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File Number: T 308/90 - 3.2.1

Application No.: 81 303 323.0

Publication No.: 0 046 339

Title of invention: Master cylinder

Classification: B60T 11/22, B60T 13/24

D E C I S I O N
of 3 September 1991

Proprietor of the patent: LUCAS INDUSTRIES plc.

Opponent: BENDIX France

Headword:

EPC Article 123(2), Article 84, Article 56

Keyword: "added subject-matter (no)"
"clarity (yes)"
"inventive step (yes)"

Headnote



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Boards of Appeal

Chambres de recours

Case Number : T 308/90 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 3 September 1991

Appellant :
(Opponent) Bendix France
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Representative : -

Respondent :
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Decision under appeal : Interlocutory decision of the Opposition Division
of the European Patent Office dated
20 November 1989 posted on 22 February 1990
concerning maintenance of European patent
No. 0 046 339 in amended form.

Composition of the Board :

Chairman : F. Gumbel
Members : P. Alting van Geusau
C. Payraudeau

Summary of Facts and Submissions

- I. The mention of grant of European patent No. 0 046 339, in respect of European patent application No. 81 303 323.0 filed on 21 July 1981, was published on 31 October 1984.
- II. In a notice of opposition, filed on 15 April 1985, the opponent requested the revocation of the patent on the grounds that its subject-matter lacked novelty and did further not involve an inventive step. The opposition was supported, *inter alia*, by the following documents:
- D1: FR-A-1 406 357
D2: GB-A-1 103 139.
- III. By a decision delivered orally on 20 November 1989, with written reasons posted on 22 February 1990, the Opposition Division maintained the patent in amended form on the basis of a set of 9 claims having two independent Claims 1 and 4 which read as follows:
1. "A master cylinder comprising a body (2) with an axial bore (3) open at the rear end of the body, a flange (8) on the body for supporting the body, a reservoir (4) mounted on the body in front of the flange, the reservoir enclosing a reservoir chamber (7), a transverse port (17) in the body opening into the bore and positioned rearwardly of the reservoir chamber and the flange, a passageway communicating said reservoir chamber with said transverse port for conducting brake fluid between the reservoir chamber and the bore, part of said passageway being defined outside of the body by a sleeve (22) sealingly mounted on the body and covering a portion of the body located rearwardly of the flange, and a port (18)

defining a remaining part of said passageway, said port connecting the space between the body and the forward end of the sleeve to the reservoir chamber (7), characterised in that the forward end of the sleeve (22) is sealingly engaged with the rear face of the flange (8) at a position spaced radially outwardly from the body, the port (18) extends through the flange (8) at a position outside the body, and said port (18) is a minor part of said passageway (Fig. 1)."

4. "A master cylinder comprising a body (2) with an axial bore (3) open at the rear end of the body, a flange (8) on the body for supporting the body, a reservoir (4) mounted on the body in front of the flange, the reservoir enclosing a reservoir chamber (7), a transverse port (17) in the body opening into the bore and positioned rearwardly of the reservoir chamber and the flange, and a passageway communicating said reservoir chamber with said transverse port for conducting brake fluid between the reservoir chamber and the bore, part of said passageway being defined outside of the body by a sleeve (51; 68) mounted on the body and covering a portion of the body located rearwardly of the flange, characterised in that a through duct (18') formed in a member (50; 64) made separately from the body and carried thereon defines the remaining part of said passageway and connects the forward end of said passageway part defined by the sleeve (51; 68) directly to the reservoir chamber (7), said through duct passing either through or outwardly of said flange (Fig. 3 and 2)."

The Opposition Division held that in the light of the problem to be solved, i.e. to avoid the drawbacks of drilling a long passageway in the body of a master cylinder such as is disclosed in FR-A-1 406 357 (D1) a person skilled in the art could not find in the cited

prior art documents any hint to help him conceive solutions such as defined in the independent Claims 1 and 4, and that the patent and the invention to which it relates met the conditions of the EPC.

- IV. An appeal was filed against this decision on 17 April 1990 with payment of the prescribed appeal fee on the same day. In the Statement of Grounds of Appeal filed on 19 June 1990 and further letters the Appellant argued that the amended Claims 1 and 4 go beyond the original disclosure and are not supported by the description and thus the claims do not meet the requirements of Article 123(2) and Article 84 EPC. He referred in this respect to this Board's decision T 169/83. (OJ, EPO 7/1985, 193).

Although he did not contest the novelty of the subject-matter of Claims 1 and 4 the Appellant submitted that in view of the cited references the proposed solution could not be considered to involve an inventive step. As soon as a mounting flange is considered necessary for mounting the master cylinder and since the passageway for providing hydraulic fluid to the piston at the other side of the flange is to be connected to the bottom level of the reservoir, the obvious solution for the skilled person would be to machine a hole in the flange and to provide a passageway between this hole and the port and thus arrive at the subject-matter of Claim 1. There cannot be an invention in these logical steps which are just obvious design choice for a skilled engineer.

Concerning the solution according to Claim 4 reference was made to the document D2 showing a duct formed in a member made separately from the body.

By letter of 15 November 1990 the Appellant cited a further document (FR-A-1 558 991) to establish that the use of external passageways to connect the reservoir to the bore of a master-cylinder was known in the art.

He contended that in the light of the above prior art teachings no inventive skill was needed to conceive the solution specified in Claim 4.

- V. In his responses the Respondent essentially submitted that none of the amendments made to the patent specification result in subject-matter which extends beyond the content of the application as filed. Insofar as features now included in the claims were not contained in the original description these features are clearly disclosed in the original drawings and in view of the conclusions of the Decision T 169/83, it is acceptable to include these features in the claims.

Starting from the closest prior art disclosed in D1 the idea of interconnecting the transverse port of a master cylinder and the reservoir chamber entirely outside the master cylinder body by a passageway going through or outwardly of the mounting flange cannot be derived from any of the cited documents.

- VI. The Appellant requests that the decision under appeal be set aside and the patent be revoked.

The Respondent requests that the appeal be dismissed and costs be awarded in his favour if further evidence must be lodged or oral proceedings must be held.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rules 64 and 1(1) EPC and is, therefore, admissible.

2. Formal acceptability of the claims

2.1 The subject-matter of independent Claims 1 and 4 is based on the embodiments disclosed in the application as originally filed and set out in the published patent with respect to Figure 1 and Figures 2 and 3 respectively. The precharacterising portion of each of these claims relates to the known master cylinder disclosed in FR-A-1 406 357 (D1) introduced during the opposition procedure. It includes essentially all the features of Claim 1 of the published patent.

2.2 In accordance with the conclusions set out in T 169/83, referred to by the parties, the Board is of the opinion that where drawings exist they are to be regarded as an integral part of the documents disclosing the invention and that they must be considered as ranking equally with the other elements of the application such as the description and claims. Therefore, features clearly derivable by a person skilled in the art from the drawings as regards structure and function may be used to further define the subject-matter for which protection is sought (see especially points 3.3.3 and 3.5 of this decision).

2.3 When substantiating his objections under Article 123(2) and Article 84 EPC against the new claims the Appellant drew attention to the alternative embodiment described with respect to Figure 1 on page 6, lines 3 to 8 of the original description, in which the reservoir may be made separately from the master cylinder. According to the Appellant, considering such an alternative arrangement, it cannot any longer be derived from Figure 1 how the port

(18) may define the remaining part of the passageway as indicated in Claim 1. Therefore, the subject-matter of Claim 1 should be further restricted to the details of the embodiment of Figure 1 in order that Article 123(2) and Article 84 are met.

However, considering in detail the text referred to above, which corresponds to column 3, line 63 to column 4, line 4 of the patent as published, it clearly indicates that a reservoir made separately is connected to the body with the usual connecting boss and also that in this case the port 18 can be formed during casting or moulding, so that a subsequent machining step is unnecessary.

In the Board's view, it is in view of this disclosure, immediately apparent to the skilled person that a possible implementation for such an arrangement might well include extending the port (18) through additional cast material forming a bridge between the connecting boss and the flange; this ensuring a fluid connection from the space between the body and the forward end of the sleeve via the port and the connecting boss to the reservoir.

Therefore, the feature in Claim 1 relating to the port (18) extending through the flange (8) at a position outside the body is, in the Board's view, a fully acceptable definition of the construction shown in Figure 1 to include also the alternative form of reservoir referred to in the above passage in the description and as such is considered to be in agreement with both Article 123(2) and Article 84 EPC. In the present case there is thus no justification for further restriction of Claim 1 on these grounds.

2.4 As regards his objections under Article 123(2) the Appellant raised the question whether it is permissible that a claim amended by incorporation of features

extracted from the drawing be broader than the drawing, which in his view is not acceptable.

In the Board's judgment this question cannot be answered in general but has to be examined on the merits of each individual case.

As is set out in T 169/83 (see point 3.5) the respective features taken from the drawings must be clearly, unmistakably and fully derivable from the drawings as regards their structure and function. Moreover, according to the decision T 17/86 (OJ 1989, 297) there is the additional requirement that it should be evident to a skilled person that a feature originally disclosed only in combination with other features but taken separately into a new claim can function separately of these other features in order to achieve the object of the invention as now claimed (see points 2.3, second paragraph and 3 of this decision).

It is true that this latter decision does not refer to features taken from the drawings, but since it is clear from the conclusions in T 169/83 that there is no difference in rank between features disclosed solely in a drawing and those disclosed in a description, the same principles must apply in both cases.

- 2.5 Applying these general considerations to present Claim 1 is is, in the Board's view, clear that the features according to which the port is "at a position outside of the body" and "is a minor part of said passageway" are unmistakably derivable by the skilled person from Figure 1. Moreover the feature relating to the position of the port and the remaining feature specified in the characterising part of Claim 1 are disclosed in writing directly or by implication in the original counterpart of

column 3, lines 22 to 29 of the patent in suit. Furthermore it is evident to the skilled person that these features may be applied in order to achieve the desired object independently of the further features depicted in Figure 1, in particular of the feature according to which the reservoir is made integral with the body of the master cylinder. Hence, the question raised by the Appellant and referred to above under point 2.4 has to be answered to the affirmative concerning the subject-matter of new Claim 1.

2.6 Concerning Claim 4 the application of the above principles leads to the same result having regard to the disclosure of original Figures 2 and 3 and the written disclosure on page 3, line 22 to page 4, line 2 of the original description (corresponding to column 2, lines 33 to 42 of the patent), setting out in more general terms the important aspects of these alternatives.

As regards Claim 4 the Appellant argued that for grounds of Article 123(2) and Article 84 EPC Claim 4 should include the feature that the duct passes through the flange if the "member" is the liner (64) in the embodiment of Figure 3 and passes outwardly of said flange if the "member" is the front face of a booster in the embodiment of Figure 2, the use of the word "member" in itself being an unacceptable generalisation.

Considering this argument the Board draws attention to the fact that Claim 4 relates to an alternative solution of the underlying problem of the invention which solution essentially relates to an alternative form of the through duct (18) which in Claim 4, in contrast to the subject-matter of Claim 1, consists of an additional part separate from the body and flange rather than a port in the flange such as in Claim 1.

This general idea is fully supported by the original disclosure, as pointed out above. The embodiments of Figures 2 and 3 both show such a through duct port (18) in the form of a separate tube. The fact that the tube (18) is integral with other parts (booster) in the embodiment of Figure 2 or part of a liner (64) in the embodiment Figure 3 is considered irrelevant to the disclosure of this general idea to use as a through duct a member made separately from the body and carried thereon such as now defined in Claim 4. The skilled person understands that the object of the invention may be achieved independently of these additional features.

Therefore, in the Board's opinion also Claim 4 does not give rise to an objection under Article 123(2).

Article 84 EPC is also met, since it follows from the above considerations that most of the newly introduced features of Claims 1 and 4 have - and be it by implication - a counterpart in the description as granted. The remaining features find their support in the introductory part of the amended description.

2.7 The Board further notes that the formal admissibility of the Claims 1 and 4 is also dealt with to some extent in the contested decision of the Opposition Division in paragraph 1 thereof. Although under the heading of "Formal admissibility of Claim 1", the independent Claim 4 is also referred to in this paragraph (see page 6(d) and page 7, forelast paragraph). For this reason, the Appellant's allegation that the contested decision does not at all discuss the formal admissibility of Claim 4 cannot be accepted.

2.8 The dependent Claims 2, 3 and 5 to 9 are based on the following disclosures of the application as originally filed.

Claim 2 - page 5, lines 3 to 6 and Figure 1

Claim 3 - original Claim 3

Claim 5 - page 5, lines 13 to 25, page 7, lines 1 to 8, page 9, lines 12 to 17, Figures 1 to 3 and original Claim 4

Claim 6 - page 6, lines 27 to 33, Figure 2 and original Claim 7

Claim 7 - page 6, lines 27 to 33, Figure 2 and original Claim 7

Claim 8 - page 7, line 28 to page 8, line 5 and original Claim 9

Claim 9 - page 7, line 31 to page 8, line 5 and original Claim 10.

2.9 In view of the above assessments and conclusions, all claims thus meet the requirements of Article 123(2) and there are no objections under Article 84 EPC.

2.10 Since the granted Claim 1, the features of which are included in both the independent Claims 1 and 4 are further restricted in scope when compared to the granted Claim 1, the present claims also meet the requirement of Article 123(3) EPC.

3. Novelty

3.1 The precharacterising part of Claim 1 as well as Claim 4 is correctly based on the disclosure of D1 which comes in the Board's opinion closest to the subject-matter of those independent claims.

The master cylinder 5 according to Claim 1 and Claim 4 differs from what is disclosed in D1 by its characterising features and is, therefore, deemed novel (Article 54 EPC).

Novelty of the subject-matter of the present Claims 1 and 4 has in fact not been disputed so that no further discussion is considered to be necessary.

4. Inventive step

4.1 The subject-matter of the independent Claims 1 and 4 concerns alternative solutions to the underlying problem of the present invention in which the difference between these alternatives essentially relates to different constructional means of providing a fluid connection between the reservoir provided in front of a master cylinder mounting flange and a port (17) positioned rearwardly of the mounting flange.

In the prior art disclosed in D1 the major part of the passageway interconnecting the reservoir with the transverse port located at a position rearwardly of the flange is provided in the cylinder wall. According to the patent it has been found that such a longitudinal passageway is difficult to machine and problems are encountered in maintaining the straightness of the passageway over the necessary length while maintaining a thin body wall for reasons of minimising space and weight.

4.2 Proceeding on the basis of the above referenced prior art it is, therefore, the object of the invention as set out in the independent claims to avoid these problems of the previously proposed solution (see also the contested decision, page 9, second full paragraph as well as the patent in its amended form on page 2, lines 29, 30).

In this respect, the Appellant's conclusions that the problem relates to the mere question how to connect the reservoir at its bottom level to the port without drilling through the cylinder wall (see the Statement of Grounds of Appeal, Figure A) is considered to be based on hindsight and cannot, therefore, be accepted. In accordance with the conclusion of the Opposition Division the Board is also of the opinion that the idea of avoiding the drilling of the body wall is part of the invention.

4.3 Considering the object of the invention the Board holds that it can be expected from a person skilled in the art to recognise deficiencies which may arise during the manufacture of the known master cylinder. The recognition of the problem can, therefore, in the Board's opinion, not be considered to require an inventive step.

4.4 Concerning the alternative solutions of this problem as set out in the independent Claims 1 and 4, the Board agrees with the Opposition Division that none of the available documents discloses nor suggests the idea of forming a passageway between the reservoir and the transverse port by means of a port extending through the flange of the body at a position outside of the body (Claim 1) or the idea of providing a through duct in a member made separately from the body and carried thereon, which through duct defines the remaining part of the passageway, said through duct passing either through or outwardly of the flange (Claim 4).

4.5 According to the Appellant these solutions follow from the construction of this particular form of master cylinder because if a flange for mounting the cylinder is chosen and a connection between the reservoir and port is required the obvious solution would be to machine a hole in the flange to provide a passageway between this hole

and the port. Since part of the passageway is provided by a sleeve in accordance with the teachings of D1, obviously said sleeve must be sealingly engaged with the flange.

- 4.6 Considering these arguments, the Board notes that in D1 the sleeve is mounted over the cylinder away from the flange and is sealed to the cylinder at its inside surface (see page 2, first column, lines 44 to 47 and page 3, second column, lines 11 to 17). Further, a reinforcing plate (15 in Figures 1 and 61 in Figure 3) as well as part of the booster housing is positioned between the flange and forward end of the sleeve. Additionally, the connecting boss for the reservoir is positioned relatively far from the flange.

In view of these constructional details of the known master cylinder the Board is, in accordance with the findings of the Opposition Division, of the view that D1 cannot lead the skilled person to the solutions defined in Claims 1 and 4 since this would need substantial modifications to the known construction which are not at all suggested in this document.

- 4.7 The Appellant also referred to D2 which discloses an embodiment shown in Figures 3 and 4, comprising a tubular connection between a reservoir and a rear part of the master cylinder.

However, in this prior art document the tube serves as an air connection and has a purpose totally different from the one of the passageway of the patent in suit. Neither the underlying problem of the patent in suit nor further features relating to the passageway formed partly by a sleeve are disclosed in D2 and, therefore, in the Board's view, this document cannot be considered relevant for suggesting a solution to the above-stated problem.

4.8 In his letter of 15 November 1990 the Appellant further referred to FR-A-1 558 991 to show that a tubular connection between a master cylinder port and the underside of a reservoir was already known. The Board considers this late-filed document as being irrelevant. As submitted by the Respondent this document relates to a device in which the parts to be connected are in front of the mounting flange, and cannot therefore provide any assistance in solving the underlying problem of the patent in suit relating to a master cylinder with a port behind the flange.

4.9 The further documents relied upon by the Appellant in the opposition procedure, which have no longer been referred to in the appeal proceedings, lie even further away from the now claimed subject-matter. It is, therefore, not considered necessary to discuss these prior art documents in detail.

4.10 In view of the above considerations the Board comes to the conclusion that, considering normal skills and general technical knowledge of an engineer when confronted with the problem underlying the present invention, it cannot be assumed without hindsight that he would have considered combining features disclosed for different purposes in the cited documents. Moreover even when combining the known features further constructional adaptation, to which no lead can be derived from these documents either, would have been necessary to arrive at the now claimed subject-matter of the independent Claims 1 and 4.

It follows that Claims 1 and 4 are allowable under Articles 52(1) and 56 EPC. The same applies to the dependent Claims 2, 3 and 5 to 9 which concern particular embodiments of the invention (Rule 29(3) EPC).

5. The description and the drawings are in agreement with the new wording and scope of the claims. The description also complies with Rule 27(1)(c) and (d) EPC. Hence, these documents are, in principle, suitable for maintenance of the patent in the amended form.

6. Since this decision confirms, in substance, the decision of the first instance under appeal and, in view of the fact that the Appellant has had ample opportunity to comment upon all substantive points referred to in this decision, the Board did not consider it necessary or appropriate to issue a provisional opinion in a communication under Article 110(2) EPC nor was there any reason to appoint oral proceedings, of its own motion, none being requested by the Appellant.

In the present circumstances in which neither oral proceedings have been held nor further evidence was submitted by the Respondent, the Respondent's auxiliary request for an award of costs has become meaningless.

Order

For these reasons, it is decided that:

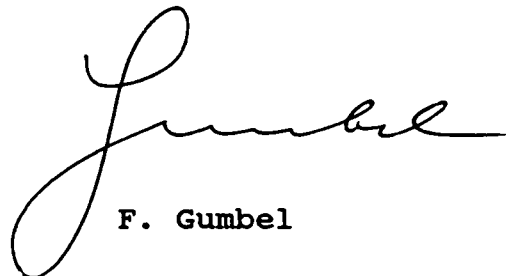
The appeal is dismissed.

The Registrar:



S. Fabiani

The Chairman:



F. Gumbel

Handwritten marks:
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