

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference <b>G20160276</b>	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. <b>PCT/JP2016/089059</b>	International filing date ( <i>day/month/year</i> ) <b>28 December 2016 (28.12.2016)</b>	Priority date ( <i>day/month/year</i> )	
International Patent Classification (8th edition unless older edition indicated) <b>See relevant information in Form PCT/ISA/237</b>			
Applicant <b>KOMATSU LTD.</b>			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report <b>02 July 2019 (02.07.2019)</b>
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  <b>Mineko Mohri</b>
Facsimile No. +41 22 338 82 70	e-mail: pct.team8@wipo.int

**PATENT COOPERATION TREATY**

**TRANSLATION**

From the  
INTERNATIONAL SEARCHING AUTHORITY

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	<b>21.03.2017</b>
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Applicant's or agent's file reference <b>G20160276</b>
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<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/JP2016/089059</b>	International filing date (day/month/year) <b>28.12.2016</b>	Priority date (day/month/year)
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International Patent Classification (IPC) or both national classification and IPC <b>H04N7/18 (2006.01) i, B60R1/00 (2006.01) i, E02F9/26 (2006.01) i</b>
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Applicant <b>KOMATSU LTD.</b>
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1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

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INTERNATIONAL SEARCHING AUTHORITY

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
  - the international application in the language in which it was filed
  - a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
  - a.  forming part of the international application as filed:
    - in the form of an Annex C/ST.25 text file.
    - on paper or in the form of an image file.
  - b.  furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
  - c.  furnished subsequent to the international filing date for the purposes of international search only:
    - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
    - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>
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1. Statement			
Novelty (N)	Claims	2-4	YES
	Claims	1, 5	NO
Inventive step (IS)	Claims	4	YES
	Claims	1-3, 5	NO
Industrial applicability (IA)	Claims	1-5	YES
	Claims	_____	NO

2. Citations and explanations:	
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Document 1: WO 2015/125979 A1 (KOMATSU LTD.) 27 August 2015, paragraphs [0017]-[0064], fig. 1-10 & WO 2016/174953 A1

Document 2: JP 2012-074929 A (HITACHI CONSTRUCTION MACHINERY CO., LTD.) 12 April 2012, entire text & US 2013/0182066 A1, entire text & WO 2012/043522 A1 & EP 2624552 A1 & CN 103141090 A

(1) Claims 1, 5

The invention as in claims 1 and 5 lacks novelty and does not involve an inventive step in the light of document 1 cited in the ISR.

Document 1 discloses a hydraulic shovel 1 (paragraph [0017], fig. 1) provided with:

operation levers 11, 12 and traveling levers 13, 14 (paragraphs [0020], [0021], fig. 2);

a bird's-eye-view image generation unit 54 that generates a bird's eye view image 61 on the basis of

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**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

images obtained from cameras C1-C7 (paragraph [0026],  
fig. 3);

a periphery monitoring monitor 15 that displays, as  
a bird's eye view image and a single camera image, the  
peripheral condition of the hydraulic shovel 1 acquired  
by multiple cameras (paragraph [0022]); and

a display control unit 53 that controls to display,  
on the periphery monitoring monitor 15, a bird's eye view  
image outputted from an image compositing unit 55 as the  
bird's eye view image 61, and a camera image selected  
from among images taken by the cameras C1 to C7 as a  
single camera image 62 (paragraph [0029]), wherein

during an automatic image switching process of the  
periphery monitoring monitor 15, the display control unit  
53 determines whether or not an operation of actuating  
the hydraulic shovel 1 with use of the operation levers  
11, 12 and the traveling levers 13, 14, has been  
performed, and performs a process to enlarge the display  
region of the bird's eye view image 61 when determining  
that the operation has been performed while both the  
bird's eye view image 61 and the single camera image 62  
are displayed, and performs a bird's-eye-view-image  
display region enlargement process to display the bird's  
eye view image 61 from the state where the bird's eye  
view image 61 is not displayed when determining that the  
operation has been performed while only the single camera  
image 62 is displayed (paragraphs [0042]-[0051], fig.  
10).

Here, the "hydraulic shovel 1", the "operation  
levers 11, 12, and the traveling levers 13, 14", the  
"bird's-eye-view image generation unit 54", the

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

"periphery monitoring monitor 15", and the "display control unit 53" of the invention disclosed in document 1 correspond to the "working vehicle", the "operation devices", the "generation means", the "display unit", and the "controller" of the invention as in claim 1, respectively.

Therefore, the invention as in claim 1 is identical to the invention disclosed in document 1.

Moreover, the same applies to claim 5, which is identical to claim 1 except for the category thereof.

(2) Claims 2-3

The invention as in claims 2-3 does not involve an inventive step in the light of document 1 cited in the ISR.

The invention disclosed in document 1 has been discussed above. Further, document 1 indicates that the periphery monitoring monitor 15 can manually perform the bird's-eye-view-image display region enlargement process (paragraph [0038]). Document 1 also indicates that the display region enlargement process may be performed by performing machine gauge display, menu display, and failure information display, and the bird's eye view image is displayed upon the operation of the operation levers 11, 12 and the traveling levers 13, 14 when any one of the machine gauge display, the menu display, and the failure information display is displayed on the periphery monitoring monitor 15 (paragraphs [0052], [0053]).

Therefore, on the basis of the invention disclosed

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

in document 1, it is not considered to be particularly difficult to achieve the feature of "continuing the display of the bird's eye view image when detecting that the operation device is at the neutral position", and the feature in which "the display contents on the display unit can be manually switched between the bird's eye view image and vehicle body information about the working vehicle while the operation device is not being performed, and the controller prohibits manual switching of the display content while the operation device is being performed".

(3) Claim 4

The invention as in claim 4 is novel and involves an inventive step in relation to the documents cited in the ISR.

None of the documents cited in the ISR disclose or suggest the configuration of the invention as in claim 4 in which "the controller controls the operation of the working vehicle, and, when no bird's eye view image is displayed on the display unit, the controller permits actuation of the working vehicle after a predetermined time has elapsed from start of the display of the bird's eye view image on the display unit". A person skilled in the art could not easily conceive of this configuration in view of the common technical knowledge at the time of filing of the present application.