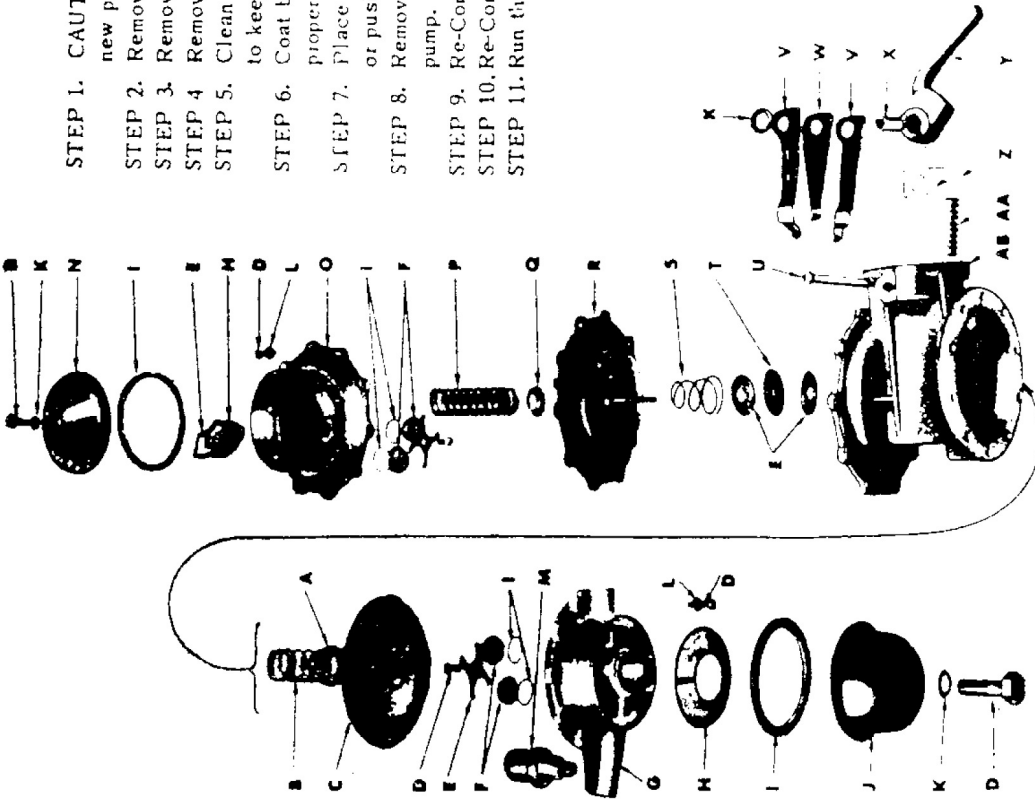


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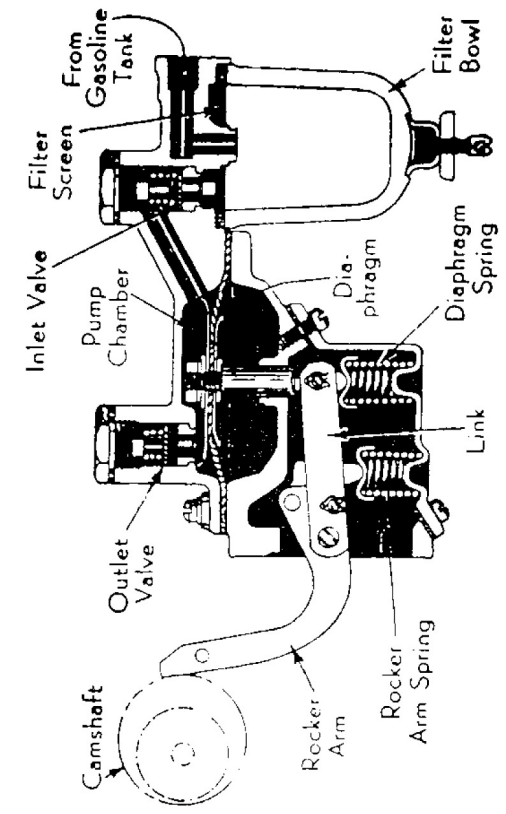
FUEL PUMPS



- A—RETAINER
- B—FUEL DIAPHRAGM SPRING
- C—FUEL DIAPHRAGM
- D—SCREW
- E—RETAINER
- F—VALVE AND CAGE
- G—FUEL COVER
- H—SCREEN
- I—GASKET
- J—BOWL
- K—WASHER
- L—LOCKWASHER
- M—AIR DOOME
- N—PLATE
- O—VACUUM COVER
- P—VACUUM DIAPHRAGM
- Q—SPRING
- R—VACUUM DIAPHRAGM
- S—OIL SEAL SPRING
- T—OIL SEAL
- U—PIN
- V—VACUUM LINK
- W—FUEL LINK
- X—BUSHING
- Y—ROCKER ARM
- Z—LINK SPACER
- AA—SPRING
- AB—BODY

INSTRUCTIONS FOR REMOVING AND INSTALLING

- STEP 1. CAUTION: Observe the mounting position of the old fuel pump. This is the position in which the new pump must be mounted.
- STEP 2. Remove the fuel line connection from the gasoline tank to the fuel pump opening marked "IN".
- STEP 3. Remove the fuel line connection from the other fuel pump opening (This leads to the carburetor).
- STEP 4. Remove two (2) mounting bolts which hold the fuel pump to the engine and remove the old fuel pump.
- STEP 5. Clean engine fuel pump mounting surface by removing the old gasket with a scraper, being careful to keep any dirt out of the engine.
- STEP 6. Coat both sides of the new fuel pump gasket with "Gasket Shellac" Stock No. R-6925. Place in proper position on engine mounting surface.
- STEP 7. Place the new fuel pump in position, making sure the rocker arm is properly aligned with the cam or push rod, and tighten, using the two (2) mounting bolts removed in step 4.
- STEP 8. Remove any fuel line fittings remaining in the old pump and install in a like position in the new pump.
- STEP 9. Re-Connect the main fuel line (from the gas tank) to the opening marked "IN".
- STEP 10. Re-Connect the remaining fuel line to the "OUT" opening.
- STEP 11. Run the engine and check all fuel line connections making sure they are not leaking fuel.



AC MECHANICAL FUEL PUMPS:

ALL MECHANICAL FUEL PUMPS OPERATE AS FOLLOWS:

The cam on the engine camshaft forces the rocker arm back which, through the linkage and pull rod, moves the diaphragm on its down stroke.

This downward movement of the diaphragm creates a vacuum in the fuel chamber of the pump which sucks fuel from the gas tank.

The flow of fuel from the pump is controlled by the carburetor float. The float opens and closes the needle valve which builds up or reduces pressure in the pump fuel chamber. As pressure is built up in the fuel chamber, it prevents the diaphragm from taking a complete stroke, thus reducing fuel flow. As pressure against the diaphragm and spring reduces in the fuel chamber, it allows the diaphragm to take longer strokes, thus increasing fuel flow.

In a combination fuel and vacuum pump, the vacuum section is used as a booster for windshield wiper operation. The operation of the vacuum pump is as follows:

Rotation of the camshaft eccentric works the rocker arm. This pushes the vacuum diaphragm out, expelling the air in the chamber through the discharge valve and into the intake manifold of the engine.

The return stroke of the rocker arm, helped by the diaphragm spring, moves the diaphragm upward, creating a vacuum in the chamber which opens the inlet valve, drawing air from the windshield wiper.

When the windshield wiper is not being used, manifold vacuum holds the diaphragm downward against spring pressure so that the diaphragm does not make a complete stroke for every stroke of the rocker arm.

When manifold vacuum is greater than the vacuum created by the pump, the air will flow from the windshield wiper through both valves, and the operation of the wiper will be the same as if the vacuum pump were not installed.

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When manifold vacuum is low, that is, when the engine is accelerating or operating at high speed, the vacuum created by the pump will be greater and will operate the wiper.

TROUBLE DIAGNOSIS—Fuel pump trouble is of only two kinds. Either the pump is supplying too little fuel, or too much. If the pump is supplying too little fuel, the engine will either not run at all, or it will cough or falter. If the pump is supplying too much fuel, gasoline will drip from the carburetor, or the engine will not run smoothly when idling. Too much fuel will also produce hard starting.

Fuel pumps may be tested with an analyzer which discloses fuel pump pressure and rate of flow, or it may be tested for pressure by connecting a gauge, the test being made while the engine is running. In the absence of this equipment, do not remove the pump from the engine until the following points have been checked.

IF THE ENGINE IS GETTING TOO LITTLE FUEL:

1. Be sure there is gasoline in the tank.
2. Disconnect the fuel line at the carburetor or at the pump, whichever is easier to reach. Then, with the ignition shut off, crank the engine with the starter. If gas spurts from the pump, the trouble is not in the pump, lines or tank.

IF NO GAS FLOWS AT ALL OR IF ONLY A LITTLE GAS FLOWS:

1. Look for leaky bowl or cover plate gasket. If not sure, replace gasket. Use correct gasket for if it is too thick, pump pressure will be too low; if too thin, pressure will be too high.
2. Remove and clean the strainer or screen which is inside the bowl.
3. Look for loose or cross-threaded fuel line connections. Check all the way back to the tank. Tighten all connections.
4. Blow out all lines to remove any restrictions, and check for pin holes.
5. Make sure all pump cover screws are tight, and see that external plugs over pump valves are tight.
6. Flush out valves with light oil.
7. Inspect flexible line (if used) for breaks or porous condition.
8. Inspect cam or push rod for wear.

If correction of the above items fail to restore the pump to operating condition, it should be removed for replacement.

If the engine is getting too much fuel, the trouble is more than likely caused by one of the following: (a) defective automatic choke, (b) excessive use of hand choke, (c) punctured carburetor float, (d) defective carburetor needle valve, (e) loosely connected fuel line, or loose carburetor assembly screws, (f) improper carburetor adjustment.

If none of the above items is the cause of flooding or poor gasoline mileage, then the pump needs replacing. **VACUUM PUMP TROUBLES**—If the windshield wiper is slow acting at high speed, it indicates an inoperative vacuum pump. Check the lines to the wiper. If the trouble is not in the lines, disassemble the vacuum pump and examine the valves and diaphragm.

If vacuum pump operation is noisy, it generally indicates either a worn or improperly installed oil seal or a worn vacuum pump link and rocker arm pin.

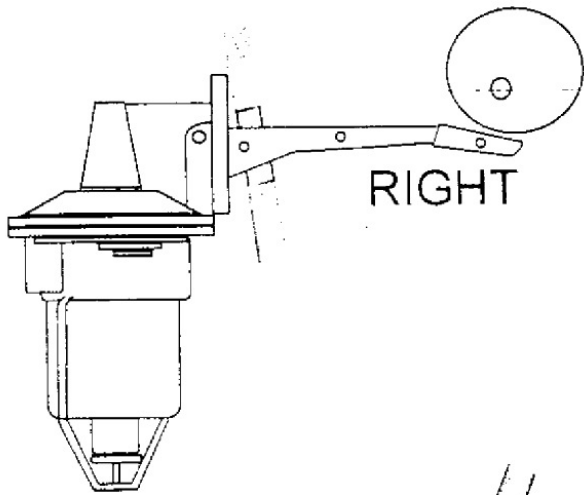
Most of the fuel and vacuum pumps prior to 1939 used an oil seal around the rocker arm which should frequently be replaced.

High gasoline pressure and noise indicates that the fuel pump is striking the vacuum pump diaphragm. This can be corrected best by replacing the pump.

If the vacuum pump diaphragm is punctured, oil is drawn from the crankcase, causing high oil consumption and ignition miss due to fouled plugs. A small hole in the diaphragm, when first encountered, may be indicated by a partial miss on the two cylinders adjacent to the spot where the vacuum line taps in to the manifold. This condition may be checked by the action of the windshield wiper upon acceleration, or by disconnecting the line on the manifold side of the vacuum pump to inspect for oil leakage.

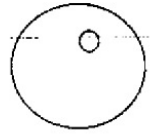
Noisy operation or failure of the diaphragm may also indicate that it is either too taut, or too slack, which will be evident if the diaphragm is wrinkled.

FUEL PUMP INSTRUCTIONS

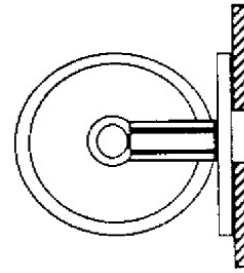


RIGHT

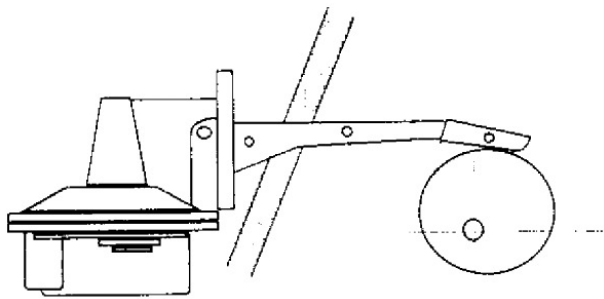
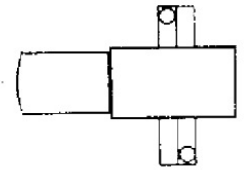
Turn camshaft to the lowest position of the stroke. Alternately tighten mounting bolts into the engine.



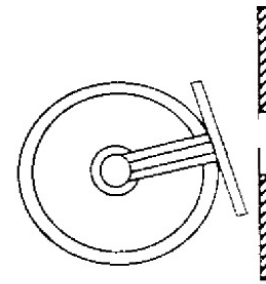
Wrong, Highest position



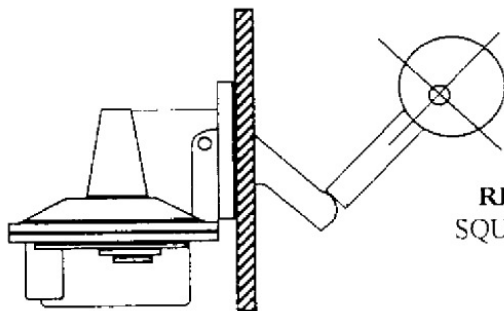
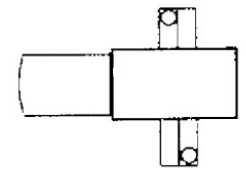
Push Rod
RIGHT



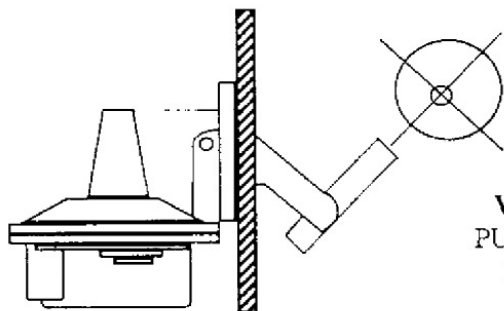
WRONG
WILL BREAK
PUMP



Push Rod
WRONG



RIGHT
SQUARELY



WRONG
PUMP WILL
BREAK

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL CAUSE DAMAGE TO THE PUMP OR ENGINE.

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