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(71) Applicant (for all designated States except US): **TOYOTA JIDOSHA KABUSHIKI KAISHA** [JP/JP]; 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MOMOSE, Hirofumi** [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). **ITABASHI, Kaiji** [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). **OIKAWA, Yoshitaka** [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). **SAITO, Takashi** [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). **MIZUNO, Hiroshi** [JP/JP]; c/

o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP).

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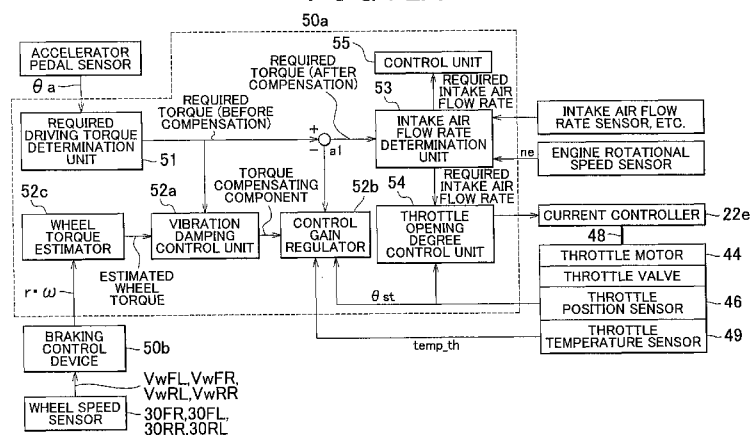
— with international search report (Art. 21(3))

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

13 October 2011

(54) Title: VIBRATION DAMPING CONTROL DEVICE FOR VEHICLE

FIG. 2A



(57) Abstract: A vibration clamping control device that controls driving power of a vehicle (10) to suppress pitch vibration or bounce vibration includes: a vibration damping control unit (52a) that controls a driving torque of an engine so as to suppress the amplitude of the pitch vibration or bounce vibration on the basis of a wheel torque generated at a contact portion between a wheel (12RL, 12RR, 12FL, 12FR) of the vehicle and a road surface; and a compensating component regulating unit that varies the magnitude of a compensating component, which is calculated by a vibration damping control unit and which compensates the wheel torque for vibration damping control, on the basis of a change of characteristic, such as a wear state quantity of a movable portion of a throttle valve (22b) of the engine (22).

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2011/000080

A. CLASSIFICATION OF SUBJECT MATTER

INV. F02D41/00 F02D11/10 F02D41/14
ADD.

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)

F02D G01M B60W

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 665 025 A (KATO MASAHICO [JP]) 9 September 1997 (1997-09-09)	14,23
Y	abstract; figures 3,4,5,8-11 column 10, line 23 - line 52	1-3, 5-11, 14-20, 24,29, 30,33
Y	----- US 2005/049761 A1 (KATAOKA MOTOAKI [JP] ET AL) 3 March 2005 (2005-03-03) cited in the application the whole document	1-3, 5-11, 13-20, 24,29, 30,32,33
Y	----- DE 100 01 396 A1 (SIEMENS AG [DE]) 26 July 2001 (2001-07-26) the whole document ----- -/-	13,32



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

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Mineau, Christophe

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2011/000080

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 21, 25-28, 34, 35
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 21, 25-28, 34, 35

Present independent claims 25, 26 and 34, 35 define a second intake air flow rate regulating unit, without having defined the first air flow rate regulating unit. Furthermore it is not clearly explicit from the present description which unit should be the first air flow rate regulating unit. The term "second" therefore leaves the reader in doubt as to the definition of a first air flow rate regulating unit, thereby rendering the definition of the subject-matter of said claim unclear (Article 6 PCT). Since it is impossible for the reader to identify from the present application what the first air flow rate regulating unit should comprise, the description does not provide support and disclosure in the sense of Article 6 and 5 PCT. Furthermore the present dependent claim 21 tries to define a wear state quantity which is calculated by adding a vibration component to a variation of the vibration component at a vibration center position. In the present description, page 9, lines 17-23, paragraph [0012], it is written that the wear state quantity may be calculated by adding a vibration component to a variation of a vibration center position of the vibration component. This contradiction between claim and description renders the definition of the subject-matter of said claim unclear (Article 6 PCT). Furthermore the term "vibration center position" is not a specific technical term and the reader can not find a clear definition of this term in the description while the reader would usually expect this term to define a mean value, paragraphs [0015] and [0056] cast doubt on this as there are different possible interpretations. Hence the description does not provide support and disclosure in the sense of Article 6 and 5 PCT. The non-compliance with the substantive provisions is to such an extent, that no meaningful search of claims 21, 25, 26, 34 and 35 could be carried out at all (Article 17(2) PCT). As a consequence no meaningful search for the dependent claim 27-28 could be carried out either.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2011/000080

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	WO 2010/049766 A1 (TOYOTA MOTOR CO LTD [JP]; OIKAWA YOSHITAKA [JP]) 6 May 2010 (2010-05-06) the whole document -----	1,2, 13-16, 18,24, 29,32
A	US 2002/072844 A1 (GRAS JUERGEN [DE] ET AL) 13 June 2002 (2002-06-13) the whole document -----	1-24, 29-33
A	FR 2 910 062 A1 (RENAULT SAS [FR]) 20 June 2008 (2008-06-20) abstract; figures 1-2 -----	3-12,17, 19-23, 30-33

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/000080

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