

OPERATOR'S, UNIT, AND INTERMEDIATE

DIRECT SUPPORT

MAINTENANCE MANUAL

COMPRESSOR UNIT,

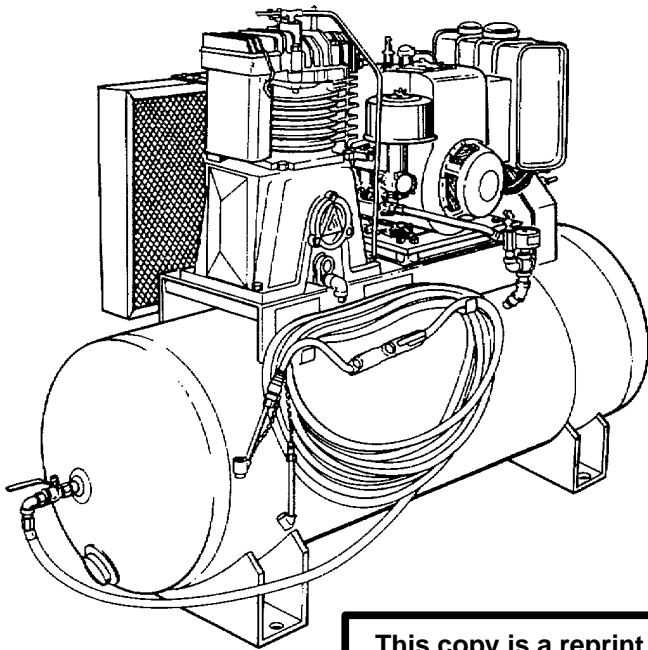
RECIPROCATING

15 CFM, 175 PSI, GASOLINE

ENGINE DRIVEN

MODEL 10GT8G

(NSN 4310-01-247-2584)



This copy is a reprint which includes current pages from Change 1.

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HEADQUARTERS, DEPARTMENT OF THE ARMY

9 MAY 1988

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D.C., 9 NOVEMBER 1992

Operator's, Unit, and Intermediate Direct Support
Maintenance Manual

**COMPRESSOR UNIT, RECIPROCATING,
15 CFM, 175 PSI, GASOLINE ENGINE DRIVEN
MODEL 10GT8G
(NSN 4310-01-247-2584)**

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TM 5-4310-382-13, 9 May 1988 is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

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Insert pages

3-1 through 3-4

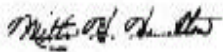
3-1 through 3-4

2. Retain this set in front of manual for reference purposes.

By Order of the Secretary of the Army:

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

Official:



MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
02891

DISTRIBUTION:

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WARNING

DO NOT stand close to exhaust opening for long periods of time. Serious illness or death can occur from carbon monoxide emitted from gasoline engine.

Always wear approved hearing protection when air compressor unit is operating. Severe hearing damage is possible because equipment operates at a very high noise level.

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

Always use a lifting device having at least 600 pounds (272.4 kgs) lifting capacity when lifting the air compressor. Injury or death to personnel can result from using improper lifting equipment.

Never attempt to service any of the air compressor components until the unit is relieved of all air pressure. Serious injury may occur from flying parts or compressed air.

Do not operate the air compressor with the belt guard removed. Injury to personnel can occur from rotating parts.

Never wear loose hanging clothing while inspecting, operating, or working on the equipment. Loose clothing can be grabbed by rotating parts and cause injury to personnel.

Do not use compressor air to fill tanks for breathing. Serious injury or death can occur from breathing contaminated air.

To avoid fire or explosion during engine refueling:

- o DO NOT allow any flame producing material within 50 feet.
- o DO NOT smoke while refueling.
- o DO NOT let gasoline drip onto hot surfaces.
- o DO NOT refuel while engine is running

For general First Aid information, refer to FM 21-11.

Do not use compressed air from compressor unit for blow off or cleaning purposes. High pressure air can cause serious injury to personnel.

WARNING

Only open drain cock partially to allow low pressure air to leave tank. Debris can be blown into the eyes of personnel causing injury if high pressure air is released.

Engine start switch must be in "OFF" position prior to performing any maintenance procedures. Serious injury can result from servicing unit while engine is operating.

Do not touch ignition wires while engine is running. Serious electrical shock with injury to personnel is possible.

Gasoline is **EXTREMELY FLAMMABLE**. Do not allow open flame or hot objects to be within 30 feet of exposed fuel. Serious injury or death to personnel can result from gasoline fires or explosion.

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MAINTENANCE MANUAL
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15 CFM, 175 PSI, GASOLINE ENGINE DRIVEN
MODEL 10GT8G
(NSN 4310-01-247-2584)**

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

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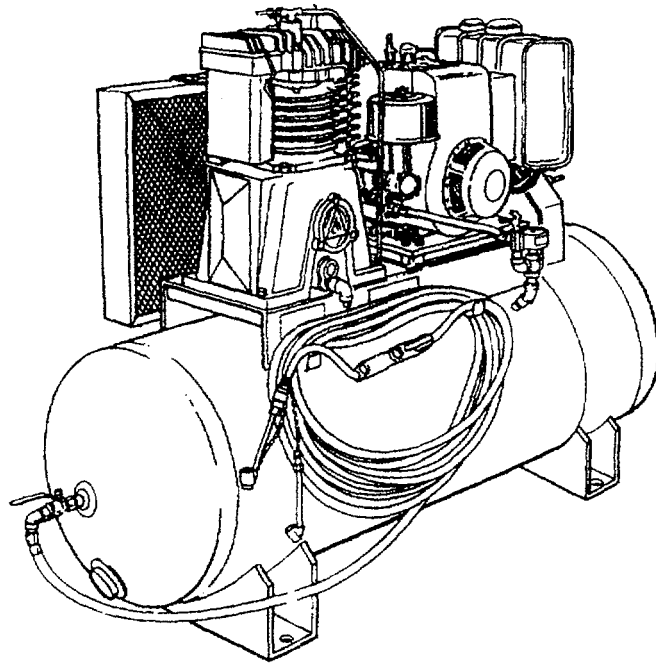
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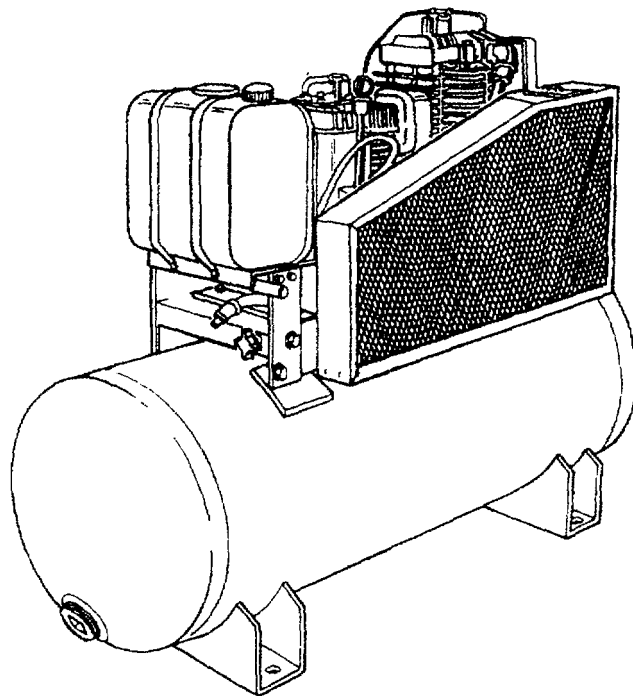
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THREE-QUARTER FRONT VIEW



THREE-QUARTER REAR VIEW

Figure 1-1. Air Compressor Unit.

CHAPTER 1 INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE. This manual contains operator, unit, and intermediate direct support maintenance instructions for the Air Compressor Unit, Model 10GT8G. The air compressor unit is of reciprocating design, gasoline engine driven and tank mounted. Refer to figure 1-1 for identifying views. Output capacity of the unit is 15 cubic feet per minute (cfm) at 175 pounds per square inch (psi) (0.425 cubic meters per minute (m³/min) at 12.3 kilograms per square centimeter (kgs/cm²). The air compressor unit is intended for use as a source of compressed air in the normal operations conducted at filling stations and vehicle maintenance shops.

1-2. MAINTENANCE FORMS AND RECORDS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR's). If your air compressor unit needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, US Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. We'll send you a reply.

1-4. WARRANTY INFORMATION. The air compressor unit, Model 10GT8G, is warranted by Curtis-Toledo, Incorporated for 12 months. It starts on the date, found in block 23, DA Form 2408-9, in the logbook. Report all defects in material or workmanship to your supervisor, who will take appropriate action through your unit maintenance shop.

1-5. NOMENCLATURE CROSS-REFERENCE LIST. The listing below includes nomenclature cross-reference used throughout this manual.

<u>Common Name</u>	<u>Official Nomenclature</u>
Air compressor unit	Compressor Unit, Reciprocating, 15 CFM (0.425 m ³ /min), 175 PSI (12.3 kgs/cm ²), Gasoline Engine Driven
Engine	Engine, Gasoline, 10 HP

1-6. LIST OF ABBREVIATIONS. Abbreviations used in this manual are in accordance with Military Standard, MIL-STD-12, and are defined at their first appearance in the manual.

1-7. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE. Refer to TM 750-244-3 for methods and procedures to destroy Army materiel to prevent enemy use.

1-8. PREPARATION FOR STORAGE OR SHIPMENT. To prepare the air compressor unit for storage or shipment refer to paragraph 3-37.

Section II. EQUIPMENT DESCRIPTION

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. Characteristics.

- (1) Gasoline Engine, 10 HP, driven.
- (2) Belt driven.
- (3) Reciprocating air compressor, two-stage.

b. Features.

- (1) Pressure indicator gage equipped.
- (2) Three gallon fuel tank for gasoline engine.
- (3) Fifty feet long flexible hose equipped with inflator/gage devices.
- (4) Capable of connecting to an auxiliary fuel tank.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. (Refer to figure 1-2.)

a. Air Compressor. The air compressor (1) is a double cylinder, two-stage design capable of supplying 15 cfm (0.425 m³/min.) of compressed air at a pressure of 175 psi (12.3 kgs/cm²).

b. Receiver Tank. The receiver tank (2) provides a holding area for the compressed air. Its capacity is 80 gallons (302.8 liters).

c. Gasoline Engine. The air compressor is driven by a 10 HP gasoline engine (3). The gasoline engine is equipped with a manual pull-type starter (4) and three gallon fuel tank (9).

d. *Flexible Hose.* A fifty foot (15.25 meters) long flexible hose (5) equipped with inflation devices (6) is furnished with the unit to provide a method of transferring the compressed air.

c. *Belt Guard.* The belt guard (7) prevents debris and personnel from becoming entangled in the drive belts and keeps personnel away from rotating parts.

f. *Air Gage.* The air gage (8) indicates the pressure of the air stored inside the receiver tank.

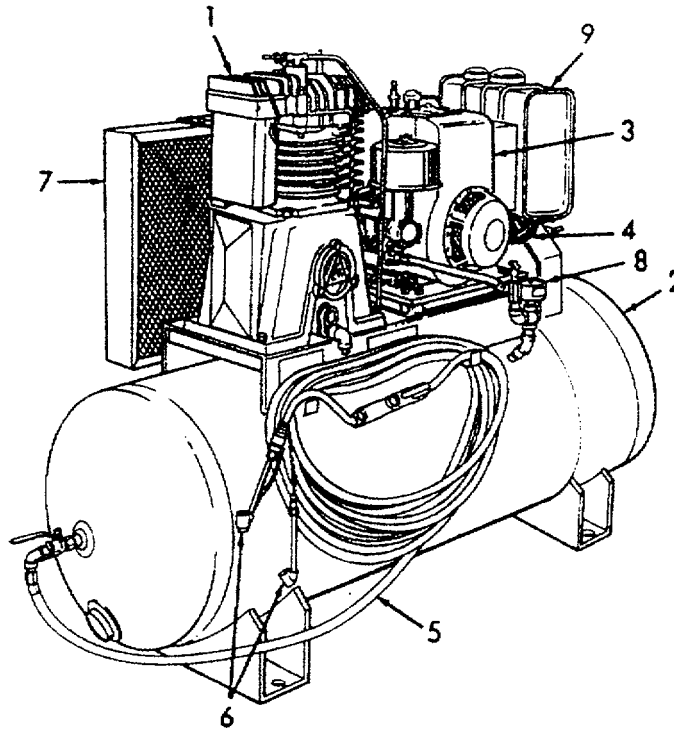


Figure 1-2. Location of Major Components.

1-11. EQUIPMENT DATA.

Table 1-1. Equipment Data

AIR COMPRESSOR UNIT

Model (Air Compressor Unit)	10GTBG
Weight (Tank, Motor, Compressor)	585 lbs. (269 kgs)
Length (Overall)	68.00 in. (172.72 cm)
Width (Overall)	20.19 in. (51.28 cm)
Height (Overall)	46.94 in. (119.22 cm)

AIR COMPRESSOR

Model (Compressor)	B1
Bore and Stroke	
First Stage	3.93 in. x 2.76 in. (100 mm x 70 mm)
Second Stage	3.15 in. x 2.76 in. (80 mm x 70 mm)
Operating Speed	940 rpm
Output Pressure	175 psi (12.3 kgs/cm ²)
Output Air Flow	15 cfm (0.425 m ³ per minute)
Length (Compressor)	16.00 in. (40.64 am)
Width (Compressor)	16.54 in. (42.01 cm)
Height (Compressor)	24.47 in. (62.14 cm)
Manufacturer	Curtis-Toledo, Inc. St. Louis, Missouri

GASOLINE ENGINE

Model	221432, Type 0326
Type	Single cylinder, 4 cycle
Displacement	22 in. ³ (362 cc)
Compression	165 in. lbs (18.65 Newtons/meter)
Output Power	10 HP
Cooling	Air-cooled
Fuel Requirement	Leaded or unleaded regular gasoline
Oil Requirement	Above 40°F operation SAE 30 (Grades SC, SD, or SE) Below 40°F operation SAE 5W-20 (Grades SC, SD, or SE)
Engine RPM	Idle speed: 1750 rpm Maximum speed: 3600 rpm
Starter Type	Manual recoil
Ignition System	Resistive-discharge
Spark Plug	Champion CJ-8
Spark Plug Gap	0.030 in. (0.75mm)
Manufacturer	Briggs and Stratton Milwaukee, WI

AIR RECEIVER TANK

Capacity..... 80 gallons (302.8 liters)
 Length..... 63.00 in. (160.02 cm)
 Width 20.00 in. (50.80 cm)
 Height 25.00 in. (63.50 cm)
 Manufacturer.....Manchester Tank and Equipment Co.
 Lubbock Texas

Section III. TECHNICAL PRINCIPLES OF OPERATION

1-12. PRINCIPLES OF OPERATION.

- a. *Compressor.* (Refer to figure 1-3).
 - (1) Filtered air is drawn into the first stage (low-pressure) cylinders at atmospheric pressure as the pistons move down.
 - (2) The air is compressed when the pistons are moved upwards. When the air pressure inside the cylinders reaches a pre-determined value, the valve spring pressure is overcome and the air is forced out the discharge valve to the intercooler.
 - (3) As the air flows through the intercooler, much of the heat of compression is dissipated.
 - (4) The second stage (high-pressure) is similar to the first stage operation except that the air enters from the intercooler and is recompressed to a higher pressure.
 - (5) The air then flows to the air receiver tank.

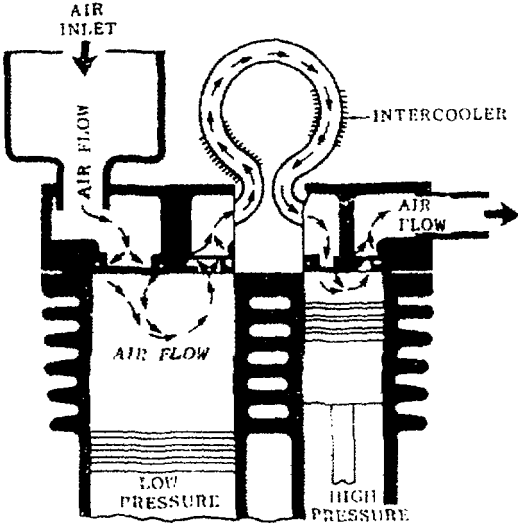


Figure 1-3. Air Compressor, Operation.

1-12. PRINCIPLES OF OPERATION - Continued.

b. Gasoline Engine. The gasoline engine is a one cylinder, 4 cycle, air cooled power source that develops 10 HP at 3600 rpm. It transfers its power to the air compressor through a belt and pulley arrangement. The engine is equipped with a manual recoil type starter.

c. Unloader. The unloader is a valve that opens the compressor pump output pressure line to free air and allow the motor to start running. Once the motor has started, the valve is closed and compressed air is directed into the tank.

CHAPTER 2
OPERATING INSTRUCTIONS

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

2-1. INTRODUCTION. This section describes the controls and indicators that you as the operator will be using most often. The following paragraphs will give you a brief description of each of these controls or indicators and the function of each one.

2-2. OPERATOR'S CONTROLS AND INDICATORS.

- a. *Air Compressor Unit Controls and Indicators.* (Refer to figure 2-1).

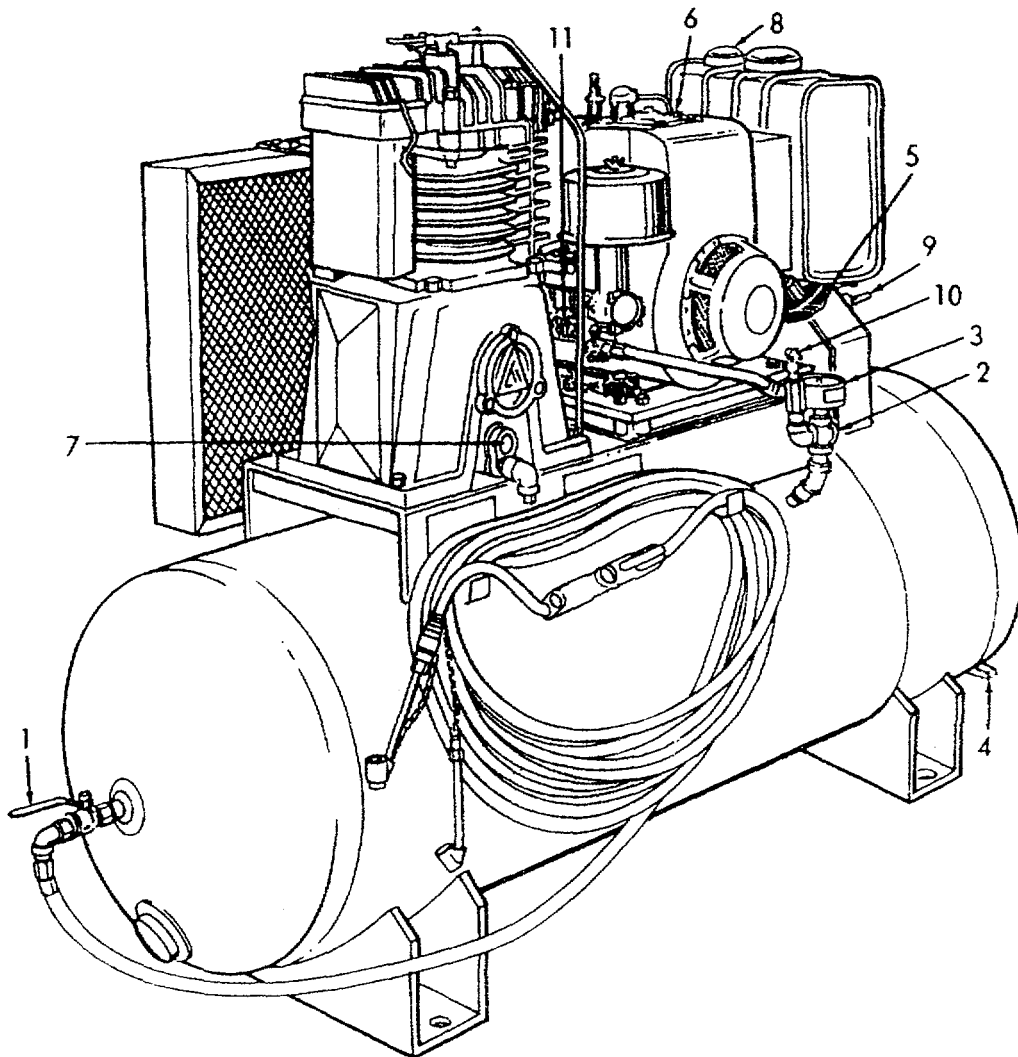


Figure 2-1. Air Compressor Unit Controls and Indicators.

2-2. OPERATOR'S CONTROLS AND INDICATORS - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Air Shut-Off Valve	Allows the operator to shut-off the air from the tank to the flexible hose.
2	Safety Relief Valve	Allows air to escape when pressure exceeds 200 psi (14.1 kgs/cm ³).
3	Air Pressure Gage	Provides an indication of air pressure in the tank. The gage reads 0 to 300 psig.
4	Drain Cock	Provides a means of draining off any moisture that may have condensed in the tank.
5	Starter	Provides a means of manually starting the gasoline engine.
6	Rotary Switch	Provides start and stop position for engine ignition system.
7	Oil Sight Gage	Indicates the level of oil in the air compressor.
8	Fuel Gage	Indicates the level of fuel in the fuel tank.
9	Fuel Shutoff Valve	Turns off fuel flow or changes fuel flow from on board fuel tank or auxiliary fuel tank.
10	Manual Unloader Valve	Relieves back pressure on air compressor to allow easier engine start up.
11	Choke	Reduces the amount of air allowed to enter engine carburetor to make the fuel mixture richer to start engine.

Section II. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-3. INTRODUCTION.

a. General. Your Preventive Maintenance Checks and Services table lists the inspections and care of your equipment required to keep it in good operating condition.

- (1) Before you operate. Always keep in mind the CAUTIONS and WARNINGS. Perform your (B) PMCS.
- (2) While you operate. Always keep in mind the CAUTIONS and WARNINGS. Perform your during (D) PMCS.
- (3) After you operate. Be sure to perform your after (A) PMCS.
- (4) If your equipment fails to operate. If your equipment does not perform as required, refer to Chapter 3 under Troubleshooting for possible problems. Report any malfunctions or failures on the proper DA Form 2404, or refer to DA PAM 738-750.

b. PMCS columnar entries.

- (1) Item number column. This is the order in which you perform checks and services on the air compressor unit. The entry in this column will also be used as a source of item numbers for the "TM Item Number" column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.
- (2) Interval columns. The interval column of your PMCS table tells you when to do a certain check or service.
- (3) Item to be inspected. Identification of item to be inspected.
- (4) Procedures column. The procedures column of your PMCS table tells you how to do the required checks and services. Carefully follow these instruction. If you do not have the tools, or if the procedure tells you to, have the next higher level of maintenance do the work.
- (5) Equipment is not ready/available if: column. Entries in this column will be keyed specifically to checks listed in the "procedures" column for the purpose of identifying, for the check, the criteria that will cause the equipment to be classified as not ready/available because of inability to perform its primary Combat Mission. An entry in this column will:
 - (a) Identify conditions that make the equipment not ready/available for readiness reporting.

2-3. INTRODUCTION - Continued.

(b) Deny use of the equipment until corrective maintenance has been performed.

c. Special instructions.

(1) Perform weekly as well as before operations PMCS if:

(a) You are the assigned operator and have not operated the item since the last weekly.

(b) You are operating the item for the first time.

(2) Leakage definitions for operator/crew PMCS shall be classified as follows:

(a) Class I Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

(b) Class II Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

(c) Class III Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

CAUTION

Equipment operation is allowable with minor leakages (Class I or II). Of course, you must consider the fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

When operating with Class I or II leaks, continue to check fluid levels as required in your PMCS.

Class III leaks should be reported to your supervisor.

Table 2-1. Operator Preventive Maintenance Checks and Services

B - Before

D-During

A - After

Item No.	Interval			Item To Be Inspected	Procedure Check for and have repaired or adjusted as necessary	Equipment Is Not Ready/Available If:
	B	D	A			
1	•		•	Fuel Tank, Lines, Filter and Fittings	Inspect fuel tank, lines, and fittings for cracks and leaks. Examine all fittings for looseness. Check for clogged or dirty filter.	Fuel tank, fuel lines, or fittings are cracked or leaking. Fittings are loose. Filter is clogged.
2	•			Belt Guard Assembly	Examine unit for missing belt guard. Inspect belt guard for loose or missing mounting hardware and for breaks in guard screen.	Belt guard is missing or damaged in any way.
3	•		•	Belts, V, Matched Set, and Guide	Examine unit for missing, frayed or broken drive belts.	Belts are missing, frayed or broken.
4	•			Take-Up Bolt Assembly	Inspect unit for missing or misadjusted take-up bolt.	Take-up bolts missing or out of adjustment.
5	•			Air Cleaner (Engine)	Examine foam pre-cleaner for clogging. If pre-cleaner is clogged, notify unit maintenance.	Foam pre-cleaner is clogged.
6	•			Oil Gage Rod, Tube, and Drain (Engine)	Check for missing oil gage rod. Inspect tube for bends or damage. Inspect engine for loose or missing drain plug. Check oil level on oil gage rod for proper oil level. Fill to proper level with oil if required.	Oil gage rod is missing. Damaged tube. Loose or missing drain plug. Improper oil level.

Table 2-1. Operator Preventive Maintenance Checks and Services - Continued

B - Before

D-During

A - After

Item No.	Interval			Item To Be Inspected	Procedure Check for and have repaired or adjusted as necessary	Equipment Is Not Ready/Available If:
	B	D	A			
7	•			Starter	Inspect starter handle for cracks and broken rope.	Starter handle or rope is broken.
8	•			Clutch	Try to start engine (refer to para 2-7). Check that starter clutch engages engine for starting.	Clutch does not engage to start engine.
9	•			Air Cleaner Assembly (Compressor)	Inspect air cleaner for clogging and inspect gasket for damage.	Air cleaner is clogged.
10	•			Oil Filler Cap, Plug, and Drain (Air Compressor)	Check for missing or loose oil filler cap or plug. Check for proper oil level in compressor. (Sight glass should be half filled). Fill with oil until sight glass is properly filled.	Oil filler cap is missing. Plug is loose or missing. Oil level is incorrect.
11	•	•	•	Hose (Air Discharge)	Inspect hose for cuts and cracks. Check fittings and inflation device for cracks and for proper operation.	Hose is cut or cracked. Fitting or inflation device is cracked. Inflation device does not operate properly.
12		•		Inflator Gage	Inspect inflator gage for proper operation.	Inflator gage does not function properly.
13		•		Relief Valve	Manually operate relief valve to check its ability to release air.	Relief valve does not allow air to be released.

Item No.	Interval			Item To Be Inspected	Procedure Check for and have repaired or adjusted as necessary	Equipment Is Not Ready/Available If:
	B	D	A			
14	•	•	•	Air Gage	Check air gage for dents, cracks, broken glass, loss of fluid, or bent needle. Start unit and inspect for proper pressure indications.	Air gage is cracked, glass is broken or fluid is lost. Air gage does not show proper pressure indications.
15	•	•		Drain Cock	Inspect drain cock for cracks or looseness. Check drain cock for leaks when air tank is under pressure.	Drain cock is cracked, loose, or leaks air pressure.

Section III. OPERATION UNDER USUAL CONDITIONS

2-4. ASSEMBLY AND PREPARATION FOR USE. The air compressor unit is shipped as a completely assembled unit. No further assembly of the unit is required before operation.

WARNING

Always use a lifting device having at least 600 pounds (272.4 kgs) lifting capacity when lifting the air compressor. Injury or death to personnel can result from using improper lifting equipment.

a. Unloading. The unit can be unloaded from transporting carrier by using any appropriate lifting device. Attach lifting cables under receiver tank and use spreader bars as necessary to prevent unit from turning when lifted.

CAUTION

To prevent component damage do not lift unit by attaching cables to air compressor, motor, or belt guard.

- (1) Remove all blocking and tie downs securing unit to carrier.
- (2) Lift unit from carrier and transport to installation sight.

2-4. ASSEMBLY AND PREPARATION FOR USE- Continued.

- b. Unpacking.* Remove all crating, blocking, and protective material and perform the following procedures.
- (1) Refer to Components of End Item and Basic Issue Items List (Appendix C) and check to see if you have received all required items.
 - (2) Check for and tighten any loose mounting screws and nuts. Visually check for missing parts and for damage that may have occurred during shipment.
 - (3) Position unit where there is adequate ventilation and air circulation for cooling. Installation must be at least 2 feet (0.6 meters) from wall to belt guard.
 - (4) Secure unit to floor, when required.

2-5. DAILY CHECKS. Perform all "Before" operation preventive maintenance checks and services (PMCS) shown in table 2-1. Adjust the drive belts as follows:

- a.* Loosen three knobs (1) attaching engine (2) to saddle (3). Move engine away from compressor by lifting take-up bolt keeper angle (6) and turning take-up bolt assembly (4) to tighten belt tension.
- b.* Insert a screwdriver through belt guard and depress belt to check that belt is tensioned properly.

NOTE

Tension is correct when deflection of belts (5) is approximately 1/2 inch (12.7mm) when pressed mid way between pulleys.

- c.* Tighten three knobs (1) securing engine (2) to saddle (3). Be sure take-up bolt keeper angle is lowered to keep take-up bolt assembly (4) from loosening during operation.
- d.* Check the oil level in engine by removing dipstick and reading oil level indication. Add oil to indicated level as required.
- e.* Check oil level in air compressor. Oil level is correct when sight glass on air compressor is half full. Add oil to air compressor as required.
- f.* Check fuel level in fuel tank by reading fuel level indicator gage on tank. Fill tank with fuel as required.

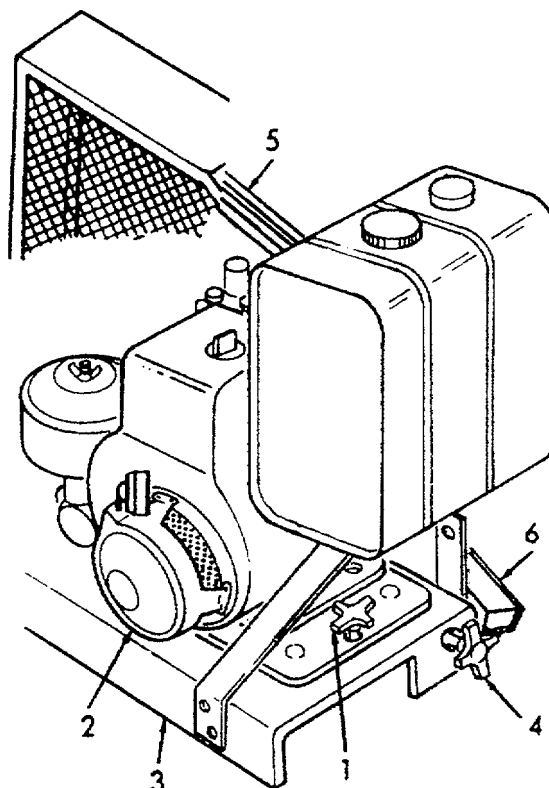


Figure 2-2. Compressor Drive Belt Tension Adjustment.

2-6. OPERATING PROCEDURE. Paragraphs 2-8, 2-9, and 2-10 are to be followed for start-up, operation and shut down of the air compressor under usual conditions.

WARNING

- **DO NOT** stand close to exhaust opening for long periods of time. Serious illness or death can occur from carbon monoxide emitted from gasoline engine.
- To avoid fire or explosion during engine refueling:
 - **DO NOT** allow any flame producing material within 50 feet (15.25 m).
 - **DO NOT** smoke while refueling.
 - **DO NOT** let gasoline drip onto hot surface.
 - **DO NOT** refuel while engine is running.

CAUTION

Perform all "before" operation preventive maintenance checks and services before starting air compressor unit.

2-7. AIR COMPRESSOR UNIT START-UP. (Refer to Figure 2-3.)

- a. Open the drain cock (1) on the bottom of the air tank (2) and allow all moisture to drain from air tank.
- b. Close the drain cock (1).
- c. Check the fuel level in the gasoline engine tank (4). If level is low, fill tank with leaded or unleaded regular gasoline.
- d. Place three way shutoff valve (7) into vertical position with handle pointed down. If using auxiliary fuel source, place handle pointing up.
- e. Place the engine rotary switch (3) into the "ON" position.
- f. Close choke (8) on carburetor.
- g. Place upper part of manual unloader cam (6) into vertical position.
- h. Pull out starter handle (5) slowly until the starter clutch engages the engine. Then pull out handle firmly and sharply about 18 inches (.5 meter).
- i. Hold onto handle, but relax enough to let the starter spring bring the handle back down.
- j. Repeat steps (h) and (i) until engine starts.
- k. When engine starts, close choke (8) on carburetor.

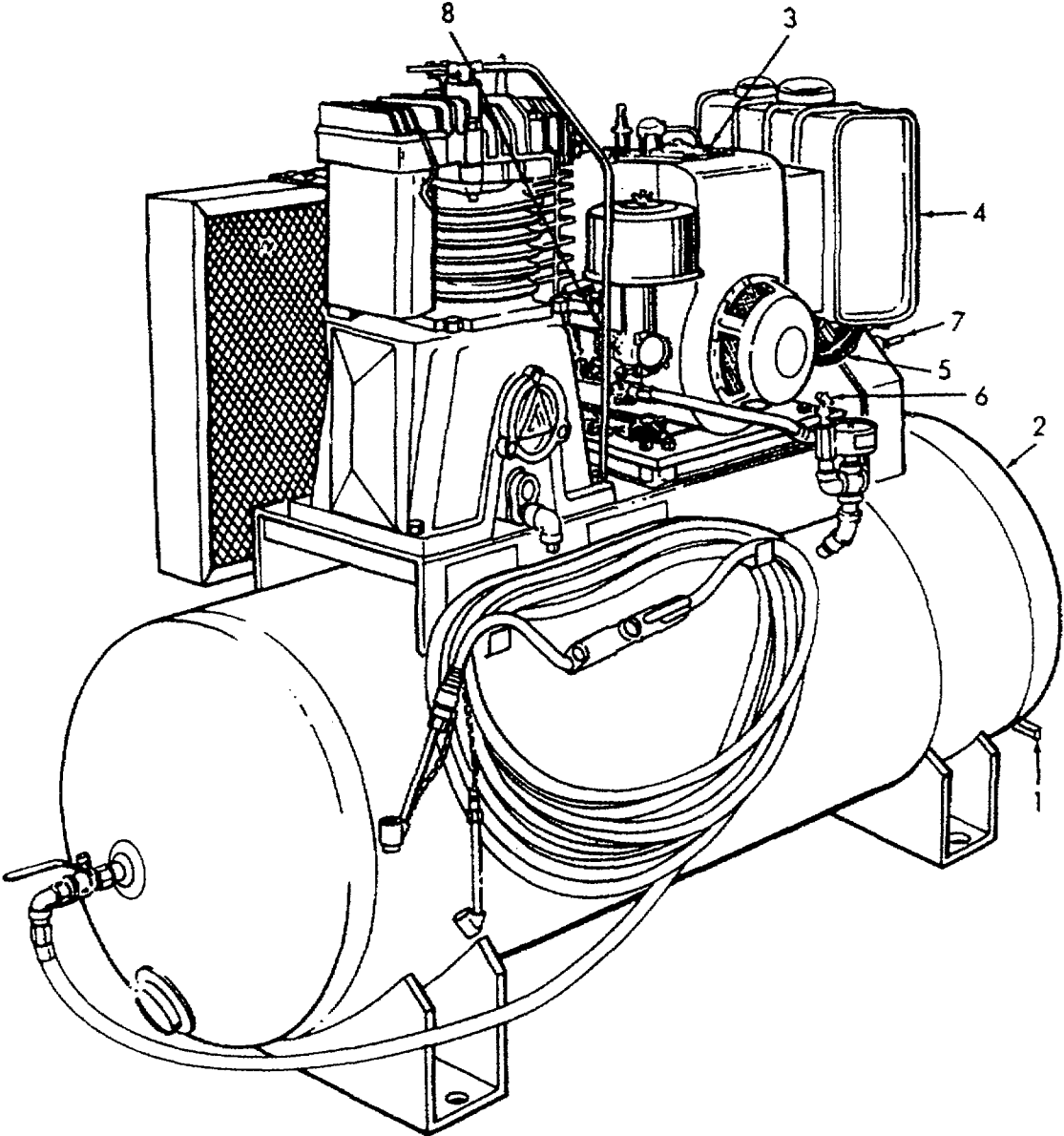


Figure 2-3. Air Compressor Unit Start-Up.

2-8. AIR COMPRESSOR UNIT OPERATION.**WARNING**

Do not use compressed air from this unit for blow off or cleaning purposes. High pressure air can cause serious injury to personnel.

- a. After engine has been started and is running smoothly, release manual unloader cam and place upper part of manual unloader cam (8) into horizontal position. An air pressure of between 175 and 200 psi (12.3 to 14.1 kgs/cm²) will be shown on air pressure gage (1) on air tank (2).
- b. When required pressure is indicated, remove flexible hose (3) from its holder and place it near intended work area.
- c. Open air tank shut-off valve (4) by turning handle 90° counterclockwise.
- d. Select proper inflation tool (5), pull sleeve back on inflation hose connector, insert tool, and release sleeve.
- e. Place inflation device (5) onto item to be inflated and depress handle (6) to allow pressurized air to flow into item.
- f. Release handle (6) occasionally and, with inflation device still attached to item being inflated, read air pressure inside of inflated item as shown on gage (7) on inflation handle.
- g. When proper inflation pressure is shown, remove inflation device from item being inflated.

NOTE

During air compressor operation, be sure to perform your "during" operation preventive maintenance checks and services.

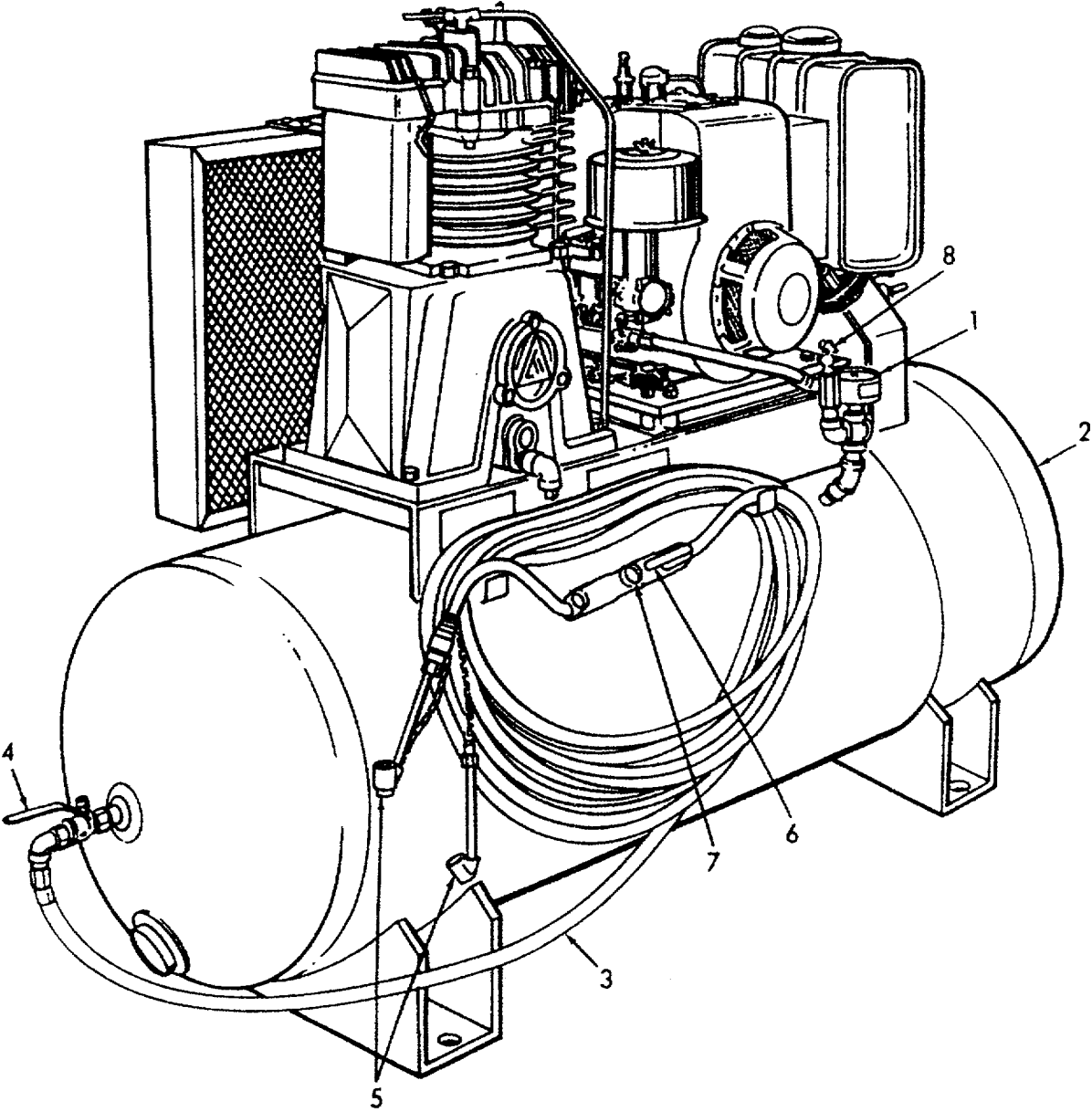


Figure 2-4. Air Compressor Unit Operation.

2-9. AIR COMPRESSOR UNIT SHUT-DOWN.

- a. Turn off air tank shut-off valve (1) by turning handle (2) 90° clockwise.
- b. Place flexible hose (3) onto hose holders (4).
- c. Place manual unloader (8) into vertical position.
- d. Turn engine switch (5) to off position.

WARNING

Only open drain cock partially to allow low pressure air to leave tank. Debris can be blown into the eyes of personnel causing injury if high pressure air is released.

- e. If air compressor has been operating for an extended period of time slowly open drain cock (6) to allow pressurized air and moisture to drain from air tank (7).
- f. Close three way fuel shutoff valve (9) by turning handle into horizontal position.
- g. Perform your "after" operation preventive maintenance checks and services.

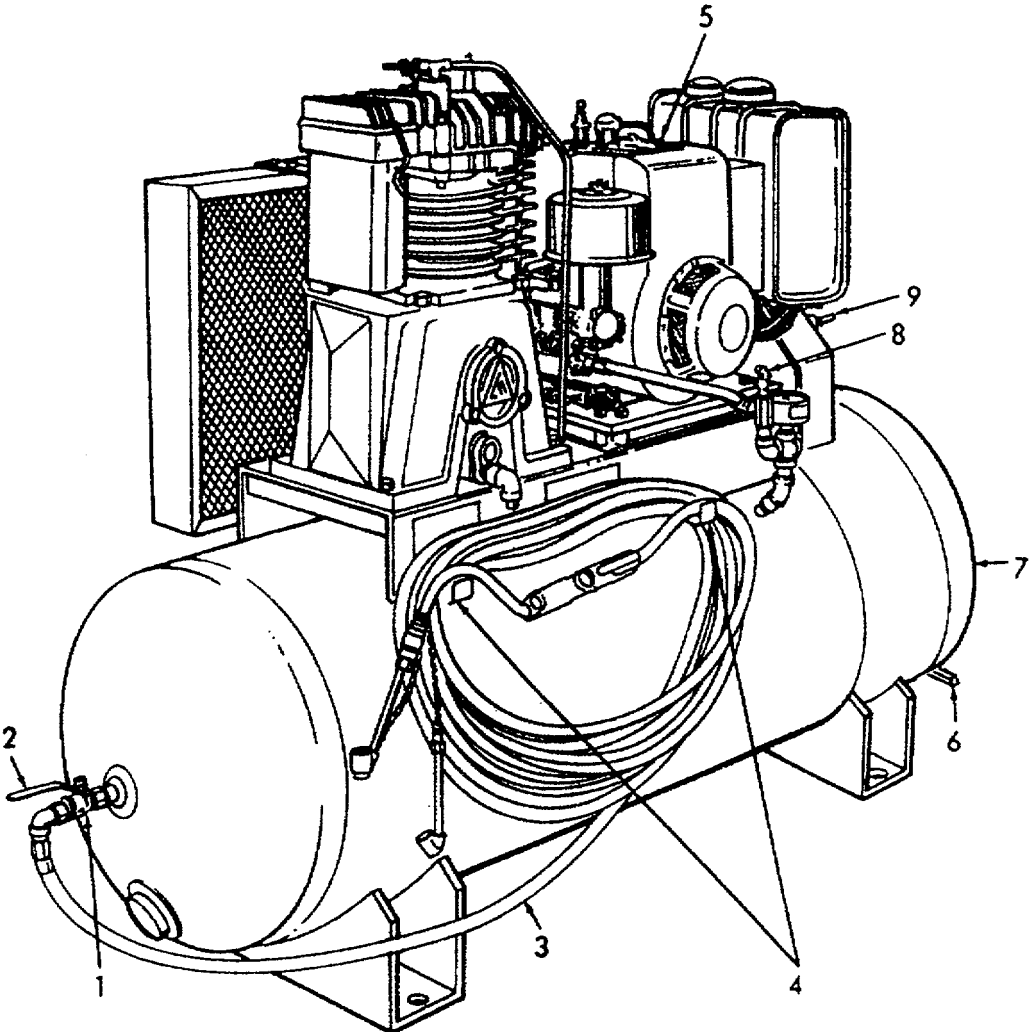


Figure 2-5. Air Compressor Unit Shut-Down.

2-10. PREPARATION FOR MOVEMENT.

- a. If air compressor unit has been attached to a floor, remove any fasteners placed through the feet of the air tank.
- b. Secure flexible hose onto hose holder on air tank by wrapping hose around itself and the holders.

2-11. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES. Refer to figure 2-6 for location and text of operating instructions on decals and instruction plates.

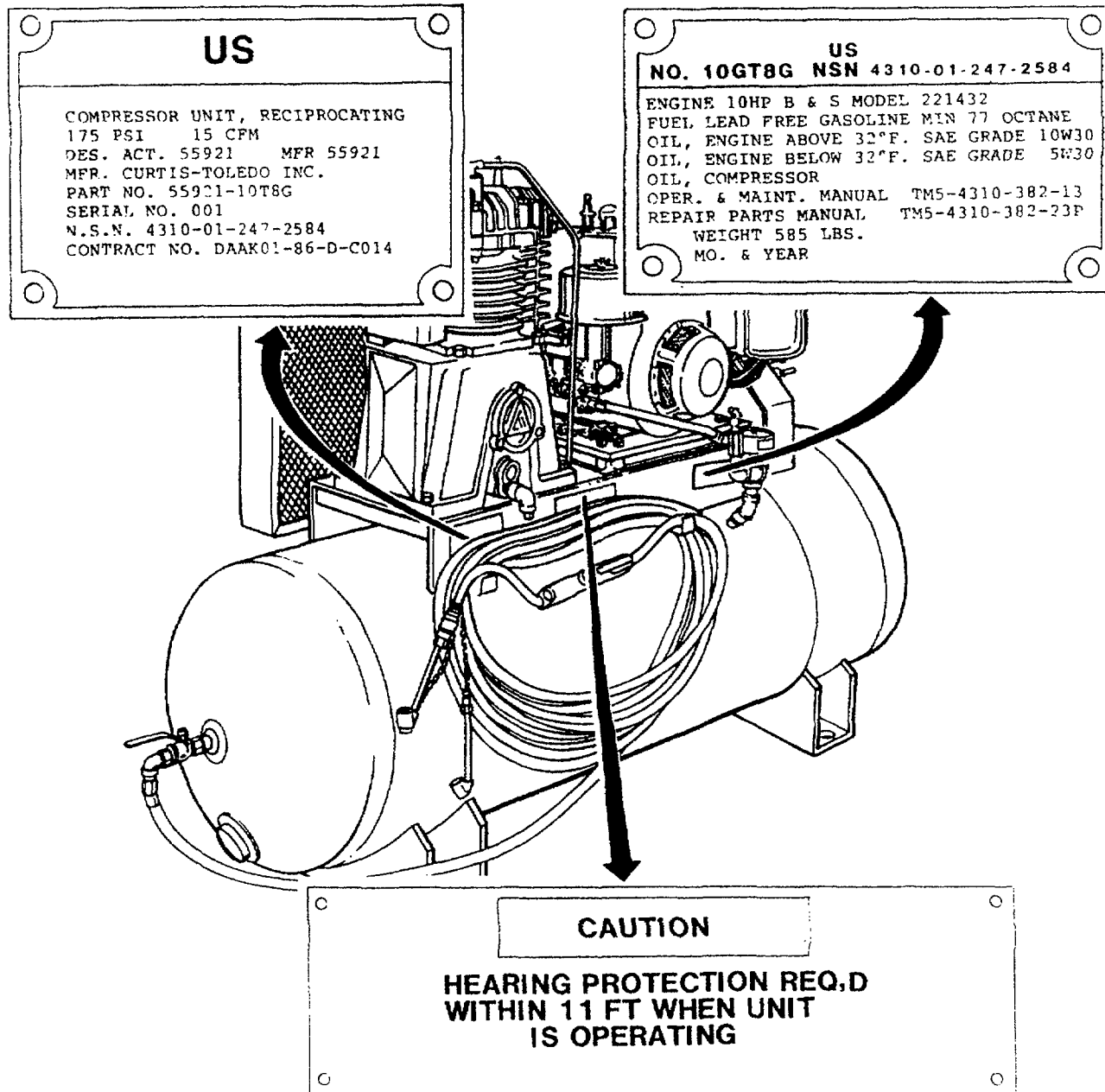


Figure 2-6. Decals and Instruction Plates.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-12. OPERATION IN EXTREME HEAT. To insure good operation of the air compressor unit in extreme heat, perform the following procedures:

- a. Check tension on drive belts frequently. Loose drive belts can slip on their pulleys and cause overheating.
- b. Keep the motor, air compressor, belt guard, and air tank clean.
- c. All other operations are as defined in paragraph 2-7.

2-13. OPERATION IN EXTREME COLD (Below 0°F or - 18°C). The air compressor unit should be operated in an area sheltered from strong winds and any precipitation. The following procedures should also be followed for good unit operation.

- a. Keep fuel tank filled to prevent moisture build up in tank and fuel lines.
- b. Avoid bending, kinking, and excessive handling of flexible air hose.
- c. Remove all ice or snow from engine, air compressor, belt guard, and air tank.
- d. Loosen drive belts (see paragraph 2-6).
- e. Start engine (see paragraph 2-8). Allow engine to run for a few minutes, until engine is warm to the touch.
- f. Stop engine (see paragraph 2-10).
- g. Tighten drive belts (see paragraph 2-6).
- h. Restart engine (refer to paragraph 2-8) and continue with all other operations as defined in paragraph 2-9.
- i. Drain all moisture from air tank and flexible hose after shutdown of air compressor unit.

2-14. OPERATION IN SALT AIR, SEA SPRAY, OR HIGH HUMIDITY. Shelter unit from sea spray as much as possible while still maintaining a well-ventilated operating area and perform the following procedures:

- a. Frequently wipe all components of the air compressor unit to dry excessive moisture on unit.
- b. Open the drain cock more often to drain all moisture from air tank.
- c. Cover unit completely when not in use.
- d. All other operations are as defined in paragraph 2-7.

2-15. OPERATION IN DUSTY OR SANDY AREAS. Shelter the unit from sand and dust as much as possible and perform the following procedures:

- a. Inspect the air filters for both the engine and the air compressor frequently.
- b. Keep engine and air compressor cooling fins clean.
- c. Cover unit completely when not in use.
- d. All other operations are as defined in paragraph 2-7.

CHAPTER 3

UNIT MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

3-1. GENERAL INSTRUCTIONS. No separate Lubrication Order (LO) is available for this unit; therefore, lubrication instructions contained in this section are mandatory.

3-2. LUBRICATION INSTRUCTIONS.

a. General. Keep all lubricants in closed containers and store in a clean dry place away from external heat. Allow no dust, dirt, or other foreign material to mix with the lubricants. Keep all lubrication equipment clean.

b. Cleaning. Wipe lubrication points and surrounding areas free of dirt. Clean lubrication points and surrounding areas after lubrication of all spilled lubricants to prevent accumulation of dirt and foreign matter.

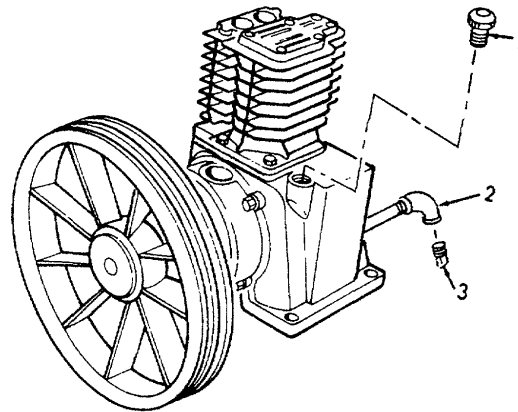
c. Lubrication. Lubricate the unit at intervals indicated with the recommended lubricants, or their equivalents, as shown in table 3-1.

d. Unusual Conditions. When the air compressor is being operated or stored in extreme heat, extreme cold, salt spray, high humidity, sandy, or dusty conditions, reduce all intervals by 30% to provide greater lubrication under these severe conditions.

3-2. LUBRICATION INSTRUCTIONS - Continued.

Table 3-1. Lubrication Table

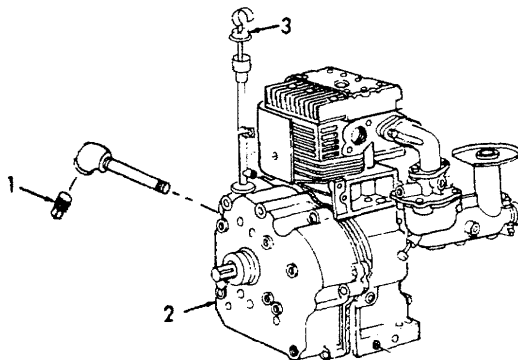
LUBRICATION TASK	INTERVAL	LUBRICANT	CAPACITY
<p>1. AIR COMPRESSOR</p> <p>a. <u>Oil Level Check.</u> Check level of compressor oil. Add oil as necessary until sight gage is half full.</p> <p>b. <u>Oil Change.</u> While oil is still warm, remove compressor oil filler cap (1), place container under oil drain (2), remove plug (3) and drain compressor oil. When oil is removed, install plug (3), discard oil and fill compressor with clean compressor oil until sight gage is half full. Install oil filler cap. Perform oil level check in a. above.</p>	<p>10 hours (weekly)</p> <p>After first 100 hours (3 months), then every 500 hours (12 months).</p>	<p>MIL-L-2104</p> <p>MIL-L-2104</p>	<p>1-1/2 quarts (1.4 liters)</p> <p>1-1/2 quarts (1.4 liters)</p>



2. GASOLINE ENGINE

<p>a. <u>Oil Level Check.</u> Remove oil gage rod and check oil level indicated on rod. Add oil as indicated. Replace oil gage rod, wait 10 seconds, remove oil gage rod and inspect oil level again. Adjust level as needed.</p>	<p>5 hours</p>	<p><u>Above 32°F</u> (0°C) operation: SAE 10W30 Grades SC, SD, or SE</p> <p><u>Below 32°F</u> (0°C) operation: SAE 5W-30, Grades SC, SD, or SE</p>	<p>3 pints (1.4 liters)</p>
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LUBRICATION TASK	INTERVAL	LUBRICANT	CAPACITY
<p>b. <u>Oil Change.</u> While engine is warm, remove oil drain plug (1) and allow all oil to drain from engine (2) into any suitable container. Replace oil drain plug. Remove oil dipstick (3) and fill engine with new oil. Perform oil level check in 2a above.</p>	<ul style="list-style-type: none"> • After first 5 hours of operation. • Then after every 25 hours of operation. 	<p><u>Above 32°F</u> (0°C) Operation: SAE 10W/30. Grades SC, SD, or SE</p> <p><u>Below 32°F</u> (0°C) Operation: SAE 5W-30, Grades SC, SD, or SE</p>	<p>3 pints (1.4 liters)</p>



Section II. REPAIR PARTS, SPECIAL TOOLS, TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE), AND SUPPORT EQUIPMENT

3-3. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

3-4. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. Refer to TM 5-4310-382-23P, Unit and Intermediate Direct Support Maintenance Repair Parts and Special Tools List (RPSTL). Refer to Maintenance Allocation Chart (Appendix B) for maintenance tasks allocated to unit level. There are three special tools required for maintenance of the engine on this air compressor unit: puller, mechanical (NSN 5120-00-116-7599); wrench, starter (NSN 5120-00-861-0787); and holder, flywheel (NSN 5120-00-861-5738).

3-5. REPAIR PARTS. Repair parts are listed and illustrated in the repair parts and special tools list, TM 5-4310-382-23P, covering unit maintenance for this equipment.

Section III. SERVICE UPON RECEIPT OF EQUIPMENT

3-6. SITE AND SHELTER REQUIREMENTS.

a. Siting. Locate the air compressor unit on a floor or surface as level as possible. Avoid muddy, sandy, or dusty locations if possible. If necessary to locate unit on soft ground, provide a suitable level foundation of planking. Unit should never be operated when out-of-level is 15 degrees in either direction (front to rear or side to side).

b. Shelter Requirements. Floor space for the unit is 4-1/2 feet wide by 6 feet long (1.37 m by 1.83 m). When unit is to be permanently installed it must be located at least 2 feet (0.6 meters) from any wall or obstruction on the belt guard side. Unit weight is 585 pounds (269 kgs). Make sure floor capacity in shelter site is capable of supporting this weight for an extended period of time. The shelter area must allow for adequate ventilation and air circulation completely around unit to provide proper cooling and intake air supply to compressor. If shelter area does not have a cover to adequately protect the unit against bad weather, cover with tarpaulin when not in use. If the unit is to be operated in an enclosed shelter be sure to provide adequate ducting of engine exhaust to outside the shelter.

3-7. SERVICE UPON RECEIPT OF MATERIAL. Refer to paragraph 2-5a and 2-5b. for unloading, unpacking and deprocessing.

3-8. CHECKING UNPACKED EQUIPMENT.

a. Inspect equipment for damage incurred during shipment. If equipment has been damaged, report the damage on SF 364, Report of Discrepancy.

b. Check equipment against packing slip to see if shipment is complete. Report all discrepancies in accordance with instructions of DA PAM 738-750. See that special tools components of end item and basic issue items are with the equipment. Technical manuals must be present.

c. Check to see whether equipment has been modified. Refer to DA PAM 310-1.

d. Reject if: Parts are missing, parts are deformed, rust/corrosion is visible.

e. Inspect to make sure stencil markings are present and readable.

3-9. PRELIMINARY SERVICING.

- a. Fill the air compressor and gasoline engine with lubricating oil per the instructions contained in paragraph 3-2.
- b. Check the oil level for the air compressor and gasoline engine for proper oil level indication.
- c. Start the air compressor unit per the procedure contained in paragraph 2-8.

Section IV. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

3-10. INTRODUCTION.

a. *Purpose of PMCS Table.* The purpose of this table is to list all the scheduled maintenance required to keep the air compressor unit in good working order. Doing the scheduled maintenance will reduce the chances of equipment breakdown.

b. *Item Number Column.* This column numbers the PMCS procedures in the order they should be done. These numbers will be used as a source of item numbers for the "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording the results of PMCS.

c. *Interval Column.* This column designates the maximum allowable time between the performances of the procedure named by the item number.

d. *Item to be Inspected Column.* This column lists the specific item to be worked on such as "carburetor".

e. *Procedure Column.* This column tells you how to perform the required checks and services.

Table 3-2. Unit Preventive Maintenance Checks and Services

M = Monthly

S = Semiannual

A = Annual

H = Hours

Item No.	Interval				Item to be Inspected	Procedure
	M	S	A	H		
1	•				Belts, V, Matched Set, and Guide	Examine drive belt for proper tension. Adjust belts per para 2-6.
2	•				Take-Up Bolt Assembly	Check take-up bolt for proper adjustment and securement for drive belt tension. Adjust per para 2-6.

3-10. INTRODUCTION - Continued.

Table 3-2. Unit Preventive Maintenance Checks and Service - Continued

Item No.	Interval				Item to be Inspected	Procedure
	M	S	A	H		
3				25	Air Cleaner (Engine)	Remove and clean the dual elements of the engine air cleaner. (Para 3-20).
4		•			Cylinder Head (Engine)	Remove cylinder head and clean carbon deposits from valves, cylinder, and piston.
5			•		Ignition System	Adjust spark plug gap. (Para 3-26).
6			•		Governor Linkage and Throttle Linkage	Adjust linkage for governor and throttle. (Para 3-27).
7		•			Air Strainer Assembly (Compressor)	Remove and replace air strainer assembly. (Para 3-29).

Section V. UNIT TROUBLESHOOTING PROCEDURES

3-11. GENERAL.

a. The table in this section lists the common malfunctions which you may find during the operation or maintenance of the air compressor or its components. You should perform the tests/inspections and corrective actions in the order listed.

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

3-12. TROUBLESHOOTING TABLE.

Table 3-3. Unit Troubleshooting

WARNING

Be sure to read all WARNINGS in front of this manual before troubleshooting.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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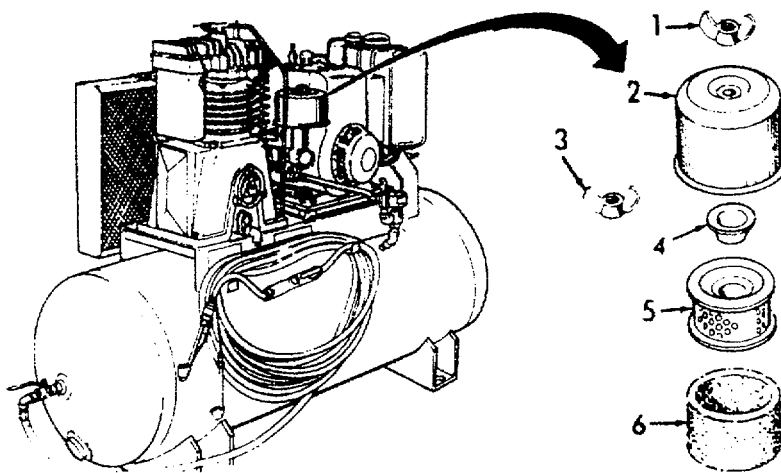
1. AIR COMPRESSOR OVERHEATS.

Step 1. Check oil level in air compressor.

If oil level is too low, fill air compressor with oil.

Step 2. Inspect engine air intake filter for clogging.

Remove wing nut (1), cover (2), wing nut (3), cup (4), foam pre-cleaner (5) and cartridge (6). Inspect foam pre-cleaner (5) and cartridge (6) for dogging. Clean if possible. If items cannot be cleaned, replace them (see para 3-24). Reassemble air intake filter.



Step 3. Check air flow around air compressor unit for restrictions.

If air compressor unit is not at least 2 feet (0.6 meters) from walls or other objects next to unit, relocate unit for better air flow.

Step 4. Inspect air compressor cylinder head cooling fins for build-up of foreign material.

Remove all dirt or other foreign material from surfaces of all cooling fins.

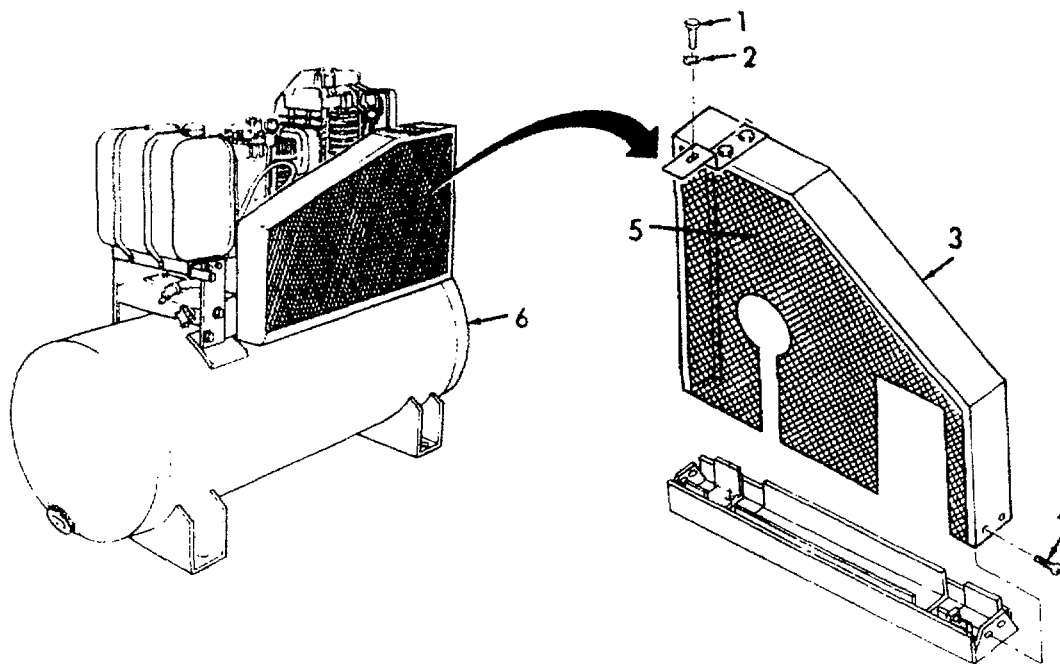
Table 3-3. Unit Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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1. AIR COMPRESSOR OVERHEATS - Continued.

Step 5. Check belt guard assembly for accumulation of foreign matter on screens.

Remove screw (1), lockwasher (2), four bolts (4), and belt guard assembly (3) from air compressor unit (6). Clean screen (5) on belt guard assembly with compressed air and/or water. If belt guard is damaged, replace it (see paragraph 3-15). Reassemble belt guard screen to air compressor unit.



2. AIR COMPRESSOR UNIT VIBRATES BADLY.

Step 1. Check for loose spark plug lead on engine.

Push spark plug cap firmly onto spark plug.

Step 2. Check for fouled spark plug on engine.

Remove plug and check for carbon build-up or gasoline on spark plug electrodes. Clean plug if possible. If plug cannot be cleaned, replace it. Replace spark plug into engine.

Step 3. Inspect mounting bolts and tension knobs holding engine and air compressor onto air tank.

Tighten all loose bolts and tension knobs.

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

Step 4. Inspect drive belts for damage, wear, or improper tension.

Refer to paragraph 3-16 to inspect and adjust drive belt tension. If drive belts are worn or damaged, replace them (see paragraph 3-16).

Step 5. Check drive pulleys for cracks or other damage.

Replace cracked or damaged drive pulleys (see paragraph 3-17).

Step 6. Check take-up bolt assembly for bad adjustment or damage.

Adjust take-up bolt assembly (see paragraph 3-18).

Replace damaged take-up bolt assembly (see paragraph 3-18).

3. LITTLE OR NO AIR PRESSURE BUILD-UP.

Step 1. Check engine for low rpm's.

Increase engine speed (see paragraph 3-27).

Step 2. Check for open drain cock on air tank.

Tighten drain cock.

Step 3. Check drive belts for proper adjustment.

Refer to paragraph 3-16 for inspection and adjustment of drive belts.

Step 4. Inspect air intake filter on air compressor for clogging.

Refer to MALFUNCTION 1, Step 2.

Step 5. Inspect air pressure relief valve for improper seating.

Manually operate relief valve and check valve for air leaks when released.

Step 6. Check all airlines and fittings for looseness or air leaks.

Tighten all loose fittings.

Replace all defective hoses, tubes, or cracked fittings (see paragraph 3-31).

Step 7. Inspect air tank for leaks and damage.

If air tank is damaged or leaks, replace it (see paragraph 3-36).

Table 3-3. Unit Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4.	AIR DELIVERY IS DROPPING.	<p>Step 1. Check engine operation for low rpm's.</p> <p>Increase engine speed (see paragraph 2-27).</p> <p>Step 2. Check drain cock for air leaks.</p> <p>Tighten drain cock.</p> <p>Step 3. Inspect air intake cleaner on air compressor for clogging.</p> <p>Refer to MALFUNCTION 1, Step 2.</p> <p>Step 4. Check all air tube assemblies and fittings for leaks or looseness.</p> <p>Tighten all air fittings and replace all defective air tube assemblies or hoses (see paragraph 3-31).</p> <p>Step 5. Check engine for loss of power.</p> <p>Refer to MALFUNCTION 11.</p>
5.	AIR COMPRESSOR IS PUMPING OIL.	<p>Step 1. Check air intake cleaner on air compressor for clogging.</p> <p>Refer to MALFUNCTION 1, Step 2.</p> <p>Step 2. Check oil level in air compressor for overfilling.</p> <p>Drain oil to proper oil level in air compressor (see paragraph 3-2).</p>
6.	AIR COMPRESSOR IS RUNNING TOO SLOW.	<p>Step 1. Check engine operation for low rpm's.</p> <p>Increase engine speed (see paragraph 3-27).</p> <p>Step 2. Inspect drive belts for proper adjustment.</p> <p>Refer to paragraph 3-16 for drive belt adjustment.</p>

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 3. Check engine for erratic operation.

See MALFUNCTION 9.

Step 4. Check for missing or damaged oil filler cap, plug, and drain causing oil loss.

Replace missing or damaged oil filler cap, plugs, or drain (see paragraph 3-23).

7. AIR COMPRESSOR MAKES EXCESSIVE NOISE.

Step 1 Check drive belts for proper adjustment.

Refer to paragraph 3-16.

Step 2. Inspect air compressor mounting fasteners for loose or missing hardware.

Tighten or replace mounting hardware.

Step 3. Check belt guard assembly for loose or missing hardware.

Tighten or replace belt guard assembly mounting hardware.

8. ENGINE WILL NOT START.

Step 1. Check that engine start switch is not in "off" position.

Place engine start switch into "on" position.

Step 2. Check that fuel shutoff valve and fuel line three way valve is not in closed position.

Rotate valves to proper open position.

Step 3. Check to see if fuel tank is empty.

Fill fuel tank with leaded or unleaded gasoline.

Step 4. Check for improper or contaminated fuel.

If fuel is contaminated, empty fuel tank and refill with fresh fuel.

If fuel is not proper type or grade, empty fuel tank and replace with leaded or unleaded regular gasoline.

Table 3-3. Unit Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
8.	ENGINE WILL NOT START - Continued.	
	Step 5. Check for loose spark plug lead.	Press spark plug cap firmly onto spark plug.
	Step 6. Inspect engine choke for proper positioning.	Place engine choke into closed position.
	Step 7. Check spark plug for fouling or improper gap setting.	Remove spark plug and examine it for carbon build-up or gasoline contamination. Clean plug if it is fouled. Inspect spark plug for proper gap. Regap to .030 in. (0.750 mm).
	Step 8. Inspect manual starter on engine for proper operation.	If engine flywheel does not rotate when attempting to start, replace starter clutch (see paragraph 3-25). If engine starter still fails to function, replace entire starter assembly (see paragraph 3-25).
	Step 9. Inspect engine ignition system for poorly adjusted or damaged components.	Refer to paragraph 3-26 for engine ignition system disassembly and inspection.
	Step 10. Check engine air cleaner for clogging.	Refer to MALFUNCTION 1, Step 2.
	Step 11. Check engine carburetor for poor adjustment or damage.	Refer to paragraph 3-21 for carburetor adjustment. If carburetor is damaged, refer to paragraph 3-21 for carburetor repair.
	Step 12. Check for malfunctioning engine fuel pump.	Disconnect output side of engine fuel pump and pull out starter rope. If fuel does not exit output side of fuel pump, replace fuel pump (see paragraph 3-22).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 13. Check for clogged muffler.

Remove muffler and inspect for carbon build-up or clogging. Replace clogged muffler (see paragraph 3-24).

Step 14. Inspect governor linkage and throttle linkage for bad adjustment or damage.

Adjust governor and throttle linkage per paragraph 3-27.

If either linkage is damaged, replace them (see paragraph 3-27).

Step 15. Check engine cylinder head for leaks or cracks.

Tighten cylinder head fasteners if it leaks.

Replace cylinder head if it is cracked (see paragraph 3-28).

Step 16. Check engine fuel lines and filters for clogging.

Refer to paragraph 3-14 for disassembly engine fuel lines and filter.

Clean out clogged fuel lines. Replace clogged fuel filter (see paragraph 3-14).

Step 17. Inspect engine for major damage.

If engine is not repairable, replace it (see paragraph 3-19).

9. ENGINE RUNS ROUGHLY OR STOPS.

Step 1. Check for empty fuel tank.

If fuel tank is empty, refill with leaded or unleaded gasoline.

Step 2. Check that fuel shutoff valve and fuel line three way valve is completely open.

If fuel valves are not completely open, open them.

Step 3. Check for loose spark plug lead.

Reattach spark plug lead to spark plug and press plug cap firmly onto plug.

Step 4. Check that engine choke is open.

If choke is closed, open choke.

Table 3-3. Unit Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
9.	ENGINE RUNS ROUGHLY OR STOPS - Continued.	
	Step 5. Check for damaged or loose engine fuel line fittings.	Tighten all loose fuel line fittings. Replace all damaged fuel lines (see paragraph 3-14).
	Step 6. Check for clogged engine air filter.	Refer to MALFUNCTION 1, Step 2.
	Step 7. Check for contaminated fuel.	If fuel is contaminated, drain engine fuel tank and refill with fresh leaded or unleaded regular gasoline.
	Step 8. Check for fouled spark plug.	Remove spark plug. Inspect for carbon build-up or fuel fouling. Clean, regap to 0.030 in (0.750 mm) and replace spark plug.
	Step 9. Check for engine overheating.	Refer to MALFUNCTION 10.
	Step 10. Check for malfunctioning engine fuel pump.	Disconnect output side of engine fuel pump and pull out starter rope. If fuel does not exit output side of fuel pump, replace fuel pump (see paragraph 3-22).
	Step 11. Check for clogged muffler.	Remove muffler and inspect for carbon build-up or clogging. Replace clogged muffler (see paragraph 3-24).
	Step 12. Check for clogged fuel lines or fuel filter.	Refer to paragraph 3-14 for disassembly engine fuel lines and filter. Clean out clogged fuel lines. Replace clogged fuel filter (see paragraph 3-14).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

10. ENGINE OVERHEATS.

Step 1. Check engine cooling fins for blocking and collection of debris.

Remove all debris from engine cooling fins.

Step 2. Check engine oil level.

If oil level is low, refill engine with oil as required (see paragraph 3-2).

Step 3. Check engine blower housing for dents and damage.

If blower housing is dented or damaged, replace it (see paragraph 3-25).

11. ENGINE LACKS POWER OR OPERATES AT SLOW SPEED.

Step 1. Check for improper throttle setting.

Adjust throttle setting to increase engine speed to desired rate.

Step 2. Check for closed choke.

If choke is closed, open choke.

Step 3. Check for contaminated fuel.

If fuel is contaminated, drain engine fuel tank and refill with fresh leaded or unleaded regular gasoline.

Step 4. Check for low engine oil level.

If oil level is low, refill engine with oil (see paragraph 3-2).

Step 5. Inspect throttle linkage for bad adjustment and for loose or missing hardware.

Adjust throttle linkage (see paragraph 3-27). Tighten or replace hardware.

Step 6. Check governor linkage for bad adjustment or loose/missing hardware.

Adjust governor linkage (see paragraph 3-27). Tighten or replace loose or missing hardware.

Table 3-3. Unit Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
11. ENGINE LACKS POWER OR OPERATES AT SLOW SPEED.	Step 7. Check that fuel line valves are fully open.	If fuel line valves are not fully open, open them.
12. ENGINE HAS HIGH RATE OF OIL CONSUMPTION.	Step 1. Inspect for missing or damaged oil gage tube and drain.	Replace missing or damaged oil tube, oil gage rod, or drain (see paragraph 3-23).
13. AIR PRESSURE GAGE HAS IMPROPER READINGS.	Step 1. Check air pressure gage for damage.	Replace defective air pressure gage (see paragraph 3-34).
14. INFLATION IS SLOW OR NON-EXISTENT.	Step 1. Check for proper air pressure on air tank pressure gage.	Increase engine rpm to increase air tank pressure.
	Step 2. Check inflation device on end of flexible hose for proper operation.	Replace defective inflation device (see paragraph 3-34).
	Step 3. Inspect tank air valve for improper adjustment or damage.	If tank air valve is damaged, replace it. If tank air valve is partially closed, open it fully.
15. WATER IN AIR LINES.	Step 1. Check for water inside air tank.	Open drain cock on bottom of air tank and drain out all water.

Section VI. UNIT MAINTENANCE PROCEDURES

3-13. GENERAL. The following paragraphs contain Unit Maintenance Procedures for the air compressor unit as authorized by the Maintenance Allocation Chart.

WARNING

- Engine start switch must be in "OFF" position prior to performing any maintenance procedures. Serious injury can result from servicing unit while engine is operating.
- Do not touch engine ignition wires while engine is running. Serious electrical shock with injury to personnel is possible.

3-14. FUEL TANK, LINES, FILTER, AND FITTINGS.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Repair e. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's
3 1/2 Gallon Container

Materials Required

Brush, Medium Bristle (item 4, Appendix E)
Solvent, Dry Cleaning (item 2, Appendix E)
Cloth, Lint-Free (item 3, Appendix E)
Compound, Anti-Seize (item 7, Appendix E)

Equipment Condition

Engine shut down and cool.

- a. *Removal.*

WARNING

Gasoline is EXTREMELY FLAMMABLE. Do not allow open flame or hot objects to be within 30 feet of exposed fuel. Serious injury or death to personnel can result from gasoline fires or explosions.

- (1) Remove clamp (13) and disconnect hose (14) from fuel pump (25) and drain fuel from hose into a suitable 3 1/2 gallon container.
- (2) Remove clamp (21) and disconnect hose (22) from filter (23) and drain fuel from hose into a suitable 3 1/2 gallon container.
- (3) Remove plug (9) from tank (7) and drain fuel from fuel tank into a suitable 3 1/2 gallon container.
- (4) Loosen clamp (13) and disconnect hose (14) from barbed fitting (15).
- (5) Remove barbed fitting (15) from carburetor.
- (6) Remove three clamps (21), hose (24), filter (23), and hose (22) from valve (17) and engine fuel pump (25).
- (7) Remove valve (17), bushing (18), three way valve (20), plug (19), and nipple (16) from fuel tank (7).

- (8) Remove fuel gage (5) from fuel tank (7).
- (9) Remove cap (8) and screen (6) from fuel tank (7).
- (10) Remove gasket (32) from cap (8). Use a knife to remove any gasket pieces left inside cap.
- (11) Remove four nuts (12), four screws (11), four lockwashers (10), two straps (4), and fuel tank assembly (7).
- (12) Remove four screws (1), four lockwashers (2), and bracket (3).
- (13) Remove nut (29), lockwasher (30), bolt (26), flat washer (27), nut (28), and keeper (31) from bracket (3).

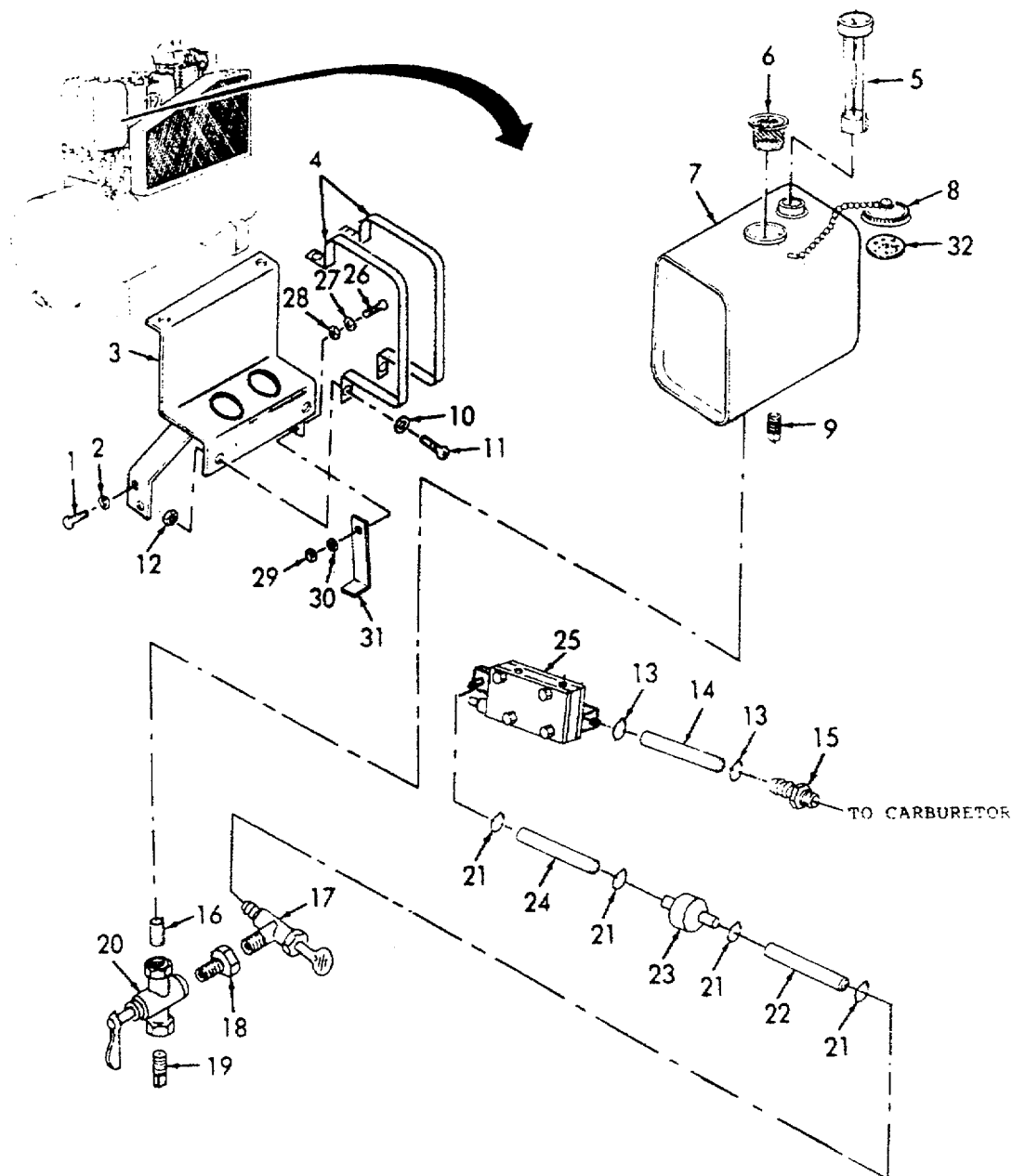


Figure 3-1. Fuel Tank, Lines, Filter and Fittings, Removal.

3-14. FUEL TANK, LINES, FILTER, AND FITTINGS - Continued.*b. Cleaning.*

- (1) Remove all build up of dirt or oil on all parts by wiping with a soft cloth (item 3, Appendix E).

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all metal parts using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. Inspection.

- (1) Inspect all hoses for cuts or cracks.
- (2) Inspect all threads for damage or stripping.
- (3) Check that valves operate smoothly.
- (4) Inspect fuel gage for proper needle operation and for cracked or scratched glass.
- (5) Examine fuel tank for cracks, dents, leaks or broken seams.
- (6) Inspect filter for clogging.

d. Repair.

Repair is limited to replacement of any components found defective during inspection.

*e. Installation***NOTE**

Apply anti-seize compound (item 7, Appendix E) to all pipe threads of assembly.

- (1) Install keeper (31), nut (28), flat washer (27), bolt (26), lockwasher (30), nut (29) onto bracket (3)
- (2) Install bracket (3), four lockwashers (2), and four screws (1).
- (3) Install fuel tank assembly (7), two straps (4), four lockwashers (10) four screws (11), four nuts (12),

- (4) Install cap (8) onto gasket (32).
- (5) Install cap (8) and screen (6) onto fuel tank (7).
- (6) Install fuel gage (5) into fuel tank (7).
- (7) Install nipple (16), three way valve (20), bushing (18), plug (19) and valve (17) onto fuel tank (7).
- (8) Install hose (22), hose (24), filter (23), and three clamps (21) onto valve (17) and engine fuel pump (25).
- (9) Install barbed fitting (15) onto carburetor.
- (10) Install hose (14) and clamp (13) onto barbed fitting (15).
- (11) Install plug (9) into tank (7).
- (12) Install hose (22) and clamp (21) onto filter (23).
- (13) Install hose (14) and clamp (13) onto fuel pump (25).

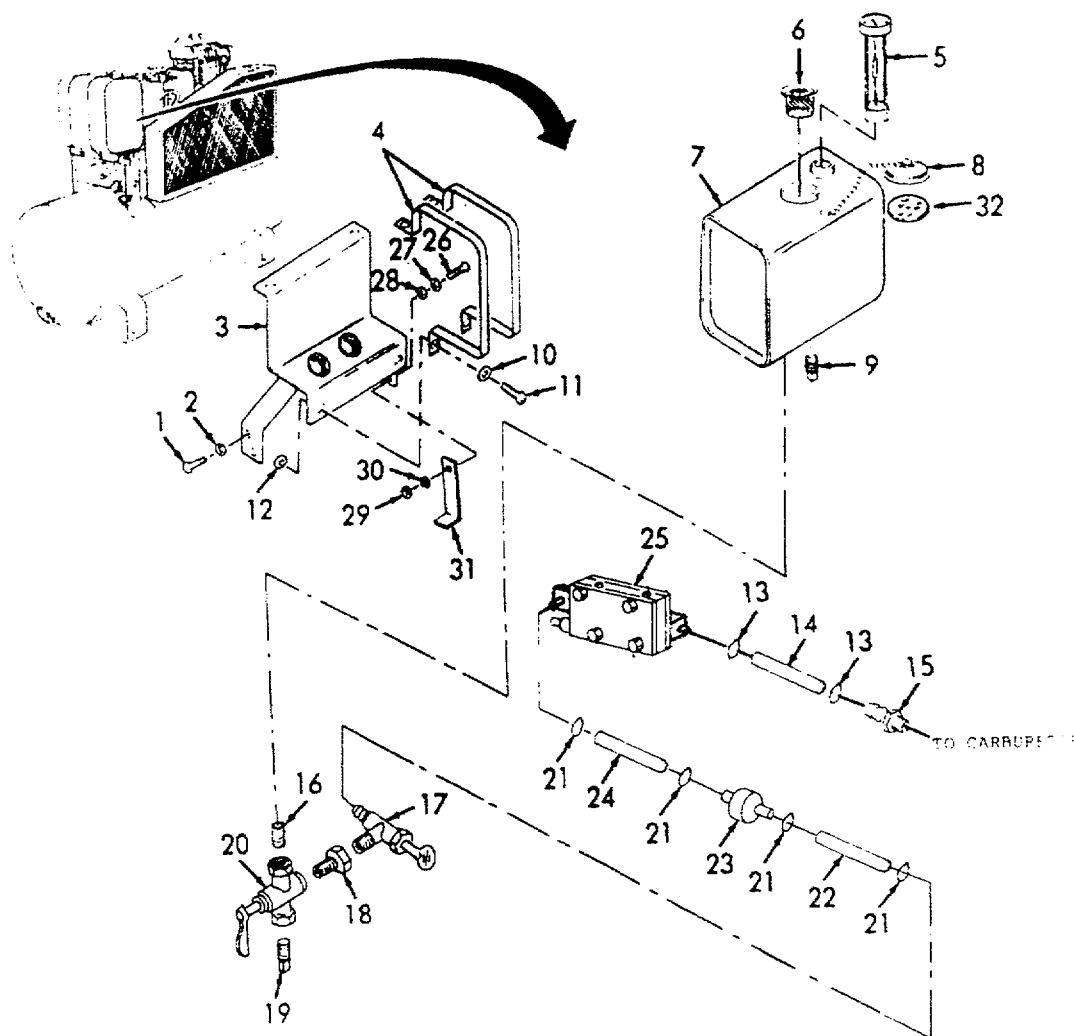


Figure 3-2. Fuel Tank, Lines, Filter, and Fittings, Installation.

3-15. BELT GUARD ASSEMBLY.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Repair
e. Installation
-

INITIAL SETUPTools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

a. Removal.

- (1) Remove screw (1) and lockwasher (2) from upper belt guard (3).
- (2) Remove four screws (4), four clip nuts (14), and belt guard (3).
- (3) Remove four screws (7), eight washers (6), four lockwashers (12), four nuts (13), and bottom of belt guard (5).
- (4) Remove two screws (11), two washers (10), two lockwashers (9), and two brackets (8).

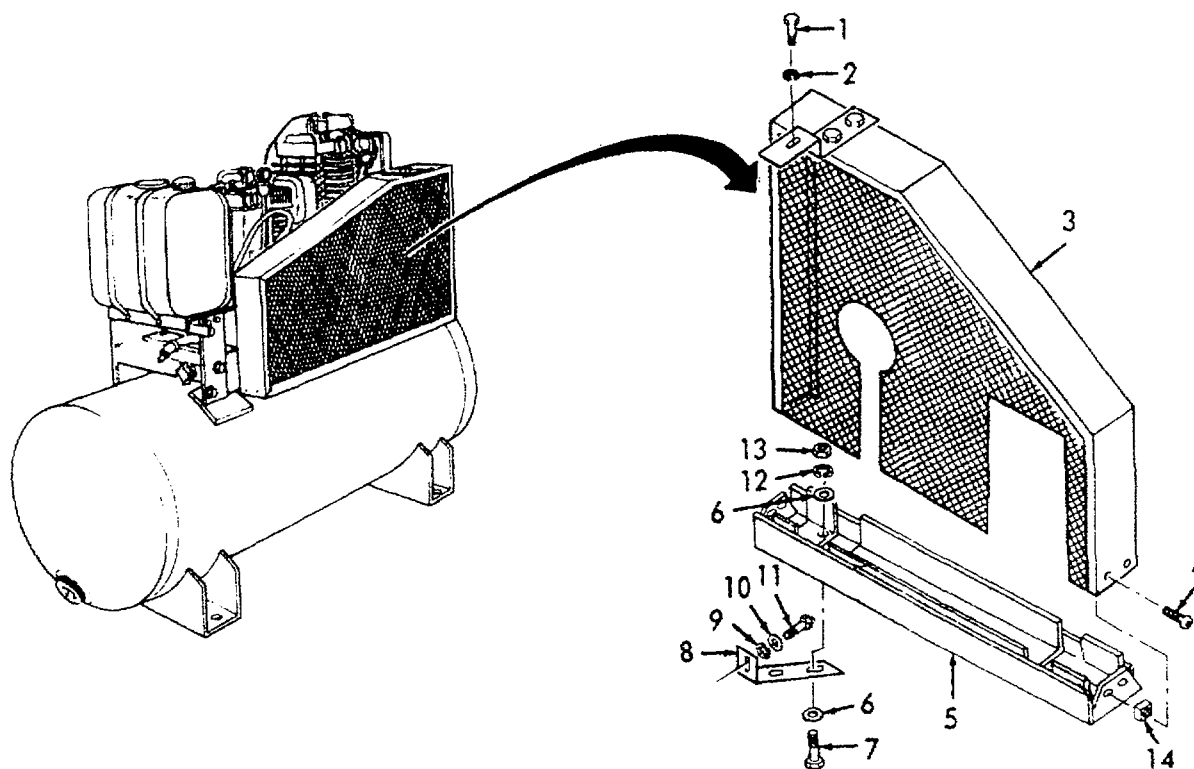


Figure 3-3. Belt Guard Assembly, Removal.

b. *Cleaning.*

- (1) Remove all build up of dirt or oil on all parts with a soft cloth (item 3, Appendix E).

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all metal parts using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. *Inspection.*

- (1) Inspect all fasteners for stripped threads.
- (2) Inspect brackets for deformation or cracks.
- (3) Inspect screen for broken wires and bends.

3-15. BELT GUARD ASSEMBLY - Continued.*d. Repair.*

- (1) Straighten any portion of the screen on belt guard which may be deformed.
- (2) Replace any parts found defective during inspection.

e. Installation.

- (1) Install two brackets (8), two lockwashers (9), two washers (10), and two screws (11).
- (2) Install bottom of belt guard (5), four nuts (13), four lockwashers (12), eight washers (6), and four screws (7).
- (3) Install belt guard (3), four screws (4), and four clips (14).
- (4) Install lockwasher (2) and screw (1) into upper belt guard (3).

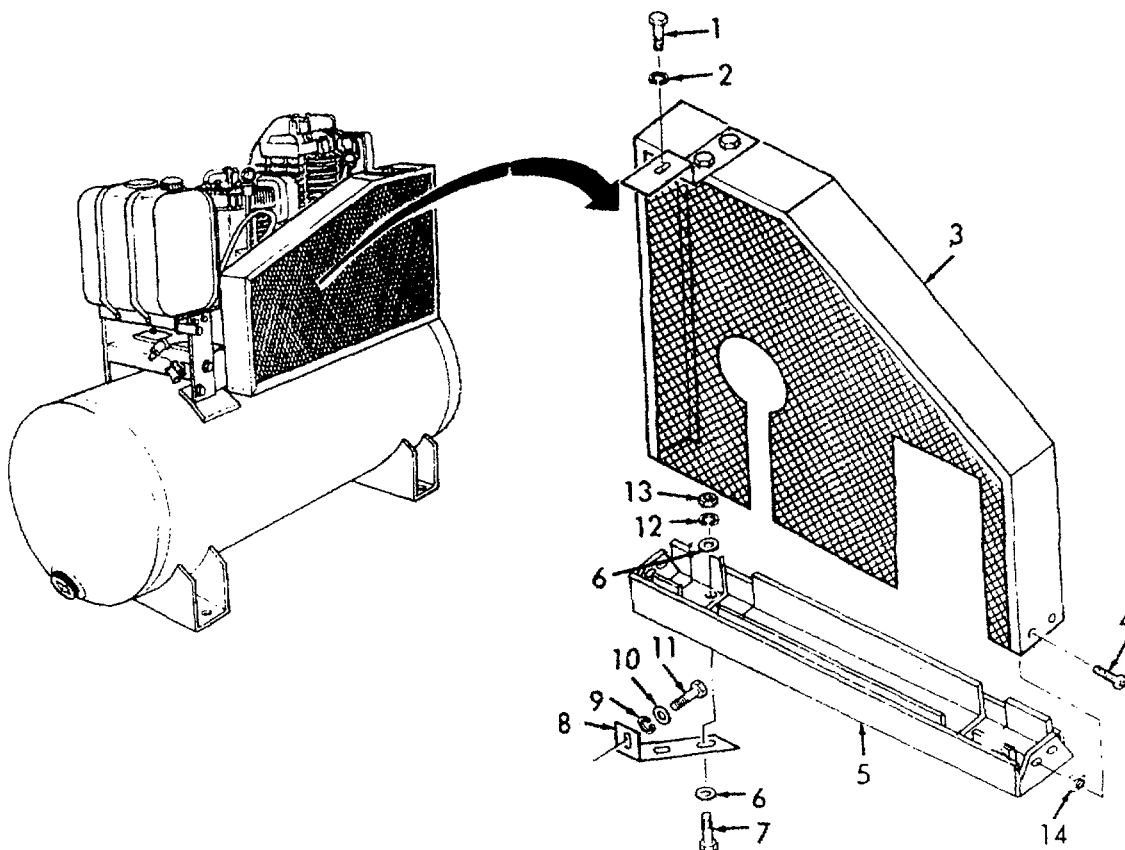


Figure 3-4. Belt Guard Assembly, Installation.

3-16. BELTS, V, MATCHED SET AND GUIDE.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation/Adjustment
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Belt guard assembly removed (except for bottom part of belt guard (see para 3-15)).

a. Removal.

- (1) Loosen three knobs (8).
- (2) Rotate take-up bolt assembly knob (7) counterclockwise until belts (6) are loose.
- (3) Remove two belts (6) from drive pulley (5) and compressor pulley (1).
- (4) Remove two bolts (4), two washers (3), and guide (2).

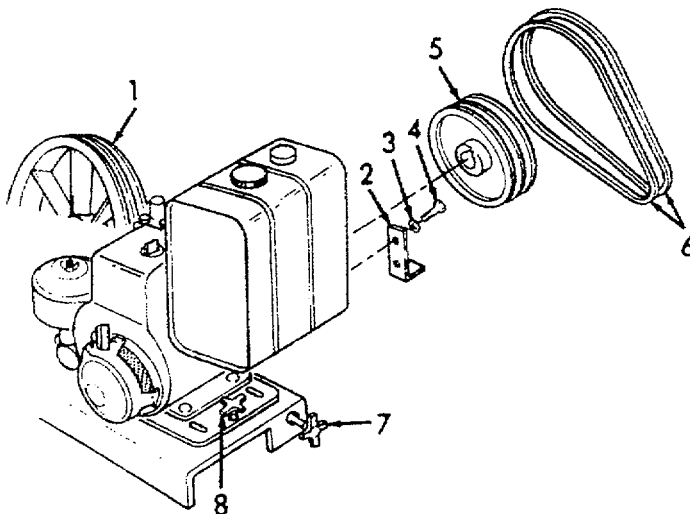


Figure 3-5. Belts, V, Matched Set and Guide, Removal.

3-16. BELTS, V, MATCHED SET AND GUIDE - Continued.*b. Cleaning.*

- (1) Remove all build up of belt debris, dirt and oil from the belt guide and belts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean guide and belts using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. Inspection.

- (1) Examine both belts for frayed edges, cracks, or cuts. Replace both belts if either belt is defective in any way.
- (2) Inspect guide for wear, cracks, or deforming. Replace guide if deformed, cracked, or excessively worn.

*d. Installation/Adjustment.***NOTE**

Replace belts in sets only. Do not replace only one belt.

- (1) Install guide (2), two washers (3), and two bolts (4).
- (2) Install two belts (6) onto compressor pulley (1) and drive pulley (5).
- (3) Rotate take-up bolt assembly knob (7) clockwise until belts (6) are tight.

NOTE

Belt tension is correct when deflection of belts (6) is about .50 inch (12.7 mm) when pressed midway between pulleys.

- (4) Tighten three knobs (8).
- (5) Install belt guard assembly (see para 3-15).

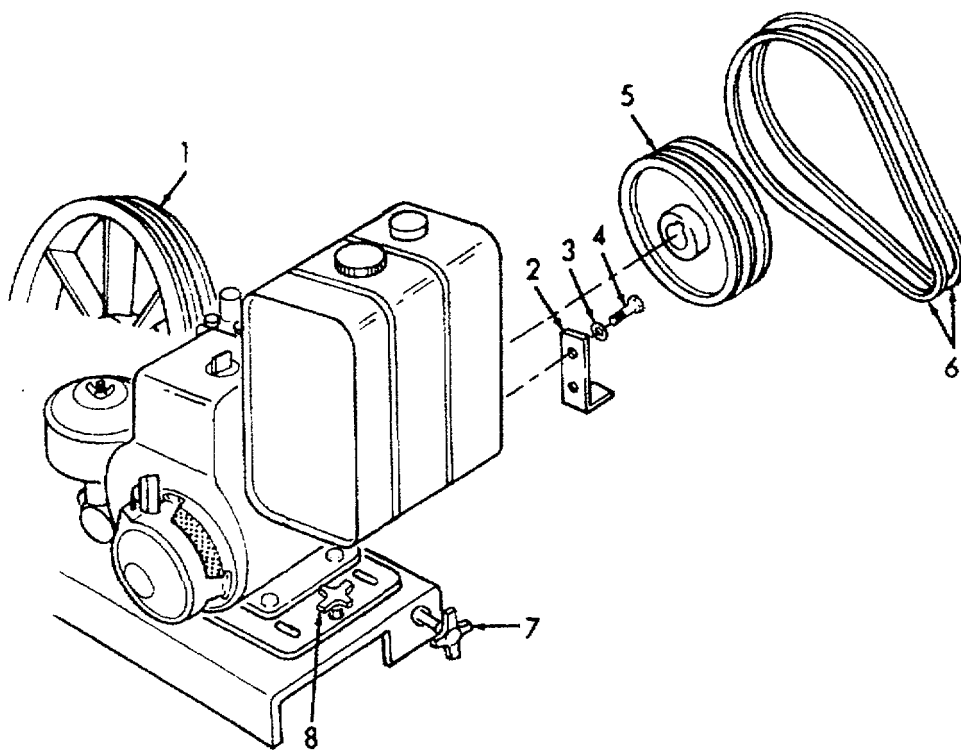


Figure 3-6. Belts, V, Matched Set, and Guide, Installation.

3-17. PULLEY DRIVE.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Belt guard assembly removed (except for bottom part of belt guard) (see para 3-15).

Belts removed (see para 3-16).

3-17. PULLEY DRIVE - Continued.*a. Removal.*

- (1) Remove two setscrews (1) attaching bushing (2) to pulley (3).

NOTE

Bushing may need to be pried loose from shaft with a screw driver.

- (2) Install setscrew (1) into middle hole of bushing (2) and jack bushing away from engine shaft.
- (3) Remove bushing (2) and pulley (3).

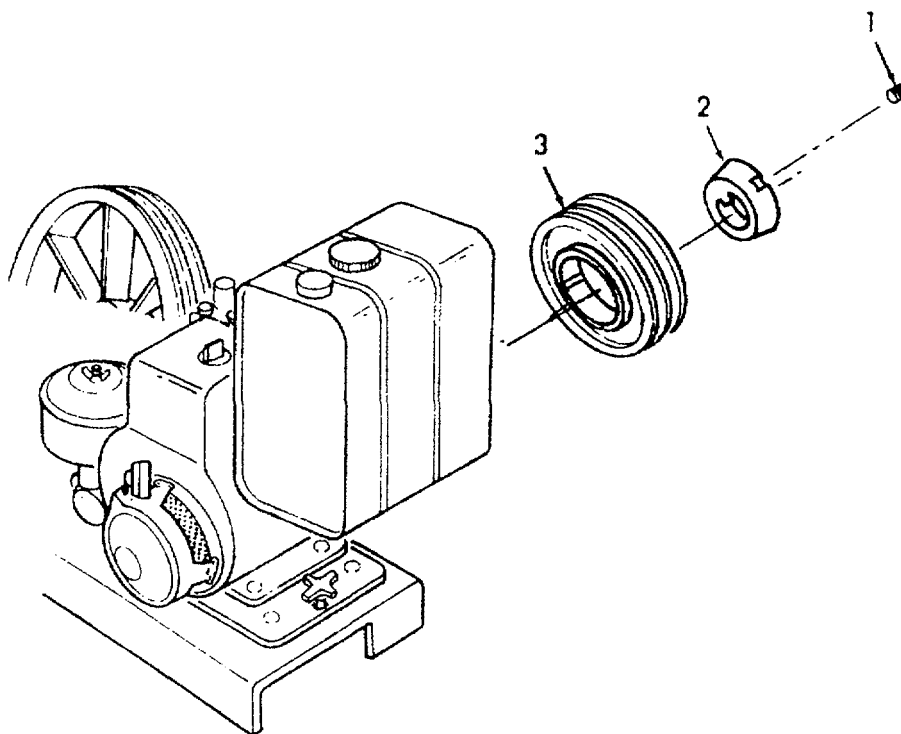


Figure 3-7. Pulley Drive, Removal.

b. Cleaning.

- (1) Remove all build up of belt debris, dirt and oil, from pulley.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean pulley using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow pulley to dry.

c. *Inspection.*

- (1) Inspect pulley for cracks and wear of grooves. Replace pulley if pulley is cracked or worn.
- (2) Check bushing and screws for stripped threads. Replace parts with stripped threads.

d. *Installation.*

- (1) Install bushing (2) and pulley (3) onto engine (4).
- (2) Install two setscrews (1) into bushing (2), but do not tighten setscrews.
- (3) Align pulley (3) with compressor pulley (5) with a straight edge as shown in illustration.
- (4) Tighten two setscrews (1).
- (5) Install belts (see para 3-16).
- (6) Install belt guard assembly (see para 3-15).

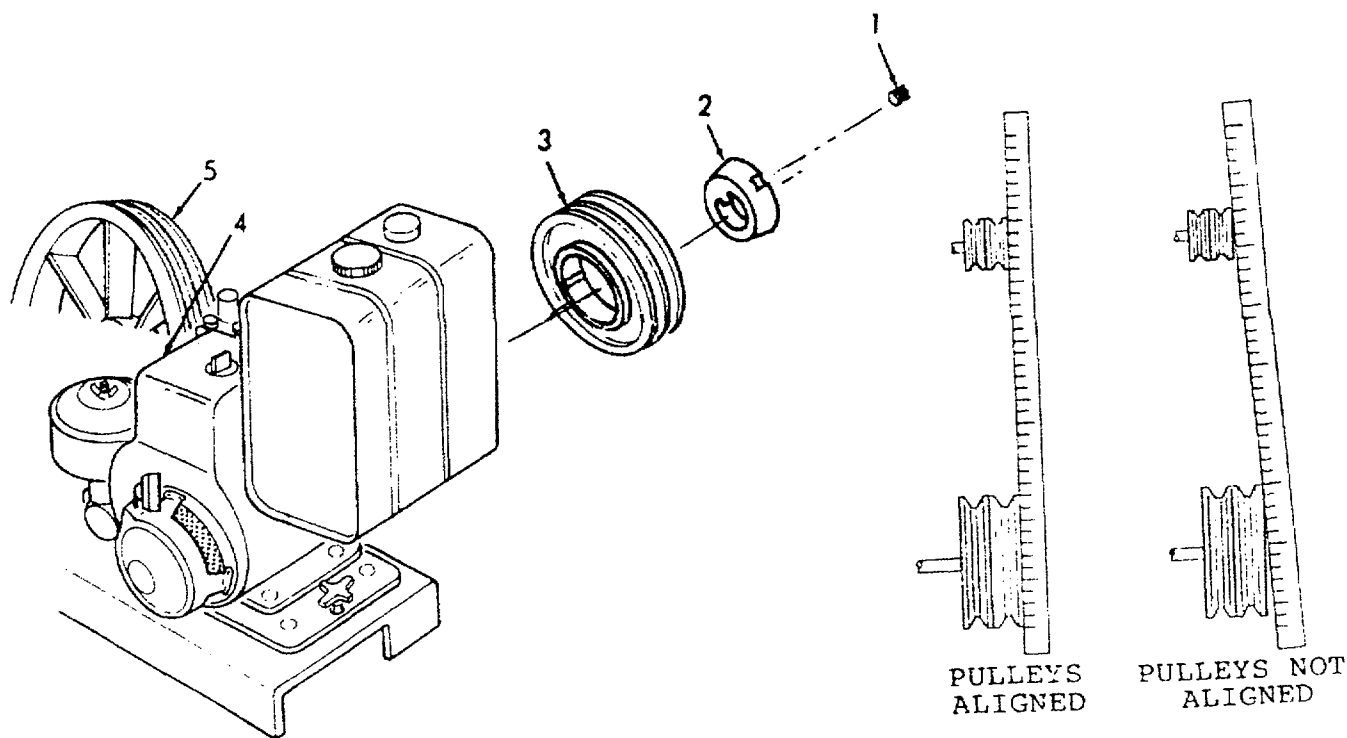


Figure 3-8. Pulley Drive, Installation.

3-18. TAKE-UP BOLT ASSEMBLY.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Drive belts removed (see para 3-16).

Fuel tank, lines, filter and fittings removed (see para 3-14).

a. Removal.

- (1) Remove pin (3).
- (2) Remove bolt (1) and lockwasher (7).
- (3) Unscrew and remove bolt assembly (4), two washers (2), and block (5).

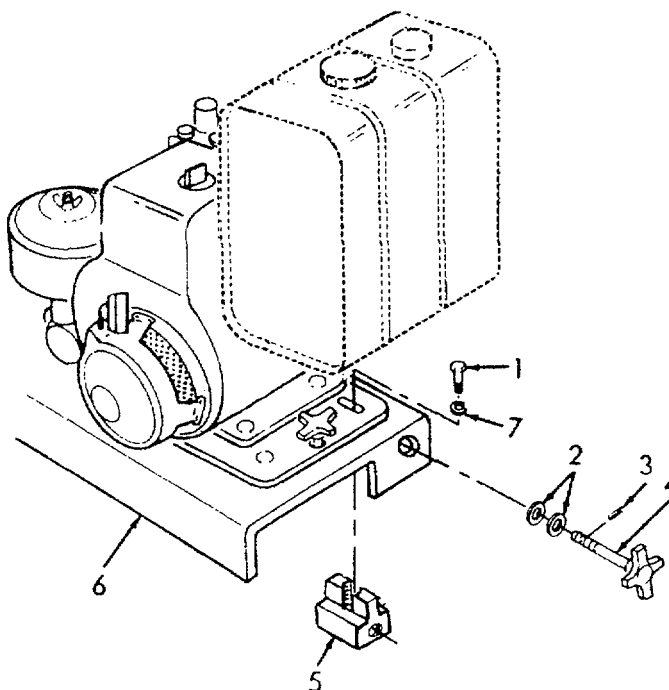


Figure 3-9. Take-Up Bolt Assembly, Removal.

b. *Cleaning.*

- (1) Remove all build up of oil and dirt from all parts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean parts using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. *Inspection.*

- (1) Inspect all threads for stripping and cracks.
- (2) Inspect bolt assembly for cracks and deformation.

d. *Installation.*

- (1) Install bolt assembly (4), two washers (2), and block (5), onto tank plate (6).
- (2) Install pin (3) into bolt assembly (4).
- (3) Install bolt (1) and lockwasher (7).
- (4) Install drive belts (see para 3-16).
- (5) Install fuel tank, fuel lines, filters, and fittings (see para 3-14).

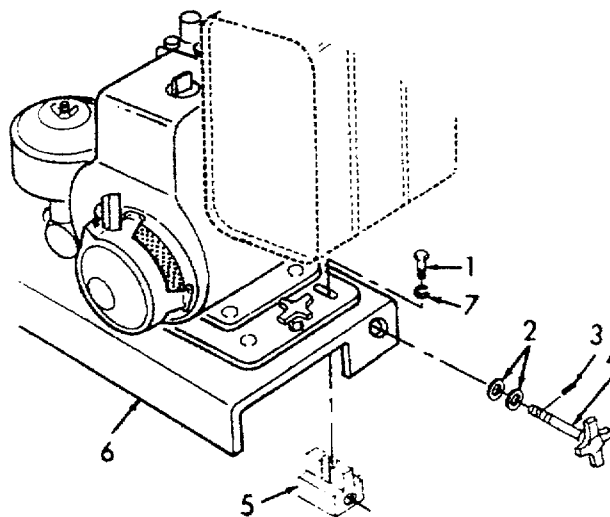


Figure 3-10. Take-Up Bolt Assembly, Installation.

3-19. ENGINE ASSEMBLY.

This task covers:

- a. Removal b. Inspection c. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Drive belts and belt guide removed (see para 3-16).

Fuel line valve shut off and fuel lines drained.

Belt guard removed (see para 3-15).

Drive pulley removed (see para 3-17).

Fuel tank removed (see para 3-14).

Take-up bolt assembly removed (see para 3-18).

a. Removal.

- (1) Remove clamp (2) and hose (3) from slow down device (1).
- (2) Remove four bolts (5) and four lockwashers (7).
- (3) Lift engine assembly (4) from mounting plate (6).

b. Inspection.

- (1) Inspect all bolts and nuts for stripped or stretched threads.
- (2) Examine mounting plate for stripped threads or cracked metal surfaces.

c. Installation.

- (1) Place engine assembly (4) into position over mounting holes in mounting plate (6).
- (2) Install four lockwashers (7) and four bolts (5).
- (3) Install hose (3) and clamp (2) onto slow down device (1).
- (4) Install drive pulley (see para 3-17).

- (5) Install drive belts (see para 3-16).
- (6) Install belt guards (see para 3-15).
- (7) Install take-up bolt assembly (see para 3-18).
- (8) Install fuel tank (see para 3-14).

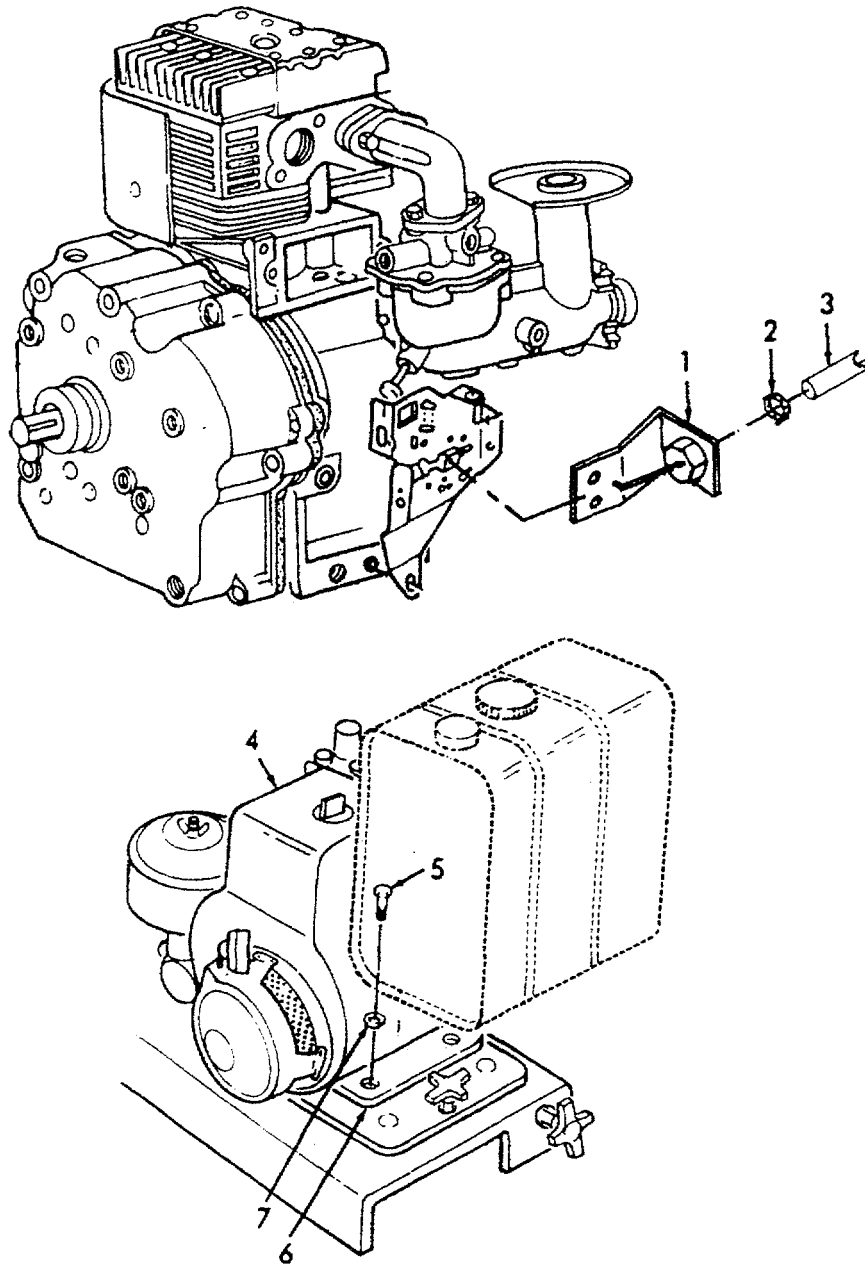


Figure 3-11. Engine Assembly, Removal/Installation.

3-20. AIR CLEANER.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

a. Removal.

- (1) Remove wing nut (1) from stud (7).
- (2) Remove cover (2).
- (3) Remove wing nut (10) and cup (3) from stud (7).
- (4) Remove filter assembly (5) from base (8) carefully to prevent dirt from entering engine carburetor (9).
- (5) Remove foam air element (6) from air cartridge (4).

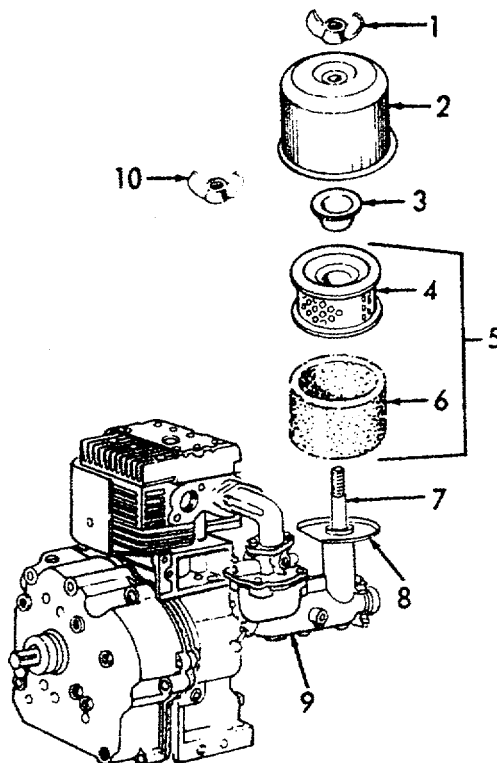


Figure 3-12. Air Cleaner, Removal.

b. *Cleaning.*

CAUTION

DO NOT use compressed air to clean either the foam air element or the air cartridge. Compressed air will severely damage these items.

- (1) Wash out foam air element with soap (item 5, Appendix E) and water until dirt or oil has been removed from foam.
- (2) When foam air element is clean, wrap in a clean cloth (item 3, Appendix E) and allow to dry.
- (3) Remove all build up of dirt or debris on cover and base.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (4) Clean cover and base using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (5) Allow parts to dry.

3-20. AIR CLEANER - Continued.*c. Inspection.*

- (1) Examine foam air element for foam deterioration or tears. Replace defective foam air element.
- (2) Inspect air cartridge for dirt and debris. If air cartridge is dirty, replace it.
- (3) Examine all metal parts for dents or cracks. Replace any cracked or dented parts.
- (4) Inspect wing nut and stud for stripped threads. Replace items if threads are stripped.

NOTE

Before assembling air cleaner, soak foam air element with engine oil and squeeze to remove excess oil.

d. Installation.

- (1) Install foam air element (6) around air cartridge (4).
- (2) Install filter assembly (5) onto base (8).
- (3) Install cup (3) and wing nut (10).
- (4) Place cover (2) over filter assembly (5).
- (5) Install wing nut (1) onto stud (7).

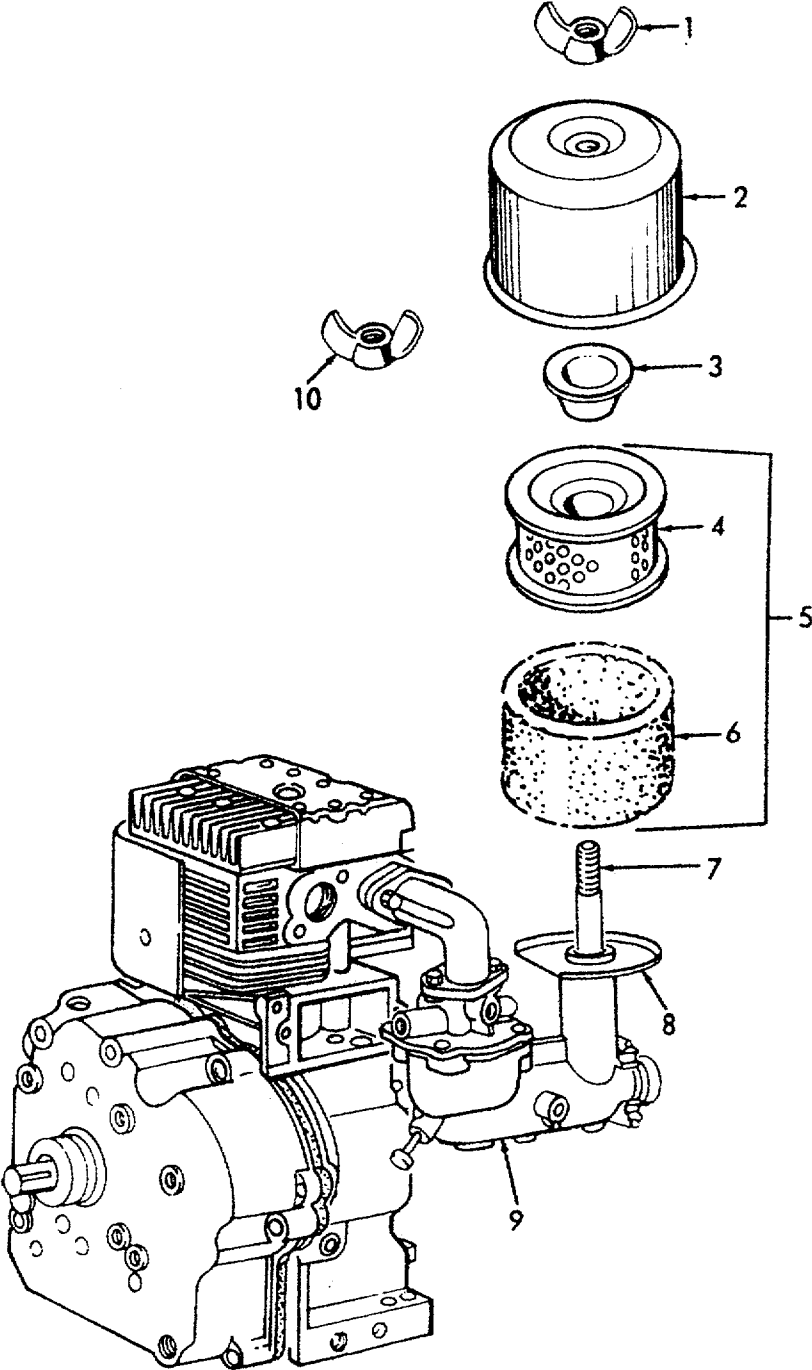


Figure 3-13. Air Cleaner, Installation.

3-21. CARBURETOR.

This task covers:

- a. Removal b. Installation c. Adjustment
-

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Compound, Anti-seize (item 7, Appendix E)

Equipment Condition

Engine shut down and cool.

Air cleaner assembly removed (see para 3-20).

a. Removal.

- (1) Remove clamp (9), hose (10), and barbed fitting (8) from carburetor (5).
- (2) Remove two bolts (1), two screws (4), elbow (2), gasket (3), and gasket (11).
- (3) Remove screw (6) from carburetor (5).
- (4) Disconnect breather tube (7) and linkage from carburetor (5) and remove carburetor.

b. Installation.

NOTE

- **Apply anti-seize compound (item 7, Appendix E) to all pipe threads of assembly.**
- **Always replace all gaskets with new gaskets during installation.**

- (1) Place carburetor (5) into position and attach breather tube (7) and linkage.
- (2) Install screw (6) into carburetor (5).
- (3) Install gasket (11), gasket (3), elbow (2), two screws (4), and two bolts (1).

- (4) Install barbed fitting (8), hose (10), and clamp (9) to carburetor (5).
- (5) Install air cleaner assembly (see para 3-20).

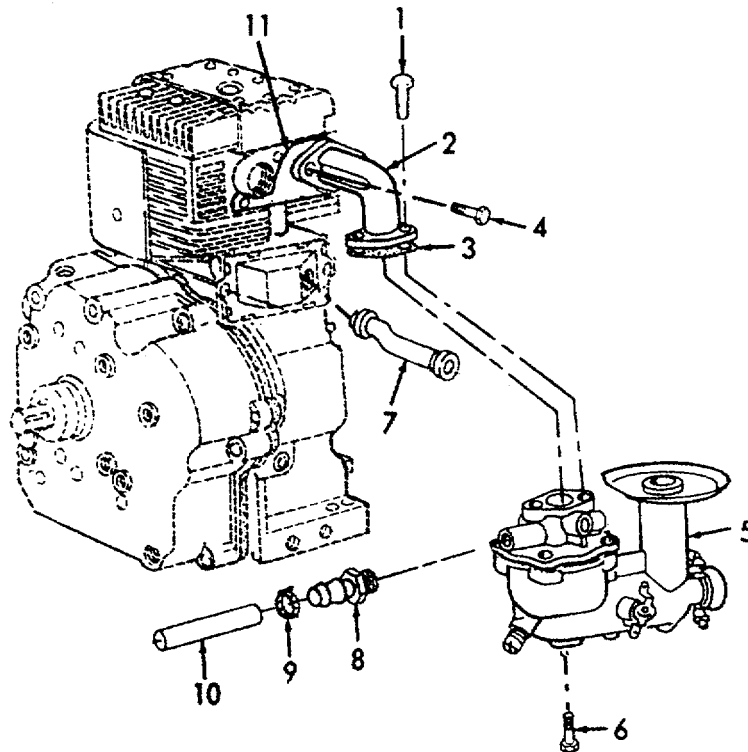


Figure 3-14. Carburetor, Removal/Installation.

3-21. CARBURETOR - Continued.*e. Adjustment.***NOTE**

All carburetor adjustments must be made with air cleaner installed onto carburetor.

- (1) Start engine and run until warmed up.
- (2) Adjust governor speed control linkage to open throttle to achieve highest engine speed.
- (3) Turn high speed needle valve (4) clockwise until engine begins to slow down (fuel mixture too lean).
- (4) While counting number of turns on high speed needle valve (4), rotate it counterclockwise until engine speeds up (fuel mixture too rich) and then begins to slow down again.
- (5) Turn high speed needle valve clockwise again until half of the number of turns counted in step (5) is reached. High speed needle valve is now adjusted.
- (6) Disconnect governor speed control linkage and close throttle to achieve lowest engine speed.
- (7) Adjust idle speed adjusting screw (1) on carburetor (3) until engine is running at 1,750 RPM.
- (8) Turn idle speed needle valve screw (2) clockwise until engine begins to slow down (fuel mixture is too lean).
- (9) While counting number turns on idle speed needle valve screw (2), rotate it counterclockwise until engine speeds up and then slows down again (fuel mixture too rich).
- (10) Turn idle speed needle valve screw (2) clockwise again until half the number of turns counted in step (9) is reached. Idle speed needle valve is now adjusted.

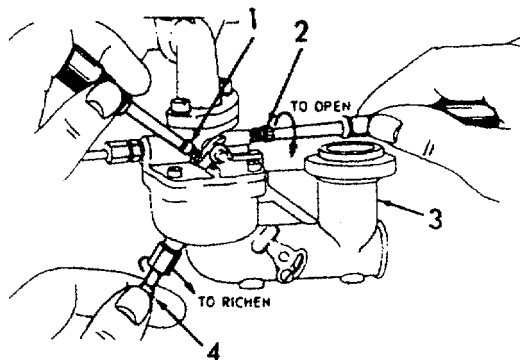


Figure 3-15. Carburetor Adjustment.

3-22. FUEL PUMP.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Fuel lines drained (para 3-14).

3-22. FUEL PUMP - Continued.*a. Removal.*

- (1) Remove clamp (9) and vacuum line (10) from fuel pump (4).
- (2) Remove clamp (8) and fuel tank fuel line (7) from fuel pump (4).
- (3) Remove clamp (6) and carburetor fuel line (5) from fuel pump (4).
- (4) Remove two screws (11), two lockwashers (12), two nuts (14), and bracket (13) from fuel tank bracket (1).
- (5) Remove two screws (2) and two lockwashers (3) and remove fuel pump (4) from bracket (13).

b. Cleaning.

- (1) Remove all build up of dirt, oil, and debris from fuel pump.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

CAUTION

Do not allow dry cleaning solvent to get into ports of fuel pump. Damage to internal parts may occur.

- (2) Clean pump with a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow pump to dry.

c. Inspection.

Inspect fuel pump for cracks, dents, or areas of fuel leakage. Replace fuel pump if cracked or leaking.

d. *Installation.*

- (1) Install fuel pump (4), two lockwashers (3), and two bolts (2), and two nuts (14) to bracket (13).
- (2) Install bracket (13), two lockwashers (12), and two bolts (11) to bracket (1).
- (3) Connect fuel line (5) from carburetor to fuel pump (4) and install clamp (6).
- (4) Connect fuel line (7) from fuel tank to fuel pump (4) and install clamp (8).
- (5) Connect vacuum line (10) from oil tube to fuel pump (4) and install clamp (9).

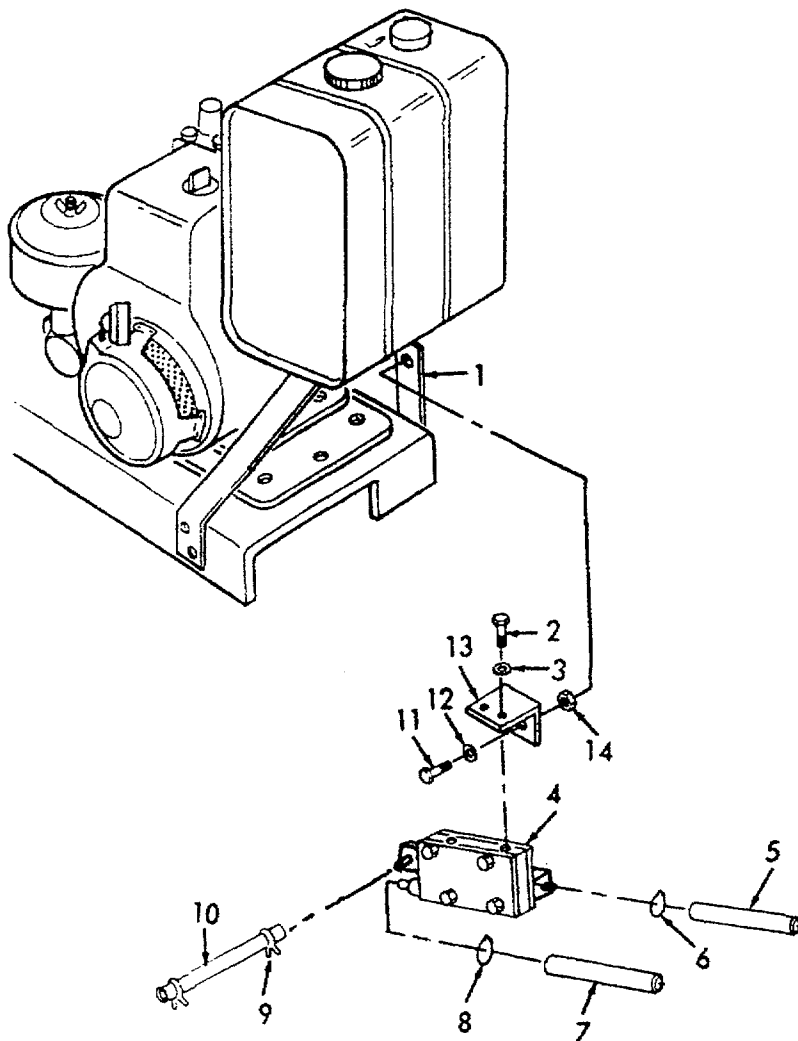


Figure 3-16. Fuel Pump, Removal/Installation.

3-23. OIL GAGE ROD, TUBE AND DRAIN.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Compound, Anti-seize (item 7, Appendix E)

Equipment Condition

Engine shut down and cool.

Oil drained from engine.

a. Removal.

- (1) Remove oil dipstick (1) from oil tube (2).
- (2) Remove two clamps (8), ties (10) and vacuum line (9) from oil tube (2) and from fuel pump (7).
- (3) Remove screw (11) from oil tube (2) and remove tube from engine block (3).
- (4) Remove plug (6), elbow (5), and nipple (4) from engine block (3).

b. Cleaning.

- (1) Remove all build up of dirt and oil from all parts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all parts with a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow parts to dry.

c. *Inspection.*

- (1) Examine vacuum hose for cracks or cuts. Replace hose if cracked or cut.
- (2) Check oil gage rod for bent metal parts. Replace rod if bent.
- (3) Inspect oil gage tube for dents. Replace tube if dented.
- (4) Check all plugs, elbows, and nipples for cracks or stripped threads. Replace all parts which are cracked or have stripped threads.

d. *Installation.*

NOTE

Apply anti-seize compound (item 7, Appendix E) to all pipe threads of assembly.

- (1) Install nipple (4), elbow (5), and plug (6) into engine block (3).
- (2) Install oil tube (2) and screw (11) onto engine block (3).
- (3) Install vacuum line (9), two clamps (8), and ties (10) onto oil tube (2) and fuel pump (7).
- (4) Install oil dipstick (1) into oil tube (2).
- (5) Refill engine with oil (see para 3.2).

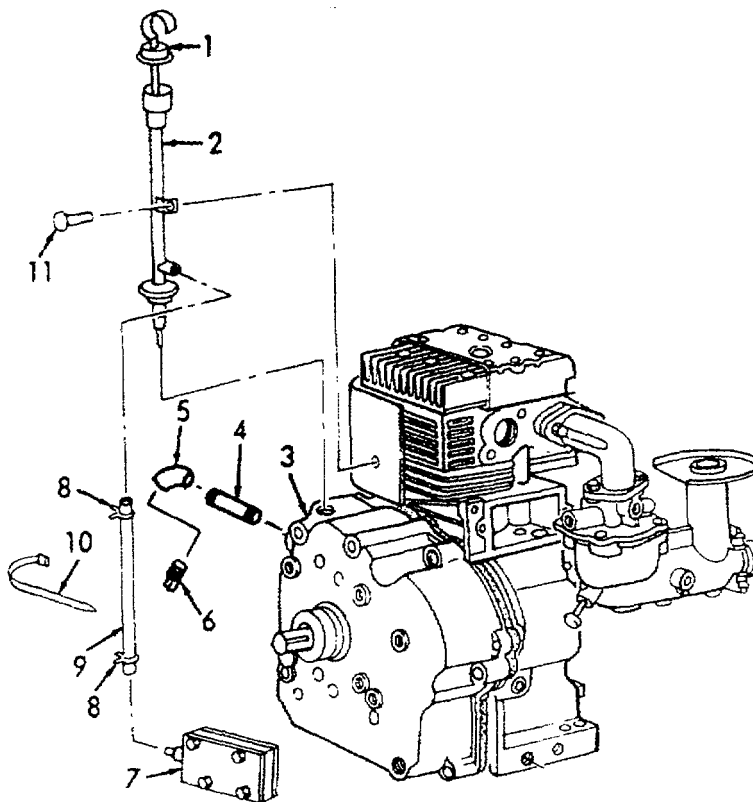


Figure 3-17. Oil Gage Rod, Tube, and Drain, Removal/Installation.

3-24. MUFFLER.

This task covers:

- a. Removal b. Inspection c. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

a. Removal.

- (1) Bend down tabs on lock (8) and remove two screws (7) and lock.
- (2) Remove screw (3) from top of muffler (4).
- (3) Remove muffler (4) and gasket (2) from engine (1).
- (4) Remove four screws (6) and deflector (5).

b. Inspection.

- (1) Examine muffler for corrosion holes or large amounts of corrosion. Replace muffler if it is severely corroded or has corrosion holes.
- (2) Examine all hardware for stripped or corroded threads. Replace all stripped or corroded hardware.

c. Installation.**NOTE**

Always install muffler using a new gasket.

- (1) Install deflector (5) and four screws (6).
- (2) Install gasket (2) and muffler (4) into engine (1).

- (3) Install two screws (7) and lock. Bend tabs (8) of lock against screws (7) to keep screws from vibrating out.
- (4) Install screw (3).

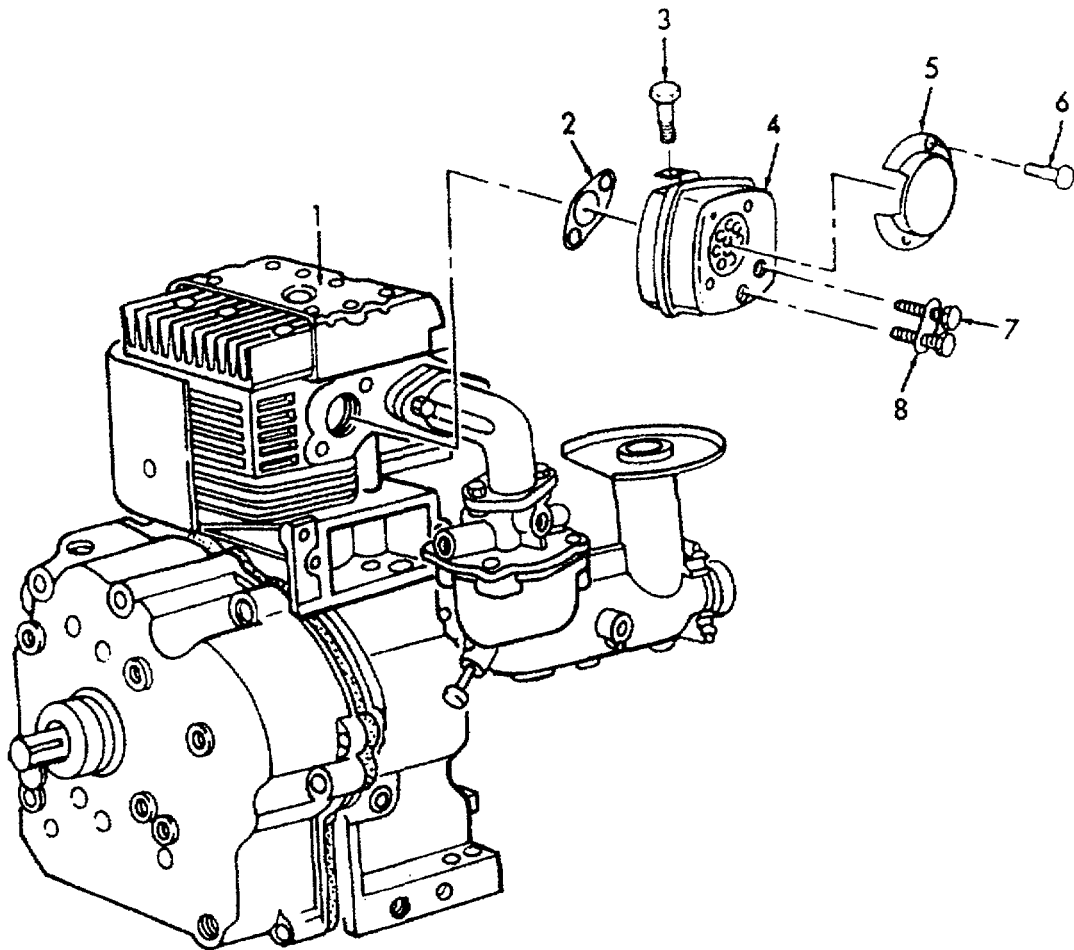


Figure 3-18. Muffler, Removal/Installation.

3-25. STARTER, CLUTCH, AND BLOWER HOUSING.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's
Flywheel Holder
Starter Clutch Wrench

Materials Required

Brush, Medium Bristle (item 4, Appendix E)
Solvent, Dry Cleaning (item 2, Appendix E)
Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

a. Removal.

- (1) Remove four screws (11) attaching starter housing (10) to blower housing (3).
- (2) Remove starter housing (10) from blower housing (3) and from clutch (6) by pulling starter (10) straight out from housing.
- (3) Remove four screws (1) and pull blower housing (3) away from engine (4) being careful not to damage wires attached to switch (2).
- (4) Tag and disconnect wire attached to switch (2) and remove blower housing (3) from engine (4).
- (5) Remove four screws (9), pulley (8), and screen (7) from clutch (6).

CAUTION

Use care when removing clutch as clutch can come apart easily and ball bearings inside may be lost.

NOTE

Clutch housing has a left hand thread.

- (6) Brace flywheel (5) with flywheel holder as shown in Figure 3-20 and remove clutch (6) with starter clutch wrench by rotating clutch (6) clockwise.

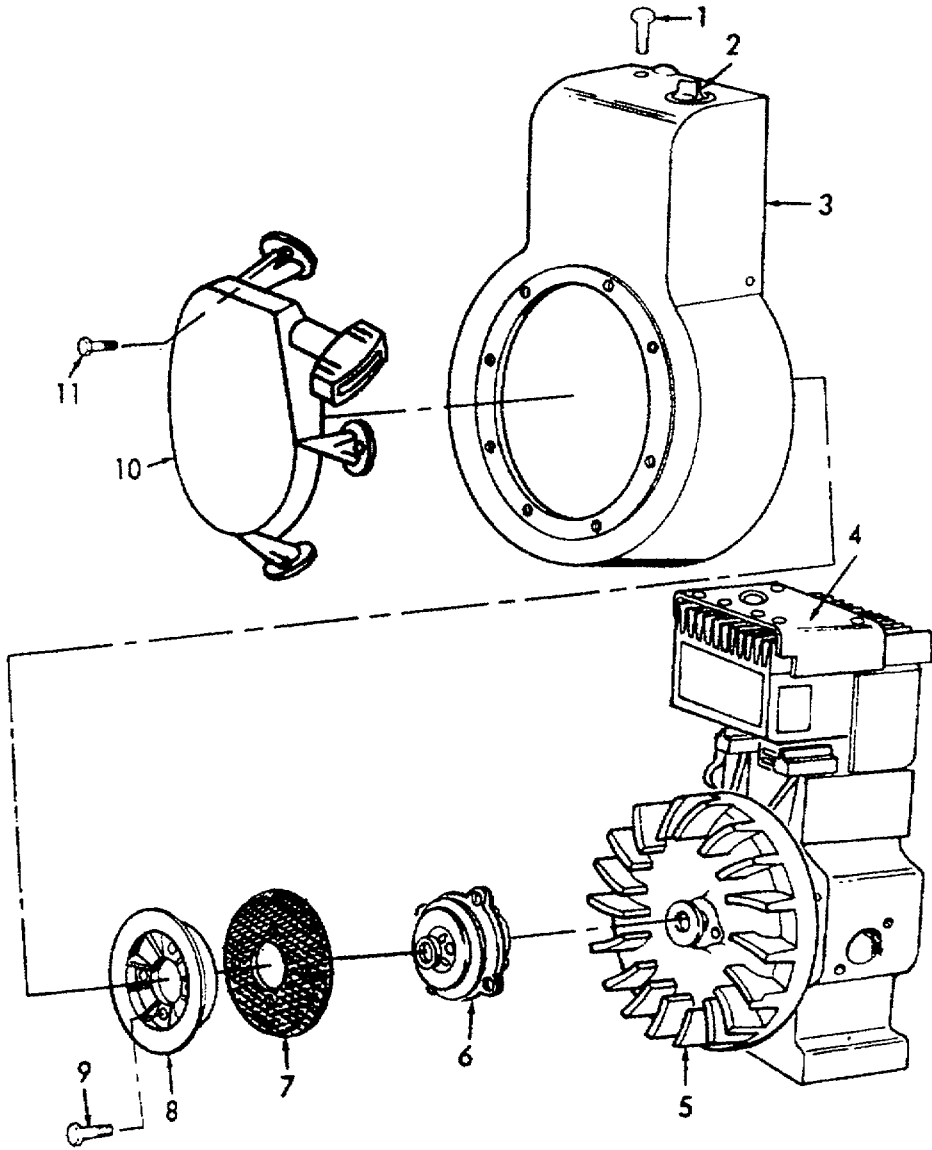


Figure 3-19. Starter, Clutch, and Blower Housing, Removal.

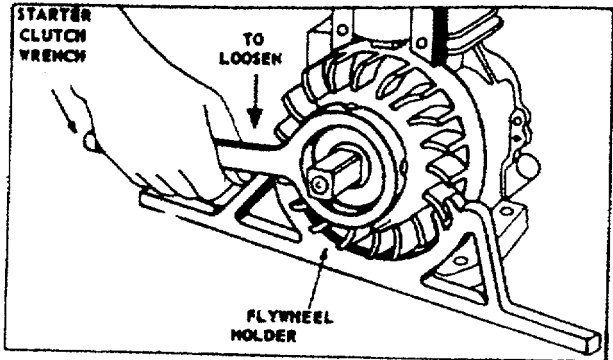


Figure 3-20. Pulling Engine Flywheel.

3-25. STARTER, CLUTCH, AND BLOWER HOUSING - Continued.*b. Cleaning.*

- (1) Remove all build up of dirt or debris from all parts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all accessible metal surfaces of parts using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow parts to dry.

c. Inspection.

- (1) Starter

- a) Pull starter rope out and allow it to retract into starter a few times. If operation is not smooth or consistent, replace starter.
- b) Inspect starter housing for dents. Replace if housing is dented.

- (2) Clutch

Inspect clutch shaft for rounding of corners or nicks and cracks on shaft.

- (3) Blower Housing

- a) Inspect housing for dents. Repair dents to housing.
- b) Check housing for cracks or damaged mounting holes and threaded holes. Replace housing if mounting holes or threads are damaged.

d. Installation.

- (1) Install clutch (6) by placing clutch onto engine shaft, bracing flywheel (5) with flywheel holder as shown in Figure 3-20 and rotating clutch (6) counterclockwise with a starter clutch wrench.
- (2) Install screen (7), pulley (8), and four screws (9).
- (3) Attach wire to switch (2) as tagged.
- (4) Install blower housing (3) and four screws (1).

- (5) Place starter (10) onto blower housing (3) being sure to engage starter with shaft on clutch (6).
- (6) Install four screws (11).

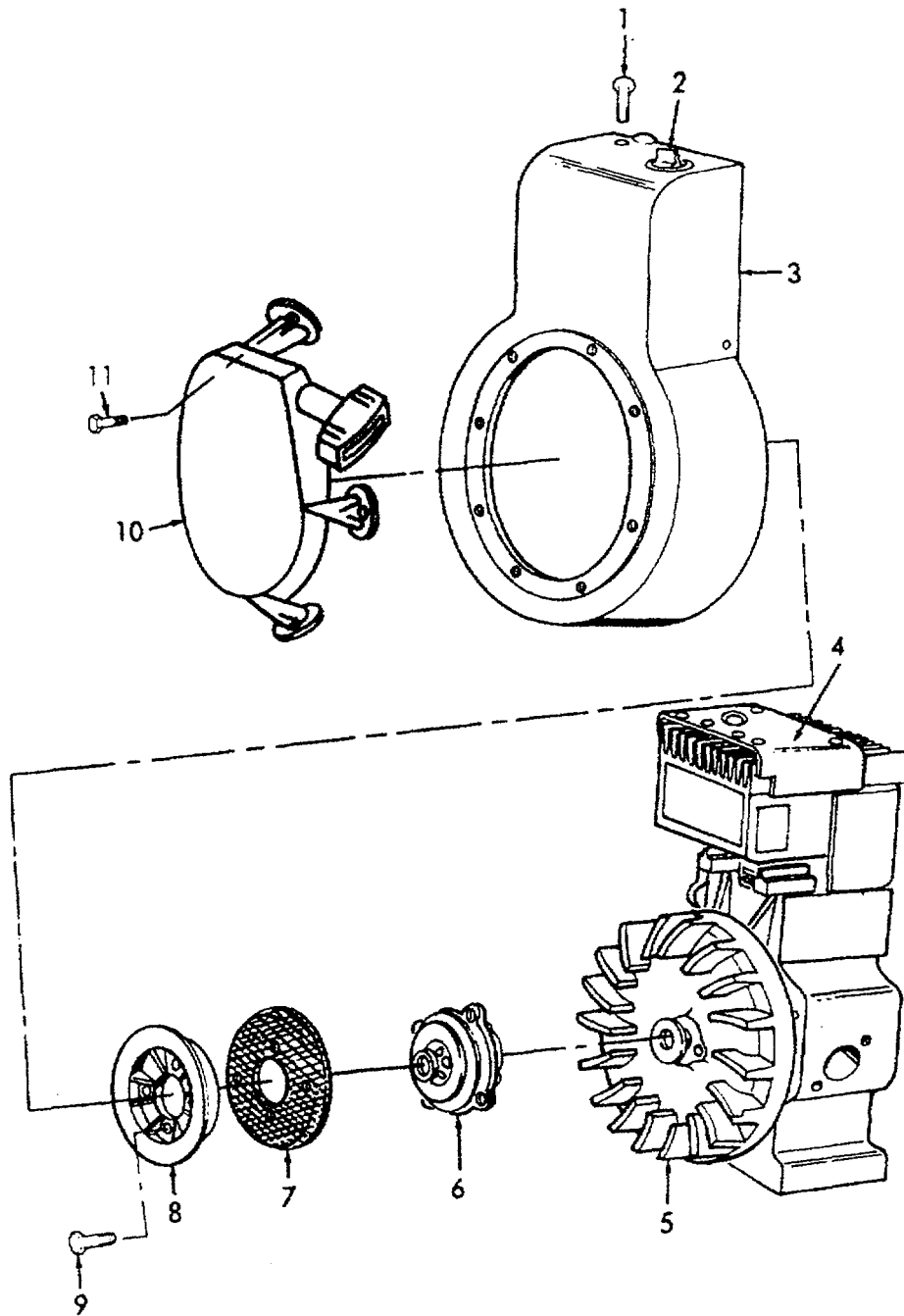


Figure 3-21. Starter, Clutch and Blower Housing, Installation.

3-26. IGNITION SYSTEM.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation/Adjustment
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's
Flywheel Puller

Materials Required

Brush, Medium Bristle (item 4, Appendix E)
Solvent, Dry Cleaning (item 2, Appendix E)
Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.
Starter, clutch, and blower housing removed (see para 3-25).

- a. *Removal.*

NOTE

The engine ignition system is equipped with a magnetron type electrical system and has no separate points or condenser.

- (1) Disconnect armature wire (4) from elbow (6) and spark plug (7).
- (2) Disconnect other armature wire (12) from governor plate.
- (3) Bend tab back on breather to allow armature wire to be pulled away from engine (8).
- (4) Remove wire (12) from armature (5).
- (5) Remove two screws (3) and armature (5) from engine (8).
- (6) Use flywheel puller and remove flywheel (10) and key (11) from engine shaft (9) as shown in figure 3-22.
- (7) Remove elbow (6) and spark plug (7) from engine (8).
- (8) Remove stop switch (2) from blower housing (1).

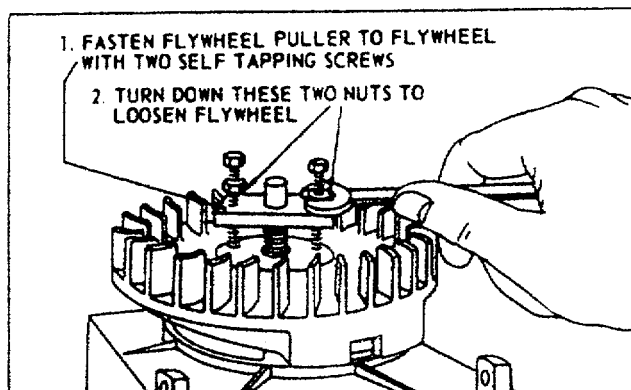


Figure 3-22. Pulling Engine Flywheel.

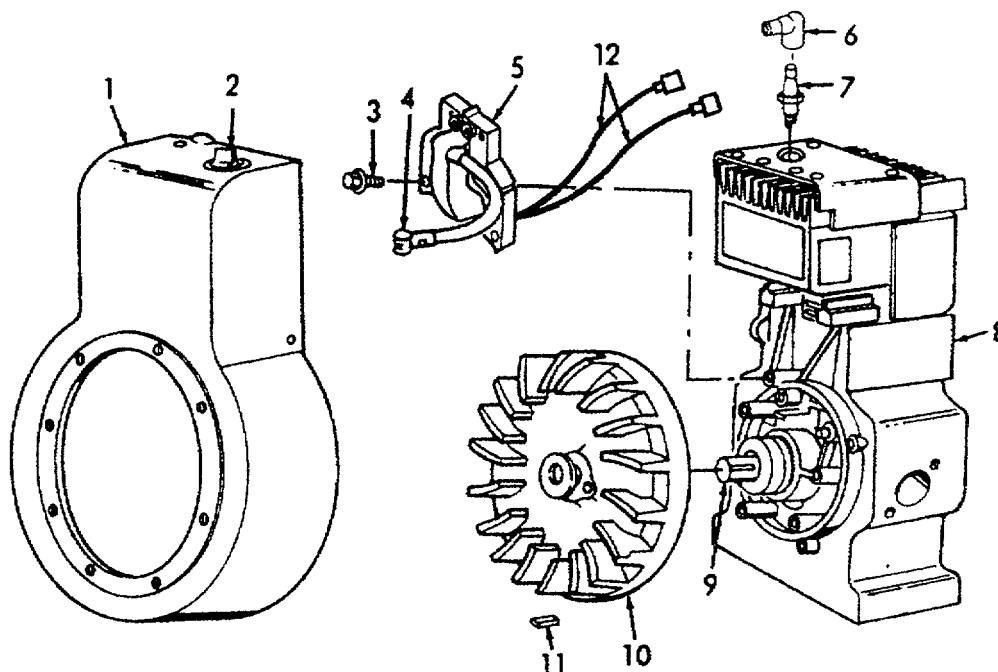


Figure 3-23. Ignition System, Removal.

b. *Cleaning.*

- (1) Remove all build up of dirt or debris from armature, wires, and flywheel.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean flywheel with a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).

3-26. IGNITION SYSTEM - Continued.*b. Cleaning - Continued.*

- (3) Allow to dry.

c. Inspection.

- (1) Examine wires from armature for cuts or abrasion. Inspect armature coil for burned insulation or cuts. Replace armature if damaged in any way.
- (2) Inspect plug for carbon build up, cracked insulator, and cracked or corroded electrodes. Replace plug if damaged in any way.
- (3) Check flywheel for cracked surfaces and broken or missing fins. Replace flywheel if damaged in any way.
- (4) Check flywheel keyway and key for any cracks or bending. Replace flywheel if keyway is damaged. Replace key if it is damaged in any way.

d. Installation/Adjustment.

- (1) Slide flywheel (10) onto engine shaft (9) and align keyway in flywheel with keyway in engine shaft (9).
- (2) Install key (11) into keyway of flywheel (10).

NOTE

When placing armature onto engine, be sure spark plug wire is on side of armature away from engine.

- (3) Place armature (5) into position on engine (8) and install, but do not tighten, two screws (3).
- (4) Rotate flywheel (10) until magnetic inserts on flywheel are in line with armature (5).
- (5) Using shim stock, place armature (5) into position 0.010 to 0.014 in. (0.25 to 0.36 mm) away from flywheel (10) and tighten two screws (3). Remove shim stock.
- (6) Install wire (12) onto armature (5).
- (7) Place wire (12) next to breather on side of engine (8) and bend tab down to hold wire.
- (8) Using a spark plug gap gage, check gap on spark plug electrodes. Adjust electrode as required to achieve a gap of 0.030 in (0.75 mm).
- (9) Install spark plug (7) and elbow (6) into engine (8).

- (10) Reconnect armature wire (4) to elbow (6) and spark plug (7).
- (11) Install stop switch (2) into blower housing (1).
- (12) Connect wire (12) to stop switch (2).
- (13) Install blower housing (see para 3-25).
- (14) Install clutch (see para 3-25).
- (15) Install starter (see para 3-25).

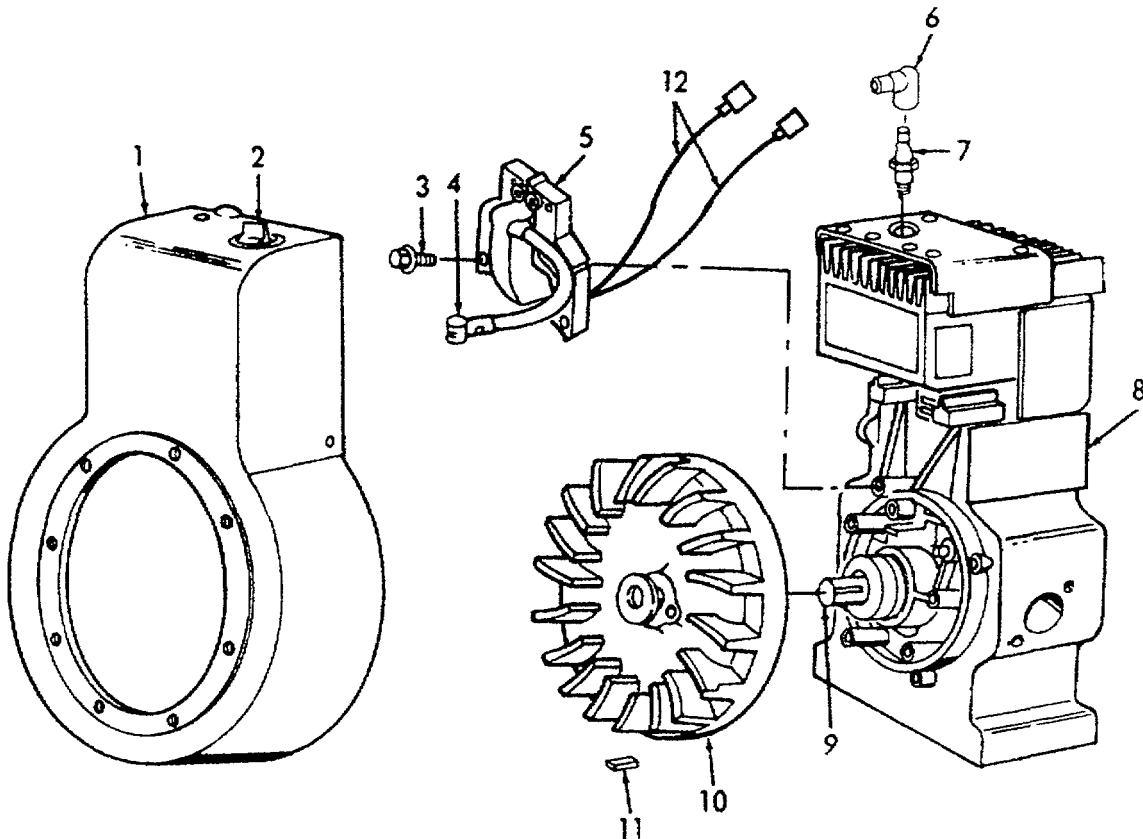


Figure 3-24. Ignition System, Installation.

3-27. GOVERNOR LINKAGE AND THROTTLE LINKAGE.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation e. Adjustment
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

a. Removal.

- (1) Remove screw (9), screw (18), nut (16), and lockwasher (17) from slow down device (8) and disconnect slow down device link from governor control plate (11).
- (2) Remove spring (6) from lever assembly (3) and governor control plate (11).
- (3) Remove screw (7), screw (10), and governor control plate (11).
- (4) Remove screw (4), nut (5), lever (3), and washer (19) from governor shaft (15).
- (5) Remove link (2) from lever assembly (3) and throttle shaft (1) on carburetor.
- (6) Remove nut (12) and washer (13) from insulator (14).
- (7) Remove insulator (14) from governor control plate (11) by pressing tabs (20) with a screwdriver and pulling insulator straight out.

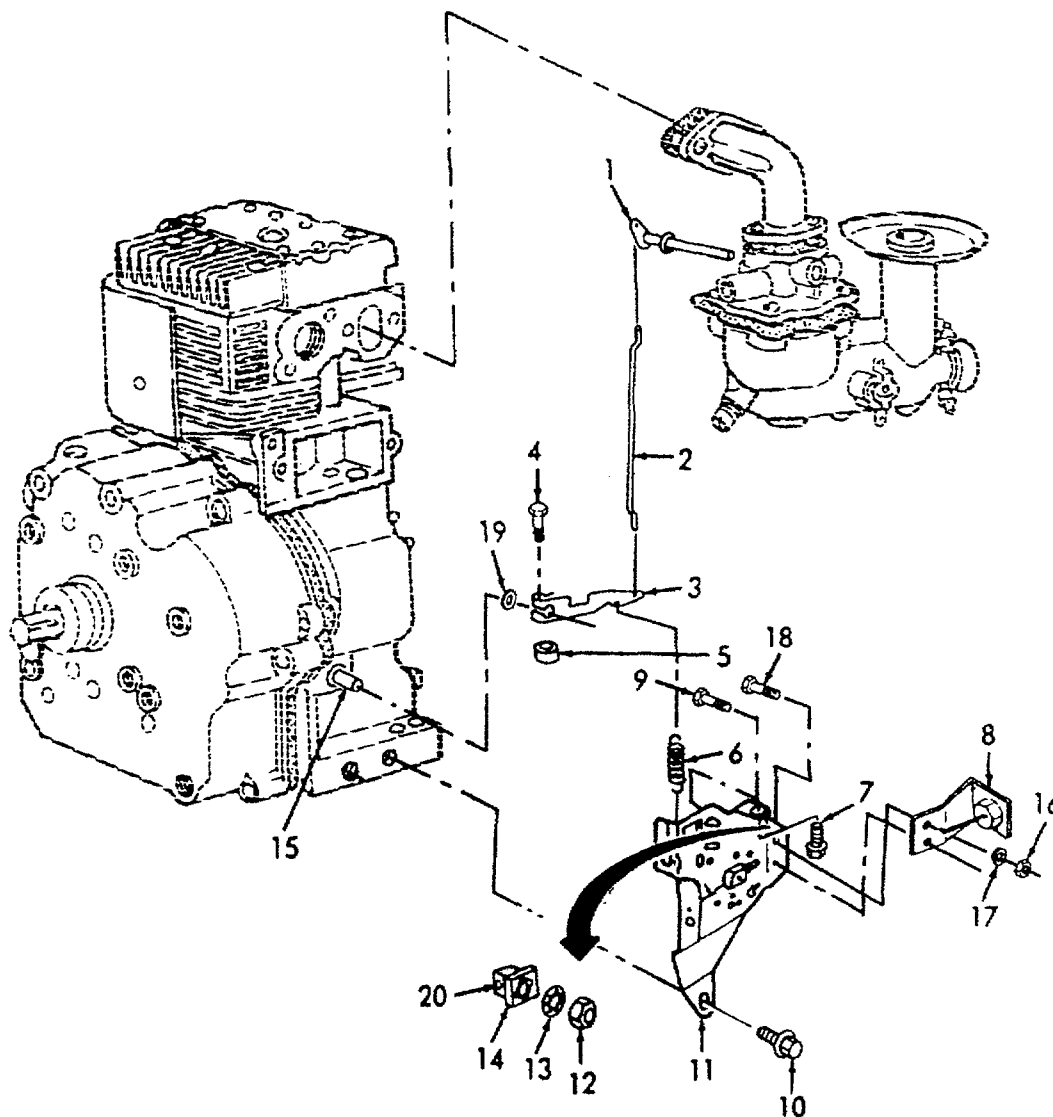


Figure 3-25. Governor Linkage and Throttle Linkage, Removal.

b. *Cleaning.*

- (1) Remove build up of dirt or debris from all metallic surfaces.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all parts with a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow parts to dry.

3-27. GOVERNOR LINKAGE AND THROTTLE LINKAGE - Continued.*c. Inspection.*

- (1) Examine spring for stretched or misaligned coils. Replace stretched or deformed spring.
- (2) Check governor control plate for cracks or stretched mounting holes. Replace plate if damaged in any way.
- (3) Inspect lever assembly for bent parts or cracks. Replace lever assembly if damaged in any way.

d. Installation.

- (1) Install insulator (14) onto governor control plate (11) and press tabs (20).
- (2) Install washer (13) and nut (12) into insulator (14).
- (3) Install link (2) onto throttle shaft (1) of carburetor and onto lever assembly (3).
- (4) Install screw (4), nut (5), lever (3), and washer (19) to governor shaft (15).
- (5) Install screw (10), screw (7), and governor plate (11).
- (6) Install spring (6) onto lever assembly (3) and onto governor plate (11).
- (7) Install lockwasher (17), nut (16), screw (18), and screw (9) into slow down device (8) and connect slow down device link into control plate (11).

e. Adjustment.

Adjustment is limited to setting of engine RPM's as follows:

- (1) Remove belt guard (see para 3-15).
- (2) Start engine (see para 2-8).
- (3) Place an RPM indicator onto center of engine shaft of drive pulley.
- (4) Adjust engine RPM by bending tang attaching throttle spring onto governor plate. Bend tang up or down until indicated RPM is between 3200 and 3250 RPM.
- (5) Shut down engine (see para 2-10).
- (6) Install belt guard (see para 3-15).

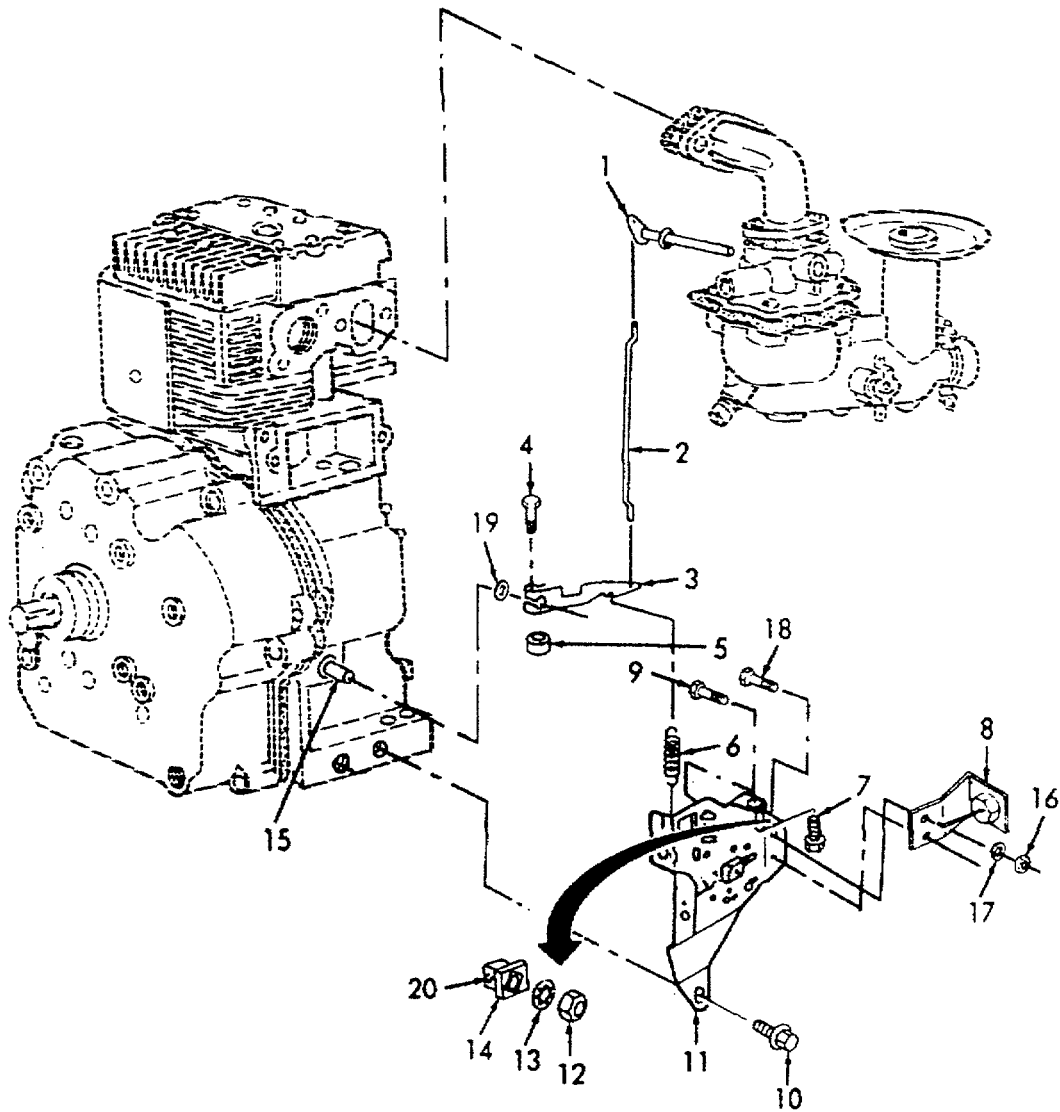


Figure 3-26. Governor Linkage and Throttle Linkage, Installation.

3-28. CYLINDER HEAD.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUPTools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Spark plug removed.

a. Removal.

- (1) Remove nine bolts (1), two bolts (11), shield (2), cylinder head (3), and gasket (4).
- (2) Remove two bolts (9), breather assembly (7), and gasket (6) from crankcase (10).
- (3) Remove breather tube (8) from breather assembly (7) and from carburetor (5).

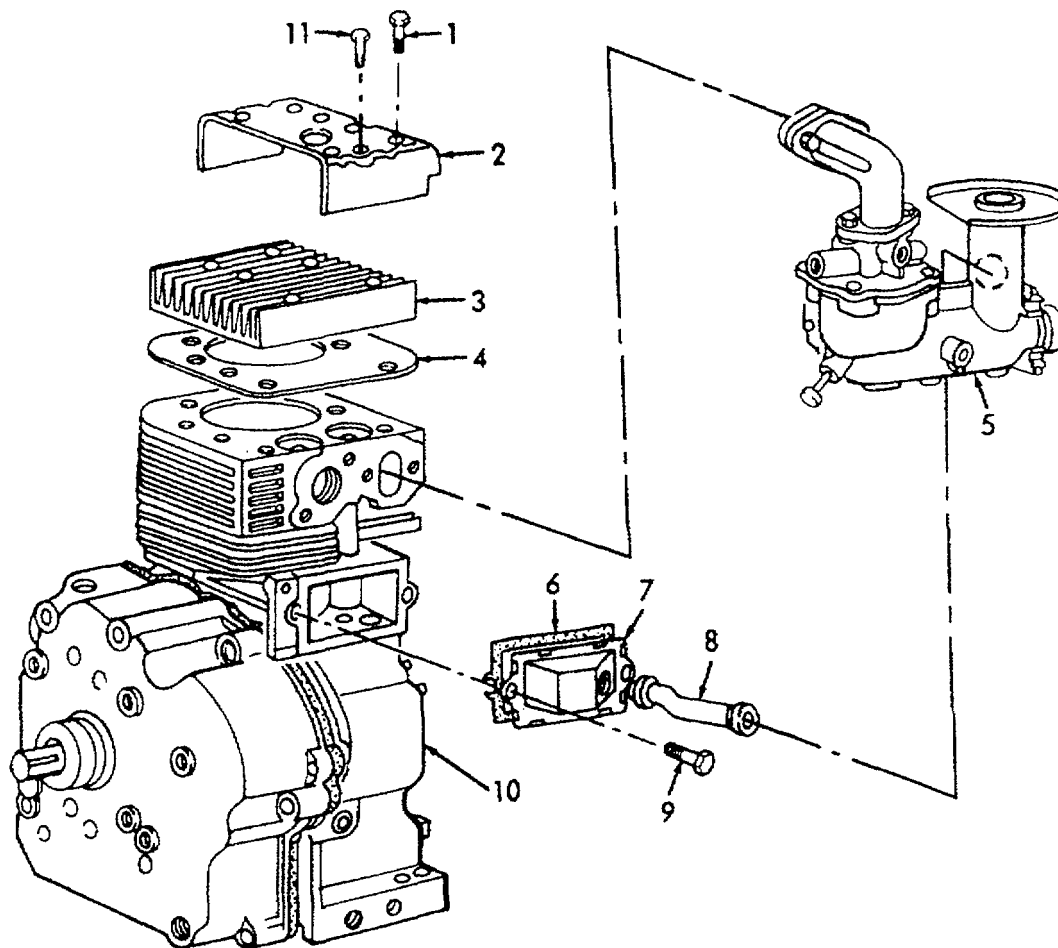


Figure 3-27. Cylinder Head, Removal.

b. *Cleaning.*

- (1) Remove all build up of dirt or debris from the cylinder head being sure to clean each of the fins on the cylinder head.
- (2) Remove any carbon build up from valve heads, piston, and cylinder.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (3) Clean all metal parts with a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (4) Allow parts to dry.

3-28. CYLINDER HEAD - Continued.*c. Inspection.*

- (1) Inspect cylinder head for cracks on surfaces or broken fins. Replace cylinder head if cracks or broken fins are found.
- (2) Check breather assembly for cracks or chips. Replace breather assembly if cracked or chipped.
- (3) Examine breather tube for holes. Replace tube if holes are found.

d. Installation.

- (1) Install breather tube (8) into opening in carburetor (5).

NOTE

Always replace breather gasket with a new gasket.

- (2) Place gasket (6) and breather assembly (7) into position on crankcase (10), install breather tube (8) into breather assembly (7) and install two bolts (9).

NOTE

Always replace cylinder head gasket with a new gasket.

- (3) Place cylinder head gasket (4), cylinder head (3), and shield (2) into position on top of crankcase (10).
- (4) Install nine bolts (1) and bolts (11) into cylinder head (3) and tighten all bolts finger tight.
- (5) When all bolts have been finger tightened, torque all bolts in sequence as shown in Figure 3-29 to 165 inch/pounds (1.90 meter kilopound or 18.65 Newton meter).

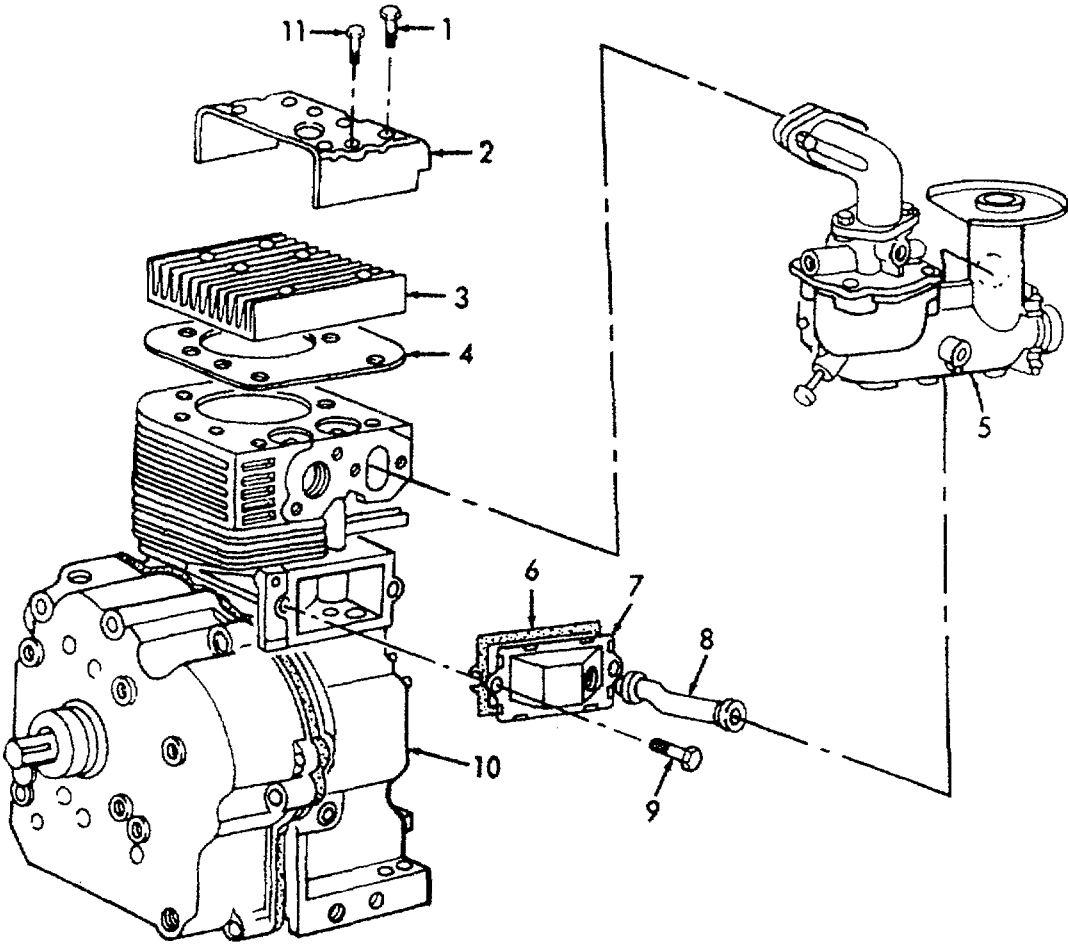


Figure 3-28. Cylinder Head, Installation.

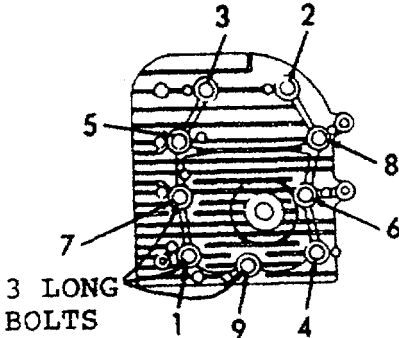


Figure 3-29. Cylinder Head Torque Sequence.

3-29. AIR CLEANER ASSEMBLY.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

a. Removal.

- (1) While holding body (5), lift up the lower part of two latches (6) and remove body (5) from compressor (7).
- (2) Remove bolt (1), washer (9), and nut (4).

NOTE

Remove gasket only if it is damaged.

- (3) Disassemble cover (2), gasket (8) and strainer (3).

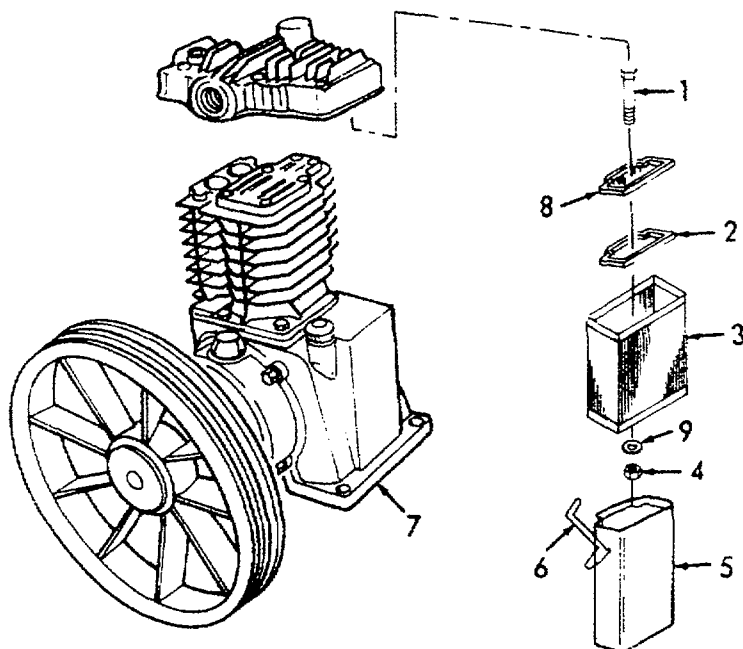


Figure 3-30. Air Cleaner Assembly, Removal.

b. *Cleaning.*

- (1) Clean all build up of dirt and debris from body and body latches.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all metal parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).

NOTE

Do not try to clean strainer element. Replace strainer elements if dirty.

- (3) Allow parts to dry.

c. *Inspection.*

- (1) Examine body and cover for cracks or dents. Check latches for bent wires. Replace body if it is cracked or dented, or if latches are damaged.

3-29. AIR CLEANER ASSEMBLY - Continued.*c. Inspection - Continued.*

- (2) Inspect gasket for cracks or tears. Replace gasket if cracked or torn.
- (3) Check strainer for excessive dirt. Replace strainer if it is dirty.
- (4) Inspect all hardware for stripped threads. Replace hardware if threads are stripped.

d. Installation.

- (1) Place strainer (3) into position beneath cover (2) and install bolt (1), washer (9), and nut (4).
- (2) Place gasket (8), cover (2), and strainer (3) into body (5).
- (3) Position body (5) beneath inlet of compressor (7) and attach body to compressor by engaging upper lip of two latches (6) and pressing down on each latch until they snap into position.

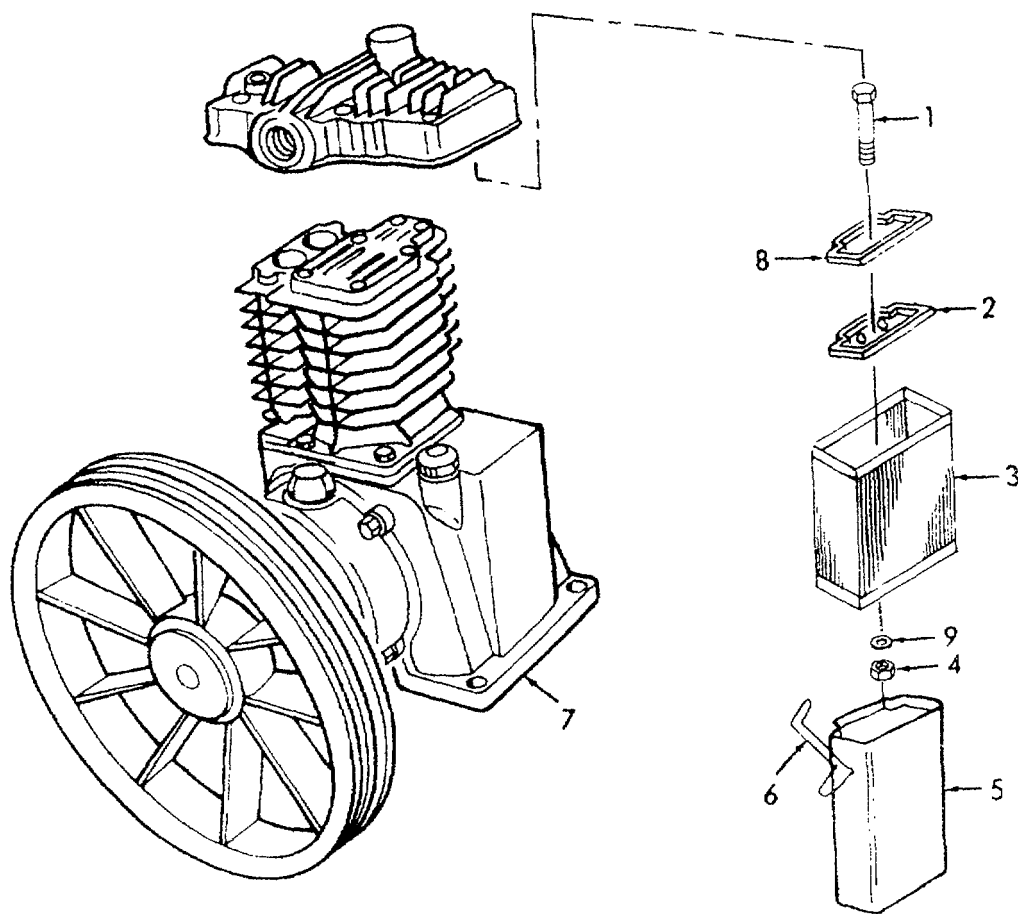


Figure 3-31. Air Cleaner Assembly, Installation.

3-30. OIL FILLER CAP, PLUG, AND DRAIN.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Compound, Anti-seize (item 7, Appendix E)

Equipment Condition

Engine shut down and cool.

Oil drained from compressor unit (see para 3-2).

a. Removal.

- (1) Remove plug (4), elbow (5), and nipple (6) from compressor crankcase (7).
- (2) Remove cap (2) and o-ring (3) from crankcase (7).
- (3) Remove cap (1) from crankcase (7).

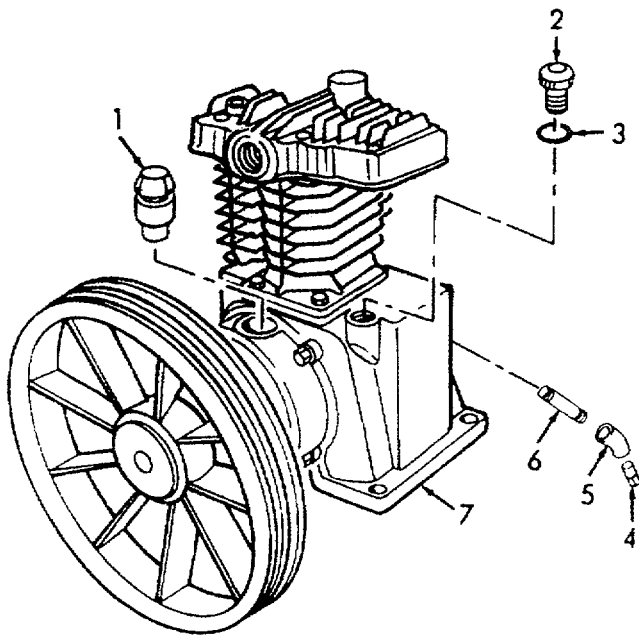


Figure 3-32. Oil Filler Cap, Plug and Drain, Removal.

3-30. OIL FILLER CAP, PLUG, AND DRAIN - Continued.*b. Cleaning.*

- (1) Clean all build up of oil and debris from all parts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. Inspection.

- (1) Inspect all parts for cracked surfaces. Replace all parts which are cracked.
- (2) Check o-ring for cracks and cuts. Replace cracked or cut o-ring.
- (3) Examine all pipe and pipe threads for cracks or stripped threads. Replace all cracked or stripped parts.

d. Installation.

- (1) Install o-ring (3) onto cap (2) and install cap into crankcase (7).
- (2) Install cap (1) into crankcase (7).
- (3) Install nipple (6), elbow (5), and plug (4) into crankcase (7).

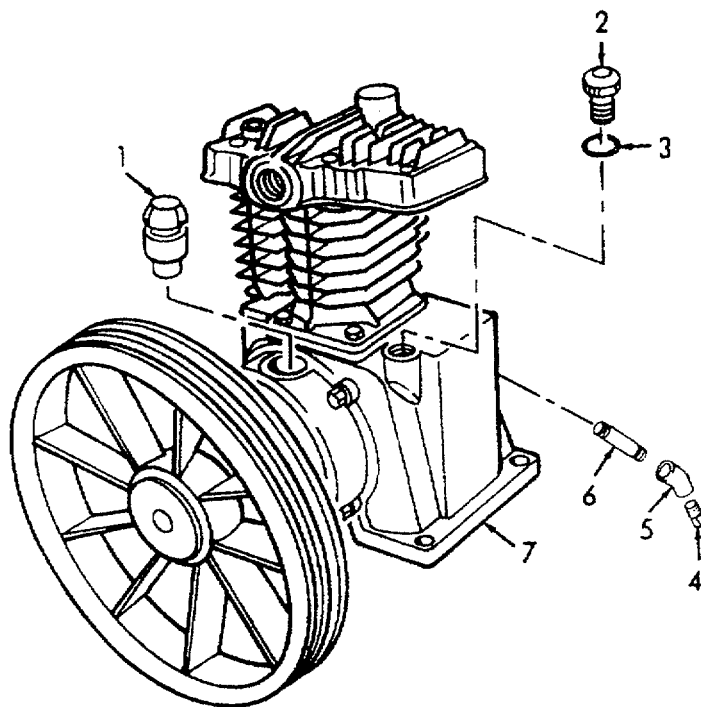


Figure 3-33. Oil Filler Cap, Plug, and Drain, Installation.

3-31. TUBE ASSEMBLIES.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Pressurized air drained from all parts of compressor unit.

3-31. TUBE ASSEMBLIES - Continued.*a. Removal.*

- (1) Loosen nut (3) from tee (2) and nut (5) from elbow (6) and remove tubing (4) from compressor (12).
- (2) Remove nut (25), two lockwashers (24), and two screws (23) to loosen two tubing clips (22).
- (3) Loosen nut (1) from tee (2) and nut (18) from elbow (19) and remove tubing (21) and two tube clips (22) attached to tubing.
- (4) Remove two tube clips (22) from tubing (21).
- (5) Loosen nut (8) from elbow (7) and nut (14) from fitting (15) and remove tube (13).
- (6) Remove fitting (15) from check valve (16) and check valve from air tank (17).
- (7) Remove tee (2) and elbow (6).
- (8) Remove two clamps (9) and hose (20).
- (9) Remove barbed fitting (10) from slow down device (11).

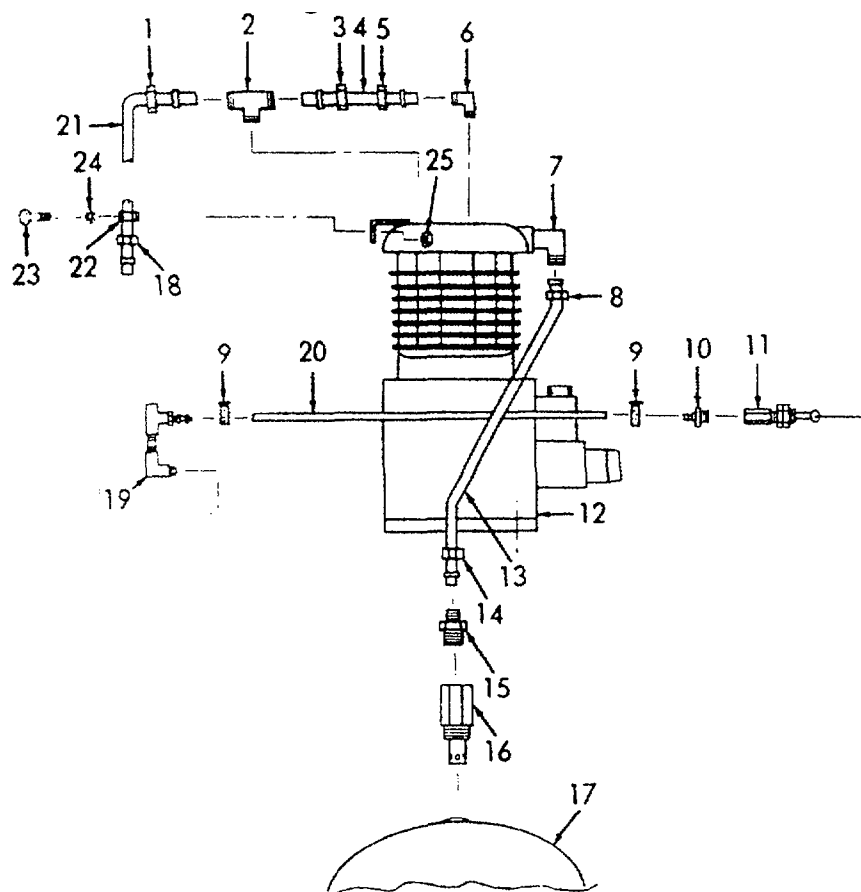


Figure 3-34. Tube Assemblies, Removal.

b. Cleaning.

- (1) Clean all build up of oil and debris from all tubes and fittings.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E). Be sure to keep as much solvent as possible out of the inside of all tubing.
- (3) Allow parts to dry.

c. Inspection.

- (1) Inspect all tubing for cracks or dents. Replace all cracked or dented tubing.
- (2) Examine all fittings for cracks or deformed threads. Replace any fitting having cracks or deformed threads.

3-31. TUBE ASSEMBLIES- Continued.*d. Installation.***CAUTION**

If any tubing is found to be defective and is being replaced, the nut and ferrule on each end of the tubing must also be replaced. Do not try to salvage sleeve and nuts from defective tubing. Adjust the general installation procedures following this note for installing new tubing as follows.

- Slide nut and sleeve onto end of tubing.
- Place end of tubing into fitting and tighten nut onto fitting. Nut tightening will wedge brass sleeve onto new tubing.

NOTE

Apply anti-seize compound (item 7, Appendix E) to all pipe threads prior to assembly.

- (1) Install barbed fitting (10) into slow down device (11).
- (2) Install hose (20) and two clamps (9).
- (3) Install check valve (16) into air tank (17).
- (4) Install fitting (15) into check valve (16).
- (5) Place tube (13) into position and tighten nut (14) onto fitting (15) and nut (8) onto elbow (7).
- (6) Install tee (2) and elbow (19) onto compressor (12).
- (7) Place tube (21) into position and tighten nut (18) on elbow (19) and nut (1) on tee (2).
- (8) Install two tube clips (22) onto tube (21) and install two lockwashers (24), two screws (23), and nut (25).
- (9) Place tube (4) into position and tighten nut (3) onto tee (2) and nut (5) onto elbow (6) and install tubing (4) onto compressor (12).

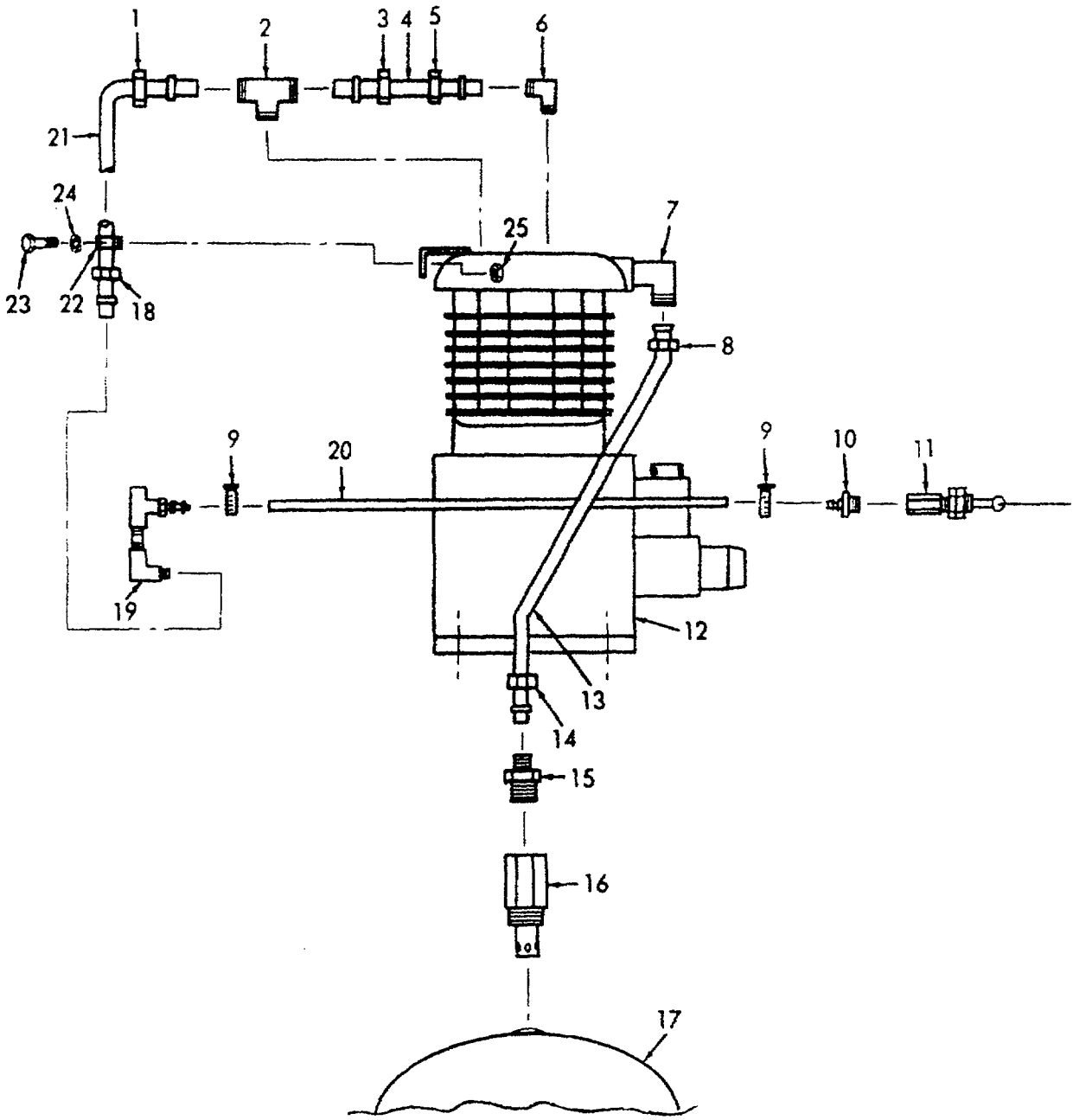


Figure 3-35. Tube Assemblies, Installation.

3-32. ENGINE SPEED CONTROL.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Pressurized air drained from unit.

a. Removal.

- (1) Remove hose clamp (4) and tubing (5) from barbed fitting (3) and slow down device (2).
- (2) Remove screw (7), lockwasher (6), and nut (8) from slow down device (2).
- (3) Remove screw (10) from governor plate (9).
- (4) Remove slow down device (2) from engine governor bracket (1) and disengage linkage from governor plate (9).

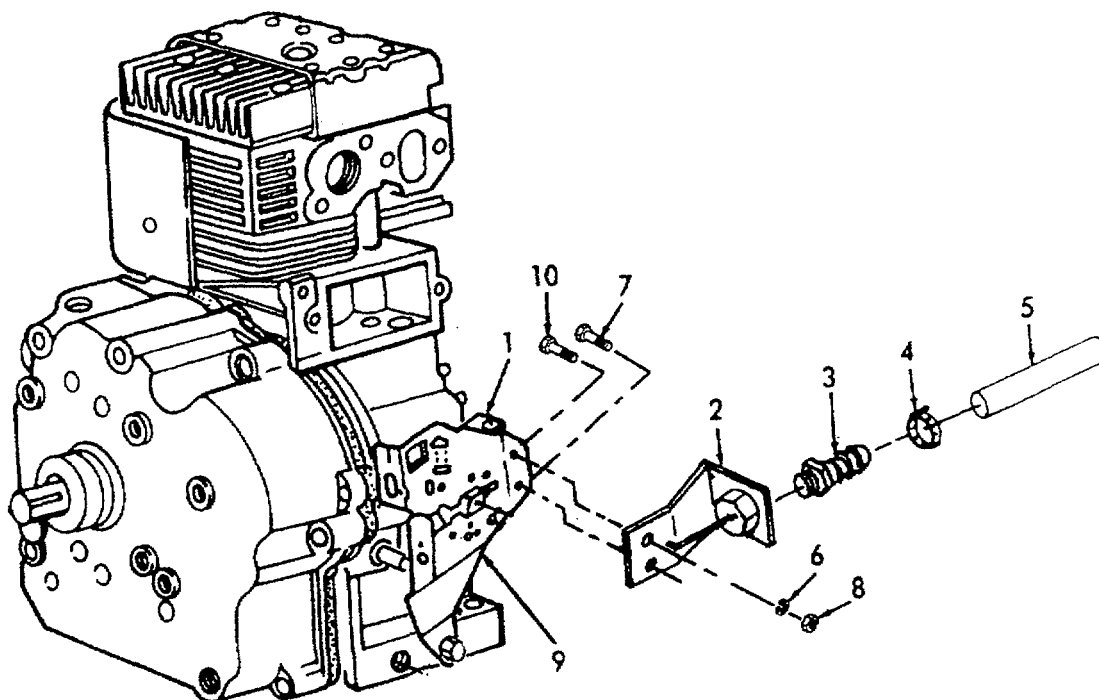


Figure 3-36. Engine Speed Control, Removal.

b. *Cleaning.*

- (1) Clean all build up of dirt, oil, and debris from hose and slow down device.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

3-32. ENGINE SPEED CONTROL - Continued.*c. Inspection.*

- (1) Inspect hose for cracks or cuts. Replace hose if cracked or cut.
- (2) Check slow down device for cracks or dents. Check operation by depressing plunger a few times. If device is cracked or dented or if plunger does not operate smoothly, replace device.
- (3) Inspect all hardware for stripped threads. Replace all hardware having stripped threads.

d. Installation.

- (1) Install slow down device (2), lockwasher (6), screw (7), screw (10), and nut (8) onto engine governor bracket (1) being sure to engage slow down device linkage into hole of actuator (11) on governor plate (9).
- (2) Install tubing (5), hose clamp (4) onto barbed fitting (3) on slow down device (2) onto governor bracket (1).

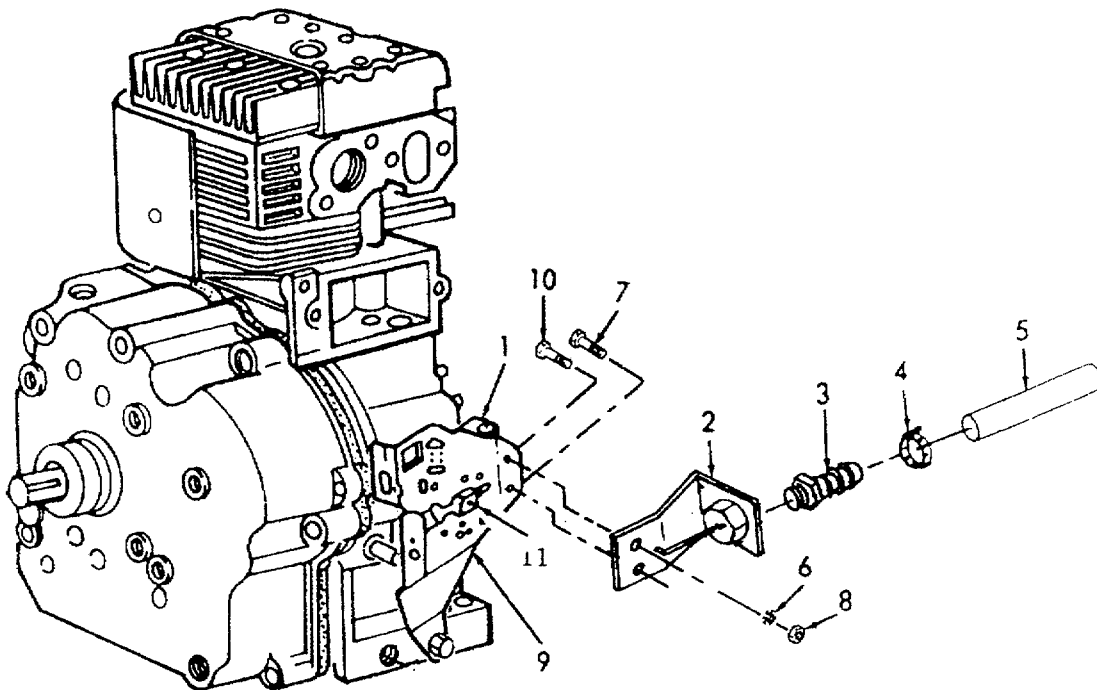


Figure 3-37. Engine Speed Control, Installation.

3-33. FAN AND PULLEY.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Equipment Condition

Engine shut down and cool.

Belt guard removed (see para 3-15).

Drive belts removed (see para 3-16).

a. Removal.

- (1) Remove screw (1) and washer (2) from pulley (3).
- (2) Using a puller, remove pulley (3) and key (5) from compressor shaft (4).

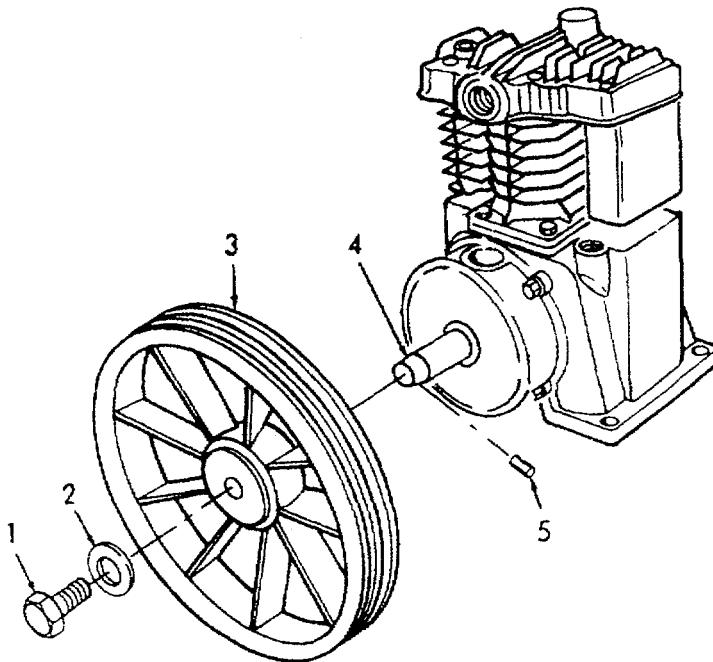


Figure 3-38. Fan and Pulley, Removal.

3-33. FAN AND PULLEY - Continued.*b. Cleaning.*

- (1) Remove all build up of debris from pulley and from blades on ran part of pulley.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean pulley and metal items with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. Inspection.

- (1) Inspect pulley for groove wear and for cracked or chipped metal surfaces. Replace pulley if cracked or if groove is worn excessively.
- (2) Check all hardware for stripped threads. Replace all stripped hardware.

*d. Installation.***CAUTION**

Aline groove in pulley with key in compressor shaft before tightening screw (1).

- (1) Install key (5) and pulley (3) onto compressor shaft (4).
- (2) Install washer (2) and screw (1) onto shaft (4).
- (3) Install drive belts (see para 3-16).
- (4) Install belt guards (see para 3-15).

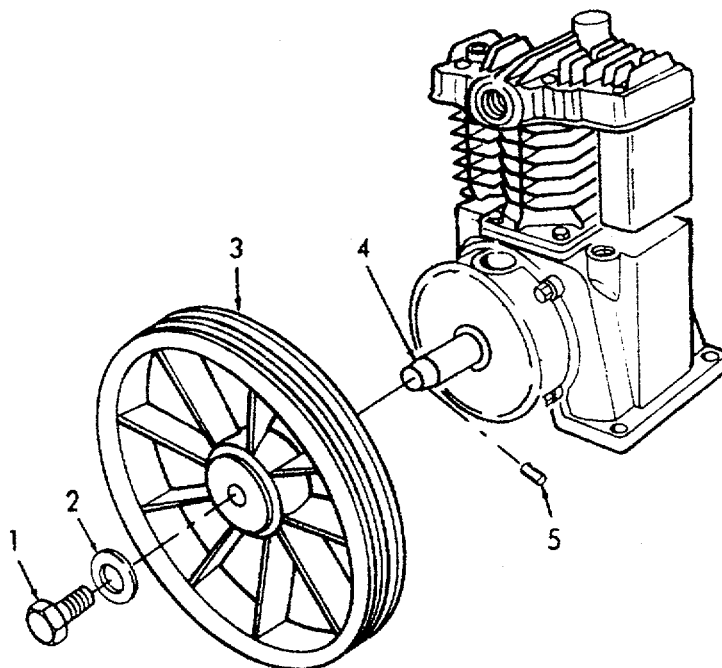


Figure 3-39. Fan and Pulley, Installation.

3-34. HOSE AND INFLATOR GAGE.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)
 Solvent, Dry Cleaning (item 2, Appendix E)
 Cloth, Lint-Free (item 3, Appendix E)
 Compound, Anti-seize (item 7, Appendix E)

Equipment Condition

Engine shut down and cool.
 Pressurized air removed from unit.

3-34. HOSE AND INFLATOR GAGE - Continued.*a. Removal.*

- (1) Loosen swivel nut (2) and disconnect hose (3) from nipple (5) and remove hose from tank (1).
- (2) Remove hose (3) from inflator gage (4).

b. Cleaning.

- (1) Remove all build up of dirt and ail from hose and inflator gage.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all metal parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. Inspection.

- (1) Inspect hose for cuts or cracks. If hose is cut or cracked, replace hose.
- (2) Check inflator gage for dents, cracks, missing inflator feet, or damaged inflator feet. Examine gage glass for cracks or breaks. Replace inflator gage if damaged in any way.

*d. Installation.***NOTE**

Apply anti-seize compound (item 7, Appendix E) to all pipe threads before assembly.

- (1) Install inflator gage (4) onto hose (3).
- (2) Install hose (3) to nipple (5) by turning swivel nut (2).

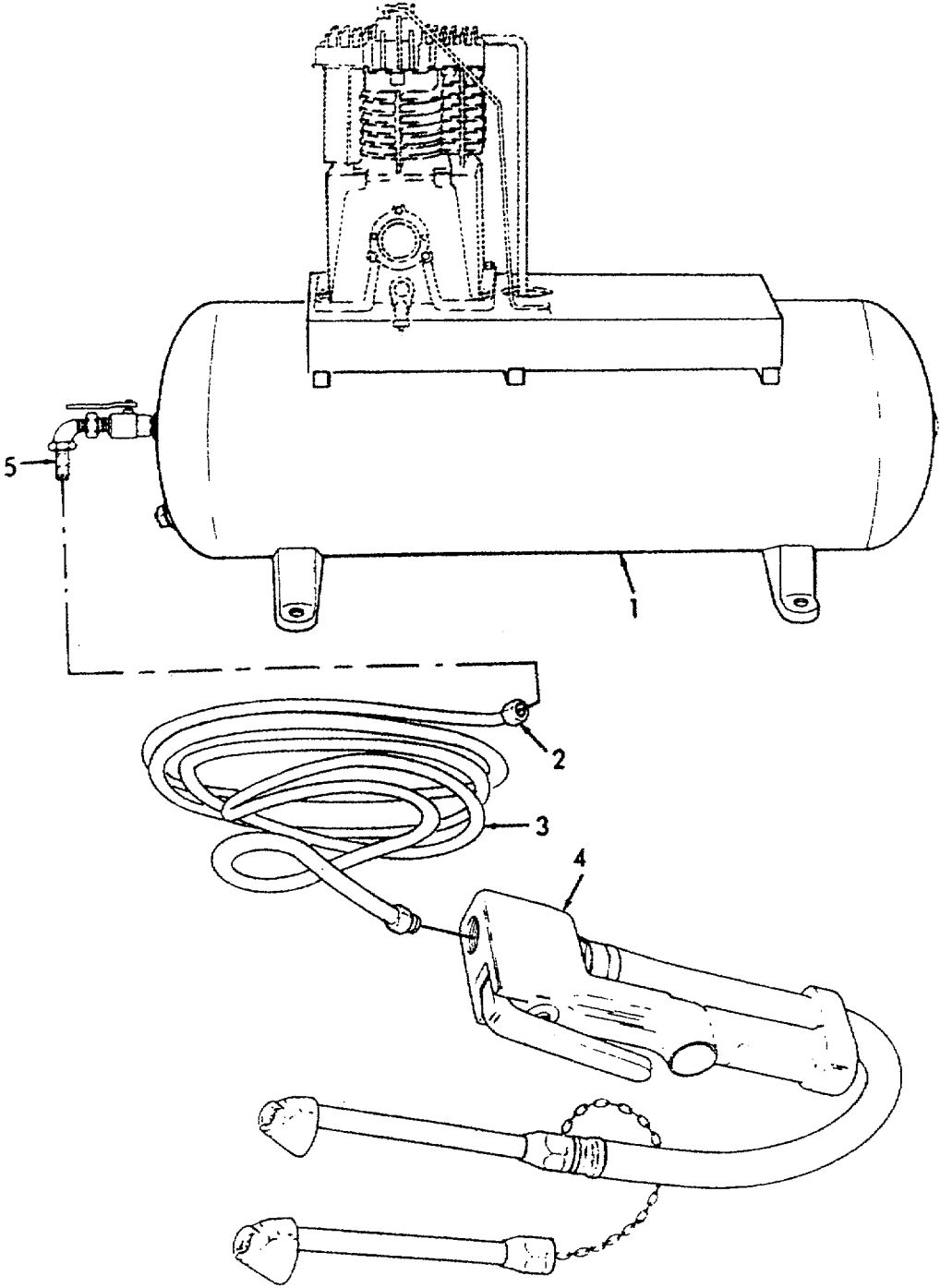


Figure 3-40. Hose and Inflator Gage, Removal/Installation.

3-35. RELIEF VALVES, AIR GAGE, DRAIN COCK, AND AIR VALVE.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Compound, Anti-seize (item 7, Appendix E)

Equipment Condition

Engine shut down and cool.

Pressurized air drained from system.

Air hose inflator gage removed (see para 3-34).

a. Removal.

- (1) Disconnect tube (1) from elbow (2).
- (2) Remove clamp (26), hose (25), and barbed fitting (27) from tee (3).
- (3) Remove elbow (2), tee (3), and nipple (4) from pilot valve (5).
- (4) Remove valve (5), nipple (6), bushing (7), and elbow (8) from cross (12).
- (5) Remove air gage (9) and bushing (10) from cross (12).
- (6) Remove relief valve (11) from cross (12).
- (7) Remove cross (12), nipple (13), elbow (14), and nipple (15) from air tank (16).
- (8) Remove nipple (19), elbow (20), bushing (18), air valve (21), and nipple (22) from air tank (16).
- (9) Remove relief valve (24) from top of compressor (23).
- (10) Remove drain cock (17) from tank (16).

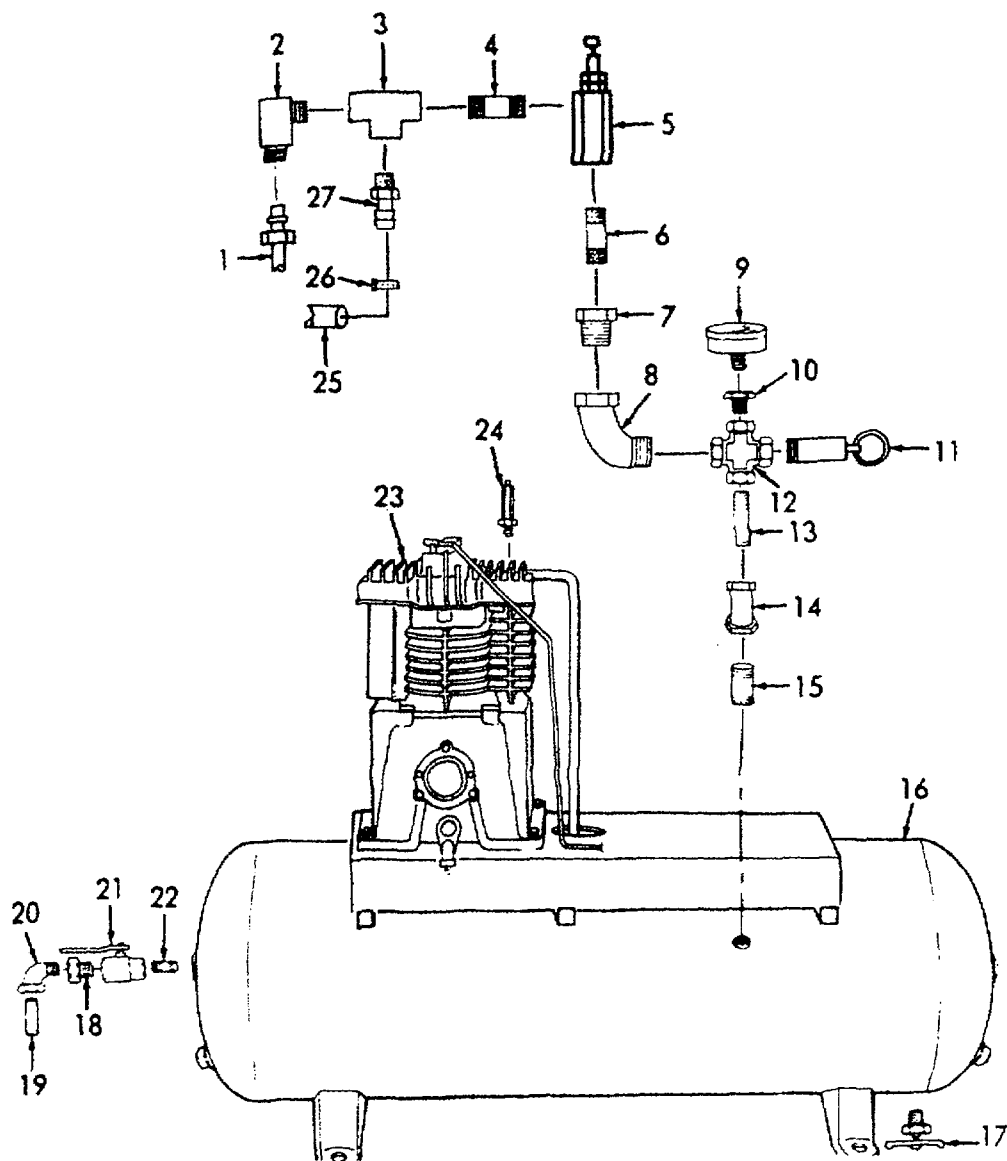


Figure 3-41. Relief Valve, Air Gage, Drain Cock and Air Valve, Removal.

b. Cleaning.

- (1) Clean build up of all dirt, oil, and debris from all parts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all metal parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Clean air gage with mild soap (item 5, Appendix E) and water.
- (4) Allow all parts to dry.

3-35. RELIEF VALVES, AIR GAGE, DRAIN COCK, AND AIR VALVE - Continued.*c. Inspection.*

- (1) Inspect air pressure gage for cracked or broken glass and cracked or dented case. Replace gage if damaged in any way.
- (2) Manually activate all relief valves to check each valve for smoothness of operation. Replace any relief valve which operates erratically.
- (3) Check all pipes, nipples, crosses, tees, bushings, and elbows for cracks and stripped threads. Replace any part which is damaged in any way.
- (4) Operate air valve handle manually to check for smooth operation. If handle movement is erratic or difficult, replace air valve.

*d. Installation.***NOTE**

Apply anti-seize compound (item 7, Appendix E) to all pipe threads before assembly.

- (1) Install drain cock (17) into tank (16).
- (2) Install relief valve (24) into air compressor (23).
- (3) Install nipple (22), air valve (21), bushing (18), elbow (20), and nipple (19) into tank (16).
- (4) Install nipple (15), elbow (14), nipple (13), and cross (12) into tank (16).
- (5) Install relief valve (11) onto cross (12).
- (6) Install bushing (10) and air gage (9) into cross (12).
- (7) Install elbow (8), bushing (7), nipple (6), and valve (5) into cross (12).
- (8) Install nipple (4), tee (3), and elbow (2) into pilot valve (5).
- (9) Install barbed fitting (27), hose (25) and clamp (26) onto tee (3).
- (10) Connect tube (1) onto elbow (2).
- (11) Install hose and inflator gage (see para 3-34).

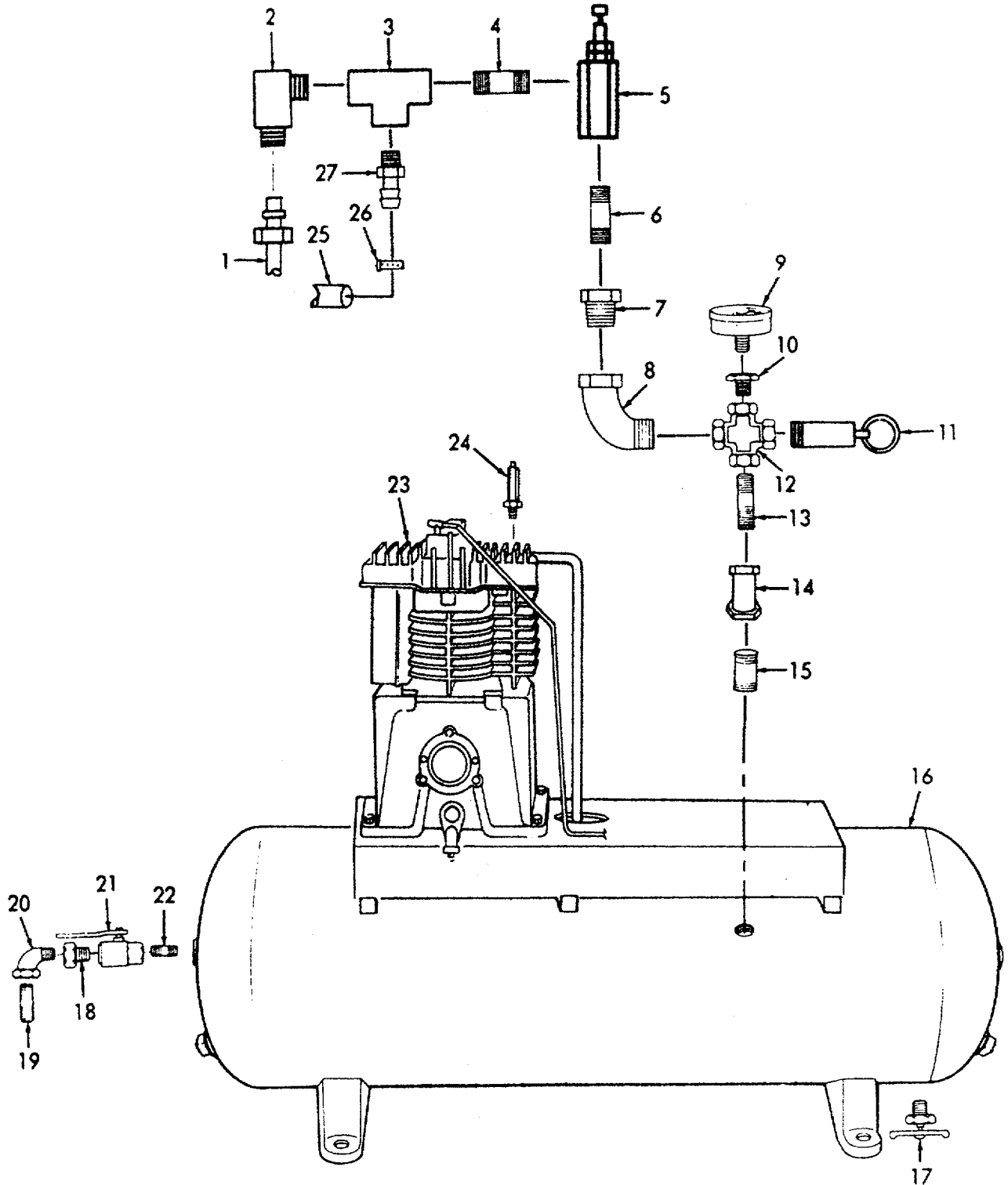


Figure 3-42. Relief Valves, Air Gage, Drain Cock and Air Valve, Installation.

3-36. AIR TANK.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Installation
-

INITIAL SETUP**Tools Required**

Tool Kit, General Mechanic's

Materials Required

Brush, Medium Bristle (item 4, Appendix E)

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint-Free (item 3, Appendix E)

Compound, Anti-seize (item 7, Appendix E)

Equipment Condition

Engine shut down and cool.

Pressurized air drained from system.

Fuel tank lines, filter, and fittings removed (see para 3-14).

Belt guard assembly removed (see para 3-15).

Drive belts removed (see para 3-16).

Take-up bolt assembly removed (see para 3-18).

Engine removed (see para 3-19).

Tube assemblies removed (see para 3-31).

Hose and inflator gage removed (see para 3-34).

Relief valves, air gage, and drain cock removed (see para 3-35).

a. Removal.

- (1) Remove four bolts (11), four lockwashers (10), and air compressor (1) front air tank (9).
- (2) Remove three bolts (2), three lockwashers (3), three slide blocks (7), bolt (4), washer (5), take up block (6), and plate (8) from air tank (9).

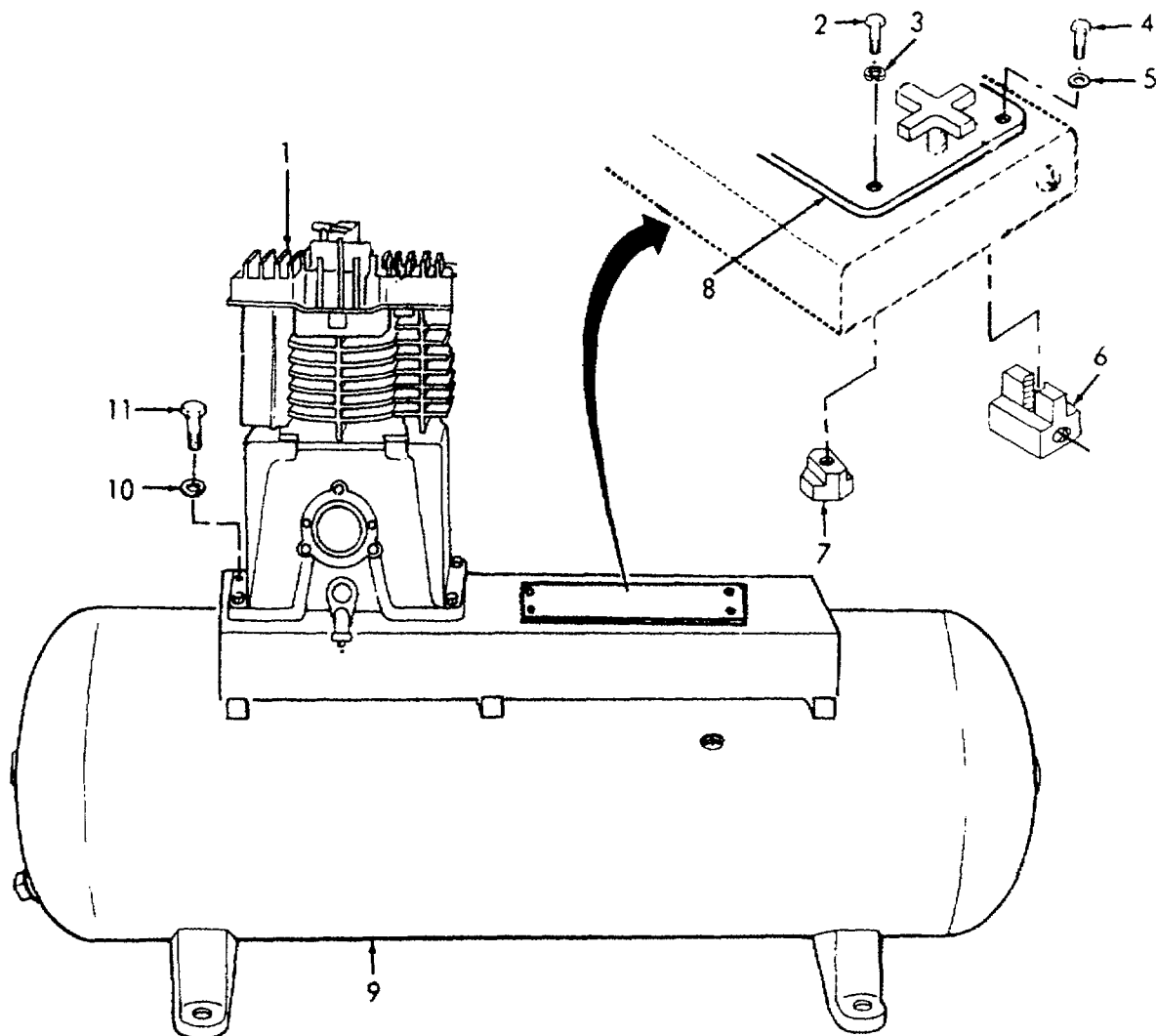


Figure 3-43. Air Tank, Removal.

b. *Cleaning.*

- (1) Remove all build up of debris, dirt and oil from all parts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean parts using a clean, soft cloth (item 3, Appendix E) or a medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

3-36. AIR TANK- Continued.*c. Inspection.*

- (1) Examine tank for cracks or dents. Replace tank if cracked surfaces are found.
- (2) Check saddle on top of tank for cracks, stripped threads, and deformed surfaces. Replace tank if saddle is damaged in any way.
- (3) Inspect mounting feet on bottom of tank for cracks. Repair as required.

d. Installation.

- (1) Install plate (8), take up block (6), washer (4), bolt (5), three slide blocks (7), three lockwashers (3), and three bolts (2) onto air tank (9).
- (2) Install compressor (1), four washers (10), and four bolts (11) onto air tank (9).
- (3) Install relief valves, air gage, and drain cock (see para 3-35).
- (4) Install hose and inflator gage (see para 3-34).
- (5) Install tube assemblies (see para 3-31).
- (6) Install engine (see para 3-19).
- (7) Install take up bolt assembly (see para 3-18).
- (8) Install drive belts (see para 3-16).
- (9) Install belt guard assembly (see para 3-15).
- (10) Install fuel tank, lines, filter, and fittings (see para 3-14).

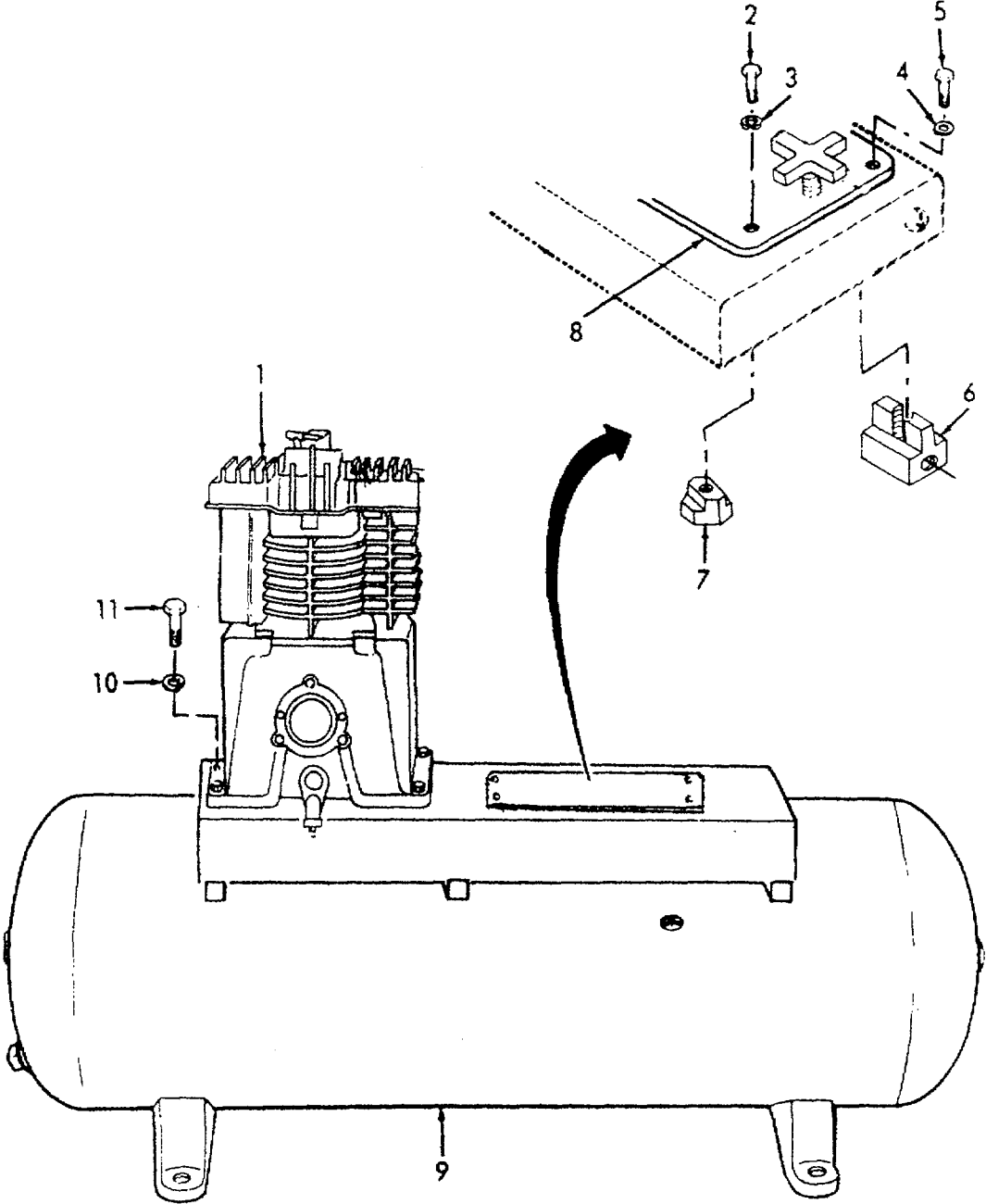


Figure 3-44. Air Tank, Installation.

Section VII. PREPARATION FOR STORAGE OR SHIPMENT

3-37. ALL STORAGE.

To prepare the air compressor unit for storage or shipment, perform the following procedures.

- a. Perform all "after" preventive maintenance checks and services. (Refer to paragraphs 2-4 and 3-10.)
- b. Open the drain cock on air tank and allow all air and moisture to drain from unit.
- c. Remove flexible hose and roll and secure it into a small bundle.
- d. Remove all fuel from engine fuel tank.
- e. Turn the take-up bolt assembly to loosen the drive belt tension.
- f. Place air compressor unit and flexible hose onto a wooden skid and secure all items firmly to skid.

For further procedures on preparation for storage or shipment, refer to TB 740-94-2, Preservation of USAMECOM Mechanical Equipment for Shipment and Storage and TM 740-90-1, Administrative Storage of Equipment.

3-38. ADMINISTRATIVE STORAGE.

a. Placement of equipment in administrative storage should be for short periods of time when shortage of maintenance effort exists. Items should be in mission readiness within 24 hours or within the time factors as determined by the directing authority. During the storage period appropriate maintenance records will be kept.

b. Before placing equipment in administrative storage, current maintenance services and equipment serviceable criteria (ESC) evaluations should be completed, shortcomings and deficiencies should be corrected, and all modification work orders (MWO's) should be applied.

c. Storage site selection. Inside storage is preferred for items selected for administrative storage. If inside storage is not available, trucks, vans, conex containers and other containers may be used.

CHAPTER 4

INTERMEDIATE DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Section I. TROUBLESHOOTING

4-1. GENERAL.

a. The table in this section lists the common malfunctions which you may find during the operation or maintenance of the air compressor unit or its components. You should perform the test/inspection and corrective maintenance 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 it is not corrected by the listed corrective action, notify your supervisor.

Table 4-1. Intermediate Direct Support Troubleshooting Procedures

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

1. AIR COMPRESSOR OVERHEATS.

Step 1. Inspect air compressor for damaged piston rings, crankshaft, intake/exhaust valves, or bearings.

Refer to paragraph 4-5 for disassembly and inspection procedure.

2. AIR COMPRESSOR UNIT VIBRATES BADLY.

Step 1. Inspect air compressor for damaged piston rings, crankshaft, or bearings.

Refer to paragraph 4-6 for disassembly and inspection procedure.

3. LITTLE OR NO AIR PRESSURE BUILD-UP.

Step 1. Check air compressor for damaged or worn intake or exhaust valves.

Refer to paragraph 4-4 for air compressor disassembly and inspection procedure.

Table 4-1. Intermediate Direct Support Troubleshooting Procedures - Continued

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

3. LITTLE OR NO AIR PRESSURE BUILD-UP - Continued.

Step 2. Inspect air compressor cylinder head for leaks or cracks.

If air compressor cylinder head leaks or is cracked, replace it (see paragraph 4-4).

4. AIR DELIVERY IS DROPPING.

Step 1. Inspect air compressor for damaged or worn valves.

Refer to paragraph 4-4 for disassembly and inspection procedures for air compressor valves.

5. AIR COMPRESSOR IS PUMPING OIL.

Step 1. Inspect air compressor for worn or damaged piston rings.

Refer to paragraph 4-5 for disassembly and inspection of air compressor piston rings.

6. AIR COMPRESSOR IS RUNNING TOO SLOW.

Step 1. Inspect air compressor bearings, pistons, or crankshaft for damage.

Refer to paragraph 4-6 for disassembly and inspection of air compressor.

7. AIR COMPRESSOR MAKES EXCESSIVE NOISE.

Step 1. Inspect air compressor for worn or damaged valve, piston rings, bearings or crankshaft.

Refer to paragraph 4-6 for disassembly and inspection of air compressor components.

8. ENGINE WILL NOT START.

Step 1. Check engine carburetor for damage.

If carburetor is damaged, refer to paragraph 4-3 for carburetor repair.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 2. Check engine cylinder head gasket for leaks or cracks.

Tighten cylinder head fasteners if it leaks.

Replace cylinder head gasket if it is cracked.

9. ENGINE RUNS ROUGHLY OR STOPS.

Step 1. Check engine cylinder head gasket for cracks or leaks.

Tighten cylinder head fasteners if it leaks.

Replace cylinder head gasket if it is cracked.

Step 2. Check for bound air compressor.

Loosen take-up bolt assembly and remove drive belts (see paragraph 3-16). Try to rotate air compressor. If air compressor will not rotate or rotates only with great effort, disassemble and inspect air compressor for damage to cylinder, piston rings, crankshaft or bearings (see paragraph 4-5).

10. ENGINE LACKS POWER OR OPERATES AT SLOW SPEED.

Step 1. Check engine carburetor for damage.

If carburetor is damaged, refer to paragraph 4-3 for carburetor repair.

Section II. INTERMEDIATE DIRECT SUPPORT MAINTENANCE PROCEDURES

4-2. GENERAL.

This section contains the Intermediate Maintenance procedures as authorized by the Maintenance Allocation Chart to maintain the air compressor unit.

4-3. CARBURETOR.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Assembly

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint Free (item 3, Appendix E)

Brush, Medium Bristle (item 4, Appendix E)

Equipment Condition

Engine shut down and cool.

Carburetor removed (see para 3-21).

a. *Disassembly.*

- (1) Remove idle needle valve (2) from upper carburetor (3).
- (2) Remove high speed needle valve screw (7), packing nut (6), gasket (8), and nozzle (9) from lower carburetor (5).
- (3) Remove four screws (1) and remove upper carburetor (3) and gasket (4) from lower carburetor (5).

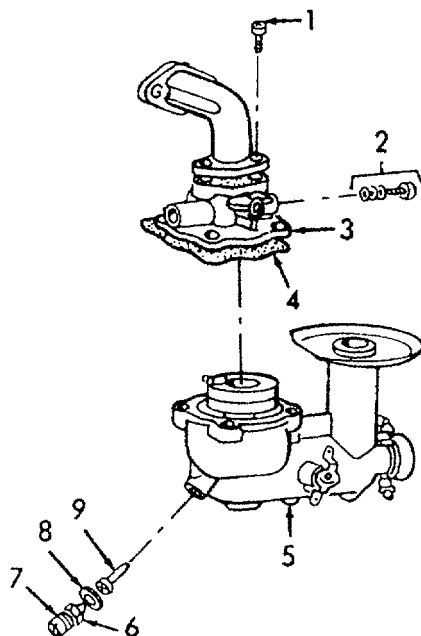


Figure 4-1. Carburetor, Disassembly.

b. Cleaning.

- (1) Clean all build up of oil or debris from all parts of carburetor.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

CAUTION

Be sure to remove all cleaning solvent from all carburetor parts after cleaning. Any foreign material left in or on carburetor parts can severely impair operation of engine.

- (2) Clean all metal parts with a clean soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. Inspection.

- (1) Inspect the point of both the idle needle valve screw and the high speed needle valve screw to see if either screw has a bent or grooved point. Both screw points must have smooth tapers. If either screw point is bent or grooved, replace the screw.
- (2) Place a straight edge across mating surfaces of upper and lower carburetor assemblies. If surface is not flat or has evidence of warpage, replace part.
- (3) Check all parts for cracks or chips on surface. Replace any part which is cracked or chipped.

4-3. CARBURETOR - Continued.

d. Assembly.

NOTE

Replace all gaskets with new gaskets during assembly.

- (1) Install nozzle (9) into lower carburetor (5).
- (2) Place gasket (4) and lower carburetor (5) into position on upper carburetor (3). Be sure nozzle tip enters upper carburetor (3).
- (3) Install four screws (1) into upper carburetor (4).
- (4) Install high speed gasket (8) and needle valve (7) into lower carburetor (5), but do not tighten packing nut (6).
- (5) Screw in high speed needle valve screw (7) until it just seats into nozzle (9) and then back off high speed needle valve 1 1/2 turns.
- (6) install idle speed needle valve (2) into upper carburetor (3).
- (7) Screw in idle speed needle valve (2) until it just seats into upper carburetor (3) and then back screw off 3/4 turn.

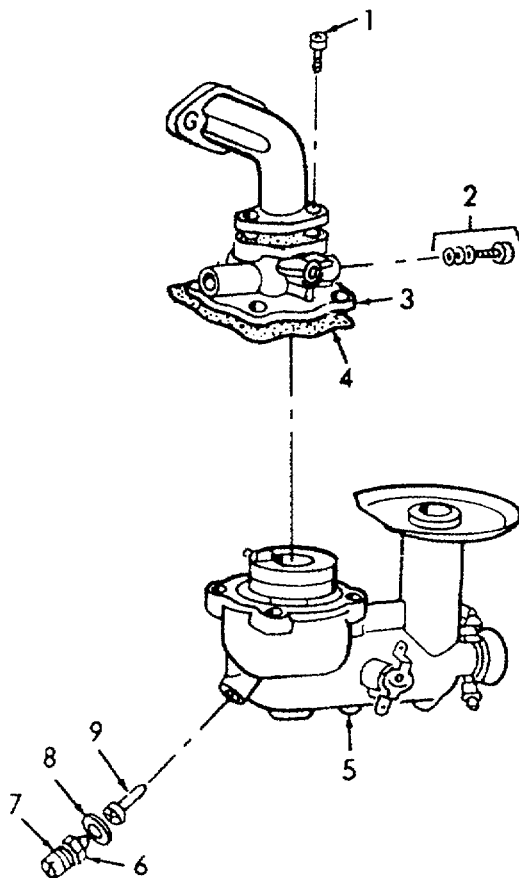


Figure 4-2. Carburetor, Assembly.

4-4. COMPRESSOR VALVES AND CYLINDER HEAD.

This task covers:

- a. Removal/Disassembly
 - b. Cleaning
 - c. Inspection
 - d. Repair
 - e. Assembly/Installation
-

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint Free (item 3, Appendix E)

Brush, Medium Bristle (item 4, Appendix E)

Equipment Condition

Engine shut down and cool.

Pressurized air drained from system (see para 2-9).

Tubing assemblies connected to compressor head removed (see para 3-31).

4-4. COMPRESSOR VALVES AND CYLINDER HEAD - Continued.*a. Removal/Disassembly.*

- (1) Remove three screws (2), three lockwashers (6), packing (11), and intercooler assembly (13).
- (2) Remove six screws (17), six lockwashers (16), cover (15), and packing (14) from body (12).
- (3) Remove relief valve (45).
- (4) Remove cover (44), piston (41), spring (40) and body (39) of auto unloader (42) from compressor cylinder head (1).
- (5) Remove o-ring (43) from piston (41).
- (6) Remove two screws (38) and two washers (37) from top of other auto unloader (33).
- (7) Remove cover (36), and packing (35) from cylinder (31).
- (8) Remove cylinder (31) from compressor cylinder head (1).
- (9) Remove screw (28), washer (29), fork (30), piston (34), and spring (32) from cylinder (31).
- (10) Remove joint (5) from cylinder head (1).
- (11) Remove six screws (3) and six washers (4) and lift cylinder head from compressor cylinder (23).
- (12) Remove upper packing (7), lower packing (22), and valve assembly (27) from cylinder head (1).
- (13) Remove two nuts (24), three screws (9), and washer (10) from valve assembly (27).
- (14) Disassemble upper valve seat (8), packing (18), two valve plates (19), two valve springs (20), four valve spring plates (25), and four valve plates (26) from lower valve seat (21).

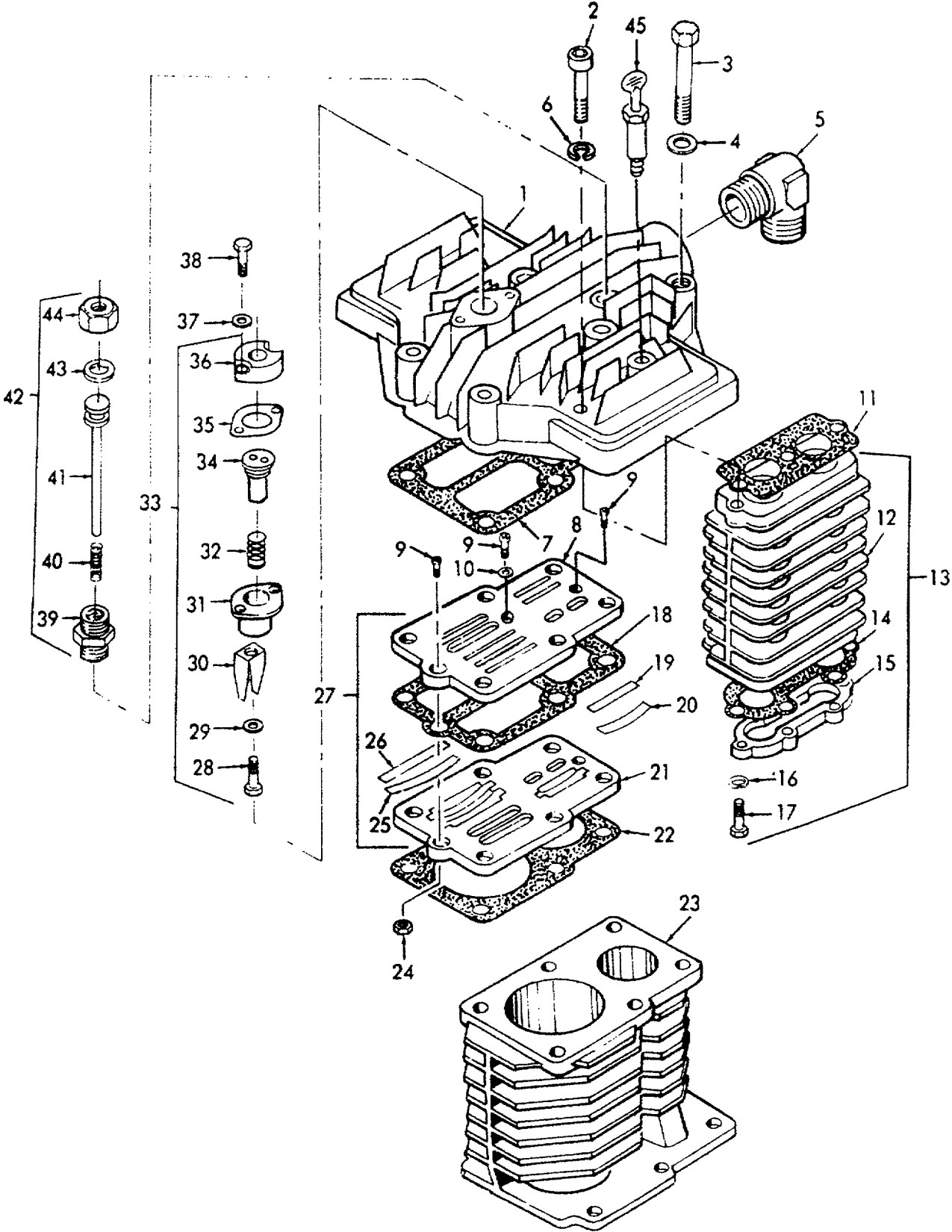


Figure 4-3. Compressor Valves and Cylinder Head, Disassembly.

4-4. COMPRESSOR VALVES AND CYLINDER HEAD - Continued.*b. Cleaning.*

- (1) Clean all build up of oil or debris from all parts.

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all metal parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

c. Inspection.

- (1) Inspect springs on auto unloader mechanisms for breaks. Replace broken springs.
- (2) Check o-rings for cuts, cracks, or splits. Replace o-ring if damaged in any way.
- (3) Examine all packings for cuts, cracks, or tears. Replace packings if damaged in any way.
- (4) Inspect cylinder head and intercooler body for cracked surfaces or broken fins. Replace part if surface is cracked or fins are broken.
- (5) Check valve plates and valve springs for cracks or wear. Replace any part that is cracked or worn.
- (6) Examine upper and lower valve seats for cracked surfaces or worn valve seats. Replace seat if material is cracked or if valve seats are worn.
- (7) Check all hardware and threaded parts for chipped or stripped threads. Replace any part having thread damage.
- (8) Inspect valve plates, valve spring plates, and cylinder head for carbon build up. Remove any carbon build up found.

d. Repair.

Repair of compressor valves and cylinder head is limited to replacement of defective parts.

4-4. COMPRESSOR VALVES AND CYLINDER HEAD - Continued.*e. Assembly Installation.***NOTE**

- **Replace all gaskets with new gaskets.**
- **When assembling valve assembly, be sure valve plates and valve springs are oriented as shown in Figure 4-5.**

- (1) Place four valve springs (25) and four valve plates (26) on lower valve seat (21). Depress into recesses and retain with string or flexible fine gage wire.
- (2) Place two valve springs (20) and two valve plates (19) on valve seat (21). Depress into recess and retain with string or flexible fine gage wire.
- (3) Place packing (18) over lower valve seat (21).
- (4) Place upper valve seat (8) over packing (18) and install washer (10), two nuts (24), and three screws (9) to make valve assembly (27).
- (5) Snip string or wire and remove from assembly.
- (6) Install packing (22), valve assembly (27), and packing (7) onto cylinder (23).
- (7) Place cylinder head (1) onto compressor cylinder (23) and install six washers (4) and six screws (3).
- (8) Install joint (5) and nut (6) onto cylinder head (1).
- (9) Install fork (30), washer (29), screw (28), piston (34), and spring (32) onto cylinder (31).
- (10) Place cylinder (31) into cylinder head (1).
- (11) Install packing (35), cover (36), two washers (37), and two screws (38) onto auto unloader (33).
- (12) Install o-ring (43) onto piston (41).
- (13) Install body (39) onto cylinder head (1).
- (14) Install spring (40), piston (41), and cover (44) onto cylinder head (1).
- (15) Install relief valve (45).
- (16) Install packing (14), cover (15), six lockwashers (16), and six screws (17) onto body (12).

(17) Install packing (11), intercooler assembly (13), three screws (2), and three lockwashers (6) onto cylinder head (1).

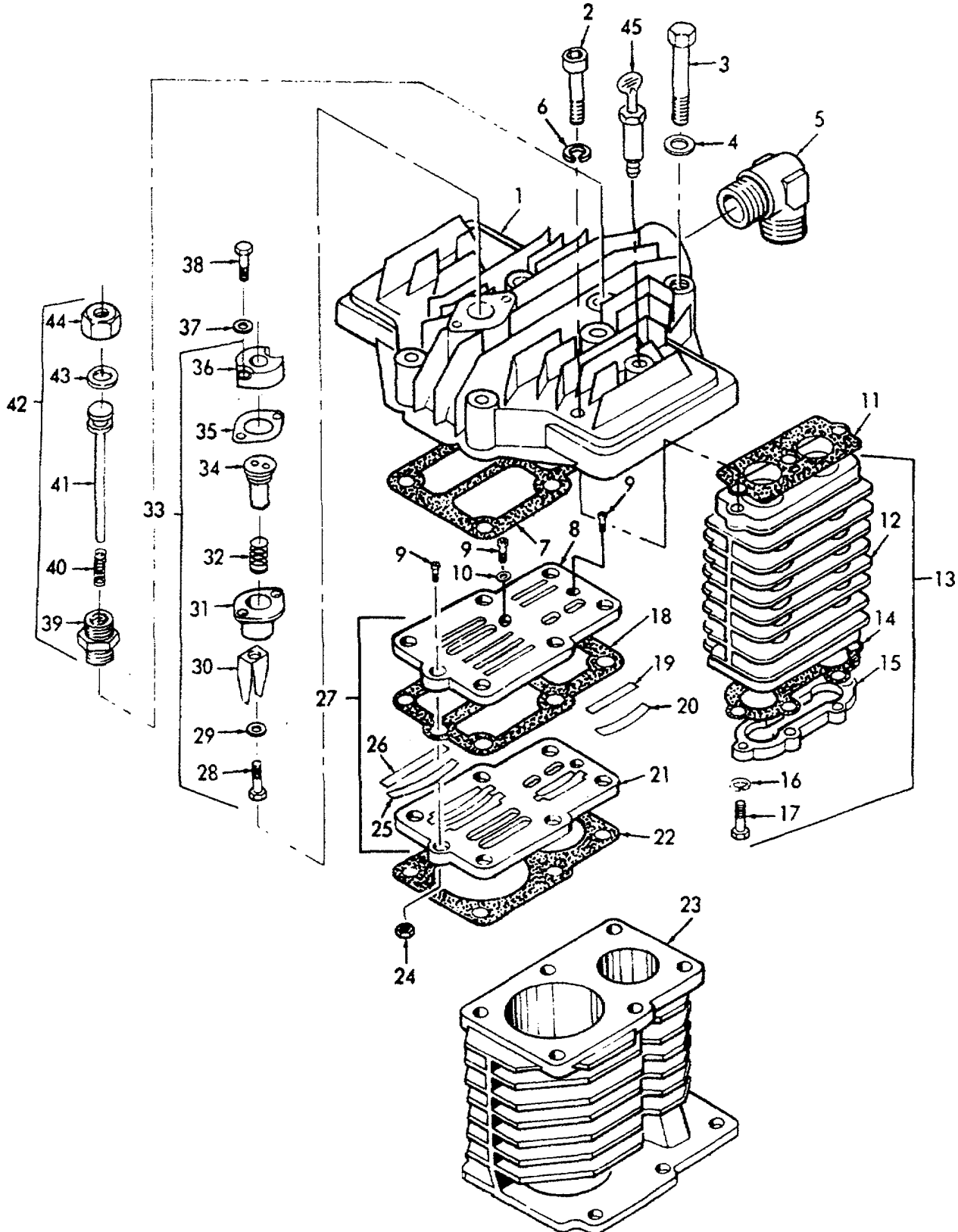


Figure 4-4. Compressor Valves and Cylinder Head, Assembly.

4-5. COMPRESSOR PISTONS AND CONNECTING RODS.

This task covers:

- a. Removal b. Cleaning c. Inspection d. Repair e. Installation
-

INITIAL SETUP

Tools Required

Tool Kit, General Mechanic's

Materials Required

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint Free (item 3, Appendix E)

Brush, Medium Bristle (item 4, Appendix E)

Equipment Condition

Engine shut down and cool.

Compressor cylinder head and valves removed (see para 4-4).

a. Removal.

- (1) Remove six screws (2) and twelve washers (3) from cylinder (1).
- (2) Carefully remove cylinder (1) and packing (4) from compressor crankcase (31).
- (3) Remove two nuts (26), two screws (21), two washers (22), rod cap (23), and lower bearing (17) from first stage rod assembly (28).
- (4) Lift first stage piston (30), first stage rod assembly (28), and upper bearing (25) from crankshaft (24).
- (5) Remove two nuts (15), two screws (20), two washers (19), rod cap (18), and lower bearing (17) from second stage rod assembly (14).
- (6) Lift second stage piston (13), second stage rod assembly (14), and upper bearing (16) from crankshaft (24).
- (7) Remove two snap rings (8) and pin (7) from first stage piston (30).
- (8) Lift first stage piston (30) from first stage rod assembly (28).
- (9) Remove two rings (5) and ring (6) from first stage piston (30).
- (10) Remove two snap rings (10) and pin (11) from second stage piston (13).
- (11) Lift second stage piston (13) from second stage rod assembly (14).

(12) Remove three rings (9) and ring (12) from second stage piston (13).

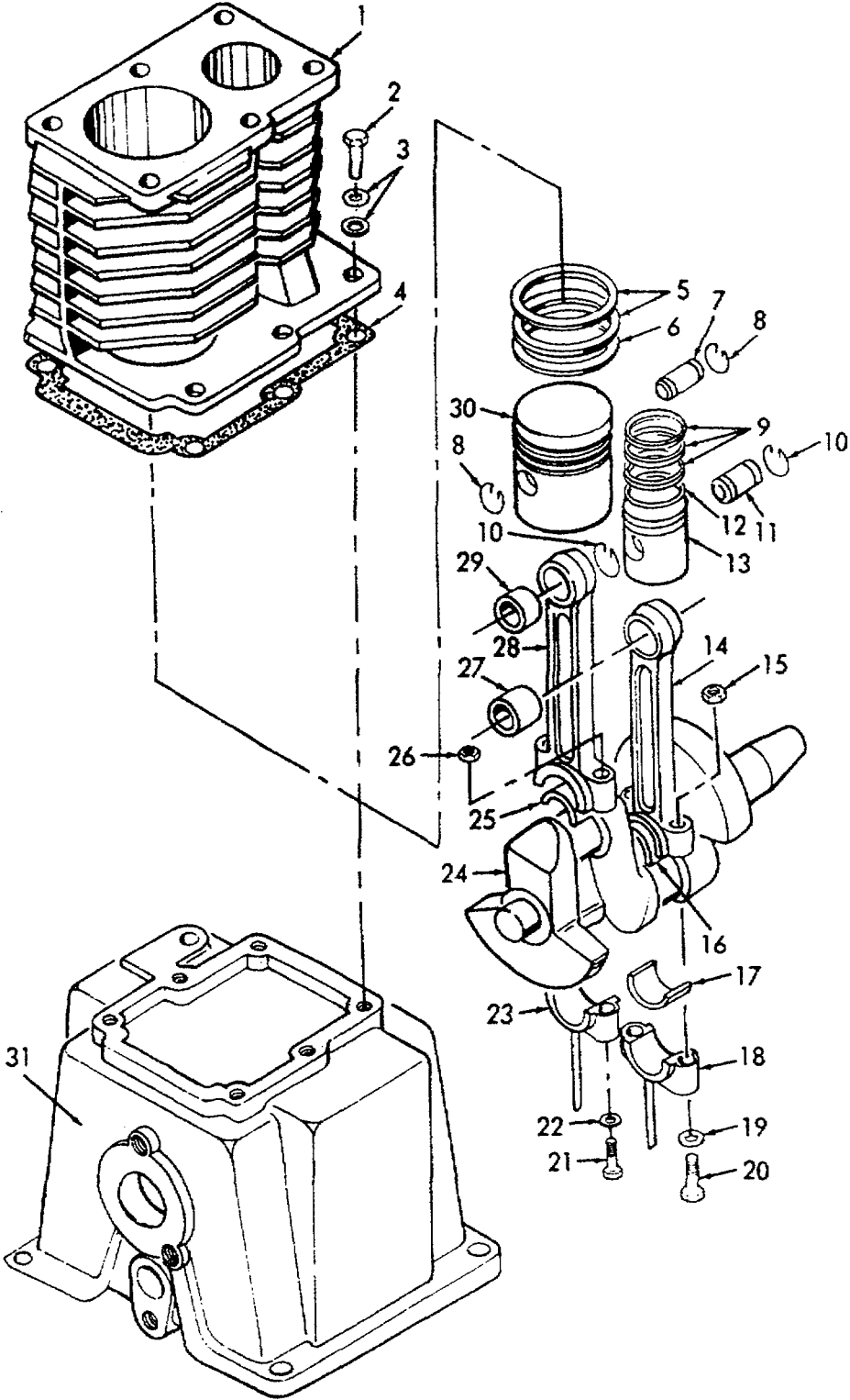


Figure 4-5. Compressor Pistons, Removal.

4-5. COMPRESSOR PISTONS AND CONNECTING RODS - Continued.*c. Cleaning.*

- (1) Clean all build up of oil and debris from all parts using a clean, soft cloth (item 3, Appendix E).

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all metal parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow all parts to dry.

d. Inspection.

- (1) Examine connecting rods and rod caps for cracks, chips, or burned surfaces. Replace rods if damaged in any way.
- (2) Inspect connecting rod bushings for burned surfaces or scoring. Replace rod if bushing is damaged in any way.
- (3) Check both pistons for cracked, scored, or burned surfaces. Replace pistons if damaged in any way.
- (4) Check all hardware and threaded parts for stripped threads. Replace any part having stripped threads.
- (5) Dimensionally inspect items listed in Table 4-2 for conformance to the dimensions indicated.

e. Repair.

Repair of pistons and connecting rods is limited to replacement of defective parts.

Table 4-2. Maximum Wear Tolerances

ITEM NOMENCLATURE	NORMAL DIMENSION	MAXIMUM ALLOWABLE WEAR
Piston Pin	21.094 mm (0.8311 in) dia.	21.080 mm (0.8306 in) dia.
First Stage Cylinder Bore	99.960 mm (3.9384 in) dia.	99.980 mm (3.9392 in) dia.
Second Stage Cylinder Bore	55.972 mm (3.1509 in) dia.	55.980 mm (3.1512 in) dia.

NOTE

Rings must be placed into properly sized cylinder before measuring gap between ends of rings.

Ring Gaps First Stage	.800 mm (.031 in) gap max.
Ring Gaps Second Stage	.550 mm (.022 in) gap max.

4-5. COMPRESSOR PISTONS AND CONNECTING RODS - Continued.*e. Installation.*

- (1) Install ring (12) and three rings (9) onto second stage piston (13).
- (2) Place second stage piston (13) onto second stage connecting rod (14) and install pin (11) and two snap rings (10).
- (3) Install ring (6) and two rings (5) onto first stage piston (30).
- (4) Place first stage piston (30) onto first stage connecting rod (28) and install pin (7) and two snap rings (8).
- (5) Place upper bearing (16), second stage piston (13) and second stage rod (14) onto crankshaft (24).

NOTE**Aline marks on rod and rod cap when assembling rods to crankshaft.**

- (6) Install lower bearing (17), rod cap (18), two washers (19), two screws (20), and two nuts (15). Torque per Appendix F.
- (7) Place upper bearing (25), first stage piston (30) and first stage rod (28) onto crankshaft (24).
- (8) Install lower bearing (17), rod cap (23), two washers (22), two screws (21), and two nuts (26). Torque per Appendix F.
- (9) Place packing (4) onto top of compressor crankcase (31).
- (10) Compress rings on first and second stage pistons and install cylinder (1) onto compressor crankcase (31).
- (11) Install twelve washers (3) and six screws (2) into cylinder (1). Torque per Appendix F.
- (12) Install cylinder head (see para 4-4).
- (13) Install cylinder head tubing assemblies (see para 3-31).
- (14) Refill compressor with oil (see para 3-2).

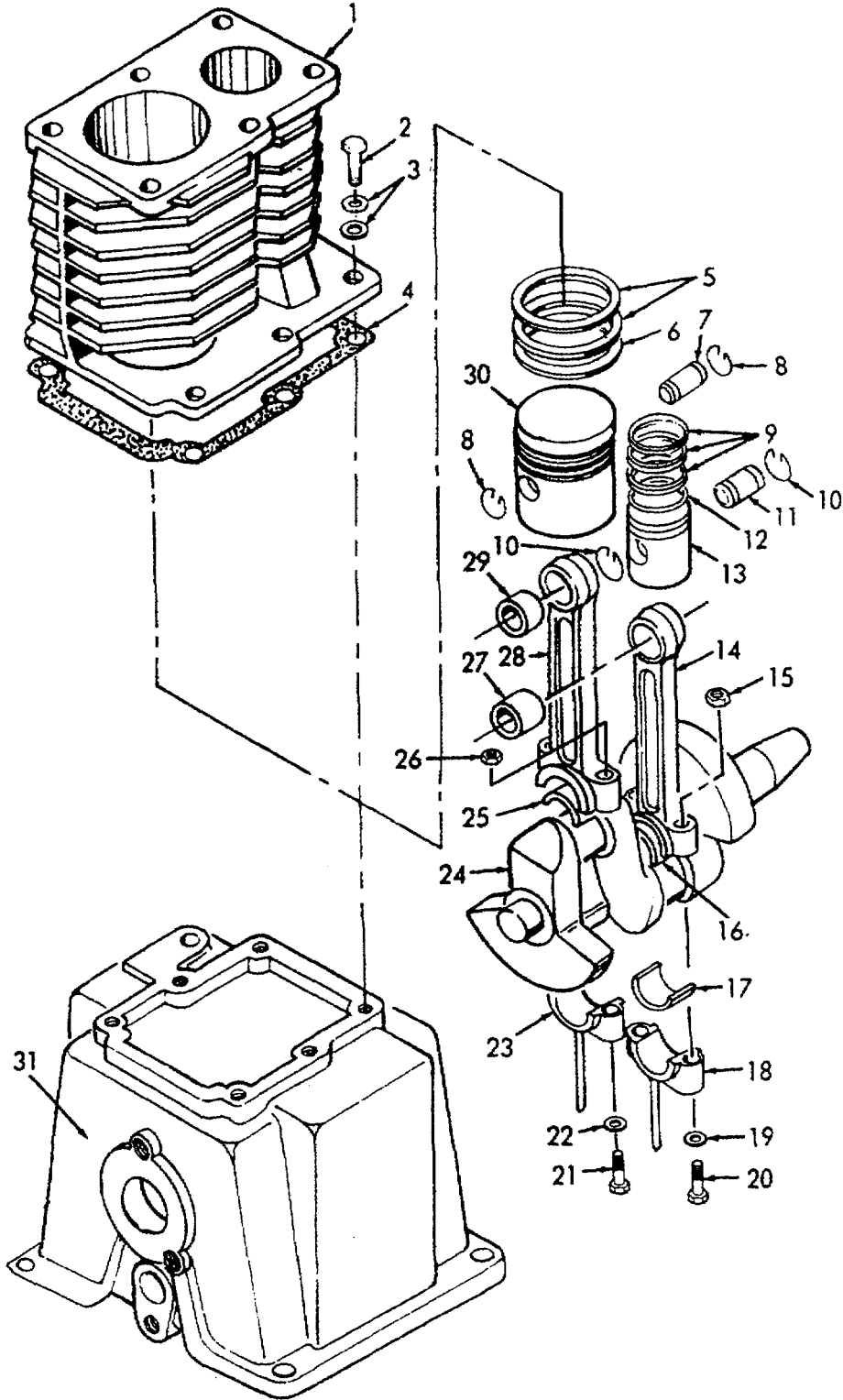


Figure 4-6. Compressor Pistons and Connecting Rods, Installation.

4-6. COMPRESSOR CRANKSHAFT, BEARINGS, SEALS, AND CYLINDER BLOCK.

This task covers:

- | | | | |
|--------------------------|-------------|---------------|-----------|
| a. Removal/Disassembly | b. Cleaning | c. Inspection | d. Repair |
| e. Assembly/Installation | | | |
-

INITIAL SETUPTools Required

Tool Kit, General Mechanic's

Materials Required

Solvent, Dry Cleaning (item 2, Appendix E)

Cloth, Lint Free (item 3, Appendix E)

Brush, Medium Bristle (item 4, Appendix E)

Equipment Condition

Engine shut down and cool.

Oil drained from compressor (see para 3-2).

Compressor cylinder head removed (see para 4-4).

Compressor pistons and connecting rods removed (see para 4-5).

a. Removal/Disassembly.

- (1) Remove three screws (1) and three washers (2).
- (2) Using two screws (1) in holes marked "A", jack cover (3) and gasket (4) from crankcase (13).
- (3) Remove four screws (7), four washers (8), cover (9), and gasket (10).
- (4) Using two screws (7) in holes marked "B", jack cover (9) and packing (10) from crankcase (13).
- (5) Remove seal (6) from front cover (9).
- (6) Remove crankshaft (12) from crankcase (13).

NOTE

Bearings must be removed from crankshaft with a press.

- (7) Remove bearings (5 and 11) from crankshaft (12).
- (8) Remove sight gage (15), shell (16), and O-ring (14).

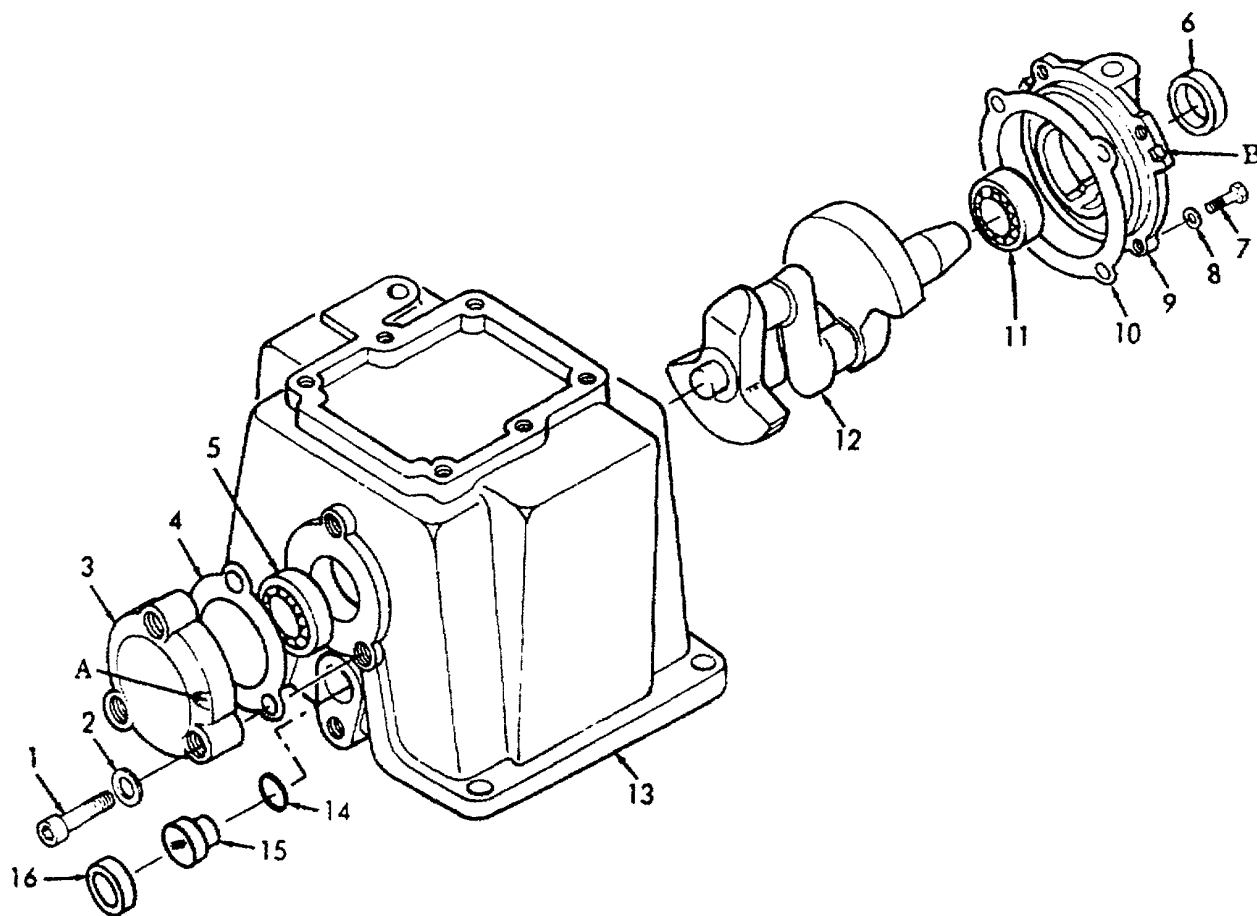


Figure 4-7. Compressor Crankshaft, Bearings, Seals, and Cylinder Block, Disassembly.

b. *Cleaning.*

- (1) Clean all build up of oil and debris from all parts using a clean, soft cloth (item 3, Appendix E).

WARNING

DO NOT breathe cleaning solvent vapors for long periods of time or use solvent near open flames. To avoid illness, explosion, or fire, only use solvent in well ventilated areas away from open flames.

- (2) Clean all parts with a clean, soft cloth (item 3, Appendix E) or medium bristle brush (item 4, Appendix E) and cleaning solvent (item 2, Appendix E).
- (3) Allow parts to dry.

4-6. COMPRESSOR CRANKSHAFT, BEARINGS, SEALS, AND CYLINDER BLOCK- Continued.*c. Inspection.*

- (1) Slowly rotate each ball bearing by hand and note movement. If bearing rotates roughly, replace it.
- (2) Check all gaskets for cracks or tears. Replace all gaskets.
- (3) Check all metal parts for cracks. Replace all cracked parts.
- (4) Measure the two crankshaft diameters indicated in Figure 4-9. If either diameter is more than 0.001 (0.025 mm) out of round, replace crankshaft .

d. Repair.

Repair is limited to replacement of defective parts only.

*e. Assembly/Installation.***NOTE****Bearings must be pressed onto crankshaft.**

- (1) Install bearing (5) and bearing (11) onto crankshaft (12).
- (2) Install gasket (4), cover (3), three washers (2), and three screws (1).
- (3) Install crankshaft (12) into crankcase (13).
- (4) Install gasket (10), cover (9), four washers (8), four screws (7), and seal (6) onto crankcase (13).
- (5) Install sight gage (16), shell (15), and O-ring (14).
- (6) Install pistons and rods (see para 4-5).
- (7) Install cylinder head (see para 4-4).
- (8) Refill compressor with oil (see para 3-2).

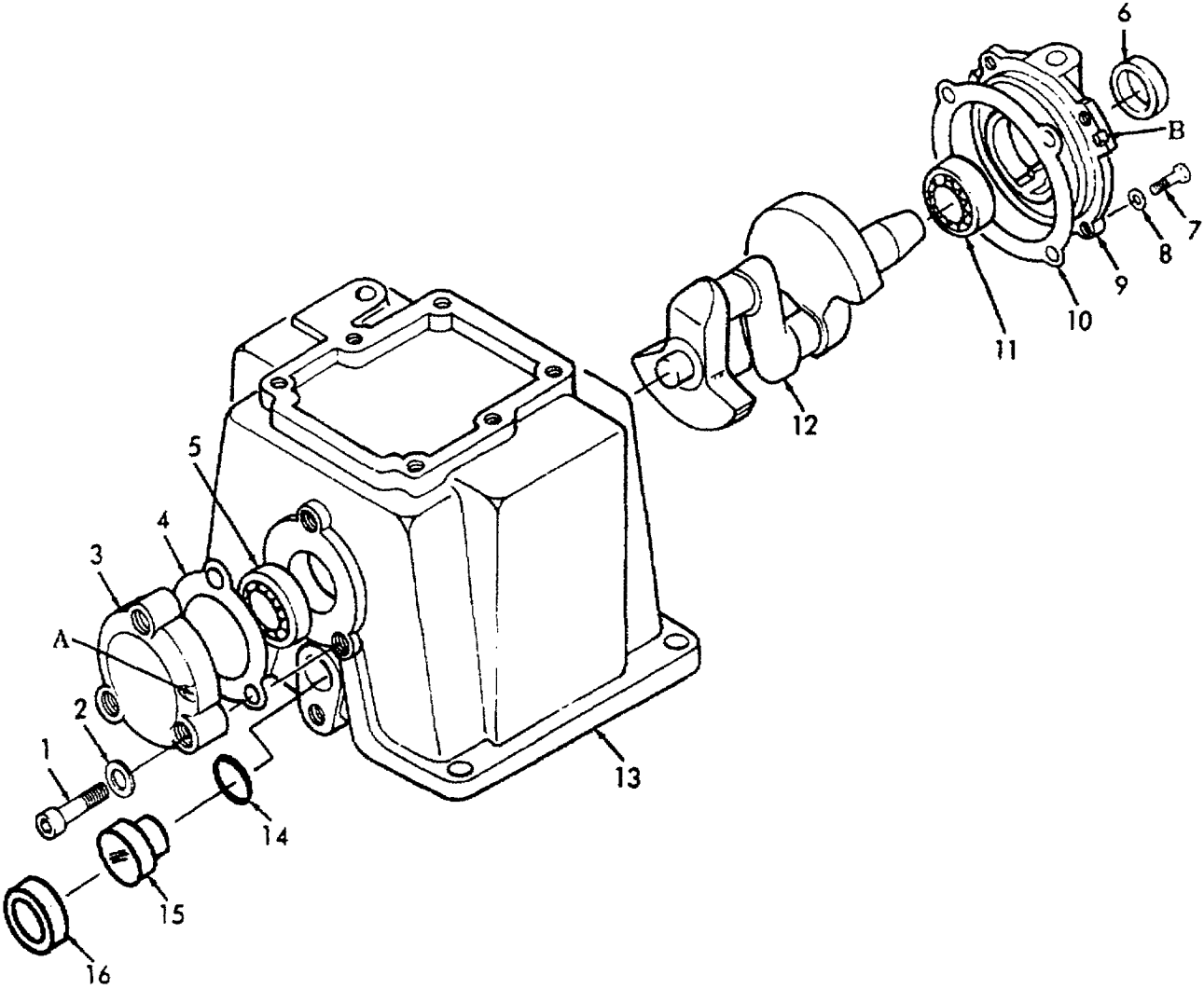


Figure 4-8. Compressor Crankshaft, Bearings, Seals, and Cylinder Block, Assembly.

APPENDIX A

REFERENCES

A-1. SCOPE.

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

A-2. FORMS.

Equipment Inspection and Maintenance Worksheet..... DA Form 2404
 Recommended Changes to DA Publications..... DA Form 2028-2
 Recommended Changes to Publications and Blank Forms DA Form 2028
 Report of Discrepancy (ROD)..... SF 364
 Quality Deficiency Report SF 368
 Equipment Control Record DA Form 2048-9

A-3. FIELD MANUALS.

First Aid for Soldiers FM 21-11

A-4. TECHNICAL MANUALS.

Destruction of Equipment to Prevent Enemy Use..... TM 750-244-3
 Administrative Storage of Equipment TM 740-90-1
 Unit and Intermediate Direct Support Maintenance Repair Parts and Special Tools List for
 Compressor Unit, Reciprocating..... TM 5-4310-382-23P

A-5. MISCELLANEOUS.

The Army Maintenance Management System (TAMMS) DA PAM 738-750
 Consolidated Index of Army Publications and Blank Forms..... DA PAM 310-1
 Army Medical Department Expendable/Durable Items CTA 8-100
 Expendable Items (Except Medical Class V, Repair Parts and Heraldic Items) CTA 50-970
 Abbreviations for Use on Drawings, Standards, Specifications, and Technical Documents MIL-STD-12
 Preservation of USAMECOM Mechanical Equipment for Shipment and Storage TB 740-94-2
 Inspection and Testing of Air and Other Gas Compressors TB 43-0151

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 categories.

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

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

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

a. *Inspect.* To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., sight, sound, or feel).

b. *Test.* To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. *Service.* Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

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

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

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

B-2. MAINTENANCE FUNCTIONS - Continued.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3rd position code of the SMR code.

i. Repair. The application of maintenance services¹, including fault location troubleshooting², removal/installation, and disassembly/assembly³ procedures, and maintenance actions⁴ to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

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

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

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II.

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00".

¹ Services - inspect, test, service, adjust, align, calibrate, and/or replace.

² Fault locate/troubleshoot - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

³ Disassemble/assemble - encompasses the step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least commonality identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

⁴ Actions - welding, grinding, riveting, straightening, facing, remachinery, and/or resurfacing.

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

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

d. *Column 4, Maintenance Category.* Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

- C.....Operator or crew
- O.....Organizational maintenance
- F.....Direct Support Maintenance
- H.....General Support Maintenance
- D.....Depot Maintenance

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

f. *Column 6, Remarks.* This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

a. *Column 1, Reference Code.* The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. *Column 2, Maintenance Category.* The lowest category of maintenance authorized to use the tool or test equipment.

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

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

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III-Continued.

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

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

a. *Column 1, Reference Code.* The code recorded in column 6, Section II.

b. *Column 2, Remarks.* This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

**Section II. MAINTENANCE ALLOCATION CHART
FOR
COMPRESSOR UNIT, RECIPROCATING, 15 CFM,
175 PSI, GASOLINE ENGINE DRIVEN**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			UNIT		INTERMEDIATE		DEPOT		
			C	O	F	H	D		
00	COMPRESSOR UNIT								
01	FUEL SYSTEM								
0101	FUEL TANK, LINES, FILTER AND FITTINGS	INSPECT REPLACE REPAIR	0.1	0.2 0.2			4	A	
02	COMPRESSOR DRIVE								
0201	BELT GUARD ASSEMBLY	INSPECT REPLACE REPAIR	0.1	0.3 0.5			4 4	B	
0202	BELTS, V, MATCHED SET, AND GUIDE	INSPECT ADJUST REPLACE	0.1 0.1	0.2			4		
0203	PULLEY, DRIVE	REPLACE		0.5			4		

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			UNIT		INTERMEDIATE		DEPOT		
			C	O	F	H	D		
0204	TAKE-UP BOLT ASSEMBLY	INSPECT ADJUST REPLACE	0.1	0.1 0.2				4 4	
03	ENGINE ASSEMBLY	REPLACE REPAIR		1.0	1.5			4 4	A
0301	AIR CLEANER	INSPECT SERVICE REPLACE	0.1	0.2 0.2				4	
0302	CARBURETOR	ADJUST REPLACE REPAIR		0.2 0.2	1.0			4 4 4	A
0303	FUEL PUMP	REPLACE		0.2				4	
0304	OIL GAGE ROD, TUBE, AND DRAIN	INSPECT REPLACE	0.1	0.2				4	
0305	MUFFLER	REPLACE		0.2				4	
0306	STARTER	INSPECT REPLACE	0.1	0.2				4	
0307	CLUTCH	INSPECT REPLACE	0.1	0.2				2, 3, 4	
0308	BLOWER HOUSING	REPLACE REPAIR		0.2 0.2				4 4	A
0309	IGNITION SYSTEM	ADJUST REPLACE		0.1 0.5				1, 4 4	
0310	GOVERNOR LINK-AGE AND THROTTLE LINKAGE	ADJUST REPLACE		0.2 0.2				4 4	
0311	CYLINDER HEAD	REPLACE		0.2				4	
04	COMPRESSOR AS-SEMBLY								
0401	AIR CLEANER ASSEMBLY	INSPECT SERVICE REPLACE	0.1	0.2 0.2				4 4	

SECTION II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			UNIT		INTERMEDIATE		DEPOT		
			C	O	F	H	D		
0402	OIL FILLER CAP, PLUG, AND DRAIN	INSPECT REPLACE	0.1	0.2				4	
0403	TUBE ASSEMBLIES	REPLACE		0.2				4	
0404	ENGINE SPEED CONTROL	REPLACE		0.2				4	
0405	FAN AND PULLEY	INSPECT REPLACE		0.2 0.3				4	
0406	VALVES, INTAKE AND EXHAUST, AND CYLINDER HEAD	INSPECT REPLACE REPAIR			0.2 0.3 0.6			4 4	A
0407	PISTONS AND CONNECTING RODS	INSPECT REPLACE REPAIR			0.4 0.6 0.7			4 4	A
0408	CRANKSHAFT, BEARINGS, SEALS, AND CYLINDER BLOCK	INSPECT REPLACE REPAIR			0.3 0.8 1.0			4 4	A
05	AIR DISCHARGE SYSTEM								
0501	HOSE	INSPECT REPLACE	0.1	0.2				4	
0502	INFLATOR GAGE	INSPECT REPLACE	0.1	0.2				4	
06	AIR RECEIVER SYSTEM								
0601	RELIEF VALVES	INSPECT REPLACE	0.1	0.1				4	
0602	AIR GAGE	INSPECT REPLACE	0.1	0.1				4	

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			UNIT		INTERMEDIATE		DEPOT		
			C	O	F	H	D		
0603	DRAIN COCK	INSPECT REPLACE	0.1	0.1				4	
0604	AIR VALVE, TANK	REPLACE		0.2				4	
0605	AIR TANK	REPLACE		2.0				4	

Section III. TOOL AND TEST EQUIPMENT REQUIREMENT

(1) REFERENCE CODE	(2) MAINTENANCE CATEGORY	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER (NSN)	(5) TOOL NUMBER
1	O	PULLER, MECHANICAL	5120-00-116-7599	
2	O	WRENCH, STARTER	5120-00-861-0787	
3	O	HOLDER, FLYWHEEL	5120-00-861-5738	
4	O, F	TOOL KIT	5180-00-177-7033	

Section IV. REMARKS

REFERENCE CODE	REMARKS
A	REPAIR IS LIMITED TO REPLACEMENT OF DEFECTIVE COMPONENTS.
B	STRAIGHTEN ANY PORTION OF SCREEN BELT GUARD WHICH MAY BE DEFORMED.

APPENDIX C

COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

C-1. SCOPE. This appendix lists components of end item and basic issue items for the air compressor unit to help you inventory items required for safe and efficient operation.

C-2. GENERAL. The Components of End Item and Basic Issue Items List are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue items. These are the minimum essential items required to place the air compressor unit in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the air compressor unit during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

C-3. EXPLANATION OF COLUMNS. The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustrated Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

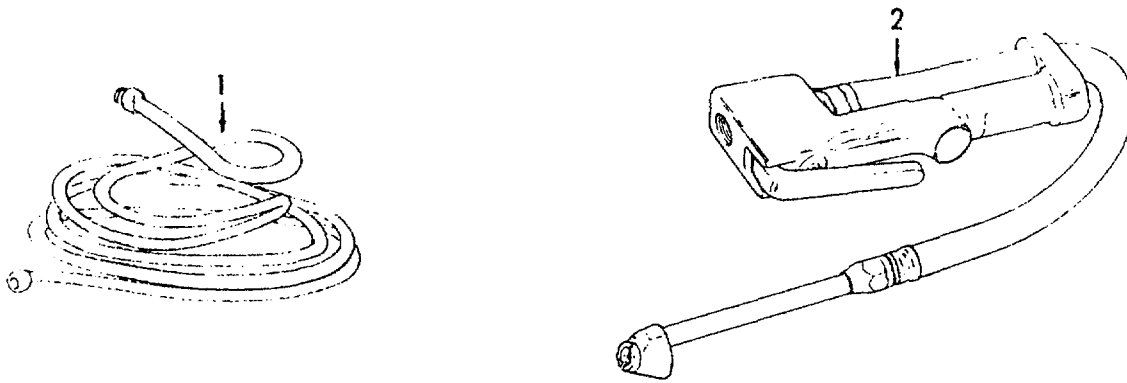
b. Column (2) - National Stock Number. Indicates the National Stock Number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr).

e. Column (5) - Quantity Required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	(4) USABLE ON CODE U/M	(5) QTY RQR
1		HOSE ASSEMBLY, AIR (16004) 85403	EA	1
2	4910-00-030-2369	GAUGE, INFLATOR (94894) 61J2-1506	EA	1

Section III. BASIC ISSUE ITEMS

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	(4) USABLE ON CODE U/M	(5) QTY RQR
		TM 5-4310-382-13 OPERATOR'S UNIT, AND INTERMEDIATE DIRECT SUPPORT MAINTENANCE MANUAL	EA	1
		TM 5-4310-382-23P UNIT AND INTER- MEDIATE DIRECT SUPPORT MAINTEN- ANCE REPAIR PARTS AND SPE- CIAL TOOLS LIST	EA	1

APPENDIX D

ADDITIONAL AUTHORIZATION LIST (AAL)

Section I. INTRODUCTION

D-1. SCOPE. This appendix lists additional items you are authorized for the support of the air compressor unit.

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

D-3. EXPLANATION OF LISTING. National Stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you. When the item you require differs between serial numbers of the same model, effective serial numbers will be shown in the last line of the description. When item required differs for different models of this equipment, the model will be shown under the "Usable ON" heading in the description column. When no code appears, the item(s) is applicable to all models. At this printing only one model is covered in this publication. The code assigned to this model is:

Code	Used On
EDA	Model 10GT8G

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM AND PART NUMBER	(3) USABLE ON CODE U/M	(4) QTY AUTH
7520-00-559-9618	COTTON DUCK CASE	EA	1
7510-00-889-3494	LOG BOOK BINDER	EA	1
4240-00-622-2946	PROTECTOR, AURAL	PR	1
4210-00-555-8837	FIRE EXTINGUISHER	EA	1

APPENDIX E

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. SCOPE. This appendix lists expendable/durable supplies and materials you will need to operate and maintain the air compressor unit. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items or CTA 8-100, Army Medical Department Expendable/Durable Items).

E-2. EXPLANATION OF COLUMNS.

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. E").

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item. These levels are:

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

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

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

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

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	O, F	9150-00-181-9858	OIL, LUBRICATING (MIL-L-2104) (81349)	GAL
2	O, F	6850-00-274-5421	SOLVENT, DRY CLEANING (P-D-680)	GAL
3	O, F	7920-00-205-1711	CLOTH, LINT-FREE	LB
4	O	8020-00-263-3873	BRUSH, MEDIUM, OVAL	EA
5	O	7930-00-068-1669	SOAP, MILD	GAL
6	O, F	9150-01-069-6857	GREASE	
7	O	8030-01-044-5034	COMPOUND, ANTISEIZE	LB
8	O	8030-00-889-3534	TAPE, ANTISEIZE	EA

APPENDIX F

TORQUE TABLE

Section I. INTRODUCTION

F-1. SCOPE. This appendix lists standard torque values in both foot-pounds (ft-lbs) and equal metric values in kilogram-meters (kg-m) for the standard and metric thread sizes used on the air compressor unit.

F-2. SPECIAL TORQUE LIMITS. Special torque limits are found in the narrative portion of the maintenance procedures for applicable components.

Section II. TORQUE LIMITS

THREAD SIZE	HD SIZE	FT-LBS	KG-M
4-40NC		0.4	0.06
8-32NC		1.5	0.21
10-24NC		1.9	0.27
10-32NF		2.7	0.37
M5	8 MM	5.0	0.68
1/4-20NC	7/16 inch	6.7	0.92
M8	13 mm	18.0	2.44
3/8-16NC	9/16 inch	20.8	2.88
M10	17 mm	31.0	4.21
1/2-13NC	3/4 inch	45.8	6.34
M12	19 mm	60.0	8.14

GLOSSARY

GLOSSARY 1. ABBREVIATIONS. Refer to paragraph 1-6 for explanation of abbreviations used throughout this manual.

GLOSSARY 2. GLOSSARY OF TERMS. The glossary of terms used in this manual are listed below.

- Equipment..... Compressor Unit, Reciprocating, Gasoline
Engine Driven, Tank Mounted.
- Front Side of the unit facing the motor control box.
- Left end..... Left-hand end of the unit facing the front.
- Manufacturer Curtis-Toledo, Incorporated, St. Louis, MO 63133
(FSCM 55921).
- Rear..... Side of unit facing the belt guard.
- Right end Right-hand end of the unit facing the motor control box.
- Unit..... See "Equipment" above.

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

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

DATE SENT

PUBLICATION NUMBER: **TM 5-4310-382-13**

PUBLICATION DATE: **9 May 1988**

PUBLICATION TITLE: **COMPRESSOR UNIT, RECIPROCATING, 15CFM, 175PSI, GASOLINE ENG. DRIVEN**

BE EXACT. PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	
6	2-1 a			<i>In line 6 of paragraph 2-1a the manual states the engine has <u>6</u> cylinders. The engine on my set only has <u>4</u> cylinders. Change the manual to show <u>4</u> cylinders.</i>
B1		4-3		<i>Callout 16 on figure 4-3 is pointing at a <u>bolt</u>. In key to figure 4-3, item 16 is called a <u>shim</u> - Please correct one or the other.</i>
125	line 20			<i>I ordered a gasket, item 19 on figure B-16 by NSN 2 910-05-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN</i>

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

SIGN HERE: **JOHN DOE**

TEAR ALONG PERFORATED LINE

REVERSE OF DA FORM 2026-2 Reverse of DRSTS-M Overprint 2,
1 Nov 80

FILL IN YOUR
UNIT'S ADDRESS

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DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD 314



TEAR ALONG PERFORATED LINE

COMMANDER
U S ARMY TROOP SUPPORT COMMAND
ATTN: AMSTR-MCTS
4300 GOODFELLOW BOULEVARD
ST. LOUIS, MO 63120-1796

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

TM 5-4310-382-13

PUBLICATION DATE

9 May 1988

PUBLICATION TITLE

COMPRESSOR UNIT, RECIPROCATING,
15CFM, 175 PSI, GASOLINE ENG. DRIVEN

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO

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

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

TEAR ALONG PERFORATED LINE

DA FORM 2028-2 JUL 79

PREVIOUS EDITIONS ARE OBSOLETE. DRSTS-M Overprint 2, 1 Nov 80.

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

REVERSE OF DA FORM 2026-2 Reverse of DRSTS-M Overprint 2,
1 Nov 80

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UNIT'S ADDRESS

FOLO BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD 314



TEAR ALONG PERFORATED LINE

COMMANDER
U S ARMY TROOP SUPPORT COMMAND
ATTN: AMSTR-MCTS
4300 GOODFELLOW BOULEVARD
ST. LOUIS, MO 63120-1796

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280 feet

Weights

1 centigram = 10 milligrams = .154 grains
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 8.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

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

Square Measure

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

Cubic Measure

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

Approximate Conversion Factors

To Change	To	Multiply by	To Change	To	Multiply by
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

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

