

DUSTER

6 Air conditioning

61A HEATING

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V1

Edition Anglaise

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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1. SCOPE OF THIS DOCUMENT

This document presents the fault finding procedure applicable to the heating function with the following specifications:

Vehicle(s): **DUSTER**

Function concerned: **Heating**

2. PREREQUISITES FOR FAULT FINDING

Documentation type

Fault finding procedures (this document):

- Assisted fault finding (integrated into the CLIP diagnostic tool),

Wiring Diagrams:

- Visu-Schéma (CD-ROM), paper.

Special tooling required

Special tooling required
Multimeter and current clamp

3. REMINDERS

This heating system does not have a computer and therefore fault finding cannot be carried out on the system using the **diagnostic tool**.

In this section, the fault finding procedure is dealt with by **Customer complaints - Fault finding charts**.

4. FAULT FINDING PROCEDURE

Wiring check

Note:

Carry out each requested check visually. Do not remove a connector if it is not required.

Note:

Repeated connections and disconnections alter the functionality of the connectors and increase the risk of poor electrical contact. Limit the number of connections/disconnections as much as possible.

Note:

The check is carried out on the 2 parts of the connection. There may be two types of connection:

- Connector / Connector
- Connector / Device

Fault finding problems

Disconnecting the connectors and/or manipulating the wiring may temporarily clear the cause of a fault. Electrical measurements of voltage, resistance and insulation are generally correct, especially if the fault is not present when the analysis is made (stored fault).

Visual inspection of the connection:

- Check that the connector is connected correctly and that the male and female parts of the connection are correctly coupled.

Visual inspection of the area around the connection:

- Check the condition of the mounting (pin, strap, adhesive tape, etc.) if the connectors are attached to the vehicle.
- Check that there is no damage to the wiring trim (sheath, foam, adhesive tape, etc.) near the wiring.
- Check that there is no damage to the electrical wires at the connector outputs, in particular on the insulating material (wear, cuts, burns, etc.).

Disconnect the connector to continue the checks.

Visual inspection of the plastic casing:

- Check that there is no mechanical damage (casing crushed, cracked, broken, etc.), in particular to the fragile components (lever, lock, openings, etc.).
- Check that there is no heat damage (casing melted, darker, deformed, etc.).
- Check that there are no stains (grease, mud, liquid, etc.).

Visual inspection of the metal contacts:

(The female contact is called CLIP. The male contact is called TAB).

- Check that there are no bent contacts (the contact is not inserted correctly and can come out of the back of the connector). The spring contact of the connector when the wire is gently pulled.
- Check that there is no damage (folded tabs, clips open too wide, blackened or melted contact, etc.).
- Check that there is no oxidation on the metal contacts.

Visual inspection of the sealing:

(Only for watertight connectors)

- Check for the seal on the connection (between the 2 parts of the connection).
- Check the seal at the back of the connectors:
 - For *unit* joints (1 for each wire), check that the unit joints are present on each electrical wire and that they are correctly positioned in the opening (level with the housing). Check that plugs are present on openings which are not used.
 - For a *grommet* seal (one seal which covers the entire internal surface of the connector), check that the seal is present.
 - For *gel* seals, check for gel in all of the openings without removing the excess or any protruding sections (it does not matter if there is gel on the contacts).
 - For *hotmelt* sealing (heat-shrink sheath with glue), check that the sheath has contracted correctly on the rear of the connectors and electrical wires, and that the hardened glue comes out of the side of the wire.
- Check that there is no damage to any of the seals (cuts, burns, significant deformation, etc.).

If a fault is detected, repair or replace the wiring (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**)

5. FAULT FINDING LOG



IMPORTANT!

IMPORTANT

All faults involving a complex system call for thorough diagnostics with the appropriate tools. The FAULT FINDING LOG, which should be completed during the fault finding procedure, ensures a record is kept of the procedure carried out. It is an essential document when consulting the manufacturer.

IT IS THEREFORE ESSENTIAL THAT THE FAULT FINDING LOG IS FILLED OUT EVERY TIME IT IS REQUESTED BY TECHLINE OR THE WARRANTY RETURNS DEPARTMENT

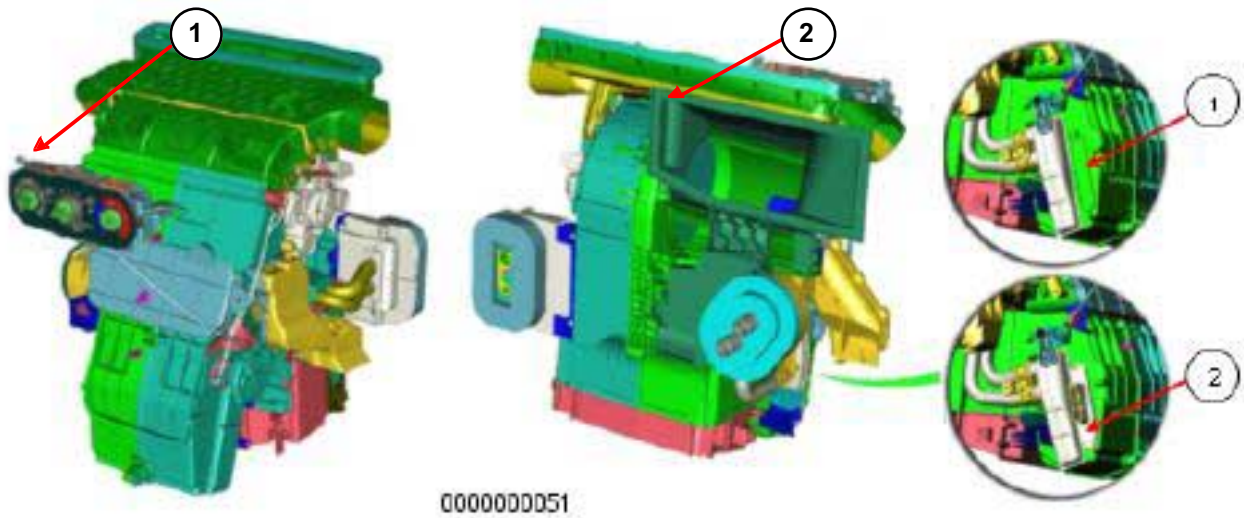
You will always be asked for this log:

- when requesting technical assistance from the Techline,
- when requesting approval before replacing parts for which approval is compulsory,
- to be attached to monitored parts for which reimbursement is requested. The log is needed for warranty reimbursement, and enables better analysis of the parts removed.

6. SAFETY INSTRUCTIONS

Safety rules must be observed during any work on a component to prevent any material damage or personal injury:

- check the battery voltage to avoid incorrect operation of computer functions,
- do not smoke,
- use the proper tools.



1. Without Passenger Compartment Heating Resistors
2. With Passenger Compartment Heating Resistors

Passenger compartment fan unit

• HEATING COMPONENTS

- **Heater matrix:** This is located at the bottom of the heating and air conditioning unit.
- **Passenger compartment heating resistors:** These are located at the bottom of the heater matrix on the driver's side (depending on the equipment).

• ACTUATORS:

- **Air distribution flap:** This is located in the heating and air conditioning unit.
- **Mixing flap:** This is located in the heating and air conditioning unit.
- **Recirculation flap:** This is located behind the dashboard.

• OTHERS

- **Passenger compartment fan assembly:** This is located in the heating and air conditioning unit.
- **Air pipes:** These are located underneath the dashboard.

• HEATING COMPONENTS

– Heater matrix:

The external air entering the heating and air conditioning device (**HVAC**) is heated by the **heater matrix**.

– Passenger Compartment Heating Resistors (**depending on version**):

The passenger compartment heating resistors are an electric heating system located in the passenger compartment ventilation heating unit. This system acts as an additional heater which operates when the engine is cold (when starting).

Passenger Compartment Heating Resistors (RCH)

• ACTUATORS

– Air distribution flap:

This flap enables the air flowing into the passenger compartment to be directed.

– Air mixing flap:

This flap enables the temperature requirements of the occupants to be met.

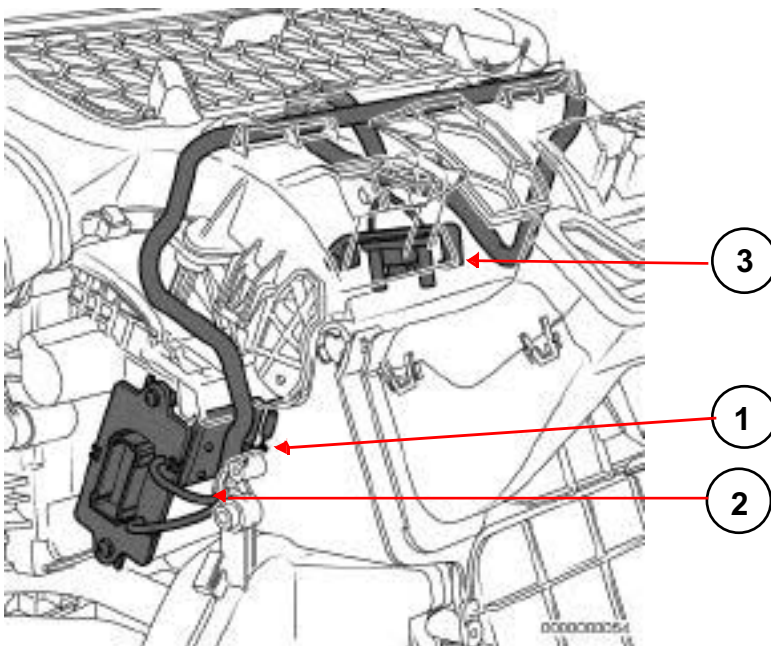
– Recirculation flap:

This flap prevents the entry of exterior air. In this case, the passenger compartment is isolated from the exterior and air is blown in the passenger compartment in a closed circuit.

• OTHERS

– Passenger compartment blower unit:

The passenger compartment blower unit is controlled by the MVPR (Resistive Blower Dimmer Module).



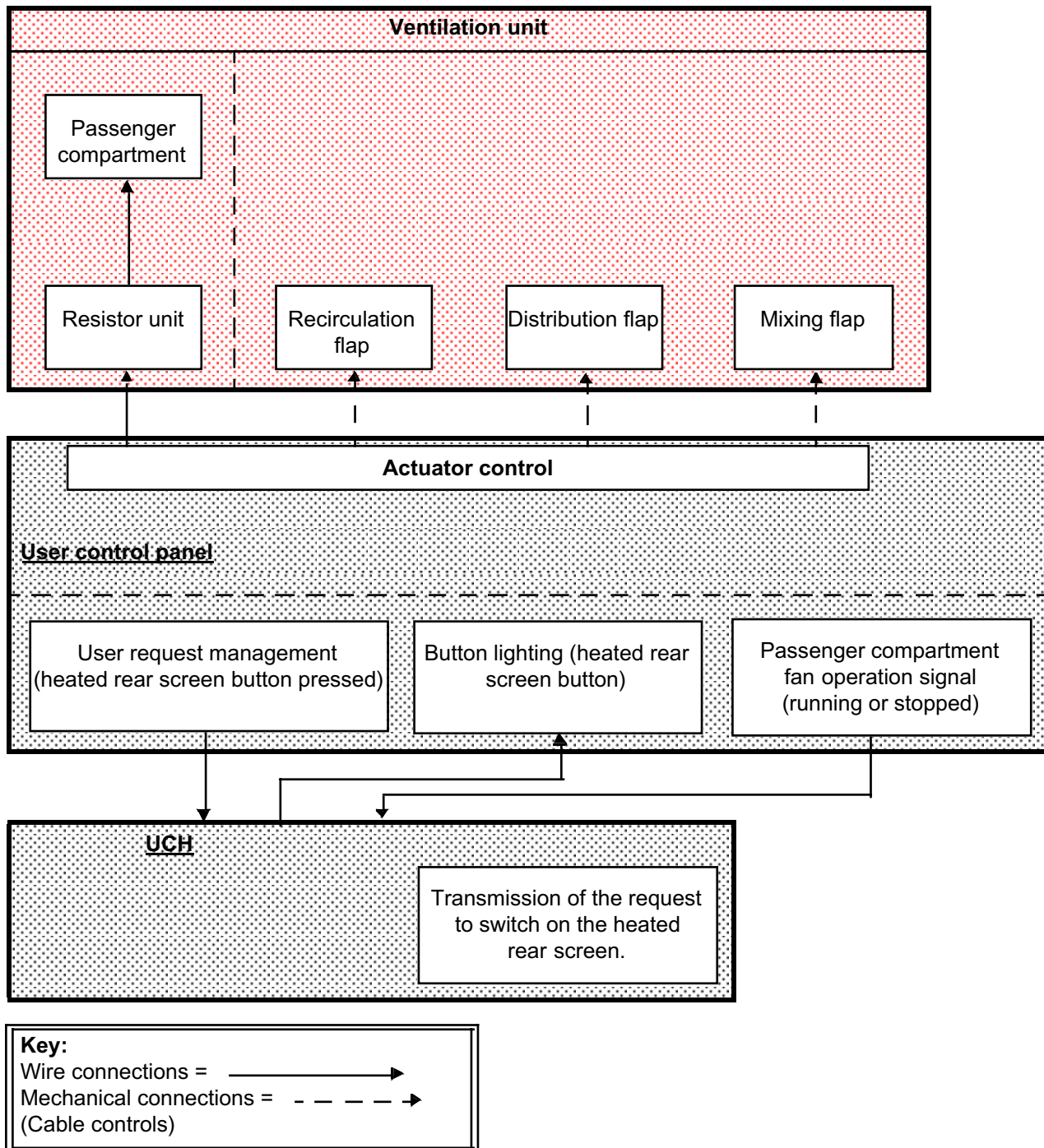
Resistive Blower Dimmer Module (MVPR)

- 1) Thermal fuse
- 2) Fan assembly connector
- 3) Connector to Control panel

– Air pipes:

The air flows into an open air inlet scoop towards the exterior. There must be enough air flow for it to be channelled into the passenger compartment. This flow can be created by the vehicle speed (in non-recirculation mode) or by activating the blower. The air flowing into the passenger compartment is protected by a grille and a rain shield in order to prevent foreign bodies and water from entering. The air is then distributed inside the passenger compartment.

Summary of components controlled by the passenger compartment ventilation and heating control panel:

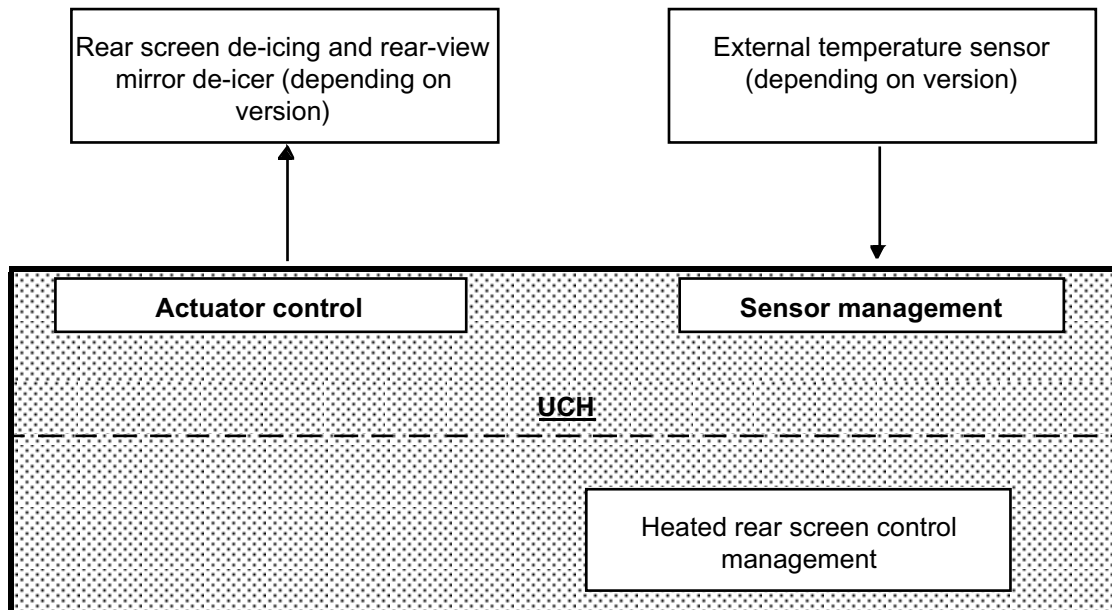


HEATING

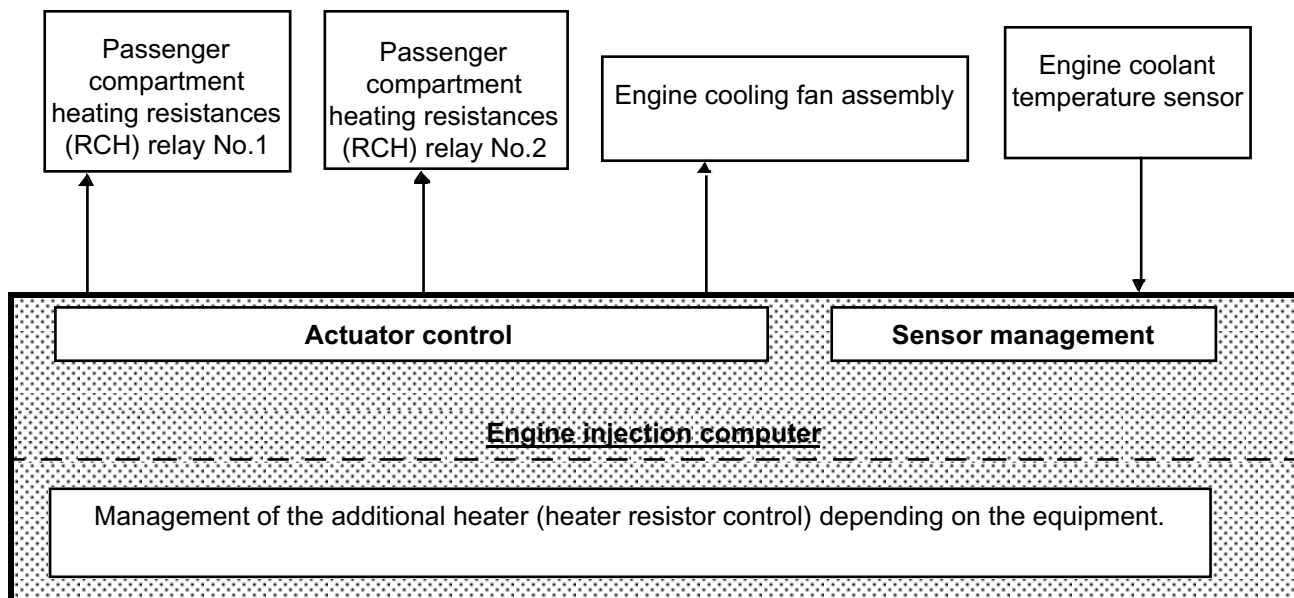
Fault finding – Function

61A

Summary of components controlled or managed by the UCH:



Summary diagram of components controlled or managed by the injection computer:



Key:

Wire connections = —————>

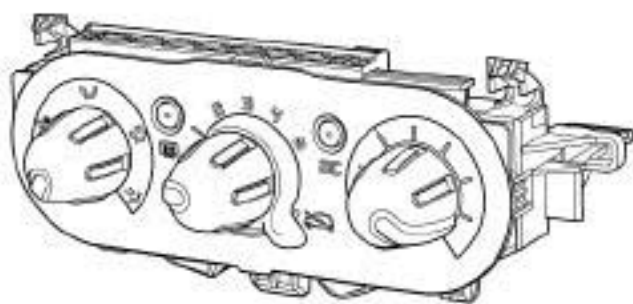
Layout of the heating function:

The passenger compartment ventilation heating panel enables:

- the passenger compartment blower unit to be activated,
- the rear de-icing to be activated by the UCH.

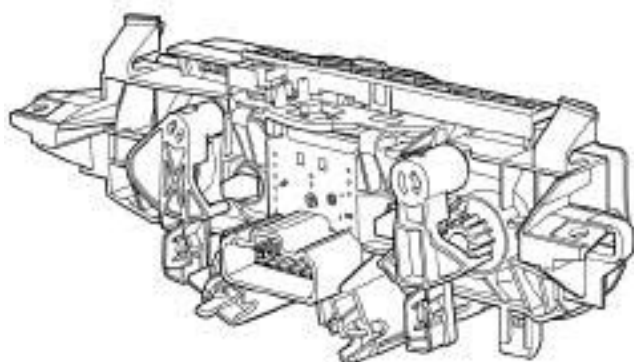
The passenger compartment ventilation heating panel controls the air distribution, mixing and recirculation flaps by cables. It controls the blower unit speed via a wire connection and a resistor unit (MVPR).

The injection computer controls the passenger compartment heating resistors (depending on the equipment). The injection computer authorises or denies compressor activation depending on the vehicle operation and refrigerant pressure.



0000000000

Passenger compartment ventilation and heating control front panel



0000000000

Passenger compartment ventilation and heating control rear panel

Buttons with operation indicator lamps:

- Air conditioning button.

Manual controls:

- Mixing: rotary control on the right-hand side, with cable connection to the flap.
- Distribution: rotary control on the left-hand side, with cable connection to the flap.
- Recirculation: rotary lever in the centre, with cable connection to the flap.
- Air flow V0, V1 to V4 by rotary control in the centre.

NOTES

Only carry out this conformity check after a **complete check** with the **diagnostic tool** (fault reading and configuration checks).

Application conditions: engine stopped, ignition on.

SUB-FUNCTION: USER SELECTION

Computer	Parameter or Status Checked or Action	Display and notes	Fault finding
UCH (see 87B, Passenger compartment connection unit)	ET004: + 12 V after ignition	+ after ignition feed.	In the event of a fault, refer to the interpretation of this status .
	ET547: Rear de-icing button	DEPRESSED RELEASED	In the event of a fault, refer to the interpretation of this status .

HEATING

Fault finding – Conformity check

61A

NOTES

Only carry out this conformity check after a **complete check** with the **diagnostic tool** (fault reading and configuration checks).

Application conditions: engine stopped, ignition on.

SUB-FUNCTION: HEATING

Computer	Parameter or Status Checked or Action	Display and notes	Fault finding
Injection (see 13B, Diesel injection or 17B, Petrol injection)	PR064: Coolant temperature	X = engine coolant temperature	If there is a fault, refer to the interpretation of this parameter
	ET111: RCH number set (depending on equipment)	NO Note: Depending on the requirements of the injection system (power requirement, torque reduction, etc.), the injection computer sets the controlled passenger compartment heating resistor stage number (no more, no less)	In the event of a fault, refer to the interpretation of this status .
	ET112: Passenger compartment heating resistors cut-off (depending on equipment)	YES	In the event of a fault, refer to the interpretation of this status .

NOTES

Only carry out this conformity check after a **complete check** with the **diagnostic tool** (fault reading and configuration checks).

Application conditions: engine at idle speed, vehicle speed zero.

SUB-FUNCTION: USER SELECTION

Computer	Parameter or Status Checked or Action	Display and notes	Fault finding
UCH (see 87B, Passenger compartment connection unit)	PR001: Battery voltage	10.5 V < X < 14.4 V	If there is a fault, refer to the interpretation of this parameter . If the fault is still present, carry out fault finding on the charging circuit (see MR 451 Mechanical, 16A, Starting - Charging circuit).
	ET004: + 12 V after ignition	+ after ignition feed.	In the event of a fault, refer to the interpretation of this status .
	ET547: Engine coolant temperature	PRESSED if the instrument panel warning light is lit. RELEASED otherwise.	In the event of a fault, refer to the interpretation of this status . Note: This status only operates for manual air conditioning and heating versions.
UCH (see 87B, Connection unit)	ET004: + 12 V after ignition	+ after ignition feed.	In the event of a fault, refer to the interpretation of this status .
	ET547: Rear de-icing button	DEPRESSED RELEASED	In the event of a fault, refer to the interpretation of this status .

NOTES

Only carry out this conformity check after a **complete check** with the **diagnostic tool** (fault reading and configuration checks).

Application conditions: engine at idle speed, vehicle speed zero.

HEATING SUB-FUNCTION

Computer	Parameter or Status Checked or Action	Display and notes	Fault finding
Injection (see 13B, Diesel injection or 17B, Petrol injection)	PR064: Coolant temperature	X = engine coolant temperature	If there is a fault, refer to the interpretation of this parameter
	ET111: RCH number set (depending on equipment)	NO Note: Depending on the requirements of the injection system (power requirement, torque reduction, etc.), the injection computer sets the controlled passenger compartment heating resistor stage number (no more, no less)	In the event of a fault, refer to the interpretation of this status .
	ET112: Passenger compartment heating resistors cut-off (depending on equipment)	YES	In the event of a fault, refer to the interpretation of this status .

HEATING

Fault finding – Conformity check

61A

SUMMARY TABLE OF THE VARIOUS AIR CONDITIONING COMPUTER COMMANDS

NAME OF SUB-FUNCTION	COMPUTER NAME	TITLE OF COMMAND	FAULT FINDING
HEATING	Injection (see 13B, Diesel injection or 17B, Petrol injection)	AC250 Heating resistor relay 1 (depending on version)	In the event of a fault, consult the interpretation of this command .
		AC251 Heating resistor relay 2 (depending on version)	In the event of a fault, consult the interpretation of this command .

NOTES

Special notes:

This section gives the list of possible customer complaints (Fault finding charts can be found in sections **61A** and **62C**: see below).

AIR DISTRIBUTION FAULT (Section 62C)

AIR DISTRIBUTION PROBLEM

ALP 2

AIR FLOW FAULT

ALP 3

INEFFICIENT WINDSCREEN DEMISTING

ALP 4

NO PASSENGER COMPARTMENT VENTILATION

ALP 5

HEATING FAULT

NO HEATING OR INADEQUATE HEATING

ALP 6

EXCESSIVE HEATING

ALP 7

INEFFICIENT REAR SCREEN DE-ICING/DEMISTING
(Section 62C)

ALP 10

WATER PRESENT IN THE PASSENGER COMPARTMENT
(Section 62C)

ALP 12

CONTROL PANEL FAULT (Section 62C)

NO CONTROL PANEL LIGHTING

ALP 13

ALP 6

No heating or inadequate heating

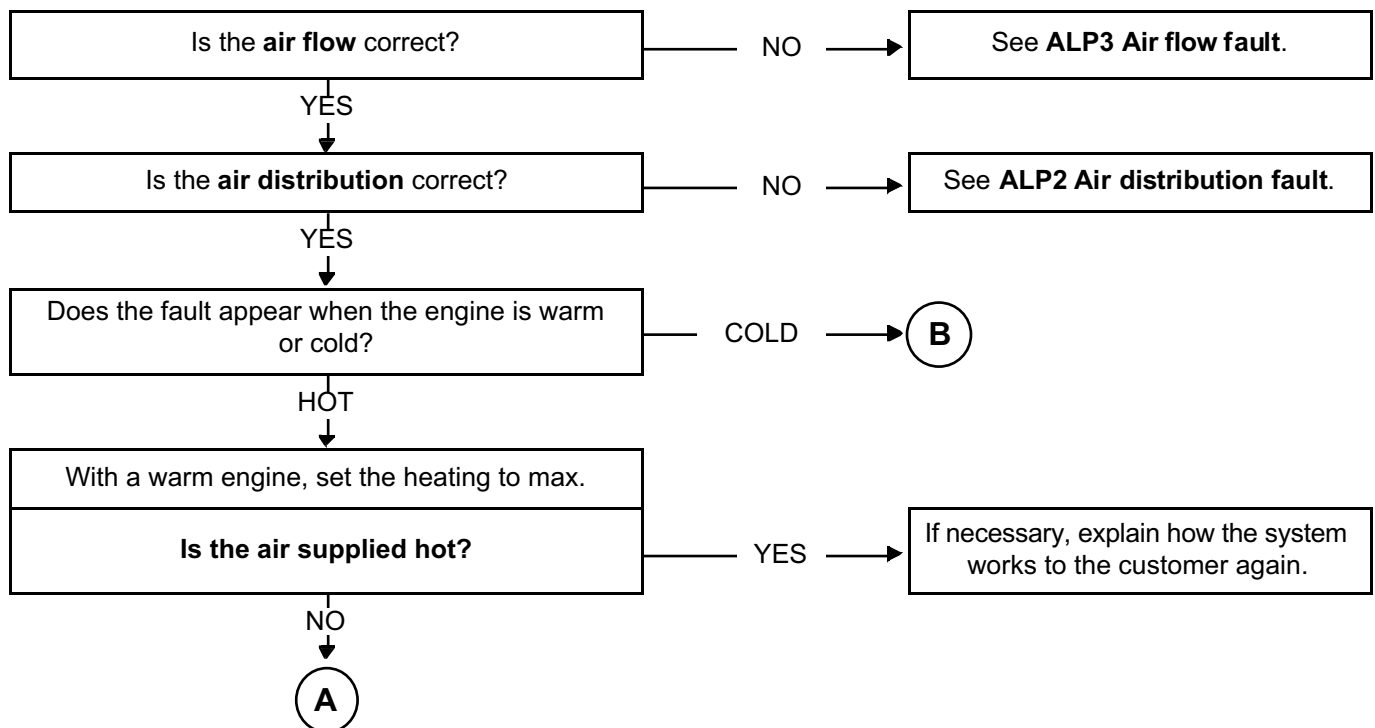
NOTES

Carry out these checks after a **full check** using the **diagnostic tool** (fault reading and configuration checks).

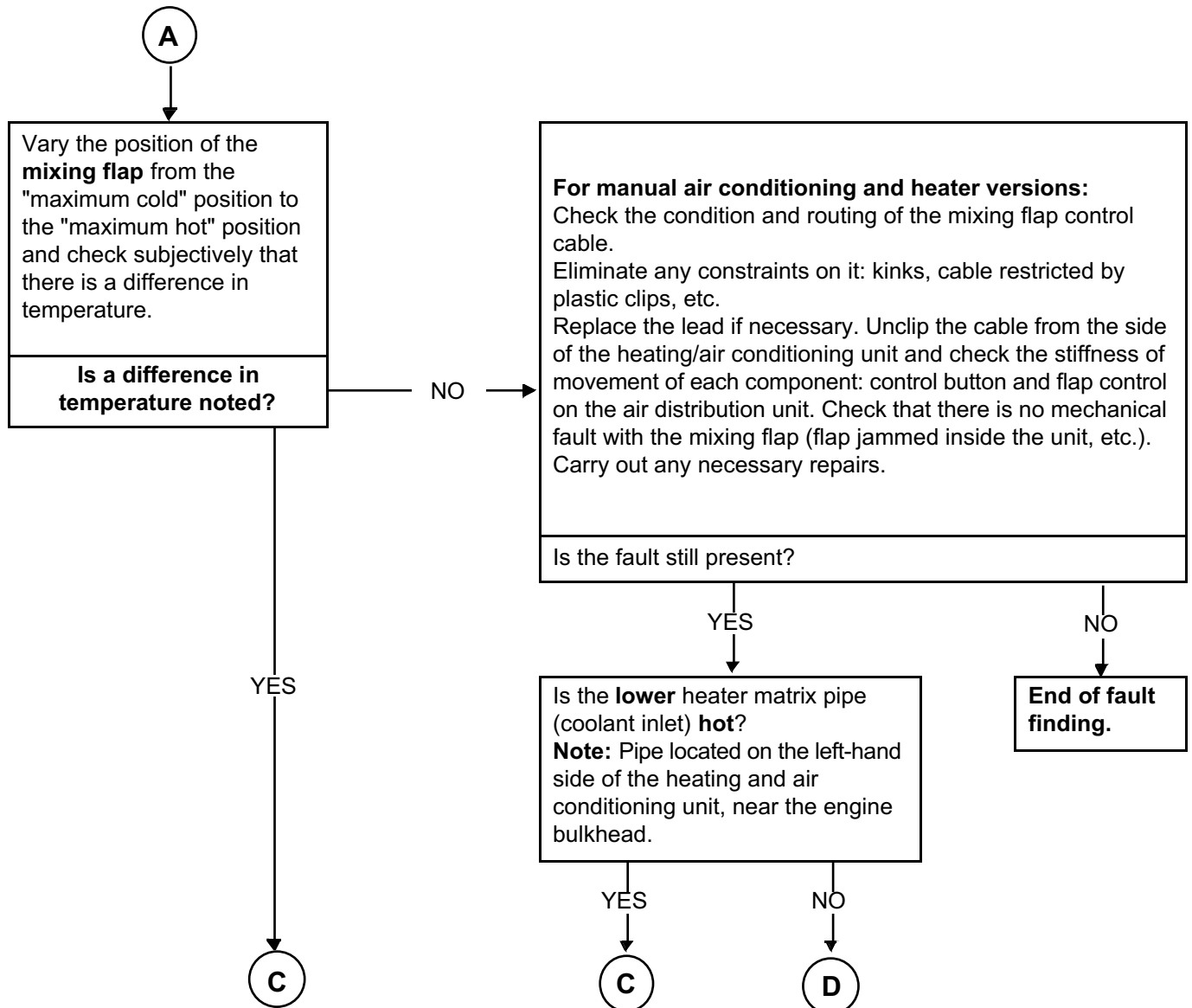
Check that the fuses are in good condition.

Use a multimeter, current clamp and **21 W** test light.

Use the **Technical Note Wiring Diagram for DUSTER**.



ALP 6 CONTINUED 1



ALP 6
CONTINUED 2

C
YES
↓

Check that the heater matrix is not **blocked**: the **top** heater matrix outlet pipe should be hot. Clean the heater matrix or replace it if necessary (see **MR 451, Mechanical, 61A, Heating, Heater matrix: Removal - Refitting**).

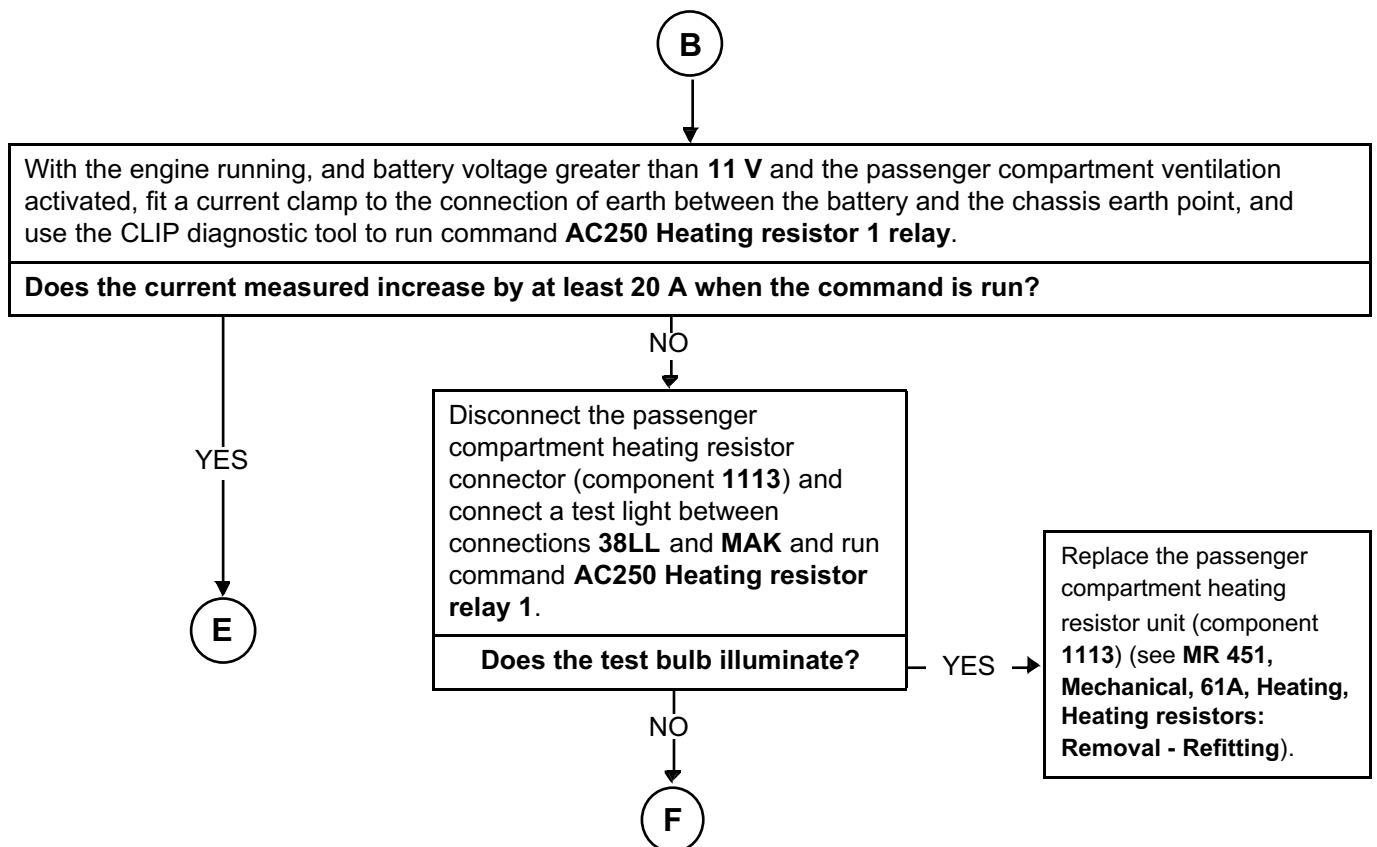
D
NO
↓

Check the coolant circuit:
Check the **level** of the coolant circuit (too low a level may unprime the circuit when driving at low loads and when idling).
Check that the **thermostatic valve** opens at the correct temperature, and replace the valve if necessary (see **MR 451, Mechanical, 19A, Cooling, Thermostat: Removal - Refitting**).

ALP 6
CONTINUED 3

NOTE

Fault finding procedure performed using a current clamp.



ALP 6
CONTINUED 4

Connect a test light between connection **38LL** of component **1113** and the chassis **earth** and run command **AC250 Heating resistor relay 1**.

Does the test bulb illuminate?

YES →

Earth fault on component **1113**. If there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair or replace the wiring.

NO

Check the continuity on connection **38LL** between components **1113** and **1067**.

Is the continuity correct?

NO →

Continuity fault on connection **38LL**. If there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair or replace the wiring.

YES

Re-run command **AC250 Heating resistor 1 relay**. Check for **+ 12 V** between the **chassis earth** and connections **3FB2** and **BP9** of component **1067**.

Is there **+12 V**?

YES

Run fault finding on the injection computer for the heating resistor 1 relay control (see **13B, Diesel injection, Conformity check**).

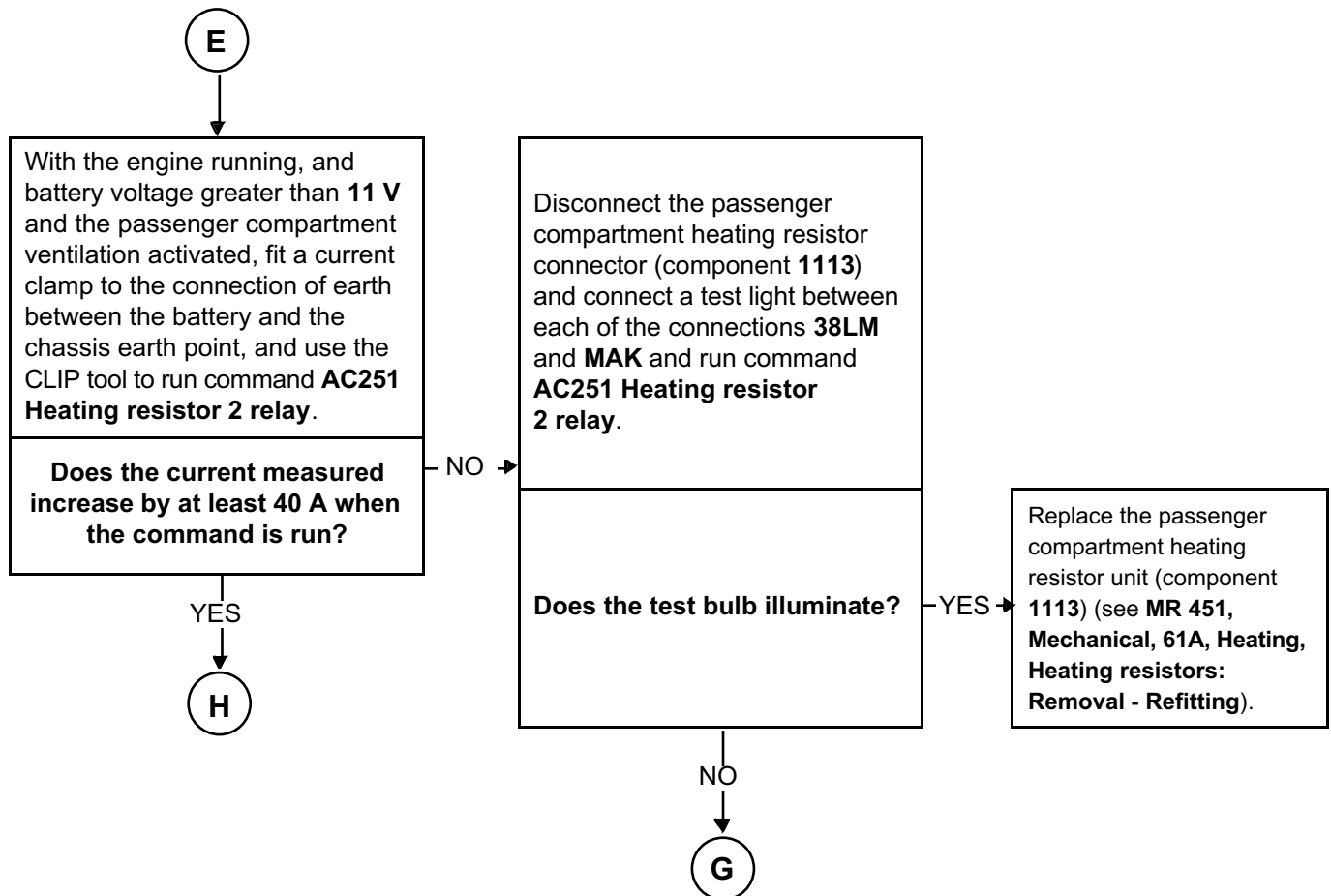
NO

Check the engine fuse and relay box.

ALP 6
CONTINUED 5

NOTE

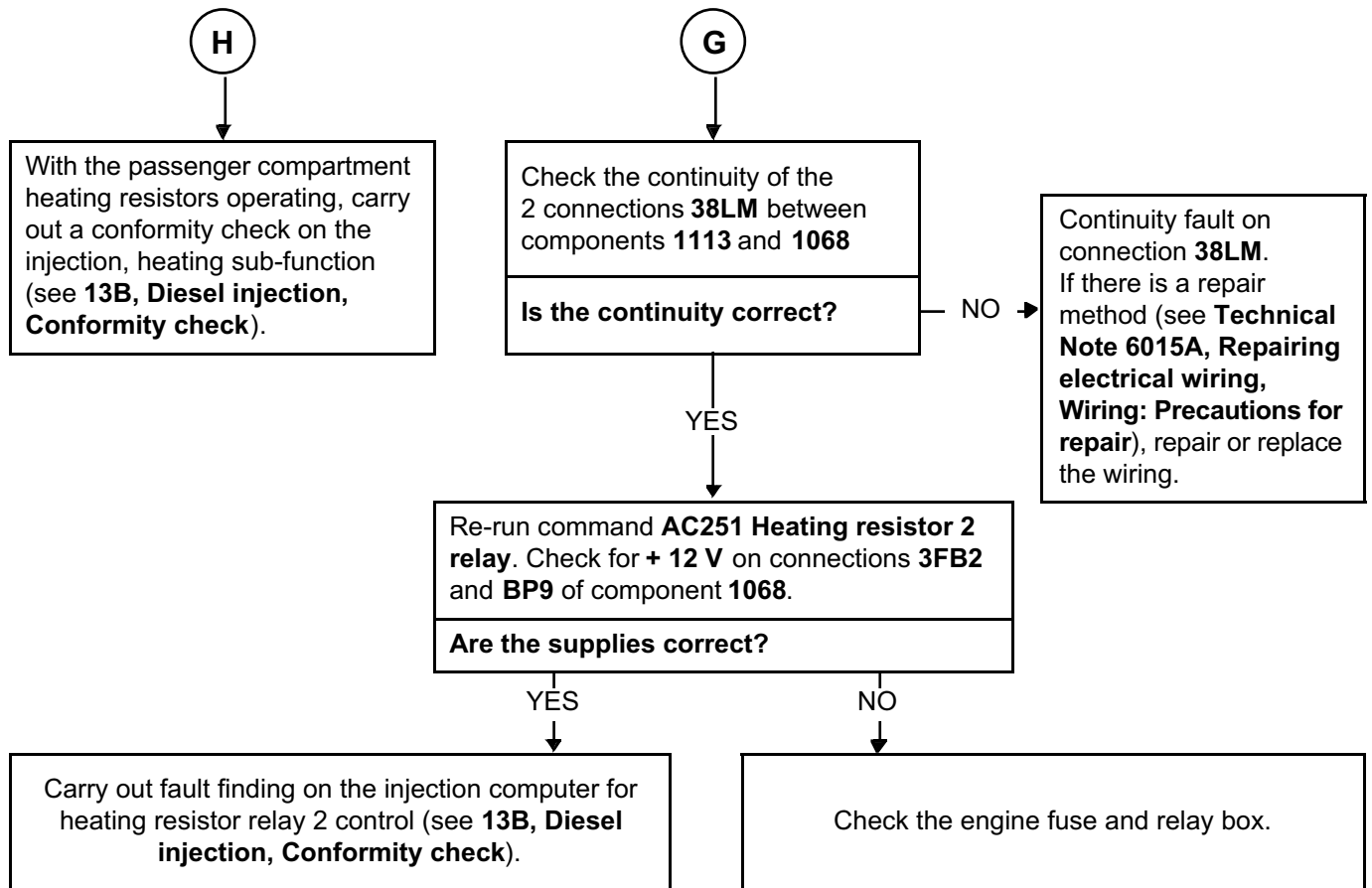
Fault finding procedure performed using a current clamp.



ALP 6 CONTINUED 6

NOTE

Fault finding procedure performed using a current clamp.



ALP 6
CONTINUED 6**NOTE**

Fault finding procedure without using a current clamp.

B

Disconnect the passenger compartment heating resistor connector (component **1113**) and connect a test light between connections **38LL** and **MAK** and run command **AC250 Heating resistor relay 1**.

Does the test light illuminate?

YES

Replace the passenger compartment heating resistor unit if, at ambient temperature, the resistance value between connections **38LL** and **MAK** of component **1113**, is not between **0.55 Ω** and **0.75 Ω** (see **MR 451, Mechanical, 61A, Heating, Heating resistors: Removal - Refitting**).

YES

C

NO

Connect a test light between connections **38LL** of component **1113** and the chassis **earth** and run command **AC250 Heating resistor 1 relay**.

Does the test light illuminate?

YES →

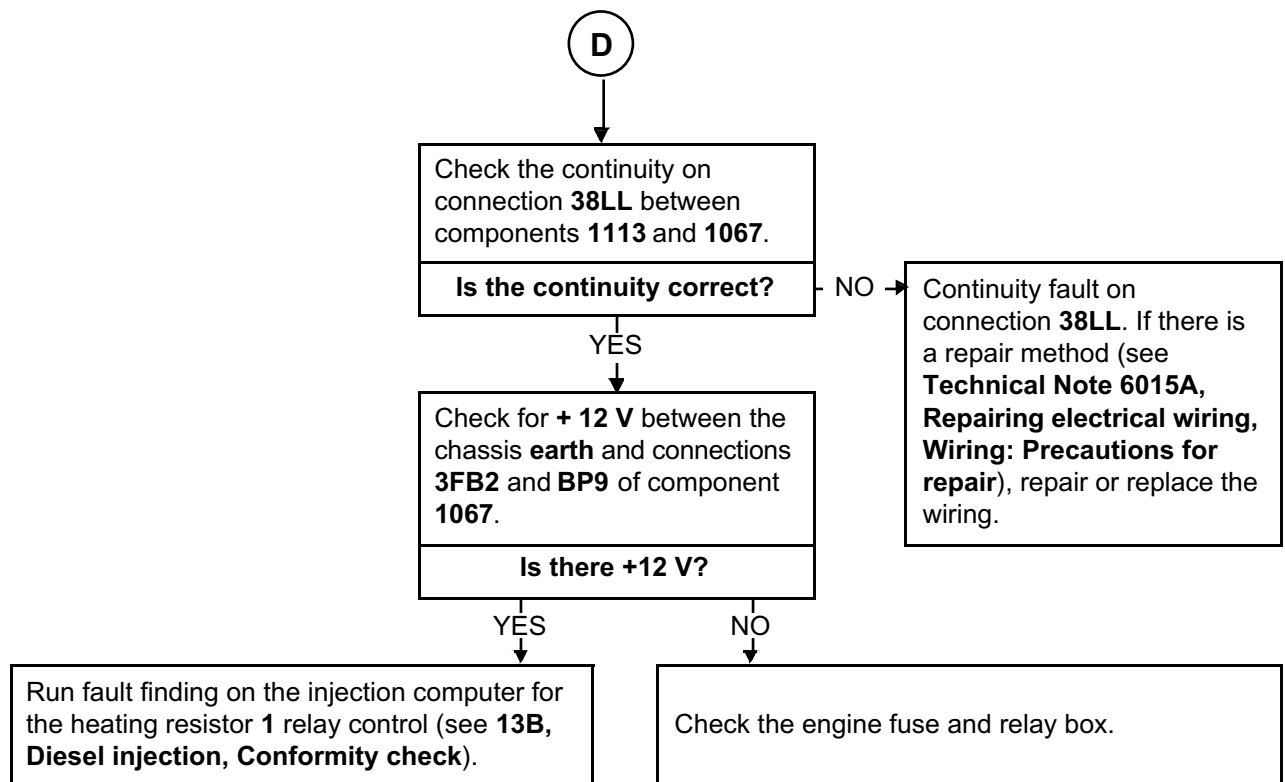
Earth fault on component **1113**. If there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair or replace the wiring.

NO

D

ALP 6
CONTINUED 7**NOTE**

Fault finding procedure without using a current clamp.



ALP 6
CONTINUED 8

NOTE

Fault finding procedure without using a current clamp.

Replace the passenger compartment heating resistor unit if, at ambient temperature, the resistance value between each of connections **38LM** and **MAK** of component **1113**, is not between:

0.55 Ω and 0.75 Ω

(see **MR 451, Mechanical, 61A, Heating, Heating resistors: Removal - Refitting**).

E

C

Disconnect the passenger compartment heating resistor connector (component **1113**) and connect a test light between each of the connections **38LM** and **MAK** and run command **AC251 Heating resistor 2 relay**.

Does the test light illuminate?

← YES

NO

Check the continuity of the 2 connections **38LM** between components **1113** and **1068**.

Is the continuity correct?

→ NO

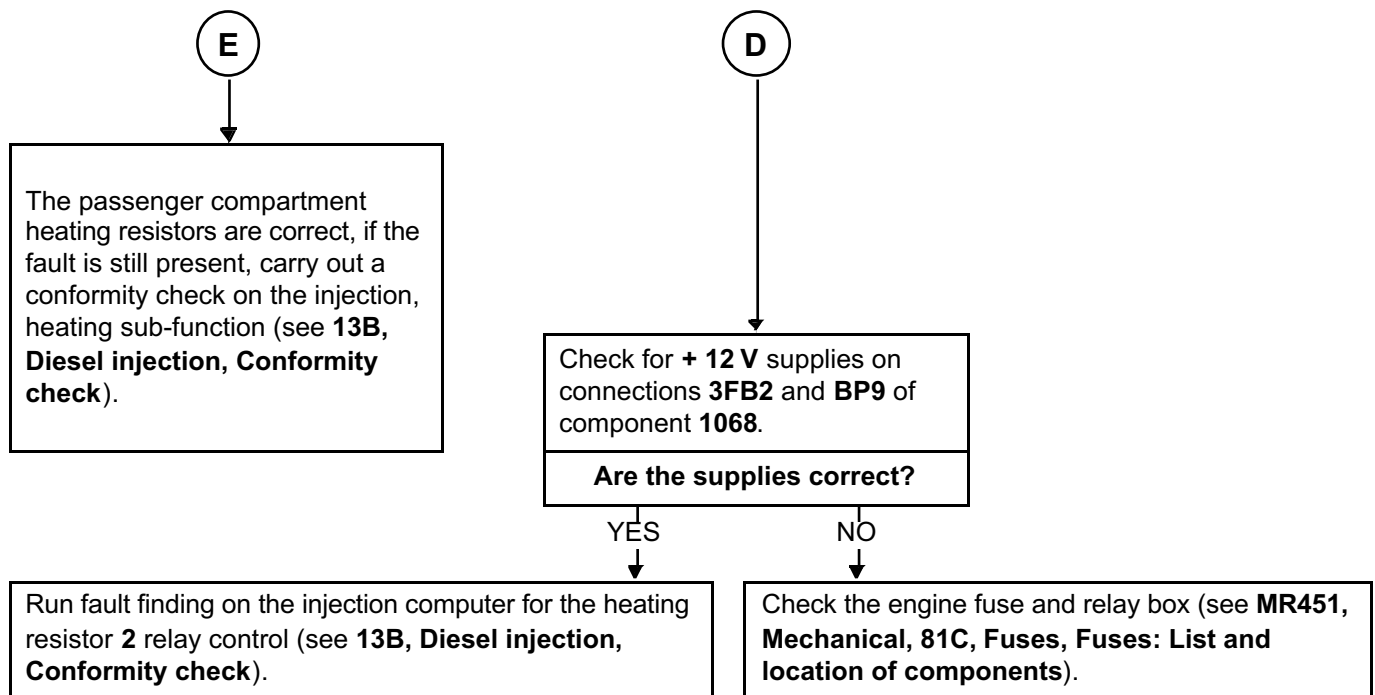
YES

D

Continuity fault on connection **38LM**. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

**ALP 6
CONTINUED 9****NOTE**

Fault finding procedure without using a current clamp.



ALP 7

Too much hot air

NOTES

Carry out these checks after a **full check** using the **diagnostic tool** (fault reading and configuration checks).

Check that the fuses are in good condition.

Use a multimeter and a **21 W** test light.

Use the **Technical Note Wiring Diagram for DUSTER**.

With the engine warm and passenger compartment ventilation operating, vary the position of the **mixing flap** from the maximum cold position to the maximum hot position and check subjectively that there is a difference in temperature.

Is a difference in temperature noted?

NO

For manual air conditioning and heater versions:

Check the condition and routing of the mixing flap control cable. Eliminate any constraints on it: kinks, cable restricted by plastic clips, etc.

Replace the lead if necessary. Unclip the cable from the side of the heating/air conditioning unit and check the stiffness of movement of each component: control button and flap control on the air distribution unit. Check that there is no mechanical fault with the mixing flap (flap jammed inside the unit, etc.). Carry out any necessary repairs.

YES

B

B

ALP 7 CONTINUED 2

B

For manual air conditioning systems:

Check that the recirculation flap is in the **exterior air** position. If this is not operating correctly (impossible to change the flap to the exterior air position), check the condition and routing of the recirculation flap control cable. Eliminate any constraints it may have such as kinks, restriction by plastic clips, etc. Replace it if necessary.

Check that there is no mechanical fault on the recirculation flap (flap jammed). Carry out any necessary repairs.

Is the fault still present?

YES

C

NO

End of fault finding procedure.

ALP 7
CONTINUED 3

C

For diesel vehicles equipped with **passenger compartment heating resistors**, ensure that they are not in operation when the engine is hot (temperature > 50°C) and the exterior air temperature is greater than 10°C.

Disconnect the **Passenger compartment heating resistors** connector (component **1113**) and connect a test light between connections **38LL** and **MAK**.

Does the test light illuminate?

YES

Check the **continuity** and **insulation** to + 12 V of connection **38LL** between components **1113** and **1067**.

Is the connection OK?

NO

Fault on connection **38LL**, if there is a repair procedure, repair the wiring (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), otherwise replace the wiring

YES

Run fault finding on the injection computer for the heating resistor 1 relay control (see **13B, Diesel injection, Conformity check, Heating sub-function**).
If the control is correct, replace the relay (component **1067**).

NO

D

ALP 7
CONTINUED 4