

Description

The present invention relates in general to a control device for operating a test run of an air conditioner and, more particularly, to a control device for an air conditioner which can prevent erroneous operation during the starting and ending of a test run.

A conventional device and technique for starting and ending of a test run for an air conditioner is shown in Japanese Patent Publication No. 63-12,223/1988. This conventional device has a discriminating-comparing means for controlling the room temperature, a test run input means for receiving an input of data for forcibly running a compressor, an input device for receiving data for switching the states of operation, a controller for controlling the air conditioner in response to data from the above devices, and a control means for operating the air conditioner in response to a signal from this controller. The controller has a device for forcibly running the compressor in response to an input from the test running input means and a device for releasing the forced running of the compressor in response to an input from the test run means during the forced running or to an input from the input means. With this arrangement, the test run can be released by either the test run input means or the input device.

With the conventional device described above, however, when an ending operation of the test run is performed by the input device, the test run input means is still left set on the test run. Consequently, it is likely that a user will be uncertain and will make an unnecessary operation. When a room unit of the air conditioner is installed at a relatively high position in a room, it is quite difficult to operate the test run input means. Moreover, an erroneous test run may be a frequent result of an erroneous operation by the user, since the test run in the conventional device is easily started through the easy operation of the test run input means.

An object of the present invention is to provide an improvement in the control device for the air conditioner, which can prevent an erroneous operation in starting and/or ending of a test run.

Another object of the present invention is to provide an improved control device for operating a test run of an air conditioner, which is capable of suppressing forgotten ending and mistaken operation with respect to the test run.

The present invention provides a control device for operating a test run of an air conditioner, with a remote controller for transmitting operating data to the air conditioner, having a receiving circuit for receiving the operating data, switching means having at least two switching positions, a microprocessor for operating the air conditioner in response to the operating data received by the receiving circuit, and a power source for supplying electric power to the micropro-

cessor, whereby the microprocessor scans a position of the switching means and thereafter inputs the operating data from the receiving circuit while electric power is supplied to the microprocessor.

The microprocessor comprises:

first means for starting an operation of the air conditioner in response to the operating data when the switching means is in a first position,

second means for maintaining the operation of the air conditioner in a stopped state, not acting on the operating data, when the switching means is in a second position,

third means for starting the test run of the air conditioner when the switching means is first changed from the second position to the first position, after the switching means is placed in the second position thereof by an initial and effective scanning by the microprocessor and

fourth means for changing from the test run and carrying out the operation of the air conditioner in response to the operating data when the receiving circuit receives the operating data from the wireless remote controller during the test run of the air conditioner.

In addition, when the switching means is changed from the first position to the second position after scanning, the microprocessor can end the test run.

In the present invention, the control device can start the test run of the air conditioner through the operation of the switching means after electric power is supplied to the control device, and can end the test run when the operating data is received from the remote controller.

A specific embodiment of the invention is described below, by way of example, with reference to the accompanying drawings, of which:

Fig. 1 is a diagram illustrating an embodiment of an air conditioner according to the present invention, showing an indoor unit and an outdoor unit, Fig. 2 is an electric circuit diagram showing an example of an indoor controller in the indoor unit shown in Fig. 1,

Fig. 3 is an electric circuit diagram showing an example of an outdoor controller in the outdoor unit shown in Fig. 1, and

Fig. 4 is a flow-chart showing a main operation of a microprocessor shown in the electric circuit diagram in Fig. 2.

A preferred embodiment of the invention will be described with reference to a separate type-air conditioner having an indoor unit and an outdoor unit. For simplicity and clarity, explanation will be given for a cooling operation; the same effect can be obtained by the air conditioner for both heating and cooling operations.

In Fig. 1, a room unit 2 is secured on the wall at a high position adjacent to a ceiling of a room 1. An outdoor unit 3 provided outside the room is connected

to an indoor unit by refrigerant piping 4, 5 and a signal line. A drain hose 6 is used for discharging out of the room drainage from an indoor heat exchanger during the cooling operation. A remote controller 7 for outputting a wireless signal, which outputs the predetermined operating data by key operation. A switch 8 is selectively set in either a position "1" (first position) or a position "0" (second position). Air sucked from an air intake 9 is cooled in an internal heat exchanger and is supplied into the room through an air outlet 10. A flap 11 is adapted to change the blow-out direction of the conditioned air discharged from the air outlet 10.

For an air conditioner having the above arrangement, when an operation datum is output by a remote controller, this operation datum is input into a controller of the indoor unit 2 and the air conditioner is controlled in response to this.

Fig. 2 shows an indoor controller for an air conditioner, corresponding to the outdoor controller shown in Fig. 3. In Fig. 2, a microprocessor 12 discriminates whether the switch 8 is in the position "0" or the position "1" by scanning, receives an input of operating data transmitted from the remote controller 7 via a receiving circuit 13 and receives a further input of the room temperature detected by a temperature sensor 14 and of the temperature of the indoor heat exchanger detected by a temperature sensor 15, to thereby operate the air conditioner. In these temperature sensors 14, 15, the temperatures are transduced to voltage values corresponding to the detected temperatures by a temperature/voltage transducing circuit 22. This voltage is applied to analogue input terminals A0, A1 of the microprocessor 12. In the microprocessor 12, the voltage applied to the terminals A0, A1 is A/D converted to be stored in a storage section as the temperature values.

A driver circuit 16 amplifies the power of an output from the microprocessor 12 to drive a sounding body 17 (piezoelectric loudspeaker or the like) and relays 18 - 21.

The sounding body 17 emits a sound signal at the time of receiving an input of operating data transmitted from the remote controller 7, thus identifying the operation of the switch 8 and so forth.

Relay 18 has a change-over contactor 23, and relay 19 has change-over contactors 24, 25. Relay 20 has a contactor 26 and the relay 21 has a contactor 27, both contactors being normally open. Fig. 2 shows a state in which the relays 18-21 are not conducting, i.e. where the microprocessor 12 supplies no output. A single phase induction motor 28 for blowing air has four air speeds, air stop, breeze, medium and strong, according to the opening or closing of the normally open contactor 26 and the positions of the change-over contactors 24, 25. This air speed change-over results from changing the connection of an intermediate terminal of the winding of a stator of the motor. Reference numeral 29 designates an op-

erating capacitor and 30 a temperature relay for opening a contactor when the temperature of the motor is abnormally high. The motor 28 drives a cross flow fan for blowing out the conditioned air which is cooled by the indoor heat exchanger through the air outlet 10.

A motor 31 for the flap is operated by closing the normally open contactor 27. Driving of the motor makes it possible to drive the flap 11 provided in the air outlet 10 and changes the angle of the flap 11 and thus the discharging direction of the conditioned air. When this motor is operated continuously, the angle of the flap 11 is continuously changed so that the conditioned air can be diffused over the whole room to be air-conditioned.

A power source 32 regulates the DC power, rectified by a rectifying circuit 33, and supplies outputs of a DC voltage for driving the microprocessor 12, sounding body 17, relays 18 - 21 and so forth. The power source 32 supplies a power-ON signal to a terminal R of the microprocessor 12 to reset the microprocessor 12. The power-ON signal is output when the output voltage from the power source 32 exceeds 85 - 90 of the rated voltage (mainly, the rated voltage of the microprocessor 12).

A stepdown transformer 34 steps down the AC voltage from that given to a terminal of an AC power source to a predetermined voltage. A temperature fuse 35 melts to cut off the supply from the AC power source when the temperature of the stepdown transformer 34 exceeds a predetermined value.

Fig. 3 shows an outdoor controller provided in an outdoor unit, which is connected to a terminal D of the microprocessor 12 of the indoor controller shown in Fig. 2 through three signal lines and an interface I/F. In a terminal 40, terminals T1 - T3 are connected with single lines from the microprocessor 12, and terminals T are connected with single-phase AC power sources. An auxiliary relay 41 has normally open contactors 42, 43 and a normally closed contactor 44. Fig. 3 shows a state where no current is supplied to the relay 41. The normally open contactor 44 is closed, whereby current is passed through a crankcase heater 45. Next, when current is supplied to the relay 41 in response to a signal from the microprocessor 12 of the indoor controller, the normally closed contactor 44 is opened and the normally open contactors 42, 43 are closed. When the normally open contactors 42, 43 are closed, current is supplied to a compressor 46 and a single phase induction motor 47 for an outdoor blower.

The compressor 46 uses a single phase induction motor. Reference numeral 48 designates a capacitor for its operation, which is connected to a positive characteristic thermistor 49 having such characteristics that the resistance value is lowered on start of the compressor.

A thermal protector 50 opens a contactor when the temperature of the compressor 46 is abnormally high.

The motor 47 has speed adjusting terminals for two speeds H (high speed rotation) and L (low speed rotation), which can be automatically switched in accordance with the outdoor temperature detected by the thermal protector 50. When the outdoor temperature is high, the high speed rotation is employed and, when the outdoor temperature is low, the low speed rotation is employed. The motor 47 has a capacitor 51 for its operation and a thermal protector 52 for opening a contactor when the temperature of the motor is abnormally high. A pressure switch 53 opens a normally closed contactor when the refrigerant discharge pressure of the compressor 46 is abnormally high. The microprocessor 12 of the indoor controller detects opening or closing of the switch 53 from changes in voltage of the terminals T1 and T2 to bring the air conditioner to a stop. When the contactor of the pressure switch 53 is closed, the air conditioner starts the normal operation again.

Fig. 4 is a diagram showing the main operations as described below of the microprocessor 12 shown in Fig. 2. First of all, when the power-ON signal (a reset signal to the terminal R of the microprocessor 12 shown in Fig. 2) is given in the step S1, and then operations according to the following steps are carried out. In step S2, initializing is performed. Data such as the operating data are initialized. Next, a flag F is set to F=1 in the step S3. Subsequently, key scanning is performed in the step S4 and the result, that is, the position of the switch 8, determines whether "O" or "1" is stored in the storage section. Subsequently, the flow shifts to the step S5 and the step S6, and, depending on whether the result of scanning in the step S4 is "O" or "1", the flow shifts to the step S7 or the step S11. In the steps S7, it is discriminated whether the switch S8 is in 1 - O or not (there are three types of positions, 1 - 0, 0 - 0 and no previous time - 0). "No previous time - 0" means a position which occurs when the microprocessor 12 performs the key scanning for the first time after it is reset. When 1 - 0 is discriminated in the step S7, the flow shifts to the step S8 where it is discriminated whether the flag F is set to F=1 or not. When F=1, the flag F is set F=0 after the ending of the test run in the step S9, and thereafter, the flow shifts to the step S10 to hold the air conditioner in the forced stop. Consequently, by passing through the steps S7 - S9, the microprocessor 12 performs the first effective scanning after the reset. As a result, when the switch 8 is set to the position "O", set to O - O (the switch is left unchanged from "O"), or if the switch 8 is set to 1 - 0 and F=0, then the operation of the air conditioner is maintained in the stopped state; if the switch 8 is set to 1 - O and F=1, then the currently continuing test run is stopped, the flag is set to F=0, and thereafter, the air conditioner is held in the stopped state in operation.

When the switch 8 is set to the position "1" in the step S6, subsequently, in the step S11, it is discriminated whether this position has changed to O - 1 or not. (There are three types of positions, O - 1, 1 - 1 and no previous time - 0). The position "no previous time - 1" means a position which takes place when the microprocessor 12 performs the key scanning in the first place after it is reset. When O - 1 is discriminated in the step S11, the operating data is initialized in the step S12, and thereafter, it is further discriminated in the step S13 whether F=1, and if so, the test run is started in the step S14. The test run is an operation during which the compressor is driven, i.e. the operation of a refrigerating cycle is forcibly performed regardless of the temperature in the room to be air-conditioned or set temperature, so that the identification of the operation can be easily performed when the air conditioner is installed. When F=1 is not found in step S13, the flow shifts to the step S15. In this step, it is discriminated whether an input of operation data is received from the remote controller 7 or not. When the input of the operation data is received in the step S15, the flow shifts to the steps S16 - S18. In these steps, the run is performed, F=0 is set to end the test run and the operating data stored in the storage section are changed in response to the input of the operating data thus received. Thereafter, the flow shifts to the step S19 and the air conditioner is operated in response to the operating data stored in the storage section. Thus by carrying out these steps S11 - S19, if the switch 8 is set to O - 1, and F=1, the test run is performed, if F=0, the air conditioner is operated in response to the initialized operation data. When an input of the operating data (signals obtained by the operation of the remote controller, e.g. operation/stop of the air conditioner, a room temperature set value, an air speed set value and so forth) is received, the operating data stored in the storage section is replaced by this new operating data, and if at this time the air conditioner is in the test run, then this test run is ended and flag F is set to F=0. Thereafter, operation in response to this operating data is carried out.

When the operation shown in the diagram of Fig. 4 is started from the state with the switch 8 in position "1", it is assumed that AC power source has been restored after a current stoppage. The initialized value of the operating data (set in the step S2) may then be set to the stop-state of the operation of the air conditioner, that is, waiting for operation data from the remote controller. At this time, the initializing of the operating data in the step S12 is set to "operation being started".

According to a control device for the air conditioner having the above arrangement, first of all, when AC power source is supplied to the air conditioner with switch 8 at position "1" on installation, if the DC output of the power source 32 shown in Fig. 2 exceeds a predetermined voltage, then a reset signal is supplied to the terminal R of the microprocessor 12, whereby the operation shown in the diagram of Fig. 4 is started.

This is the state in which the air conditioner is stopped, that is, the state of waiting for operation data. Consequently, when the remote controller 7 is operated, operation of the air conditioner is started. If the remote controller 7 is lost or unavailable for some reason with the air conditioner in the stopped state, then switch 8 is operated to proceed in the sequence 1 - O - 1, so that the air conditioner is stopped once, and subsequently, the operation is automatically started. The operating data at this time is the operating data initialized in the step S12 as shown in Fig. 4.

If AC power is supplied to the air conditioner when switch 8 is at position "0", the operation of the microprocessor 12 is started arrangement, no display of "test run" is needed, and troubles caused by the presence of this display and the start of the test run by erroneous operation can be avoided.

As described above, in the control device for an air conditioner, the microprocessor starts the scanning of the switch position and receives from the receiving circuit when electric power is supplied by the power source. The microprocessor then carries out the operation of the air conditioner in response to the operating data when the switch is in the first position after the first effective scanning, and maintains the operation of the air conditioner in the forcibly stopped state when the switch is in the second position. The microprocessor carries out a test run during which the air conditioner is forcibly and continuously operated when the microprocessor has discriminated that the switch has been changed from the second position to the first position, and it ends the test run and starts the air conditioner operation in response to the input of the operating data received from the receiving circuit. Thus, the test run is performed when the switch is switched to the first position from the second position while power is supplied to the air conditioner.

This first position is the position to be set during the normal operation of the air conditioner, whereby, for the user of the air conditioner, it is not easily discriminated that the air conditioner is in the state of the test run because it is not specially displayed, and the user interprets it as the normal operation. The starting and identifying of the test run, which can be easily performed by installment personnel and the person in charge of service and inspection of the air conditioner, is thus not available to general users. Thus the user will not perform a test run by mistake. In no case will the display of the test run be left unchanged and therefore the feeling of unusualness to the display can be avoided.

Furthermore, even when the servicing and installment personnel have forgotten the ending operation of the test run, the user can automatically end the test run by operating the remote controller to perform normal operation, since the test run can be ended by the input of the operating data. Accordingly, damage to the air conditioner caused by forgetting

the ending of the test run can be avoided. In this case, the display of the switch is in the state of the normal operation, so that the user does not have the feeling of unusualness and no mistaken operation is performed.

Furthermore, even when the microprocessor discriminates from the result of scanning that the position of the switch is changed from the first position to the second position, the air conditioner can be stopped, after identifying the operation at the time of installation of the air conditioner, by ending the test run. In this case, the test run can be ended without using the remote controller, so that loss of the remote controller under and due to the complexity at the time of installation working of the air conditioner can be prevented.

Claims

1. A control device for operating a test run of an air conditioner, with a remote controller for transmitting operating data to said air conditioner, having:
 - a receiving circuit for receiving the operating data,
 - switching means having at least two switching positions,
 - a microprocessor for operating said air conditioner in response to the operating data received by said receiving circuit,
 - a power source for supplying electric power to said microprocessor,
 - whereby said microprocessor scans a position of said switching means and thereafter inputs operating data from said receiving circuit while electric power is supplied to said microprocessor,
 - wherein said microprocessor comprises:
 - first means for starting an operation of said air conditioner in response to the operating data when said switching means is in a first position,
 - second means for maintaining the operation of said air conditioner in a stopped state, not acting on the operating data, when said switching means is in a second position,
 - third means for starting the test run of the air conditioner when said switching means is changed first from the second position to the first position after said switching means is placed in the second position thereof, by an initial and effective scanning by the microprocessor, and
 - fourth means for changing from the test run and carrying out the operation of said air conditioner in response to the operating data when said receiving circuit receives the operating data from said remote controller during the test run of said air conditioner.

This is the state in which the air conditioner is stopped, that is, the state of waiting for operation data. Consequently, when the remote controller 7 is operated, operation of the air conditioner is started. If the remote controller 7 is lost or unavailable for some reason with the air conditioner in the stopped state, then switch 8 is operated to proceed in the sequence 1 - O - 1, so that the air conditioner is stopped once, and subsequently, the operation is automatically started. The operating data at this time is the operating data initialized in the step S12 as shown in Fig. 4.

If AC power is supplied to the air conditioner when switch 8 is at position "O", the operation of the microprocessor 12 is started arrangement, no display of "test run" is needed, and troubles caused by the presence of this display and the start of the test run by erroneous operation can be avoided.

As described above, in the control device for an air conditioner, the microprocessor starts the scanning of the switch position and receives from the receiving circuit when electric power is supplied by the power source. The microprocessor then carries out the operation of the air conditioner in response to the operating data when the switch is in the first position after the first effective scanning, and maintains the operation of the air conditioner in the forcibly stopped state when the switch is in the second position. The microprocessor carries out a test run during which the air conditioner is forcibly and continuously operated when the microprocessor has discriminated that the switch has been changed from the second position to the first position, and it ends the test run and starts the air conditioner operation in response to the input of the operating data received from the receiving circuit. Thus, the test run is performed when the switch is switched to the first position from the second position while power is supplied to the air conditioner.

This first position is the position to be set during the normal operation of the air conditioner, whereby, for the user of the air conditioner, it is not easily discriminated that the air conditioner is in the state of the test run because it is not specially displayed, and the user interprets it as the normal operation. The starting and identifying of the test run, which can be easily performed by installment personnel and the person in charge of service and inspection of the air conditioner, is thus not available to general users. Thus the user will not perform a test run by mistake. In no case will the display of the test run be left unchanged and therefore the feeling of unusualness to the display can be avoided.

Furthermore, even when the servicing and installment personnel have forgotten the ending operation of the test run, the user can automatically end the test run by operating the remote controller to perform normal operation, since the test run can be ended by the input of the operating data. Accordingly, damage to the air conditioner caused by forgetting

the ending of the test run can be avoided. In this case, the display of the switch is in the state of the normal operation, so that the user does not have the feeling of unusualness and no mistaken operation is performed.

Furthermore, even when the microprocessor discriminates from the result of scanning that the position of the switch is changed from the first position to the second position, the air conditioner can be stopped, after identifying the operation at the time of installation of the air conditioner, by ending the test run. In this case, the test run can be ended without using the remote controller, so that loss of the remote controller under and due to the complexity at the time of installation working of the air conditioner can be prevented.

Claims

1. A control device for operating a test run of an air conditioner, with a remote controller for transmitting operating data to said air conditioner, having:
 - a receiving circuit for receiving the operating data,
 - switching means having at least two switching positions,
 - a microprocessor for operating said air conditioner in response to the operating data received by said receiving circuit,
 - a power source for supplying electric power to said microprocessor,
 - whereby said microprocessor scans a position of said switching means and thereafter inputs operating data from said receiving circuit while electric power is supplied to said microprocessor,
 - wherein said microprocessor comprises:
 - first means for starting an operation of said air conditioner in response to the operating data when said switching means is in a first position,
 - second means for maintaining the operation of said air conditioner in a stopped state, not acting on the operating data, when said switching means is in a second position,
 - third means for starting the test run of the air conditioner when said switching means is changed first from the second position to the first position after said switching means is placed in the second position thereof, by an initial and effective scanning by the microprocessor, and
 - fourth means for changing from the test run and carrying out the operation of said air conditioner in response to the operating data when said receiving circuit receives the operating data from said remote controller during the test run of said air conditioner.



2. A control device according to claim 1, wherein said microprocessor comprises fifth means for changing the operation of said air conditioner from the test run to the stopped state and maintaining said operation in said stopped state when said switching means is changed from the first position to the second position during the test run of said air conditioner.

Patentansprüche

1. Steuergerät zum Betreiben eines Testlaufs bei einem Klimagerät, mit einem ortsfernen Steuergerät zum Senden von Betriebsdaten an das Klimagerät mit:
 - einer Empfangsschaltung zum Empfangen der Betriebsdaten,
 - Schaltmitteln mit mindestens zwei Schaltpositionen,
 - einem Mikroprozessor zum Betreiben des Klimageräts als Reaktion auf die von der Empfangsschaltung empfangenen Betriebsdaten,
 - einer Leistungsquelle zur Lieferung von elektrischer Leistung an den Mikroprozessor,
 - wobei der Mikroprozessor eine Position der Schaltmittel abtastet und danach Betriebsdaten von der Empfangsschaltung eingibt, während elektrische Leistung an den Mikroprozessor geliefert wird,
 - wobei der Mikroprozessor enthält:
 - erste Mittel zum Starten eines Betriebs des Klimageräts in Antwort auf die Betriebsdaten, wenn die Schaltmittel in der ersten Position sind,
 - zweite Mittel zum Beibehalten des Betriebs des Klimageräts in einem angehaltenen Zustand, dabei nicht auf die Betriebsdaten reagierend, wenn die Schaltmittel in einer zweiten Position sind,
 - dritte Mittel zum Starten des Testlaufs des Klimageräts, wenn die Schaltmittel zuerst von der zweiten Position in die erste Position umgeschaltet werden, nachdem die Schaltmittel in ihre zweite Position gesetzt wurden, durch ein anfängliches und wirksames Abtasten durch den Mikroprozessor, und
 - vierte Mittel zum Umschalten aus dem Testlauf und zum Durchführen des Betriebs des Klimageräts in Antwort auf die Betriebsdaten, wenn die Empfangsschaltung die Betriebsdaten von dem ortsfernen Steuergerät während des Testlaufs des Klimageräts empfängt.
2. Steuergerät nach Anspruch 1, bei dem der Mikroprozessor fünfte Mittel zum Ändern des Betriebs des Klimageräts aus dem Testlauf in den angehaltenen Zustand und zum Beibehalten des Betriebs in dem angehaltenen Zustand aufweist, wenn die Schaltmittel von der ersten Position in

die zweite Position während des Testlaufs des Klimageräts umgeändert werden.

Revendications

1. Dispositif de commande pour effectuer un test de fonctionnement d'une installation de climatisation, comportant un dispositif de commande à distance pour la transmission de données de fonctionnement à ladite installation de climatisation, comportant :
 - un circuit de réception servant à recevoir les données de fonctionnement,
 - des moyens de commutation possédant au moins deux positions de commutation,
 - un microprocesseur destiné à faire fonctionner ladite installation à climatisation en réponse aux données de fonctionnement reçues par ledit circuit de réception,
 - une source d'énergie pour appliquer une énergie électrique audit microprocesseur,
 - ledit microprocesseur explorant une position desdits moyens de commutation, puis introduisant des données de fonctionnement provenant dudit circuit de réception alors qu'une énergie électrique est envoyée audit microprocesseur,
 - et dans lequel ledit microprocesseur comprend :
 - des premiers moyens pour faire démarrer le fonctionnement de ladite installation de climatisation en réponse aux données de fonctionnement lorsque lesdits moyens de commutation sont dans une première position,
 - des seconds moyens pour maintenir le fonctionnement de ladite installation de climatisation dans un état arrêté, sans aucune action sur les données de fonctionnement, lorsque lesdits moyens de commutation sont dans une seconde position,
 - des troisièmes moyens pour faire démarrer le test de fonctionnement de l'installation de climatisation lorsque lesdits moyens de commutation sont commutés tout d'abord de la seconde position vers la première position après que lesdits moyens de commutation aient été placés dans leur seconde position, sur la base d'une exploration initiale et effective exécutée par le microprocesseur, et
 - des quatrièmes moyens pour sortir du test de fonctionnement et faire fonctionner ladite installation de climatisation en réponse aux données de fonctionnement lorsque ledit circuit de réception reçoit les données de fonctionnement provenant dudit dispositif de commande à distance pendant le test de fonctionnement de ladite installation de climatisation.



2. Dispositif de commande selon la revendication 1, dans lequel ledit microprocesseur comprend des cinquièmes moyens pour commuter le fonctionnement de ladite installation de climatisation du test de fonctionnement à l'état arrêté et maintenir ledit fonctionnement dans ledit état arrêté lorsque lesdits moyens de commutation sont commutés de la première position dans la seconde position pendant le test de fonctionnement de ladite installation de climatisation.

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