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MRP DATASHEET: THE FUEL/PETROL PUMP

What it does and how it works

It is an electric motor driven unit that draws fuel from the fuel tank and delivers it, at high pressure, to the fuel injection system via the fuel filter.

Two different types are commonly encountered: the under-car type and the in-tank type. The under-car or in-line type, as its name suggests sits under the car in the general area of the fuel tank. Gravity supplies it the fuel from the tank. The pump assembly consists of a 12v motor, which drives a pump assembly; the pump assembly is usually either a "roller cell" or "gear" type pump, which creates a positive output pressure. The pressure depends upon manufacture. A one-way valve is usually incorporated into the outlet of the pump to prevent fuel flowing back into the pump with the ignition turned off; this helps to prevent the formation of vapour bubbles.



Some manufacturers utilise an under-car pump that fits into a small swirl tank which also fits under the car, this is fed by a small, low-pressure, in-tank pump; Volkswagen, SAAB, Audi and Volvo are the most common manufacturers to use this layout.

In tank pumps have recently become the norm. The pump is totally submerged in the fuel tank; it is often part of an in-tank assembly, which combines the fuel level gauge sender unit, a swirl pot, a one-way valve and the pump into one assembly. The pump itself comprises of a small 12-volt motor, which drives the pump element - usually of a sliding vane type. There will be a coarse primary filter fitted to the bottom of the pump in the form of a plastic strainer "sock". Some in-tank assemblies incorporate a "Sucking jet" assembly, which ensures that the fuel pump remains submerged during conditions such as cornering or accelerating.

This type of pump can be replaced either as a complete assembly with sender unit etc or as a pump only, in this case, the assembly is stripped, a new pump fitted and then the unit is reassembled. The second option usually has the advantage of being a little cheaper, but more work is involved fitting it.

Caution: With either type of pump, the fuel flowing through it is used as a lubricant. Without fuel flowing, when it runs dry or suffers a fuel shortage, the pump it will have no lubricant and hence damage will occur.

Reasons for failure:

The single biggest cause of failure is due to the ingress of dirt/foreign bodies into the pump. The initial source of debris can be the fuel itself due to refining failure, from the filling station tanks, degradation of the vehicle's tank lining, ingress from poorly fitting fuel pipes, dirt being allowed in during servicing such as when renewing the fuel filter.

It is important to check for the source of the dirt ingress and fully clean the fuel tank, fuel lines and renew the in-line filter BEFORE fitting the replacement pump or damage to the new pump will occur.