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**Datasheet for the decision
of 20 November 2007**

Case Number: T 0974/05 - 3.2.06

Application Number: 98115934.6

Publication Number: 0899431

IPC: F01N 3/20

Language of the proceedings: EN

Title of invention:

Device for purifying exhaust gas of engine

Patentee:

Toyota Jidosha Kabushiki Kaisha

Opponent:

PEUGEOT CITROEN AUTOMOBILES

Headword:

-

Relevant legal provisions:

EPC Art. 87(1), 54(2), 123(2)

Keyword:

"Priority right - not valid"

"Novelty (no) - main request"

"Unallowable extension of subject-matter by extracting from the description a feature disclosed in combination with other features"

Decisions cited:

G 0002/98

Catchword:

-



Case Number: T 0974/05 - 3.2.06

DECISION
of the Technical Board of Appeal 3.2.06
of 20 November 2007

Appellant: Toyota Jidosha Kabushiki Kaisha
(Patent Proprietor) 1, Toyota-cho
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471-8571 (JP)

Representative: TBK-Patent
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Respondent: PEUGEOT CITROEN AUTOMOBILES
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Representative: Gendraud, Pierre
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
31 May 2005 concerning maintenance of European
patent No. 0899431 in amended form.

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 interlocutory decision of the Opposition Division posted on 31 May 2005 concerning the maintenance in amended form of European patent No. 0 899 431, granted in respect of European patent application No. 98 115 934.6.
- II. In the decision under appeal the Opposition Division considered that the claims of the patent as granted were entitled to the priority date of 25 August 1997 and that, therefore, document

D1: US-A-5 758 493,

published on 2 June 1998, did not form part of the state of the art (Article 54(2) EPC) and was not to be taken into account for assessing novelty and inventive step. The Opposition Division came to the conclusion that the subject-matter of claim 1 as granted, and of claim 1 according to the first, second and fourth auxiliary requests of the patentee, lacked an inventive step over the available prior art, and allowed the third auxiliary request filed during the oral proceedings held on 8 March 2005.
- III. The appellant (patentee) lodged an appeal, received at the EPO on 28 July 2005, against this decision and paid the appeal fee on the same date. With the statement setting out the grounds of appeal, received at the EPO on 10 October 2005, the appellant requested that the decision of the Opposition Division be set aside and the patent maintained as granted.

IV. In the communication dated 4 July 2007 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 of the patent as granted was not entitled to the claimed priority and that its effective date was the filing date (Article 87(1) and 89 EPC). Accordingly, D1 should be regarded as forming part of the state of the art under Article 54(2) EPC. The Board further stated its preliminary view according to which D1 appeared to disclose all the features of claim 1 of the patent as granted, and therefore the subject-matter of claim 1 did not appear to be novel.

V. In response to the communication of the Board the appellant submitted on 25 October 2007 new first, second and third auxiliary requests.

VI. Oral proceedings took place on 20 November 2007.

During these proceedings the appellant withdrew the auxiliary requests previously filed and requested that the decision under appeal be set aside and that the patent be maintained as granted or on the basis of the auxiliary request filed during the oral proceedings.

The respondent (opponent) requested that the appeal be dismissed.

VII. Claim 1 as granted reads as follows:

"1. A device for purifying the exhaust gas of an engine (1) having an exhaust passage (8, 11), the device comprising:

an exhaust gas purifying catalyst (12) arranged in the exhaust passage; a start catalyst (9) arranged in the exhaust passage upstream of the exhaust gas purifying catalyst; means (1a; 1a; 1b; 132) for forming a gas including oxygen; means (1b, 131; 1a; 1b) for forming a gas including a reducing agent, wherein at least one of the gas including oxygen and the gas including the reducing agent is formed from the exhaust gas of the engine and wherein, if the gas including oxygen and the gas including the reducing agent are mixed, the gas mixture is fed to the exhaust gas purifying catalyst (12) without flowing the gas mixture into the start catalyst (9), characterized by judging means (20) for judging whether the exhaust gas purifying catalyst (12) is poisoned by sulphur containing components and/or a soluble organic fraction; and means (20) for reactivating the exhaust gas purifying catalyst which, after judging that the exhaust gas purifying catalyst is poisoned, mix the gas including oxygen and the gas including the reducing agent and feed the gas mixture to the exhaust gas purifying catalyst (12) so that the oxygen and the reducing agent react with each other to increase the temperature of the exhaust gas purifying catalyst to a temperature required for reactivation."

Claim 1 according to the auxiliary request differs from claim 1 as granted in that the expression "at least one" has been deleted ("*...wherein ~~at least one~~ of the gas including oxygen and the gas including the reducing agent is formed from the exhaust gas of the engine...*") and in that the following wording has been introduced (after the text "*...without flowing the gas mixture into the start catalyst (9),*"):

"wherein lean air-fuel ratio exhaust gas as oxygen including gas is mixed with rich air-fuel ratio exhaust gas as reducing agent including gas in an interconnecting exhaust passage after the gases passed the start catalyst".

VIII. The arguments of the appellant, insofar as they are relevant to the present decision, can be summarized as follows:

Claim 1 as granted was not restricted to the four embodiments disclosed in the description of the priority document. The wording of the claims of the priority document was generic and not limited to these embodiments; it formed a suitable basis to derive the subject-matter of claim 1 as granted. In any event, claim 1 in practice only covered the four embodiments disclosed in the description of the priority document. No other embodiments would be envisaged by a skilled person. Accordingly, claim 1 was directed to the same invention as the priority document and, as a consequence, was entitled to the priority right.

Claim 1 according to the auxiliary request was amended by including the feature taken from the description of the patent in suit, according to which lean air-fuel ratio exhaust gas as oxygen including gas was mixed with rich air-fuel ratio exhaust gas as reducing agent including gas in an interconnecting exhaust passage after the gases passed the start catalyst. Although this feature was taken from the description, where it was presented in combination with other features of a specific embodiment, it was clear for the skilled person that this feature was also to be seen in the

more general context of the combination of features according to claim 1.

- IX. The respondent agreed with the objections raised by the Board in its communication in respect of the main request. It also agreed with the objections raised by the Board during the oral proceedings in respect of the auxiliary request, according to which claim 1 did not meet the requirements of Article 123(2) EPC because the amendment, which consisted of the addition of a feature taken from the description, constituted an unallowable generalization of a specific embodiment.

Reasons for the Decision

1. The appeal is admissible.
2. *Main request (patent as granted)*
 - 2.1 Priority
 - 2.1.1 According to decision G 2/98 (see the headnote), "*the requirement for claiming priority of "the same invention", referred to in Article 87(1) EPC, means that priority of a previous application in respect of a claim in a European patent application in accordance with Article 88 EPC is to be acknowledged only if the skilled person can derive the subject-matter of the claim directly and unambiguously, using common general knowledge, from the previous application as a whole.*"
 - 2.1.2 According to the wording of claim 1 as granted, the gases which are mixed are, broadly, a gas including

oxygen and a gas including a reducing agent. Only one of these gases needs to be formed from the exhaust gas of the engine (see claim 1: "*at least one of the gas including oxygen and the gas including the reducing agent is formed from the exhaust gas of the engine*"). Claim 1 leaves open how the other gas is formed. In particular, if the gas including oxygen is formed from the exhaust gas (as is the case when the engine is in lean air-fuel ratio operation), then the gas including the reducing agent may be formed in any other manner, and may include any appropriate reducing agent.

- 2.1.3 The appellant did not contest that the priority document for the patent in suit only discloses four different embodiments, namely:
- mixing lean air-fuel ratio exhaust gas with rich air-fuel ratio exhaust gas (two embodiments, of Figs. 1 and 11 respectively), or
 - mixing lean air-fuel ratio exhaust gas with a secondary fuel supply (embodiment of Fig. 13), or
 - mixing rich air-fuel ratio exhaust gas with a secondary air supply (embodiment of Fig. 17).

In all these embodiments fuel is used as the reducing agent. Contrary to the Opposition Division's view (see page 4, penultimate paragraph, of the decision under appeal), the disclosure of these embodiments does not constitute a sufficient basis to conclude that the skilled person would directly and unambiguously derive from the priority document that "*any reducing medium*" other than fuel "*would automatically be seen as being included in the disclosure*". Indeed, the disclosure of fuel in the embodiments is a specific disclosure which

does not form the basis for a general disclosure of any reducing medium.

2.1.4 The appellant submitted that the claims of the priority document (Japanese document P-9-228472 filed on 25 August 1997) were drafted in general terms and not limited to the specific embodiments disclosed in the description. However, the independent claims 1, 3 and 7 of the priority document specify "a rich air-fuel ratio" of the exhaust gas, whereby the exhaust gas having the rich air-fuel ratio corresponds to the gas including a reducing agent. According to independent claim 5, the reducing agent is not any reducing medium but a specific class of reducing media, namely hydrocarbon. In any case, claim 5 discloses hydrocarbon but only in combination with a hydrocarbon supply port connected to the exhaust passage upstream of the exhaust gas purifying catalyst, a feature whose presence is not required by claim 1 of the patent in suit. Therefore, the claims of the priority document also do not form a basis for the general formulation of claim 1 of the patent in suit according to which any reducing agent may be used.

2.1.5 The appellant further submitted that in practice claim 1 only covered the four embodiments disclosed in the description of the priority document. The appellant however did not substantiate this submission either by explaining why the skilled person reading the patent in suit would only consider fuel, or hydrocarbon, as a reducing medium, or by filing any evidence in support of this submission. Under these circumstances, and considering that in the Board's view the skilled person

is generally aware of reducing media other than engine fuel, the appellant's argument cannot be accepted.

2.1.6 Accordingly, claim 1 of the patent as granted does not meet the requirement for claiming priority of "the same invention", referred to in Article 87(1) EPC. It follows that claim 1 is not entitled to the priority of the Japanese document P-9-228472 filed on 25 August 1997 and that its effective date is the filing date (24 August 1998) of the European application from which the patent in suit originates.

2.2 Novelty

2.2.1 The effective date of claim 1 being later than the publication date of D1, this document forms part of the state of the art in accordance with Article 54(2) EPC.

2.2.2 During the oral proceedings the appellant stated that it did not wish to make any submissions in respect of D1. The Board therefore sees no reasons to deviate from the detailed analysis of D1 contained in the communication annexed to the summons to oral proceedings, and which is repeated below.

2.2.3 Using the wording of claim 1 of the patent in suit, D1 discloses a device for purifying the exhaust gas of an engine having an exhaust passage, the device comprising: an exhaust gas purifying catalyst (16) arranged in the exhaust passage; a start catalyst (the three-way catalytic converter 14 can be regarded as a start converter in the sense of the patent in suit, see col. 2, lines 14 to 21) arranged in the exhaust passage upstream of the exhaust gas purifying catalyst; means

for forming a gas including oxygen (lean exhaust stream); means for forming a gas including a reducing agent (rich exhaust stream, see col. 2, lines 28 to 54), wherein at least one (both) of the gas including oxygen and the gas including the reducing agent is formed from the exhaust gas of the engine and wherein, if the gas including oxygen and the gas including the reducing agent are mixed, the gas mixture is fed to the exhaust gas purifying catalyst without flowing the gas mixture into the start catalyst (see col. 2, lines 28 to 48), judging means for judging whether the exhaust gas purifying catalyst is poisoned by sulphur containing components and/or a soluble organic fraction (col. 3, lines 33 to 36); and means for reactivating the exhaust gas purifying catalyst which, after judging that the exhaust gas purifying catalyst is poisoned, mix the gas including oxygen and the gas including the reducing agent and feed the gas mixture to the exhaust gas purifying catalyst so that the oxygen and the reducing agent react with each other to increase the temperature of the exhaust gas purifying catalyst to a temperature required for reactivation.

Therefore, D1 discloses all the features of claim 1.

2.3 It follows that the appellant's main request cannot be allowed for lack of novelty of the subject-matter of claim 1 (Article 54(2) EPC).

3. *Auxiliary request*

3.1 Claim 1 is amended by specifying that both the gas including a reducing agent and the gas including oxygen

are formed from the exhaust gas of the engine, and by including the feature:

"wherein lean air-fuel ratio exhaust gas as oxygen including gas is mixed with rich air-fuel ratio exhaust gas as reducing agent including gas in an interconnecting exhaust passage after the gases passed the start catalyst",

which is taken from the description of an embodiment of the patent in suit (see par. [0050], and the corresponding paragraph on page 20, line 33 ff., of the application as filed). This was accepted by the appellant. This embodiment, shown in particular in Fig. 1, is the sole embodiment of the patent in suit in which the lean air-fuel ratio exhaust gas is mixed with rich air-fuel ratio exhaust gas after having passed through the start catalyst. In accordance with this embodiment these gases are mixed after they have passed, separately, through a first start catalyst (9a) and a second start catalyst (9b). The passing of each gas through a separate start catalyst is essential in order to ensure the supply of a large amount of HC and oxygen to the exhaust gas purifying catalyst (12) and, therefore, the sufficient increase of its temperature (see par. [0050] of the patent in suit). In the application as filed, the combination of (a) the feature according to which lean air-fuel ratio exhaust gas and air-fuel ratio exhaust gas are mixed in an interconnecting exhaust passage, and (b) the feature relating to the presence of separate start catalysts is presented as essential. The amendment consists of introducing into claim 1 only the former feature and not the latter: this constitutes an extension of the

subject-matter beyond the content of the application as filed (Article 123(2) EPC; see e.g. T 714/00, point 3.3 of the reasons).

It is noted that claim 1 as amended includes the possibility, not disclosed in the application as filed, that the gases pass through a single start catalyst which is arranged to keep the gas separated.

3.2 It is further noted that in the embodiment of the patent in suit on which the appellant has based the amendment of claim 1, the gas including oxygen and the gas including the reducing agent are formed from the exhaust gas of the engine in a very specific manner (by operating different fuel injections in first and second cylinder groups; see par. [0034] of the patent in suit). Claim 1 as amended leaves open how the gas including oxygen and the gas including the reducing agent are formed from the exhaust gas of the engine. There is however is no basis in the application as filed for such a generic formulation, the only possibility of forming these gases being that disclosed in connection with the above-mentioned embodiment.

3.3 It follows that the auxiliary request cannot be allowed because it does not meet the requirements of Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Patin

P. Alting Van Geusau