

## Title (en)

A fuel injection system for an internal combustion engine

## Title (de)

Kraftstoffeinspritzsystem für eine Brennkraftmaschine

## Title (fr)

Système d'injection de combustible pour moteur à combustion interne

## Publication

**EP 0860601 A3 20000119 (EN)**

## Application

**EP 98102970 A 19980220**

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- JP 20060197 A 19970725

## Abstract (en)

[origin: EP0860601A2] In the fuel injection system, fuel is supplied to a common rail from a high pressure fuel pump, and injected into the cylinders of an engine, from the common rail, via fuel injection valves. An electronic control unit (ECU) of the engine controls the pressure in the common rail at a value determined by the operating conditions of the engine. The ECU further detects the pressure and the temperature of the fuel in the common rail, and determines the bulk modulus of elasticity of the fuel based on the pressure and the temperature of the fuel. The ECU calculates an estimated value of the pressure change in the common rail during the fuel injection period using the determined bulk modulus. If the difference between the estimated value of the pressure change and the pressure change actually measured during the fuel injection period is large, the ECU determines that the fuel injection system has failed. Since the estimated value of the pressure change is calculated based on the bulk modulus of elasticity which is determined in accordance with the actual pressure and temperature of the fuel, the accurate estimated value is obtained even if the pressure and the temperature of the fuel in the common rail change over a very wide range. <IMAGE>

## IPC 1-7

**F02D 41/38**; **F02D 41/24**

## IPC 8 full level

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## Citation (search report)

- [E] EP 0860600 A2 19980826 - TOYOTA MOTOR CO LTD [JP]
- [A] EP 0501459 A2 19920902 - NIPPON DENSO CO [JP]
- [A] US 5529044 A 19960625 - BARNES TRAVIS E [US], et al
- [A] EP 0651150 A2 19950503 - TOYOTA MOTOR CO LTD [JP], et al
- [A] EP 0516196 A2 19921202 - NIPPON DENSO CO [JP]

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