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(54) **Apparatus for controlling the temperature of fuel supplied to an engine**

(57) An apparatus (10) for controlling the temperature of fuel supplied to an engine is disclosed. The apparatus comprises a first inlet (20) for receiving fuel from a fuel tank; a second inlet (30) for receiving fuel returned from an engine; a first outlet (40) for passing fuel to an engine and a second outlet (50) for passing fuel to a fuel tank. A valve is also provided for directing fuel received from the second inlet (30) to one or both of the first (40) and second (50) outlets wherein the valve is arranged to

vary the proportion of fuel directed to the first (40) and second (50) outlets. Varying the proportion of relatively hot fuel received from the engine via the second inlet (30) to be returned either to the engine and/or the fuel tank enables the temperature of fuel supplied to the engine to be controlled. The proportion of the fuel received from the second inlet (30) to be returned either to the engine and/or the fuel tank is preferably dependent upon the fuel temperature.

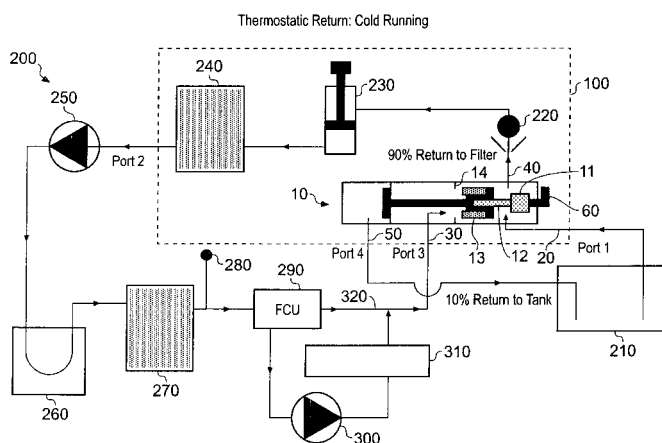


Fig. 2



EUROPEAN SEARCH REPORT

Application Number
EP 07 25 1459

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 819 844 A (KNECHT FILTERWERKE GMBH [DE] MAHLE FILTERSYSTEME GMBH [DE]) 21 January 1998 (1998-01-21) * the whole document *	1-4, 11, 12, 19-22	INV. F02M37/00
X	DE 34 27 396 A1 (HELPHOS GMBH [DE]) 30 January 1986 (1986-01-30) * the whole document *	1-4, 11, 12, 20-22	
X	DE 102 08 425 A1 (DENSO CORP [JP]) 10 October 2002 (2002-10-10) * the whole document *	1-4, 11-14, 17, 19-24, 27, 28	
X	WO 01/38718 A (PARKER HANNIFIN CORP [US]) 31 May 2001 (2001-05-31) * the whole document *	1-4, 11-14, 17, 19-24, 27, 28	TECHNICAL FIELDS SEARCHED (IPC) F02M
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 2 March 2009	Examiner Dorfstätter, Markus
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.92 (P04C01)



Application Number

EP 07 25 1459

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

1-4, 11-28

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 07 25 1459

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4, 11, 12, 19-22

Apparatus and method for controlling the temperature of fuel supplied to an engine having a particular control strategy depending on various fuel temperatures

2. claims: 5-10

Apparatus for controlling the temperature of fuel supplied to an engine having a particular valve design

3. claims: 13-18, 23-28

Apparatus and method for controlling the temperature of fuel supplied to an engine including a shut-off valve to facilitate priming

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 25 1459

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

02-03-2009

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