



## Fuel Pumps : Introduction

**In today's modern diesel engine, greater demands have been placed on engine manufacturers to deliver a more economical lower emission engine.**

How has this been done? Fuel systems, especially injectors, are now a precision device with injection pressures of more than 30,000 psi. These electronic control injectors deliver precisely measured fuel quantities at exactly the right time. In a life cycle of 10,000 hours an injector will perform over half a billion cycles. This increase in fuel pressure has improved fuel atomisation and in turn helps to reduce emissions and increase the economy and performance of the engine. This increase in performance comes at a price. Unless clean fuel is delivered to the injector to maintain performance over hundreds of millions of cycles, it will suffer accelerated wear.

There are three things critical to maximizing fuel system life:

### 1. Water

Water has long been a major problem with injector scuffing, plugging and seizures. This removal of water will become more critical with the introduction of low sulphur fuels, as this will lower the film strength between the needle and seat lowering the resistance to failures even more.

### 2. Particulates Contamination

These microscopic particulates contribute to major injector needle and seat wear. These particles are present in the fuel from the refinery, other points of entry are poor tank breathers on the machines themselves and on site fuel installations as well as fuelling through drums to the machine.



### 3. Maintaining System Pressure

Starvation of the fuel system through plugged fuel filters causes the system to cavitate. These air bubbles remove the film of lubrication created by the diesel causing accelerated wear.

Filter Technology Australia's range of fuel filtration filters, either on board or bowser (pump) units and tank breathers can assist with all of the above problems. These units have the ability to remove water, particulate contaminants and maintain serviceability of the machine through cleaner fuel.

OEM element life on buses was increased by 300% using our bowser units as a one point of fuel. Particle Count before filtration showed the fuel at an ISO code of 20/17 and after filtration 14/11.

Trucks travelling between 200,000 km and 300,000 km per year have shown increases in fuel economy of between 3% and 5% after being fitted with on board filtration units.