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(54) **EGR valve for a turbocharged diesel engine**

(57) An EGR valve for a turbocharged diesel engine has valve having a valve closure member (12) movable relative to a mating surface (14) for regulating the flow of EGR gases and a first actuator (16) for enabling the position of the valve closure member (12) to be varied

continuously. A second actuator (18) is provided to close the valve fully regardless of the position of the first actuator (16), so as to enable the EGR flow to be reduced more rapidly than can be achieved by said first actuator alone.

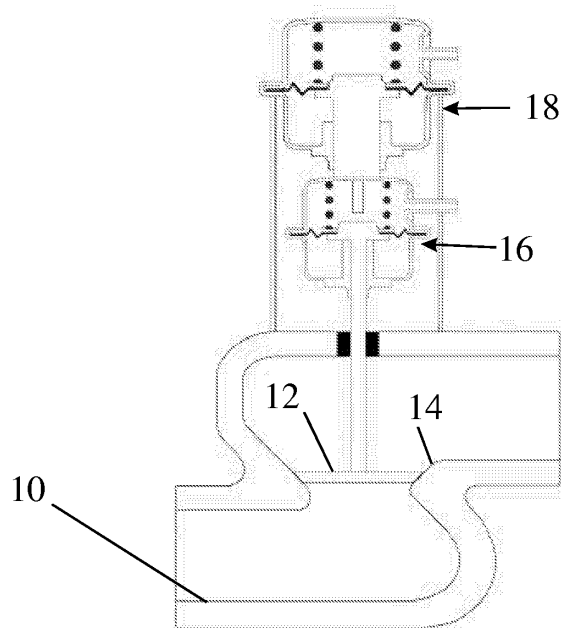


Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 03 10 4550

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	US 4 182 293 A (TOYAMA, NOBORU) 8 January 1980 (1980-01-08)	1,2,4	F02M25/07
A	* abstract; figures * * column 5, line 59 - column 7, line 13 *	3,5	
X	US 5 606 957 A (FEUCHT DENNIS D) 4 March 1997 (1997-03-04)	1,2,5	
A	* abstract; figures * * column 1, line 11 - line 26 * * column 1, line 61 - column 3, line 40 *	3,4	
X	PATENT ABSTRACTS OF JAPAN vol. 005, no. 029 (M-056), 21 February 1981 (1981-02-21)	1,2,4	
A	-& JP 55 156244 A (NISSAN MOTOR CO LTD), 5 December 1980 (1980-12-05) * abstract; figures *	3,5	
X	US 5 603 305 A (MIYAKE TOSHIHIKO ET AL) 18 February 1997 (1997-02-18)	1,2,4	TECHNICAL FIELDS SEARCHED (IPC)
A	* abstract; figures * * column 4, line 34 - line 53 * * column 7, line 2 - column 9, line 23 *	3,5	F02M F02D F16K
X	US 4 398 524 A (RACHEDI SHANE H) 16 August 1983 (1983-08-16)	1,4	
A	* abstract; figures * * column 3, line 52 - column 5, line 64 *	2,3,5	
A	PATENT ABSTRACTS OF JAPAN vol. 006, no. 045 (M-118), 20 March 1982 (1982-03-20)	1-5	
	-& JP 56 159555 A (NISSAN MOTOR CO LTD), 8 December 1981 (1981-12-08) * abstract; figures 1,5 *		
		-/--	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 24 February 2006	Examiner Döring, M
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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EUROPEAN SEARCH REPORT

Application Number
EP 03 10 4550

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 09, 31 October 1995 (1995-10-31) -& JP 07 166969 A (NISSAN MOTOR CO LTD), 27 June 1995 (1995-06-27) * abstract; figures *	1-5	
A	EP 0 512 139 A (SIEMENS AG) 11 November 1992 (1992-11-11) * abstract; figures * * column 1, line 1 - line 30 * * column 2, line 43 - column 3, line 30 * * column 6, line 17 - line 56 * -----	1,2,5	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
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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 03.82 (P04/C01)

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

EP 03 10 4550

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.

24-02-2006

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4182293	A	08-01-1980	JP 1363617 C	09-02-1987
			JP 54091619 A	20-07-1979
			JP 61031298 B	19-07-1986
US 5606957	A	04-03-1997	NONE	
JP 55156244	A	05-12-1980	NONE	
US 5603305	A	18-02-1997	CN 1141388 A	29-01-1997
			DE 19600199 A1	28-11-1996
			IT T0960032 A1	22-07-1997
			JP 3412347 B2	03-06-2003
			JP 9042071 A	10-02-1997
			KR 197054 B1	15-06-1999
US 4398524	A	16-08-1983	DE 3227722 A1	14-04-1983
			GB 2102067 A	26-01-1983
			JP 58024676 A	14-02-1983
JP 56159555	A	08-12-1981	NONE	
JP 07166969	A	27-06-1995	NONE	
EP 0512139	A	11-11-1992	DE 4213570 A1	12-11-1992