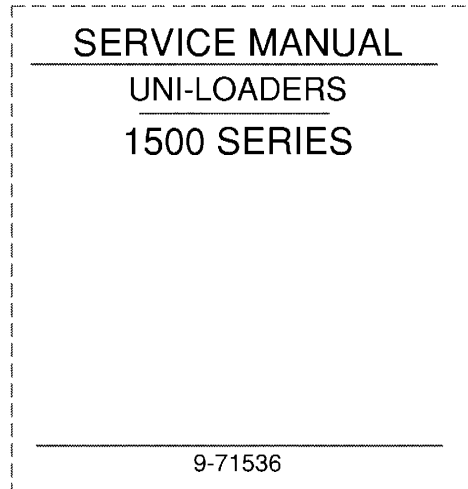


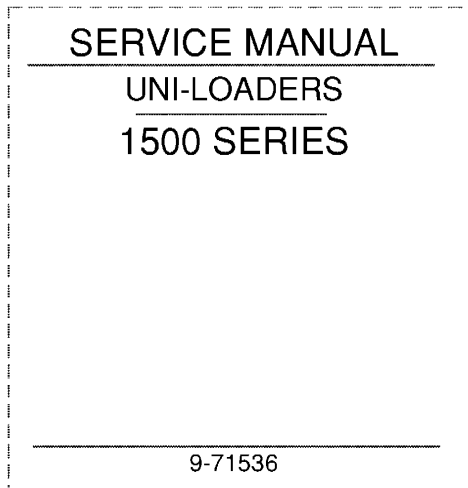
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



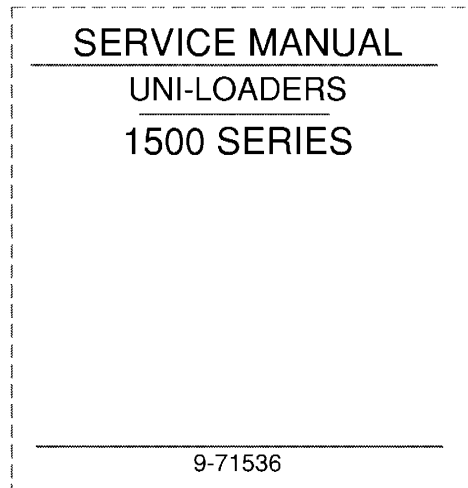
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



# 1500 SERIES UNI-LOADERS

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# **Section 13**

## **MAINTENANCE AND LUBRICATION**

## MAINTENANCE CHART

### Model 1526

INTERVAL	SERVICE	FLUID/LUBRICANT	INSTRUCTIONS
Run-In After First 20 Hours	Change engine oil and clean engine oil filter. Check valve clearance.	See chart, page 4.	See engine manual. See engine manual.
Run-In After First 60 Hours	Change engine oil and clean engine oil filter.	See chart, page 4.	See engine manual.
Every 10 Hours Or Daily	Check engine oil level.		See engine manual.
Every 120 Hours	Change engine oil and clean engine oil filter. Check valve clearance.	See chart, page 4.	See engine manual.
Every 240 Hours	Check generator drive belt tension. Clean fuel filter.		See engine manual. See engine manual.
Every 600 Hours	Clean and test fuel injection. Lubricate starter motor. Check generator operation.	Engine oil.	See engine manual. See engine manual.
Every 1000 Hours	Clean starter motor. Lubricate flywheel ring gear.		See engine manual. See engine manual.
As Required	Clean engine cooling fins.		See engine manual.

### Model 1530 & 1537

Every 10 Hours Or Daily	Check engine oil level.		See engine manual.
Every 50 Hours	Change engine oil. Lubricate distributor.	See chart, page 4. 3 to 5 drops engine oil.	See engine manual.
Every 100 Hours	Change engine oil filter.		See engine manual.
As Required	Clean fuel sediment bowl. Clean engine cooling fins.		See engine manual.
At Engine Or Starter Overhaul	Lubricate starter.	#2 lithium-soap base grease.	See engine manual.

Inspect filter after it is clean and dry. Place a light inside filter and inspect for holes, tears, and dented or bent metal covering. If metal covering is dented or bent, inspect filter paper for holes or rub spots in that area. If holes or rub spots are noted, discard filter and install new filter element.

**NOTE:** Inspect new filter element for defects in the same manner. Do not accept a defective filter.

The filter must be replaced after it has been cleaned six times or once a year, whichever ever occurs first.

### OPTIONAL AIR CLEANER

Filter service consists of replacing the filter element when the red band on the restriction indicator remains in view. In

addition to replacing the filter element, wipe out the filter housing with a damp, lint free cloth and clean the pre-cleaner.

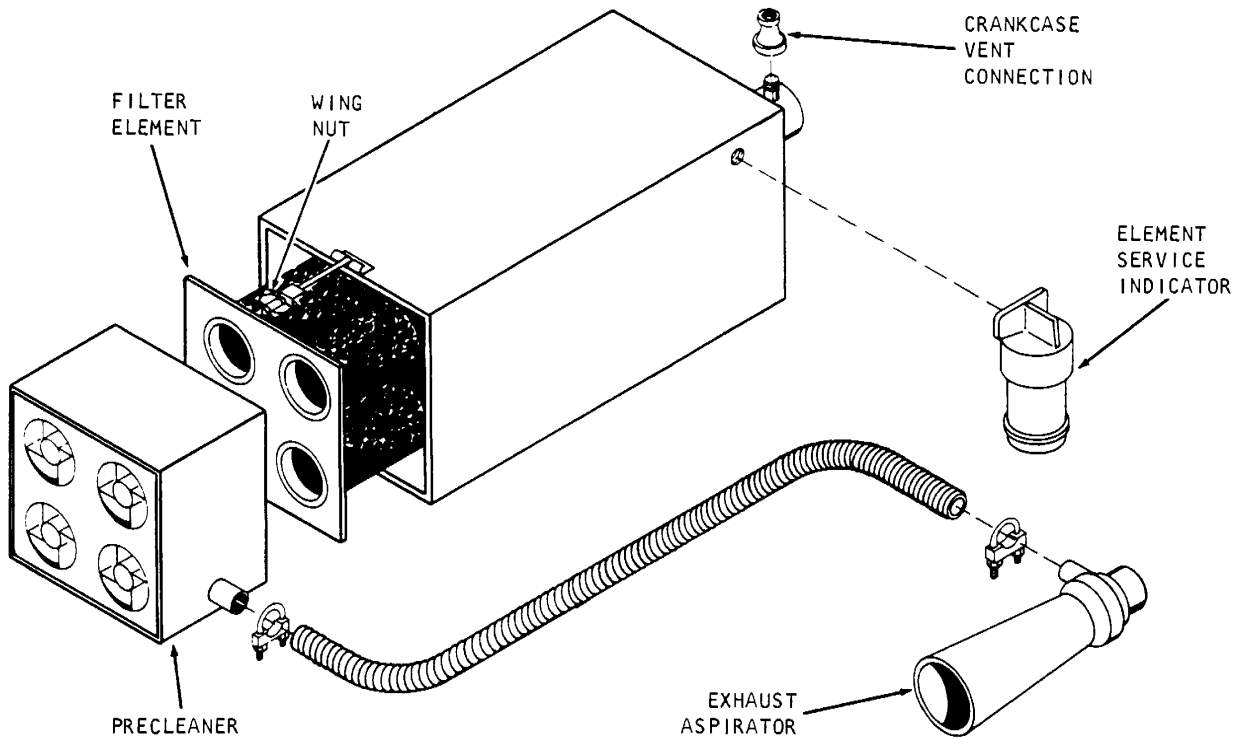


Figure 3 - Exploded View of Air Cleaner





# **Section 24**

**AIR CLEANER**

# STANDARD AIR CLEANER

## Service Interval

The service interval is self determined, taking into consideration working conditions. It is only natural that the filter element be serviced more often when the machine is operated in a dusty or sandy atmosphere. In addition to element service, the dust cup should be cleaned daily or more often as conditions warrant.

## Filter Element Service

The preferred method of cleaning the filter is by washing. Washing the filter results in restoring the filter to an almost new condition and longer intervals between servicing. It is recommended that a spare filter be available to allow sufficient drying time for the serviced filter and to reduce machine downtime.

Wash the filter in Case Filter Element Cleaner (Part No. A40910) according to instructions on container. Rinse thoroughly. Do not use water pressure over 40 psi at

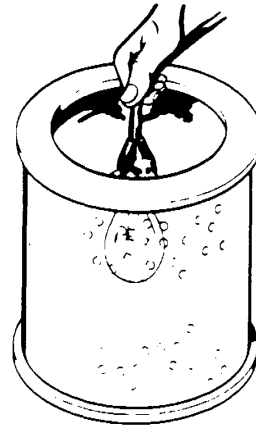


Figure 1 - Inspecting The Element

nozzle. Set filter aside to dry. Do not use compressed air to dry.

Use of compressed air to clean the filter is permissible but not recommended as it does not remove carbon and soot. When using compressed air, use no more than 100 psi at nozzle and keep nozzle a reasonable distance away from filter.

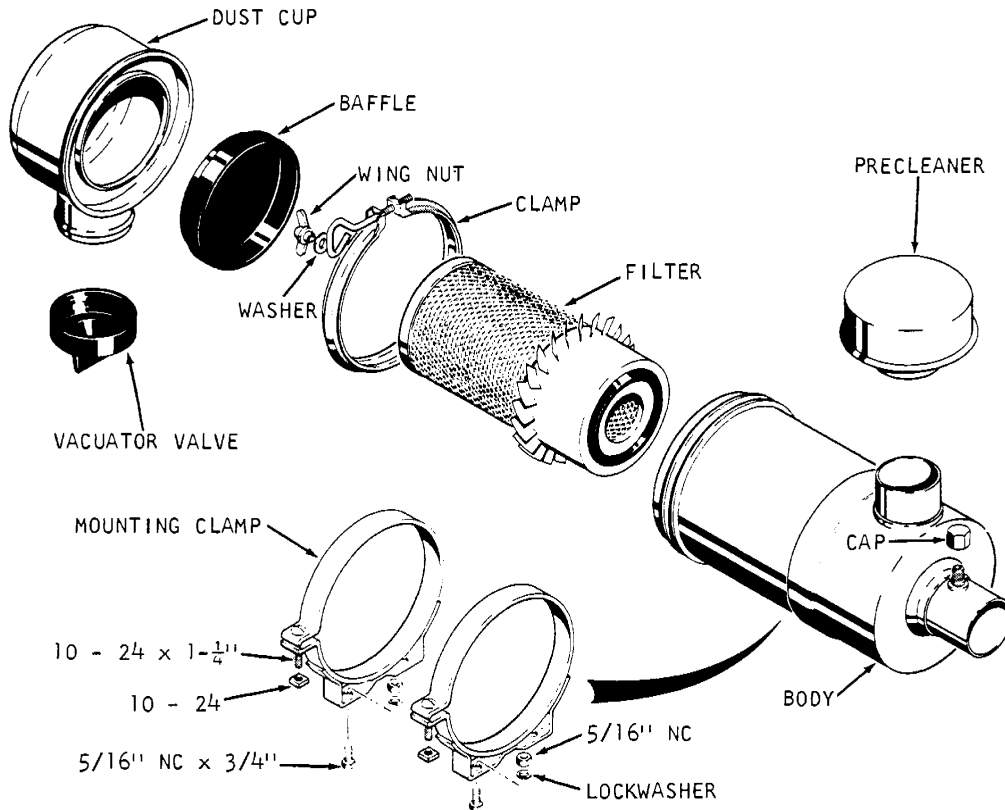


Figure 2 - Exploded View of Air Cleaner

### All Models

INTERVAL	SERVICE	FLUID/LUBRICANT	INSTRUCTIONS
Run-In Every 2 Hours	Check wheel bolt torque until stable. (85-100 ft. lbs.)		
Run-In After First 15 Hours	Replace hydraulic oil filter.		Section 41.
Every 10 Hours Or Daily	Grease the loader pivot points. Clean the air cleaner dust cup.	See chart, page 4.	
Every 20 Hours Hours	Grease variable speed pulleys. (Three strokes each fitting).	See chart, page 4.	
Every 25 Hours Severe Service	Check and adjust drive chains.		Section 61.
Every 50 Hours Normal Service	Check and adjust drive chains.		Section 61.
Every 60 Hours	Check battery electrolyte level. Check hydraulic oil level. Check tire pressure.	Distilled water.	Section 82. Section 41.
Every 120 Hours	Grease drive shaft universals. Check gear box oil level.	See chart, page 4.	Section 61.
Every 500 Hours	Replace or clean electric fuel pump filter. Change hydraulic oil. Replace hydraulic oil filter.	Case TCH Fluid.	Section 34. Section 41. Section 41.
Every 1000 Hours	Clean hydraulic reservoir breather and filler cap. Drain water from fuel tanks.		Section 41.
Every 2000 Hours Or Yearly	Change gear box oil. Replace fuel filter element (LP gas machines only).	See chart, page 4.	Section 61.
As Required	Clean or replace air cleaner element. Replace hydraulic filter. Check wheel bolt torque (85-100 ft. lbs.) Adjust clutches when lever travel exceeds 6" from neutral.		Section 24. Section 41. Section 61.

## LUBRICANT CHART

ITEM	CAPACITIES		RECOMMENDATIONS
	U. S.	METRIC	
Model 1526 Engine crankcase	6-1/4 qts.	6 liters	Use engine oil meeting the following specifications: (Normal conditions) CA Commercial Class A (DG) (MIL-L-2104A, Supp. 1) (Extreme conditions) CB Commercial Class B Above 68° F. . . . . SAE 30 (20° C) 68° F. to -14° F. . . . SAE 20/20W (20° C to -10° C)  <b>NOTE:</b> For continuous full load duty, use SAE 30 oil.
Model 1530 Engine crankcase Without filter change	3-1/2 qts.	3,3 liters	Use engine oil meeting the following specifications:  SD Service Class D (MS)  120° F. to 40° F. . . . . SAE 30 (49° C to 4° C)
With filter change	4 qts.	3,8 liters	
Model 1537 Engine crankcase Without filter change	4-1/2 qts.	4,3 liters	40° F. to 15° F. . . . . SAE 20-20W (4° C to -9° C)  15° F. to 0° F. . . . . SAE 10W (-9° C to -18° C)
With filter change	5 qts.	4,7 liters	Below 0° F. . . . . SAE 5W - 20W (-18° C)
Gear box (all machines)	1-1/2 pts.	0,7 liters	Multipurpose gear lubricant SAE 90 EP--Case Part No. B53983 API-GL-4 with low foaming additive.
Hydraulic reservoir refill capacity	14 gal.	53 liters	Case TCH fluid.
Hydraulic system capacity (approx.)	19 gal.	72 liters	Case TCH fluid.
Fuel tanks (combined) 1526 & 1537 1530	17 gal. 12 gal.	64 liters 45 liters	
Grease fittings	As required.		Above 32° F. (0° C) use Multipurpose or No. 2 lithium-soap base grease.  Below 32° F. (0° C) use Multipurpose or No. 1 lithium-soap base grease.

**NOTE:** Automatic transmission oil Type A Suffix A may be used as an alternate oil for Case TCH Fluid.

# **Section 34**

**ELECTRIC FUEL PUMP**

# ELECTRIC FUEL PUMP

## Description And Operation

**NOTE:** Servicing and parts replacement is limited to the parts shown in Figure 1. If an electrical component fails, the pump must be replaced.

The electric fuel pump is designed with a solenoid which, when energized, causes the movement of a hollow plunger in a cylindrical bore. The plunger stroke is controlled by a set of interrupter type contact points in the pump electrical circuit. The contact points function in a sealed section containing an inert gas for long point life.

Upon energization of the solenoid, the plunger is forced down in the cylinder against the plunger spring which is seated on a closed check valve in the bottom of the bore. A check valve in the plunger opens permitting passage of the trapped fuel through the plunger.

On the opening of the contacts the solenoid is de-energized; the plunger spring returns the plunger to the top of the bore at a fixed rate to provide the required pressure. During the upward movement of the plunger, the check valve in the plunger is closed to move the fuel ahead of it into the fuel system and the check valve in the bottom of the bore is open to permit passage of fuel into the cylinder for the next cycle.

A pulsation dampener in the top of the pump provides steady operation and even pressure. The pump also incorporates a pressure relief system to assure an immediate return to zero fuel pressure when the ignition is turned off.

The filter system is contained in the lower portion of the pump and consists of a filter and magnet.

## Removal

1. Disconnect the inlet and outlet fuel lines at the fuel pump. Secure inlet line as high as possible to prevent fuel tank drainage.
2. Disconnect the wire at the connector in the fuel pump lead.

3. Remove the fuel pump mounting nuts and lockwashers. Remove fuel pump.

## Disassembly

Refer to Figure 1.

1. Use a wrench to turn bottom cover from bayonet pins. Twist cover by hand to remove from pump body.
2. Remove filter, magnet and cover gasket.
3. Remove retainer spring using a thin nose pliers to spread and remove the ends of the retainer from plunger tube.
4. Remove washer, o-ring, cup valve, plunger spring and plunger.

## Inspection

1. Wash the filter in cleaning solvent and blow out dirt and cleaning solvent with compressed air. Check cover gasket and replace if deteriorated. Clean the cover.
2. Clean the remainder of the removed parts in cleaning solvent. If the plunger does not wash clean or if there are any rough spots, gently clean the surface with crocus cloth. Shake plunger and listen for click to indicate valve action. If valve is not free, replace plunger assembly.

**CAUTION:** The buffer spring and valve must not be removed from plunger.

3. Slosh the pump assembly in cleaning solvent. Blow out the tube with compressed air. To do a complete job, swab the inside of the tube with a cloth wrapped around a stick.

**CAUTION:** Do not tamper with seal at center of mounting bracket at side of pump as it retains the dry gas which surrounds the electrical system in the upper portion of the pump.

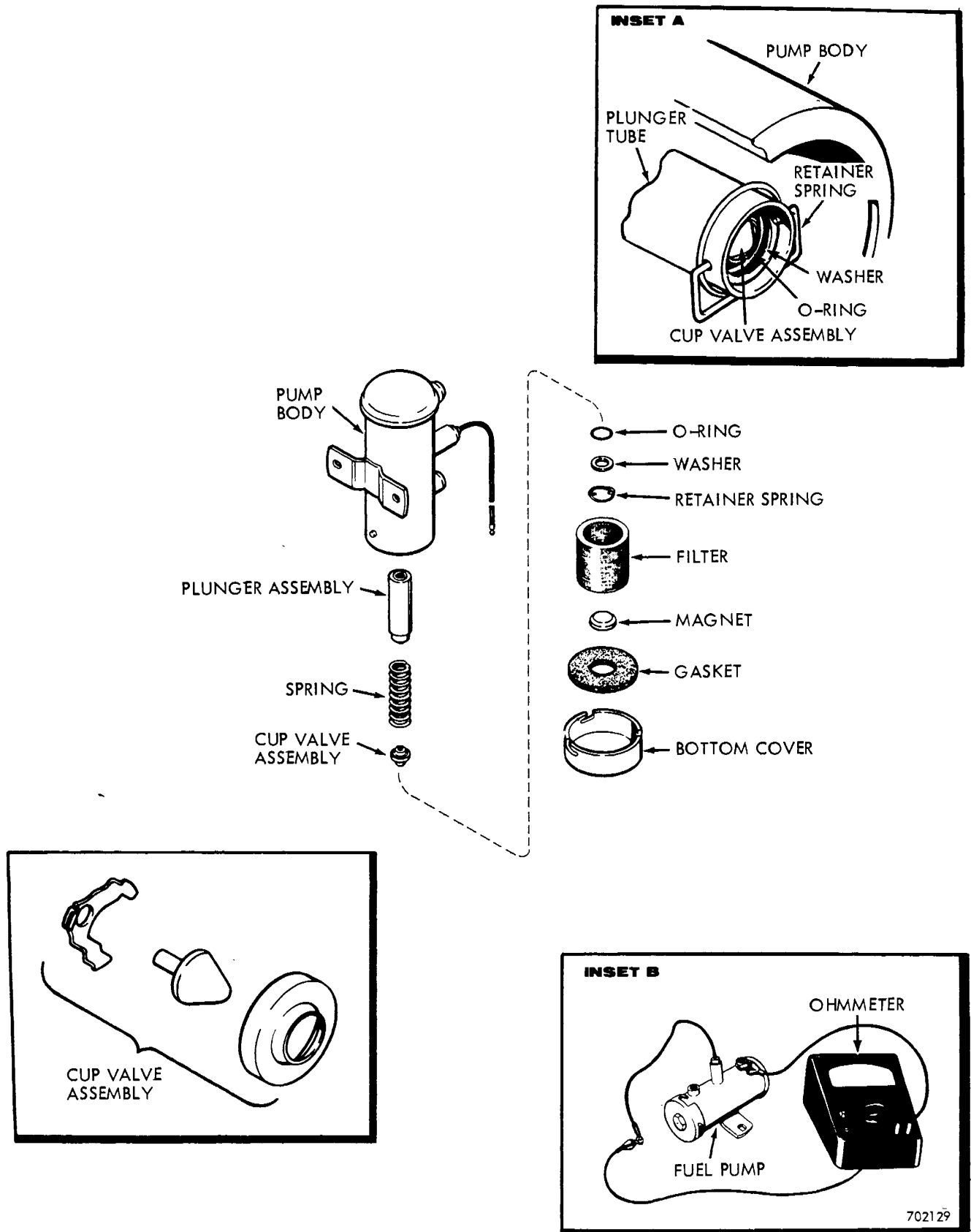


Figure 1 - Exploded View of Electric Fuel Pump



## **Assembly**

1. Install the plunger assembly in the tube with the buffer spring end first. Check by slowly raising and lowering plunger in tube. Plunger should move freely without a tendency to stick. A click will be heard each time the plunger approaches the top of the tube. If a click cannot be heard, the interrupter assembly is not functioning properly. Replace pump.
2. Install plunger spring, cup valve, o-ring and washer.
3. Compress spring and install the retainer spring with ends of retainer inside holes of tube, inset A.
4. Place cover gasket and magnet in bottom cover. Then install filter and cover. Twist cover by hand to hold in position on pump housing. Use wrench to securely tighten cover.

5. Prior to installing the pump, check the resistance of the pump winding. Connect the fuel pump to a 12 volt battery (negative lead to pump body) for two seconds. Connect ohmmeter to fuel pump. The ohmmeter should indicate 4.87 to 12 ohms. If infinite (no needle movement), reconnect pump to battery for two seconds and recheck resistance. If still infinite, replace pump.

## **Installation**

1. Position pump on mounting studs and secure in place with nuts and lock-washers. Make sure mounting surface is clean and paint-free as the pump is grounded at this point.
2. Connect fuel lines and wire.
3. Open fuel shutoff valve.
4. Bleed the fuel system.

# **Section 37**

## **L. P. GAS FUEL SYSTEM**

## L. P. FUEL SYSTEM

**NOTE:** For additional information contact an authorized Wisconsin Engine dealer.

### General

The major components of the L.P. fuel system are the fuel cylinder, fuel filter (with lock-off), converter and carburetor (with vacuum operated lock-off switch). The carburetor is deprived of fuel until the ignition switch is turned on and the engine is cranked for starting. If the engine stops for any reason, the carburetor is again deprived of fuel.

Liquid fuel flows from the fuel cylinder, under pressure thru the fuel filter to the converter. Two changes occur at the converter; (1) the converter acts as a heat exchanger and vaporizes the fuel and (2) regulates the pressure of the fuel vapor delivered to the carburetor. The carburetor receives fuel from the converter relative to the quantity of air entering the carburetor.

### Fuel

If available, use Propane HD 5 in place of commercial propane. Propane HD 5 was developed especially for internal combustion engines.

Pressure in a fuel cylinder 80% full will be approximately 100 psi at 70° F. An increase in temperature will increase pressure while lower temperatures will reduce pressure.

Fuel pressure at the carburetor is 1.25 psi at idle speed and 1.75 psi at full throttle.

## Carburetor Adjustments

### Idle Adjustments

Refer to Figure 1.

1. Seat idle mixture screw and back off four turns.

**CAUTION:** Seat screw lightly to prevent damage to the screw and seat.

2. Start engine and turn throttle stop screw so engine idles slightly faster than normal.
3. Turn idle mixture screw in until engine begins to stall, then back off screw until engine runs smoothly.

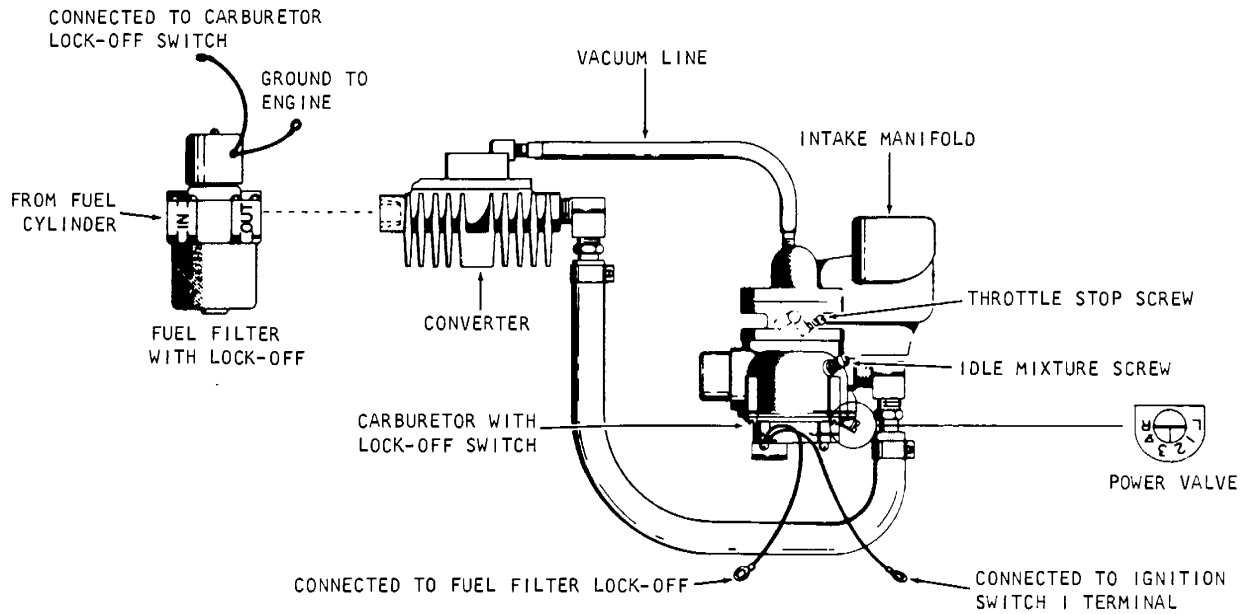
**NOTE:** If vacuum gauge is available, adjust to obtain highest manifold vacuum.

4. Back off throttle stop screw to obtain desired idle speed.

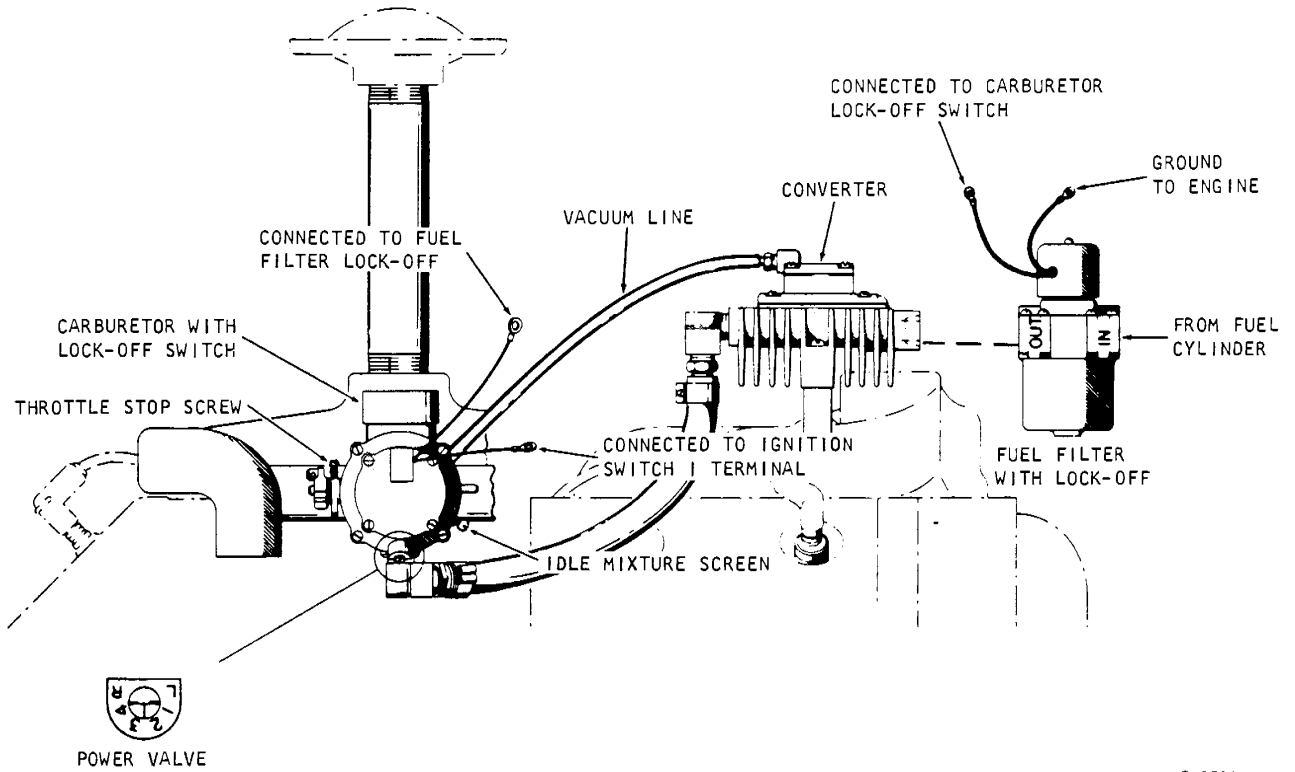
### Power Valve Adjustment

The power valve should rarely require adjustment. If adjustment is necessary, position the mark on the adjusting screw between 2 and 3 on the power valve dial, Figure 1.

If an exhaust analyzer is available a more accurate adjustment can be made. Run engine at full throttle and adjust power valve to obtain an air/fuel ratio of 14 to 1.



**1530 FUEL SYSTEM**



**1537 FUEL SYSTEM**

**Figure 1 - Fuel Systems**

710533

## TROUBLE SHOOTING CHART

<u>PROBLEM</u>	<u>POSSIBLE CAUSE</u>	<u>REMEDY</u>
Engine Will Not Start	<ol style="list-style-type: none"> <li>1. Defect in ignition system.</li> <li>2. Fuel cylinder empty.</li> <li>3. Fuel shut-off valve closed.</li> <li>4. Excess flow valve closed.</li> <li>5. Restricted fuel filter.</li> <li>6. Defective lock-off switch.</li> <li>7. Defective lock-off switch diaphragm.</li> <li>8. Defective lock-off solenoid.</li> <li>9. Broken wire in lock-off circuit.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check out ignition system.</li> <li>2. Refill cylinder.</li> <li>3. Open valve.</li> <li>4. Close fuel shut-off valve and listen for click. Then open valve slowly.</li> <li>5. Service filter.</li> <li>6. Replace switch.</li> <li>7. Replace diaphragm.</li> <li>8. Replace solenoid.</li> <li>9. Repair as required.</li> </ol>
Frost on Fuel Filter	<ol style="list-style-type: none"> <li>1. Fuel shut-off valve opened too fast.</li> <li>2. Restricted fuel filter.</li> </ol>	<ol style="list-style-type: none"> <li>1. Open valve slowly. See NOTE.</li> <li>2. Service filter.</li> </ol>
Frost on Line Between Carburetor And Converter	<ol style="list-style-type: none"> <li>1. Fuel not vaporizing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Allow engine to warm up thoroughly.</li> </ol>
Frost at Connections	<ol style="list-style-type: none"> <li>1. Leak or restriction at frosted area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for leaks or restriction. USE A SOAP SOLUTION TO CHECK FOR LEAKS.</li> </ol>
Frost at Converter, Engine Running	<ol style="list-style-type: none"> <li>1. Engine and converter not warmed up.</li> </ol>	<ol style="list-style-type: none"> <li>1. Allow engine to warm up thoroughly.</li> </ol>
Frost at Converter, Engine Stopped	<ol style="list-style-type: none"> <li>1. Fuel not shut off at filter.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check lock-off circuit.</li> </ol>
Frost on Fuel Cylinder	<ol style="list-style-type: none"> <li>1. Broken dip tube in cylinder.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace cylinder.</li> </ol>

**NOTE:** If carburetor, fuel line and converter are frosted, close fuel shut-off valve and allow excess fuel to dissipate. Then slowly open fuel shut-off valve 1/4 of fully open. Start engine and run at idle speed until the engine has warmed up. Open valve completely before putting machine to work.

# **Section 41**

## **HYDRAULIC SYSTEM**