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**Datasheet for the decision
of 26 January 2009**

Case Number: T 0643/07 - 3.2.06

Application Number: 98913341.8

Publication Number: 0998625

IPC: F01N 3/00

Language of the proceedings: EN

Title of invention:

Reducing NOx emissions from an engine while maximizing fuel economy

Patentee:

Clean Diesel Technologies Inc.

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 123(2), 111(1)

EPC R. 84(2)

Relevant legal provisions (EPC 1973):

-

Keyword:

"Amendments - allowability (yes)"

"Remittal (yes)."

Decisions cited:

-

Catchword:

-



Case Number: T 0643/07 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 26 January 2009

Appellant: Clean Diesel Technologies Inc.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 6 February 2007
revoking European patent No. 0998625 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Alting Van Geusau
Members: G. Pricolo
K. Garnett

Summary of Facts and Submissions

- I. The appeal is from the decision of the Opposition Division posted on 6 February 2007 revoking European patent No. 0 998 625, granted in respect of European patent application No. 98 913 341.8.
- II. The patent as granted included two independent claims: claim 1 directed to a method of operating a lean-burn engine with high fuel economy and reduced emissions of NO_x, particulates, gaseous hydrocarbons and carbon monoxide, and claim 3 directed to an apparatus for controlling the operation of a lean-burn engine to obtain high fuel economy and low emissions of NO_x and particulates. The opposition division considered that the subject-matter of claim 1 as granted extended beyond the content of the application as filed because the features "high fuel economy" and "so as to maximize fuel economy" were not disclosed in the application as filed. Although the application as filed was clearly concerned with achieving fuel economy, and in particular good fuel economy, this was different from achieving "high" fuel economy or "maximizing" fuel economy. Claim 3 also included the contested features and additionally the feature concerning the presence of a feed forward controller, which feature was not disclosed in the application as filed in the specific context of features of claim 3. The opposition division did not consider the other grounds of opposition under Article 100(a) EPC and rejected the patent proprietor's auxiliary requests because they also did not comply with the requirements of Article 123(2) EPC.

- III. The appellant (patent proprietor) lodged an appeal on 12 April 2007. Payment of the appeal fee was recorded on the same day. With the statement setting out the grounds of appeal, received at the EPO on 15 June 2007, the appellant filed a new main request and five auxiliary requests for the maintenance of the patent in amended form.
- IV. The claims in accordance with the main request included claims 1 to 3 corresponding to granted claims 1, 3 and 4. As regards claim 1, the appellant essentially submitted that although "high fuel economy" was not literally found in the application as filed, in the context of the patent in suit it did not make any difference to a skilled person whether the fuel economy was "high" or "good". As regards the expression "so as to maximize fuel economy", the term "maximize" was explicitly mentioned on page 1 of the application as filed and it was clear to a skilled person that this term referred to the operation of a lean-burn engine. Accordingly, claim 1 did not contain subject-matter extending beyond the content of the application as filed.
- V. The respondent (opponent) did not file any observations in reply to the grounds of appeal and withdrew its opposition by letter dated 3 July 2008.
- VI. In a communication posted on 10 July 2008 accompanying the summons to oral proceedings pursuant to Article 11(1) of the Rules of Procedure of the Boards of Appeal, the Board expressed the preliminary opinion that claim 1 did not include subject-matter extending beyond the content of the application as filed, but

independent claim 2 (corresponding to granted claim 3) was not allowable under Article 123(2) in view of the presence of the feature relating to the feed-forward controller objected to by the opposition division. The appellant was informed of the Board's intention to remit the case to the opposition division in case one of the requests was found to meet the requirements of Article 123(2) EPC.

VII. With letter dated 18 December 2008 the appellant withdrew all previous requests and filed an amended set of claims consisting of an independent claim 1 and a dependent claim 2 together with an adapted description and Figures forming the basis for a new main request for maintenance of the patent in amended form.

The appellant submitted that the text of claim 1 as granted that had been considered so far was the text of claim 1 of the patent as published, but the latter did not correspond to claim 1 according to the "Druckexemplar" provided with the Communication under Rule 51(4) EPC 1973 dated May 21, 2004. That version of claim 1 contained a list of NO_x reducing agents which was not included in claim 1 of the patent as published. The German and French translations of claim 1 of the published patent also contained said list. Claim 1 of the new main Request was amended to include said list so as to correspond to claim 1 in accordance with the "Druckexemplar".

VIII. The Board cancelled the oral proceedings with communication dated 19 January 2009.

IX. Claim 1 according to the sole request of the appellant reads as follows (amendments with respect to claim 1 according to the patent as published have been underlined by the Board):

"1. A method for operating a lean-burn engine with high fuel economy and reduced emissions of NO_x, particulates, gaseous hydrocarbons and carbon monoxide, comprising: providing an exhaust system having an exhaust passage leading to a catalytic reactor effective for NO_x reduction by selective catalytic reduction utilizing a NO_x-reducing reagent selected from the group consisting of ammelide, ammeline, ammonium carbonate, ammonium bicarbonate, ammonium carbamate, ammonium cyanate, ammonium salts of inorganic acids, including sulfuric acid and phosphoric acid, ammonium salts of inorganic acids, ammonium salts of organic acids, biuret, cyanuric acid, hexamethylenetetramine isocyanic acid, lower alkyl amines, melamine, tricyanourea and urea; providing EGR for mixing exhaust gases from said exhaust passage and incoming air and supplying the resulting mixture to the engine; sensing operating parameters such as engine load, availability of NO_x-reducing agent and/or temperature of exhaust gas indicative of conditions effective for catalytic NO_x reduction by selective catalytic reduction; generating one or more operation signals representative of sensed operating parameters; comparing one or more operation signals to (a) reference value(s) to determine if catalytic NO_x reduction can be effectively operated; generating one or more control signals representative of the results of the comparison; and operating said catalytic reactor for selective catalytic reduction

with introduction of one of said NO_x reducing reagents and/or said EGR unit in response to said one or more control signals so as to maximize fuel economy and assure NO_x reduction."

Reasons for the Decision

1. The appeal is admissible.

2. The subject-matter of claim 1 as granted was considered by the Opposition Division to extend beyond the content of the application as filed in view of the presence of the expressions "high fuel economy" and "so as to maximize fuel economy". The same features are present in the current claim 1.
 - 2.1 The expression "high fuel economy" cannot indeed be found literally in the application as filed. However, the Board does not agree with the Opposition Division (see page 8 of the decision under appeal) that "high fuel economy" is a clear limitation over original claim 1 that recites "good fuel economy". In fact, neither the former expression nor the latter define a specific limitation for claim 1. In the present context their meaning does not go beyond that of "fuel economy" to be achieved by the method for operating a lean-burn engine recited in claim 1. In other words, the "fuel economy" in the context of claim 1 is that which is achieved as a direct result of the method steps recited by the claim and therefore the designation "good" or "high" is devoid of any particular significance. In any case, it is disclosed in the application as filed (see page 4, line 20), in a general context, that it is an object of

the invention to "optimize" fuel economy. Since "to optimize" means "to make as effective as possible", i.e. as "high" as possible, the expression "high fuel economy" is clearly derivable from the disclosure of the application as filed.

2.2 Also the expression "so as to maximize fuel economy" is not recited in the claims and description of the application as filed, but only in the title of the application as filed (which is reproduced on the first page of the description after the heading "Description"). Irrespective of such mention in the title, the Board takes the view that "maximizing fuel economy" merely means achieving such fuel economy as can be directly achieved by the method steps recited by claim 1. Thus, also here, the term "maximizing" is devoid of any particular significance. In any case, the above-mentioned generic disclosure of "optimizing fuel economy" forms a suitable basis for introducing "so as to maximize fuel economy" in claim 1. In the context of achieving fuel economy in an engine, the terms "maximize" and "optimize" have the same meaning of making fuel economy as effective as possible.

2.3 Accordingly, the Board comes to the conclusion that the above mentioned features objected to by the opposition division do not introduce subject-matter extending beyond the content of the application as filed.

3. Claim 1 under consideration includes, in addition to the wording of granted claim 1, the list of NO_x reducing reagents recited in claim 4 of the application as filed and in claim 3 as granted. Although original claim 4 specifies that the reducing reagents are solid, this

limitation is not present in the description of the application as filed (see the paragraph bridging pages 8 and 9). Hence the amendment made to claim 1 consisting of including said list of NO_x reagents without specifying that the reagents are solid does not give rise to objections under Article 123(2) EPC.

- 3.1 The appellant submitted that the list of NO_x agents was already present in claim 1 according to the "Druckexemplar", namely the patent specification accompanying the communication pursuant to Rule 51(4) EPC 1973, i.e. in claim 1 on which the examining division's decision to grant a patent posted on 14 October 2004 was based.

An inspection of the "Druckexemplar" by the Board has revealed that the list of NO_x reducing reagents was excised from claim 1 and introduced into independent claim 3 by means of a hand-written amendment: the list is within angle brackets in claim 1 and claim 3 contains the text "copy from claim 1 above" also within angle brackets. Though the Board cannot rule out that it was the applicant's intention to have said list in both independent claims 1 and 3, this cannot be objectively inferred from the Druckexemplar. The fact that the German and French translations of claim 1 include said list is irrelevant because according to Article 70(1) EPC the text of a European patent in the language of the proceedings shall be the authentic text in any proceedings before the European Patent Office and in any Contracting State.

- 3.2 This notwithstanding the Board sees no reason to object to the introduction in claim 1 of the above-mentioned

list, because it is not objectionable under Article 123(2) EPC and it restricts the scope of the claim (in this respect it is noted that the opposition was also filed on grounds under Article 100(a) EPC).

4. Nor does the Board see any reason to object to the amendment of the obviously incorrect expression "one or more control signal" to read "one or more control signals".
5. It follows from above that claim 1 under consideration meets the requirements of Article 123(2) and (3) EPC. Dependent claim 2, corresponding to granted claim 4 which was not objected to under Article 100(c) in the opposition proceedings, likewise meets the requirements of Article 123(2) and (3) EPC.
6. The decision under appeal only considered the issue of the amendments (Article 100(c) and 123(2) EPC) and did not consider the grounds of lack of novelty and inventive step (Article 100(a) EPC) raised in the notice of opposition. In accordance with to Rule 84(2) EPC, the opposition proceedings may be continued by the European Patent Office of its own motion even if, as in the present case, the opposition has been withdrawn. This may result in the patent not being maintained with the claims under consideration. In any case, as regards the claims under consideration, it has still to be assessed whether the description and figures are in conformity with the amendments made. Under these circumstances, and in accordance with the indications given in the communication accompanying the summons to oral proceedings, the Board holds it appropriate to

exercise its discretion under Article 111(1) EPC to remit the case to the opposition division.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division for continuation of the opposition proceedings.

The Registrar:

The Chairman:

M. Patin

P. Alting van Geusau