



## FUEL FILTERS

### INTRODUCTION

Contaminates within fuel (petrol or diesel) require removal to guarantee engine performance and life. Fuel contamination has a major effect on the life of fuel injectors (both petrol and diesel) as these parts are manufactured with very tight tolerances.

Contaminates in fuel; dirt, rust, scale and water. Can come from several sources:

1. During refining
2. During transportation
3. Through storage
4. Particulates entering the fuel system via it's breathing system
5. Particulates entering the fuel tank via the filler neck or filler cap
6. Oxidation of the fuel
7. Fuel tank and fuel line corrosion and foreign object debris
8. Water condensation

### FUEL FILTER PERFORMANCE

The fuel supply system is fairly simple; generally it comprises a tank, a pump and a means of supplying the combustion chamber (either injectors or carburettor jets).

However, the supply of fuel, its timing and quality is vital. The fuel filter is fitted between the tank and the fuel injectors (or carburettor). The fuel is pumped through the filter and contaminants and water are separated from the fuel.

There are two types of fuel system used by petrol fuelled passenger vehicles, and one used by diesel power vehicles.

## PETROL ENGINE FUEL FILTRATION

Carburettor fuel systems – An inline fuel filter is fitted between the tank and the carburettor. The low pressure fuel supply means that a small 20 micron filter element generally fitted within a clear polymer housing is used.

Fuel injection fuel systems – An inline or in tank filter is used normally fitted under the car. The fuel pump, normally mounted in or close to the tank delivers high pressure fuel to the injectors of fuel accumulator via the filter. A large metal disposable fuel filter with a 5 to 7 micron element is used.

## DIESEL ENGINE FUEL FILTRATION

Diesel is stored in a tank in a similar way to a petrol vehicle. However, for successful combustion the fuel droplet size when injected must be small. Fuel system pressure can be as high as 1800bar, with 750bar at each injector.

The quality of the fuel affects:

1. Cold starting
2. Engine power
3. Black smoke
4. Consumption
5. Combustion quality
6. Idling

Diesel fuel is sensitive not only to dirt and water but also air, as a result the filter will be mounted at the highest point in the delivery system and will incorporate an air bleed facility. The disposable filter will almost always have a water drain tap at its bottom. The element will be 2 to 5 microns.

## SERVICE INTERVALS

Autosava suggest that fuel filters are replaced:

PETROL ENGINES:	20 000miles (or 2 years)
DIESEL ENGINES:	10 000miles (or 1 year)