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**Datasheet for the decision
of 14 May 2014**

Case Number: T 1818/11 - 3.2.01

Application Number: 01201865.1

Publication Number: 1155958

IPC: B64D11/00, B64D13/00, H05K7/20

Language of the proceedings: EN

Title of invention:
In flight entertainment cooling system (IFE)

Patent Proprietor:
The Boeing Company

Opponent:
Airbus Operations SAS/ Airbus Operations Limited/
Airbus Operations GmbH/ Airbus Operations S.L./
Airbus SAS

Headword:

Relevant legal provisions:
EPC Art. 123(2), 123(3)
EPC 1973 Art. 56
EPC R. 139
RPBA Art. 13(1)

Keyword:

Late-filed requests - admitted (no) (Main Request and
Auxiliary Requests 1 to 5)
Correction of error - (no) (Auxiliary Request 6)
Amendments - broadening of claim (no) (Auxiliary Requests 6
to 11) - added subject-matter (yes) (Auxiliary Requests 6
to 10)
Inventive step - (yes) (Auxiliary Request 11)

Decisions cited:

G 0011/91, G 0001/10, T 0201/83, T 0383/88, T 0581/91,
T 0284/94, T 0025/03

Catchword:



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Case Number: T 1818/11 - 3.2.01

**D E C I S I O N
of Technical Board of Appeal 3.2.01
of 14 May 2014**

Appellant II:
(Patent Proprietor)

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
6 July 2011 concerning maintenance of the
European Patent No. 1155958 in amended form.**

Composition of the Board:

Chairman G. Pricolo
Members: W. Marx
D. T. Keeling

Summary of Facts and Submissions

- I. The appeals by the opponent (appellant I) and the patent proprietor (appellant II) are directed against the decision of the opposition division posted 6 July 2011 to maintain European patent No. 1 155 958 in amended form on the basis of auxiliary request 4 filed during the oral proceedings.
- II. In its decision the opposition division held that the main request filed with letter dated 25 November 2009 was not allowable with regard to Articles 123(2) EPC and that the subject-matter of claim 1 according to auxiliary requests 1 and 2 and the subject-matter of claim 2 according to auxiliary request 3, all filed during oral proceedings, included subject-matter extending beyond the content of the application as filed. With regard to auxiliary request 4 filed during oral proceedings, the opponent only objected to lack of inventive step in view of documents A1 and A6:
- A1: DE 197 33 934 C1;
A6: US 4,869,071.

The following evidence was provided with regard to the discussion of extended subject-matter:

- A24: A330/A340 System Configuration Guide. Issue 3, May 1999, AI/EE-452.0089/99, AIRBUS INDUSTRIE;
A25: Opinion of expert concerning the terms *overboard* and *outboard*;
A26: Single Aisle Fwd CC Ventilation System: Schematic. Page 2 September 2010. AIRBUS. Photography of an aircraft fuselage segment including an *overboard branch*.

III. Together with its grounds of appeal dated 16 November 2011 the appellant II (patent proprietor) filed a new Main Request and first to fifth Auxiliary Requests.

In response to the summons to oral proceedings, a new Main Request and five new Auxiliary Requests were filed by appellant II (patent proprietor) with letter dated 14 April 2014, and the requests previously filed were renumbered as Auxiliary Requests six to eleven.

IV. Oral proceedings took place on 14 May 2014.

The appellant I (opponent) requested that the decision under appeal be set aside and that the European patent be revoked in its entirety.

The appellant II (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the Main Request or one of Auxiliary Requests 1 to 5, all filed with letter of 14 April 2014, or on the basis of one of Auxiliary Requests 6 to 10, filed with the grounds of appeal, or on the basis of the Eleventh Auxiliary Request filed during the oral proceedings.

The request filed during the oral proceedings for a referral to the Enlarged Board of Appeal was withdrawn.

V. Claim 1 according to the Main Request corresponds to claim 1 as granted and reads:

"An aircraft, comprising:
an in-flight entertainment system having in flight entertainment system electronics disposed in the aft section of the aircraft;

a video control cabinet (32) for housing said in-flight entertainment system electronics, characterized by
a cooling system for conducting air from outside the aircraft cabin to said video control cabinet (32), said cooling system having a duct (34);
control means (1,2,3,36) venting heated air from said video control cabinet (32) into the aircraft cargo compartment (42b) when the aircraft is on the ground and the outside ambient temperature is less than a predetermined value or when the aircraft is in the air;
and
said duct (34) having an outboard branch (34a), said control means (1,2,3,36) venting heated air from said video control cabinet (32) to an aircraft skin penetration (46) when the aircraft is on the ground and the outside ambient temperature is above said predetermined value."

Claim 1 according to Auxiliary Requests 1 to 5 also comprises the feature "said duct (34) having an outboard branch (34a)".

In claim 1 according to Auxiliary Request 6 or 9, compared to claim 1 according to the Main Request, the feature "said duct (34) having an outboard branch (34a)" was replaced by "said duct (34) having an overboard branch". In claim 1 according to Auxiliary Requests 7 and 10, in addition, the control means was further specified and reads as follows (words added underlined by the board):

"... control means (1,2,3,36) venting heated air from said video control cabinet (32) under the aft cargo door into the bilge of the aircraft cargo compartment (42b) downstream from shutoff valve (3) when the aircraft is on the ground and the outside ambient

temperature is less than a predetermined value or when the aircraft is in the air; ..."

Claim 3 according to Auxiliary Request 8, corresponding to claim 4 as granted, reads as follows:

"The aircraft according to claim 1 or 2, provided with a cooling system status indication (50) for displaying failure of ground exhaust valves single component failure and/or smoke detection."

Claim 1 according to the Eleventh Auxiliary Request reads as follows (additions compared to claim 1 as granted are indicated by underlining, deletions by strike-through):

"An aircraft, comprising:

an in-flight entertainment system having in flight entertainment system electronics disposed in the aft section of the aircraft;

a video control cabinet (32) for housing said in-flight entertainment system electronics, characterized by

a cooling system for conducting air from outside the aircraft cabin to said video control cabinet (32), said cooling system having a duct (34);

control means (1,2,3,36) venting heated air from said video control cabinet (32) under the aft cargo door into the bilge of the aircraft cargo compartment (42b) downstream from shutoff valve (3) when the aircraft is on the ground and the outside ambient temperature is less than a predetermined value or when the aircraft is in the air; and

said duct (34) having an ~~outboard~~ overboard branch (34a), said control means (1,2,3,36) venting heated air from said video control cabinet (32) to an aircraft skin penetration (46) when the aircraft is on the ground and the outside ambient temperature is above

said predetermined value; wherein the predetermined value is 8°C (45°F)."

Claim 3 according to the Eleventh Auxiliary Request reads as follows (additions compared to claim 3 of Auxiliary Request 8 are indicated by underlining, deletions by strike-through):

"The aircraft according to claim 1 or 2, provided with a cooling system status indication (50) for displaying failure of both ground exhaust valves, single component failure ~~and/or~~ smoke detection."

VI. The appellant I (opponent) argued essentially as follows:

The new requests filed with letter of 14 April 2014 were filed late because they had neither been filed with the patent proprietor's grounds of appeal nor with its reply to the opponent's grounds of appeal. In fact, these requests could, and should, have been filed in response to the objections raised by the opponent in its statement of grounds of appeal. Moreover, these requests were not *prima facie* allowable, in particular with respect to Article 123(2) EPC, because the feature "outboard branch" used in claim 1 was not originally disclosed; the application as filed only disclosed the term "overboard branch".

Therefore, the new requests were not suited to overcome the objections raised and should not be admitted into the proceedings.

The patent proprietor justified the presence of the term "outboard branch" (instead of "overboard branch" as originally disclosed) in granted claim 1 and consequently its replacement by the term "overboard branch" in claim 1 of Auxiliary Request 6, by a mistake

made by the representative in examination procedure. However, such mistake was within the responsibility of the patent proprietor. A correction of granted claim 1 under Rule 139 EPC was not allowable because it was not immediately evident that an error existed and that nothing else had been intended than what was offered as the correction. Moreover, the balance of probabilities was not the appropriate criterion to apply in this situation. The technical meaning of granted claim 1 comprising the term "outboard branch" was correctly understood by the skilled person as a portion of a duct extending at least partially outside of the aircraft and possibly into the aircraft's interior, as agreed by the parties. The skilled person, when reading claim 1, could not recognise immediately an obvious error. Claim 1 as granted, claiming an aircraft comprising the feature of venting heated air to an outboard branch, did not contain a technical contradiction, was not inconsistent with the teaching of the contested patent, and solved the problem underlying the contested patent, because heated air could be cooled by the outside ambient air for re-utilisation within the aircraft, in particular in a situation as specified in claim 1 (aircraft on the ground, outside ambient temperature above predetermined value) where the waste heat temperature was higher than the ambient temperature. Furthermore, the contested patent disclosed with identical reference signs the "outboard branch (34a)", the "ground exhaust branch (34a)" and the "overboard branch (34a)" so that it was not immediately and unambiguously evident that nothing else had been intended than what was offered as the correction. If there was any doubt in this respect, a correction could not be made (see G 11/91). The balance of probabilities was not an appropriate criterion to apply, but a more rigorous standard, i.e. one equivalent to "beyond

reasonable doubt" (see T 581/91; also T 383/88). Moreover, there was no reason to consult the history of the file when there was a discrepancy between claim 1 and the description.

The term "outboard branch" was not disclosed at any point in the application as filed. The terms "outboard branch" and "overboard branch" were rather complementary and described different technical objects (see A25). According to the teaching of the contested patent and also the understanding of the skilled person, an "overboard branch" was a branch extending inside the aircraft and ending at an opening of the aircraft skin (see Figure 2: aircraft skin penetration 46; see also A24). An "outboard branch" extended outside the aircraft either completely or in part (see A25), possibly leading again into the aircraft's interior, as acknowledged by the patent proprietor. Due to the required resistance against pressure and temperature differences, an "outboard branch" had to be adapted accordingly with respect to its form (thick walls) and material (hard, temperature resistant), whereas thin tubes and cheap materials were used for an "overboard branch" (see A26). Moreover, an overboard branch used the pressure difference between the aircraft interior and the ambient for delivering medium to the outside and included a venturi nozzle for limiting the air flow, which did not form part of an "outboard branch". As already acknowledged by the opposition division, the terms "overboard" and "outboard" did not define exactly the same scope of protection, so replacement of "outboard branch" by "overboard branch" resulted in an *aliud* and thus constituted an unallowable extension of the scope of protection within the meaning of Article 123(3) EPC.

The generalised feature "predetermined value", introduced in claim 1 according to Auxiliary Request 6, introduced subject-matter extending beyond the disclosure of the application as filed. According to the wording of claim 1, the temperature could take any value. This resulted in claim 1 incorporating undisclosed equivalents contrary to the requirements of Article 123(2) EPC (see T 284/94). Moreover, with this generalisation, the object of the invention was not achieved over the entire range as claimed, either because the cabin environment was not comfortable to passengers for an ambient temperature of e.g. 40°C, or the waste heat was not used in case of an ambient temperature of e.g. -10°C (see also T 284/94). Furthermore (see T 201/83), the generalisation of the only disclosed temperature example of 8°C by "predetermined value" was not allowable because this value was not independent from other features (e.g. "while on the ground") of the example. When deviating from T=8°C and maintaining the further features, the invention no longer worked as argued previously. It was irrelevant whether it was reasonable to limit the invention to a specific value; the question was whether the generalised feature was directly and unambiguously derivable from the application as filed (see T 284/94).

Extracting the isolated feature "cargo compartment" from the initially disclosed set of features "exhausting under the aft cargo door into the bilge of the cargo compartment downstream from shutoff valve", defining a precise location comprising a combination of features, represented an intermediate generalisation within the meaning of T 25/03.

Claim 1 contained the feature of an aircraft being provided with an in-flight entertainment system

electronics. However, an "aircraft" was not originally disclosed.

The additional feature in claim 4 according to Auxiliary Request 6 was not originally disclosed with regard to the "and"-combination claimed.

Auxiliary Requests 7 to 10 did not overcome all the objections raised with respect to Auxiliary Request 6.

Document A1 represented the closest prior art for the subject-matter of claim 1 according to the Eleventh Auxiliary Request. It disclosed that heat dissipated by electronic equipment was used advantageously to heat the aircraft's interior, increasing the passengers comfort, as well as that waste heat, if necessary, had to be exhausted to the outside. Moreover, A1 disclosed conducting air to the interior or exterior depending upon parameters like flight altitude, cabin temperature and temperature of the cargo compartment. The subject-matter of claim 1 differed from the disclosure of A1 in that heated air was vented either to the exterior or the interior of the aircraft depending on conditions (aircraft on the ground or in the air, outside ambient temperature less or above predetermined value) as claimed. When trying to solve the objective technical problem of taking into account the location of the aircraft and the outside ambient temperature in controlling a cooling system for waste heat, the skilled person would consult document A6, which also dealt with cooling systems for aircraft electronics, in particular cooling electronic parts dependent upon predetermined temperature values. A6 described (see column 1, lines 62 to 64) conducting air of the cooling system in any non-pressurised volume within an aircraft, i.e. according to the understanding of the

skilled person also into the cargo compartment. Moreover, the cooling means in A6 were controlled dependent upon aircraft altitude and outside ambient temperature (see column 3, lines 19 to 50; Figure 2; claim 1, feature (f), claim 2, feature (a)). Therefore, the skilled person would derive from A6 for an aircraft on the ground that heated air was vented into the cargo compartment only when the outside ambient temperature was less than a predetermined value, thereby arriving at the subject-matter of claim 1.

VII. The appellant II (patent proprietor) argued essentially as follows:

Since the opposition division allowed the correction consisting in replacing the term "outboard branch" with "overboard branch", there was no reason for the appellant II (patent proprietor) to file requests in which the term "outboard branch" was reinstated in the claims. Only when the board in its communication under Article 15(1) RPBA addressed the issue of Article 123(3) EPC by referring to decision G 1/10, thus raising a new objection, then it became appropriate to address the new issue by filing new requests. The term "outboard branch" being a granted feature, no new matter had to be discussed, so complexity was not an issue.

As regards the replacement of the originally disclosed term "overboard" by "outboard" in claim 1 as granted, the issue was whether a person skilled in the art considering the application as filed in its entirety would understand the solution taught by the application as providing a cooling system that discharged cooling air exiting the video control cabinet to the exterior of the aircraft, as indicated by skin penetration 46,

i.e. through holes that pierced the pressurized aircraft envelope to vent air to the exterior (see Figure 2). In particular, the present application attached no special significance to the term "overboard", which was not defined or indicated to be an essential feature. The skin penetration 46 was key to implementing the overboard feature, and some air was dumped to the outside ("outboard") by venting air to the aircraft skin penetration. A person skilled in the art would find the word "outboard" in the patent as granted conveyed a thought similar to the thought conveyed by the word "overboard" in the present application as filed for the purpose of solving the technical problem. Thus, there was no difference in scope of the patent employing either the term "outboard" or "overboard" in claim 1.

It was agreed that the terms "overboard" and "outboard" had different meanings, but this was not technically relevant when reading claim 1. Introduction of the term "outboard" was simply a linguistic error, error of transcription or mistake in a response document as filed with the European Patent Office, in particular since this response filed on 4th August 2006 mentioned introducing the "feature of the overboard branch" rather than "outboard". The correction allowed by the opposition division fell squarely into Rule 139 EPC. One might be confused when only looking at the patent specification itself, but by looking at the letter of 4th August 2006 it was clear that an error existed. However, the patent specification was addressed to the skilled reader who would spot the contradiction between the meaning of "outboard branch" and the disclosure of the branch venting heated air to the outside and would as a consequence look for the correct word.

Furthermore, the skilled person would clearly and unambiguously understand that the essential aspect of the feature "exhausting under the aft cargo door into the bilge of the cargo compartment" was that the vented heated air ended up in the aircraft cargo compartment. The manner in which this air ended up in the cargo compartment was not essential to achieve the specified objectives. Moreover, claim 1 of the application as filed stated that the control means vented the heated air to the outside of the aircraft or to the aircraft cabin "depending upon the location of the aircraft and the outside aircraft temperature". The skilled person would clearly and unambiguously understand that switching between venting inside and venting outside took place at a predetermined temperature. The passage in the description describing that the switching was performed at 8°C described one example of how to implement the dependency of claim 1. The skilled person would understand that different values were possible, in particular taking into account that different predetermined values would be chosen around the globe due to varying outside ambient temperatures. Therefore, fixing the predetermined value to 8°C was not reasonable, and the use of the term "predetermined value" did not result in addition of subject-matter.

The subject-matter of claim 4 according to Auxiliary Request 6 (claim 3 of Auxiliary Request 8) was originally disclosed in the specification.

As to inventive step, document A1 did not provide any hint concerning venting heated air as claimed. Document A6 referred to a military aircraft, not containing an in-flight entertainment system, and disclosed three portions of a flight envelope. The first portion between ground and an altitude of 5000 feet was

characterised only by an operation without cooling or circulating air overboard. Therefore, even a combination of A1 and A6 would not lead to the claimed subject-matter.

Reasons for the Decision

1. The appeals are admissible.
2. *Admissibility - Main Request, Auxiliary Requests 1 to 5 (Article 13(1) RPBA)*

The opposition division considered that the replacement of the term "outboard" in granted claim 1 by "overboard" (which term, in contrast to "outboard", was present in the application as filed) in all requests filed by the patent proprietor constituted a correction of an obvious mistake that was allowable under Rule 139 EPC.

As indicated in the contested decision (Reasons 5.1, second paragraph), the two terms do not define exactly the same object and cannot be readily interchanged. Referring to the contested decision, appellant I (opponent) argued in its grounds of appeal and in its reply to the appeal filed by appellant II (patent proprietor) that the replacement of "outboard branch" by "overboard branch" could not be regarded as a correction of an error in the sense of Rule 139 EPC and that it was an amendment that did not meet the requirements of Article 123(3) EPC. However, appellant II (patent proprietor) did not argue in this respect or present further requests when replying to the appeal

filed by appellant I (opponent). As required by Article 12(2) of the Rules of Procedure of the Boards of Appeal (RPBA, OJ EPO 2007, 536), the statement of grounds of appeal and the reply shall contain a party's complete case.

In the present case, appellant II (patent proprietor) filed a new Main Request and new Auxiliary Requests 1 to 5 only in response to the board's communication pursuant to Article 15(1) RPBA, in which the board expressed its preliminary view that the requirements of Article 123(3) EPC were not met. In this communication the board did not raise a new objection since the objection under Article 123(3) EPC had already been raised by appellant I (opponent) in its statement of grounds of appeal. In fact, the board simply expressed a preliminary view on the validity of the objection under Article 123(3) EPC raised by appellant I (opponent). The board cannot recognise in the reference to decision G 1/10 in its communication a new issue being raised that would have justified the filing of new requests.

Therefore, the board finds that the amendments effected by filing the new Main Request and new Auxiliary Requests 1 to 5 were not occasioned by developments during the proceedings because the objection under Article 123(3) EPC was already submitted with the grounds of appeal of appellant I (opponent), and this objection should have been addressed by appellant II (patent proprietor) at the earliest opportunity, i.e. when replying to the grounds of appeal of appellant I (opponent), without waiting for a preliminary view to be expressed by the board.

Moreover, the board considered that the introduction of the term "outboard branch" in claim 1 of the Main Request and Auxiliary Requests 1 to 5, instead of "overboard branch" as originally disclosed, was not *prima facie* clearly allowable. In particular, the fact that the terms "outboard branch" and "overboard branch" might convey "a similar thought for the purpose of solving the technical problem", as argued by appellant II (patent proprietor), does not necessarily imply that the amendment is directly and unambiguously derivable from the application as filed, as required by Article 123(2) EPC. A "similar" meaning indicates that further embodiments or new technical information might be included, as might be the case when introducing the term "outboard branch" in claim 1 of the Main Request and Auxiliary Requests 1 to 5. Moreover, both parties acknowledged a different meaning of the terms "overboard" and "outboard".

Under these circumstances, the board exercised its discretion not to admit the Main Request and Auxiliary Requests 1 to 5 into the proceedings (Article 13(1) RPBA).

3. *Auxiliary Request 6 - correction (Rule 139 EPC)*

The board finds that the skilled person, when reading claim 1 as granted comprising the term "outboard branch", cannot recognise an obvious error that would justify a correction of the term "outboard branch", in particular a replacement by the term "overboard branch" as recited in claim 1 of Auxiliary Request 6.

In fact, the claimed "duct (34) having an outboard branch" in granted claim 1 makes sense technically having regard to the undisputed understanding of the

term "outboard branch" as presented by the expert opinion A25, according to which an "outboard branch" represents a portion of a duct extending at least partially outside the aircraft, that may be guided into the aircraft's interior (i.e. it may exhaust either inside or outside of the aircraft cabin as pointed out by the opposition division in point 5.1 of the impugned decision). When reading the claimed feature "outboard branch" in conjunction with the preceding feature which specifies a "cooling system for conducting air from outside the aircraft cabin to said video control cabinet (32), said cooling system having a duct (34)", the "outboard branch" might relate to a portion of the duct conducting cool air from the outside to the video control cabinet (see also Figure 2: as indicated by reference sign 42a). When also taking into account the successive feature of "venting heated air from said video control cabinet to an aircraft skin penetration", the "outboard branch" might relate to a portion of the duct conducting air from within the aircraft to the aircraft's exterior and conducting the air back into the aircraft, i.e. re-utilising air cooled by the outside ambient. Finally, when only reading the claimed feature "outboard branch" in conjunction with this successive feature, the "outboard branch" might relate solely to a portion of a duct conducting air from within the aircraft to the aircraft's exterior.

As agreed by the parties, the terms "outboard" and "overboard" have different meanings (see also expert opinion A25), but the board cannot follow the argument of appellant II (patent proprietor) that both words convey a similar thought in the patent as granted and in the application as filed for the purpose of solving the technical problem. The board acknowledges that the overboard feature is implemented by providing an

aircraft skin penetration, as expressed in claim 1 by the feature of the "control means (1,2,3,36) venting heated air from said video control cabinet (32) to an aircraft skin penetration (46)". However, the term "outboard" does not appear in claim 1 as granted in isolation, but in the context of a portion of a duct which is designated as "outboard branch", and the corresponding feature ("duct (34) having an outboard branch (34a)") is not specifically related to the overboard feature indicated in claim 1 by an "aircraft skin penetration". Both features are rather juxtaposed to each other, due to the absence of any clear reference to each other, and in the board's judgment the skilled person would not spot any contradiction which might justify a correction in the sense of Rule 139 EPC (the correction 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) as proposed by appellant II (patent proprietor). As a consequence, the board judges that the skilled person when reading claim 1 as granted would not recognise an obvious error.

The submissions in proceedings before the examining division filed by the representative of the (then) applicant dated 4th August 2006 might be contradictory. Fact is, however, that the term "outboard branch" has a technical meaning in the relevant field which differs from the meaning of "overboard branch", that this meaning makes sense in the context of claim 1 (as explained above), that the introduction of this term was made by the patent proprietor of its own volition, and that the patent proprietor agreed to the text in which the examining division intended to grant a European patent (communication under Rule 51(4) EPC 1973) which included claim 1 containing the term

"outboard branch". Therefore, irrespective of whether it is permissible to refer to the file history to determine whether a correction was obvious in the sense of Rule 139 EPC, as submitted in substance by the appellant II (patent proprietor), the board concludes that even considering the examining proceedings it cannot be excluded, on an objective basis, that the introduction of the term "outboard branch" was not made by mistake but rather as a deliberate choice of the applicant.

Therefore, in the board's view, the replacement of the term "outboard branch" by "overboard branch" in claim 1 according to Auxiliary Request 6, as compared to granted claim 1, cannot be considered as a correction under Rule 139 EPC, but amounts to an amendment. As such, the requirements of Article 123(2) and (3) EPC have to be satisfied.

4. *Auxiliary Request 6 - amendment (Article 123 EPC)*
- 4.1 The replacement of the term "outboard branch" in granted claim 1 with the term "overboard branch" in claim 1 of Auxiliary Request 6 does not result in subject-matter extending beyond the application as filed (Article 123(2) EPC). This was not contested by appellant I (opponent). As a matter of fact, the term "overboard branch" is explicitly mentioned in the description of the application as filed.
- 4.2 Appellant I submitted that the replacement of "outboard branch" by "overboard branch" in claim 1 of Auxiliary Request 6 extended the protection conferred, contrary to the requirements of Article 123(3) EPC.

Claim 1 as granted relates to "an aircraft comprising a cooling system for conducting air from outside the aircraft cabin to a video control cabinet and having a duct, said duct having an outboard branch, said control means venting heated air from said video control cabinet to an aircraft skin penetration". In this context, the duct of the cooling system is only specified further by a portion referred to as "outboard branch". According to the undisputed understanding of the term "outboard branch", this term defines on its own the **position** of a duct portion with respect to the aircraft, i.e. a duct portion which extends at least partially outside of the aircraft and may exhaust either inside or outside of the aircraft by penetrating the aircraft's skin. In the context of claim 1 as granted, the feature "outboard branch" is followed by the feature that heated air is vented to an aircraft skin penetration, i.e. dumped to the "outside", which suggests that the "outboard branch" has the **function** of dumping heated air to the outside, as essentially argued by appellant II (patent proprietor).

In accordance with Article 69(1) EPC, the extent of the protection conferred by a European patent or a European patent application shall be determined by the claims. As explained above, a strict literal reading of granted claim 1 implies that there is an "outboard branch", i.e. a branch extending at least partially outside of the aircraft, which might have the function of dumping heated air to an aircraft skin penetration and thus to the outside. Still in accordance with Article 69(1) EPC, however, the description and drawings shall be used to interpret the claims.

According to the specification of the granted patent, the sole embodiment of the invention as described

(using the term "overboard branch") and represented in the drawings (see Figures 1 and 2) shows a duct within the aircraft which ends at the aircraft's skin penetration in order to vent air to the outside. Considering that a function of the "outboard branch" in claim 1 as granted is that of venting heated air to the outside, that this function is realised if the "outside branch" extends from within the aircraft's interior to the aircraft's exterior but does not necessarily require the "outboard branch" to extend to the outside substantially beyond the aircraft skin penetration, and that this is the case in the sole embodiment disclosed in the patent in suit, the board judges that claim 1 as granted (using the term "outboard branch") must be construed as encompassing an "outboard branch" which ends at the aircraft's skin penetration for dumping air to the outside of the aircraft, and which corresponds to an "overboard branch" as understood by the parties.

Consequently, by explicitly specifying a duct having an "overboard branch" in claim 1 of Auxiliary Request 6 instead of using the broader term "outboard branch" as in granted claim 1, the extent of protection has been restricted. In particular, the board cannot recognise a shift in the extent of protection conferred, in particular no shift to an "*aliud*" when replacing "outboard branch" by "overboard branch" as alleged by appellant I.

The board notes that, even when considering that the terms "outboard" and "overboard" on their own have different meanings and as a consequence the terms "outboard branch" and "overboard branch" are not identical, one has to give sense to the claimed subject-matter as defined by the claim, taken as a whole, with due regard to the description and the

drawings of the patent specification. In particular, the board considers that in the present case it is not justified to read claim 1 in a strict literal manner such as to exclude the sole specific embodiment described in the patent specification.

Accordingly, the board is satisfied that the scope of protection has not been extended and that claim 1 according to Auxiliary Request 6 complies with the requirements of Article 123(3) EPC. The same applies to claim 1 according to Auxiliary Requests 7 to 11 which also comprise the feature "overboard branch".

- 4.3 According to appellant I (opponent), Auxiliary Request 6 shows further deficiencies with regard to Article 123(2) EPC.
 - 4.3.1 Appellant I alleges that an "aircraft" as claimed according to claim 1 of Auxiliary Request 6 was not originally disclosed. The introductory part of the description as filed already states that the invention relates to "aircraft conditioning systems, and more particular to a cooling system for in flight entertainment system electronics". Moreover, on page 3 of the description as filed, and further supported by Figure 2, the installation of the cooling system within an aircraft is described, as indicated by the "bilge of the cargo compartment 42(b)" or the "aircraft skin penetration 46". Therefore, by explicitly referring to components of an aircraft in this context, the aircraft per se is also disclosed in the application as filed, i.e. claim 1 does not show deficiencies with respect to Article 123(2) EPC with respect to the "aircraft" as claimed.

4.3.2 Claim 1 according to Auxiliary Request 6 specifies the condition ("when the aircraft is on the ground and the outside ambient temperature is above said predetermined value") for venting heated air from the video control cabinet to an aircraft skin penetration.

According to the description or dependent claims 2 or 3 of the application as filed, a condition for venting heated air overboard is only disclosed for a dedicated value of the outside ambient temperature of 8°C in combination with the aircraft located on the ground. Claim 1 of the application as filed specifies rather generally that heated air is vented "from said video control cabinet to the outside of the aircraft cabin or to said aircraft cabin depending upon the location of the aircraft and the outside aircraft temperature", leaving open which specific value of ambient temperature is selected.

It can be accepted, as submitted by appellant II (patent proprietor), that the application as originally filed discloses that switching between venting inside and venting outside takes place at a predetermined outside temperature (see original claim 1). However, according to original claim 1, such switching is further dependent upon the location of the aircraft, i.e. in accordance with the generic disclosure in the application as filed, the combination of two parameters, namely location of the aircraft and outside temperature, has to be considered when switching between venting inside and outside. When it comes to more specific embodiments, the application as filed only shows one specific combination of parameters where heated air is vented to an aircraft skin penetration, depending on the outside ambient temperature exceeding a threshold value, namely when the aircraft is on the

ground and the temperature exceeds 45°F or 8°C (page 3, lines 22 to 24; also Figure 3). Not specifying the temperature value in this context would neglect that the two parameters "location" and "temperature" are functionally related with regard to the function of switching between venting inside and outside, since for an aircraft located on the ground values of reasonable outside ambient temperature thresholds exist with respect to said switching of air flow which are different from those for an aircraft flying at high altitude. According to the established jurisprudence of the boards of appeal with regard to intermediate generalisation, characteristics from a specific embodiment may not be combined with characteristics disclosed in a more general context when there exists a close relationship between these characteristics in the specific embodiment. Moreover, taking isolated features from the description of a specific embodiment is not allowable under Article 123(2) EPC if it is not clear beyond any doubt for a skilled reader from the application documents as filed that the subject-matter of the claim thus amended provides a complete solution to the technical problem unambiguously recognisable from the application (see T 284/94).

- 4.3.3 Therefore, by not specifying a predetermined temperature of 8°C, claim 1 of Auxiliary Request 6 introduces subject-matter extending beyond the content of the application as filed and thus does not comply with the requirements of Article 123(2) EPC.

5. *Auxiliary Requests 7, 9, 10*

Claim 1 according to Auxiliary Requests 7, 9 or 10 contains the same condition for venting heated air as defined in claim 1 of Auxiliary Request 6. Therefore,

for the reasons set out above, the amendments provided with claim 1 according these requests are also not allowable under Article 123(2) EPC.

6. *Auxiliary Request 8*

Claim 3 according to Auxiliary Request 8 specifies a "cooling system status indication (50) for displaying failure of ground exhaust valves single component failure and/or smoke detection".

The board follows appellant I (opponent) in that the claimed "and"-combination was not disclosed in the application as filed, showing only (see page 3, lines 28 to 30) that a status for "single component failure or smoke detection in the system is displayed". Moreover, with regard to valve failures, only an "advisory for failure of both ground exhaust valves" is originally disclosed (page 3, lines 27 to 28), i.e. an indication for a failure of both valves.

Accordingly, the board finds that the subject-matter of claim 3 of Auxiliary Request 8 extends beyond the application as filed so that the requirements of Article 123(2) EPC are not fulfilled.

7. *Eleventh Auxiliary Request - inventive step (Article 56 EPC 1973)*

7.1 *Amendments (Article 123 EPC)*

Claim 1 according to the Eleventh Auxiliary Request is amended by specifying the temperature value of 8°C for switching between venting heated air to the cargo compartment or to the aircraft skin penetration. Accordingly, the objection under Article 123(2) EPC

discussed above in respect of claim 1 according to Auxiliary Request 6 no longer applies. A further objection of appellant I (opponent) with regard to the definition of the location for venting heated air into the cargo department has been overcome by specifying that heated air is vented "under the aft cargo door into the bilge of the aircraft cargo compartment (42b) downstream from shutoff valve (3)", as disclosed in the description of the application as filed in combination. Moreover, claim 3 is amended to take into account the above-mentioned objection raised with regard to Auxiliary Request 8 by referring to the failure of both ground exhaust valves and specifying only an "or"-combination. Finally, an erroneous reference to preceding claims in claim 2 of previous Auxiliary Request 8 is removed. Therefore, the board finds that the requirements of Article 123(2) EPC are met. This was not contested by appellant I (opponent).

As to the term "overboard branch" used in claim 1, the requirements of Article 123(3) EPC are also satisfied, as explained above with respect to Auxiliary Request 6.

7.2 *Inventive step (Article 56 EPC)*

In the present case, only inventive step is at issue because novelty was never disputed by the parties.

The board agrees with appellant I (opponent) that document A1 represents the closest prior art for the subject-matter of claim 1, showing that waste heat of a chiller device is exhausted to the outside, but also used to heat the aircraft's interior, increasing the passengers comfort by switching a control valve depending on various parameters, e.g. flight altitude,

cabin temperature and cooling status of the cargo compartment.

The subject-matter of claim 1 differs from the disclosure of A1 at least in that heated air is vented either to the exterior or the interior of the aircraft depending on whether the aircraft is on the ground or in the air and on whether the outside ambient temperature is below or above 8°C.

The person skilled in the art might be tempted to consult document A6, disclosing a cooling system for a pod (an external structure attached to the underside of an aircraft) of an aircraft, applicable also for cooling any non-pressurised volume within an aircraft, as alleged by appellant I (opponent). However, A6 is silent on any condition for venting heated air to the cargo compartment. In particular, A6 does not disclose that for an aircraft on the ground an outside ambient temperature lower than 8°C is chosen for venting heated air into the cargo compartment. Moreover, as stated in A6 explicitly (column 5, lines 20 to 26), no air is vented outside in a portion of the flight envelope which includes the aircraft located on the ground. Therefore, the skilled person taking into consideration the teaching of A6 would not arrive at the subject-matter of claim 1.

Therefore, the board finds that the subject-matter of claim 1 according to the Eleventh Auxiliary Request involves an inventive step (Article 56 EPC 1973).

8. Dependent claims 2 to 4 concern particular embodiments of claim 1 and are therefore likewise allowable.

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 with instructions to maintain the patent in accordance with the Eleventh Auxiliary Request filed during the oral proceedings, on the basis of the following documents:
 - Claims 1 to 4 as filed during the oral proceedings,
 - Description, columns 1 to 3 as filed during the oral proceedings,
 - Drawings 1 to 3 as granted.

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated