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**Datasheet for the decision
of 21 April 2016**

Case Number: T 1090/13 - 3.2.01

Application Number: 07123254.0

Publication Number: 1932697

IPC: B60H1/00, B60H1/32, B61D27/00

Language of the proceedings: EN

Title of invention:
Air-conditioning device for a transport vehicle, and
corresponding transport vehicle

Patent Proprietor:
Iveco France S.A.

Opponent:
Daimler AG

Headword:

Relevant legal provisions:
EPC Art. 54, 56
RPBA Art. 12(4)

Keyword:

Inventive step (yes)

Admission of late filed documents (no)

Decisions cited:

Catchword:



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Case Number: T 1090/13 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 21 April 2016

Appellant: Daimler AG
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Respondent: Iveco France S.A.
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted on 27 February 2013 rejecting the opposition filed against European patent No. 1932697 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman G. Pricolo
Members: C. Narcisi
P. Guntz

Summary of Facts and Submissions

- I. The opposition against European patent No. 1 932 697 was rejected by the decision of the Opposition Division posted on 27 February 2013. Against this decision an appeal was lodged by the Opponent on 2 May 2013 and the appeal fee was paid at the same time. The statement of grounds of appeal was filed on 9 July 2013.
- II. Oral proceedings were held 21 April 2016. The Appellant (Opponent), which was duly summoned, did not attend the oral proceedings, as previously advised with fax dated 15 April 2016. The Appellant requested, as submitted during the written proceedings, that the impugned decision be set aside and that the patent be revoked. The Respondent (Patentee) requested that the appeal be dismissed.
- III. Granted claim 1 reads as follows:
- "Air-conditioning device for transport vehicle, specifically of the bus, trolleybus, streetcar or coach variety, comprising a main cooling zone (Z) which includes a compressor (8), a main loop (10) conveying a main refrigerant, as well as a condensation stage (C) and an evaporation stage (E) crossed by said main loop (10) and an auxiliary loop (16) conveying auxiliary refrigerant, said auxiliary loop exchanging heat, on one side with the main loop (10) and on the other with the air to be conditioned in the vehicle's passenger compartment; the device being characterized in that said auxiliary loop (16) is connected with a tank (18) of cold auxiliary refrigerant, maintained at a temperature of between 5° and 10°."

IV. The Appellant's submissions may be summarized as follows:

The subject-matter of claim 1 is not new over D1 (Artikel "TopAir, das HVAC-System der SETRA TopClass 400", aus VDI Berichte Nr. 1617, 2001, S. 187-210). All of the features of the preamble of the claim are undisputedly known from D1, the contentious features thus being only those of the characterizing portion of the claim, i.e. that "said auxiliary loop (16) is connected with a tank (18) of cold auxiliary refrigerant, maintained at a temperature of between 5° and 10°" (hereinafter designated as feature (i)). These features are however likewise known from D1, contrary to the view expressed in the impugned decision. In effect, D1 discloses a gas bubble separator ("Gasblasenabscheider", see figures 6 and 7 as well as page 196 of D1) with a water-glycol mixture flowing therethrough in the heating loop operating mode (see figure 6). This gas bubble separator forms also part of the auxiliary loop conveying auxiliary refrigerant (see figure 7 and page 197) and therefore it contains auxiliary refrigerant, thereby representing a tank according to feature (i). Further, the wording "maintained at a temperature of between 5° and 10°" (in feature (i)) cannot be construed such as implying that additional means (including sensors) are provided for controlling and maintaining the temperature within said range in said tank, since the technical teaching in the patent specification (hereinafter designated as EP-B) does not disclose any control means of this kind. Consequently, it can only be derived from feature (i) that the temperature of the auxiliary refrigerant in said tank is essentially the same as the temperature of auxiliary refrigerant within said auxiliary loop. Hence, the choice of said temperature range (between 5°

and 10°) does not distinguish the claimed subject-matter from D1 either, given that this merely amounts to an arbitrary selection of a temperature subrange from a broader temperature range of between -10° and 20° as commonly and generally used in refrigeration loops for air-conditioning systems. It is thus concluded that D1 anticipates the claimed subject-matter.

Document D4 (printout of an instruction CD concerning "Heizung-/Lüftung-/Klimaregelung "TopAir " BR 400") should be admitted to the appeal proceedings due to its relevance, in particular for the assessment of inventive step starting from D1. Contrary to the view of the Opposition Division D4 is prima facie relevant since it clearly discloses according to feature (i) that the refrigerant in the auxiliary loop is "maintained at a temperature of between 5° and 10°". Specifically, on page 8 it indicates a temperature of between 2° and 6° C° at the evaporator inlet and a temperature spread (or difference) of ca. 6°-7° C between evaporator inlet and outlet. Starting from D1 and assuming the mentioned temperature range of feature (i) to be not known from D1 the skilled person would aim at improving the air-conditioning in the passenger cabin through a uniform and homogeneous temperature distribution. The obvious solution, already suggested by D1 on page 197, consists in providing additional cooling in the auxiliary loop, for ameliorating heat exchange with the diffusers on the roof of the vehicle ("die Verbraucher Dach und Frontbox werden jetzt über den ... Zentralkreislauf mit kalter Sole beaufschlagt"). The skilled person would (as previously stated) moreover derive said temperature range from D4 (or from D2 (W. Beitz und K-H. Grote (Hrsg.) "Dubbel-Taschenbuch für den Maschinenbau", 20. Aufl., 2001, S.

M11)) and thereby arrive at the claimed subject-matter in an obvious way. The subject-matter of claim 1 hence lacks an inventive step over D1 in view of D4 or D2.

V. The Respondent's submissions may be summarized as follows:

The subject-matter of granted claim 1 is new over D1, since there is no evidence that said gas bubble separator is included within the auxiliary refrigerant loop disclosed in D1 and since said gas bubble separator cannot be deemed to be a tank. Indeed, no gas bubble separator is visible in the auxiliary refrigerant loop as shown in figure 5 of D1, whereas such a gas bubble separator is clearly visible (and identified as such) in the heating fluid loop illustrated in figure 6, as likewise described on page 196 of D1. In figure 7 of D1 (showing both the auxiliary refrigerant loop and the heating fluid loop) a circuit component (not identified as a gas bubble separator) is provided at a T-Junction between the heating fluid loop and the auxiliary refrigerant loop. However, the actual fluid connections during operation of the auxiliary refrigerant loop in figure 7 are not disclosed in D1. Therefore, figure 7 being a schematic drawing (with no specific fluid connections being disclosed relating to the various operating modes), in all likelihood said circuit component is presumably bypassed during operation of the circuit as a cooling circuit, as suggested by figures 5 and 6. In addition, the gas bubble separator of D1 cannot be viewed as being a tank within the meaning of claim 1, for this could only hold true if a sufficient quantity of refrigerant were provided therein, in order to produce the thermic inertia necessary for obtaining the desired effect (see EP-B, [0028]) of improving the temperature

distribution. Indeed, only a sufficient refrigerant mass can ensure for instance that air conditioning continues after switching off the motor for a short period of time. Finally, as can be inferred from feature (i), the tank is maintained within said temperature range, which is not known from D1.

The skilled person starting from D1 would not arrive in an obvious manner at the claimed subject-matter. Indeed neither D2 nor D4 suggest providing a tank in the auxiliary refrigerant loop and keeping the refrigerant within the tank at said cooling temperature. Therefore D4 was rightly not admitted to the opposition proceedings according to the impugned decision.

Reasons for the Decision

1. The subject-matter of granted claim 1 is new over D1. Firstly, the Board takes the view that there is no clear and unambiguous disclosure in D1 that said gas bubble separator forms part of the auxiliary refrigerant loop, for the disclosure of figures 5, 6 and 7 disagree in this respect. In effect, figure 5 does not show any gas bubble separator included in the auxiliary loop and figure 7 merely shows a circuit component (not identified as gas bubble separator) located at a T-junction (between the auxiliary refrigerant loop and the heating fluid loop) such that in the heating loop operating mode the equivalent heating loop as shown in figure 6 would result. However it is not unambiguously clear from D1 whether, during operation of the auxiliary refrigerant loop (and of the main refrigerant loop) shown in figure 7, auxiliary refrigerant actually flows through said circuit component or it is bypassed, as apparently suggested by figure 5. Hence, no definite conclusions can be drawn

from D1 as to whether the "auxiliary loop" is connected to a structure that might constitute a tank since the specific fluid connections for the operating mode of the auxiliary refrigerant loop are not disclosed in sufficient detail in D1.

Further, D1 fails to disclose that said circuit component (allegedly a gas bubble separator) contains a sufficient quantity of auxiliary refrigerant such that it may act as and may be equated with a tank. This is not automatically the case, since it is obviously possible that fluid merely flows through the gas bubble separator, gas separation occurring without any significant quantity of fluid being necessarily stored in the gas bubble separator.

Finally, it is quite evident from the wording of feature (i), i.e. "said auxiliary loop (16) is connected with a tank (18) of cold auxiliary refrigerant, maintained at a temperature of between 5° and 10°", that the expression "maintained at a temperature of between 5° and 10°" refers to the "tank of cold auxiliary refrigerant" (i.e. to the auxiliary refrigerant in the tank) and not to the auxiliary loop in its entirety (contrary to the Appellant's view). This is confirmed by the description of EP-B (see paragraphs [0008], [0019], [0028]) and moreover a different interpretation would not be technically sensible, due to the large temperature variations and oscillations within the auxiliary loop as a whole, as produced by the various heat exchangers or roof diffusers installed for air-conditioning of the passenger cabin. By contrast, it is certainly technically possible and feasible (and this was not disputed by the Appellant) to maintain auxiliary refrigerant within said tank at a temperature within

said range (for instance using sensor means or any means known at the priority date of the patent), and this is the only appropriate interpretation of feature (i). This is also not known from D1, contrary to the Appellant's view. It ensues that the subject-matter of claim 1 is new over D1 (Article 54 EPC).

2. The Board sees no ground to set aside the decision of the Opposition Division not to admit D4 to the opposition proceedings according to Article 114(2) EPC because it considers that the Opposition Division properly exercised its discretionary power. The Appellant challenges the Opposition Division's decision by providing arguments why the Opposition Division's discretion should have been exercised differently but the Appellant did not show that any misuse of discretion occurred. In effect, the Opposition Division, based on a prima facie analysis of D4, concluded that this document did not provide any suggestions to the skilled person which would obviously lead him to the claimed features which were supposedly missing in D1. In particular it was considered that D4 did not provide any information going beyond that derivable from D1. The Opposition Division thus applied the proper criteria during exercise of its discretionary power, and during prima facie examination of possibly relevant features (see for instance the indications concerning the temperature of the refrigerant in the evaporator on page 8 of D4) these were adequately and exhaustively discussed. The Appellant also did not provide arguments concerning any specific reason arising during appeal proceedings which would allow the Board to exercise its own discretion under Article 12(4) RPBA differently.

3. The subject-matter of claim 1 involves an inventive step over D1, particularly in view of D2. In effect, D2 merely discloses that specific water-glycol mixtures used as a refrigerant may operate in a temperature range with a lower limit of - 20°C. The skilled person cannot derive from this feature in D2 any suggestion pointing to the installation of a tank containing auxiliary refrigerant in the auxiliary loop according to feature (i) (see above). Neither does D1 include such indications since D1 solely discloses cooling of auxiliary refrigerant (water-glycol mixture in the auxiliary loop) through heat exchange with the evaporator of the main cooling loop (D1, page 197, figure 7). Feature (i), which likewise does not form part of common general knowledge, contributes to providing an improved temperature distribution which is more stable (less prone to sudden temperature changes (or transients) due for instance to temporarily switching off the motor) and more uniform. Thus, starting from D1, the skilled person in view of common general knowledge and of the further cited prior art would not arrive in an obvious manner at the subject-matter of claim 1 (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated