BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 24 March 1999

Case Number: T 0024/97 - 3.2.1

Application Number: 88307406.4

Publication Number: 0303470

IPC: B60T 8/48, B60T 13/52, B60T 7/12

Language of the proceedings: EN

Title of invention:
Traction control system

Patentee:
Lucas Industries public limited company

Opponents:
Bosch Systemes De Freinage
Continental Teves AG & Co. OHG

Headword:
-

Relevant legal provisions:
EPC Art. 100(c), 123(2)

Keyword:
"Added subject-matter (no)"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0024/97 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 24 March 1999

Appellant: (Proprietor of the patent)
Lucas Industries public limited company
Kings Road
Tysley
Birmingham B11 2AH (GB)

Representative:
Stringer, David Hiram
W.P. Thompson & Co.
Coopers Building
Church Street
Liverpool L1 3AB (GB)

Respondent I: (Opponent 01)
Bosch Systemes De Freinage
126, rud de Stalingrad
93700 Drancy (FR)

Representative:
Bentz, Jean-Paul
Bosch Systemes de Freinage
126 rue de Stalingrad
93700 Drancy (FR)

Respondent II: (Opponent 02)
Continental Teves AG & Co. OHG
Guerickestr. 7
60488 Frankfurt/Main (DE)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 30 October 1996 revoking European patent No. 0 303 470 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: F. A. Gumbel
Members: P. alting van Geusau
J. H. van Moer

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 303 470 in respect of European patent application No. 88 307 406.4, filed on 10 August 1988 was published on 13 October 1993 (cf. Bulletin 93/41).

The independent claim 1 of the patent reads as follows:

"1. A traction control system for use in controlling the driven wheels (10) of a road vehicle, comprising a master cylinder (12) connected to each wheel brake, the fluid pressure produced by the master cylinder (12) being provided by actual pressure on a brake pedal together with supplemental pressure provided by a vacuum servo unit (13), the vacuum servo unit (13) incorporating an electromagnetic valve (35) which, when de-energised allows the servo unit (13) to only operate to provide supplemental pressure when pressure is applied to the brake pedal and, when energised, allows the servo unit (13) by itself to apply fluid pressure to a wheel brake, the electromagnetic valve (35) being energised when a driven wheel (10) commences to spin faster than the other wheels (10, 11) of the vehicle, characterised in that the master cylinder (12) is connected via a modulation unit (14) to each wheel brake, the modulation unit (14) which includes a motor driven pump, being arranged to control the fluid pressure applied by the master cylinder (12) to each wheel brake in dependence upon the relative speeds of the vehicle (10, 11), the modulation unit (14) having two valves (15, 16), one valve (16) being to relieve the brake pressure provided by the servo unit (13) when the electromagnetic valve (35) is energised and the

servo (13) is connected to atmosphere, said one valve (16) being actuated to relieve the brake pressure when the speed of the spinning driven wheel (10) has been reduced to the speed of said other wheels (10, 11) and the other valve (15) being to subsequently meter the brake pressure generated by the servo unit (13) when connected to atmosphere by the electromagnetic valve being energised, to thus provide a pressure head for the modulator power source to reapply the fluid under pressure to the brake of the driven wheel (10) should it commence to spin faster than other wheels (10, 11)."

II. Notices of opposition were filed by respondents I and II (opponents 01 and 02) on 5 July 1994 and 13 July 1994, respectively. Respondent I based its opposition on the grounds of Article 100(a) and (c) EPC and respondent II on the grounds of Article 100(a) EPC only.

III. By a decision announced on 9 October 1996 during oral proceedings and posted on 30 October 1996, the Opposition Division revoked the patent.

The Opposition Division was of the opinion that claim 1 of the granted patent and also the claims 1 in accordance with auxiliary requests filed during the opposition proceedings, contained subject-matter which extended beyond the content of the application as filed. Therefore these claims and consequently the appellants main and auxiliary requests were not considered acceptable for reasons of Article 100(c) EPC and Article 123(2) EPC, respectively.

IV. On 20 December 1996 a notice of appeal was lodged

against that decision and the appeal fee was paid on the same day.

The statement of grounds of appeal was filed on 3 March 1997.

V. In a communication issued in preparation for oral proceedings the Board informed the parties that since the patent had been revoked solely for reasons based on Article 100(c) EPC, it envisaged remittal of the case to the first instance for examination of the ground of opposition in accordance with Article 100(a) EPC in case one of the appellant's requests was found to meet the requirements of Article 123(2) and (3) EPC.

Since some of the features of the claims in accordance with the appellant's requests were not explicitly disclosed in the application as originally filed, the discussion at the oral proceedings should focus on probable implicit disclosures of these features in the originally filed application documents.

VI. With its response dated 19 February 1999 the appellant filed amended claims 1 in accordance with four auxiliary requests.

VII. Oral proceedings took place on 24 March 1999. By facsimile dated 12 March 1999 respondent II had given notice of its non-attendance at the oral proceedings. The oral proceedings were held without him (Rule 71(2) EPC).

The appellant requested that the decision under appeal be set aside and the patent be maintained as granted

(main request), or in the alternative be maintained on the basis of one of its four auxiliary requests filed on 19 February 1999.

VIII. In support of its requests the appellant essentially relied on the following submissions:

The Opposition Division had revoked the patent on the ground that the second and further characterising features of claim 1 were not directly and unambiguously derivable from the application as filed.

However, when considering the explanations of the traction control system given in the description as originally filed the skilled person would derive sufficient information from this original disclosure to arrive immediately at the features in question. In particular, when having regard to the text of the published patent application column 2, lines 36 to 60 and column 4, lines 29 to 32, it was immediately apparent that the traction of the vehicle was controlled basically by making use of an antilock control, modified in a manner so that during traction control the speed of the spinning wheel was reduced to the speed of the other wheels. The solenoid valves of the modulation unit were therefore controlled in the manner as defined in claim 1 of the patent in suit and it was also immediately clear from the claim that a set of valves 15 and 16 related to each wheel brake.

Furthermore, since the anti-skid facility was provided by the modulation unit this unit would contain all the necessary elements for such a control thus necessarily including the expansion chamber and the motor driven

pump for return of the brake fluid to the master cylinder, described in column 2, lines 39 to 60 of the published patent application. It was immaterial that these elements were missing in Figure 1 because this drawing merely disclosed the basic layout of the system and was not intended to show all the technical details.

IX. The respondents requested rejection of the appeal.

Respondent I submitted in writing and at the oral proceedings that the subject-matter of claim 1 was obviously redrafted during the grant proceedings to disguise the lack of novelty and inventive step over the prior art disclosed in EP-A-0 171 585. The new formulation of the subject-matter of claim 1 introduced features that did not have a clear basis in the originally filed application documents and in fact were in contradiction to the system disclosed in the description. In this respect the appellant failed to substantiate convincingly a support in the description for the feature that the motor-driven pump was included in the modulation unit. Moreover in column 3, lines 12 to 17 of the published application documents it was stated that a pump was used in conventional systems to charge fluid into an accumulator but that such an arrangement was expensive and that therefore the master cylinder was utilized in the present patent to provide fluid under pressure. On that basis the skilled person would come to the conclusion that the pump was disadvantageous and should be omitted from the system in accordance with the patent in suit. Moreover even the appellant was not in a position to explain the function of the motor-driven pump and the manner how this pump was attached to the system claimed. In any

case, if the motor-driven pump was intended to return the fluid to the master cylinder, the pressure provided by the pump must be higher than that provided by the master cylinder and therefore it was effectively that resulting higher fluid pressure that was modulated. Furthermore no disclosure or suggestions were available in the originally filed application documents of a pressure head, a modulator power and metering steps as defined in the characterising portion of claim 1.

Therefore, since a plurality of characterising features of claim 1 was not supported by the application documents in their originally filed form, the patent did not meet the requirements of Article 123(2) EPC.

Respondent II submitted in writing that not necessarily all anti-lock systems included a motor-driven pump so that it could not be argued that such a pump should be part of the traction control system disclosed in the patent let alone be part of the modulation unit. In this respect, the original application documents disclosed that the antilock system including a motor-driven pump that "can" be modified to provide traction control and it was therefore not an absolute necessity that the traction control functioned in the same manner as the conventional antilock control. Furthermore, also the features of claim 1 relating to the other valve lacked any support in the originally filed documents because nowhere was it mentioned that the valve had a "meter" function or that a "pressure head" was provided.

Reasons for the Decision

1. The appeal is admissible.

2. *Main request*

2.1 It is to be noted that the features of the preamble of claim 1 including the first characterising feature are not in dispute as regards the requirements of Article 123(2) EPC. In contrast some of the remaining features were considered to lack support in the originally filed application documents.

The main issue to be decided by the Board is therefore whether the skilled person would derive these features in combination with the other features of claim 1 at least in an implicit manner from the original application documents, so as to lead immediately and unambiguously to the subject-matter of claim 1.

2.2 The originally filed application documents, which are identical with the content of the published application EP-A2-0 303 470 to which reference was made by the parties and to the content of which also the Board will refer in the following considerations, relate to a traction control system for use in controlling the driven wheels of a road vehicle in which the brake of a spinning wheel is applied to limit the spin of that wheel in order to allow torque to be applied through the conventional differential mechanism to the other driven wheel or wheels (see column 1, lines 1 to 11). With reference to Figure 1, the basic layout of a preferred embodiment of the system is described (see column 2, lines 19 to 21).

In accordance with the disclosure in column 2, line 28

to column 3, line 11, the traction control system is based on an anti-skid brake system with additional features to obtain limitation of wheel spin of the driven wheels during acceleration of the vehicle.

2.3 Turning now to the position of the motor-driven pump in the claimed system (the second characterising feature of claim 1), there is stated in column 2, lines 36 to 38, that the braking system incorporates an anti-skid facility which is provided by a modulation unit 14. The further text starting on line 39 describes the functioning of the modulation unit 14 and explains how the brake is released by allowing brake fluid to flow from valve 16 to an expansion chamber from which the brake fluid is pumped back to the master cylinder by a suitable motor-driven pump (see column 2, lines 48 to 55).

The skilled person being acquainted with antilock systems in use at the time of filing of the present patent must be considered to be well aware of the fact that in conventional antilock systems a motor-driven pump is provided for returning the brake fluid to the master cylinder. Although the parties expressed different opinions in this respect, the Board has no doubt that in the conventional systems the motor-driven pump returns the brake fluid from the expansion chamber to the pressurised side of the master cylinder to make up for the loss of brake fluid released by valve 16. Also when taking into account the additional traction control function of the antilock system of the present patent the motor driven pump only returns the released fluid to the master cylinder (see column 4, lines 29 to 32).

In view of such common arrangement of expansion chamber and motor-driven pump in conventional antiskid systems for vehicles, and considering the fact that the expansion chamber and motor-driven pump are described in direct relation to the antiskid facility, which facility is provided by the modulation unit also used for traction control (see column 2, lines 36 to 38), no other possibility can reasonably be derived from the originally filed application documents than that the motor-driven pump is part of the antiskid facility and is thus "included" in the modulation unit.

2.4 As regards the position of the motor-driven pump in the traction control system, the respondents argued that the statement in column 3, lines 12 to 17 would put the consistency of the appellant's submissions in doubt.

The Board, however, sees no discrepancy in this respect. It is to be noted that the subject-matter disclosed in the present patent essentially relates to a traction control system in which brake fluid under pressure is supplied by a master cylinder which is actuated by means of a modified servo unit (see column 3, lines 18 to 22 and column 4, lines 18 to 26). In contrast thereto the text in column 3, lines 12 to 17 obviously relates to another manner for supplying fluid under pressure, namely by using a charged fluid accumulator. The pressure in the fluid accumulator is provided by a pump and in so far such pump has nothing in common with a pump for the return of brake fluid to the master cylinder.

2.5 Considering further the traction control method and the functioning of the modulation unit during traction

control, the Board is of the opinion that the skilled person being well acquainted with the antilock control does not need more information than that supplied by the text in column 2, line 61 to column 3, line 11 and column 4, lines 18 to 32, to derive in an unambiguous manner that the valves 15 and 16 are controlled in the manner as defined in the corresponding features of claim 1.

In particular valve 15 is controlled so that the brake is applied when the driven wheel starts to spin faster than the other wheels and valve 16 is controlled to release the fluid pressure of the brake when the speed of the spinning wheel equals the corresponding vehicle speed which corresponds to the speed of the non-spinning other wheels.

In this respect the Board fully concurs with the appellant's submission in that the traction control system would necessarily continue to function as long as relative spin, i.e. one wheel spinning faster than the other wheels, would still be occurring. Thus, whatever "spin" is considered, the respective valve 16 can only be open as specified to relieve fluid pressure into the brake cylinder of the previously spinning wheel when the rotational speed of the previously spinning wheel has been reduced to the speed of the other wheels.

2.6 Respondent I further argued that the pump could only return fluid when the pressure delivered by the pump was higher than that of the master cylinder and that therefore the controlled pressure was not primarily based on the master cylinder pressure only.

However, considering that the fluid pressure is determined by the force supplied by the servo unit on the master cylinder piston and taking into account the functioning of the servo unit disclosed in the present patent, any return of fluid into the master cylinder piston only changes the amount of fluid present in the pressure head but does not appreciably influence the pressure itself, since the force of the servo unit is essentially constant over the entire working stroke of the master cylinder.

2.7 The respondent objected to the wording of the last features of claim 1 relating to the other valve being to subsequently "meter" the brake pressure generated by the servo unit when connected to atmosphere by the electromagnetic valve being energised, to thus provide a "pressure head" for the "modulator power source" to reapply the fluid under pressure to the brake of the driven wheel should it commence to spin faster than other wheels, which wording was by no means disclosed in or supported by the originally filed application documents.

The Board notes in this respect that the EPC does not require that the words used in the claims should be exactly the same as the words used in the description. Concerning opposition proceedings, Article 123(2) EPC only requires that the subject-matter of the European patent should not extend beyond that of the content of the application as it was originally filed.

The Board accepts that some of the wording used in the last part of the claim 1 may not be absolutely clear in itself. However, Article 84 is no ground for opposition

and for the purpose of interpretation of the claims in accordance with Article 69 EPC the description and drawings of the patent shall be used as well.

As was set out in the former paragraphs of this decision the person skilled in the art does not have any difficulty in interpreting the disclosure of the originally filed application documents in relation to the subject-matter claimed in claim 1 of the patent in suit. In particular when taking into account the disclosure of the description and drawings it is immediately apparent that the valve 15 is controlled in a pulsed manner (see column 2, line 58) to "meter" the brake pressure, the amount of fluid put under pressure by the servo unit forms a "pressure head" for the "modulator power source" (the modulator unit) for applying the brake to a spinning wheel.

2.8 The further arguments presented by the respondents relating to the fact that the original disclosure merely indicated that antilock braking "can" be modified (see column 2, line 61) to provide traction control and the allegation concerning redraft of claim 1 in order to disguise lack of novelty and inventive step nevertheless do not put in doubt the disclosure of the subject-matter of granted claim 1 in the application as it was originally filed.

The use of the word "can" in the description cannot mislead the skilled person since clearly in the preferred embodiment of the traction control system disclosed in the description the modulation unit is actually used to provide traction control by modulated actuation of the valves 15 and 16. A redraft of an

originally filed claim 1 to take relevant prior art into account is not precluded either.

2.9 In view of the foregoing considerations the Board comes to the conclusion that claim 1 as granted does not contain subject-matter which extends beyond the content of the application as it was originally filed. Therefore claim 1 of the main request does not contravene Article 123(2) EPC. Under these circumstances it is not necessary to consider the auxiliary requests.

3. *Procedural considerations*

In the present case the patent was revoked for reasons based on Article 123(2) EPC only. Having regard to the above conclusion and to the fact that the oppositions were also based on the grounds of Article 100(a) EPC, the Board considers it appropriate in line with established case law to remit the case to the first instance for examination of that ground of opposition.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution.

The Registrar: The Chairman:

S. Fabiani F. Gumbel