - (c) Do not lockwire or seal the valve until testing has been completed.
 - (d) Test the reassembled valve as follows:

WARNING

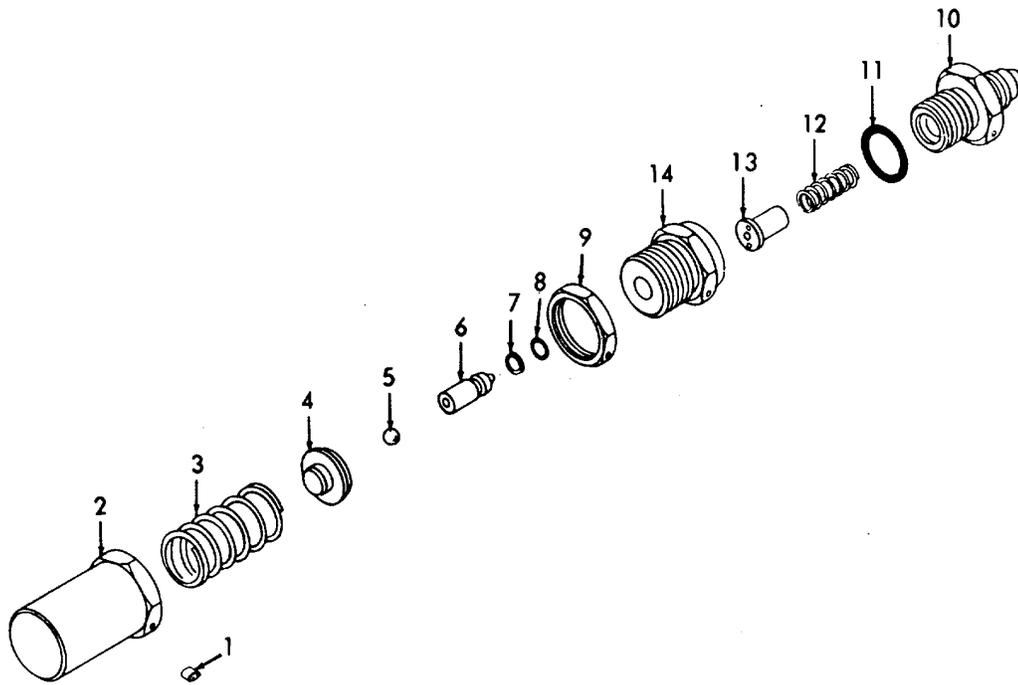
Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment when the system is under pressure. Do not tamper with any pressure relief valves.

1. Assemble a plug and retainer to the outlet end of piston (6). Slowly apply a proof pressure of 4500 psi (316.3500 kgs per sq cm) and hold for 1/2 minute. No failure or permanent set is acceptable. Relieve the proof pressure and remove the plug.
2. Back off relief nut (9) and adjust cap (2) until the valve passes a full flow of 18 cfm, when a pressure of 3900 psi (274.1700 kgs per sq cm) maximum is applied. Cycle valve 10 times from full open to zero inlet pressure. Hold cap (2) securely in place while locking relief nut (9).
3. Check for leakage by applying 3900 psi (274.1700 kgs per sq cm) pressure and adjusting the inlet pressure to 3450 psi (242.5350 kgs per sq cm). Hold pressure for 1 minute to stabilize. Leakage shall not exceed 5 cc per minute.
4. Lockwire the valve and assemble seal (1, fig. 6-8) to the lockwire.
5. Recheck the full flow and reseal pressures after lockwiring to insure settings have not altered.

6-5. Valve Assemblies and Timer Box Assembly

a. Disassembly.

- (1) *Back Pressure Valve Assembly.*



TS014525

1. Capseal	3. Spring	5. Ball	7. Retainer	9. Nut	11. Packing	13. Seat
2. Cap	4. Retainer	6. Piston	8. Packing	10. Adapter	12. Spring	14. Body

Figure 6-8. Sphere Relief Valve

- (a) Remove inlet body (2, fig. 6-9).
- (b) Remove preformed packing (3), seat (4), piston assembly (5), spring (6), shim (7), spring seat (8), preformed packing (9), backup rings (10 and 11), preformed packing (12), backup ring (13) and outlet body (14).
- (2) *Check Valve Assembly.*
 - (a) Remove inlet body (2, fig. 6-10).
 - (b) Remove preformed packing (3), shuttle (4), spring (5), preformed packing (6) and outlet body (7).
- (3) *Timer Box Assembly.*
 - (a) Remove machine screws (1, fig. 6-11), lockwashers (2), flatwashers (3) and box cover (4).
 - (b) Unscrew the large nut which holds the flexible shaft to the box (44) and remove the flexible shaft (5). Remove the coupling (6) from the shaft.
 - (c) Loosen nuts (7, 15, 17 and 19) sufficiently to withdraw the nylon tubing (8, 16, 18 and 20) from the nuts
 - (d) Remove grommet (9) from the box (44).
 - (e) Remove nuts (10), washer (11), screw (12), and washer (13) which secure the control valve (14) to the bracket (31) and remove control valve.
 - (f) Remove tube nuts (7, 15, 17 and 19), elbow (21 and 22) and tee (23) from the control valve (14).
 - (g) Remove nuts (24 and 25), washers (26 and 27), screws (28 and 29) and washer (30).
 - (h) Slide bracket (31) out of box (44).
 - (i) Remove nuts (32) and screws (33) which secure counter (34) to bracket (31).
 - (j) Loosen setscrews (35) and remove counter and spur gear (36) from the gear and cam (38).
 - (k) Loosen setscrew (37) and remove gear and cam (38).
 - (l) Remove nuts (39), washers (40), screws (41) and washers (42) which secure the gear head reducer (43) to the bracket (31) and remove gear head reducer (43).
- (4) *Unloader Valve Assembly.*
 - (a) Remove jam nut (1, fig. 6-12), plug (2), capseal (3), preformed packing (4), plunger (5),

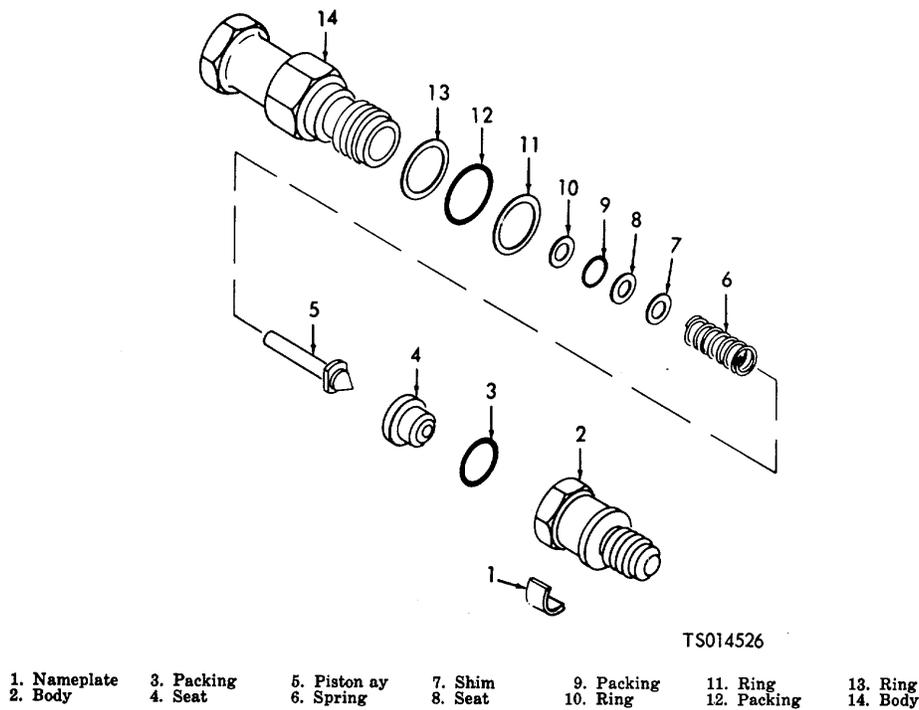


Figure 6-9. Back Pressure Valve Assembly

- shim (6), spring retainer (7) and helical spring (8).
- (b) Remove plain hexagon nuts (9), lock-washers (10), flatwasher (11), machine screws (12), flatwashers (13), shims (14), control valve (15, fig. 6-12) and bracket (16).
- (c) Remove nylon pan head screw (17), setscrew (18), actuator knob (19), stop nut (20), jam nut (21) and cap (22) leaving body (23).

NOTE

Do not disassemble cap (22) from body (23) unless replacement of either part is necessary.

WARNING

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

- b. *Cleaning.* Clean metallic parts of the valves using cleaning solvent, Fed. Spec. P-D-680, and dry thoroughly using filtered compressed air.
- c. *Inspection.*
 - (1) Inspect packing for wear and deterioration.
 - (2) Inspect back up rings, washers, brackets, clamp, and spring for warpage and corrosion.
 - (3) Inspect timer gear for cracked, chipped or broken teeth.
 - (4) Repair any damage or replace parts which obstruct moving parts or could cause damage to the equipment.
- d. *Repair.*
 - (1) Replace preformed packing.
 - (2) Replace damaged, defective or missing parts.
- e. *Assembly.* Detailed reassembly procedures and testing requirements are listed where warranted.
 - (1) *Back Pressure Valve.* (fig. 6-9).
 - (a) Assemble the valve in the reverse order of the disassembly procedure, observing the following additional instructions.

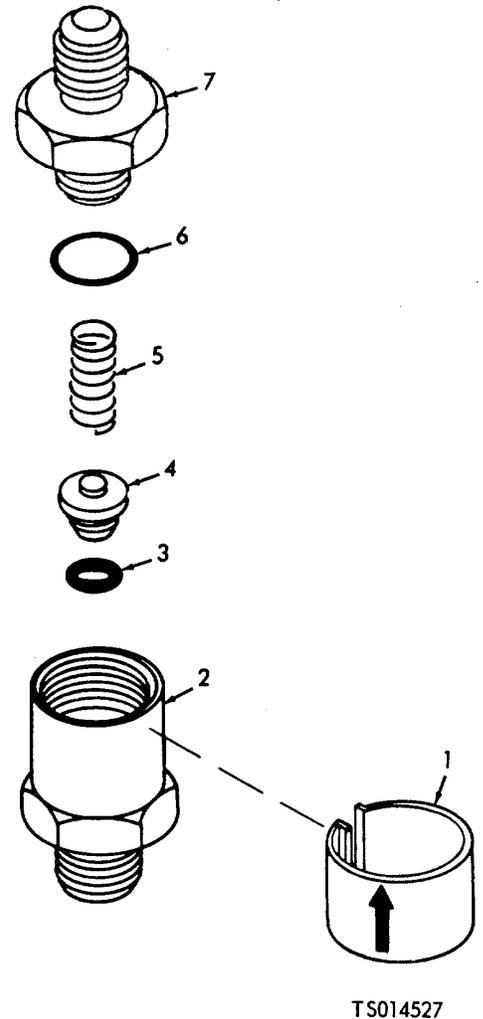
- (b) Apply grease, MIL-G-4343B, to preformed packings (3, 9 and 12).
- (c) Torque outlet body (14) to 75 inch-pounds (.8713 kg-m) - 175 inch-pounds (2.0330 kg-m). Do not lockwire until completion of testing.
- (d) Test the valve as follows:

WARNING

Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment when the system is under pressure. Do not tamper with any pressure relief valves.

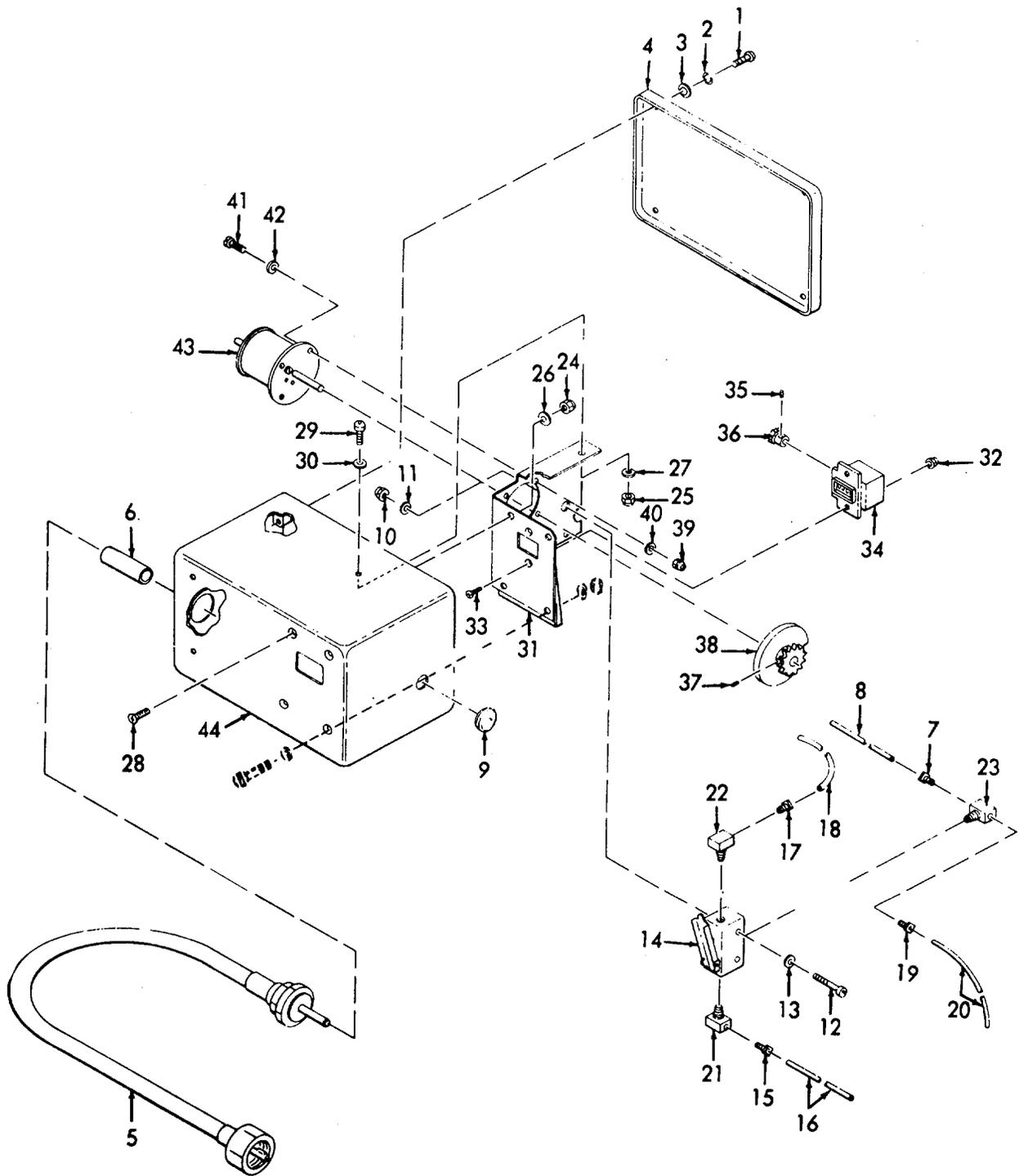
1. Using only clean moisture-free air and a suitable safety enclosure, plug the outlet valve and apply 4950 psi (347.99 kg per sq cm) pressure to the inlet. Maintain pressure for one minute. Relieve the pressure and examine the valve. No deformation or permanent set is permissible.
2. Check the valve cracking pressure by connecting the outlet port to a non-recoil tee fitting. Connect a regulated high pressure air source to the inlet port. Slowly increase the pressure at the valve inlet until the valve opens. This cracking pressure shall be 1625 psi (114.24 kg per sq cm)-1825 psi (128.30 kg per sq cm). Repeat this check twice.
3. Perform a room temperature static leakage check by plugging the outlet of the valve. Apply 3300 psi (300 kg per sq cm) air pressure to the inlet. Immerse the valve in water and obtain leakage rate from static seals. This rate shall not exceed 3 cc per hour. Relieve pressure and remove the plug.
4. Perform a room temperature seat leakage check by attaching a non-recoil tee to the outlet port. Apply 1000 psi (70.30 kg per sq cm) air pressure to the inlet port and immerse the unit in water. Measure the leakage rate from the outlet. This rate shall not exceed 500 cc per minute.

- (e) Lockwire the valve.
- (2) *Check Valve.* (fig. 6-10).
 - (a) Assemble the valve in the reverse order of the disassembly procedure, observing the following additional precautions.
 - (b) Coat preformed packings (3 and 6) with grease, MIL-G-4343B.



1. Nameplate 3. Packing 5. Spring 7. Body
 2. Body 4. Shuttle 6. Packing

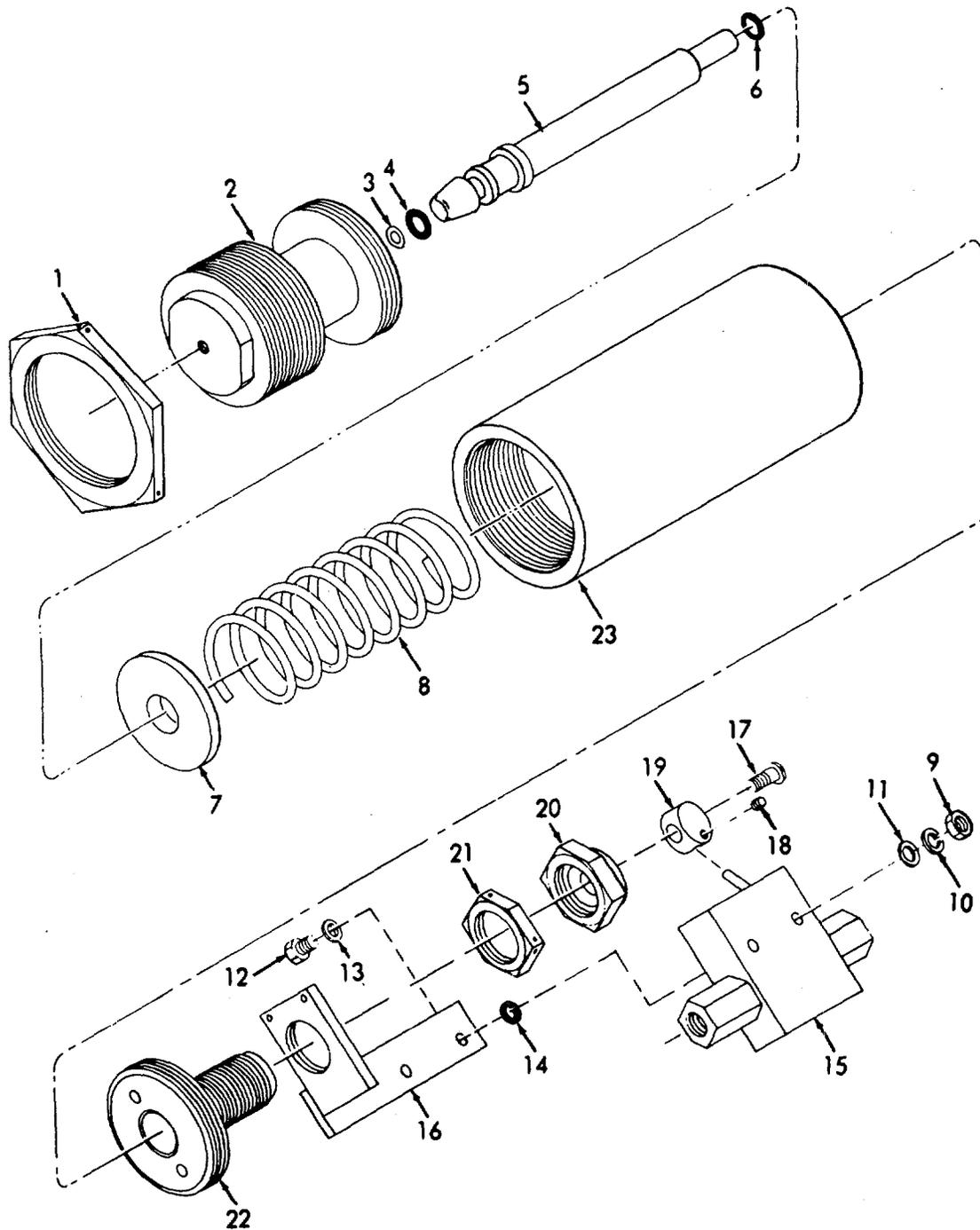
Figure 6-10. Check Valve Assembly



TS014528

- | | | | | | |
|-------------------|----------------|------------|----------------|----------------|------------------|
| 1. Screw | 8. Tubing | 15. Nut | 22. Elbow | 29. Screw | 37. Setscrew |
| 2. Lockwasher | 9. Grommet | 16. Tubing | 23. Tee | 30. Flatwasher | 38. Gear and cam |
| 3. Flatwasher | 10. Nut | 17. Nut | 24. Nut | 31. Bracket | 39. Nut |
| 4. Cover | 11. Flatwasher | 18. Tubing | 25. Nut | 32. Nut | 40. Flatwasher |
| 5. Flexible Shaft | 12. Screw | 19. Nut | 26. Flatwasher | 33. Screw | 41. Screw |
| 6. Coupling | 13. Flatwasher | 20. Tubing | 27. Flatwasher | 34. Counter | 42. Flatwasher |
| 7. Nut | 14. Valve | 21. Elbow | 28. Screw | 35. Setscrew | 43. Reducer |
| | | | | 36. Gear | 44. Box |

Figure 6-11. Timer Box Assembly



TS014529

- | | | | | | |
|------------|-------------|----------------|----------------|--------------|-------------|
| 1. Nut | 5. Plunger | 9. Nut | 13. Flatwasher | 17. Screw | 21. Jam nut |
| 2. Plug | 6. Shim | 10. Lockwasher | 14. Shim | 18. Setscrew | 22. Cap |
| 3. Capsel | 7. Retainer | 11. Flatwasher | 15. Valve | 19. Knob | 23. Body |
| 4. Packing | 8. Spring | 12. Screw | 16. Bracket | 20. Stop nut | |

Figure 6-12. Unloader Valve Assembly

- (c) Torque inlet body (2) onto outlet body.
- (7) to 150 inch-pounds (1.7288 kg-m).
- (d) Test the reassembled valve as follows:

WARNING

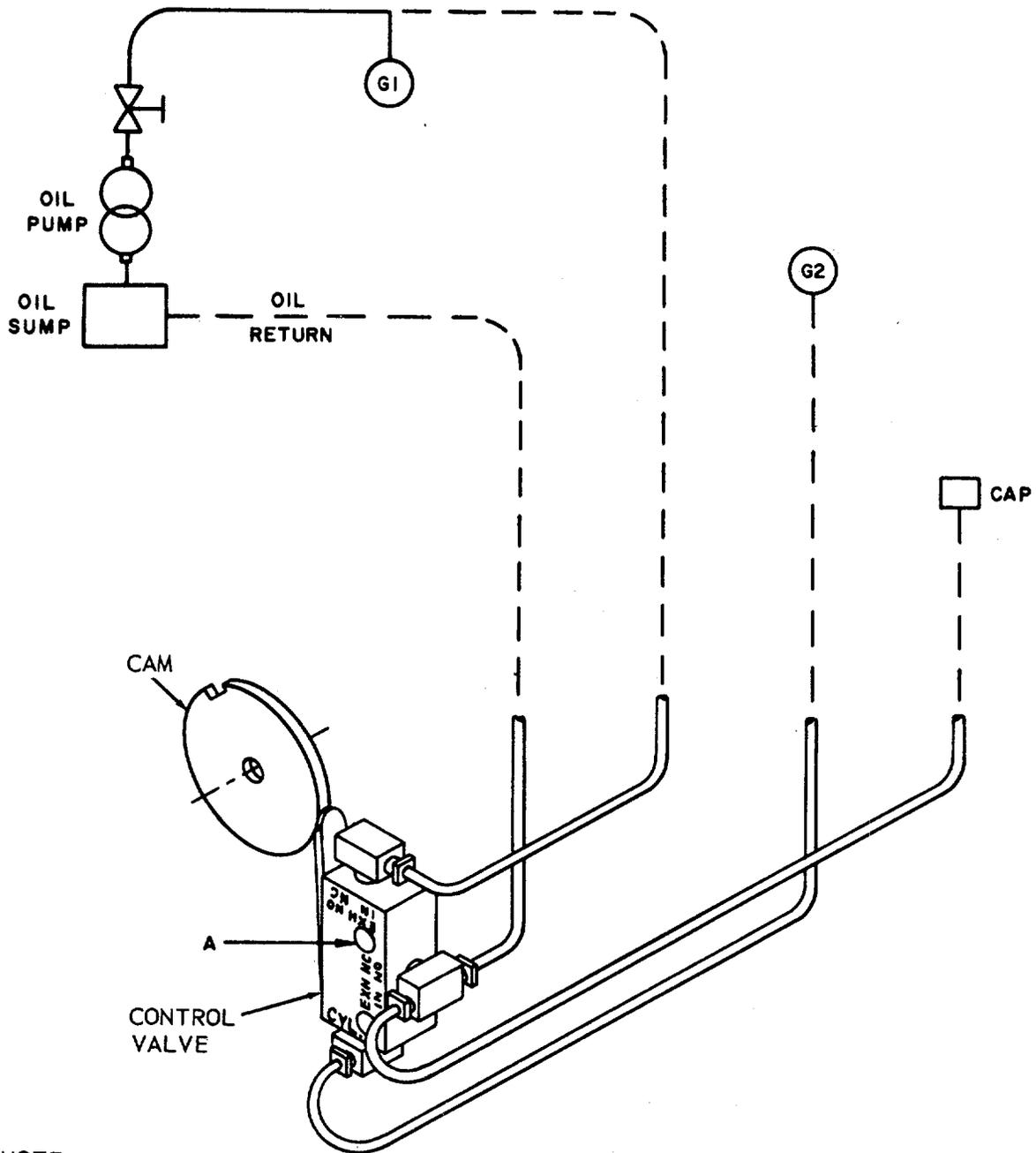
Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment when the system is under pressure. Do not tamper with any pressure relief valves.

1. Cap the outlet and apply 4500 psi (316.35 kg per sq cm) proof pressure to the inlet for 15 seconds. There shall be no failure or leakage.
 2. Apply 5 psi (0.3515 kgs per sq cm) air pressure to valve outlet and immerse inlet in water. Leakage rate from inlet shall not exceed 1 cc per hour.
 3. Apply 3000 psi (210.90 kgs per sq cm) air pressure to valve outlet and immerse inlet in water. Leakage rate shall not exceed 3 cc per hour.
 4. Check for free passage of air to valve inlet. Valve shall crack between 2 psi (.1406 kgs per sq cm) and 8 (.5624 kgs per sq cm) psi.
 5. Blow valve dry after test and lockwire.
- (3) *Timer Box Assembly. (fig. 6-11).*
- (a) Assemble the timer box in the reverse order of disassembly.
 - (b) Apply locquic primer and Loctite sealant, MIL-S-22473D to set screws (35 and 37) and to jam nut of flexible shaft (5).
 - (c) Ensure that the width of cam (38) is centralized with the lever of control valve (14) within 0.040 inch (.1016 cm). Gear (36) shall be aligned with gear of gear and cam (38) within 0.040 inch, (.1016 cm). Apply grease, MI-G21164C to gear teeth and the OD of the can.
 - (d) Add washers (40) as necessary under the heads of screws (41) to maintain clearance between the screw ends and cam (38).
 - (e) Set the timer box valve position as follows:

NOTE

Ensure that the lever arm of the control valve (14) does not engage the slot of cam (38)

1. Loosen the two nuts holding the control valve and pivot the valve towards the cam to maximum inward position.
 2. Using the test setup shown in fig. 6-13, set 100 psi (7.03 kgs per sq cm) on gage G1 by throttling the oil supply valve. This will supply 100 psi (7.03 kgs per sq cm) through the control valve to gage G2.
 3. Rotate the control valve about the pivot screw A, to move the valve body away from the cam. Observe the point at which the reading on gage G2 drops to zero. From this exact point, pivot the valve 0.030 inch (.0762 cm) (measured at pivot screw A) toward the cam and tighten both screws securely.
- (4) *Unloader Valve Assembly. (fig. 6-12).*
- (a) Coat preformed packing (4) and the OD threads of plug (2) with grease MIL-G4343B and install on plunger (5) with cap seal (3).
 - (b) If cap (22) or body (23) had been replaced, apply Loctite primer MIL-S-22473D and Loctite to the OD threads before installing the cap into the body. Screw cap in until bottom of cap is 3.53 inches (8.9662 cm) from bottom of body. Circular stake in four places equally spaced within +0.010 inch (.0254 cm).
 - (c) Insert spring (8), retainer (7) and the plunger assembly into the body. Screw plug (2) into the body until the top of the plug is 0.82 inch (.2828 cm)-0.88 inch (2.2352 cm) from the top of the body. See fig. 6-14, Dimension A.
 - (d) Slowly apply 3175 psi (223.20 kgs per sq cm)-3225 psi (226.72 per sq cm) pressure to the port on plug (2, fig. 6-12).
 - (e) Measure the distance from the top of the boss on body (23) to the shoulder on plunger (5). See figure 6-14, Dimension B.
 - (f) Subtract 0.050 inch (.1270 cm) from measurement B to obtain the required thickness of shim (6, fig. 6-12).
 - (g) Insert required shim (6) onto plunger assembly.
 - (h) Screw on bracket (16), jam nut (21) and stop nut (20) onto cap (22).
 - (i) Install actuator knob (19) onto the lever of control valve (15) and rest on the alignment screw.
 - (j) Determine the thickness of shim (14), and assemble the control valve to the bracket with screws (12), washers (13), shims (14), lockwashers (10) and nuts (9).
 - (k) Secure the actuator knob to the valve with setscrew (18). Apply Loctite and Locquic primer MIL-S-22473D to the screw before installing. Remove alignment screw.
 - (l) With the actuating lever in the DOWN position, screw down bracket (16) until the valve



NOTE:
G1 AND G2 = 0 - 200 PSI

TS014530

Figure 6-13. Timer Box Control Setting Setup.
actuates (lever in UP position). Secure the bracket with jam nut (21).

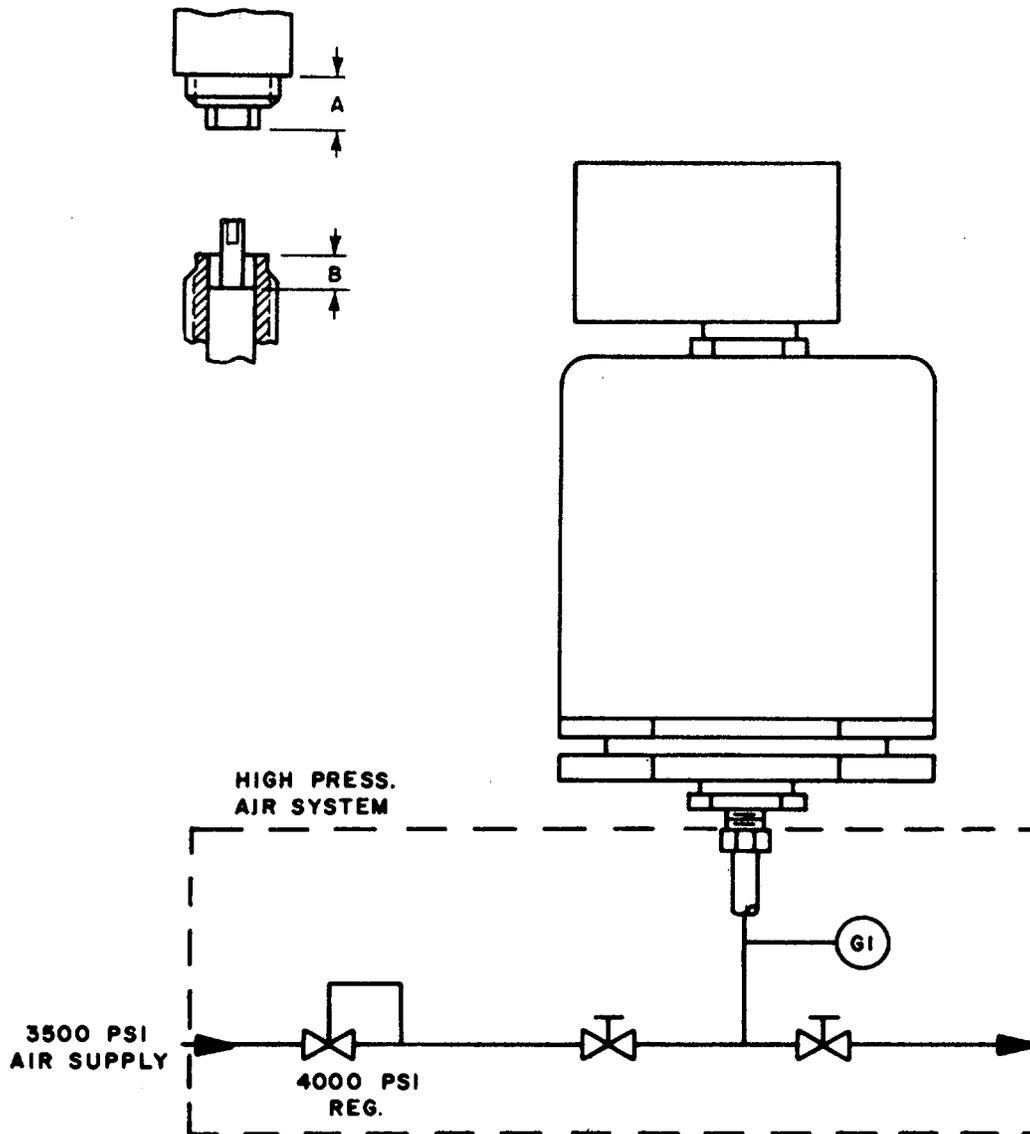
NOTE

Do not install screw (17) at this time.

(m) Relieve the pressure applied at the plug port and reactivate the lever to the DOWN position.

(n) Screw in plug (2) until the plunger lifts the actuator knob 0.010 inch (.0254 cm)-0.030 inch (.0762 cm). Secure the plug with jam nut (1).

(o) Slowly apply 3050 psi (214.4150 kgs per sq cm)-3150 psi (221.4450 kgs per sq cm) psi to the port in plug (2). Secure the actuator knob to the plunger using screw (17). Maintain



G1 { 0 - 4000 PSI } 1/4 OF 1% ACCURACY.
 OR { 0 - 5000 PSI }

TS014531

Figure 6-14. Unloader Valve Setting and Testing Setup.

a 0.157 inch (.3988 cm)-0.217 inch (.5512 cm) gap between the head of screw (17) and the actuator knob.

(p) Gradually increase the incoming pressure until control valve (15) actuates (lever in UP position). Decrease pressure to 2775 psi (195.0825 kgs per sq cm). Slowly turn screw (17) into the plunger until the valve reactuates (lever in DOWN position).

(q) Lockwire plug (2) and nut (1) to body (23).

(r) Lockwire jam nut (21) to body (23) and stop nut (20) to jam nut (21).

(s) Test the assembled unloader valve as follows:

1. Using the setup in figure 6-14, slowly apply pressure until valve actuates (clicks and

shall be 3050 psig (214.4150 kgs per sq cm)-3350 (235.5050 kgs per sq cm) psig.

2. Gradually reduce the test pressure until the control valve deactivates (clicks and lever moves to UP position). Actuating pressure lever moves to DOWN Position). Deactivating pressure shall be 2650 psig (186.2950 kgs per sq cm)-2950 (207.3850 kgs per sq cm) psig.

CHAPTER 7 REPAIR OF COMPRESSOR/COOLER ASSEMBLY AND FRAME

Section I. COMPRESSOR/COOLER ASSEMBLY

7-1 Compressor/Cooler Assembly

a. *General.* The compressor is attached to the gasoline engine. The compressor assembly consists of the compressor, fan, relief valves, fittings, clamps, intercoolers, aftercooler tube and tubes required to produce and cool the compressed air delivered by the air compressor.

b. *Disassembly.*

(1) *Intercoolers, Fan and Lubrication Lines.*

(a) Remove machine screws (1, fig. 7-1), flatwashers (2), fan guard (3), castellated nut (4), flatwasher (5) and cooling fan (6). Use a standard gear puller to remove fan.

(b) Remove fillister head machine screw (7), lockwasher (8), flatwasher (9), hexagon locknuts (10), flatwashers (11), long clamps (12) and long brackets (13).

(c) Remove machine screw (14), hexagon locknut (15), flatwasher (16), short clamp (17) and short bracket (18).

(d) Remove first stage intercooler (19), tube elbow (20) and first stage relief valve assembly (21).

(e) Remove third stage intercooler (22), tube elbow (23) and third stage relief valve assembly (24)

(f) Remove tube elbow (25) and fitting assembly (26).

(g) Remove oil supply tube (27), connector (28), tube fitting (29), oil strainer (30) and preformed packing (31).

(h) Remove second stage intercooler (32, fig. 7-1), tube elbow (33) and second stage relief valve assembly (34).

(2) *Oil Lines and Mounting Hardware.*

(a) Remove machine screw (1, fig. 7-2), flatwasher (2), cushion clamps (3 and 4), flatwasher (5) and hexagon locknut (6).

(b) Remove oil pressure tube (7), connector (8), fitting (9) and locknut (10).

(c) Remove machine screw (11), flatwasher (12), clamps (13 and 14), flatwashers (15), and hexagon locknut (16).

(d) Remove machine screw (17), flatwasher (18), cushion clamps (19 and 20), flatwasher (21), and hexagon locknut (22).

(e) Remove oil supply tube (23), connectors (24) and (25) and locknut (26).

(3) *First Stage Relief Valve Assembly.*

(a) Remove seal (1, fig. 7-3).

(b) Remove plug (2), spring (3) and check assembly (4) leaving first stage relief valve body (5).

(4) *Second Stage Relief Valve Assembly.*

(a) Remove seal (1, fig. 7-4).

(b) Remove plug (2), spring (3), check (4) and valve (5) leaving second stage relief valve body (6).

(5) *Third Stage Relief Valve Assembly.*

(a) Remove seal (1, fig. 7-5).

(b) Remove plug (2), spring (3), check (4), retainer (5), preformed packing (6) and seat (7) leaving third stage relief valve body (8).

(6) *Aftercooler, Relief Valve Lines and Mounting Hardware.*

(a) Remove screw (1, fig. 7-6), washer (2) and bracket (3).

(b) Remove hexagon locknut (4), flatwasher (5), cushion clamp (6), fillister head machine screw (7) and flatwasher (8).

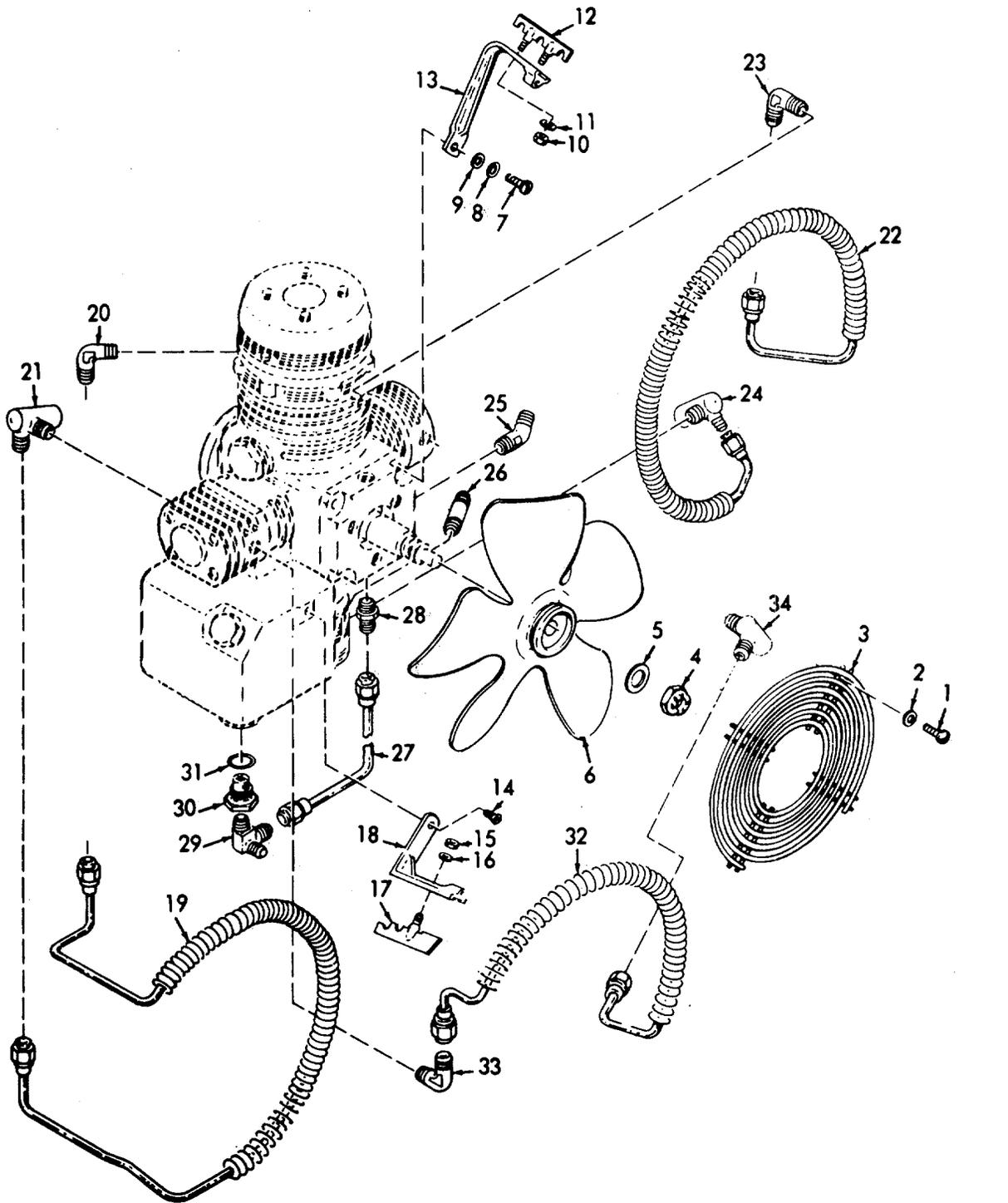
(c) Remove hexagon locknut (9), flatwasher (10), cushion clamps (11), fillister head machine screw (12) and flatwasher (13).

(d) Remove hexagon locknut (14), flatwasher (15), cushion clamp (16), screw (17) and flatwasher (18).

(e) Remove union (19), aftercooler tube (20) and aftercooler (21).

(f) Remove hexagon locknut (22), flatwasher (23), cushioned clamp (24), fillister head machine screw (25), flatwasher (26) and relief valve tube (27).

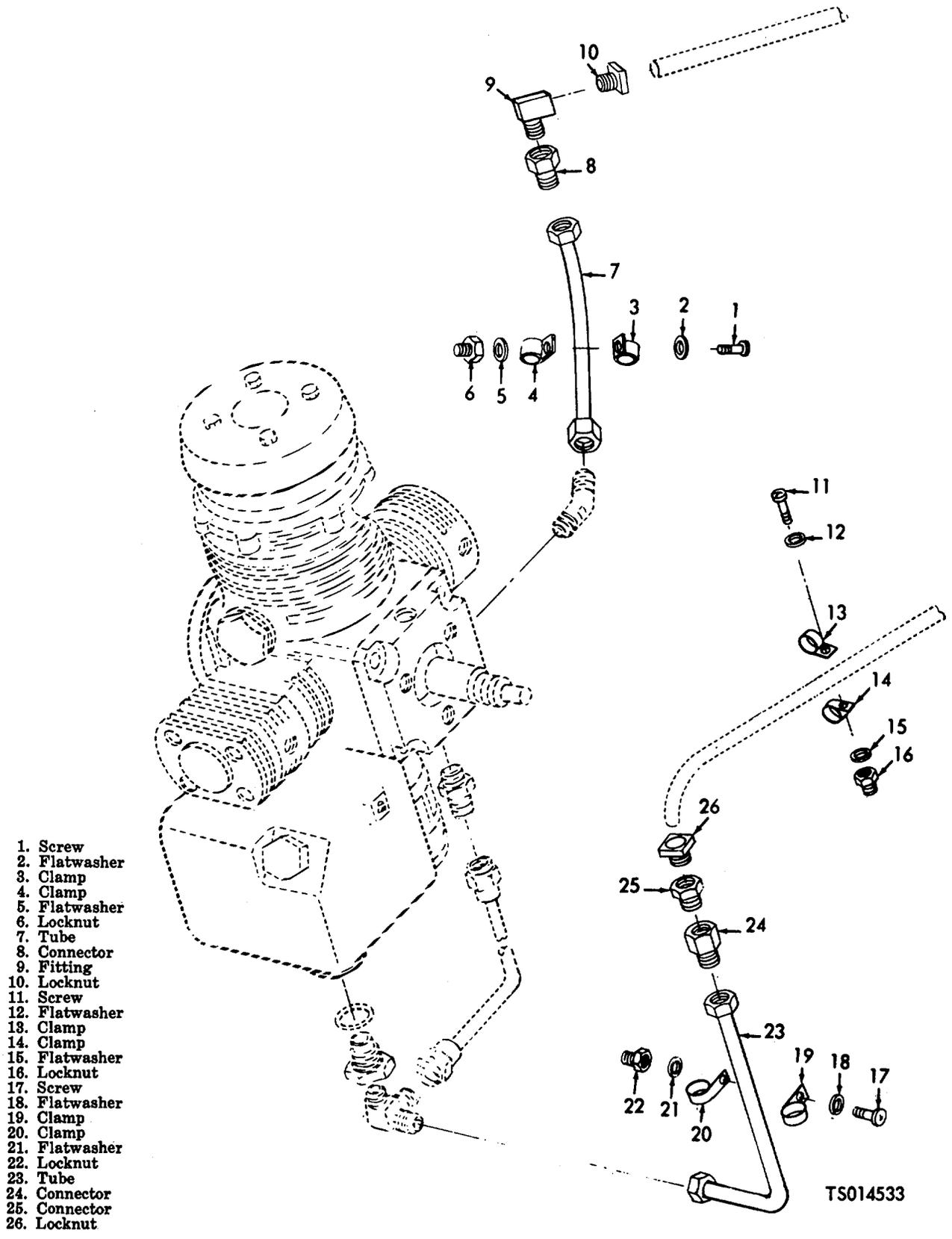
(7) *Fourth Stage Relief Valve Assembly.*



TS014532

- | | | | | | |
|---------------|----------------|----------------|-----------------------------|---------------------|------------------------------|
| 1. Screw | 7. Screw | 13. Bracket | 19. First stage intercooler | 23. Elbow | 29. Fitting |
| 2. Flatwasher | 8. Lockwasher | 14. Screw | 20. Elbow | 24. Relief valve ay | 30. Strainer |
| 3. Guard | 9. Flatwasher | 15. Nut | 21. Relief valve ay | 25. Elbow | 31. Packing |
| 4. Nut | 10. Nut | 16. Flatwasher | 22. Third stage intercooler | 26. Fitting ay | 32. Second stage intercooler |
| 5. Flatwasher | 11. Flatwasher | 17. Clamp | | 27. Tube | 33. Elbow |
| 6. Fan | 12. Clamp | 18. Bracket | | 28. Connector | 34. Relief valve ay |

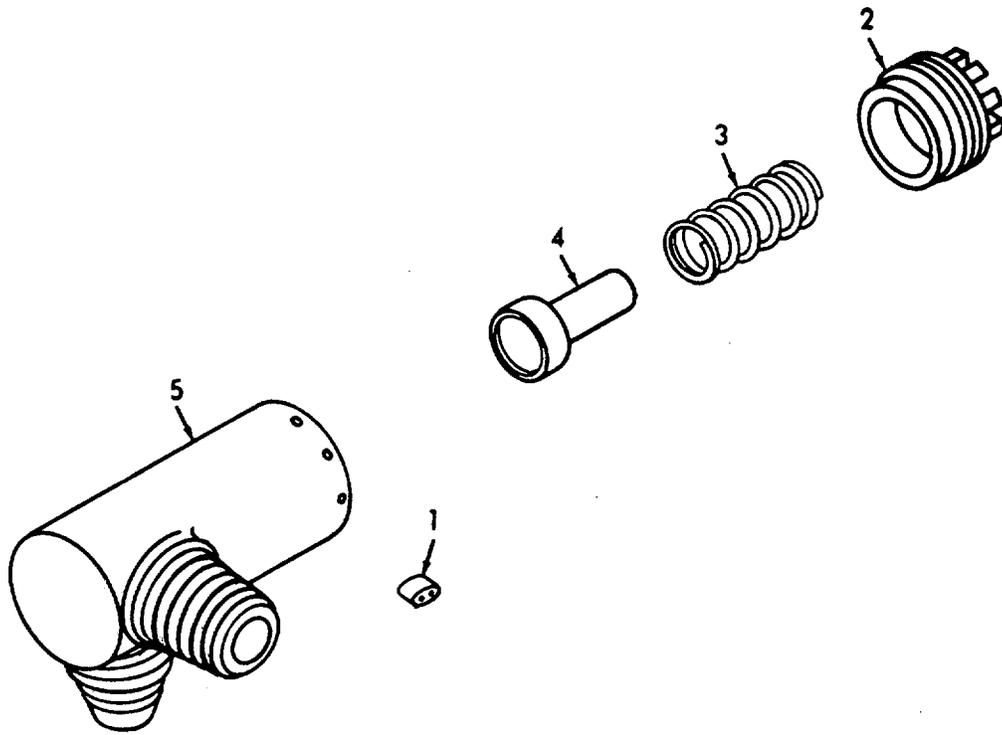
Figure 7-1. Intercoolers, Fan and Lubrication Lines



- 1. Screw
- 2. Flatwasher
- 3. Clamp
- 4. Clamp
- 5. Flatwasher
- 6. Locknut
- 7. Tube
- 8. Connector
- 9. Fitting
- 10. Locknut
- 11. Screw
- 12. Flatwasher
- 13. Clamp
- 14. Clamp
- 15. Flatwasher
- 16. Locknut
- 17. Screw
- 18. Flatwasher
- 19. Clamp
- 20. Clamp
- 21. Flatwasher
- 22. Locknut
- 23. Tube
- 24. Connector
- 25. Connector
- 26. Locknut

TS014533

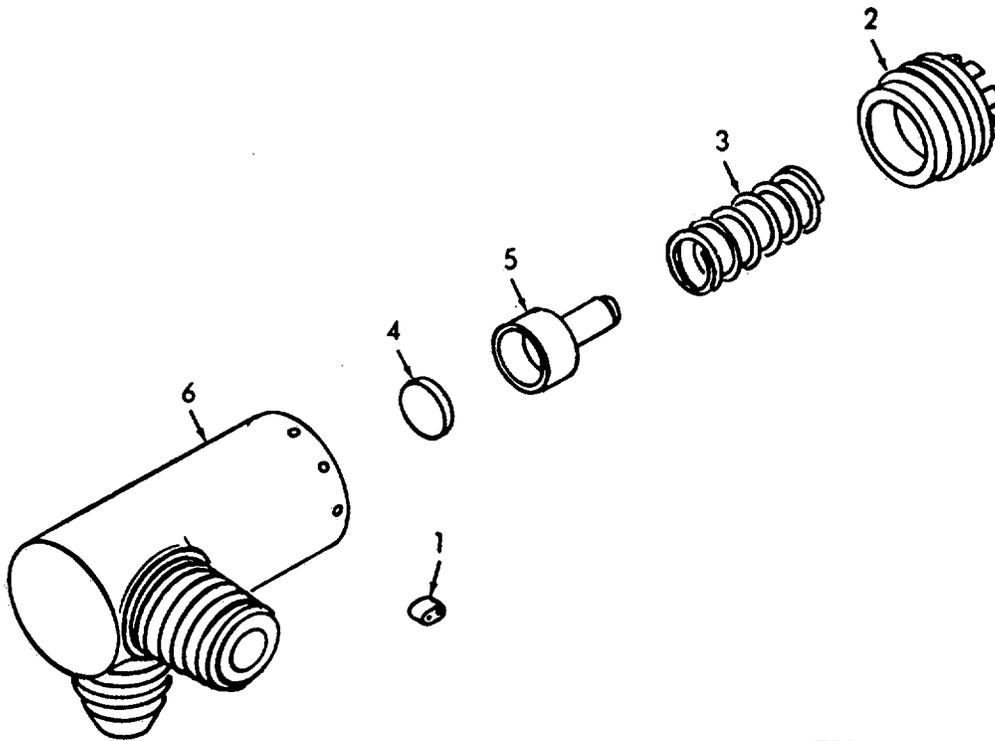
Figure 7-2. Oil Lines and Mounting Hardware.



TS014534

- 1. Seal
- 2. Plug
- 3. Spring
- 4. Check ay
- 5. Body

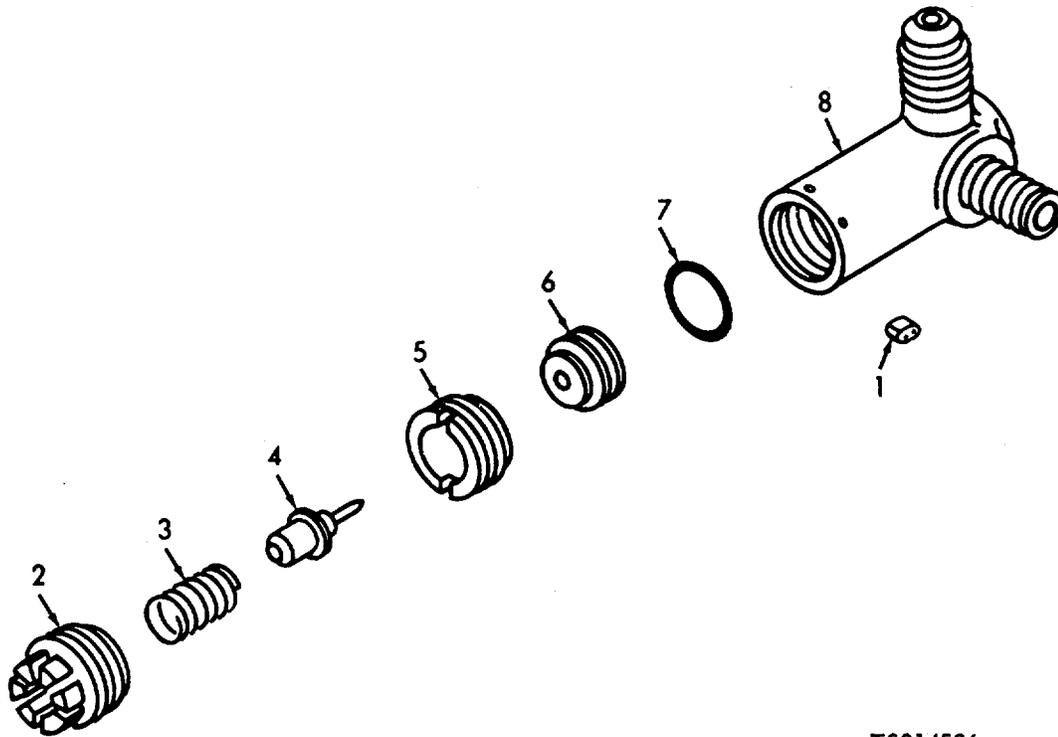
Figure 7-3. First Stage Relief Valve



TS014535

- 1. Seal
- 2. Plug
- 3. Spring
- 4. Check
- 5. Valve
- 6. Body

Figure 7-4. Second Stage Relief Valve



TS014536

1. Seal 2. Plug 3. Spring 4. Check 5. Retainer 6. Packing 7. Seat 8. Body

Figure 7-5. Third Stage Relief Valve

(a) Remove cap seal (1, fig. 7-7).

(b) Remove cap (2), helical spring (3), spring retainer (4), ball (5), piston (6), backup retainer (7), preformed packing (8), relief nut (9), adapter (10), preformed packing (11), helical spring (12), relief valve seat (13) and relief body (14).

c. *Cleaning.* Clean all parts except rubber and plastic components and preformed packings in ultrasonic cleaner Model No. UG-2B-UTL-241 (Bendix Aviation Corp., Hamilton, Ohio) or equivalent. Use Super Magnusol for the cleaning agent. Air blow dry and apply lubricating oil, MIL-L-6085A to the parts after cleaning. Place parts in clean container and keep in groups with their respective assemblies

d. *Inspection.*

- (1) Inspect hoses and tubing for cracks or deterioration.
- (2) Inspect fan blades and guard for cracks and nicks.
- (3) Inspect hardware for burrs and rough edges, thread damage and enlarged holes.
- (4) Inspect gaskets, packing and seals for wear or deterioration.
- (5) Inspect valves and seats for defective parts.
- (6) Inspect plugs for corroded or broken prongs.
- (7) Inspect springs for tension. (8) Inspect plates for dents and scratches.

e. *Repair, Test and Assembly.*

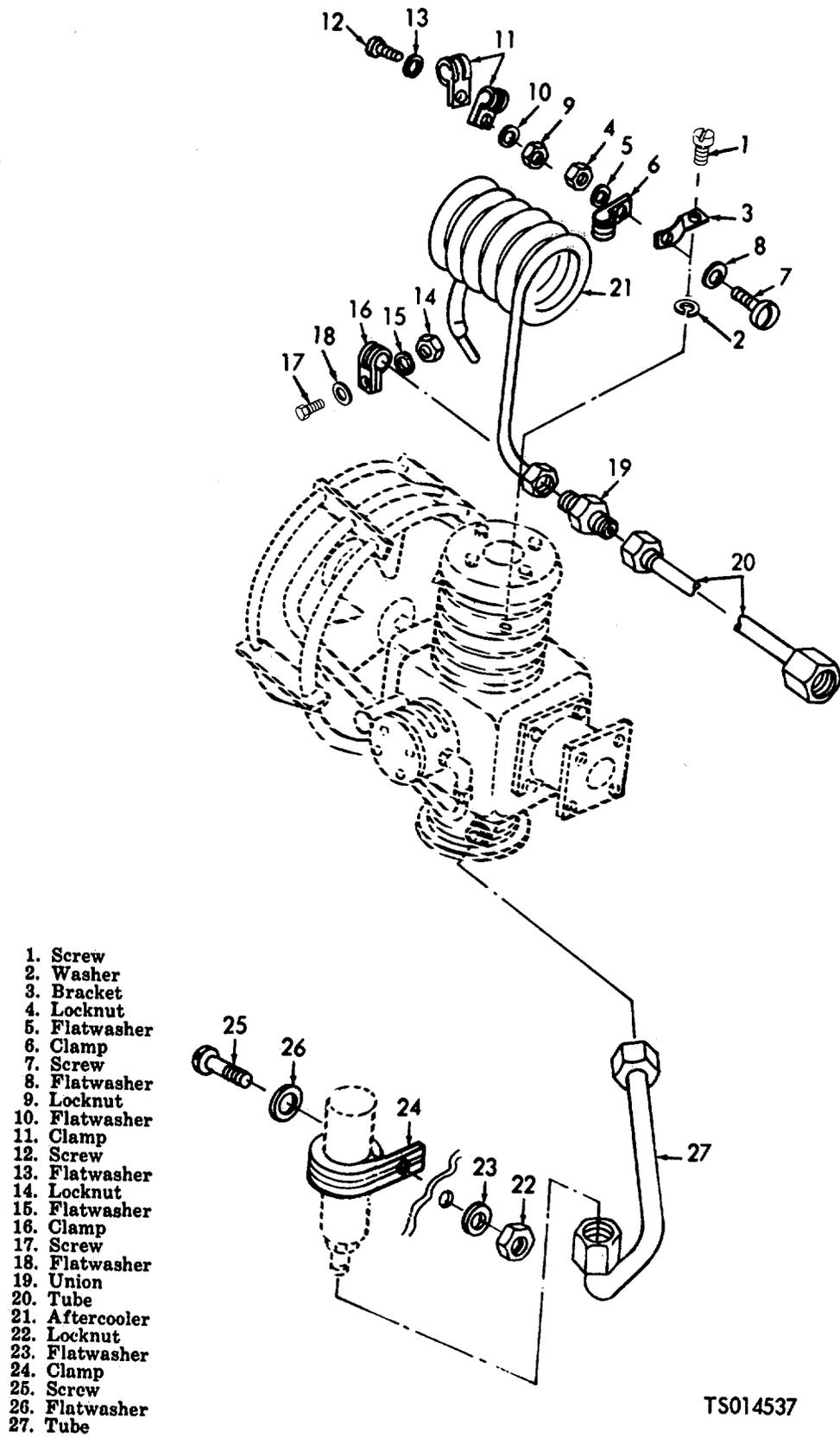
- (1) Replace hoses and tubing if cracked or deteriorated.
- (2) Replace gaskets, seals and packing.
- (3) Weld breaks and minor cracks in fan guard.
- (4) Replace keystone if worn or damaged.
- (5) Repair of components is limited to polishing bearing surfaces and refinishing graphite coated parts. When worn graphite coated parts are to be recoated, clean thoroughly by immersing them in Tecsol 204 (Tect Inc., Northvale, N. J.), Pentalene (Pennsalt Chemical Corp., Philadelphia, Pa.) or equivalent. Dry with clean compressed air.

(6) Repair the first stage relief valve as follows:

(a) *First Stage Relief Valve.* (fig. 7-3).

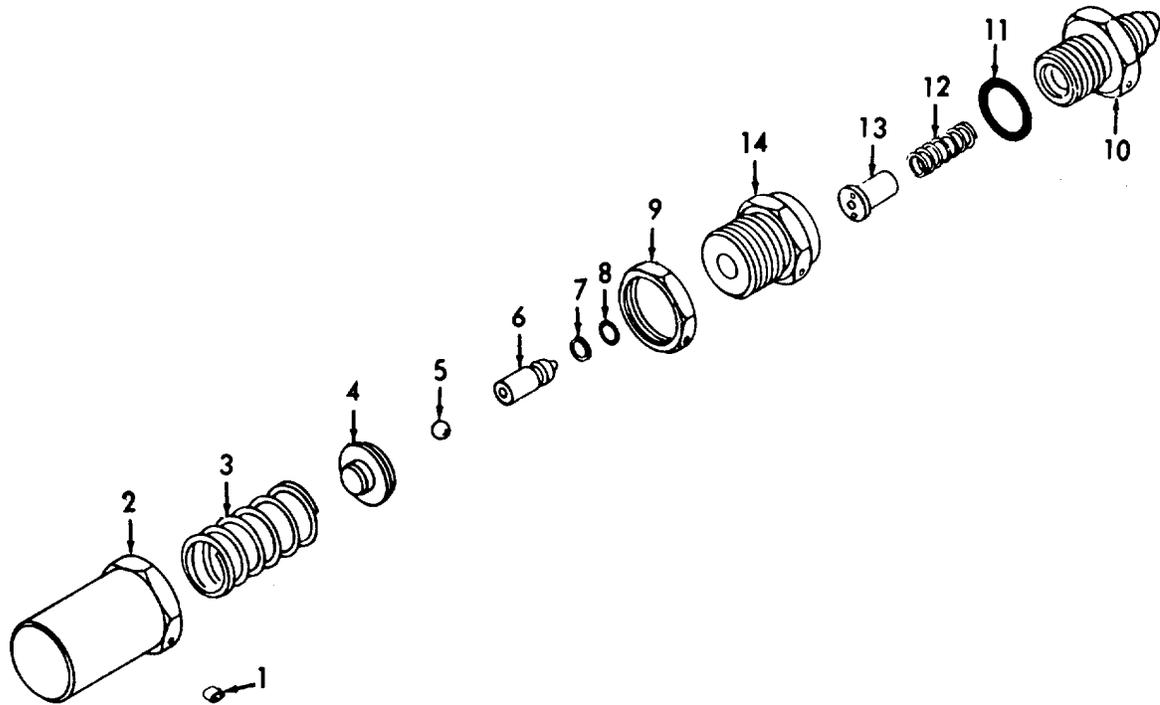
1. Lubricate threads with oil, MIL-L-6085A and assemble the valve in the reverse order of disassembly, observing the following instructions:

2. Test the reassembled valve as follows:



TS014537

Figure 7-6. Aftercooler, Relief Lines and Mounting Hardware



TS014538

- | | | | | | |
|---------|-------------|-----------|--------------------|-------------|------------|
| 1. Seal | 3. Spring | 5. Ball | 7. Backup retainer | 9. Nut | 12. Spring |
| 2. Cap | 4. Retainer | 6. Piston | 8. Packing | 10. Adapter | 13. Seat |
| | | | | 11. Packing | 14. Body |

Figure 7-7. Fourth Stage Relief Valve

WARNING

Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment when the system is under pressure. Do not tamper with any pressure relief valves.

(a) Cap pipe thread and retain valve (4). Proof pressure test for 1/2 minute at 160 psi (11.2480 kgs per sq cm) using clean moisture free air or nitrogen. There shall be no audible leakage or visible evidence of permanent distortion. Relieve the pressure and remove the test cap.

(b) Cap the free tube end of valve body (5, fig. 7-3) and attach a compressed air supply to the inlet end. Install the valve in a suitable safety fixture.

(c) Adjust the air supply to 100 psi (7.030 kgs per sq cm) and adjust plug (2) until the valve just starts to pop. If none of the slots in the plug line up with a wire hole in the body (5), (fig. 7-3) turn plug either way to nearest hole.

(d) Retest by reducing pressure and observe the actual popping pressure which should be 95 (6.6786 kgs per sq cm)-105 psi (7.3815 kgs per sq cm). If it is not, turn plug (2) to the next wire hole to compensate for possible movement of the plug during valve cycling.

(e) Decrease pressure to 60 psi (4.2180 kgs per sq cm) then increase to 85 psi (5.9755 kgs per sq cm) and inspect the valve for leakage.

(b) *Second Stage Relief Valve.* (fig. 7-4).

1. Lubricate the threads of plug (2) and body (6) with oil, MIL-L-6085A and assemble the valve in the reverse order of disassembly.

2. Test the valve as follows:

WARNING

Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment when the system is under pressure. Do not tamper with any pressure relief valves.

- (a) Cap the free tube end with a pipe cap and attach inlet to air supply.
- (b) Increase air pressure slowly. Valve shall have opened and be passing 5 scfm free air at 425 psi (29.8755 kgs per sq cm) maximum.
- (c) Reduce air pressure 50 psi (3.5150 kgs per sq cm) and then increase pressure. Valve shall reseal at 300 (21.0900 kgs per sq cm) psi minimum.

NOTE

A leakage flow of 15 cc per minute or less shall be considered as resealed.

- (d) Lockwire the valve and secure with seal (1).
- (c) *Third Stage Relief Valve.* (fig. 7-5).
 - 1. Install preformed packing (6) into groove of seat (7) and lubricate with oil, MIL-L6085A.
 - 2. Lubricate bore and threads of body (8).
 - 3. Place seat (7) with packing (6) on retainer (5) and insert into body (8) holding body in an upside down position. Turn retainer clockwise with thumb until screw threads engage. Maintaining inverted position, screw in retainer with a flat 1/2 inch wide screwdriver until retainer bottoms. Back off a fraction of a turn.
 - 4. Cap the free tube fitting end of the valve body and connect the inlet end to the air line of a suitable test stand. Torque the seat retainer (5) to 10 inch-pounds (.1259 kg-m).
 - 5. Installed cleaned check (4), spring (3) and plug (2) into valve body (8). Screw in plug until top of plug is approximately 1/16 inch above the valve body.
 - 6. Test the valve as follows:
 - (a) With the pipe thread capped and with check (4) retained, proof pressure test the valve for 1/2 minute using 2000 psi (140.6000 kgs per sq cm) minimum pressure clean air or nitrogen. No audible leakage or evidence of permanent distortion is permissible.
 - (b) Apply regulated air pressure of 1300 psi (91.3900 kgs per sq cm) and loosen or tighten plug (2) until valve pops This is a preliminary setting and is not critical.
 - (c) Relieve pressure and remove valve, from the stand. Remove cap from tube end and put valve on tray for oven treatment.
 - (d) Preheat oven to 200°F (93°C). Place tray with valves into oven for 2-3 hours at 200°F. (930C).
 - (e) Allow the valves to cool off at room temperature for at least 2 hours. Cooling overnight is recommended.
 - (f) Cap the free tube end and attach the inlet to the air line on a suitable test stand.
 - (g) Adjust the regulator for 1350 psi (94.90 kgs per sq cm) and screw plug (2, fig. 7-5) in or out until valve just starts popping. If none of the slots in the plug meets a hole in the valve body, turn the plug either way to meet the next wire hole.
 - (h) Recheck this final setting by dropping the regulator pressure 50 psi (3.5150 kgs per sq cm) and raising again. The valve should pop at 1300 psi (91.3900 kgs per sq cm) 1400 psi (98.4200 kgs per sq cm), preferably on the high side. If the valve does not pop, readjust the plug to the next wire hole, as cycling the valve often shifts the plug.
 - (i) Drop the regulator pressure and raise again to 1150 psi (80.8450 kgs per sq cm). Check the valve for leakage for approximately 30 seconds until all trapped air has escaped. Leakage shall not exceed 60 cc per hour.
 - (j) Relieve pressure and remove valve from stand. Lockwire the valve and install seal (1). Cap tube ends if valve is to be stored.
- (d) *Fourth Stage Relief Valve.* (fig. 7-7).
 - 1. Assemble the valve in the reverse order of disassembly, observing the following precautions.
 - 2. Lubricate the preformed packings (8 and 11), threads of fitting (10), and ID and threads of body (14) with grease MIL-G-4343B.
 - 3. Do not lockwire or seal the valve until testing has been completed.
 - 4. Test the reassembled valve as follows:

WARNING

Exercise extreme care when working with high pressure air to prevent injury to personnel or damage to equipment. Do not attempt to tighten any fitting or perform any work on equipment when the system is under pressure. Do not tamper with any pressure relief valves.

(a) Assemble a plug and retainer to the outlet end of piston (6). Slowly apply a proof pressure of 4500 psi (316.350 kgs per sq cm) and hold for 1/2 minute. No failure or permanent set is acceptable. Relieve the proof pressure and remove the plug.

(b) Back off locknut (9, fig. 7-7) and adjust cap (2) until the valve passes a full flow of 18 cfm, when a pressure of 3900 psi (274.1700 kgs per sq cm) maximum is applied. Cycle valve 10 times from full open to zero inlet pressure. Hold cap (2) securely in place while locking with locknut (9).

(c) Check for leakage by applying 3900 psi (274.1700 kgs per sq cm) pressure and adjusting the inlet pressure to 3450 psi (242.5350 kgs per sq cm). Hold pressure for 1 minute to stabilize. Leakage shall not exceed 5 cc per minute.

(d) Lockwire the valve and assemble seal (1) to lockwire.

(e) Recheck the full flow and reseal pressures after lockwiring to insure settings have not altered.

Section II. FRAME ASSEMBLY

7-2. Frame

a. Disassembly.

(1) Remove hexagon locknuts (1, fig. 7-8), flatwashers (2 and 3), machine bolts (4) and top support (5).

(2) Remove hexagon locknuts (6), flatwashers (7), tie down supports (8) and cart tie downs (9).

(3) Remove hexagon locknuts (10), flatwashers (11), machine bolts (12), flatwashers (13) and sphere mounting plate (14).

(4) Remove hexagon locknuts (15), flatwashers (16), machine bolts (17), flatwashers (18) and bottom support bracket (19).

(5) Remove hexagon locknuts (20), flatwashers (21), machine bolts (22), flatwashers (23) and top support bracket (24).

(6) Remove hexagon locknuts (25), flatwashers (26), machine bolts (27), flatwashers (28), handle clamps (29), protection caps (30) and cart handle (31).

(7) Remove hexagon locknuts (32), flatwashers (33), machine bolts (34), flatwashers (35), cotter pin (36), spread tube (37), flatwasher (38), chain hook (39), chain (40), chain hook (41), quick release pin (42) and towbar mounting bracket (43).

(8) Remove cart towbar (44) and pad (45).

(9) Remove covers (46), hexagon locknuts (47), flatwashers (48), hexagon head machine bolts (49), flatwashers (50), lifting ring straps (51), pads (52) and lifting rings (53) leaving frame (54).

WARNING

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

c. *Cleaning.* Clean all parts of the frame assembly using cleaning solvent Fed. Spec. P-D-680.

d. Inspection.

(1) Inspect metal parts for dents, scratches, cracks, breaks, rough edges or thread damage.

(2) Inspect chain for broken links.

(3) Inspect pad hose and pads for cracking and deterioration.

e. Repair.

(1) Remove dents and scratches on metal parts; weld cracks and minor breaks.

(2) Replace other defective parts as necessary.

f. Assembly.

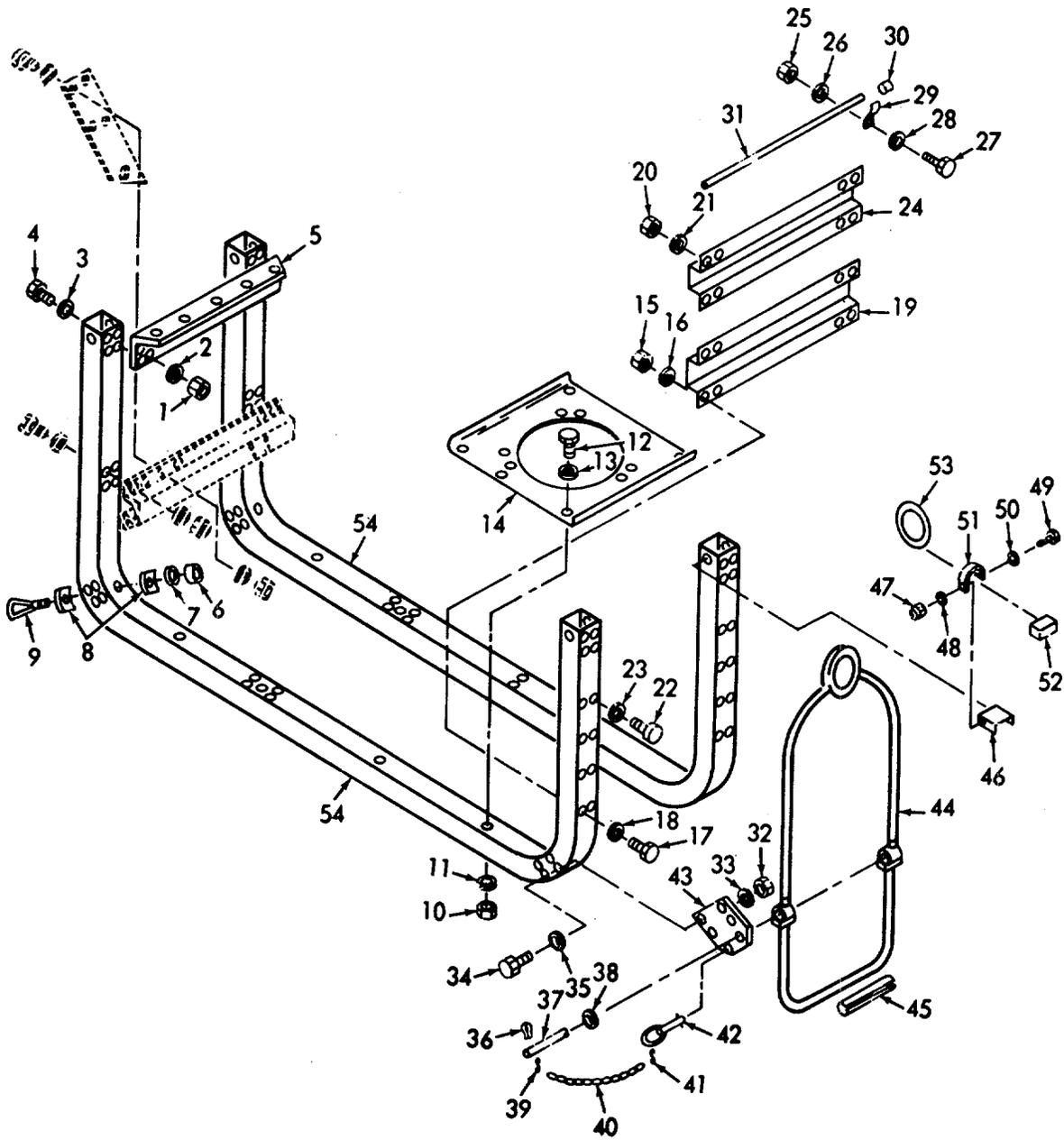
(1) Install covers (46, fig. 7-8), hexagon locknuts (47), flatwasher (48), hexagon head machine bolts (49), flatwashers (50), lifting ring straps (51), pads (52) and lifting rings (53) to frame (54).

(2) Install cart towbar (44) and pad (45).

(3) Install hexagon locknuts (32), flatwashers (33), machine bolts (34), flatwasher (35), cotter pin (36), spread tube (37), flatwasher (38), chain hook (39), chain (40), chain hook (41), quick release pin (42) and towbar mounting brackets (43).

(4) Install hexagon locknuts (25), flatwashers (26), machine bolts (27), flatwashers (28), handle clamps (29), protection caps (30) and cart handle (31).

(5) Install hexagon locknuts (20), flat



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- | | | | | | | |
|---------------|----------------|----------------|----------------|----------------|-------------|----------------|
| 1. Locknut | 9. Tie down | 17. Bolt | 25. Locknut | 33. Flatwasher | 41. Hook | 48. Flatwasher |
| 2. Flatwasher | 10. Locknut | 18. Flatwasher | 26. Flatwasher | 34. Bolt | 42. Pin | 49. Bolt |
| 3. Flatwasher | 11. Flatwasher | 19. Bracket | 27. Bolt | 35. Flatwasher | 43. Bracket | 50. Flatwasher |
| 4. Bolt | 12. Bolt | 20. Locknut | 28. Flatwasher | 36. Cotter pin | 44. Tow bar | 51. Strap |
| 5. Support | 13. Flatwasher | 21. Flatwasher | 29. Clamp | 37. Tube | 45. Pad | 52. Pad |
| 6. Locknut | 14. Plate | 22. Bolt | 30. Cap | 38. Flatwasher | 46. Cover | 53. Ring |
| 7. Flatwasher | 15. Locknut | 23. Flatwasher | 31. Handle | 39. Hook | 47. Locknut | 54. Frame |
| 8. Support | 16. Flatwasher | 24. Bracket | 32. Locknut | 40. Chain | | |

Figure 7-8. Frame Assembly

washers (21), machine bolts (22), flatwashers (23) and top support bracket (24).

(6) Install hexagon locknuts (15), flatwashers (16), machine bolts (17), flatwashers (18) and bottom support bracket (19).

(7) Install hexagon locknuts (10), flatwashers (11), machine bolts (12), flatwashers (13) and sphere mounting plate (14).

(8) Install hexagon locknuts (6), flatwashers (7), tie down supports (8) and cart tie downs (9).

(9) Install hexagon locknuts (1), flatwashers (2 and 3), machine bolts (4) and top support (5).

**APPENDIX A
REFERENCES**

A-1. DA Technical Manuals

TM 38-230	Preservation, Packaging and Packing of Military Supplies and Equipment
TM 38-750	The Army Maintenance Management System (TAMMS)
TM 5-2805-257-14	Engine, Gasoline, 3 HP, Military Standard Models (Model 2A016-1, NSN 2805-00-601-5127), (Model 2A016-2, NSN 2805-00-714-8553) (Model 2A016-3, NSN 2805-00-072-4871)
TM 5-2805-257-24P	Engine Gasoline, 3 HP, Military Standard Models (Model 2A016-1, NSN 2805-00-601-5127), (Model 2A016-2, NSN 2805-00-714-8553) (Model 2A016-3, NSN 2805-00-072-4871)
TM 5-4300-208-ESC TM 5-4310-335-20P	Equipment Serviceability Criteria Compressor, Reciprocating, Air Wheel Mounted, 2 Wheel, Pneumatic Tires, Ged, 4 CFM, 3000 PSI (210.9000 Kgs per Sq CM) (Walter Kidde Model 893811) NSN 4310-00-997-6004
TM 5-4310-355-35P	Compressor, Reciprocating, Air, Wheel Mounted, 2 Wheel, Pneumatic Tires, Ged, 4 CFM, 3000 PSI (210.9000 Kgs per Sq CM) (Walter Kidde Model 893811) NSN 4310-00-997-6004
TM 740-90-1 TM 9-2610-200-20, 34	Administrative Storage of Equipment Care and Maintenance of Pneumatic Tires

A-2. Other Publications

AMCR 700-11	Equipment Data Plate and Data Marking
DMWR 5-2805-257	Depot Maintenance Work Requirements Manual: Engine Gasoline 3 HP Military Standard Models
DMWR 5-4310-335	Depot Maintenance Work Requirements: Compressor, Reciprocating

TB 742-93-1

TB 750-255

Inspection and Test of Air and Other Gas Compressors
Uniform Policy for Hourmeters and Odometers on Overhauled or Repaired USAMECOM End Items of Equipment

A-3. Fire Protection and Safety

TB 5-4200-200-10

TB 5-4200-201-10

Hand Portable Fire Extinguishers Approved for Army Users
Hand Portable Fire Extinguishers for Rail, Marine, Amphibious and Off-road Equipment

A-4. Lubrication

LO 5-2805-257-12

LO 5-4310-335-12

Engine, Gasoline, 3 HP Military Standard Models (Model 2A016-1) (Model 2A016-2) (Model 2A016-3). L1-03521A-10/1; TO-38G2-103-2LC-1)
Compressor, Reciprocating, Air, Wheel Mounted, 2 Wheel Pneumatic Tires, G.E.D., 4CFM, 3000 PSI, (210.9000 Kgs per Sq Cm) (Walter Kidde Model 893811)

A-5. Painting

AR 740-1

AR 746-5

TB 750-260

Color, Marking and Preparation of Equipment for Shipment
Color and Marking of Army Material
Painting Instructions for Operator and Organizational Personnel

A-6. Cleaning

TM 38-230-1

Preservation, Packaging, and Packing of Military Supplies and Equipment (Cleaning)

A-7. Demolition

TM 750-244-3

Destruction of Equipment to Prevent Enemy Use

APPENDIX B MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General

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

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component and the work measurement time required to perform the functions by the designated maintenance level. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

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

B-2. Explanation of Columns in Section II

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

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

c. *Column (3)*. Maintenance Functions. This column lists the functions to be performed on the item listed in Column (2). The maintenance functions are defined as follows:

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

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

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

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

(5) *Align*. To adjust specified variable elements of an item to bring about optimum or desired performance.

(6) *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 comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

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

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

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

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

(11) *Rebuild*. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

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

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

SECTION II. MAINTENANCE ALLOCATION CHART

(1) <i>GROUP NUMBER</i>	(2) <i>COMPONENT/ASSEMBLY</i>	(3) <i>MAINTENANCE FUNCTION</i>	(4) <i>MAINTENANCE CATEGORY</i>					(5) <i>TOOLS AND EQPT</i>	(6) <i>REMARKS</i>
			<i>C</i>	<i>O</i>	<i>F</i>	<i>H</i>	<i>D</i>		
01	ENGINE Engine Assembly	Service	0.3		3.0				
02	FUEL SYSTEM AND COMPONENTS Tank, Fuel	Inspect	0.2						
	Service	0.3							
	Replace	1.0							
	Repair	1.0							
	Lines and Fittings	Inspect		0.2					
	Replace	0.5							
03	REAR AXLE Rear Axle Assembly	Replace		2.0					
	Repair	1.0							
04	BRAKES Rods, Shafts, Springs, Pedal	Inspect		0.2					
	Adjust	0.3							
	Replace	0.5							
05	WHEELS Wheel Assembly	Service	0.3						
	Replace	0.5							
	Repair	1.0							
	Tires, Tubes	Inspect	0.2						
	Service	0.2							
	Replace	1.0							
	Repair	1.0							
06	FRAME, TOWING ATTACHMENTS Frame Assembly	Inspect	0.5						
	Replace			10.0					
	Repair			1.0					
	Towbar, Handle	Replace		0.5					
	Repair			1.0					
	Support Stand	Replace		0.5					
	Repair			1.0					

*SUBCOLUMNS ARE AS FOLLOWS: C-OPERATOR/CREW; O-ORGANIZATIONAL; F-DIRECT SUPPORT; H-GENERAL SUPPORT; D-DEPOT.

**INDICATES WT/MH REQUIRED

SECTION II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
07	BODY, CAB, HOOD & HULL Body, Cab, Hood: Door assemblies, housing panels	Inspect	0.2						
		Replace		1.0					
		Repair			1.0				
		Roof Inspect	0.2						
		Replace			1.0				
08	BODY CHASSIS OR HULL AND ACCESSORY ITEMS Accessory Items	Inspect	0.2						
		Replace		0.3					
		Data Plates: Identification & Instruction	Inspect		0.2				
		Replace		0.3					
		Equipment ID	Inspect		0.1				
09	GAGES (NON-ELECTRICAL) WEIGHING AND MEASURING DEVICES Gages, Lines and Fittings	Inspect							
		Replace		0.2					
		10	PNEUMATIC EQUIPMENT Air Compressor Ay.	Test	1.0				
				Replace			3.0		
				Replace			2.0		
Overhaul						200			
Inspect						0.3			
	Crankcase	Replace				5.0			
		Cylinder and Cylinder Head	Inspect				0.8		
		Replace				1.5			
		Crankshaft	Inspect				0.8		
		Replace				2.0			
	Pistons, Connecting Rods	Inspect				0.8			
		Replace				2.0			
		Repair				2.0			
		Valves	Inspect				0.8		
		Replace				1.5			
	Lubrication System: Gage, Bayonet	Inspect							
		Replace		0.1					
		Strainer	Inspect		0.2				
		Replace		0.5					
		Lines & Fittings	Inspect		0.2				
	Compressor Drive: Adapter, crankshaft	Replace				1.0			
		Inspect				0.2			
		Replace				1.0			
		Air Intake: Filter Assy, Air	Inspect	0.1					
		Service	0.2						
	Unloader System: Dehydrator Assy & Moisture Separator	Replace				0.8			
		Inspect							
		Replace							
		Replace		1.0					
		Repair			2.0				

*SUBCOLUMNS ARE AS FOLLOWS: C-OPERATORICREW; O-ORGANIZATIONAL; F-DIRECT SUPPORT; H-GENERAL SUPPORT; D-DEPOT.

**INDICATES V WTMH REQUIRED.

SECTION II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
11	Desiccant Cartridge	Inspect		0.2					
		Replace		0.5					
	Valve Pressure Regulating	Inspect		0.2					
		Adjust		0.2					
		Replace		0.5					
	Valve, Unloader	Replace			1.0				
		Repair				2.0			
	Timer Box Assy	Replace			1.0				
		Repair			2.0				
	Valves: pressure relief, check dump, back pressure, shutoff	Inspect			0.3				
		Replace			0.5				
		Repair				2.0			
	Air Line Assys.	Inspect		0.2					
		Replace		0.5					
	Compressor Cooling and Heating: Fan Assembly	Inspect		0.2					
		Replace			1.0				
	Intercooler and Aftercooler	Inspect		0.3					
		Replace			1.5				
	Heater, Moisture Separator	Replace			1.5				
		Repair			1.0				
Air Receiver: Tank, Pressure	Inspect		0.2						
	Replace			1.0					
Cushion & Harness	Inspect		0.2						
	Replace			1.0					
Valve, Relief	Replace		0.5						
	Repair				1.5				
Air Discharge System Line Assys.	Inspect		0.2						
	Replace		0.3						
FIRE FIGHTING EQUIPMENT COMPONENTS									
Fire Extinguisher	Service		0.2						
	Replace		0.2						

*SUBCOLUMNS ARE AS FOLLOWS: C-OPERATOR/CREW; O-ORGANIZATIONAL; F-DIRECT SUPPORT; H-GENERAL SUPPORT; D-DEPOT.

**INDICATES WTIMH REQUIRED.

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