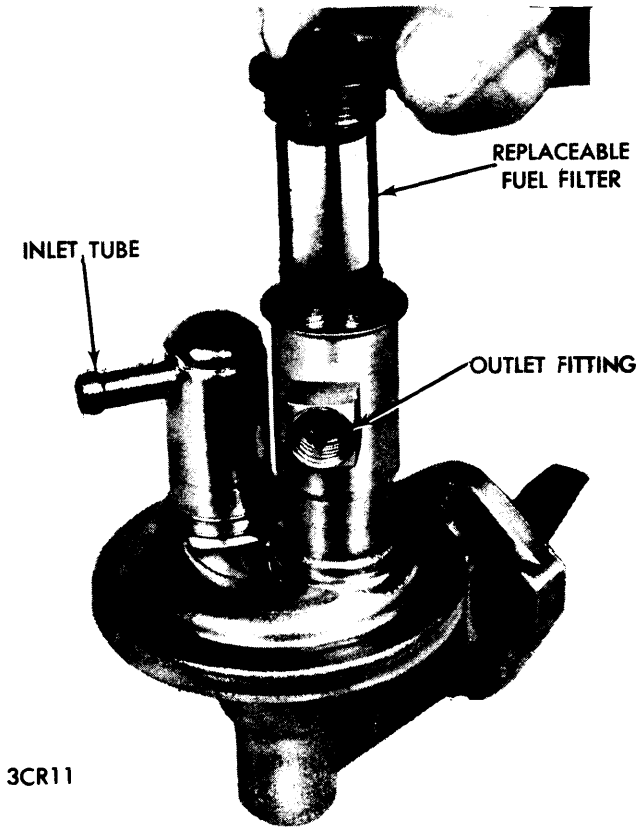
1973 MECHANICAL FUEL PUMPS

DESCRIPTION

Mechanical fuel pumps are of a sealed unit design and some incorporate a replaceable filter element ahead of the outlet line. All pumps are a diaphragm operated single action pump, actuated by a rod (Pinto) or rocker arm (all others) engaging an eccentric on the engine camshaft.

OPERATION

Fuel tank to pump suction stroke is positively actuated by a rocker arm or rod pulling or pushing the diaphragm to create a vacuum in the pump chamber. Delivery of fuel to carburetor is spring (against diaphragm) operated, and functions only when fuel is required. The spring also controls fuel pressure to carburetor. With carburetor inlet valve closed, fuel in pump diaphragm chamber holds spring compressed at end of suction stroke (rocker arm or rod continues to operate, but free movement of linkage allows diaphragm to remain stationary). Some pumps also have a bypass passage that continually returns part of the fuel to fuel tank. This bypass also returns fuel vapors that may form in lines or pump under high operating temperatures.



SEALED FUEL PUMP WITH INTEGRAL FILTER (TYPICAL)

TROUBLE SHOOTING

Insufficient fuel or no fuel delivery may not be due to a defective fuel pump, but the diagnosis could indicate a faulty fuel pump. Perform the following checks on the fuel supply system before testing, replacing or overhauling the pump.

1) Insufficient fuel supply.
2) Restricted fuel filter(s).
3) Leaks in fuel lines or fittings.
4) Dented, pinched or kinked fuel lines.
5) Collapsed flexible fuel hose.
6) Water and/or dirt in fuel supply.
7) Dirt or restriction in fuel tank.
8) Push rod worn.
9) Vent in tank restricted (will also cause collapsed tank).
10) Incorrect fuel pump installed.
11) Frozen or vapor locked fuel lines.
12) Defective fuel pump.

TESTING

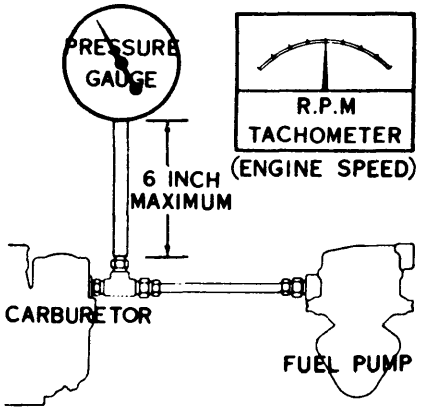
Before making pressure and volume tests, fuel system should be checked for restricted fuel filter(s). If any doubt exists as to the condition of the filter(s), they should be replaced. If fuel filter(s) are OK, make fuel pump pressure and volume tests. If tests indicate fuel pump is operating properly, an ignition system defect should be suspected.

PRESSURE TEST

For specifications see "FUEL PUMP PRESSURE AND VOLUME" in appropriate TUNE-UP story.

Some pumps have an internal bleed which lets pressure drop to zero with engine off.

Connect pressure gauge in fuel line at carburetor using a "T" fitting so carburetor will be supplied with fuel. Hose to gauge should have a second "T" and a valve, for venting and capacity test. Crank or run engine at specified RPM and open vent valve to release air in pump. Close valve and read pressure.



CHECKING FUEL PUMP PRESSURE

VOLUME (CAPACITY) TEST

For Specifications see "FUEL PUMP PRESSURE AND VOLUME" in appropriate TUNE-UP story.

Use same "T" fitting and vent valve line as for Pressure Test. Crank or run engine at specified RPM with hose from vent

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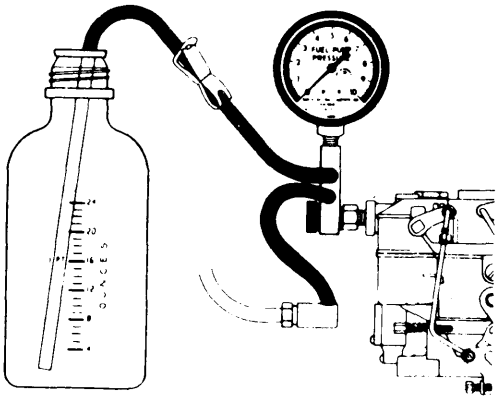
1973 MECHANICAL FUEL PUMPS (Cont.)

valve placed in a suitable container. Open vent valve and note time required to obtain specified amount of fuel.

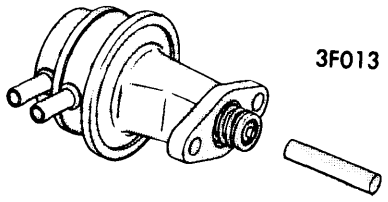


CHECKING FUEL PUMP VOLUME

VACUUM TEST

Disconnect fuel inlet line at fuel pump and connect vacuum gauge to pump inlet fitting. Disconnect pump outlet line, to ensure pump operation at full capacity. Crank or run engine and note gauge reading and reaction. Vacuum should be 10"-15" Hg. and gauge needle should remain steady. *NOTE - Blow-back or immediate drop when pump is stopped indicates inlet valve is not seating (except on internal bleed-off type pumps).*

Incorrect fuel pressure and low volume (capacity or flow rate) will affect engine performance. Low pressure will cause a lean mixture and fuel starvation at high speeds. Excessive pressure will cause high fuel comsumption and carburetor flooding. If fuel pump pressure, volume (capacity), or vacuum, is not within specification, and no other defect in fuel supply system is apparent, overhaul or replace fuel pump as required.

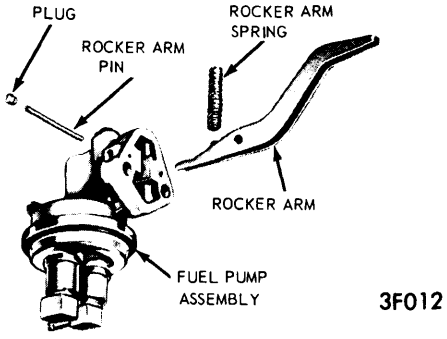


PINTO (2000 cc) FUEL PUMP & ACTUATING ROD

OVERHAUL

SEALED FUEL PUMPS

Sealed fuel pumps can not be overhauled. If rocker arm, fulcrum pin or spring become damaged, they can be replaced by removing the fulcrum pin, rocker arm and spring. Install new part or parts and stake or plug new pin in place.



ROCKER ARM, SPRING, & PIN (TYPICAL)

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