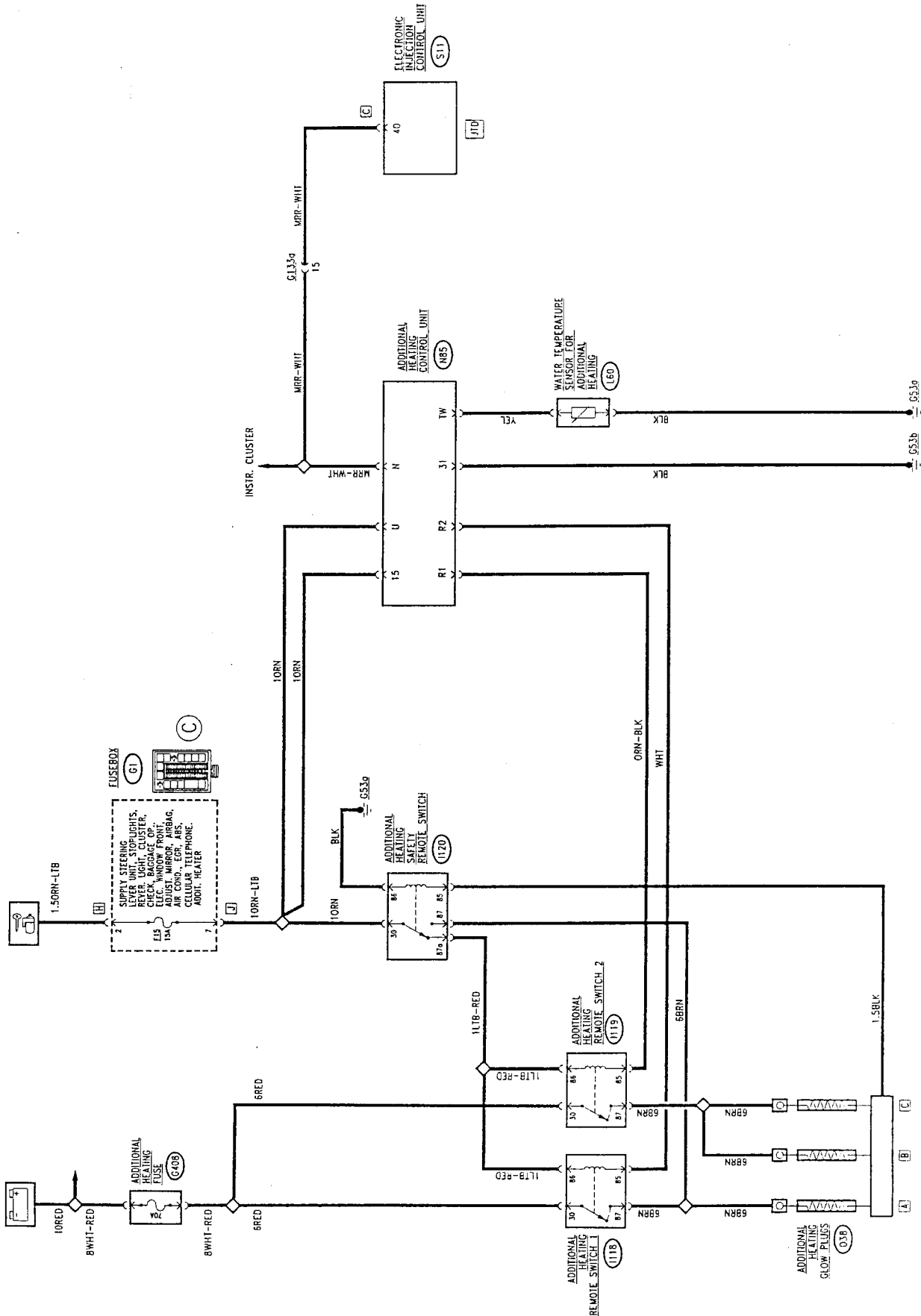


CLIMATE CONTROL: ADDITIONAL HEATER

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WIRING DIAGRAM



GENERAL DESCRIPTION

Climate control of the car through heater unit is insufficient when the engine is cold, especially in the case of Diesel engines, which reach the proper temperature more slowly.

An additional heating system is therefore provided for these engines and is activated during the initial seconds of engine operation, until a certain temperature is reached.

The system consists of an additional heating device, located on the engine coolant delivery pipe that leads to the engine heating unit.

There are three glow plugs on this device (similar to those used for preheating the combustion chamber).

Glow plug operation is controlled by an ECU that pilots one, two or three plugs to provide a heating of 200 W, 400W or 600W.

This control logic depends on:

- the temperature reached by the engine coolant;
- the amount of available electrical power (the battery voltage is controlled)
- engine rpm (which must exceed a pre-established value)

The power supply of one, two or three glow plugs is piloted by two remote switches:

- level 1: activated by the first remote switch;
- level 2: activated by the second remote switch;
- level 3: activated by both remote switches.

There is also a third remote switch/ safety switch that interrupts power supply to the glow plugs if their

contact to earth is incorrect: the metal device containing the glow plugs is in fact connected to the engine earth by means of a special braid.

OPERATIONAL DESCRIPTION

The additional heater control unit **N85** is protection-powered at pins 15 and U by the line protected by fuse **F15** of the fuse box **G1**.

The engine rpm signal comes from the engine management control unit **S11** and enters pin N of **M75**.

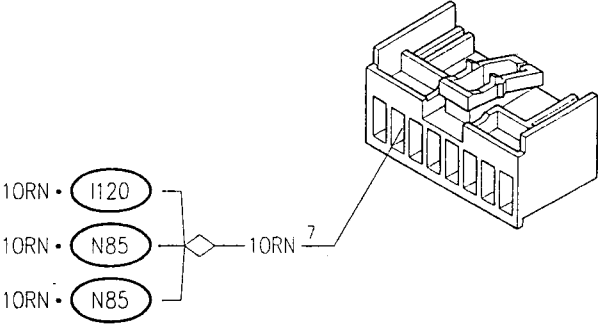
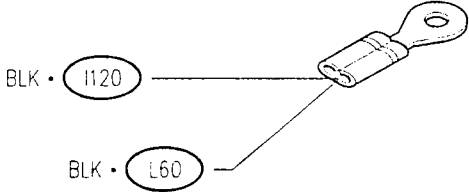
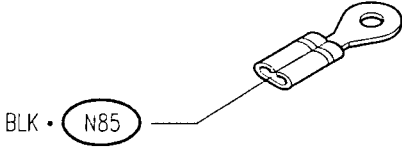
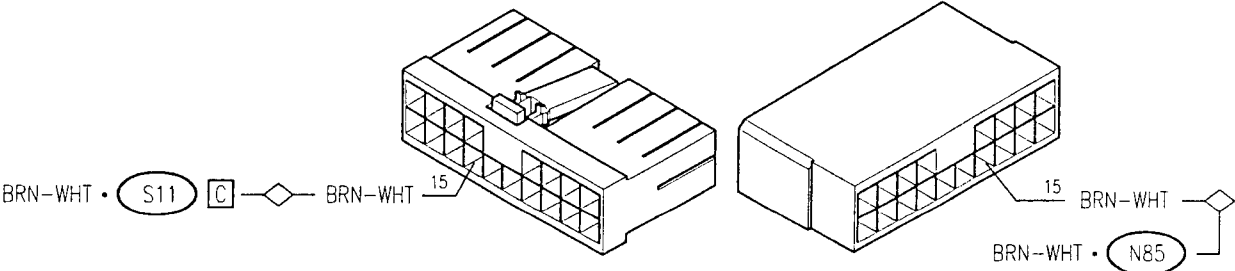
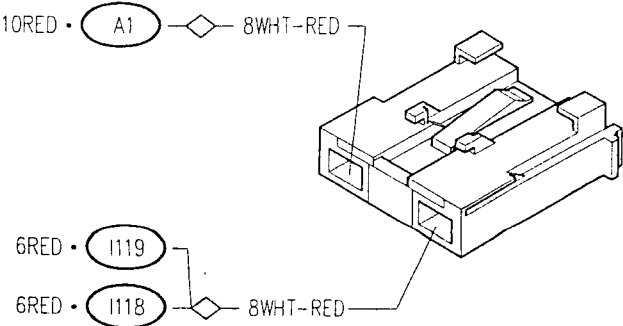
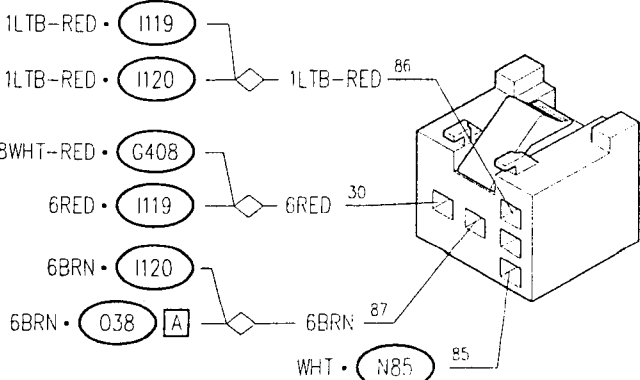
Pin TW is connected to the special temperature sensor **L60** which detects the coolant temperature in the vicinity of the additional heater.

The remote switches **I118** and **I119** control connection of the three resistances **O38**.

Direct power reaches the battery through maxifuse **G408**, while the coils are energized by control unit **N85**, which controls only remote switch **I118** to enable glow plug **O38 A**, only remote switch **I119** to enable glow plugs **O38 B** and **C**, and both remote switches for all three glow plugs **O38**.

The safety remote switch **I120** interrupts the power supply of the above-mentioned glow plugs if they are incorrectly earthed: the coil of **I120** is connected on one side to earth and on the other side to the metal frame of the device containing the glow plugs: the device is connected to earth **G53a** through a special earthing braid: if this connection is interrupted, remote switch **I120** is energized and immediately blocks the distribution of electricity to the glow plugs.

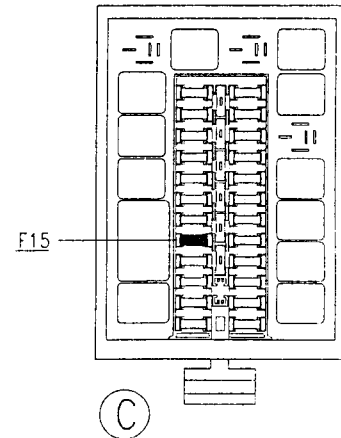
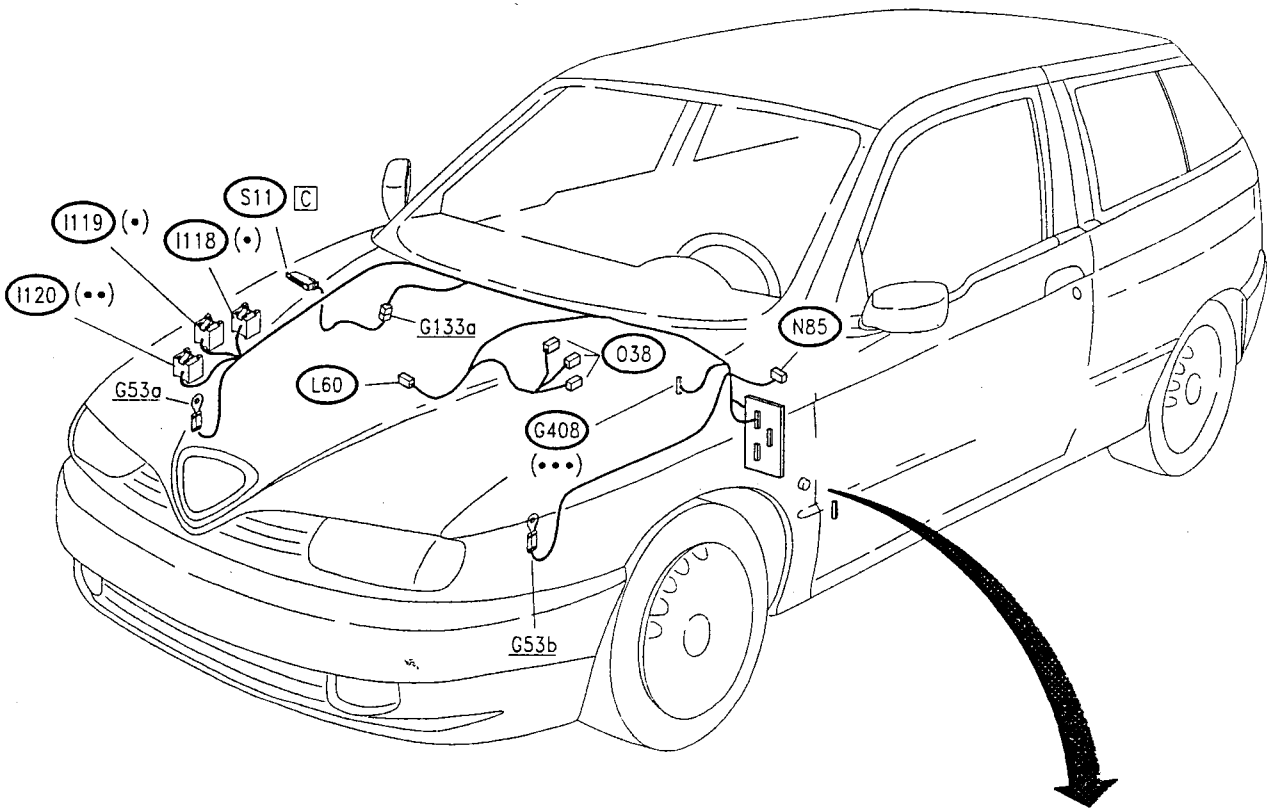
COMPONENTS AND CONNECTORS

Fusebox	G1 J	RH engine compartment earth	G53a
 <p>10RN • I120 10RN • N85 10RN • N85</p> <p>10RN 7</p>		 <p>BLK • I120 BLK • L60</p>	
LH engine compartment earth			G53b
 <p>BLK • N85</p>			
Connector for electronic injection wiring A			G133a
 <p>BRN-WHT • S11 C BRN-WHT 15</p> <p>15 BRN-WHT BRN-WHT • N85</p>			
Additional heating fuse	G408	Additional heater remote switch -1	I118
 <p>10RED • A1 8WHT-RED</p> <p>6RED • I119 6RED • I118 8WHT-RED</p>		 <p>1LTB-RED • I119 1LTB-RED • I120 8WHT-RED • G408 6RED • I119 6BRN • I120 6BRN • 038 A</p> <p>86 30 87 85 WHT • N85</p>	

COMPONENTS AND CONNECTORS (cont'd)

<p>Additional heater remote switch -2</p>	<p>(I119)</p>	<p>Additional heater safety remote switch</p>	<p>(I120)</p>
<p>Water temperature sensor for additional heater</p>	<p>(L60)</p>	<p>Additional heater control unit</p>	<p>(N85)</p>
<p>Additional heater glow plugs</p>	<p>(O38)</p>	<p>Electronic injection control unit</p>	<p>(S11) (C)</p>

LOCATION OF COMPONENTS



- (•) Black socket
- (••) Brown socket
- (•••) Black fuse box