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Datasheet for the decision of 6 November 2023

Case Number: T 0031/22 - 3.2.01

Application Number: 06835854.8

Publication Number: 1971511

IPC: B60T17/22

Language of the proceedings: EN

Title of invention:
SYSTEM FOR CONTROLLING A FOUNDATION BRAKE OF A VEHICLE

Patent Proprietor:
Volvo Lastvagnar AB

Opponents:
Scania CV AB
WABCO Europe BVBA

Headword:

Relevant legal provisions:
EPC Art. 83, 54, 56

Keyword:
Sufficiency of disclosure - (yes)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0031/22 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 6 November 2023

Appellant: (Opponent 1)	Scania CV AB 151 87 Södertälje (SE)
Representative:	Mötsch, Andreas Thum Mötsch Weickert Patentanwälte Siebertstr. 6 81675 München (DE)
Appellant: (Opponent 2)	WABCO Europe BVBA Chaussee de la Hulpe 166 1170 Brussels (BE)
Representative:	Bremer, Ulrich Advopat Patent- und Rechtsanwälte Theaterstraße 6 30159 Hannover (DE)
Respondent: (Patent Proprietor)	Volvo Lastvagnar AB 405 08 Göteborg (SE)
Representative:	Valea AB Box 1098 405 23 Göteborg (SE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 8 November 2021 concerning maintenance of the European Patent No. 1971511 in amended form.**

Composition of the Board:

Chairman	G. Pricolo
Members:	J. J. de Acha González
	P. Guntz

Summary of Facts and Submissions

I. The appeals of the opponents lie against the interlocutory decision of the Opposition Division, which found that the contested patent, as amended in accordance with the patent proprietor's main request, complied with the requirements of the EPC.

II. The following documents are relevant for the present decision:

D1: US 6311122 B1;
D2: US 6362729 B1;
D15: DE 10360129 A1;
D16: DE 19821163 A1;
D17: DE 10219039 A1; and
D18: DE 19857992 A1.

III. Oral proceedings before the Board were held on 6 November 2023 in the form of a videoconference.

Appellant 1 (opponent 1) requested that the contested decision be set aside and the patent be revoked.

Appellant 2 (opponent 2) requested that the contested decision be set aside and the patent be revoked.

The respondent (patent proprietor) requested that the appeals of the opponents be dismissed (main request), or, in the alternative, that the patent be maintained in amended form on the basis of one of the auxiliary requests 1 to 9 filed with the reply to the statement of grounds of appeal.

IV. Independent claims 1 and 7 of the main request read as follows:

1. *System (12) for controlling a foundation brake (14) of a vehicle (10) with at least one auxiliary brake device, whereby said system comprises an adaptive cruise control (ACC) device (20), wherein it comprises means to detect or predict excessive use of the foundation brake (14) and means (22) to disengage the ACC device (20) on detection or prediction of excessive use of the foundation brake (14),* ***characterized in that*** *it comprises means to determine whether the vehicle (10) is at a safe distance behind any object (24) in front of said vehicle and means to disengage the ACC device (20) only if/when the distance (d) between the vehicle (10) and said object (24) corresponds to or exceeds a predetermined safe distance.*

7. *Method for protecting a foundation brake (14) of a vehicle comprising an ACC device (20), wherein it comprises the steps of determining whether the foundation brake (14) is being used excessively or predicting whether it will be used excessively and disengaging the ACC device (20) if/when this is the case,* ***characterized in that*** *it comprises the step of determining whether the vehicle is at a safe distance behind any object (24) in front of the vehicle (10) and disengaging the ACC device (20) if/when the distance (d) between the vehicle (10) and said object (24) corresponds to or exceeds a predetermined safe distance.*

Reasons for the Decision

1. *Interpretation*

1.1 In the contested decision, the Opposition Division took the view that the means to disengage the ACC device recited in the preamble and in the characterising part of claims 1 and 7 defined two different conditions for disengaging the ACC, which, in the broadest possible interpretation of the claims, were juxtaposed and not cumulative.

1.2 This view was supported by the appellants and, during the oral proceedings before the Board, the respondent conceded that the broadest interpretation of the claims was that adopted by the Opposition Division.

1.3 Since all parties agreed that claims 1 and 7 can be interpreted as the Opposition Division did in the contested decision and the Board sees no cogent reason to deviate from that interpretation, the present decision is based on it.

2. *Sufficiency of disclosure - Article 83 EPC*

2.1 The patent discloses the invention according to claims 1 and 7 in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

2.2 Only appellant 1 pursued the insufficiency objection in appeal. The objection arose from the following features of claim 1 (and their corresponding features in claim 7):

(i) *means (22) to disengage the ACC device (20) on detection or prediction of excessive use of the foundation brake (14);* and

(ii) *means to disengage the ACC device (20) only if/when the distance (d) between the vehicle (10) and said object (24) corresponds to or exceeds a predetermined safe distance.*

In particular, it was argued that, according to the claims, even if an excessive use of the foundation brake was detected or predicted, the ACC device would not be disengaged if, for some reason, the predetermined distance could not be achieved or exceeded. This was said to follow from the use of the word "only" in feature (ii). Such way of operation could lead to hazardous situations due to fading and fatigue of the foundation brake.
In addition, the appellant 1 considered that the features (i) and (ii) were conflicting because, according to feature (i), the ACC device should be disengaged immediately upon detection or prediction of the excessive use of the foundation brake, and, as mentioned above, at the same time, according to feature (ii), the ACC device was only disengaged when the condition of the predetermined safe distance was met, i.e. at an earlier or later point in time, irrespective of whether excessive use of the foundation brake had been detected or predicted. Feature (ii) prevented immediate disengagement of the ACC device when excessive use of the foundation brake was detected or predicted.

Finally, the appellant 1 objected to the term "predetermined safe distance". In particular, the contested patent did not specify what this distance

should be or how it was determined. The distance was only mentioned in paragraphs [0008] and [0016] of the patent, but without any further information. Accordingly, the patent lacked any teaching of the predetermined safe distance and, consequently, the skilled person was unable to carry out the claimed invention.

2.3 This cannot persuade for the following reasons:

The first line of argument of appellant 1 is based on the consideration that, according to the wording of claims 1 and 7, criterion (ii) is mandatory for disengagement, i.e. regardless of the condition of excessive use of the foundation brake. However, as explained above, the claims recite two different non-exclusive conditions for disengagement of the ACC device. In other words, the ACC device is disengaged when an excessive use of the foundation brake is detected or predicted, or when the distance is equal to or greater than the predetermined safe distance. ACC systems are known to the skilled person which inherently include disengagement means (the most common one being driver actuation of the brake). The implementation of the two disengagement conditions claimed above, irrespective of whether they are reasonable or would lead to hazardous situations, is something that the skilled person is able to do.

The "predetermined safe distance" is a distance determined in advance that is considered to be such that control of the brakes can safely be handed over to the driver when the ACC device is disengaged, regardless of the specific distance value (as explained in the cited paragraphs [0008], [0016] and [0024] of the patent). It is analogous to the distance maintained

by the ACC system to the vehicle in front (see paragraph [0002] of the patent). The skilled person is able to implement such a function taking into account their common general knowledge, and there is no need to provide a specific value or calculation. In particular, paragraph [0008] of the patent exemplifies that the values of said safe distances can be obtained from pre-computed values stored in the system.

3. *Novelty - Article 54 EPC*

3.1 The subject-matter of claims 1 and 7 is new over D1 and D2 (D18).

In particular, none of the aforementioned prior art discloses the following feature of claim 1:

(a) *means to disengage the ACC device (20) only if/when the distance (d) between the vehicle (10) and said object (24) corresponds to or exceeds a predetermined safe distance.*

and correspondingly the following feature of claim 7:

(b) *disengaging the ACC device (20) if/when the distance (d) between the vehicle (10) and said object (24) corresponds to or exceeds a predetermined safe distance.*

3.2 Appellant 2 raised no novelty objection to the subject-matter of claims 1 and 7 in view of the above interpretation of the claims.

3.3 With respect to D1, appellant 1 argued that the above features were disclosed therein because an earlier release in time of the follow-up run control corresponded to a greater distance to the object preceding the vehicle, resulting in a release when the

distance between the vehicle and the preceding object corresponded to or exceeded a predetermined safe distance (reference was made to column 9, line 66 to column 10, line 5 of D1).

As regards D2 (D18 being the German family member of D2 and disclosing the same subject-matter), they submitted that, according to D2, the ACC device was disengaged when a value above the maximum permissible braking value was required. It followed that features a and b above were satisfied because the distance between the vehicle and the object in front was considered by the analysis unit 30 in calculating the required braking value (see column 3, lines 18 to 30; column 4, lines 42 to 53 and column 5, lines 36 to 63 of D2).

3.4 This is not persuasive for the following reasons:

The bridging passage between columns 9 and 10 of D1 referred to by appellant 1 does not disclose the above features, but merely states that the reference value of the continuous brake manipulated variable KbP may be corrected in accordance with the road surface gradient in order to release the ACC earlier in time in case of driving on an abruptly descending slope. This occurs independently of any vehicle or object in front of the vehicle and therefore independently of the distance between them. Therefore, means to disengage the ACC when the distance corresponds to or exceeds a predetermined distance is not disclosed in D1.

With regard to D2 (D18), the criterion for disengagement of the ACC device set out in the passages cited by the appellant to disengage the ACC device is not the one mentioned above. The system of D2 (and D18) disengages the ACC device if the maximum permissible

braking value available to the ACC device would not allow for the vehicle to avoid a collision with the preceding obstacle or vehicle. Accordingly, the ACC device is disengaged if/when the braking value needed to avoid a collision corresponds to or exceeds the maximum braking value available to the ACC device. It does not disclose a means to disengage the ACC device if/when the distance between the vehicle and the preceding object corresponds to or exceeds a predetermined safe distance. The fact that the spacing between the vehicle and the obstacle or vehicle in front is taken into account in the calculation of the braking value needed does not mean that there is a predefined safe distance used as a criterion. There is only a predefined maximum braking value of the ACC device.

4. *Inventive step - Article 56 EPC*

4.1 The subject matter of claims 1 and 7 is not rendered obvious by D1, D2 (D18) or D17 when considered alone, or by the combination of any of D1 or D2 with any of D15 or D16.

4.2 Appellant 1 argued essentially as follows. Starting from D1 or D2, the subject-matter of claims 1 and 7 differed therefrom on account of features a and b above.

According to a first line of argumentation, the technical problem formulated by the Opposition Division was not shared. In particular, the disengagement of the ACC device when there was a safe distance to an object in front of the vehicle would confuse the driver, because an ACC device was expected to remain engaged and to maintain a safe distance with respect to the

object/vehicle in front. As a result, this behaviour of the system led to safety issues as the driver had then to monitor and maintain the distance. In this situation, the foundation brake could no longer be protected because the driver would be using the brake more than the ACC device. This represented a disadvantageous modification of the prior art. Such worsening could not constitute an inventive step according to established case law of the Boards of Appeal.

In a second line of argumentation, appellant 1 submitted that features a and b did not contribute to the solution of the technical problem formulated in the contested patent, i.e. to control the foundation brake of a vehicle in such a way as to protect the foundation brake in a simple and cost-effective manner. Such features should not be considered in assessing the inventive step of the claimed subject-matter and should be disregarded.

In the last line of attack, appellant 1 considered that D15 and D16 hinted the skilled person to implement features a and b in the systems of D1 and D2. Specifically, D15 taught in paragraph [0040] that a distance could be an aspect for deactivating an ACC device. Further, D15 disclosed that, in a critical situation, the ACC module was configured to slow down the vehicle by reducing the set speed. The speed reduction was indicated to the driver by haptic feedback and if the driver did not respond to the warning within a specific period of time, the ACC device would deactivate itself. According to the appellant 1, slowing down the vehicle at least during the predetermined waiting time before the deactivation of the ACC module 20 corresponded to establishing a

predetermined safety distance to an object in front of the vehicle.
Concerning D16, appellant 1 explained that the ACC system disclosed therein was automatically deactivated when the driver assistance unit detected a situation it could no longer handle and signaled to the driver that the predetermined safety distance was no longer maintained by the driver assistance unit (see column 4, line 46 to column 5, line 1; column 5, line 20 to column 6, line 5). This determined whether the vehicle was at a safe distance behind any object in front of the vehicle and proved that any ACC control at least implicitly disclosed features a and b.

4.3 Appellant 2 argued similarly to appellant 1. In particular, they also considered that features a and b resulted in a foreseeable negative or technically non-sensible change in the functionality of the explicitly claimed ACC device. Therefore, these features, which were allegedly missing in the closest prior art according to D18 (or D2), D1 or D17, could also not contribute to the inventive step.

4.4 This is not convincing for the following reasons.

Features a and b do not constitute a worsening of the prior art and also address the object of the invention as specified in the patent and have to be considered when assessing inventive step. As argued by the respondent, the features have a technical effect as described in the patent specification: by disengaging the ACC device and thus transferring control of the foundation brake solely to the driver, fading and fatigue of the foundation brake are reduced or avoided and the safety of the vehicle and other road users is ensured (see paragraphs [0004] and [0005] of the patent

in suit). Appellant 1 defended that the driver would use the brake more, but failed to prove this, and according to the prior art cited by the appellants the driving systems require the driver to take over in dangerous situations, implying that the driver's operation of a vehicle is safer than that of a control system as regards protection of the foundation brake. This is indeed the aim of the patent.

The view of the Opposition Division is correct that the subject-matter of claims 1 and 7 involved an inventive step since none of the documents cited during the opposition proceedings disclosed or made obvious an additional means or an alternative condition providing a disengagement of the ACC device when the distance between the vehicle and the obstacle in front corresponds to or exceeds a predetermined value (see point 6.5 of the contested decision).

D15 does not disclose the disputed feature either. According to the cited paragraphs, if the driver does not respond to a reduction of speed by the ACC device after haptic indication within a predetermined time, the ACC module deactivates itself. This is not the disengagement criterion recited in the characterising part of claims 1 and 7. As regards the disclosure of paragraph [0040], the respondent's view is correct. The passage cannot hint the skilled person to implement a disengagement of the ACC device when the distance corresponds to or exceeds a predetermined safe distance, but rather the opposite, i.e. that a deactivation of the ACC device is unnecessary when the distance to the vehicle in front is sufficiently large.

With respect to D16, the respondent's view is shared. The cited passages from appellant 1 do not define the

disengagement criterion of features a and b. They merely explain that the system informs the driver that the drive assistance system has been deactivated and that a distance to the vehicle or obstacle in front can no longer be maintained by the system and that this responsibility is shifted back to the driver.

Finally, the safety distance inherent in an active ACC system represents a minimum distance that the system must maintain to the preceding vehicle when the ACC system is running. However, this distance does not trigger deactivation of the ACC device.

4.5 The above conclusion takes into account the submissions with regard to inventive step made by appellant 2 (opponent 2) with letter of 13 October 2023, and is in favour of the respondent. Therefore, the issue raised by the respondent during oral proceedings about disregarding such submissions for being a late amendment of the appellant's case can be left aside.

5. It follows from the foregoing that the appellants' appeals are not allowable.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar: The Chairman:

A. Voyé G. Pricolo

Decision electronically authenticated