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**Datasheet for the decision
of 22 November 2007**

Case Number: T 0555/06 - 3.2.01

Application Number: 98204230.1

Publication Number: 0922633

IPC: B64C 9/16

Language of the proceedings: EN

Title of invention:

Aircraft with apparatus for detecting skew and asymmetry of an airplane flap

Patentee:

The Boeing Company

Opponent:

Airbus SAS

Headword:

-

Relevant legal provisions:

EPC Art. 56, 113(1), 114(2)

Keyword:

"Inventive step -yes"

"Computer generated slideshow presentation - right to be heard
- oral proceedings (yes)"

"Late submitted material - admitted (no)"

Decisions cited:

T 1110/03

Catchword:

-



Case Number: T 0555/06 - 3.2.01

D E C I S I O N
of the Technical Board of Appeal 3.2.01
of 22 November 2007

Appellant: Airbus SAS
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 3 February 2006
rejecting the opposition filed against European
patent No. 0922633 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: S. Crane
Members: J. Osborne
S. Hoffmann

Summary of Facts and Submissions

I. The appeal is directed against the decision posted 3 February 2006 to reject the opposition against European patent No. 0 922 633.

II. The opposition division, which at oral proceedings refused to allow the parties to use computer generated slideshow presentations, found that the subject-matter of granted claim 1 was not obvious in the light of the following documents:

D1: US-A-4 789 119

D2: US-A-5 686 907.

III. The appellant (opponent) also relied on the following additional document which it filed with its grounds for appeal:

D3a: "ATR42-400/500 - System Description Note", 27-50-00 pages 1 and F1 to F3, 27-51-00 pages 1 to 4 and F1 to F7, all dated January 1995.

IV. At oral proceedings held on 22 November 2007 the opponent requested that the decision under appeal be set aside and that the case be remitted to the first instance due to a substantial procedural violation having been committed by the opposition division or in the alternative that the patent be revoked.

The patent proprietor requested that the appeal be dismissed (main request) or in the alternative that the patent be maintained in amended form on the basis of

claims according to first to fourth auxiliary requests filed with a letter of 17 October 2007 or in the further alternative that if any newly filed document were admitted that the case be remitted to the first instance for further prosecution.

V. Claim 1 as granted (the patent proprietor's main request) reads:

"An aircraft (1) having wings (2), each wing (2) having a plurality of auxiliary airfoil elements (4) and an apparatus for sensing the position of such elements, said apparatus comprising:

two links (26) associated with each auxiliary airfoil element (4);

two crank assemblies (27) for each auxiliary airfoil element (4), each crank assembly (27) having a housing (32) and a crank (28), the crank (28) being attached to a respective one of the links (26), the crank assemblies (27) and links (26) converting translational motion of the auxiliary airfoil elements (4) into rotary motion; and

two rotary position sensors (30) for each auxiliary airfoil element (4) and for detecting rotary motion of the crank assemblies (27) and links (26), each sensor (30) being attached to a respective housing (32) of one of the crank assemblies (27);

wherein each crank assembly (27) responds to motion of the corresponding one of said links (26), and said crank assembly (27) transmits a rotary response to said rotary sensor (30) to detect skew or loss of the auxiliary airfoil elements (4), and

wherein each auxiliary airfoil element (4) is attached to a flap track (22) having a flap carriage (20), and

wherein the links (26) convert flap carriage motion into rotary motion."

VI. The opponent's submissions may be summarised as follows:

The opposition division refused the use of computer generated slideshow presentations during the oral proceedings. Without knowledge of the content of the opponent's presentation the opposition division with reference to decision T 1110/03 classified the presentations as containing material which should have been presented in the written procedure at least one month before the date set for the oral proceedings. The content of the opponent's presentation was, however, no more than extracts from the file to serve as visual aids to the representative's presentation of his case. Parties have a right to use their chosen medium during oral proceedings to present information which is already in the file. The facts in the case of decision T 1110/03 are special ones which are not applicable in the present case. The opposition division's refusal to allow the opponent to use the computer generated slideshow presentation offended the opponent's right to be heard and therefore amounts to a substantial procedural violation. The board should set out rules for the guidance of opposition divisions as regards the use of computer generated slideshow presentations.

The closest state of the art for considering inventive step is disclosed in D2 which relates to the same subject-matter as the present patent and also addresses the same problem of sensing skew in high lift flaps. There are essentially three groups of elements in claim 1 according to the main request: displacement

means, sensors and comparison means. The second embodiment in D2 is applicable to the flaps placed between the engine and the fuselage and comprises displacement and comparison means as presently claimed. The subject-matter of claim 1 according to the main request differs from that of the second embodiment of D2 by the features of the rotary sensors, crank assemblies and links and these features solve the problem of rendering the sensor arrangement simpler and more reliable. D1 also relates to high lift flaps and, whilst it sets out to correct the unbalance of an aircraft flying with operational high-lift flaps when one engine fails, it additionally solves the independent problem of protecting against failure of the flap control system. This latter problem corresponds to that addressed by D2 and the present patent. In figures 2 to 5 D1 presents one embodiment and in figure 6 an alternative, simplified one in which the flap carriages are linked via crank assemblies to rotary sensors. The skilled person when seeking a solution to the problem solved by the present patent would consider D1 and thereby become aware of the features of the figure 6 embodiment. When applied to D2 they would result in the subject-matter of present claim 1. Although the flap carriages in D1 pivot, conversion between rotational and translational motion is a normal procedure for the skilled person.

The introduction of the additional state of the art evidence during the appeal procedure results from the surprising interpretation of D1 by the opposition division, contrary to that previously accepted by the patent proprietor. That interpretation caused the opponent to perform further searching during which it

became aware of D3a. D3a is not to be considered as being late-filed because it was introduced in response to the opposition division's interpretation of D1. D3a is more relevant than D1 in as far as it is more concise and is closer to the presently claimed solution.

VII. The respondent countered essentially as follows:

The opponent failed to provide a copy of its intended computer generated slideshow presentation prior to the oral proceedings. The opposition division's decision to refuse permission therefore was in accordance with decision T 1122/01. Moreover, the opponent's right to be heard was not affected by this decision.

It is accepted that D2 represents the closest starting point for consideration of inventive step. However, this does not disclose that any problem existed. Moreover, the relevant disclosure is in respect of flaps inboard of the engines whereas the suggestion to use alternative sensors is only in relation to flaps outboard of the engines. A problem does, however, exist in as far as the system according to D2 provides information only in respect of relative movement between the ends of flaps and cannot detect an existing skew. Unlike D2, D1 provides only a single actuator for each flap and employs no tracks so that skewing is not a problem. Moreover, the only comparison of flap positions in D1 is between flaps on opposing sides of the fuselage. It follows that, since the problem addressed by the present patent does not arise in D1 there is no teaching relevant to its solution and the skilled person would have no reason to consider the document. Even if he would consider D1, it contains no

indication that the sensors in the alternative embodiment of D1 figure 6 would be better than those used in D2. Indeed, the sensors in D1 are all used in combination with pivoting flap carriages. This is in accordance with the normal practice of the skilled person to use sensors which have the same type of movement as that which is being sensed. Part of the present invention lies in the use of rotary sensors in combination with elements undergoing translational movement.

D3a should be disregarded because it is late-filed and provides no further information than D1.

Reasons for the Decision

Refusal of a computer generated slideshow

1. The opponent pursued the matter of computer generated slideshow presentations in this case in part in order to obtain from the board an *obiter* for guidance of the departments of first instance. However, the only matter relevant to this case is whether the opposition division's refusal to allow the use of a computer generated slideshow presentation encroached on the opponent's rights in accordance with Article 113(1) EPC.
- 1.1 A computer generated slideshow presentation is, in principle, not distinguishable from other presentations using more conventional technology such as flip-charts or overhead projectors. In as far as the content would not differ there may be no need to distinguish between these various forms of presentation, particularly if

the information presented is limited to visual aids to an oral presentation. However, in decision T 1110/03 (not published in OJ EPO) Board 3.5.02 expressed its concern that the more modern technology would permit the presentation of information at a higher rate than is possible by oral means, which could lead to a form of information overload. This would indeed appear to be a risk if a computer generated slideshow replaces an oral presentation. The practice mentioned in T 1110/03 (*supra*) of requiring that the content of the intended presentation be supplied in advance should enable the deciding body and other parties to examine the content and lodge any objections before the presentation begins. That practice places certain restrictions on the timing of a party's preparation for oral proceedings but has no influence on the content.

- 1.2 In the present case the opponent's representative informed the opposition division prior to the oral proceedings that the computer generated slideshow presentations would contain only information which was already in the file and therefore would act only as a visual aid. Nevertheless, the opponent failed to respect the opposition division's instruction to file a copy of the content in advance. In the light of the concerns raised in T 1110/03 (*supra*), the division's action in refusing the presentation is both entirely understandable and reasonable. The division's action evidently placed some restriction on the manner in which the opponent's representative was able to present his case orally. However, it cannot have influenced the content of the information to be presented if the refused presentation would indeed have been limited to the existing content of the file. Moreover, in view of

the failure to comply with the opposition division's instruction to file a copy of the content in advance the opponent's representative cannot have been taken by surprise by the division's action during the oral proceedings. It follows that there was no infringement of the opponent's right to be heard.

1.3 Since there was no infringement of the opponent's right to be heard there was also no substantial procedural violation and the opponent's request for remittal of the case is without foundation.

2. As set out above, the board finds that the opposition division's action in this case was neither inappropriate nor legally flawed. The action to be taken in any particular case depends on the circumstances of the case and the examining and opposition divisions must retain the discretion to act accordingly. It would not be appropriate for the board to attempt to restrict the exercise of that discretion.

Inventive step

3. The present patent relates to high lift aerofoils at the leading and trailing edges of aircraft wings, which may be extended to create increased lift during take-off and landing. Such auxiliary aerofoils at the leading edge are termed "slats" whilst those at the trailing edge are termed "flaps". The present patent is applicable to both slats and flaps and in the remainder of this decision the latter term will be used to designate both. There is a risk that a flap which is mounted on two mutually spaced tracks may become skewed, when one end of the flap moves a greater distance than

the other. The subject-matter of claim 1 provides sensors which detect such a skewed condition.

4. The board is in agreement with both parties that the closest state of the art for consideration of inventive step is known from D2. This discloses an aircraft provided with two skew detection arrangements, for flaps inboard and outboard of the engines respectively. The closest state of the art is the arrangement in respect of the inboard flaps. Each inboard flap is mounted by two mutually spaced flap carriages for translational motion on two corresponding tracks, each carriage being driven by a rack and pinion actuating mechanism. Sensors mounted on the frame of the wing cooperate with corresponding series of proximity targets mounted on the flap carriages. The output from the sensors is fed to a comparator to detect any difference between the sensed positions of the two carriages of any one flap.

- 4.1 The subject-matter of claim 1 differs from the closest state of the art according to D2 by the following features:

- two links associated with each flap and two crank assemblies for each flap;
- each crank assembly has a housing and a crank, the crank being attached to a respective one of the links, the crank assemblies and links converting translational motion of the flaps into rotary motion;
- two rotary position sensors for each flap for detecting rotary motion of the crank assemblies and

links, each sensor being attached to a respective housing of one of the crank assemblies;

- wherein each crank assembly responds to motion of the corresponding link and transmits a rotary response to the rotary sensor to detect skew or loss of the flaps.

These features provide an alternative sensor arrangement.

- 4.2 D1 relates to a system for controlling the flaps of an aircraft which are subject to the blast of an engine and therefore are particularly effective at providing additional lift. However, as a consequence, failure of one engine leads to an imbalance between the lift provided by the wings. The object of the system of D1 is twofold, firstly to automatically introduce dissymmetrical corrections of lift in order to re-balance the aircraft and secondly to provide protection against failure of the system itself. The flaps are mounted on pivoting carriages and a single actuator operates each flap. In one embodiment the innermost flaps on each side of the fuselage are connected by a torque tube arrangement which senses any difference of extension between the two flaps and, in the event of the difference exceeding a predetermined value, activates a safety system to prevent further differential extension. An alternative embodiment is briefly described and shown in figure 6, which differs only by the provision of two position sensors together with a comparator in place of the sensor arrangement associated with the torque tube.

4.2.1 In the alternative embodiment the representation of the link between the sensors is evidently schematic since the lines connect to the trailing edges of the flaps. According to the associated description "two position sensors ... are respectively associated with flaps ... and furnish their measurements to a threshold comparator". The parties disagree as regards the teaching of this embodiment to the skilled person. The embodiment is acknowledged in the patent specification as disclosing "links associated with the [flaps], crank assemblies having a housing and a crank, the crank being attached to a respective one of the links, and rotary position sensors for detecting rotary motion of the crank assemblies and links". Although the patent proprietor now resiles from this acknowledgement, in the board's view it is the only reasonable interpretation of the disclosure.

4.2.2 The operation of each flap according to D1 by single actuators means that the problem of skewing due to failure of one actuator cannot occur. There is no disclosure of any rigid torque connection between the pivoting carriages of each flap and it may be, therefore, that skewing of the flap could occur if the carriages were subject to unequal resistance to pivoting motion. However, there is no disclosure to this effect and since the embodiment according to figure 6 discloses only a single sensor for each flap, that arrangement would be unable to sense any such skewing. It follows that D1 has no teaching in respect of a sensor arrangement which is suited to the purpose carried out in the closest state of the art and the skilled person wishing to find an alternative to the sensor arrangement of D2 would have no reason to

consider the disclosure of D1. The opponent refers to a statement in D1 regarding the second object of providing protection against failure of the system itself arguing that the skilled person seeking an alternative to the D2 system would be encouraged by this to consider the teaching in detail. This second object does relate to differential movement of the two flaps resulting from failure of an actuator or blockage of one flap but in the absence of retrospective considerations is not relevant to the skewing of a single flap.

4.2.3 Moreover, the sensors according to D1 are provided together with flap carriages which undergo pivotal motion whereas the flap carriages according to D2 undergo translational movement. The pivotal arrangement permits a sensor to be attached at a point along the length of the pivotal arm in accordance with the range of movement of the rotary sensor. This possibility does not exist with the translational movement of the flaps according to D2 so that the rotary sensor of the second embodiment of D1, which anyway is disclosed highly schematically, is not obviously suited for use with the D2 flap arrangement.

4.3 For the above reasons the board finds that the subject-matter of claim 1 is not rendered obvious by a combination of D2 and D1.

Evidence D3a

5. D3a was filed together with the grounds for appeal. The opponent argues that it was filed at that point in the procedure because it had been surprised by the

interpretation by the opposition division of D1 (cf. 3.2.1). As a result, it argues, D3a was filed in response to a change in the subject of the proceedings.

5.1 The opponent has not given any reason for failing to find D3a during the period for opposition but merely states that it was prompted by the opposition division's interpretation of D1 to conduct a further search as a result of which it became aware of D3a. Under these circumstances, however, it is evident that if the opponent had conducted a sufficiently thorough search before filing the opposition it would have been able to file D3a within the time limit according to Article 99(1) EPC. The board therefore considers D3a to be late-filed within the meaning of Article 114(2) EPC.

5.2 According to consistent case law the question of whether late-filed evidence is to be disregarded is dependent *inter alia* on its relevance in comparison with evidence which is already in the procedure. D3a discloses no more information relevant to this case than does D1 as interpreted by the board. As a result, consideration of D3a would not influence the above finding in respect of inventive step. The board therefore exercises its discretion in accordance with Article 114(2) EPC and disregards D3a.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

A. Vottner

S. Crane