TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL,

DS, AND GS MAINTENANCE MANUAL

INCLUDING ILLUSTRATED PARTS BREAKDOWN

HYDRAULIC TEST STAND

FSN 4920-882-6401

TYPE D-5B, P/N 674016

This copy is a reprint which includes current pages from Changes 1 through 3.

HEADQUARTERS DEPARTMENT OF THE ARMY

JUNE 1971

NOTE

This manual has not been prepared according to military specifications; but despite this limitation of its contents, the publication does provide the essential data needed to operate and to maintain the equipment.

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 25 January 1984

Operator, Organizational, Direct Support
and General Support Maintenance Manual
Including Illustrated Parts Breakdown

HYDRAULIC TEST STAND
NSN 4920-00-882-6401
TYPE D-5B, P/N 674016

TM 66-4920-335-14, 21 June 1971, is changed as follows:

Page 1-1, paragraph 1-2. Lines 4 - 6 are changed to read "(Recommended Changes to DA Publications and Blank Forms) and forwarded direct to: Commander, US Army Aviation Systems Command, ATTN: DRSAV-MPSD, 4300 Goodfellow Blvd., St. Louis, MO 63120."

Page 4-5, Figure 4-3 is superseded as follows:

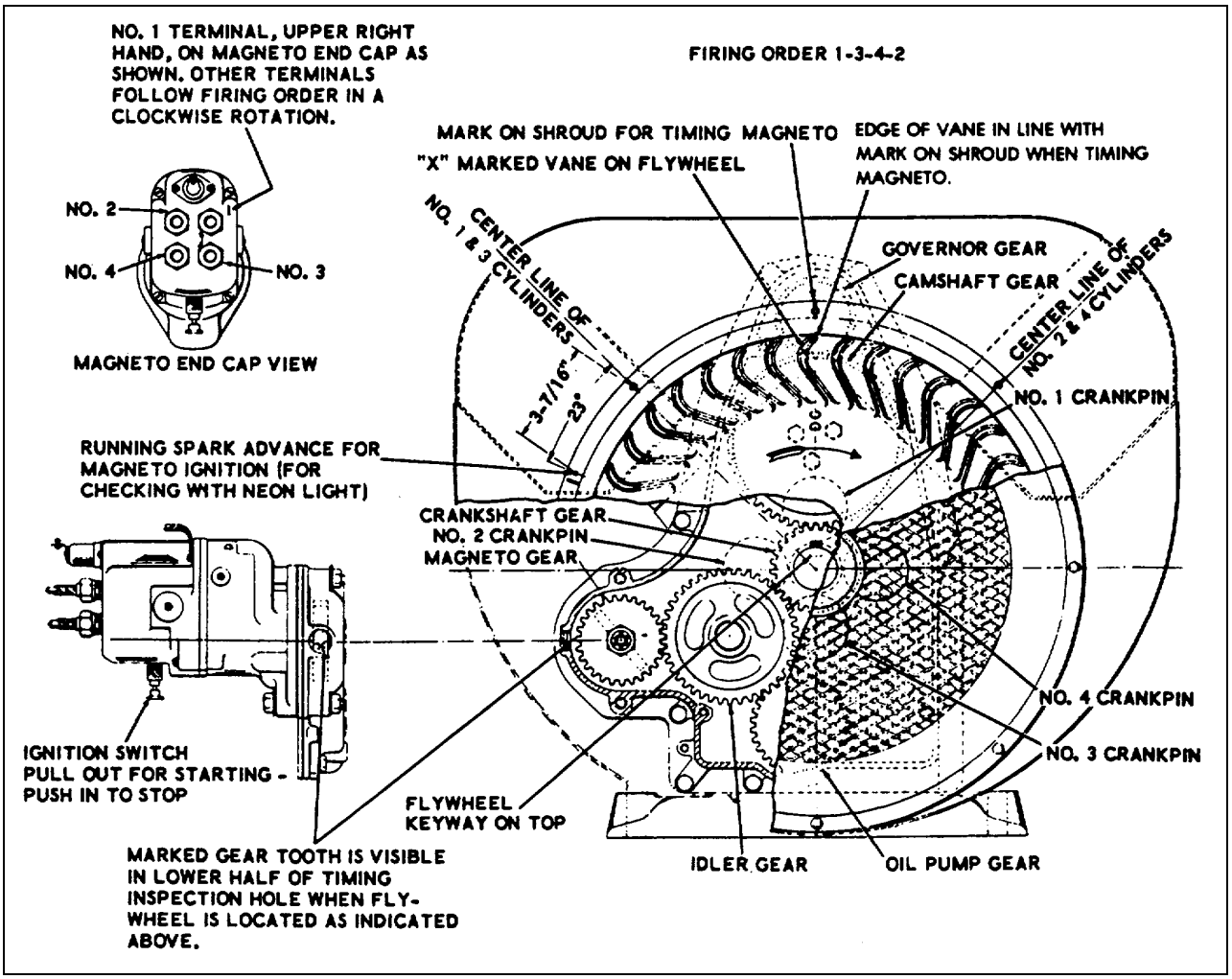

Figure 4-3. Engine Ignition Timing

By Order of the Secretary of the Army:

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

Official:

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

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To be distributed in accordance with DA Form 12-31, Operator Maintenance Requirements for All Fixed and Rotor Wing Aircraft.

CHANGE
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *16 July 1976*

Operator, Organizational, DS and GS Maintenance Manual
Including Illustrated Parts Breakdown

HYDRAULIC TEST STAND
NSN 4920-00-882-6401
TYPE D-5B, P/N 674016

TM 55-4920-335-14, 21 June 1971, is changed as follows:

Title is changed as shown above.

Page 1-1. Paragraph 1-2 is superseded as follows:

1-2. Reporting of errors. You can help improve this manual by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028, Recommended Changes to Publications and Blank Forms, should be mailed directly to Commander, US Army Aviation Systems Command, ATTN: DRSAV-FR, PO Box 209, St. Louis, MO 63166. A reply will be furnished directly to you.

Page 3-2. Table II, Fig. 3-1, Index No. 28. Under Description "20 ampere rating" is changed to read "6 ampere rating."

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CHANGE
No. 1

HEADQUARTERS
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WASHINGTON, D. C., *24 November 1971*

Operator, Organizational, DS, and GS Maintenance Manual
Including Illustrated Parts Breakdown

HYDRAULIC TEST STAND

FSN 4920-882-6401

TYPE D-5B, P/N 674016

TM 55-4920-335-14, 21 June 1971, is changed as follows:

Page 1-6. Paragraph 1-18 is superseded as follows:

1-18. SIMPLIFIED PRINCIPLES OF OPERATION. (Refer to hydraulic schematic, figure 1-6.) The hydraulic fluid may be taken from either the test stand reservoir (1) or the reservoir in the aircraft being tested through the suction inlet. The hydraulic fluid thus obtained is then forced under pressure by the high pressure pump (12) through checkvalve (14), high pressure filter (12), relief valve (20), and a four-way outlet selector valve (23) to the selected pressure outlet (26 or 27) and then to the aircraft on test through one of the external hoses provided. Fluid is then returned to the test stand through the one-inch return fitting (28). High pressure relief valve (20) regulates the system pressure, dumping the excess into the return line. Fluid may also be cycled through fluid bypass valve (29). Complete instrumentation is provided on the control panel to indicate hydraulic pressure (19), suction pressure (11), hydraulic reservoir level (2), and fluid temperature (6). A differential pressure switch (9) is incorporated in the low pressure filter (8) and set to actuate when a 40-pound drop occurs across the filter. This will be indicated by the illumination of an indicating light on the control panel. The high pressure filter (21) incorporates a pressure differential switch (22) connected across the filter. When the differential exceeds 50 pounds, the switch will illuminate a light on the control panel indicating the fault. A case drain relief valve (15) set at 15 psi is installed at the high pressure pump case drain outlet to provide back pressure to the pump case drain line for lubricity purposes. The manifold (5) is connected in the suction line and houses thermoswitch (7) which energizes if hydraulic fluid temperature exceeds 71 degrees C (160^{o}F) and opens the ignition circuit stopping the engine. The low pressure relief valve (30) is mounted on manifold (5) and is used to limit maximum pressure in the hydraulic system return line.

Page 3-1. Paragraph 3-1*e* is superseded as follows:

e. Remove protective caps from pressure and suction hose connections (6, figure 1-2). Remove protective caps from connection hoses. Connect hose from pressure outlet port (8, figure 1-2) (3/4 inch) or pressure outlet port (9) (1/2 inch) to corresponding outlet on aircraft to be tested. Connect second hose to suction port (7) and to corresponding outlet on aircraft to be tested, adapting to the proper size or type if necessary. If the aircraft reservoir remains in the circuit, close-the test stand reservoir valve. Otherwise, leave it open.

By Order of the Secretary of the Army:

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

Official:

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

DISTRIBUTION:

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Technical Manual

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 21 June 1971

OPERATOR, ORGANIZATIONAL, DS AND GS MAINTENANCE MANUAL

INCLUDING ILLUSTRATED PARTS BREAKDOWN

HYDRAULIC TEST STAND

FSN 4920-882-6401

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Section I. INTRODUCTION

1-1. Scope

a. This technical manual contains operating and maintenance instructions with parts breakdown for the gasoline engine driven Hydraulic Test Stand, Type D-5B.

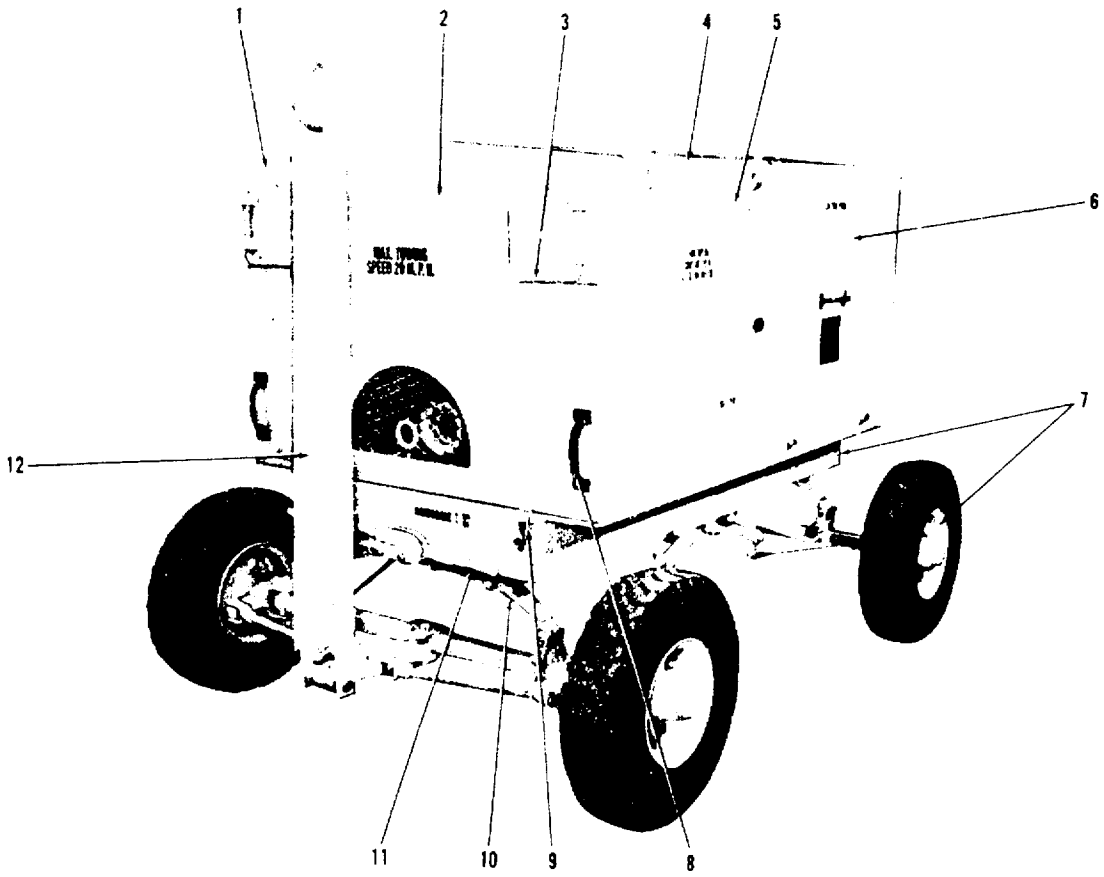
b. Appendix A contains the Maintenance Allocation Chart. The chart assigns the maintenance functions and repair operations to be performed by the lowest appropriate maintenance level.

1-2. Reporting of equipment publications improvements. The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, US Army Aviation Systems Command, ATTN: AMSAV-R-M, PO Box 209, St. Louis, Missouri 63166.

1-3. Forms and records

Maintenance forms, records and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

1-4. Purpose. The test stand (Figure 1-1) is designed to flush or fill the aircraft hydraulic system with micronically filtered hydraulic oil. It also tests the aircraft's hydraulic systems and provides hydraulic pressure for testing the systems without aircraft engines in operation.



1. Housing
2. Front Access Panel
3. Hook (Typical 4 places)
4. Access Door
5. Access Door
6. Access Door
7. Running Gear and Frame
8. Handle (Typical 4 places)
9. Latch (Typical 4 places)
10. Leaf Spring
11. Hand Brake Lever
12. Tow Bar

Figure 1-1. Test Stand, Left Front View

1-5. CAPABILITIES. The Test Stand is capable of operating under temperature conditions ranging from -29 degrees (-20°F) to 54 degrees C (130°F). It will operate at a relative humidity of 95 to 100 percent at an operating temperature of 54 degrees C (130°F) and function efficiently at altitudes from sea level to 6000 feet. The Test Stand can deliver hydraulic fluid at the rate of 10 gpm at pressures to 3000 psi and, with reduced flow, 5 gpm or less at pressures from 3000 psi to 5000 psi. The Test Stand will function satisfactorily when its operating plane is at an angle of 8-1/2 degrees in any direction from horizontal.

1-5.1. LEADING PARTICULARS. The major leading particulars of the Test Stand are listed in Table I.

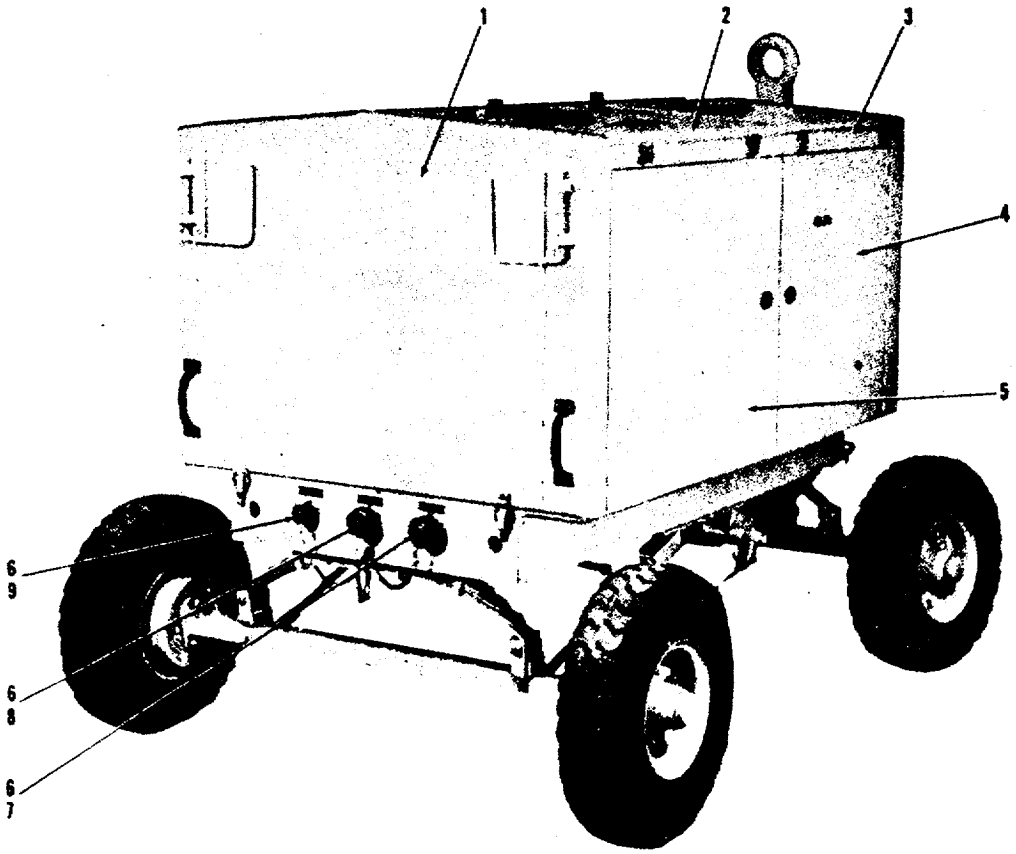
1-6. GENERAL DESCRIPTION. The Test Stand (figures 1-1 and 1-2) is a self-contained, mobile, hydraulic testing unit enclosed in a steel, weather resistant housing mounted on a trailer assembly. The trailer is equipped with leaf spring suspended wheels, hand lever operated parking brakes, and a tow bar to permit towing with a vehicle. Doors are provided to permit access to all components within the housing.

1-7. MAJOR ASSEMBLIES. The Test Stand consists of the following major assemblies and components: Housing Assembly (1, figure 1-1). Running Gear and Frame (7, figure 1-1), Gasoline Engine (1, figure 1-3), High Pressure Pump (8, figure 1-3), Control Panel (3, figure 1-3), High Pressure Filter (5, figure 1-3), Low Pressure Filter (7, figure 1-3), Fuel Tank (4, figure 1-4), Hydraulic Reservoir (1, figure 1-4) and Electrical System (figure 1-5).

1-8. HOUSING ASSEMBLY. The welded steel housing (1, figure 1-1) encloses and protects the Test Stand components from inclement weather. The housing is completely removable by releasing latches (9, figure 1-1) at the front and rear. Handles (8, figure 1-1) are provided at the four corners to aid in removal of the housing. Hooks (3, figure 1-1) are located at the front and rear for hanging hose. These hooks may be folded flat against the Test Stand when not in use. Hinged access doors are provided in the housing as follows: Door (5, figure 1-1) permits access to battery, air cleaner, engine oil filter, and left side of engine, and also contains a handbook

Table I. Leading Particulars

Trailer and Housing	
Construction	Welded Steel
Running Gear	Leaf Spring Suspension and Pneumatic 6.00 x 9 Tires
Brake	Mechanical Type Hand Set
Steering	Knuckle Type Pivot
Housing	Welded Steel Weather Resistant Hinged Doors
Hydraulic System	
Fluid Reservoir	
Construction	Hot Rolled Pickeled Steel
Capacity	28 U.S. Gallons
Fluid Specification	MIL-H-5606
High Pressure Pump	
Type	Axial Piston Variable Volume, Pressure Compensated
Delivery	10 gpm at 3000 psi 5 gpm at 5000 psi
Filters	
Low Pressure	Replaceable Element Type AN 6236-3
High Pressure	Replaceable Element Type AN 6235-4A
Power Plant	
Gasoline Engine	36 HP, 4 cyl, 4 cylinder, V type, Air Cooled, 13 Gallon Fuel Tank, 12 volt ignition system, 55 ampere battery size 24S.
Operating Range	
Altitude	Sea Level to 6000 Feet
Ambient Temperature	29° C (-20°F) to 54° C (130°F)
Humidity	95 to 100 Percent
Deflection	8-1/2° in any plane from horizontal
Physical Data	
Overall Length	79-3/4 Inches
Overall Width	56-3/8 Inches
Overall height	53-1/4 Inches
Weight (dry)	2050 Pounds



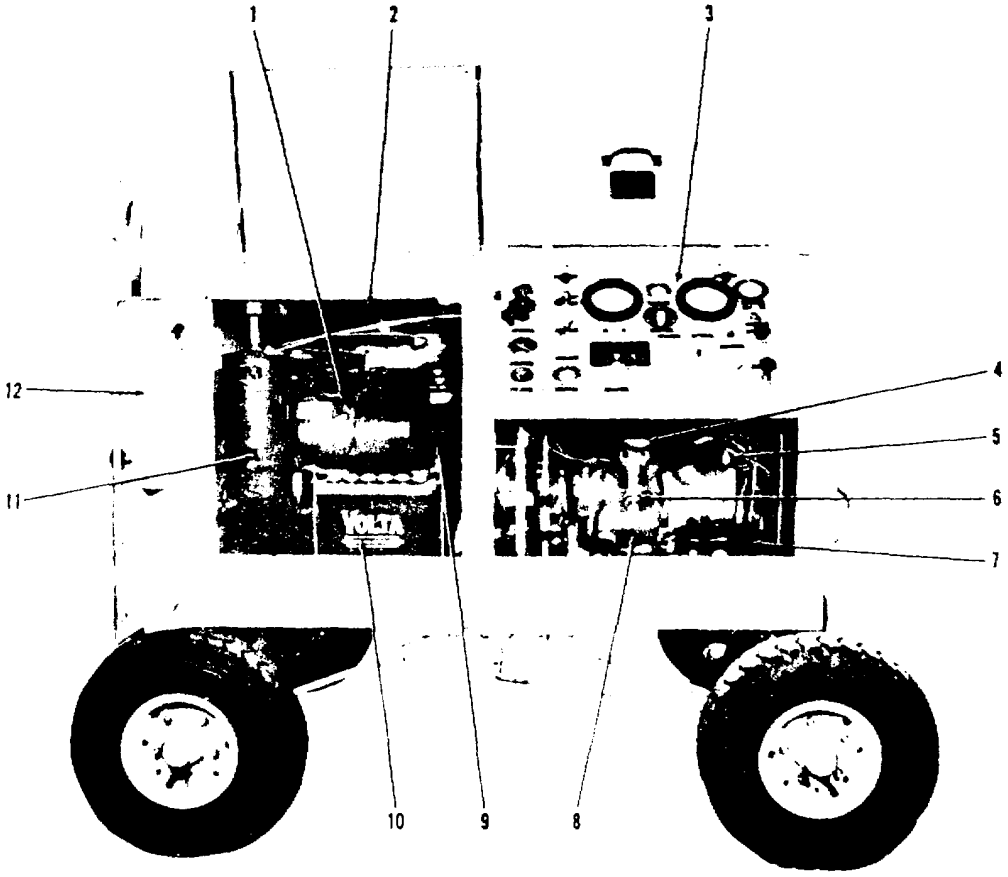
1. Rear Access Panel
2. Access Door
3. Access Door
4. Access Door
5. Access Door
6. Hose Connections
7. 1” Suction Port
8. 3/4” Outlet Port
9. 1/2” Outlet Port

Figure 1-2. Test Stand, Right Rear View

compartment (12, figure 1-3) for storage of handbook and engine crank. Door (4, figure 1-1) permits access to top of engine. Door (6, figure 1-1) permits access to control panel, high pressure pump controls, and low pressure filter. Door (2, figure 1-2) permits access to top of hydraulic reservoir. Door (3, figure 1-2) permits access to top of engine. Door (4, figure 1-2) permits access to right side of engine, engine generator, voltage regulator, and fuel fill neck of fuel tank. Door (5, figure 1-2) permits access to hydraulic reservoir and fuel tank. A removable front panel (2, figure 1-1) permits access to the front of the engine and contains a hole for insertion of engine crank. A removable rear panel (1, figure 1-2) permits access to components at rear of unit Including the high pressure filter.

1-9. RUNNING GEAR AND FRAME. The running gear (7, figure 1-1) is furnished with a hinged tow bar (12) suitable for vehicle towing at speeds up to 20 mph. Two leaf springs (10) are provided to ensure good riding qualities without materially increasing frame height. A knuckle type steering apparatus, incorporating tie rods and king pins, is used to provide positive steering. Rear wheels are equipped with hand lever (11, figure 1-1) operated mechanical parking brakes which hold the Test Stand in fixed position during testing operations. The trailer rolls on four steel wheels equipped with 6.00 x 9 inch, 6 ply pneumatic tires. Provisions are made for attaching lifting or tiedown rings to the trailer frame. Bulkhead fittings are installed in the rear frame for hose connections (6, figure 1-2) for testing operations. Each hose connection fitting is equipped with a protective cap.

1-10. GASOLINE ENGINE. The gasoline engine (1, figure 1-3) is installed at the front of the Test Stand and is accessible from either side, top, or front of the housing. The engine is a four cylinder, four cycle, V type, air cooled unit. Horsepower varies with rpm; ranging from 24.5 at 1400 rpm to 36.0 hp at 2400 rpm.



1. Gasoline Engine
2. Muffler
3. Control Panel
4. Pump Volume Control
5. High Pressure Filter
6. Pump Compensator Control
7. Low Pressure Filter
8. High Pressure Pump
9. Engine Oil Filter
10. Battery
11. Air Cleaner
12. Hand Book Compartment

Figure 1-3. Test Stand - Left Side

Engine speed is held automatically at the selected rpm by a centrifugal flyball governor which adjusts the throttle to compensate for changes in engine load. A 12 volt battery (10, figure 1-3) is employed to power the starting system. The engine may also be started by a hand crank.

a. Air Cleaner. The engine air cleaner (11, figure 1-3) filters the air entering the carburetor, prolonging the life of the engine. The air cleaner is equipped with a pre-cleaner at the top.

b. Engine Oil Filter. The engine oil filter (9, figure 1-3) is a disposable cartridge type unit built to MIL-E-11275 specifications.

c. Muffler. A muffler (2, figure 1-3) is provided at the top of the engine for noise and exhaust control.

1-11. HIGH PRESSURE PUMP. The high pressure pump (8, figure 1-3) is bracket mounted to the rear of the engine and driven by it through a flexible coupling. The pump incorporates the following features: a fluid volume control (4, figure 1-3) providing regulation of pump delivery from 0 to 10 gpm at operating pressures ranging from 800 to 5000 psi; an adjustable pressure compensator (6, figure 1-3) which, at a predetermined pressure, reduces pump delivery to the minimum requirement to maintain pressure in the system, and a compensator shut-off valve which permits isolating the compensator from the system when adjusting the high pressure relief valve.

1-12. CONTROL PANEL. The control panel (3, figure 1-3) contains all switches, gages, fault indicators, and controls used in the operation of the Test Stand.

1-13. HIGH PRESSURE FILTER. The high pressure filter (5, figure 1-3) is placed in the line between the high pressure pump and the relief valve assembly to micronically filter the hydraulic fluid coming from the high pressure pump. The filter uses a replaceable type element AN6235-4A.

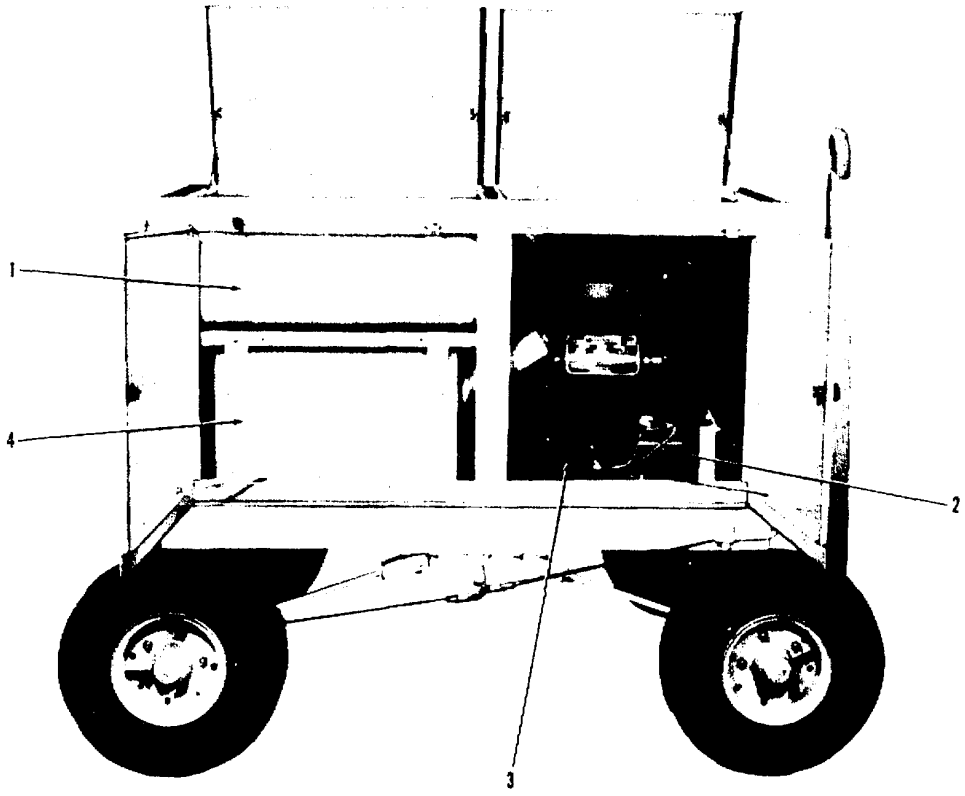
1-14. LOW PRESSURE FILTER. The low pressure filter (7, figure 1-3) is located in the suction line between the manifold and pressure pump to micronically filter the hydraulic fluid from the Test Stand and aircraft reservoirs. It contains a replaceable type element AN6236-3.

1-15. FUEL TANK. The fuel tank (4, figure 1-4) will hold 13 gallons of fuel conforming to Military Specifications MIL-G-3056 or MIL-F-5572. The tank is equipped with strainer in the fill neck, a drain plug in the bottom, and a fuel level sending unit.

1-16. HYDRAULIC RESERVOIR. The hydraulic reservoir (1, figure 1-4) has a maximum capacity of 28 gallons. A reservoir shutoff valve is provided for isolating the Test Stand reservoir from the aircraft system when using fluid from the aircraft reservoir or when draining the aircraft reservoir. A hydraulic fluid level indicator mounted on the control is connected to the reservoir to indicate fluid content. The top plate of the reservoir may be removed for access to the interior.

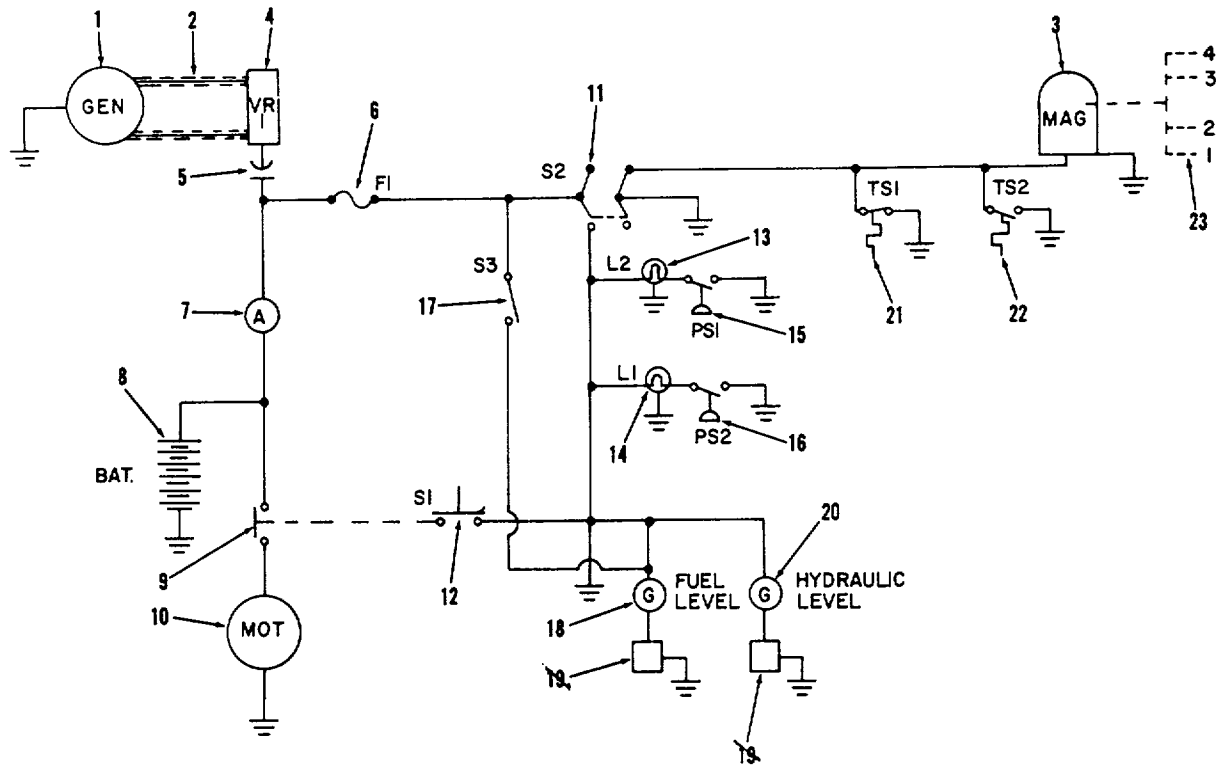
1-17. ELECTRICAL SYSTEM. Major components of the electrical system are: 12 volt battery (10, figure 1-3), generator (2, figure 1-4), and voltage regulator (3, figure 1-4). The electrical system is shown schematically in figure 1-5.

1-18. SIMPLIFIED PRINCIPLES OF OPERATION. (Refer to hydraulic schematic, figure 1-6.) The hydraulic fluid may be taken from either the Test Stand reservoir (1) or the reservoir in the aircraft being tested through the suction inlet. The hydraulic fluid thus obtained is then forced under pressure by the high pressure pump (12) through checkvalve (14), high pressure filter (12), relief valve (20), and a four-way outlet selector valve (23) to the selected pressure outlet (26 or 27)



1. Hydraulic Reservoir
2. Generator
3. Voltage Regulator
4. Fuel Tank

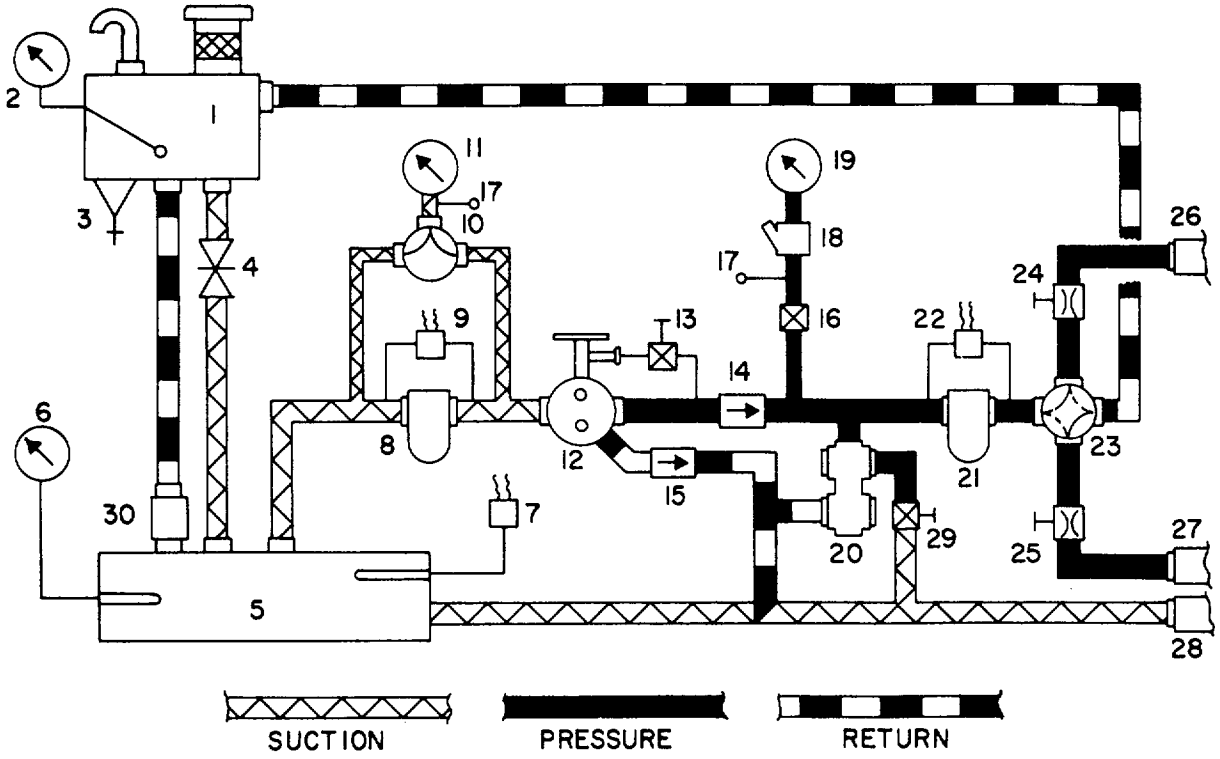
Figure 1-4. Test Stand - Right Side



1. Generator
2. R.F. Connectors
3. Shielded Leads
4. Voltage Regulator
5. By Pass Capacitor
6. Fuse
7. Ammeter
8. Battery
9. Start Solenoid
10. Start Motor
11. Start Motor Switch
12. Ignition Switch
13. Indicator Light L.P. Filter
14. Indicator Light H.P. Filter
15. Differential Switch L.P.
16. Differential Switch H.P.
17. Fuel Level Switch
18. Fuel Level Gage
19. Hydraulic Oil Level Gage
20. Engine High Temp Switch
21. Hydraulic Oil High Temp Switch
22. Magneto
23. Spark Plugs

Figure 1-5. Electrical Schematic

and then to the aircraft on test through one of the external hoses provided. Fluid is then returned to the Test Stand through either the 1/2 inch (27) or the 3/4 inch (26) outlet, depending upon the outlet selector valve setting, or through the one inch return fitting (28). High pressure relief valve (20) regulates the system pressure, dumping the excess into the return line. Fluid may also be cycled through fluid bypass valve (29). Complete instrumentation is provided on the control panel to indicate hydraulic pressure (19), suction pressure (11), hydraulic reservoir level (2) and fluid temperature (6). A differential pressure switch (9) is incorporated in the low pressure filter (8) and set to actuate when a 40 pound drop occurs across the filter. This will be indicated by the illumination of an indicating light on the control panel. The high pressure filter (21) incorporates a pressure differential switch (22) connected across the filter. When the differential exceeds 50 pounds, the switch will illuminate a light on the control panel indicating the fault. A case drain relief valve (15) set at 15 psi is installed at the high pressure pump case drain outlet to provide back pressure to the pump case drain line for lubricity purposes. The manifold (5) is connected in the suction line and houses thermoswitch (7) which energizes if hydraulic fluid temperature exceeds 71 degrees C (160°F) and opens the ignition circuit stopping the engine. The low pressure relief valve (30) is mounted on manifold (5) and is used to limit maximum pressure in the hydraulic system return line.



1. Reservoir
2. Liquid Level Gage
3. Drain Valve
4. Shut Off Valve Reservoir
5. Manifold
6. Fluid Temperature Gage
7. Fluid Temperature Switch
8. Low Pressure Filter
9. Differential Switch
10. Pressure Selector Valve
11. Low Pressure Gage
12. Pump
13. Compensator Shut Off
14. High Pressure Check Valve
15. Case Relief Valve
16. Gage Shut Off
17. Gage Test Port
18. Gage Pulsation Dampner
19. High Pressure Gage
20. High Pressure Relief Valve
21. High Pressure Filter
22. Differential Switch
23. Outlet Selector Valve
24. Flow Control Valve 3/4”
25. Flow Control Valve 1/2”
26. Outlet 3/4”
27. Outlet 1/2”
28. Return 1”
29. By Pass Valve
30. Low Pressure Relief Valve

Figure 1-6. Hydraulic System Schematic

SECTION II
PREPARATION FOR USE

2-1. PRELIMINARY INSPECTION. Carefully inspect the Test Stand for possible damage during shipment. Make certain that:

a. All gages and controls on control panel (3, figure 1-3) are undamaged and securely mounted.

b. All major components (figures 1-1 through 1-4) are undamaged and securely mounted.

c. Plumbing is undamaged and all fittings are tightly connected throughout the hydraulic system.

d. Hand operated controls and switches operate freely.

e. All electrical connections are secure.

2-2. PREPARATION FOR USE. The Test Stand is shipped completely assembled. To prepare Test Stand for operation proceed as follows:

a. Remove tape from seams, doors, panels, louvers, and ventilation openings.

b. Remove barrier material from ventilation openings and louvers.

c. Remove bags of desiccant from inside housing.

d. Check tire pressure. Normal pressure is 65 psi.

2-3. PRELIMINARY LUBRICATION. Check all lubricating points referred to in Section IV. Be sure initial lubrication exists at all specified points.

2-4. BATTERY. The battery (10, figure 1-3) is shipped dry charged and must be filled with electrolyte and charged before use. Observe the following procedures:

a. Allow battery to stand at least one hour before filling cells with electrolyte using diluted sulphuric acid, Federal Specification O-A-111. Fill cells to level indicator or approximately 3/8 inch over plates.

b. Charge battery at a rate of approximately 2 amperes for at least 12 hours or until four consecutive hourly readings do not indicate a rise in specific gravity or voltage.

2-5. FUEL SYSTEM. Open access door (4, figure 1-2) and remove filler cap from neck of fuel tank (4, figure 1-4). Fill tank with fuel conforming to Military Specification MIL-F-5572 or MIL-G-3056, grade 70-75. Capacity of tank is 13 gallons.

WARNING

When filling fuel tank, always maintain a constant metal-to-metal contact between filling neck and spout to prevent sparking caused by static electricity.

2-6. HYDRAULIC SYSTEM. To prepare hydraulic system for use:

a. Open access door (2, figure 1-2) and remove rear access panel (1). Open drain valve on bottom of reservoir (1, figure 1-4) to drain preservative fluid from system.

b. Close drain valve and remove filler cap from neck of reservoir. Fill reservoir with hydraulic fluid, Military Specification MIL-H-5606. When hydraulic fluid reservoir level indicator (8, figure 3-1) registers full, stop pouring fluid.

NOTE

Ignition switch (25, figure 3-1) must be ON during this operation. Do not overfill reservoir. Expansion space in reservoir is necessary for satisfactory Test Stand operation.

c. Open reservoir shutoff valve (1, figure 3-1).

d. Open bleed cock on top of low pressure filter (7, figure 1-3). When hydraulic fluid overflows and all traces of air are removed, close bleed cock.

e. Remove dust cap from suction inlet (7, figure 1-2) and unseat seal in fitting until solid fluid flow indicates all traces of air are removed. Reseat seal in suction fitting and replace dust cap.

f. Connect 1/2 inch hose to 1/2 inch outlet (9, figure 1-2).

g. Set outlet selector valve (15, figure 3-1) to 1/2 inch outlet position. Open 1/2 inch outlet valve (16, figure 3-1).

h. Remove filler cap from reservoir. Remove coupling from other end of 1/2 inch hose and insert hose-end into reservoir filler.

i. Start Test Stand (see paragraph 3-3) and circulate fluid into reservoir until all traces of air are removed.

j. Shut down Test Stand (see paragraph 3-6) and reconnect coupling removed from hose.

k. Repeat f thru j with 3/4 inch hose and 3/4 inch outlet.

2-7. PREPARATION FOR STORAGE. If Test Stand is to remain inoperative for a prolonged period of time, certain preparations should be made for proper storage depending upon environmental conditions. When storing the unit under temperature conditions, the following should be observed:

a. Check control panel and place all switches and valves in off or closed position.

b. Drain hydraulic system by opening drain valve at bottom of reservoir.

c. Close drain valve and refill hydraulic system with preservative hydraulic oil, Military Specification MIL-O-6083A.

d. Drain high pressure pump (8, figure 1-3) at drain plug located at lower right hand corner of pump case. Replace drain plug and refill pump with preservative hydraulic oil, Military Specification MIL-O-6083A.

e. Drain gasoline engine crankcase at oil pan drain plug. Replace drain plug and refill oil pan with preservative oil, Military Specification MIL-L-21260.

f. Drain electrolyte from battery. Battery must be fully charged before draining.

g. Drain fuel tank and fuel system.

h. If compressed air is available, remove housing and clean interior of road and operating dirt.

i. If Test Stand is to be stored in area of high humidity, place several bags of activated desiccant, conforming to Military Specification MIL-D-3464A inside unit.

j. Cap all inlet and outlet ports and fasten housing doors securely.

k. If Test Stand is to be stored out of doors, select a reasonably level, dry area and cover with a tarpaulin or other waterproof material. Be sure to set hand brake lever firmly. Tow bar should be securely latched in upright position.

2-8. ARCTIC CONDITIONS. Where the Test Stand is to be stored under conditions which will subject it to prolonged periods of sub-zero temperatures, adequate protection should be afforded against the deteriorating effects of wind, snow, and ice formation. Steps a through k of paragraph 2-7 should be observed with special attention given to the providing of an adequate exterior covering for the unit. When practical, the use of portable electric heaters placed inside the unit is recommended to raise the ambient temperature to zero degrees Fahrenheit and then removed before placing Test Stand in operation.

2-9. TROPICAL CONDITIONS. Prolonged exposure in environments of excessively high temperature and humidity requires special treatment of the Test Stand to ensure serviceability of the instrumentation. Steps a through k of paragraph 2-7 should be observed with special emphasis placed upon the adequate use of desiccants to ensure prevention of corrosive action due to high moisture content in the atmosphere.

2-10. PREPARATION FOR SHIPMENT. The Test Stand does not require an external container. For shipment, prepare the unit as follows:

a. Follow steps a through j, paragraph 2-7.

b. Pad instrument glasses with cushioning material.

c. Apply water resistant barrier material, Specification JAN-P-125 and pressure sensitive water resistant tape, Specification JAN-P-127 to all doors and other openings in the housing.

d. For relatively short distances, the Test Stand may be towed by a vehicle up to speeds not exceeding 20 mph.

e. The Test Stand is designed to withstand without loss of serviceability the normal flight and taxiing acceleration "g" loads encountered in transporting by cargo aircraft. Tie down rings can be installed at each corner of the unit.

SECTION III
OPERATING INSTRUCTIONS

3-1. PREPARATION FOR STARTING. Prepare the Test Stand for starting and operation as follows:

a. Perform the daily inspection and services outlined in Table IV.

b. Maneuver the Test Stand to a position that is suitable for hose connection to the aircraft system.

c. When Test Stand is in position, apply hand brake lever (11, figure 1-1) by pushing downward. Place tow bar in upright position.

d. Open control panel access door (6, figure 1-1).

e. Remove protective caps from pressure and suction hose connections (6, figure 1-2). Remove protective caps from connection hoses. Connect hose from pressure outlet port (8, figure 1-2) (3/4 inch) or pressure outlet port (9) (1/2 inch) to corresponding outlet on aircraft to be tested. Connect second hose to suction port (7) and to corresponding outlet on aircraft to be tested.

3-2. CONTROLS AND INSTRUMENTS. Table II lists, describes, and briefly explains the function of the operating controls and instruments located on the control panel (figure 3-1). Table III lists, describes, and briefly explains the function of the pump controls located in the opening beneath the control panel.

Table II. Control Panel Controls and Instruments

Fig. 3-1 Index No.	Title	Description	Function
1	Reservoir Shutoff Valve	1 in. gate valve	Controls fluid flow from reservoir into hydraulic system.
2	Ammeter	30-0-30 range	Indicates generator output and/or ampere load on battery.
3	HP Gage Shutoff	Needle valve 1/4 in.	Isolates high pressure gage.
4	Gage Test Fitting	Union and cap	Testing high pressure gage.
5	HP Filter Indicator	Press-to-test indicator light - red	Indicates clogged HP filter when lighted.
6	High Pressure Gage	0 to 6000 psi	Indicates hydraulic system pressure.
7	Flow Indicator	Variable indicator	Indicates hydraulic pump delivery from 0 to 10 gpm.
8	Fluid Level Indicator	E - 1/2 - F	Indicates fluid level in hydraulic reservoir.
9	Low Pressure Gage	30" and 0 to 150 psi	Indicates vacuum and/or pressure in hydraulic suction system.
10	LP Filter Indicator	Press-to-test indicator light - red	Indicates clogged LP filter when lighted.
11	Fluid Temperature Gage	-20°F to 200°F	Indicates temperature of fluid in hydraulic system.
12	Pressure Selector Valve	3-way valve	Connects filter pressure gage to manifold and pump suction inlet to measure across LP filter.
13	Gage Test Fitting	Union and cap	Testing low pressure gage.

Table II. Control Panel Controls and Instruments (Cont)

Fig. 3-1 Index No.	Title	Description	Function
14	3/4" Flow Control Valve	Globe valve	Admits fluid flow to 3/4 inch outlet.
15	Outlet Selector Valve	4-way closed center valve	Manually cycles pressure and return flow alternately between 1/2 and 3/4 inch outlets.
16	1/2" Flow Control Valve	Globe valve	Admits fluid flow to 1/2 inch outlet.
17	High Pressure Relief Valve	0 to 5000 psi	Controls pressure in hydraulic system.
18	Compensator Shutoff Valve	Needle valve 1/4"	Isolates pressure compensator from hydraulic system.
19	Bypass Valve	Needle valve 1/4"	Bypasses pump delivery.
20	Fuel Level Gage	E - 1/2 - F	Indicates level of fuel in fuel tank.
21	Tach-hourmeter	0 to 9999 hours; 0 to 4000 rpm	Indicates total Test Stand operating hours and engine rpm.
22	Engine Oil Pressure Gage	OFF - XX - ON	Indicates engine oil pressure.
23	Fuel Level Gage Switch	Toggle switch	Energizes fuel level gage.
24	Throttle Control	Push-pull (twist lock)	Manually controls engine rpm setting.
25	Ignition Switch	Toggle switch	Close and opens engine ignition circuit.
26	Choke Control	Push-pull	Manually controls engine choke setting.
27	Starter Switch	Momentary contact	Energizes starter to crank engine.
28	Ignition Fuse	20 ampere rating	Short circuit protection for engine ignition circuit.

Table III. Pump Controls

Fig. & Index No.	Title	Description	Function
1-3-4	Volume Control	Handwheel with lock lever	Regulates high pressure pump delivery.
1-3-6	Compensator Control	Needle valve	Regulates pump delivery requirements to maintain pressure in system.

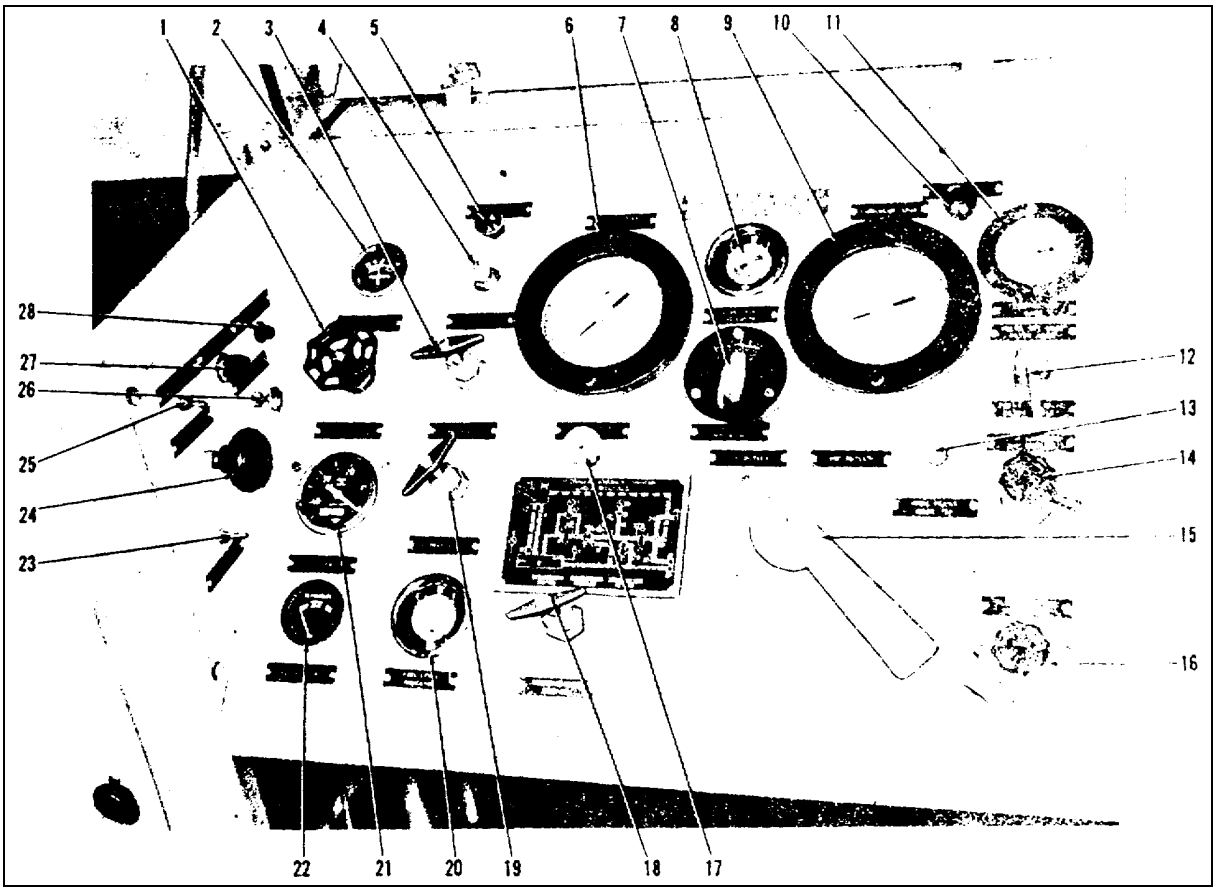


Figure 3-1. Control Panel

3-3. STARTING ENGINE. Start the Test Stand gasoline engine as follows:

a. Open bypass valve (19, figure 3-1).

b. Pull choke control (26) out.

c. Pull throttle control (24) to one-quarter open position.

d. When starting a new engine for the first time or an engine that has been out of operation for a period of time, the hand primer lever on the fuel pump adapter (figure 3-2) should be used to pump gasoline into the dry carburetor. A distinct resistance of the fuel pump diaphragm should be felt when moving the hand lever back and forth. If this is not the case, turn the engine over a revolution so that fuel pump cam will be rotated from its upper position. Apply 20 to 30 strokes to the hand lever. When carburetor is full, hand lever primer will move more easily.

e. Place ignition switch (25, figure 3-1) in ON position.

f. Press starter switch (27) to crank engine. The engine should start within 2 or 3 crankshaft revolutions. If starting difficulty is encountered, do not continuously hold starter switch depressed rather, release and again depress switch in short intermittent starting cycles. If flooding of engine should occur, push choke control (26) in and continue cranking cycles. More cranking is necessary when starting in cold temperatures.

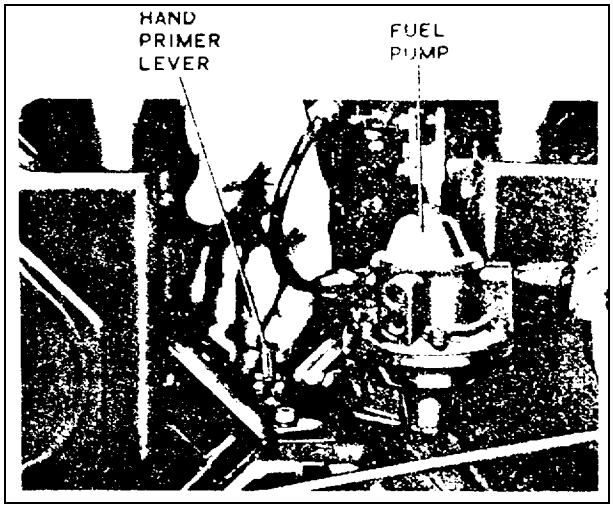


Figure 3-2. Priming Fuel Pump

g. After engine starts, slowly close choke control (26) until engine is operating normally with choke in fully closed position.

h. Operate engine at 1000 to 1400 rpm as read on tach-hourmeter (21, figure 3-1) for approximately 10 minutes to warm engine up to normal operating temperatures.

i. Adjust engine throttle control (24, figure 3-1) until 1800 rpm is read on tach-hourmeter (21).

j. Place fuel level gage switch (23) in ON position.

k. Observe engine oil pressure gage (22) for indication of proper oil supply to the engine. Shut down engine immediately if oil pressure gage does not indicate proper oil pressure.

3-4. VALVE AND CONTROL SETTINGS. Observe the following procedures in setting valves and controls:

a. Close 1/2 inch flow control valve (16, figure 3-1) and 3/4 inch flow control valve (14).

b. Close compensator shutoff valve (18).

c. Open high pressure gage shutoff valve (3). Open reservoir shutoff valve (1).

d. Adjust pump delivery to requirements using volume control (4, figure 1-3) as indicated by flow indicator (7, figure 3-1). Turn handwheel of volume control clockwise to increase delivery, counterclockwise to decrease delivery. A lever is provided under the handwheel to securely lock volume control in position.

e. Close bypass valve (19, figure 3-1).

f. Adjust high pressure relief valve (17, figure 3-1) to relieve pressure at approximately 200 psi above the system pressure of the unit on test. Clockwise rotation of the relief valve knob increases pressure setting, counterclockwise rotation decreases pressure setting. Accuracy of the setting should be checked on aircraft instruments after start of testing.

g. Open compensator shutoff valve (18, figure 3-1) and adjust compensator control (6, figure 1-3) until high pressure gage (6, figure 3-1) indicates pressure of the unit being tested. Lock control in position with lock nut under knob.

h. Open bypass valve (19, figure 3-1).

i. Place outlet selector valve (15, figure 3-1) in 1/2 inch or 3/4 inch outlet position.

j. Open flow control valves (14 or 16, figure 3-1).

k. Close bypass valve (19, figure 3-1) and proceed with the test operation per manufacturer's specifications for the unit being tested.

3-5. OPERATION WITH AIRCRAFT RESERVOIR. The operating procedures outlined in paragraph 3-4 apply to system testing and filling using the Test Stand reservoir as source of hydraulic fluid. The operating procedures using the aircraft reservoir as source of hydraulic fluid are the same as outlined in paragraph 3-4 except prior to operating procedures, close reservoir shutoff valve (1, figure 3-1).

3-6. PROCEDURES DURING OPERATION. During operation of the Test Stand, periodically check the following:

a. If fault indicators (5 or 10, figure 3-1) light, shut-down Test Stand.

b. Move pressure selector valve (12, figure 3-1) to FILTER INLET position and read system condition on gage (9). Shutdown unit if supply pressure is below 13" Hg Vac.

c. If an emergency should arise (ruptured hydraulic hose in aircraft, etc.) open bypass valve (19, figure 3-1) to relieve pressure and stop flow of hydraulic fluid to aircraft.

d. Periodically check ammeter (2, figure 3-1) for condition of electrical system: fluid level indicator (8) for level of fluid remaining in reservoir; fuel level gage (20) for amount of fuel remaining in tank, and engine oil pressure gage (22) for condition of engine.

e. Check temperature of hydraulic fluid in system at gage (11, figure 3-1). If temperature of fluid is above 160 degrees F, open bypass valve (19) and allow fluid to circulate until temperature drops. After temperature has reduced to operating range, close bypass valve and resume testing operations.

3-7. STOPPING TEST STAND. Use the following procedure to stop the Test Stand:

a. Open bypass valve (19, figure 3-1).

b. Close flow control valve (14, or 16, figure 3-1).

c. Use throttle control (24, figure 3-1) to idle engine for 5 minutes to normalize engine temperature.

d. Place ignition switch (25, figure 3-1) in OFF position.

3-8. PROCEDURES AFTER OPERATION. When testing operations have been completed and unit is shut-down, perform the following steps to secure the Test Stand:

a. Close reservoir shutoff valve (1, figure 3-1).

b. Do not connect or disconnect any hoses with bypass valve (19) closed.

c. Disconnect and cap all external hoses. Place protective caps on outlet ports.

d. Close control panel door and any other doors that were opened during operation.

SECTION IV
PERIODIC INSPECTION, MAINTENANCE, AND LUBRICATION

4-1. PERIODIC INSPECTION. Periodic inspection consists of inspection and services to be performed daily, every 50 hours, and every 100 hours of Test Stand operation as outlined in Table IV. The hourly time is obtained by noting the tach-hourmeter (21, figure 3-1) located on the control panel.

4-2. MAINTENANCE. Maintenance procedures outlined in Table IV are detailed in the following paragraphs.

4-3. SERVICING FUEL FILTER. The engine fuel filter bowl should be inspected frequently and cleaned if dirt or water are present.

a. Shutoff fuel valve at top side of filter.

b. Loosen knurled nut below bowl and swing wire bail to one side.

c. Remove bowl and screen. Empty bowl and clean screen and bowl thoroughly.

Table IV. Periodic Inspection and Service

Item	Inspection and Service
DAILY	
1. Hydraulic reservoir	Check fluid level; refill as required.
2. Fuel Tank	Check level; refill as required.
3. Control Panel	Check that all controls move freely and that all handles are securely in place. Check that instrument glasses are intact. Test indicators (5 and 10, figure 3-1) by pressing inward. Indicators shall light when pressed. Replace lamp in indicator if required.
4. Housing interior	Check all wiring for breaks, worn insulation, and loose connections. Check all plumbing for loose fittings and leaks.
5. Engine	Check oil level in crankcase.
6. Battery	Check electrolyte level.
7. Trailer	Check tire pressure; inflate as necessary to 65 psi. Check operation of hand brake lever.
50 HOUR INSPECTION	
1. Fuel System	Check for loose fittings that might cause fuel leakage. Check and clean fuel filter. See paragraph 4-3. Remove and clean strainer in fuel tank neck.
2. Engine:	
a. Crankcase	Drain and refill with fresh oil. See paragraph 4-20.
b. Oil filter	Clean and replace element. See paragraph 4-4.
c. Air Cleaner	Check and service air cleaner. See paragraph 4-5.
d. Spark Plugs	Check condition and gap. See paragraph 4-6.
e. Fan Belt	Inspect fan belt for frays and cracks; check belt tension.
3. Battery	Check specific gravity of electrolyte. Clean outer case and terminal connections.

Table IV. Periodic Inspection and Service (Cont)

Item	Inspection and Service
4. Hydraulic System:	
a. High Pressure Filter	Check for dirty or clogged element. See paragraph 4-7.
b. Low Pressure Filter	Perform checkout as outlined in paragraph 4-8. Service filter as necessary. See paragraph 4-4.
100 HOUR INSPECTION	
1. Fuel System	Clean and service fuel pump. See paragraph 4-10.
2. Engine:	
a. Timing	Check ignition timing. See paragraph 4-11.
b. Magneto points	Check magneto point condition and gap. See paragraph 4-12.
3. Thermoswitch	Check for proper temperature response. See paragraph 4-14.
4. Hydraulic Reservoir	Drain and Clean. See paragraph 4-15.

d. Check condition of bowl gasket and replace if necessary. Reassemble parts and open fuel valve.

4-4. SERVICING ENGINE OIL FILTER. Service the engine oil filter (9, figure 1-3) as follows:

a. Remove cover and cover gasket.

b. Remove cartridge. Clean out sludge from filter body. Do not remove spacer from center tube.

c. Install new cartridge and cover gasket. Install cover.

d. Add oil to compensate for filter. Run engine for five minutes and check for leaks. Recheck oil level.

4-5. SERVICING AIR CLEANER. Service the engine air cleaner (11, figure 1-3) as follows:

a. Loosen clamp screw and remove bowl from bottom of cleaner.

b. Clean bowl and refill with oil, Military Specification MIL-L-2104 to oil level line. Install bowl to bottom of cleaner and secure with clamp screw.

c. Remove precleaner from top of cleaner assembly and empty accumulated dirt. Do not use oil or water in precleaner.

d. At least once a year, remove air cleaner from engine and wash element (not removable) in solvent to clean out accumulated dust and dirt.

4-6. SERVICING SPARK PLUGS. Service engine spark plugs as follows:

a. Remove spark plugs from engine and clean thoroughly inside and out.

b. Replace badly worn or cracked spark plugs.

c. Check and adjust spark plug gap. Gap should be 0.030 inch.

d. Install spark plugs. Plug thread is 18 millimeter. Tighten spark plugs to 25-30 foot pounds torque.

4-7. SERVICING HIGH PRESSURE FILTER. If filter element of high pressure filter (5, figure 1-3) is clogged or dirty, replace element as follows:

a. Cut safety wire and unscrew element case from bottom of filter head.

b. Remove old element and thoroughly clean case. Install new element in case.

c. Thread case with element into bottom of filter head. Secure with safety wire.

4-8. CHECKING LOW PRESSURE FILTER. Perform the following low pressure filter (7, figure 1-3) condition checkout while Test Stand is in operation with flow set at 10 gpm.

a. Place pressure selector valve (12, figure 3-1) in FILTER INLET position. Observe reading on low pressure gage (9). Record this reading.

b. Place selector valve (12) in FILTER OUTLET position. Observe reading on low pressure gage (9). Record this reading.

c. Subtract second reading from first reading. The result of this subtraction is the pressure drop across the low pressure filter. A pressure drop of 20 psi or more indicates a clogged filter element. Replace filter element as outlined in paragraph 4-9.

CAUTION

The Test Stand shall never be operated with a filter inlet vacuum reading greater than 16 inches Hg.

4-9. SERVICING LOW PRESSURE FILTER. Replace a clogged or dirty filter element in low pressure filter (7, figure 1-3) as follows:

a. Close reservoir shutoff valve (1, figure 3-1).

b. Remove drain plug (1, figure 4-1) and drain hydraulic fluid from filter case.

c. Loosen clamping ring screw (6, figure 4-1) to allow removal of clamping ring (5). Remove cover from body and cover assembly (14).

d. Remove element retainer assembly (8), end guide (10), and element gaskets (11). Lift element (12) out of body.

e. Thoroughly clean body and cover assembly (14). Carefully inspect gaskets (7, 9, and 11) and replace with new gaskets if required. Install new filter element (12) in body and cover assembly (14).

f. Install gasket (11), end guide (10), and secure with element retainer assembly (8).

g. Install cover, clamping ring (5), and tighten clamping ring screw (6). Install drain plug (1). Remove filler plug (3) and gasket (4). Fill filter with hydraulic fluid and reinstall filler plug and gasket.

4-10. SERVICING ENGINE FUEL PUMP. An engine fuel pump may fail because of dirt in the head. This can be cleaned as follows:

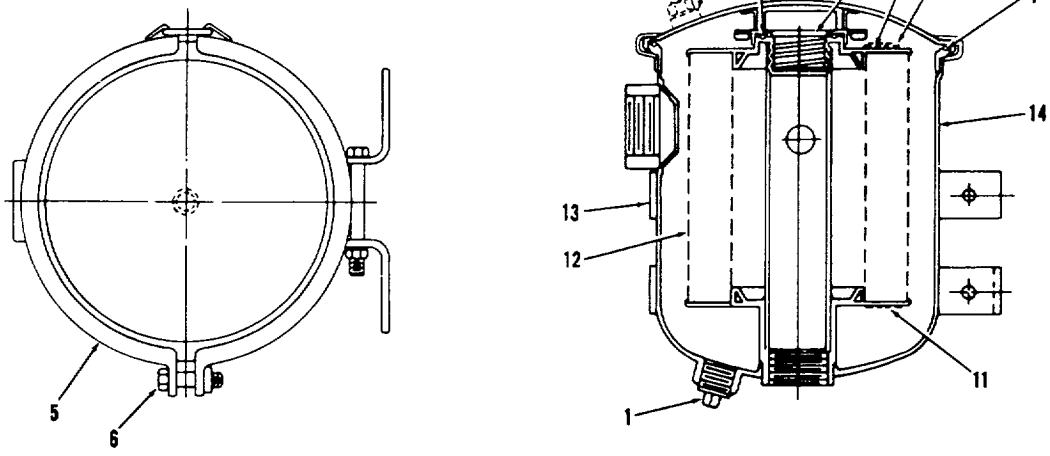
a. Using a file, scratch an indicating mark across a point of union of head (7, figure 4-2) and mounting bracket (23). Remove the two fuel lines.

b. Remove six screws (6) from fuel head and remove head (7).

c. Unscrew dome bolt (1) and disassemble dome (3), gasket (4), and filter screen (5).

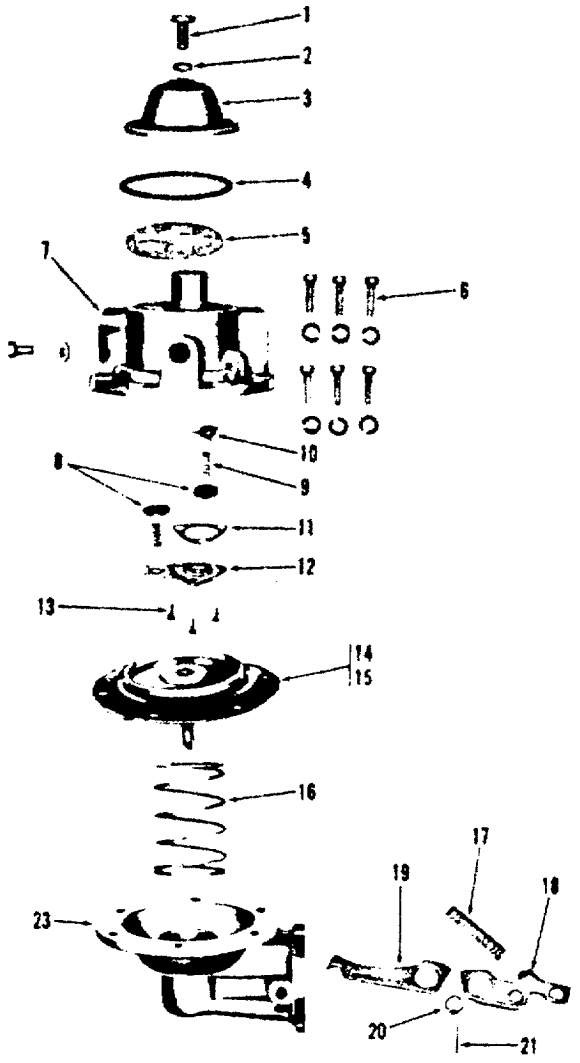
d. Wash out sediment cavities of head (7) using gasoline and a fine brush. Be careful not to damage valve assemblies in lower cavity of head.

e. Hand crank engine to a position where diaphragm (14) is laying flat across face of mounting bracket (23). Place fuel head (7) back in position so that indicating marks are in line and thread screws (6) through head and into mounting



1. Drain Plug
2. Vent
3. Filler Plug
4. Gasket
5. Clamp Ring
6. Clamp Ring Screw
7. Gasket
8. Element Retainer Assembly
9. Gasket
10. End Guide
11. Gasket
12. Element
13. Mounting Bracket
14. Body and Cover

Figure 4-1. Low Pressure Filter Assembly



1. Dome Bolt
2. Gasket
3. Dome
4. Gasket
5. Filter Screen
6. Mounting Screw
7. Fuel Head
8. Valve
9. Valve Spring
10. Spring Retainer
11. Gasket
12. Valve Plate
13. Screw
13. Screw
14. Diaphragm
15. Gasket
16. Diaphragm Spring
17. Rocker Arm Spring
18. Rocker Arm
19. Linkage
20. Rocker Arm Bushing
21. Rocker Arm Pin
22. Mounting Gasket (Not Illust)
23. Mounting Bracket

Figure 4-2. Engine Fuel Pump

bracket (23) approximately three turns. Again crank engine over until diaphragm (14) is pulled down into mounting bracket (23). Tighten screws (6).

f. Carefully clean and install filter screen (5).

g. Install gasket (4) in dome (3) and position dome onto fuel head (7).

h. Install gasket (2) on dome bolt (1) and insert bolt in top of dome (3) then tighten securely. Connect fuel lines and tighten securely.

4-11. ENGINE IGNITION TIMING. If necessary to check or retime the engine magneto, use the following procedure.

a. Remove screen over flywheel air intake opening by taking out screws holding the screen in place. This will expose the timing marks on flywheel and shroud (figure 4-3).

b. Remove spark plug from number 1 cylinder and turn engine over slowly using hand crank, at the same time hold a finger over number 1 spark plug hole so that compression stroke can be determined by air blowing out of hole.

c. The flywheel is marked with the letters DC near one of the air circulating vanes. This vane is further identified by an X mark cast on the end (figure 4-3). When air blows out number 1 spark plug hole, continue turning starting crank until edge of marked vane on flywheel is on line with mark on vertical centerline of shroud. Leave flywheel in this position. At this point, keyway for mounting flywheel is also on top.

d. Remove magneto from engine. Remove fitting from inspection hole located in gear cover at magneto mounting flange.

e. Insert ignition cable into number 1 tower terminal of magneto end cap and hold number 1 spark plug terminal at the other end approximately 1/8 inch away from magneto body. Turn magneto gear clockwise, tripping the impulse coupling until number 1 terminal sparks, then hold gear in this position. Install magneto on engine, meshing gears so that when magneto is in place, the gear tooth marked X will be visible through lower half of inspection hole in gear cover. Tighten magneto mounting screw and nuts, making sure magneto flange gasket is in place.

f. The number 1 terminal is the upper right hand tower on the magneto cap. The terminals follow the proper firing order of 1-3-4-2 in a clockwise direction viewing the cap end. Connect leads from magneto to spark plugs of corresponding number.

g. When magneto is properly timed, the impulse coupling will snap when the DC and X marked vane of the flywheel lines up with mark on flywheel which should indicate the centerline of number 1 and 3 cylinders. Check this by turning crankshaft over by hand. The impulse will also snap every 180 degrees of flywheel rotation thereafter.

h. The proper spark advance is 23 degrees. Timing may be checked with a neon light, the running spark advance is indicated by a 1/8 inch hole on flywheel shroud, 23 degrees before vertical centerline of number 1 and 3 cylinders. Whiten end of vane marked X with chalk or paint. The magneto rotates at crankshaft speed in clockwise direction as viewed from driving gear end of magneto. The magneto distributor rotor turns at half engine speed.

4-12. CHECKING IGNITION SPARK. If difficulty is experienced in starting the engine or if engine misfires, the strength of the ignition spark may be tested as follows:

a. Disconnect number 1 ignition cable from spark plug and hold terminal 1/8 inch away from air shroud or any other metal part of engine as shown in figure 4-4.

b. Turn engine over slowly using hand crank and watch for spark discharge which should occur during the cycle, at the instant the impulse coupling on the magneto snaps. Repeat this check with each ignition cable.

c. If there is a weak spark, or none at all, check magneto breaker point opening (paragraph 4-13). If this does not remedy trouble it may be necessary to install a new condenser.

4-13. ADJUSTING ENGINE MAGNETO BREAKER POINTS. If ignition spark becomes weak after continued operation, the breaker points may have to be readjusted, resurfaced, or replaced, as follows:

a. Remove magneto end cover and examine points. If there is evidence of pyramiding or pitting, resurface points using a small tungsten file.

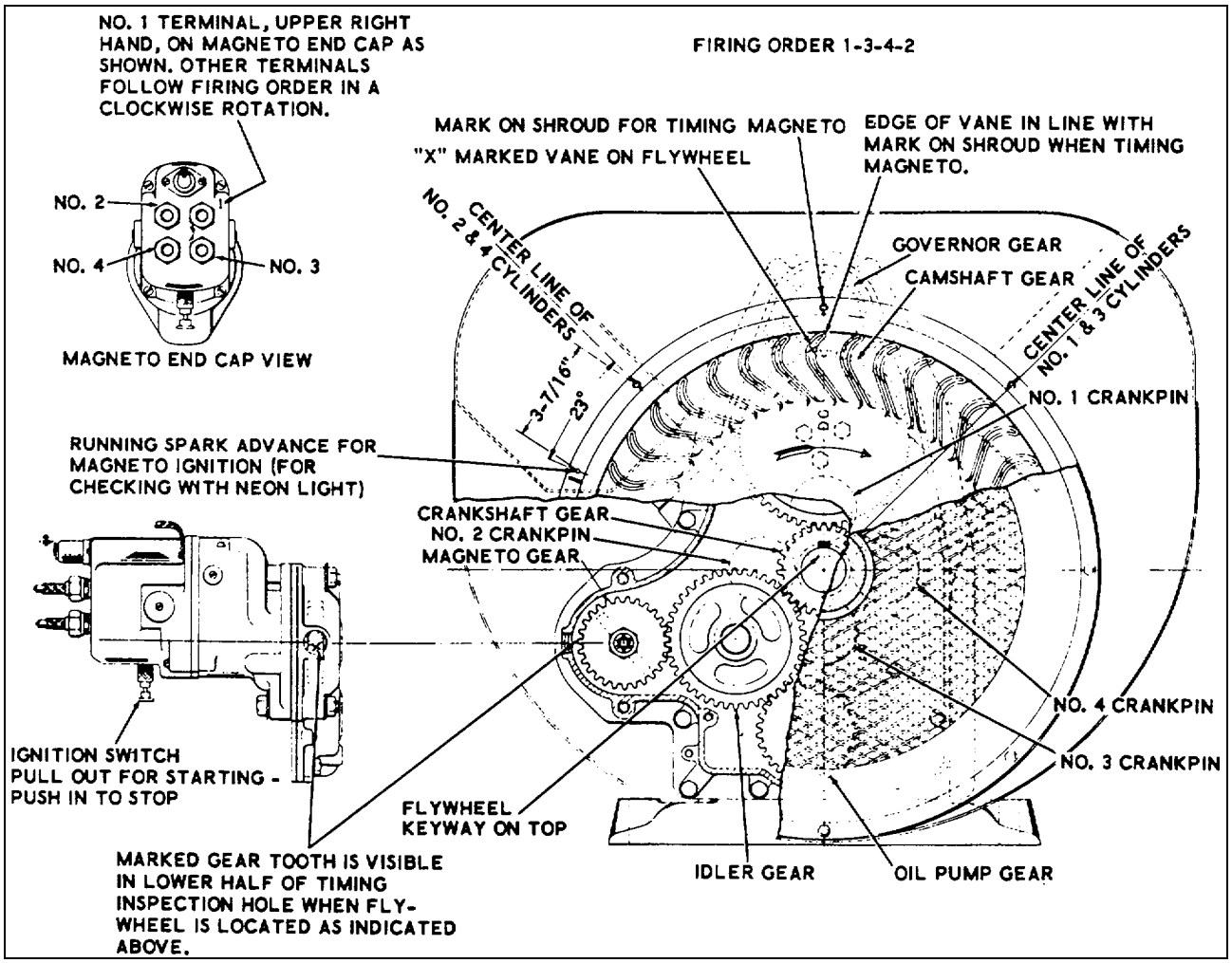


Figure 4-3. Engine Ignition Timing

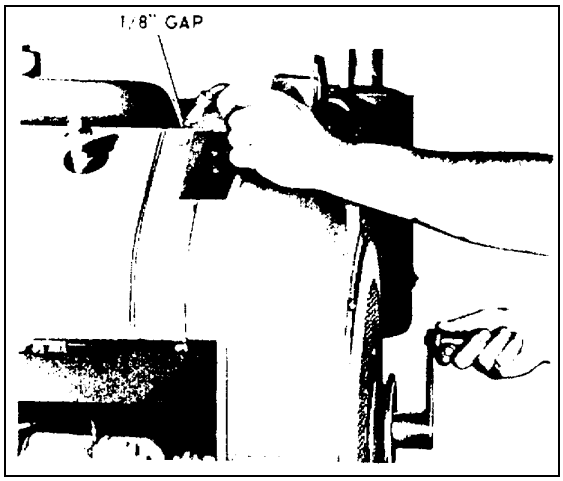


Figure 4-4. Checking Magneto Ignition Spark

b. Replace points that are badly worn or pitted.

c. Rotate crankshaft with hand crank (this also rotates magneto) until breaker points are wide open. Measure opening or gap with a feeler gage as shown in figure 4-5. At full separation, gap shall be 0.015 inch.

d. Adjust breaker points as follows:

(1) Loosen two locking screws on contact plate (figure 4-6) sufficiently to allow plate to move.

(2) Insert end of small screwdriver into adjusting slot at bottom of contact plate and open or close contacts by moving plate until proper gap is obtained.

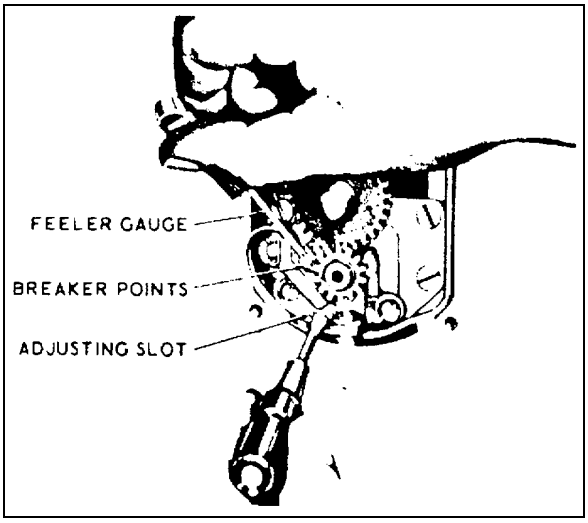


Figure 4-5. Measuring Magneto Point Gap

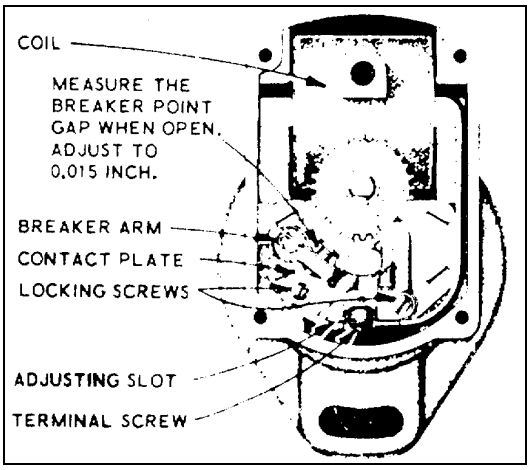


Figure 4-6. Magneto - End View

(3) Tighten locking screws and recheck breaker point gap to make sure it has not changed.

4-14. ADJUSTING THERMOSWITCH. An inboard thermoswitch is installed in the hydraulic manifold and should be adjusted so that its contacts open, shutting down the Test Stand when system hydraulic fluid temperature reaches 71 degrees C (160°F). Turn adjusting screw in head of thermoswitch clockwise to increase temperature setting, counterclockwise to decrease the temperature setting.

4-15. CLEANING HYDRAULIC RESERVOIR. To clean hydraulic reservoir (1, figure 1-4), open access door (2, figure 1-2) and remove rear access panel (1). Close hydraulic reservoir shutoff valve (1, figure 3-1) and drain reservoir by opening drain valve in bottom. Remove top cover plate from reservoir for access to interior. After cleaning, reassemble and refill reservoir.

4-16. REPAIR AND REPLACEMENT. Paragraphs 4-17 through 4-19 contain instructions for repair and replacement of maintenance - significant components for which the procedures are not obvious.

4-17. GENERATOR REPAIR AND REPLACEMENT. Repair or replace generator (2, figure 1-4) as follows:

a. Removal.

(1) Disconnect electrical leads from voltage regulator (3, figure 1-4).

(2) Remove hardware attaching generator to slotted bracket and remove fan belt from generator pulley.

(3) Remove mounting hardware securing generator to rear mounting bracket and remove generator from Test Stand.

b. Disassembly.

(1) Remove two thru bolts and remove frame from brush end. Lift brush arms and pull brushes out of holders.
(2) Pull armature with parts attached out of generator field. Disassemble pulley, frame, and fan from armature shaft. Remove bearing retainer and gasket from frame.

c. Inspection and Repair.

(1) Examine ball bearing in end frame and replace if worn.
(2) Test armature for shorts and repair or replace as required.
(3) Examine commutator and turn down in a lathe if required.
(4) Examine brushes for excessive wear, frayed pigtails, and shorts.
(5) Remove screw and lock washers holding pigtail of each brush and remove brush. Install new brush by attaching pigtail with screw and lockwasher.
(6) When installing new brushes, place brush in holder and insert armature into position. Place a strip of No. 00 sandpaper under the brushes with sand side out, hold sandpaper to conform to contour of commutator. Move sandpaper together with armature back and forth under brush. After a few oscillations, examine brush; it should make at least 75 percent contact with commutator. Repeat sanding procedure if necessary.

d. Reassembly.

(1) Install ball bearing retainer and gasket on end frame.
(2) Install end frame, fan, and pulley onto armature shaft.
(3) Insert assembled armature into field housing. Insert brushes in brusholders.
(4) Install brush end frame and secure entire assembly with two thru bolts and washers.

e. Installation.

(1) Position generator on front and rear mounting brackets and install mounting hardware through rear bracket and slotted arm of front bracket but do not tighten.
(2) Install fan belt onto pulley of generator. Move generator in slotted bracket to apply proper tension to fan belt. Hold generator in this position and tighten mounting hardware. Proper tension is attained when belt will not deflect more than 1/2 inch.
(3) Attach electrical leads from voltage regulator.

4-18. STARTING MOTOR REPAIR AND REPLACEMENT. Repair or replace engine starting motor as follows:

a. Removal.

(1) Disconnect electrical lead to starting motor.
(2) Remove one screw and lockwasher securing starting motor to support bracket.
(3) Remove three screws and lockwashers securing flange of starting motor to engine and remove starting motor.

b. Disassembly.

(1) Remove cover band from body of motor. Pull brushes from brusholder.
(2) Remove four screws and lock washers attaching commutator end head to body of motor and remove head.
(3) Detach pinion housing from body of motor by removing four screws and lock washers and loosening head screw in drive head of bendix drive assembly and pull assembly off shaft of armature.
(4) Remove four screws and pull intermediate bearing plate assembly out of pinion housing. Pull armature out of body.

c. Inspection and Repair.

(1) Examine armature and test for ground. Repair grounded armature if possible, otherwise replace. Clean a burned, dirty, or oily commutator with No. 00 sandpaper. Examine commutator for high mica and turn down in lathe if necessary.
(2) Check brush spring tension, and condition of brushes. Replace with new parts. Fit brushes to commutator with sandpaper.
(3) Examine bearings for wear and replace excessively worn parts.

d. Reassembly.

(1) Install intermediate bearing plate with hub end toward armature, and bendix drive parts onto shaft of armature. Attach intermediate bearing plate to pin on housing with four screws and lock washers.
(2) Install armature and pinion housing assembly in body of motor. Attach pinion housing to body with four screws and lock washers.
(3) Attach commutator end head to body with four screws and lock washers.
(4) Insert brushes into brusholders. Attach cover band to body.

e. Installation.

(1) Position starting motor on engine and secure with three screws and lock washers through flange of motor.

(2) Attach starting motor to support bracket with one screw and lock washer at rear of motor.

(3) Connect electrical lead to motor.

4-19. GASOLINE ENGINE REPAIR AND REPLACEMENT. Remove and repair gasoline engine (1, figure 1-3) as follows:

a. Removal.

(1) Remove Test Stand housing. Remove muffler (2, figure 1-3).

(2) Disconnect oil lines from oil filter (9, figure 1-3). Disconnect fuel line from fuel pump. Disconnect choke and throttle cables from engine. Disconnect electrical lead to starting motor. Disconnect electrical leads from control panel indicators and switches at engine.

(3) Loosen generator (2, figure 1-4) in slot of front bracket and remove fan belt. Support high pressure pump (8, figure 1-3) and remove four screws and washers attaching pump mount to rear of engine. Disconnect flexible coupling between pump shaft and engine crankshaft.

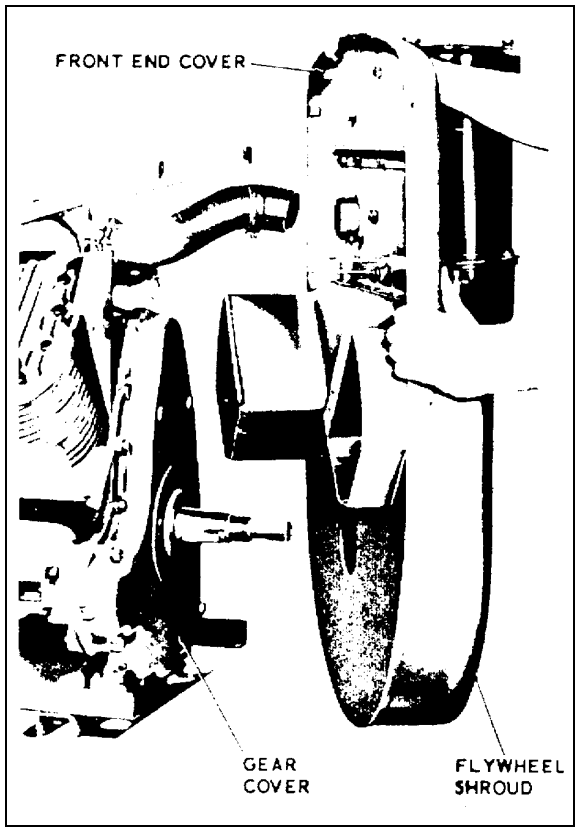


Figure 4-7. Removing Flywheel Shroud

(4) Remove four cap screws, lock washers, nuts, and eight flat washers mounting engine to frame. Use a suitable hoist and carefully remove engine from Test Stand.

b. Disassembly.

(1) Remove starting motor and magneto. Remove cylinder head covers and screws mounting flywheel shroud to lower cylinder shrouds and heat deflectors. Remove front end panel as shown in figure 4-7. Remove balance of shrouding. Drain crankcase oil.

(2) Remove carburetor and manifold as an assembly. See figure 4-8. Remove cylinder heads.

(3) Disconnect governor linkage and remove governor assembly. Remove gear cover screws and drive out two dowel pins as shown in figure 4-9. Remove gear cover exposing timing gears as shown in figure 4-10. Remove camshaft thrust plunger and spring to prevent loss.

(4) Remove setscrew on magneto side of crankcase which locks idler shaft in position. Remove idler gear assembly and idler shaft using a gear puller as shown in figure 4-11.

(5) Invert engine and remove oil pan and supports. See figure 4-12. Take out slotted pipe plug (figure 4-13) and then, use a 5/32 inch allen wrench to remove oil pump lock screw. Remove lock nut holding oil pump driving gear (figure 4-10) to shaft. Use a soft brass rod or punch and drive shaft through gear as shown in figure 4-14. Withdraw oil pump toward center of crankcase.

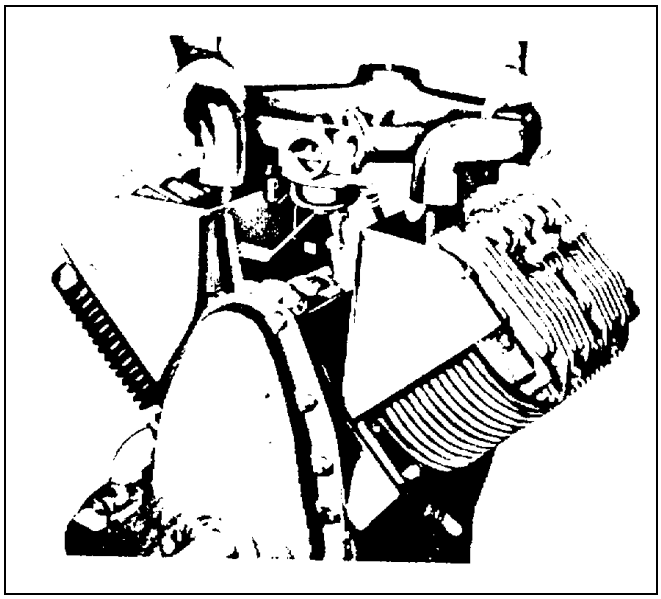


Figure 4-8. Removing Carburetor and Manifold

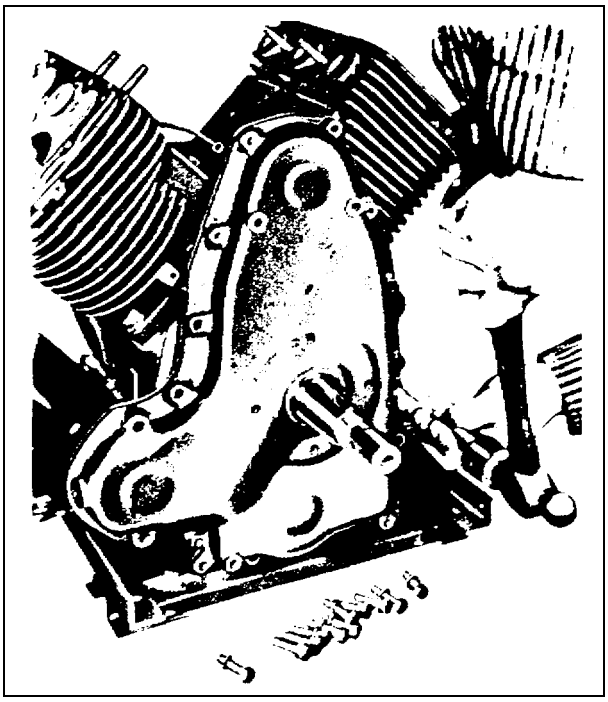


Figure 4-9. Removing Gear Cover

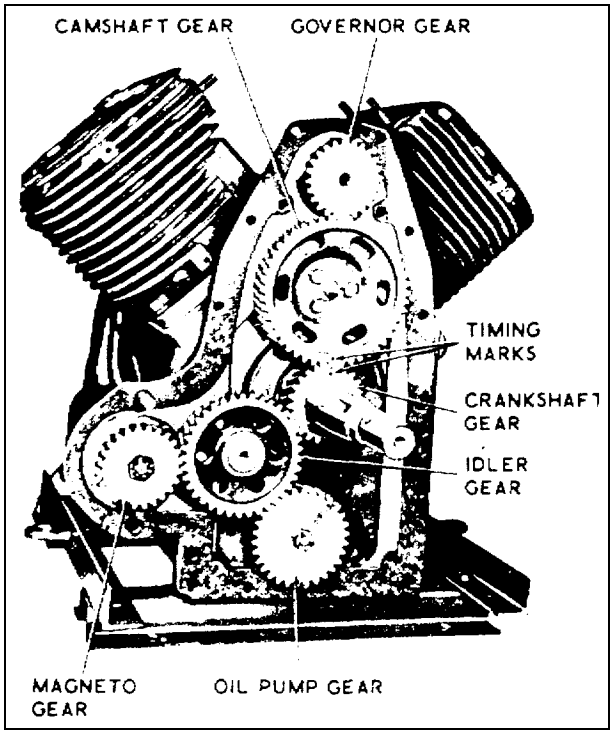


Figure 4-10. Timing Gears

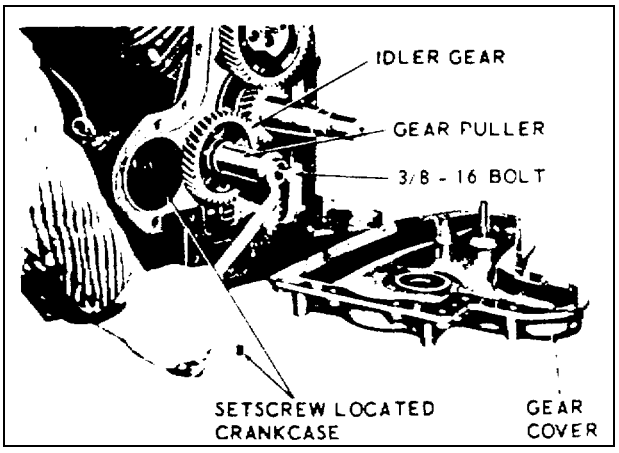


Figure 4-11. Removing Idler Shaft

(6) Remove palnuts and hexagon nuts from all connecting rod bolts. Tap end of bolts lightly, being careful not to mar threads and free connecting rod caps from bolts. Push connecting rods with pistons up through cylinders. Be careful not to score crankshaft journals by allowing rod bolts to strike or scrape across them. Replace caps on rods immediately so they are in correct position for reassembly. A number is stamped on the side of each rod and cap for matching (figure 4-15).

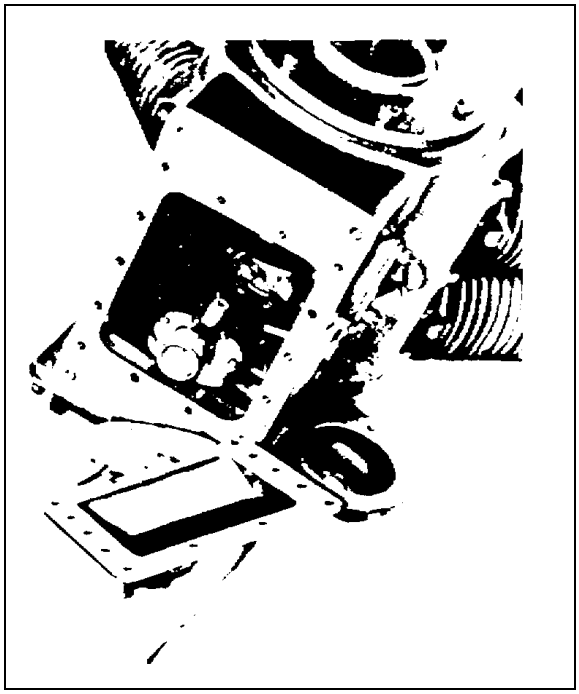


Figure 4-12. Removing Oil Pan

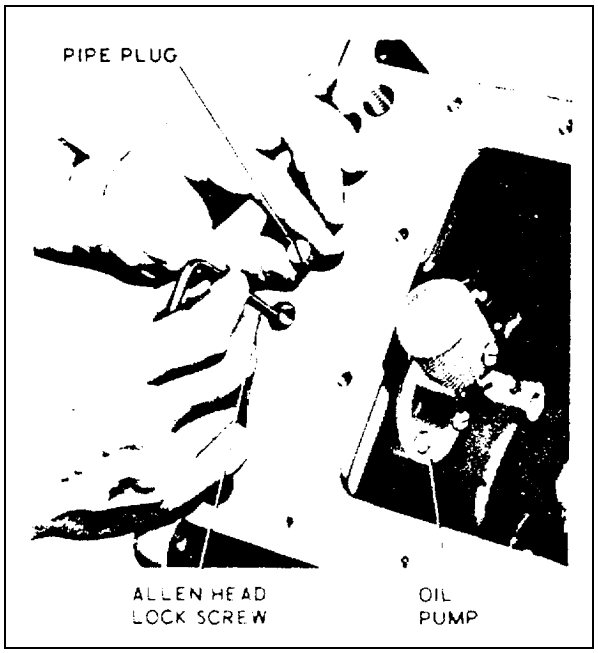


Figure 4-13. Removing Oil Pump

Figure 4-14. Removing Oil Pump Drive Shaft

(7) Remove valve tappet inspection plate and compress valve springs with a standard automotive type valve lifter as shown in figure 4-16. If cylinder block is still attached to engine, insert a rag in opening at bottom of valve chamber so roto-cap and valve spring seat retaining locks do not fall into crankcase. Remove roto-caps, valve spring seat retaining

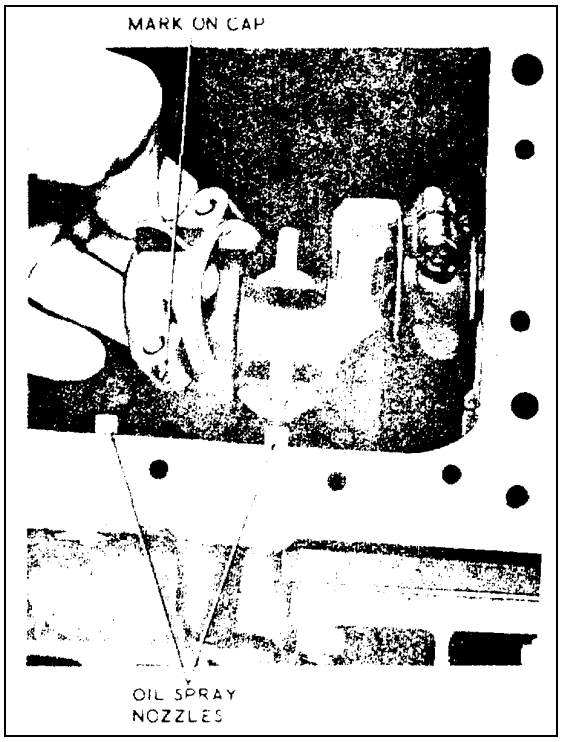


Figure 4-15. Bearing Caps

locks, seats, springs, valves and clean these as well as ports and guides of all carbon and gum deposits. Tag each valve for reassembly.

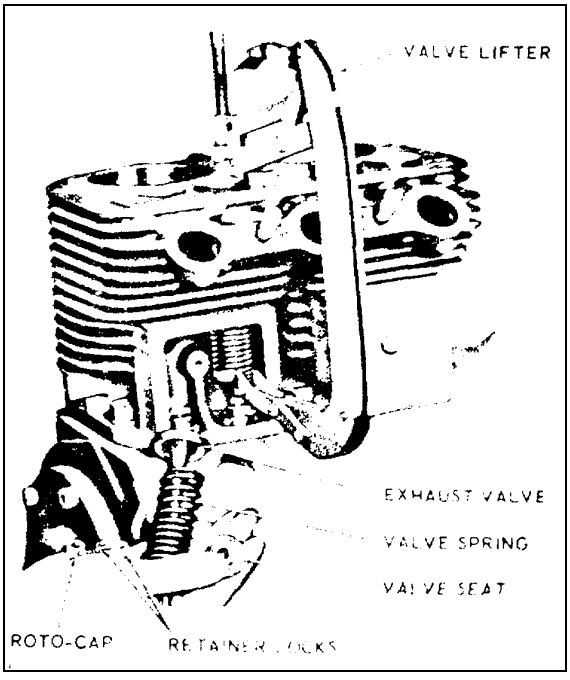


Figure 4-16. Removing Valves

(8) Remove six cap screws in main bearing plate at take-off end of engine. Pry plate off and remove crankshaft from that end of crankcase (figure 4-17).

(9) Remove cylinder blocks. Remove all valve tappets and withdraw camshaft from crankcase (figure 4-18). Remove three screws and lock washers and then pry gear off end of camshaft.

c. Inspection and Repair.

(1) Cylinder Blocks. If cylinders are worn more than 0.005 inch over size they should be reground and fitted with oversize pistons and rings. Valve stems have a clearance of 0.0025 to 0.0045 inch in the valve guides. If clearance is 0.008 inch drive out valve guides and replace.

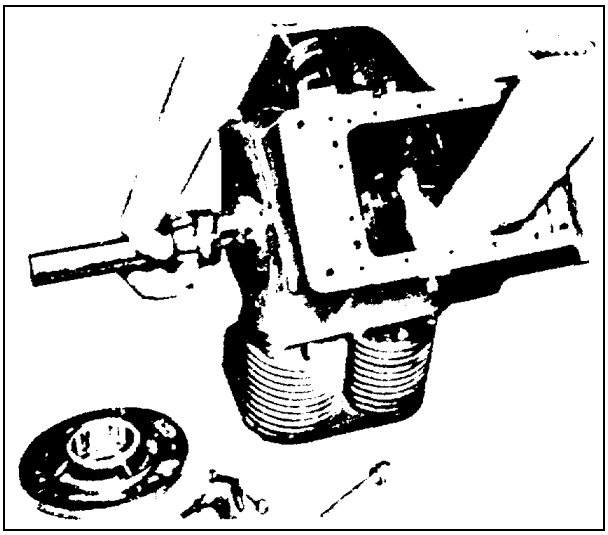


Figure 4-17. Removing Crankshaft

(2) Valves. The valve face is ground at 45 degrees to the vertical centerline of the valve stem and the valve seat insert should also be ground at a 45 degree angle. After grinding, lap valves and inserts with lapping compound to prevent improper seating. Clean valve seats and apply lapping compound to valve face and put valves back into guides. Lap valves by rotating them back and forth with a reciprocating advancing valve tool. Occasionally lift valves and reseat them in a different position to insure a uniform seat entirely around the valve. After lapping, remove valves and wash them and cylinder block thoroughly with gasoline or kerosene.

(3) Pistons and Connecting Rods. When replacing shell bearings, replace a complete bearing (2 halves). The piston skirt is cam-ground to an elliptical contour. Clearance between piston and cylinder must be measured at the center of the thrust face of the piston skirt. Refer to figure 4-19 for proper clearance. The thrust faces on piston skirt are 90 degrees from axis of piston pin hole.

(4) Inspect clearances of parts as indicated in figure 4-19.

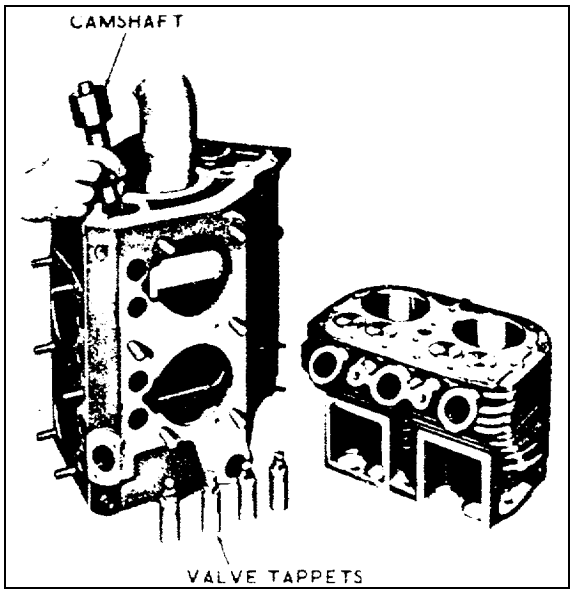


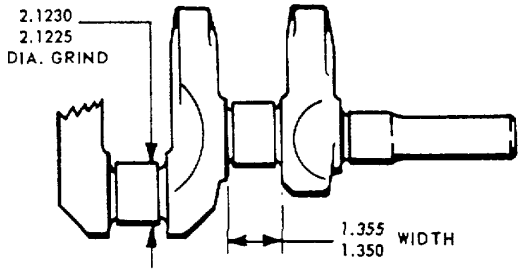
Figure 4-18. Removing Camshaft

d. Reassembly.

(1) Install camshaft gear on camshaft using three screws and lock washers. The gear has offset mounting holes to provide accurate assembly for valve timing. The gear can only be put on the correct way for matching the timing mark

PISTON, RING AND ROD CLEARANCES CHART

PISTON TO CYLINDER AT PISTON SKIRT THRUST FACES		.0052 to .0062”
PISTON RING COMPRESSED GAP		.025 to .035"
PISTON RING SIDE CLEARANCE IN GROOVES	Top Ring	.002 to .004'
	2nd Ring	.0015 to .0035”
	3rd, 4th Groove	.001 to .003”
	Oil Rings	
CONNECTING ROD TO CRANK PIN - SIDE CLEARANCE		.008 to .015”
CONNECTING ROD SHELL BEARING TO CRANK PIN		.0015 to .003
PISTON PIN - TO PISTON TO CONNECTING		.0000 to .0003” .0002 to .0007”



STANDARD CRANK PIN DIMENSIONS

Figure 4-19. Clearances

with that of the crankshaft. Install camshaft in crankcase. Be sure spring and plunger are in place in end of camshaft to hold it in position endwise. Insert tappets in proper position in crankcase. Clean all dirt and other deposits from fins of cylinder blocks and install them on same side of engine from which they were removed. Tighten mounting nuts 62 to 78 foot pounds torque.

(2) Position crankshaft in crankcase and install main bearing plate. Use additional shims on main bearing plate if necessary to obtain crankshaft end play of 0.002 to 0.004 inch when engine is cold. Timing marks on crankshaft gear and camshaft gear must match up (figure 4-10) otherwise engine will not operate properly if timing will be off and engine will not run. The word TOP is cast on outside of main bearing plate and must be mounted accordingly. Mounting main bearing plate upside down would prevent proper lubrication. Tighten main bearing cap screws 25 to 30 foot pounds torque.

(3) Install valve assembly (figure 4-16). Be sure to assemble roto-caps on end of valve stems. Adjust tappets (figure 4-20). With tappets in lowest positions, engine cold, the clearance should be: Inlet Valves 0.008 inch: Exhaust Valves 0.016 inch. Install valve tappet inspection plate.

(4) Install piston rings by placing open end of ring on piston first as shown in figure 4-21, spreading ring only far enough to slip over piston and into correct groove. Number 2 compression ring must be installed with scraper edge down (figure 4-22). Use a suitable ring compressor for installing pistons in cylinders. Stagger piston ring gaps 90 degrees around piston. Oil pistons, rings, wrist pin, rod bearings, and cylinder walls before assembly. Be sure arrow on top of piston is pointing in direction of crankshaft rotation (clockwise when viewing flywheel end). Be sure piston and connecting rod assemblies are installed into same cylinder from which they were removed.

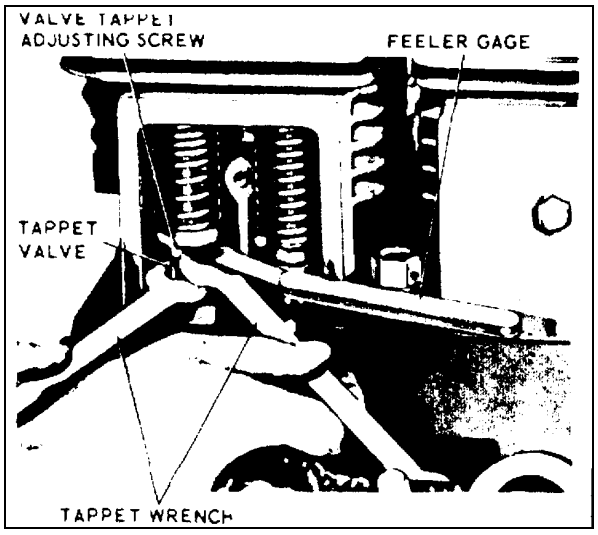


Figure 4-20. Adjusting Tappets

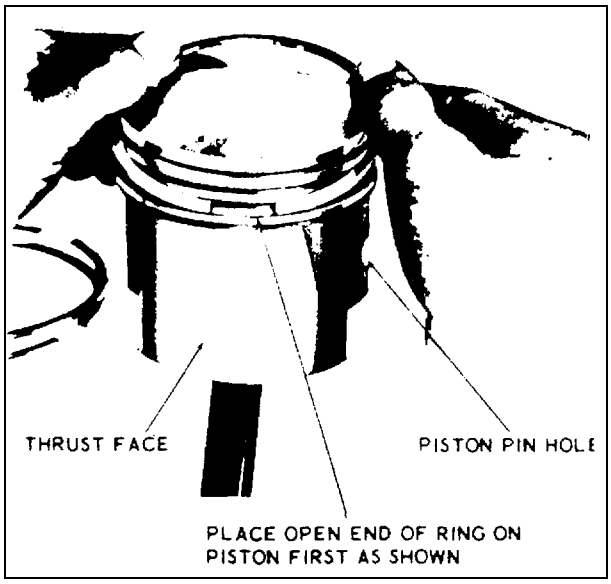


Figure 4-21. Installing Piston Rings

(5) Place bearing shells in proper position in rod and cap. Position caps on studs of connecting rods with identifying number on cap on same side as number on connecting rod (figure 4-15). Tighten connecting rod nuts 28 to 32 foot pounds torque then install palnuts and tighten with wrench to 1/4 turn beyond finger tight position.

(6) Position oil pump in crankcase and attach oil pump drive gear (figure 4-10) with lock nut. Tighten oil pump lock screw with 5/32 inch allen wrench (figure 4-13) and install slotted pipe plug. Install oil pan with deep end toward oil pump. Tighten mounting screws 6 to 9 foot pounds torque.

(7) Install idler gear and shaft in crankcase. Be sure oil groove in shaft is facing up. Drive shaft into crankcase with soft metal hammer and maintain a 0.003 to 0.004 inch clearance between idler gear and shoulder of shaft. Install setscrew (figure 4-11) on magneto side of crankcase to lock idler shaft in place.

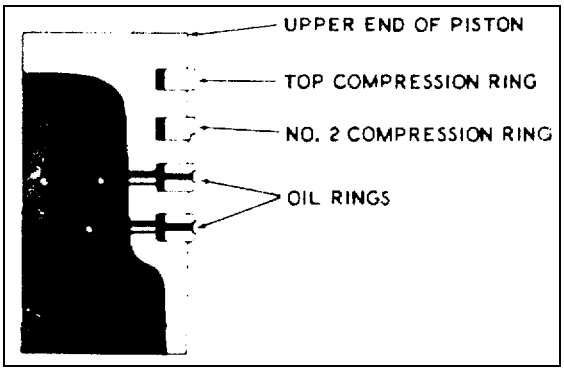


Figure 4-22. Piston Ring Positions

(8) Install gear cover (figure 4-9) and tighten gear cover cap screws 14 to 18 foot pounds torque. Install governor and governor housing.

(9) Remove all carbon and lead deposits from cylinder heads. Use a new cylinder head gasket at assembly. Apply a mixture of graphite and oil to cylinder head screws to prevent them from rusting tight against cylinder block. Tighten cylinder head screws 25 to 32 foot pounds torque and, after complete assembly and engine is run-in, retorque head screws.

(10) Install carburetor and manifold assembly figure 4-8). Tighten manifold mounting nuts 40 to 50 foot pound torque. Overtightening may cause flanges to break.

(11) Install magneto and starting motor. Install shrouding (figure 4-7).

e. Governor Adjustment. The control rod between governor and carburetor must be adjusted to proper length. With engine at rest, the governor spring will hold flyweights in, and control rod must be of such length as to hold carburetor throttle wide open at that point. The accuracy of this adjustment can be tested as follows:

(1) Disconnect control rod ball joint from governor lever and push rod assembly toward carburetor as far as it will go. This will open throttle wide.

(2) Move governor lever as far as possible in same direction as control rod. Holding both parts in this position, screw ball joint onto control rod until right angle stud on ball joint fitting will register with hole in lever then, screw fitting in two more turns.

(3) Insert ball joint stud into hole in governor lever, assemble and tighten lock nuts. With governor lever pushed toward carburetor as far as it will go, there should be 1/16 inch clearance between throttle lever and stop pin on carburetor.

(4) The governor lever is furnished with 12 holes for attaching governor spring. It is important that spring is hooked into proper hole to suit speed at which engine is operated. Insert spring in hole number 7, figure 4-23.

FULL LOAD R.P.	NO LOAD R.P.1.	HOLE No
1400	1550	4
1500	1650	5
1600	1725	5
1700	1850	6
1800	1950	7
1900	2050	8
2000	2125	8
2100	2250	9
2200	2350	10
2300	2425	10
2400	2550	11

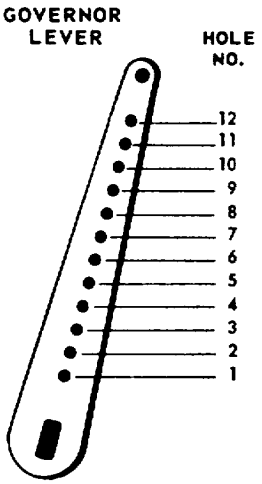


Figure 4-23. Governor Lever Chart

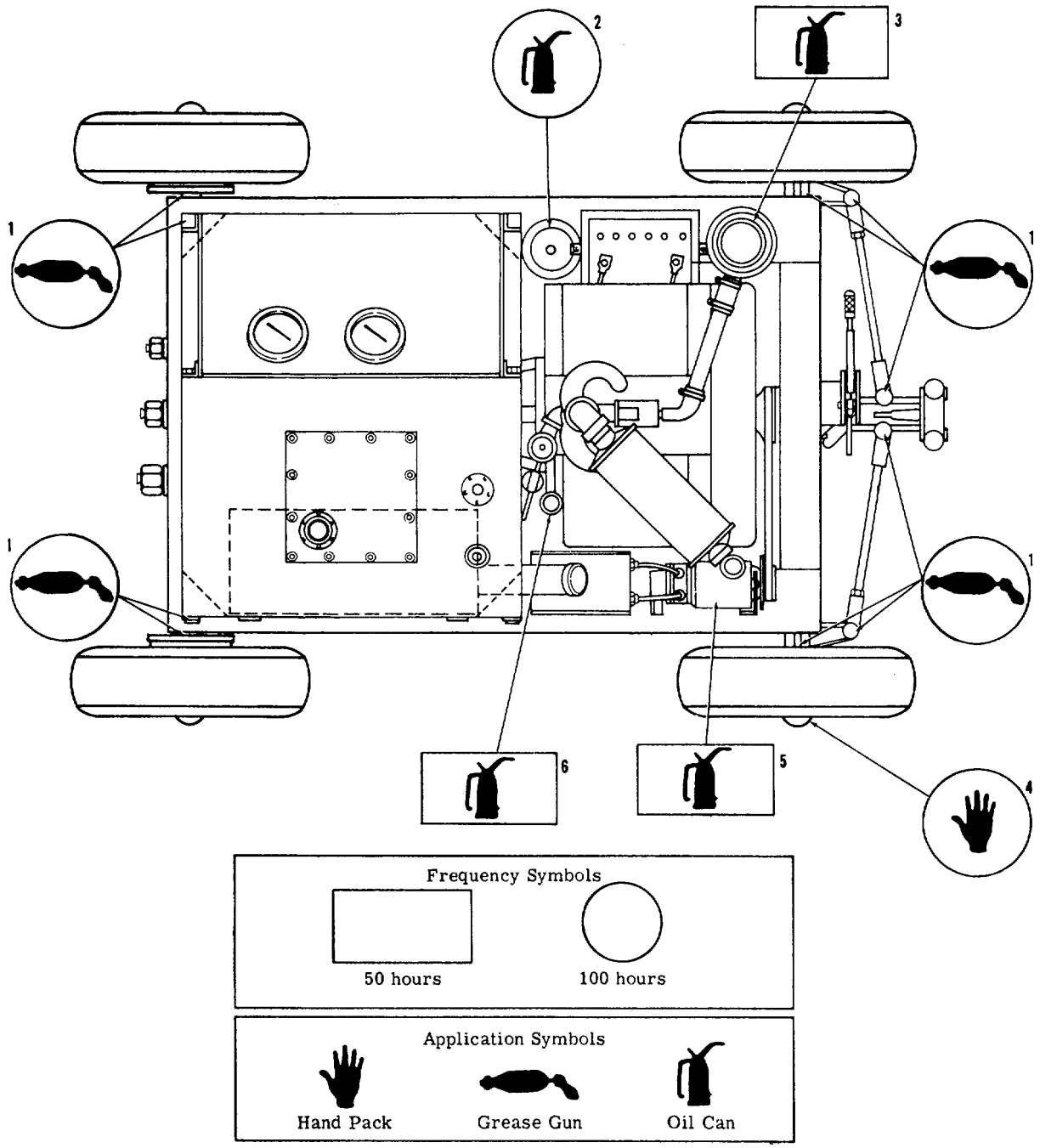
f. Installation.

(1) Use a suitable hoist and carefully position engine onto frame of Test Stand. Secure engine to frame with four cap screws, lock washers, nuts, and eight flat washers.

(2) Connect flexible coupling between high pressure pump shaft and engine crankshaft. Attach pump mount to rear of engine using four screws and lock washers. Position fan belt over engine pulley and generator pulley and tighten generator in slotted bracket while putting tension on belt.

(3) Connect electrical leads to engine and starting motor. Connect throttle and choke cables. Connect fuel line to fuel pump. Connect oil lines to oil filter. Install muffler. Refill crankcase with oil.

4-20. LUBRICATION. Table V is a lubrication chart indicating lubricant specification, time of application, quantity and point of lubrication.



1. Tie Rods, Pivot, Wheel Spindles, and spring shackles - Grease
2. Engine Oil Filter - Oil
3. Air Cleaner - Oil
4. Wheel Bearings - Grease
5. Generator - Oil
6. Crankcase - Oil

Figure 4-24. Lubrication Chart

TABLE V. Lubrication

Item	Lubricant Specification	Time (Operating)	Lubrication Point
Engine	MIL-O-2104B	50 Hours	Drain and refill crankcase (figure 4-25). Fill until oil resistors on FULL mark on dipstick (figure 4-26). Crankcase capacity is 5 quarts.
Air Cleaner	MIL-O-2104B	50 Hours	Drain and refill filter bowl on bottom of cleaner body. Fill to FULL mark.
Generator	MIL-L-15016A	50 Hours	Apply several drops of oil to oil cup.
Engine Oil Filter	MIL-O-2104B	100 Hours	Drain, clean, and replace cartridge.
Trailer Assembly	MIL-G-10924A	100 Hours	Pack wheel bearings. Apply grease gun to fittings on steering tie rods, wheel spindles, and spring shackles.
Miscellaneous Lubrication	MIL-L-15016A	100 Hours	Apply several drops of oil to tow bar attaching pin and linkage. Also to brake linkage.

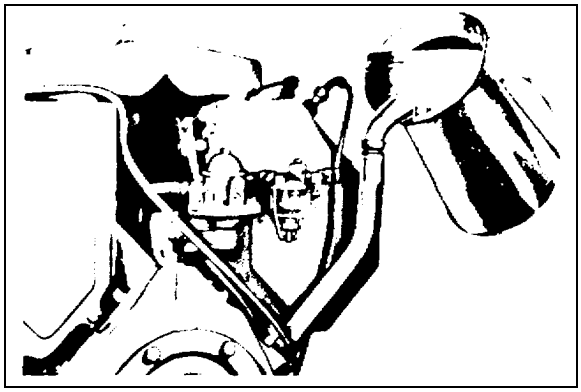


Figure 4-25. Filling Crankcase

Figure 4-26. Checking Crankcase Oil Level

SECTION V
TROUBLESHOOTING

5-1. TROUBLESHOOTING. Reference to data contained in Sections I, III, and IV, particularly the diagrams, will be helpful in diagnosis of trouble and possible remedies.

5-2. TROUBLESHOOTING TABLE. Table VI is a troubleshooting chart listing the most common operating troubles, probable cause, and the remedy.

TABLE VI. Troubleshooting

Trouble	Probable Cause	Remedy
Engine will not start.	Insufficient choke on cold engine.	Choke carburetor and repeat starting procedure.
	Engine flooded.	Open choke, open throttle wide and crank engine or allow a time interval for accumulated gasoline to evaporate.
	Ignition cable, broken or disconnected.	Dry off cables, replace or connect securely.
	Spark plugs wet, dirty or improperly gapped.-	Remove spark plugs, dry and clean thoroughly. Reset gap to 0.030 inch.
	Fuel supply exhausted.	Refill tank.
	Breaker points pitted, dirty or out of adjustment.	File points, clean with lintless tape and carbon tetrachloride and adjust breaker gap.
Engine surges or gallops.	Carburetor flooding.	Choke partially closed; open choke fully.
	Sticking valves.	Remove engine for overhaul.
	Defective carburetor.	Replace carburetor.
	Water in fuel.	Drain water at fuel tank sump, and clean out fuel filter.
	Incorrect spark plug gap.	Set plug gap at 0.030 inch.
Low oil pressure.	Low oil supply.	Refill crankcase to "FULL" mark on dip stick.
	Low oil viscosity.	Drain sump, refill with correct oil.
	High oil temperature.	Check engine cooling. Note particularly if ventilation inlet is clogged.
	Engine bearings worn.	Remove engine for overhaul.
	Oil pressure gage defective.	Replace gage.
	Internal oil leaks.	Remove engine for overhaul.
High oil temperature.	Low oil supply.	Refill crankcase to "FULL" mark on dip stick.
	Dirty or diluted oil.	Drain crankcase sump, refill with proper oil.
	Poor engine ventilation.	Open doors. Check ventilation inlet for obstructions.

TABLE VI. Troubleshooting (Cont)

Trouble	Probable Cause	Remedy
Low engine fuel pressure.	Restricted flow in inlet line.	Clean inlet strainer. Remove water and sludge from fuel tank.
	Defective fuel pump.	Replace fuel pump.
	Loose fuel line connections.	Tighten all connections between tank and pump.
Excessive fuel consumption.	Defective carburetor.	Replace carburetor.
	Fuel leaks.	Check tank, lines and all fittings.
	Dirty air cleaner.	Clean mesh air cleaner element.
	Choke partially closed.	Open choke.
Battery needs frequent recharging.	Faulty regulator.	Replace regulator.
	Electrolyte level not maintained.	Keep correct level by daily inspection.
	Generator output inadequate.	Check generator for specified output, replace if necessary.
	Loose or broken fan belt.	Adjust belt tension or replace belt.
Failure of hydraulic pump.	Pump not primed.	Open line from compensator shutoff valve to compensator on pump. Open compensator shut-off valve and operate pump until oil is free of air. Stop engine, reconnect lines.
	Pump cannot be bled.	Replace clogged filter element.
	Sheared drive shaft on pump.	Replace pump.
	Shaft seal leakage of pump.	Remove pump for overhaul.
	Seizure due to inadequate oil supply.	Refill hydraulic reservoir.
High pressure relief valve chattering.	Control cone not seating properly. Foreign material lodged between control cone and seat.	Remove control knob seal piston, compression spring and cone. Inspect cone for defects, replace if necessary. If trouble persists, remove valve for overhaul.
	Valve improperly adjusted.	Adjust valve to proper setting for specific aircraft system.
	Relief valve spool remaining inoperative.	Remove valve for overhaul.

APPENDIX A
ILLUSTRATED PARTS BREAKDOWN

1. SCOPE. This appendix lists all parts of the Test Stand in figure and item number sequence.

2. EXPLANATION OF COLUMNS. The following provides an explanation of columns in the tabular parts list:

a. Illustration (Column 1). The "figure number" subcolumn under the "illustration" column indicates the figure number the item is found on. Further, the "item number" subcolumn shows the numbers that the item is keyed to on the indicated illustration.

b. Source, Maintenance, and Recoverability Codes (SMR), (Column 2). Source code indicates the selection status and source for the listed item, the lowest category of maintenance capable of installing or manufacturing the repair part, and expendability aspects of the repair part. An example of this code is P-O-R. The "P" indicates that the item is a mission stockage list repair part procured and stocked on a national program basis; the "O" indicates that the repair part is authorized to the organizational category of maintenance; the "R" indicates the part is an expendable and recoverable item.

c. Federal Stock Number (Column 3). This column lists the Federal Stock Number assigned by the Cataloging Division, Armed Forces Supply Support Center.

d. Description (Column 4). This column lists the Federal item name and any additional description required for supply operations. The materiel agency or manufacturer's part number is parenthetically listed at the end of each nomenclature.

e. Quantity Incorporated in Unit (Column 5). The quantity shown in this column indicates the number of the listed item required for the particular use indicated. The quantity does not reflect the total quantity of the part required for the Test Stand.

3. MANUFACTURER'S SYMBOLS.

SYMBOL	MANUFACTURER
01276	Aeroquip Corp. Industrial Division Van Wert, Ohio
01989	Weatherhead Co. Antwerp, Ohio
02397	Rockwell-Standard Corp. Brake Division Ashtabula, Ohio
04453	Union Welt Co. Chicago, Ill.
04714	Rockwell Products Corp. Newark, N.J.
06499	Volta Battery Corp. Chicago, Ill.
15801	Fenwal Electronics Inc. Framingham, Mass.
16764	Delco-Remy Division of General Motors Corp. Anderson, Ind.
16954	Dennison Engineering Div. of American Brake Shoe Co. Columbus, Ohio
21387	Fairbanks Morse Co. New York, N.Y.
24161	Gates Rubber Co. Denver, Colo.
26519	Heco Division/Barker- Rockford Co. 3500 W. North Ave. Melrose Park, lll.
30327	Imperial-Eastman Corp. Chicago, Ill.
38056	Manning Maxwell and Morse Inc. Stratford, Conn.
42689	National Lock Co. Rockford, Ill.
56289	Sprague Electric Co. North Adams, Mass.
57068	Stanley Works New Britain, Conn.
57733	Stewart-Warner Corp. Chicago, Ill.
60038	Timken Roller Bearing Co, Canton, Ohio
64467	Weksler Instruments Corp. Freeport, L.I., N.Y.
66289	Wisconsin Motor Corp. Milwaukee, Wis.
70485	Atlantic India Rubber Works Inc. Chicago, Ill.

SYMBOL	MANUFACTURER
72100	Electric Auto Lite Co. Instrument and Gauge Div. La Crosse, Wis.
72619	Dialigit Corp. Brooklyn, N.Y.
72653	General Cement Division of Textron Inc. Rockford, Ill.
73370	Fram Corp. Providence, R.I.
75915	Littlefuse Inc. Des Plaines, Ill.
78174	Standard Motor Products, Inc. Long Island City, N.Y.
78252	Stolper Steel Products Corp. Menomonee Falls, Wis.
78480	The Tillotson Mfg Co. Toledo, Ohio
80063	Signal Corps
81321	Purolator Products Inc. Rahway, N.J.
86768	Republic Mfg Co. Cleveland, Ohio
88044	Aeronautical Standards Group Department of Navy and Air Force Washington, D.C.
90005	Bendix Filter Division of Bendix Corp. Royal Oak, Mich.
90664	Walworth Co. Boston, Mass.
94222	South Chester Corp. Chester, Pa.
95026	United Mfg Co. Cleveland, Ohio
95688	Prestolite Division of Eltra Corp. Bay City, Mich.
96152	Marvel-Schebler Products Division of Borg-Warner Corp. Decatur, Ill.
96906	Military Standards
97399	Dragon Engineering Co. Norwalk, Calif.
98003	Nielson Hardware Corp. Hartford, Conn.

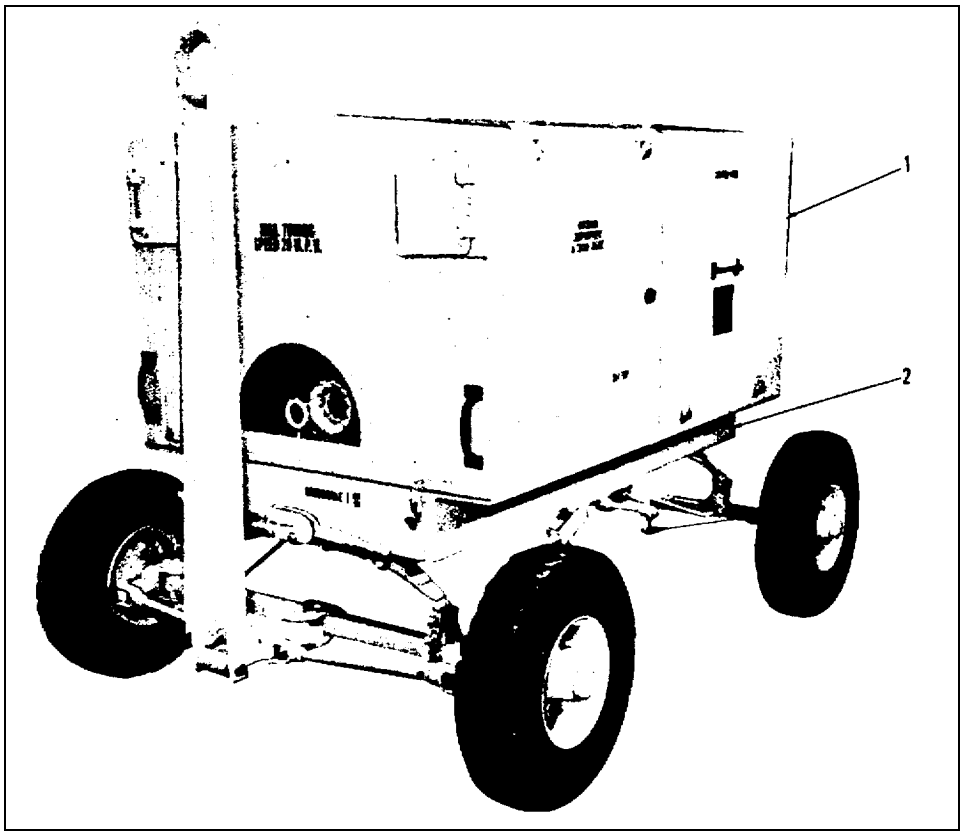


Figure A-1. Test Stand

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				TEST STAND	
A-1				TEST STAND (26519) (674016)	1
A-1	-1			HOUSING ASSY (26519) (674105) (See figure A-2)	1
A-1	-2			INTERNAL COMPONENTS ASSY (26519) (674017) ..... (See figure A-3)	1

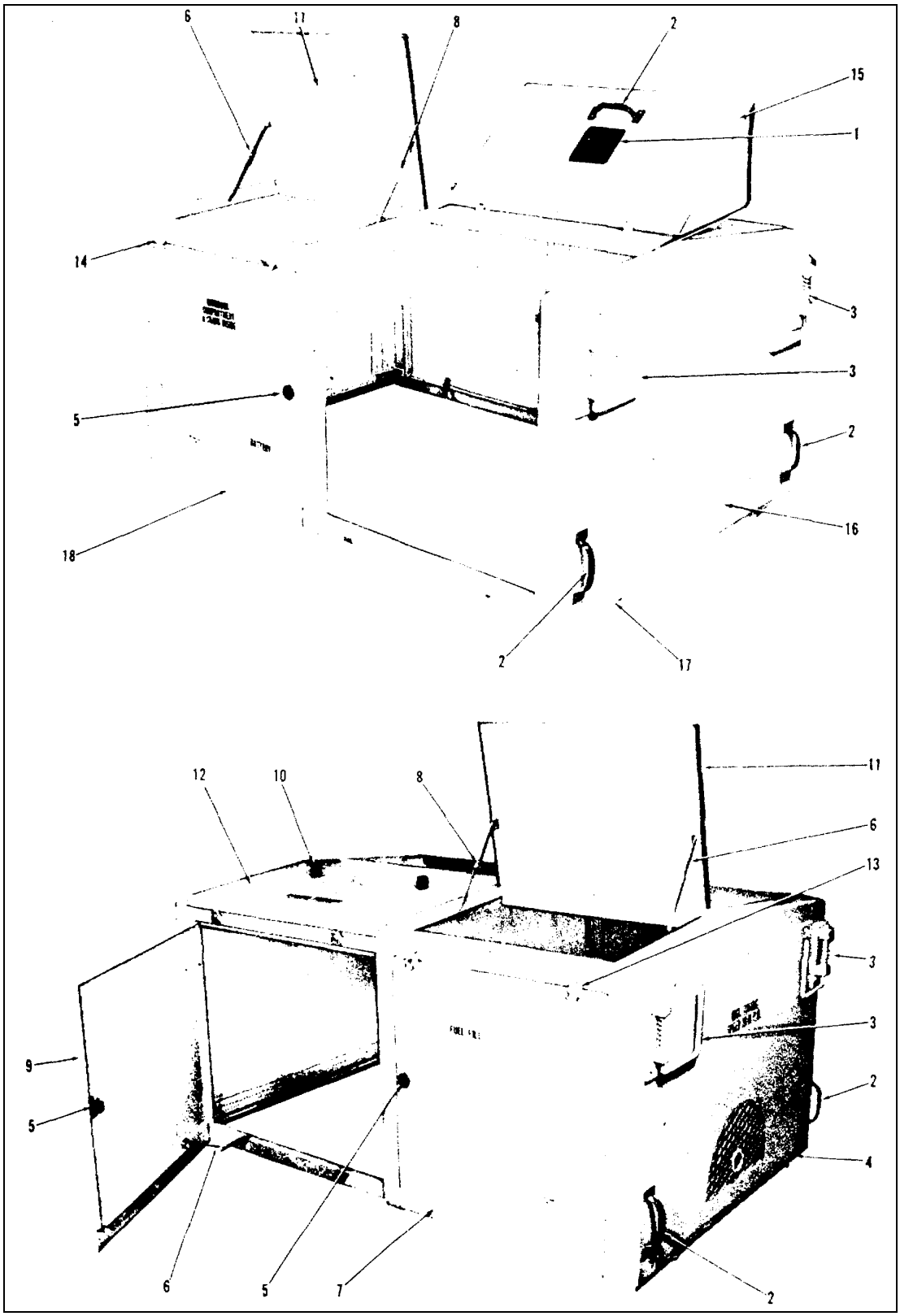


Figure A-2. Housing Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				HOUSING ASSEMBLY	
A-2				HOUSING ASSY (26519) (674105) (See figure A-1-1)	REF
A-2	-1			PLATE, Ident (26519) (672134)	1
				(ATTACHING PARTS)	
A-2				SCREW, Drive (96906 (96906) (MS21318-7)	4
				- - - * - - -	
A-2	-2			HANDLE (57068) (TMS-482-NO. 3)	5
				(ATTACHING PARTS)	
A-2				SCREW, MACH (96906) (MS35190-253)	20
A-2				WASHER, Flat (96906) (MS27183-7)	20
A-2				WASHER, Lock (96906) (MS35338-42)	20
A-2				NUT, Hexagon (96906) (MS35649-82)	20
				- - - * - - -	
A-2	-3			HANGER, Hose (26519) (2653021)	4
				(ATTACHING PARTS)	
A-2				SCREW, Cap (96906) (MS35292-34)	16
A-2				WASHER, Flat (96906) (MS27183-13)	32
A-2				WASHER, Lock (96906) (MS35338-45)	16
A-2				NUT, Hexagon (96906) (MS51968-5)	16
				- - - * - - -	
A-2	-4			PANEL, Front (26519) (673128)	1
				(ATTACHING PARTS)	
A-2				STUD (94222) (2 -0-380)	5
A-2				SPRING, Ejector (94222) (43-13-1-24)	5
A-2				WASHER (94222) (S2-46-101-39)	5
A-2				RETAINER (94222) (82-32-101-17)	5
A-2				RECEPTACLE (94222) (8-47-104-15)	5
				- - - * - - -	
A-2	-5			LATCH, Door (94222) (44-99-116-12)	3
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35207-261)	6
A-2				WASHER, Flat (96906) (MS27183-8)	12
A-2				WASHER, Lock (96906) (MS35338-45)	6
A-2				NUT, Hexagon (96906) (MS35650-302)	6
				- - - * - - -	
A-2	-6			SUPPORT, RH (42689) (61-3653-RH)	4
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35223-46)	8
A-2				WASHER, Flat (96906) (MS27183-7)	16
A-2				WASHER, Lock (96906) (MS35338-42)	8
A-2				NUT, Hexagon (96906) (MS35649-82)	8
A-2				SCREW, Machine (96906) (MS35190-238)	4
A-2				NUT, Self-locking (96906) (MS20364-632)	4
				- - - * - - -	
A-2	-7			DOOR, Side, front, RH (26519) (673126)	1
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35191-272)	5
A-2				GASKET (26519) (4143-005)	AR
				- - - * - - -	
A-2	-8			SUPPORT, Door, LH (96906) (61-3653-LH)	5
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35223-46)	10
A-2				WASHER, Flat (96906) (MS27183-7)	20
A-2				WASHER, Lock (96906) (MS35338-42)	10
A-2				NUT, Hexagon (96906) (MS35649-82)	10
A-2				SCREW, Machine (96906) (MS35190-238)	5
A-2				NUT, Self-locking (96906) (MS20364-632)	5
				- - - * - - -	
A-2	-9			DOOR, Side rear (26519) (673127)	1
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35191-272)	5
A-2				GASKET (26519) (4143-005)	AR
				- - - * - - -	

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				HOUSING ASSEMBLY (CONT)	
A-2	-10			BUMPER, Door (70485) (1326)	2
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35207-266)	2
A-2				WASHER, Flat (96906) (MS27183-8)	2
A-2				WASHER, Lock (96906) (MS3533-45)	2
A-2				NUT, Hexagon (96906) (MS35650-302)	2
				- - - * - - -	
A-2	-11			DOOR, Top, front (26519) (674121-1)	2
				(ATTACHING PARTS	
A-2				SCREW, Machine (96906) (MS35207-263)	10
A-2				WASHER, Flat (96906) (MS27183-8)	10
A-2				WASHER, Lock (96906) (MS35338-45)	10
A-2				GASKET (26519) (4143-005)	AR
				- - - * - - -	
A-2	-12			DOOR, Top, rear (25619) (674121-2)	1
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35207-263)	6
A-2				WASHER, Flat (96906) (MS27183-8)	6
A-2				WASHER, Lock (96906) (MS35338-45)	6
A-2				GASKET (26519) (4143-005)	AR
				- - - * - - -	
A-2	-13			STRIKE (98003) (HS-360-CE)	3
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35223-31)	6
A-2				WASHER, Flat (96906) (MS27183-5)	12
A-2				WASHER, Lock (96906) (MS35338-41)	6
A-2				NUT, Hexagon (96906) (MS35649-62)	6
				- - - * - - -	
A-2	-14			CATCH (98003) (HC-362-CE)	8
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35223-17)	24
A-2				WASHER, Flat (96906) (MS27183-3)	48
A-2				WASHER, Lock (96906) (MS35338-40)	24
A-2				NUT, Hexagon (96906) (MS35649-42)	24
				- - - * - - -	
A-2	-15			DOOR, Control panel (26519) (673117)	1
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35207-263)	6
A-2				WASHER, Flat (96906) (MS27183-8)	6
A-2				WASHER, Lock (96906) (MS35338-45)	6
A-2				GASKET (26519) (4143-005)	AR
				- - - * - - -	
A-2	-16			PANEL, Rear access (26519) (673133)	1
				(ATTACHING PARTS)	
A-2				STUD (94222) (2-0-380)	5
A-2				SPRING, Ejector (94222) (43-13-1-24)	5
A-2				WASHER (94222) (82-46-101-39)	5
A-2				RETAINER (94222) (82-32-101-17)	5
A-2				RECEPTACLE (94222) (8-47-104-15)	5
				- - - * - - -	
A-2	-17			STRIKE (80063) (SC-D-20650-25)	4
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35223-45)	8
A-2				WASHER, Flat (96906) (MS27183-7)	16
A-2				WASHER, Lock (96906) (MS35338-42)	8
A-2				NUT, Hexagon (96909) (MS35649-82)	8
				- - - * - -	
A-2				HOUSING (26519) (674106)	1
A-2	-18			DOOR, Side, front (LH) (26519) (673122)	1
				(ATTACHING PARTS)	
A-2				SCREW, Machine (96906) (MS35191-272)	5
				- - - * - - -	
				GASKET (26519) (4143-005)	AR

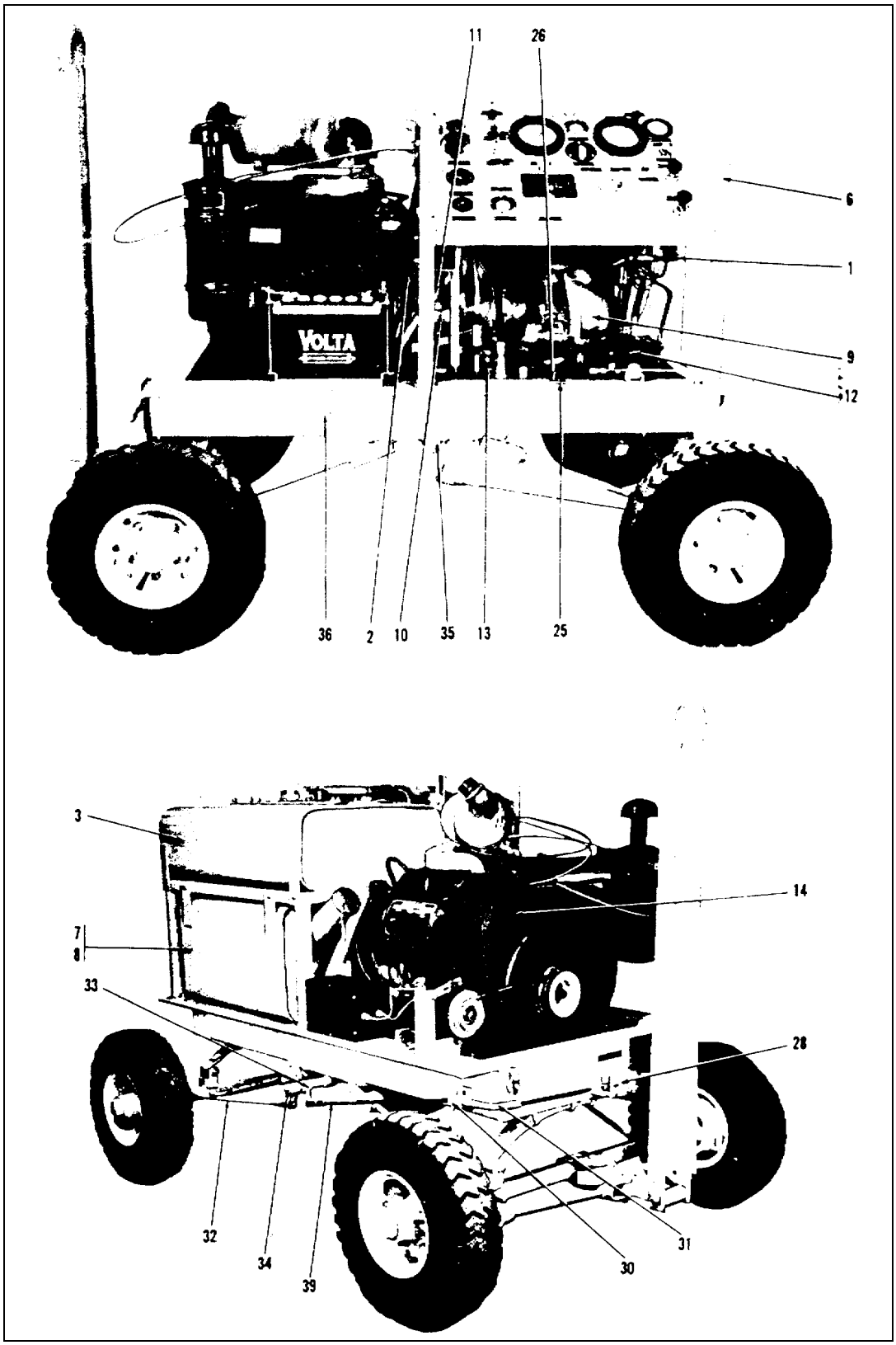


Figure A-3. Internal Components Assembly (Sheet 1 of 2)

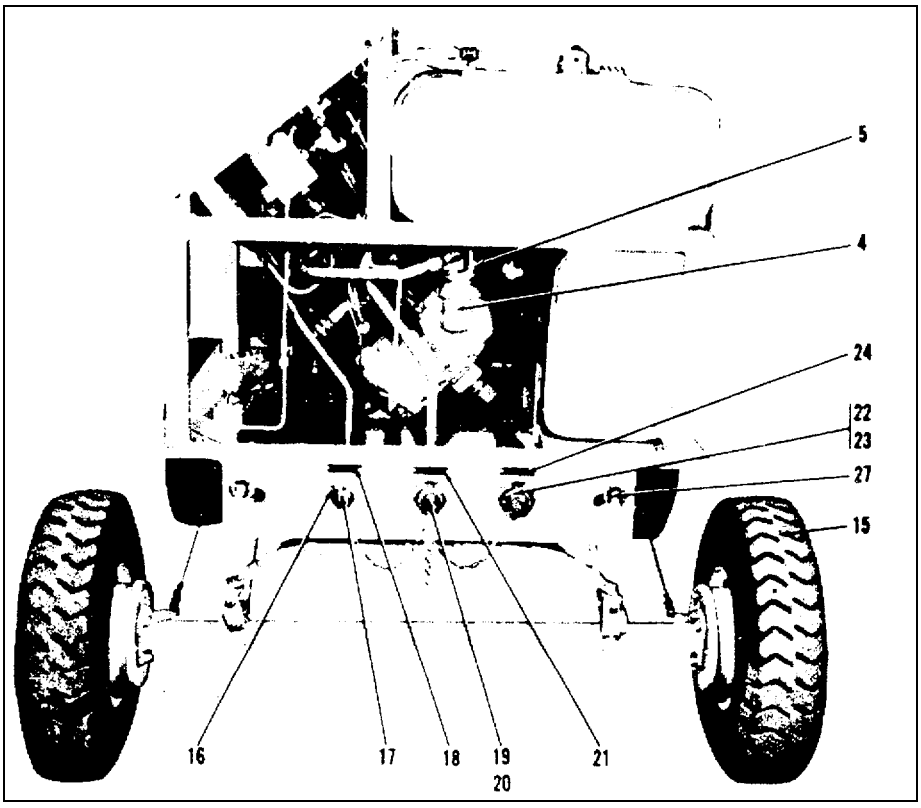


Figure A-3. Internal Components Assembly (Sheet 2 of 2)

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				INTERNAL COMPONENTS ASSEMBLY	
A-3				INTERNAL COMPONENTS ASSY (26519) (674017) (See figure A-1-2)	REF
A-3	-1			HYDRAULIC PIPING ASSY (26519) (674071) (See figure A-4)	1
A-3	-2			OIL AND FUEL INSTALLATION (26519) (672103) (See figure A-5)	1
A-3	-3			RESERVOIR ASSY (26519) (674056) (ATTACHING PARTS)	1
A-3				SCREW, Cap (96906) (MS35292-10)	2
A-3				SCREW, Cap (96906) (MS35292-6)	2
A-3				WASHER, Flat (96906) (MS27183-10)	6
A-3				WASHER, Lock (96906) (MS35338-44)	4
A-3				NUT, Hexagon (96906) (MS51968-1)	2
A-3				GASKET (04453) (4143-005)	AR
				- - - * - - -	
A-3	-4			FILTER, High pressure (90005) (569412) (See figure A-6) (ATTACHING PARTS)	1
A-3				SCREW, Cap (96906) (MS35292-58)	2
A-3				WASHER, Flat (96906) (MS27183-10)	4
A-3				WASHER, Lock (96906) (MS35338-44)	2
A-3				NUT, Hexagon (96906) (MS51968-1)	2
				- - - * - - -	

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				INTERNAL COMPONENTS ASSEMBLY (CONT)	
A-3	-5			BRACKET, Mounting (26519) (672067)	2
				(ATTACHING PARTS)	
A-3				SCREW, Cap (96906) (MS35292-10)	2
A-3				WASHER, Flat (96906) (MS27183-10)	4
A-3				WASHER, Lock (96906) (MS35338-44)	2
A-3				NUT, Hexagon (96906) (MS51968-1)	2
				- - - * - - -	
A-3	-6			CONTROL PANEL AND FRAME ASSY (26519) (674043)	1
				(See figure A-7)	
				(ATTACHING PARTS)	
A-3				SCREW, Cap (96906) (MS35292-60)	8
A-3				WASHER, Flat (96906) (MS27183-15)	8
A-3				WASHER, Lock (96906) (MS35338-46)	8
A-3				SCREW, Cap (96906) (MS35292-6)	6
A-3				WASHER, Flat (96906) (MS27183-10)	2
A-3				WASHER, Lock (96906) (MS35338-44)	2
				- - - * - - -	
A-3	-7			FUEL TANK ASSY (26519) (673047) (See figure A-8)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap (96906) (MS35292-6)	4
A-3				WASHER, Flat (96906) (MS27183-10)	6
A-3				WASHER, Lock (96906) (MS35338-44)	4
A-3				NUT, Hexagon (96906) (MS51968-1)	4
				- - - * - - -	
A-3	-8			PAD, Mounting (26519) (672055)	1
A-3	-9			PUMP, High pressure (26519) (3000-03) (See figure A-9)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap (96906) (MS16997-100)	4
A-3				WASHER, Lock "hi-collar" (COML) (3/8 cadmium	4
				chrome finish)	
				- - - * - - -	
A-3	-10			MOUNT, Pump (26519) (673028)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap (96906) (MS90725-164).	4
A-3				WASHER, Flat (96906) (MS27183-22)	4
A-3				WASHER, Lock (96906) (MS35338-50)	4
				- - - * - - -	
A-3	-11			COUPLING, Flexible (26519) (672068)	1
A-3	-12			FILTER, Low pressure (81321) (63030) (See figure A-10)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap (96990) (MS35292-58)	4
A-3				WASHER, Flat (96906) (MS27183-15)	4
A-3				WASHER, Lock (96906) (MS35338-46)	4
A-3	-13			MANIFOLD, Low pressure (26519) (673042)	1
A-3	-14			ENGINE, Gasoline (66289) (Model MVG4D, SPEC.	1
				303059) (See figure A-11)	
				(ATTACHING PARTS)	
A-3				SCREW, Cap (96906) (MS35292-168)	4
A-3				WASHER, Flat (96906) (MS27183-2)	8
A-3				WASHER, Lock (96906) (MS35338-50)	4
A-3				NUT, Hex (96906) (MS51968-20)	4
				- - - * - - -	
A-3	-15			SCREW, Cap (96906) (MS35292-10)	2
A-3				WASHER, Flat (96906) (MS27183-10)	4
A-3				WASHER, Lock (96906) (MS35338-44)	2
A-3	-16			COUPLING, 1/2 IN. (00624) (TB155-S4-8D)	1
				(ATTACHING PARTS)	
A-3				SCREW, Machine (96906) (MS35223-45)	6
A-3				WASHER, Flat (96906) (MS27183-7)	6
A-3				WASHER, Lock (6906) (MS35338-42)	6
				- - - * - - -	

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				INTERNAL COMPONENTS ASSEMBLY (CONT)	
A-3				SPRING, Flat (00624) (155-37B8)	1
A-3				WASHER 00624) (155-37C8)	1
A-3				FLANGE (00624) (155-37A8)	1
A-3				FLANGE (00624) (150-22-8)	1
A-3				BODY, Coupling (00624) (155S8D)	1
A-3	-17			CAP, Dust (00624) (155-S7-8)	1
A-3				CHAIN ASSY (00624) (5100S10-8)	1
A-3				CAP (00624) (155-32-8D)	1
A-3				RING, Retaining (00624) (21002-2)	1
A-3				PACKING, Preformed (00624) (22500-14)	1
A-3				NUT ASSEMBLY (00624) (E155-25-8D)	1
A-3	-18			PLATE, Ident (26519) (501-20)	1
				(ATTACHING PARTS)	
A-3				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-3	-19			COUPLING, 3/4 IN. (00624) (TA155-S4-12D)	1
				(ATTACHING PARTS)	
A-3				SCREW, Machine (96906) (MS35223-45)	6
A-3				WASHER, Flat (96906) (MS27183-7)	6
A-3				WASHER, Lock (96906) (MS35338-42)	6
				- - - * - - -	
A-3				SPRING, Flat (00624) (155-37B12)	1
A-3				WASHER (00624) (155-37C12)	1
A-3				FLANGE (00624) (155-37A12)	1
A-3				FLANGE (00624) (150-22-12)	1
A-3				BODY, Coupling (00624) (155S12D)	1
A-3	-20			CAP, Dust (96906) (155-S7-12)	1
A-3				CHAIN ASSEMBLY (0624) (5100S10-8)	1
A-3				CAP (00624) (155-32-12D)	1
A-3				RING, Retaining (00624) (21002-3)	1
A-3				PACKING, Preformed (00624) (22500-19)	1
A-3				NUT ASSEMBLY (00624) (E155-25-12D)	1
A-3	-21			PLATE, Ident (26519) (501-21)	1
				(ATTACHING PARTS)	
A-3				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-3	-22			COUPLING, 1 IN. (00624) (A145-S4-16D)	1
				(ATTACHING PARTS)	
A-3				SCREW, Machine (96906) (MS35223-45)	6
A-3				WASHER, Flat (96906) (MS27183-7)	6
A-3				WASHER, Lock (96906) (MS35338-42)	6
				- - - * - - -	
A-3				SPRING, Flat (00624) (155-37B16)	1
A-3				WASHER (00624) (155-37C16)	1
A-3				FLANGE (00624) (155-37A16)	1
A-3				FLANGE (00624) (150-22-16)	1
A-3				BODY, Coupling (00624) (145S16D)	1
A-3	-23			CAP, Dust (00624) (145-S7-16)	1
A-3				CHAIN ASSEMBLY (00624) (5100-S10-12)	1
A-3				CAP (00624) (145-32-16D)	1
A-3				RING, Retaining (00624) (21002-4)	1
A-3				PACKING, Preformed (00624) (22500-23)	1
A-3				NUT ASSEMBLY (00624) (E145-25-16D)	1
A-3	-24			PLATE, Ident (26519) (501-31)	1
				(ATTACHING PARTS)	
A-3				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - -	
A-3	-25			PLATE, Ident (26519) (501-29)	1
				(ATTACHING PARTS)	
A-3				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				INTERNAL COMPONENTS ASSEMBLY (CONT)	
A-3	-26			PLATE, Ident (26519) (501-30)	1
				(ATTACHING PARTS)	
A-3				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-3	-27			LATCH (80063) (SC-D-2064)	4
				(ATTACHING PARTS)	
A-3				SCREW, Machine (96906) (MS35223-45)	8
A-3				WASHER, Flat (96906) (MS27183-7)	AR
A-3				WASHER, Lock (96906) (MS35338-42)	2
				- - - * - - -	
A-3	-28			LEVER, Handbrake (95026) (6-7064)	1
				(ATTACHING PARTS	
A-3				SCREW, Cap (96906) (MS35292-65)	2
A-3				WASHER, Flat (96906) (MS27183-15)	2
A-3				WASHER, Lock (96906) MS35338-46)	2
				- - - * - - -	
A-3	-29			CABLE, Brake (26519) (600-2)	1
				(ATTACHING PARTS)	
A-3				PIN, Cotter (95026) (9X123)	1
A-3				WASHER, Flat (96906) (MS27183-15)	1
A-3				PIN, Straight, headed (95026) (33X203)	1
				- - - * - - -	
A-3	-30			CLAMP ASSEMBLY (26519) (110625)	1
A-3	-30A			BRACKET, Brake cable MTG (26519) (672069)	1
				(ATTACHING PARTS	
A-3				SCREW, PH. (96906) (MS35207-279)	2
A-3				WASHER, Flat (96906) (MS27183-10)	2
A-3				WASHER, Lock (96906) (MS35338-44)	2
				- - - * - - -	
A-3	-31			TUBE (26519) (672070)	1
A-3	-32			CABLE, Brake (26519) (600-3)	2
				(ATTACHING PARTS	
A-3				PIN, Cotter (95026) (9X123)	4
A-3				WASHER, Flat (96906) (MS27183-15)	4
A-3				PIN, Straight, headed (95026) (33X203)	4
				- - - * - - -	
A-3	-33			LEVER (95026) (7047-3)	3
				(ATTACHING PARTS)	
A-3				PIN, Tapered (95026) (27X465C)	3
				- - - * - - -	
A-3	-34			SHAFT, Straight (95026) (7066-38-1/2)	1
A-3	-35			HANGER, Shaft (95026) (7047-4)	2
A-3	-36			FRAME, Trailer (26519) (674018)	1
				(ATTACHING PARTS)	
A-3				WASHER, Flat (96906) (MS27183-15)	8
A-3				WASHER, Flat (96906) (MS27183-19)	8
A-3				WASHER, Lock (96906) (MS35338-48)	8
				- - - * - - -	
A-3	-37			RUNNING GEAR ASSY (95028) (1-K132) (See figure A-12)	1
A-3	-38			BELT, V, "B" section (24161) (51410)	1
A-3	-39			FILTER, Oil (3370) (F21-P) (See figure A-3)	1
				(ATTACHING PARTS)	
A-3				SCREW, PH (96806) (MS35207-279)	3
A-3				WASHER, Flat (96906) (MS27183-10)	3
A-3				WASHER, Lock (96906) (MS35338-44)	3
				- - - * - - -	
A-3	-40			CABLE, Shielded (26519) (5500-04)	2

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				INTERNAL COMPONENTS ASSEMBLY (CONT)	
A-3	-41			VOLTAGE REGULATOR BOX ASSY (26519) (673032) (See figure A-3-4)	1
				(ATTACHING PARTS)	
A-3				SCREW, Machine (96906) (MS35207-263)	3
A-3				WASHER, Flat (96906) (MS27183-8)	3
A-3				WASHER, Lock (96906) (MS35338-43)	3
				- - - * - - -	
A-3	-42			BATTERY, Storage, 12V (06499) (QS24S)	1
A-3	-43			BOX, Battery (26519) (672035)	1
				(ATTACHING PARTS)	
A-3				SCREW, Machine (96906) (MS35207-27)	2
A-3				WASHER, Flat (96906) (MS27183-10)	2
A-3				WASHER, Lock (96906) (M235338-43)	2
				- - - * - - -	
A-3	-44			FRAME, Battery (26519) (672039)	1
				(ATTACHING PARTS)	
A-3				BOLT, Hook (1/4-20)	2
A-3				NUT, Wing (1/4-20)	2
A-3				WASHER, Flat (96906) (MS27183-10)	2
				- - - * - - -	
A-3	-45			CABLE, Battery, ground (Ektron) (A23-1)	1
A-3	-46			CABLE, Battery, positive (Ektron) (B-9)	1
A-3				CABLE, Magneto/starter (Ektron) (A26-46)	1
A-3	-47			MUFFLER (66289) (WD-50A)	1
A-3	-48			ELBOW, Street, 90°, 1-1/2 NPT	1
A-3	-49			PULLEY, Groove (16764) (1921091)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap hexagon head (96906) (MS35292-34)	2
A-3				NUT, Plain, hexagon (96906) (MS51968-5)	2
A-3				WASHER, Lock (96906) (MS35338-45)	3
A-3				WASHER, Flat (96906) (MS27183-13)	5
				- - - * - - -	
A-3	-50			BRACKET, Generator, front mounting (26519) (672029)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap hexagon head (96906) (MS35292-58)	2
A-3				WASHER, Lock (96906) (MS35338-46)	2
A-3				WASHER, Flat (96906) (MS27183-15)	2
				- - - * - - -	
A-3	-51			ARM, Generator mounting (26519) (672031)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap, hexagon head (96906) (MS35292-34)	1
A-3				NUT, Plain, hexagon (96906) (MS51968-4)	1
A-3				WASHER, Lock (96906) (MS35338-45)	1
A-3				WASHER, Flat (96906) (MS27183-13)	2
				- - - * - - -	
A-3	-52			BRACKET, Generator, rear mounting (26519) (672030)	1
				(ATTACHING PARTS)	
A-3				SCREW, Cap, hexagon head (96906) (MS35292-58)	2
A-3				WASHER, Lock (96906) (MS35338-46)	2
A-3				WASHER, Flat (96906) (MS27183-15)	2
				- - - * - - -	
A-3	-53			GENERATOR, 12VDC, 17AMP (16764) (1102343)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				HYDRAULIC PIPING ASSEMBLY	
A-4				HYDRAULIC PIPING ASSY (26519) (674071) (See figure A-3-1)	REF
A-4	-1			TUBE ASSEMBLY (26519) (672072)	1
A-4	-2			TUBE ASSEMBLY (26519) (672073)	1
A-4	-3			TUBE ASSEMBLY (26519) (672096)	1
A-4	-4			TUBE ASSEMBLY (26519) (672094)	1
A-4	-5			TUBE ASSEMBLY (26519) (672093)	1
A-4	-6			TUBE ASSEMBLY (26519) (672095)	1
A-4	-7			TUBE ASSEMBLY (26519) (672082)	1
A-4	-8			TUBE ASSEMBLY (26519) (672081)	1
A-4	-9			TUBE ASSEMBLY (26519) (672083)	1
A-4	-10			TUBE ASSEMBLY (26519) (672084)	1
A-4	-11			HOSE ASSEMBLY (01276) (A1316-4S-18)	4
A-4	-12			TUBE ASSEMBLY (26519) (672097)	1
A-4	-13			TUBE ASSEMBLY (26519) (672098)	1
A-4	-14			TUBE ASSEMBLY (26519) (672099)	1
A-4	-15			HOSE ASSEMBLY (26519) (A1316-8S-24)	1
A-4	-16			TUBE ASSEMBLY (26519) (672074)	1
A-4	-17			HOSE ASSEMBLY (01276) (A1316-16S-24)	1
A-4	-18			HOSE ASSEMBLY (01276) (A1316-4S-24)	1
A-4	-19			TUBE ASSEMBLY (26519) (672080)	1
A-4	-20			HOSE ASSEMBLY (01276) (A150808-12S-24)	1
A-4	-21			TUBE ASSEMBLY (26519) (672087)	1
A-4	-22			TUBE ASSEMBLY (26519) (672085)	1
A-4	-23			TUBE ASSEMBLY (26519) (672078)	1
A-4	-24			TUBE ASSEMBLY (26519) (672075)	1
A-4	-25			TUBE ASSEMBLY (26519) (672086)	1
A-4	-26			TUBE ASSEMBLY (26519) (672092)	1
A-4	-27			TUBE ASSEMBLY (26519) (672090)	1
A-4	-28			TUBE ASSEMBLY (26519) (672091)	1
A-4	-29			TUBE ASSEMBLY (26519) (672088)	1
A-4	-30			TUBE ASSEMBLY (26519) (672089)	1
A-4	-31			TUBE ASSEMBLY (26519) (672076)	1
A-4	-32			TUBE ASSEMBLY (26519) (672079)	1
A-4	-33			TUBE ASSEMBLY (26519) (672077)	1
A-4	-34			ELBOW (96906) (MS20822-16D)	3
A-4	-35			NIPPLE (88044) (AN816-16D)	1
A-4	-36			ELBOW (88044) (AN916-8D)	1
A-4	-37			NIPPLE, 1 IN. NPT	1
A-4	-38			BUSHING (88044) (AN894-12-8D)	1
A-4	-39			TEE (88044) (AN824-12D)	*1
A-4	-40			ELBOW (96906) (MS20822-12D)	1
A-4	-41			NUT, Tube (88044) (AN924-4D)	5
A-4	-42			ELBOW (88044) (AN833-4D)	2
A-4	-43			NUT, Tube (88044) (AN924-4)	8
A-4	-44			ELBOW (88044) (AN833-4)	7
A-4	-45			CAP (88044) (AN929-4)	1

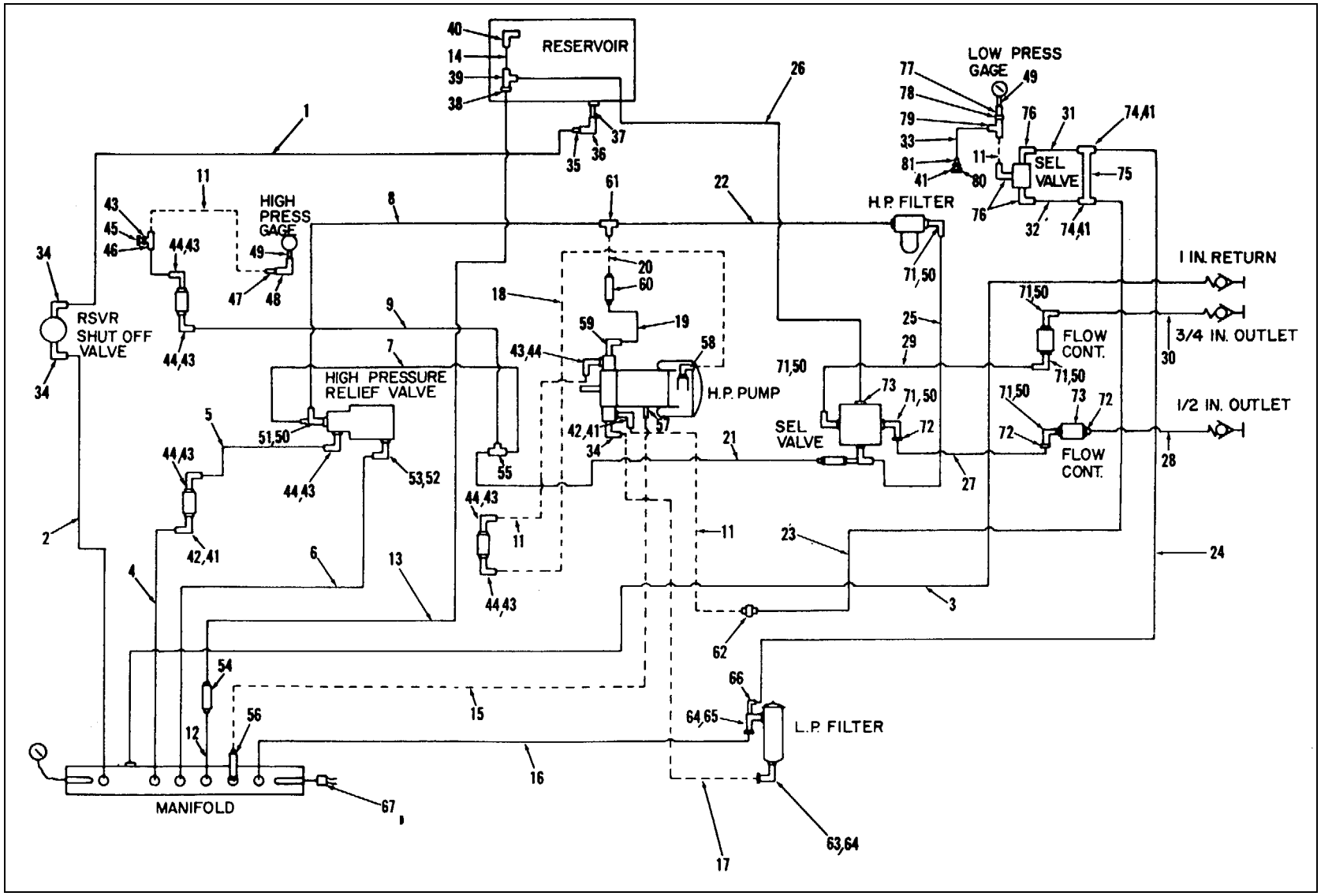


Figure A-4. Hydraulic Piping Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				HYDRAULIC PIPING ASSEMBLY (CONT)	
A-4	-46			TEE (88044) (AN834-4)	1
A-4	-47			NIPPLE (88044) (AN816-4)	1
A-4	-48			ELBOW (88044) (AN619-2)	1
A-4	-49			DAMPENER, Pulsation (38058) (25-1106D)	2
A-4	-50			NUT, Tube (88044) (AN924-12)	8
A-4	-51			ELBOW (26519) (672102)	1
A-4	-52			NUT, Tube (88044) (AN924-16D)	1
A-4	-53			ELBOW (88044) (AN833-16D)	1
A-4	-54			VALVE, Relief (86768) (458-8D3-100)	1
A-4	-55			TEE (88044) (AN824-4)	1
A-4	-56			VALVE (86768) (404-FTX-8D-15)	1
A-4	-57			NIPPLE (01989) (W5205-8-8)	1
A-4	-58			ELBOW (96906) (MS20822-4)	1
A-4	-59			ELBOW (96906) (MS20822-12)	1
A-4	-60			VALVE (86768) (458-12S2-24)	1
A-4	-61			TEE (88044) (AN824-12)	1
A-4	-62			UNION, Tube (88044) (AN815-4D)	1
A-4	-63			ELBOW (96906) (MS20822-20D)	1
A-4	-64			BUSHING (88044) (MS89420-16D)	2
A-4	-65			ELBOW (26519) (672100)	1
A-4	-66			ELBOW (96906) (MS20822-4D)	1
A-4	-67			SWITCH, Thermostatic (15801) (01-18021-0)	1
A-4	-68			UNION, Tube (88044) (AN815-4)	1
A-4	-69			SWITCH, Pressure (Orange Research Inc, Orange, Conn.) (1202P)	1
A-4	-70			ELBOW (26519) (672101)	1
A-4	-71			ELBOW (88044) (AN833-12)	6
A-4	-72			BUSHING (88044) (AN894-12-8)	3
A-4	-73			UNION, Tube (88044) (AN315-12)	3
A-4	-74			TEE (88044) (AN834-4D)	2
A-4	-75			SWITCH, Pressure (Orange Research Inc, Orange, Conn.) (1201P)	1
A-4	-76			ELBOW (96906) (MS20822-4-4D)	3
A-4	-77			COUPLING, Pipe (88044) (AN910-2D)	1
A-4	-78			BUSHING (88044) (AN912-2-1D)	1
A-4	-79			TEE (88044) (AN826-4D)	1
A-4	-80			CAP (88044) (AN929-4D)	1
A-4	-81			UNION, Tube (88044) (AN832-4D)	1

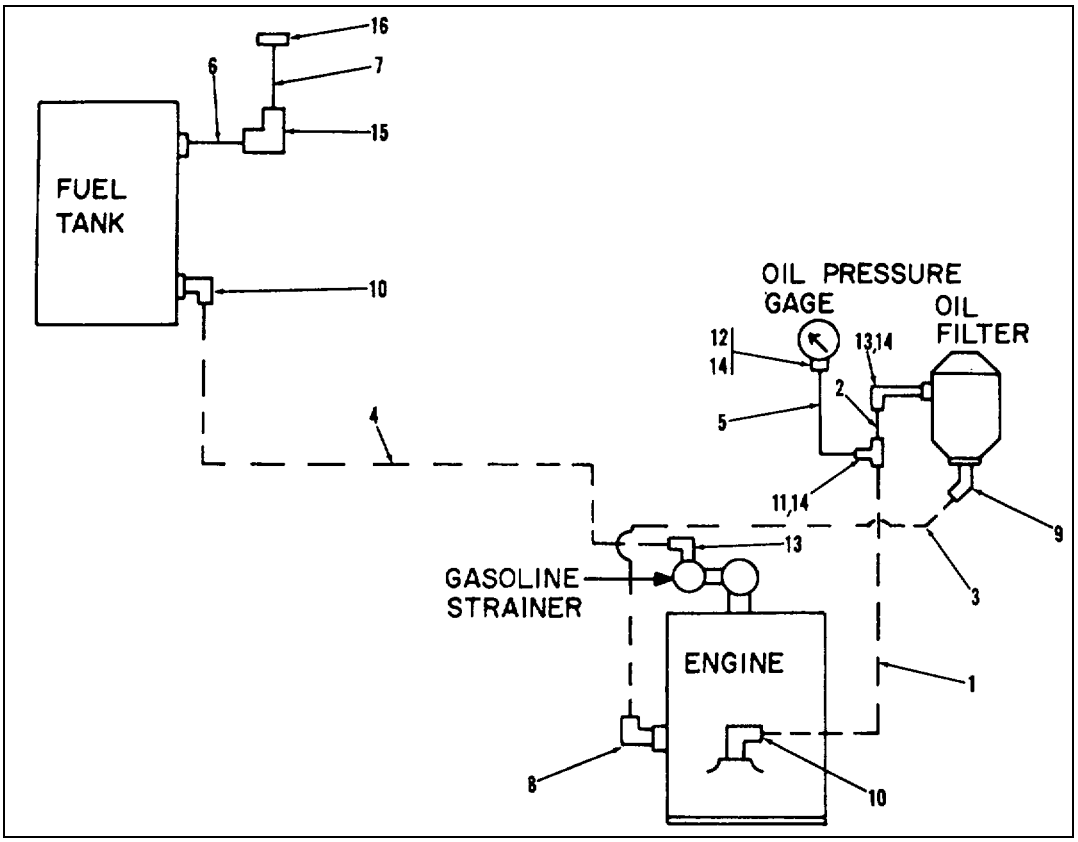


Figure A-5. Oil and Fuel Installation

ILLUST		SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
FIG NO	ITEM NO				
				OIL AND FUEL INSTALLATION	
A-5				OIL AND FUEL INSTALLATION (26519) (672103) (See figure A-3-2)	REF
A-5	-1			HOSE ASSEMBLY (01276) (A255600-4B-36)	1
A-5	-2			TUBE ASSEMBLY (26519) (672136)	1
A-5	-3			HOSE ASSEMBLY (01276) (A255600-4B-46)	1
A-5	-4			HOSE ASSEMBLY (01276) (255600-4B-34)	1
A-5	-5			TUBE ASSEMBLY (26519) (672137)	1
A-5	-6			NIPPLE (COML) 1/4 x 6 BRZ	1
A-5	-7			NIPPLE (COML) 1/4 x 4-1/2 BRZ	1
A-5	-8			ELBOW (30327) (49-F-1/4 x 3/8)	1
A-5	-9			ELBOW (30327) (54-F-1/4 x 1/8)	1
A-5	-10			ELBOW (30327) (49-F-1/4 x 1/4)	2
A-5	-11			TEE (30327) (44-F-1/4)	1
A-5	-12			CONNECTOR, Female (30327) (46-F-1/4)	1
A-5	-13			ELBOW (30327) (49-F-1/4 x 1/8)	2
A-5	-14			NUT (30327) (41-FS-1/4)	4
A-5	-15			ELBOW (30327) (100-B-1/4)	1
A-5	-16			CAP (30327) (108-B-1/4)	1

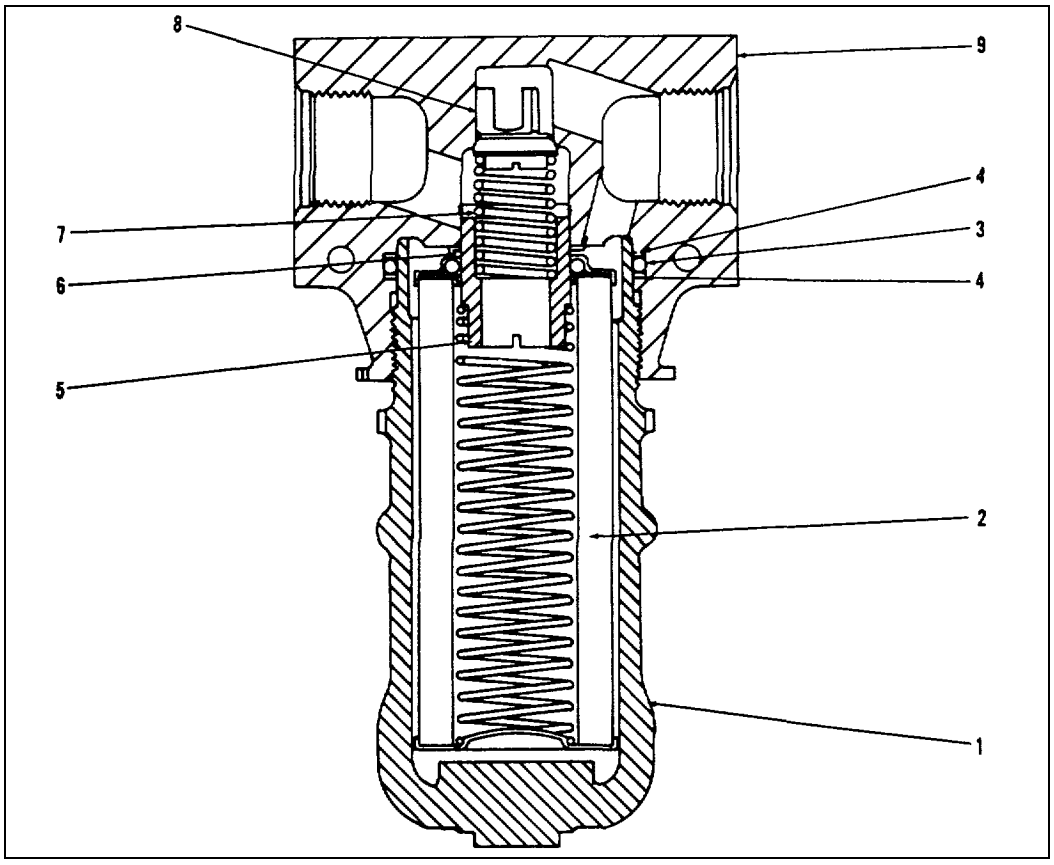


Figure A-6. High Pressure Filter

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				HIGH PRESSURE FILTER	
A-6				FILTER, High pressure (90005) (569412) (See figure A-3-4)	REF
A-6	-1			BOWL (90005) (B567196)	1
A-6	-2			ELEMENT ASSEMBLY (88044) (AN6235-4A)	1
A-6	-3			PACKING, Preformed (88044) (AN6230-5)	1
A-6	-4			RING, Backup (88044) (AN6244-5)	2
A-6				HEAD ASSEMBLY (90005) (B569377)	1
A-6	-5			NIPPLE (90005) (A569589)	1
A-6	-6			WASHER, Lock (90005) (A569593)	1
A-6	-7			SPRING (90005) (A569349)	1
A-6	-8			VALVE (90005) (B569379)	1
A-6	-9			HEAD (90005) (D569378)	1

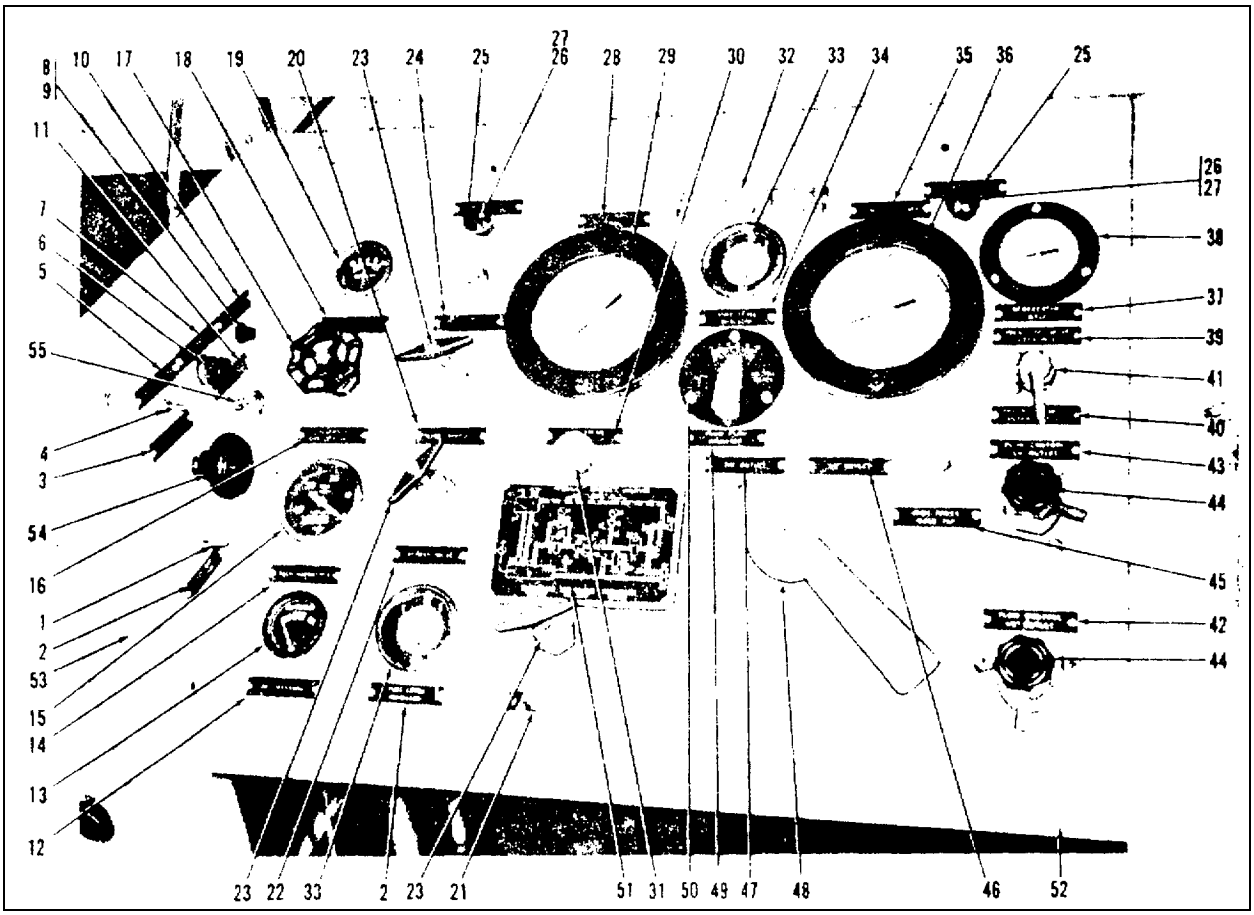


Figure A-7. Control Panel and Frame Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CONTROL PANEL AND FRAME ASSEMBLY	
A-7				CONTROL PANEL AND FRAME ASSY (26519) (674043) (See figure A-3-6)	REF
A-7	-1			SWITCH, Toggle (72653) (2366)	1
A-7	-2			PLATE, Ident (26519) (501-8)	2
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	4
				- - - * - - -	
A-7	-3			PLATE, Ident (26519) (501-27)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-4			SWITCH, Toggle (72653) (2364)	1
A-7	-5			PLATE, Ident (26519) (501-24)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-6			SWITCH, Push (66289) (YC-10-C)	1
				(ATTACHING PARTS)	
A-7				SCREW, Machine (6906) (MS35222-47)	2
A-7				WASHER, Flat (96906) (MS27183-7)	4
A-7				WASHER, Lock (96906) (MS35338-42)	2
A-7				NUT, Hexagon (96906) (MS35649-82)	2
				- - - * - - -	

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CONTROL PANEL AND FRAME ASSEMBLY (CONT)	
A-7	-7			PLATE, Ident (26519) (501-25)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-8			HOLDER, Fuse (75915) (342001)	1
A-7	-9			FUSE (75915) (31006)	1
A-7	-10			PLATE, Ident (26519) (501-26)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS12318-27)	2
				- - - * - - -	
A-7	-11			PLATE, Ident (26519) (501-28)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-12			PLATE, Ident (26519) (501-17)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-13			GAGE, Oil pressure (66289) (RS-11)	1
A-7	-14			PLATE, Ident (26519) (501-15)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-15			METER, Tach-hour (66289) (RS-50-C)	1
				(ATTACHING PARTS)	
A-7				NUT, Hexagon (96906) (MS35649-82)	3
A-7				WASHER, Lock (96906) (35338-42)	3
				- - - * - - -	
A-7	-16			PLATE, Ident (26519) (501-6)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-2)	2
				- - - * - - -	
A-7	-17			VALVE, Gate (90664) (1-1")	1
A-7	-18			PLATE, Ident (26519) (501-18)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-19			AMMETER (66289) (YE-2)	1
A-7	-20			PLATE, Ident (06519) (501-7)	1
				(ATTACHING PARTS)	
A7				SCREW, Drive (96906) (MS21318-27)	1
				- - - * - - -	
A-7	-21			PLATE, Ident (26519) (501-19)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-22			PLATE, Ident (26519) (501-16)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-2)	2
				- - - * - - -	
A-7	-23			VALVE, Needle (97399) (P10M014T)	3
A-7	-24			PLATE, Ident (26519) (501-4)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-25			PLATE, Ident (26519) (501-2)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CONTROL PANEL AND FRAME ASSEMBLY (CONT)	
A-7	-26			LIGHT, Indicator (96906) (MS25331-9)	2
A-7	-27			LAMP (72619) (60E7360)	2
A-7	-28			PLATE, Ident (26519) (501-11)	1
A-7	-28			(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (M21318-27)	2
				- - - * - - -	
A-7	-29			GAGE, Pressure (64467) (915RR-AHSG)	1
				(ATTACHING PARTS)	
A-7				SCREW, Machine (96906) (MS35191-275)	3
A-7				NUT, (04714) (100-G-1032)	3
				- - - * - - -	
A-7	-30			PLATE, Ident (26519) (501-5)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-31			VALVE, Relief (16964) (R1V12-545) (See figure A-13)	1
A-7	-32			PLATE, Ident (26519) (502-1)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-33			GAGE, Liquid level (57733) (616-B(12V))	2
A-7	-34			PLATE, Ident (26519) (501-3)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS2118-27)	2
				- - - * - - -	
A-7	-35			PLATE, Ident (26519) (501-10)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS2118-27)	2
				- - - * - - -	
A-7	-36			GAGE, Pressure (64467) (91RR-AHS)	1
				(ATTACHING PARTS)	
A-7				SCREW, Machine (96906) (MS35191-275)	3
A-7				NUT (04714) (100-G-1032)	3
				- - - * - - -	
A-7	-37			PLATE, Ident (26519) (501-12)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (26519) (MS21318-27)	2
A-7	-38			GAGE, Temperature (72100) (X-5-2-1/2)	1
				(ATTACHING PARTS)	
A-7				SCREW, Machine (96906) (MS35223-43)	3
A-7				WASHER, Flat (96906) (MS27183-7)	3
A-7				WASHER, Lock (96906) (M35338-42)	3
				- - - * - - -	
A-7	-39			PLATE, Ident (26519) (501-13)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-40			PLATE, Ident (26519) (501-14)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-41			VALVE, Selector (30327) (118-HD-1/4)	1
				(ATTACHING PARTS)	
A-7				SCREW, Cap (96906) (MS35292-6)	2
A-7				WASHER, Flat (96906) (MS27183-10)	4
A-7				WASHER, Lock (96906) (MS35338-44)	2
A-7				NUT, Hexagon (96906) (MS51968-2)	2
				- - - * - - -	

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CONTROL PANEL AND FRAME ASSEMBLY (CONT)	
A-7	-42			PLATE, Ident (26519) (501-22)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-43			PLATE, Ident (26519) (501-23)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-44			VALVE, Control (26519) (3310-1) (See figure A-14)	2
				(ATTACHING PARTS)	
A-7				SCREW, Machine (96906) (MS3520-280)	8
A-7				WASHER, Flat (96906) (MS27183-10)	8
A-7				WASHER, Lock (96906) (MS35338-44)	8
				- - - * - - -	
A-7	-45			PLATE, Ident (26519) (501-32)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-46			PLATE, Ident (26519) (501-21)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-2)	2
				- - - * - - -	
A-7	-47			PLATE, Ident (26519) (501-20)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-48			VALVE, Selector (26519) (3300-4) (See figure A-15)	1
A-7	-49			PLATE, IDENT (26519) (501-9)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	2
				- - - * - - -	
A-7	-50			INDICATOR, Flow (26519) (900-1) (See figure A-18)	1
A-7	-51			PLATE, Instruction (26519) (673045)	1
				(ATTACHING PARTS)	
A-7				SCREW, Drive (96906) (MS21318-27)	4
				- - - * - - -	
A-7	-52			PANEL Control (26519) (674044)	1
				(ATTACHING PARTS)	
A-7				SCREW, Cap (96906) (MS35292-6)	6
A-7				WASHER, Flat (96906) (MS27183-10)	12
A-7				WASHER, Lock (96906) (MS35338-44)	6
A-7				NUT, Hexagon (96906) (MS51968-2)	6
				- - - * - - -	
A-7	-53			FRAME, Mounting (26519) (674046)	1
A-7	-54			CONTROL, Throttle (66289) (TT-61F-10) (See figure)	REF
A-7	-55			CONTROL, Choke (66289) (VE-435-M) (See figure)	REF

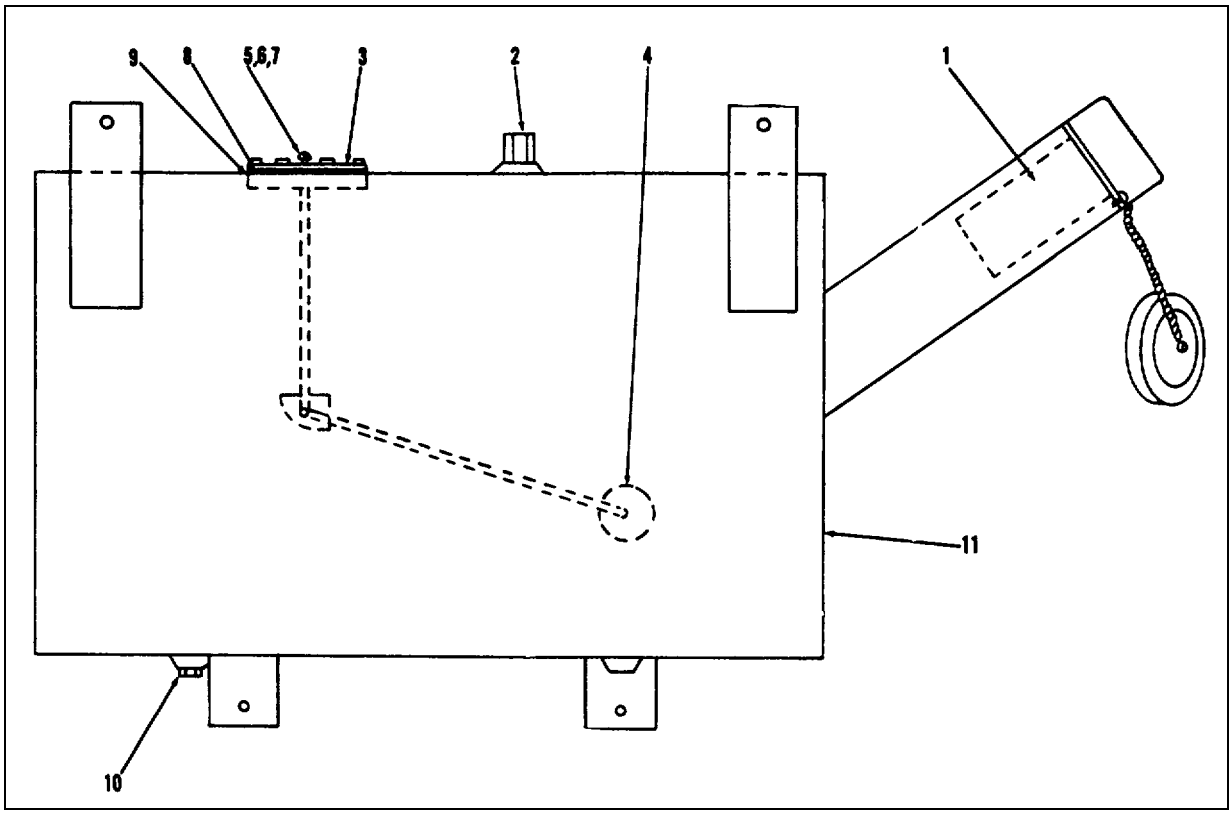


Figure A-8. Fuel Tank Assembly

ILLUST		SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
FIG NO	ITEM NO				
				FUEL TANK ASSEMBLY	
A-8				FUEL TANK ASSY (26519) (673047) (See figure A-3-7)	REF
A-8	-1			STRAINER (26519) (72054)	1
				(ATTACHING PARTS)	
A-8				SCREW, Self-tapping (COML) round HD, type B, 6-3/8	1
				- - - * - - -	
A-8	-2			BREATHER (78252) (1411B001)	1
A-8	-3			FLOAT, Level gage (57733) (385B(12V))	1
				(ATTACHING PARTS)	
A-8				SCREW, Machine (96906) (MS35207-264)	5
A-8				WASHER, Lock (96906) (MS35338-43)	5
A-8				WASHER, Flat (96906) (MS27183-8)	5
A-8				GROMMET (72653) (H030-F)	5
				- - - * - - -	
A-8				CASE AND FLOAT ASSY (57733) (G-43045-14)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				FUEL TANK ASSEMBLY (CONT)	
A-8	-4			FLOAT (57733) (427410)	1
				(ATTACHING PARTS	
A-8				WASHER (57733) (79687)	1
				- - - * - - -	
A-8	-5			SCREW (57733) (75338)	1
A-8	-6			WASHER, Lock (57733) (61463)	1
A-8	-7			WASHER, Flat (57733) (64460)	1
A-8	-8			TOP PLATE ASSY (57733) (G-430456)	1
A-8	-9			GASKET (57733) (72030)	1
A-8	-10			PLUG, PIPE (26519) (2491)	1
A-8	-11			TANK, Fuel (26519) (673047-1)	1
				HIGH PRESSURE PUMP	
A-9				PUMP, High pressure (26519) (3000-03) (See figure A-3-9)	REF
A-9	-1			KEY, Woodruff (16954) (211-10016)	1
A-9	-2			RETAINER, Shaft seal (16954) (035-14368)	1
A-9	-3			SCREW, Cap (16954) (308-10080)	6
A-9	-4			SEAL, Shaft (16954) (623-09971)	1
A-9	-5			NUT, Lock (16954) (341-10007)	1
A-9	-6			WASHER, Lock (16954) (350-01007)	1
A-9	-7			PACKING, Preformed (16954) (671-0020)	1
A-9	-8			BEARING, Ball, annular (16954) (230-20207)	1
A-9	-9			SPACER SET, Sleeve (16954) (015-99887)	1
A-9	-10			FLANGE, Suction (16954) (035-11840)	1
A-9	-11			FLANGE, Pressure (16954) (035-10233)	1
A-9	-12			SCREW, Cap (16954) (308-24240)	8
A-9	-13			PACKING, Preformed (16954) (671-00220)	2
A-9	-14			PLUG, Pipe (16954) (431-90800)	5
A-9	-15			CAP, End (16954) (035-18297)	1
A-9	-16			SCREW, Cap (16954) (308-12140)	14
A-9	-17			GASKET (16954) (035-18064)	1
A-9	-18			SETSCREW (16954) (311-20140)	1
A-9	-19			SCREW, Cap (16954) (306-20160)	1
A-9	-20			DELETED	
A-9	-21			PIN, Straight, headless (16954) (323-10812)	1
A-9	-22			PLATE, Designation (16954) (035-12870-2)	1
A-9	-23			SCREW, Machine (16954) (310-10060)	3
A-9	-24			SHAFT, Indicator (16954) (035-13000)	1
A-9	-25			PACKING, Preformed (16954) (671-00010)	1
A-9	-26			PLATE, End (16954) (035-12622)	2
A-9	-27			SCREW, Cap (16954) (308-12080)	8
A-9	-28			PIN, Trunnion (16954) (035-12996)	2
A-9	-29			PACKING, Preformed (16954) (671-00113)	2
A-9	-30			BEARING, Needle (16954) (230-10018)	2
A-9	-31			SCREW, Cap (16954) (309-09160)	1
A-9	-32			PIN, Indicator operating (16954) (035-14857)	1
A-9	-33			SETSCREW (16954) (311-12063)	1
A-9	-34			LINK, Indicator (16954) (035-14856)	1
A-9	-35			PLATE, Creep (16954) (035-14205)	1
A-9	-36			PLATE, Index (16954) (035-14207)	1
A-9	-37			SCREW, Cap (16954) (308-12100)	1
A-9	-38			PIN, Dowel (16954) (324-21608)	2
A-9	-39			HANGER (16954) (035-14712)	1

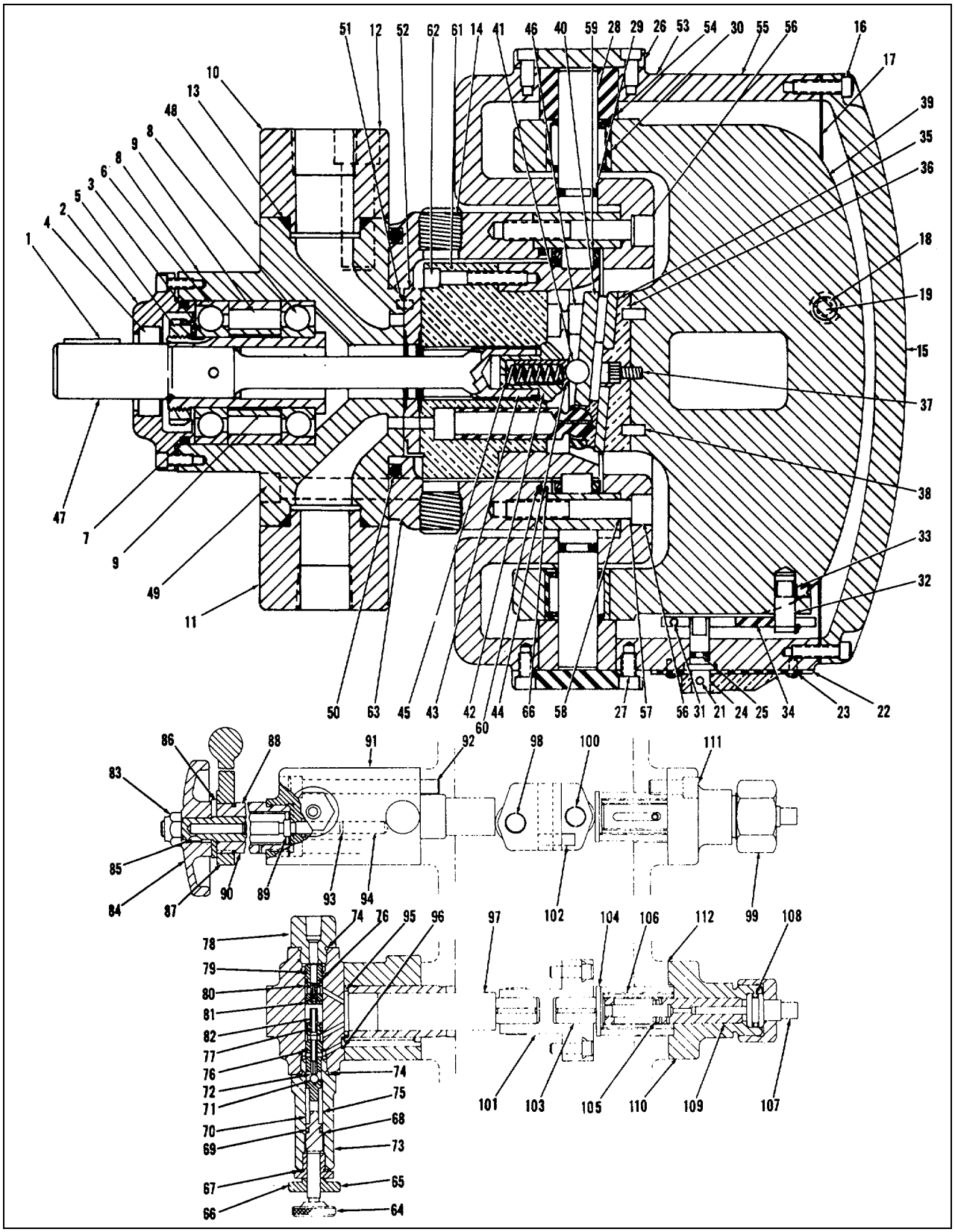


Figure A-9. High Pressure Pump

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				HIGH PRESSURE PUMP (CONT)	
A-9	-40			RETAINER, Shoe (16954) (035-10241)	1
A-9	-41			BALL, Steel (16954) (201-16001)	1
A-9	-42			RETAINER, Spring (16954) (035-10240)	1
A-9	-43			PIN, Straight, headless (16954) (324-20404)	1
A-9	-44			SOCKET, Spring (16954) (035-13343)	1
A-9	-45			SPRING, Helical, compression (16954) 035-18530)	1
A-9	-46			PISTON ASSEMBLY (16954) (015-01017)	1
A-9	-47			SHAFT ASSEMBLY (16954) (015-00465)	1
A-9	-48			BLOCK, Port (16954) (035-11836)	1
A-9	-49			SCREW, Cap (16954) (308-16300)	1
A-9	-50			PACKING, Preformed (16954) (671-00241)	1
A-9	-51			PIN, Straight, headless (16954) (324-20808)	1
A-9	-52			PLATE, Port (16954) (035-16505)	1
A-9	-53			GASKET (16954) (035-15023)	2
A-9	-54			SPACER, Trunnion (16954) (035-12995)	2
A-9	-55			HOUSING, Hanger (16954) 035-12990)	1
A-9	-56			SCREW, Cap (16954) (308-16280)	4
A-9	-57			GASKET (16954) (035-22731)	2
A-9	-58			GASKET (16954) (035-11900)	1
A-9	-59			BEARING, Barrel (16954) (035-12421)	1
A-9	-60			PACKING, Preformed (16954) (671-00246)	1
A-9	-61			BARREL, Cylinder (16954) (035-11837)	1
A-9	-62			SCREW, Cap (16954) (308-12200)	7
A-9	-63			BODY, Pump (16954) (035-11835)	1
A-9				COMPENSATOR (16954) (SD-99768-X)	1
A-9	-64			SCREW, Adjusting (16954) (035-17115)	1
A-9	-65			NUT, Lock (16954) (035-17116)	1
A-9	-66			NUT, Retaining (16954) (035-17117)	1
A-9	-67			WASHER, Lock (16954) (348-10040)	1
A-9	-68			PISTON, Seal (16954) (035-11712)	1
A-9	-69			PACKING, Preformed (16954) (671-00012)	3
A-9	-70			SUPPORT, Ball (16954) (035-11697)	1
A-9	-71			BALL, Steel (16954) (201-08001)	1
A-9	-72			PISTON, Control (16954) (035-18978)	1
A-9	-73			HOUSING, Adjustment (16954) 035-12555)	1
A-9	-74			PACKING, Preformed (16954) (671-00114)	2
A-9	-75			SPRING (16954) (035-12889)	1
A-9	-76			SLEEVE, Control (16954) (035-13981)	1
A-9	-77			RETAINER, Spring (16954) (035-13976)	1
A-9	-78			STOP, Spool (16954) (035-19305)	1
A-9	-79			RING, Retainer (16954) (356-15885)	2
A-9	-80			SLEEVE, Control (16954) (035-13982)	1
A-9	-81			PISTON, (16954) (035-13977)	1
A-9	-82			SPRING (16954) (035-22051)	1
A-9	-83			NUT, Stop (16954) (331-20101)	1
A-9	-84			HANDWHEEL (16954) (035-14007)	1
A-9	-85			KEY, Woodruff (16954) (211-10003)	1
A-9	-86			WASHER (16954) (035-14076)	1
A-9	-87			LEVER (16954) (035-14714)	1
A-9	-88			HOUSING (16954) (035-14090)	1
A-9	-89			GUIDE (16954) (035-14008)	1
A-9	-90			SCREW, Adjusting (16954) (035-18001)	1
A-9	-91			CAP, Control (16954) (035-18008)	1
A-9	-92			SCREW, Cap (16954) (308-18360)	4
A-9	-93			PACKING. Preformed (16954) (671-00012)	1
A-9	-94			STOP (46954) (035-17914)	1
A-9	-95			PACKING, Preformed (16954) (671-00217)	1
A-9	-96			PACKING, Preformed (16954) (671-00008)	1
A-9	-97			PISTON, Control body (16954) (035-14190)	1
A-9	-98			PIN (16954) (324-24022)	1
A-9	-99			NUT (16954) (035-14716)	1
A-9	-100			PIN (16954) (324-24048)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				HIGH PRESSURE PUMP (CONT)	
A-9	-101			CLEVIS (16954) (035-15886)	1
A-9	-102			SCREW, Cap (16954) (308-14166)	4
A-9	-103			BEARING, Needle (16954) (230-10016)	2
A-9	-104			PISTON (16954) (035-14717)	1
A-9	-105			PIN (16954) (325-12110)	1
A-9	-106			SPRING (16954) (035-22404)	1
A-9	-107			TONGUE (16954) (035-14718)	1
A-9	-108			PACKING, Preformed (16954) (671-00210)	1
A-9	-109			STOP (16954) (035-14719)	1
A-9	-110			BODY, Stop (16954) (035-14715)	1
A-9	-111			SCREW, Cap (16954) (308-18160)	4
A-9	-112			GASKET (16954) (035-12592)	2
A-9	-113			SPRING (16954) (035-22322)	1
A-9	-114			PACKING, Preformed (16954) (671-00908)	1

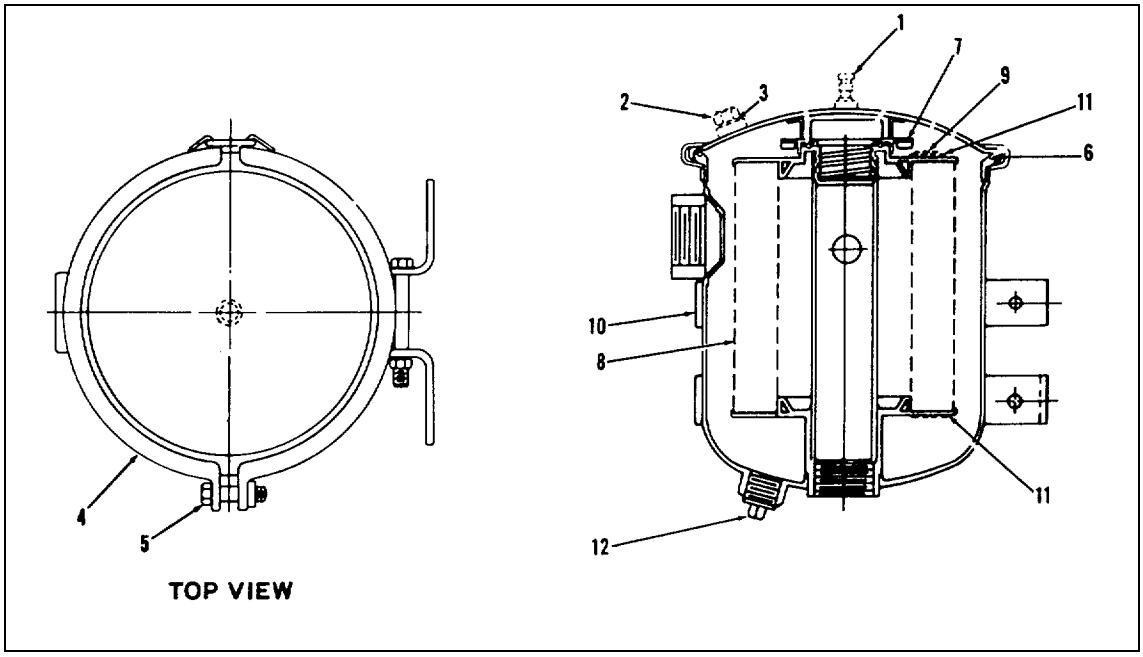


Figure A-10. Low Pressure Filter Assembly

				LOW PRESSURE FILTER	
A-10				FILTER, Low pressure (81321) (63030) (See figure A-3-12)	REF
A-10	-1			VALVE, Vent (81321) (15002)	1
A-10	-2			PLUG, Filler (81321) (7335)	1
A-10	-3			GASKET, Plug (81321) (7494)	1
A-10	-4			CLAMPING RING ASSY (81321) (59348)	2
A-10	-5			SCREW, Cap (81321) (59548)	2
A-10	-6			GASKET (81321) (60430)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				LOW PRESSURE FILTER (CONT)	
A-10	-7			RETAINER ASSY (81321) (62448)	1
A-10	-8			ELEMENT (88044) (AN6236-3)	1
A-10	-9			GUIDE, End (81321) (60263)	1
A-10	-10			BRACKET, Mounting (81321) (22202)	2
A-10	-11			GASKET, Element (81321) (30102)	2
A-10	-12			PLUG, Drain (81321) (7886)	1

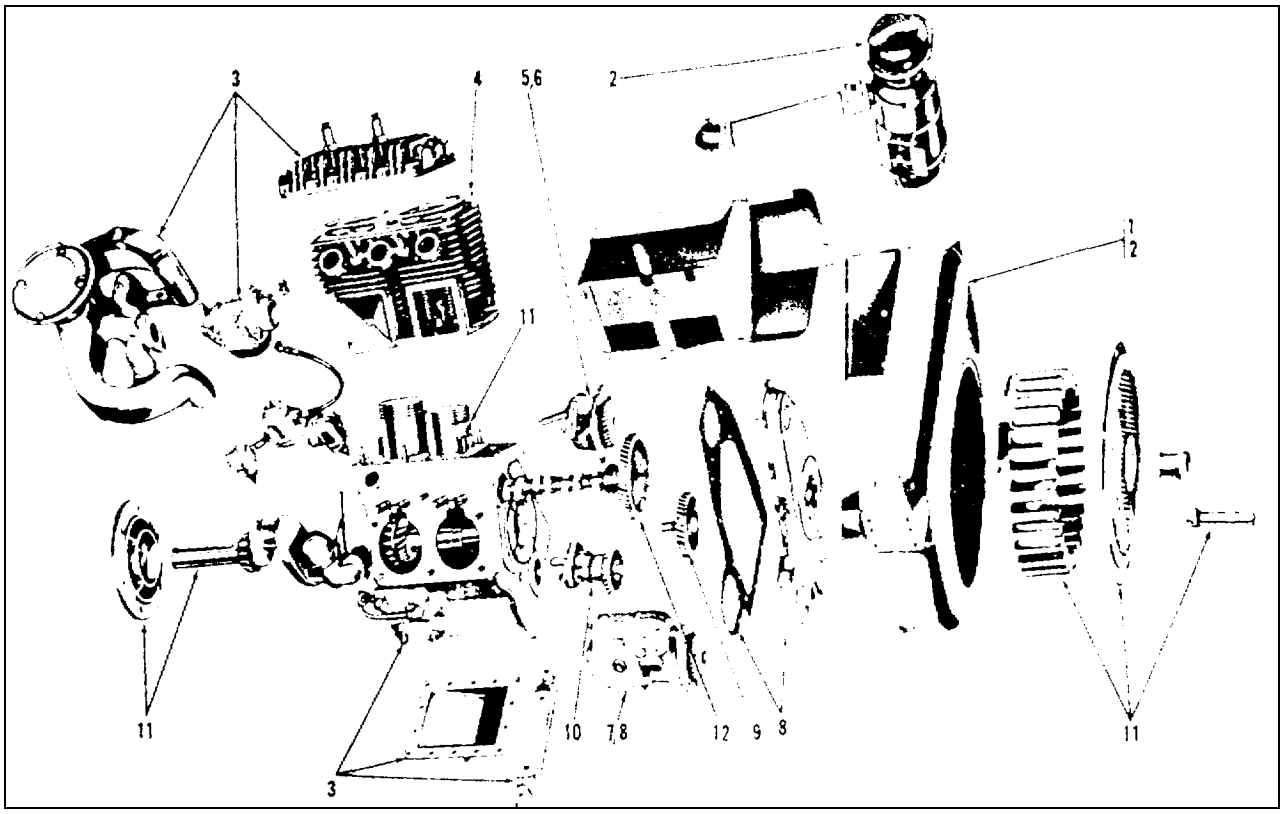


Figure A-11. Gasoline Engine

				GASOLINE ENGINE	
A-11				ENGINE, Gasoline (66289) (Model MVG4D, SPEC. 303059) (See figure A-3-14)	REF
A-11	-1			STARTER GROUP, Electric (See figure A-17) (ATTACHING PARTS)	1
A-11				SCREW, Machine (66289) (XA-8)	1
A-11				WASHER, Flat (66289) (PH194)	1
A-11				SCREW, Cap (66289) (PB-187)	3
A-11				WASHER, Lock (66289) (PE-5)	3
A-11	-2			AIR SHROUDING, AND AIR CLEANER GROUP (See figure A-18)	1
A-11	-3			MANIFOLD AND CRANKCASE GROUP (See figure A-19).	1
A-11	-4			CYLINDER BLOCK ASSY (66289) (AA-90A-S1) (See figure A-20)	2
A-11	-5			GOVERNOR CONTROL ASSY (66289) (TT-61F-10) (See figure A-21)	1
A-11	-6			GOVERNOR ASSEMBLY (See figure A-22)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				GASOLINE ENGINE (CONT)	
A-11	-7			MAGNETO IGNITION ASSY (See figure A-23)	1
A-11	-8			MAGNETO AND GEAR COVER GROUP (See figure A-24)	1
A-11	-9			IDLER GEAR AND OIL FILLER GROUP (See figure A-25)	1
A-11	-10			OIL PUMP ASSY (66289) (K-95-L) (See figure A-26)	1
A-11	-11			CRANKSHAFT, PISTON AND CONNECTING ROD GROUP. (See figure A-27)	1
A-11	-12			CAMSHAFT AND FUEL PUMP MOUNTING GROUP (See figure A-28)	1
				RUNNING GEAR ASSEMBLY	
A-12				RUNNING GEAR ASS (95026) (K132) (See figure A-3-37)	REF
A-12				DRAWBAR ASSY (95026) (5-7016)	1
A-12	-1			PIN, Straight, headed (95026)	1
				(ATTACHING PARTS	
A-12				PIN, Cotter (95026)	1
				- - - * - - -	
A-12	-2			DRAWBAR (95026)	1
A-12	-3			CLAMP (95026) (10-705)	4
				(ATTACHING PARTS)	
A-12				SCREW, Cap (96906) (MS35292-60)	8
A-12				WASHER, Lock (96906) (MS35338-48)	8
				- - - * - - -	
A-12	-4			PAD, Clamp (95026) (9-705)	4
A-12	-5			WHEEL ASSEMBLY (95026) (2-1590)	4
A-12				DISK, Wheel (95026) (1590-2)	4
A-12				DISK, Wheel (95026) (1590-1)	4
A-12				SCREW, Cap (95026) (X162CA)	32
A-12				WASHER, Lock (95026) (12X200CA)	32
A-12				NUT, Hex (95026) (5X102CA)	32
A-12				REAR AXLE UNIT ASSY (95026) (K132-4)	1
A-12	-6			RADIUS ROD ASSY (95026) (K132-197)	2
				(ATTACHING PARTS	
A-12				NUT, Hexagon (95026) (X597)	4
				- - - * - - -	
A-12				YOKE ASSEMBLY (95026) (K132-196)	2
A-12				NUT, Hexagon (95026) (5X168)	2
A-12				ROD, Radius (95026) (K132-3)	2
A-12	-7			SPRING ASSEMBLY (95026) (2-1650)	1
A-12				CLAMP, Loop (95026) (8-1728)	2
A-12				NUT (95026) (35X192)	4
A-12				SPRING (95026) (1650-1)	1
A-12	-8			SHACKLE (95026) (6-1607)	2
A-12	-9			BOLT (95026) (10-801)	3
				(ATTACHING PARTS)	
A-12				NUT (95026) (1-906)	3
A-12				PIN, Cotter (95026) (9X146)	3
				- - - * - - -	
A-12	-10			FITTING, Lubrication (95026) (3-410)	3
A-12	-11			REAR AXLE ASSY (95026) (K132-5)	1
A-12				PIN, Cotter (95026) (9X148)	2
A-12				NUT, Hexagon (95026) (2-906)	2
A-12				WASHER, Key (95026) (7-914)	2
A-12				BEAM ASSEMBLY (95026) (K132-198)	1
A-12	-12			HUB AND DRUM ASSY (90126) (11-606) (See figure A-29)	2

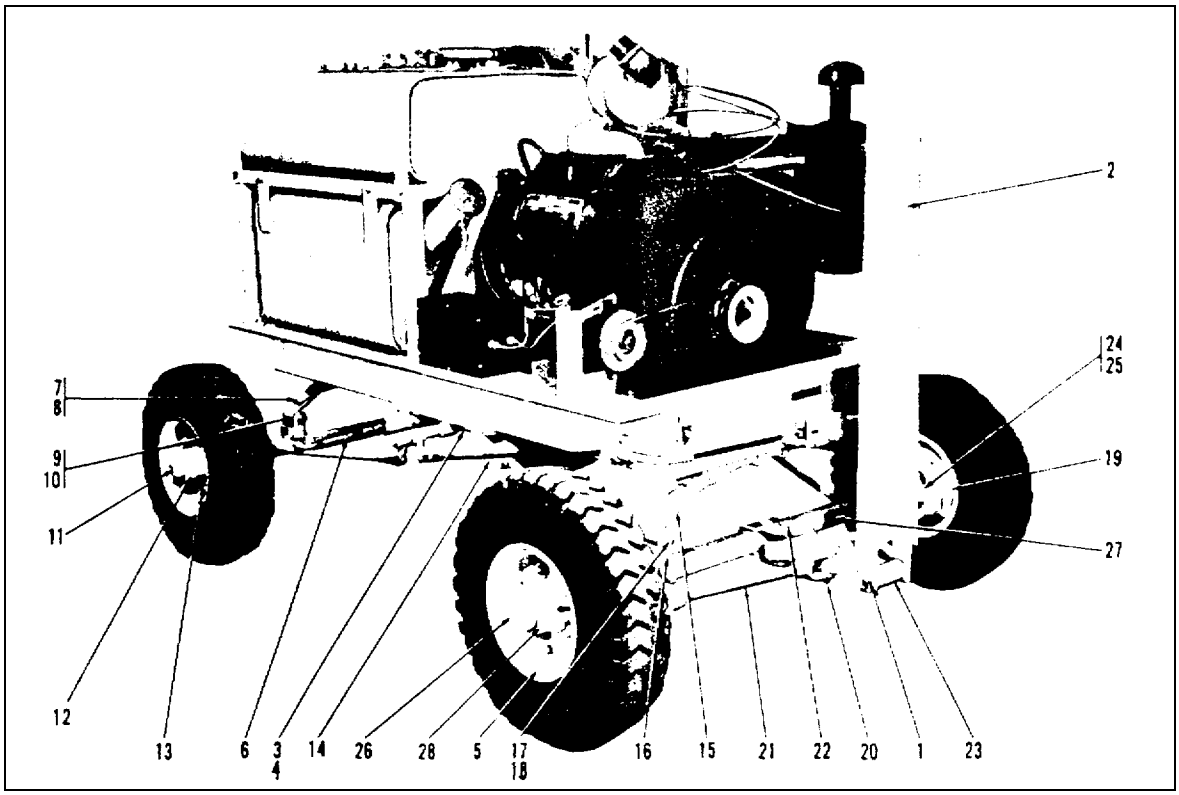


Figure A-12. Running Gear Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				RUNNING GEAR ASSEMBLY (CONT)	
A-12	-13			BRAKE ASSEMBLY, Complete (95026) (2-8104)	2
				(See figure A-30)	
A-12				FRONT AXLE UNIT ASSY (95026) (K132-1)	1
A-12	-14			RADIUS ROD ASSY (95026) (K132-197)	2
				(ATTACHING PARTS)	
A-12				NUT, Hexagon (95026) (5X597)	4
A-12				- - - * - - -	
				YOKE ASSEMBLY (95026) (K132-196)	2
A-12				NUT, Hexagon (95026) (5X168)	2
A-12				ROD, Radius (95026) (K132-3)	2
A-12	-15			SPRING ASSY (95026) (2-1650)	1
A-12	-16			SHACKLE (95026) (6-1607)	2
A-12	-17			BOLT (95026) (10-801)	3
				(ATTACHING PARTS)	
A-12				NUT (95026) (1-906)	3
A-12				PIN, Cotter (95026) (9X146)	3
				- - - * - - -	
A-12	-18			FITTING, Lubrication (95026) (3-410)	3
A-12				FRONT AXLE ASSY (95026) (K132-2)	1
A-12	-19			FITTING, Lubrication (95026) (3- 410)	4
A-12	-20			PIN, STR, headed (95026) (11-801)	4
				(ATTACHING PARTS)	
A-12				PIN, Cotter (95026) (9-196)	4
				- - - * - - -	
A-12	-21			TIE ROD ASSY (95026) (6LT355)	2
A-12				TIE ROD, Steering (95026) (6R1414)	2

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				RUNNING GEAR ASSEMBLY (CONT)	
A-12				YOKE (95026) (1-514)	4
A-12				NUT, Hexagon (95026) (5X168)	2
A-12	-22			PIN, STR, headed (95026) (20-800)	1
				(ATTACHING PARTS)	
A-12				PIN, Cotter (95026) (9X206)	1
A-12				WASHER, Flat (95026) (11X147)	3
				- - - * - - -	
A-12	-23			STEERING ARM ASSY (95026) (16-504)	1
A-12				ARM, Steering (95026) (13-504)	1
A-12				LATCH ASSY (95026) (510-11)	1
A-12				PIN, STR (95026) (7-400)	1
A-12				LATCH (95026) (9200)	1
A-12				SPRING (95026) (1-1983)	1
A-12				BRACKET (95026) (510-12)	1
A-12	-24			KINGPIN (95026) (2-809)	2
A-12				FITTING, Lubrication (95026) (4-410)	6
A-12	-25			SPINDLE AND KNUCKLE ASSY (95026) (15-1205)	2
A-12	-26			PIN, Cotter (95026) (9X148)	2
				(ATTACHING PARTS)	
A-12				NUT, Hexagon (95026) (2-906)	2
A-12				WASHER, Key (95026) (7 -914)	2
				- - - * - - -	
A-12	-27			BEAM ASSY (95026) (K-132-199)	1
A-12	-28			HUB ASSEMBLY (10-606) (See figure A-29)	2

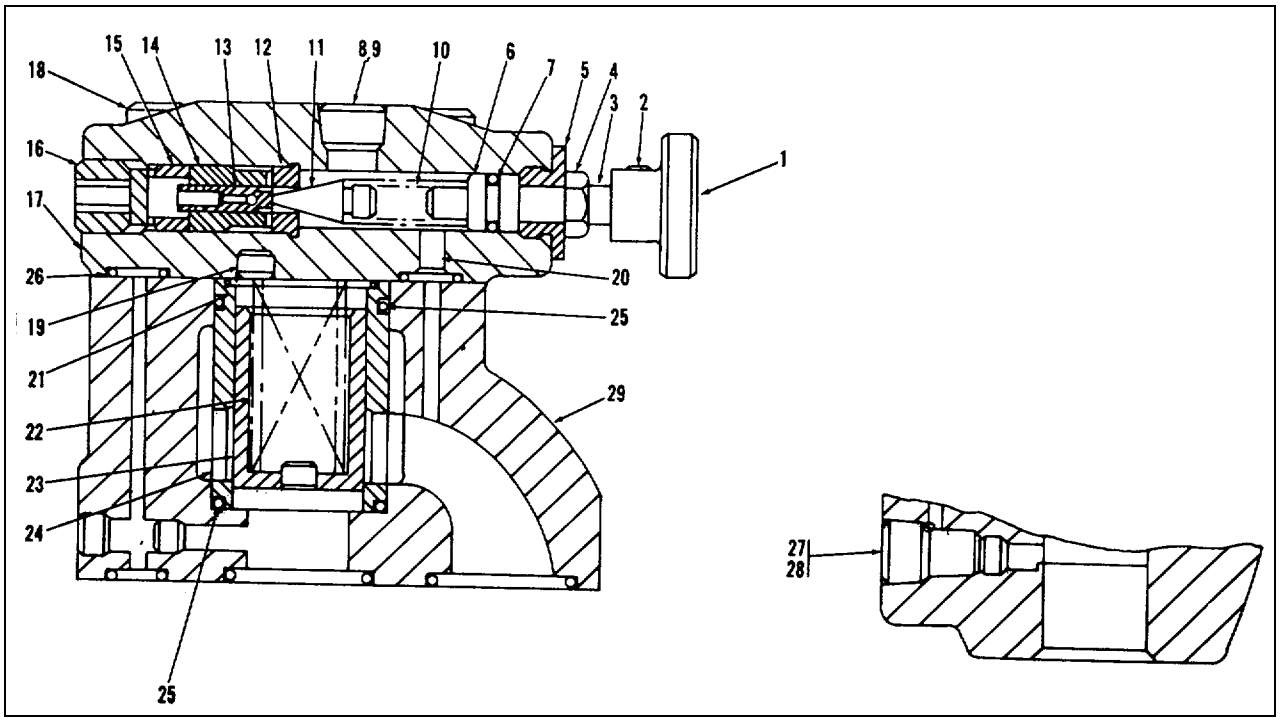


Figure A-13. Relief Valve

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				RELIEF VALVE	
A-13				VALVE, Relief (16954) (R1V12-545) (See figure A-7-31)	REF
A-13	-1			KNOB (16954) (036-24504-Z)	1
				(ATTACHING PARTS)	
A-13	-2			SETSCREW (16954) (312-09041)	1
				- - - * - - -	
A-13	-3			STEM (16954) (312-13200)	1
				(ATTACHING PARTS)	
A-13	-4			NUT, Hexagon (16954) (333-13001)	1
A-13	-5			CAP (16954) (036-21765-Z)	1
				- - - * - - -	
A-13	-6			PISTON, Seal (16954) (035-21767-Z)	1
A-13	-7			PACKING, Preformed (16954) (671-00012)	1
A-13	-8			PLUG, Pipe (16954) (431-90400)	2
A-13	-9			TAG, Drain (16954) (035-12808-Z)	1
A-13	-10			SPRING (16954) (036-12289Z)	1
A-13	-11			CONE (16954) (036-12288-Z)	1
A-13	-12			SEAT (16954) (036-11692-Z)	1
A-13	-13			PISTON (16954) (036-1194-Z)	1
A-13	-14			BLOCK, Control (16954) (036-11710-Z)	1
A-13	-15			SPACER (16954) (036-27548-Z)	1
A-13	-16			SCREW (16954) (312-35018)	1
A-13	-17			CAP (16954) (036-2545-X)	1
				(ATTACHING PARTS)	
A-13	-18			SCREW (16954) (359-15200)	4
				- - - * - - -	
A-13	-19			PLUG, Pipe (16954) (035-25528-Z)	2
A-13	-20			PLUG, Pipe (16954) (431-90100)	2
A-13	-21			PACKING, Preformed (16954) (671-00026)	1
A-13	-22			SPRING (16954) (036-2547-Z)	1
A-13	-23			SPOOL (16954) (035-27550-Z)	1
A-13	-24			SLEEVE (16954) (036-2549-Z)	1
A-13	-25			PACKING, Preformed (16954) (671-00125)	2
A-13	-26			PACKING, Preformed (16954) (691-00013)	2
A-13	-27			PLUG, Pipe (16954) (447-00004)	1
A-13	-28			PACKING, Preformed (16954) (671-00904)	1
A-13	-29			BODY, Valve (16954) (036-24392-W)	1

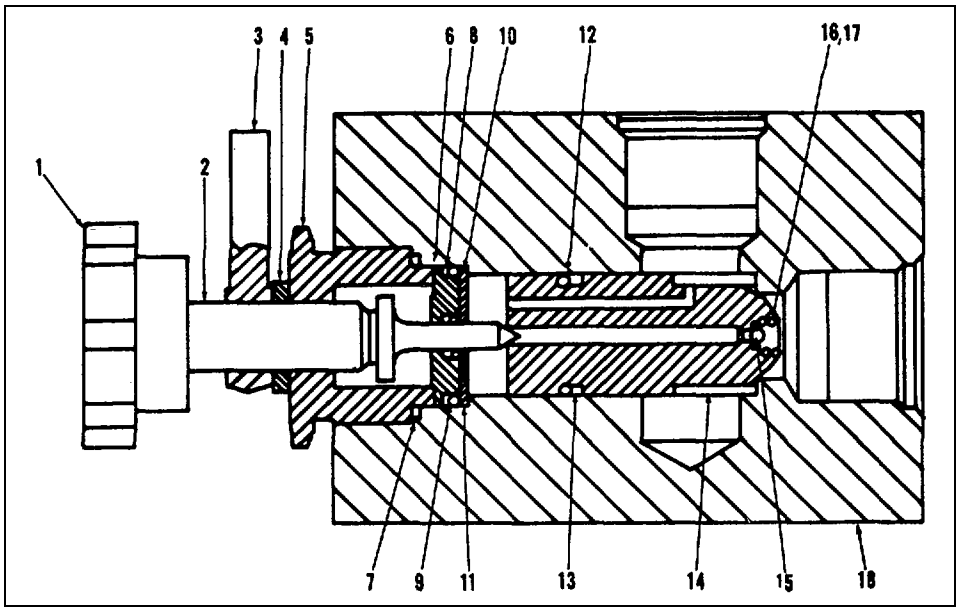


Figure A-14. Control Valve

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CONTROL VALVE	
A-14				VALVE, Control (26519) (3310-1) (See figure A-7-44)	REF
A-14	-1			HANDLE (86768) (10-1862-1)	2
A-14	-2			STEM (86768) (10-3156-4)	2
A-14	-3			NUT, Self-locking (86768) (1-2358-4)	2
A-14	-4			WASHER (96906) (MS27183-19)	2
A-14	-5			CAP (86768) (10-3156-9)	2
A-14	-6			SPACER (86768) (10-3156-6)	2
A-14	-7			RING (96906) (M28774-008)	2
A-14	-8			RING (96906) (MS28774-020)	2
A-14	-9			PACKING, Preformed (86768) (S. P.100-96)	2
A-14	-10			PACKING, Preformed (86768) (S. P. 100-3)	2
A-14	-11			WASHER (86768) (10-316-8)	2
A-14	-12			PACKING, Preformed (86768) (S. P. 100-13)	2
A-14	-13			RING (96906) (MS28774-115)	2
A-14	-14			PISTON (86768) (4-1158-15)	2
A-14	-15			BALL (86768)	1
A-14	-16			SPRING (86768) (5-658-13)	2
A-14	-17			PLUG (86768) (4-1158-14)	2
A-14	-18			BODY, Valve (86768) (1-2358-3)	2

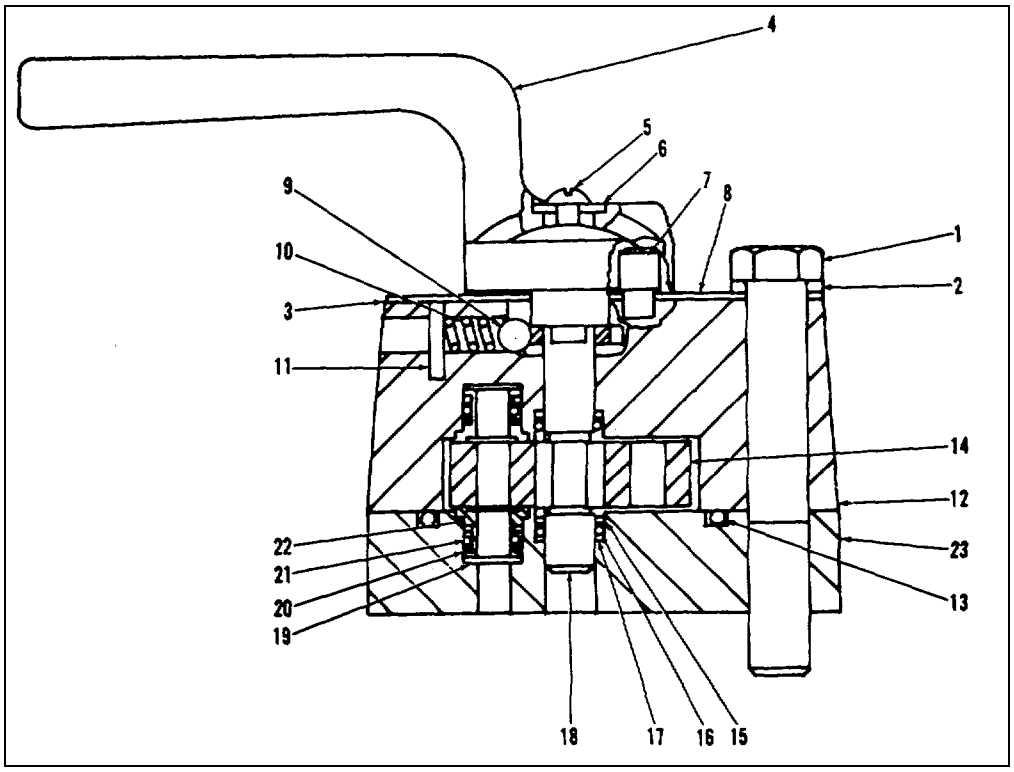


Figure A-15. Selector Valve

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				SELECTOR VALVE	
A-15				VALVE, Selector (26519) (3300-4) (See figure A-7-48)	REF
A-15	-1			SCREW (COML) 1/2-13 NC - 3 x 2-1/4	4
A-15	-2			WASHER, Lock (COML) 1/4	4
A-15	-3			PLATE, Ident (86768) (6-1461-1)	1
				(ATTACHING PARTS)	
A-15				SCREW, Machine (86768) (COML) 1/4-20 NC - 2 x 1/2	4
				- - - * - - -	
A-15	-4			HANDLE (86768) (12-556-17)	1
				(ATTACHING PARTS)	
A-15	-5			SCREW (86768) (M31AS420R10CH)	1
A-15	-6			WASHER (86768) (12-556-52)	4
				- - - * - - -	
A-15	-7			PIN (COML) 1/16 x 3/4	1
A-15	-8			PLATE, Detent (86768) (12-556-14-1)	1
A-15	-9			BALL, SST (COML) 5/16 Grade 200	2
A-15	-10			SPRING (86768) (10-2864-7)	1
A-15	-11			PIN, STL (86768) (Type "D")	2
A-15	-12			CAP (86768) (4-1161-55)	1
A-15	-13			PACKING, Preformed (86768) (SP102-154)	1
A-15	-14			DISK (86768) (12-1155-51-4)	1
A-15	-15			RING, Backup (86768) (12-556-51)	2
A-15	-16			PACKING, Preformed (86768) (SP102-12)	2
A-15	-17			WASHER, Flat (86768) (12-556-17)	2

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				SELECTOR VALVE (CONT)	
A-15	-18			SHAFT, Shouldered (86768) (12-556-13)	1
A-15	-19			WASHER, Flat (86768) (3-2054-1)	8
A-15	-20			RING, Backup (86768) (SP201-95)	16
A-15	-21			PACKING, Preformed (86768) (SP102-95)	8
A-15	-22			SEAL (86768) (12-1455-60-1)	8
A-15	-23			BODY, Valve (86768) (4-1161-39-1)	1

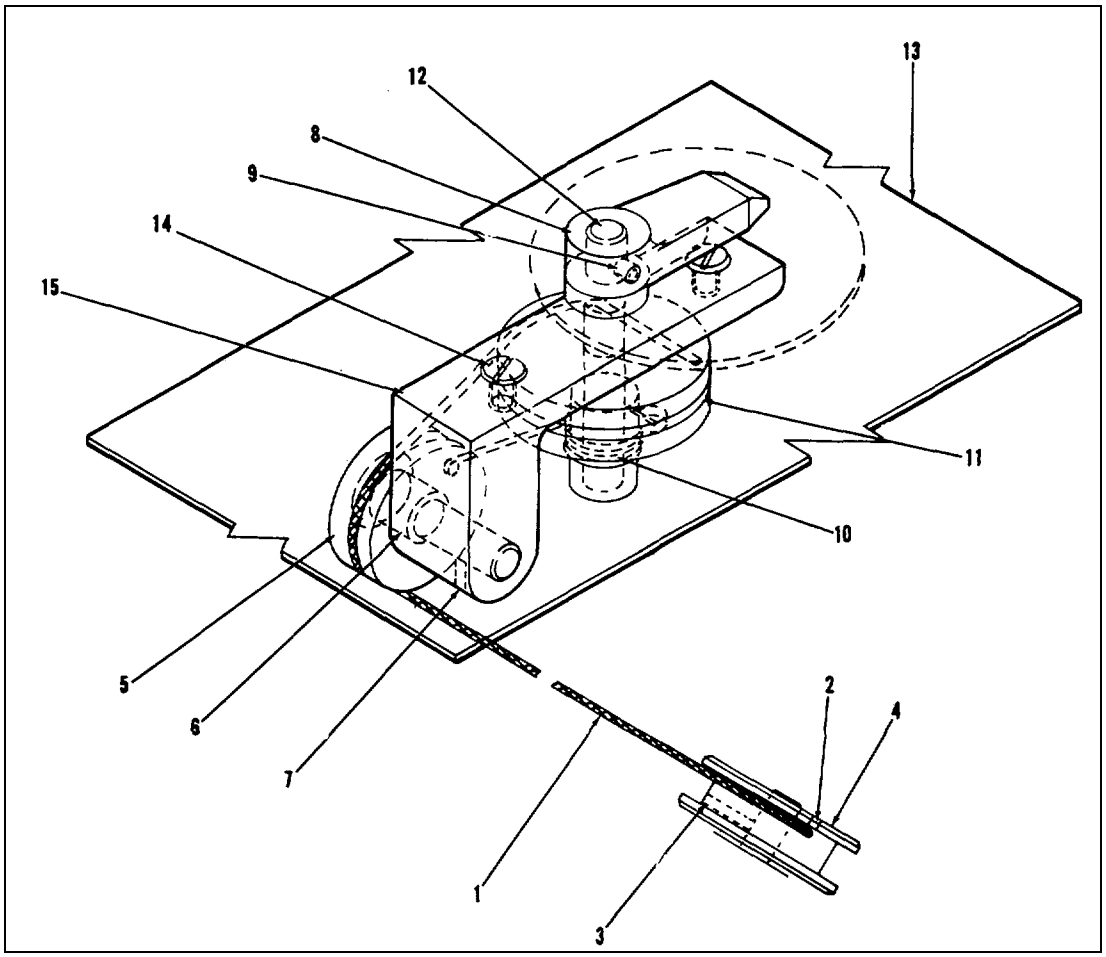


Figure A-16. Flow Indicator

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				FLOW INDICATOR	
A-16				INDICATOR, Flow (26519) (900-1) (See figure A-7-50)	REF
A-16	-1			CABLE (26519) (610-1)	1
A-16	-2			SETSCREW (96906) (MS51963-33)	2
A-16	-3			SETSCREW (96906) (MS51963-40)	1
A-16	-4			PULLEY, Groove (26519) (683036)	1
A-16	-5			PULLEY, Groove (26519) (683037)	1
A-16	-6			SHAFT, Shouldered (26519) (683038)	1
				(ATTACHING PARTS)	
A-16	-7			SETSCREW (96906) (MS51963-34)	1
				- - - * - - -	
A-16	-8			ARM, Indicator (26519) (683042)	1
				(ATTACHING PARTS)	
A-16	-9			SETSCREW (96906) (MS51963-34)	1
				- - - * - - -	
A-16	-10			SPRING (26519) (683040)	1
A-16	-11			PULLEY, Groove (26519) (683039)	1
A-16	-12			SHAFT, Shouldered (26519) (683041)	1
A-16	-13			DIAL (26519) (515-2)	1
A-16	-14			SCREW (96906) (MS35207-279)	2
A-16	-15			BRACKET, Mounting (26519) (683035)	1
				ELECTRIC STARTER GROUP	
A-17				STARTER GROUP, Electric	REF
A-17	-1			BRACKET, Support (66289) (PG-515-A)	1
				(ATTACHING PARTS)	
A-17	-2			NUT, Hexagon (66289) (PD-10)	2
A-17	-3			WASHER, Lock (66289) (PE-4)	2
A-17	-4			STUD (66289) (PC-396)	2
				- - - * - - -	
A-17	-5			STARTER, Electric (95688) (MBG-4116-T)	1
A-17	-6			BAND, Cover (95688) (MZ-1024AD)	1
				(ATTACHING PARTS)	
A-17	-7			SCREW, Machine (95688) (X2-882)	1
A-17	-8			NUT, Plain, square (95688) (X-2875)	1
				- - - * - - -	
A-17	-9			HEAD ASSY (95688) (MZ-2002T)	1
				(ATTACHING PARTS)	
A-17	-10			SCREW (95688) (20X-902)	4
A-17	-11			WASHER, Lock (95688) (12X-196)	4
				- - - - - -	
A-17	-12			PAD, FELT (95688) (MAD-110)	1

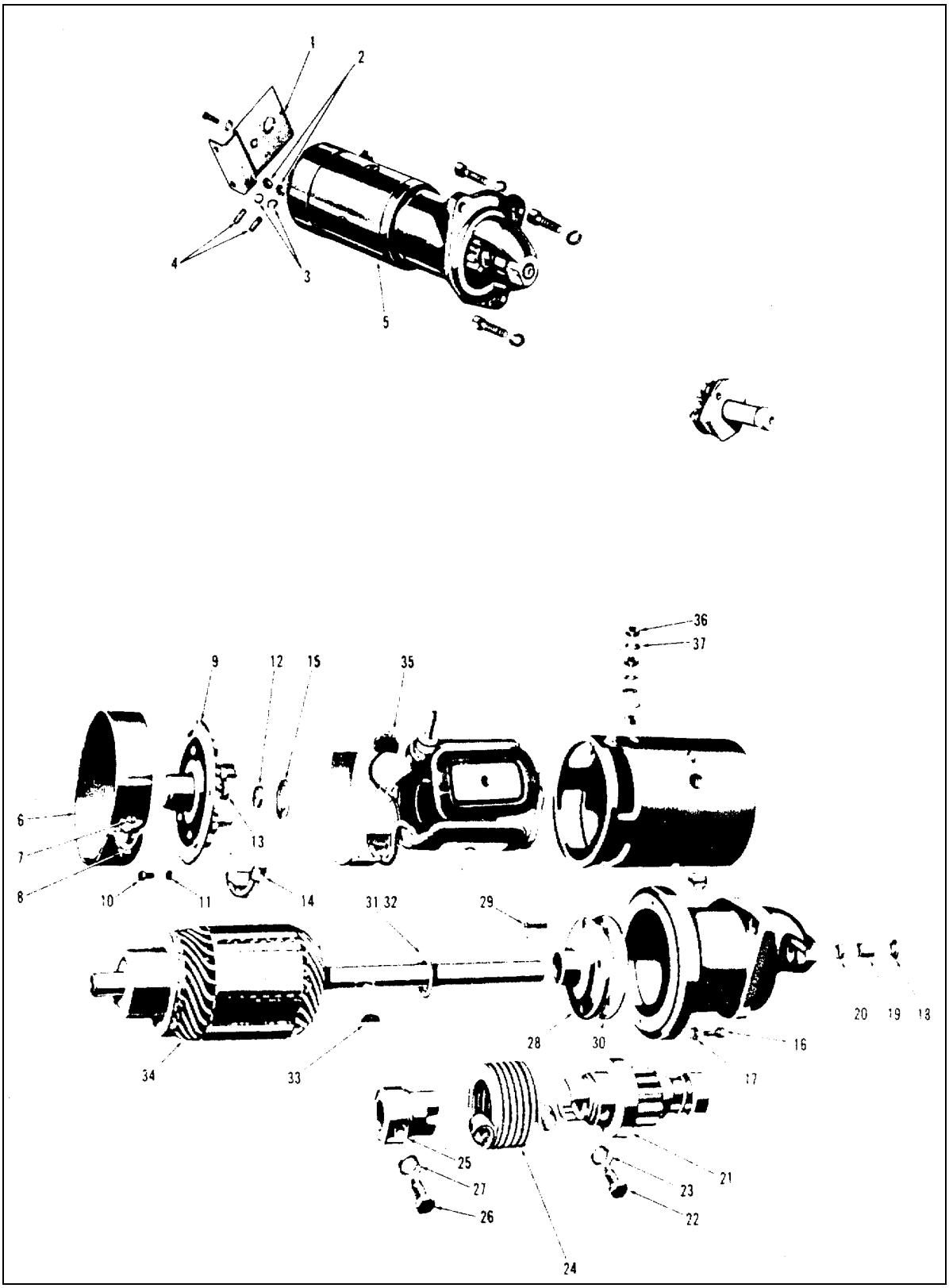


Figure A-17. Electric Starter Group

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				ELECTRIC STARTER GROUP (CONT)	
A-17	-13			SPRING (95688) (MZ-19CS)	1
A-17	-14			BRUSH, Grounded (95688) (MBG-1021AS)	2
A-17	-15			WASHER, Thrust (95688) (MU-54)	1
A-17				PINION HOUSING ASSY (95688) (PS-1330A) (ATTACHING PARTS)	1
A-17	-16			SCREW, Cap (95688) (MZ-52)	4
A-17	-17			WASHER, Lock (95688) (12X-196)	4
				- - - * - - -	
A-17	-18			CAP, Bearing 95688) (MZ-358A)	1
A-17	-19			BEARING (95688) (MZ-364)	1
A-17	-20			SEAL, Oil (95688) (XA-832)	1
A-17				BENDIX DRIVE ASSY (95688) (EBB-44-B)	1
A-17	-21			SLEEVE ASSY (95688) (F-6533) (ATTACHING PARTS)	1
A-17	-22			SCREW (95688) (F-4618)	1
A-17	-23			WASHER, Lock (95688) (F-4610)	1
				- - - * - - -	
A-17	-24			SPRING (95688) (F-4855)	1
A-17	-25			HEAD, Drive (95688) (F-4616) (ATTACHING PARTS)	1
A-17	-26			SCREW (95688) (F-4619)	1
A-17	-27			WASHER, Lock (95688) (F-4610)	1
				- - - * - - -	
A-17	-28			BEARING PLATE ASSY (95688) (MZ-1360A) (ATTACHING PARTS)	1
A-17	-29			SCREW, Machine (95688) (20X-63)	4
				- - - * - - -	
A-17	-30			GASKET (95688) (MZ-359A)	1
A-17	-31			WASHER, Spring (95688) (MZ-365)	1
A-17	-32			WASHER, Thrust (95688) (MZ-357)	2
A-17	-33			KEY, Woodruff (95688) (X-261)	1
A-17	-34			ARMATURE ASSY (95688) (MZ-2366-T)	1
A-17				FRAME AND FIELD ASSY (95688) (MBG-2022G)	1
A-17	-35			BRUSH, ELEC CONT (95688) (MZ-12A)	2
A-17	-36			NUT, Hexagon (95688) (X-180)	1
A-17	-37			WASHER, Lock (95688) (12X-1014)	1
				AIR SHROUDING AND AIR CLEANER GROUP	
A-18				AIR SHROUDING AND AIR CLEANER GROUP (See figure A-11-2)	REF
A-18	-1			PLATE, Instruction (66289) (SD-252) (ATTACHING PARTS)	1
A-18	-2			RIVET (66289) (XJ-58)	1
				- - - * - - -	
A-18	-3			PLATE, Ident (66289) (SD-197-D) (ATTACHING PARTS)	1
A-18	-4			RIVET (6289) (XJ-58)	4
				- - - * - - -	
A-18	-5			CAP, Airstack (66289) (L0-62)	1
A-18	-6			AIR CLEANER, Intake (96906) (MS35875-3) (ATTACHING PARTS)	1
A-18	-7			SCREW (66289) (XD-14)	4
A-18	-8			WASHER, Lock (66289) (PE-4)	4
A-18	-9			NUT, Hexagon (66289) (PD-78)	4
				- - - * - - -	
A-18	-10			CLAMP ASSEMBLY (66289) (P10-1362)	1
A-18	-11			OIL CUP ASSEMBLY (66289) (P10-1360)	1
A-18	-12			GASKET, Cup (66289) (P10-1631)	1

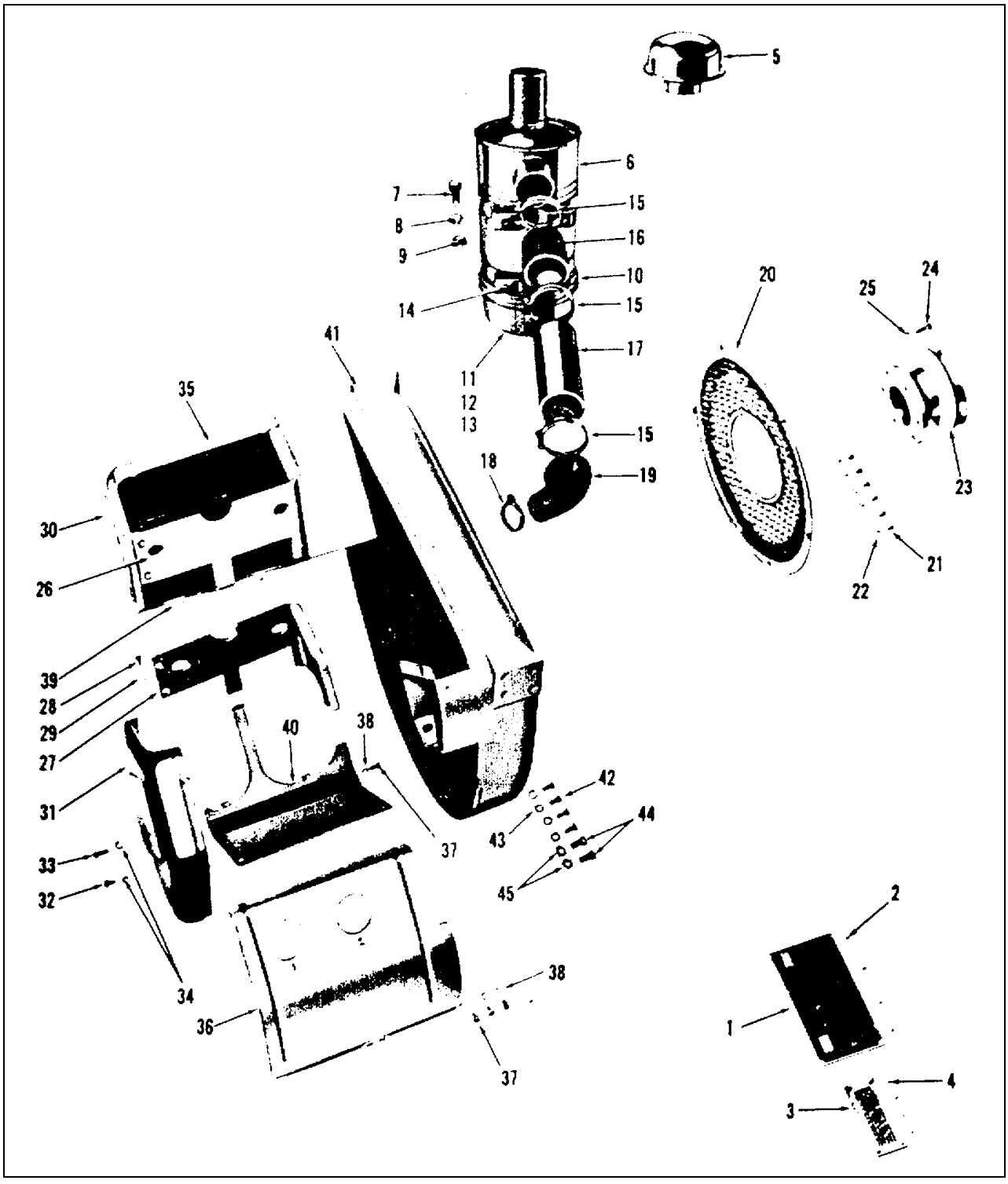


Figure A-18. Air Shrouding and Air Cleaner Group

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				AIR SHROUDING AND AIR CLEANER GROUP (CONT)	
A-18	-13			CUP, Oil (66289) (P10-17703)	1
A-18	-14			MOUNTING BAND ASSY (66289) (AAH00-0343)	2
A-18	-15			CLAMP, Hose (66289) (LK-9)	3
A-18	-16			HOSE, Rubber (66289) (LL-18)	1
A-13	-17			TUBE (66289) (LJ-131-3)	1
A-18	-18			CLAMP, Hose (66289) (K-24)	1
A-18	-19			ELBOW, Rubber (66289) (LL-89-2)	1
A-18	-20			SCREEN (66289) (SD-48-1)	1
				(ATTACHING PARTS)	
A-18	-21			SCREW, Cap (66289) (XA-33)	6
A-18	-22			WASHER, Lock (66289) (PE-3)	6
				- - - * - - -	
A-18	-23			SHEAVE, Generator (66289) (MD-285)	1
				(ATTACHING PARTS)	
A-18	-24			SCREW, Cap (66289) (XD-42)	6
A-18	-25			WASHER, Lock (66280) (PE-7)	6
				- - - * - - -	
A-18	-26			DEFLECTOR, Heat (66289) (SE-128-B)	1
				(ATTACHING PARTS)	
A-18				SCREW, Cap (66289) (XA-33)	5
A-18				WASHER, Lock (66289) (PE-3)	5
				- - - * - - -	
A-18	-27			DEFLECTOR, Heat (66289) (SE-128-C)	1
				(ATTACHING PARTS)	
A-18	-28			SCREW, Cap (66289) (XA-33)	5
A-18	-29			WASHER, Lock (66289) (PE-3)	5
				- - - * - - -	
A-18	-30			COVER, Rear shroud (66289) (SE-125)	1
				(ATTACHING PARTS)	
A-18				SCREW, Cap (66289) (XA-33)	5
A-18				SCREW, Cap (66289) (XA-34)	1
A-18				WASHER, Lock (66289) (PE-3)	6
				- - - * - - -	
A-18	-31			COVER, Rear shroud (66289) (SE-125-A)	1
				(ATTACHING PARTS)	
A-18	-32			SCREW, Cap (66289) (XA-33)	5
A-18	-33			SCREW, Cap (66289) (XA-34)	1
A-18	-34			WASHER, Lock (66289) (PE-3)	6
				- - - * - - -	
A-18	-35			SHROUD, Cylinder HD (66289) (SE-127)	1
				(ATTACHING PARTS)	
A-18				SCREW, Cap (66289) (XA-33)	3
A-18				WASHER, Lock (66289) (PE-3)	3
				- - - * - - -	
A-18	-36			SHROUD, Cylinder HD (66289) (SE-127-A)	1
				(ATTACHING PARTS)	
A-18	-37			SCREW, Cap (66289) (XA-33)	3
A-18	-38			WASHER, Lock (66289) (PE-3)	3
				- - - * - - -	
A-18	-39			SHROUD, Lower (66289) (SE126)	1
A-18	-40			SHROUD, Lower (66289) (SE-126-A)	1
A-18	-41			SHROUD, Flywheel (66289) (SE-124-BA-1)	1
				(ATTACHING PARTS)	
A-18	-42			SCREW, Cap (66289) (XD-172)	4
A-18	-43			WASHER, Lock (66289) (PE-46-A)	4
A-18	-44			SCREW, Cap (66289) (XD-171)	2
A-18	-45			WASHER, Lock (6289) (PE-56-A)	2
				- - - * - - -	

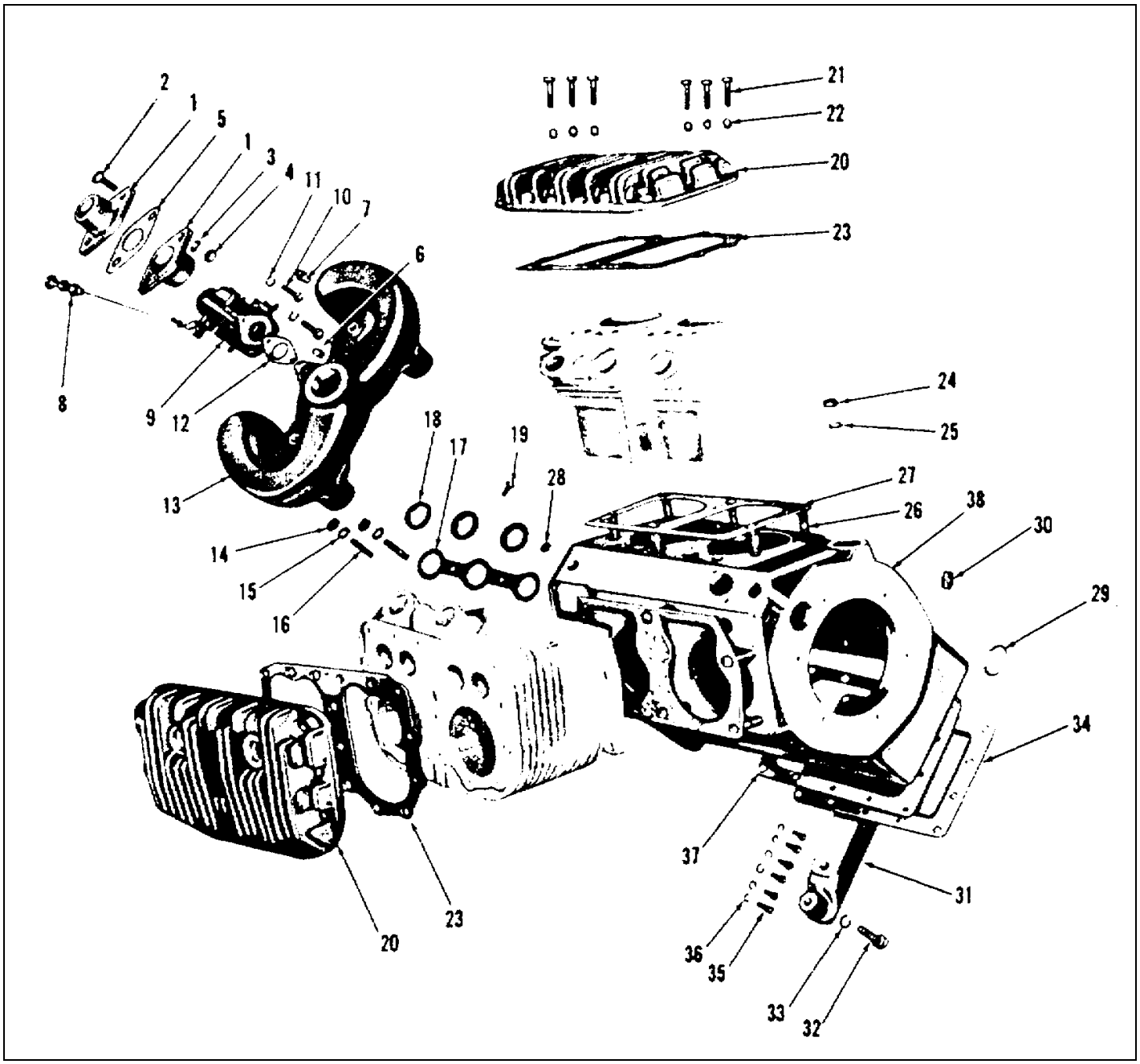


Figure A-19. Manifold and Crankcase Group

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				MANIFOLD AND CRANKCASE GROUP	
A-19				MANIFOLD AND CRANKCASE GROUP (See figure A-11-3)	REF
A-19	-1			ADAPTER, Muffler (66289) (LF-131)	2
				(ATTACHING PARTS)	
A-19	-2			SCREW, Cap (66289) (XD-29)	2
A-19	-3			WASHER, Lock (66289) (PE-5-A)	2
A-19	-4			NUT, Hexagon (66289) (PD-79)	2
				- - - * - - -	
A-19	-5			GASKET (6289) (QD-727)	1
A-19	-6			PLUG, Pipe (6289) (XK-1)	1
A-19	-7			PLUG, Pipe (6289) (XK-2)	2
A-19	-8			CONTROL, Choke (66289) (VE-435-M)	1
A-19	-9			CARBURETOR (96152) (VH-69) (See figure A-31)	1
				(ATTACHING PARTS)	
A-19	-10			SCREW, Cap (66289) (XD-21)	2
A-19	-11			WASHER, Lock (66289) (PE-4)	2
				- - - * - - -	
A-19	-12			GASKET (66289) (QF-91)	1
A-19	-13			MANIFOLD, Intake and exhaust (66289) (LD-240-10-S1)	1
				(ATTACHING PARTS)	
A-19	-14			NUT, Hexagon (66289) (PD-207)	4
A-19	-15			WASHER, Lock (66289) (PH-9-A)	4
A-19	-16			STUD (66289) (PC-251)	4
				- - - * - - -	
A-19	-17			GASKET (66289) (QC-62)	2
A-19	-18			GASKET (66289) (QB-83)	6
A-19	-19			SCREW, Cap (66289) (XA-33)	1
A-19	-20			HEAD, Cylinder (66289) (AB-97B-2-S1)	2
				(ATTACHING PARTS)	
A-t9	-21			SCREW, Cap (66289) (XD-30)	33
A-19	-22			WASHER, Flat (66289) (PH-22-A)	34
				- - - * - - -	
A-19	-23			GASKET (66289) (XD-631)	2
A-19	-24			NUT, Hexagon (66289) (PD-13)	12
A-19	-25			WASHER, Lock (6289) (PE-7)	11
A-19	-26			STUD (66289) (PC-435)	12
A-19	-27			GASKET (66289) (QD-632)	2
A-19	-28			PLUG (66289) (SA-26)	2
A-19	-29			PLUG (62898) (SA-58)	1
A-19	-30			PLUG, Oil (66289) (QK-7-B)`	1
A-19	-31			BRACKET, Support (66289) (BK-72-A)	2
A-19	-32			SCREW, Cap (66289) (XD-52)	4
A-19	-33			WASHER, Lock (66289) (PE-37)	4
A-19	-34			COVER, Crankcase (66289) (BH-155-C)	1
				(ATTACHING PARTS)	
A-19	-35			SCREW, Cap (66289) (XD-14)	14
A-19	-36			WASHER, Lock (66289) (PE-4)	14
				- - - * - - -	
A-19	-37			GASKET (66289) (QD-635)	1
A-19	-38			CRANKCASE (66289) (BA-49-A)	1

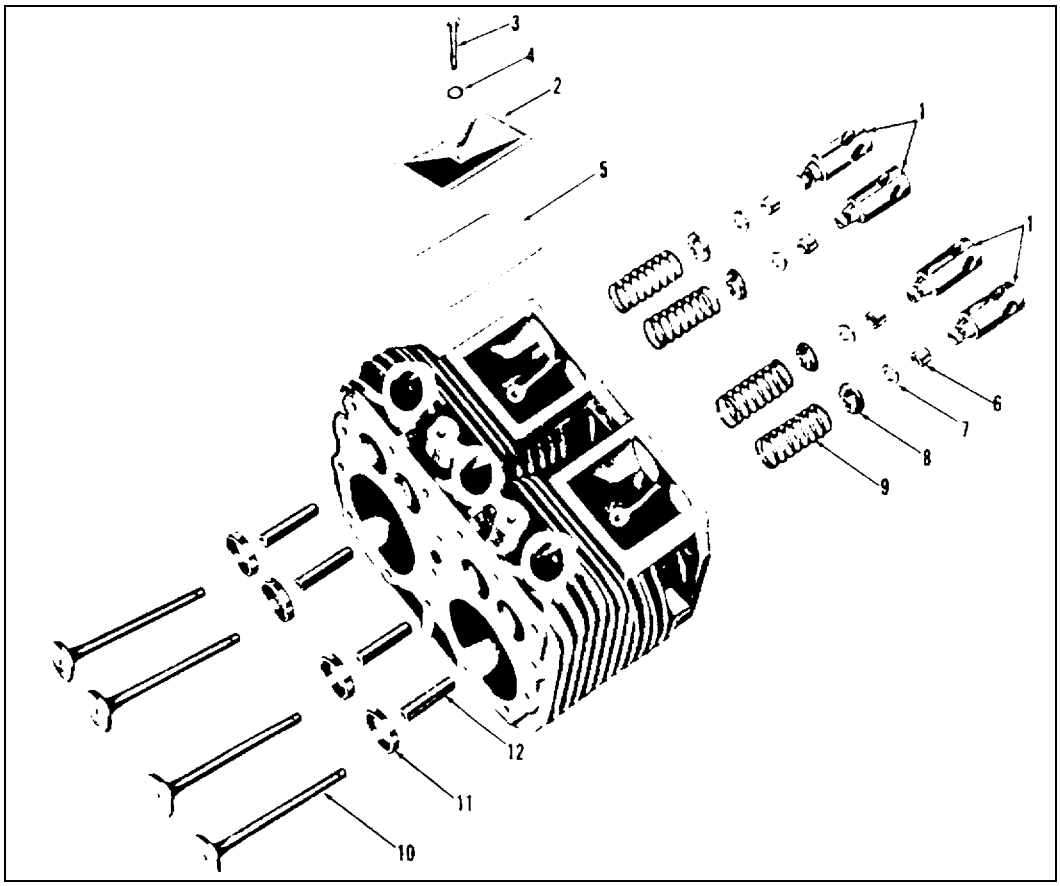


Figure A-20. Cylinder Block Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CYLINDER BLOCK ASSEMBLY	
A-20				CYLINDER BLOCK ASSEMBLY (6289) (AA-90A-2-S1)	2
A-20	-1			TAPPET (66289) (F-65)	8
A-20	-2			COVER, Inspection (66289) (BH-103)	4
				(ATTACHING PARTS)	
A-20	-3			SCREW, Cap (66289) (XD-148)	4
A-20	-4			WASHER, Flat (66289) (PH-14)	6
				- - - * - - -	
A-20	-5			GASKET (66289) (QD-482)	4
A-20	-6			CAP, Rotator (96906) (MS13998-1)	1
A-20	-7			LOCK (96906) (MS13997-1)	16
A-20	-8			SEAT, Spring (66289) (AG-30)	8
A-20	-9			SPRING, Valve (66289) (AF-49-A)	8
A-20	-10			VALVE, Stellite (96906) (MS13999-8)	8
A-20	-11			SEAT, Valve (66289) (HG-150-D)	8
A-20	-12			GUIDE, Valve guide (66289) (AD-42-A)	8

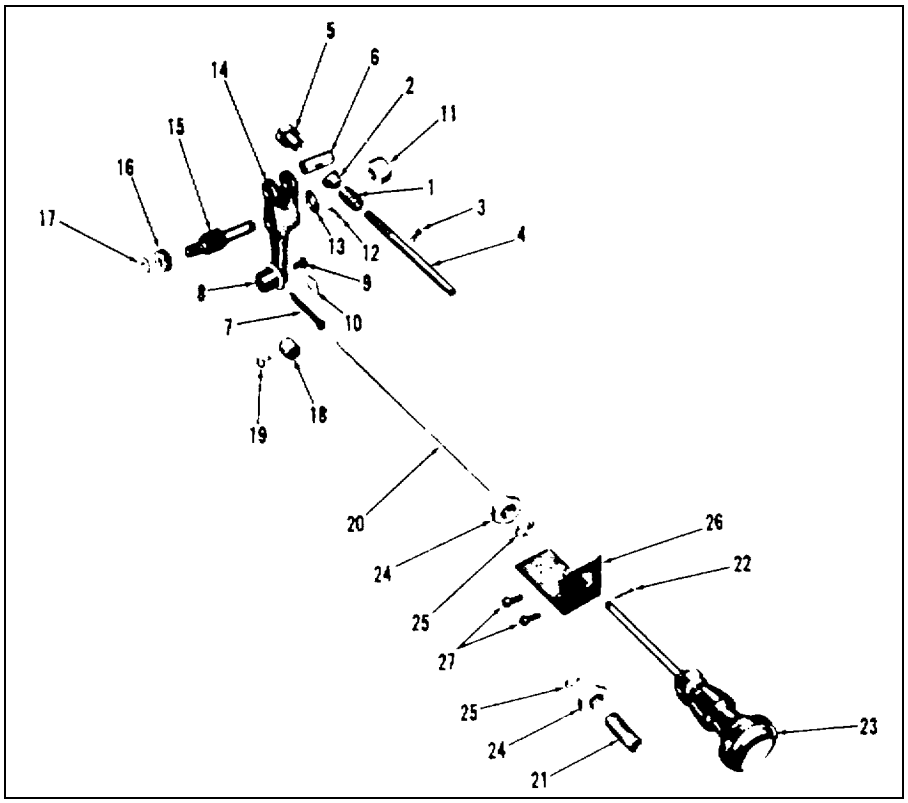


Figure A-21. Governor Control Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				GOVERNOR CONTROL ASSEMBLY	
A-21				GOVERNOR CONTROL ASSEMBLY (66289) (TT-61F-10) ..... (See figure A-11-5)	REF
A-21	-1			SPRING (66289) (PM-111).....	1
A-21	-2			RETAINER (66289) (PK-121).....	1
A-21	-3			PIN, Cotter (66289) (X1-1)	1
A-21	-4			PIN, STR, threaded (66289) (P1-145-1).....	1
A-21	-5			NUT, Self-locking (66289) (PD-173-A).....	1
A-21	-6			PIN, Straight (66289) (TC-368-A).....	1
A-21	-7			PIN, Cotter (66289) (X1-1)	1
A-21	-8			BLOCK, Swivel (66289) (VE-598)	1
A-21	-9			SCREW, Cap (66289) (XD-158).....	1
A-21	-10			WASHER, Lock (66289) (PH-93-A).....	2
A-21	-11			BUSHING (66289) (HG-203).....	1
A-21	-12			PIN, Cotter (66289) (X1-1)	1
A-21	-13			WASHER, Flat (66289) (PH-77-A)	1
A-21	-14			LEVER (66289) (VB-134-A-9).....	1
A-21	-15			PIN, STR, threaded (66289) (TC-365-D)	1
A-21	-16			NUT, Hexagon (66289) (PD-77).....	1
A-21	-17			WASHER, Lock (66289) (PE-3).....	1
A-21	-18			BLOCK, Stop (66289) (VE-339-A).....	1
A-21	-19			SCREW (66289) (XA-66)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				GOVERNOR CONTROL ASSEMBLY (CONT)	
A-21	-20			CABLE, Control (66289).....	1
A-21	-21			BUSHING (66289) (VE-556)	1
A-21	-22			PIN, Cotter (66289) (X1-1)	1
A-21	-23			KNOB, Control (66289) (VE-527-WAP)	1
A-21	-24			NUT, Hexagon (66289) (PD-76).....	2
A-21	-25			WASHER, Lock (66289) (PE-5).....	2
A-21	-26			BRACKET, Angle (66289) (PG-475) ..... (ATTACHING PARTS	1
A-21	-27			SCREW, Tapping (66289) (XA-65) ..... - - - * - - -	2

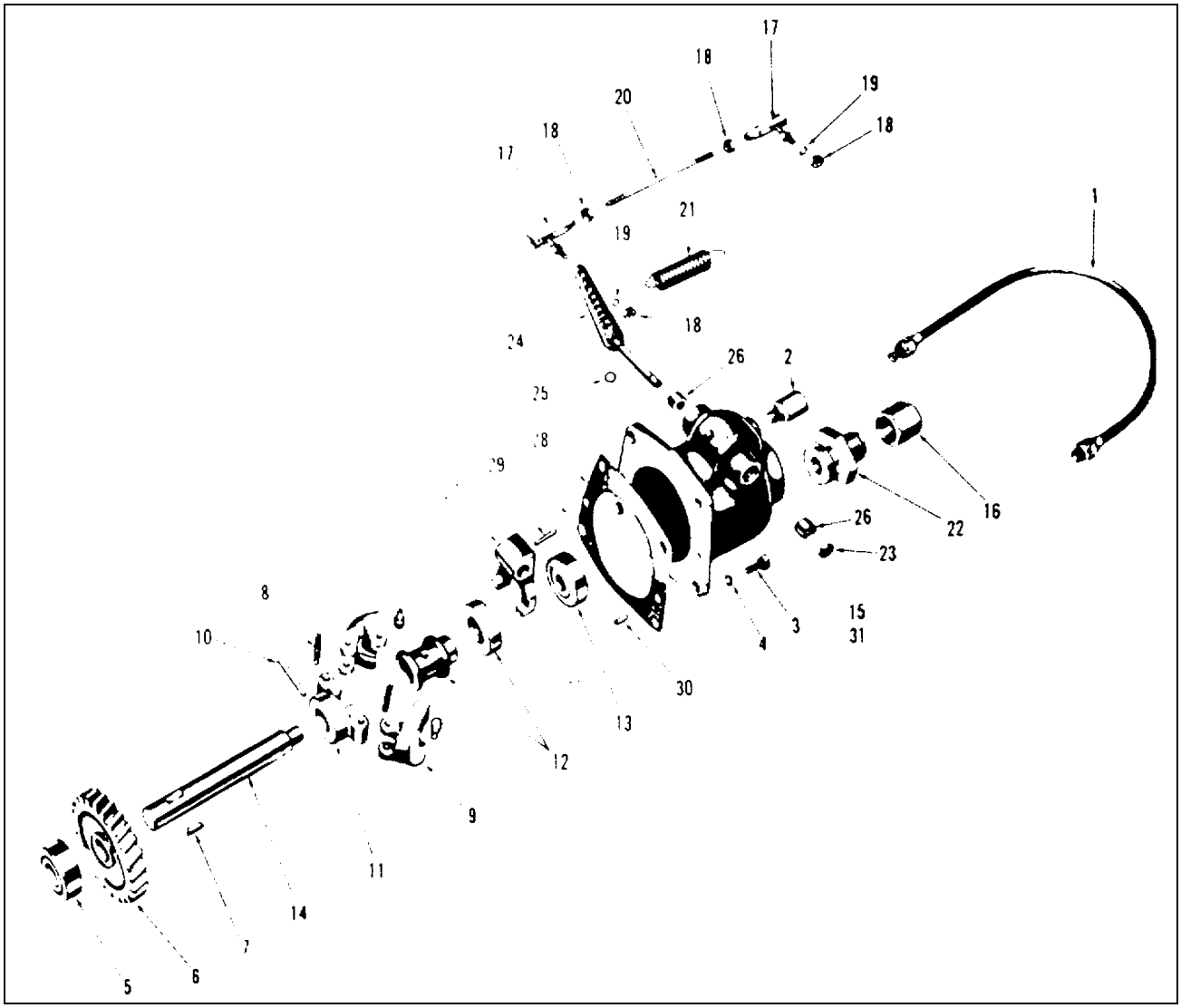


Figure A-22. Governor Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				GOVERNOR ASSEMBLY	
A-22				GOVERNOR ASSEMBLY (See figure A-11-6)	REF
A-22	-1			SHAFT, Flexible (57733) (446058)	1
A-22	-2			ADAPTER, Straight (57733) (777-D)	1
A-22				GOVERNOR ASSEMBLY (66289) (T-84-H-1)	1
				(ATTACHING PARTS)	
A-22	-3			SCREW, Cap (66289) (XD-16)	4
A-22	-4			WASHER, Lock (66289) (PE-4)	4
				- - - * - - -	
A-22				DRIVE SHAFT ASSEMBLY (66289) (TA-112A-S1)	1
A-22	-5			BEARING (66289) (ME-112)	1
A-22	-6			GEAR (66289) (GD-95-A)	1
A-22	-7			KEY, Woodruff (66289) (PL-21)	1
A-22	-8			PIN, Cotter (66289) (PA-340)	2
A-22	-9			FLYWEIGHT (66289) (TC-322D-S1)	1
A-22	-10			PIN, Taper (66289) (XH-9)	1
A-22	-11			HUB, Flyweight (66289) (TC-346-B)	1
A-22	-12			SLEEVE AND BEARING ASSY (66289) (TC-348-S1)	1
A-22	-13			BEARING (66289) (ME-111)	1
A-22	-14			SHAFT, Shouldered (66289) (TA-11-A)	1
A-22				TUBE, Oil (66289) (RM-980)	1
A-22				TUBE, Oil (66289) (RM-536)	1
A-22	-15			CONNECTOR, Oil (66289) (RF-269-2)	1
A-22	-16			CAP (66289) (TC-403)	1
A-22				HOUSING ASSEMBLY (66289) (TC-363B-2-S1)	1
A-22	-17			BALL JOINT (66289) (VE-674-A)	2
				(ATTACHING PARTS)	
A-22	-18			NUT, Hexagon (66289) (PD-115-2)	4
A-22	-19			WASHER, Lock (66289) (PE-14)	2
				- - - * - - -	
A-22	-20			ROD, Control (66289) (VE-689-A)	1
A-22	-21			SPRING (66289) (PM-76)	1
A-22	-22			ADAPTER, Tachometer (66289) (TB-10)	1
A-22	-23			PLUG (66289) (SA-26)	1
A-22	-24			SHAFT AND LEVER (66289) (TC-398-15)	1
A-22	-25			PACKING, Preformed (66289) (JK-52)	1
A-22	-26			BEARING (66289) (ME-153)	2
A-22	-27			YOKE (66289) (VB-98A-5)	1
A-22	-28			GASKET (66289) (QD-615-A)	1
A-22	-29			PIN, Tapered (66289) (XH-1)	1
A-22	-30			PIN, Straight (66289) (PA-294)	2
A-22	-31			HOUSING, Governor (66289) (TC-363B-2)	1

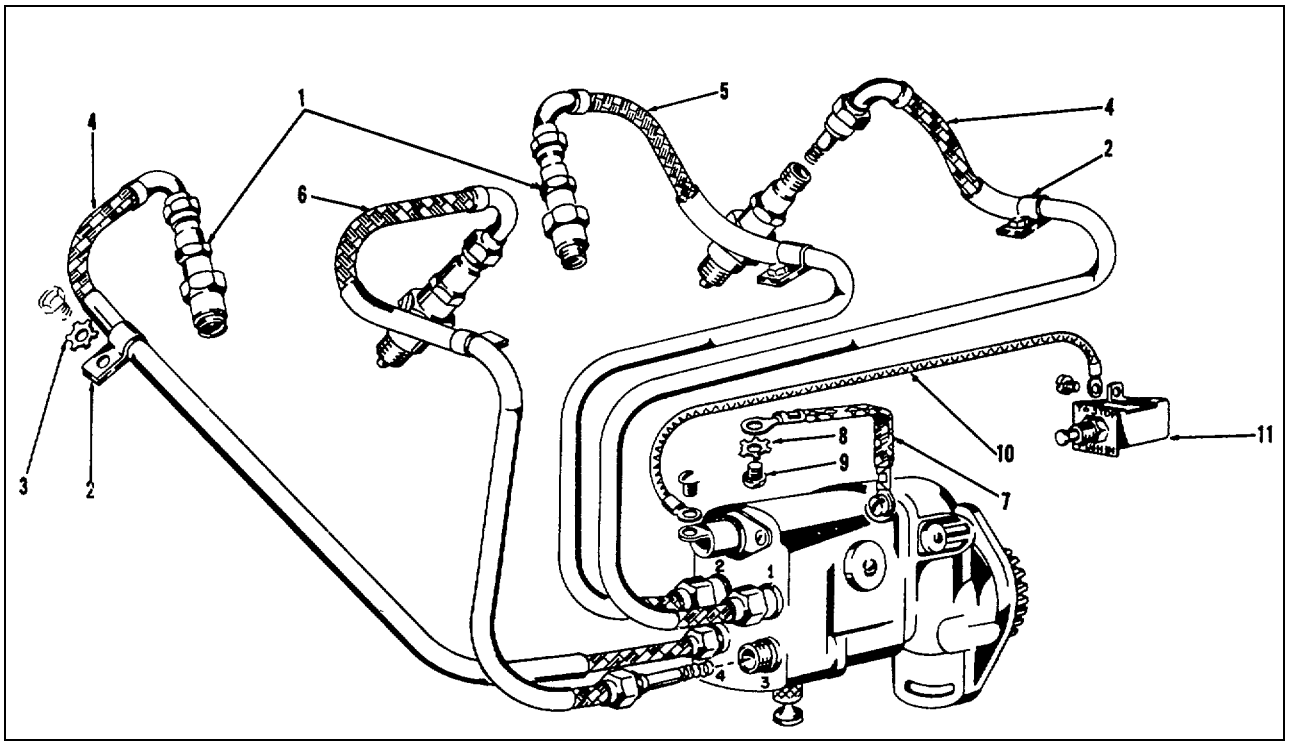


Figure A-23. Magneto Ignition Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				MAGNETO IGNITION ASSEMBLY	
A-23				MAGNETO IGNITION ASSEMBLY (See figure A-11-7)	REF
A-23	-1			SPARK PLUG (96906) (MS51009-1)	4
A-23	-2			CLAMP, Cable (66289) (PG-558)	4
A-23	-3			WASHER, Lock (66289) (PE-34-A)	4
A-23	-4			IGNITION WIRE ASSEMBLY (96906) (MS51011-13)	2
A-23	-5			IGNITION WIRE ASSEMBLY (96906) (MS51011-14)	1
A-23	-6			IGNITION WIRE ASSEMBLY (96906) (MS51011-10)	1
A-23	-7			STRAP, Ground (66289) (YL-355-5)	1
				(ATTACHING PARTS)	
A-23	-8			SCREW, Cap (66289) (XA-33)	1
A-23	-9			WASHER, Lock (96906) (PE-34-A)	1
				- - - * - - -	
A-23	-10			WIRE ASSEMBLY (66289) (YL-352-23)	1
A-23	-11			GROUND SWITCH ASSEMBLY (66289) (YC-9-F-S1)	1

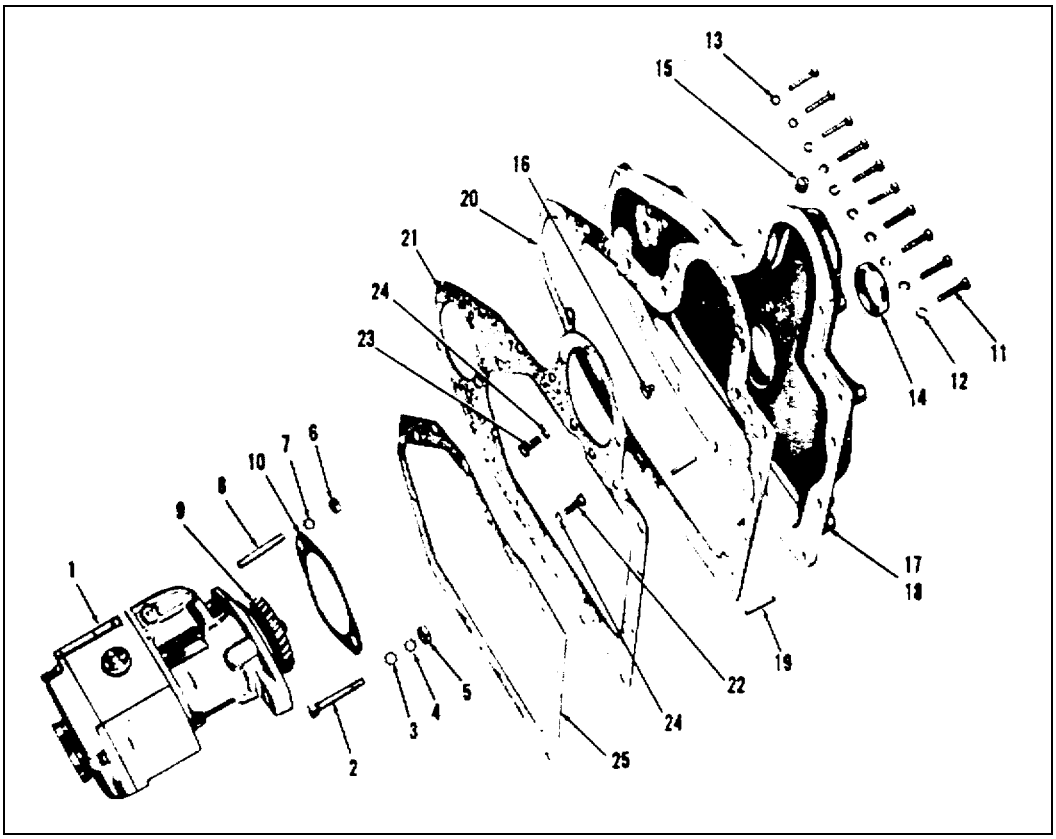


Figure A-24. Magneto and Gear Cover Group

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				MAGNETO AND GEAR COVER GROUP	
A-24				MAGNETO AND GEAR COVER GROUP (See figure A-11-8)	REF
A-24	-1			MAGNETO (21387) (FM-XZE4B7) (See figure A-32)	1
				(ATTACHING PARTS)	
A-24	-2			SCREW, Cap (66289) (XD-33)	1
A-24	-3			WASHER, Lock (66289) (PE-80)	1
A-24	-4			WASHER, Lock (66289) (PE-56-A)	1
A-24	-5			NUT, Hexagon (66289) (PD-79)	1
A-24	-6			NUT, Hexagon (66289) (PD-11)	1
A-24	-7			WASHER, Lock (66289) (PE-56-A)	1
A-24	-8			STUD (66289) (PC-429)	1
				- - - * - - -	
A-24	-9			GEAR, Magneto (66289) (GD-103-1)	1
A-24	-10			GASKET (66289) (QD-616)	1
A-24				GEAR COVER ASSEMBLY (66289) (BD-101-1-S1)	1
				(ATTACHING PARTS)	
A-24	-11			SCREW, Cap (66289) (XD-19)	10
A-24	-12			WASHER, Lock (66289) (PE-46-A)	2
A-24	-13			WASHER, Lock (COML)	8
				- - - * - - -	
A-24	-14			SEAL, Oil (66289) (PH-269)	1
A-24	-15			PLUG, Pipe (66289) (XK-3)	1
A-24	-16			BUTTON (66289) (PF-52)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				MAGNETO AND GEAR COVER GROUP (CONT)	
A-24	-17			PLUG (66289) (SA-10)	1
A-24	-18			COVER (66289) (BD-101-1)	1
A-24				BUTTON, Plunger (66289) (PF-52)	1
A-24	-19			PIN (66289) (PA-291)	2
A-24	-20			GASKET (66289) (QD-634)	1
A-24	-21			SPACER (66289) (WE-243)	1
				(ATTACHING PARTS	
A-24	-22			SCREW, Cap (66289) (XD-17)	1
A-24				NUT, Hexagon (66289) (PD-78)	1
A-24	-23			SCREW, Cap (66289) (XD-15)	8
A-24	-24			WASHER, Lock (66289) (PE-4)	7
				- - - * - - -	
A-24	-25			GASKET (66289) (QD-633)	1

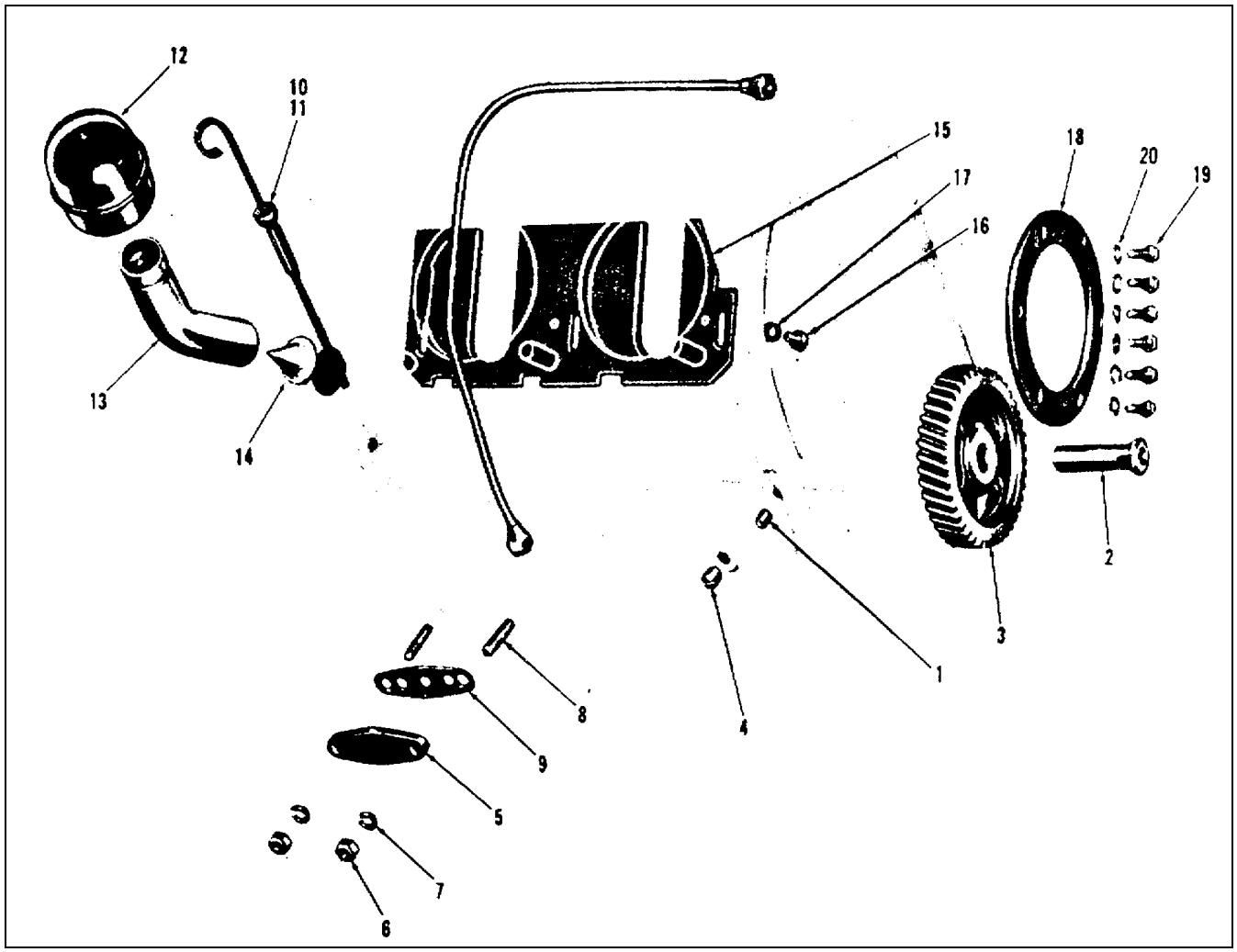


Figure A-25. Idler Gear and Oil Filler Group

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				IDLER GEAR AND OIL FILLER GROUP	
A-25				IDLER GEAR AND OIL FILLER GROUP (See figure A-11-9)	REF
A-25	-1			SETSCREW (66289) (XE-55)	1
A-25	-2			STUD (66289) (PJ-105)	1
A-25	-3			GEAR, Idler (66289) (GC-28)	1
A-25	-4			PLUG, Pipe (66289) (PF-18)	5
A-25	-5			PLATE, Cover (66289) (SA-65-C)	1
				(ATTACHING PARTS)	
A-25	-6			NUT, Hexagon (66289) (PD-10)	2
A-25	-7			WASHER, Lock (66289) (PE-4)	2
A-25	-8			STUD (66289) (PC-112)	2
				- - - * - - -	
A-25	-9			GASKET (66289) (QD-595-A)	1
A-25	-10			GAGE ROD (66289) (RJ-159-A)	1
A-25	-11			WASHER, Felt (66289) (PH-550)	1
A-25	-12			CAP, Breather (66289) (L0-60-1)	1
A-25	-13			TUBE, Oil filler (66289) (LJ-300-M)	1
A-25	-14			SCREEN, Oil filler (66289) (RC-91)	1
A-25				PLUG, Pipe (66289) (PF-18)	3
A-25	-15			SPLASH PLATE (66289) (RK-181)	2
				(ATTACHING PARTS)	
A-25	-16			SCREW, Cap (66289) (XA-34)	6
A-25	-17			WASHER, Lock (66289) (PE-3)	6
				- - - * - - -	
A-25	-18			PLATE, Bearing retainer (66289) (BG-223)	1
				(ATTACHING PARTS)	
A-25	-19			SCREW, Cap (66289) (XD-17)	6
A-25	-20			WASHER, Lock (68289) (PE-4)	6
				- - - * - - -	
				OIL PUMP ASSEMBLY	
A-26				OIL PUMP ASSEMBLY (66289) (K-95-L) (See figure A-11-10)	REF
A-26	-1			SETSCREW (66289) (P1.143-B)	1
A-26	-2			NUT, Self-locking (66289) (PD-195)	1
A-26	-3			GEAR, Oil pump (66289) (GD-94-C)	1
A-26				COVER ASSEMBLY (66289) (KB-42-52)	1
				(ATTACHING PARTS)	
A-25	-4			SCREW, Machine (66289) (XA-8)	4
A-26	-5			SCREW, Machine (66289) (XA-56)	2
A-26	-6			WASHER, Lock (66289) (PE-14)	6
				- - - * - - -	

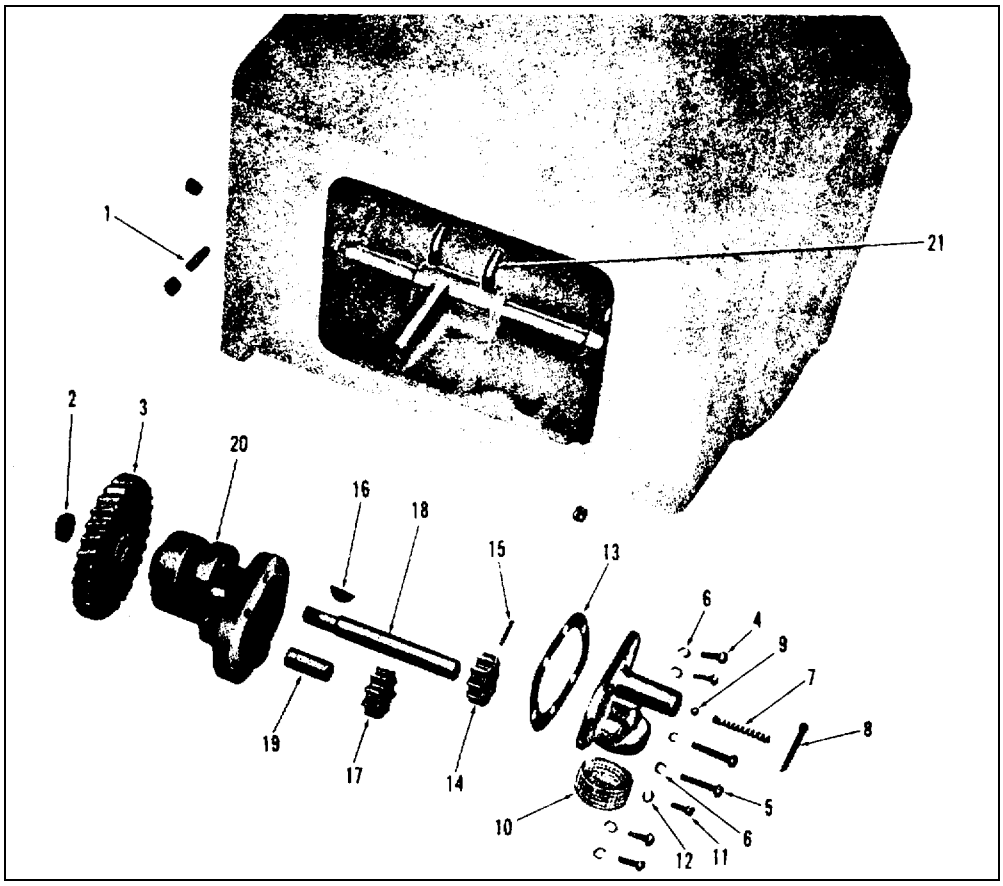


Figure A-26. Oil Pump Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				OIL PUMP ASSEMBLY (CONT)	
A-26	-7			SPRING (66289) (PM-111)	1
				(ATTACHING PARTS)	
A-26	-8			PIN, Cotter (66289) (X1-16)	1
				- - - * - - -	
A-26	-9			BALL, Check (66289) (ME-60)	1
A-26	-10			SCREEN (66289) (RD-112)	1
				(ATTACHING PARTS	
A-26	-11			SCREW, Machine (66289) (XA-7)	1
A-26	-12			WASHER, Lock (66289) (PE-14)	1
				- - - * - - -	
A-26	-13			GASKET (66289) (QD-535-A)	1
A-26	-14			GEAR (66289) (KC-56-A)	1
				(ATTACHING PARTS)	
A-26	-15			PIN, Straight (66289) (PA-64)	1
				- - - * - - -	
A-26	-16			KEY, Woodruff (66289) (PL-137)	1
A-26	-17			GEAR (66289) (KC-56-A)	1
A-26	-18			SHAFT (66289) (KD-121-S1)	1
A-26	-19			SHAFT, Stub (66289) (KD-122-A)	1
A-26	-20			BODY (66289) (KA-61-C0S1)	1
A-26	-21			NOZZLE, Oil (66289) (RF-1121)	4

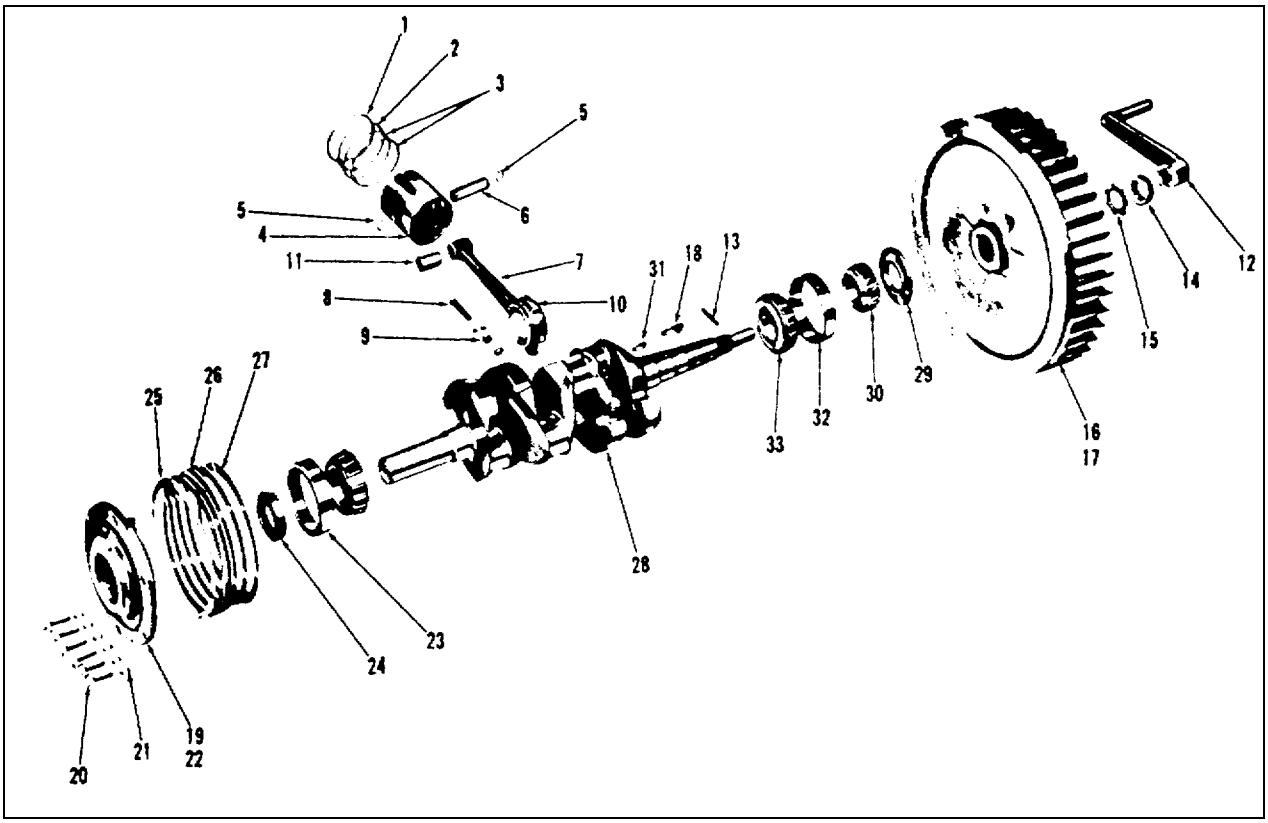


Figure A-27. Crankshaft, Piston, and Connecting Rod Group

ILLUST		SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
FIG NO	ITEM NO				
CRANKSHAFT, PISTON, AND CONNECTING ROD GROUP					
A-27				CRANKSHAFT, PISTON, AND CONNECTING ROD GROUP (See figure A-11-11)	REF
A-27				PISTON RING SET (66289) (DR-25) (Standard size)	1
A-27				PISTON RING SET (66289) (DR-25-S20) (0.020 IN. oversize)	1
A-27				PISTON RING SET (66289) (DC-25-S40) (0.040) IN. oversize)	1
A-27	-1			RING, Compression (96906) (MS-13933-7) (Standard size, NO. 1 groove)	4
A-27	-1			RING, Compression (96906) (MS-13933-8) (NO. 1 groove)	4
A-27	-1			RING, Compression (96906) (MS-13933-9) (0.040 IN. oversize, NO. 1 groove)	4
A-27	-2			RING, Compression (96906) (MS-13932-7) (Standard size, NO. 2 groove)	4
A-27	-2			RING, Compression (96906) (MS-13932-8) (0.020 IN. oversize, NO. 2 groove)	4
A-27	-2			RING, Compression (96906) (MS-13932-9) (0.040 IN. oversize, NO. 2 groove)	4
A-27	-3			RING, Oil (96906) (MS-13931-10) (Standard size)	8
A-27	-3			RING, Oil (96906) (MS-13931-11) (0.020 IN. oversize)	8
A-27	-3			RING, Oil (96906) (MS-13931-12) (0.040 IN. oversize)	8
A-27	-4			PISTON ASSEMBLY (96906) (MS-13957-1)	4

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CRANKSHAFT, PISTON, AND CONNECTING ROD GROUP	
A-27	-4			PISTON ASSEMBLY (96906) (MS-13957) (0.020 IN. oversize)	4
A-27	-4			PISTON ASSEMBLY (96906) (MS-13957) (0.040 IN. oversize)	4
A-27	-5			RING, Retaining (96906) (MS-13962-1)	8
A-27	-6			PIN, Piston (96906) (MS-13996-2)	4
A-27	-7			CONNECTING ROD ASSEMBLY (66289) (DA-66A-4-S1)	4
A-27				ROD BOLT ASSEMBLY (66289) (PB-146-1-S1)	8
A-27	-8			BOLT (66289) (PB-146-1)	8
A-27	-9			NUT (66289) (PD-24)	8
A-27	-10			BEARING, Sleeve (96906) (MS-13993-1)	8
A-27	-11			BUSHING, Pin (96906) (MS-13963-1)	4
A-27	-12			CRANK, Straight (66289) (U-230-B)	1
A-27	-13			PIN, Straight (66289) (PA-334)	1
A-27				FLYWHEEL ASSEMBLY (66289) (NC-146C-2-S1)	1
				(ATTACHING PARTS)	
A-27	-14			NUT (66289) (PD-157)	1
A-27	-15			WASHER, Lock (66289) (PE-65-1)	1
				- - - * - - -	
A-27	-16			FLYWHEEL (66289) (NC-146C-2)	1
A-27	-17			GEAR, Ring (66289) (GH-43)	1
A-27	-18			KEY, Woodruff (66289) (PL-24)	1
A-27	-19			MAIN BEARING PLATE ASSEMBLY (66289) (BG-193A-S2)	1
				(ATTACHING PARTS)	
A-27	-20			SCREW, Cap (66289) (XD-29)	6
A-27	-21			WASHER, Lock (66289) (PE-5-A)	6
				- - - * - - -	
A-27	-22			PLATE, Bearing (66289) (BG-193-A)	1
A-27	-23			CUP, Bearing (66289) (ME-98-1)	1
A-27	-24			SEAL, Oil (66289) (PH-202)	1
A-27	-25			GASKET (66289) (QD-636-A)	3
A-27	-26			SHIM (66289) (QF-67-C)	1
A-27	-27			GASKET (66289) (QD-636-B)	3
A-27	-28			CRANKSHAFT ASSEMBLY (66289) (CA-69-E-4-S1)	1
A-27	-29			SLING, Oil (66289) (RK-173)	1
A-27	-30			GEAR, Crankshaft (66289) (GA-35A-1)	1
A-27	-31			KEY, Woodruff (66289) (PL-49)	1
A-27				SEAL, Plain encased	1
A-27				MAIN BEARING ASSEMBLY (66289) (ME-98)	2
A-27	-32			CUP (66289) (ME-98-1)	2
A-27	-33			CONE (66289) (ME-98-2)	2
				CAMSHAFT, SAFETY SWITCH, AND FUEL PUMP MOUNTING GROUP	
A-28				CAMSHAFT, SAFETY SWITCH, AND FUEL PUMP MOUNTING GROUP (See figure A-11-12)	REF
A-28	-1			PLUNGER, Camshaft (66289) (PF-101)	1
A-28	-2			SPRING (66289) (PM-108)	1
A-28	-3			GEAR, Camshaft (66289) (GB-46)	1
				(ATTACHING PARTS)	
A-28	-4			SCREW, Cap (66289) (XD-17)	3
A-28	-5			WASHER, Lock (66289) (PE-46)	3
				- - - * - - -	
A-28	-6			CAMSHAFT (66289) (EA-112)	1
A-28				HIGH TEMP SWITCH KIT (66289) (YC-66-D-S1)	1
A-28	-7			WIRE ASSEMBLY (66289) (YL-357-42)	1
A-28	-8			GROMMET (66289) (PH-377-B)	1

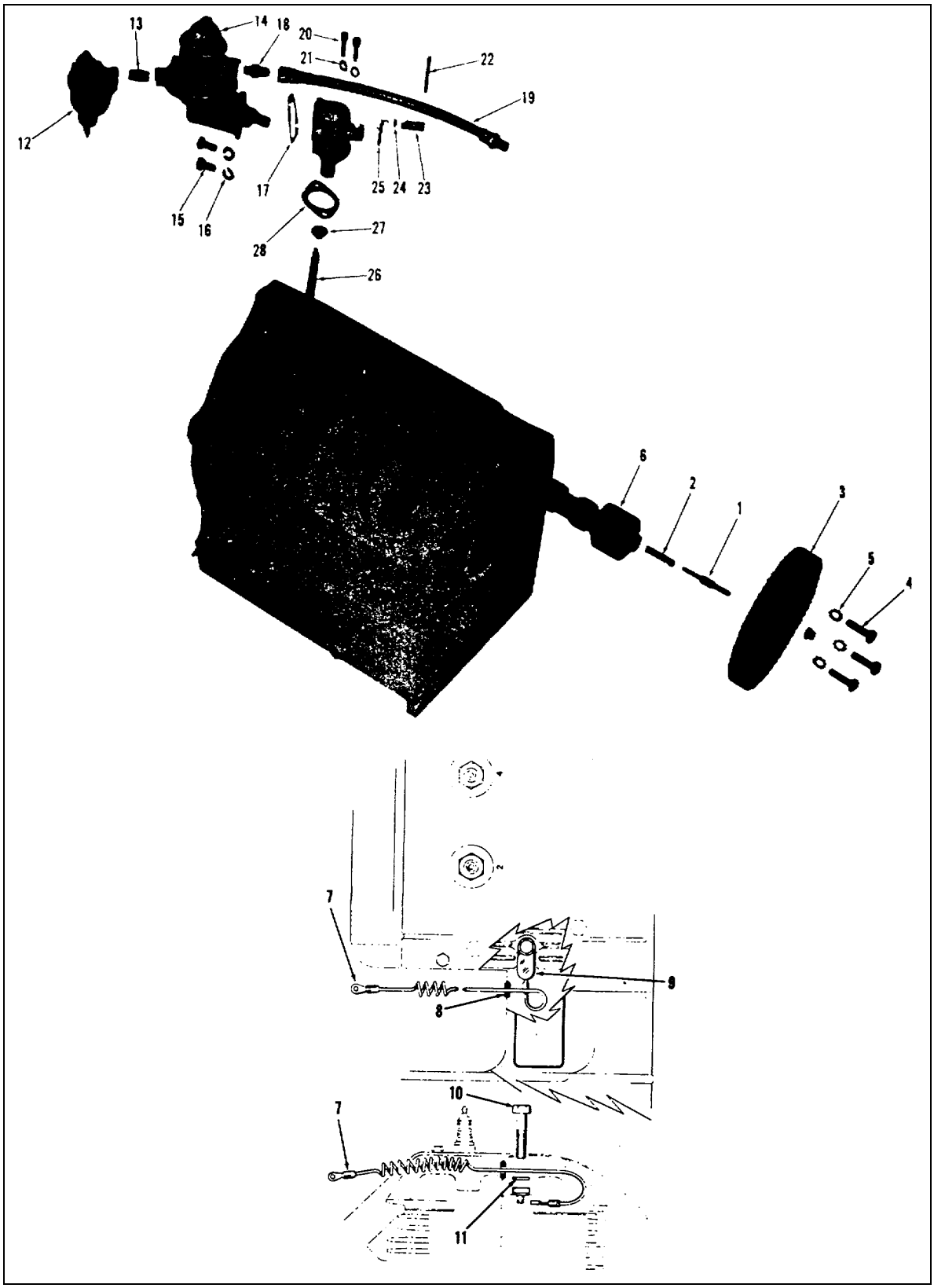


Figure A-28. Camshaft, Safety Switch, and Fuel Pump Mounting Group

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CAMSHAFT, SAFETY SWITCH, AND FUEL PUMP MOUNTING GROUP (CONT)	
A-28	-9			SWITCH, TEMP safety (66289) (YC-66-D)	1
A-28	-10			SCREW, Cap (66289) (XD-32)	1
A-28	-11			WASHER, Flat (66289) (PH-22)	1
A-28	-12			FUEL STRAINER ASSEMBLY (96906) (MS-51086)	1
A-28				SCREEN, Filter (78480) (OW-352)	1
A-28				BOWL, Glass (78480) (OW-363)	1
A-28				WIRE AND NUT ASSEMBLY (78480) (OW-447)	1
A-28				GASKET (78480) (06096)	2
A-28	-13			NIPPLE (66289) (RF-794)	2
A-28				ELBOW, Street (66289) (RF-996)	1
A-28	-14			PUMP, Fuel (66289) (LP-38-C) (ATTACHING PARTS)	1
A-28	-15			SCREW, Cap (66289) (XD-15)	2
A-28	-16			WASHER, Lock (66289) (PE-4)	2
				- - - * - - -	
A-28	-17			GASKET (66289) (QD-538-A)	1
A-28	-18			CONNECTOR, Fluid, pump (66289) (RF-269)	2
A-28	-19			HOSE, Fuel (66289) (RM-1319-L)	1
A-28				ADAPTER AND PRIMER ASSY (66289) (TF-96-4) (ATTACHING PARTS)	1
A-28	-20			SCREW, Cap (66289) (XD-6)	2
A-28	-21			WASHER, Lock (66289) (PE-3)	2
				- - - * - - -	
A-28	-22			HANDLE (66289) (TA-115)	1
A-28	-23			SHAFT, STR (66289) (TA-114-S1)	1
A-28	-24			PACKING, Preformed (66289) (JK-50)	1
A-28	-25			SPRING (66289) (PM-145)	1
A-28	-26			PLUNGER (66289) (TA-111-A)	1
A-28	-27			CAP (66289) (TA-116)	1
A-28	-28			GASKET (66289) (QD-67)	1
A-28				TEE, Pipe (66289) (XK-63-2)	1
A-28				FUEL PUMP REPAIR KIT (66289) (LQ-30-A)	1
A-28				GASKET KIT (66289) (Q-18-B)	1
A-28				VALVE GRINDING GASKET KIT (66289) (Q-27)	1
				HUB AND DRUM ASSEMBLY	
A-29				HUB AND DRUM ASSEMBLY (95026) (11-606) (See figure A-12-12)	REF
A-29	-1			CAP, Grease (95026) (15-1001)	2
A-29	-2			SEAL, Grease (95026) (14-1000)	2
A-29	-3			BEARING, Roller, thrust (60038) (15123)	2
A-29	-4			BEARING, Roller, thrust (60038) (24780)	2
A-29	-5			NUT, Hexagon (95026) (5X104CA)	10
A-29	-6			WASHER, Lock (95026) (12X266CA)	10
A-29				HUB AND DRUM SUBASSEMBLY (95026) (13-606)	2
A-29	-7			CUP, Bearing (60038) (15245)	2
A-29	-8			CUP, Bearing (60038) (24720)	2
A-29	-9			STUD (95026) (16-806)	10
A-29	-10			BRAKE DRUM (95026) (4-8107)	2
A-29	-11			NUB (95026) (606)	2

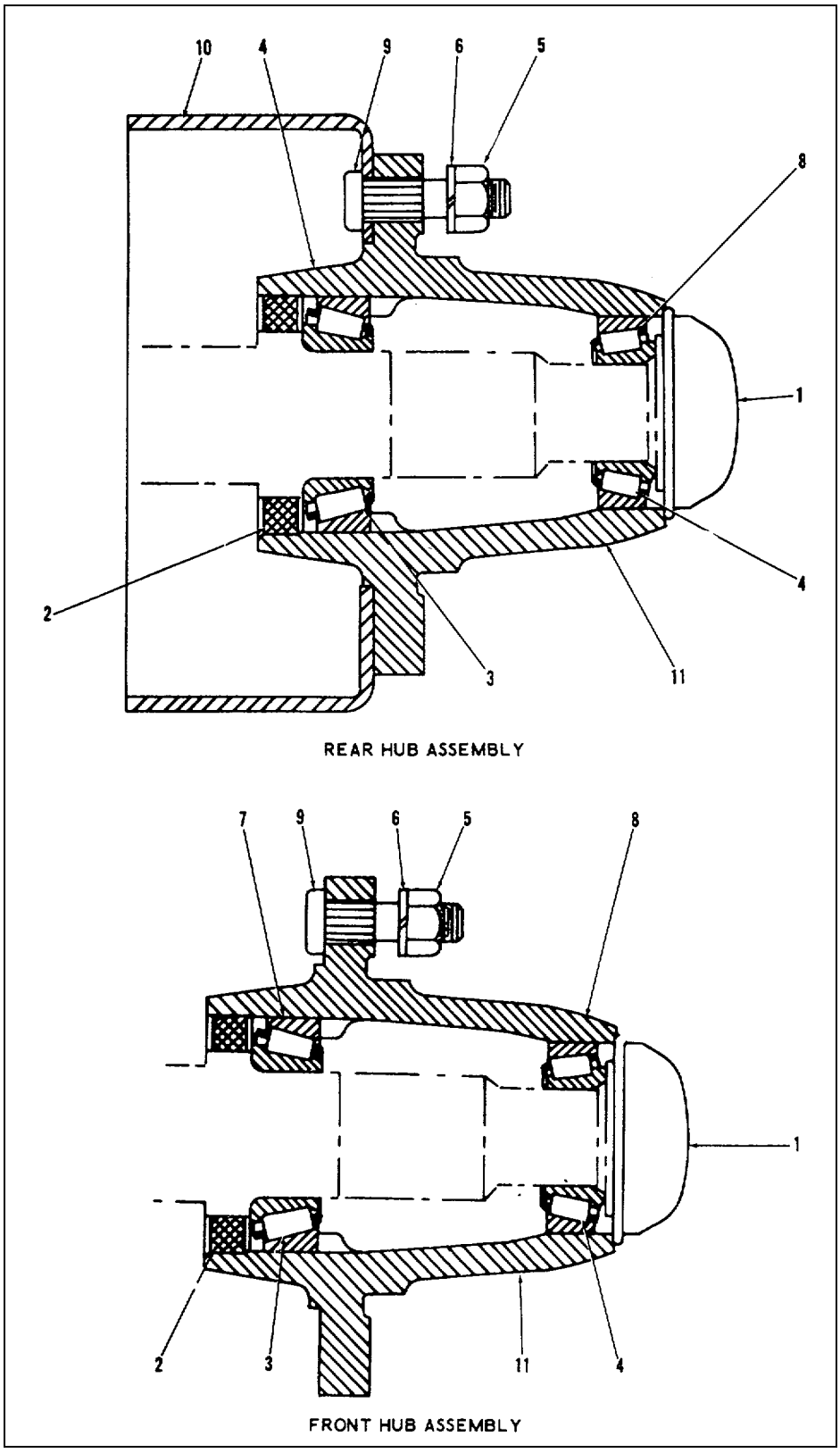


Figure A-29. Hub and Drum Assembly

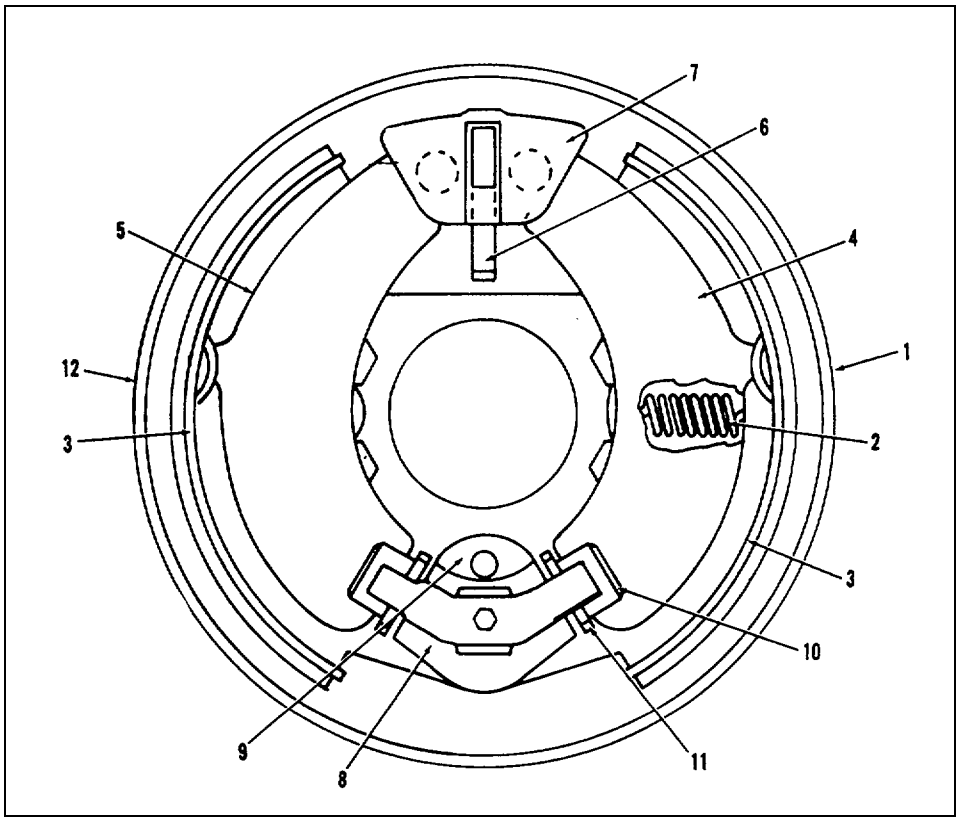


Figure A-30. Brake Assembly

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				BRAKE ASSEMBLY	
A-30				BRAKE ASSEMBLY (95026) (2-8104) (See figure A-12-13)	REF
A-30	-1			BRAKE ASSEMBLY (02397) (DM-7-6)	2
				(ATTACHING PARTS)	
A-30				BOLT (COML) (3/8-24 NF x 15/16)	8
A-30				WASHER, Lock (96906) (MS35337-46)	8
A-30				NUT (96906) (MS35690-622)	8
				- - - * - - -	
A-30	-2			SPRING (95026) (8104-10)	4
A-30	-3			SHOE AND LINING ASSEMBLY (95026) (8104-11)	4
A-30	-4			LEVER (95026) (8104-17)	2
A-30	-5			LEVER (95026) (8104-18)	2
A-30	-6			LEVER, Control (95026) (8104-14)	2
A-30	-7			WEDGE ASSEMBLY (95026) (8104-13)	2
A-30	-8			SPRING (95026) (8104-9)	2
A-30	-9			COVER, Dust (95026) (8104-15)	4
A-30	-10			PIN, Adjustment (95026) (8104-12)	4
A-30	-11			BOLT, Adjustment (95026) (8104-16)	4
A-30	-12			BACKING PLATE ASSEMBLY (95026) (8104-19)	2

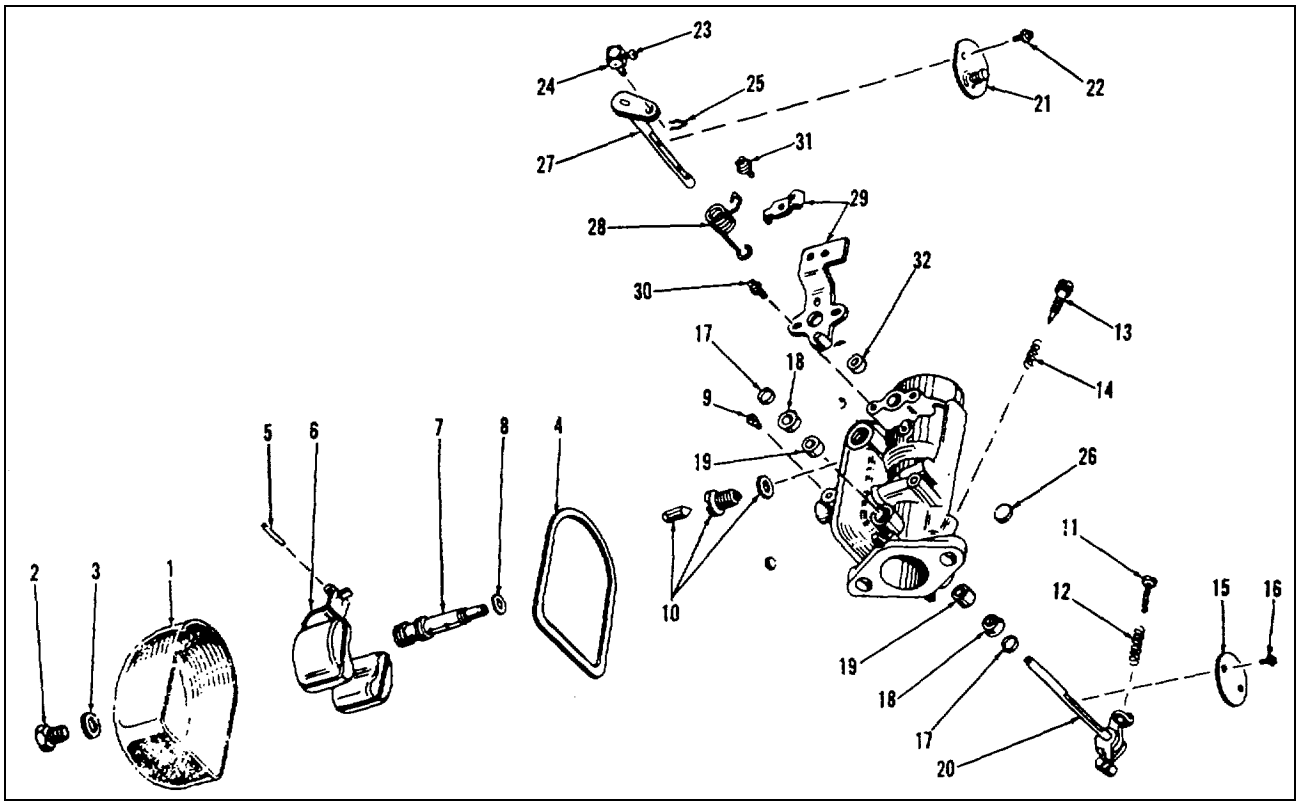


Figure A-31. Carburetor

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CARBURETOR	
A-31				CARBURETOR (96152) (VH-69) (See figure A-19-9)	REF
A-31	-1			BOWL, Fuel (96152) (65-172)	1
				(ATTACHING PARTS)	
A-31	-2			PLUG, Retaining (96152) (80-166)	1
A-31	-3			GASKET (96152) (16-4)	2
				- - - * - - -	
A-31	-4			GASKET (96152) (16-A105)	1
A-31	-5			SHAFT, Lever (96152) (32-27)	1
A-31	-6			FLOAT AND LEVER ASSEMBLY (96152) (30-666)	1
A-31	-7			NOZZLE, Main (96152) (47-395)	1
A-31	-8			GASKET (96152) (16-456)	1
A-31	-9			HET, Power (96152) (49-253)	1
A-31	-10			FLOAT VALVE ASSEMBLY (96152) (33-536)	1
A-31	-11			SCREW, Machine (96152) (15-42)	1
A-31	-12			SPRING (96152) (24-262)	1
A-31	-13			NEEDLE, Adjusting (96152) (43-129)	1
A-31	-14			SPRING (96152) (24-485)	1
A-31	-15			FLY, Throttle (96152) (14-214)	1
				(ATTACHING PARTS)	
A-31	-16			SCREW (96152) (15-A46)	2
				- - - * - - -	
A-31	-17			RETAINER (96152) (55-231)	2
A-31	-18			PACKING (96152) (44-63)	2

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				CARBURETOR (CONT)	
A-31	-19			BUSHING, Sleeve (96152) (60-439)	2
A-31	-20			THROTTLE SHAFT ASSEMBLY (96152) (13-956)	1
A-31	-21			CHOKE FLY ASSEMBLY (96152) (27-559)	1
				(ATTACHING PARTS)	
A-31	-22			SCREW (96152) (15-285)	2
				- - - * - - -	
A-31	-23			SCREW, Machine (96152) (15-285)	1
A-31	-24			SWIVEL, Choke (96152) (28-49)	1
				(ATTACHING PARTS)	
A-31	-25			PIN, Cotter (96152) (60-439)	1
				- - - * - - -	
A-31	-26			CUP (96152) (55-230)	1
A-31	-27			CHOKE SHAFT ASSY (96152) (26-720)	1
A-31	-28			SPRING (96152) (24-213)	1
A-31	-29			CHOKE BRACKET ASSY (96152) (29-537)	1
				(ATTACHING PARTS)	
A-31	-30			SCREW, Machine (96152) (15-A93)	1
A-31	-31			SCREW (96152) (15-A99)	1
				- - - * - - -	
A-31	-32			PACKING (96152) (44-38)	1
				MAGNETO	
A-32				MAGNETO (21387) (FM-XZE4B7) (See figure A-24-1)	REF
A-32	-1			LEAD (21387) (F983B)	1
A-32	-2			INSULATOR, Suppressor (21387) (D1182)	1
A-32	-3			COVER, Vent (21387) (A1232)	2
				(ATTACHING PARTS)	
A-32				SCREW (21387) (6S6N)	2
				- - - * - - -	
A-32	-4			WOOL, Copper (21387) (A1233)	4
A-32	-5			GUIDE, Strip (21387) (B1355)	1
A-32	-6			RING, Retaining (21387) (D1498)	1
A-32	-7			RING, Retaining (21387) (G1498)	1
A-32	-8			RING, Retaining (21387) (G1498G)	1
A-32	-9			RING, Retaining (21387) (B1498B)	1
A-32	-10			RING, Retaining (21387) (B1498D)	1
A-32	-11			HOUSING (21387) (WW2425)	1
A-32	-12			END CAP ASSEMBLY (21387) (LY2430A)	1
				(ATTACHING PARTS)	
A-32				SCREW (21387) (10S10D)	2
A-32				SCREW (21387) (10S18D)	2
				- - - * - - -	
A-32	-13			CONDENSER (21387) (MX2433)	1
				(ATTACHING PARTS)	
A-32				SCREW (21387) (6S6D)	2
A-32	-14			BREAKER ARM ASSY (21387) (A2437AX)	1
				(ATTACHING PARTS)	
A-32				SCREW, Assembled washer (21387) (6S6Z)	1
A-32				SCREW, Assembled washer (21387) (6S6U)	1
				- - - * - - -	
A-32	-15			INSULATOR, Bushing (21387) (G2457A)	1
A-32	-16			WASHER, Flat (21387) (D2458)	2
A-32	-17			BRUSH AND SPRING ASSY (21387) (E2460B)	1
A-32	-18			PACKING, Preformed (21387) (H2473)	1
A-32	-19			BLOCK, Distributor (21387) (L2474E)	1
				(ATTACHING PARTS)	
A-32				SCREW (21387) (8S8D)	4
				- - - * - - -	

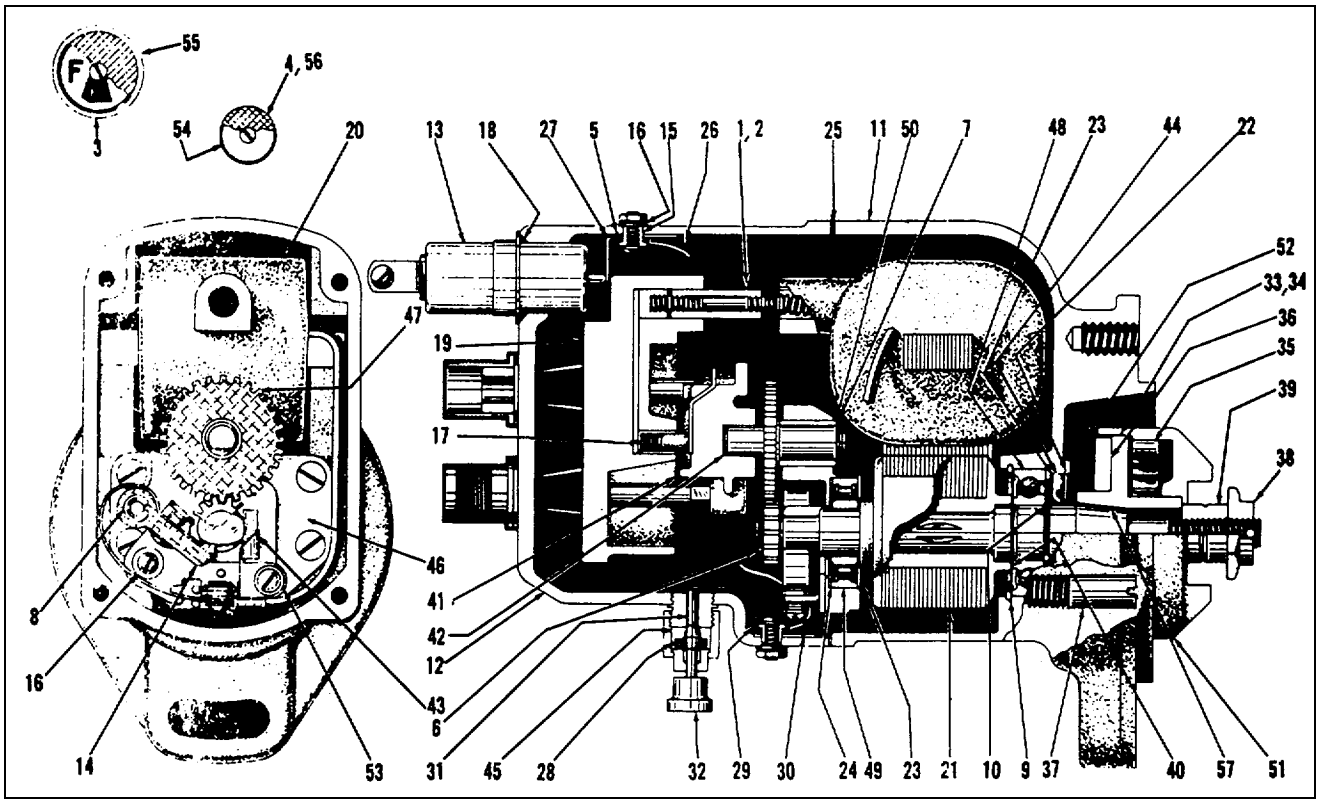


Figure A-32. Magneto

ILLUST		SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
FIG NO	ITEM NO				
				MAGNETO (CONT)	
A-32	-20			COIL (21387) (RS2477C)	1
				(ATTACHING PARTS	
A-32				SETSCREW (21387) (31SS14A)	2
				- - - * - - -	
A-32	-21			ROTOR (21387) (TS2480)	1
A-32	-22			WASHER (21387) (A2492A)	1
A-32	-23			WASHER (21387) (A2492C)	2
A-32	-24			WASHER (21387) (E2493)	1
A-32	-25			GASKET (21387) (K2498)	1
A-32	-26			WIRE ASSEMBLY (21387) (K2499A)	1
A-32	-27			CONTACT (21387) (K2513)	1
A-32	-28			SPRING (21387) (E2513A)	1
A-32	-29			STRIP, Terminal (21387) (H2514)	1
				(ATTACHING PARTS)	
A-32				SCREW (21387) (6S8N)	2
A-32				WASHER, Lock (21387) (6LW1)	2
A-32				SCREW-NUT (21387) (6N1)	2
				- - - * - - -	
A-32	-30			SUPPORT (21387) (W2514)	1
A-32	-31			PLUNGER AND BUTTON ASSY (21387) (HW2514)	1
A-32	-32			SWITCH ASSY (21387) (LX2514C)	1
A-32	-33			HUB ASSEMBLY (21387) (CZ2563)	1
A-32	-34			COUPLING, Impulse (21387) (BW2563C)	1

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				MAGNETO (CONT)	
A-32	-35			SPRING (21387) (E2565)	1
A-33	-36			PAWL (21387) (Q2566)	2
				(ATTACHING PARTS)	
A-32				RIG, Retaining (21387) (29-45)	2
				- - - * - - -	
A-32	-37			PIN (21387) (S2568)	1
A-32	-38			NUT (21387) (M2570)	1
A-32	-39			BUSHING (21387) (F2572)	1
A-32	-40			SHIM (21387) (C2723)	2
A-32	-41			ROTOR (82796) (X2765X)	1
A-32	-42			CLIP, Spring (21387) (A2766)	1
A-32	-43			WICK AND HOLDER (21387) (G2788)	1
A-32	-44			SEAL, Drive (21387) (G3861)	1
A-32	-45			SPACER (21387) (F4373)	1
A-32	-46			SUPPORT, Bearing (21387) (UX4631)	1
				(ATTACHING PARTS)	
A-32				SCREW (21387) (8S6G)	4
				- - - * - - -	
A-32	-47			DISTRIBUTOR GEAR ASSY (21387) (Q5939)	1
A-32	-48			BEARING, Rotor drive (21387) (C5949)	1
A-32	-49			BEARING, Rotor cam (21387) (D5949A)	1
A-32	-50			BEARING, Distr (21387) (D5950C)	1
A-32				GEAR, Rotor (21387) (Q5852)	1
A-32	-51			SHELL (21387) (Y5957)	1
A-32	-52			SPRING (21387) (S5963)	2
A-32	-53			WASHER (21387) (B5969)	1
A-32	-54			COVER, Vent (21387) (B6030A)	2
				(ATTACHING PARTS)	
A-32				SCREW (21387) (6S4L)	2
				- - - * - - -	
A-32	-55			SCREEN, Cover (21387) (A6032A)	2
A-32	-56			SCREEN, Cover (21387) (C6032B)	2
A-32	-57			KEY (21387) (3K1)	1
A-32				MAGNETO SERVICE KIT (21387) (SK90)	1

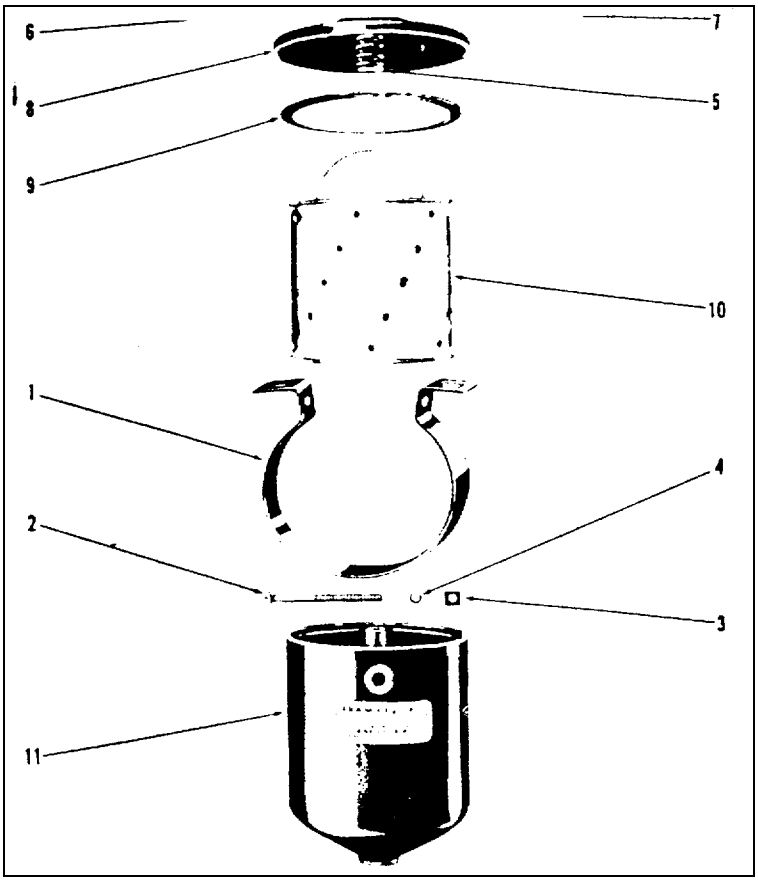


Figure A-33. Oil Filter

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				OIL FILTER	
A-33				FILTER, Oil (73370) (F21-P) (See 39, figure A-3)	REF
A-33	-1			STRAP (73370) (102153)	2
				(ATTACHING PARTS)	
A-33	-2			SCREW, Machine (88044) (AN515-416-48)	1
A-33	-3			NUT, Plain, square, CAD. PL steel, 1/4-20)	1
A-33	-4			WASHER, Lock (88044) (AN935-416)	1
				- - - * - - -	
A-33				COVER ASSY, Oil filter (73370) (5241)	1
A-33	-5			SPRING, Cover (73370) (11583)	1
A-33	-6			SCREW, Cap, hexagon head (73370) (11580)	1
A-33	-7			GASKET (73370) (11581)	1
A-33	-8			COVER, Filter (73370) (11559)	1
A-33	-9			GASKET, Cover (73370) (11582)	1
A-33	-10			CARTRIDGE (73370) (C-21P)	1
A-33				SPACER (73370) (11562)	1
A-33				PLUG, Drain (73370) (11584)	1
A-33	-11			BODY, Filter (73370) (5310)	1

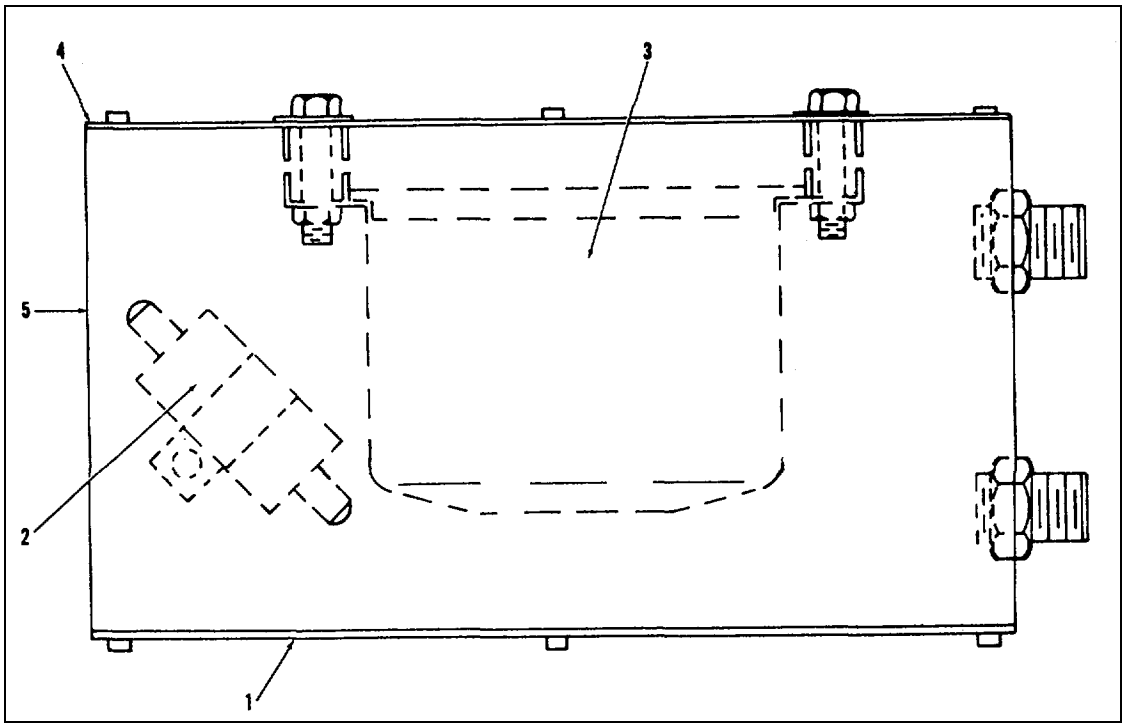


Figure A-34. Voltage Regulator Box

ILLUST FIG NO	ILLUST ITEM NO	SMR CODE	FEDERAL STOCK NUMBER	DESCRIPTION	QTY INC IN UNIT
				VOLTAGE REGULATOR BOX	
A-34				VOLTAGE REGULATOR BOX (26519) (673032) (See 41, figure A-3)	REF
A-34	-1			COVER (26519) (672034)	1
A-34	-2			CAPACITOR, Fixed, 0.5 MFD (56289) (48P18)	3
A-34	-3			REGULATOR, Voltage, 12V, 17AMP (16764) (1119257)	2
				(ATTACHING PARTS)	
A-34				SCREW, Cap hexagon head (96906) (MS35292-36)	4
A-34				NUT, Plain, hexagon (96906) (MS51968-5)	4
A-34				WASHER, Lock (96906) (MS33538-45)	4
				- - - * - - -	
A-34	-4			GASKET (26519) (4143-005)	AR
A-34	-5			CABINET (26519) (673033)	1

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APPENDIX B
MAINTENANCE ALLOCATION CHART

1. Purpose

The purpose of the maintenance allocation chart is to provide all activities with maintenance functions to be performed at each level of maintenance.

2. Definitions

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, Functional group. Column 2 lists the noun names of components, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Column 3, Maintenance functions. Maintenance functions will be limited to and defined as follows:

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

(2) Test. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

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

(4) Adjust. To rectify to the extent necessary to bring into proper operating range.

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

(6) Calibrate. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

(7) Install. To set up for use in an operational environment such as an emplacement, site, or vehicle.

(8) Replace. To replace unserviceable items with serviceable assemblies, subassemblies, or parts.

(9) Repair. To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, reveting, and strengthening.

(10) Overhaul. To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards prepared and published for the specific item to be overhauled.

(11) Rebuild. To restore an item to a standard as nearly as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

(12) Symbols. The symbol, O, F, H, or D placed in the appropriate column indicates the level responsible for performing that particular maintenance function. The symbol "%%" which applies to organizational maintenance indicates that the particular maintenance function may be performed provided it is specifically authorized by the direct support maintenance officer. Use of the symbol will apply only to replacement of major assemblies and time-consuming operations which are within the capabilities of organization but over which control by the commodity commands is considered essential. In no case will the direct support maintenance officer require the accomplishment of a "%%" maintenance function by an organization or unit, and in no case will a "%%" function authorize stockage of parts at organizational level.

d. Column 4, Tools and equipment. This column will be used to specify, by code, those tools and test equipment required to perform the designated function.

e. Column 5, Remarks. Self-explanatory.

3. General

a. A maintenance function assigned to a maintenance level, which for any reason is beyond its capability, becomes the responsibility of the next higher maintenance level.

b. The authority to perform a maintenance function does not constitute authority to requisition or otherwise secure necessary repair parts as specified in current supply directives.

4. Deviations

a. Normally, there will be no deviations from the assigned maintenance level. In cases of operational necessity, a maintenance function assigned to a maintenance level may, on a one-time basis and at the request of the lower maintenance level, be authorized to the lower maintenance level by the maintenance officer of the level to which the function is assigned.

b. The furnishing of special tools, equipments, and the like, required by the lower maintenance level to perform this function, will be the responsibility of the level to which the function is assigned.

5. Additional Information

a. Changes in the maintenance allocation chart will be based on continuing evaluation and analysis by responsible technical personnel and on DA Form 2407 (Maintenance Request) received from field activities.

b. All maintenance prescribed herein will be performed in accordance with applicable publications.

c. In any instance of conflict with current tool and equipment list or current supply manuals, this maintenance allocation chart will be the final authority. Each such instance should be promptly reported by DA Form 2407.

MAINTENANCE ALLOCATION CHART
FOR
Test Stand, A/C Hydraulic Type D5B FSN 4920-882-6401
(AR 310-3)

(1)	(2)	(3) MAINTENANCE FUNCTION											(4)	(5)
GROUP NO	FUNCTIONAL GROUP	INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD	TOOLS AND EQUIPMENT	REMARKS
00	Test Stand, Aircraft, Hyd	O						O			D			
01	Electrical System													
	Battery	O	O	O					O					
	Ign Wire Assy	O	O	O					F	F				
	Generator	O	F	O					F	H				
	Voltage Regulator	O	F		F				F					
	Starter	O	F						F	H				
	Thermo Switch	O			F				F					
	Ammeter	O							F					
	Reservoir Level Ind	O							F					
	Fuel Level Ind	O							F					
02	Hydraulic System													
	Pump	O	F	F					F	H	H			
	Compensator Control	O	F		F									
	Valves	O			F				F	H	H			
	Fluid Reservoir	O		O					F					
	Lines, Tubing, Fitting Hose Assemblies	O												
	Low Pressure Filter Assy	O		O										
	High Pressure Filter Assy	O		O										
	Fluid Flow Indicator						*							
	Press. Gages	O					*		F					
	Temp Gage	O							F					
03	Engine													
	Cylinder Block and Comp.	H							H	H	H			
	Crankcase & Comp.	H		O					H	H	H			
	Governor	O			F				F	H				
	Fuel Pump	O		O					F	H				
	Fan Belt	O		O					O					
	Oil Filter Assy	O		O										
	Magneto	O	O	O	O				F					
	Spark Plugs	O	O	O	O				F					
	Fuel Strainer	O		O					F					
	Air Cleaner	O		O						F				
04	Miscellaneous													
	Fuel Tank	O		O					F	H				
	Tire	O		O					O	O				
	Tube	O		O					O	O				
	Wheels	O							F					

* Refer to TB 750-236 for calibration procedures.

MAINTENANCE ALLOCATION CHART
FOR
Test Stand, A/C Hydraulic Type D5B FSN 4920-882-6401
(AR 310-3)

(1) GROUP NO	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTION											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
04	Miscellaneous (Cont'd)													
	Brake Drum and Hub	O		O					F					
	Brake Assembly	F	F		F				F					
	Axel and Steering Assy	F		O						F				
	Fuel Tank	O							F	H				
	Tire	O							O	O				
	Tube	O		O					O	O				

By Order of the Secretary of the Army:

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