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**Datasheet for the decision
of 16 September 2019**

Case Number: T 0001/16 - 3.2.03

Application Number: 05711086.8

Publication Number: 1853768

IPC: E02F9/22

Language of the proceedings: EN

Title of invention:

AN ENERGY RECOVERY SYSTEM FOR A WORK VEHICLE

Patent Proprietor:

Volvo Construction Equipment AB

Opponent:

Concentric Rockford, Inc

Headword:

Relevant legal provisions:

EPC 1973 Art. 100(c), 100(a), 54(4), 56
EPC Art. 54(3), 123(2)

Keyword:

Amendments - added subject-matter (no)

Novelty - main request (yes)

Inventive step - main request (yes)

Decisions cited:

Catchword:



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Case Number: T 0001/16 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 16 September 2019

Appellant: Volvo Construction Equipment AB
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Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
22 October 2015 concerning maintenance of the
European Patent No. 1853768 in amended form.

Composition of the Board:

Chairman G. Ashley
Members: V. Bouyssy
E. Kossonakou

Summary of Facts and Submissions

- I. European patent No 1 853 768 (in the following: "the patent") concerns an arrangement and a method for controlling a work vehicle.
- II. The patent as a whole was opposed on the grounds that its subject-matter extended beyond the content of the application as filed (Article 100(c) EPC 1973), and that it lacked novelty and inventive step (Article 100(a) EPC 1973).
- III. The opposition division held that the ground for opposition of Article 100(c) EPC 1973 prejudiced the maintenance of the patent as granted, but that the patent as amended on the basis of auxiliary request 1 before it met the requirements of the EPC.
- IV. This interlocutory decision was appealed by both the patent proprietor and the opponent.
- V. As both parties are thus both appellant and respondent, for the sake of simplicity they are referred to as patent proprietor and opponent.
- VI. The patent proprietor requested that the appealed decision be set aside and the patent be maintained as granted (main request), alternatively as amended on the basis of one of auxiliary requests 1 to 4 filed with the statement of grounds of appeal and auxiliary requests 5 to 10 filed with the response to the opponent's statement of grounds of appeal. The patent proprietor also made a conditional request for oral proceedings.

- VII. The opponent requested that the appealed decision be set aside and the patent be revoked.
- VIII. With the summons to oral proceedings, the Board sent a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating its preliminary opinion of the case. In particular, the Board indicated its intention to allow the patent proprietor's main request.
- IX. In a response dated 17 January 2019 to the summons, the opponent informed the Board that it would not attend the oral proceedings scheduled for 11 June 2019. No further arguments or observations, in particular with respect to the Board's preliminary opinion, were presented.
- X. In a submission dated 6 February 2019, the patent proprietor requested that the proceedings be continued in writing if the Board were still minded to decide that the patent proprietor's main request was allowable. In response to the Board's preliminary opinion, the patent proprietor made clear that it did not request a correction of claim 22 as originally filed (see point 8.5 of the opinion).
- XI. The Board thereupon cancelled the oral proceedings and informed the parties that the proceedings would be continued in writing.
- XII. Claims of the patent proprietor's main request
- Independent apparatus claim 1 is directed to the following subject-matter (the feature numbering has been introduced by the patent proprietor):

- (a) An arrangement for controlling a work vehicle (1), comprising a power source (103;204), and
- (b) a hydraulic circuit (100;201,202,203) comprising
 - (b1) a pump (104,205) driven by the power source (103;204),
 - (b2) at least one hydraulic actuator (4,5,8,9,10;101) arranged in fluid connection with the pump (104;205) via a first conduit (105;206), and
 - (b3) a variable displacement hydraulic motor unit (106;207,282,295) arranged in fluid connection with the actuator (4,5,8,9,10;101) and downstream the actuator via a second conduit (107;208),
- (c) wherein the motor unit (106; 207, 282, 295) is further arranged for a rotation connection to the power source (103;204) in order to transmit energy to the power source,

characterized in that

- (d) the arrangement comprises means (116;220) for electrically controlling the displacement of the variable displacement motor unit (106;207,282,295),
- (e) wherein the variable displacement hydraulic motor unit (106;207,282,295) is arranged for controlling movement of the actuator (4,5,8,9,10;101) independent of operating mode,
- (f) by adjustment of the displacement of the variable displacement motor unit (106;207,282,295).

Independent method claim 18 is directed to the following subject-matter:

- (a) A method for controlling a work vehicle, comprising the steps of
 - (b) - receiving a work function signal from an operator of the vehicle,
- characterised in that
- (c) - depending on the requested work function in the operator signal,
 - (c1) adjusting a displacement of a variable displacement hydraulic motor unit (106,207,282,295) arranged downstream of a hydraulic actuator (4,5,8,9,10,101),
 - (c2) which is arranged for performing the work function, for controlling movements of the actuator,
 - (c3) wherein the movement of the actuator (4,5,8,9,10,101) is controlled independent of which operation mode is currently in use,
 - (c4) by adjusting the displacement of the variable displacement hydraulic motor unit (106,207,282,295),
 - (d) - recovering energy by transmitting energy from the motor unit (106,207,282,295) to a power source (103,204).

XIII. Cited evidence

In the statements setting out the grounds of appeal, and in the replies to them, the parties referred among others to the following documents which were filed in the opposition proceedings and are cited in the decision under appeal:

- D1: WO 2006/060638 A2;
- D1': Information provided by the German Patent and Trade Mark Office (DPMA) concerning the Euro-PCT application published as D1;

D2: US 60/632176 (first priority document of D1);
D3: US 60/632178 (second priority document of D1);
D4: US 60/677103 (third priority document of D1);
D6: US 6,789,387 B2;
D9: US 6,854,268 B2.

XIV. The arguments of the parties, insofar as relevant for the present decision, can be summarised as follows:

(a) Main request - Article 100(c) EPC 1973

The patent proprietor submitted that the opposition division erred in deciding that the incorporation of feature (e) in claim 1, and that of features (c3) and (c4) in claim 18, introduced subject-matter extending beyond the content of the application as originally filed. Claim 18 as granted was a combination of claims 20, 22 and 23 of the application as originally filed. A skilled reader of the application as filed would understand that claim 22 should refer to claim 20 or 21, not to claim 21 or 22. Moreover, the teaching on page 42, lines 22 to 33 of the description as filed provided support for the addition of the features of claim 22 to claim 20.

The opponent argued that the decision of the opposition division was correct. The patent as granted was unduly broadened not only in light of the formal dependencies in the claims of the application as filed, but rather in light of the whole teaching in the application as filed (see statements under "Summary of the Invention").

(b) Main request - Novelty

The opponent submitted that the subject-matter of claims 1 and 18 of auxiliary request 1 found allowable by the opposition division (now auxiliary request 4) lacked novelty in light of D1. For the same reasons, the subject-matter of claims 1 and 18 as granted lacked novelty in light of D1. The opponent argued that there was no doubt concerning D1's entitlement to priority.

The patent proprietor argued that D1 failed to disclose features (b3), (e) and (f) of claim 1, and features (c3) and (c4) of claim 18. In addition, the patent proprietor submitted that D1 did not enjoy the right of priority from either D2 or D3 for formal and substantive reasons, and thus that D1 did not constitute prior art under Article 54(3) EPC.

(c) Main request - Inventive Step

The opponent submitted that the subject-matter of claim 1 of auxiliary request 4 lacked an inventive step when starting from D9 as closest prior art. The claimed subject-matter differed from the control arrangement disclosed in D9 by feature (c) and the added feature of the first conduit being free from throttling means. The technical problem objectively solved by these features was how to create conditions for a system that is more energy efficient than previously known systems. The claimed solution to this problem was rendered obvious by the teaching of D6 (figures 3 and 4).

The patent proprietor requested the Board not to admit this attack of inventive step into the appeal proceedings. In addition, the patent proprietor submitted that the subject-matter of claims 1 and 9 as

granted involved an inventive step over D9 in combination with D6. D9 failed to disclose features (c), (e) and (f) of claim 1, and features (c3) and (c4) of claim 18. The technical problem objectively solved by these features was how to improve the energy efficiency of the control arrangement/method. Even if the skilled person were to consider D6, he would not arrive at the claimed solution.

Reasons for the Decision

1. Applicable provisions of the EPC
 - 1.1 The patent is based on an International application which was filed under the PCT on 17 February 2005 and was still pending at the time of entry into force of the EPC 2000 on 13 December 2007.
 - 1.2 According to Articles 1(1) and 6, first sentence of the Decision of the Administrative Council of 28 June 2001 on the transitional provisions under Article 7 of the Act revising the EPC of 29 November 2000 (Special edition No. 4, OJ EPO 2007, 217), Articles 56, 87, 100 and 114 EPC 1973 as well as Articles 52, 54, 88, 123 and 153 EPC (2000) apply. With respect to potentially colliding European applications pursuant to Article 54(3) EPC, however, the provisions of Article 54(4) EPC 1973 continue to apply.
2. Document D1
3. D1 potentially constitutes prior art relevant for the common designated contracting states for which the designation fees have been validly paid (see Articles 153(2)(5) and 54(3) EPC and Article 54(4) EPC 1973).

3.1 In its submissions, the patent proprietor relied on the content of D1'. However, this document only discloses the publication number of the Euro-PCT application published as D1. In the following, when referring to the content of this application, reference will be made to D1 instead of D1'.

4. In the communication under Article 15(1) RPBA annexed to the summons, the Board set out and reasoned its intention to allow the patent proprietor's main request as follows:

"8. Main request - Article 100(c) EPC

8.1 Claim 1 as granted differs from claim 1 as originally filed in that the following features have been incorporated in it:

- (c) that the variable displacement hydraulic motor unit "is further arranged for a rotation connection to the power source in order to transmit energy to the power source";*
- (d) that "the arrangement comprises means for electrically controlling the displacement of the variable displacement motor unit"; and*
- (e) that the movement of the actuator is controlled "independent of operating mode, by adjustment of the displacement of the variable displacement motor unit".*

8.2 Claim 18 as granted differs from claim 20 as originally filed in that the following features have been incorporated in it:

- (c3) that "the movement of the actuator is controlled independent of which operation mode is currently in use",*
- (c4) "by adjusting the displacement of the variable*

displacement hydraulic motor unit"; and
(d) that energy is recovered "by transmitting energy
from the motor unit to a power source".

8.3 The opposition division decided that the incorporation of feature (e) in claim 1, and that of features (c3) and (c4) in claim 18, introduced subject-matter extending beyond the content of the application as originally filed. The opposition division decided essentially that this amendment amounted to an unallowable intermediate generalisation because feature (e) of claim 1, and features (c3) and (c4) of claim 18, were originally disclosed only in combination with the further feature that the first conduit is free from throttling means (see claim 21 and page 6, lines 27 to 33 of the application as published, i.e. WO 2006/088399 A1) and this further feature had not been incorporated in claims 1 and 18.

8.4 At present, the Board shares the view of the patent proprietor that this objection is not persuasive, in particular because it is apparent that feature (e) can be achieved even if the first conduit comprises throttling means.

8.5 The patent proprietor is invited to clarify whether or not it requests the correction under Rule 139 EPC of the claim dependency of claim 22 as originally filed from "according to claim 21 or 22" to "according to claim 20 or 21" (see point 2.1.4 of the statement of grounds of appeal dated 15 February 2016).

The Board agrees that it is immediately apparent that the original claim dependency was erroneous and that the proposed correction introduces what was originally intended, in particular in view of the claim dependency

of claims 23 and 25 to 29 and of the teaching on page 42, lines 22 to 33 of the description as filed.

9. Priority and relevance of D1

9.1 D1 claims priority from three US applications, namely D2 and D3 filed on 1 December 2004 - i.e. before the filing date of the patent (17 February 2005) - and D4 filed on 3 May 2005.

9.2 D2 and D3 were filed in the name of Mr. George Kadlicko as inventor, while D1 was filed on behalf of Haldex Hydraulics Corporation.

9.3 The patent proprietor contests the validity of the priority claim on two grounds.

9.3.1 Entitlement to priority

The patent proprietor argues that the opponent has not established to the requisite level of certainty that, on the date of filing of D1, the rights of priority derived from D2 and D3 had been validly transferred to Haldex Hydraulics Corporation.

9.3.2 Identity of invention

The patent proprietor argues that D1 fails to disclose the same invention as D2 or D3, so that their priority cannot be validly claimed (Article 87(1) EPC 1973 and Article 88(3) EPC; G 2/98).

9.4 However, in light of the preliminary opinion of the Board with respect to the technical teaching of D1 (see following point), there appears to be no need to investigate any further these two questions.

10. Main request - Novelty

10.1 Should the Board decide that the requirements of Article 123(2) EPC are met, it would need to be discussed whether the subject-matter of claim 1 is novel in light of D1 (Articles 52(1) and 54(3) EPC and Article 54(4) EPC 1973), notwithstanding the question of whether the priority has been validly claimed.

10.2 At present, the Board shares the view of the patent proprietor that D1 fails to disclose features (b3), (e) and (f) of claim 1, and features (c3) and (c4) of claim 18, as assessed by the opposition division (see point 5.5 of the reasons). In the control arrangement shown in Figure 8 of D1, the variable capacity hydraulic machines 432 and 434 are arranged in fluid connection with the boom actuator 411 via a first and a second conduit. The movement of the actuator 411 is controlled by operating the variable capacity hydraulic machines 432 and 434 as a hydraulic motor and a hydraulic pump, respectively, and vice versa, depending on the operating mode (see paragraphs 72 and 73 of D1, in particular "motoring mode" and "pumping mode"). Thus, machines 432 and 434 are located either downstream or upstream of the actuator 411, depending on the operating mode.

11. Main request - Inventive step

11.1 Should the Board decide that the subject-matter of claim 1 is novel, it would need to be discussed whether it has inventive step.

11.2 In its statement of grounds of appeal, the opponent contended that the subject-matter of claim 1

of auxiliary request 1 found allowable by the opposition division (now auxiliary request 4) does not involve an inventive step in view of D9 in combination with D6.

11.3 The patent proprietor requested the Board not to admit this objection into the appeal proceedings, because the opponent did not have any objection under Article 56 EPC against claim 1 as amended in the oral proceedings before the opposition division.

11.4 However, the Board is not persuaded that it has a discretion to disregard this objection of lack of inventive step. It was raised and substantiated in the notice of opposition and it cannot be inferred from the file that the opponent had abandoned or withdrawn its original attack on inventive step against claim 1 as granted during the opposition proceedings. It follows from the decision under appeal and the minutes of the oral proceedings that the opponent eventually did not have any objections of lack of inventive step against claim 1 as amended (see point 5.7 of the reasons; point 4.6 of the minutes). However, this cannot be interpreted as the unambiguous expression of the opponent's wish to abandon or withdraw its original objection on inventive step.

11.5 The patent proprietor submits that D9 fails to disclose features (c), (e) and (f) of claim 1, and features (c3) and (c4) of claim 18, that the technical problem objectively solved by these distinguishing features is that of improving the energy efficiency of the control arrangement/method disclosed in D9, and that the claimed solution to this problem appears to be neither disclosed nor suggested in D6. At present, the Board would share this view. In addition, it might need

to be discussed whether the hydraulic pressure transformer as disclosed in D9 forms a hydraulic motor which is located downstream of the actuator to control its movement, independent of operating mode, as required in claim 1 (see point 10.2 above)."

5. In its deliberation, the Board noted that, in the absence of any new arguments submitted by the opponent, the conclusions reached by the Board and communicated on a provisional basis should apply unchanged.
6. Thus, the Board is still not persuaded by the opponent's arguments:
 - that claims 1 and 18 as granted introduce subject-matter extending beyond the content of the application as originally filed (Article 123(2) EPC);
 - that the subject-matter of claim 1 as granted lacks novelty in light of D1 (Articles 52(1) and 54(1)(3) EPC and Article 54(4) EPC 1973); and
 - that the subject-matter of claim 1 as granted does not involve an inventive step when starting from D9 as closest prior art (Article 52(1) EPC and Article 56 EPC 1973).
7. In particular, with respect to the opponent's attack on inventive step (see point 11.5 of the opinion), the Board shares the view of the patent proprietor that the skilled person would have no motivation to consider D6 and, even if he did, the teaching of this document would lead away from the claimed solution. Figure 3 of D6 discloses a system for recovering energy when the hydraulic actuator 22 of a work machine is operated under an overrunning load, wherein a motor unit 204 is arranged for a rotation connection (via one-way clutch 206) to the power source 14 to transmit energy to the

power source in this specific operating mode, as required by feature (c). However, in all the other operating modes, the movement of the actuator 22 is controlled by the pump 202, not by the motor 204, contrary to features (e) and (f) of claim 1 and features (c3) and (c4) of claim 18.

8. In conclusion, the grounds for opposition raised by the opponent do not prejudice the maintenance of the patent as granted.
9. In light of this conclusion there is no need to consider auxiliary requests 1 to 10 of the patent proprietor.
10. Cancellation of the oral proceedings
 - 10.1 Only the patent proprietor had requested oral proceedings.
 - 10.2 In response to the summons, the patent proprietor made clear that its request was conditional only and that the proceedings could be continued in writing.
 - 10.3 In light of the state of the file, the Board thus decided to cancel the oral proceedings and issue its decision in writing.

Order

For these reasons it is decided that:

1. The appeal of the opponent is dismissed.
2. The decision under appeal is set aside.
3. The patent is maintained as granted.

The Registrar:

The Chairman:



C. Spira

G. Ashley

Decision electronically authenticated