Title: METHOD AND SYSTEM FOR SETTING A VEHICLE CONFIGURATION

Abstract: The present invention relates to a method for setting a vehicle configuration, comprising the steps of setting at a particular vehicle location parameter values which specify said vehicle configuration, and of saving the parameter values thus set, comprising the step of identifying the thus saved parameter values by a specification of said particular vehicle location. The present invention relates also to a system for setting a vehicle configuration. The present invention relates also to a motor vehicle. The present invention also relates to a computer programme and a computer programme product.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
METHOD AND SYSTEM FOR SETTING A
VEHICLE CONFIGURATION

TECHNICAL FIELD

The invention relates to a method for setting a vehicle configuration according to the preamble of claim 1. The invention relates to a system for setting a vehicle configuration according to the preamble of claim 7. The invention relates also to a motor vehicle. The invention also relates to a computer programme and a computer programme product.

BACKGROUND

Vehicles such as trucks often, e.g. when loading and unloading, require settings in the form of rear and/or front raising/lowering to cater for loading bay platforms, ground slope or the like. Such loading and unloading often take place repeatedly.

To facilitate such settings, certain vehicles are equipped with remote controls for controlling and setting the vehicle. In one variant the remote control is provided with memory functions in the form of a number of memory buttons representing different memory locations, making it possible for the buttons to be used to save and reuse different height settings of the vehicle.

There is a problem in that it may be difficult to remember what the respective memory relates to for height settings, and changes of driver exacerbate this problem in that another driver is presumably not acquainted with the settings made by previous drivers.

OBJECTS OF THE INVENTION

One object of the present invention is to propose a method for setting a vehicle configuration which facilitates vehicle settings by the driver, making it possible to achieve for example more efficient loading and unloading.
One object of the present invention is to propose a system for setting a vehicle configuration which facilitates vehicle settings by the driver, making it possible to achieve for example more efficient loading and unloading.

SUMMARY OF THE INVENTION

These and other objects indicated by the description set out below are achieved by a method and system for setting a vehicle configuration and by a vehicle, a computer programme and a computer programme product of the kinds indicated in the introduction which further present the features indicated in the characterising parts of the attached independent claims 1, 7, 13, 14 and 15. Preferred embodiments of the method and the system are defined in the attached dependent claims 2-6 and 8-12.

The invention achieves the objects with a method for setting a vehicle configuration, comprising the steps of setting at a particular vehicle location parameter values which specify said vehicle configuration, and of saving the parameter values thus set, comprising the step of identifying the thus saved set parameter values by a specification of said particular vehicle location. Setting said parameter values is thus facilitated in that they need only be set once for the specific location, with no subsequent need for the operator to remember which setting was made where - if settings have been made at the respective location the operator can activate them so that the vehicle is automatically set as appropriate for the respective location.

In one embodiment the method comprises the step, at a certain vehicle location, of activating settings of the vehicle configuration in accordance with saved set parameter values pertaining to said location. The vehicle's configuration is thus set automatically in accordance with parameter values saved for the respective location.

In one embodiment the method comprises the step of saving set parameter values and corresponding vehicle locations in a memory unit, thereby facilitating the saving of set parameter values.
In one embodiment of the method said memory unit is incorporated in the vehicle, making it possible for the operator to access the memory unit on board the vehicle in order to save settings.

In one embodiment of the method said memory unit is incorporated in a remote unit, making it possible for the operator to use the memory unit at a distance from the vehicle and to take the memory unit with him/her. In one variant the memory unit is integrated in a mobile telephone.

In one embodiment the method comprises the step of activating settings of the vehicle configuration in a memory unit, thus facilitating the activation of set parameter values. In one variant said parameter values are both saved and activated in the same memory unit. In one variant said parameter values are saved and activated by means of a push-button unit belonging to the memory unit. In one variant said parameter values are both saved and activated by means of the same push-button unit, and in one variant parameter values are saved by keeping the button pressed for a certain time and activation is by pressing the button for a shorter time than for said saving.

In one embodiment of the method said parameter values comprise level settings for the vehicle configuration, thus for example facilitating loading and unloading in cases where it is desirable to set the slope of the vehicle’s cargo plane substantially horizontally.

The invention achieves the objects with a system for setting a vehicle configuration, comprising means for setting at a particular vehicle location parameter values which specify said vehicle configuration, and means for saving the parameter values thus set, comprising means for identifying the thus saved set parameter values by a specification of said particular vehicle location. Setting said parameter values is thus facilitated in that they need only be set once for the specific location, with no subsequent need for the operator to remember which setting was made where - if settings have been
made at the respective location the operator can activate them so that the
vehicle is automatically set as appropriate for the respective location.

In one embodiment the system comprises means for, at a certain vehicle
location, activating settings of the vehicle configuration in accordance with
saved set parameter values pertaining to said location. The vehicle's
configuration is thus set automatically in accordance with parameter values
saved for the respective location.

In one embodiment the system comprises means for saving set parameter
values and corresponding vehicle locations in a memory unit, thereby
facilitating the saving of set parameter values.

In one embodiment of the system said memory unit is incorporated in the
vehicle, making it possible for the operator to access the memory unit on
board the vehicle in order to save settings.

In one embodiment of the system said memory unit is incorporated in a
remote unit, making it possible for the operator to use the memory unit at a
distance from the vehicle and to take the memory unit with him/her. In one
variant the memory unit is integrated in a mobile telephone.

The system comprises means for activating settings of the vehicle
configuration in a memory unit, thus facilitating the activation of set
parameter values. In one variant said parameter values are both saved and
activated in the same memory unit. In one variant said parameter values are
saved and activated by means of a push-button unit belonging to the memory
unit. In one variant said parameter values are both saved and activated by
means of the same push-button unit, and in one variant parameter values are
saved by keeping the button pressed for a certain time and activation is by
pressing the button for a shorter time than for said saving.

In one embodiment of the system said parameter values comprise level
settings for the vehicle configuration, thus for example facilitating loading and
unloading in cases where it is desirable to set the slope of the vehicle's cargo plane substantially horizontally.

DESCRIPTION OF DRAWINGS

The present invention will be better understood by reading the following detailed description in conjunction with the attached drawings, in which the same reference notations denote similar items throughout the various views,

Fig. 1 schematically illustrates a motor vehicle according to an embodiment of the present invention,

Fig. 2 schematically illustrates a system for setting a vehicle configuration according to an embodiment of the present invention,

Fig. 3 is a schematic block diagram of a method for setting a vehicle configuration according to an embodiment of the present invention, and

Fig. 4 schematically illustrates a computer according to an embodiment of the present invention.

DESCRIPTION OF EMBODIMENTS

The term "link" refers herein to a communication link which may be a physical connection, e.g. an opto-electronic communication line, or a non-physical connection such as a wireless connection, e.g. a radio link or microwave link.

Fig. 1 schematically illustrates a motor vehicle 1 according to an embodiment of the present invention. The vehicle exemplified is a heavy vehicle in the form of a utility vehicle such as a truck. The vehicle is provided with a system for setting a configuration of the vehicle according to the present invention.

Fig. 2 schematically illustrates a system I for setting a vehicle configuration according to an embodiment of the present invention.
The system I comprises an electronic control unit 100 to facilitate vehicle settings.

The system I further comprises vehicle setting determination means 110 for determination of respective settings of the vehicle's configuration, i.e. for determining which parameter values specifying said vehicle configuration are set.

In one variant said vehicle setting determination means 110 comprise level determination means 112 for determination of vehicle slope, i.e. which parameter values specifying front, rear and side height settings of the vehicle are operative, e.g. for the vehicle's cargo plane to be horizontal.

In one variant said height settings of the vehicle are effected by means of its air suspension system comprising air suspension means such as bellows for adjusting the vehicle's slopes to desired states, e.g. substantially horizontal states.

In one variant said vehicle setting determination means 110 comprise lighting determination means 114 for determination of vehicle lighting, i.e. parameter values specifying respective settings of the vehicle's lighting. An example of a location where good lighting may be required is a mine.

The system I further comprises vehicle setting means 120 for setting of parameter values which specify said configuration of the vehicle. Said vehicle setting means may comprise any suitable vehicle setting means provided with level regulating means for regulating the vehicle's front, rear and side height settings, and/or lighting means for setting the vehicle's lighting externally and internally. Said level regulating means take in one variant the form of said air suspension system.

The system I further comprises vehicle location determination means 130 in the form of a geographical location determination system, i.e. GPS, for identifying the vehicle's location.
The system further comprises vehicle setting storage means 140 for storage and reuse of vehicle settings, i.e. to save parameter values which specify said vehicle configuration, and to activate settings of the vehicle configuration in accordance with saved set parameter values pertaining to said vehicle location. Said vehicle setting storage means comprises in one variant a memory unit. In one variant it comprises a memory unit. Said memory unit takes in one variant the form of a separate memory unit which in one variant is incorporated in a remote unit. In one variant said memory unit is associated with the exterior or interior of the vehicle, which means that it is on board. In one variant the memory unit is integrated with said electronic control unit 100.

Said vehicle setting storage means 140 comprises operating means 142 for storage of respective vehicle settings. Said operating means comprise in one variant said memory unit. In one variant said operating means take the form of said memory unit. In one variant said operating means comprise a push-button unit. In one variant said operating means for storage of respective vehicle settings are on a separate remote unit which the operator can take with him/her. Said operating means for storage of respective vehicle settings are in one variant situated in the vehicle, in one variant close to the driving seat. In one variant said operating means for storage of respective vehicle settings are situated both on a remote unit and in the vehicle.

Said vehicle setting storage means 140 comprises operating means 142 for activation of stored vehicle settings. Said operating means comprise in one variant said memory unit. In one variant said operating means take the form of said memory unit. In one variant said operating means comprise a push-button unit. In one variant said operating means for activation of stored vehicle settings are on a separate remote unit which the operator can take with him/her. Said operating means for activation of vehicle settings are in one variant situated in the vehicle, in one variant close to the driving seat. In
one variant said operating means for activation of stored vehicle settings are situated both on a remote unit and in the vehicle.

Said operating means 142 for storage of respective vehicle settings and said operating means 142 for activation of vehicle settings take in one variant the form of the same operating means, in one variant the form of the same push-button unit. In one embodiment said storage of respective vehicle settings is arranged to be registered by the push-button unit being kept pressed for a predetermined time, and said activation of vehicle settings is arranged to be effected by the push-button unit being pressed for a period which is shorter than said predetermined time.

The electronic control unit 100 is signal-connected to said vehicle setting determination means 110 for determination of parameter values which specify said configuration of the vehicle, via a link 10 which enables it to receive from said vehicle setting determination means a signal which represents vehicle setting data with said parameter values.

The electronic control unit 100 is signal-connected to said vehicle setting means 120 for setting of parameter values which specify said vehicle configuration of the vehicle, via a link 20 which enables it to receive from said vehicle setting means a signal which represents vehicle setting data with said parameter values.

The electronic control unit 100 is signal-connected to said vehicle location determination means 130 via a link 30 which enables it to receive from said vehicle location determination means a signal which represents vehicle location data for geographical locations of the vehicle.

The electronic control unit 100 is signal-connected to said vehicle setting storage means 140 via a link 40a which enables it to send to said vehicle setting storage means a signal which represents vehicle location setting data for respective vehicle settings at respective vehicle locations.
The electronic control unit 100 is signal-connected to said vehicle setting storage means 140 for saving said parameter values which specify said vehicle configuration, via a link 40b which enables it to receive from said vehicle setting storage means a signal which represents storage data for storage of respective vehicle settings, i.e. saving the set parameter values.

The electronic control unit 100 is signal-connected to said vehicle setting storage means 140 for activation of settings of the vehicle configuration in accordance with saved set parameter values which pertain to said vehicle locations, via a link 40c which enables it to receive from said vehicle setting storage means a signal which represents activation data for said activation, i.e. activation of vehicle settings.

The electronic control unit 100 is adapted to processing said vehicle setting data from said vehicle setting determination means 110 and said location data from said vehicle location determination means 130 in order to determine said vehicle location setting data.

The electronic control unit 100 is adapted to processing said storage data from said vehicle setting determination means 110 and said vehicle location setting data and to storing said vehicle location setting data in said memory unit 140 or the like, making it possible for different vehicle location setting data for settings for different vehicle locations to be stored in said memory unit.

The electronic control unit 100 is adapted to processing said activation data and said location data and comparing with stored vehicle location setting data and, in cases where there are existing vehicle location setting data for respective vehicle locations, to sending a signal which represents vehicle setting data via the link to said vehicle setting means 120 for setting of vehicle parameters for the vehicle’s respective location.

It is thus made possible at a certain location to save the vehicle settings in a memory unit for the respective location, e.g. level settings of the vehicle,
which settings for the respective location are identified by a specification of the respective location, and it is possible for the settings pertaining to the respective location to be activated by means of the memory unit each time the vehicle is at said location. Different locations may be saved in the same memory unit, and if the vehicle is at a location for which vehicle settings have been saved these settings may be activated when the vehicle is at the location.

Fig. 3 is a schematic block diagram of a method for setting a vehicle configuration according to an embodiment of the present invention.

In one embodiment the method for setting a vehicle configuration comprises a first step S1 in which parameter values which specify said vehicle configuration are set at a particular vehicle location.

In one embodiment the method for setting a vehicle configuration comprises a second step S2 in which the parameter values thus set are saved.

In one embodiment the method for setting a vehicle configuration comprises a third step S3 in which the set parameter values thus saved are identified by a specification of said particular vehicle location.

Figure 4 is a diagram of a version of a device 500. The control unit 200 described with reference to Figure 2 may in one version comprise the device 500. The device 500 comprises a non-volatile memory 520, a data processing unit 510 and a read/write memory 550. The non-volatile memory 520 has a first memory element 530 in which a computer programme, e.g. an operating system, is stored for controlling the function of the device 500. The device 500 further comprises a bus controller, a serial communication port, I/O means, an A/D converter, a time and date input and transfer unit, an event counter and an interruption controller (not depicted). The non-volatile memory 520 has also a second memory element 540.
A proposed computer programme P comprises routines for setting a vehicle configuration according to the innovative method. The programme comprises routines for setting at a particular vehicle location parameter values which specify said vehicle configuration. The programme comprises routines for saving the parameter values thus set. The programme comprises routines for identifying the thus saved set parameter values by a specification of said particular vehicle location. The programme may be saved in an executable form or in compressed form in a memory 560 and/or in a read/write memory 550.

Where the data processing unit 510 is described as performing a certain function, it means that it conducts a certain part of the programme stored in the memory 560 or a certain part of the memory stored in the read/write memory 550.

The data processing device 510 can communicate with a data port 599 via a data bus 515. The non-volatile memory 520 is intended for communication with the data processing unit 510 via a data bus 512. The separate memory 560 is intended to communicate with the data processing unit via a data bus 511. The read/write memory 550 is arranged to communicate with the data processing unit via a data bus 514. The links for example associated with the control unit 100 may be connected to the data port 599.

When data are received on the data port 599, they are stored temporarily in the second memory element 540. When input data received have been temporarily stored, the data processing unit 510 will be prepared to conduct code execution as described above. The signals received on the data port may be used by the device 500 to set at a particular vehicle location parameter values which specify said vehicle configuration. The signals received on the data port may be used by the device 500 to save the parameter values thus set. The signals received on the data port may be used by the device 500 to identify the thus saved set parameter values by a specification of said particular vehicle location.
Parts of the methods herein described may be conducted by the device 500 by means of the data processing unit 510 which runs the programme stored in the memory 560 or the read/write memory 550. When the device 500 runs the programme, methods herein described are executed.

The above description of the preferred embodiments of the present invention is provided for illustrative and descriptive purposes. It is not intended to be exhaustive, nor to limit the invention to the variants described. Many modifications and variations will obviously suggest themselves to one skilled in the art. The embodiments have been chosen and described in order best to explain the principles of the invention and their practical applications and thereby make it possible for one skilled in the art to understand the invention for different embodiments and with the various modifications appropriate to the intended use.
CLAIMS

1. A method for setting a vehicle configuration, comprising the steps of setting at a particular vehicle location parameter values which specify said vehicle configuration, and of saving the parameter values thus set, characterised by the step of identifying the thus saved set parameter values by a specification of said particular vehicle location, which parameter values are saved and activated by the driver using a push-button unit, further comprising the step of activating settings of the vehicle configuration in a memory unit.

2. A method according to claim 1, comprising the step at a certain vehicle location of activating settings of the vehicle configuration in accordance with saved set parameter values which pertain to said location.

3. A method according to claim 1 or 2, comprising the step of saving set parameter values and corresponding vehicle locations in a memory unit.

4. A method according to claim 3, in which said memory unit is incorporated in a vehicle.

5. A method according to claim 3, in which said memory unit is incorporated in a remote unit.

6. A method according to any one of claims 1-5, in which said parameter values comprise level settings of the vehicle configuration.

7. A system for setting a vehicle configuration, comprising means for setting at a particular vehicle location parameter values which specify said vehicle configuration, and means for saving the parameter values thus set, characterised by means for identifying the thus saved set parameter values by a specification of said particular vehicle location, which parameter values are saved and activated by the driver using a push-button unit, further comprising the step of activating settings of the vehicle configuration in a memory unit.
8. A system according to claim 7, comprising means for, at a certain vehicle location, activating settings of the vehicle configuration in accordance with saved set parameter values which pertain to said vehicle location.

9. A system according to claim 7 or 8, comprising means for saving set parameter values and corresponding vehicle locations in a memory unit.

10. A system according to claim 9, in which said memory unit is incorporated in a vehicle.

11. A system according to claim 9, in which said memory unit is incorporated in a remote unit.

12. A system according to any one of claims 7-12, in which said parameter values comprise level settings of the vehicle configuration.

13. A vehicle provided with a system according to any one of claims 7-12.

14. A computer programme (P) for setting a vehicle configuration, which programme (P) comprises programme code which, when run by an electronic control unit (100) or another computer (500) connected to the electronic control unit (100), enables the electronic control unit (100) to perform steps according to claims 1-6.

15. A computer programme product comprising a digital storage medium which stores the computer programme according to claim 14.
START

SET PARAMETER VALUES WHICH SPECIFY SAID VEHICLE CONFIGURATION

SAVE THE PARAMETER VALUES THUS SET

= IDENTIFY THE THUS SAVED SET PARAMETER VALUES BY A SPECIFICATION OF SAID PARTICULAR VEHICLE LOCATION

END

Fig. 3
INTERNATIONAL SEARCH REPORT

PCT/SE2013/051077

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. MINIMUM DOCUMENTATION SEARCHED

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Further documents are listed in the continuation of Box C.

See patent family annex.

Date of the actual completion of the international search
21-01-2014

Date of mailing of the international search report
22-01-2014

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