

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 September 2006 (28.09.2006)

PCT

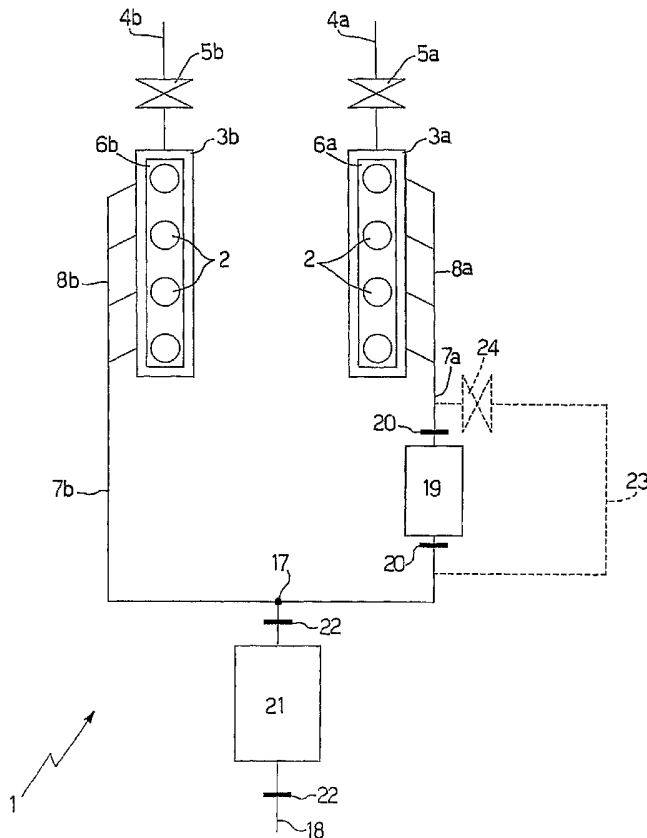
(10) International Publication Number
WO 2006/100575 A3

- (51) **International Patent Classification:**
F01N 3/20 (2006.01) F02D 41/36 (2006.01)
F02B 75/22 (2006.01)
- (21) **International Application Number:**
PCT/IB2006/000659
- (22) **International Filing Date:** 24 March 2006 (24.03.2006)
- (25) **Filing Language:** Italian
- (26) **Publication Language:** English
- (30) **Priority Data:**
BO2005A000193 25 March 2005 (25.03.2005) IT
- (71) **Applicant (for all designated States except US):** FER-
RARI S.P.A. [IT/IT]; Via Emilia Est, 1163, I-41100 Mod-
ena (IT).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** RIOLI, Mauro
[IT/IT]; Via Reni, 28, I-41049 Sassuolo (IT). POGGIO,
Luca [IT/IT]; Via Lercaro, 3, I-40033 Casalecchio Di
Reno (IT).

- (74) **Agents:** JORIO, Paolo et al.; c/o Studio Torta S.r.l., Via
Viotti, 9, I-10121 Torino (IT).
- (81) **Designated States (unless otherwise indicated, for every
kind of national protection available):** AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,
LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI,
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,
SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) **Designated States (unless otherwise indicated, for every
kind of regional protection available):** ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) **Title:** INTERNAL COMBUSTION ENGINE WITH DEACTIVATION OF PART OF THE CYLINDERS AND CONTROL METHOD THEREOF



(57) **Abstract:** Internal combustion engine (1) provided with a plurality of cylinders (2) divided into a first group and a second group; a control unit (16) for deactivating all the cylinders (2) of the second group; a first exhaust conduit (7a) and a second exhaust conduit (7b), which are reciprocally connected at an intersection (17) and which are respectively connected to cylinders (2) of the first group and to cylinders (2) of the second group; a catalyser (19), which is arranged along the first exhaust conduit (7a) upstream of the intersection (17) and is provided with first sensors (20) for detecting the exhaust gases; and a second catalyser (21), which is arranged downstream of the intersection (17) and is provided with second sensors (22) for detecting the exhaust gas composition.

WO 2006/100575 A3



Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

23 November 2006

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2006/000659

A. CLASSIFICATION OF SUBJECT MATTER
 INV. F01N3/20 F02B75/22 F02D41/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 F02B F02D F01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
 EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 467 602 A (IIZUKA ET AL) 28 August 1984 (1984-08-28) the whole document	1-33
A	US 2004/098970 A1 (FOSTER MICHAEL R) 27 May 2004 (2004-05-27) paragraph [0002] - paragraph [0006] paragraph [0008] paragraph [0034] - paragraph [0072] paragraph [0115] - paragraph [0116] figure 11	1-33
A	EP 0 802 315 A (TOYOTA JIDOSHA KABUSHIKI KAISHA) 22 October 1997 (1997-10-22) column 1, line 15 - column 13, line 18 figure 1	1-33

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>
--	--

Date of the actual completion of the international search 6 September 2006	Date of mailing of the international search report 14/09/2006
---	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Calabrese, Nunziante
---	--

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2006/000659

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/026789 A1 (MORINAGA SHUJIRO ET AL) 7 March 2002 (2002-03-07) column 6, line 29 - column 11, line 49 figure 1 -----	1-33

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2006/000659

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
US 4467602	A	28-08-1984	JP 58074841 A	06-05-1983
US 2004098970	A1	27-05-2004	NONE	
EP 0802315	A	22-10-1997	DE 69713832 D1	14-08-2002
			DE 69713832 T2	06-02-2003
			ES 2175213 T3	16-11-2002
			JP 3713831 B2	09-11-2005
			JP 10002219 A	06-01-1998
			KR 202811 B1	15-06-1999
			US 5974793 A	02-11-1999
US 2002026789	A1	07-03-2002	JP 3759578 B2	29-03-2006
			JP 2002070625 A	08-03-2002