

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**
(PCT Rule 43*bis*.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2019/057316

International filing date (day/month/year)
22.03.2019

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC
INV. G05D1/02 G06Q10/06 G05D1/00

Applicant
VOLVO TRUCK CORPORATION

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 43*bis*.1(a)(i) with regard to novelty, inventive step and 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 usually 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 66.1*bis*(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:

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Date of completion of this opinion

see form PCT/ISA/210

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Box No. I Basis of the 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:

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

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	<u>1-26</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-26</u>
Industrial applicability (IA)	Yes: Claims	<u>1-26</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.1 Reference is made to the following document:

D1 WO 98/37468 A1 (KOMATSU MFG CO LTD [JP]; KAGEYAMA MASATO [JP] ET AL.) 27 August 1998 (1998-08-27)

1.2 Document D1 discloses the following features of claim 1 (except the stricken features):

A method for controlling vehicles in a mission along a route (see D1, fig. 7), characterised by:

- ~~- selecting at least two progress control value sets (u, tw), each value set comprising a respective value (u1, u2, u3, tw) of a progress control parameter for at least one of the vehicles, wherein each progress control parameter value influences the rate of progress of the respective vehicle,~~
- ~~- determining, for each of the selected progress control value sets, a respective distribution (SoB) of the vehicles, if the at least one of the vehicles is controlled based on the respective selected progress control value set (u, tw), so that each progress control value set is correlated to a respective distribution (SoB) of the vehicles,~~
- ~~- identifying, from the selected progress control value sets, based at least partly on the determinations of the distributions (SoB), a progress control value set (u, tw) for controlling the at least one of the vehicles, and~~
- controlling the at least one of the vehicles according to the identified progress control value set (u, tw) (see D1, fig. 1 and 2).

Claim 1 differs from the disclosure of D1 in the following features:

- selecting at least two progress control value sets (u, tw), each value set comprising a respective value (u1, u2, u3, tw) of a progress control parameter for at least one of the vehicles, wherein each progress control parameter value influences the rate of progress of the respective vehicle,
- determining, for each of the selected progress control value sets, a respective distribution (SoB) of the vehicles, if the at least one of the vehicles is controlled based on the respective selected progress control value set (u, tw), so that each progress control value set is correlated to a respective distribution (SoB) of the vehicles,
- identifying, from the selected progress control value sets, based at least partly on the determinations of the distributions (SoB), a progress control value set (u,

tw) for controlling the at least one of the vehicles, and
- in that the vehicles are controlled according to the identified progress control value set (u, tw).

According to the application, these features serve to reduce losses of productivity (see page 1, line 20) - i.e. to a non-technical purpose. Therefore, these features cannot contribute to inventive step. At most they may be considered in the formulation of the technical objective problem. The technical objective problem is thus construed as how to amend the method of controlling the vehicles according to D1 so that their productivity may be varied.

However, already D1 discloses that the remote control of the vehicles can control the speed of a vehicle (see D1, fig. 7B):
thus, no amendment is necessary. Thus, the control method disclosed in claim 1 could be easily applied by the skilled person for the purpose of amending their productivity.
Consequently, claim 1 does not involve an inventive step (Article 33(3) PCT).

- 1.3 The same argumentation also holds for the dependend claims 2 - 21 (Article 33(3) PCT).
A corresponding argumentation also holds for the independent claim 22 as well as the independent claims of other categories 23 - 26 (Article 33(3) PCT).

Re Item VII

Certain defects in the international application

- 2 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1 is not mentioned in the description, nor are these documents identified therein.

Re Item VIII

Certain observations on the international application

- 3 The application does not meet the requirements of Article 6 PCT, because the claims are not clear.
- 3.1 The invention claimed in all claims does not clearly define the vehicles (Article 6 PCT): do they have drivers or not ?

- 3.1.1 If the invention claimed refers to vehicles with drivers (see page 13, lines 2 - 4), then the invention would only amount to a method for performing mental acts, which as such would not be patentable - and for which no search is required (Rule 39 PCT).
- 3.1.2 If on the other hand, the invention claimed refers to vehicles without drivers (see page 12, line 34 - page 13, line 1), then it is noted that the object of the invention is to reduce losses of productivity of vehicles in a mission along a route (see page 2, lines 1 - 2) - which thus refers to a non-technical objective of a business method.
Thus, it appears that the only technical features are the "a method of controlling a plurality of vehicles, and controlling the vehicles".
All other features contribute to the purpose of a business method, i.e. to increase productivity, which features - in the frame of the inventive step analysis - are to be considered only in the formulation of the technical objective problem (see above, re item V).
- 3.2 The phrase "respective distribution" in claim 1 refers to a set of locations for vehicles.
In contrast thereto, a distribution (SoB) according to the description refers "to a state of balance SoB of the vehicles. The state of balance could be defined as the difference between the maximum gap between two successive vehicles and the minimum gap between two successive vehicles."
Thus, the phrase "distribution" amounts to an unclear parameter of the vehicles.
- 3.3 As to claims 3 and 4, they only define method steps depending on the fulfillment of an "if"-condition.
However, the claims leave open, what happens if the "if"-condition is not fulfilled: would then the same step be carried out or another step ?
- 3.4 As to claims 5 - 6, these claims do not have any meaning without a further definition of the speed value as a speed change value, which is however only defined in claims 7 and 8.
- 3.5 It is clear from the description of fig. 2 that features of claims 14 and 15 are essential to the definition of the invention (see step S1 in fig. 2).
Since independent claim 1 does not contain this feature it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

- 3.6 Claim 19 lacks clarity because the "function" is not defined: obviously not any function would achieve the purpose of the invention, i.e. to improve productivity.