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Case Number: T 0167/19 - 3.2.01

Application Number: 09760583.6

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Language of the proceedings: EN

Title of invention:
METHOD FOR DEACTIVATING AN ELECTRONIC PARK BRAKE SYSTEM

Patent Proprietor:
Volvo Lastvagnar AB

Opponent:
Knorr-Bremse
Systeme für Nutzfahrzeuge GmbH

Headword:

Relevant legal provisions:
EPC Art. 54(1), 56

Keyword:
Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:

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Case Number: T 0167/19 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 12 October 2021

Appellant: (Opponent)	Knorr-Bremse Systeme für Nutzfahrzeuge GmbH Moosacher Str. 80 80809 München (DE)
Representative:	Kietzmann, Lutz Maiwald Patentanwalts- und Rechtsanwaltsgesellschaft mbH Grünstraße 25 40212 Düsseldorf (DE)
Respondent: (Patent Proprietor)	Volvo Lastvagnar AB 405 08 Göteborg (SE)
Representative:	Lavoix 62, rue de Bonnel 69448 Lyon Cedex 03 (FR)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 12 November 2018 concerning maintenance of the European Patent No. 2483117 in amended form.**

Composition of the Board:

Chairman	H. Geuss
Members:	W. Marx
	O. Loizou

Summary of Facts and Submissions

I. The appeal of the opponent is directed against the decision of the opposition division to maintain European patent No. 2 483 117 in amended form on the basis of the claims of a new main request as filed on 23 July 2018 and an adapted description filed during the oral proceedings.

II. In its decision the opposition division held, *inter alia*, that the subject-matter of claim 1 according to said main request was novel over **D5** (**EP 1 531 100 B1**) and inventive in view of D5 alone and in view of D5 in combination with **D7** (**DE 601 28 989 T2**).

III. Oral proceedings before the board took place on 12 October 2021.

The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed (main request), or in the alternative, that the patent be maintained in amended form according to one of the first to fourth auxiliary requests filed with its reply.

IV. Claim 1 according to the main request as allowed by the opposition division reads as follows:

"Method for controlling a vehicle park brake system, wherein the park brake system is electronically controlled and wherein a user can request park brake deactivation through a park brake input device, wherein when the user has initiated a park brake deactivation

request using the park brake input device, the park brake is deactivated if the park brake deactivation request is maintained for at least a first time period, characterized in that the park brake is deactivated if, while a park brake deactivation request has been initiated, the user requests an acceleration of the vehicle through an acceleration input device before the expiration of a third time period."

V. The appellant (opponent) essentially argued as follows:

In view of the unclear wording of granted claim 1, its technical teaching (such as the terms "first/third time period") had to be interpreted broadly when comparing with the prior art. As held in the contested decision (point I.2.3.1.2), no specific value was defined for the first time period, this could therefore mean any time period. Claim 1 specified two measures or steps which led independently to a deactivation of the park brake, namely:
(a) maintaining a park brake deactivation request for a certain time period (preamble);
(b) giving priority to an acceleration request even if this time period had not yet expired (characterising part; see patent specification, Fig. 7, step 402).
Thus, the characterising part of claim 1 did not define two steps. The step of requesting an acceleration of the vehicle was not conditioned to a previous park brake deactivation request initiated by the user, which had to be considered when interpreting claim 1. The patent even disclosed (paragraph [0063]) a further step of deactivating the park brake if the acceleration request was initiated prior to or concurrent with the park brake deactivation request, irrespective of whether a park brake input device had been operated.

D5 disclosed (see contested decision, point II.2.3.1.1) in paragraph [0023] the preamble of claim 1 and thus step (a). Moreover, the interaction of steps (a) and (b) was disclosed in paragraph [0010], which had to be seen in the context of paragraph [0009] describing a manual deactivation of the park brake. It taught an automatic deactivation of the park brake in addition ("*zusätzlich*") and always ("*immer dann*") when a clutch or accelerator pedal was operated. Thus, the automatic deactivation was described as a supplement to the manual deactivation of the park brake, as was described in the contested patent (see Figs. 6 and 7). Any acceleration request - also during a manual park brake deactivation if the time period of maintaining the request had not yet expired - led to a deactivation of the park brake. Step 402 in Fig. 7 of the patent (a non-limiting embodiment) described the idea of giving priority to an acceleration request deactivating the park brake. No limitation was provided by the claimed time period T3, as the time periods in claim 1 were neither quantified, nor related to each other.
Paragraph [0061] of the patent described a sequence of two tests or "detection steps" to trigger an action. However, the characterising portion of claim 1 did not comprise such "detection steps". It only described the action to be performed when requesting an acceleration during a pending park brake deactivation request, i.e. how two functionalities were interacting.
The opposition division erred in arguing that "...*the acceleration pedale mentioned in D5 is not conditioned to a previous park brake deactivation request initiated by the user as the claim defines*". According claim 1 (which did not read "... *is only deactivated if, while the park brake deactivation request* ..."), deactivation of the park brake based on an acceleration request was

not bound to a park brake initiation request by a user, i.e. by pressing a button.

When starting from the general teaching in D5 in paragraphs [0009] and [0010], the skilled person would take into account the more precise teaching of paragraph [0023] and supplement the general teaching and functionality (as found in paragraph [0006] ff.), in particular if nothing prevented him from doing so. Paragraph [0010] taught that the park brake was always ("*immer dann*") activated when actuating the gas pedal, also in addition ("*zusätzlich*") to a manual actuation, which was not in contradiction to the holding time of paragraph [0023]. The skilled person would only combine contents in D5, which was not considered inventive. It was also not inventive to add a further time period. In fact, the time period T3 was no distinguishing feature, as it was left open when to start counting and how long it lasted, so it did not provide any advantage.

Starting from D5 as closest prior art (showing in paragraph [0023] the preamble of claim 1) and trying to improve driver comfort when deactivating the park brake without compromising on safety, the skilled person found a hint in D5 (paragraph [0010]) to alternatively deactivate the park brake when requesting acceleration. He would apply this alternative step also during the holding time T1 of step (a), as it would improve driver comfort and safety.
Moreover, D7 referred to the comfort of a park brake system (see paragraph [0037]) and proposed a mode of automatic deactivation of the park brake in case of vehicle start-up, which implied an acceleration request by the driver. This could be performed during a time period of operating a release button as mentioned in paragraph [0031]. Since the characterising portion used

the term "a (not: the) park brake deactivation", it meant a deactivation different from the one specified in the preamble, i.e. meaning an additional measure not related to the measure of the preamble. When the park brake was deactivated during start-up of the vehicle, it was also deactivated while actuation of the release button was maintained, i.e. while a park brake deactivation request had been initiated. The wording of claim 1 did not require "*an acceleration request by the user as a necessary condition to confirm a park brake deactivation request previously initiated by the user*", as found by the opposition division. Any acceleration request had priority and deactivated the park brake.

VI. The arguments of the respondent may be summarised as follows:

Claim 1 (based on granted claims 1 and 5) should be understood by a person skilled in the art with an attempt to make technical sense out of it. As regards the term "time period", neither a null nor an infinite duration would reasonably make sense. As regards the characterising feature, the past tense was used ("*has been initiated*"), which implied that a previous condition had to be fulfilled, as also supported by the example of Fig. 7 of the patent. Claim 1 specified two tests for deactivating the park brake, requiring that
(a) the park brake deactivation request was maintained sufficiently long (see preamble), or
(b) three conditions were fulfilled in a cumulative manner, namely an acceleration request which followed a park brake deactivation request soon enough within a third time period (see characterising part).
Using the same wording "a park brake deactivation request" implied that the action of requesting was to be executed several times during lifetime of the

vehicle, some of them followed timely by (a) or (b). The term "if" used in both cases indicated that a test was required for all these conditions to be fulfilled, including a time criterion.
Paragraph [0063] of the patent had to be read in connection with the embodiment of Fig. 7 as described in paragraph [0058] onwards. An "*acceleration request initiated prior to or concurrent with the park brake deactivation request*" referred to step 402 (see paragraph [0059]) which was not covered by claim 1. The characterising portion was described in the patent in paragraph [0061] (tests according to steps 410, 415).

D5 did not suggest a link between paragraphs [0010] and [0023], on which the novelty reasoning of the appellant relied. In paragraph [0023] the accelerator pedal was not taken into account. Paragraph [0010] did not even disclose the characterising portion of claim 1, but that the manual operation and the automatic operation were independent (same in paragraph [0011] for a park brake activation) and thus two separate methods. In other words, the automatic operation (e.g. with the accelerator pedal) was additionally provided and did not take into account manual operation (e.g. with the control elements), in particular not the cumulative conditions required by claim 1. This was in line with the overall teaching of D5. Paragraphs [0002] to [0008] in D5 described the known prior art and the invention as claimed, paragraph [0009] ("*besonders bevorzugt*") a non-illustrated embodiment, and paragraph [0012] an alternative embodiment. Figs. 1 and 2 in D5 also referred (paragraph [0015]) to different embodiments of the invention described in D5. The embodiment of Fig. 1 was described in paragraph [0017] to [0021] and related to operating buttons of different size (see also paragraph [0009]), which were operated simultaneously

or sequentially (as also stated in [0006]), but did not trigger an action after expiry of a time period as required according to the preamble of claim 1. The embodiment of Fig. 2 described in paragraphs [0022] and [0023] related to gradually operable control elements (see also paragraphs [0012], [0013]). Both embodiments could not be combined, so novelty was not in question.

The starting point for assessing inventive step was paragraph [0023] of D5 which showed (only incidentally) the preamble of claim 1. The skilled person desirous to improve comfort, without prejudice to safety (without inadvertent brake deactivation), of the embodiment of paragraph [0023] of D5 would not be led to modify the embodiment as required by claim 1. In the two schemes defined by claim 1, maintenance of the park brake deactivation request or fulfilment of two concurrent conditions was required for deactivating the park brake. In the scheme where the deactivation request was followed by an acceleration request, the waiting time was reduced. D5 highlighted that a higher level of safety was obtained by providing two control elements that needed to be actuated simultaneously (or, see paragraph [0006]: sequentially), while no time-related condition was actually checked. This was also the case for the embodiment of paragraph [0023] of D5, as the short time duration mentioned could be a means to ensure that both buttons 2 and 4 were simultaneously pressed in the first place (as found under point 3.3.3 of the contested decision). The skilled person would not consider the time for releasing the brake as a source of comfort in D5 and was not led to consider a solution to reduce the duration of deactivation of the brake. Automatically deactivating the park brake as suggested in paragraph [0010] would lead to unintended deactivation of the park brake, which was less safe.

Moreover, the function as described in paragraph [0023] (deactivating from gradual braking) was not guaranteed any more, since the automatic deactivation according to paragraph [0010] was disclosed regarding a control element in neutral position. Both embodiments were incompatible. If the skilled person were to improve the embodiment of paragraph [0023] with the features of paragraph [0010], he would not obtain the characterising part, since the deactivation of the brake by the accelerator pedal was not conditioned to a previous deactivation request and also not to a third time period. Nothing would change when starting from the embodiment of paragraph [0010] of D5, since it was not checked whether a park brake deactivation request had been initiated or a third time period expired.

With similar reasoning, a combination of D5 with D7 did not lead to the subject-matter of claim 1. The release of the brake in D7 was only conditioned to "start-up", not to a previous park brake deactivation request (see paragraph [0037] mentioning comfort of the user), i.e. taught away from the claimed invention. Actuation of an acceleration input device was not checked in D7. D7 was silent on the result when performing the two methods (manual and automatic) simultaneously, and there was no reason why automatic deactivation would take priority over manual deactivation.

Reasons for the Decision

1. Novelty in view of D5

1.1 The invention as defined in claim 1 of the main request does not form part of the state of the art according to D5 and is therefore new (Article 54(1) EPC).

1.2 Undisputedly, the preamble features of claim 1 are known from paragraph [0023] of D5. It describes the embodiment of Fig. 2 having gradually operable control elements, in particular two operating buttons which have to be pressed simultaneously for a short time period in order to deactivate the park brake.

A combination of a manual and automatic deactivation of the park brake is only disclosed in the general part of the description in D5 (see paragraphs [0009] to [0011]) for a preferred embodiment of the invention. However, a clear link to the embodiment of paragraph [0023] is missing. Paragraph [0010] describes control elements which are operated manually in an ON/OFF manner (simultaneously or sequentially) in order to deactivate the park brake, and the automatic mode of deactivation is explicitly described as advantageous for control elements which return into a neutral position. A deactivation request maintained for at least a first time period is not required. The term "time period" might be broad, but it describes at least a duration in time and thus requires a depressing time for the deactivation request to be present. Paragraph [0023] relates to control elements which are gradually operable (e.g. in "*Halbbremsstellung*", see also paragraph [0022]). The gradual mode of operation is referred to in the general part of the description in D5 (paragraph [0012]) as an alternative mode of operation. In fact, in case of gradual activation/ deactivation, it might not make sense for safety reasons to overrule a deliberately applied braking force (e.g. when partially activating the park brake, as possible according to paragraph [0023]) on the basis of an acceleration request. Moreover, the whole disclosure in D5 (Figs. 1 and 2 and description of the

embodiments; as pointed out by the respondent, see above facts and submissions) supports this view of alternative embodiments, without establishing a link that might suggest a combination of these embodiments.

1.3 For this reason alone, novelty of the subject-matter of claim 1 over D5 has to be acknowledged. D5 fails to show directly and unambiguously that the embodiment according to the preamble of claim 1 (paragraph [0023] in D5) might take into account an acceleration request, as required by the characterising portion of claim 1.

2. Inventive step

2.1 The subject-matter of claim 1 of the main request involves an inventive step when starting from D5 as the closest prior art (Article 56 EPC).

2.2 Starting from the embodiment of paragraph [0023] of D5, which undisputedly shows the features according to the preamble of claim 1, the characterising features solve the problem of trying to improve driver comfort when deactivating the park brake without compromising on safety, as argued by the parties.

Paragraph [0010] of D5 might show an acceleration request for automatic deactivation of the park brake always and in addition ("*immer dann*", "*zusätzlich*") to a manual actuation of the park brake, but it is disclosed in combination with a control member of the park brake resting in neutral position. This seems already to be incompatible with the embodiment of paragraph [0023], which describes a deactivation procedure for a control member gradually applying the park brake and resting e.g. in semi- or full-applied position, i.e. in a state still indicating a driver's

intention to have the park brake activated. The Board was not convinced that it was obvious in this case to allow an acceleration request to overrule the deliberate manual activation of the park brake, as it might lead to inadvertent park brake deactivation which would entail a safety risk.
Moreover, even if the skilled person were to combine the embodiments of paragraphs [0023] and [0010] in D5, he or she would end up with an automatic deactivation of the park brake which was independent from a previously initiated manual deactivation request. Paragraph [0010] taught to ("*immer dann*") always deactivate the park brake if the user actuated the accelerator pedal, i.e. always in case the user requested an acceleration of the vehicle. It would not take into account whether a park brake deactivation request has been initiated beforehand and is still pending. Thus, it would not check whether this previous condition was fulfilled in addition to an acceleration request, as required by the wording of the characterising portion of claim 1 according to the Board's understanding.

2.3 In the Board's view, the claimed method specifies an action ("*the park brake is deactivated*") to be performed under certain conditions ("*if*..."). This means the claimed method requires that the conditions as specified in claim 1 in the preamble and the characterising portion are checked or tested - thus constituting steps of the claimed method - before allowing the deactivation of the park brake to take place. The condition "*while a park brake deactivation request has been initiated*" in the characterising portion uses the present perfect tense "*has been*", which means that it refers to an action that began at some time in the past and is still in progress, namely

the initiation of a park brake deactivation request. Moreover, the wording "*the park brake is deactivated if, while* ..." specifies that, subsequently (in time) to a request which initiated a deactivation of the park brake and which must still be pending (i.e. which as a prerequisite must be checked) a further condition is checked before allowing the action to take place, namely whether the user requests an acceleration of the vehicle. Thus, the check for an acceleration request is conditioned or bound to a previous park brake deactivation initiation request by the user.

The Board concurs with the respondent that the claimed method corresponds to method steps 410 and 415 in Fig. 7 of the patent specification and thus requires two steps to be checked for the characterising feature. Acceleration requests initiated prior to or concurrent with the park brake deactivation request (as mentioned as a further option in paragraph [0063] of the patent, see also step 402 in Fig. 7) do not fall under the wording of claim 1.

Moreover, the term "*while a park brake deactivation request has been initiated*" in combination with "*before the expiration of a third time period*" according to the characterising feature of claim 1 specifies a loop in time checking whether the user requests an acceleration of the vehicle. Admittedly, the "third time period" is not further specified. However, in view of the same wording "a park brake deactivation request" used in the preamble and in the characterising portion of claim 1 (which specifies a method "*when the user has initiated a park brake deactivation request using the park brake input device*"), it is equally referred to the same park brake deactivation request using the park brake input device. This means that a third time period expiring

after the first time period does not make sense, as the park brake would then be previously deactivated according to the condition defined in the preamble of claim 1. The characterising feature thus covers a third time period falling within the first time period (i.e. as long as the condition according to the preamble is not yet fulfilled), in which an additional check for an acceleration request is performed before deactivating the park brake.

2.4 Following the similar reasoning as above, the combination of D5 with D7 does not lead to the subject-matter of claim 1. Admittedly, D7 refers to the comfort of a park brake system and discloses an automatic deactivation of the park brake (see paragraph [0037]). However, D7 only teaches automatic deactivation of the park brake in case of vehicle start-up. Irrespective of whether this already implies an acceleration request by the user, there is no indication in D7 that deactivation of the park brake is dependant on a previously initiated park brake deactivation request. The question is not whether automatic deactivation of the park brake could be performed during a time period of operating a release button (as D7 might disclose in paragraph [0031]), but whether a dedicated check for a previously initiated park brake deactivation request is performed, as required by the characterising portion of claim 1. In particular, according to the Board's understanding, the characterising portion of claim 1 specifies a method for controlling deactivation of the park brake which specifically requires two conditions to be checked. It does not specify the priority of any acceleration request over a park brake deactivation request that might have been initiated beforehand.

2.5 In a second line of argument submitted during the oral proceedings, the appellant started from the embodiment according to paragraphs [0009] and [0010] in D5, which fails to disclose a first time period of maintaining or holding a park brake deactivation request. Allegedly, nothing would prevent the skilled person from supplementing this general teaching with the more precise teaching of a manual actuation according to paragraph [0023] which included a holding time.

However, the embodiment of paragraph [0023] relies on a control member gradually applying the park brake and thus resting e.g. in semi-applied or full-applied position. As already set out above under point 3.2, the Board was not convinced that in this case it is obvious to allow an acceleration request (according to the embodiment of paragraph [0010]) to overrule the deliberate manual activation of the park brake known from paragraph [0023]. Moreover, even if the skilled person were to combine both embodiments, he or she would give priority to the acceleration request, without taking into account whether a park brake deactivation request has been initiated beforehand and is still pending. This would not lead to the subject-matter of claim 1 as understood by the Board.

2.6 Thus, the Board concludes that the subject-matter of claim 1 of the main request involves an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Vottner H. Geuss

Decision electronically authenticated