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## Datasheet for the decision
## of 8 January 2010


**Case Number:**                T 0997/07 - 3.2.03

**Application Number:**         03001612.5

**Publication Number:**         1441077

**IPC:**                        E02F 9/20, E02F 9/26,
                                H04B 7/26, G07C 5/08

**Language of the proceedings**:    EN

**Title of invention:**
work machine management device

**Applicant:**
KOMATSU LTD.

**Opponent:**
-

**Headword:**
-

**Relevant legal provisions:**
EPC Art. 56

**Relevant legal provisions (EPC 1973):**
-

**Keyword:**
"Inventive step (yes) after amendment"

**Decisions cited:**
-

**Catchword:**
-

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**Case Number:** T 0997/07 **-** 3.2.03

# D E C I S I O N
## of the Technical Board of Appeal 3.2.03
## of 8 January 2010

| | |
|---|---|
| **Appellant:** | KOMATSU LTD.<br>3-6 Akasaka 2-chome<br>Minato-ku<br>Tokyo 107-8414   (JP) |
| **Representative:** | Selting, Günther<br>Patentanwälte<br>von Kreisler Selting Werner<br>Postfach 10 22 41<br>D-50462 Köln   (DE) |
| **Decision under appeal:** | **Decision of the Examining Division of the European Patent Office posted 25 January 2007 refusing European application No. 03001612.5 pursuant to Article 97(1) EPC.** |

**Composition of the Board:**

**Chairman:**   U. Krause
**Members:**    E. Frank
               K. Garnett

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## Summary of Facts and Submissions

I.     The appeal lies from the decision of the Examining Division of 25 January 2007, to refuse European Application No. 03 001 612.5 pursuant to Article 97(1) EPC 1973. The Examining Division held that the subject-matter of claim 1 as filed with the Applicant's letter of 10 November 2006 did not meet the requirements of inventive step.

II.    The Appellant (Applicant) filed a notice of Appeal on 20 March 2007, paying the appeal fee on the same day. The statement of grounds of appeal was submitted on 10 May 2007.

III.   A communication pursuant to Article 15(1) RPBA was issued together with a summons to attend oral proceedings, which were duly held on 8 January 2010.

IV.    The Appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the following application documents:
(a) Claims 1 to 3 as filed with letter of 8 December 2009;
(b) Description pages 1, 1a as filed during the oral proceedings, pages 4, 5, 12, 15, 123, 126, 128, 129 as filed with letter of 14 September 2005, and pages 13, 14, 16 to 122, 124, 125, 127 as originally filed;
(c) Figures 1 to 41 as originally filed and Figure 42 as filed with letter of 14 September 2005.

V.      The wording of independent claim 1 reads as follows
        (for the sake of convenience, its features were
        numbered (i) to (ix) by the Board):

(i) "1. A work machine labor managing device in which each of a
        plurality of work machines is operated by a plurality
        of drivers to perform a predetermined work and is
        connected by communication means (1) via a server
        terminal (21,22) to each of a plurality of terminal
        devices (11,12,) provided for managing the work
        machines such that information indicating the state of
        each of the work machines can be transmitted from each
        of the work machines via the server terminal to the
        terminal devices, and the terminal devices manage the
        work machines and the plurality of drivers on the basis
        of said information,

(ii)    wherein the labor managing device performs a labor
        management of the operation where each of the work
        machines is alternately operated by the plurality of
        drivers for a day,

        wherein each of the work machines comprises:

(iii)   operating time measuring means for measuring an amount
        of time the work machine has been operated;

(iv)    data input means for inputting, at an operating start
        time of the work machine, driver identification data
        for identifying a driver, and

(v)     automatic transmission means for automatically
        transmitting driver operating information to the server
        terminal at specific timing, the driver operating
        information comprising the driver identification data,

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the date and time when the driver identification data
is inputted, and the operating time measured by the
operating time measuring means,

(vi)    and work machine identification data for identifying
        the work machine, and wherein

(vii)   the server terminal comprises driver operating screen
        preparing means for preparing a driver operating screen
        on the basis of the driver operating information, the
        driver operating screen displaying an operating map
        showing an operating time period of each work machine
        in a day with each driver name in association with each
        operating time period;

(viii)  the driver operating screen is updated when latest
        driver operating information is transmitted from each
        work machine at the specific timing; and

(ix)    the terminal devices are connected to the server
        terminal by communication means and manage the
        plurality of drivers on the basis of driver operating
        screen information transmitted from the server terminal
        by accessing the server terminal."

VI.     The following evidence has been considered for purposes
        of the present decision:

        D1 = EP 1 170 714 A
        D2 = DE 197 44 419 A

VII.    The Appellant submitted essentially the following
        arguments:

        In the preceding examination procedure the Appellant
        decided that the present application should be
        prosecuted on the group of inventions that was
        represented by original claim 1, and limited the
        application accordingly. As regards the amendments of
        present claim 1 with respect to claim 1 as originally
        filed, the Appellant argued that the term "labor"
        managing was disclosed in paragraph [0555] of the
        original application. The present work machine labor
        managing device was to be used by a plurality of
        operators (drivers), wherein each of the work machines
        automatically transmitted information to a server
        terminal, cf. paragraph [0536] of the application as
        filed. The server terminal eventually prepared a driver
        operating screen, displaying a time period in which
        each work machine is alternately operated by a
        plurality of drivers on one day. This was derivable
        from Figure 42 as filed and the description relating
        thereto. The one part form of present claim 1 was
        chosen, because it was felt that the two-part form
        would disturb the order and interrelationships of
        features, and would lengthen claim 1 unnecessarily.

        As to inventive step, the Appellant submitted that D1
        described a "daily work report screen" shown in Figure
        40, which was prepared on a server terminal. However,
        only one work machine was displayed on the screen, and
        the "running map" of Figure 40 indicated that just one
        driver operated this machine throughout the day.
        Moreover, the driver's data were input at a position
        distanced from the work machine by a remote manager.

The subject-matter of present claim 1 hence differed from the managing device of D1 in that data acquisition of a plurality of drivers on each work machine per day and a screen, displaying an operation time period of each work machine in a day associated with the drivers' names, were foreseen, and in that the data input means for inputting a driver's data was located on each work machine. Starting from D1, a more flexible allocation of drivers and work machines, respectively, and thus a better occupancy rate of rental machines was provided by the present invention. In particular, the data input located on each work machine facilitated an easy change-over of drivers on the same machine during the day, thereby preventing input faults.

D2 concerned the problem of reducing the large amount of data acquired, since at the date of D2, storage capacities were far smaller. Therefore, the teaching of D2, which also described a data input means on a working machine, would not have been taken into account by the skilled person, since the problem of a more flexible allocation of drivers, to effectively use the rental period of a plurality of work machines, was not addressed by D2. And even if D2 was considered, no indication as to the use of different drivers on the same work machine was derivable from D2, such that the labor managing device of best prior art D1 would have been modified accordingly.

# Reasons for the Decision

1.      The appeal is admissible.

2.      *Amendments*
        *(Article 123(2) EPC)*

2.1     Claim 1 is in the first place based on the subject-
        matter of claim 1 as originally filed. Compared to
        claim 1 as filed, in feature (i) of claim 1 "each of a
        plurality" of work machines is operated by a "plurality
        of" drivers, wherein the work machines are connected to
        "each of a plurality of" terminal devices. This is
        derivable in particular from paragraphs [0041], [0045],
        [0526], [0545], [0546], and figures 1 and 42, as filed.
        The newly added term "labor" (managing device) is based
        on paragraphs [0509] and [0555] as filed. Moreover, it
        has been specified that, each work machine is connected
        to each terminal device via a "server" terminal.
        According to the original description, all the
        information is first sent to (i.e. transmitted to) the
        (host) server terminal 21, which acts as storage for
        the database, and in particular as web server ("HTTP
        server"). The (client) terminals 11,12 and so forth, on
        the other hand, are used to manage the work machine(s):
        cf. in particular paragraphs [0045] to [0048],
        paragraphs [0066] to [0073], paragraphs [0504] to [0519]
        and paragraphs [0526] to [0547]; figures 1, 40, and 42,
        as filed.

        As to newly added feature (ii) of claim 1, this is
        derivable from figure 42 as filed and the corresponding
        description, see in particular paragraphs [0528],
        [0542], and [0543]: on a single day, eg, "may 21, 2001",

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"car 001" is operated two times by driver "A" and one time by driver "B".

Moreover, features (iii) and (iv) of claim 1 are explicitly described in paragraphs three and two respectively of claim 1 as filed, and features (v) and (vi) of claim 1 are based on original claim 1 in that its first and last paragraphs state that, information (driver identification data, operating time, etc.), indicating a state of the work machine, "is" ("are") transmitted from the work machine to the terminal device, ie to the "server terminal 21". As to the nature of information and its transmission, which is done "automatically" by means of a "transmission means" at "specific timing", this is derivable from second last and last paragraphs of original claim 1 and in particular from paragraphs [0535] and [0536] of the specification as filed.

Furthermore, preparing, updating, and displaying of a "driver operating screen" are described by newly added features (vii) and (viii) of claim 1. According to the original specification, when the "operating map", "date", "operator ID", input time" and "vehicle ID" data is automatically transmitted from the construction machines and received from the (host) server terminal 21, a website screen, ie the "operator operating screen" as shown in figure 42, is updated (ie created) by means of the server's computing means, and the "operator (ie driver) operating screen" is eventually read from the server terminal 21 and displayed on the (client) terminals 11,12 and so forth: cf. in particular paragraphs [0536] to [0538] and figure 42 as filed. Although a "preparing" means for "preparing" a

driver operating screen is not explicitly described by the application as filed, in the view of the Board, updating (or creation) of a website display screen on the server terminal 21 as described in paragraphs [0504] to [0509] and [0536] to [0538] and shown in figures 40 and 42 (as filed), also implies the preparation of, ie the set up of, a website beforehand, and is thus considered to be disclosed in the original application.

Finally, feature (ix) of claim 1 describes the management of the plurality of drivers "on the basis of driver operating screen information" by means of the terminal devices, which is derivable from original claim 1, last paragraph, and the specification: see paragraphs [0509] and [0555], as filed.

To conclude, the subject-matter of claim 1 is based on claim 1 and in particular on the figure 42 embodiment, of the application as filed, and therefore complies with Article 123(2) EPC.

2.2     As regards newly filed claims 2 and 3, their basis can be found in the original specification: cf. paragraphs [0549] and [0550], respectively, as filed. Therefore claims 2 and 3 also fulfil the requirements of Article 123(2) EPC.

3.      *Clarity*
        *(Article 84 EPC)*

3.1     In the view of the Board, following from features (ii), (v) and (vi) of claim 1, the automatic transmission means transmits driver operating information data to the server terminal. This data comprises the work

machine identification data, the driver identification
data, the date and time when the driver identification
is inputted, and the operating time measured. As a
result, the captured data contains operating time
information in the form of operating time periods of
each work machine, according to which, during a single
day, each of the work machine is alternately operated
by the determined drivers.

The driver operating information data then is received
by the server terminal, and a web-site (the "driver
operating screen") is created by means of the server's
computing means, wherein, in a day, the operating time
periods of each work machine are shown, with each
driver name in association with each operating time
period: see feature (vii) of claim 1.

Therefore, the device as claimed in claim 1 is
considered to be sufficiently clearly defined in that a
suitably designed driver operating screen preparing
means according to feature (vii) of claim 1 is
implemented, to carry out labour management of the
operation where each of the work machines is
alternately operated by the plurality of drivers for a
day, as is required by feature (ii) of claim 1. With
respect to the one-part form of claim 1, the Board
agrees with the Appellant that the two-part form is
inappropriate in the present case, due to the complex
system of interrelated features described (Rule 43(1)
EPC).

The subject-matter of claim 1 thus complies with
Article 84 EPC.

3.2     The present application has been limited to one group
        of inventions represented by original claim 1, and thus
        complies with Article 82 EPC. The description has been
        adapted accordingly, Article 84 EPC. The description
        pages 1 and 1a have been further clarified in that a
        "labor managing device" is now defined by claim 1,
        Article 84 EPC. On page 1, the prior art documents D1
        and D2 have been cited, Rule 42(1)(b) EPC.

4.      *Novelty*
        *(Article 54 EPC)*

4.1     The system of document D1 comprises a plurality of
        mobile work machines "31,32, etc." and a plurality of
        terminals "11,12, etc.", which are connected by
        communication means (eg, the Internet "2" or a
        communication satellite "9") via a server terminal "21".
        Thus, information, indicating the state of the work
        machines can be transmitted from each work machine (eg
        "vehicle 31") to (each of) the terminal devices "11,12,
        etc.". In particular, the server terminal "21"
        functions as a web server ("HTTP server"), and a
        website is read from the server "21" on the terminals
        "31, 32, etc." (using a WWW browser as data display
        software on these terminals). The website data
        ("homepage, as a file described in HTML") is stored in
        the database of the server terminal "21": cf. D1;
        paragraphs [0001], [0002], [0069] to [0077], and
        figure 1.

        In the figure 40 embodiment of D1, the website is
        called a "Daily Work Report Screen", and a daily work
        report is thus prepared on the (host) server terminal
        "21" and eventually displayed on the (client) terminal

"11", in order to carry out labour management: cf. D1;
paragraphs [0537], [0542], [0543], and figure 40. As is
derivable from figure 40, each of the plurality of work
machines is operated by a plurality of drivers, each
driver on a different day: eg, the machine model
"PC2000" having the ID1 "K274", as shown in the table
on the left hand side of figure 40, is operated by the
drivers ("workers") "SATOH", "SUZUKI", and "KATOH", on
"2000/01/29", "2000/01/26", and "2000/01/24",
respectively.

Therefore, in the view of the Board, the system
described in D1 can be understood as a "work machine
labor managing device", according to feature (i) of
claim 1 of the present application.

4.2     Having further regard to D1's figure 40 embodiment, at
        23:00 each day an operation map, date, and operating
        time up to until 23:00 of that day are automatically
        transmitted by the (each of the) work machine(s)
        ("vehicle 31"), and the operation map, which is a chart,
        indicates the time periods during which a particular
        engine is operated. This is based on an "operating time
        measuring means" as required by feature (iii), (v) and
        (vi)  of claim 1, ie on the output of a calendar and
        timer provided in the "vehicle 31": cf. D1; paragraph
        [0538] and figure 40. When the automatic transmission
        is performed from the "vehicle 31" side, this
        information is received by the server terminal "21" and
        processing is thereby performed by the latter to update
        the "Daily Work Report Screen" according to this mobile
        unit information: cf. D1; paragraph [0539].

Moreover, at an operating start time of the working machine ("vehicle 31"), the data input for inputting the driver identification data (ie the name of the "worker") can be carried out by anybody (also by the driver) via any communication means (eg over the Internet) or via the web front-end displayed by the terminal's browser on the client side (terminal "11"). That is, the inputted data again is sent to server terminal "21" and the content of the "Daily Work Report Screen" again is updated (by means of the server's computing means) in accordance with the inputted data: cf. D1; paragraph [0541], in particular lines 34 to 37. In the Board's view therefore, a data input means, suitable for data input at an operation start time as described by feature (iv) of claim 1 of the application, is formed by either a communication means (eg by the keypad of a mobile phone) or a terminal (eg by its keyboard) on the client side. Document D1 does not disclose, however, that such a data input means is foreseen on each of the work machines, which is also required by feature (iv) of present claim 1. Furthermore, since any data file sent to a database of a storage server system is usually foreseen with a date and time of its saving, the server terminal "21" of D1 at least implicitly receives the date and time at which the driver identification data are inputted and sent by D1's aforesaid data input means. However, since the automatic transmission means actually resides at the remote data input means of D1, it is not comprised by the work machine as required by feature (v) of claim 1 of the application.

The features (iii),(vi),(viii) and (ix) of claim 1 of the present application are therefore considered to be

disclosed by D1, whereas features (iv) and (v) are only partly derivable from D1, as has been pointed out above.

4.3     The "Daily Work Report Screen" on server terminal "21" contains in particular the driver ("operator") of a work machine ("vehicle 31") for each day. The Board notes that D1 therefore describes preparing of a "driver operating screen", since the names of the drivers ("workers") are created by means of the server terminal "21". However, figure 40 and its corresponding description firstly only discloses preparing and displaying of a single work machine and its operating time periods ("running map"). Secondly, on a single day, each of the plurality of work machines is operated by only one driver ("Operator"): cf. D1; paragraph [0541], in particular at line 33: "... the "Operator" for each day...", and figure 40.

The provision of a suitably implemented driver operating screen, displaying an operating map showing a plurality of work machines as well as a plurality of drivers on each work machine in the course of a single day as set out in feature (vii) of claim 1, to perform labour management of the operation where each of the work machines is alternately operated by the drivers during a single day according to feature (ii), is therefore not derivable from D1.

4.4     Summing up, the Board concludes that the labor management device according to the subject-matter of claim 1 differs from the disclosure of document D1 in that:

(vii _part_) the server terminal prepares a driver operating screen displaying an operating map showing each (of the plurality of) work machine(s) in a day with each driver's name in association with each operating time period, wherein

(ii) the labour managing device performs a labour management of the operation where each of the work machines is alternately operated by the plurality of drivers for a day, and in that

(iv _part_)/(v _part_) each of the work machines comprises the data input means and the automatic transmission means for the driver identification data.

4.5     Document D2 describes a driver identification by means of a data input means (*"Identifikationssystem 11"*), which could be a *"Chip- oder Magnetkartenlesegerät"*, and is linked to the clock of a working machine (*"Echtzeituhr 3"*) in order to store these data in a computer system on-board (*"Bordcomputer 1"*, *"Speichermodul 2"*), thereby providing offline a temporary data storage: cf. D2; abstract; column 2, lines 46 to 52; column 3, lines 44 to 48; column 5, lines 2 to 22; figures 1 and 2.

In particular, however, no disclosure is derivable anywhere from D2 that a device performed online labour management, where each of a plurality of work machines was alternately operated by a plurality of drivers for a day, according to features (i), (ii), (v) and (vii) to (ix) of claim 1 of the application.

4.6     As regards the remaining prior art documents on file,
        the Board agrees with the Examining Division that these
        are not relevant with respect to the group of
        inventions of claim 1 as filed, and hence can also be
        disregarded for the assessment of novelty of present
        claim 1.

4.7     Therefore the novelty of claim 1 over D1 and D2 as well
        as over the remaining known prior art is acknowledged
        by the Board, and the subject-matter of claim 1 thus
        meets the requirements of Article 54 EPC.

5.      *Inventive step*
        *(Article 56 EPC)*

5.1     The document D1 forms the closest prior art for the
        assessment of inventive step, since an online work
        machine labour managing device as addressed by claim 1
        is described therein. As pointed out above with respect
        to novelty of claim 1 under point 4.4, the subject-
        matter of claim 1 differs from the disclosure of D1 by
        feature (vii $_{part}$) in context with feature (ii),
        according to which the labour managing device provides
        in particular a driver operating screen, wherein labour
        management of the operation where each of the work
        machines is alternately operated by the plurality of
        drivers for a day, is performed. Moreover, claim 1 also
        differs from D1 by feature (iv $_{part}$)/(v $_{part}$), which
        requires a driver's identification data input means and
        its automatic transmission means to be located on each
        of the work machines.

        In the light of D1, the problem to be solved by these
        features can be seen as the provision of a more

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effective utilization of the work machines, thereby
improving online labour management.

In the decision under appeal (point 16) a different
problem was derived, which in the view of the Board
already includes a pointer towards the solution. In
fact, the recognition that the effective utilisation of
the work machines is enhanced by taking care of
multiple operators on a single day, which goes beyond
the use of construction machines alternately by a
plurality of operators on successive days, as described
in [0003] of the application as filed, is part of the
solution.

5.2     Even if more than one driver is allocated to a single
work machine of D1 for reasons of effectiveness, ie to
the "vehicle 31" of the figure 40 embodiment, D1 would
not teach the skilled person to capture this data such
that, for a single day, a website, showing an operating
time period of this work machine alternately operated
by these drivers, is prepared on the (host) server
terminal "21" and eventually displayed (on the client
terminal "11") according to feature (vii $_{part}$) of
claim 1, to carry out a labour management operation
according to feature (ii). To the contrary, during each
day, in respect of each of these work machines, data
capturing of only one driver is suggested by D1: see
paragraph [0541], at line 33: "...the "Operator" for
each day..."; and figure 40.

Whether the mere implementation of a (split) screen
display according to feature (vii $_{part}$) of claim 1,
which shows a plurality of work machines instead of
only one in D1 (cf. figure 42 of the application in

contrast to figure 40 of D1), would be an obvious
design measure for the skilled person facing the above
stated problem, or not, may thus be left undecided.

5.3     Moreover, Document D2 merely concerns the temporary
        data storage of a work machine's and its driver's data,
        to cope with the large amount of data at the time. This
        mobile data (*"mobil gespeichert"*) is saved offline on-
        board the work machine, and is subsequently downloaded
        to stationary personal computers (*"stationäre PC's"*):
        cf. D2; column 5, lines 2 to 22; figures 1 and 2.

        The skilled person would thus not consider D2 in order
        to solve the problem stated above, since no online
        labour management of a work machine is addressed
        therein. The more so, since D1 explicitly describes
        that in the past construction machines, such as
        described by D2, were managed by storing data collected
        manually (ie offline) from the construction machines
        into the memory of a computer in the management
        section: cf. D1; paragraph [0003]. Starting from D1 and
        following its teaching to overcome the disadvantageous
        offline management such as known from D2, the skilled
        person would disregard an on-board driver's
        identification data input means in the form of, eg a
        *"Chip- oder Magnetkartenlesegerät"* as described by D2.
        That is, because D1 suggests that for a better work
        machine management, the data is firstly inputted at the
        terminal "11" on the client side of the work machine
        labor managing device, and then sent automatically (ie
        online) to the server terminal "21", thereby updating
        the server's website content (the "Daily Work Report
        Screen") accordingly: cf. D1; paragraph [0541],
        lines 36 and 37.

Finally, the Board agrees with the Appellant that also no hint as to the allocation of different drivers on the same work machine is derivable from D2.

5.4     Therefore the Board concludes that, starting from the online work machine labour managing device of D1, the skilled person, faced with the problem of how to provide a more effective utilization of the work machines, would not get any incentive whatsoever from the available prior art to implement a website of feature (vii $_{part}$), showing an operating time period of each of the work machines alternately operated by a plurality of drivers during a single day, to arrive thus at a device performing labour management according to feature (ii) of claim 1. Moreover, the skilled person would also not get any indication, in particular not from D2, to modify D1 such that the driver identification data will be input and automatically transmitted by a data input and transmission means located on each of the work machines as required by feature (iv $_{part}$)/(v $_{part}$) of claim 1.

Due to the improved driver operating screen information, and the easier input of the changing driver identifications on the work machine in the course of the day, drivers can be allocated more flexibly to a work machine, and the managing device provided by the claimed subject-matter thus enables the work machine to be utilized more effectively.

The subject-matter of claim 1 therefore complies with Article 56.

**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 on the basis of the following
        documents:

        (a) Claims 1 to 3 as filed with letter of
            8 December 2009;

        (b) Description pages 1, 1a as filed during the oral
            proceedings, pages 4, 5, 12, 15, 123, 126, 128, 129
            as filed with letter of 14 September 2005, and
            pages 13, 14, 16 to 122, 124, 125, 127 as
            originally filed;

        (c) Figures 1 to 41 as originally filed and Figure 42
            as filed with letter of 14 September 2005.


The Registrar                              The Chairman




A. Counillon                               U. Krause