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Datasheet for the decision of 11 August 2011

Case Number: T 1658/10 - 3.2.05

Application Number: 05102410.7

Publication Number: 1584822

IPC: F15B 11/16

Language of the proceedings: EN

Title of invention:
Hydraulic control system and construction machine

Applicant:
Kobelco Construction Machinery Co., Ltd.

Headword:
-

Relevant legal provisions:
EPC Art. 84, 111(1), 123(2)

Relevant legal provisions (EPC 1973):
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Keyword:
"Clarity - yes"
"Extension beyond the content of the application as filed - no"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1658/10 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 11 August 2011

Appellant: (Applicant)
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Decision under appeal:
Decision of the Examining Division of the European Patent Office posted 19 February 2010 refusing European patent application No. 05102410.7 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: W. Zellhuber
Members: H. Schram
M. J. Vogel

Summary of Facts and Submissions

I. The appeal is against the decision of the Examining Division dated 19 February 2010 refusing European patent application No. 05 102 410.7 on the ground that the subject-matter of claim 1 of the main (sole) request of the appellant (applicant) was not clear (Article 84 EPC) and extended beyond the content of the application as filed (Article 123(2) EPC).

II. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 6 filed on 19 July 2011.

III. Claims 1 and 6 according to sole request of the appellant read as follows:

"1. A hydraulic control system comprising:

a hydraulic pump (1, 2);

control valves (6, 8, 13) for controlling a direction and flow rate of pressure oil discharged from said hydraulic pump (1, 2);

hydraulic actuators which the pressure oil is fed to and controlled by said control valves, said hydraulic actuators comprising hydraulic cylinders (5, 7, 12) and a hydraulic motor; and

a return passage adapted to conduct return oil from said hydraulic actuators to a tank (14)

characterized in that said return passage comprises:

a first return passage (22, 19, 20, 21) adapted in operation to conduct return oil present at the head side of at least one of said hydraulic cylinders to

said tank (14), said first return passage being in communication with said tank (14); and

a second return passage (15) adapted in operation to conduct return oil to the tank (14) from said hydraulic motor and from said hydraulic cylinders except for return oil from the head side of said at least one of said hydraulic cylinders (5, 7, 12), said second return passage (15) having a back pressure check valve (16a) and a replenishing passage,

said replenishing passage providing a back pressure developed by said back pressure check valve (16a) to the lower pressure side of said each of the hydraulic cylinders other than said at least one of said hydraulic cylinders and to the lower pressure side of said hydraulic motor."

"6. A construction machine with the hydraulic control system described in claim 1, comprising as said hydraulic actuators a bucket cylinder (5), an arm cylinder (12), a boom cylinder (7), said cylinders being provided in a front attachment, and a swing motor (10) for rotating an upper rotating body, wherein said first return passage is provided in each of said hydraulic cylinders (5, 7, 12), and when one of the hydraulic cylinders (5, 7, 12) and said swing motor (10) are operated simultaneously, return oil from said swing motor (10) and return oil present at the rod side of said one of hydraulic cylinders (5, 7, 12) are returned to said tank (14) through said second return passage (15) to develop a back pressure, while return oil at the head side of said one of hydraulic cylinders (5, 7, 12) is returned to said tank (14) through said first return passage so as not to develop a back pressure."

IV. In support of its request, the appellant submitted the following:

The Examining Division was of the view that the description specified that the replenishing passage 17b provided a back pressure to the head side of the cylinder when the head side pressure was lower than the back pressure in the replenishing passage 17b and that when the rod side of the cylinder was in the lower pressure side, the replenishing passage 17b did not provide a back pressure to the lower pressure side of the cylinder. Since claim 1 of the sole request then on file required that said replenishing passage did provide a back pressure to the lower pressure side of the cylinder, the Examining Division was of the view that there was a contradiction between claim 1 and the description. This was not correct, since the Examining Division had relied upon the paragraph bridging pages 15 and 16 of the application as filed, which contained a specific, non-limiting description. The restriction referred to by the Examining Division was only described in the context of the first return passage (page 8, penultimate line). Claim 1 was supported by the operational state of Figure 2 as filed. The absence of a strict limitation to the arrangement shown in Figure 2 did not give rise to any lack of clarity for the subject-matter of claim 1, cf Article 84 EPC.

The set of claims according to the sole request now included the feature that the replenishing passage provides a back pressure to the lower pressure side of the hydraulic motor, thus overcoming the objection under Article 123(2) EPC.

Reasons for the Decision

1. *Allowability of the amendments, Article 84 EPC*

The last feature of claim 1 of the sole request reads: "said replenishing passage providing a back pressure developed by said back pressure check valve (16a) to the lower pressure side of said each of the hydraulic cylinders other than said at least one of said hydraulic cylinders and to the lower pressure side of said hydraulic motor."

The Examining Division held (see points 16 to 18 of the reasons of the decision) that said feature was in contradiction to the paragraph bridging pages 15 and 16 of the application as filed (from which it followed that the replenishing passage 17b provided a back pressure to the head side of the cylinder). This paragraph corresponds to paragraph [0038] of the application as filed (published version). The Examining Division added: "[When] the rod side of the cylinder is the lower pressure side, the replenishing passage is not providing a back pressure to the lower pressure side of the cylinder." Thus claim 1 did not fulfil the requirements of Article 84 EPC.

In the judgment of the Board, this objection is not tenable. The operation of the control circuit is described with reference to Figure 2 in paragraphs [0033] to [0045] of the application as filed (published version). There is no basis in the description of the operation of the control circuit for the assumption of

the Examining Division that the rod-side of the bucket cylinder is the lower pressure side.

It follows that there is no contradiction between claim 1 and the description. In particular, in the part describing the operation of the control circuit (starting in column 6, lines 21 ff of the application as filed (published version)) the bucket cylinder 5 is assumed to be operated so that its rod side is a return oil side, see paragraph [0034] of the application as filed (published version). In other words, the rod-side of the bucket cylinder 5 is the higher pressure side, whereas its head-side is the lower pressure side (for the boom cylinder 7 and the arm cylinder 12 it is the other way around). Paragraph [0038] of the application as filed (published version) confirms that if a bucket-pulling operation is performed, pressure oil is discharged from the rod-side oil chamber 5b, and that "*when the head-side oil chamber 5a becomes somewhat negative in pressure, pressure oil is fed to the bucket cylinder 5 through a replenishing passage 17b, whereby the occurrence of cavitations is prevented*" (cf the last five lines of paragraph [0038] of the published version of the application as filed).

Consequently, claim 1 of the sole request is clear and supported by the description, so that the requirements of Article 84 EPC are met.

2. *Allowability of the amendments, Article 123(2) EPC*

The Examining Division held (see points 21 and 22 of the reasons of the decision) that the last feature of claim 1 as filed, viz "*said replenishing passage*

providing a back pressure developed by said back pressure check valve to the lower pressure side of said each of the other hydraulic actuators" had been amended in such a way that it contained subject-matter extending beyond the content of the application as filed, since claim 1 of the then main request no longer required the feature that the replenishing passage provided a back pressure to the lower pressure side of the hydraulic motor.

Since the omitted feature has been included in claim 1 of the present sole request, this objection has been overcome by amendment.

In the judgment of the Board, claim 1 of the sole request meets therefore the requirements of Article 123(2) EPC.

3. Since the reasons for refusing the application no longer apply, the Board exercises the discretion given to it under Article 111(1) EPC and remits the case to the Examination Division for further prosecution.

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: The Chairman:

D. Meyfarth W. Zellhuber