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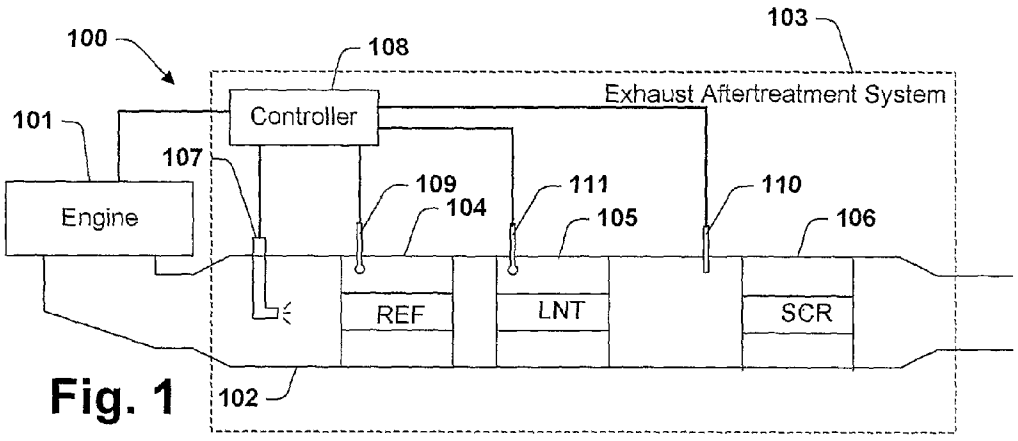

Fig. 1

(57) Abstract: A lean NO_X trap (105) is a diesel exhaust aftertreatment system (103) is selectively denitrated when a measure relating to NO_X loading, remaining NO_X storage capacity, or performance of the exhaust aftertreatment system (103) or a portion thereof comprising the lean NO_X trap (105) reaches a critical value. The critical value is determined based in part on conduciveness of current conditions to regenerating the lean NO_X trap (105). Accordingly, denitration is scheduled based on a balance between the urgency of the need to regenerate and conduciveness of current conditions to regeneration. The stopping point for regeneration can also be selected based on conduciveness of current conditions to regeneration. The method maintains exhaust aftertreatment performance while reducing regeneration fuel penalty.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2008/001604

A. CLASSIFICATION OF SUBJECT MATTER
INV. F02D41/02 F02D41/14

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

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 Y	WO 2006/131825 A (EATON CORP [US]; MCCARTHY JR JAMES E [US]) 14 December 2006 (2006-12-14) paragraph [0042] - paragraph [0049]; figures paragraphs [0069], [0077]	1-10 12-15
P,X	US 2008/006025 A1 (MCCARTHY JAMES EDWARD [US]) 10 January 2008 (2008-01-10) paragraph [0025] - paragraph [0048]; figures	1,6-8
X	US 2005/178110 A1 (MITAL RAHUL [US] ET AL) 18 August 2005 (2005-08-18) paragraph [0050] - paragraph [0051]; figure 3	1,4,5

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[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
27 February 2009	09/03/2009

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2008/001604

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.:
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:

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 allsearchable 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 reportcovers 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

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10

Method of operating a power generation system, comprising: operating a diesel engine to produce a lean exhaust comprising NOx; passing the exhaust through a NOx trap; and selectively denitrating the lean Nox trap based on balancing between a first factor relating to the state and or performance of the exhaust aftertreatment system or a portion thereof comprising the lean NOx trap and a second factor relating to the conduciveness of current conditions to regenerating the lean NOx trap with a low fuel penalty

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2. claims: 11-15

Method of operating a power generation system, comprising: operating a diesel engine to produce a lean exhaust comprising NOx; passing the exhaust through a NOx trap; and selectively denitrating the lean Nox trap when a measure relating to NOx loading, remaining NOx storache capaciy or performance of the exhaust aftertreatment system or a portion thereof comprising the lean NOx trap reaches a critical value; wherein the critical value is determined based in part on conduciveness of current conditions to regenerating the lean NOx trap

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2008/001604

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 370 868 B1 (KOLMANOVSKY ILYA VLADIMIR [US] ET AL) 16 April 2002 (2002-04-16) column 2, line 39 - column 3, line 6; figures	1,5,8
X	US 2003/089103 A1 (HAHN HERMANN [DE] ET AL HAHN HERMANN [DE] ET AL) 15 May 2003 (2003-05-15)	11
Y	paragraph [0022] - paragraph [0026]	12-15
A	US 2003/101713 A1 (DALLA BETTA RALPH [US] ET AL BETTA RALPH DALLA [US] ET AL) 5 June 2003 (2003-06-05) cited in the application abstract	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2008/001604

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006131825 A	14-12-2006	US 2006277898 A1	14-12-2006
US 2008006025 A1	10-01-2008	NONE	
US 2005178110 A1	18-08-2005	NONE	
US 6370868 B1	16-04-2002	NONE	
US 2003089103 A1	15-05-2003	NONE	
US 2003101713 A1	05-06-2003	NONE	