

**TECHNICAL MANUAL**

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

**SPRAY OUTFIT, PAINT  
MODEL 50-6609  
NSN 4940-00-255-8683**

---

**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**22 JUNE 1979**

## **WARNING**

Do not fill gasoline tank while engine is in operation.

Do not operate the engine in an enclosed area unless exhaust is piped to the outside.

Shut off engine ignition switch prior to any maintenance

Release pressure from tank and compressor before disassembly of equipment.

Do not operate paint spray outfit with the belt guard removed.

Do not immerse respirator in paint thinner.

Always wear your respirator while spraying paint.

CHANGE  
NO. 4

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

Operator, Unit, Direct Support and General Support  
Maintenance Manual

**SPRAY OUTFIT, PAINT  
MODEL 50-6609  
NSN 4940-00-255-8683  
EIC: YEZ**

Approved for public release; Distribution is unlimited

TM 5-4940-228-14, 22 June 1979 is changed as follows:

1. The title is changed as shown above.
2. 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.

Remove pages

Insert pages

B-1 and B-2

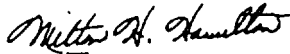
B-1 and B-2

3. Retain this sheet 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*

03004

**DISTRIBUTION:**

To be distributed in accordance with DA Form 12-25-E, block no. 1639, requirements for  
TM 5-4940-228-14.

CHANGE }  
NO. 3 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 21 March 1988

Operator, Unit, Direct Support  
and General Support Maintenance Manual

SPRAY OUTFIT, PAINT  
MODEL 50-6609  
NSN 4940-00-255-8683

TM 5-4940-228-14, 22 June 1979, 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.

Remove pages

3-3 through 3-6  
B-1 and B-2

Insert pages

3-3 through 3-6  
B-1 and B-2

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

**By Order of the Secretary of the Army:**

**CARL E. VUONO**  
*General, United States Army*  
*Chief of Staff*

**Official:**

**R.L.DILWORTH**  
*Brigadier General, United States Army*  
*The Adjutant General*

**DISTRIBUTION:**

To be distributed in accordance with DA Form 12-25A, Operator, Unit, Direct Support and General Support Maintenance requirements for Spray Outfit, Paint (50-6609)

CHANGE }  
NO. 2 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 6 July 1987

Operator, Unit, Direct Support  
and General Support Maintenance Manual

SPRAY OUTFIT, PAINT  
MODEL 50-6609  
NSN 4940-00-255-8683

TM 5-4940-228-14, 22 June 1979, 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.

Remove pages

i and ii  
1-1 and 1-2  
3-1 and 3-2  
-----

Insert pages

i and ii  
1-1 and 1-2  
3-1 and 3-2  
4-2.1/4-2.2

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

**By Orde of the Secretary of the Army:**

**CARL E. VUONO**  
*General, United States Army*  
*Chief of Staff*

**Official:**

**R.L.DILWORTH**  
*Brigadier General, United States Army*  
*The Adjutant General*

**DISTRIBUTION:**

To be distributed in accordance with DA Form 12-25A, Operator, Organizational, Direct and General Support Maintenance requirements for Spray Outfit, Paint (50-6609)

CHANGE }  
NO. 1 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 6 February 1984

OPERATOR, ORGANIZATIONAL, DIRECT  
AND GENERAL SUPPORT MAINTENANCE MANUAL

SPRAY OUTFIT, PAINT  
MODEL 50-6609  
NSN 4940-00-255-8683

TM 5-4940-228-14, 22 June 1979, is changed as follows:

1. Remove and insert pages as indicated below.

	Remove pages	Insert pages
Table of Contents	i and i i	i and ii
Chapter 1	1-1 and 1-2	1-1 and 1-2
Appendix B	B-1 thru B-3	B-1 thru B-3/B-4

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

3. Retain this sheet in front of manual for reference purposes.

By Order of the Secretary of the Army:

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

Official:

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

DISTRIBUTION:

To be distributed in accordance with DA Form 12-28, Operator Maintenance requirements for Respirators, Paint Spray.

Technical Manual  
 No. 5-4940-228-14

HEADQUARTERS  
 DEPARTMENT OF THE ARMY  
 WASHINGTON, D.C. 22 June 1979

**OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT  
 AND GENERAL SUPPORT MAINTENANCE MANUAL**  
**SPRAY OUTFIT, PAINT**  
**(ECLISPE SYSTEMS, INC. MODEL 50-6609)**  
**NSN 4940-00-255-8683**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

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

TABLE OF CONTENTS

	Page
CHAPTER 1. INTRODUCTION	
Section I. General . . . . .	1-1
II. Description and Data . . . . .	1-1
CHAPTER 2. OPERATING INSTRUCTIONS	
Section I. Operating Procedures . . . . .	2-1
II. Operation Under Unusual Conditions. . . . .	2-11
CHAPTER 3. OPERATOR/CREW MAINTENANCE INSTRUCTIONS	
Section I. Lubrication Instructions . . . . .	3-1
II. Preventive Maintenance Checks and Services (PMCS). . . . .	3-1
III. Troubleshooting . . . . .	3-1
IV. Maintenance Procedures . . . . .	3-1
CHAPTER 4. ORGANIZATIONAL MAINTENANCE INSTRUCTIONS	
Section I. Service Upon Receipt of Materiel . . . . .	4-1
II. Movement to a New Worksite . . . . .	4-1
III. Repair Parts, Special Tools and Equipment. . . . .	4-1
IV. Lubrication Instructions . . . . .	4-1
V. Preventive Maintenance Checks and Services (PMCS). . . . .	4-2
VI. Troubleshooting . . . . .	4-2
VII. Radio Interference Suppression. . . . .	4-2
VIII. Maintenance of Spray Gun.... . . . .	4-2
IX. Maintenance of Pressure Tank.. . . .	4-5
CHAPTER 5. <u>DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE</u> <u>INSTRUCTIONS</u>	
Section I. Repair Parts, Special Tools and Equipment . . . . .	5-1
II. Troubleshooting . . . . .	5-1
III. General Maintenance . . . . .	5-1
IV. Removal and Installation of Major Components and Assemblies . . . . .	5-1

	Page
CHAPTER 6. REPAIR OF SPRAY COMPONENTS	
Section I. Pressure cup .....	6-1
II. Extension.....	6-3
III. Hoses.....	6-3
CHAPTER 7. REPAIR OF REGULATORS .....	7-1
CHAPTER 8. REPAIR OF AIR MOTOR .....	8-1
CHAPTER 9. REPAIR OF COMPRESSOR .....	9-1
APPENDIX A. REFERENCES .....	A-1
B. COMPONENTS OF END ITEM LIST .....	B-1
C. MAINTENANCE ALLOCATION CHART .....	C-1
D. EXPENDABLE SUPPLIES AND MATERIALS LIST .....	D-1
INDEX .....	Index 1



## LIST OF ILLUSTRATIONS

Figure	Title	Page
1-1.	Spray Outfit Model 50.M09 .....	1-2
2-1.	Compressor Assembly, Top View.....	2-2
2-2.	Pulsation Chamber Controls.....	2-3
2-3.	Pressure Tank Controls .....	2-4
2-4.	Connection of Spray Components.....	2-5
2-5.	Respirator.....	2-6
2-6.	Unloader Pilot Valve.....	2-8
2-7.	Spray Technique.....	2-10
3-1.	Lubrication Order.....	3-2
4-1.	Spray Gun.....	4-3
4-2.	Pressure Tank .....	4-6
5-1.	Compressor Assembly.....	5-5
6-1.	Pressure Cup .....	6-2
6-2.	Extension.....	6-4
6-3.	Hose Assembly .....	6-5
7-1.	Regulator .....	7-2
8-1.	Air Motor .....	8-2
9-1.	Compressor .....	9-2
9-2.	Unloader Assembly .....	9-4
9-3.	Valve Assembly .....	9-5
9-4.	Piston Assembly.....	9-6

# CHAPTER 1

## INTRODUCTION

### Section I. GENERAL

#### 1-1. Scope.

This manual is for your use in operating and maintaining the Paint Spray Outfit Model 50-6609.

#### 1-2. Maintenance Forms and Records.

Equipment maintenance forms and procedures for their use are contained in DA PAM 738-750, the Army Maintenance Management System (TAMMS).

##### 1-2.1. Hand Receipt.

Hand receipts covering the End Item, components of End Item (COEI), Basic Issue Items (BII) and Additional Authorization List (AAL) items are published in a Hand Receipt Manual. The Hand Receipt Manual numerical designation is the same as the related Technical Manual with the letters HR added to the number. These manuals are published to aid in property accountability and are available through: Commander, US Army Adjutant General Publication Center, ATTN: AGDL-OD, 2800 Eastern Boulevard, Baltimore, MD 21220.

#### 1-3. Administrative Storage.

Refer to TM 740-90-1 for administrative storage requirements.

#### 14. Equipment Serviceability Criteria (ESC).

This equipment is not covered by an ESC.

#### 1-5. Destruction of Army Material to Prevent Enemy use.

Refer to TM 750-244-3 for destruction requirements.

#### 1-6. Quality Assurance/Quality Control (QA/QC).

No QA/QC manual containing the applicable requirements exist.

#### 1-7. Reporting Equipment Improvement Recommendations (EIR).

EIR's will be prepared on SF 368, Quality Deficiency Report. Instructions for preparing EIR's are provided in DA PAM 738-750, the Army Maintenance Management System. EIR's should be mailed directly to: Commander, US Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Boulevard, St. Louis, Missouri 63120-1798. A reply will be furnished directly, to you.

### Section II. DESCRIPTION AND DATA

#### 1-8. Description.

The Model 50-6609, Paint Spray Outfit, is a two spray gun, portable type, gasoline engine driven, two wheel, cart mounted compressor complete with the necessary controls and equipment to allow two persons to paint simultaneously. A large wooden chest is supplied for movement and storage of all the paint spray equipment, excluding the compressor assembly. Within this chest are stored two spray guns, two pressure cups, one extension, two 5-gallon agitated pressure tanks, four red 50-foot air hoses, two red 25-foot air hoses, two black 25-foot fluid hoses and two respirators (Fig. 1-1). The maintenance paragraphs of this manual contain detailed descriptions of each individual paint spray component.

#### 1-9. Tabulated Data.

a. The Paint Srpay Outfit has the following major identification plates:

(1) The manufacturer's plate, located on the right side of the cart, centered between wheel and handle, lists name of manufacturer, type of equipment, model number, contract number, FSN, serial number, and date of manufacture (Fig. 2-2).

(2) The engine plate, located on flywheel cover, lists model number, NSN, serial number, and important data relating to the engine.

(3) The pressure paint tank plate, located on the tank skirt, lists name of manufacturer, model number, contract number, date of manufacture, and description.

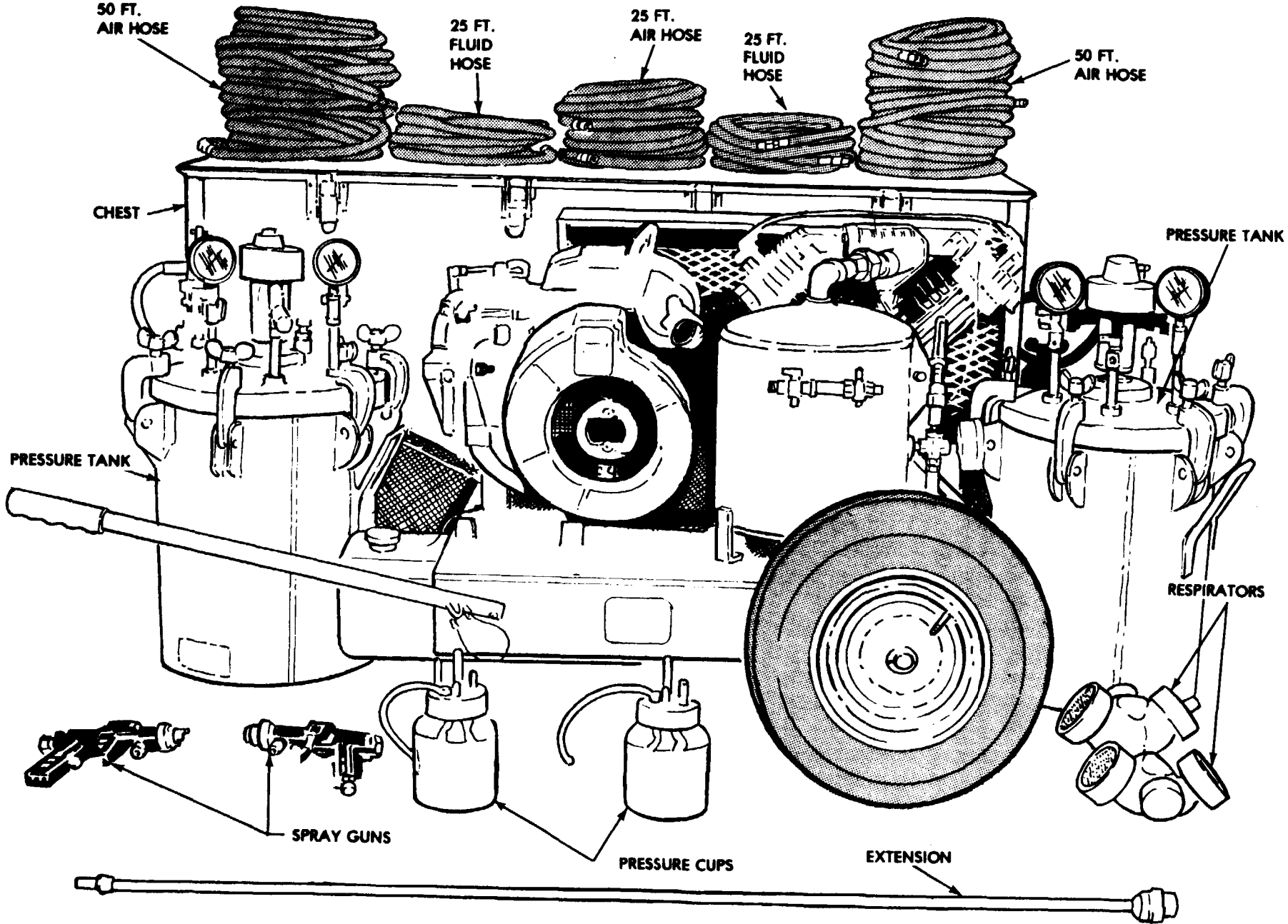


Figure 1-1. Paint Spray Outfit

**b.** Tabulated data, operator maintenance.

**Chest Dimensions**

Length .....	56 in. (142.24 cm)
Width .....	19 in. (48.26 cm)
Height .....	27 in. (68.58 cm)
Weight .....	240 lb (108.86 kg)

**compressor Assembly Dimensions**

Length .....	39 in. (99.06 cm)
Width .....	35 in. (88.90 cm)
Height .....	29 in. (73.66 cm)
Weight .....	350 lb (158.76 kg)

**Component Capacities**

Fuel tank .....	2 gal. (7.527 l)
Engine crankcase .....	4/5 qt (0.757 l)
Compressor crankcase .....	1 qt (0.946 l)

**c.** Tabulated data, organizational maintenance.

**Pressure Tank Data**

Manufacturer .....	Eclipse Systems, Inc.
Capacity .....	5 gal. (18.9 l)
Type .....	Air motor agitated
Model .....	50-6635

**d.** Tabulated data, direct and general support maintenance.

**Nut and Bolt Torque Data.**

**Compressor**

Cylinder head bolts .....	250 in-lbs (44,650 gr cm)
Cylinder stud bolts .....	250 in-lbs (44,650 gr cm)
Tank bolts .....	350 in-lbs (62,510 gr cm)
Connecting rod bolts .....	250 in-lbs (44,650 gr cm)
Bearing housing bolts .....	225 in-lbs (40,185 gr cm)

**Compressor data**

Manufacturer .....	E. L. Smith & Sons Co.
Model .....	V-230
Type .....	Single stage reciprocating
Capacity free air .....	16.6 cfm (0.464 cmm)
Speed .....	1050 rpm
Displacement .....	19.7 cfm (0.5516 cmm)
Number of Cylinders .....	4
Bore and stroke .....	2 5/8 x 2 in (6.67 x 5.08 cm)
Maximum working pressure..	150 psi
Rotation .....	Counterclockwise
<b>Capacity</b>	
Pulsation chamber (air) .....	3 1/2 gal. (13.25 l)

## CHAPTER 2

### OPERATING INSTRUCTIONS

---

#### Section I. OPERATING PROCEDURES

##### 2-1. General.

Operation of the Model 50-6609 paint spray outfit must be in accordance with instructions contained in this chapter. Procedures for achieving the type of operating indicated in the following paragraphs are provided for operation under normal conditions. For operation under unusual or extreme conditions, refer to Section II.

##### 2-2. Preparation for Starting.

Before starting the compressor assembly, you should prepare it for operation in accordance with the following paragraphs (Fig. 2-1):

*a.* Perform daily preventive maintenance procedure. (Refer to Chapter 3)

*b.* Place the compressor assembly on a reasonably level area in a well ventilated, dust-free location.

*c.* Remove engine oil level gage; check oil level. Add oil if necessary.

*d.* Remove dipstick from compressor and check oil level. Two marks are near the end of the dipstick; correct oil level is when oil on the dipstick is between both marks and the bottom. (Fig. 2-1) Add oil, if below lower mark.

##### **NOTE**

***Oil level checks will be in error if compressor assembly is not level.***

*e.* Check gasoline tank to be certain sufficient gasoline is in the tank by removing gasoline tank cap and looking inside. Use regular grade gasoline.

*f.* Keep cart mounted compressor assembly as far as possible from the painting operation so that paint does not clog the engine and compressor cooling fins or filters.

##### **WARNING**

**Do not operate the Paint Spray Outfit in an enclosed area unless the exhaust gases are piped to the outside. Inhalation of exhaust fumes will result in serious illness or death.**

*g.* If both sets of paint spray equipment are to be

used, connect both 50 foot lengths of red air hose to air valves on pulsation chamber (Fig. 2-2). Connect opposite ends of red air hoses to each air inlet valve on the pressure (paint) tanks (Fig. 2-3). If necessary, two 50 foot lengths of red air hose can be coupled together; this will allow you to move pressure tanks in a 100 foot circle of the compressor.

*h.* Connect one end of each 25 foot length of red air hose to the air shutoff valve on each pressure tank (Fig. 2-3). Connect the opposite end of each red air hose to the air connection on the bottom of each spray gun (Fig. 2-4).

*i.* Connect one end of each 25 foot black fluid hose to the fluid hose connection on each pressure tank (Fig. 2-3). Connect the other end of each black fluid hose to the fluid connection on the bottom of the spray gun head on each spray gun (Fig. 2-4).

##### **CAUTION**

**Never use red air hose for fluid. Black fluid hoses have a special lining to resist chemical properties of solvents and thinners.**

##### 2-3. Paint Preparation.

The Paint Spray Outfit can be used to apply any clean paint of a consistency as used for hand-brush application. Mix the necessary amounts of paint and thinner. Strain the paint through cheese cloth and pour into pressure tank insert pail. The pressure tank is equipped with an air motor agitator which will allow you to stir paint as necessary during the painting operation.

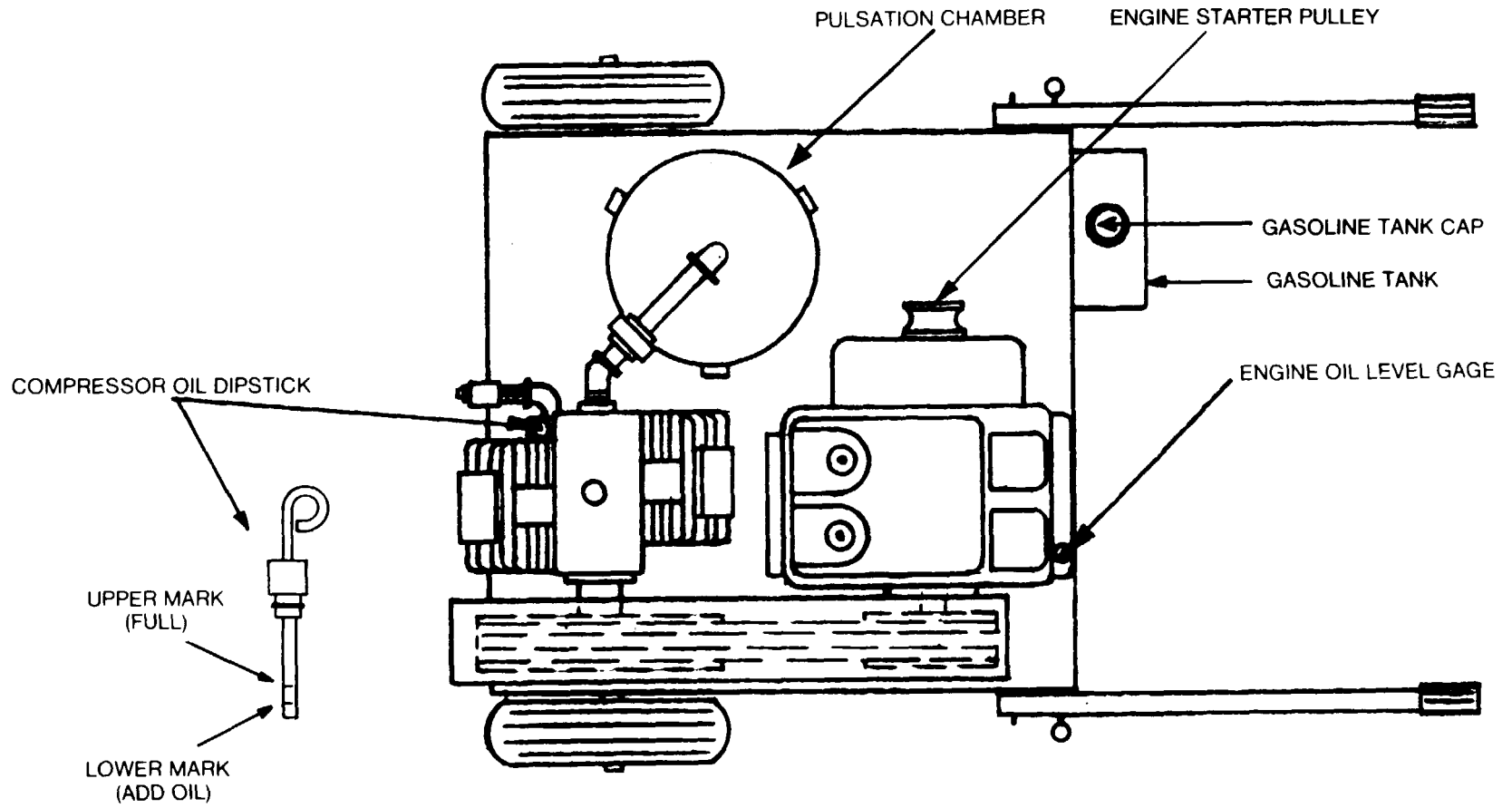
##### 2-4. Preparation of Respirators.

Refer to Figure 2-5 and proceed as follows:

*a.* Remove facepiece (10) from container, remove two cartridges (3), two prefilters (2) and two filter covers (1) from plastic bags.

*b.* Place one prefilter on each cartridge and press filter cover over each prefilter and cartridge to hold prefilter in place.

*c.* Screw both cartridges into facepiece.



TS-4940-228-14/2-1

Figure 2-1. Compressor Assembly, Top View

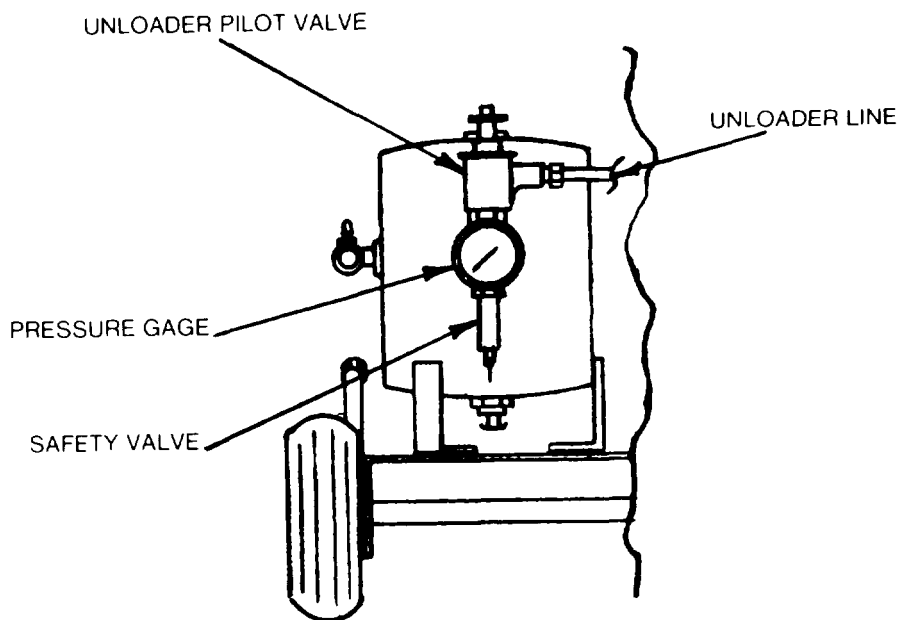
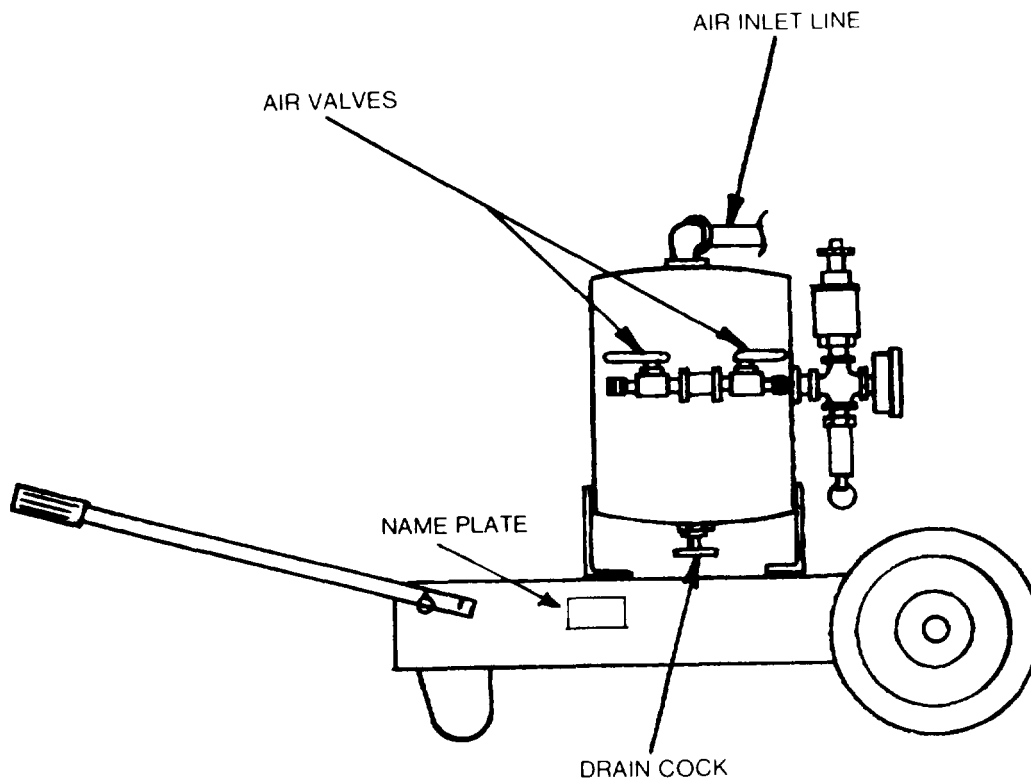
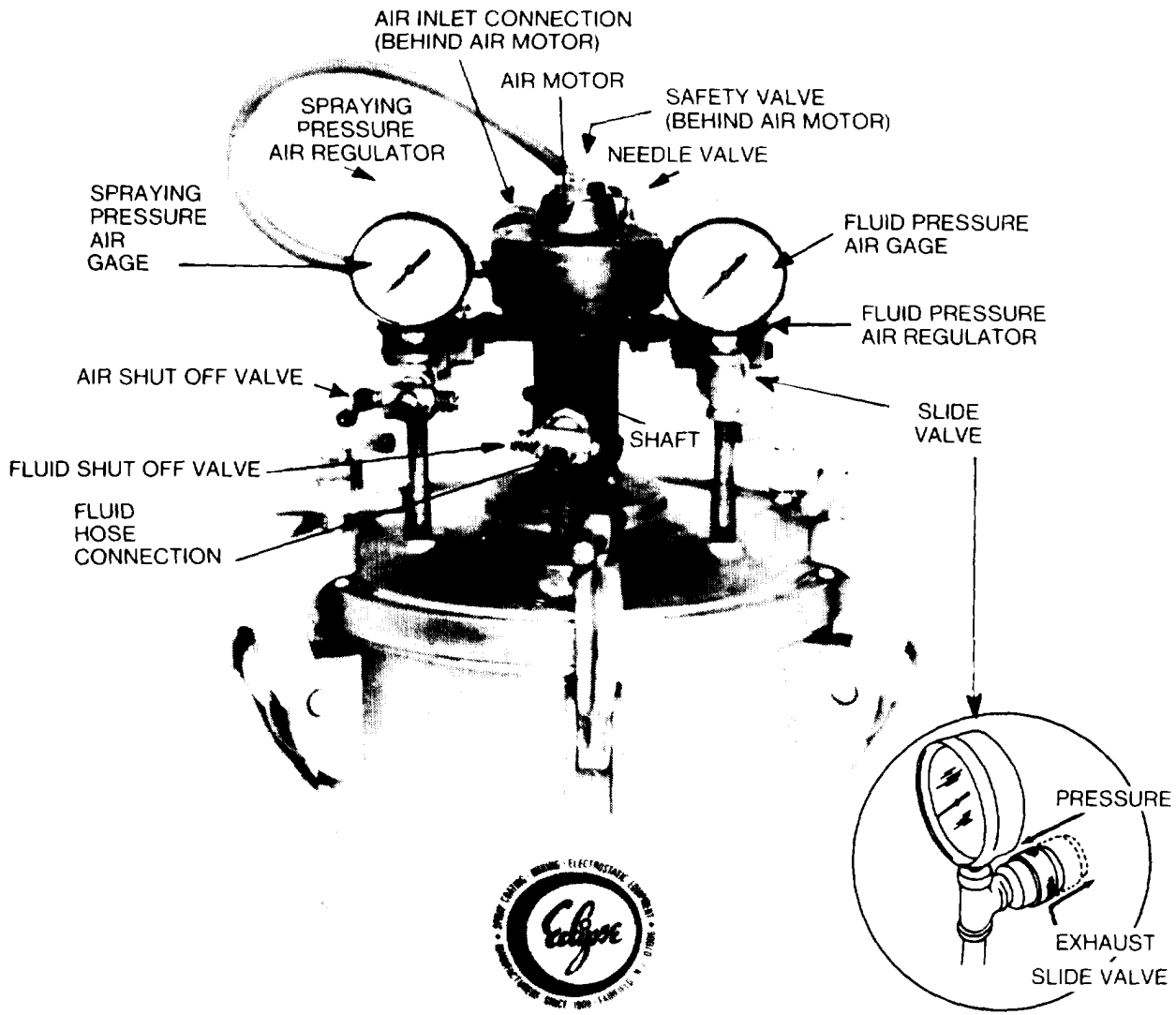


Figure 2-2. Pulsation Chamber Controls

TS-4940-228-14/2-2



TS-4940-228-14/2-3

Figure 2-3 Pressure Tank Controls



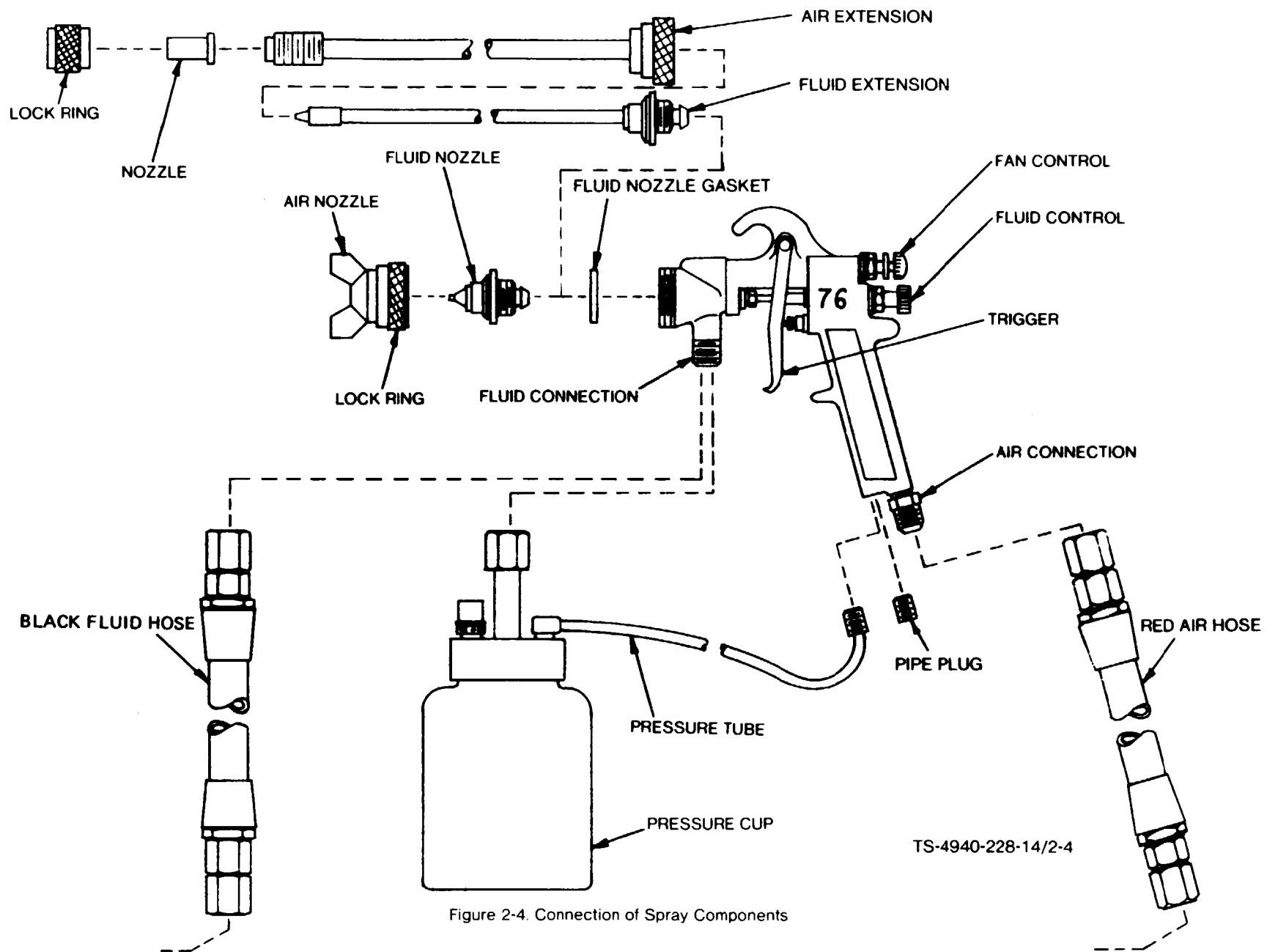
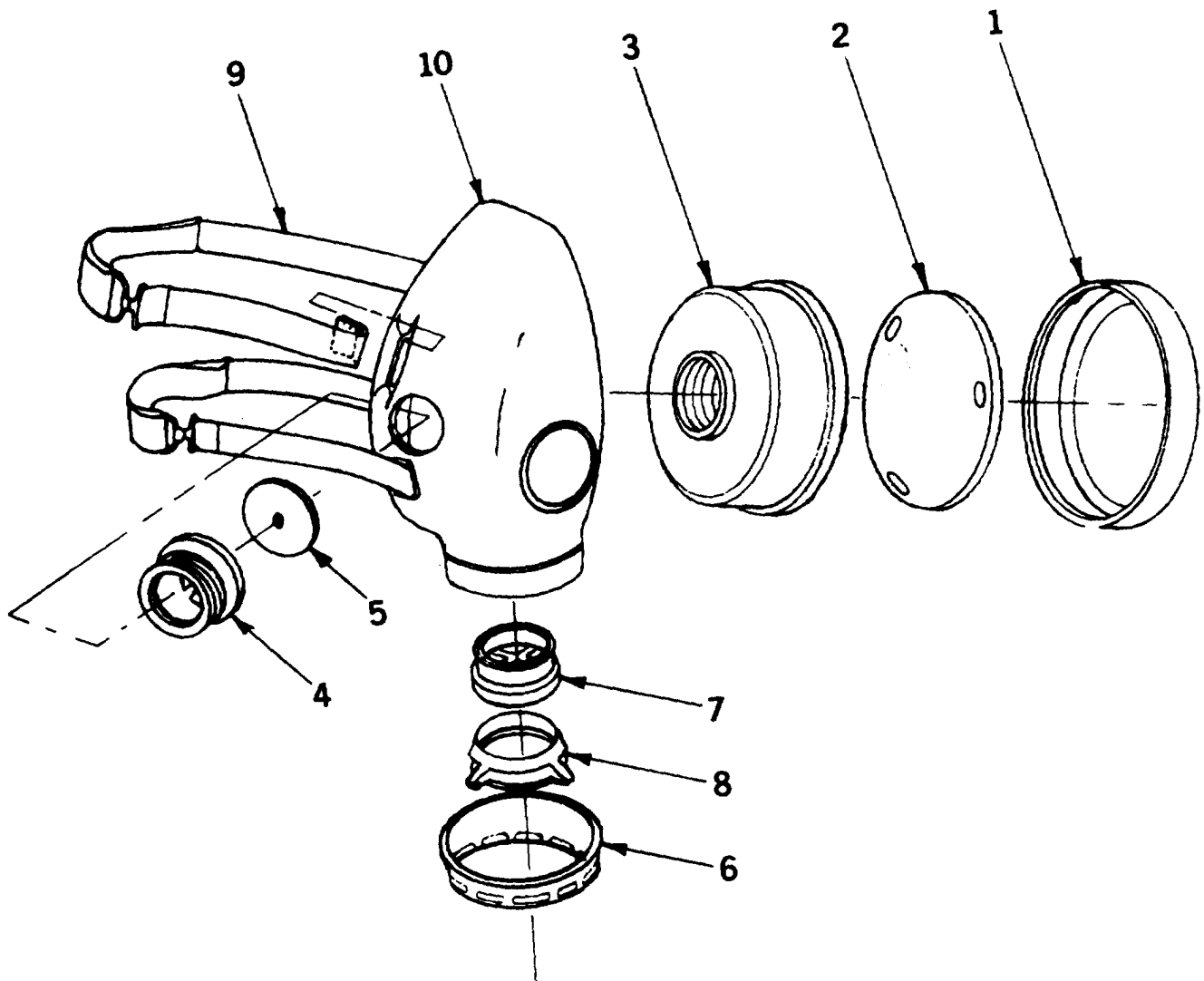


Figure 2-4. Connection of Spray Components

TS-4940-228-14/2-4



TS-4940-228-14/2-5

- 1. Filter Cover (2)
- 2. Prefilter (2)
- 3. Cartridge (2)
- 4. Inhalation connector (2)
- 6. Inhalation valve (2)

- 6. Exhalation valve guard
- 7. Exhalation valve
- 8. Exhalation valve seat
- 9. Head band set
- 10. Facepiece

Figure 2-5. Respirator

**d.** Position respirator on face, fitting wide portion under chin, and narrow portion over nose, wearing as low as possible. Place upper band above ears to top of head, lower band below ears to back of neck, and adjust for tight seal.

**e.** Test for proper seal by removing exhalation valve guard, remove exhalation valve guard close exhalation valve with your thumb and exhale gently. If leakage is detected readjust head bands until tight seal of facepiece is obtained.

**f.** Replace exhalation valve guard.

## 2-5. Starting.

Start the unit as follows (Fig. 2-2):

**a.** Screw the manual unloading knob counterclockwise (Fig. 2-6).

### NOTE

***The unloader pilot valve acts to prevent the air pulsation chamber from exceeding 80 psi or falling below 65 psi under normal operating condition. When the manual unloading knob is turned counterclockwise the unloader pilot valve directs air to compressor unloaders which prevents the compressor from pumping air into the pulsation chamber. Thus, the compressor is unloaded and allows you to start the engine with less effort.***

**b.** Open valve on fuel filter. (Refer to TM 5-2805-257-14 operating procedures).

**c.** Set ignition switch to RUN.

**d.** Place throttle control approximately 1/4 inch (0.6 cm) forward of idle position.

**e.** Set choke on carburetor to closed. Less choking may be necessary due to variations in temperature, grade of gasoline or altitude. Generally, choking is not required when engine is warm.

**f.** Wind rope around pulley and give a quick steady pull. Keep starter rope in a straight line with pulley. If a second pull is necessary, move choke back to middle position.

**g.** Return choke to open position after engine has run for a few minutes, move throttle to full governed position.

**h.** Screw the manual unloader knob clockwise. This will allow compressor to pump air into the pulsation chamber (Fig. 2-6).

## CAUTION

**Operate the manual unloading knob with your fingers only. Do not use wrenches, pliers, or other tools as they may damage or misadjust the unloader pilot valve.**

**i.** Check pulsation chamber pressure gage, pressure will rise slowly until a reading of 80 psi is reached (Fig. 2-2).

### NOTE

***While spraying, the normal gage reading will vary between 65 psi and 80 psi.***

## 2-6. Emergency Stopping.

Move engine ignition switch to OFF.

## 2-7. Operation of Paint Spray Outfit.

To operate the Paint Spray Outfit, proceed as follows:

**a.** Open air valves on pulsation chamber. This will allow air to fill red air hoses to pressure (paint) tank (Fig. 2-2).

**b.** Close the slide valve by pushing towards fluid pressure air gage (Fig. 2-3) and allow pressure to build up in pressure (paint) tank while adjusting fluid pressure air regulator until fluid pressure air gage indicates 10 psi (Fig. 2-3).

### NOTE

***If you read higher than 10 psi on the fluid pressure air gage, open the slide valve to release tank pressure. Unscrew handle on fluid pressure air regulator two turns. Close the slide valve and try to adjust the fluid pressure air regulator again.***

**c.** Remove air nozzle by unscrewing lock ring (Fig. 2-4).

**d.** Place waste material container beneath spray gun and test flow of fluid by pulling trigger all the way back. When material flows steadily, release trigger.

### NOTE

***This step is necessary to fill black fluid hose and spray gun with paint and remove trapped air.***

**e.** Replace air nozzle.

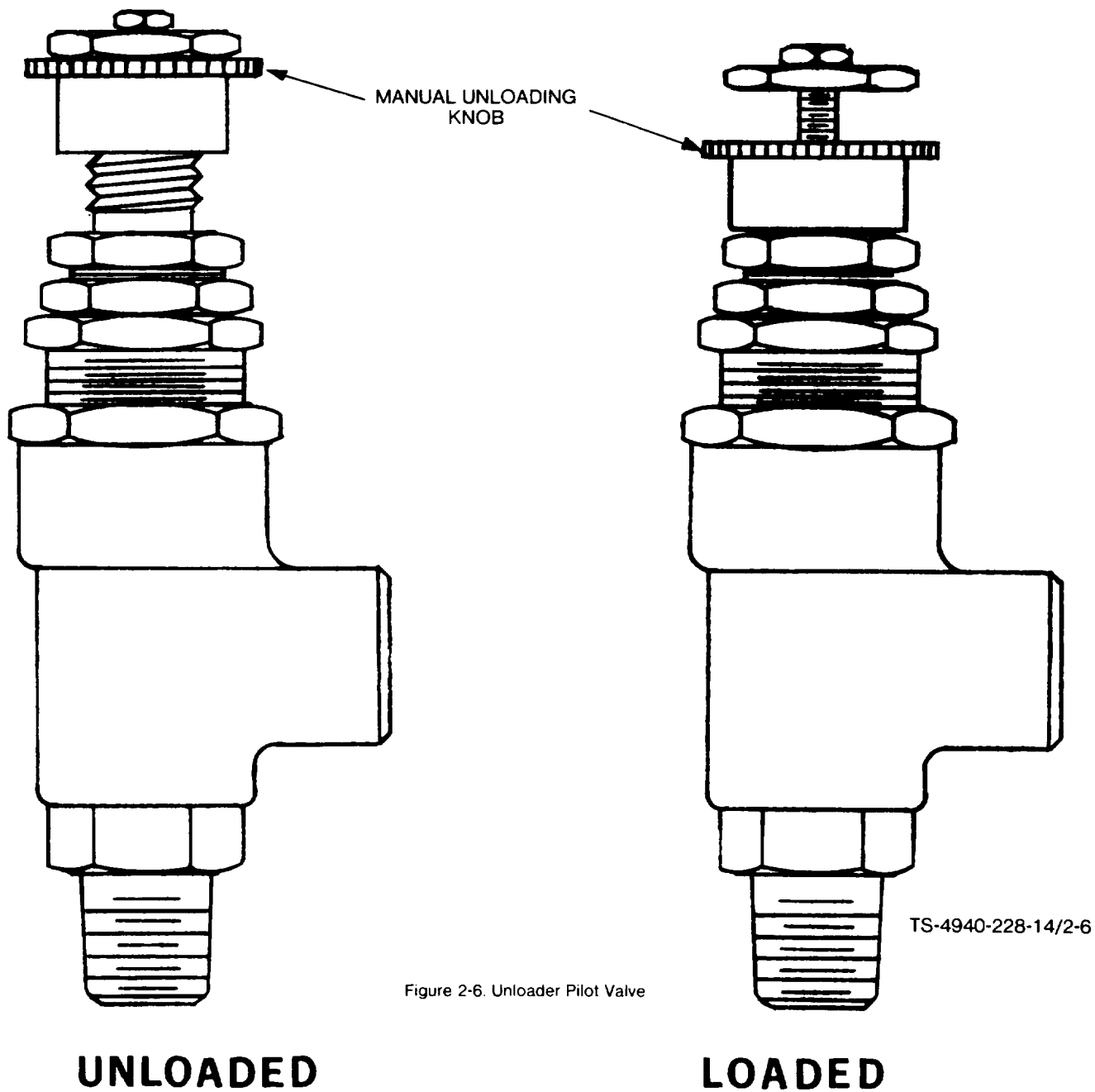


Figure 2-6. Unloader Pilot Valve

**NOTE**

***Air nozzle was removed to prevent paint build up inside while spraying without air.***

**f.** Open air motor needle valve slowly while watching motor shaft, keep opening air motor needle valve until a slow motor shaft rotation is observed (Fig. 2-3), This will keep your paint stirred continuously while you are spraying.

**g.** Adjust spraying pressure air regulator to 20 psi as indicated on spraying pressure air gage (Fig. 2-3).

**h.** Pull trigger on spray gun while alternately adjusting spraying pressure air regulator and fluid pressure air regulator until satisfactory spray is obtained.

**i.** Adjust fan control to obtain desired width of spray pattern (Fig. 2-4).

**NOTE**

***For proper operation, keep atomizing air pressure as low as possible. Proper fluid pressure depends on type of paint, viscosity, length of hose, height of spray gun above tank, and desired speed of application. Experimentation on the part of the operator will be necessary to obtain the best combination of pressures and adjustment settings when becoming familiar with equipment and when spraying different materials. Paint should atomize into fine particles which do not splatter against painted surfaces, but flow together to produce an even coat.***

**j.** Hold spray gun six to twelve inches (15 to 30 cm) from work and at right angles to surface to be painted. Point spray gun directly at work, pull trigger and move spray gun at a steady speed. The stroke should be started before trigger is pulled and the trigger released before the end of each stroke (Fig. 2-7). Overlap each stroke by approximately one third the width of the fan.

**NOTE**

***Slight pull on trigger emits air only which can be used for dusting. Pull trigger all the way back when painting.***

**k.** If an area is inconvenient to reach with the spray gun, it will be necessary to attach the nozzle extension as follows (Fig. 2-4):

**(1)** Turn handle on fluid pressure air regulator and spraying pressure air regulator counterclockwise (Fig. 2-3).

**(2)** Open slide valve to relieve pressure on the pressure (paint) tank. Wait for pressure to exhaust from tank and observe pressure gages for "0" reading before proceeding (Fig. 2-3).

**(3)** Remove air nozzle by hand and fluid nozzle with an 11/16 inch (17.46 cm) open end wrench (Fig. 2-3).

**(4)** Inspect fluid nozzle gasket for tears, cracks or damage. Replace, if necessary.

**(5)** Attach fluid extension to spray gun head; next, slide air extension over fluid extension and lock in place with lock ring.

**(6)** Adjustments and operation are the same as spraying with the spray gun alone.

**l.** To spray small quantities of paint, connect pressure cup to spray gun as follows (Fig. 2-4):

**(1)** Remove black fluid hose from spray gun head.

**(2)** Remove 1/8 inch (3.18 cm) pipe plug next to air connection at spray gun handle.

**(3)** Remove pressure tube from pressure cup and install 1/8 inch (3.18 cm) pipe fitting end into spray gun handle.

**(4)** Attach pressure tube to pressure cup.

**(5)** Attach pressure cup assembly to fluid connection on spray gun.

**(6)** Mix and strain paint thoroughly, so that it is free from lumps, skins, and foreign matter before pouring it into cup. Paint should be at hand-brushing consistency. Screw cup into cover assembly.

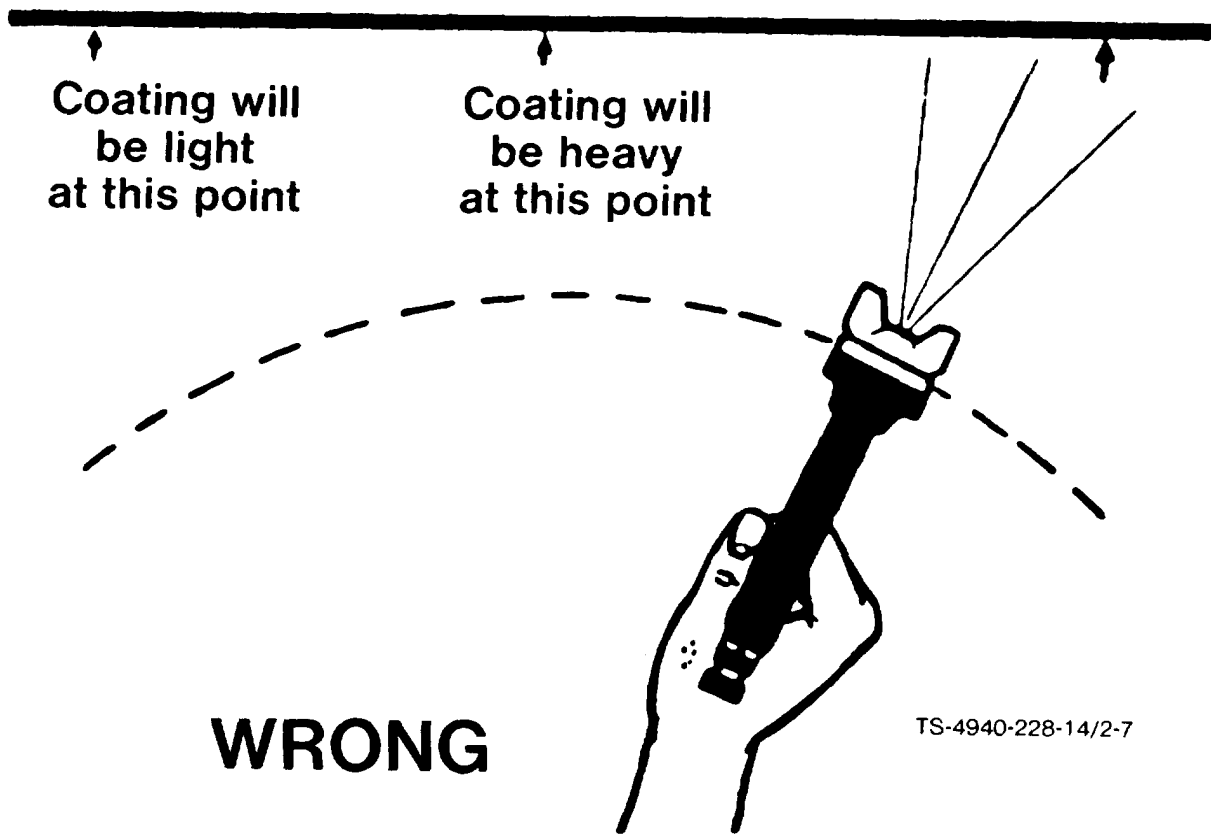
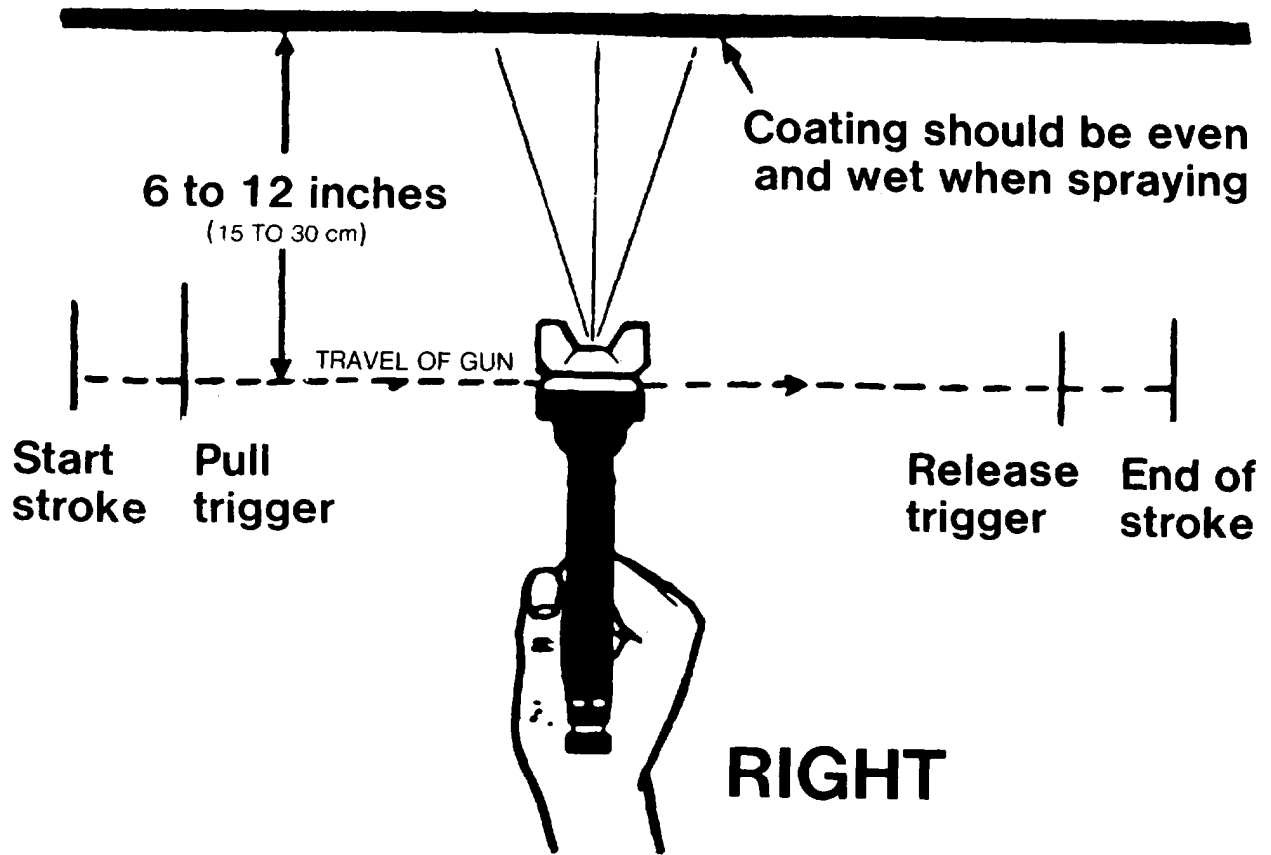
**(7)** Adjust spraying pressure air regulator on pressure (paint) tank to 20 psi. Pull trigger and adjust fluid control for satisfactory spray; adjust fan control for desired spray width. Higher pressure may be required.

**WARNING**

**Do not exceed 45 psi in the pressure cup. Cup could burst and cause injury to operator.**

**NOTE**

***Spray with same techniques as used with spray gun alone.***



TS-4940-228-14/2-7

Figure 2-7 Spray Technique

**2-8. Cleaning.**

At the end of each day, or when a job is completed, clean spray equipment as follows:

**a.** Open slide valve on pressure (paint) tank by pushing it back (toward fluid pressure air regulator) (Fig. 2-3). Wait until fluid pressure air gage reads "0".

**b.** Obstruct nozzle of spray gun with a rag and pull trigger. The spraying pressure will thus force paint out of black fluid hose and back into the pressure tank.

**c.** Remove pressure (paint) tank control head assembly (Fig. 4-2, Item 1) and pour remaining paint from insert pail (Fig. 4-2, Item 5) back into your original paint container.

**d.** Clean insert pail thoroughly with applicable paint thinner. Pour a small quantity of thinner into the insert pail, place pail in tank and replace control head assembly.

**e.** Close slide valve and adjust fluid pressure air regulator for about 10 psi as indicated on the fluid pressure air gage.

**f.** Remove air nozzle from spray gun and spray into a waste solvent container. Fluid pressure will force thinner through black fluid hose and spray gun, cleaning it satisfactorily.

**g.** Again, open slide valve, obstruct nozzle and pull trigger to blow thinner back into insert pail.

**WARNING**

**Do not soak respirators in paint thinner. Most paint thinners can cause skin irritations and could cause serious illness if inhaled.**

**Section II. OPERATION UNDER UNUSUAL CONDITIONS****2-10. Operation in Extreme Cold.**

**a.** Select the correct lubricants for the expected air temperatures as indicated on the Lubrication Order (Refer to Chapter 3).

**CAUTION**

**Do not soak hoses in thinner, air and outer fluid hose material is resistive to thinners but can become un-serviceable if soaked.**

**NOTE**

***It is not necessary to disconnect spray gun from red air hose or to remove black fluid hose or to take spray gun apart when cleaning.***

**h.** Stop engine by moving RUN/OFF switch to OFF.

**i.** If equipment will not be used within 24 hours, remove the black fluid hose and hang it up to drain, connections facing down.

**j.** Tighten the spray gun packing nuts periodically. If leaks do not stop, replace packing (Fig. 4-1).

**k.** Use a rag moistened with paint thinner to wipe the exterior of all spray equipment.

**l.** Clean respirators after each use as follows (Fig. 2-5):

**(1)** Remove cartridges, prefilters and headbands.

**(2)** Mix a mild liquid dishwashing detergent with warm water in a container large enough to accept facepiece.

**(3)** Cleanse facepiece by immersing in solution and swabbing until clean.

**(4)** Rinse in clean warm water and air dry.

**(5)** Inspect exhalation valve and exhalation valve seat carefully to be sure both are clean, smooth and free of foreign particles or dirt.

**2-9. Perform The Necessary Preventive Maintenance Services (Refer to Chapter 3, Preventive Maintenance Checks And Services).**

**b.** Fill the gasoline tank at the end of each day's operation to prevent condensation of moisture.

**c.** Where possible, install the equipment in a properly protected shelter. Be certain to pipe exhaust to outside of building.

## WARNING

**Inhalation of exhaust gases can result in serious illness or death. Do not operate the engine in an enclosed area unless the exhaust gases are piped to the outside.**

*d.* Allow engine to warm-up for approximately 3 minutes before applying load.

### 2-11. Operation in Extreme Heat.

*a.* Locate the cart mounted compressor unit in a well ventilated area that will allow maximum amount of cool air to circulate through engine and compressor.

*b.* Check oil levels frequently. Fill if necessary.

*c.* Keep outside of engine and compressor clean. Dirt acts as an insulator which prevents heat from escaping into the air.

*d.* Fill the gasoline tank at the end of each day's operation to prevent accumulation of vapor within the tank.

### 2-12. Operation in Dusty Areas.

*a.* Protect the Paint Spray Outfit from dust and sand as much as possible. Cleanliness is important to proper cooling.

*b.* Check the air cleaners on both the engine and compressor frequently, clean or replace as required. When adding or checking oil levels, remove dirt from around the openings. Keep oil and gasoline containers covered, dust-free and tight.

*c.* Check respirators frequently to be sure they are in good condition and not clogged with dirt.

### 2-13. Operation Under Rainy or Humid Conditions.

*a.* High humidity and rainy weather conditions can cause deterioration of exposed metal parts. Make every effort to protect the Paint Spray Outfit from the elements. If the Paint Spray Outfit is not to be used for a period of time, either move it to a shelter or protect it by covering with a tarpaulin.

*b.* Keep gasoline tank full to eliminate condensation. Remove and clean fuel filter bowl daily (Refer to TM 5-2805-257-14).

*c.* Lubricate wheel bearings more frequently than normal.

### 2-14. Operation in Salt Water Areas.

*a.* The deterioration and corrosion of exposed metal is greatly accelerated in salt water areas. All parts of the unit should be wiped dry whenever the unit is shut down.

*b.* If the Paint Spray Outfit is not to be used for a long period of time, apply an approved preservative to all exposed metal parts.

### 2-15. Operation at High Altitudes.

*a.* A decrease in engine and compressor efficiency will be observed at high altitudes. Less air is drawn into the cylinders.

*b.* Service the air cleaners on both engine and compressor daily to assure maximum air intake.



## CHAPTER 3 OPERATOR'S MAINTENANCE INSTRUCTIONS

### Section I. LUBRICATION INSTRUCTIONS

#### 3-1. General.

*a.* Frequent lubrication checks and services will be required during unusual operating conditions. Adjust lubrication order as required.

*b.* Keep all external parts not requiring lubrication clean and free of lubricants. Wipe all lubrication points before and after lubrication to prevent build up of foreign matter.

### Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

#### 3-2. General.

*a. Before you operate.* Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) PMCS.

*b. While you operate.* Always keep in mind the CAUTIONS and WARNINGS. Perform your during (D) PMCS.

*c. After you operate.* Be sure to perform your after (A) PMCS.

*d. If your equipment fails to operate.* Troubleshoot with proper equipment. Report any deficiencies using the proper forms, see DA PAM 738-750.

*e. Paint Spray Outfit.* To be sure that the Paint Spray Outfit is ready for operation at all times, you must inspect it to find and correct faults before they result in serious damage or failure. The necessary preventive maintenance services for you to perform are listed and described in Table 3-1. You should note any faults found during operation of the unit, so that they can be corrected as soon as the operation of the unit has stopped. Stop operation of the unit at once if you notice anything during operation that would damage the equipment if operation were continued.

### Section III. TROUBLESHOOTING

#### 3-3. General.

*a.* This sections contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the Paint Spray Outfit. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help you to determine corrective actions to take. You should perform the tests/inspections and corrective actions in the order listed, (Table 3-2).

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

corrective actions, notify your supervisor.

*c.* The table lists the common malfunctions which you may find during the operation or maintenance of the Paint Spray Outfit or its components. You should perform the tests/inspections and corrective actions in the order listed.

#### NOTE

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

### Section IV. MAINTENANCE PROCEDURES

#### 3-4. General.

This section contains maintenance procedures for the Paint Spray Outfit.

allow moisture and oil to drain (Fig. 2-2). Close drain cock (Fig. 2-2) prior to start up.

#### 3-5. Drains.

Open drain cock on pulsation chamber to

#### 3-6. Gages and Controls.

Wipe gages with a clean cloth.

LUBRICATION ORDER

# LO 5-4940-228-12

FEBRUARY 1979

## SPRAY OUTFIT, PAINT, MODEL 50-6609 ENGINE, GASOLINE, 3 HP STANDARD, MODEL 2A016-3

Reference: TM5-4940-228-14, C9100-IL, TM5-2805-257-14

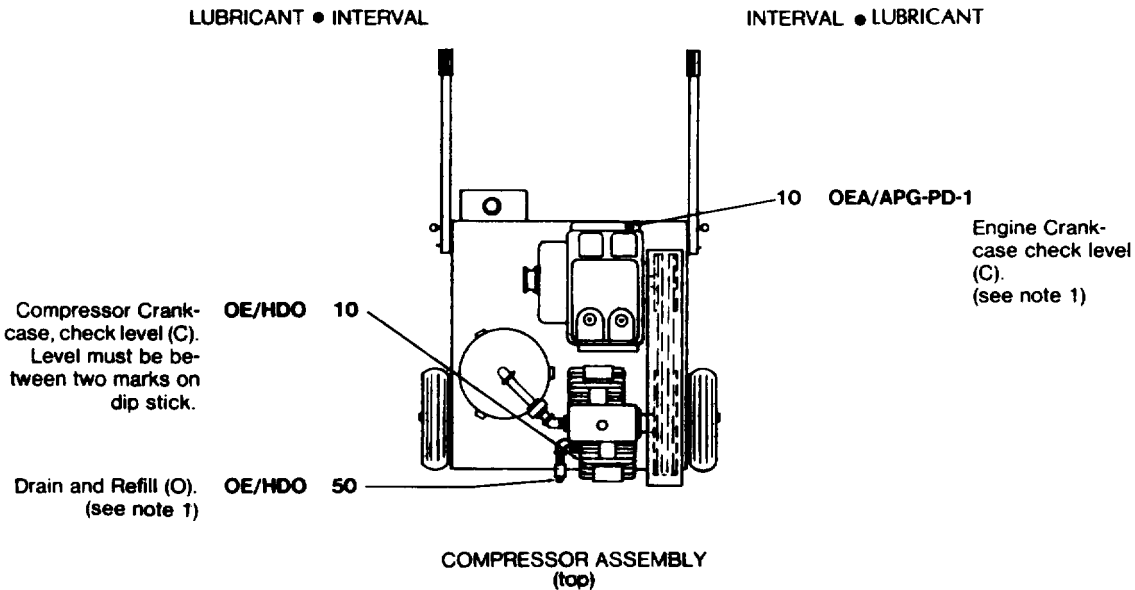
Intervals and related task-hour times are based on normal hours of operation. The task-hour time specified is the time you need to do all the services prescribed for a particular interval. Change the interval if your lubricants are contaminated or if you are operating the equipment under adverse operating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

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

Clean fittings before lubricating. Relubricate all areas exposed to water after amphibious operation. Lubricate points

indicated by dotted arrow shaft on both sides of equipment. Clean parts with SOLVENT, dry cleaning, or with OIL, fuel, diesel. Dry before lubricating. Drain crankcase when HOT. Fill and check level. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following: (C) Operator/crew; or (O) Organizational Maintenance.

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) should be mailed directly to: Commander, U. S. Army Troop Support & Aviation Materiel Readiness Command, ATTN: DRSTS-MTPS, 4300 Goodfellow Blvd. St. Louis, MO 63120. A reply will be furnished to you.



	TOTAL	TASK-HOUR
INTERVAL		TASK-HOUR
	10	0.2
	30	0.4
	50	0.6

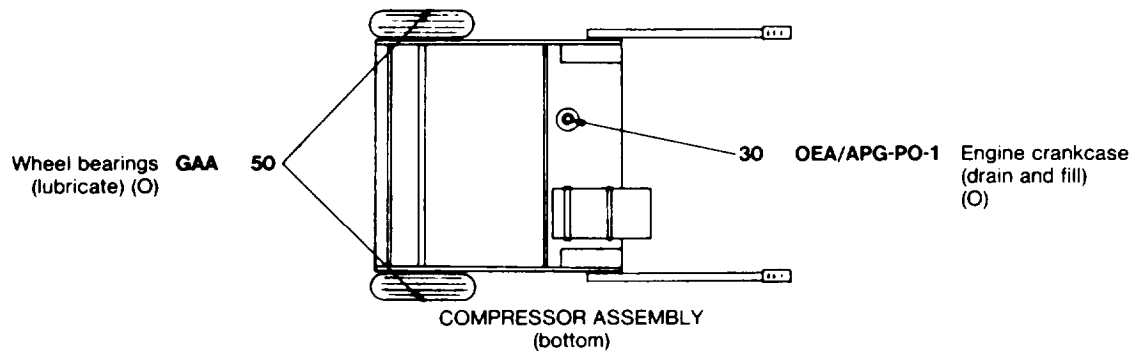
Figure 3-1. Lubrication Order (Card 1 of 2).

CARD 1 OF 2

LUBRICANT	REFILL CAPACITY (APP)	EXPECTED TEMPERATURES			INTERVAL
		Above +32°F (0°C)	+40°F to -10°F (4.4°C to -23°C)	0°F to -65°F (-18°C to -54°C)	
<b>OE HDO</b> (MIL-L-2104C) -Lubricating oil internal combustion engine heavy duty or <b>OEA/APG-PD-1</b> -Compressor crankcase -Engine crankcase	1 qt. (.946 l) 4/5 qt. (.757 l)	<b>OEA/APG-PD-1 30</b>	<b>OEA/APG-PD-1 10</b>	<b>OES</b>	Intervals given are in hours of normal operation.
<b>GAA</b> (MIL-G-10924C(1)) Grease automotive and artillery -wheel bearings	as req.	All Temperatures			

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**NOTES:**

- FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -10°F (-23°C). Remove lubricants prescribed in the key for temperatures above -10°F (-23°C). Clean parts with SOLVENT, drycleaning. Relubricate with lubricants specified in the key for temperatures below -10°F (-23°C).
- Copy of this Lubrication Order will remain with the equipment at all times; instructions contained herein are mandatory.

**BY ORDER OF THE SECRETARY OF THE ARMY:**

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

**OFFICIAL:**

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

**DISTRIBUTION:** To be distributed in accordance with DA Form 12-25A, Operator Maintenance requirements for Petroleum Distribution.

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

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

NOTE: Within designated interval, these checks are to be performed in the order listed. Perform weekly as well as before PMCS's if

1. You are the assigned operator and have not operated the Paint Spray Outfit since the last weekly inspection.
2. You are operating the Paint Spray Outfit for the first time.

B-Before  
D-During

A-After  
W-Weekly

M-Monthly  
C-Combat Operability Checks

Item No.	Interval						Item to be Inspected	Procedures	Equipment will be reported Not Ready (Red) if:
	B	D	A	W	M	C			
1	•	•	•	•	•		Spray Gun	Check for damage and for proper operation. Clean after using.	
2	•	•	•		•		Pressure cup	Check for damage and for proper operation. Clean after using.	
3	•	•	•				Extension	Check for damage and for proper operation. Clean after using.	
4	•		•				Hose	Check for damage and for proper operation. Clean after using.	
5	•		•	•	•		Pressure Tank	Check for damage and for proper operation. Clean after using.	
6		•			•		Regulators	Check for proper operation.	Not serviceable
7		•			•		Air Motor	Check for proper operation. Replace muffler if sluggish.	
8	•	•	•	•	•		Respirator	Check for damage, if any difficulty in breathing is encountered, replace filters.	Not serviceable
9	•						Chest	Check for damage.	
10	•	•		•	•		Compressor	Check all nuts and bolts for tightness. Take note of any excessive noise or vibration.	Not serviceable

**Table 3-1. Operator/Crew Preventive Maintenance Checks and Services (Continued).**

**NOTE:** Within designated interval, these checks are to be performed in the order listed. Perform weekly as well as before PMCS's if:  
 1. You are the assigned operator and have not operated the Paint Spray Outfit since the last weekly inspection.  
 2. You are operating the Paint Spray Outfit for the first time.

B-Before  
 D-During

A-After  
 W-Weekly

M-Monthly  
 C-Combat Operability Checks

Item No.	Interval						Item to be Inspected	Procedures	Equipment will be reported Not Ready (Red) if:
	B	D	A	W	M	C			
11	•			•			Belt	Check for damage and wear.	
12	•				•		Cart	Check for broken parts or damage.	
13	•			•	•		Tires	Check pressure—should be 30 psi.	

*Table 3-2. Operator Troubleshooting.*

---

**MALFUNCTION**

**TEST OR INSPECTION**

**CORRECTIVE ACTION**

---

1. Engine fails to start or fails to continue running.

Step 1. Check level of gasoline in gasoline tank. If engine still fails to start, refer to TM 5-2805-257-14.

2. Air pressure at receiver gage below 65 psi.

Step 1. Check connections, fittings and hoses for obvious leaks.

Step 2. Check unloader pilot valve for unloaded position.

Step 3. Check drain valves on pulsation chamber and compressor pulsation tank.

Step 4. Check belt tension.

Stop engine, remove belt guard. If tension is low, loosen engine mounting bolts and adjust tension.

3. Insufficient air pressure buildup in pressure (paint) tank.

Step 1. Check for loose tank lid.  
Tighten lid.

Step 2. Check lid gasket for damage.  
Replace gasket.

Step 3. Check lid passages for paint build up.  
Clean paint covered lid with paint thinner.

4. Fluid leakage from spray gun nozzle.

Step 1. Check for proper seating of fluid needle.  
Loosen packing nut slightly.

Step 2. Check paint for lumps and skins.  
Strain paint and clean fluid hose.

Step 3. Check for accumulation of dried paint on inside of fluid nozzle.  
Remove fluid nozzle and soak in paint thinner.

Table 3-2. Operator Troubleshooting (Continued).

---

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


---

## 5. Air leakage from spray gun nozzle.

- Step 1. Check air valve seating by snapping trigger several times.  
Remove air valve. Clean or replace air valve as necessary.

## 6. Crescent shaped spray pattern.

- Step 1. Check for loose air nozzle.  
Tighten.
- Step 2. Check for dried paint build up on outside of fluid nozzle.  
Clean off fluid tip with rag wet with paint thinner.

## 7. Heavy spray at top or bottom.

- Step 1. Check air nozzle side port holes for dried material  
restricting flow.  
Dissolve material in side ports with paint thinner.

## 8. A split spray or one that is heavy on each end and weak in middle.

- Step 1. Check atomizing pressure.  
Reduce air pressure.
- Step 2. Check for too wide a spray pattern with thin material.  
Open fluid control needle, at the same time, turn fan control in.

## 9. Intermittent spray.

- Step 1. Check paint supply in tank or cup.  
Fill container with paint.
- Step 2. Check for obstructed fluid passage or hose.  
Clean with paint thinner.
- Step 3. Check cup for looseness or damage.  
Tighten or replace.
- Step 4. Check for loose or damaged fluid tip.  
Tighten or replace.
- Step 5. Check for loose or damaged packing.  
Tighten packing nut or replace packing.

## CHAPTER 4

### ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

---

#### Section I. SERVICE UPON RECEIPT OF MATERIEL

##### 4-1. Unloading Equipment.

The total weight of the Paint Spray Outfit is 700 pounds (318 kg). You must use a forklift of 1,000 pounds (454 kg) capacity to unload the equipment. Keep unit flat during the unloading operation.

##### 4-2. Unpacking Equipment.

You should move the Paint Spray Outfit as close to the main usage site as possible. Remove packaging carefully so you do not damage the contents with tools used for unpacking.

##### 4-3. Inspecting And Servicing the Equipment.

**a. Inspection.** You should inspect the entire Paint Spray Outfit for signs of damage, missing or loose hardware, or any faults that may have occurred during shipment. Report all faults to your supervisor.

**b. Servicing.** Perform the preventive maintenance services listed in Table 3-1. Fill compressor and engine with oil as described in the Lubrication Order, Chapter 3, Section I.

#### Section II. MOVEMENT TO A NEW WORKSITE

##### 4-4. Dismantling for Movement.

###### **a. Short Move.**

(1) For a short distance move, the Paint Spray Outfit does not have to be crated to the same extent as when received.

(2) Pack all spray components such as tanks, spray guns, hoses, extension, cups and respirators in the chest provided.

(3) Cart mounted compressor can be lashed in place on the transporting carrier. Cover, if necessary, to protect units.

**b. Long Distance Move.** For a long distance

move, it is recommended that the Paint Spray Outfit be packed in a manner duplicating the original packing when received in new condition. Drain gasoline or run gasoline tank dry; spray inside of gasoline tank with P-10 preservative, type I, grade 10. Drain and refill engine and compressor crankcase with type P-10 preservative, type I, grade 10. Attach a tag on both engine and compressor indicating "crankcase is filled with type 10 preservative, drain and refill with approved oil before operating."

##### 4-5. Reinstallation after Movement.

Install the Paint Spray Outfit at the new worksite as previously described in paragraph 1-5.

#### Section III. REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

##### 4-6. Special Tools and Equipment.

No special tools or equipment are required for maintenance of the Paint Spray Outfit.

##### 4-7. Repair Parts.

Repair parts and equipment are listed and illustrated in the repair parts and special tool list covering organizational maintenance for the outfit (TM 5-4940-288-24P).

#### Section IV. LUBRICATION INSTRUCTIONS

##### 4-8. Lubrication Instructions.

No lubrication beyond that described in Chapter 3, Section I is required.



## Section V. PREVENTIVE MAINTENANCE CHECKS AND SERVICE

### 4-9. General.

Periodic maintenance checks permit organizational maintenance personnel to check the effectiveness of the daily maintenance program. Additional periodic maintenance services beyond the scope of the operator's maintenance are also performed at this time.

### 4-10. Preventive Maintenance Services.

**a.** Table 4-1 lists preventive maintenance services that must be performed on a weekly and monthly interval by organizational personnel.

**b.** Service intervals should be shortened under extreme or unusual conditions.

## Section VI. TROUBLESHOOTING

### 4-11. General.

**a.** This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the Paint Spray Outfit. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help you to determine probable causes and corrective actions in the order listed.

**b.** This manual cannot list all malfunctions that may occur, nor all tests or inspections and cor-

rective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

### 4-12. Organizational Troubleshooting Chart.

Troubleshooting procedures for organizational maintenance personnel are listed in Table 4-2. Remedies that are beyond the scope of organizational maintenance must be reported to direct support maintenance personnel.

#### **NOTE**

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

## Section VII. RADIO INTERFERENCE SUPPRESSION

### 4-13. Radio Interference Suppression.

This section is not applicable to this equipment.

## Section VIII. MAINTENANCE OF SPRAY GUN

### 4-14. General.

The spray guns are pressure feed, external atomizing, nonbleeder type, which provide positive cutoff of air flow when the triggers are released.

### 4-15. Disassembly.

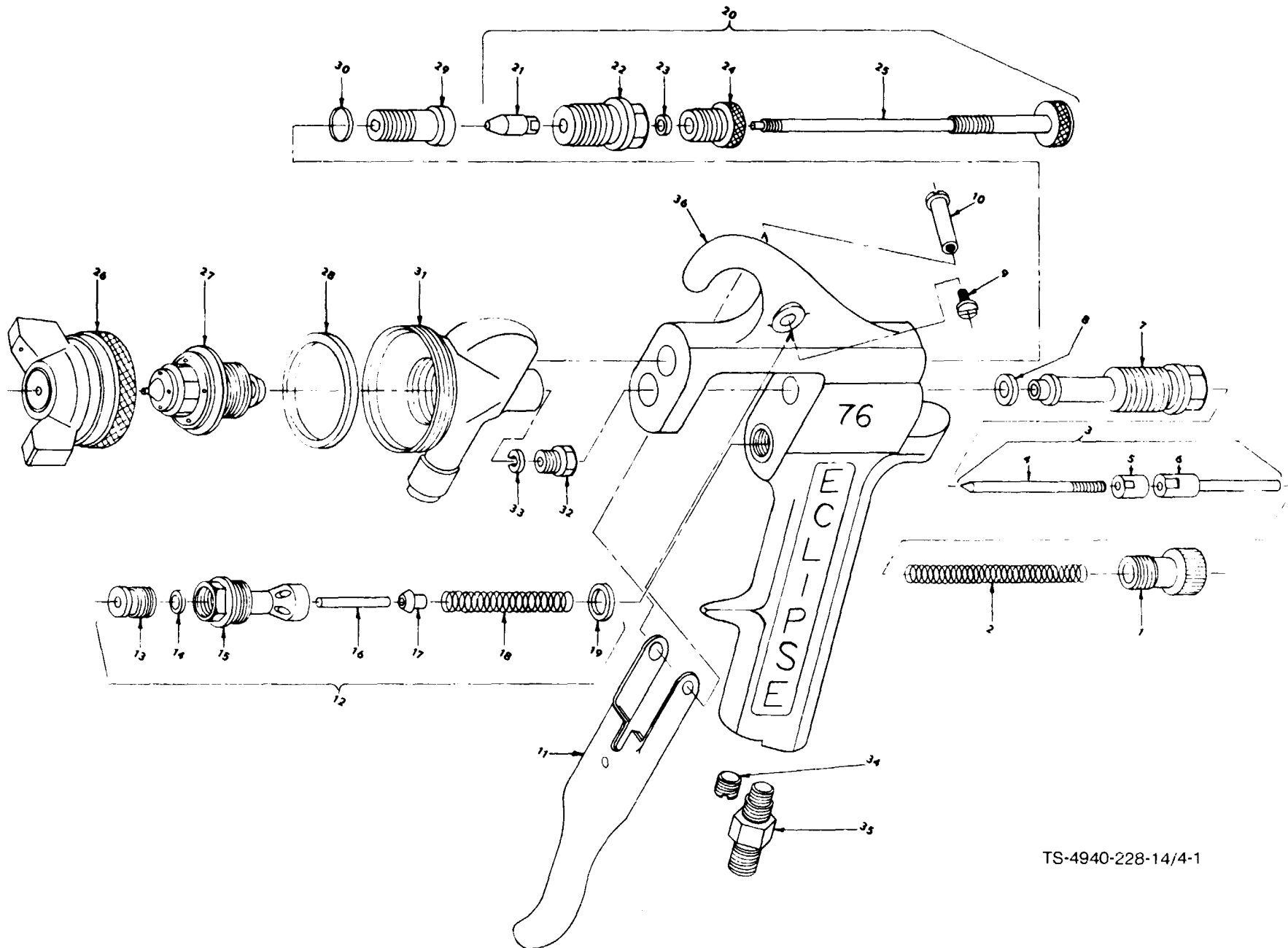
Use Figure 4-1 and proceed as follows:

**Table 4-1 Organizational Level Preventive Maintenance Checks and Services.**

W-Weekly

M-Monthly

Item No.	Interval		Item to be Inspected	Procedures
	W	M		
1	•	•	Spray Gun	Check for damage and for proper operation. Clean after using.
2		•	Pressure Cup	Check for damage and for proper operation. Clean after using.
3	•	•	Pressure Tank	Check for damage and for proper operation. Clean after using.
4	•	•	Compressor	Check all nuts and bolts for tightness. Take note of any excessive noise or vibration.
5		•	Belt	Check for damage and wear.
6		•	Cart	Check for broken parts or damage.
7	•	•	Tires	Check pressure - should be 30 psi.



TS-4940-228-14/4-1

Figure 4-1. Spray Gun Exploded View

Key to Figure 4-1:

- |                          |                          |
|--------------------------|--------------------------|
| 1. Fluid control screw   | 19. Gasket               |
| 2. Fluid control spring  | 20. Fan control assembly |
| 3. Needle assembly       | 21. Fan control head     |
| 4. Needle                | 22. Fan control body     |
| 5. Locknut               | 23. Packing              |
| 6. Locknut extension     | 24. Fan control screw    |
| 7. Fluid control housing | 25. Fan rod assembly     |
| 8. Fluid control gasket  | 26. Air nozzle assembly  |
| 9. Trigger screw         | 27. Fluid nozzle         |
| 10. Trigger stud         | 28. Gasket               |
| 11. Trigger assembly     | 29. Gun head screw       |
| 12. Air valve assembly   | 30. Gasket               |
| 13. Packing nut          | 31. Gun head             |
| 14. Packing              | 32. Packing nut          |
| 15. Air valve body       | 33. Packing              |
| 16. Air valve stem       | 34. Plug                 |
| 17. Air valve            | 35. Air connection       |
| 18. Air valve spring     | 36. Gun handle           |

**a.** Unscrew fluid control screw (1) from fluid control housing (7). Fluid control spring (2) can now be lifted out.

**b.** Depress trigger assembly (11) to push needle assembly (3) from fluid control housing (7) part way. Pull needle assembly (3) completely out with your fingers.

**c.** Unscrew fluid control housing (7) from gun handle (36). Remove fluid control gasket (8) from gun handle (36).

**d.** Remove trigger assembly (11) from gun handle (36) by unscrewing trigger screw (9) from trigger stud (10) and pulling trigger stud (10) from gun handle (36).

**e.** Remove air valve assembly (12) from gun handle (36) by unscrewing air valve body (15) from gun handle (36). Air valve stem (16), air valve (17), air valve spring (18) and gasket (19) will now be loose.

**f.** Unscrew packing nut (13) and remove packing (14) from air valve body (15).

**g.** Remove fan control assembly (20) from gun handle (36) by unscrewing fan control body (22). Disassemble fan control assembly (20) by unscrewing fan control screw (24) until it is loose on fan rod assembly (25). Next, unscrew fan control head (21) from fan rod assembly (25). Slide fan rod assembly (25) out of fan control body (22), packing (23) and fan control screw (24).

**h.** Unscrew air nozzle assembly (26), unscrew fluid nozzle (27) and remove gasket (28) from gun head (31).

**i.** Unscrew gun head screw (29) from gun head

(31) thru gun handle (36). Remove gun head (31) and gasket (30). Unscrew packing nut (32) from gun head (31) and remove packing (33).

**j.** Unscrew plug (34) and air connection (35) from gun handle (36). Disassembly is now complete.

**4-16. Cleaning and Inspection.**

**a.** Soak all parts in paint thinner; then using a bristled brush, remove all foreign matter from parts.

**CAUTION**

**Do not use metal tools or scrapers to clean air nozzle assembly. If holes are damaged, spray pattern will be distorted.**

**b.** Inspect all parts for damage or excessive wear. Pay special attention to threads, needles, nozzles, and packing. Replace any defective parts.

**4-17. Reassembly.**

Use Figure 4-1 as a guide and proceed as follows:

**a.** Screw air connection (35) and plug (34) into gun handle (36).

**b.** Insert packing (33) into gun head (31) and screw packing nut (32) into gun head two or three threads. Adjustment of packing nut (32) will be made after assembly procedure is complete.

**c.** Place gasket (30) over gun head screw (29). Position gun head (31) on front of gun handle (36);

put gun head screw (29) thru gun handle (36) and screw gun head (31) down tight.

**d.** Place gasket (28) into gun head (31). Screw fluid nozzle (27) into gun head (31) and tighten. Screw air nozzle assembly (28) onto gun head (31).

**e.** Assemble fluid control assembly (20) by inserting packing (23) into fan control body (22), turning fan control screw (24) two or three turns into fan control body (22), sliding three parts together (22,23 & 24) over fan rod assembly (25) and screwing fan control needle (21) onto end of fan rod assembly (25).

**f.** Insert fan control assembly (20) into gun handle (36) and tighten in place with fan control body (22).

**g.** Assemble air valve assembly (12) by placing packing (14) into air valve body (15), screw packing nut (13) into air valve body (15), slide air valve stem (16) thru air valve body (15), packing (14) and packing nut (13), slide air valve (17) over end of air valve stem (16), slide gasket (19) over air valve body (15), and place end of air valve spring (18) over air valve (17).

**h.** Insert air valve assembly (12) into gun handle (36) and screw in place with air valve body (15).

**i.** Position trigger assembly (11) over handle (36), insert trigger stud (10) thru trigger assembly (11) and gun handle (36) and screw in place with trigger screw (9).

**j.** Place fluid control gasket (8) over end of fluid control housing (7) and screw fluid control housing (7) into gun handle (36).

**k.** Insert needle assembly (3) into fluid control housing (7), place fluid control spring (2) over end of needle assembly (3) and screw in place with fluid control screw (1).

**l.** Tighten packing nuts one quarter of a turn at a time. Actuate trigger after each adjustment. As soon as a binding or stiffness is felt, loosen packing nuts 1/8 turn. Adjustment is complete.

**m.** Connect spray gun to the Paint Spray Outfit as described in Chapter 2. You can use water or paint thinner instead of paint for testing. Point spray gun into waste container while you spray. Check for an even spray pattern and look carefully for any leaks.

## Section IX. MAINTENANCE OF PRESSURE TANKS

### 4-18. General

The pressure tanks are five gallon, dual regulated type, with air motor agitators. They are equipped with separate air and fluid regulators, gages and valves. The pressure tanks assure constant and uniform flow of fluid to the spray gun by automatically maintaining regulated air pressure. An air motor agitator provides means by which the fluid can be mixed inside each pressure tank, speed of mixing is controlled by a needle valve.

### 4-19. Operational Checkout.

Use Figure 4-2 as a guide and proceed as follows:

#### WARNING

**Before attempting any repairs, remove all air pressure from the tank. An attempt to remove parts while tank is pressurized could cause those parts to be blown free and inflict injury.**

**a.** Visually inspect all parts of the pressure tank for damage, cracks or breaks. Replace damaged parts before proceeding. Check operation of all six

clamps and screws (Refer to para 4-6).

**b.** Loosen six clamp screws (55) and remove control head assembly (1) from tank (52). Inspect gasket (49) carefully, replace if any signs of damage are observed.

**c.** Remove insert pail (51) from tank (52) since it will not be needed while servicing.

**d.** Place control head assembly (1) on tank (52) and clamp with six clamp screws (55) (hand tighten, do not use wrenches).

**e.** Prepare the pressure tank for operational check out as follows:

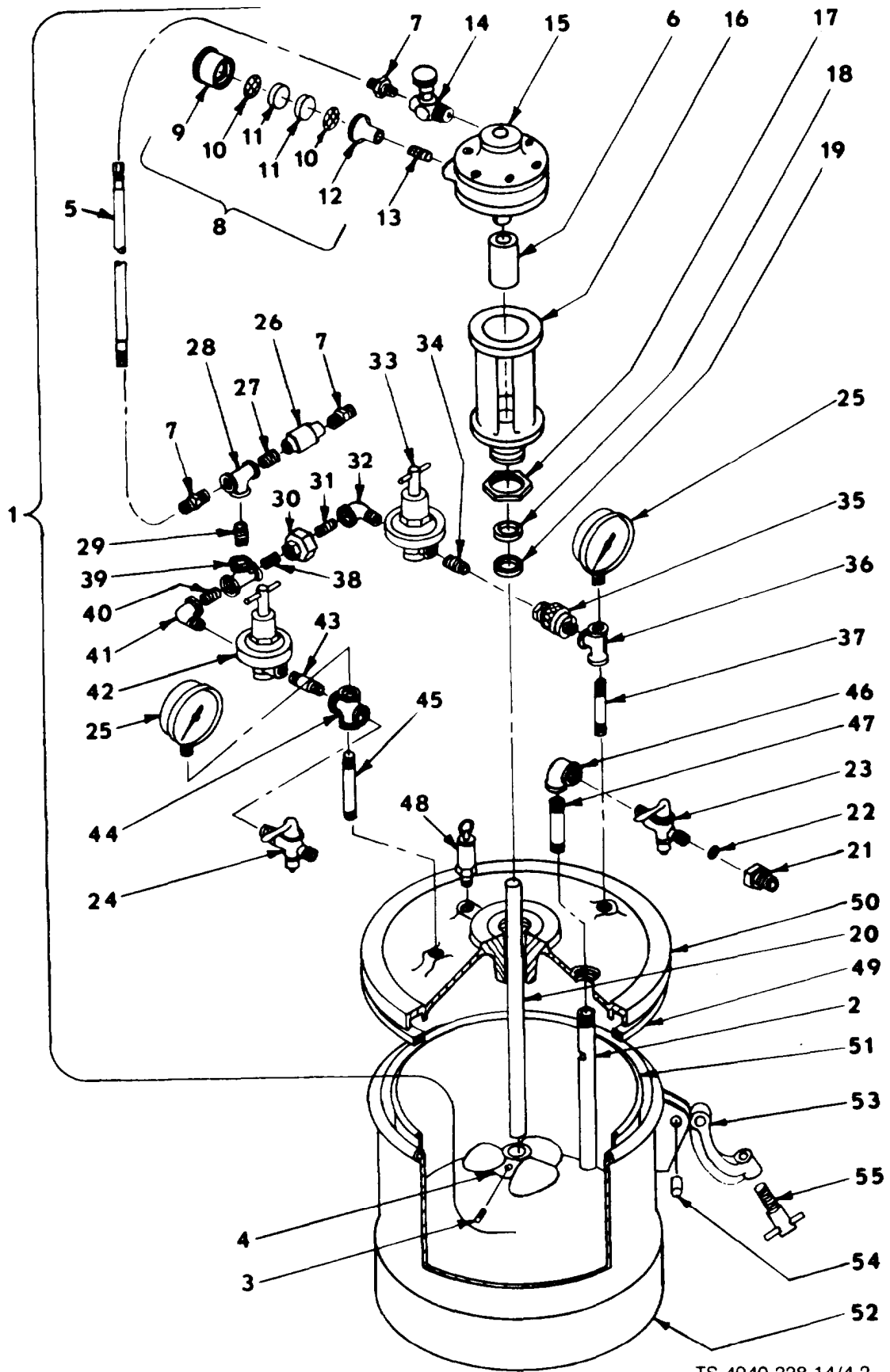
**(1)** Finger tighten needle valve (14) on air motor (15).

**(2)** Unscrew (counterclockwise) both air regulator handles all the way out, then screw in five turns.

**(3)** Close both shut off cocks (23 and 24).

**(4)** Push slide valve (35) towards fluid pressure air regulator (33).

**(5)** Apply air pressure of 60 to 80 psi to the air inlet connection (7).



TS-4940-228-14/4-2

Figure 4-2 Pressure Tank Exploded View

## Key to Figure 4-2:

- |                           |                     |
|---------------------------|---------------------|
| 1. Control head assembly  | 29. Nipple          |
| 2. Fluid post             | 30. Union           |
| 3. Propeller screw        | 31. Nipple          |
| 4. Propeller              | 32. Street elbow    |
| 5. Pressure hose assembly | 33. Regulator       |
| 6. Coupling               | 34. Nipple          |
| 7. Fitting (3)            | 35. Slide valve     |
| 8. Muffler                | 36. Tee             |
| 9. Cup                    | 37. Nipple          |
| 10. Screen (2)            | 38. Nipple          |
| 11. Felt (2)              | 39. Tee             |
| 12. Base                  | 40. Nipple          |
| 13. Nipple                | 41. Street elbow    |
| 14. Needle valve          | 42. Regulator       |
| 15. Air motor             | 43. Nipple          |
| 16. Housing               | 44. Cross           |
| 17. Nut                   | 45. Nipple          |
| 18. Packing washer        | 46. Elbow           |
| 19. Packing               | 47. Nipple          |
| 20. Propeller shaft       | 48. Safety valve    |
| 21. Adapter               | 49. Gasket          |
| 22. Fluid strainer        | 50. Tank head       |
| 23. Shut off cock         | 51. Insert pail     |
| 24. Shut off cock         | 52. Tank            |
| 25. Pressure gage (2)     | 53. Clamp (6)       |
| 26. Air filter            | 54. Pin (6)         |
| 27. Nipple                | 55. Clamp screw (6) |
| 28. Tee                   |                     |

**NOTE**

***If air supply is not available to you, connect pressure tank to compressor assembly. Follow operation procedures of Chapter 2 but, do not connect spray guns or use any paint.***

(6) Listen carefully for any air leakage. Obvious air leaks must be repaired before proceeding (Fig. 4-2).

**WARNING**

**Before attempting any repairs, remove all air pressure from the tank. An attempt to remove parts while the tank is pressurized could cause those parts to be blown free and inflict injury.**

(7) Look at both pressure gages. Both gages should indicate zero pressure. If not, the air regulator next to that pressure gage is damaged and requires replacement (Fig. 4-2). Pressure gage can be removed directly from pressure tank if defective.

(8) Slowly open needle valve (14) ; watch cou-

pling (6) thru slots in housing (16). If coupling (6) does not rotate, or if motor suddenly rotates rapidly, air motor is damaged and requires replacement (para 4-26).

(9) Observe pressure gage next to spraying pressure air regulator (42) while tightening spraying pressure air regulator (42) adjusting screw slowly until a 20 psi reading is reached. Watch pressure gage for two or three minutes. Pressure should not change more than 2 psi, if it does, spraying pressure air regulator (42) is defective and must be replaced (para 4-20).

(10) Move slide valve towards fluid pressure gage. Observe fluid regulator handle, adjust until 10 psi is reached. Open slide valve (push toward regulator); air should be released from the tank and pressure gage should read zero. Failure to reach 10 psi or return to zero, indicates a defective slide valve which requires replacement (Fig. 4-2).

(11) Move slide valve towards fluid pressure gage. Observe fluid pressure gage while tightening fluid regulator handle to 40 psi. Watch gage for two to three minutes, pressure should remain constant. If 40 psi could not be reached, listen for air leak

around head to tank seal. Replace gasket if air is heard, replace regulator if no air is heard escaping (Fig. 4-2).

#### 4-20. Removal of Spraying Pressure Air Regulator.

Loosen nut on union (30). Use a small pipe wrench and loosen nipple (45) on tank head (50); this will allow you to swing all associated plumbing away from tank head (50). Remove nipple (41) from spraying pressure air regulator (42), parts items 41, 40, 39, 29, 7, 28, 27, 26, and 7 will all be removed as a sub-assembly. Remove spraying pressure air regulator (42) from nipple (43).

#### 4-21. Installation of Spraying Pressure Air Regulator (42).

##### **NOTE**

***Use of a hydraulic sealant or teflon pipe thread tape would be helpful to prevent leaks.***

Screw spraying pressure air regulator (42) onto nipple (43). Screw sub-assembly items, 41, 40, 39, 29, 38, 7, 28, 26 and 7 into spraying pressure air regulator (42). Tighten nipple (45) which will rotate associated plumbing toward union (30). Align union (30) and tighten. Attach pressure tube (5) to fitting (7).

#### 4-22. Removal of Fluid Pressure Air Regulator.

Remove adjusting screw from regulator (33), unscrew fluid pressure air regulator (33) from nipple (34). Unscrew street elbow (32), with nipple (31) and half of union (30) and remove fluid pressure air regulator (33).

#### 4-23. Installation of Fluid Pressure Air Regulator.

Remove adjusting screw from regulator (33), screw fluid pressure air regulator (33) onto nipple (34). Screw street elbow (32) (with nipple 31 and half of union) into fluid pressure air regulator (33). Tighten nipple (45) until proper alignment of union (30) is made and tighten union (30) nut.

#### 4-24. Removal of Slide Valve (35).

Remove fluid pressure air regulator (33) as described in para 4-22. Remove nipple (34). Remove slide valve (35) from tee (36).

#### 4-25. Installation of Slide Valve (35).

Screw slide valve (35) into tee (36). Install nipple (34) into slide valve (35). Follow installation instructions for installation of fluid pressure air regulator (para 4-23).

#### 4-26. Removal of Air Motor.

**a.** Remove pressure hose assembly (5) from needle valve (14).

**b.** Loosen setscrew in coupling (6) which holds coupling to air motor.

**c.** Loosen two setscrews on top of housing (16), lift air motor from housing.

#### 4-27. Installation of Air Motor.

**a.** Put air motor (15) into top of housing (16), place by tightening two setscrews on top of housing (16).

**b.** Install nipple (13) and muffler (8) into air motor (15) body. Install needle valve (14) and adapter (7). Screw end of pressure hose (5) onto adapter (7).

**c.** Slide coupling (6) over motor (15) shaft and tighten setscrew in coupling (6).

#### 4-28. Adjustment of Packing (19).

**a.** Loosen two setscrews at top of housing (16) to allow housing (16) to rotate without rotating air motor also.

**b.** Unscrew locknut (17) which holds housing (16) in position.

**c.** Slowly screw housing (16) into tank head (50), this will compress packing (19) around shaft (20) by hand. When shaft becomes difficult to turn, unscrew housing (16) 1/8 turn and tighten locknut (17).

**d.** Tighten two setscrews at top of housing (16) to hold air motor (15) in place.

**e.** Go through operational checkout of paragraph 4-19.



## CHAPTER 5

### DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

---

#### Section I. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

**5-1.** No special tools or equipment are required for maintenance of this Paint Spray Outfit.

parts manual TM 5-4940-228-24P.

**5-2.** Repair parts are listed and illustrated in repair

**5-3.** No special fabricated tools or equipment are required.

#### Section II. TROUBLESHOOTING

##### **5-4. General.**

**a.** This section contains troubleshooting information for locating and correcting most of the operation troubles which may develop in the Paint Spray Outfit. Each malfunction for an individual component, unit, or system, is followed by a list of tests or inspections which will help you to determine corrective actions to take. You should perform the tests/inspections and corrective actions in the order listed.

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

##### **5-5. Troubleshooting Table.**

###### **NOTE**

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

#### Section III. GENERAL MAINTENANCE

##### **5-6. General.**

Refer to Chapters 2, 3 and 4 for operator maintenance checks and services for the Paint Spray Outfit.

##### **5-7. General Disassembly Procedures.**

**a.** Components to be repaired shall be disassembled to the extent required for complete serviceability.

**b.** Serviceable and precision parts should be handled, marked and stored to prevent damage and allow for reassembly after repairs are made.

#### Section IV. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

##### **5-8. General.**

This section covers removal and installation of all major assemblies of the compressor, cart mounted. Figure 5-1 illustrates the disassembly of the complete compressor assembly.

##### **5-9. Removal of Engine (Fig. 5-1).**

**a.** Remove belt guard (4) by removing four nuts (1) and two bolts (2). Lift belt guard off platform

(70) at compressor side first.

**b.** Remove fuel line (12) from engine and fuel line clamp at engine rear bracket (16).

**c.** Remove four each engine mounting nuts (5), washers (6) and bolts (7).

**d.** Slide engine (21) towards compressor and remove two belts (8).

**e.** Engine (21) is now free and can be lifted from platform (70).

*Table 5-1. Direct and General Support Troubleshooting.*

---

**MALFUNCTION**

**TEST OR INSPECTION**

**CORRECTIVE ACTION**

---

1. Pressure cup will not pressurize properly.

- Step 1. Check gasket in lid for cracks, tears, damage or paint build up.
- Step 2. Remove pressure tube and inspect for clogs, bends or damage.
- Step 3. Inspect diaphragm for cleanliness on lid side; a stuck diaphragm will not allow air into cup.  
Disassemble pressure cup, inspect all parts, clean thoroughly and reassemble.

2. Air motor on pressure tank will not turn.

- Step 1. Check for dirt build up inside body by flushing with a petroleum based solvent (para 8-2).  
Disassemble and replace damaged parts.

3. Air motor turns, but has little power.

- Step 1. Check felt pads in muffler for contamination. Replace pads if clogged.
- Step 2. Check for air leaks between body and end plates. Tighten screws if leaks detected.  
Replace gasket if problem is not resolved.
- Step 3. Remove one end plate and check vanes for excessive wear.  
Replace if worn. Disassemble air motor (para 8-3).

4. Regulator pressure rises gradually after adjusting.

- Step 1. Remove bottom plug, spring and valve. Check for dirt or foreign matter.  
Clean valve and inside body with a clean cloth.

5. Regulator pressure drops when in use.

- Step 1. Check for cracked or damaged diaphragm.  
Replace diaphragm (Fig. 6-1).

6. Compressor does not unload.

- Step 1. Check pilot valve line for cracks, dents, or other damage.

**Table 5-1. Direct and General Support Troubleshooting (continued).**


---

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

---

- Step 2. Check unloader pistons for binding or contamination.  
 Unloader cover will have to be removed (Fig 9-2).  
 Replace unloader assembly.

7. Compressor cannot reach 65 psi operating pressure.

- Step 1. Check belt tension. Remove belt guard and deflect belts; proper adjustment is 3/8 to 5/8 (1 to 1.5 cm) inches at center of belt when depressed with your thumb with moderate pressure (about 20 lbs) (9 kg).

- Step 2. Check engine rpm. Proper rpm is 3600.  
 Refer to TM 5-2805-257-14 for engine troubleshooting.

- Step 3. Remove heads and check reed valves for damage (Chapter 9).

- Step 4. Remove cylinders; check for broken or stuck rings on pistons and excessive wear of cylinders (Chapter 9).

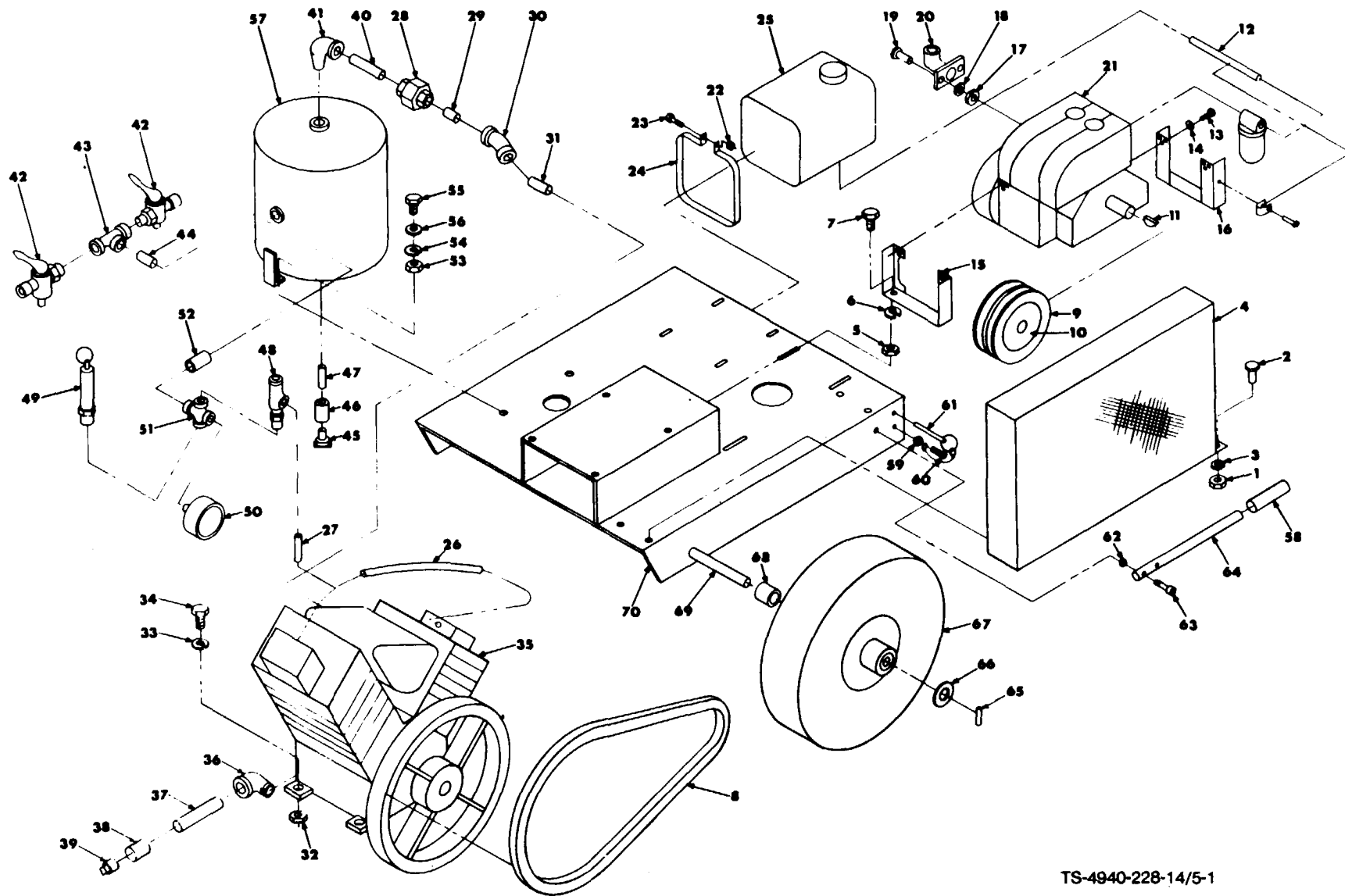
8. Compressor excessive oil consumption.

- Step 1. Check oil for proper grade. (See Lubrication Order)

- Step 2. Check rings and cylinders for excessive wear (Chapter 9).  
 Replace piston rings.

Key for Figure 5-1:

- |                   |                       |                          |
|-------------------|-----------------------|--------------------------|
| 1. Nut (4)        | 25. Gasoline tank     | 48. Unloader pilot valve |
| 2. Bolt (2)       | 26. Unloader line     | 49. Safety valve         |
| 3. Washer (4)     | 27. Pilot line        | 50. Gage                 |
| 4. Belt guard     | 28. Union             | 51. cross                |
| 5. Nut (4)        | 29. Nipple            | 52. Nipple               |
| 6. Washer (4)     | 30. Elbow             | 53. Nut (3)              |
| 7. Bolt (4)       | 31. Nipple            | 64. Washer (3)           |
| 8. Belt (2)       | 32. Nut (4)           | 55. Bolt (3)             |
| 9. Sheave         | 33. Washer (4)        | 56. Washer (3)           |
| 10. Bushing       | 34. Bolt (4)          | 57. Pulsation chamber    |
| 11. Key           | 35. Compressor        | 68. Washer (2)           |
| 12. Fuel line     | 36. Elbow             | 59. Nut (2)              |
| 13. Bolt (12)     | 37. Nipple            | 60. Screw (2)            |
| 14. Washer (12)   | 38. Coupling          | 61. Detent pin (2)       |
| 15. Front bracket | 39. Plug              | 62. Nut (2)              |
| 16. Rear bracket  | 40. Nipple            | 63. Bolt (2)             |
| 17. Nut (2)       | 41. Elbow             | 64. Handle (2)           |
| 18. Washer (2)    | 42. Shutoff valve (2) | 65. Roll pin (2)         |
| 19. Bolt (2)      | 43. Tee               | 66. Washer (2)           |
| 20. Deflector     | 44. Nipple            | 67. Wheel (2)            |
| 21. Engine        | 45. Drain valve       | 68. Spacer (2)           |
| 22. Nut (2)       | 46. Coupling          | 69. Axle                 |
| 23. Bolt (2)      | 47. Nipple            | 70. Platform             |
| 24. Strap (2)     |                       |                          |



TS-4940-228-14/5-1

Figure 5-1. Compressor Assembly Exploded View

### 5-10. Engine Installation (Fig. 5-1).

**a.** If a new engine is used, prepare it as follows:

**(1)** Refer to TM 5-2805-257-14 and depreserve as instructed, install nipple and fuel filter.

**(2)** Install deflector (20) on engine (21) exhaust flange with two each bolts (19), washers (18) and nuts (17).

**(3)** Bolt front bracket (15) and rear bracket (16) on to engine (21) by using twelve each bolts (13) and washers (14).

**(4)** Rotate engine (21) shaft until key way is up, insert key (11), slide sheave (9) and bushing (10) on to engine (21) shaft. Start bushing bolts, but do not tighten.

**b.** Place engine (21) over mounting slots on platform (70), install four bolts (7), washers (6), and nuts (5). Do not tighten nuts since engine (21) will require movement during alignment.

**c.** Push engine (21) towards compressor (35), place both belts (8) over compressor (35) and engine (21) pulleys, Pull engine (21) back, away from compressor (35), to put tension on belts (8). Snug any two mounting bolts (7) to prevent engine (21) from moving.

**d.** Align engine sheave by loosening both bushing (10) bolts and sliding sheave to line up with compressor pulley. Tighten both bushing bolts.

**e.** Hold engine (21) back, away from compressor (35), while tightening all four bolts (7) and nuts (5). Correct belt tension is 3/8 to 5/8 inch (1 to 1.5 cm) depression in the center of each belt (8) when depressed with your thumb with a moderate pressure (about 20 lbs) (9 kg).

**f.** Attach fuel line (12) to engine (21), clamp fuel line (12) to rear engine mount (16).

**g.** Place belt guard (4) on platform (70) and line up mounting holes. Install and tighten two bolts (2) and four nuts (1).

### 5-11. Removal of Compressor (Fig. 5-1).

**a.** Remove belt guard (4) by removing four nuts (1) and two bolts (2). Lift belt guard (4) off platform (70).

**b.** Loosen nuts (5) and bolts (7) on bottom of engine (21) brackets (15 and 16), Slide engine (21) towards compressor (35) and remove both belts (8).

**c.** Remove unloader pilot line (27).

**d.** Loosen all three pulsation chamber (57) nuts (53) and bolts (55) four or five turns.

**e.** Remove compressor (35) mounting nuts (32) washers (33) and bolts (34).

**f.** Disconnect union (28) nut between compressor (35) and pulsation chamber (57). Remove compressor (35) from platform (70).

### 5-12. Compressor Installation (Fig. 5-1).

**a.** Place compressor (35) over mounting holes on platform (70), line up union (28) and hand tighten union nut.

**b.** Install and tighten compressor (35) mounting bolts (34) and washers (33) and nuts (32).

**c.** Tighten pulsation chamber (57) mounting bolts (55) and nuts (53). Tighten union (28).

**d.** Install unloader pilot line (27).

**e.** Install belts (8) on to engine (21) sheave and compressor (31) pulley.

**f.** Pull engine (21) back away from compressor (35) while tightening all four engine (21) mounting nuts (5) and bolts (7). Correct belt tension is 3/8 to 5/8 inch (1 to 1.5 cm) depression in the center of each belt (8) when depressed with your thumb with a moderate pressure (about 20 lbs) (9 kg).

**g.** Place belt guard (4) on platform (70) and line up mounting holes. Install and tighten two bolts (2) and four nuts (1).

## CHAPTER 6

### REPAIR OF SPRAY COMPONENTS

---

#### Section I. PRESSURE CUP

##### 6-1. General.

The pressure cup is used when a small quantity, less than a quart (.946 l), of paint is to be applied. The cup replaces black fluid hose and pressure tank in actual operation. When spray gun trigger is pulled, air is allowed to enter handle through pressure tube into hole in cover, forcing diaphragm open. Air enters cup and builds up pressure which forces paint up fluid post and to spray gun fluid connection. Amount of fluid flow is controlled by fluid control on spray gun. A safety valve is located on the cover which is set to open at 45 psi.

##### 6-2. Disassembly.

Refer to Figure 6-1 and proceed as follows:

**a.** Unscrew cup (1) from cover (11) and remove cup gasket (2).

**b.** Pressure tube (3) can be removed as an assembly by unscrewing fitting "L" (5) from cover (11). To disassemble pressure tube (3), unscrew fitting (6) from fitting "L" (5) and unscrew other fitting (6) from adapter (4). Place tube (7) with two fittings (6) attached into a container of hot water for 2 to 3 minutes, this will make tube (7) soft and flexible. Remove both fittings (6) from tube (7).

**c.** Unscrew jam nut (8) from stem (15), washer (9) and diaphragm (10) can now be removed.

**d.** Unscrew safety valve (12) from cover (11) and unscrew fluid post (13) from stem (15).

**e.** Unscrew stem (15) from cover (11), compression nut (14) will now be free and can be removed.

##### 6-3. Cleaning and Inspection.

Clean all parts thoroughly with paint thinner. Do not soak pressure tube (3) or cup gasket (2) in thinner, some thinners can deteriorate or swell these materials. All holes in cover (11) must be clear, di-

aphragm (10) must be clean and flat.

#### WARNING

**A safety valve clogged with dried paint cannot operate properly. Replace safety valve if body becomes clogged. Cup could rupture at high pressure and cause serious injury.**

Inspect parts for excessive wear, damage, tears, breaks or dents. Replace unserviceable parts.

##### 6-4. Reassembly.

Refer to Figure 6-1 and proceed as follows:

**a.** Slide compression nut (14) over stem (15) and screw stem (15) into cover (11).

**b.** Screw fluid post (13) into stem (15) and screw safety valve (12) into cover (11).

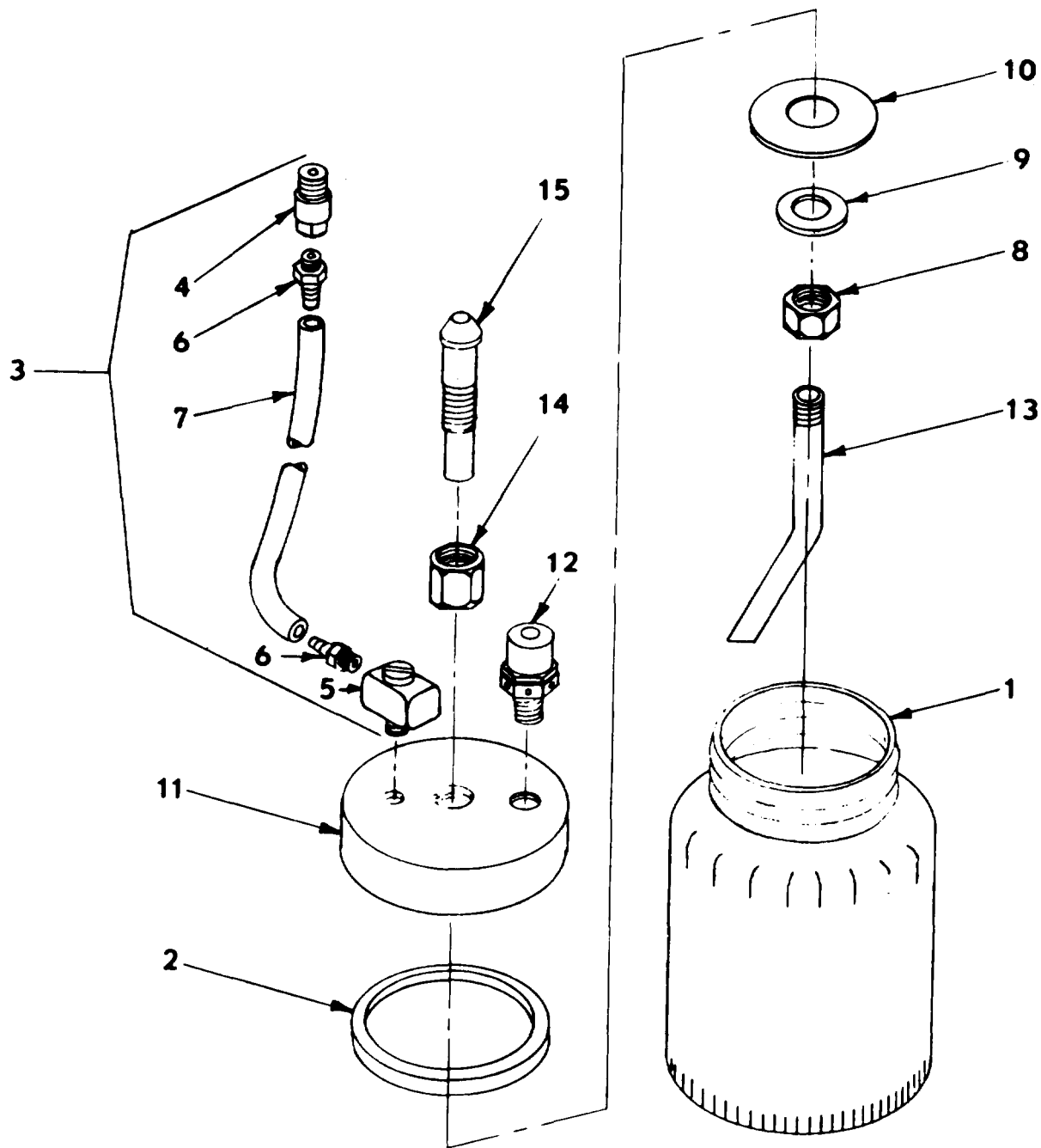
**c.** Slide diaphragm (10), washer (9) and compression nut (8) over fluid post; tighten compression nut (8).

**d.** Screw fitting "L" (5) into cover (11) and screw one fitting (6) into fitting "L" (5). Screw other fitting (6) into adapter (4). Place tube (7) in a container of hot water for 2 to 3 minutes, this will make tube (7) soft and flexible. Slide tube (7) over both fittings (6) one end at a time.

**e.** Place cup gasket (2) inside of cover (11) and screw cup (1) into cover (11). Assembly is now complete.

##### 6-5. Testing.

Test by attaching to a spray gun. Refer to paragraph 2-3. You can use water or paint thinner instead of paint. Turn fan control on spray gun all the way in (clockwise). Fill cup 1/2 full. Actuate trigger to pressurize cup and check for a steady stream of fluid leaving the spray gun fluid nozzle. Release trigger and look for any fluid or air leaks.



- 1. Cup
- 2. Cup gasket
- 3. Pressure tube
- 4. Adapter
- 5. Fitting "L"
- 6. Fitting (2)
- 7. Tube
- 8. Jam nut

- 9. Washer
- 10. Diaphragm
- 11. Cover
- 12. Safety valve
- 13. Fluid post
- 14. Compression nut
- 15. Stem

Figure 6-1. Pressure Cup Exploded View



## Section II. SPRAY GUN EXTENSION

### 6-6. General.

The spray gun extension can directly replace air and fluid nozzles for painting locations which are out of reach with spray gun alone. Fluid flows through the fluid extension while air flows between fluid extension and air extension.

### 6-7. Disassembly.

There are only four parts which make up the spray gun extension. Refer to Figure 6-2. Unscrew lock ring (1) from air extension (3) and remove nozzle (2). Slide fluid extension (4) from air extension (3).

### 6-8. Inspection.

Check all parts for dents, breaks, damaged threads and excessive wear. Repair of the spray gun extension is a matter of parts replacement only, so inspection to locate damaged parts is most important.

### 6-9. Reassembly.

Refer to Figure 6-2. Slide fluid extension (4) into air extension (3). Place nozzle (2) onto threaded end of air extension (3) and screw lock ring (1) on air extension (3). Assembly is now complete.

## Section III. HOSE REPAIR

### 6-10. Hose Repair.

Reusable hose connections are used on all hose assemblies. Should a hose require repair, refer to figure 6-3 and proceed as follows:

#### **NOTE**

***A hose which is damaged in or near the middle should be discarded and a new length of hose used.***

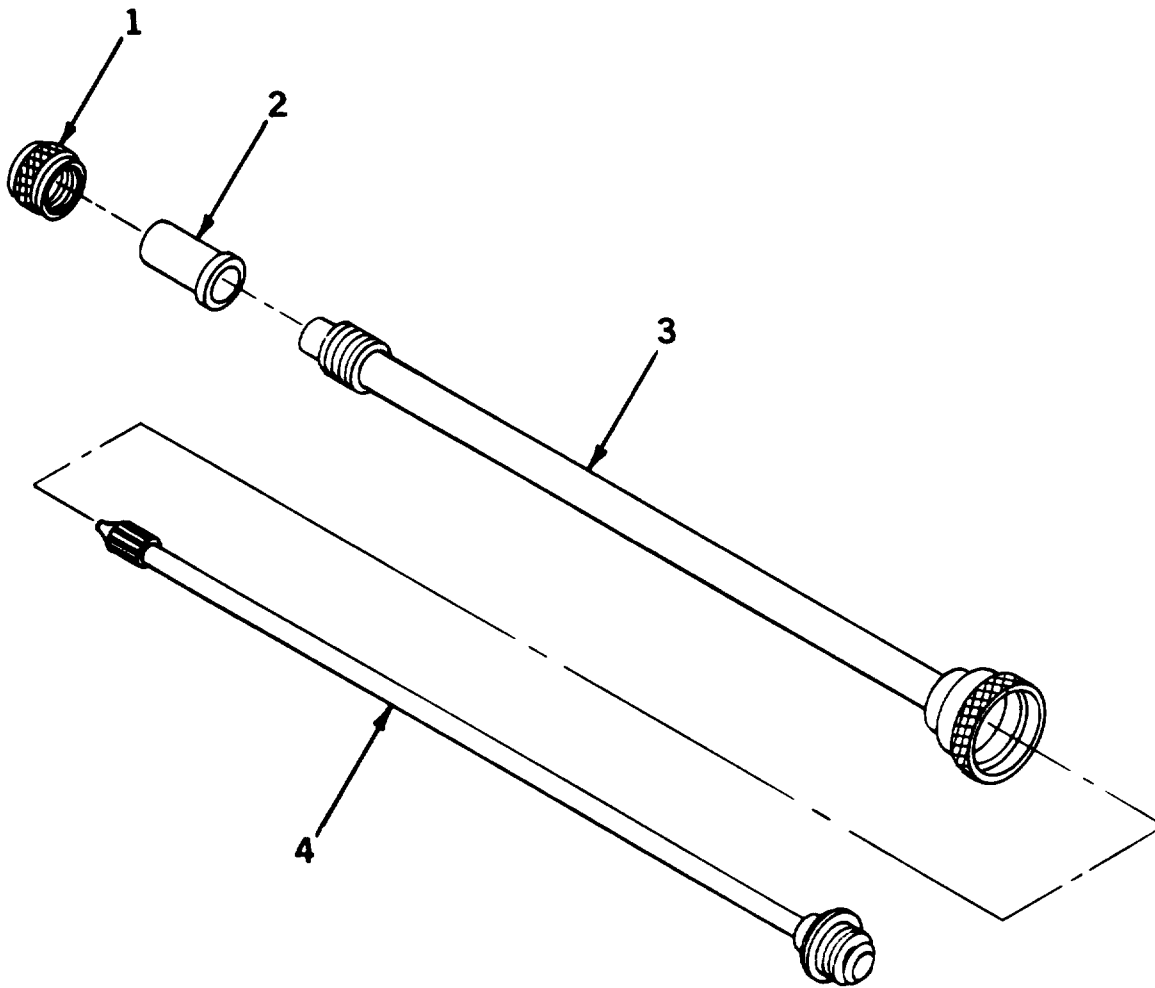
**a.** A hose which is split or damaged near an end can be cut back as far as necessary. Make a clean square cut with a sharp knife.

**b.** Hold sleeve (6) with a wrench and unscrew

stem (5). Pull damaged hose from sleeve (6) and insert newly cut end into the sleeve (6) firmly bottoming hose inside. Screw stem (5) into sleeve (6).

**c.** Flex hose along full length and observe for cracks, tears or breaks. Pressurize hose to 100 psi and listen for any air leaks.

**d.** To change any of the connector assembly parts, unscrew stem (5) from sleeve (6). Unscrew seat (3) from stem (5). Connector assembly is now completely disassembled. Use only serviceable parts for reassembly. Place nut (4) over seat (3) and screw seat (3) into stem (5). Screw stem (5) into sleeve (6).



TS-4940-228-14/6-2

Figure 6-2. Extention Exploded View

- 1. Lock ring
- 2. Nozzle
- 3. Air extension
- 4. Fluid extension

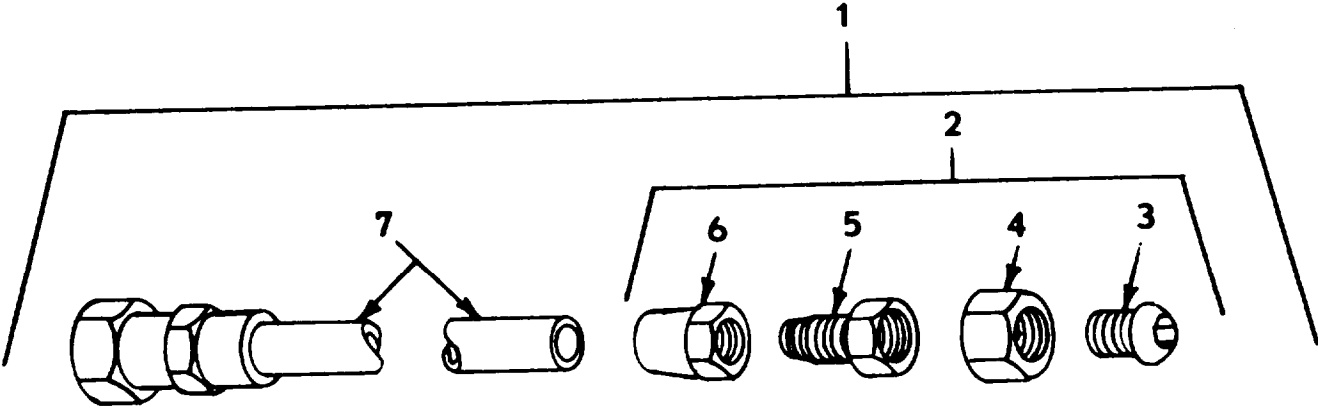


Figure 6-3. Hose Assembly

- 1. Hose assembly
- 2. Connector assembly (2)
- 3. Seat
- 4. Nut

- 5. Stem
- 6. Sleeve
- 7. Hose

## CHAPTER 7

### REPAIR OF REGULATORS

---

#### 7-1. General.

The regulators are spring-loaded diaphragm type (Fig. 7-1). Regulator pressure is adjusted by increasing or decreasing the pressure on spring (9) above the diaphragm (8) with adjusting handle (11) through the top of cover (13). Increasing spring pressure increases regulated pressure. Direction of air flow is indicated by an arrow on body (7) near the inlet side of the regulator. Air enters the inlet on the arrow marked side and flows past a valve (4), which is held open by diaphragm (8), through the body (7) and leaves the outlet side. If air pressure in the body (7) is more than the force of the spring on the diaphragm, the diaphragm is forced up which, in turn, allows valve (4) to follow and close against a seat in the body (7). As air is used from outlet side, body pressure drops, letting diaphragm force valve (4) away from seat allowing more air into the body (7). Thus, outlet pressure is held constant.

#### 7-2. Procedure.

**a.** Disassemble regulator using Figure 7-1 as a guide. Proceed as follows:

##### **NOTE**

***Regulators can be disassembled in place on the paint tank. Leave body (7) piped to tank head.***

**(1)** Unscrew bottom plug (1) from body (7). O-Ring (2), spring (3) and valve (4) will all be free and come out of body (7) when bottom plug (1) is removed.

**(2)** Unscrew four screws (6) and lift cover (13) from body (7). Diaphragm (8), spring (9) and disc

(10) are now free and can be lifted from body (7).

**(3)** Remove adjusting screw (11) and nut (12) from cover (13).

##### **NOTE**

***It is not necessary to remove pipe plug (5) from body (7).***

**b.** Clean all parts with a petroleum based solvent such as kerosene or diesel fuel.

**c.** Check all parts for damage or undue wear. Use only serviceable parts when assembling regulator.

**d.** Assemble regulator using Figure 7-1 as a guide, proceed as follows:

**(1)** Screw nut (12) onto adjusting handle (11) and screw adjusting handle (11) into cover (13).

**(2)** Align diaphragm (8) over body (7) so holes line up. Place spring (9) on center of diaphragm (8) and disc (10) in center of spring (9). Place cover (13) over diaphragm (8) so holes line up. Insert four screws (6) into cover (13) holes and screw down tight.

**(3)** Place O-Ring (2) over threads on bottom plug (1), and insert valve (4) into center of spring (3). Carefully insert all four parts (1,2,3, &4) into body (7) and screw bottom plug (1) by hand until tight.

**e.** Regulator should now be installed on the pressure tank and checked for proper operation. With an air inlet pressure of from 65 to 80 psi, turn adjusting screw (11) until pressure gage reads 40 psi. Monitor pressure gage for two to three minutes, pressure should remain constant. If not, look for a regulator assembly error.

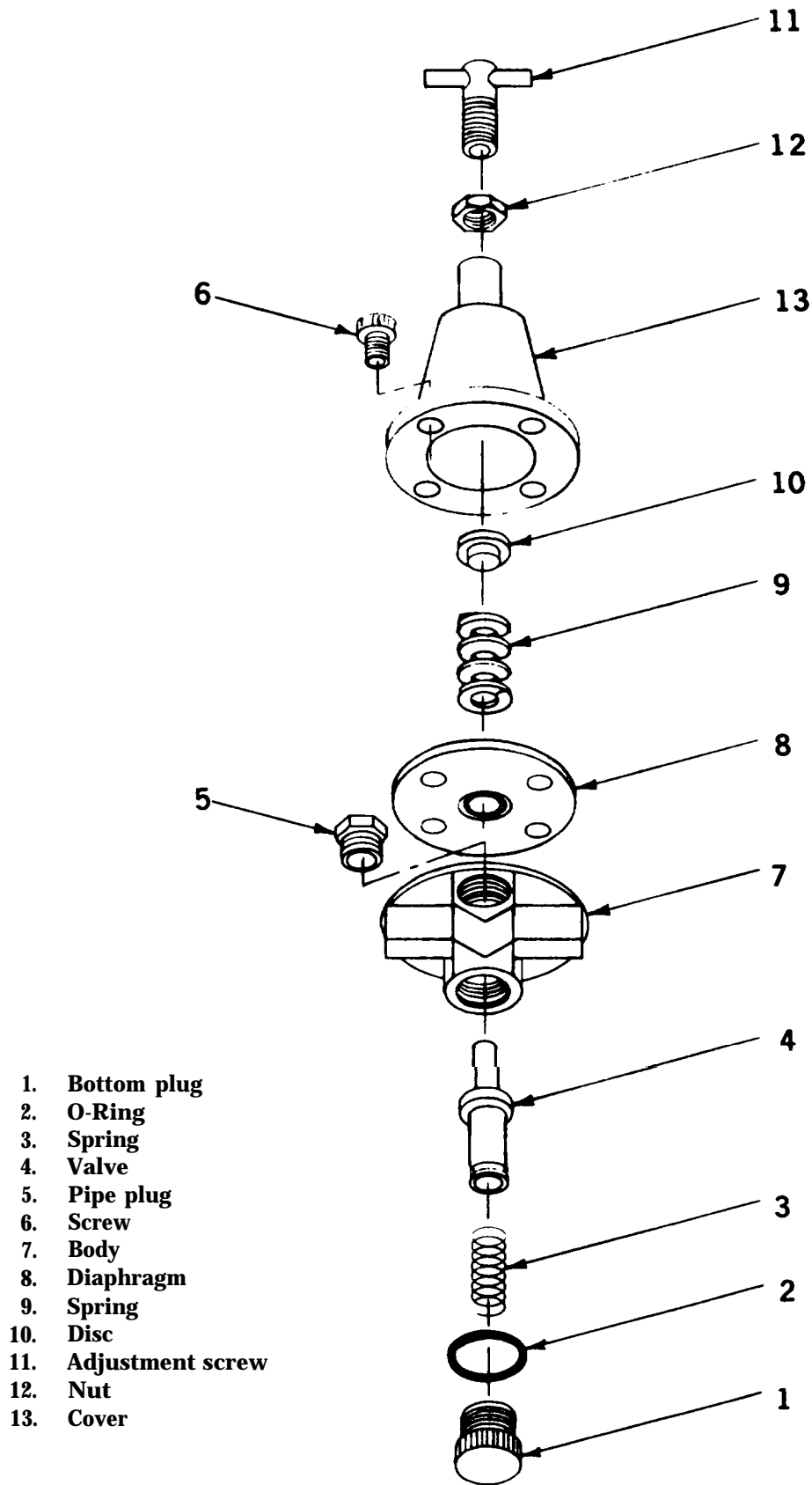


Figure 7-1. Regulator Exploded View

## CHAPTER 8

### REPAIR OF AIR MOTOR

---

#### 8-1. General.

The air motor is precision built rotary type air motor. The top clearance between rotor and bore in housing is 0.0015 to 0.002 in (0.0038 -0.0051 cm). Total end clearance between sides of rotor and end plates is 0.002 to 0.004 in (0.0051 to 0.0102 cm). Vanes are continuously self-adjusting and will last 5,000 to 25,000 hours, depending upon speed *operating* pressure and precautions taken in maintaining the motor.

#### 8-2. Prior to Disassembly.

If the air motor is reported to be sluggish or inefficient, try flushing with a petroleum based solvent such as kerosene or diesel fuel in a well ventilated area.

**a.** Pour two ounces (60 ml) of petroleum based solvent into air inlet opening.

**b.** Rotate rotor shaft by hand in both directions for a few minutes. This will dissolve and loosen foreign matter which could have built up inside.

**c.** Connect an air line to air motor inlet and apply air pressure slowly until there is no trace of vapor in exhaust air.

**d.** Reinstall air motor on pressure (paint) tank and test it for proper operation (para 8-5g).

**e.** Check muffler felts for grease, dirt or other foreign matter. If dirty, replace felts and install muffler onto air motor. If unsatisfactory results are obtained proceed to disassembly procedure.

#### 8-3. Disassembly.

Use Figure 8-1 as a guide and disassemble as follows:

**a.** Remove six screws (6) from dead end plate (8).

**b.** Hold housing (13) firmly, preferably in a vise, and tap exposed end of rotor (11) with a soft hammer until dead end plate (8) is free from dowel pins (12).

#### CAUTION

**Do not pry end plates (7 or 8) with a screw driver, as it will dent the surface of the plates and housing causing leaks**

#### NOTE

**Count the number of gaskets (9) removed from each end plate (7 and 8). When reassembling, the same amount will have to be installed.**

**c.** Unscrew end cap (1), remove gasket (2) and press out bearing (3).

**d.** Pull rotor (11) thru housing (13) until clear of bearing (4). Four vanes (10) can now be lifted out of rotor (11) slots.

**e.** Remove six screws (6) which attach drive end plate (7) to housing (13). Place block of wood against inside surface of drive end plate (7) and tap until drive end plate (7) is free from dowel pins (12).

**f.** Pry out shaft seal (5) and discard, then press out bearing (4) from drive end plate (7).

#### 8-4. Cleaning and Inspection.

**a.** Clean all parts, except bearings, with a petroleum based solvent. Wipe bearings with a clean rag.

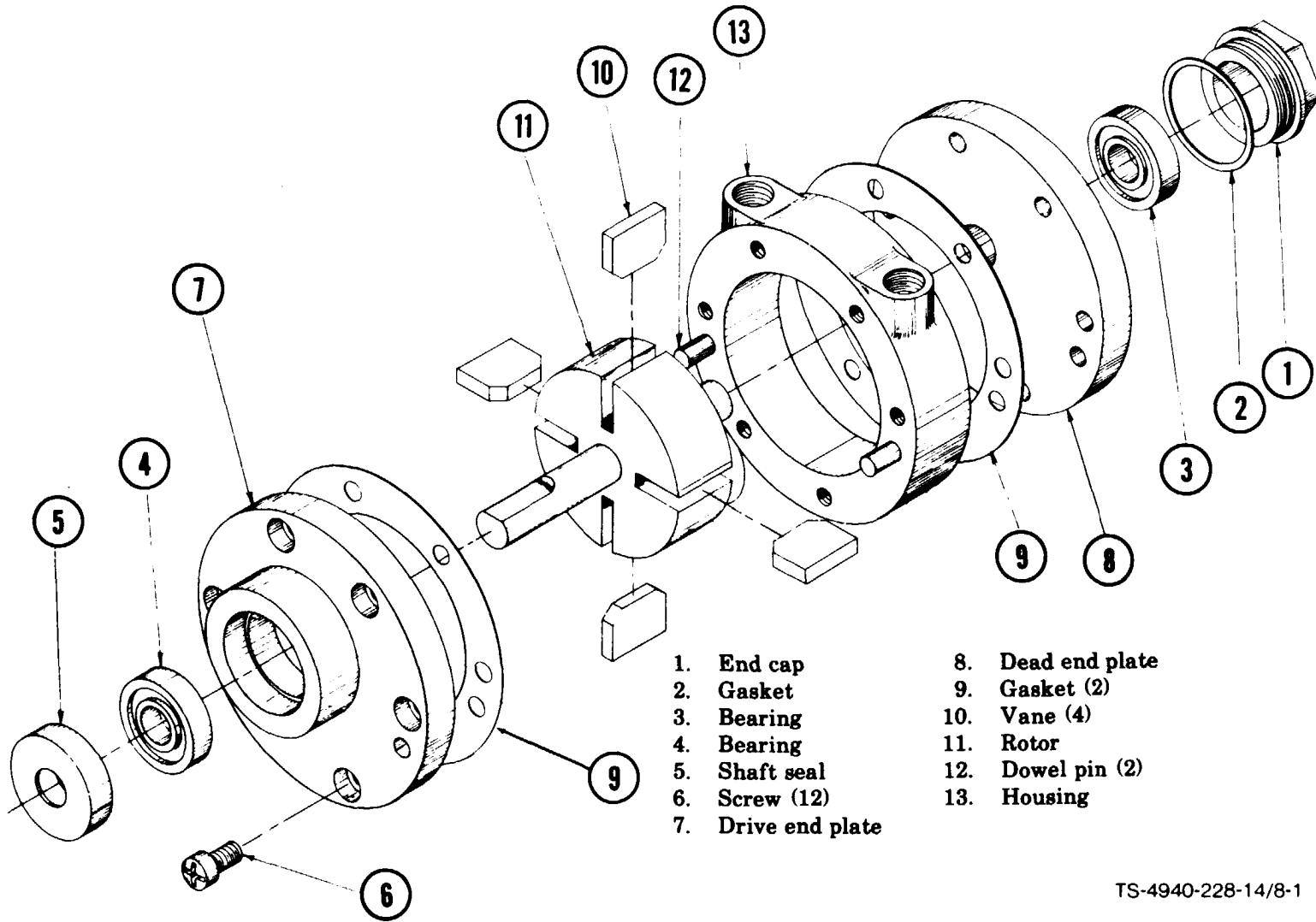
**b.** Inspect all parts for damage or excessive wear. Replace parts as necessary.

#### 8-5. Reassembly.

Use Figure 8-1 as a guide and proceed as follows:

**a.** Press bearing (3) into dead end plate (8). Place gasket (2) over threads of end cap (1) and screw end cap (1) into dead end plate (8).

**b.** Place gasket (9) on face of housing (13). Line up dead end plate (8) with holes in gasket (9) and housing (13), screw in six screws (6) and tighten.



TS-4940-228-14/8-1

Figure 8-1. Air Motor Exploded View

**c.** Insert four vanes (10) into rotor (11) slots with beveled edges towards center of rotor and slide rotor (11) thru housing (13). Carefully insert shaft of rotor (11) thru bearing (3),

**d.** Press bearing (4) and shaft seal (5) into drive end plate (7).

**e.** Place gasket (9) over open face of housing (13). Line up drive end plate (7) with holes in gasket (9) and housing (13), screw in six screws (6) and tighten.

**f.** Once assembled, lubricate air motor with 1/2 ounce (15 ml) of motor oil into one of the housing (13) openings. Rotate rotor (11) shaft by hand in both directions to thoroughly coat the rotor (11), vanes (10) and housing (13).

**g.** Test the air motor by supplying air to the inlet opening. Gradually increase air pressure while watching the rotor (11) shaft. Rotor (11) shaft should start rotating slowly and steadily then increase in speed as you increase inlet air pressure.



## CHAPTER 9

### REPAIR OF COMPRESSOR

---

#### 9-1. General.

The air compressor is a four cylinder reciprocating type with a capacity of 80 psi to 15 cfm. Reed type valves with unloaders are used to allow for continuous operation. Unloaders are controlled by the unloader pilot valve which maintains a pressure range of 65 psi to 80 psi in the pulsation chamber.

#### 9-2. Operation.

Consider a piston at the top of stroke and beginning to go down into the cylinder. As the piston is pulled downward by crankshaft rotation, a vacuum is formed in the cylinder allowing atmospheric pressure to force the intake valves open. Air is drawn through the filter, past the intake valves and into the cylinder. Discharge valves are held closed by air pressure in the pulsation chamber. When the piston starts its upward stroke, pressure in the cylinder exceeds intake air pressure, forcing intake valves closed. As the piston continues upward air is com-

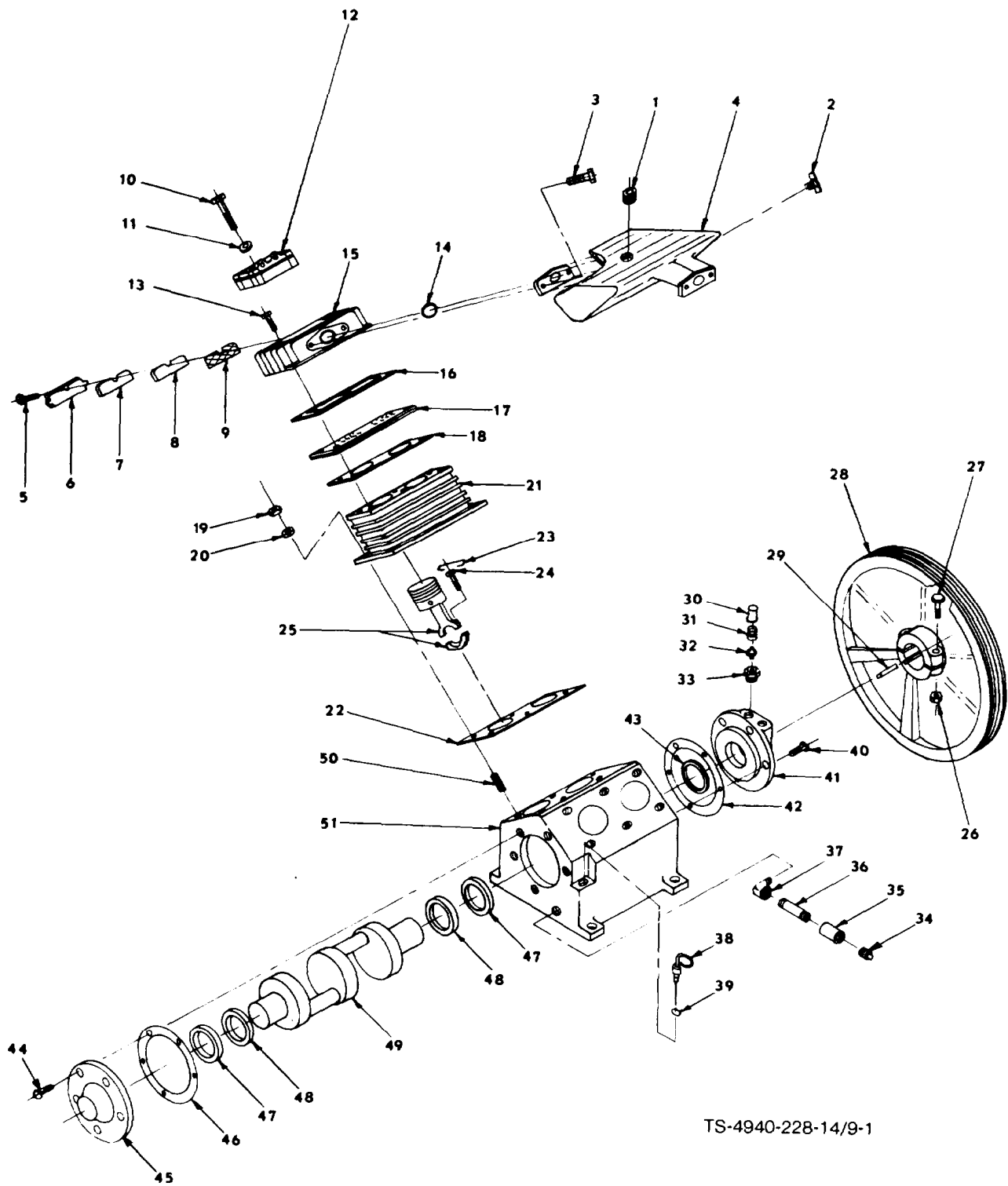
pressed and increases in pressure until it exceeds pulsation chamber pressure. The discharge valve is forced open, allowing cylinder air to enter the pulsation chamber until the piston reaches top of stroke. As the piston starts down, cylinder pressure becomes less than pulsation chamber pressure which closes the discharge valves and the process is repeated. Unloading occurs when pressure from unloader pilot valves forces unloader pistons down against the intake valves. Since intake valves are now open continuously, cylinder pressure cannot build up enough to open valves. No air is pumped into the pulsation chamber. Internal lubrication is automatic by splash from dippers on the connecting rods. Intake air filters and silencers are pad type attached directly to the cylinder head. Air cooling is by fins cast into cylinders and heads, also, pulley has cast blades which force air over fins

#### 9-3. Disassembly.

Use Figures 9-1, 9-2, 9-3, and 9-4 as guides and proceed as follows:

Key to Figure 9-1:

- |                        |                      |
|------------------------|----------------------|
| 1. Pipe                | 27. Bolt (2)         |
| 2. Drain cock          | 28. Pulley           |
| 3. Bolt (4)            | 29. Key              |
| 4. Pulsation chamber   | 30. Breather cap (2) |
| 5. Screw (6)           | 31. Spring (2)       |
| 6. Filter retainer (2) | 32. Valve (2)        |
| 7. Outer filter (2)    | 33. Seat (2)         |
| 8. Inner filter (2)    | 34. Pipe plug        |
| 9. Screen (2)          | 35. Coupling         |
| 10. Bolt, long (4)     | 36. Nipple           |
| 11. Lock washer (2)    | 37. Street elbow     |
| 12. Unloader (2)       | 38. Dipstick         |
| 13. Bolt, short (8)    | 39. O-Ring           |
| 14. O-Ring (2)         | 40. Bolt (5)         |
| 15. Head (2)           | 41. Rear, carrier    |
| 16. Gasket (2)         | 42. Gasket           |
| 17. Valve assembly (2) | 43. Oil seat         |
| 18. Gasket (2)         | 44. Bolt (5)         |
| 19. Nut (12)           | 45. Front, carrier   |
| 20. Lock washer (12)   | 46. Gasket           |
| 21. Cylinder (2)       | 47. Bearing cup (2)  |
| 22. Gasket (2)         | 48. Bearing cone (2) |
| 23. Lock wire (8)      | 49. Crankshaft       |
| 24. Bolt (8)           | 50. Stud (12)        |
| 25. Piston (4)         | 51. Crankcase        |
| 26. Nut (2)            |                      |



TS-4940-228-14/9-1

Figure 9-1. Compressor Exploded View

**NOTE**

***You should follow disassembly procedure only enough to get to damaged parts. For example, if valves require servicing, follow procedure until valves are removed.***

**a.** Remove pulsation tank (4) by unscrewing four bolts (3).

**b.** Both heads (15) can now be removed by unscrewing four short bolts (13) and two long bolts (10) from each side. Washer (11) will be removed with long bolt (10) (Fig. 9-1).

**c.** Both heads (15) can be further disassembled as follows:

**(1)** Remove three screws (5) which allow you to take off filter retainer (6), outer filter (7), inner filter (8) and screen (9).

**(2)** (Fig. 9-2) Remove five bolts (12a), lift off cover (12 b), remove gasket (12c) and lift off body (12d).

**(3)** Push both pistons (12e) from body (12d). Remove four O-Rings (12f). Both pins (12g) and both springs (12h) are loose and can be lifted out of head.

**d.** (Fig. 9-1) Lift off gasket (16), valve assembly (17) and gasket (18).

**e.** Both valve assemblies (17) can be further disassembled as follows:

**(1)** Tap out two roll pins (17d) which hold the assembly together.

**(2)** Top plate (17a) can now be disassembled by unscrewing four screws (17b) and removing two intake valves (17c).

**(3)** Bottom plate (17g) can be disassembled by removing four screws (17h) and removing two discharge valves (17i).

**f.** (Fig. 9-1) Remove cylinders (21) by removing four each nuts (19) and washers (20). Lift off cylinder (21) and gasket (22).

**g.** Remove four pistons (25) by removing two pieces of lock wire (23) from each piston (25). Hold bottom part of piston (25) while removing two bolts (24) so parts do not fall into crankcase (54).

**h.** (Fig. 9-4) To disassemble piston (25) remove two piston pin plugs (25a), push piston pin (25b) thru piston (25g) and remove four rings (25c).

**i.** (Fig. 9-1) Remove pulley (28) by unscrewing two bolts (27) from two nuts (26). Slide pulley from

crankshaft (49), lift key (29) from crankshaft (49).

**j.** Pull dipstick (26) from crankcase, O-Ring (39) can now be removed.

**h.** Remove plug (34), unscrew coupling (35), unscrew nipple (36) and unscrew elbow (29) from crankcase (54).

**l.** Remove two breather caps (30), two springs (31), two valves (32), and two seats (33) from front carrier (45). Remove five bolts (40) and pull rear carrier (41) from crankcase (54). Slide crankshaft (46) out of crankcase (54).

**m.** Remove front carrier (41) by removing five bolts (44). Gasket (46), oil seal (43) bearing cup (47) and bearing cone (48) can now be removed.

**9-4. Cleaning and Inspection.**

Clean all parts with a petroleum based solvent such as kerosene or diesel fuel. Inspect parts for damage or excessive wear. The following is a list of tolerances:

Crankshaft journals . . . . .	1.500-1.495 in
.....	(3.810-3.797 cm)
Connecting rod	
Crankshaft end . . . . .	1.5018-1.5025 in
.....	(3.814-3.816 cm)
Piston pin end . . . . .	0.626-0.630 in
.....	(1.590-1.600 cm)
Cylinder bore . . . . .	2.625-2.630 in
.....	(6.667-6.680 cm)
Piston pin . . . . .	0.625-0.622 in
.....	(1.587-1.580 cm)
Piston pin hole . . . . .	0.625-0.630 in
.....	(1.587-1.600 cm)
Piston diameter . . . . .	2.619-2.615 in
.....	(6.652-6.642 cm)

**9-5. Reassembly.**

**a.** (Fig. 9-1) Assemble two seats (33), two valves (32), two springs (31) and two breather cups (30) into rear carrier (41). Press bearing cup (47) and oil seal (43) into rear carrier (41). Using a new gasket (42) and five bolts (40), attach rear carrier (41) to crankcase (51).

**b.** Install a bearing cone (48) on each end of crankshaft (49). Slide crankshaft (49) thru crankcase (51) (slotted shaft end first) and thru rear carrier (41). Hold crankshaft centered while installing bearing cup (47), gasket (46) and front carrier (45). Screw in five bolts (44). Torque five bolts (40) and five bolts (44) to 225 in lbs (40,185 gr cm).

- 12a. Bolt (5)
- 12b. Cover
- 12c. Gasket
- 12d. Body
- 12e. Piston (2)
- 12f. O-Ring (4)
- 12g. Pins (2)
- 12h. Spring (2)

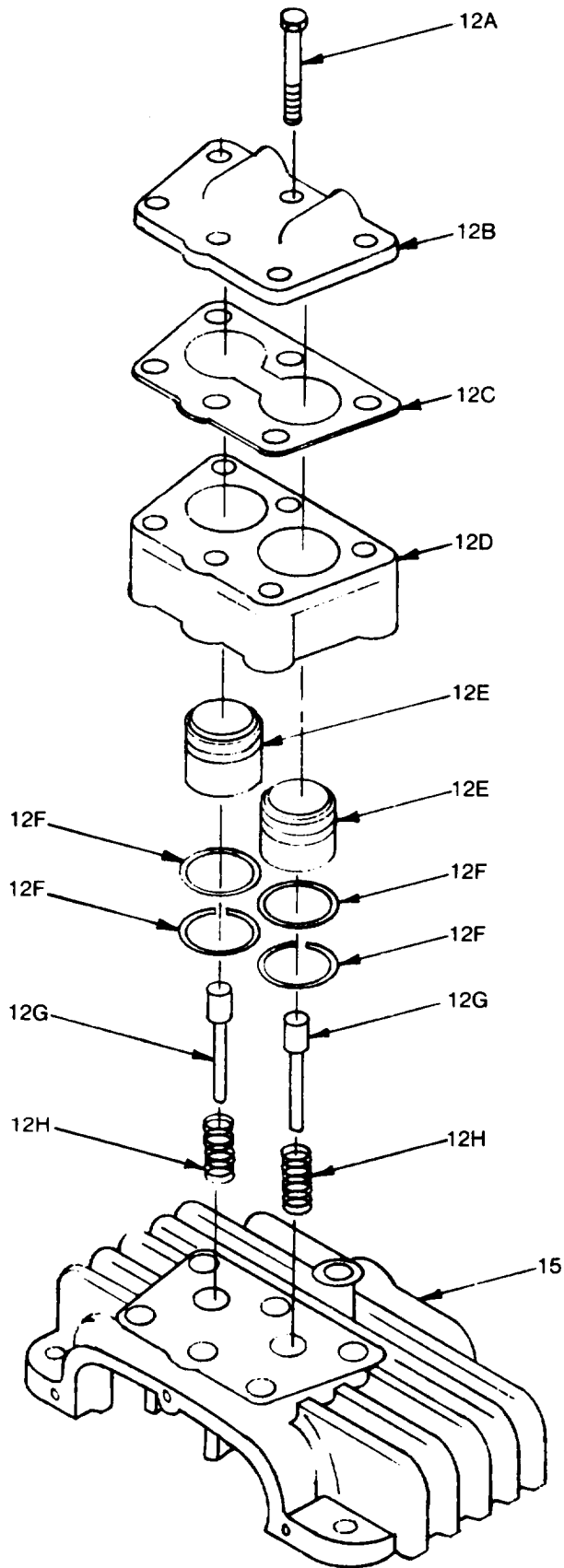


Figure 9-2. Unloader Assembly

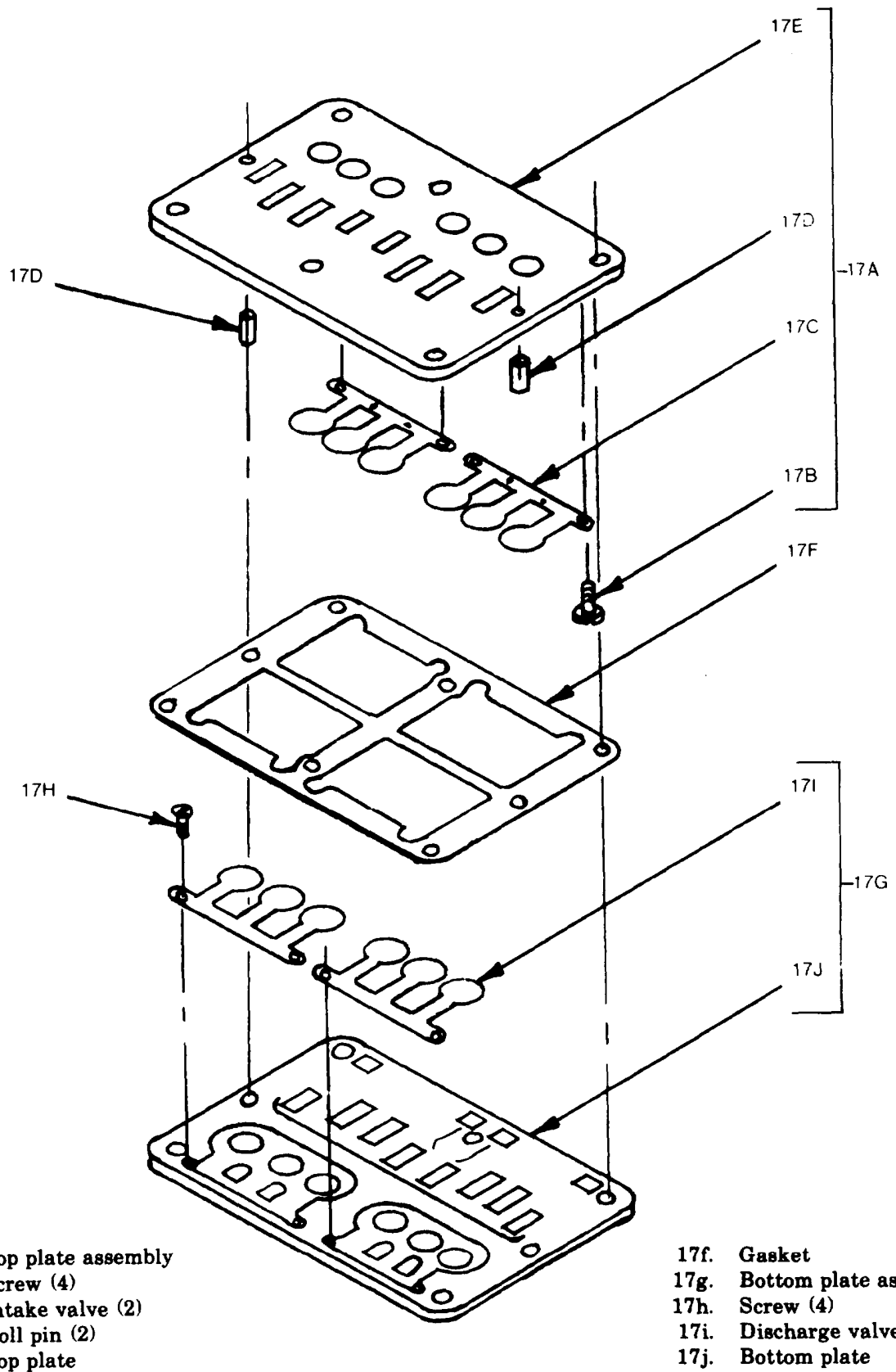
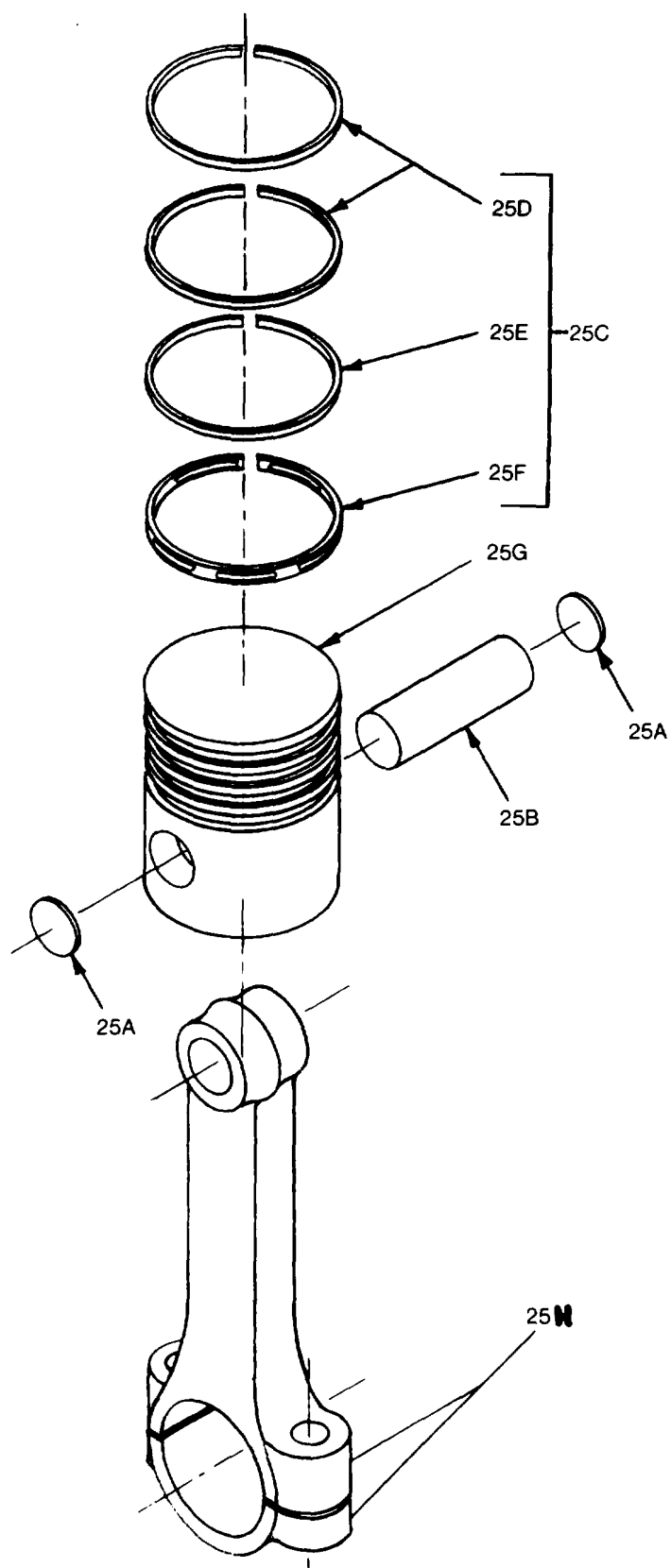


Figure 9.3. Valve Assembly



- 25a. Piston pin plug
- 25b. Piston pin
- 25c. Piston ring set
- 25d. Compression ring (2)
- 25e. Compression ring
- 25f. Oil ring
- 25g. Piston
- 25h. Connecting rod

*Figure 9-4. Piston Assembly*

**c.** (Fig. 9-4) Assemble all four pistons. Put connecting rod (25h) into piston (25g) and line up holes. Slide piston pin (25b) thru holes in piston (25g) and connecting rod (25h). Press a piston pin plug (25a) into each side of piston (25g) over piston pin (25b). Install rings (25c) onto piston (25g).

**(1)** Put oil ring (25f) on first.

**(2)** Install compression ring (25e) next, make sure square groove is facing down.

**(3)** Install two compression rings (25d), make sure beveled edge is facing up.

**d.** (Fig. 9-1) Bolt each connecting rod (9) to crankshaft (49). Insert piston wire (23) into each bolt (24). Rotate crankshaft until two pistons on one side are about even height. Install new gasket (22), slide cylinder (21) over both pistons (25). Fasten in place with four washers (20) and four nuts (19). Tighten to 250 in lbs (44,650 gr cm) when pistons (25) are attached check end play between connecting rods and crankshaft. Acceptable measurement is less than 0.015 in (0.038 cm).

**e.** Assemble both valve assemblies (17). (Fig. 9-3) Take top plate (17e) which is marked "this side up" and fasten both intake valves (17c) in place with four screws (17b). Intake valves (17c) are 0.010 in (0.025 cm) thick. Fasten both discharge valves (17i) to bottom plate (17j) with four screws (17h). Discharge valves (17i) are 0.015 in (0.038 cm) thick. Place gasket (17f) over bottom plate assembly (17g) and place top plate assembly (17a) over gasket (17f) lining up holes. Insert both roll pins (17d) thru holes and tap in place with a soft drift or hammer.

**f.** (Fig. 9-1) Place gasket (18), valve assembly (17), and gasket (16) over cylinder (21), line up all holes. Place head (15) over gasket (16) and fasten with two long bolts (10) and four short bolts (13); snug only, not tight.

**g.** (Fig. 9-2) Place twosprings (12h) and two pins (12g) into each head (Fig. 9-1, 15). Place two O-Rings (12f) over each of the four pistons (12e) and insert the pistons (12e) into both bodies (12d). Position both bodies (12d) on each head (Fig. 9-1, 15); place a gasket (12c) and a cover (12b) over each body (12d) and fasten allparts with five bolts (12a).

**h.** (Fig. 9-1) Place screen (9), inner filter (8), outer filter (7) and filter retainer (6) on the outside of each head (15). Fasten with three screws (5).

**i.** Set pulsation chamber (4) in place between both heads (15), make sure O-Ring (14) is in place in each head (15). Screw four bolts (3) down tight to a torque of 350 in lbs (62,510 gr cm). Tighten six head bolts (10 and 13) in each head to 250 in lbs (44,650 gr cm). Tighten six head bolts (10 and 13) in each head to 250 in lbs (44,650 gr cm) torque, doing the two long bolts (10) first and the four short bolts (13) last. After five hours use, retorque all head bolts (10 and 13) to 250 in lbs (44,650 gr cm).

**j.** Fill to proper level with oil, see Lubrication Order in Chapter 3.

**k.** Rotate pulley (28) by hand a slight resistance should be felt, but the pulley should move without undue strain or binding.

**l.** Reinstall on cart. See instructions in Chapter 5.

## APPENDIX A

### REFERENCES

---

- A-1. Maintenance**  
**TM 5-4940-228-24P**
- Organizational, Direct Support and General Support Repair Parts and Special Tools List for Spray Outfit, Paint, Model 50-6609, NSN 4940-00-255-8683.
- TM 38-750**
- The Army Maintenance Management System (TAMMS)
- TM 9-2610-200-20**
- Organization Care, Maintenance and Repair of Pneumatic Tires and Inner Tubes
- TM 5-2805-257-14**
- Operator, Organizational, Intermediate (Field) Direct and General Support and Depot Maintenance Manual: Engine Gasoline, 3HP, Military Standard Models (Model 2A016-1, NSN 2805-00-601-5127); (Model 2A016-2, NSN 2805-00-714-8553) and (Model 2A016-3, NSN 2805-00-072-4871)
- A-2. Destruction to Prevent Enemy Use**  
**TM 760-244-3**
- Procedures for Destruction of Equipment to Prevent Enemy Use
- A-3. Administrative Storage**  
**TM 740-00-1**
- Administrative Storage Equipment
- A-4. Painting**  
**TM 43-0139**
- Painting Instructions for Field Use
- A-5. Preservation and Packaging**  
**TM 38-100**
- Preservation, Packaging, Packing, and Marking Materials, Supplies and equipment Used by the Army



# APPENDIX B

## COMPONENTS OF END ITEMS LIST

### Section I. INTRODUCTION

**B-1. Scope.**

This appendix lists Integral Components of and Basic Issue Items (BII) for the Paint Spray Outfit to help you inventory items required for safe and efficient operation.

**B-2. General.**

The components of end item list are divided into the following sections:

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

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

**B-3. Explanation of Columns.**

**a. Illustration.** This column is divided as follows:

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

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

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

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

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

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

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

Code	Used On
------	---------

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

**h. Quantity.** This column lists the quantity you actually receive on your major item. The date columns are for use when you inventory the major item at a later date, such as for shipment to another site.

**Section II. INTEGRAL COMPONENTS OF END ITEM**

For Paint Spray Outfit 4940-00-255-8683

(1) ILLUSTRATION		(2) NATIONAL STOCK NUMBER	(3) PART NO. & FSCM	(4) DESCRIPTION	(5) LOCATION	(6) USABLE ON CODE	(7) QTY REQ'D	(8) QUANTITY			
(a) FIGURE NO.	(b) ITEM NO.							REC'D	DATE	DATE	DATE
4-1		4940-043-261-8413	50-6510 19272	Spray Gun			2				
6-1		4940-00-190-5164	50-6539 19272	Cup Assembly, Pressure			2				
6-2		4940-01-095-7014	6602-48 19272	Extension			1				
6-3		4720-01 -096-0168	7-118-225 19272	Hose Assembly, F/25'			2				
6-3		4720-01 -097-0389	7-116-125 19272	Hose Assembly, Air 25'			2				
6-3		4720-01-096-1352	7-1111-150 19272	Hose Assembly, Air 50'			4				
4-2		4940-01-277-7660	50-6523 19272	Tank Assembly, Pressure			2				
1-1		4940-01-088-3229	50-6618 19272	Chest			t				
2-5		4240-00-022-2524	GGG-M- 125/6	Respirator Assy, Half Mask			2				

TM 5-4940-228-14

Section III.  
BASIC ISSUE ITEMS

For Paint Spray Outfit  
4940-00-255-8683

(1) ILLUSTRATION (a) (b) FIGURE ITEM NO. NO.	(2) NATIONAL STOCK NUMBER	(3) PART NO. & FSCM	(4) DESCRIPTION	(5) LOCATION	(6) USABLE ON CODE	(7) QTY REQD	(8) QUANTITY			
							REC'D	DATE	DATE	DATE
	7510-00-889-3494		Binder			1				
	7520-00-559-9618		Case			1				
	4210-00-889-2221		Extinguisher			1				
	TM 5-4940-228-14		Technical Manual			1				
	TM 5-2805-257-14		Technical Manual			1				

Change 1 B3/B-4 blank

TM 5-4940-228-14

# APPENDIX C

## MAINTENANCE ALLOCATION CHART

### Section I. INTRODUCTION

#### C-1. General.

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

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

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

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

#### C-2. Maintenance Functions.

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

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

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

**d. Adjust.** To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating 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 certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared

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

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

**i. Repair.** The application of maintenance services or other maintenance actions to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), and item *or* system.

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

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

**C-3. Column Entries Used in The MAC.**

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

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

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

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

C .....	Operator or crew
O .....	Organization 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, test and support equipment required to perform the designated functions. (not applicable)

**f. Column 6, Remarks.** Column 6 specifies, by code, remarks referred to in Section IV.

**C-4. Column Entries Used in Tool and Test Equipment Requirements.**

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

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

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

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

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

**C-5. Explanation of Columns in Section IV.**

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

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

**Section II. MAINTENANCE ALLOCATION CHART  
FOR SPRAY OUTFIT, PAINT**

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools & Equip.	(6) Remarks
			C	0	F	H	D		
01	Spray Gun	Inspect	.2						
		Service	.2						
		Test	.1						
		Repair		.3					
		Replace	.2						
02	Pressure Cup	Inspect	.1						
		Service	.2						
		Test			.2				
		Repair			.2				
		Replace	.2						
03	Extension	Inspect	.1						
		Test			.2				
		Repair			.2				
		Replace	.2						
04	Hose	Inspect	.1						
		Test			.1				
		Repair			.2				
		Replace	.2						
05	Pressure Tank	Inspect	.1						
		Service		.5					
		Replace		.2					
		Repair		.5					
0501	Regulators	Inspect	.2						
		Repair			.0				
		Replace	.5						
0502	Gages	Inspect	.1						
		Replace	.3						
0503	Airmotor	Inspect	.2						
		Service	.2						
		Repair			.0				
		Replace	.3						
06	Respirator	Inspect	1						
		Repair	1						
		Replace	1						

**Section II. MAINTENANCE ALLOCATION CHART  
FOR SPRAY OUTFIT, PAINT**

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools & Equip.	(6) Remark
			C	O	F	H	D		
07	Chest	Inspect Replace							
08	Compressor, Cart, Mounted								
0801	Belt	Inspect Adjust Replace							
0802	Engine	Inspect Service Replace							A
0803	Compressor	Inspect Service Replace Repair							
0804	Gages	Inspect Replace							
0805	Chamber, Pulsation	Inspect Service Test Replace							
0806	Tires	Inspect Replace							
0807	Cart	Inspect Service Replace		1.0					

**Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS**  
**SPRAY OUTFIT PAINT**

<b>(1) Refer- ence Code</b>	<b>(2) Mainten- ance Level</b>	<b>(3)  Nomenclature</b>	<b>(4)  National/NATO Stock Number</b>	<b>(5)  Tool Number</b>
		<p align="center">No special tools or test equipment.</p>		



**Section IV. REMARKS**  
**Maintenance Allocation Chart**  
**For Spray Outfit Paint**

Reference Code	Remarks
A	<p>Engine is a Military Standard 2A016 and TM 5-2805-257-14 and 24P is assigned. All Repair, Rebuild, and Overhaul shall be accomplished in accordance with applicable TM.</p>

# APPENDIX D

## EXPANDABLE SUPPLIES AND MATERIALS LIST

### Section I. INTRODUCTION

#### D-1. Scope.

This appendix lists expendable supplies and materials you will need to operate and maintain the Paint Spray Outfit. These items are authorized to you by CTA50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items).

#### D-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. D").

**b. Column 2- Level** This column identifies the lowest level of maintenance that requires the listed item. (enter as applicable):

C - Operator/Crew

F - Direct Support Maintenance

O - Organizational Maintenance

H - General Support Maintenance

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

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

**e. Column 5- Unit of Measure (U/M).** Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviate (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 SUPPLIES AND MATERIALS LIST**

(1)  ITEM NUMBER	(2)  LEVEL	(3)  NATIONAL STOCK NUMBER	(4)  DESCRIPTION	(5)  U/M
1	0	9150-00-189-6727	Lubricating Oil Engine	QT
	0	9150-00-191-2772	Lubricating Oil Engine	DR
	0	9150-00-402-2372	Lubricating Oil Engine	CN

**INDEX**

Subject	Paragraph Figure, Table Number
<b>A</b>	
Air Cleaner, Compressor .....	F9- 1
Air Compressor .....	9-1
Air Motor .....	8-1
Air Pressure Regulator .....	7-1
Air Hose .....	6-10
Air Valve, Pulsation Tank .....	F2-2
<b>B</b>	
Belt, Adjust .....	5-8
<b>C</b>	
Capacities .....	1-8
Cart, Two Wheel .....	F5-1
Cleaner, Air Compressor .....	F9-1
Clearances .....	9-4
Compressor, Air .....	9-1
Air Cleaner .....	F9-1
Air Valve .....	F2-2
Belt V .....	5-8
Breather, Crankcase .....	F9-1
Connecting Rod .....	F9-4
Crankcase .....	F9-1
Crankshaft .....	F9-1
Cylinder .....	F9-1
Cylinder Head .....	F9-2
Flywheel .....	F9-1
Install .....	5-8
Pistons .....	F9-4
Replace .....	5-8
Unloader .....	F9-2
Values .....	F9-3
Connecting Rod, Compressor .....	F9-4
Controls, Pressure Tank .....	F2-3
Controls, Pulsation Chamber .....	F2-2
Crankcase, Compressor .....	F9-1
Crankshaft, Compressor .....	F9-1
Cup, Pressure .....	6-1
Cylinder, Compressor .....	F9-1
Cylinder Head, Compressor .....	F9-2
<b>D</b>	
Data, Tabulated .....	1-8
Dismantling for Movement .....	4-4
<b>E</b>	
Engine, Gasoline .....	5-8
Filter, Fuel .....	5-8
Fuel Line .....	F5-1
Install .....	5-1
Pulley, Starter .....	2-5

Subject	Paragraph Figure, Table Number
Replace .....	5-8
Starting .....	2-5
Starting .....	2-5
<b>Equipment</b>	
Inspecting .....	4-1
Operation .....	2-7
Servicing .....	4-3
Special Tools and Equipment .....	5-1
Starting .....	2-5
Starting .....	2-5
Unloading .....	4-1
Unpacking .....	4-1
Extension, Spray Gun .....	F2-4
<b>F</b>	
Fuel Pressure Regulator .....	7-1
Flywheel, Compressor .....	9-5
Forms, Record and Report .....	1-2
<b>H</b>	
Hose Repair .....	6-10
<b>I</b>	
Identification and Tabulated Date .....	1-8
<b>Indoor Installation</b> .....	2-2
Inspection and Servicing Equipment .....	4-3
<b>Installation</b>	
Indoor .....	2-2
Outdoor .....	2-2
<b>Installation or Operating Procedures</b> .....	2-1
<b>L</b>	
Lubrication .....	3-1
<b>M</b>	
<b>Movement</b>	
Dismantlement for .....	4-4
Reinstallation After .....	4-5
<b>O</b>	
<b>Operation</b>	
<b>At High Altitudes</b> .....	2-15
In Dusty or Sandy Areas .....	2-12
In Extreme Cold .....	2-10
<b>In Extreme Heat</b> .....	2-11
In Salt Water Areas .....	2-14
<b>Under Rainy or Humid Conditions</b> .....	2-13
Under Unusual Conditions .....	2-10
<b>Operator's Maintenance</b> .....	3-5
<b>Operator's Troubleshooting</b> .....	T3-2
Outdoor Installation .....	2-2
<b>P</b>	
Paint Preparation .....	2-3

Subject	Paragraph Figure, Table Number
Pistons, Compressor.....	F9-4
Preparation for Starting.....	2-2
Pressure Regulator.....	7-1
Pressure Tank.....	F4-2
<b>Preventive Maintenance Services</b>	
Operator.....	3-2
Organizational.....	4-9
Pulley, Starter.....	2-5
<b>R</b>	
Record and Report Forms.....	1-2
Regulator, Pressure.....	7-1
<b>Respirator</b>	
Cartridges.....	F2-5
Cleaning Instructions.....	2-8
Headbands.....	F2-5
Preparation for use.....	2-4
Replace.....	T3-1
Service.....	2-8
Valves.....	F2-5
Rugs, Piston, Compressor.....	F9-4
<b>S</b>	
Scope.....	1-1
Servicing Equipment.....	4-1
Setting up Instructions, Installation.....	2-2
Special Tools and Equipment.....	5-1
<b>Spray Gun</b>	
Clean.....	2-8
Extension.....	2-7
Repair.....	4-14
Replace.....	F2-4
Service.....	4-14
Starting.....	2-5
<b>Stopping</b>	
Emergency.....	2-6
Normal.....	2-8
<b>T</b>	
Tabulated Data.....	1-9
Tank, Fuel.....	F2-1
Tank, Pressure.....	F2-3
Torque Data.....	1-9
<b>Troubleshooting</b>	
Direct and General Support.....	5-4
Operator.....	3-4
Organizational.....	4-11
Two Wheel Cart.....	F5-1
Tires.....	T4-I
<b>U</b>	
Unloader, Manual, Compressor.....	F2-6
Unloaders, Compressor.....	F9-2

<b>Subject</b>	<b>Paragraph Figure, Table Number</b>
Unloading, Equipment .....	4-4
Unpacking, Equipment .....	4-4
<b>V</b>	
V Belt .....	5-8
<b>Valves, Compressor</b> .....	<b>9-1</b>
Valve, Unloader Pilot .....	F2-6

By Order of the Secretary of the Army:

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

Official:

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

DISTRIBUTION:

To be distributed in accordance with Da Form 12-28, Operator Maintenance requirements for Respirators: Paint Spray.





# SOMETHING WRONG WITH THIS MANUAL?

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

FROM: (YOUR UNIT'S COMPLETE ADDRESS)  
**PFC JOHN DOE**  
**COA, 3<sup>d</sup> ENGINEER BN**  
**FT. LEONARD WOOD MO 63108**  
 DATE

PUBLICATION NUMBER	DATE	TITLE
--------------------	------	-------

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			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.
81		4-3		Callout 16 on figure 4-3 is pointing at a <u>bolt</u> . In the key to fig. 4-3, item 16 is called a <u>shim</u> . Please correct one or the other.
125	line 20			Ordered a gasket, item 19 on figure B-16 by NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN.

TEAR ALONG DOTTED LINE

~~SAMPLE~~

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER <b>JOHN DOE, PFC (268) 317-7111</b>	SIGN HERE: <i>John Doe</i>
---	-------------------------------



# SOMETHING WRONG WITH THIS MANUAL?

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

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER

DATE

TITLE

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.
----------	------------	------------	-----------

TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

FILL IN YOUR  
UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

POSTAGE AND FEES PAID  
DEPARTMENT OF THE ARMY  
000-314

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, \$300

Commander:  
U.S. Army Support and Aviation  
Material Readiness Command  
ATTN: DRSTS-MTPS  
4300 Goodfellow Boulevard  
St. Louis, Mo. 63120

TEAR ALONG DIVIDED LINE

FOLD BACK

# 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 = 3,280.8 feet

## Weights

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

## Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce  
 1 deciliter = 10 centiliters = 3.38 fl. ounces  
 1 liter = 10 deciliters = 38.82 fl. ounces  
 1 dekaliter = 10 liters = 2.64 gallons  
 1 hectoliter = 10 dekaliters = 26.42 gallons  
 1 kiloliter = 10 hectoliters = 264.18 gallons

## Square Measure

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

## Cubic Measure

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

## Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
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	1.365	metric tons	short tons	1.102
pound-inches	newton-meters	.11375			

## Temperature (Exact)

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

