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**Datasheet for the decision
of 16 October 2017**

Case Number: T 0846/16 - 3.5.02
Application Number: 07828837.0
Publication Number: 2120331
IPC: B60L3/00, H02P27/06, B60H1/00,
B60H1/32
Language of the proceedings: EN

Title of invention:

Inverter System for Vehicle-mounted Air Conditioner

Patent Proprietor:

Mitsubishi Heavy Industries, Ltd.

Opponent:

Valeo Systèmes de Contrôle Moteur

Relevant legal provisions:

EPC Art. 123(2)
EPC R. 101, 139
RPBA Art. 12(2), 12(4)

Keyword:

Admissibility of the appeal (yes)
Admissibility of late filed arguments (yes)
Amendments - allowable (no)
Correction of error - (no)



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Case Number: T 0846/16 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 16 October 2017

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Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
9 February 2016 concerning maintenance of the
European Patent No. 2120331 in amended form.

Composition of the Board:

Chairman R. Lord
Members: H. Bronold
R. Cramer

Summary of Facts and Submissions

- I. The appeal lies from the interlocutory decision of the opposition division concerning the maintenance of European patent No. 2 120 331 in amended form. The application which led to the grant of the patent in suit was originally filed in Japanese as international application PCT/JP2007/069096, which was published as WO 2008/108020.
- II. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.
- III. The respondent (patent proprietor) requested that the appeal be declared inadmissible. If the appeal were found to be admissible, they requested that it be dismissed, or alternatively that the decision under appeal be set aside and the patent be maintained in amended form on the basis of claim 1 of their first auxiliary request filed during the oral proceedings before the board, or that the patent be maintained in amended form on the basis of the claims of one of their second to fourth auxiliary requests filed as first to third auxiliary requests with the response to the statement of grounds of appeal.
- IV. In a communication under Article 15(1) RPBA sent together with the summons to oral proceedings the board had informed the parties that the admissibility of the appeal was to be discussed during the oral proceedings and, if the decision on this was in the affirmative, that it was also to be discussed whether the patent in amended form contravened Article 123(2) EPC.

Oral proceedings were held before the board on 16 October 2017.

V. Claim 1 of the patent in the form underlying the decision of the opposition division reads:

"An inverter system (20) for an on-vehicle air conditioner that controls an operation of a motor (30) for driving a compressor that constitutes the on-vehicle air conditioner, comprising:
a switching element (21) for rotationally driving said motor (30);
a gate circuit (22) for driving a gate of said switching element (21);
a control circuit (24) that controls a supply of a current to said gate circuit (22); and
a communication interface (27) that communicates with a host control circuit (60) that issues a command to said control circuit (24) from outside said inverter system (20),
characterized in that
the communication interface (27) comprises a communication driver (27a), and an interface (27b) for transmitting data between the communication driver (27a) and the control circuit (24) while ensuring electrical isolation,
the switching element (21) is supplied voltage from a first power source (40),
the communication interface (27) is isolated from the first power source (40) that applies a predetermined first voltage to said motor (30), and the gate circuit (22), the control circuit (24) and the communication interface (27) also receive a supply of a voltage from a second power source (50) that also applies a second voltage lower than said first voltage to said host control circuit (60),

wherein said inverter system further comprises an isolated converter (26) that converts the voltage supplied from said second power source (50) into a third voltage different from said first voltage and said second voltage and supplies the voltage to said control circuit (24),

wherein said inverter system further comprises a temperature detection circuit (28) that detects a temperature of said switching element (21) when said first voltage is applied from said first power source (40),

said control circuit (24) performs diagnosis of said switching element (21) on the basis of the temperature of said switching element (21) detected by said temperature detection circuit (28), and stores information indicating the diagnosis result in a diagnosis result information storage portion (25), and said control circuit (24) refers to the information indicating said diagnosis result stored in said diagnosis result information storage portion (25) when receiving the supply of the voltage from said second power source (50) with said first voltage being not applied from said first power source (40) to said motor (30)." (emphasis of the disputed amendment of feature H) added by the board)

Independent apparatus claims 3 and 4 also comprise the disputed amendment of feature H) relevant for this decision "the communication interface (27) is isolated from the first power source (40)"

- VI. Claim 1 according to the first auxiliary request differs from claim 1 according to the main request only in that the corresponding disputed amendment of feature H) reads "the communication driver (27a) is isolated from the first power source (40)".

VII. In independent claims 1, 3 and 4 according to the second to fourth auxiliary requests, the corresponding disputed amendment reads "so that the communication interface (27) is isolated from the first power source (40)", as in the main request. These auxiliary requests differ from the main request only by amendments relating respectively to a current detection circuit, to the diagnosis result information storage portion and to the control circuit.

VIII. The arguments of the appellant relevant for this decision can be summarised as follows:

The appeal was admissible since the patent proprietor had changed their argumentation regarding the disputed amendment of the independent claims of the patent only at a very late stage, i.e. during the oral proceedings before the opposition division.

The amendment to the independent claims of the patent in the form underlying the decision of the opposition was not a correction in the sense of Rule 139 EPC following from the correction of the description which had been carried out during the pre-grant procedure, since it was neither obvious that there was a mistake in the original claim, nor was it immediately evident what the correction should be.

In the English translation of the description of the A1 publication it was consistently specified that the inverter system is isolated from the first power source. Even after the correction under Rule 139 EPC, the disclosure of the description was unamended with respect to the inverter system being isolated from the

first power source. Thus, there was no obvious mistake in claim 1 of the main request.

Further, the correction that the communication interface was isolated from the first power source was not immediately evident. The description specified that isolation was established by using an isolated DC-DC converter.

Therefore, Rule 139 EPC was not complied with and the independent claims of the patent in the form underlying the decision of the opposition division contravened Article 123(2) EPC. The same applied to the first to fourth auxiliary requests. The first auxiliary request additionally contravened Article 123(3) EPC.

IX. The arguments of the respondent in so far as they are relevant for this decision can be summarised as follows:

The appeal did not comply with Article 12(2) RPBA since the decision under appeal was not attacked. To the contrary, the statement setting out the grounds of appeal contained plural statements "selon la decision". Thus the opponent had accepted the decision.

Further, the statement setting out the grounds of appeal presented a new case by considering that the description should be divided in two separate embodiments. Thus, the statement setting out the grounds of appeal did not comply with Article 12(4) RPBA.

The amendment in the independent claims of the patent in the form underlying the decision of the opposition division did not contravene Article 123(2) EPC since

the amendment was the consequence of a correction of an error of translation in the description under Rule 139 EPC. However, Rule 139 EPC was irrelevant for the assessment of an amendment under Article 123(2) EPC. The same applied to the second to fourth auxiliary requests.

The amendment in the first auxiliary request, i.e. that the communication driver is isolated from the first power source, was based on figure 1 and paragraphs [0031] and [0033] of the published European patent application. Thus, the subject-matter of the first auxiliary request did not contravene Article 123(2) or (3) EPC.

Reasons for the Decision

1. Admissibility of the appeal (Rule 101(1) EPC)

1.1 The appeal is admissible under Rule 101(1) EPC and complies with Article 12(2) RPBA.

Rule 101(1) EPC refers to Rule 99(2) EPC which requires that the statement setting out the grounds of appeal shall indicate the reasons for setting aside the impugned decision. Similar requirements can be found in Article 12(2) RPBA according to which the statement setting out the grounds of appeal shall set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed.

1.2 The respondent argued that these requirements are not complied with since there were allegedly no reasons for

setting aside the decision and further the statement setting out the grounds of appeal concerned a new case.

The board does not share this view. Indeed, the statement setting out the grounds of appeal comprises a new line of argumentation of the opponent. However, this new line of argumentation is the reaction of the opponent to the changes in argumentation of the patent proprietor and a corresponding change in opinion of the opposition division which occurred only very late in the proceedings, i.e. during the oral proceedings before the opposition division.

Further, the statement setting out the grounds of appeal clearly states that the claims underlying the decision of the opposition division go beyond the application as filed, see for example page 3, second paragraph of the statement. From this content it can be deduced that the opponent wished the impugned decision to be set aside based on his new argumentation.

- 1.3 According to the impugned decision, the amended feature H) reading "the communication interface (27) is isolated from the first power source (40)", which formed part of the independent claims as granted, does not contravene Article 123(2) EPC. However, the opposition division had in the annex to the summons to oral proceedings indicated that the subject-matter of claim 1 of the patent, that already contained the disputed feature H), contravened Article 123(2) EPC. Thus, there was an unexpected change in the opinion of the opposition division during the oral proceedings.
- 1.4 The patent proprietor had also changed their argumentation only during the oral proceedings before the opposition division.

In their reply to the opposition dated 12 August 2014, the patent proprietor argued that the amended feature H) was allowable since the description of the A1 publication stated in paragraph [0008], that the isolation of the inverter system from the first power source is optional. Further, the text of the patent had, before grant, been corrected under Rule 139 EPC to state in paragraph [0031] that "the GND of the motor control circuit Ca has the same electrical potential (high voltage system GND) as the GND of a high voltage circuit Cb to which a high voltage is supplied from the high voltage power source". On the basis of this correction under Rule 139 EPC the patent proprietor argued that the motor control Ca was not isolated from the first power source since both shared the same ground (GND).

In response to the summons to oral proceedings dated 18 September 2015 the patent proprietor had argued that the amendments underlying the objection of the opponent under Article 123(2) EPC were the consequence of an error in the translation and that the opponent's arguments were therefore not relevant.

Thus, up until the oral proceedings before the opposition division, the patent proprietor had consistently stated that the amendment of both the description and claims of the patent as granted was the consequence of a translation error.

During the oral proceedings before the opposition division, however, the patent proprietor argued that there had been a mistake in originally filed claim 1 by claiming that the inverter system is isolated. The correct statement was "that the inverter uses an

isolated inverter", which was evident from the description. The amendment was "thus not due to an error of translation". The fact that this statement was made with respect to an objection under Article 83 EPC has no bearing on its content, which is that during the oral proceedings before the opposition division the patent proprietor no longer stated that the amendments to the claimed subject-matter served to correct a translation error.

The patent proprietor's new arguments obviously caused the opposition division to reverse its opinion on this objection.

- 1.5 The board thus concludes that the opponent was confronted with a new situation regarding the opposition ground under Article 100(c) EPC during the oral proceedings before the opposition division.

Under such circumstances, the board considers it as an appropriate procedural reaction of the opponent to change their corresponding argumentation under Article 123(2) EPC during the appeal proceedings.

Consequently, the board concludes that the appeal complies with Rule 99(2) EPC and Rule 101(1) EPC.

The appeal is therefore admissible.

2. Admissibility of the appellant's new arguments (Article 12(4) RPBA)

Regarding the admissibility of the appellant's arguments under Article 123(2) EPC as such, the same reasoning as with respect to the admissibility of the appeal applies.

As discussed above, the argumentation of the patent proprietor regarding Article 100(c) EPC had changed only during the oral proceedings before the opposition division. Therefore, the board considers it as appropriate that the opponent brought forward new arguments in reaction to the change in argumentation of the patent proprietor and the change in the opinion of the opposition division in the opponent's statement of grounds of appeal.

The appellant's arguments regarding Article 123(2) EPC are therefore also admissible.

3. Substance of the amendment (Article 123(2) EPC and Rule 139 EPC)

Main request

3.1 The respondent argued that Rule 139 EPC was not pertinent for the determination of the allowability of amendments.

The board does not share this view. Rule 139 EPC constitutes *lex specialis* to Article 123(2) EPC. Thus, the requirements of Rule 139 EPC are to be taken into account in the assessment of an amendment under Article 123(2) EPC if the amendment involves the correction of an obvious mistake according to Rule 139 EPC.

Since the feature which had been objected to stems from the correction of an alleged obvious mistake under Rule 139 EPC, i.e. from the amendment of "the inverter system (20) is isolated from the first power source (40)" to "the communication interface (27) is isolated

from the first power source (40)" in the independent claims 1, 3 and 4 of the main request, it has to be established, whether the correction fulfils the requirements of Rule 139 EPC.

The requirements of Rule 139 EPC for an amendment that concerns the description, claims or drawings, are that the mistake must be obvious in the sense that it is immediately evident that nothing else would have been intended than what is offered as the correction.

- 3.2 No mistake is obvious with respect to the unamended feature H) "the inverter system (20) is isolated from the first power source (40)".

The English translation of the originally filed PCT application PCT/JP2007/069096 corresponds to the published European patent application EP 2 120 331 A1.

The description of the A1 publication indicated consistently that the inverter system is isolated from the first power source, see e.g. paragraphs [0007], [0008] and [0009]. The corrected pages of the English translation which were filed on 16 March 2012 and on 14 September 2012 did not amend this disclosure.

This is also consistent with the claims of the A1 publication, in particular independent claim 1. Only with the communication of intention to grant according to Rule 71(3) EPC did the examining division amend paragraph [0007] of the description, but left paragraphs [0008] and [0009] unamended. The patent proprietor consented to this amendment. Thus, even the patent as granted still contains the alleged mistake in paragraphs [0008] and [0009].

Figure 1 showing the embodiment of the claimed inverter system depicts three boxes indicated by dashed lines labelled Ca, Cb and Cc. It is evident from this figure that the switching element 21 is arranged between box Cb, relating to the first (high voltage) power source, and box Ca, relating to the third (low voltage) power source. Typically, semiconductor switching elements of the type used in such systems are capable of carrying very high voltages and currents on their power path, i.e. on the side belonging to box Cb, while requiring only very small control voltages for their gate control, i.e. on the side belonging to box Ca. This is further consistent with paragraph [0031] of the A1 publication according to which "A motor control circuit Ca ... is isolated by switching element 21 from a high voltage circuit Cb to which a high voltage is supplied from the high voltage power source 40". The board can thus not identify any contradiction regarding the unamended feature H) "the inverter system (20) is isolated" from the first (high voltage) power source.

There is further no reason why different potentials could not share the same ground connection. In the majority of electrical supply systems the potential of the ground connection is anyway zero volts (i.e. "earth").

Consequently, the board concludes that there is no obvious mistake in the originally filed claims that could justify a correction under Rule 139 EPC.

3.3 Furthermore, even if it were assumed that the alleged mistake was obvious, it is not immediately evident what the correction should be.

If the expression that "the inverter system (20) is isolated from the first power source (40)" is to be replaced by a correction under Rule 139 EPC, it must be immediately evident what that correction should be.

Figure 1 in combination with the description according to the A1 publication indicates three voltage levels, first (high) voltage, second (low) voltage and third (lowest) voltage as well as many functional units which might be isolated from the first voltage level.

The respondent argued that the communication interface 27 was isolated from the first power source. They further argued that because the photocoupler 27b isolated the communication interface 27 from the motor controller Ca, it was evident that the replacement of "inverter system" by "communication interface" was the appropriate correction under Rule 139 EPC.

However, figure 1 as well as the description paragraph [0008] of the A1 publication define that the isolation of the inverter system from the first power source uses an isolated DC-DC converter. The isolated DC-DC converter might therefore also be interpreted as being the immediately evident correction. This applies even more so since the description explicitly defines it as the means for isolating the inverter system, as described in paragraphs [0007] and [0008] of the published European patent application.

Since there are at least two plausible corrections for the alleged mistake, however with different technical consequences, it follows that neither of these two possible corrections can constitute the immediately evident correction in the sense of Rule 139 EPC.

3.4 Consequently, with respect to amended feature H), there is neither an obvious mistake nor is it immediately evident what its correction should be. Therefore, the amendment does not comply with Rule 139 EPC.

3.5 Moreover, the A1 publication does not disclose the disputed amended feature H) in the same context as the unamended feature H) it replaced. To the contrary, the unamended feature H) "the inverter system (20) is isolated from the first power source (40)" is described as the difference over the prior art in the A1 publication. This is also evident from a comparison of figures 1 and 2 of the A1 publication. Both figures show a communication interface that is isolated from the motor control via a photocoupler. However, only figure 1, which illustrates the claimed invention, shows an "isolated DC-DC converter" for isolating the inverter system from the first power source, while in figure 2, illustrating the prior art, the DC-DC converter is depicted as "non-isolated".

Thus, there is no basis for amended feature H) in the A1 publication.

3.6 Since the amendment of feature H) is neither a correction of an obvious mistake under Rule 139 EPC nor has a basis in the A1 publication, the amendment contravenes Article 123(2) EPC.

Consequently, the main request is not allowable.

3.7 First auxiliary request

Independent claim 1 of the first auxiliary request differs from claim 1 of the main request only in that

amended feature H) reads "the communication driver (27a) is isolated...".

As discussed above with respect to the main request, there is no obvious mistake under Rule 139 EPC in unamended feature H). There is further no basis in the specification justifying the amendment of feature H) under Article 123(2) EPC. Thus, since the amendment in the main request replacing "inverter system (20)" by "communication interface (27)" is not allowable, a replacement of the former by only a sub-feature of the communication interface 27 is also not allowable.

Therefore, the board concludes that the amendment in the first auxiliary request contravenes Article 123(2) EPC.

Even if it were assumed that the first auxiliary request did not contravene Article 123(2) EPC, it in any case contravenes Article 123(3) EPC because instead of the whole communication interface being defined as isolated from the first power source, in claim 1 of the first auxiliary request only a part of the communication interface, i.e. the communication driver, is defined as isolated from the first power source, thus the protection conferred is extended, because it covers embodiments in which other parts of the communication interface are not isolated from the first power source.

3.8 Second to fourth auxiliary requests

Independent claims 1, 3 and 4 of the second to fourth auxiliary requests comprise a similar replacement for the feature "the inverter system is isolated from the first power source", and the further amendments in

these claims have no bearing on this feature. Thus the arguments concerning the amendment in the main request apply mutatis mutandis to the second to fourth auxiliary requests.

Consequently, independent claims 1, 3 and 4 of the second to fourth auxiliary requests also contravene Article 123(2) EPC.

4. Conclusion

Since there is no allowable request on file, the patent has to be revoked.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated