

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 June 2007 (14.06.2007)

PCT

(10) International Publication Number
WO 2007/066211 A3

- (51) International Patent Classification:
F01N 3/20 (2006.01) *F01N 7/04* (2006.01)
- (21) International Application Number:
PCT/IB2006/003508
- (22) International Filing Date:
7 December 2006 (07.12.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2005-354738 8 December 2005 (08.12.2005) JP
- (71) Applicant (for all designated States except US): **TOYOTA JIDOSHA KABUSHIKI KAISHA** [JP/JP]; 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).

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, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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).

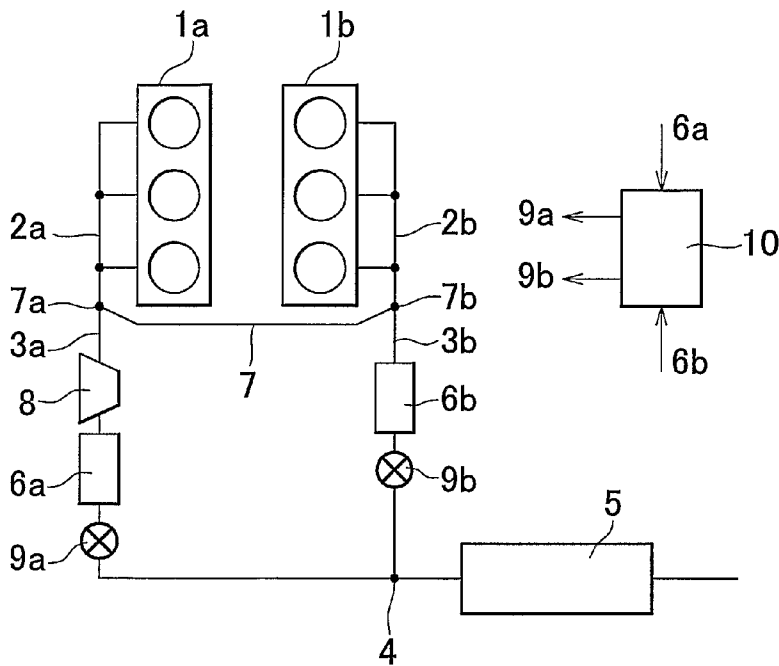
Published:
— with international search report

(88) Date of publication of the international search report:
13 September 2007

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.

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **MIYASHITA, Shigeki** [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

(54) Title: EXHAUST SYSTEM OF INTERNAL COMBUSTION ENGINE



(57) Abstract: A first control valve (9a) is disposed downstream of a junction point (7a) of a first exhaust passage (3a), and a second catalytic converter (6b) is disposed downstream of a junction point (7b) of the second exhaust passage (3b). The first control valve and the second control valve (9b) are controlled so that the exhaust gas of all of the cylinders mainly passes one of the first catalytic converter (6a) disposed in the first exhaust passage and the second catalytic converter disposed in the second exhaust passage during a fuel-supply cutoff period.

WO 2007/066211 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2006/003508

A. CLASSIFICATION OF SUBJECT MATTER
 INV. F01N3/20 F01N7/04

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)

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 384 098 A (MORIKAWA KOJI [JP]) 24 January 1995 (1995-01-24) column 2, line 48 - column 3, line 29; figures 1,3 column 5, line 1 - column 6, line 21 column 6, line 43 - column 6, line 47	1-8
A	EP 1 180 583 A2 (BAYERISCHE MOTOREN WERKE AG [DE]) 20 February 2002 (2002-02-20) abstract; figure 1	1,5
A	US 2002/100273 A1 (BUBECK GUENTHER [DE] ET AL) 1 August 2002 (2002-08-01) abstract	1,5
A	GB 1 457 570 A (PORSCHE AG) 8 December 1976 (1976-12-08) claims 1,2; figure 1	1,5

 Further documents are listed in the continuation of Box C.

 See patent family annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *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)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *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
- *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
- *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.
- *&* document member of the same patent family

Date of the actual completion of the international search

16 May 2007

Date of mailing of the international search report

29/05/2007

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

Tatus, Walter

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2006/003508

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5384098	A	24-01-1995	DE 4332086 A1 31-03-1994
			GB 2271299 A 13-04-1994
			JP 6101463 A 12-04-1994
EP 1180583	A2	20-02-2002	AT 263310 T 15-04-2004
			DE 10040516 A1 28-02-2002
			ES 2215823 T3 16-10-2004
US 2002100273	A1	01-08-2002	DE 10104021 A1 01-08-2002
GB 1457570	A	08-12-1976	DE 2322057 A1 21-11-1974
			FR 2228150 A1 29-11-1974
			JP 876329 C 10-08-1977
			JP 50013718 A 13-02-1975
			JP 52003048 B 26-01-1977
			US 3943710 A 16-03-1976