Abstract

The authors have considered here helps to transfer the fuel from the fuel tank to the engine and regulate its flow into the cylinder depending on speed and local requirement. Here, a multi-component fuel system in diesel engine, comprised two subsystems $\Psi_1$ and $\Psi_2$ in series has been considered. In this system the fuel is injected into the cylinder using an injection pump and injectors. The block diagram depicts the fuel system in an N-cylinder diesel engine. The diesel fuel from the tank is pump to the fuel injection device. This device consists of small plunger pumps operating to push the fuel through the injectors (nozzles) into the cylinders one can operated one pump from the fuel injection pumps at the appropriate time i.e., towards the end of the compression stroke the fuel is pushed through the small hole in the injector and is atomized as it enters into the cylinder.

**Index Terms**

Computer Science  
Applied Mathematics

**Keywords**

Reliability theory, stochastic processes, Laplace transforms, Cost profit function and availability function and reliability function.