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Datasheet for the decision of 28 May 2008

Case Number: T 1116/05 - 3.5.02

Application Number: 96202130.9

Publication Number: 0763714

IPC: G08G 5/00

Language of the proceedings: EN

Title of invention:
Cursor controlled navigation system for aircraft

Patentee:
The Boeing Company

Opponent:
Airbus SAS

Headword:
-

Relevant legal provisions:
EPC Art. 84, 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Main request version 2, Auxiliary Request III version 2 - inadmissible (yes)"
"Main request - novelty (no)"
"Auxiliary Request III - inventive step (no)"

Decisions cited:
G 0009/91

Catchword:
see points 2 and 2.1 of the reasons

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1116/05 - 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 28 May 2008

Appellant: (Patent Proprietor)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 21 July 2005 revoking European patent No. 0763714 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: M. Ruggiu
Members: J.-M. Cannard
E. Lachacinski

Summary of Facts and Submissions

I. The proprietor appealed against the decision of the opposition division revoking European patent No. 0 763 714. The reasons given for the revocation were that the subject-matter of claim 1 of the patent as granted, claim 1 according to an auxiliary request I filed with a letter dated 3 May 2005 and claim 1 according to auxiliary requests II and IV filed during the oral proceedings before the opposition division was novel but did not involve an inventive step in the sense of Article 56 EPC. An auxiliary request III filed during said oral proceedings was considered inadmissible.

II. The document:

D1: US-A-4 086 632,

considered during the proceedings before the opposition division, remains relevant to the present appeal.

Documents:

D5: WO-A-95/09402, and

CG1: NASA Contractor Report 182070 "Diverter" Decision Aiding For In-flight Diversions, August 1990,

cited for the first time by the opponent in the course of the appeal are not considered in this decision.

III. With the statement of grounds of appeal, the appellant filed sets of claims according to auxiliary requests I

to VIII. With a letter filed 24 April 2008, he further filed sets of claims according to a main request Version 2 and auxiliary requests I to VIII Version 2.

IV. Oral proceedings before the Board were held on 28 May 2008. As announced in a letter dated 23 May 2008, the proprietor did not attend.

V. It appears from the file that the appellant (patentee) requests that the decision under appeal be set aside and that only the following requests be considered and that they be considered in the order presented below (see letter dated 23 May 2008):

1) Main Request Version 2 filed with letter dated 24 April 2008,
2) Claim 1 of the patent as granted,
3) Auxiliary request III Version 2 filed with letter dated 24 April 2008,
4) Auxiliary request III filed with the grounds of appeal dated 21 November 2005.

As further appears from the letter of 23 May 2008, the appellant withdrew all other requests on file.

VI. The respondent (opponent) requests that the appeal be dismissed.

VII. Claim 1 of the main request Version 2 reads as follows:

"An aircraft cursor controlled navigation system comprising:

a navigation display (40) for graphically displaying to the flight crew a sequence of waypoints (44,46,48) defining a desired aircraft route; and said navigation display (40) also depicting a movable cursor (74);

a manual input cursor control device (70) suited for receiving manual inputs to control the position of said cursor (74) on said navigation display (40);

a control display unit (12) including a keypad (30) for allowing the typed entry of sequential waypoints (44,46,48) to define a desired aircraft route and a text display (20) of said typed entries; and

a logic means (60) for directing aircraft flight in accordance with a flight crew input desired route, said logic means including logic for allowing the flight crew to select a desired route by manually selecting waypoints via the cursor control device (70) with said newly selected waypoints automatically forming the desired route on said navigation display (40), wherein the desired route is activatable to become an active route, **characterized in that** said logic means (60) is connected to said control display unit (12) through a two-way bus (66) and further includes logic for automatically forming the desired route as a text display (20) on said control display unit (12)."

VIII. Claim 1 of the main request (claim 1 as granted) reads as follows:

"An aircraft cursor controlled navigation system comprising:

a navigation display (40) for graphically displaying to the flight crew a sequence of waypoints (44,46,48) defining a desired aircraft route; and said navigation display (40) also depicting a movable cursor (74);

a manual input cursor control device (70) suited for receiving manual inputs to control the position of said cursor (74) on said navigation display (40);

a control display unit (12) including a keypad (30) for allowing the typed entry of sequential waypoints (44,46,48) to define a desired aircraft route and a text display (20) of said typed entries; and

a logic means (60) for directing aircraft flight in accordance with a flight crew input desired route, said logic means including logic for allowing the flight crew to select a new or desired route by manually selecting waypoints via the cursor control device (70) with said newly selected waypoints automatically forming the desired route on said navigation display (40), **characterized in that** said logic means (60) is connected to said control display unit (12) through a two-way bus (66) and further includes logic for automatically forming the desired route as a new or revised text display (20) on said control display unit (12)."

IX. Claim 1 of the auxiliary request III Version 2 and claim 1 of the auxiliary request III respectively differ from claim 1 of the main request Version 2 and claim 1 as granted in that they specify that the logic means (60) is as follows:

Auxiliary request III Version 2:

"a logic means (60) for directing aircraft flight in accordance with a flight crew input desired route, said logic means including logic for allowing the flight crew to select a desired route by manually selecting waypoints via the cursor control device (70), or said route being input on said control display unit (12), wherein the desired route is activatable to become an active route, wherein said logic means (60) are connected to said control display unit (12) through a two-way bus and said logic means (60) includes logic for automatically and simultaneously forming the desired route as a text display on said control display unit (12) when said route is entered on the navigation display (40), and said logic means (60) includes logic for automatically and simultaneously forming the desired route on said navigation display (40) when said route is entered on said control display unit (12), wherein the cursor position is monitored continuously (200) in parallel to the continuous monitoring of the keypad entries (220)."

Auxiliary request III:

"a logic means (60) for directing aircraft flight in accordance with a flight crew input desired route, said logic means including logic for allowing the flight crew to select a new or desired route by manually selecting waypoints via the cursor control device (70), or said route being input on said control display unit (12), wherein said logic means (60) are connected to said control display unit (12) through a two-way bus and said logic means (60) includes logic for

automatically and simultaneously forming the desired route as a new or revised text display on said control display unit (12) when said route is entered on the navigation display (40), and said logic means (60) includes logic for automatically and simultaneously forming the desired route on said navigation display (40) when said route is entered on said control display unit (12), wherein the cursor position is monitored continuously (200) in parallel to the continuous monitoring of the keypad entries (220)."

X. The written arguments of the appellant proprietor can be summarized as follows:

According to the appealed decision, claim 1 of the main request was novel. Document D1 did not disclose a control display unit (CDU) which was automatically updated when a new route was entered on the navigation display (MDU). Thus, the claimed logic means which included logic for automatically forming the desired route as a new or revised text display on the CDU were not directly and unambiguously derivable from D1. In the patent in suit, "automatically forming" meant that there was no need to confirm that a modification of a route entered via the cursor control device was finished for it to be visible on both the CDU and the MDU. This was not the case in D1, according to which the CDU displayed the desired route only after it had been activated. The desired route specified in claim 1 was a route input by the crew and had to be activated in order to become the active route used to direct the aircraft. Such a desired route corresponded to the modified or tentative route disclosed in D1, which was

not automatically formed as a new or desired text display of the CDU.

Claim 1 as granted involved an inventive step. Starting from D1, the problem to be solved was to make possible changing from a graphic entry mode (with a cursor) of a MDU to a text entry mode (using a keyboard) of a CDU while inputting the desired route, i.e. before activation of said desired route. The claimed solution to said problem, which consisted in providing an automatic display of corresponding desired route information on both the CDU and MDU, was neither mentioned nor suggested in D1. Air traffic safety only required that identical pieces of information be displayed on both the CDU and MDU after activation of the desired route. The auxiliary map control unit 55 disclosed in D1 for controlling the MDU independently of the CDU taught away from the invention. The claimed system enabled pilots to make changes to a navigation route in the most efficient way.

Claim 1 of the auxiliary request III additionally specified that the CDU and MDU simultaneously displayed corresponding information relating to a new or desired route and that the cursor position on the MDU was monitored continuously in parallel to the continuous monitoring of the keypad of the CDU. These features were not disclosed in D1. In D1, only signals representative of the programmed navigation route were coupled to the CDU and MDU, and, before entering a new waypoint on the MDU, the cursor had to be activated and the active route transferred in a buffer storage 28. A route change previously entered through the CDU and not activated would not be present in said buffer storage

and could not be displayed simultaneously on the MDU. D1 did not disclose a simultaneous display of a desired route on both the CDU and MDU simply because such a feature was not necessary: for instance, changes made to a route during a flight could be executed only using the MDU.

According to claim 1 of the auxiliary request III, the navigation display and the cursor device on the one hand, the control display unit and the keyboard on the other hand, were used in parallel and could be interchanged at all times. The system of D1, in which a route had to be entered completely via the keyboard of the CDU before it could be displayed on the MDU, taught away from a continuous and parallel monitoring of both the cursor position and the keypad entries.

The independent claims of each "Version 2" request had been clarified to distinguish the "desired route" from an "active route".

The documents D5 and CG1 which had been cited for the first time in the course of the appeal were late filed and should not be admitted in the proceedings.

XI. The arguments of the respondent opponent which are relevant to the present decision can be summarized as follows:

The main request Version 2 should be rejected. The new feature incorporated in claim 1 of the request attempted to limit a desired route to a tentative route. According to paragraph [0025] of the description of the opposed patent, a desired route was an active

route represented by a full line on figure 2. According to paragraphs [0046] and [0049], a desired route was a tentative route represented by a dashed line on figures to 3 to 9. The amendment made to claim 1 was neither clear, nor supported by the description. Amended claim 1 also contravened Article 123(2) EPC. Auxiliary request III Version 2 had to be rejected for the same reasons.

Claim 1 as granted was not novel. D1 disclosed a navigation system which comprised a conventional control display system (CDU) and a navigation display (MDU) equipped with a cursor control device to enter and display navigation routes. In the prior art navigation systems in which the routes were entered only via the CDU, the CDU and MDU displayed corresponding information. For reasons of security, the consistency between the displays of active routes was necessarily maintained in D1, also when routes were entered via the cursor device of the MDU. D1 showed logic means which were connected to the control display unit by a two-way bus and implicitly disclosed logic automatically forming the desired route as a new or revised text display on the CDU, as appeared from a passage at column 6, lines 31 to 37, which stated that programmed navigation routes were computed within a computer 10 and coupled to the CDU 12 and MDU 14. D1 disclosed all the features of claim 1 as granted. In any case, the skilled person starting from D1 would consider maintaining the consistency between route information displayed on both the CDU and the MDU, independently of the way in which the route changes were entered. Thus, in any case, claim 1 lacked an inventive step.

Claim 1 of auxiliary request III only differed from claim 1 as granted in that the cursor position was continuously monitored in parallel to the monitoring of the keypad entries because D1 implicitly disclosed a simultaneous display of information on the CDU and MDU. For providing the versatility of the navigation system which was foreseen in D1, column 4, lines 54 to 65, it was obvious to the skilled person to monitor continuously and in parallel the cursor device of the MDU and the keypad of the CDU. Claim 1 of the auxiliary request III therefore lacked an inventive step.

Reasons for the Decision

1. The appeal is admissible.

Main request Version 2 - Inadmissibility of the amendments

2. Claim 1 of the main request Version 2 differs *inter alia* from claim 1 as granted by the additional terms "wherein the desired route is activatable to become an active route". During the oral proceedings, the respondent objected that this feature rendered claim 1 unclear. According to point 19 of the decision of the Enlarged Board G 9/91 (OJ EPO 1993, 408), amendments made in the course of opposition or appeal proceedings are to be fully examined as to their compatibility with the requirements of the EPC. Thus, the Board has to examine whether claim 1, as amended according to the main request Version 2, meets the requirements of Article 84 EPC.

2.1 Claim 1 of the main request Version 2 specifies *inter alia* a flight crew input desired route which is used by a logic means (60) for directing aircraft flight (i.e. an active route). Claim 1 also specifies a desired route which is selected by the flight crew "by manually selecting waypoints via the cursor control device (70) with said newly selected waypoints automatically forming the desired route on said navigation display" and is "activatable to become an active route", whereby the desired route seems to be a tentative route which could be activated. Therefore, the amendment made to claim 1 of the main request Version 2, by introducing an additional feature, gives to the expression "desired route" a meaning that is inconsistent with a previous definition of this expression in the claim. Moreover, according to paragraph [0025] of the description of the patent in suit, "The navigation display 40 depicts the current position of the aircraft, here indicated by triangle 42, and selected waypoints along the desired route such as the indicated waypoint "LACRE" at 44,... and the final waypoint "TAGOR" at 48", which suggests that a "desired route" is an active route followed by the aircraft, as indicated by a full line in figures 2a and 2b. On the other hand, according to paragraph [0046] and figure 5, "having selected the new "BEEHI" route, the user continues to move the cursor 74 to select an additional waypoint on the desired route", suggests that a "desired route" is a tentative route as shown by dashed lines in figures 3 to 6. Thus, the expression "desired route" incorporated in claim 1 has different meanings which are inconsistent, so that the scope of protection is not clear. Thus, the amendments made to claim 1 of the main request Version 2 do not satisfy the

requirements of Article 84 EPC. The main request Version 2 of the appellant has to be rejected.

Claim 1 as granted - lack of novelty

3. Claim 1 does not only mention a "desired route" per se, but specifies a desired aircraft route defined on a navigation display (40), a desired aircraft route defined on a control display (12), a flight crew input desired route which is used by a logic means (60) for directing aircraft flight, i.e. an active route, and a desired route selected "by manually selecting waypoints via the cursor control device (70) with said newly selected waypoints automatically forming the desired route on the navigation display". According to paragraph [0025] of the description, "The navigation display 40 depicts the current position of the aircraft, here indicated by triangle 42, and selected waypoints along the desired route such as the indicated waypoint "LACRE" at 44,... and the final waypoint "TAGOR" at 48", so that a "desired route" appears to be an active route followed by the aircraft, as indicated by a full line in figures 2a and 2b. Therefore, interpreted on the basis of the description, the term "desired route" in claim 1 can be understood as specifying an active route for directing an aircraft. Furthermore, the wording of claim 1 does not exclude that the logic means (60) "includes logic for automatically forming the desired route as a new or revised text display (20) on said control display unit (12)" only after the new or desired route has been activated for directing the aircraft.

4. The subject-matter of claim 1 as granted, when construed as in the foregoing, lacks novelty (Article 54 EPC).

4.1 Document D1 discloses an aircraft cursor controlled navigation system which comprises (figures 1 to 4; column 4, lines 29 to 65):

a navigation display 14 for graphically displaying to the flight crew a sequence of waypoints 60 defining a desired aircraft route; and said navigation display 40 also depicting a movable cursor 70 (figures 3 and 4; column 7, lines 36 to 51; column 8, lines 28 to 51);

a manual input cursor control device 26 suited for receiving manual inputs to control the position of said cursor 70 on said navigation display 14;

a control display unit 12 including a keypad 18 for allowing the typed entry of sequential waypoints 60 to define a desired aircraft route and a text display 16 of said typed entries (column 4, lines 54 to 65; column 5, lines 44 to 67; column 6, lines 30 to 57); and

a logic means 10 for directing aircraft flight in accordance with a flight crew input desired route, said logic means including logic for allowing the flight crew to select a new or desired route by manually selecting waypoints via the cursor control device 26 with said newly selected waypoints automatically forming the desired route on said navigation display 40 (column 4, lines 54 to 57; column 8, lines 27 to 47).

4.2 The logic means 10 must be connected to the control display unit 12 by a two-way bus because said control display unit transmits signals from the keyboard 18 to the computer 10 and also receives from said computer

signals representative of the aircraft position and of a course to be followed (column 6, lines 31 to 37). Moreover, in the view of the Board, the logic means 10 of D1 implicitly "includes logic for automatically forming the desired route as a new or revised text display (20) on said control display unit (12)", the "desired route" being understood as the active route in this feature of claim 1 (*supra* point 3.), for the following reasons.

4.3 According to column 4 of D1, lines 54 to 65, "in the practice of this invention, the MDU 14 is provided with means for readily controlling the operation of the computer 10 to establish and modify navigation routes. Although such provision could in effect eliminate the need for a conventional CDU, it is contemplated that the CDU will be included in most embodiments of this invention for increasing system versatility, with the MDU 14 being utilized to execute navigation route changes during the flight of the aircraft or at any other time that simple, rapidly executable navigational changes are necessary or desired". Therefore, the control display unit 12, the navigation display 14, the keypad 18 and the logic means (computer 10) of the navigation system disclosed in D1 are configured so as to provide all the functions of a conventional CDU, and more specifically so that "the MDU 14 graphically displays information corresponding to the information selected by operation of keyboard 16 and displayed on the CDU display 16" (column 7, lines 7 to 10; see also column 4, lines 47 to 53). This ensures the consistency between information displayed on both the CDU and the MDU of D1, and in particular between desired active routes when a route change has been entered via the CDU.

4.4 It is apparent to the skilled person that, for reasons of air traffic security, the consistency between active routes displayed on both the CDU and the MDU must be maintained irrespective of the input means used for entering a route change. In view of column 6, lines 31 to 37, the system of D1 is configured so that active routes ("programmed navigation route and signals representative of a course that must be followed") are provided to both the CDU and MDU. Moreover, in view of the versatility mentioned in column 4, lines 57 to 67, it should be possible for users of the system of D1 to execute another change of an activated route via the CDU after having executed a first route change via the MDU, especially if the conditions for using the MDU are no longer met. Thus, it derives directly and unambiguously from D1 that corresponding information relative to active routes are necessarily displayed on both the CDU and the MDU, that is to say that the system of D1 includes "logic for automatically forming the desired route as a new or revised text display (20) on said control display unit (12)", irrespective of the means used for entering a route change. Hence, D1 discloses an aircraft cursor controlled navigation system which comprises all the features specified in claim 1 as granted. The subject-matter of claim 1 as granted is not novel (Article 54 EPC).

Auxiliary request III Version 2 - Inadmissibility of the amendment

5. Claim 1 of auxiliary request III Version 2 includes additional terms identical to those incorporated in claim 1 of the main request Version 2. Thus, claim 1 of

the auxiliary request III Version 2 does not meet the requirements of Article 84 EPC for the same reasons as claim 1 of the main request Version 2 and the auxiliary request III Version 2 has to be rejected.

Auxiliary request III - Lack of inventive step

6. In the statement of grounds of appeal and in the letter dated 16 August 2006, the appellant requested that the auxiliary request III be remitted to the opposition division. However, in its last letter filed on 23 May 2008, the appellant requested that only the four requests specified there be considered.

The letter of 23 May 2008 further states: "All other requests currently on file are withdrawn".

Accordingly, the Board understands that the appellant has withdrawn its request to remit auxiliary request III to the opposition division.

7. Claim 1 of auxiliary request III differs in substance from claim 1 as granted in that:

i) logic of the logic means (60) is configured for additionally "simultaneously" forming the desired route as a new or revised text display on said control display unit (12) "when said route is entered on the navigation display (40)",

ii) "said logic means (60) includes logic for automatically and simultaneously forming the desired route on said navigation display (40) when said route is entered on said control display unit (12)", and

iii) "the cursor position is monitored continuously (200) in parallel to the continuous monitoring of the keypad entries (220)".

8. According to column 8, lines 6 to 11 of the patent in suit "if the user prefers to make CDU 20 inputs, these are simultaneously displayed on the navigation display 40. In this way, users are free to use either the graphic interface via the cursor control device and the navigation display or the standard CDU command button entries to control the navigation route". As, for reasons of versatility, the user of the system of D1 is free to use a cursor control device associated to the MDU 14 or the standard CDU 12 to control the navigation route (D1, column 4, lines 54 to 65), D1 discloses a simultaneous display of corresponding information on both the MDU and the CDU with the meaning that the term "simultaneously" has in the patent in suit. Thus, the additional feature i) is disclosed in D1. Additional feature ii) is also disclosed in D1 which recites that "the (conventional) CDU will be included in most embodiments of this invention" (column 4, lines 59 to 61) and "Generally, in the prior art, the MDU 14 graphically displays information corresponding to the information selected by operation of the keyboard 16 and displayed on the CDU display 16" (column 7, lines 7 to 10). Accordingly, the navigation system of claim 1 of the auxiliary request III only differs from the system disclosed in D1 by the additional feature iii).

9. According to D1 (see for instance, column 4, lines 57 to 65), the navigation system is provided with two route entry modes, a graphic mode (cursor control device 26)

included in the MDU 14 and an alphanumeric mode (keypad 18) included in the CDU 12, which both can be used freely. No means are foreseen in D1 for selecting one of these two possible entry modes and at the same time disabling the other one. In the view of the Board, it would be obvious to the skilled person starting from D1, and wishing to improve versatility, to consider monitoring continuously and in parallel both the cursor position and the keypad entries of D1 so as to allow both entry modes to be used without constraint and interchangeably by two pilots according to their preferences. Accordingly, the subject-matter of claim 1 of the auxiliary request III does not involve an inventive step (Article 56 EPC).

10. As none of the appellant's requests is suitable for maintaining the patent, the appeal has to be dismissed.

Order

For these reasons it is decided that :

The appeal is dismissed.

The Registrar: The Chairman:

U. Bultmann M. Ruggiu