

# TWINGO

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## **6** Heating and air conditioning system

### **62C** MANUAL AIR CONDITIONING

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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 all computers with the following specifications:

<i>Vehicle(s):</i> <b>New Twingo</b>
<i>Function concerned:</i> <b>Manual air conditioning</b>

### 2. PREREQUISITES FOR FAULT FINDING

#### Documentation type

**Fault finding procedures** (this document and the Technical Notes concerning the injection system fitted to the vehicle, and the UCH):

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

#### **Wiring Diagrams:**

- Visu Schéma (CD-ROM), paper.

#### Type of diagnostic tools

- **CLIP + multiplex line sensor**

#### Special tooling required

Special tooling required	
Multimeter	
Elé. 1681	Universal bornier

### 3. REMINDERS

#### Procedure

To run fault finding on the vehicle computers, proceed as follows:

- turn the ignition key to APC,
- Connect the **diagnostic tool** and carry out the required operations,

To cut off the + after ignition feed, proceed as follows:

- disconnect the **diagnostic tool**,
- turn the ignition key to OFF,
- switch off the ignition.

## Faults

Faults are declared as either present or stored (depending on whether they appeared in a certain context and have disappeared since, or whether they remain present but have not been diagnosed within the current context). The **present** or **stored** status of faults should be taken into consideration when the diagnostic tool is switched on after the + after ignition feed (without any system components being active).

For a **present fault**, apply the procedure described in the **Interpretation of faults** section.

For a **stored fault**, note the faults displayed and apply the instructions in the **Notes** section.

If the fault is **confirmed** when the instructions in the Notes section are applied, the fault is present. Deal with the fault

If the fault is **not confirmed**, check:

- the electrical lines which correspond to the fault,
- the connectors on these lines (corrosion, bent pins, etc.),
- the resistance of the component detected as faulty,
- the condition of the wires (melted or split insulation, wear).

## Conformity check

The aim of the conformity check is to check data that does not produce a fault on the **diagnostic tool** because the data is inconsistent. Therefore, this stage is used to:

- carry out fault finding on faults that do not have a fault display, and which may correspond to a customer complaint.
- check that the system is operating correctly and that there is no risk of a fault recurring after repairs.

This section gives the fault finding procedures for statuses and parameters and the conditions for checking them. If a status is not behaving normally or a parameter is outside the permitted tolerance values, consult the corresponding fault finding page.

## Special notes regarding conformity checks for the air conditioning system:

The **air conditioning system** conformity check is divided into four parts. The parts relate to the four sub-functions of the air conditioning system: heating, cold loop, user selection and passenger compartment ventilation. The statuses and parameters related to these sub-functions are listed with their respective computers.

**Special notes:** The air conditioning control panel does not control electrical components (other than the passenger compartment fan assembly) and it cannot support fault finding.

### Note:

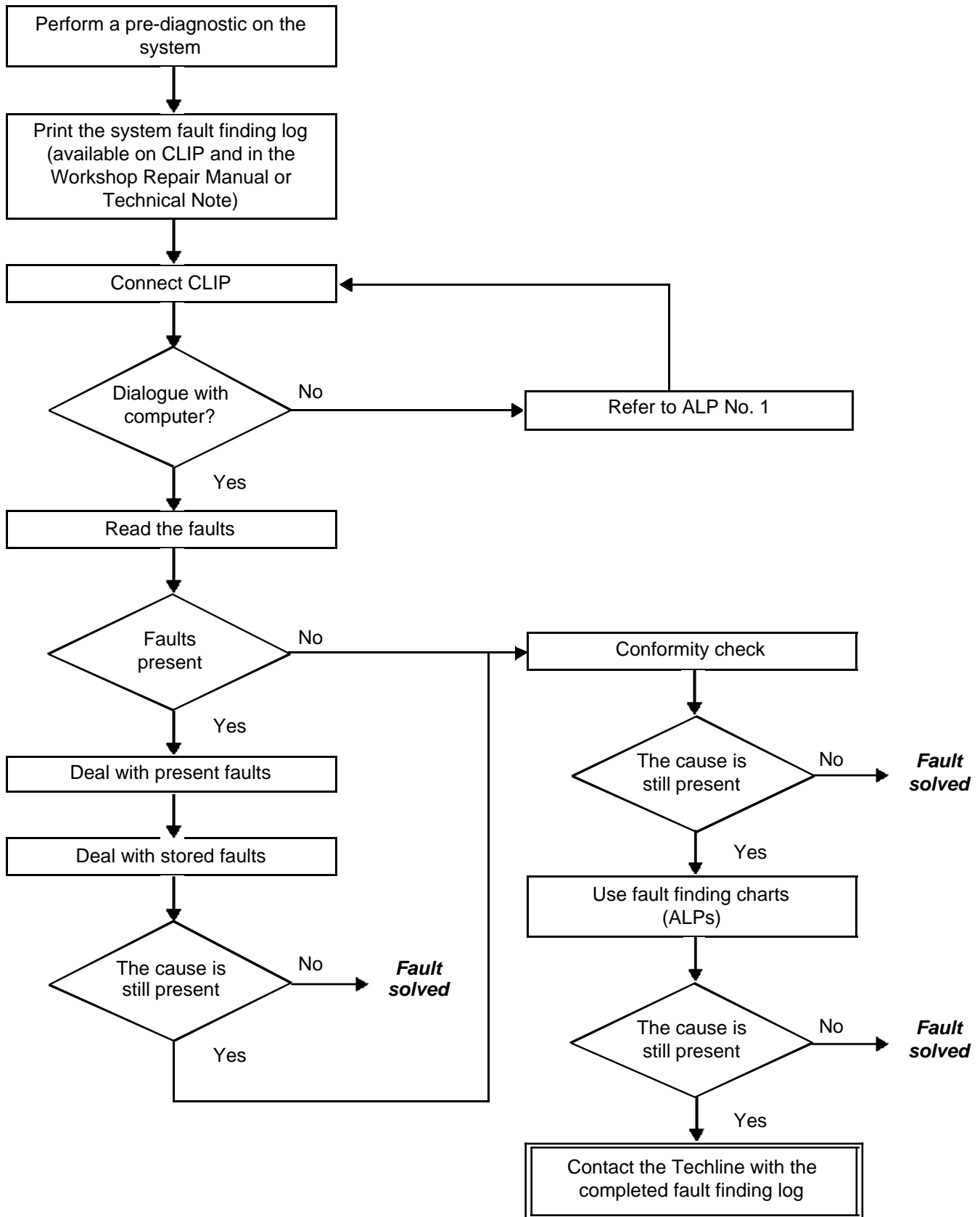
The interpretation of statuses, parameters and commands is also split into several sections. Everything controlled by the air conditioning control panel is explained in the two **Air conditioning** sections (62B and 62C). On the other hand, signals from other computers are explained in the fault finding sections for these computers (see **conformity check**).

## Customer complaints - Fault finding chart

If the test with the diagnostic tool is OK but the customer complaint is still present, the fault should be processed by **customer complaint**.

**A summary of the overall procedure to follow is provided on the following page in the form of a flow chart.**

4. FAULT FINDING PROCEDURE



#### 4. FAULT FINDING PROCEDURE (CONTINUED)

##### 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 connections:

- Connector / Connector
- Connector / Device

##### Fault finding problems

Disconnecting the connectors and/or manipulating the wiring harness may temporarily remove 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, Repairing electrical wiring, Wiring: Precautions for repair**).

## 5. FAULT FINDING LOG



**IMPORTANT**

### **IMPORTANT**

Any fault on a complex system requires thorough fault finding with the appropriate tools. The **FAULT FINDING LOG**, which should be completed during the procedure, enables you to keep track of the procedure which is carried out. It is an essential document when consulting the manufacturer.

**IT IS THEREFORE MANDATORY TO FILL OUT A FAULT FINDING LOG EACH TIME FAULT FINDING IS CARRIED OUT.**

You will always be asked for this log:

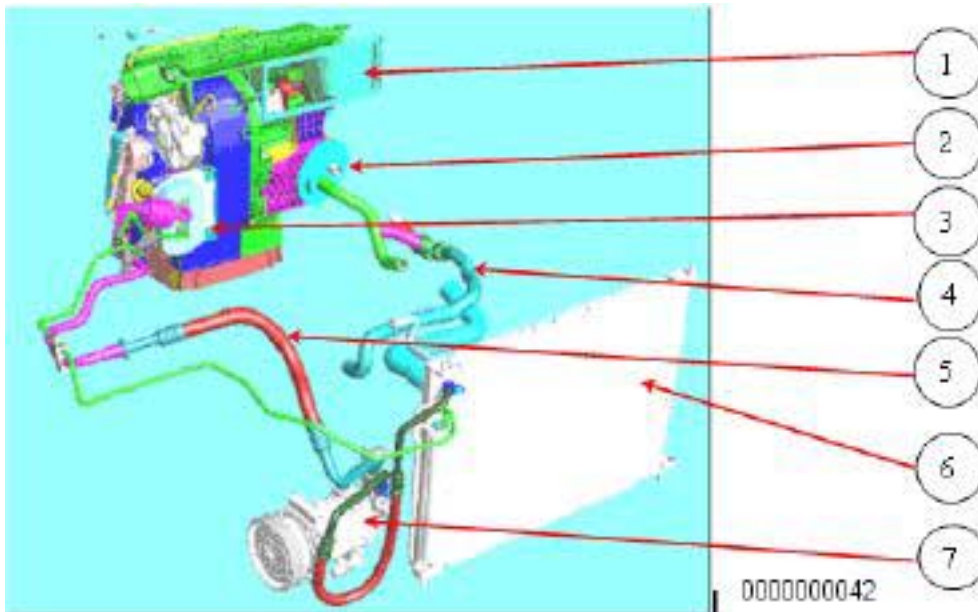
- when requesting technical assistance from Techline,
- for approval requests when replacing parts for which approval is mandatory,
- to be attached to monitored parts for which reimbursement is requested. The log is needed for warranty reimbursement, and enables better analysis of the parts removed.

## 6. SAFETY INSTRUCTIONS

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

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

### System (cold loop, hot loop and components)



- 1 Air conditioning unit
- 2 Heater matrix
- 3 Expansion valve and evaporator
- 4 Coolant circuit
- 5 Cold loop
- 6 Condenser and radiator
- 7 Compressor

#### ● COLD LOOP COMPONENTS:

- **Compressor:** This is located at the bottom on the left-hand side, next to the radiator in the engine compartment.
- **Condenser:** This is located between the radiator and the cooling fan assembly.
- **Dehydrator reservoir:** This is located on the left-hand side of the condenser outlet.
- **Heating and air conditioning unit:** This is located under the dashboard.
- **Thermostatic expansion valve:** This is located to the left of the heating and air conditioning unit on the bulkhead.
- **Evaporator:** This is located to the right of the **thermostatic expansion valve** in the heating and air conditioning unit.
- **High pressure pipe:** this pipe connects the compressor, condenser, dehydrator reservoir, and expansion valve inlet in series (it is located in the engine compartment on the left-hand side).
- **Low pressure pipe:** this pipe connects the expansion valve, buffering capacity, evaporator, and compressor inlet in series (it is located in the engine compartment on the left-hand side).

### ● HEATING COMPONENTS

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

### ● ACTUATORS:

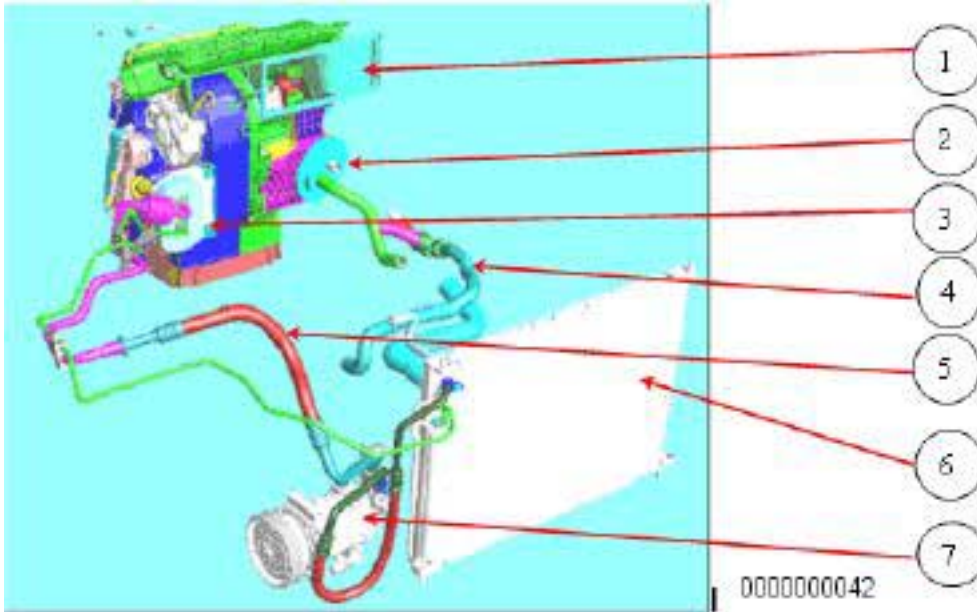
- **Air distribution flap:** This is located in the heating and air conditioning unit.
- **Air mixing flap:** This is located in the heating and air conditioning unit.
- **Recirculation flap:** This is located behind the dashboard.
- **Flap motors:** These are located close to the flaps (climate control).

### ● OTHERS

- **Passenger compartment blower unit:** This is located in the heating and air conditioning unit.
- **Cooling fan assembly:** This is located in the front panel of the vehicle, in front of the condenser.
- **Air pipes:** These are located under the dashboard.



COLD LOOP COMPONENTS



System assembly

- 1 Air conditioning unit
- 2 Heater matrix
- 3 Expansion valve and evaporator
- 4 Coolant circuit
- 5 Cold loop
- 6 Condenser and radiator
- 7 Compressor

Figure 1: System assembly

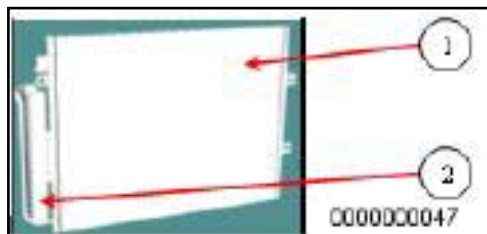
– Compressor:

The compressor is not activated when the exterior temperature is less than 0°; it is used to compress the refrigerant fluid into gas. The pressure can reach up to **28 bar**.



### – Condenser:

The condenser is composed of flat horizontal aluminium tubes. The pipes are divided by the vanes in order to increase the air heat exchange and therefore cool the refrigerant fluid to produce condensation.



- 1 Condenser
- 2 Dehydration canister

### – Dehydrator reservoir:

The dehydrator reservoir is used to:

- Check the condition of the refrigerant.
- Absorb the variations in volume (expansion bottle principle).
- Filter impurities.
- Absorb moisture (water in the circuit).

### – Air conditioning unit:

This unit acts as an air mixing box. It is equipped with a system of flaps which allow the air to be directed in accordance with the requirements of the occupants whilst simultaneously allowing the temperature of the air entering the passenger compartment to be modified by mixing hot and cold air.

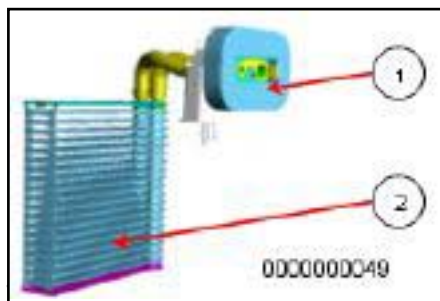
### – Thermostatic expansion valve: (see figure below)

This thermostatic-type expansion valve is used to check refrigerant expansion. It is located at the evaporator inlet.

### – Evaporator: (see figure below)

- The evaporator is a heat exchanger which enables the air entering the passenger compartment to be cooled.

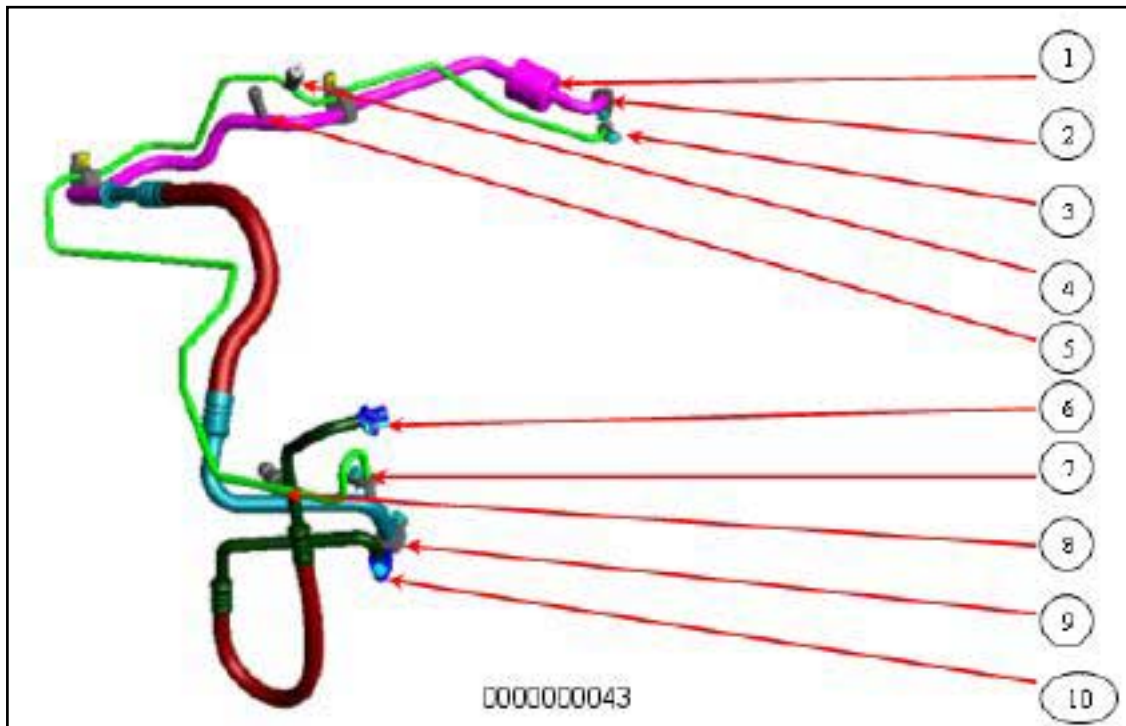
Note: Condensation of the air may occur thereby causing normal drops of water to form under the body.



- 1 Expansion valve
- 2 Evaporator

### – High and low pressure pipes:

- The **High Pressure** and **Low Pressure** pipes are composed of rigid aluminium pipes and flexible pipes that enable engine-related movements to be absorbed.
- Two filler valves (**High Pressure** and **Low Pressure**) can be accessed in order to fill (or drain) the refrigerant loop.
- The connections must be checked in the event of a refrigerant fluid leak.



- 1 Buffering capacity
- 2 Expansion valve outlet
- 3 Expansion valve inlet
- 4 High pressure filler valve
- 5 Low pressure filler valve
- 6 Condenser inlet
- 7 Condenser outlet
- 8 Pressure sensor
- 9 Compressor inlet
- 10 Compressor outlet

**Figure 6: Cold loop pipes**

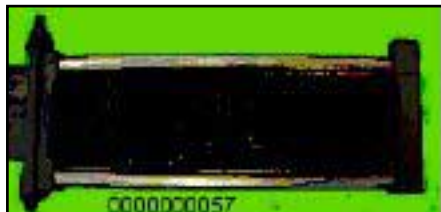
### ● HEATING COMPONENTS

#### – 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 the equipment level):

The passenger compartment heating resistors (RCH) are electrical heating devices in the air conditioning unit. This system is an additional heating system which operates when the engine is cold (when starting).



### ACTUATORS

- **Air distribution flap:**

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

- **Air mixing flap:**

This flap mixes the air in order to meet the temperature requirements of the occupants.

- **Recirculation flap:**

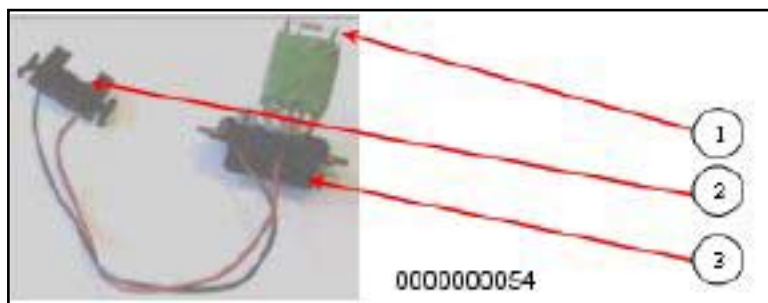
This flap prevents the entry of exterior air. In this case, the passenger compartment is isolated from the exterior and air is blown in the passenger compartment in a closed circuit.

These three flaps are **controlled by a cable**.

### ● OTHERS

- **Passenger compartment blower unit:**

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



### Resistive Blower Dimmer Module (MVPR)

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

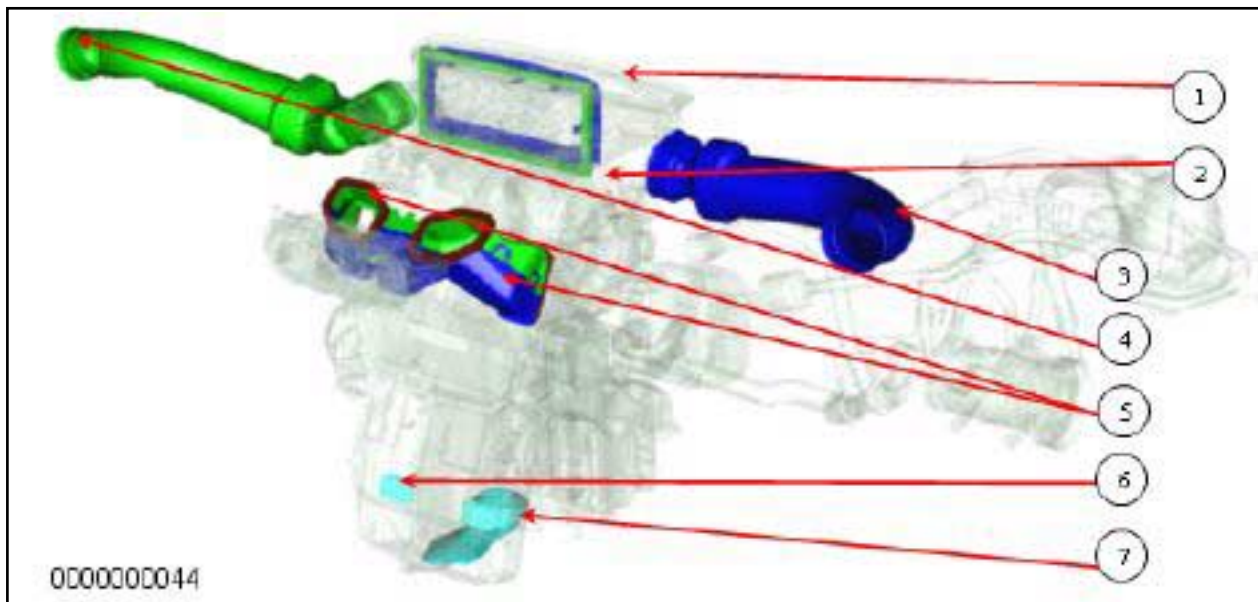
The passenger compartment blower unit is used to vary the rate at which air is blown into the passenger compartment, depending on the requirements of the customer.

#### – Cooling fan assembly:

The cooling fan assembly motor is normally used in order to promote heat exchange in the condenser and therefore improve the performance of the air conditioning system. Activation of the air conditioning fan unit depends, among other things, on the vehicle speed and high pressure in the loop.

#### – Air pipes:

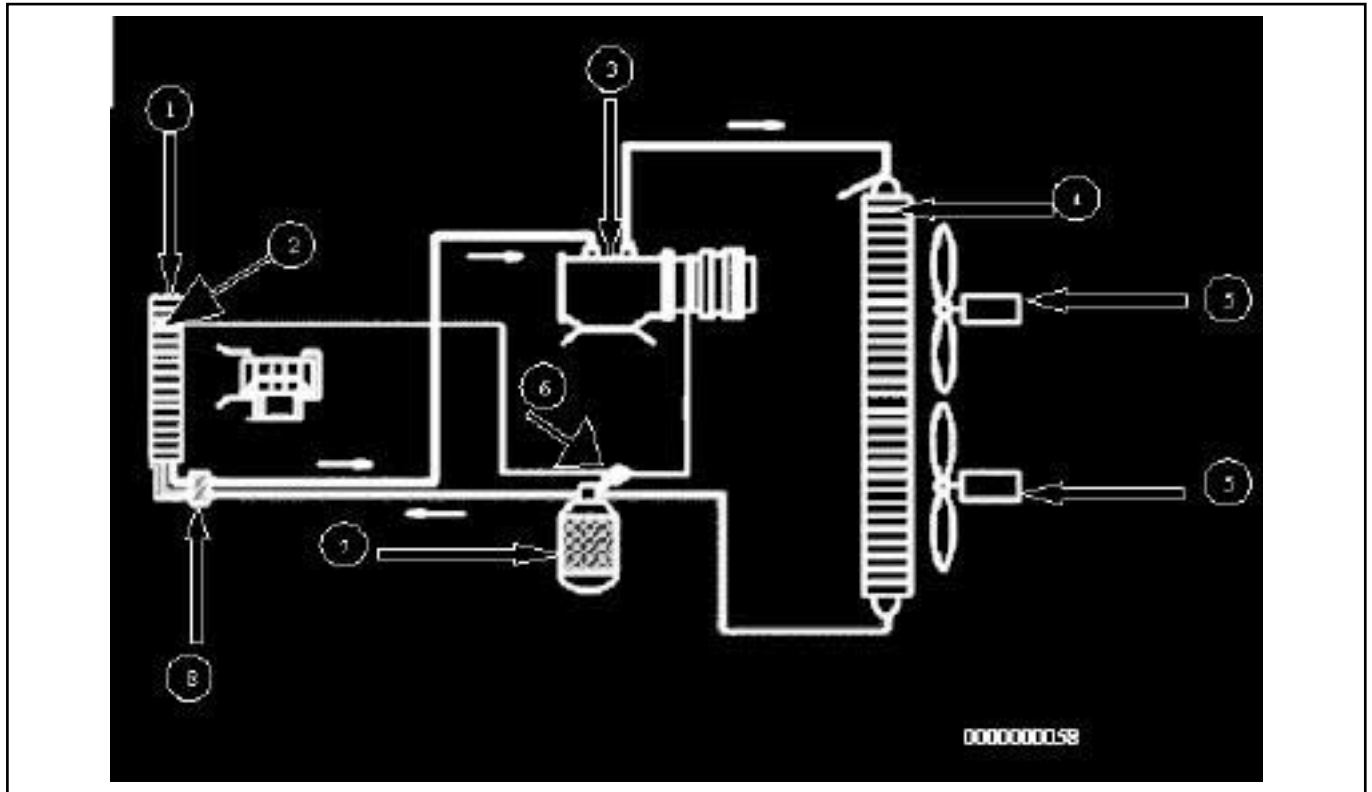
The air flows into an open air inlet scoop towards the exterior. Therefore there must be enough air flow for it to be channelled into the passenger compartment. This flow can be created by the vehicle speed (in non-recirculation mode) or by activating the blower. The air flowing into the passenger compartment 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.



### Passenger compartment air pipes

- 1 Air inlet
- 2 De-icing
- 3 Right-hand air vent
- 4 Left-hand air vent
- 5 Centre air vents
- 6 Left-hand footwell vent
- 7 Right-hand footwell vent

Summary diagram of all the components of the air conditioning system



- 1 Evaporator
- 2 Temperature sensor
- 3 Compressor
- 4 Condenser
- 5 Fan assembly
- 6 Pressure switch
- 7 Dehydration canister
- 8 Expansion valve

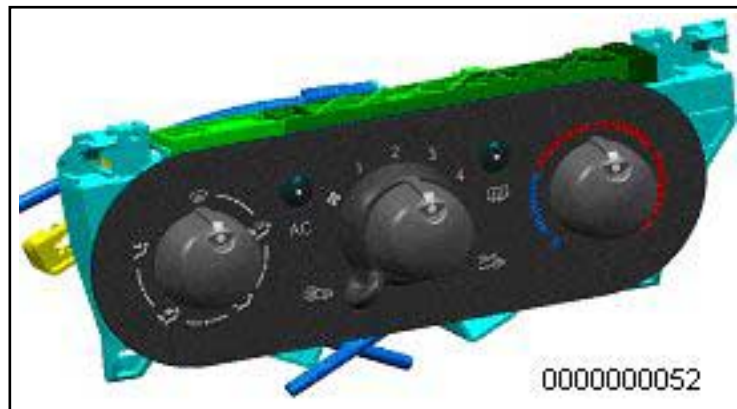
### Layout of the air conditioning function:

The "air conditioning" function is divided between two computers. These two computers are connected by the CAN multiplex network; the connection between the air conditioning control panel and the UCH is provided by a wire connection.

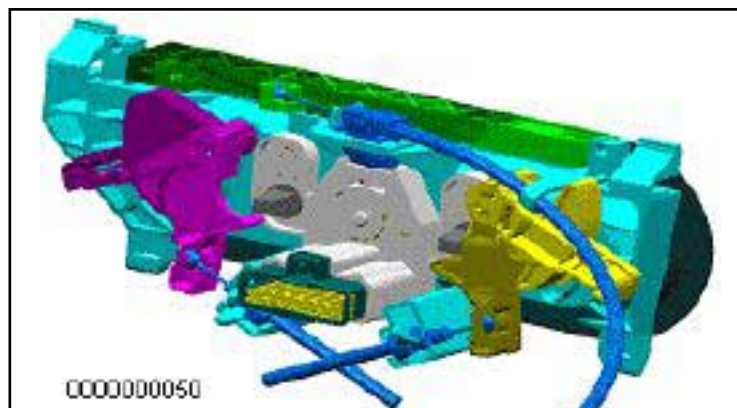
The air conditioning control panel interprets the driver's demands.

The UCH sends the request for compressor activation to the injection system.

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



### Air conditioning control panel: front panel



### Passenger compartment ventilation and heating control rear panel



### General operation

The air conditioning system is composed of four sub-functions: heating, cold loop, passenger compartment ventilation and user selection. Fault finding on the air conditioning is performed in two different ways using the **diagnostic tool**.

The first procedure consists of performing **fault finding on each computer** which allows dialogue to be established with just one computer (select the UCH computer).

The second procedure consists of performing **fault finding on each function** which allows communication with both computers of the **air conditioning** function.

### Description of the sub-functions:

**Heater sub-system:** this sub-system includes everything relating to the **production of warm air** in the vehicle and management of the heated rear screen.

The UCH computer controls the rear screen de-icing.

The injection computer manages passenger compartment heating resistor actuation

**Cold loop sub-system:** this sub-system includes everything involved in the **production of cold air** in the vehicle.

The computers concerned include:

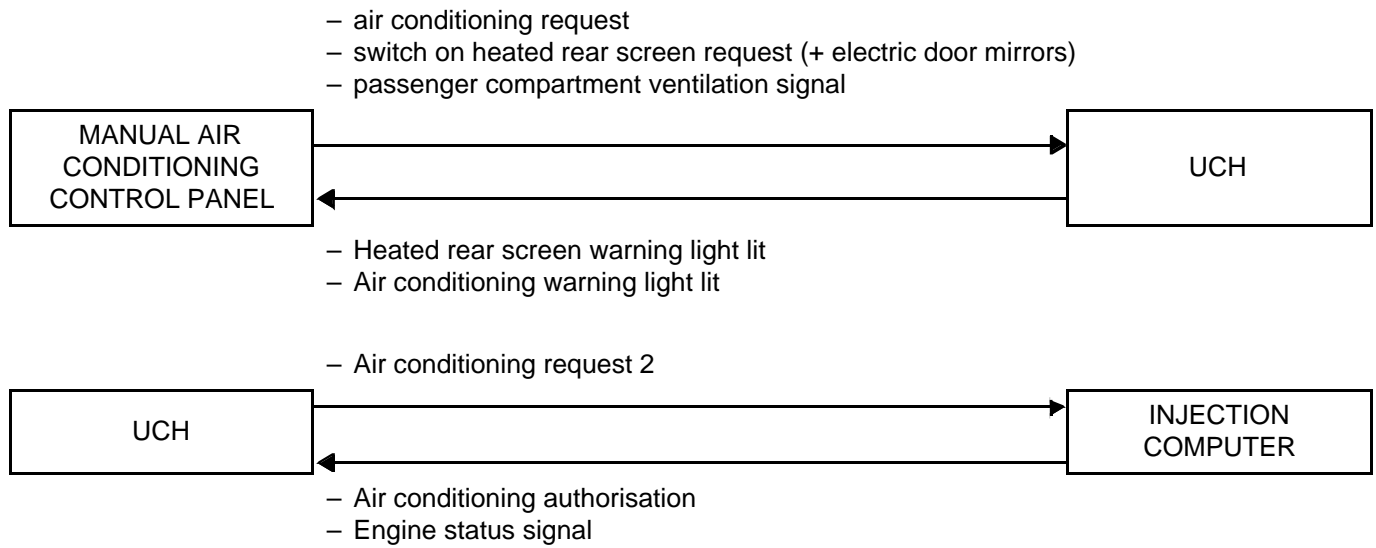
The injection computer, which authorises compressor activation and controls the compressor and motor-driven fan assemblies.

The UCH, which authorises or denies the request for compressor activation from the air conditioning control panel to the injection computer in accordance with the condition of the passenger compartment blower and the exterior temperature (depending on the equipment).

**User selection sub-function:** This sub-function includes everything used to transmit the user's requests (pressing buttons). The computer involved is the UCH computer.



### Exchanges between the two air conditioning computers (manual air conditioning)

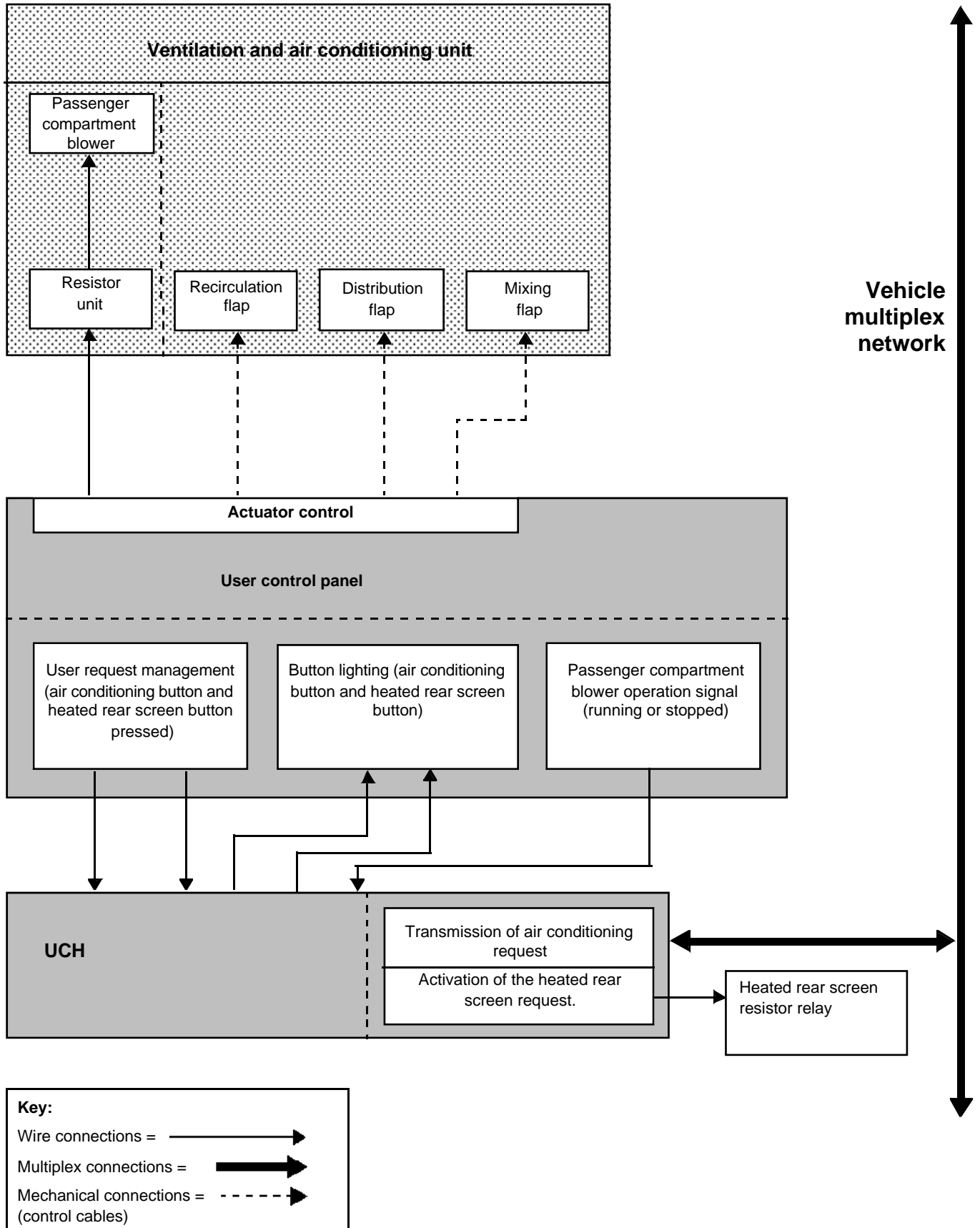


# MANUAL AIR CONDITIONING

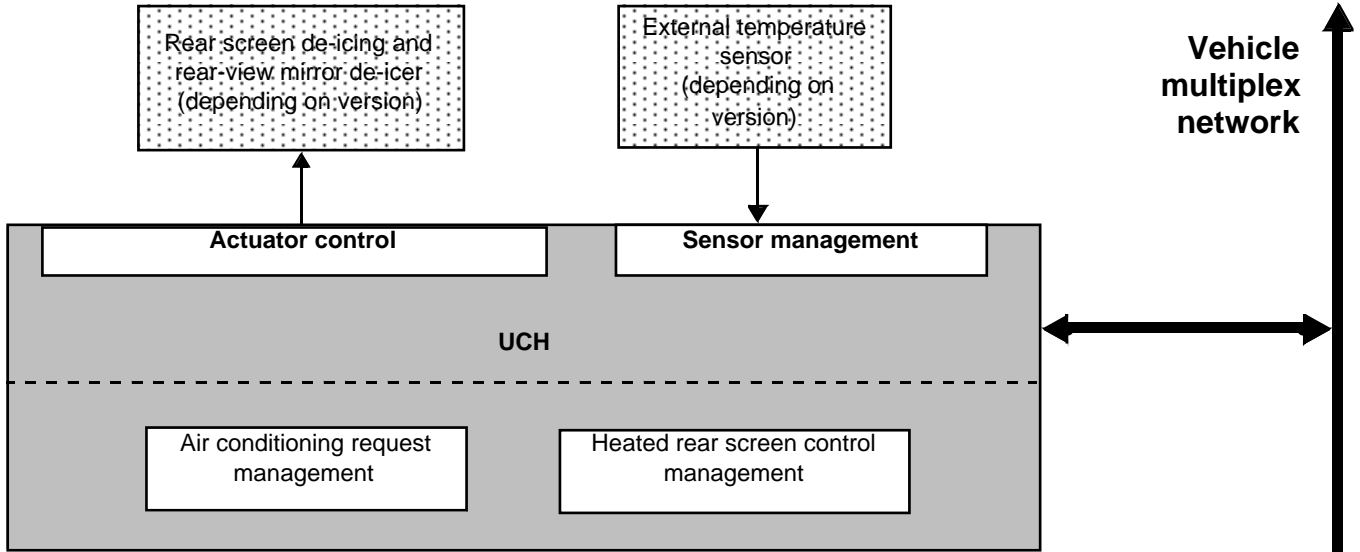
## Fault finding - Function

62C

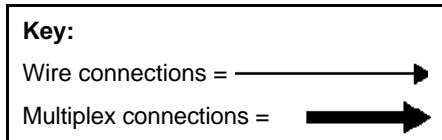
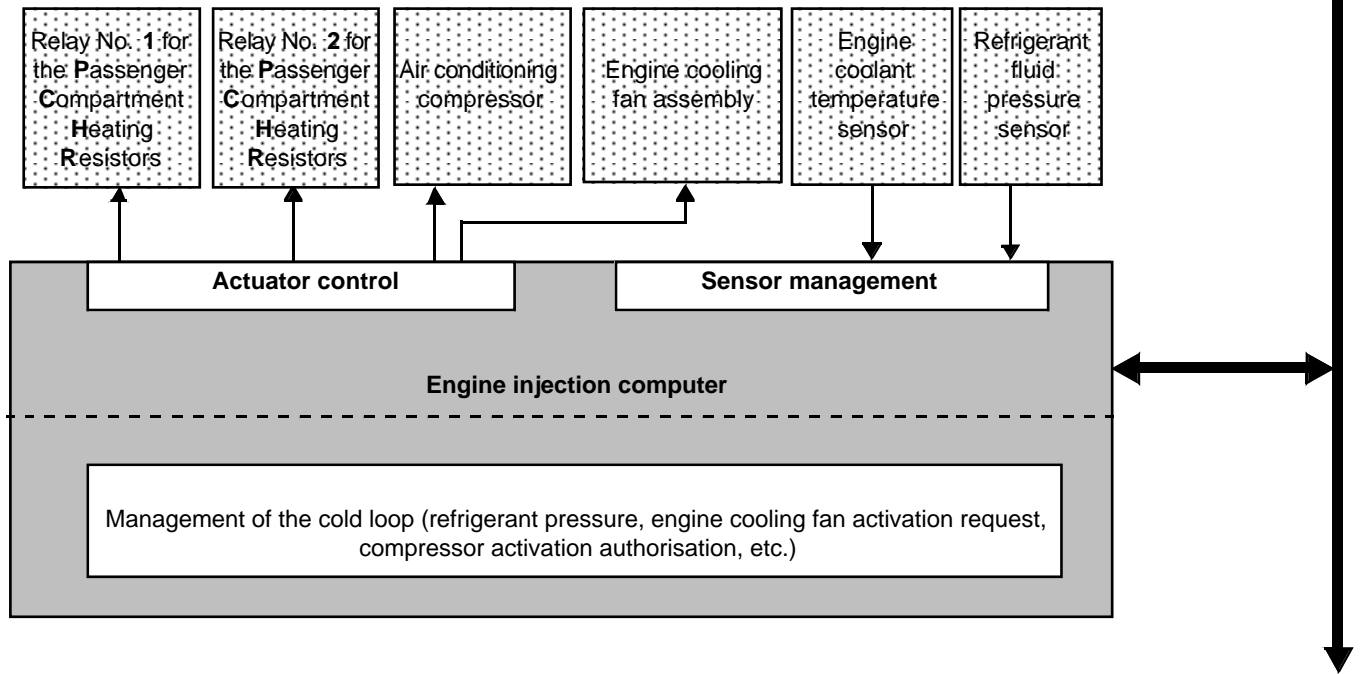
Summary of components controlled or managed by the MANUAL AIR CONDITIONING control panel:



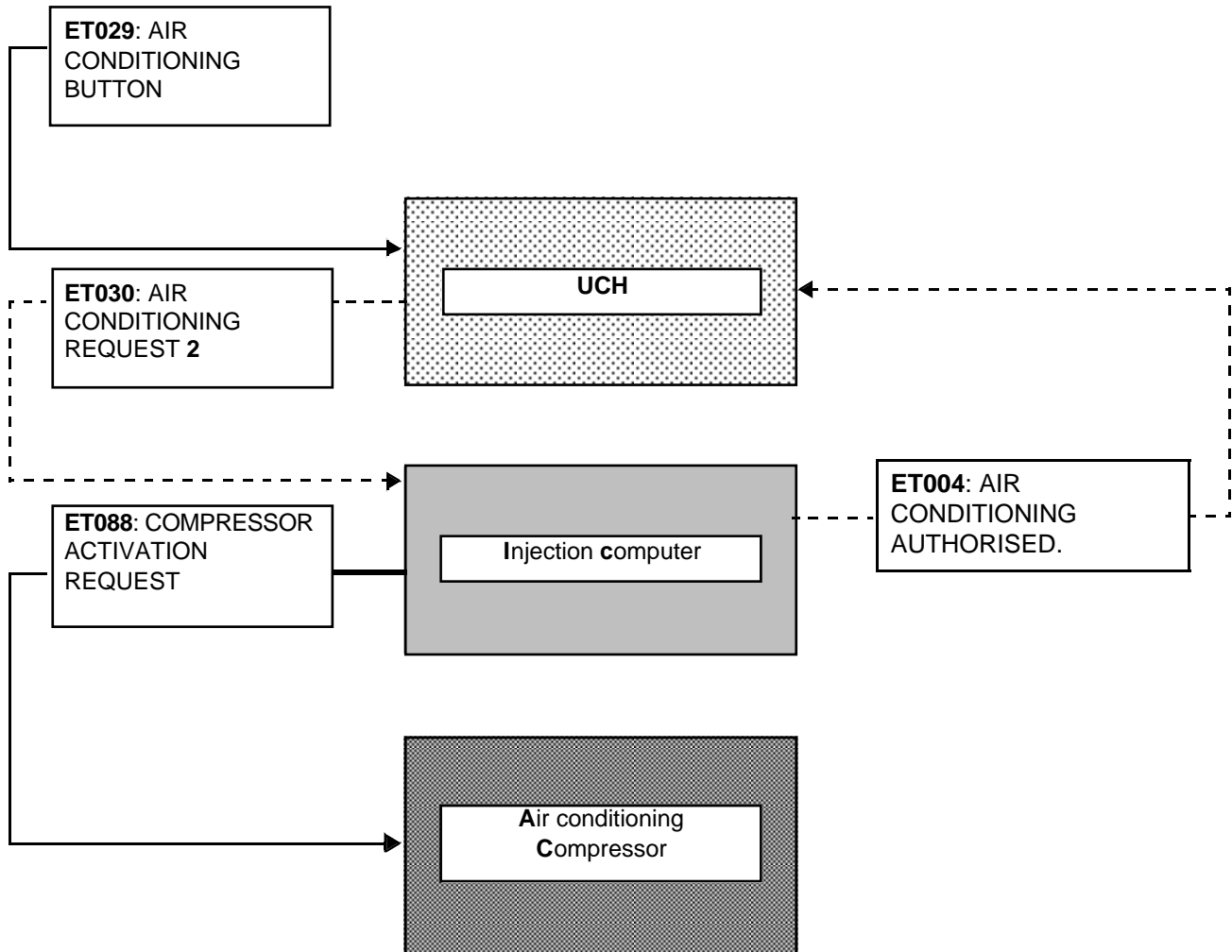
**Summary diagram of components controlled or managed by the UCH:**



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



**Compressor control flowchart:**



**Key:**

- Multiplex signals
- Wire connections

**Special notes:**  
 This flowchart shows the tracks of the compressor engagement request. Components which may block this request are not listed (passenger compartment blower operation signal for the UCH on manual version with AC, correct refrigerant pressure for the injection, etc.).  
 If the compressor does not engage (one of the requests is not transmitted): carry out a conformity check.

# MANUAL AIR CONDITIONING

## Diagnostics - Configuration and programming

# 62C

### Air conditioning system configurations

Computers	Configuration	Option	Comments
<b>UCH</b>	<b>CF019:</b> Type of air conditioning	– Heating – Manual – Climate control	
	<b>CF029:</b> Exterior temperature sensor	–With –None	
<b>INJECTION</b> (all types)	X	X	Automatic computer configuration

### Air conditioning system configuration readings

Computers	Configuration readings	Option	Comments
<b>UCH</b>	<b>LC013:</b> Type of air conditioning	– Climate control – Manual air conditioning – Heating	None
	<b>LC002:</b> External temperature sensor	– With – None	

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine stopped, ignition on, <b>AIR CONDITIONING SWITCHED OFF</b> (Passenger compartment blower unit switched off and air conditioning compressor not activated).</p> <p>Note: Read the parameters when the vehicle is cold (in the morning) to check the conformity of the temperature parameters (without thermometer). The temperatures should be approximately equal (interior, exterior and engine coolant).</p>
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### SUB-FUNCTION: COLD LOOP

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
<b>UCH</b> (see 87B, Passenger compartment connection unit)	<b>PR002:</b> Exterior temperature (depending on the version)	X = exterior temperature ± 5 °C (invalid value: 215 °C)	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>ET030:</b> Air conditioning request 2	<b>INACTIVE</b>	In the event of a fault, refer to <b>the interpretation of this status</b> . Note: This status represents the request from the UCH to the injection computer to activate the compressor.
	<b>ET015:</b> Passenger compartment blower	<b>INACTIVE</b> (according to test conditions: see Notes).	In the event of a fault, refer to <b>the interpretation of this status</b> .
	<b>PR025:</b> Engine speed	<b>0 rpm</b>	In the event of a fault, see <b>the interpretation of this parameter</b> .
	<b>ET142:</b> Engine operating phase	<b>STOPPED</b>	In the event of a fault, refer to <b>the interpretation of this status</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine stopped, ignition on, <b>AIR CONDITIONING SWITCHED OFF</b> (Passenger compartment blower unit switched off and air conditioning compressor not activated).</p> <p>Note: Read the parameters when the vehicle is cold (in the morning) to check the conformity of the temperature parameters (without thermometer). The temperatures should be approximately equal (interior, exterior and engine coolant).</p>
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### COLD LOOP SUB-SYSTEM (CONTINUED 1)

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
<b>Injection</b> (see 13B, Diesel injection or 17B, Petrol injection)	<b>ET079:</b> Air conditioning present	<b>YES</b> (automatic injection computer configuration)	If the status displays <b>NO</b> , refer to the <b>interpretation of this status</b> .
	<b>ET088:</b> Compressor actuation request	<b>INACTIVE</b>	If the status displays <b>ACTIVE</b> , refer to the <b>interpretation of this status</b> .
	<b>ET004:</b> Air conditioning authorisation	<b>NO</b> (no authorisation with engine stopped)	In the event of a fault, refer to the <b>interpretation of this status</b> .
	<b>PR037:</b> Refrigerant pressure	<b>1 bar &lt; X &lt; 15 bar</b>	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>PR055:</b> Engine speed	<b>0 rpm</b>	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>ET023:</b> Fast idle speed request	<b>ABSENT</b>	In the event of a fault, refer to the <b>interpretation of this status</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine stopped, ignition on, <b>AIR CONDITIONING SWITCHED OFF</b> (Passenger compartment blower unit switched off and air conditioning compressor not activated).</p> <p>Note: Read the parameters when the vehicle is cold (in the morning) to check the conformity of the temperature parameters (without thermometer). The temperatures should be approximately equal (interior, exterior and engine coolant).</p>
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### SUB-FUNCTION: COLD LOOP (CONTINUED 2)

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
<b>Injection (continued)</b>	<b>PR064:</b> Coolant temperature	<b>X = engine coolant temperature</b>	In the event of a fault, see the <b>interpretation of this parameter.</b>
	<b>PR089:</b> Vehicle speed	<b>0 mph</b>	In the event of a fault, see the <b>interpretation of this parameter.</b>
	<b>PR125:</b> Power absorbed by the air conditioning compressor	<b>0 W</b> (ambient temperature 23 °C)	In the event of a fault, see the <b>interpretation of this parameter.</b>
	<b>ET022:</b> Low speed fan assembly request	<b>INACTIVE</b>	In the event of a fault, refer to the <b>interpretation of this status.</b>
	<b>ET021:</b> High speed fan assembly request	<b>INACTIVE</b>	In the event of a fault, refer to the <b>interpretation of this status.</b>



<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine stopped, ignition on, <b>AIR CONDITIONING SWITCHED OFF</b> (Passenger compartment blower unit switched off and air conditioning compressor not activated).</p>
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### SUB-FUNCTION: HEATING

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
UCH (see 87B, Passenger compartment connection unit)	ET015: Passenger compartment blower	<b>INACTIVE</b> (according to test conditions: see Notes).	In the event of a fault, refer to the <b>interpretation of this status</b> .
	PR001: Battery voltage	<b>10.5 V &lt; X &lt; 14.4 V</b>	If there is a fault, refer to the <b>interpretation of this parameter</b> . If the fault is still present, carry out fault finding on the charging circuit (see <b>MR 411 Mechanical, 16A, Starting - Charging</b> ).
	PR002: Exterior temperature (depending on the version)	<b>X = exterior temperature ± 5 °C</b> (invalid value: 215 °C).	If there is a fault, refer to the <b>interpretation of this parameter</b> .
	PR024: Engine coolant temperature	<b>X = engine coolant temperature in °C.</b>	If there is a fault, refer to the <b>interpretation of this parameter</b> .
	ET239: Ignition switch position	<b>+ after ignition feed</b>	In the event of a fault, refer to the <b>interpretation of this status</b> .
	PR025: Engine speed	<b>0 rpm</b>	If there is a fault, refer to the <b>interpretation of this parameter</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine stopped, ignition on, <b>AIR CONDITIONING SWITCHED OFF</b> (Passenger compartment blower unit switched off and air conditioning compressor not activated).</p>
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### SUB-FUNCTION: HEATING (CONTINUED)

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 <b>interpretation of this parameter</b>
	ET111: RCH number set	<p style="text-align: center;"><b>NO</b></p> <p>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)</p>	In the event of a fault, refer to <b>the interpretation of this status</b> .
	ET112: Passenger compartment heating resistor cut-off	<b>YES</b>	In the event of a fault, refer to <b>the interpretation of this status</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine stopped, ignition on, <b>AIR CONDITIONING SWITCHED OFF</b> (Passenger compartment blower unit switched off and air conditioning compressor not activated).</p>
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### SUB-FUNCTION: USER SELECTION

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
UCH (see 87B, Passenger compartment connection unit)	<b>ET028:</b> Heated rear screen button	<b>PRESSED</b> if the heated rear screen key on the air conditioning control panel is pressed. <b>RELEASED</b> otherwise.	In the event of a fault, refer to <b>the interpretation of this status</b> . Note: This status only operates for manual air conditioning and heating versions.
	<b>ET029:</b> Air conditioning button	<b>PRESSED</b> if the AC button on the air conditioning control panel is pressed. <b>RELEASED</b> otherwise.	In the event of a fault, refer to <b>the interpretation of this status</b> .
	<b>ET015:</b> Passenger compartment blower	<b>INACTIVE</b> (according to test conditions: see Notes).	In the event of a fault, refer to <b>the interpretation of this status</b> . Note: This status only operates for manual air conditioning and heating versions.

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine at idle speed, <b>AIR CONDITIONING OPERATING</b> (air conditioning compressor engaged).</p>
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### SUB-FUNCTION: COLD LOOP

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
<b>UCH (see 87B, Passenger compartment connection unit)</b>	<b>PR002:</b> Exterior temperature (depending on the version)	X = exterior temperature $\pm 5$ °C (invalid value: 215 °C)	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>ET142:</b> Engine operating phase	<b>RUNNING</b> Note: this status is displayed by the UCH but is produced by the injection computer.	In the event of a fault, refer to the <b>interpretation of this status (see the INJECTION technical note)</b> .
	<b>ET030:</b> Air conditioning request 2	<b>ACTIVE</b>	In the event of a fault, refer to the <b>interpretation of this status</b> . Note: This status represents the request from the UCH to the injection computer to activate the compressor (refer to the <b>flowchart</b> in the <b>Configuration and Programming</b> section).
	<b>ET015:</b> Passenger compartment blower	<b>ACTIVE</b> (according to test conditions: see Notes).	In the event of a fault, refer to the <b>interpretation of this status</b> . Note: This status only operates for manual air conditioning and heating versions.
	<b>PR025:</b> Engine speed	<b>800 rpm <math>\pm</math> 50 rpm</b>	In the event of a fault, see the <b>interpretation of this parameter</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine at idle speed, <b>AIR CONDITIONING OPERATING</b> (air conditioning compressor engaged).</p>
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### SUB-FUNCTION: COLD LOOP (CONTINUED 1)

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
<b>Injection</b> (see 13B, Diesel injection or 17B, Petrol injection)	<b>ET079:</b> Air conditioning present	<b>YES</b> (automatic injection computer configuration)	If the status displays <b>NO</b> , refer to the <b>interpretation of this status</b> .
	<b>ET088:</b> Compressor actuation request	<b>ACTIVE</b>	If the status displays <b>INACTIVE</b> , refer to the <b>interpretation of this status</b> .
	<b>ET004:</b> Air conditioning authorisation	<b>YES</b>	If the status displays <b>NO</b> , refer to the <b>interpretation of this status</b> .
	<b>PR037:</b> Refrigerant pressure	<b>1 bar &lt; X &lt; 27 bar</b>	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>PR055:</b> Engine speed	<b>800 rpm ± 50 rpm</b>	In the event of a fault, see the <b>interpretation of this parameter</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine at idle speed, <b>AIR CONDITIONING OPERATING</b> (air conditioning compressor engaged).</p>
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### SUB-FUNCTION: COLD LOOP (CONTINUED 2)

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
<b>Injection (continued 1)</b> (see 13B, Diesel injection or 17B, Petrol injection)	<b>ET023:</b> Fast idle speed request	<b>PRESENT</b>	In the event of a fault, refer to the <b>interpretation of this status</b> .
	<b>PR064:</b> Coolant temperature	X = engine coolant temperature	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>PR089:</b> Vehicle speed	<b>0 mph</b>	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>PR125:</b> Power absorbed by the air conditioning compressor	<b>300 W &lt; X &lt; 5000 W</b> (ambient temperature 23 °C)	In the event of a fault, see the <b>interpretation of this parameter</b> .
	<b>ET022:</b> Low speed fan assembly request	<b>ACTIVE</b> if the refrigerant fluid pressure is <b>less than 19 bar</b> , and <b>INACTIVE</b> otherwise	In the event of a fault, refer to the <b>interpretation of this status</b> .
	<b>ET021:</b> High speed fan assembly request	<b>ACTIVE</b> if the refrigerant fluid pressure is <b>greater than 19 bar</b> , <b>INACTIVE</b> otherwise.	In the event of a fault, refer to the <b>interpretation of this status</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine at idle speed, <b>AIR CONDITIONING OPERATING</b> (air conditioning compressor engaged).</p>
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### SUB-FUNCTION: HEATING

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
UCH (continued) (see <b>87B</b> , <b>Passenger compartment connection unit</b> )	<b>ET239:</b> Ignition switch position	<b>+ after ignition feed</b>	In the event of a fault, refer to <b>the interpretation of this status</b> .
	<b>PR025:</b> Engine speed	<b>800 rpm ± 50 rpm</b>	In the event of a fault, see <b>the interpretation of this parameter</b> .
	<b>PR024:</b> Engine coolant temperature	X = engine coolant temperature	In the event of a fault, see <b>the interpretation of this parameter</b> .
	<b>ET015:</b> Passenger compartment blower	<b>ACTIVE</b> (according to test conditions: see Notes).	In the event of a fault, refer to <b>the interpretation of this status</b> . Note: This status only operates for manual air conditioning and heating versions.
	<b>PR001:</b> Battery voltage	<b>12.5 V &lt; X &lt; 14.4 V</b>	In the event of a fault, see <b>the interpretation of this parameter</b> . If the fault is still present, carry out fault finding on the charging circuit (see <b>MR 411 Mechanical, 16A, Starting - Charging</b> ).
	<b>PR002:</b> Exterior temperature (depending on the version)	<b>X = exterior temperature ± 5 °C</b> (invalid value: 215 °C).	In the event of a fault, see <b>the interpretation of this parameter</b> .

<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine at idle speed, <b>AIR CONDITIONING OPERATING</b> (air conditioning compressor engaged).</p>
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### SUB-FUNCTION: HEATING

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
Injection (see 13B, Diesel injection or 17B, Petrol injection)	<b>PR064:</b> Coolant temperature	X = engine coolant temperature	In the event of a fault, see the <b>interpretation of this parameter.</b>
	<b>ET111:</b> RCH number set	<p>YES or NO</p> <p>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)</p>	In the event of a fault, refer to <b>the interpretation of this status.</b>
	<b>ET112:</b> RCH cut-off	<p>YES or NO</p> <p>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)</p>	In the event of a fault, refer to <b>the interpretation of this status.</b>



<b>NOTES</b>	<p>Only carry out this conformity check after a <b>complete check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p><b>Application conditions:</b> engine at idle speed, <b>AIR CONDITIONING OPERATING</b> (air conditioning compressor engaged).</p>
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### SUB-FUNCTION: USER SELECTION

Computer	Parameter or Status checked or Action	Display and Notes	Fault finding
UCH (see 87B, Passenger compartment connection unit)	<b>ET028:</b> Heated rear screen button	<b>PRESSED</b> if the heated rear screen key on the air conditioning control panel is pressed. <b>RELEASED</b> otherwise.	In the event of a fault, refer to <b>the interpretation of this status</b> .
	<b>ET029:</b> Air conditioning button	<b>PRESSED</b> if the <b>AC</b> button on the air conditioning control panel is pressed.	In the event of a fault, refer to <b>the interpretation of this status</b> .
	<b>ET015:</b> Passenger compartment blower	<b>ACTIVE</b> (according to test conditions: see Notes).	In the event of a fault, refer to <b>the interpretation of this status</b> .

SUMMARY TABLE OF THE VARIOUS AIR CONDITIONING COMPUTER COMMANDS

Name of sub-function	Name of computer	Command name	Fault finding
COLD LOOP	Injection (see 13B, Diesel injection or 17B, Petrol injection)	AC180: Air conditioning compressor relay control	In the event of a fault, refer to the <b>interpretation of this command</b> .
		AC153 High speed fan assembly	In the event of a fault, refer to the <b>interpretation of this command</b> .
		AC154 Low speed fan assembly	In the event of a fault, refer to the <b>interpretation of this command</b> .
HEATING	UCH (see 87B, Passenger compartment connection unit)	AC060 Rear screen de-icer	In the event of a fault, refer to the <b>interpretation of this command</b> .
	Injection (see 13B, Diesel injection or 17B, Petrol injection)	AC250 Heating resistor relay 1	In the event of a fault, refer to the <b>interpretation of this command</b> .
		AC251 Heating resistor relay 2	In the event of a fault, refer to the <b>interpretation of this command</b> .
USER SELECTION	UCH (see 87B, Passenger compartment connection unit)	AC015 Air conditioning button indicator light	In the event of a fault, refer to the <b>interpretation of this command</b> .
		AC019 Heated rear screen indicator light	In the event of a fault, refer to the <b>interpretation of this command</b> .

Fault finding procedures for the commands listed in this summary are explained in the Workshop Repair Manuals relating to the computer which generates the signal (see **Introduction**).

<b>NOTES</b>	<b>Special notes:</b> This section corresponds to the list of possible customer complaints.
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**AIR DISTRIBUTION PROBLEM**

—	<b>AIR DISTRIBUTION PROBLEM</b>	<b>ALP 2</b>
—	<b>AIR FLOW FAULT</b>	<b>ALP 3</b>
—	<b>INEFFICIENT WINDSCREEN DEMISTING</b>	<b>ALP 4</b>
—	<b>NO PASSENGER COMPARTMENT VENTILATION</b>	<b>ALP 5</b>

**HEATING FAULT**

—	<b>NO HEATING OR LOSS OF HEATING (section 61A)</b>	<b>ALP 6</b>
—	<b>TOO MUCH HEATING (section 61A)</b>	<b>ALP 7</b>

**AIR CONDITIONING FAULT**

—	<b>NO COLD AIR</b>	<b>ALP 8</b>
—	<b>TOO MUCH COLD AIR</b>	<b>ALP 9</b>
—	<b>INEFFICIENT REAR SCREEN DE-ICING/DEMISTING</b>	<b>ALP 10</b>

**PASSENGER COMPARTMENT ODOURS**

—	<b>UNPLEASANT ODOURS IN PASSENGER COMPARTMENT</b>	<b>ALP 11</b>
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**WATER IN PASSENGER COMPARTMENT**

**WATER IS PRESENT IN PASSENGER COMPARTMENT**

**ALP 12**

**CONTROL PANEL FAULT**

**NO CONTROL PANEL LIGHTING**

**ALP 13**

**COMPRESSOR NOISES**

**COMPRESSOR NOISES**

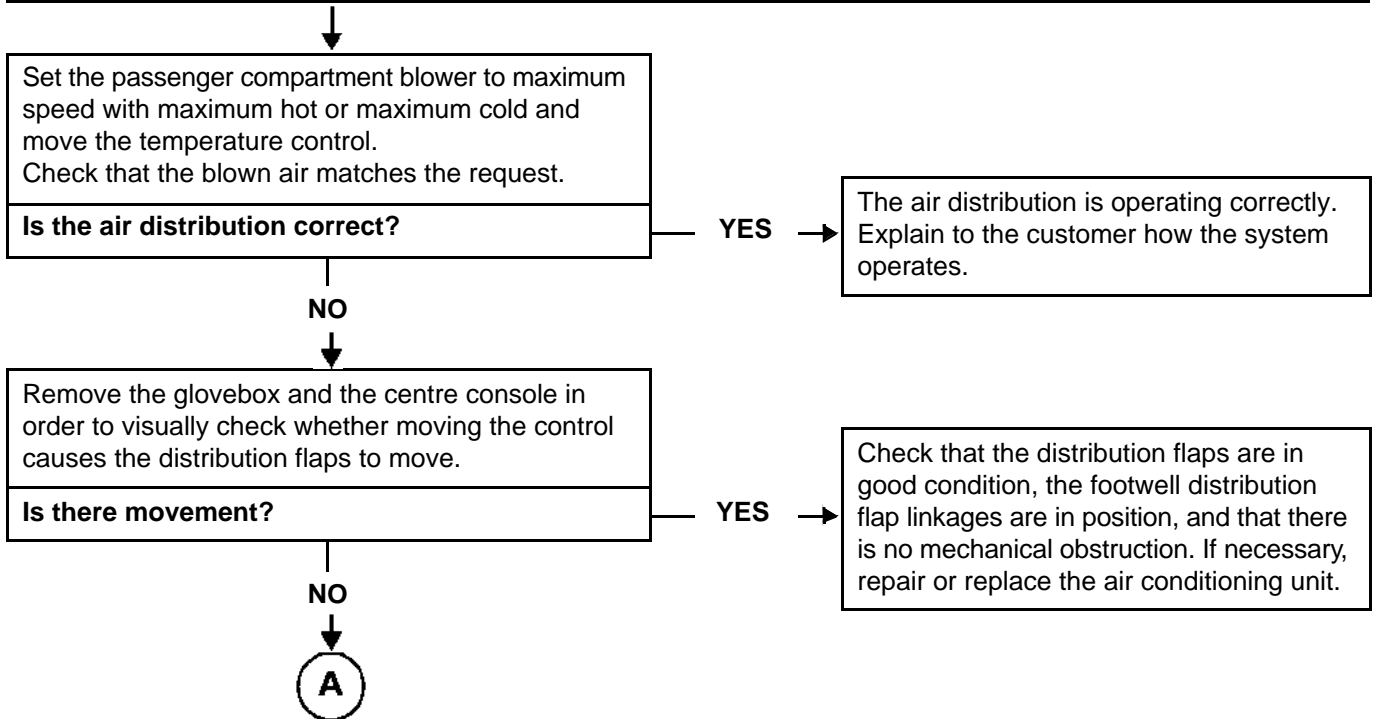
**ALP 14**

<b>ALP 2</b>	<b>Air distribution fault</b>
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<b>NOTES</b>	Check that the <b>air circuit (cabin filter, scuttle panel grille, air ducts etc.)</b> is not blocked.
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Make sure that **the air circuit (cabin filter, scuttle panel grille, air ducts etc.)** is not blocked.  
 Ensure that the passenger compartment blower is in good condition.  
 Repair, clean or change the cabin filter if necessary.

Ensure that the passenger compartment blower unit is properly **sealed**.  
 Repair if necessary.



<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<p><b>ALP 2 CONTINUED</b></p>	
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A



Check that the cable routing is clean and that the cables are in good condition.  
Repair if necessary.



Make sure that the controls are in good condition and that they move the cables correctly.  
Repair if necessary.



**End of fault finding procedure.**

<p><b>AFTER REPAIR</b></p>	<p>Carry out a complete check with the <b>diagnostic tool</b>.</p>
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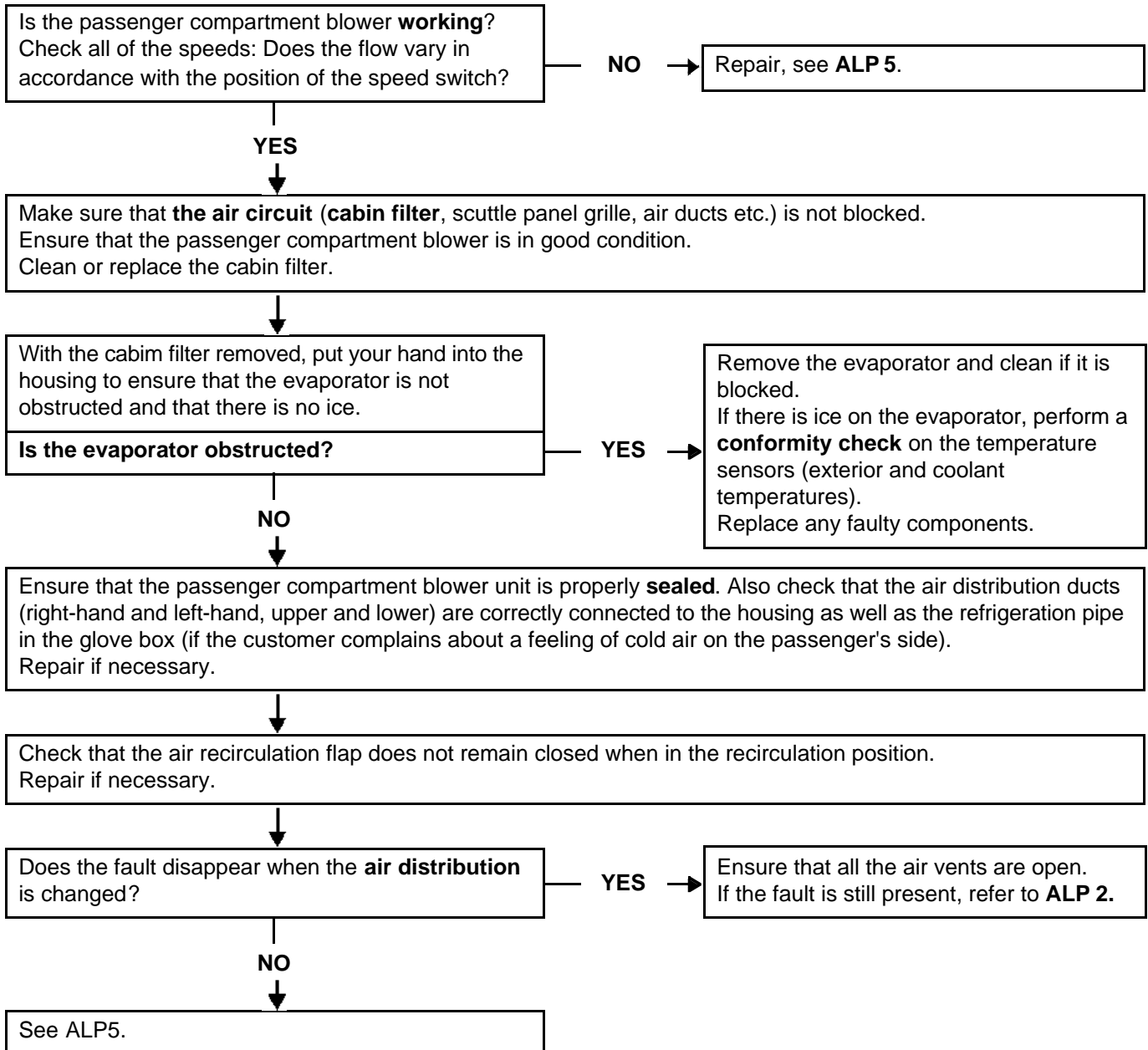
# MANUAL AIR CONDITIONING

## Fault finding - Fault finding charts

# 62C

<b>ALP 3</b>	<b>Air flow fault</b>
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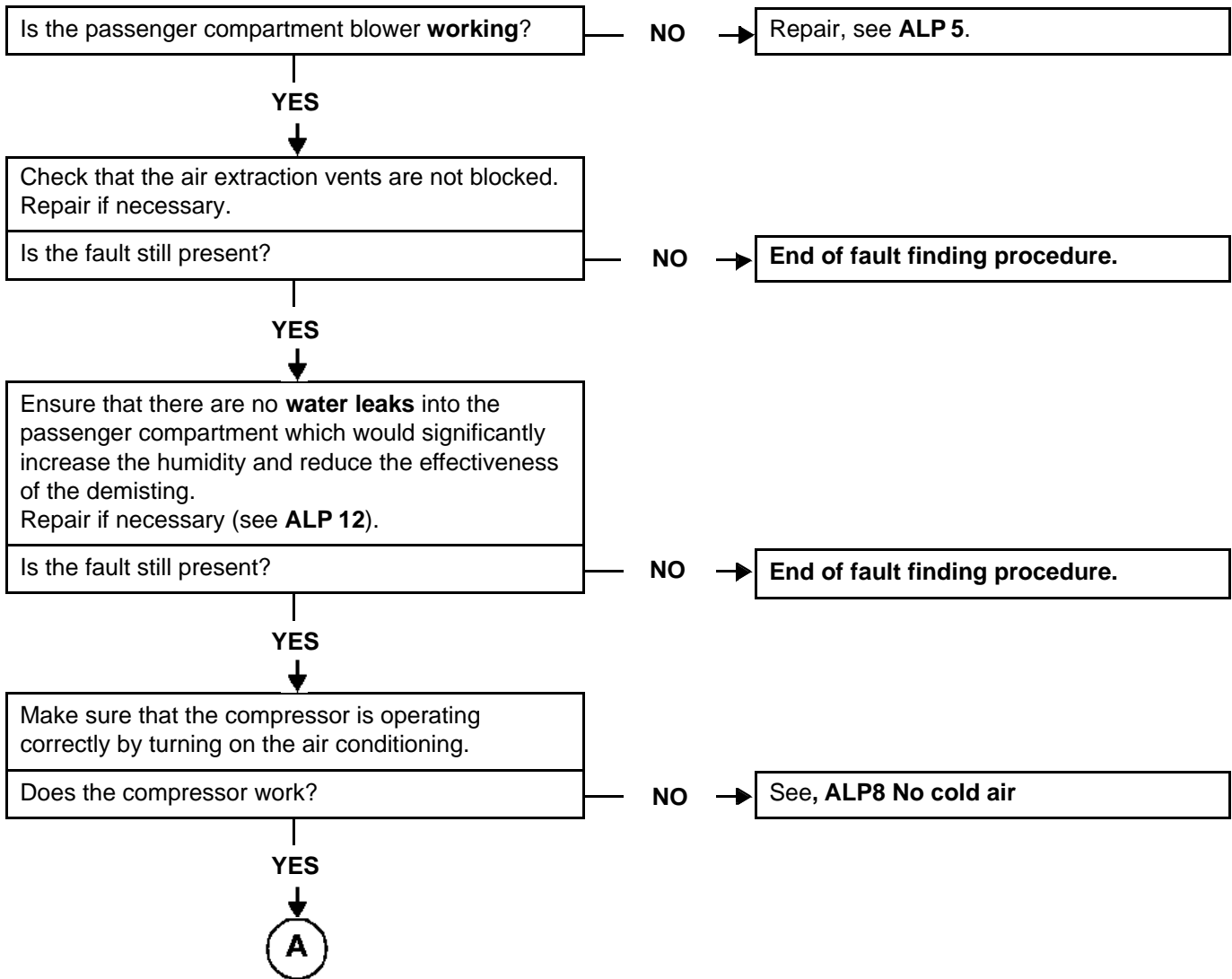
<b>NOTES</b>	
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<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 4</b>	<b>Inefficient windscreen demisting</b>
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<b>NOTES</b>	<p><b>Special notes:</b>                  Check that the inside of the windows are not dirty, as this reduces the efficiency of demisting.</p>
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<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 4 CONTINUED</b>	
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A



Check that the condensation evacuation port (water from the evaporator) is not blocked.  
Repair if necessary.



Is there an **air distribution** fault? — YES → See ALP 2.

NO



Is there an **air flow** fault? — YES → See ALP 3.

NO



Is there a **heater performance** fault? — YES → See 61A, Heating, Fault finding chart, ALP 6: No heating or loss of heating.

NO



Check that the recirculation flap is in the **external air** position.  
Repair if necessary (see MR 411 Mechanical, 61A, Heating, Recirculation control cable: Removal - Refitting).

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 5</b>	<b>No passenger compartment ventilation</b>
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<b>NOTES</b>	Check that fuse <b>F28 (30A)</b> is in good condition.
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Check that the **air circuit (cabin filter, scuttle panel grille, air ducts etc.)** is not blocked.  
 Is the air circuit in good condition?

**YES**

**NO**

If necessary, repair, clean or replace the cabin filter (see **MR 411 Mechanical, 61A, Heating, Cabin filter: Removal - Refitting**).

Check the condition of the passenger compartment blower blades.  
 Are the passenger compartment blower blades in good condition?

**YES**

**NO**

Check that the air recirculation flap does not remain closed when in the recirculation position. Repair if necessary.

If necessary, repair, clean or replace the passenger compartment blower blades (see **MR 411 Mechanical, 61A, Heating, Fan assembly: Removal - Refitting**).

Is the fault still present when the air distribution is changed?

**YES**

Ensure that all the air vents are open. If the fault is still present (see **ALP2 Air distribution fault**).

**NO**



<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 5 CONTINUED 1</b>	
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A

Using a multimeter in the voltmeter position, check for + 12 V on connection **SP3** of component **164** and earth **MAN** of component **319**.

Are the checks correct?

YES

NO

Is the vehicle fitted with electric windows?

YES

NO

Carry out a continuity test on connection **SP3** between components **164** and **1428**.

Carry out a continuity test on connection **SP3** between components **164** and fuse **F28 (30A)** of component **1016**.

YES

NO

NO

YES

D

Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check fuse **F28 (30A)** of component **1016**.

Make sure that the control panel speed selection button works properly. Position the speed selection button on speed 1 and carry out a continuity check between connection **MAN** and connection **38AH** of component **319**. Position the speed selection button on speed 2 and carry out a continuity check between connection **MAN** and connection **38AJ** of component **319**. Position the speed selection button on speed 3 and carry out a continuity check between connection **MAN** and connection **38AK** of component **319**. Position the speed selection button on speed 4 and carry out a continuity check between connection **MAN** and connection **38AL** of component **319**.

Are the checks correct?

YES

NO

B

Replace the air conditioning control panel.

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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ALP 5  
 CONTINUED 2



Carry out a continuity test on connection **38AH** between components **319** and **164**.  
 Is the continuity correct?

YES  
 ↓

NO  
 ↓

Carry out a continuity test on connection **38AJ** between components **319** and **164**.

Fault on connection **38AH** between components **319** and **164**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Is the continuity correct?

YES  
 ↓

NO  
 ↓

Carry out a continuity test on connection **38AK** between components **319** and **164**.

Fault on connection **38AJ** between components **319** and **164**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Is the continuity correct?

YES  
 ↓

NO  
 ↓

Carry out a continuity test on connection **38AL** between components **319** and **164**.

Fault on connection **38AK** between components **319** and **164**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Is the continuity correct?

YES  
 ↓

NO  
 ↓



Fault on connection **38AL** between components **319** and **164**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

**AFTER REPAIR**

Carry out a complete check with the **diagnostic tool**.

<p><b>ALP 5 CONTINUED 3</b></p>	
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(C)



Disconnect the connector of component **1156**, position the speed switch in position V4.  
Using a test light, check for **+ 12 V** between connections **38DA** and **38DB** of component **1156**.

Does the test light illuminate?

YES



NO



Replace fan assembly 1 (see **MR 411 Mechanical, 61A, Heating, Fan assembly control unit: Removal - Refitting**).

Carry out a continuity test on connection **38DA** between components **1156** and **164**.

Is the continuity correct?

YES



NO



Carry out a continuity test on connection **38DB** between components **1156** and **164**.

Fault on connection **38DA** between components **1156** and **164**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Is the continuity correct?

YES



NO



End of procedure.

Fault on connection **38DB** between components **1156** and **164**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

<p><b>AFTER REPAIR</b></p>	<p>Carry out a complete check with the <b>diagnostic tool</b>.</p>
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ALP 5  
 CONTINUED 4

D

Using a test light, check for + 12 V between connection **SP2** and earth **MAM**.  
 Is the test light lit?

YES

NO

Using a test light, check for + 12 V between connection **BP1** of component **1428** and a chassis earth.  
 Is the test light lit?

Using a test light, check for + 12 V between connection **SP2** and a chassis earth.  
 Is the test light lit?

YES

NO

YES

NO

Activate speed 1 and, using a test light, check for + 12 V between connection **SP3** of component **1156** and a chassis earth.  
 Is the test light lit?

Carry out a continuity test on connection **BP1** between component **1428** and fuse **F24 (30A)** of component **1016**.  
 Is the continuity correct?

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

Carry out a continuity test on connection **SP2** between component **1428** and fuse **F29-15A** of component **1016**

YES

NO

YES

NO

Is the continuity correct?

Replace the fan assembly.

Replace the fan assembly relay.

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

YES  
 B

NO  
 C

A

**AFTER REPAIR** Carry out a complete check with the **diagnostic tool**.

<p>ALP 5 CONTINUED 5</p>	
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Check fuse **F24-30A** of component **1016**.



Check fuse **F29-15A** of component **1016**.



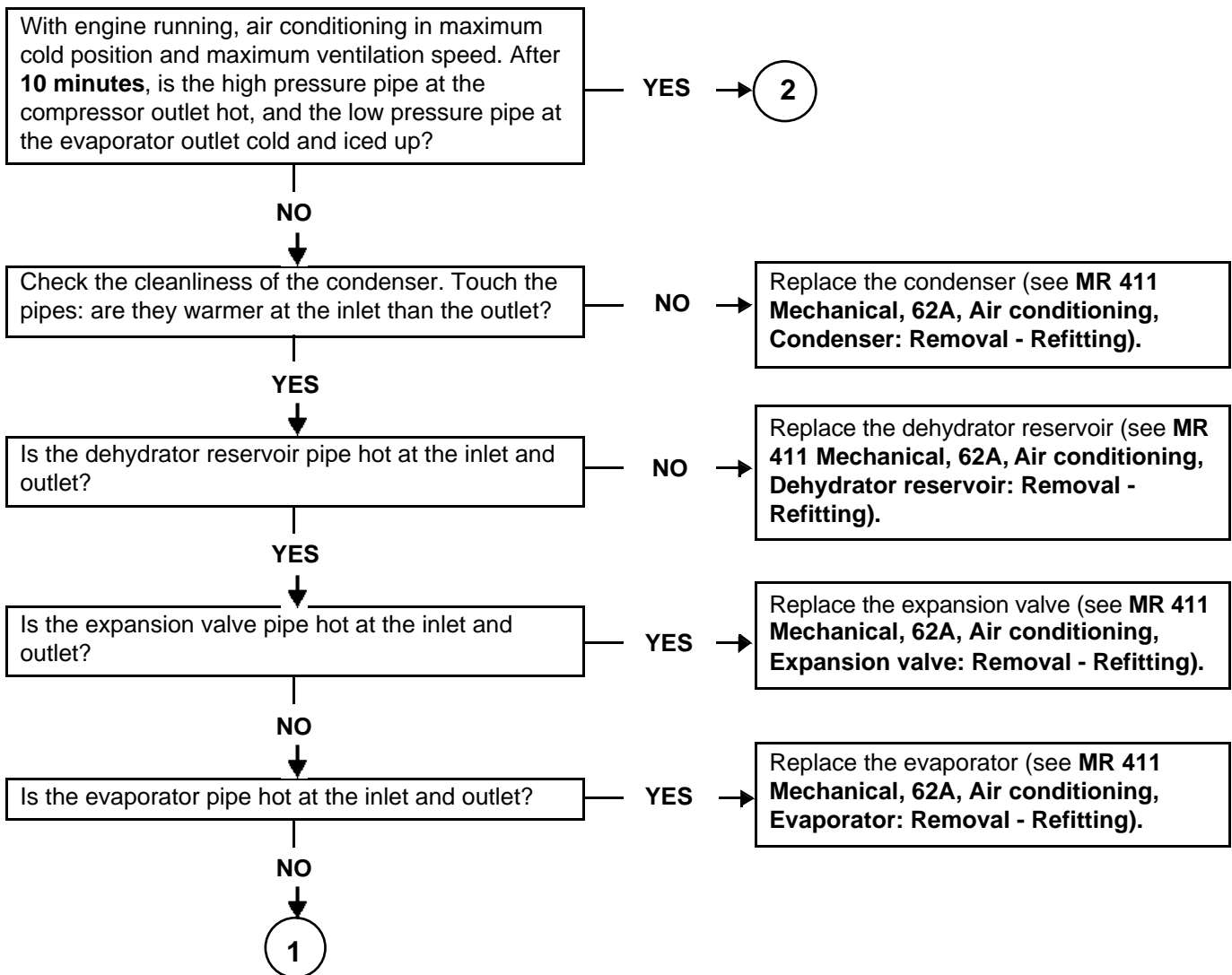
Fault on connection **SP2**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

<p><b>AFTER REPAIR</b></p>	<p>Carry out a complete check with the <b>diagnostic tool</b>.</p>
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<b>ALP 8</b>	<b>No cold air</b>
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<b>NOTES</b>	<p>Consult this customer complaint after a <b>full check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p>Check that the engine speed is greater than <b>750 rpm</b> and that the exterior temperature is above 3 °C.</p> <p>Check that the fuses are sound.</p> <p>Use a multimeter and a 21 W test light.</p> <p>Use the <b>Wiring Diagram Technical Note, New Twingo</b>.</p>
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Preliminary cold loop efficiency test



<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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**ALP 8  
 CONTINUED 1**

1

Using the diagnostic tool statuses and parameters screen (**UCH heating sub-function**), check that the temperature signals are consistent (no sensor deviations resulting in incorrect measurement).

- Use statuses **PR002 Exterior temperature** and **PR024 Engine coolant temperature**.

**Are the temperature signals consistent?**

Carry out a **conformity check**:

- For the coolant temperature sensor, see **13B, Diesel injection, Fault summary table** or **17B Petrol injection, Fault summary table**.
- For the exterior temperature sensor, see **87B, Passenger compartment connection unit, Fault summary table**.

Replace any faulty components.

YES

Start the engine and switch on the air conditioning by pressing the AC button (with a request for maximum cold temperature and the passenger compartment blower running).

Display the following status in the “User selection” sub-function screen:  
**ET029 Air conditioning button** should be **PRESSED**.  
 Note:  
 The status indicates if the signal for the AC button pressed on the control panel is read by the UCH correctly.

**Does status ET029 display PRESSED?**

2

Continuity fault on connection **38LP**. Using an ohmmeter, carry out a continuity test on connection **38LP** between components **319** and **645**. If there is a procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace the wiring.

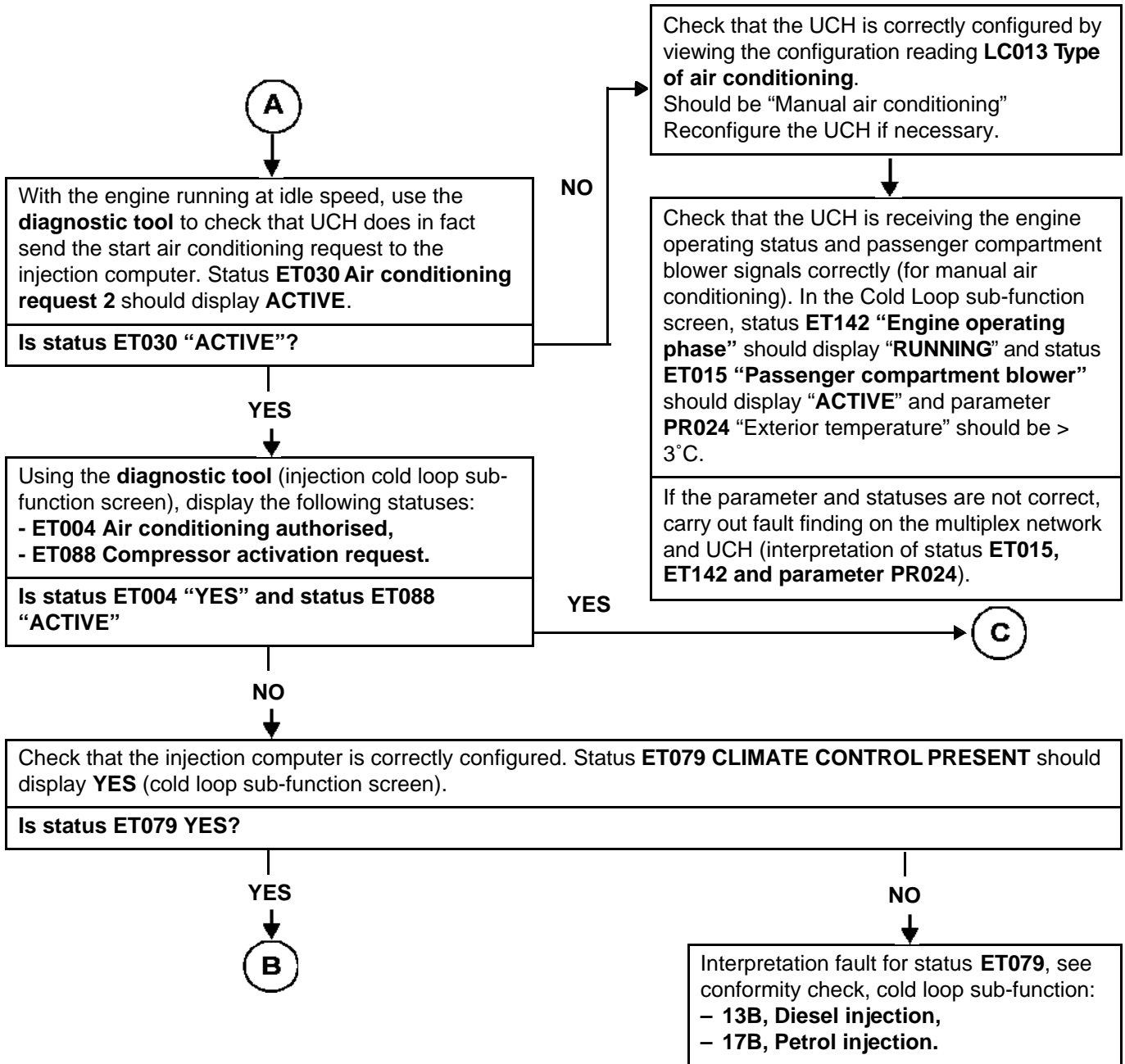
YES

A

**AFTER REPAIR**

Carry out a complete check with the **diagnostic tool**.

<b>ALP 8 CONTINUED 2</b>	
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<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 8 CONTINUED 3</b>	
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(B)

Carry out **fault finding on the injection system** to ensure that no fault is present (if faults are displayed by the injection computer, engagement of the air conditioning may be inhibited). If there are present or stored faults, **carry out the necessary repairs (see 13B, Diesel injection or 17B, Petrol injection)**.

Check that the **refrigerant fluid pressure** is correct (neither too low nor too high) using the **PR037 Refrigerant fluid pressure** parameter (see **Conformity check, Cold loop sub-function**).

Check that the engine cooling fan assembly is at speed 1 by viewing the following status on the cold loop sub-function screen:  
 – Status **ET022 Low-speed fan assembly request** should display ACTIVE.  
 Note:  
 These statuses are not displayed by all types of injection (see **Conformity check, Cold loop sub-function**).

**Does the engine cooling fan operate at low speed?**

YES  
 ↓  
 (C)

Using the **diagnostic tool**, run command **AC154 Low speed fan assembly relay**.

**Does the engine cooling fan operate at low speed?**

NO  
 ↓

YES  
 ↓

Connector of component **321** disconnected. Connect a test light between connection **49L** of component **321** and the chassis **earth** and run command **AC154 Low speed fan assembly relay**.

**Does the test light illuminate?**

YES  
 ↓

NO  
 ↓  
 (D)

Measure the resistance of component **321**, between connections **49L** and **49B** of component **321**. If the resistance measured is infinite, replace the fan assembly resistor (component **321**).

Carry out fault finding on the injection system (sub-function: cold loop and engine cooling for low speed fan assembly activation).

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 8 CONTINUED 4</b>	
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Check the continuity of connection **49L** between components **321** and **700**.  
Is the continuity correct?

NO  
↓

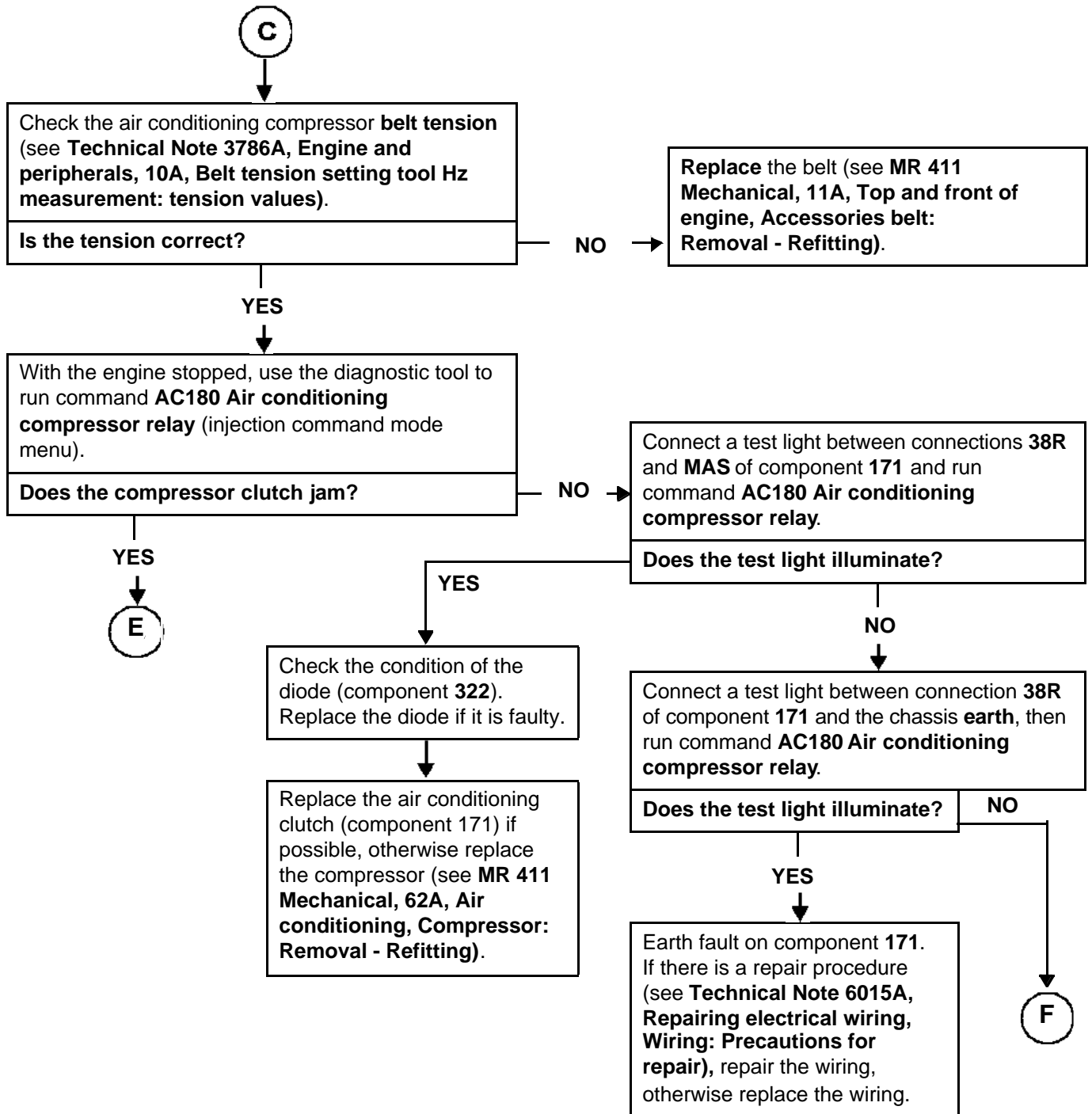
YES  
↓

Continuity fault on connection **49L**. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check that the low speed fan assembly relay operates correctly (component **700**). Replace it if it is faulty (see **MR 411 Mechanical, 81C, Fuses, Fuses: List and location of components**).

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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ALP 8  
 CONTINUED 5



<b>ALP 8 CONTINUED 6</b>	
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Check the continuity and insulation to earth of connection **38R** between components **171** and **584**.

Is the connection **OK**?

YES  
↓

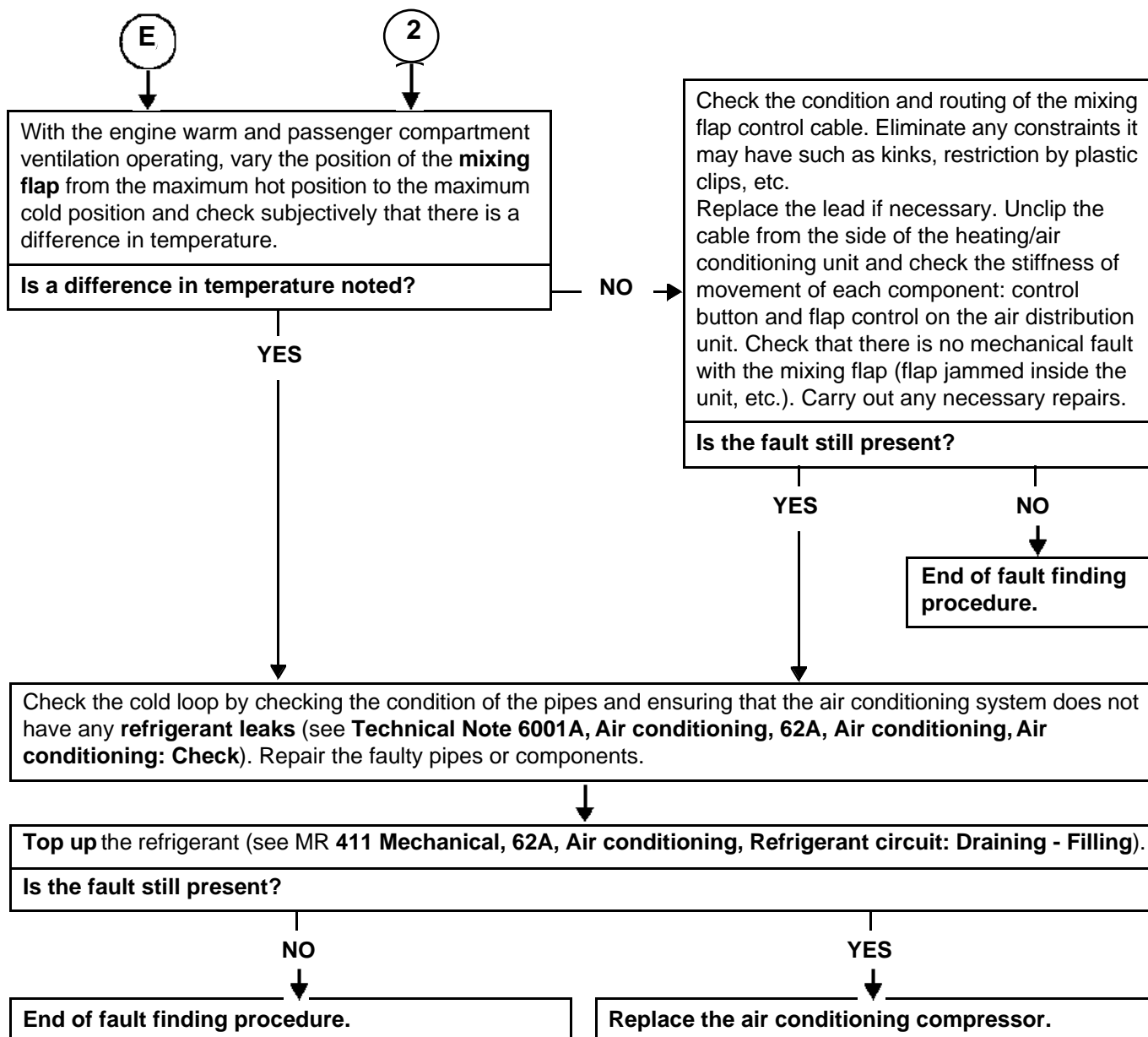
NO  
↓

Apply the fault finding procedure for command **AC180 Air conditioning compressor relay** (see **13B Diesel injection** or **17B Petrol injection**).

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

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 8 CONTINUED 7</b>	
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<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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# MANUAL AIR CONDITIONING

## Fault finding - Fault finding charts

# 62C

<b>ALP 9</b>	<b>Too much cold air</b>
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<b>NOTES</b>	<p>Consult this customer complaint after a <b>full check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).</p> <p>Check that the fuses are sound.</p> <p>Use a multimeter and a 21 W test light.</p> <p>Use the <b>Wiring Diagram Technical Note, New Twingo</b>.</p>
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With the engine at idle speed and the heating and air conditioning off (**AC** button not pressed), check that the air conditioning compressor clutch is not engaged.

**Is the air conditioning compressor clutch engaged?**

NO



YES

With the engine stopped, check that the compressor clutch electric control operates correctly, using the **diagnostic tool** to run command **AC180 Air conditioning compressor relay** (injection command mode menu).

- During the command, connection **38R** of component **171** must be supplied with + 12 V.
- After the command, connection **38R** of component **171** must no longer be supplied with + 12 V.

**Is the connection still supplied with + 12 V after the command?**

YES

NO

Check the continuity and insulation from + 12 V of connection **38R** between components **171** and **584**.

**Is the connection OK?**

NO

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

YES

With the vehicle ignition off, check that the compressor clutch relay is not "jammed", by checking the continuity between connection **38R** and connection **AP3** of component **584**.

**Is the continuity present?**

NO

Apply the fault finding procedure for command **AC180 Air conditioning compressor relay** (see **13B Diesel injection** or **17B Petrol injection**).

**Is the fault still present?**



Check that the air conditioning compressor clutch is not jammed (mechanical fault).

**Is the clutch still engaged?**

YES

**Replace the air conditioning compressor** (see **MR 411, Mechanical, 62A, Air conditioning, Compressor: Removal - Refitting**).

**Replace the air conditioning compressor clutch relay.**

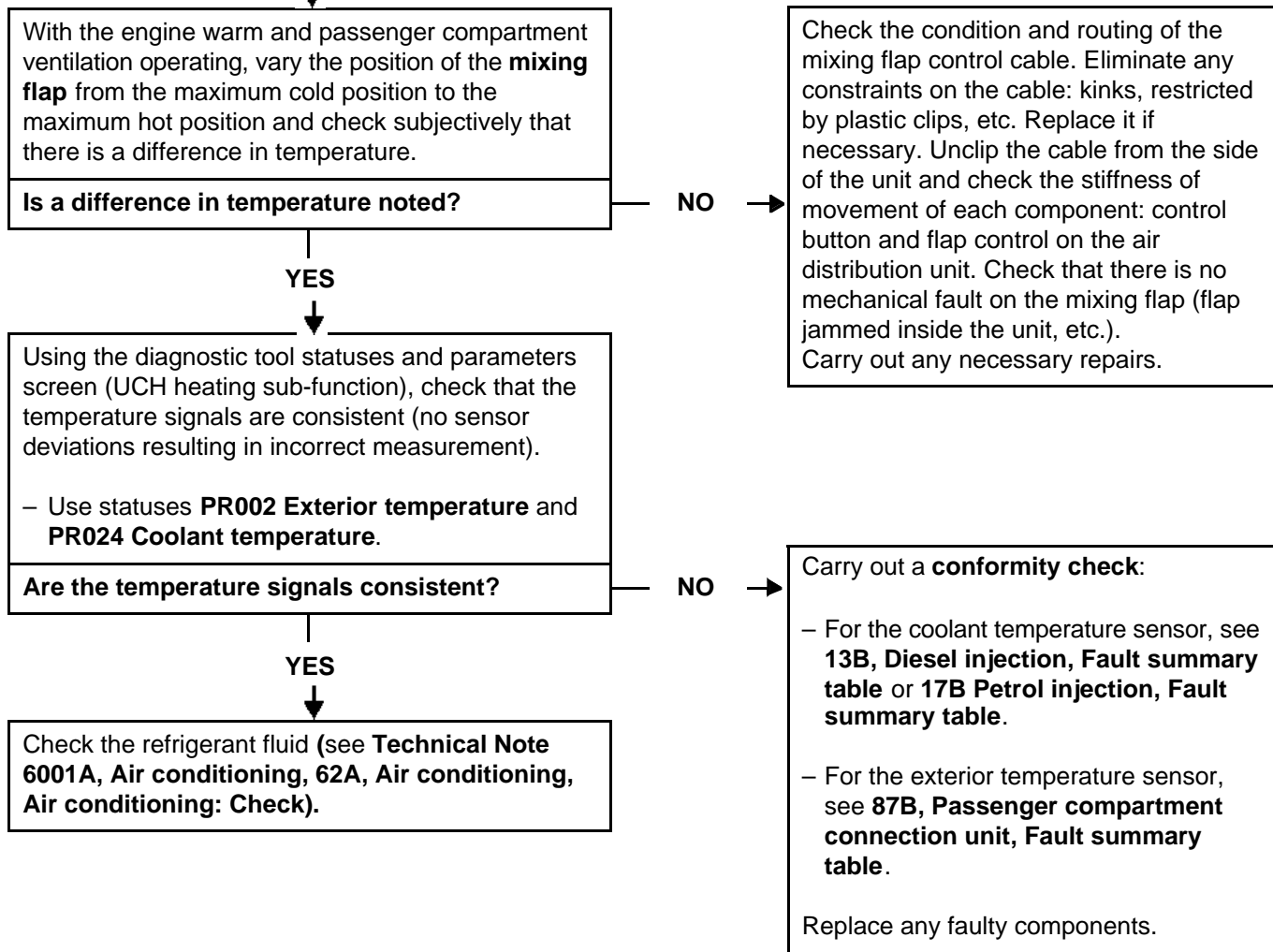
YES

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 9 CONTINUED</b>	
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A



<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 10</b>	<b>Inefficient rear screen de-icing/demisting</b>
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<b>NOTES</b>	<p>Carry out this conformity check after a <b>full check</b> using the <b>diagnostic tool</b> (fault reading, especially UCH and injection faults and configuration checks).                  Check that the fuses are sound.                  Use a multimeter and a 21 W test light.                  Use the <b>Wiring Diagram Technical Note, New Twingo</b>.</p>
	<p><b>Special notes:</b>                  Check that the inside of the windows are not <b>greasy</b> as this reduces the efficiency of the de-icing.</p>
	<p>Note:  <b>The de-icing control is only authorised when the engine is running to save power. The rear screen de-icer is controlled by</b> pressing the rear screen de-icer button (with time delay and rear-view mirror de-icer if fitted).</p>

Ensure that there are no water leaks in the passenger compartment which would significantly increase the moisture and reduce the effectiveness of the demisting function (see **ALP 12** if the fault is noted).

**Is the fault still present?**

YES

NO

Check that the UCH receives the signal about the status and operation of the engine. In the Cold Loop screen, status **ET142 Engine operating phase** should display **RUNNING**.

**Is status ET142 RUNNING?**

YES

NO



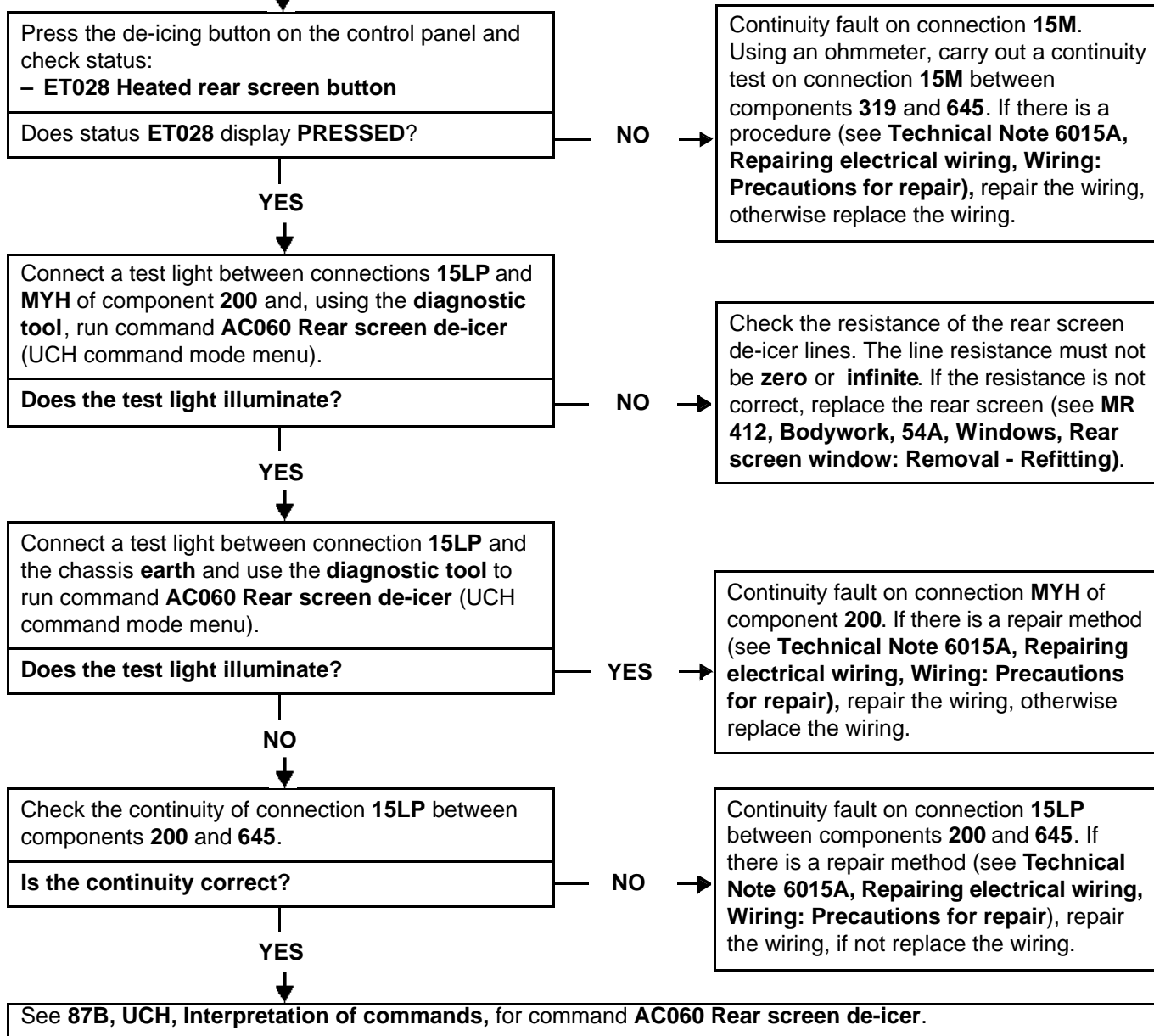
**End of fault finding procedure.**

Carry out fault finding on the UCH (interpretation of status **ET142**) and on the multiplex network.

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 10 CONTINUED</b>	
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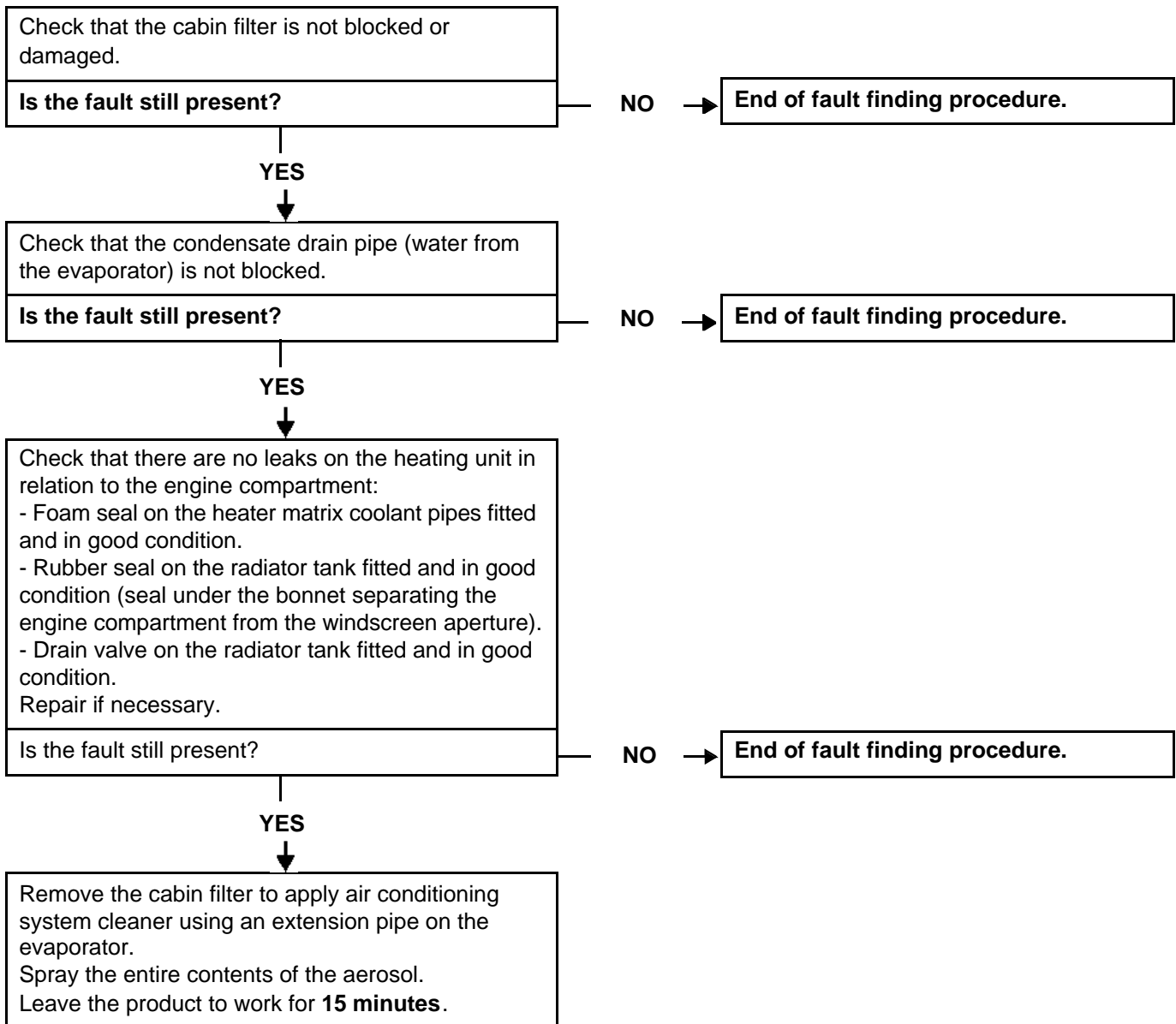
A



<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 11</b>	<b>Unpleasant odours in the passenger compartment</b>
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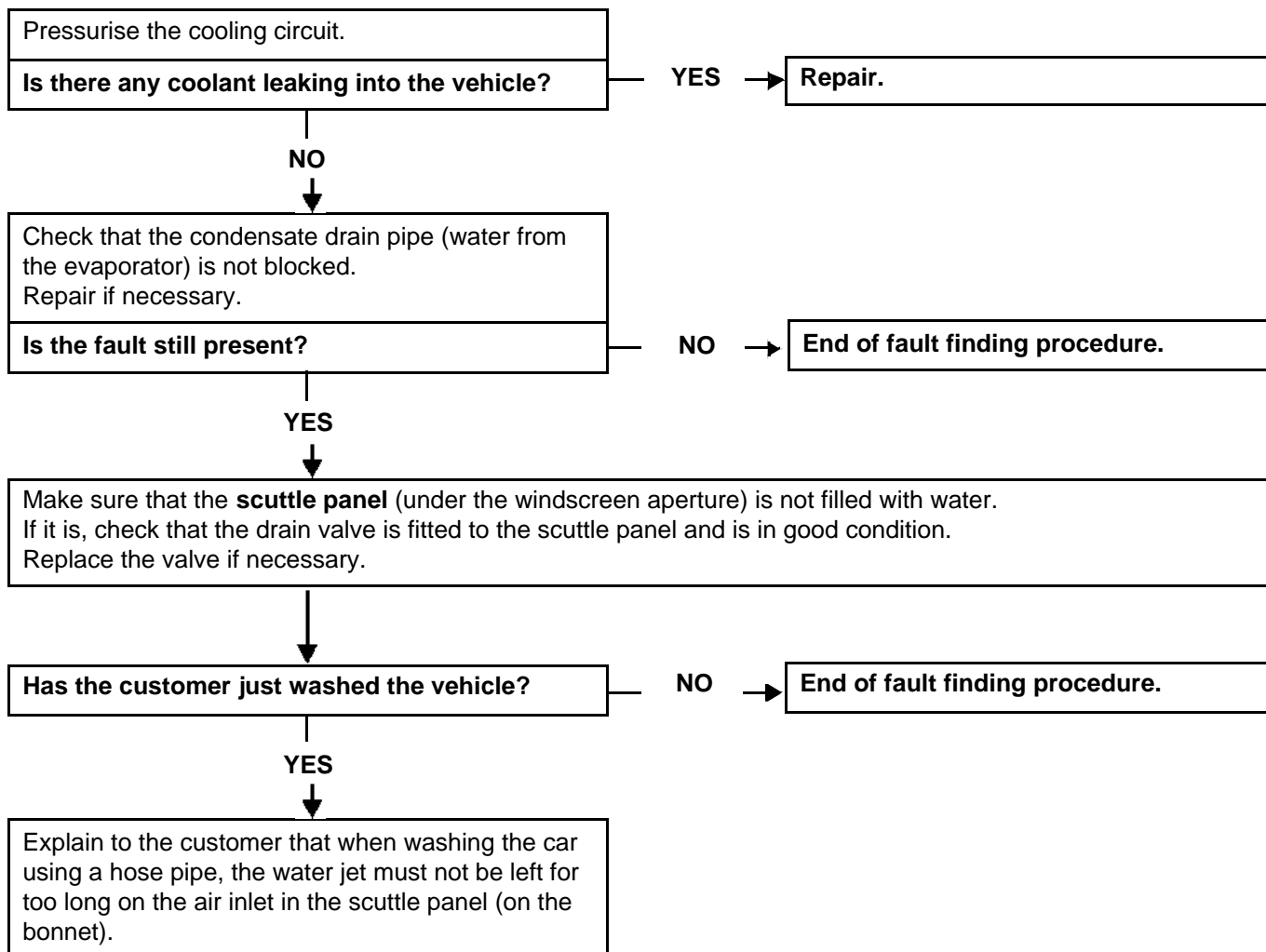
<b>NOTES</b>	None.
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<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 12</b>	<b>Water is present in the passenger compartment</b>
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<b>NOTES</b>	None.
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<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 13</b>	<b>No lighting on the control panel in night mode</b>
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<b>NOTES</b>	Check fuse F42-10A of component 1016.
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Using a test light, check for + 12 V between connection **LPD** and connection **NAM** of component **319**.

Does the test bulb illuminate?

**YES**



**NO**



Check the condition of the air conditioning control panel bulbs.

Are the bulbs sound?

**YES**



**NO**



Replace the air conditioning control panel.

Replace the air conditioning control panel bulb(s).

Carry out a continuity test on connection **LPD** between component **319** and **F42-10A** of component **1016**.

Is the test correct?

**YES**



**NO**



Using the test light, check for + 12 V between connection **LPD** of component **319** and the chassis earth.

Fault on connection **LPD** between F42-10A of components **1016** and **319**. Repair the wiring. If there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Is the test correct?

**NO**



**YES**



Replace the air conditioning control panel

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

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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<b>ALP 14</b>	<b>Noisy compressor</b>
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<b>NOTES</b>	Consult this customer complaint after a <b>full check</b> with the <b>diagnostic tool</b> (fault reading and configuration checks).
	<b>WARNING</b> Check that the computers active in the AIR CONDITIONING function (Injection and UCH) are correctly configured.
	Note: Before starting any work, check that the noise is indeed coming from the compressor.

Check that the compressor **belt is in good condition** and **check its tension** (for engines without automatic tensioning) (see **MR 411, Mechanical, 11A, Top and front of engine, Accessories belt: Removal - Refitting**).



Check that the compressor is **correctly fixed** (see **MR 411 Heating and air conditioning system, 62A, Air conditioning, Compressor: Removal - Refitting**).



Check the refrigerant fluid and look for any leaks. Significant loss of fluid causes the compressor to make noises. (see **Technical Note 6001A, Air conditioning, 62A, Air conditioning, Air conditioning: Check**).



If the fault is still present, **replace** the air conditioning compressor (see **MR 411, Mechanical, 62A, Air conditioning, Compressor: Removal - Refitting**).

<b>AFTER REPAIR</b>	Carry out a complete check with the <b>diagnostic tool</b> .
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