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**Datasheet for the decision  
of 14 December 2015**

**Case Number:** T 2411/13 - 3.2.08

**Application Number:** 02781000.1

**Publication Number:** 1446594

**IPC:** F16H47/04

**Language of the proceedings:** EN

**Title of invention:**

HYDRO-MECHANICAL CONTINUOUSLY VARIABLE TRANSMISSION

**Applicant:**

Silvatech Global Systems Ltd.

**Headword:**

**Relevant legal provisions:**

EPC Art. 56, 113(1)

EPC R. 111(2), 103(1)(a)

**Keyword:**

Inventive step - (yes)

Right to be heard - substantial procedural violation (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
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Case Number: T 2411/13 - 3.2.08

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.08**  
**of 14 December 2015**

**Appellant:**  
(Applicant)

Silvatech Global Systems Ltd.  
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**Representative:**

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**Decision under appeal:**

**Decision of the Examining Division of the  
European Patent Office posted on 7 June 2013  
refusing European patent application No.  
02781000.1 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** T. Kriner  
**Members:** M. Foulger  
C. Schmidt

## Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal against the decision of the Examining Division refusing the European patent application 02781000.1 which was dispatched on 7 June 2013. The Examining Division stated that the applicant had been informed in the communication dated 2 May 2012 that the application did not meet the requirements of the EPC. The Examining Division stated furthermore that no comments had been filed in reply to the communication of 2 May 2012.

The notice of appeal and the statement setting out the grounds of appeal were filed within the relevant time limits.

- II. The appellant requested that the decision be set aside and a patent granted on the basis of the claim 1 on file.

- III. Claim 1 reads:

"A hydro-mechanical continuously variable transmission ("HMCVT") of the type having:

- a. a transmission input (40);
- b. a main shaft (26);
- c. a first planetary gear set (10), comprising:
  - i) a first ring gear (15); ii) a first sun gear (18);and, iii) a first carrier (12);
- d. a first transfer gear (13);
- e. a second transfer gear (16);
- f. a third transfer gear (19);
- g. a fourth transfer gear (20);
- h. a hydraulic branch, comprising:
  - i) a first hydraulic pump (22) coupled to said transmission input (40) through said first transfer gear (13) and said second transfer gear (16); and,

ii) a first hydraulic motor (24) coupled to said first hydraulic pump (22), wherein an output of said hydraulic branch is transferred to said main shaft (26) through said fourth transfer gear (20) and said third transfer gear (19);

j. a mechanical branch comprising said main shaft (26) wherein said mechanical branch is coupled to said transmission input (40) and to said third transfer gear (19),

wherein said transmission input (40) is coupled to one of said first ring gear (15), said first sun gear (18), and said first carrier (12); and,

wherein said hydraulic branch is coupled to a second one of said first ring gear (15), said first sun gear (18), and said first carrier (12); and,

wherein said mechanical branch is coupled to a third one of said first ring gear (15), said first sun gear (18), and said first carrier (12); and,

wherein the output of said hydraulic branch and the output of said mechanical branch are combined at said third transfer gear (19) and said fourth transfer gear (20) such that a percentage of power arising from said hydraulic branch decreases as said main shaft (26) increases in speed; and, wherein said HMCVT is characterized as further comprising:

k. a two-speed shifting planetary gear set (30) comprising a second sun gear (31), a second ring gear (33), and a second carrier (35), wherein two speed shifting planetary gear set (30) transfers the power combined at third transfer gear (19) and fourth transfer gear (20) to an output shaft (36);

l. a low-speed clutch or brake (32); and,

m. a high-speed clutch (34),

wherein said low-speed shifting clutch or brake (32) is operative to hold said second ring gear (33) fixed for low-speed operation; and,

wherein said two-speed shifting planetary gear set (30) and said high-speed clutch (34) are operative to create a 1:1 gear-ratio for high-speed operation."

IV. The following documents are referred to in the present decision:

D7: EP 0 450 282 A

D9: US 3,396,610 A

D10: WO 01/086172 A

D11: WO 92/01173 A

D12: EP 0 423 863 A

D13: US 3,979,973 A

V. The appellant argued essentially that:

i) Inventive step

The subject-matter of claim 1 involved an inventive step with regards to the transmission of D7 combined with the teachings of any one of the documents D9-D13.

The transmission of D7 already included a series of clutches which allowed the user to change the operation of the transmission between a series of different operating modes. Thus, there was no motivation for the skilled person to further modify the transmission of D7. Moreover, D7 taught away from using clutches in the transmission because of the associated friction losses (D7, col.1, l.15-21).

Furthermore even if the skilled person were to consider incorporating the features (k) to (m) in the transmission of D7 then the resultant arrangement would be complex with components being duplicated within the transmission. The skilled person would therefore rapidly come to the view that this was not a sensible

way forward and could not therefore be considered as being obvious.

ii) Right to be heard

The statement of the Examining Division according to which no comments had been filed was incorrect. The applicant had indeed filed comments in the letter dated 12 December 2012 and these were not referred to in the decision under appeal. The comments contained in this letter had therefore not been considered by the Examining Division in reaching its decision.

### **Reasons for the Decision**

1. Inventive step
  - 1.1 D7 is the most relevant prior art and discloses the features of the preamble of claim 1.
  - 1.2 The problem to be solved is to provide a transmission with an increased range of output speeds or torques.
  - 1.3 Documents D9-D13 disclose arrangements which comprise the characterising features of claim 1, i.e. features (k) to (m), see for example D9, fig. 1. However, the claimed solution to this problem is not made obvious by these documents because D7 already provides an extended range, see col. 3, lines 6-7. The skilled person would therefore lack the motivation to add a further overdrive unit, such as disclosed in D9-D13, to the transmission of D7. Moreover, the skilled person would recognise that to do so would further complicate an already complicated arrangement and therefore would be

dissuaded from doing so.

- 1.4 Furthermore none of the documents D9-D13 are directed to problems that would arise in the continuously variable transmission disclosed in D7.
  - 1.5 Given the above, the person skilled in the art would not have had any motivation to combine the teachings of D7 and D9-D13 in order to solve the above problem. The subject-matter of claim 1 therefore involves an inventive step in the sense of Article 56 EPC.
2. Right to be heard
    - 2.1 It is clear that the statement of the Examining Division in the appealed decision that no comments had been filed by the appellant in reply to the last communication is not correct and clearly indicates that the Examining Division did not consider the appellant's arguments filed with the last reply of 12 December 2012.
    - 2.2 Consistent case law of the boards of appeal, see Case Law of the Boards of Appeal, 7th Edition, 2013, Chapter 1.1.1, 1st paragraph, shows that a failure to address in the contested decision the disputed points amounts to an infringement of the right to be heard (Article 113(1) EPC). The arguments contained in the letter of 12 December 2012 should have been taken into account and the failure to do so means that the decision is not sufficiently reasoned as required by Rule 111(2) EPC.
    - 2.3 This constitutes a substantial procedural violation, furthermore as this procedural violation has led to the filing of the appeal then reimbursement of the appeal

fee is equitable. The appeal is moreover allowable so that the requirements of Rule 103(1)(a) EPC are met.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division with the order to grant a patent in the following version:
  - Description:

pages 1-4,10,12,14,17,18,20-29	filed on 8 May 2010
pages 9,11	filed on 2 July 2011
pages 5-8,13,15,16	filed on 19 August 2015
pages 19,30	filed on 6 November 2015
  - Claims, nos.:

1(part),2-8	filed on 2 July 2011
1(part)	filed on 19 August 2015
  - Drawings:

1/9-9/9	filed on 8 May 2010.
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3. The appeal fee is reimbursed.



The Registrar:

The Chairman:



B. ter Heijden

T. Kriner

Decision electronically authenticated