VEHICLE POWER SUPPLY SYSTEM

Abstract: A vehicle power supply system comprises an internal combustion engine (1) and a steam generator (2) arranged in a "closed system". Water, or another suitable working fluid, is supplied to the steam generator (2) whereupon it is heated using exhaust heat from the internal combustion engine (1). The steam that is generated is stored in a storage tank (3) until a later time, e.g. when the internal combustion engine (1) is not running, whereupon the steam is used to provide heat and/or power to vehicle. For example, the steam can be used to drive a generator (5), via an expander (4), to provide electricity for powering various electrical systems within the vehicle. Additionally, the hot exhaust (7) from the expander (4) can be supplied to a radiator (8) to provide heating for the vehicle cabin.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
22 May 2008
INTERNATIONAL SEARCH REPORT
International application No
PCT/GB2007/003644

A. CLASSIFICATION OF SUBJECT MATTER

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)

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>X</td>
<td>FR 2 864 148 A (PEUGEOT CITROEN AUTOMOBILES SA [FR]) 24 June 2005 (2005-06-24) columns 6,14; claims; figure 1</td>
<td>1,19,20, 23,36, 43,46,47</td>
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<td>Y</td>
<td>EP 0 930 185 A (TOYOTA MOTOR CO LTD [JP]) 21 July 1999 (1999-07-21) paragraph [0065]; claims; figure 1</td>
<td>2-5,8, 24-28,31</td>
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<td>DE 42 12 703 C1 (MERCEDES-BENZ ARTIENGESELLSCHAFT, 7000 STUTTGART, DE) 6 May 1993 (1993-05-06) the whole document</td>
<td>6,7,21, 22,29, 30,44,45</td>
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Further documents are listed in the continuation of Box C

X See patent family annex.

Date of the actual completion of the international search 7 December 2007

Date of mailing of the international search report 17/03/2008

Authorized officer Chavel, Jerome
INTERNATIONAL SEARCH REPORT

INTERNATIONAL application No. PCT/GB2007/003644

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.: 48-52
   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:

see additional sheet

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.:
   1- 8, 19- 31, 36, 43- 47

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.

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2005)
Continuation of Box II.2

Claims Nos.: 48-52

Claims 48-52 contain no searchable feature.

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-VJ, 8.5), should the problems which led to the Article 17(2) declaration be overcome.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8, 19-31, 36, 43-47
   Means for storing the heated working fluid.

2. claims: 9-11, 32-34
   Piston arrangement.

3. claims: 12-13, 16-18, 35, 37, 40-42
   Electric generator.

4. claims: 14-15, 38-39
   Catalytic converter.
<table>
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<tr>
<td></td>
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<td>WO 2005064133 A1</td>
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