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File Number: T 882/91 - 3.2.1

Application No.: 86 201 594.8

Publication No.: 0 260 348

Title of invention: Sidewall vent valves for a convertible compartment aircraft

Classification: B64C 1/18

DECISION  
of 4 January 1993

Proprietor of the patent: The Boeing Company

Opponent: Deutsche Airbus GmbH

Headword:

EPC Articles 56 and 104(1)

Keyword: "Inventive step (yes)"  
"Apportionment of costs (no)"

Catchwords

No apportionment of costs if the late citing of documents did not lead to an unexpected new situation for the Respondent necessitating a substantive review of the case and a reassessment of the Respondent's position.



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Boards of Appeal

Chambres de recours

Case Number : T 882/91 - 3.2.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.1  
of 4 January 1993

**Appellant :**  
(Opponent)

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**Respondent :**  
(Proprietor of the patent)

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**Decision under appeal :**

Decision of the Opposition Division of the  
European Patent Office dated 26 September 1991  
rejecting the opposition filed against European  
patent No. 0 260 348 pursuant to Article 102(2)  
EPC.

**Composition of the Board :**

**Chairman :** F. Gumbel  
**Members :** P. Alting van Geusau  
J.-C. de Preter

**Summary of Facts and Submissions**

- I. The mention of the grant of European patent No. 0 260 348 based on patent application No. 86 201 594.8, filed on 16 September 1986, was published on 30 May 1990.

Claim 1 of the granted patent reads as follows:

"In an aircraft having a deck that separates an above deck compartment (29) from a below deck compartment (31), said aircraft including a skin (25) and sidewall panels (37), said sidewall panels (37) located on the sides of said above deck compartment (29) and spaced inwardly from said skin (25), said aircraft including holes (55) in said deck in the region between said skin (25) and said sidewall panels (37), sidewall vent valves (51, 91, 121) for controlling the passage of air and other gases through said deck holes (55), said sidewall vent valves (51, 91, 121) including: closure means (67, 109, 129) movable between open and closed positions, when in said open position said closure means (67, 109, 129) allowing air and other gases to pass through said deck holes, when in said closed position said closure means preventing air and other gases from passing through said deck holes, characterized by the above deck compartment being convertible between passenger and cargo carrying configurations and by electrical actuator means (73, 83; 99, 83; 145, 147) coupled to a plurality of closure means (67, 109, 129) for simultaneously moving said plurality of closure means between said open and closed positions.

- II. The Appellant (Opponent) filed an opposition by telecopy on 27 February 1991 and requested revocation of the patent for lack of novelty and lack of inventive step of its subject-matter in view of the prior art disclosed in:

- D1: DE-A-1 481 622,
- D2': DE-C-2 614 814 (corresponding to late-published US-A-4 703 908 = D2),
- D3: DE-C-1 245 755,
- D4: Flight International 04.12.1976, pp. 1644-1659, and
- D5: DE-A-2 415 494 (cited after expiry of the opposition period stipulated in Article 99 EPC).

III. By the decision of 26 September 1991 the Opposition Division rejected the Opposition.

The Opposition Division held that having regard to the facts that, firstly, the problem stated in the patent was not addressed to in any of the cited documents and, secondly, none of these documents disclosed the distinguishing features of Claim 1, it could not be seen how the skilled person would arrive in an obvious manner at the claimed solution.

IV. An appeal was lodged against this decision on 13 November 1991 and the appeal fee was paid on the same day.

The Statement of Grounds of Appeal was filed on 10 January 1992.

In the appeal proceedings the Appellant referred to further prior art disclosed in:

- D6: DE-B-1 198 680, and
- D7: Airbus A300 Training Manual, drawing pages 21-27, 21-29, 21-6 and 21-28-00 pages 2 and 3.

V. In a communication dated 31 July 1992 the Board expressed the provisional opinion that late-filed documents D5 to D7 did not appear to be more relevant than the documents

already in the proceedings and that it was envisaged to disregard these documents in accordance with Article 114(2) EPC.

It was further observed that the features relating to electrical actuator means coupled to a plurality of closure means for simultaneously moving of said closure means which according to the Appellant's submission should be considered as well known in the art were not disclosed in the cited documents and that in the Board's opinion the Appellant also failed to give convincing arguments as to why the subject-matter of Claim 1 seen as a combination of features must be considered to lack an inventive step.

No facts were seen in support of the Respondent's request for an apportionment of additional costs incurred by the Patentee as a result of the late-filed documents.

VI. In support of his request for revocation of the patent the Appellant essentially submitted the following arguments.

From the disclosure of D2' there can be derived, in particular from the arrangements shown in Figures 2 and 4, that the valve 18 avoids any appreciable air flow from the passenger compartment to a lower situated aircraft compartment and that therefore in effect the precharacterising feature relating to the closure means preventing air and other gases from passing through the deck holes must be considered as comprised in the state of the art disclosed in D2'.

Even when this feature would not be considered to be disclosed in D2' it is apparent to the skilled person that the openings should be closed when escape of gas is unwanted. In this respect, considering the text in column 2, lines 45 to 53 of D2' it was already known to provide valves which open only when a dangerous pressure

difference occurs. In view of this general disclosure it would be obvious to provide fully closed valve means in the embodiment of Figures 2 and 4 if this would be considered necessary for the proper functioning of a cargo configuration aircraft.

Converting an aircraft between passenger and cargo configuration is in itself known from D6. Moreover, this feature relates to the problem to be solved rather than to its solution and should therefore be ignored when considering inventive step of the subject-matter of Claim 1.

The sole novel feature remaining in Claim 1 is the electrical actuation means coupled to a plurality of the closure means for simultaneously moving the closure means between open and closed positions. However, the principle of electric actuation of air valves in an aircraft is known from D3 and it would be obvious for the skilled person to use such actuation means also for the air valves of the type disclosed in D2'. Moreover, it is obvious for a skilled person to actuate such valves simultaneously if he wants to achieve the desired pressure compensation as quickly as possible.

Therefore, the subject-matter of Claim 1 lacks an inventive step.

VII. The Respondent requested that the appeal be dismissed and an apportionment of costs be decided because of the additional costs incurred by the Patentee as a result of the late-filed documents in accordance with earlier decisions of the Boards of Appeal (cf. T 117/86).

His arguments can be summarised as follows:

The Appellant's arguments contain unsubstantiated and partly incorrect submissions to the effect that certain isolated features of the patent claim under attack would be known per se, without any indication how this could detract from the invention level of the claim combination, which solves a hitherto unaddressed problem.

Regarding the admissibility of the late-filed documents D5 to D7, the Respondent takes the view that they are no more relevant than the timely filed documents D1 to D4, and should therefore be disregarded under Article 114(2) EPC.

Furthermore, he maintains that the cited Training Manual (D7) is not comprised in the state of the art, since documents like training manuals, which as indicated by the Appellant are handed over to a customer upon delivery of an aircraft, are normally considered proprietary, and are not intended to be distributed outside the customer's organisation. Therefore, the contents of such documents are not normally available to the public in the sense of Article 54(2) EPC.

With regard to the request for an apportionment of costs, he contends that for obvious reasons an opposition (or appeal) case can only be handled in an efficient manner if the facts and arguments on which it is based are presented immediately at the beginning of the proceedings. The piecemeal manner of presenting a case as adopted by the Appellant in the present proceedings therefore results in appreciable amounts of time being spent reviewing the case, reassessing the parties positions and reworking observations already drafted upon receipt of yet another late-filed document. It is the Patentee's belief that the resulting additional costs should therefore be borne by the Appellant/Opponent, whose way of conducting the present proceedings is thought to be verging on abuse.

Auxiliarily, oral proceedings were requested in the case amendment or revocation of the patent in suit was envisaged.

### Reasons for the Decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is admissible.
2. Cited prior art
  - 2.1 D1 discloses an aircraft which can be configured for carrying passengers, cargo or both. No reference is made to converting compartments from one configuration to the other.
  - 2.2 The closest prior art, as also agreed to by the parties, is disclosed in D2'. When compared with the features of Claim 1 of the patent in suit D2' shows an aircraft having a deck that separates an above deck compartment (10) from a below deck compartment (11), the aircraft including a skin (9) and sidewall panels, the sidewall panels located on the sides of the above deck compartment (10) and spaced inwardly from the skin, the aircraft including holes (16) in the deck in the region between the skin and the sidewall panels, sidewall vent valves (18) for controlling the passage of air and other gases through said deck holes (16), the sidewall vent valves (19) including: closure means movable between open and closed positions, when in the open position the closure means allowing air and other gases to pass through the deck holes.

D2' thus discloses the precharacterising features of Claim 1 of the patent in suit except for the feature that



in the closed position of the closure means, air and other gases are prevented from passing through the deck holes.

In this respect the Appellant argued that there is only an unessential flow of air through these openings and therefore in the closed position this flow should be neglected. However, as can be derived from column 4, lines 1 to 4, these openings in the closure means are sufficiently large to allow the normal ventilation of the passenger cabin and for this reason there must be a considerable flow of air through the openings in the known closure means which flow cannot be considered as negligible.

- 2.3 D3 discloses a control system for maintaining a predetermined pressure in an aircraft cabin by controlling a valve in response to inside and outside pressure values and pressure changes.
- 2.4 D4 concerns floor venting of wide body aircraft to improve the ability to withstand rapid decompression. Reference is made to improved sidewall venting and blow-out panels.
- 2.5 D5 to D7 were filed after expiry of the period stipulated in Article 99(1) EPC.

Document D5 addresses the problem of converting an aircraft ("combi-aircraft") but only in respect of structural adaptations such as a movable floor and no reference to the ventilation problems encountered are disclosed.

D6 relates to the conversion of a cargo aircraft into a passenger aircraft, essentially by means of displaceable seat units. No reference is made to the manner of ventilation.

D7 deals with cargo heating and ventilation inlet ducting and discloses an electrically controlled "isolating valve" (see page 21-6). However, such a single "isolating valve" does not, in the Board's opinion, have any relation to sidewall vent valves such as defined in Claim 1 under consideration.

Since these late-filed documents do not disclose more than what is already generally known to the skilled person, discussed in the description of the patent or shown in documents D1 to D4, this further prior art is disregarded as irrelevant in accordance with Article 114(2) EPC. It is therefore not necessary to consider the Respondent's reservations concerning the question whether D7 was indeed publicly available and thus possibly not a prior art document within the meaning of Article 54(2) EPC.

3. Novelty

- 3.1 As follows from the above analysis of the prior art none of the cited documents discloses sidewall vent valves including a plurality of closure means which in their closed position prevent air and other gases from passing through the deck holes and being simultaneously actuated by electrical actuator means for moving the closure means between open and closed positions.

As the novelty of the claimed arrangement was not any longer in dispute in the appeal proceedings, further elucidations on this point are considered unnecessary.

4. Inventive step

- 4.1 In order to increase the versatility of aircraft it is known that one or more upper deck compartments can be

converted between passenger and cargo configurations (see column 1, lines 26 to 30 of the patent). However, in order to accomplish this result the upper deck compartments must be designed so that both passenger and cargo compartment requirements are met. In the case of a passenger compartment sufficient ventilation must be guaranteed, on the other hand a cargo compartment must meet the requirement that in case of a fire the fire extinguishing gas does not get lost through ventilation openings.

- 4.2 The problem underlying the invention can therefore be seen in the provision of vent means that allow the conversion of the upper deck compartment of an aircraft between passenger and cargo configurations while still meeting the requirements of both configurations.
  
- 4.3 A known approach for solving this problem, thus showing that the problem had already been recognised, is referred to in the description of the patent in column 2, lines 11 to 35, according to which in the cargo configuration of the compartment, the sidewall panels are sealed to their support structure and a sealing dam was provided between the sidewall panels and the skin of the aircraft above the panel vents. Additionally, there were auxiliary valves associated with the vents in the panels, which valves were independently actuated. However, this known approach, involving extra parts to be installed and means to be individually surveyed, does not lead to the arrangement of Claim 1.
  
- 4.4 In the present case a first step towards the solution proposed in Claim 1 is seen in the idea to close off the ventilation openings by means of commonly actuated valves integrated in the aircraft structure.

In contrast thereto the valves such as disclosed in D2', D4 and also FR-A-2 335 885 cited in the description of the patent, concern safety valves, their function is totally different and they do not prevent normal ventilation. In the arrangement of the patent, such safety valves may be used additionally to the sidewall vent valves (see Claim 8, "blow out membrane 107").

D3, which discloses a control valve in an aircraft cabin pressure control system cannot be considered pertinent either because only one valve having a totally different function is involved.

Hence, the skilled person could not find any suggestion in D2', D3 and D4 for solving the underlying problem of the patent in suit.

As follows from point 2.3 above, D1 does not disclose any features relevant to Claim 1 under discussion.

4.5 The Appellant argued that it would be obvious to the skilled person to close off the known valves in D2' when the need would arise and in this respect reference was also made to the text in column 2, lines 45 to 50 of D2'.

However, not only have the valves in D2' a different function (safety valves) but also the permanent openings in these known valves are essential to the functioning of the ventilation of the passenger cabin.

Certainly, the text in column 2 refers to other prior art valves (or wall elements of reduced section) which may be fully closed, but these means are safety means which are designed in order to provide a quick pressure compensation between an upper passenger compartment and a lower cargo compartment in case of a sudden pressure drop in one of the compartments due to an accident. The mere existence of

such valves for a different purpose which does not have any relation to converting an aircraft compartment between passenger and cargo configurations cannot be considered to give the skilled person a lead for solving the problem posed in the patent in suit.

- 4.6 Further, although electrically actuated valves are in themselves well known, none of the cited documents discloses the use of an electrical actuator coupled to a plurality of closure means of sidewall vent valves for simultaneous operation thereof.

In the present case this arrangement has the advantage that there is absolute certainty that all the valves are closed when the compartment is in its cargo configuration or open when the compartment is in its passenger cabin configuration, another aspect of the combination of features in Claim 1 to which none of the cited documents can be considered to give any suggestion.

- 4.7 The Appellant questioned the safety aspects of the solution proposed in Claim 1 but in this respect it is apparent from the disclosure of the patent that as far as protection against the effect of abrupt decompression is concerned the arrangement of Claim 1 may also comprise blow out membranes or additional mechanical blow out panels (see column 8, lines 50 to 53 of the patent) which is thus independent from the electrical actuation.

- 4.8 Summarising, the Board comes to the conclusion that the combination of features of Claim 1 for solving the problem underlying the invention cannot be derived in an obvious manner from the prior art. The subject-matter of Claim 1 therefore implies an inventive step in the sense of Article 56 EPC and is patentable according to Article 52(1) EPC.

The dependent Claims 2 to 15 concern particular embodiments of the invention in accordance with Rule 29(3) EPC and are likewise acceptable.

5. Request for apportionment of costs

- 5.1 In the present case the documents D5 to D7 have been cited by the Appellant after the nine-month period stipulated in Article 99(1) EPC.

Irrespective whether or not late-cited documents are admitted in the proceedings (see point 2 of this decision) late-filed documents may indeed cause additional costs by the parties which would not have been incurred if such material had been presented in time.

Such additional costs may for reasons of equity justify an order to apportionment of costs.

- 5.2 However, in the present case the further cited documents D5 to D7 were used by the Appellant only in respect of support or further illustration of arguments submitted in time or in response to arguments already contained in the contested decision. Such additional citing of documents cannot, in the Board's opinion, be considered to infringe requirements of the EPC or to amount to procedural abuse.

Secondly, the documents D5 to D7 are no more relevant than the documents cited in time or other evidence, such as the prior art commented upon in the patent, which conclusion could easily be arrived at without a lengthy study since the respective documents are not of great length and not very complicated as to their disclosure. In fact in none of the Respondent's responses detailed arguments concerning D5 to D7 were deemed to be necessary.

Hence, in the present case, the late citing of the documents D5 to D7 did not lead to an unexpected new situation for the Respondent which could have needed a "review of the case" or "reassessing the Respondent's position" as was argued by the Respondent.

- 5.3 In contrast to the above circumstances of the present case, in the Decision T 117/86, OJ EPO 1989, 401, cited by the Respondent, the Board came to the conclusion that the late filing of additional material must have had considerably increased the Respondent's costs in comparison with the situation if this material had been presented in due time, thus justifying an apportionment of costs.
- 5.4 Hence, in the Board's judgment, there is in the present case no reason of equity which could justify deviating from the general principle that each party to the proceedings shall meet its own costs (Article 104(1) EPC) and accordingly the apportioning of costs as requested by the Respondent is refused.
6. Since oral proceedings were requested solely by the Respondent in the event that amendment or revocation of the patent was envisaged the decision for dismissal of the appeal could be taken without the appointment of oral proceedings.

Order

For these reasons, it is decided that:

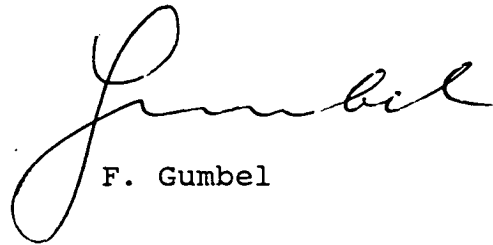
1. The appeal is dismissed.
2. The request for an apportionment of costs is rejected.

The Registrar:



S. Fabiani

The Chairman:



F. Gumbel