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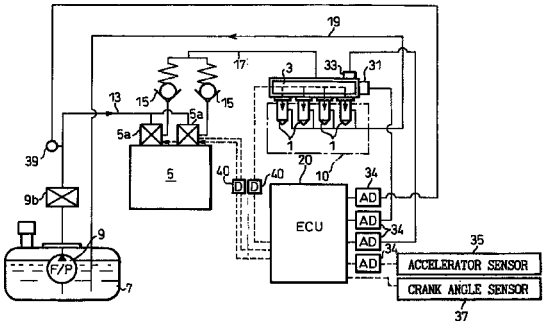
(54) A fuel injection system for an internal combustion engine

(57) 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.

Fig.1



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EUROPEAN SEARCH REPORT

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EP 98 10 2970

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F02D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26 November 1999	De Vita, D

CATEGORY OF CITED DOCUMENTS

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