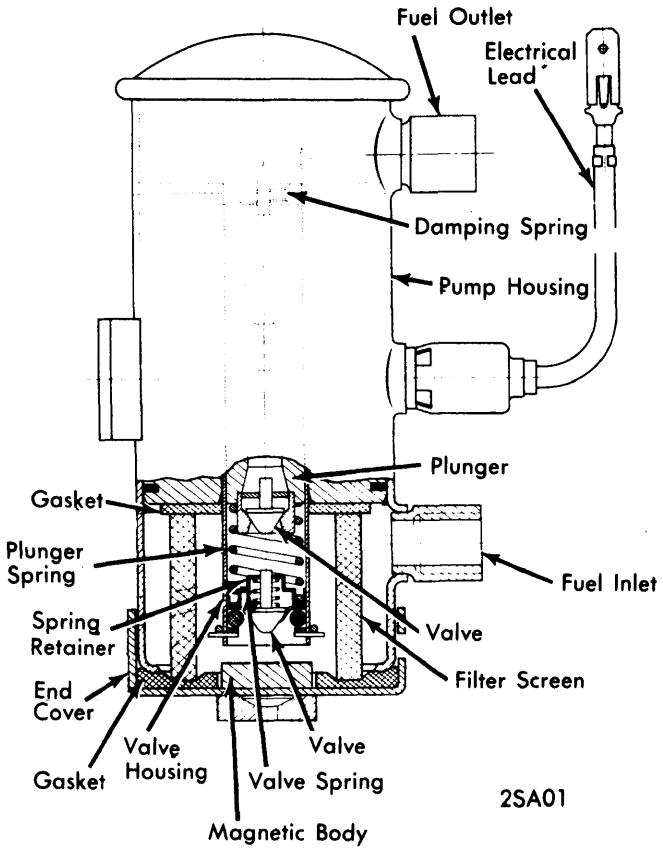
BENDIX ELECTRIC FUEL PUMPS

Alfa Romeo
Mercedes-Benz
Porsche
Rover
Subaru

DESCRIPTION

The Bendix electric fuel pump is composed of pump housing and both mechanical and electrical parts. The cylindrical housing has a permanently fixed dome-shaped top, and installed just below this top is a corrugated diaphragm. Located at the bottom of the pump is a detachable cover with a seal. The lower cover is equipped with a small magnet to remove any metallic particles carried in the fuel. Soldered into the housing are three fittings; fuel inlet (at bottom), fuel outlet (at top), and electrical terminal (center). Centrally located within the housing is a brass tube, soldered to the housing, in which the pump piston travels. The mechanical parts of pump are the valve carrier, pump piston and pump spring. Valve carrier is attached to the brass tube socket by three retaining screws and attached to its bottom is the actuating stud with its valve. The pump spring is located in upper portion of pump piston. The electrical part consists of coil, resistor, and magnetic circuit breaker. Initial terminal of coil is at housing electrical terminal and coil end is soldered to contact spring of circuit breaker. The resistor is a thin, cotton-spun wire, loosely wound around coil with a cotton strip and is wired across coil windings, providing a connection between housing terminal and ground. Magnetic circuit breaker is mounted on the circuit breaker base, located above coil, and consists of a permanent magnet and a circuit breaker. The permanent magnet is arranged as a trigger magnet in that it is soldered into the pivoting circuit breaker; the mating, fixed contact of the circuit breaker is attached to a contact spring, but is insulated. Attached to the fixed contact is the end terminal of the coil windings. A copper wire is soldered between the movable contact and the circuit breaker fixture.



FUEL PUMP ASSEMBLY

OPERATION

Pump operates by the rapid, constant, alternating movement of the pump piston, which rides in the brass tube. When piston spring moves piston up, the upper end of its cylinder enters field force of the magnet. The force of attraction between the magnet and the steel cylinder, causes the magnet, with its angle mounted pole, to tilt against the brass tube, containing the piston. The magnet pivots within the fixture of the circuit breaker, causing ground contact point to press against the mating, fixed contact point, thus closing the electrical circuit. Current begins to flow thru coil windings, creating a strong electromagnetic field in coil and this force overcomes piston spring tension, and pulls pump piston down. As pump piston moves away from the field of force of the magnet, forces of attraction of the magnet anti-pole move the magnet back into its original position, causing the circuit breaker points to reopen. The aforementioned magnetic and electromagnetic action results in fuel delivery in the following manner: When the piston moves up due to piston spring force, it performs the task of fuel delivery as well as fuel intake; on this stroke, fuel transfer valve in piston is closed and inlet valve in valve carrier is open. As a result, fuel held in the area above the transfer valve is raised and delivered to the carburetor thru pump pressure chamber and fuel outlet. At the same time, fuel is drawn into valve carrier from pump inlet and thru open inlet valve. When piston moves down, only an internal transfer of fuel occurs; from the valve carrier, thru the transfer valve, into the chamber within the pump cylinder.

CLEANING & INSPECTION

Remove bottom pump cover by turning hex bolt counterclockwise. Remove filter, clean and dry with air. Clean bottom cover and inspect gasket for serviceability. Reinstall cover and check for leaks with engine running.