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**D E C I S I O N**  
**of 15 June 1994**

**Case Number:** T 0589/93 - 3.2.1

**Application Number:** 88106088.3

**Publication Number:** 0292687

**IPC:** B60T 8/78

**Language of the proceedings:** EN

**Title of invention:**  
Tractor-trailer brake control system

**Applicant:**  
Eaton Corporation

**Opponent:**  
-

**Headword:**  
-

**Relevant legal norms:**  
EPC Art. 84, 111, 123(2)  
EPC R. 67

**Keyword:**  
"Clarity (yes)"  
"Added subject-matter (after amendment, no)"  
"Remittal (yes)"  
"Reimbursement of appeal fee (no)"

**Decisions cited:**  
-

**Headnote/Catchword:**  
-



Case Number: T 0589/93 - 3.2.1

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.1**  
**of 15 June 1994**

**Appellant:**

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**Representative:**

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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office dated 25 February 1993  
refusing European patent application  
No. 88 106 088.3 pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** F.A. Gumbel  
**Members:** P. Alting van Geusau  
J. Saisset

## Summary of Facts and Submissions

- I. European patent application No. 88 106 088.3 (publication No. 0 292 697) was refused by a decision of the Examining Division dated 25 February 1993.
- II. The reason given for the refusal was that the then maintained Claim 1, (the first page of which was filed with letter of 30 July 1992 and the second page of which was filed with letter of 3 February 1992), did not fulfil the clarity requirements of Article 84 EPC and that Claim 9 filed with letter of 30 July 1992 included added subject-matter and therefore constituted an infringement of Article 123(2) EPC.

In particular the Examining Division considered that the wording "first sensing means for providing an input signal indicative of the value of the ratio of the horizontal force to the vertical force at the fifth wheel/king pin connection" was unclear and was also not in agreement with the disclosure of the description. Furthermore, the expression "E is a function of ( $H_F - V_F \cdot a$ )" contained in amended Claim 9 was considered to have no antecedent in the application as filed.

- III. The Appellant lodged an appeal against this decision on 20 April 1993 and paid the appeal fee the same day.

In his Statement of Grounds of Appeal, filed on 15 June 1993, the Appellant raised in addition to the substantive issues of the contested decision, objections to the formal procedure in this case and in particular to the refusal by the Examiner to arrange for an interview requested by the Appellant. In the Appellant's

opinion this refusal amounted to a substantial procedural violation justifying the reimbursement of the appeal fee.

- IV. In its communication dated 1 October 1993 the Board expressed the provisional opinion that, in view of the Appellant's arguments with respect to the clarity of the "sensing means" this feature appeared to be sufficiently clear to be understood by the skilled person.

However, the replacement of the originally disclosed error equation by a new expression in Claim 9 of the contested decision, was considered to introduce new subject-matter and was thus not acceptable under Article 123(2) EPC.

Furthermore, given the fact that the amended Claim 1 was based on the original Claim 8, doubt was expressed whether the omission of subject-matter from the original Claim 8, in particular the omission of the feature that the first, second and third sensing means are located on the tractor sub-vehicle, was supported by the application documents. The Board also drew attention to a number of further deficiencies of the patent application concerning formal requirements of the EPC.

- V. With his responses dated 2 February 1994 and 17 February 1994 the Appellant filed revised application documents. By implication the Appellant requests grant of a patent on the basis of Claims 1 to 9, description pages 8, 11, 12, 14, 18, 22, 23 and 25 and Figures 5 to 8 and 10 filed with letter of 17 February 1994 together with the description pages 1 to 7, 9, 10, 13, 15 to 17, 19 to 21 and 24, and Figures 1 to 4 and 9 filed with letter of 2 February 1994.

The Appellant further requested reimbursement of the appeal fee.

Current Claim 1 reads as follows:

"A brake control system for a tractor-trailer brake system on a tractor (28)-trailer (30) vehicle having a tractor sub-vehicle (28) equipped with an independently controllable tractor sub-vehicle brake system, a fifth wheel (34) connection for engaging a king pin (176) carried by a trailer sub-vehicle (30) and a master control (70) for controlling an independently controllable trailer sub-vehicle brake system, said control system characterised by:

first sensing means (170, 172) for providing an input signal indicative of the value of the ratio of the horizontal force ( $H_F$ ) to the vertical force ( $V_F$ ) at the fifth wheel/king pin connection (32),

second sensing means (80) for providing an input signal indicative of the acceleration ( $a$ ) of the vehicle;

third sensing means (76) for providing an input signal indicative of the level of braking effort demand by the operator;

a control unit (70) having means (72) for receiving said input signals and for processing said signals in accordance with predetermined logic rules to issue command output signals (74) and control valves (108, 168, 174) responsive to said command output signals for modulating a controlled parameter at each sub-vehicle brake system related to the brake force at the sub-vehicle brake system;

said logic rules comprising comparing said demand input signal to a first reference value and to a second reference value equal to or greater than said first reference value, and

if said demand signal is less than said first reference value causing each of the sub-vehicle brake systems to exert a brake force dependent upon the value of the demand input signal and independent of load, and

if said demand signal is equal to or greater than said second reference value, causing each of the sub-vehicle brake systems to exert a brake force directly related to the value of the demand input signal and to the load at the sub-vehicle brake system."

VI. In support of his requests the Appellant essentially relied upon the following arguments:

**Lack of clarity objection (Article 84 EPC)**

The Examining Division pretended that the phrase: "first sensing means for providing an input signal indicative of the value of the ratio of the horizontal force and the vertical force at the fifth wheel/king-pin connection" was unclear. However, this phrase does not refer to a "sensor" but to "sensing means", i.e. a device or arrangement that is adapted to sense forces and to provide a ratio signal that is defined in this feature of the claim.

A number of devices capable of sensing forces and providing electric signals are well known to the control engineer and also the use of electronic circuits for providing a ratio of two electrical signals belongs to the basic knowledge of this skilled person.

Indeed the feature in question relates to a generalisation of the embodiment disclosed in the application but it is not justified to limit the claim to this explicitly disclosed embodiment if it is immediately apparent to the skilled person how the generalised teaching of the claim can be implemented otherwise.

**Added subject-matter objection (Article 123(2) EPC)**

Insofar as the disputed amendment of Claim 9 is concerned, according to the case law of the Board's of Appeal the basis for the amendment need not be presented in express terms but it must be sufficiently clear to the skilled person to be directly and unambiguously recognisable.

The originally filed Claim 1 included the formula  $E = C * H_F - V_F * a$ , (which should be corrected to read  $E = C * H_F - V_F * a / g$ ), which is the basis for a broader disclosure than the formula disclosed in the description. The weighing factor C itself is not restricted to certain values and all solutions are within the scope of this Claim that make use of the wording that E is a linear function of  $H_F - V_F * a / g$ .

Furthermore, it has to be taken into account that this amendment does not go beyond the scope of protection of the current main claim and in this respect the wording of Claim 9 cannot be regarded as broadening the subject-matter of the invention.

**Reimbursement of the appeal fee**

The course of the examination procedure showed that obviously there existed technical scruples and doubts, in particular whether it would be possible to produce a ratio signal without using a CPU. At this stage of examination the examiner should have allowed the Appellant's request for a personal interview to clarify matters. For this reason the examination procedure suffers from a substantial procedural violation which justifies the reimbursement of the appeal fee.

## Reasons for the Decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is admissible.
2. *Amendments*
  - 2.1 The current Claim 1 includes the features of the originally filed independent Claim 8 except for its last feature, i.e. the feature relating to the first, second and third sensing means being located on the tractor sub-vehicle.

Considering the third sensing means, providing an input signal indicative of the level of braking effort demand by the operator, it is fully clear from Claim 1 in its present form that the third sensing means are by implication located on the tractor.

Considering the location of the first and second sensing means it is noted that the original Claim 1 did not define a position of the sensing means. In view of the fact that the original Claim 1 and Claim 8 are related to the same invention it can thus be concluded that the position of the sensing means on the tractor sub-vehicle is not essential to the subject matter of the invention but rather constitutes a preferred embodiment.

Furthermore, it is immediately clear to the skilled person that, as regards acceleration of the vehicle, the tractor and trailer sub-vehicles form one unit and that thus the sensing means for the acceleration of the vehicle can be installed on either the tractor or trailer sub-vehicle. Similar considerations apply for the determination of the ratio of the horizontal force



to the vertical force at the fifth wheel/king pin connection. These forces are only different in sign if sensed on the tractor or trailer sub-vehicles so that the sensing means may be installed on either the tractor or trailer sub-vehicle and nevertheless provide the same value for the force ratio. Moreover, the fact that the position of the first sensing means on the tractor relates to a preferred embodiment also follows from the original dependent Claim 2.

In view of these conclusions no objections under Article 123(2) EPC arise against Claim 1.

Considering the Examining Division's objection with respect to lack of clarity of the definition of the first sensing means, the Board is of the opinion that it is immediately clear to the control engineer that the claimed function can be realised in many different ways with readily available technique, which was also convincingly demonstrated by the Appellant. The generalisation of the features disclosed in the description of the application as originally filed does therefore not give rise to difficulty in understanding either the technical meaning of this feature, or how it can be implemented in practice so that the requirements of Article 84 EPC with respect to clarity are also fully complied with.

- 2.2 Claims 2 to 7 are essentially repetitions of the originally filed Claims 2 to 7 but now contain reference numerals in accordance with Rule 29 (7) EPC and a definition of the force  $H_f$  in Claim 6.

Claim 8 relates to the preferred embodiment disclosed on page 20, lines 15 to 18, of the originally filed description.

- 2.3 Claim 9 is based on the originally filed Claim 1 but with the amendment that the error function E is a linear function of  $(H_F - V_F \cdot a/g)$  or  $(H_F/V_F - a/g)$ .

It is noted that in order to remove some obvious inconsistencies in the mathematical derivation on page 22 of the description with respect to the condition for which tractor-trailer proportional braking is achieved, the originally disclosed relation  $H_F/V_F = a$  should read  $H_F/V_F = a/g$ . This condition is the basis for the derivation of the error equations E mentioned at the top of page 23 of the originally filed description and current description.

However, in view of the more general relation introducing a weighing factor C contained in the originally filed Claim 1 the Board is satisfied that the new definition of the error function to be a linear function of  $(H_F - V_F \cdot a/g)$  or  $(H_F/V_F - a/g)$  in the current Claim 9, is supported by the content of the originally filed application documents.

- 2.4 In view of the above assessments no objections with respect to Article 84, Article 123(2) and Rule 29(7) EPC arise against the present Claims 1 to 9.
- 2.5 The description of the patent application was amended to bring it in line with the subject-matter claimed and avoiding any references that the invention also relates to a single vehicle system as shown in Figure 2 and 5. The current description is therefore also considered to meet the formal requirements of the EPC.

3. *Procedural considerations*

3.1 The present application was rejected for reasons of lack of clarity and added subject matter only. In the present case a substantive examination, in particular the examination for novelty, the assessment of the closest prior art and the examination for inventive step has not yet been carried out. In these circumstances the Board considers it to be appropriate in the present case to make use of its power under Article 111(1) EPC to remit the case to the Examining Division for further prosecution of the examination.

3.2 The Appellant was the opinion that because there existed confusion with respect to the exact nature of the clarity objection raised by the Examining Division, which matter could have been clarified in a personal consultation requested by the Appellant, the refusal to arrange for such an interview amounted to a procedural violation requiring reimbursement of the appeal fee.

However, the decision whether an interview is arranged or not is essentially a matter within the discretion of the Examining Division and not a right specified in the EPC such as the right to oral proceedings in accordance with Article 116(1) EPC. Therefore the refusal to arrange for an interview cannot form the basis for asserting a substantial procedural violation committed by the Examining Division.

Considering the general requirements of Article 113(1) EPC, i.e. the parties' right to be heard, no reasons for a procedural violation committed by the Examining Division have been submitted by the Appellant nor could these be found by the Board, so that there is no ground for a reimbursement of the appeal fee in accordance with Rule 67 EPC.

**Order**

**For these reasons, it is decided that:**

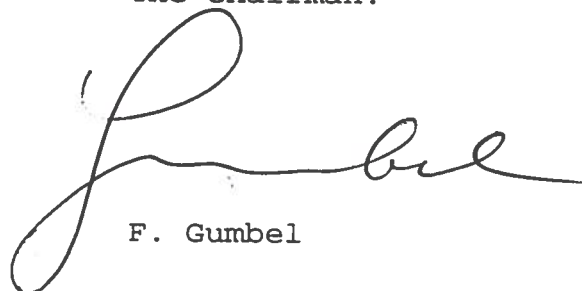
1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution.

The Registrar:



S. Fabiani

The Chairman:



F. Gumbel