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CONDIZIONATORE

191 - Giulietta

AIR CONDITIONING - DESCRIPTION

An automatic system manages the passenger compartment climate control, in other words the temperature and the ventilation, with recirculation and direction of the air flows, with separate temperature management for the left and right sides of the passenger compartment.

A special control unit manages the operation of the system by controlling:

- air temperature at the vents - driver's/passenger side;

- air distribution to the vents;

- fan speed (continuous variation);

- compressor engagement (air refrigeration circuit);

- air recirculation engagement;

- the MAX-DEF rapid defrosting function (which consists of a collection of measures which make it possible to demist both the windscreen and the rearscreen quickly);

The control unit sets the above parameters so that temperature of the passenger compartment is adjusted to the desired temperature. The system controls are located on the outside of the container which houses the control unit.

The following parameters/functions can be altered manually:

- fan speed;

- distribution arrangement;

- compressor disabling;

- defrosting/demisting;

- recirculation.

Manual selections always take priority over automatic ones and are memorised until the user cancels the command by returning to automatic operation.

The control unit acquires information on the temperature and climate conditions both inside and outside the vehicle by means of special sensors:

- outside temperature sensor, located on the passenger door mirror: the sensor value is acquired by the Body Computer and is then sent, via the CAN, to the climate control system control unit as well as to the instrument panel and to other consumers;

- solar sensor - located at the bottom of the rear view mirror - detects the radiation value on the windscreen; the same sensor detects also temperature inside the car;

- demisting sensor - located at the bottom of the rear view mirror as well - detects the present of droplets of water (mist) on the inner surface of the windscreen; this information engages the demisting strategy and the air distribution and ventilation are modified.

- the exhaust gas presence sensor (A.Q.S.: Air Quality Sensor): it is placed next to the windscreen wiper motor and provides a signal when the air pollution index exceeds the pre-set harmful levels; this signal engages the recirculation in order to prevent polluted air from entering the passenger compartment;

- treated air sensors: four sensor measure the temperature at the vent outlet and send this information to the control unit;

- 'frost" sensor on the evaporator: it temporarily deactivates the compressor if temperature drops to 0°C, with risk of "frost" on the evaporator.

On the basis of the calculations made, the following are set:

- the speed of the air introduced in the passenger compartment by means of an electronic governor that controls the fan;

- the temperature of the actual air by means of two mixture actuators (one for the right side of the passenger compartment and one for the left side)

- the distribution of the flows through a suitable actuator;

- the interior/exterior air recirculation function by means of another specific actuator.

All actuators are controlled by an electronic control unit.

If the conditions require, the control unit also switches on the air cooling and dehumidification circuit, activating the air conditioning compressor

See E6021 COMPRESSOR ENGAGEMENT

For more details,

See descriptions 5040 AIR CONDITIONING CASING AND COMPONENTS

When the outside temperature measured is less than 3 °C the message "Danger, Ice" is shown on the instrument panel display with the snow symbol; this situation is also signalled by a buzzer.

AIR CONDITIONING - FUNCTIONAL DESCRIPTION

The climate control system control unit M070 receives direct supply at pin 5 from the line protected by fuse F36 of M001, whilst pin 3 receives an "ignition-controlled" supply (INT) from the line protected by fuse F51 of M001.

The pin 40 of M070 is earthed.

The climate control system control unit M070 is connected – from pins 37 and 38 - through the CAN line, to the Body Computer M001 and to the other network nodes.

See E1050 CAN CONNECTION LINES

The solar sensor is located on the rear view mirror P065, is powered by the INT line protected by fuse F49 of M001 and sends a signal to pin 34 of the control unit M070.

The demisting sensor is located on the rear view mirror P065, is powered by the INT line protected by fuse F49 of M001 and sends a signal to pin 33 of the control unit M070.

Sensors K111 (right lower treated air) and K113 (left lower treated air), K110 (right upper treated air) and K112 (left upper treated air) are connected to control unit M070: these sensors receive a reference earth from pins 18-24, 16-27, 17-25 and 19-26 of M070.

The exhaust gas presence sensor (A.Q.S.) K064 provides a control signal for recirculation when air pollution index exceeds pre-set harmful levels: it is "ignition-controlled" supplied (INT) by the line protected by fuse F51 of M001 and sends a signal to pin 35 of M070.

The frost sensor K086 is connected to pins 12 and 23 of M070.

The sensor that measures the outside temperature is located in the passenger door mirror P061; the sensor is connected to the Body Computer M001 and from there to M070 via the CAN.

The outside temperature sensor signal is sent to the Body Computer M001 - pin 37 of connector F - whilst pin 52 provides the reference earth.

The Body Computer M001 - connector A - receives a direct power supply from the battery through the line protected by maxi fuse F01 of the engine compartment junction unit B001.

The Body Computer M001 receives an "ignition-operated" power supply (INT) at pin 2 of connector G and "ignition-operated power supply - start-up excluded" (INT/A) at pin 9 of connector G.

Pin 11 of connector G of M001 provides the Body Computer with a reference earth.

The recirculation actuator N082 is controlled by control unit M070 through pins 10 and 28.

The mixing actuator N078 is controlled by the control unit M070 through pins 29-8. It receives power to control the potentiometer from pin 1 of M070, a reference earth from pin 14 of M070 and sends a feedback signal to pin 31 of M070.

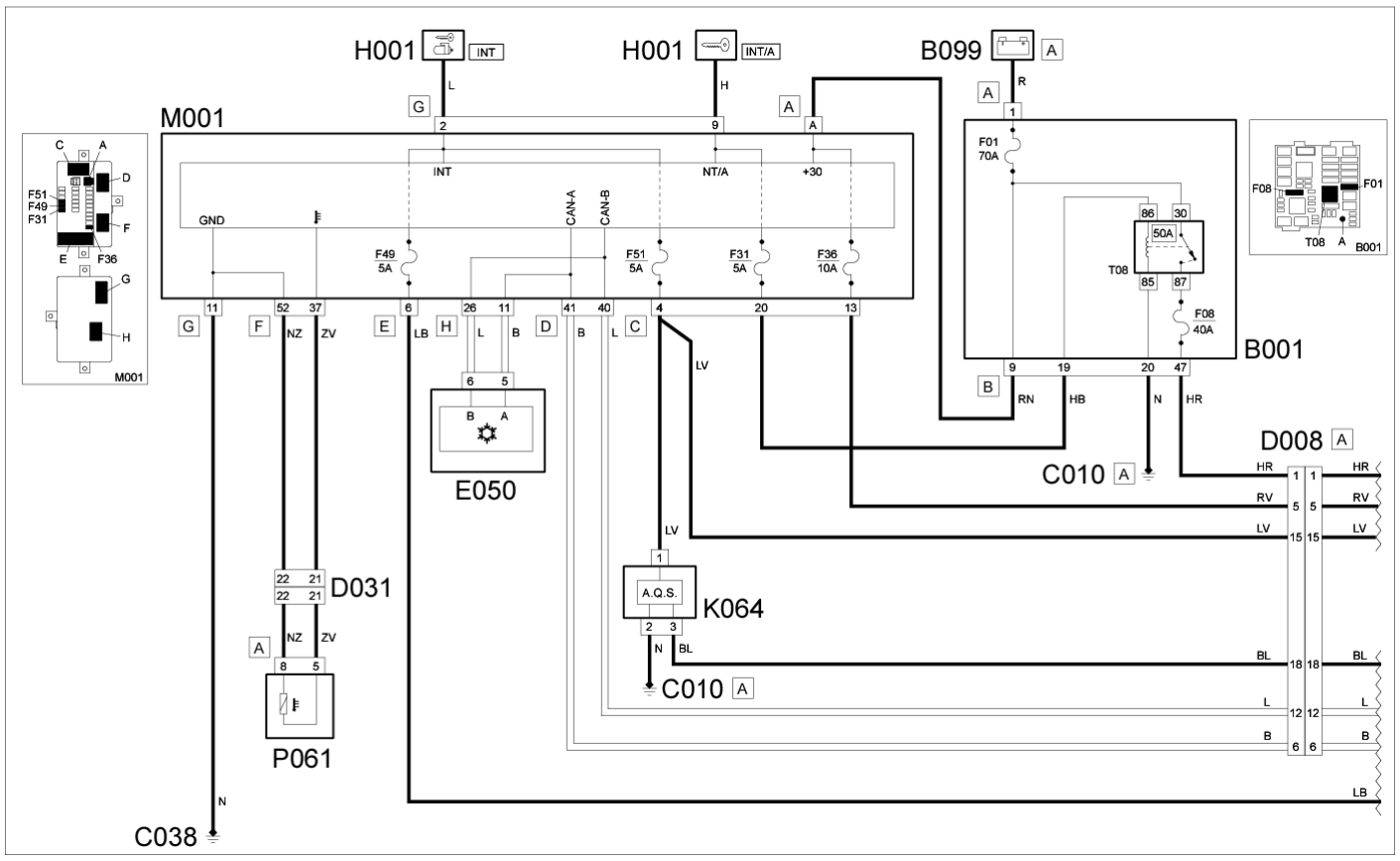
The mixing actuator N079 is controlled by the control unit M070 through pins 30-7. It receives power to control the potentiometer from pin 11 of M070, a reference earth from pin 15 of M070 and sends a feedback signal to pin 32 of M070.

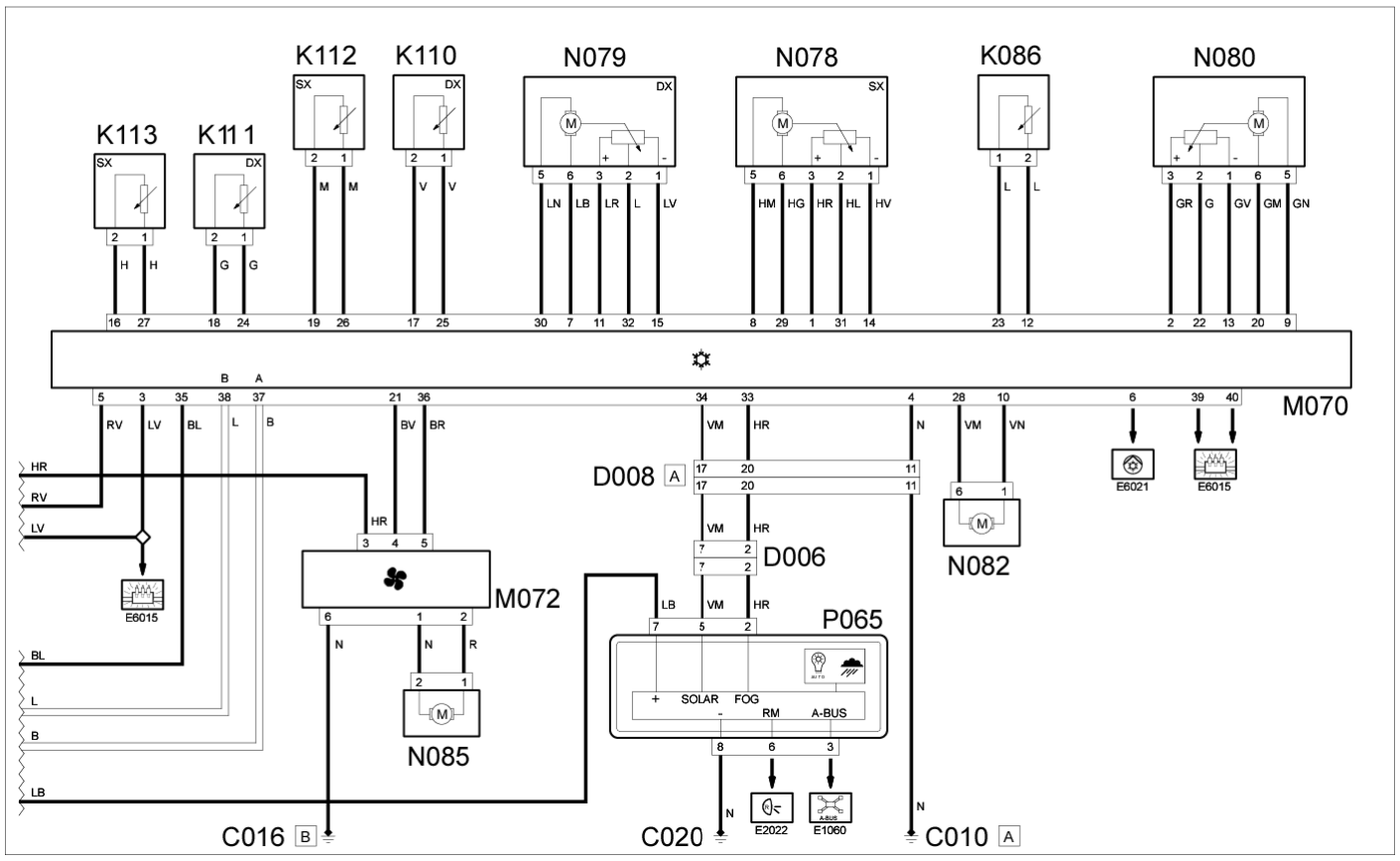
The distribution actuator N080 is controlled by control unit M070 from pin 20-9. It receives power to control the potentiometer from pin 2 of M070, a reference earth from pin 13 of M070 and sends a feedback signal to pin 22 of M070.

The fan N085 is supplied, via through the electronic governor M072 - by the dedicated fuse F08 in the engine compartment junction unit B001 from the line supplied by relay switch T08 in B001: it is and "ignition-controlled starting exclusion" power supply (INT/A) controlled by pin 20 of connector C of the Body Computer M001 through the line protected by fuse F31 of M001.

It receives commands for the various speeds from electronic governor M072: the latter receives the PWM adjustment signal from pin 365 of control unit M070 and sends a feedback signal to pin 21 of M070.

AIR CONDITIONING - WIRING DIAGRAM

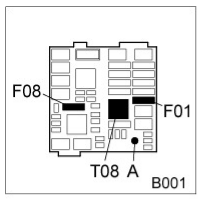


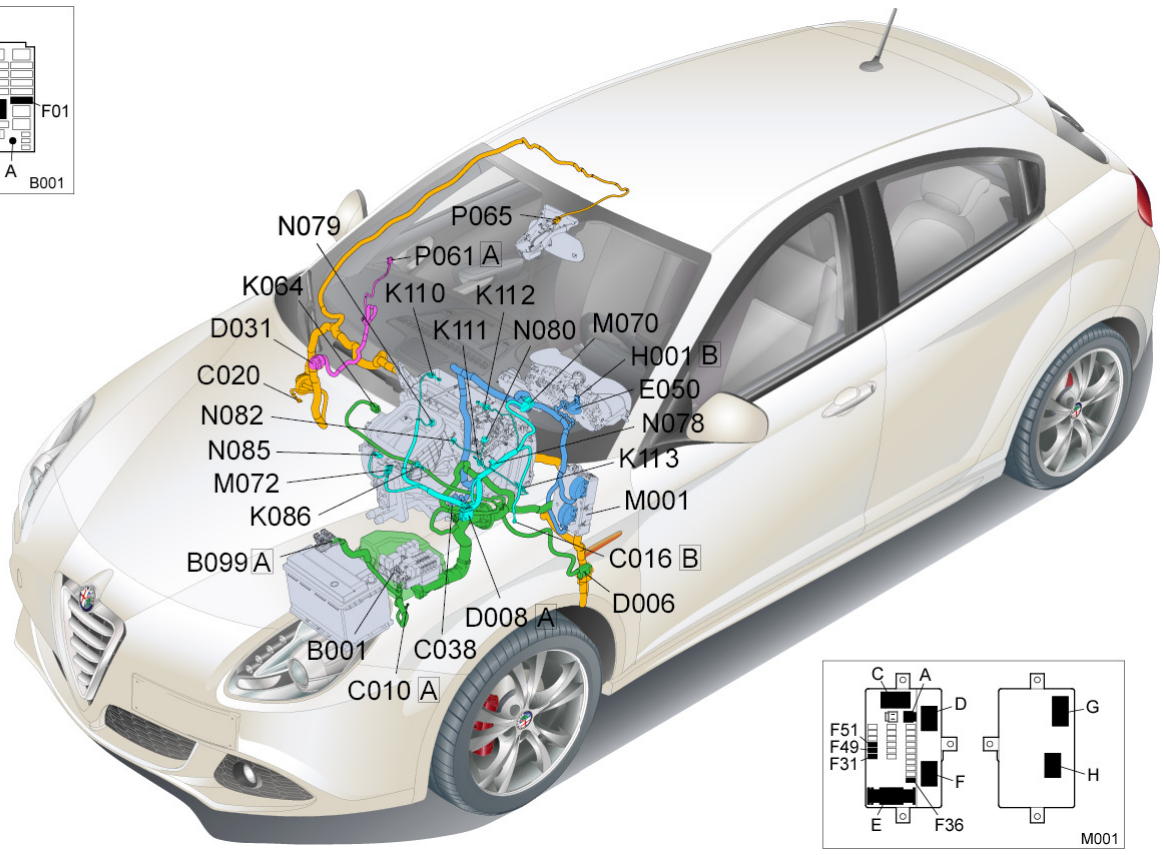


Component Code	Description	Reference to the operation
B001	JUNCTION UNIT	Op. 5505A28 CONTAINER FOR ADDITIONAL JUNCTION UNIT IN ENGINE COMPARTMENT - R.R.
B099	MAXI FUSE BOX ON BATTERY	Op. 5530B40 SUPPLY BOX ON BATTERY (LINK BATTERY AND FUSE BOX) - R R
C010	LEFT FRONT EARTH	-
C016	AIR CONDITIONING UNIT EARTH	-
C020	PASSENGER SIDE DASHBOARD EARTH	-
C038	EARTH ON CENTRE TUNNEL	-
D008	FRONT/AIR CONDITIONING-HEATER COUPLING	-
D031	RIGHT FRONT DOOR COUPLING	-
E050	INSTRUMENT PANEL	Op. 5560B10 CONTROL PANEL - R+R
H001	IGNITION SWITCH	Op. 5520A18 IGNITION SWITCH CONTACT CARRIER LOCK BARREL - R.R.
K086	FROST SENSOR	Op. 5040B64 SENSOR ON EVAPORATOR FOR A/C ECU - R + R
K110	RIGHT UPPER AIR DISTRIBUTION TEMPERATURE SENSOR	Op. 5010D33 RH UPPER MIXED AIR TEMPERATURE SENSOR - R.R. FOLLOWING ELECTRICAL CIRCUIT CHECK
K111	RIGHT LOWER AIR DISTRIBUTION TEMPERATURE SENSOR	Op. 5010D35 RH LOWER MIXED AIR TEMPERATURE SENSOR R.R FOLLOWING ELECTRICAL CIRCUIT CHECK
K112	LEFT UPPER AIR DISTRIBUTION TEMPERATURE SENSOR	Op. 5010D32 LH UPPER MIXED AIR TEMPERATURE SENSOR - R.R. FOLLOWING ELECTRICAL CIRCUIT CHECK
K113	LEFT LOWER AIR DISTRIBUTION TEMPERATURE SENSOR	Op. 5010D34 LH LOWER MIXED AIR TEMPERATURE SENSOR R.R FOLLOWING ELECTRICAL CIRCUIT CHECK
M001	BODY COMPUTER	Op. 5505A35 MAIN BODY COMPUTER/JUNCTION UNIT - R.R.
M070	CLIMATE CONTROL SYSTEM CONTROL UNIT	Op. 5040D14 CONTROL UNIT WITH AUTOMATIC AIR CONDITIONING CONTROL PANEL - R.R.

M072	FAN SPEED VARIATOR	Op. 5040C44 FAN MOTOR ELECTRONIC VARIATOR - R+R
N078	LEFT MIXED AIR FLAP ACTUATOR	Op. 5040D84 AIR CONDITIONING LEFT AIR MIXTURE FLAP CONTROL MOTOR - R.R
N079	RIGHT MIXED AIR FLAP ACTUATOR	Op. 5040D86 AIR CONDITIONING RIGHT AIR MIXTURE FLAP CONTROL MOTOR - R.R
N080	AIR DISTRIBUTION FLAP ACTUATOR	Op. 5040D76 AIR CONTITIONING DISTRIBUTION FLAP CONTROL MOTOR - R.R.
N082	OUTSIDE / RECIRCULATION AIR INTAKE FLAP ACTUATOR	Op. 5040D75 AIR CONDITIONING RECIRCULATION FLAP CONTROL MOTOR - R.R
N085	PASSENGER COMPARTMENT AIR FAN	Op. 5040C30 AIR CONDITIONING FAN - R.R.
P061	PASSENGER DOOR MIRROR	Op. 7005R30 ELECTRICALLY CONTROLLED DOOR MIRROR (ONE) - R+R

AIR CONDITIONING - COMPONENT LOCATION





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