INSTRUMENT PANEL

INDEX

GENERAL DESCRIPTION

The instrument panel supplies information and indications relative to the state of the vehicle which are indispensible for safe and relaxed driving.
In this 4x4 version the instrument panel has been made even more functional and suitable for sports driving by way of a new ergonomic and aesthetic design.
The instrument is of the analog type with two large indicators for the speedometer and the rev counter, and other indicators for engine oil pressure and temperature, fuel level and engine coolant temperature.
Numerous, evident warning lamps complete the information available to the driver.

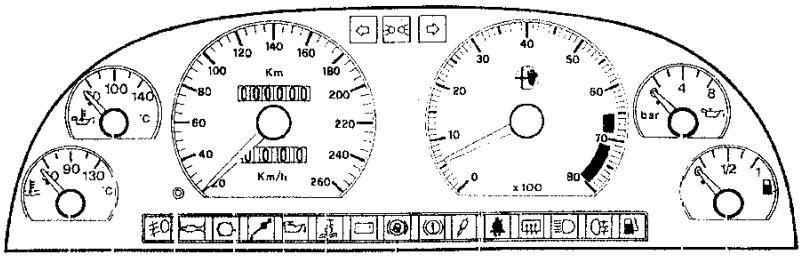
N.B.: The instrument panel is manufactured as a single component: all the internal connections are carried on a printed circuit which unites the instrument contacts and the various warning lamps. It is not therefore possible to carry out repairs apart from the simple operation of replacing the warning light bulbs.

N.B.: Up to chassis no. ... the cluster with depth effeect is installed which characterizes the sportier versions of the 155 (**fig. A**).
From the '95 version (from chassis no. ...) a new one is installed (**fig. B**) containing a higher number of warning lights.

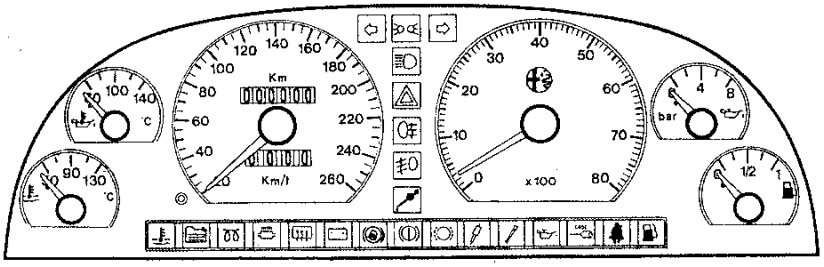
Note: The wiring diagram has been divided into 6 parts:

- The first five charts describe some of the specific functions which are not given elsewhere and which are connected only to the indications on the instrument panel; other functions, particularly the warning lamps, are given in the system or installation diagrams or to which they refer: for example, the dipped beam headlight warning lamp is given in the diagram "Main and dipped beam headlights", etc. (see the other sections or "155 - REPAIR MANUAL - ELECTRICAL & ELECTRONIC DIAGNOSIS")
- The sixth chart gives all the internal connections on the printed circuit.

N.B.: The first chart illustrates the connections which supply power (+) and ground (-); in the successive charts these lines are not given even though at least one of them is implied; e.g. and ground signal reaching a warning lamp implies that the warning lamp is connected to the power supply inside the instrument panel: this connection is indicated with the symbol (+) or (-) and can easily be consulted in the internal chart.
The instrument panel lighting is supplied when the sidelights are switched on and is regulated by a rheostat (**B16**) described in a separate section (see "Interior lighting" 155 - ELECTRICAL & ELECTRONIC DIAGNOSIS).



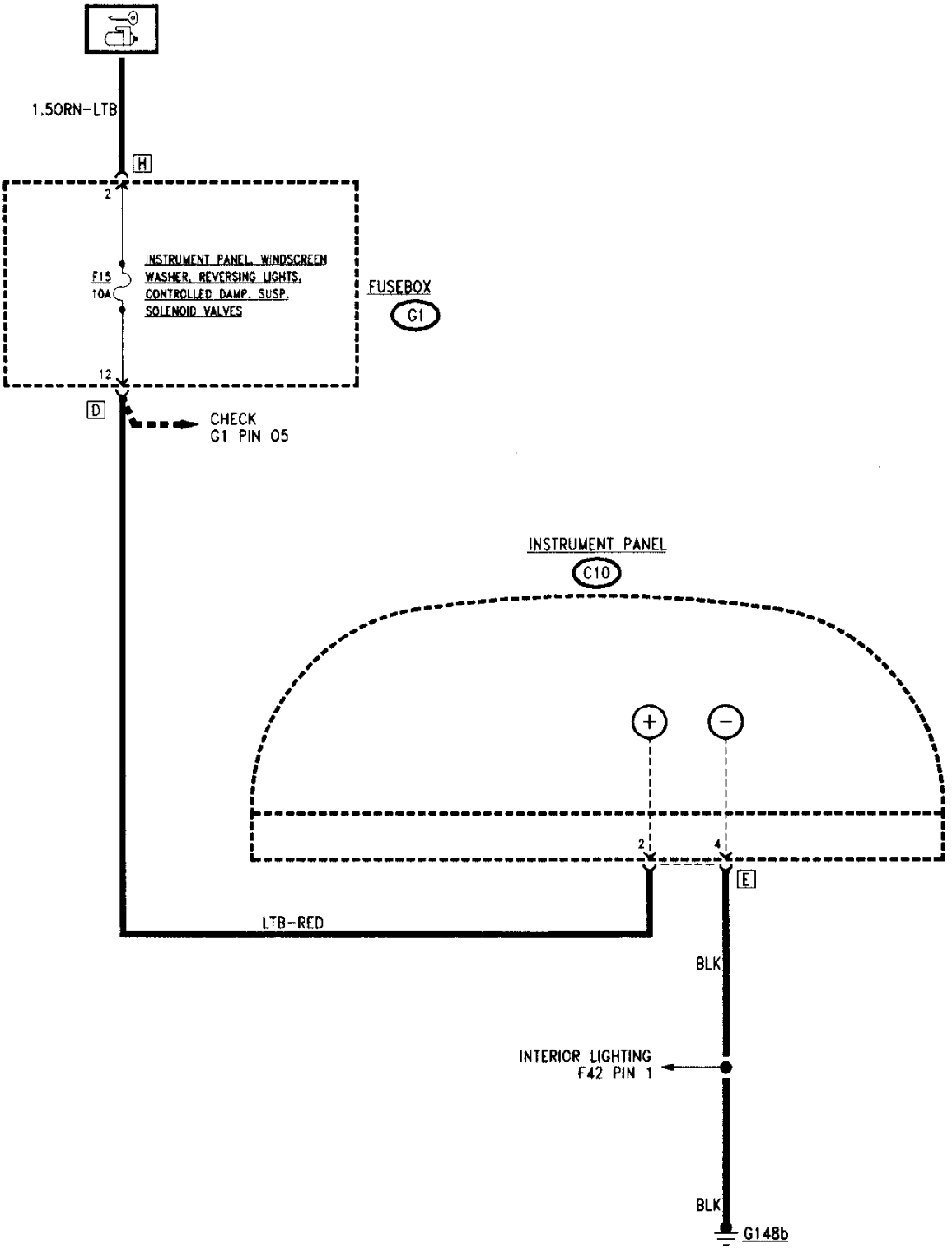
Instrument panel A



Instrument panel B

SUPPLY AND GROUND

Wiring diagram

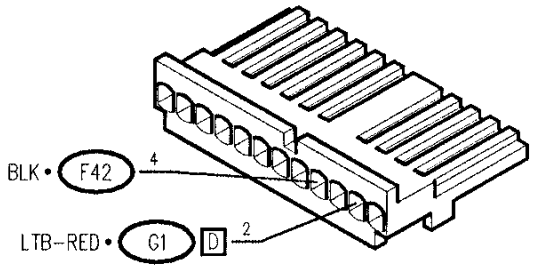


Functional description

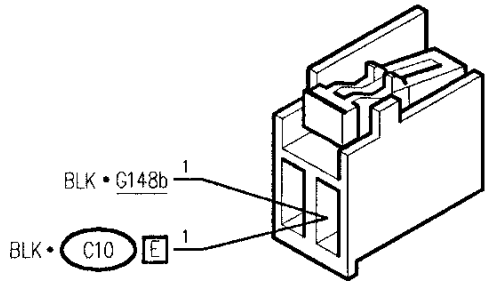
The instrument panel is supplied by battery voltage through fuse **F15** (10A) in fusebox **G1**. The connection is made at pin 2 of connector E of the instrument panel **C10**.
Instrument panel **C10** is grounded via the cable coming out of pin 4 of connector E towards ground **G148b**.

Components and Connectors

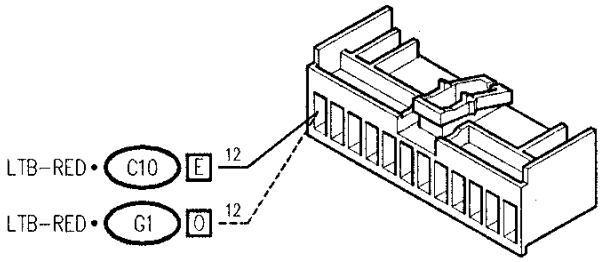
Instrument panel	C10 E



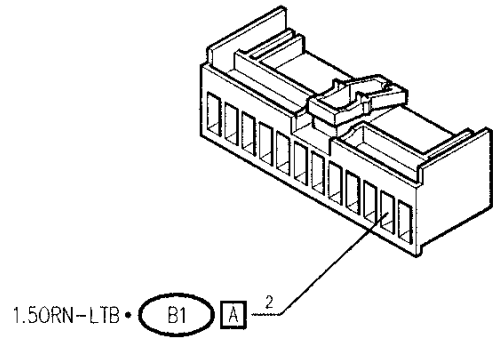
Left air vent illumination lamp	F42



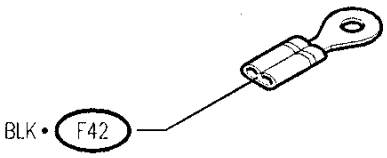
Fusebox	G1 D



Fusebox	G1 H

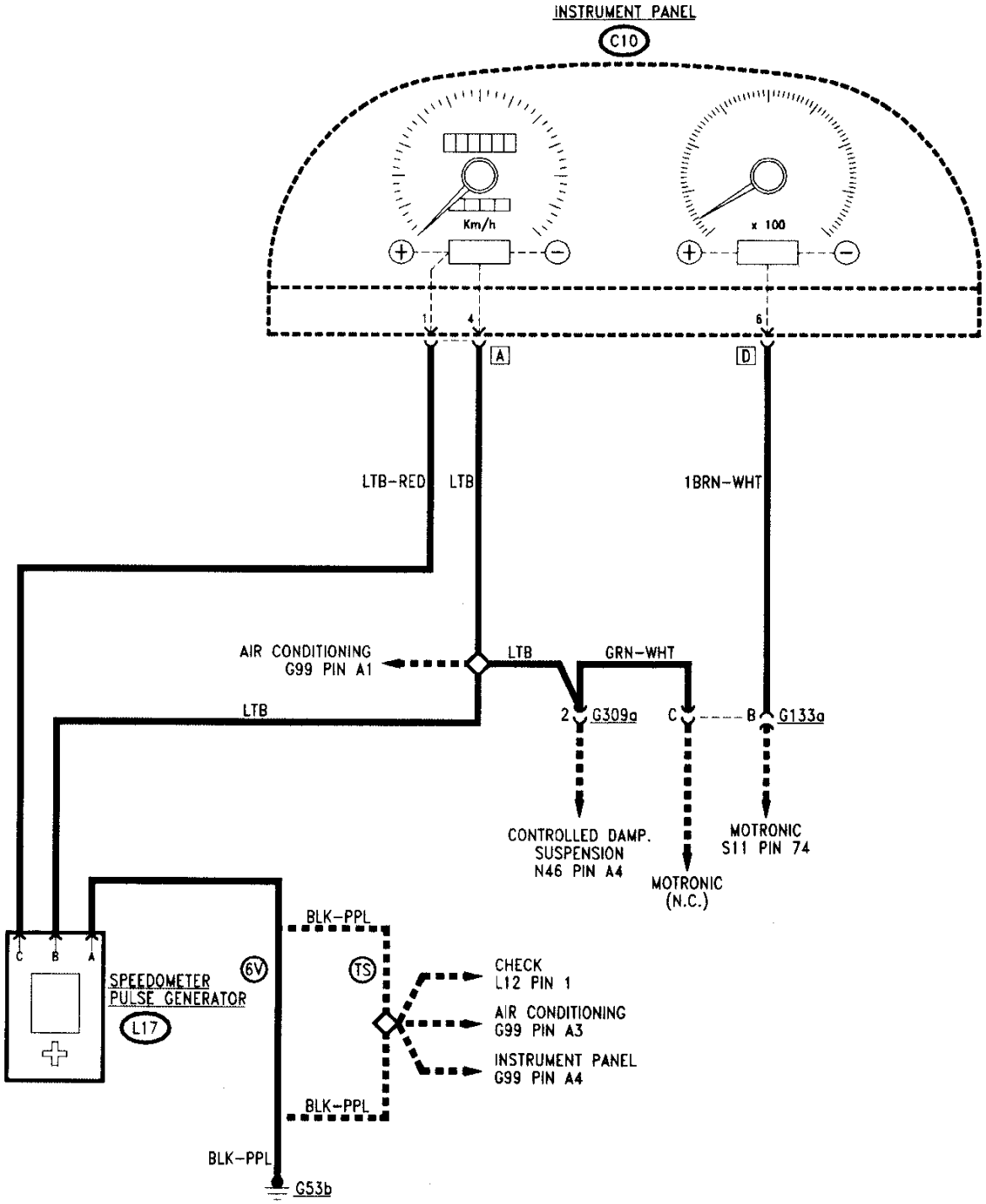


Under-dashboard ground-left side	G148b



REV COUNTER AND SPEEDOMETER

Wiring diagram



Functional Description

The rev counter signal is supplied to the instrument panel by the Motronic control unit **S11** which receives a signal proportional to the number of the revolutions of the engine detected by the sensor **S31** (see "Motronic ignition and injection system").

The signal reaches instrument panel **C10** at pin 6 of connector D arriving from connection **G133a** which connects to Motronic with the other circuits: inside the instrument panel it reaches the electronic device which actuates the rev counter.

The speedometer signal is supplied by the speedometer sensor **L17**; this, installed on the gearbox, detects the speed of the vehicle at all times.

It is an impulse generator which, by way of a Hall effect probe, generates and processes a signal which is proportional to the speed of the drive shaft exiting the gearbox, and therefore of the wheels.

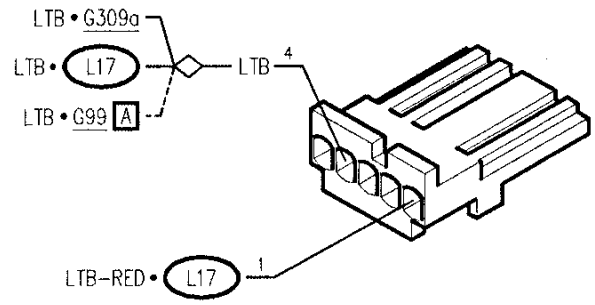
Sensor **L17** is supplied at pin C with the voltage from the batery through the same power supply as the instrument panel (from Pin 1 of connector A of **C10**); pin A is connected to the ground **G53b**, while the speedometer signal leaves pin B (proportional to the speed of the vehicle), which is sent to instrument panel **C10** at pin 4 of connector A, and from here to the electronic device which actuates the speedometer and the two odometers (total and partial).

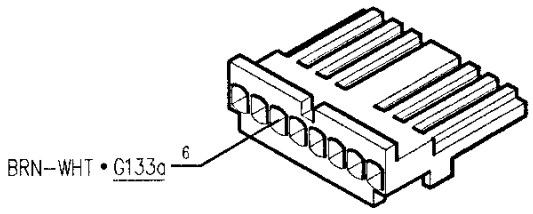
The same signal is also sent to some of the systems which require information regarding the speed of the vehicle:

- through connection **G99** to the conditioning system and in particular to the control unit **Q21a** which controls the operation of the radiator electric fan when the vehicle is at rest (see "Automatic heating/ventilation system with air conditioner);
- through connection **G309a** to the control unit **N46** of the suspension control which regulates the rigidity of the suspension system on the basis of the speed of the vehicle (see "Controlled damping suspension");

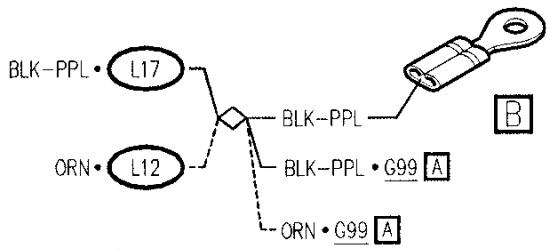
Components and Connectors

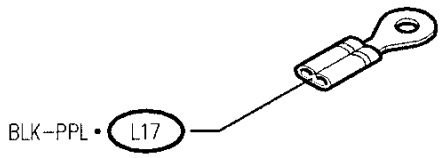
Instrument panel	C10 A	Instrument panel	C10 D



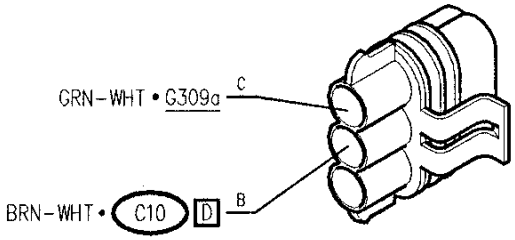


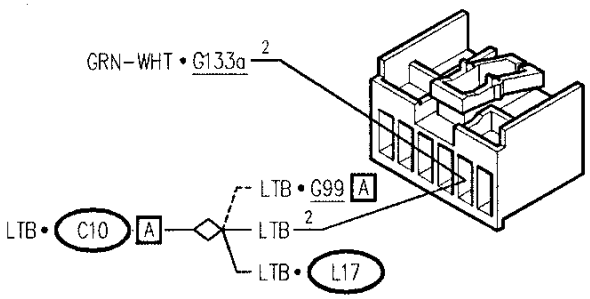
Engine compartment ground-left side TS	G53b	Engine compartment ground-left side 6V	G53b



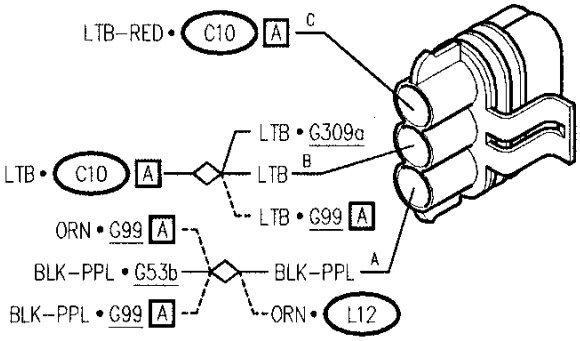


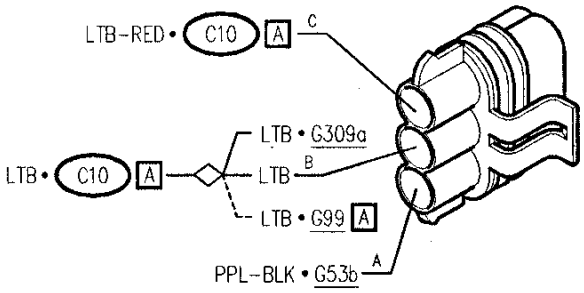
Electronic ignition-injection wiring A connection	G133a	Controlled damping suspension A connection	G309a





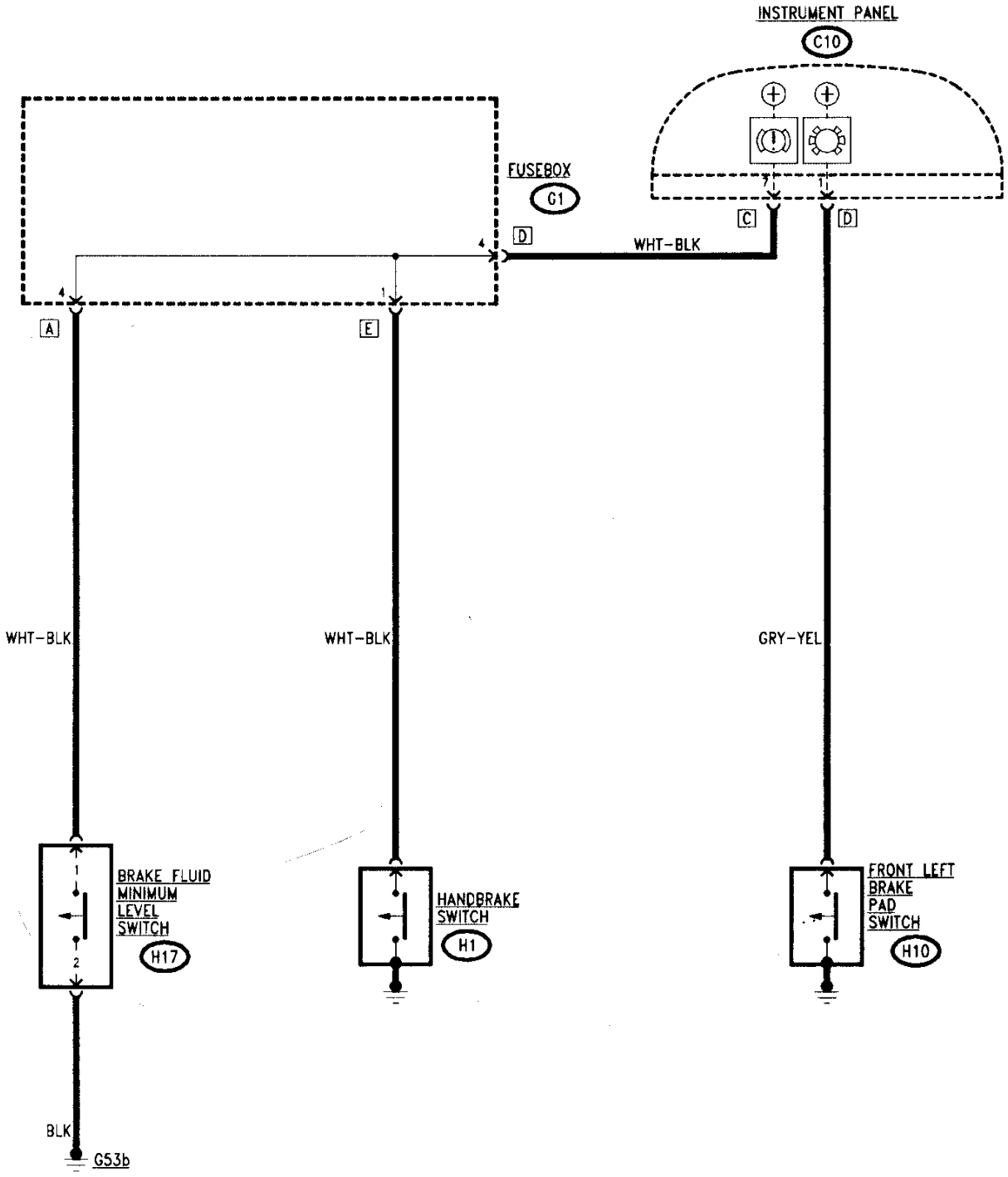
Speedometer pulse generator TS	L17	Speedometer pulse generator 6V	L17





BRAKING SYSTEM WARNING LAMPS

Wiring diagram



Functional description

Three warning lamps alert the driver in case of problems in the braking system.

The brake pad switch **H10**, which is formed by a microswitch located on the pads, is grounded when the pad becomes too thin and as a result sends a signal to the instrument panel **C10** at pin 1 of connector D and lights the relative "brake pad wear" warning lamp.

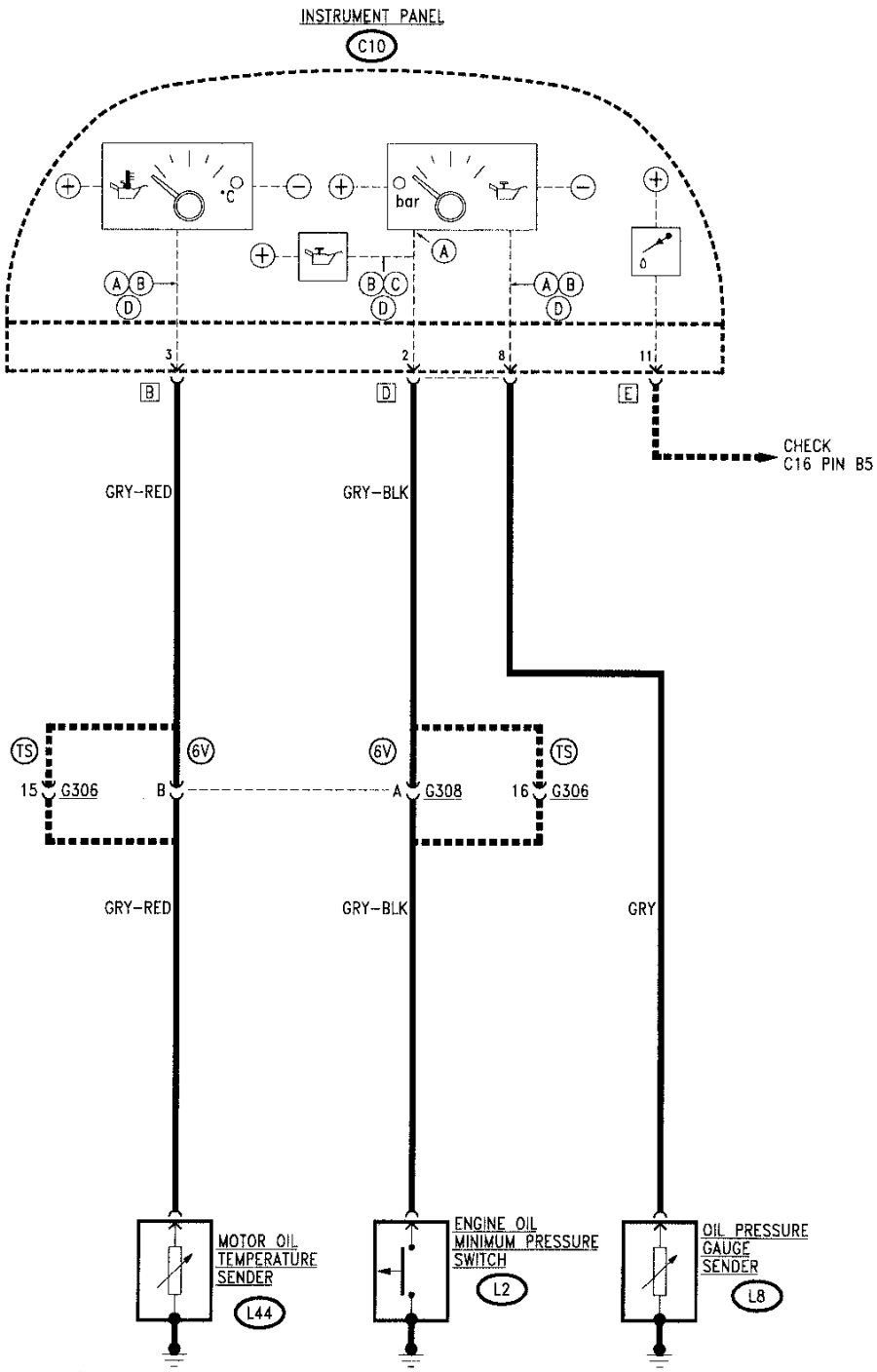
The handbrake switch **H1** and the brake fluid minimum level check switch **H17** (these also are two microswitches which send a ground signal) supply the signal to the instrument panel **C10** at pin 7 of connector C; both react by lighting the "handbrake on or low brake fluid level" warning lamp.

The first closes when when the handbrake lever is raised and the second when the level of fluid in the braking system falls below a certain level in the reservoir.

The third warning lamp relative to the braking system is that of the "ABS system malfunction" which is described in that section (see "ABS system").

ENGINE OIL GAUGES

Wiring diagram



(**A**) Basic instrument panel
(**B**) Sports-type panel
(**C**) Simplified panel
(**D**) '95 version instrument panel

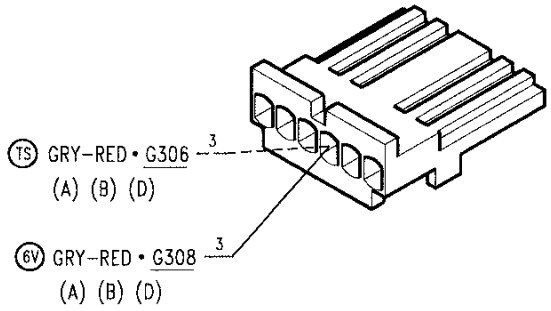
Functional Description

The oil pressure gauge sender **L8** (not present in the simplified C version) sends a ground signal to pin 8 of connector C of the instrument panel **C10** for the analog oil pressure gauge. This is a pressure switch which, located in the correct position on the engine block, generates a signal which is proportional to the engine oil pressure.
The oil temperature sender **L44** (not present in the simplified C version) sends an analog ground signal to the instrument panel at pin 3 of connector B, for the analog oil temperature gauge. A thermostat is in contact with the engine oil and detects the temperature.

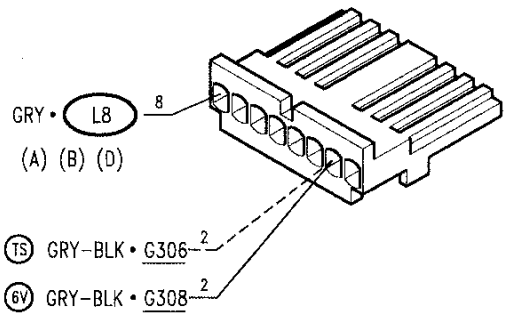
In addition the minimum oil pressure pressure switch **L2**, also installed on the engine block, closes when the pressure falls below 0.2-0.5 bar (engine 2.5 6V) or 0.15-0.45 bar (engine T.Spark), sending a ground signal to the instrument panel **C10** at pin 2 of connector D and lighting the "engine oil minimum pressure" warning lamp. This warning light can be found inside the gauge for the Basic A version whereas it is separate in the other versions.
The "engine oil minimum level" warning lamp is connected to the Check Panel **C16** (see "Check Panel") which, if the oil in the sump falls below a certain level lights the relative Led and sends a signal to instrument panel **C10** at pin 11 of connector E.

Components and Connectors

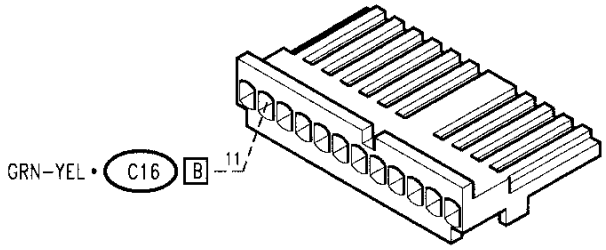
Instrument panel	C10 B



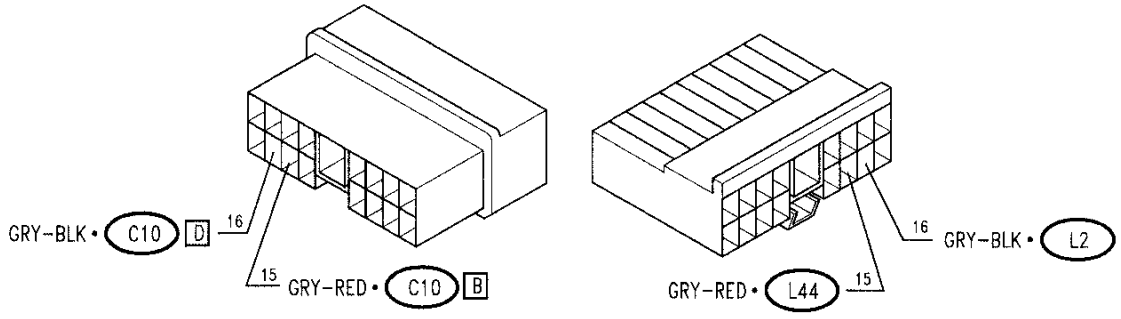
Instrument panel	C10 D



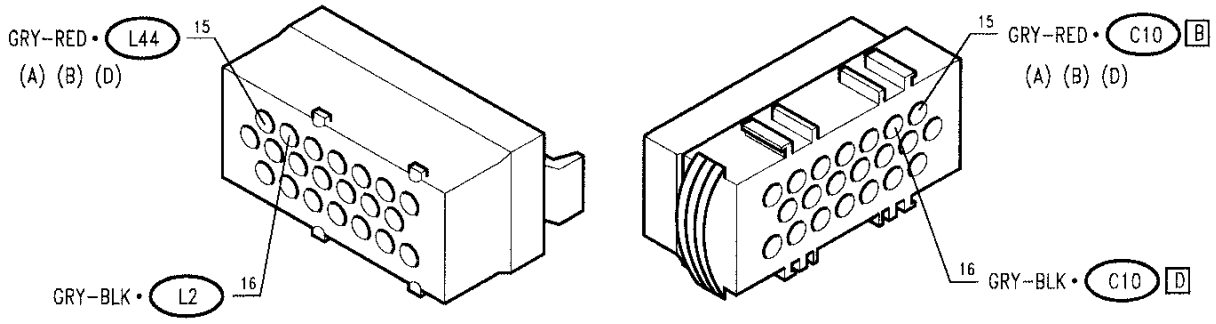
Instrument panel	C10 E



Engine wiring/right engine wiring connection (up to chassis N.___)	G306

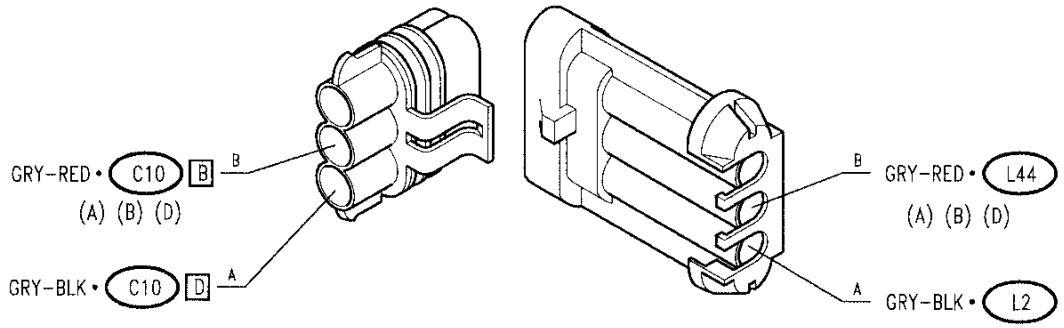


Engine wiring/right engine wiring connection (from chassis N.___)	G306

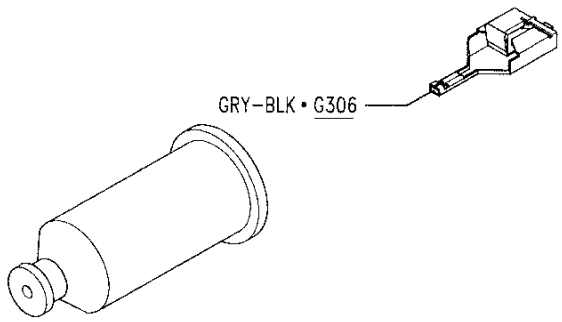


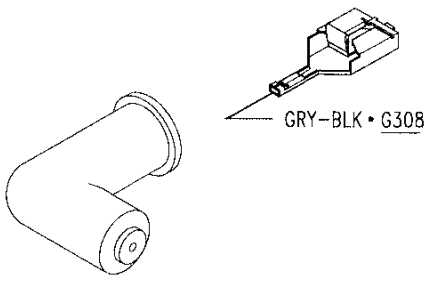
(**A**) basic instrument panel - (**B**) sports-type panel - (**C**) simplified panel - (**D**) '95 version instrument panel

Engine sensors coupling	G308

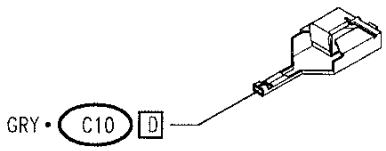


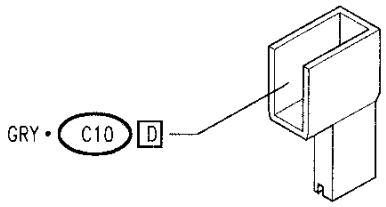
Engine oil minimum pressure switch **TS**	L2	Engine oil minimum pressure switch 6V	L2



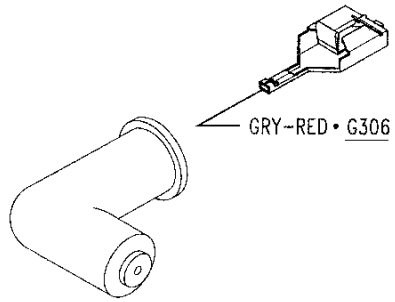


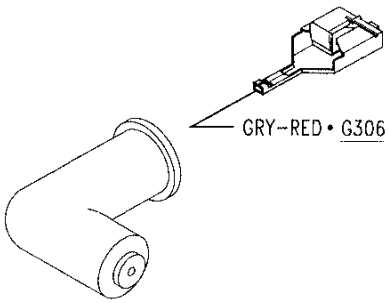
Oil pressure gauge sender **TS**	L8	Oil pressure gauge sender **6V**	L8





Motor oil temperature sender **TS**	L44	Motor oil temperature sender **6V**	L44



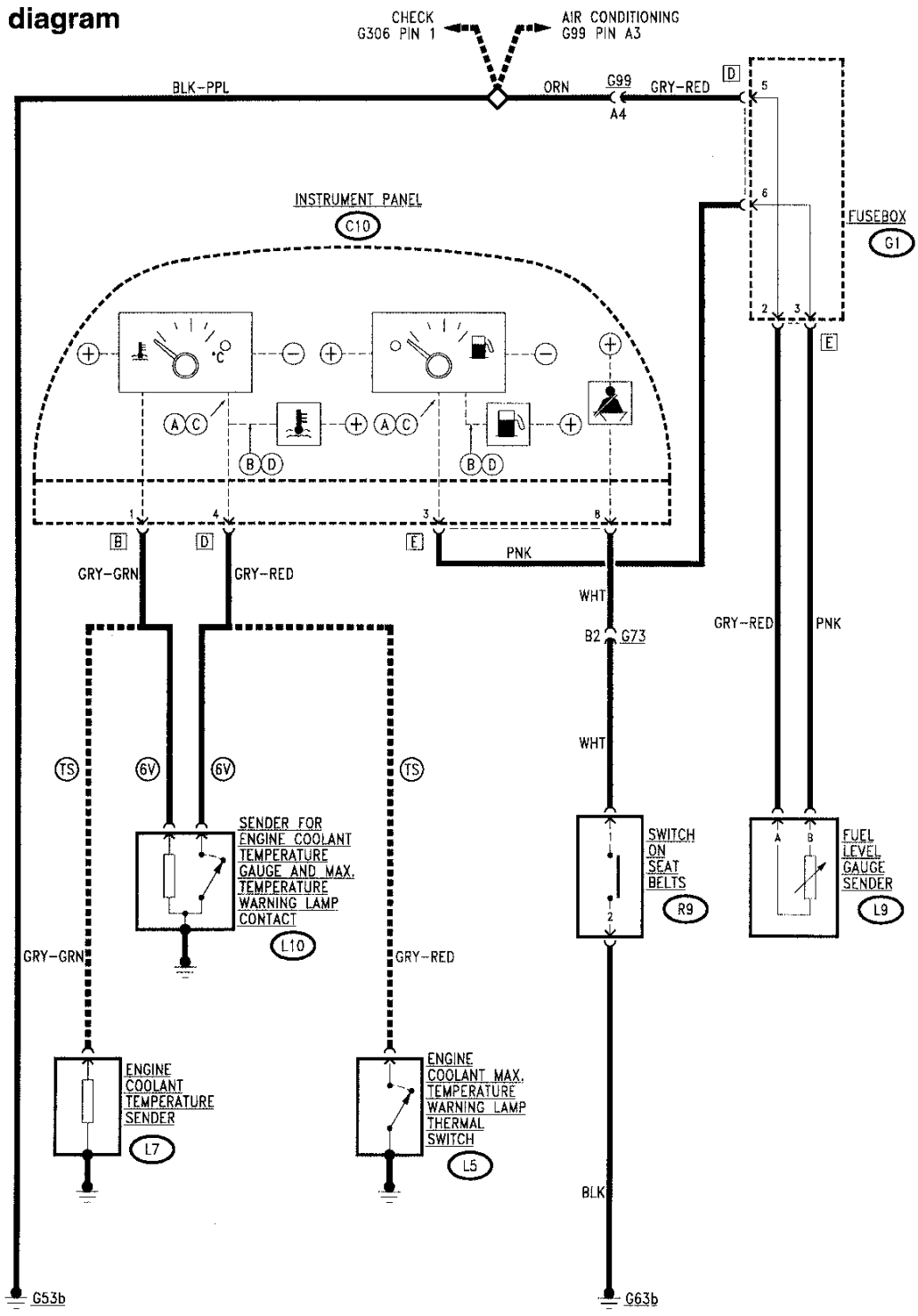


(**A**) basic instrument panel - (**B**) sports-type panel - (**C**) simplified panel - (**D**) '95 version instrument panel

PA4655E1000003

VARIOUS INDICATIONS

Wiring diagram



(**A**) basic instrument panel
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(**C**) simplified panel
(**D**) '95 version instrument panel

Functional description

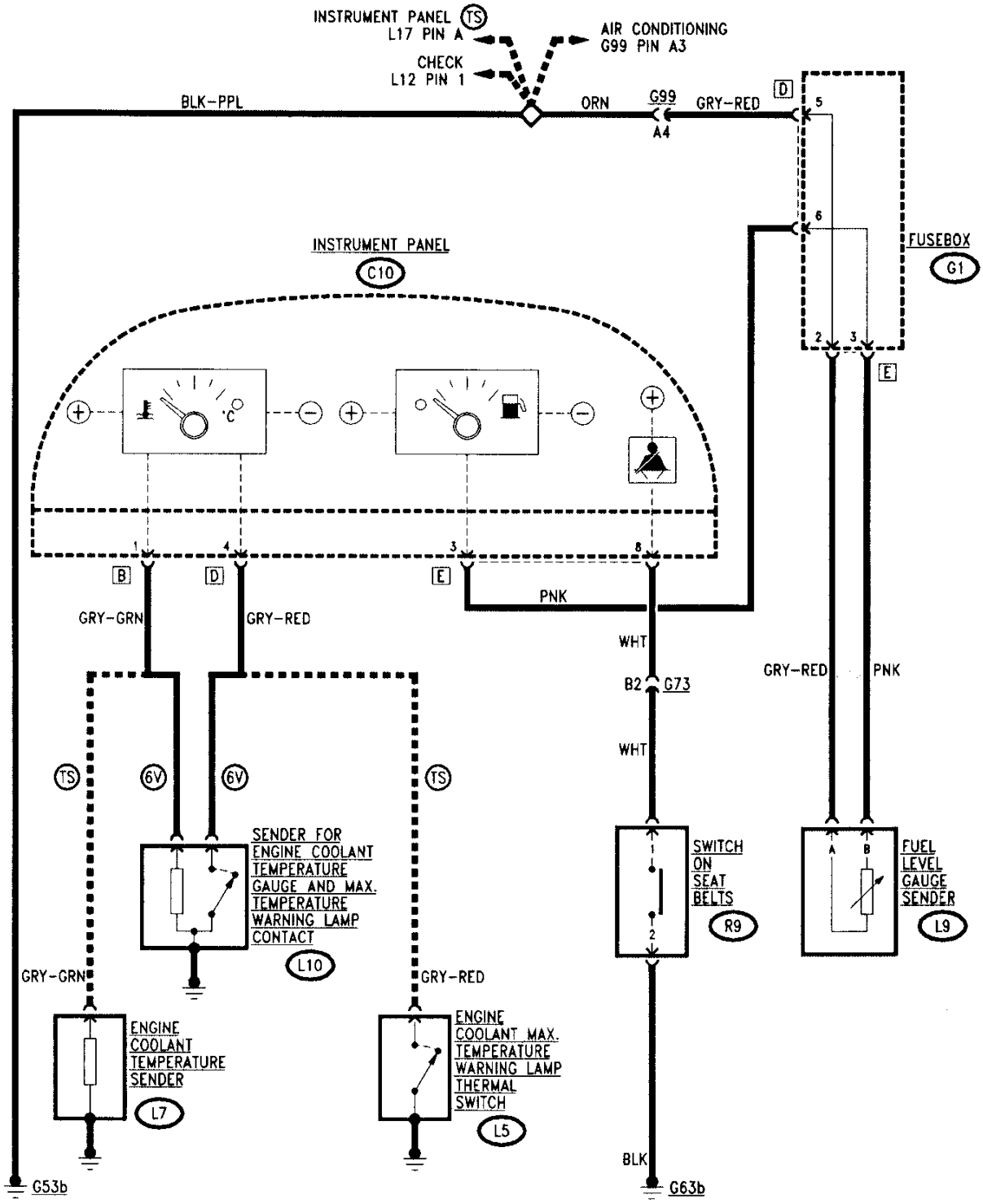
The temperature of the engine coolant is displayed continuously by the analog indicator, while excessively high levels are signalled by the "engine coolant maximum temperature" warning lamp.
This warning light can be found inside the gauge for the Basic A versions and the simplified C version of the instrument panel while it is separate for the sports-type B version, and the '95 version (D)..
The engine coolant temperature sender and maximum temperature warning lamp contact **L10 (for engine 2.5 6V)** installed on the engine head comprise a thermistor which generates a signal in proportion to the temperature of the engine coolant and a contact which closes to ground when the fluid reaches 115°C.
The first is sent to instrument panel **C10** to pin 1 of connector B, while the second goes to the pin 4 of connector D.
For the **T. Spark engines** the sender **L7** and the thermal switch **L5** are separate but carry out the same function (in this case the contact closes at 118°C), and the electrical connection is the same.
The fuel level sender **L9** is a sensor which is immersed in the fuel tank and the resistance varies depending on the level in the tank itself (from 0-7 Ohm with a full tank to 290-310 Ohm when the tank is empty).

A ground signal reaches pin A of **L9**, while a signal proportional to the level is sent by pin B through the fuse box to the instrument panel C10 at pin 3 of connector E.
Inside the fuel level gauge an electronic device selects the signal corresponding to the reserve (262 Ohm, corresponding to about 7 litres) and lights the relative warning lamp.
This warning light can be found inside the gauge for the Basic A version and the simplified C version of the instrument panel while it is separate for the sports-type B version, and the '95 version (D)..

The seat belt switch **R9** is located on the fastening mechanism of the driver's seat belt: when the the belt is correctly fastened a contact is opened and the ground signal towards the instrument panel **C10** (pin 8 of connector E) is interrupted which puts out the "seat belt not fastened" warning lamp.
The other warning lamps not described in this section are included in the installations or systems charts to which they refer.

VARIOUS INDICATIONS

Wiring diagram



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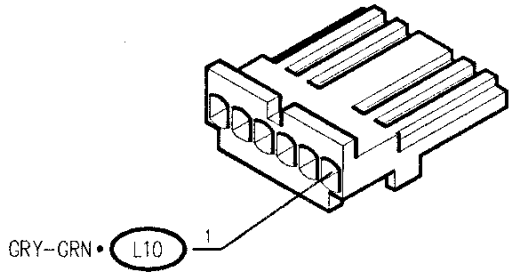
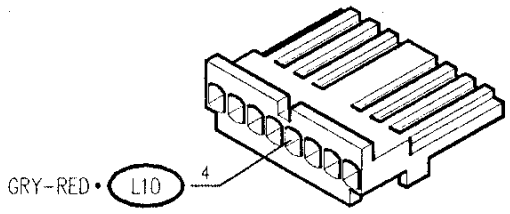
Components and Connectors

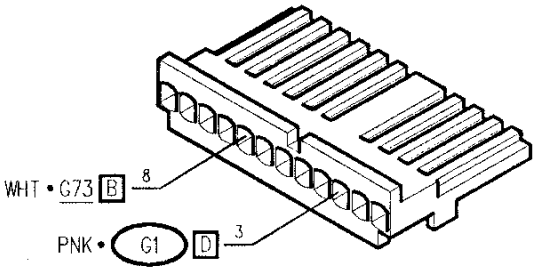
Instrument panel	C10 B



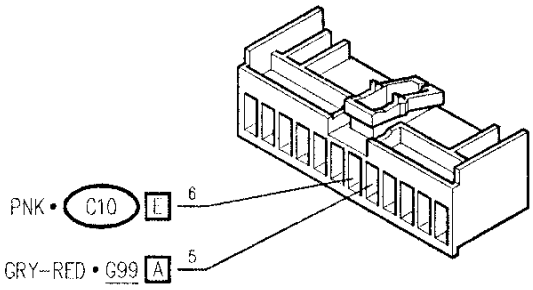
Instrument panel	C10 D



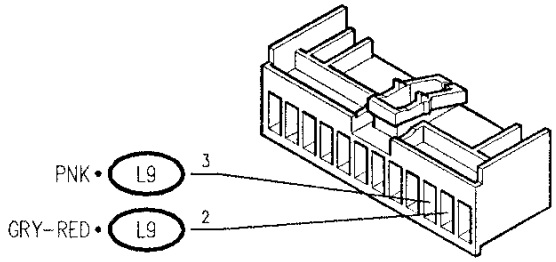
Instrument panel	C10 E



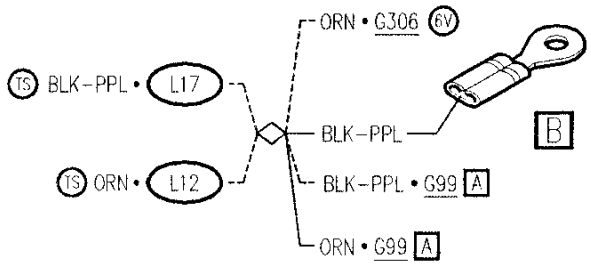
Fusebox	G1 D



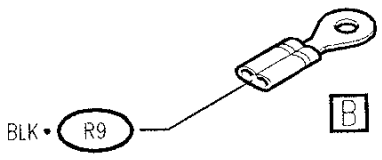
Fusebox	G1 E



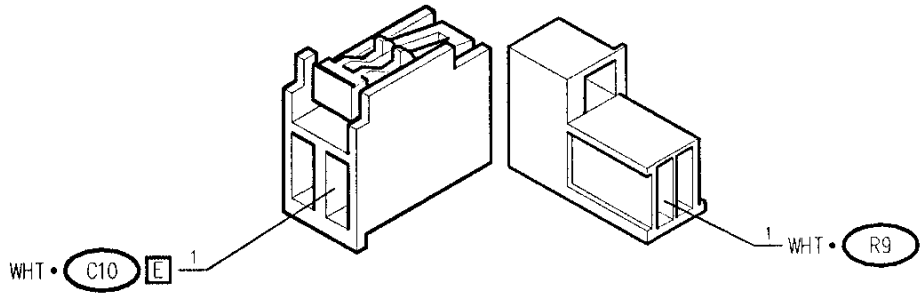
Engine compartment ground-left side	G53b



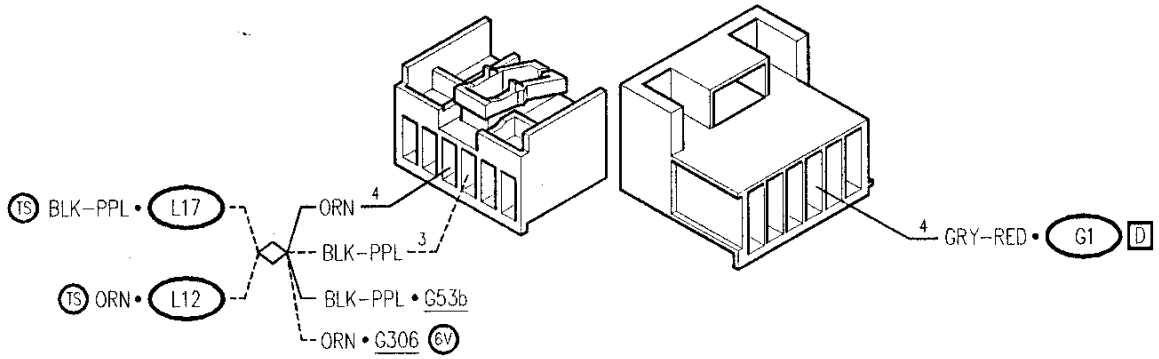
Rear left ground	G63b



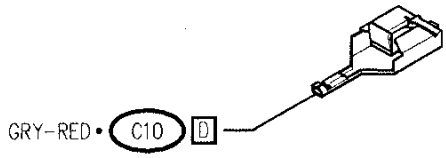
Connector for rear services	G73 B



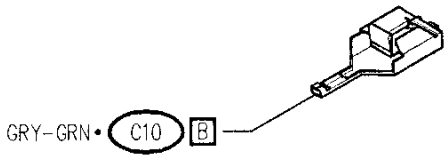
Dashboard/engine connection	G99 A



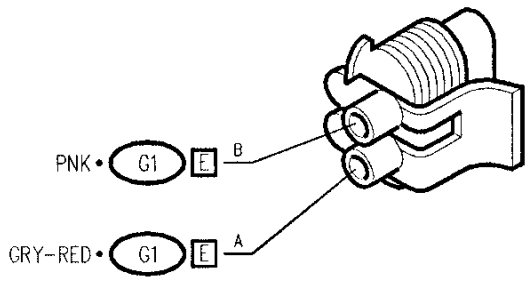
Engine coolant max. temperature warning lamp thermal switch	L5



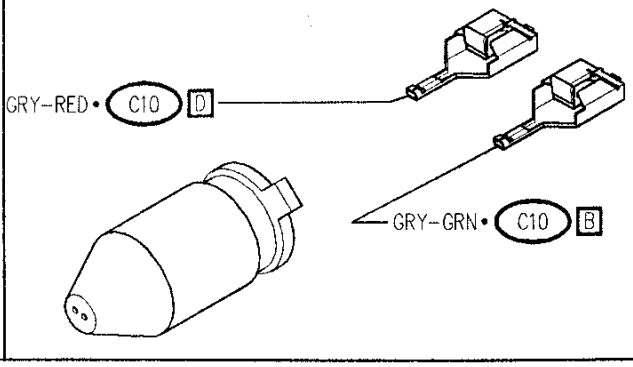
Engine coolant temperature sender	L7



Fuel level gauge sender	L9

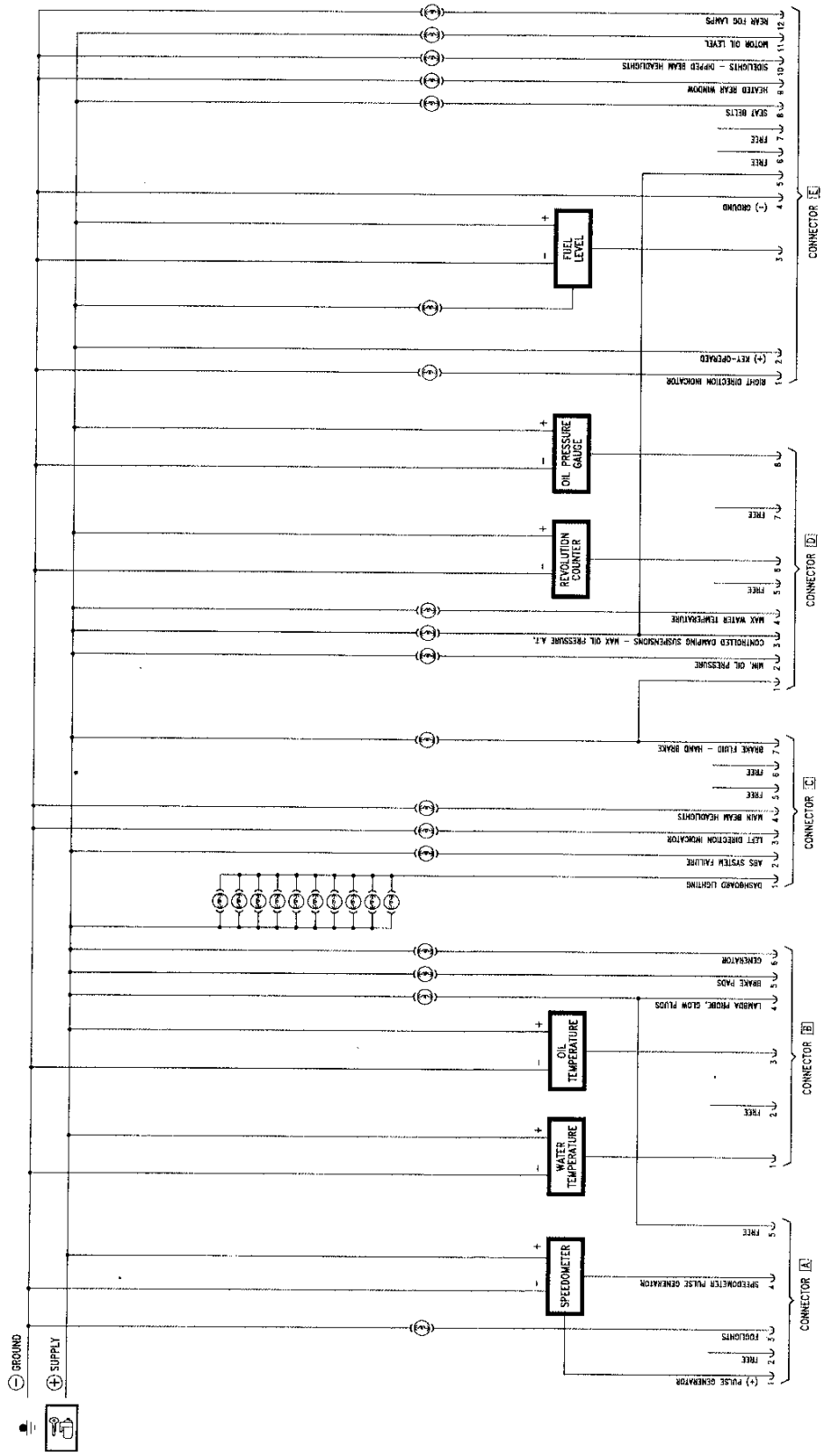


Sender for engine coolant temperature gauge and max. temperature warning lamp contact	L10



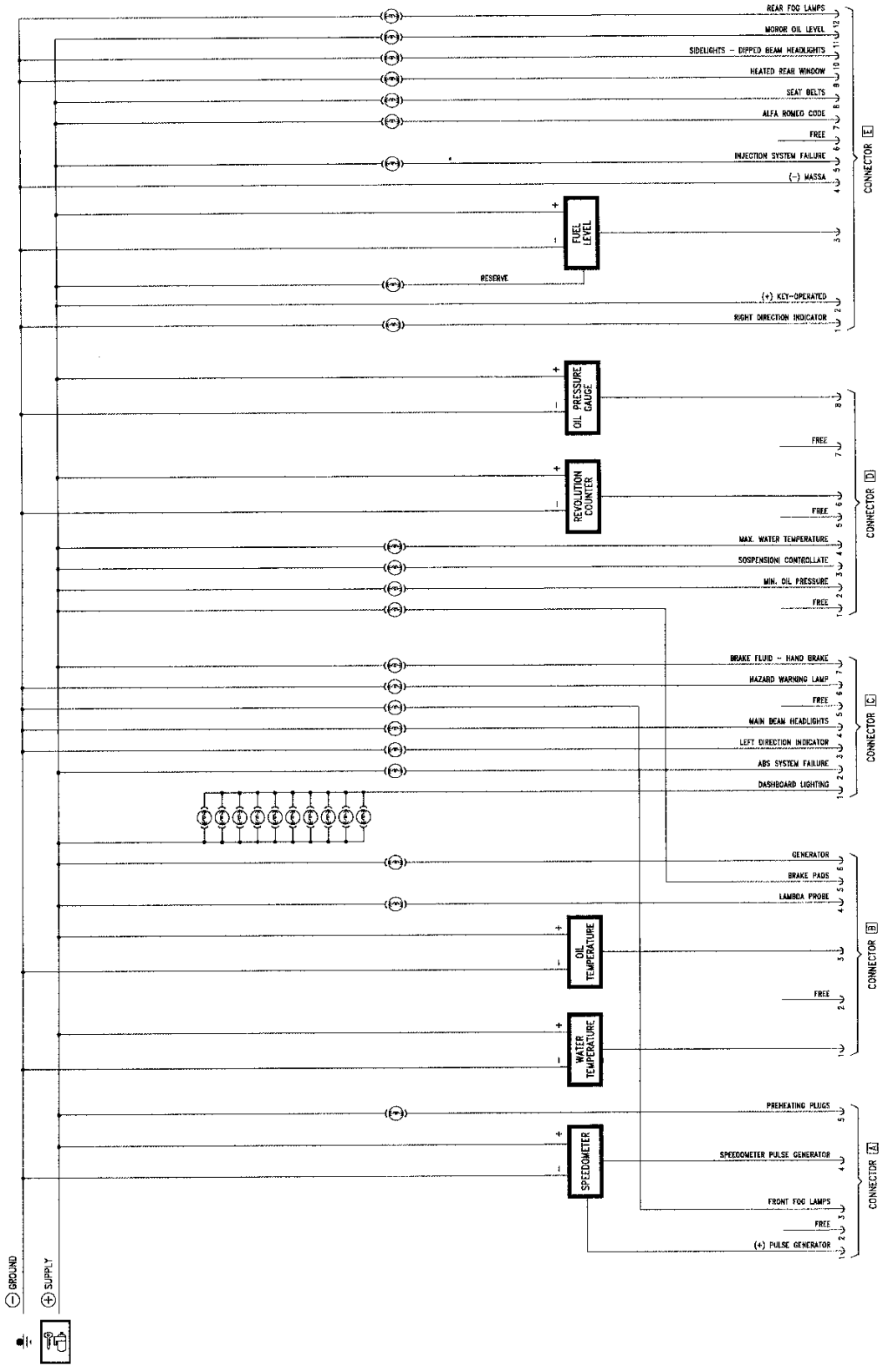
INTERNAL CHART

Wiring Diagram, A version



INTERNAL CHART

Wiring Diagram, '95 B version



Functional Description

This electrical chart represents the printed circuit and the connections within the instrument panel **C10**; this chart differs therefore with regards the different types of panel as described in the "Foreword" of this section.
In the other charts relative to the external connections of the instrument panel (or in those of the single circuits which are connected to warning lamps in the instrument panel) only the relevant lines are represented while this chart makes it possible to have an overall picture of the instrument panel **C10**.

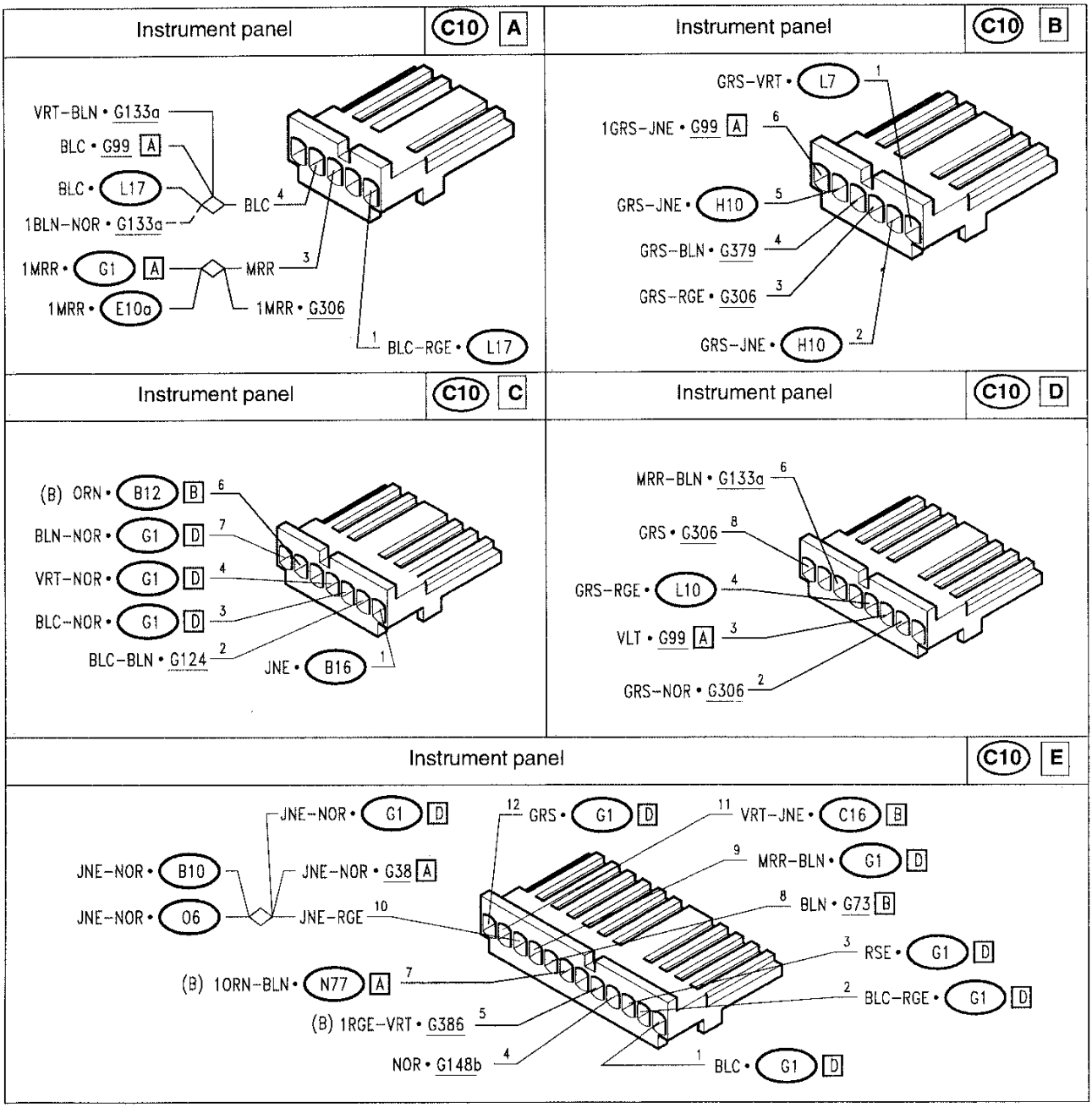
NOTE: not all the output pins are connected for all vesions of the vehicle: in this chart lines which are not in use may be found (for example warning lamps not connected) but present in the printed circuit.

Functional Description

This electrical chart represents the printed circuit and the connections within the instrument panel **C10**.
In the other charts relative to the external connections of the instrument panel (or in those of the single circuits which are connected to warning lamps in the instrument panel) only the relevant lines are represented while this chart makes it possible to have an overall picture of the instrument panel **C10**.

NOTE: not all the output pins are connected for all vesions of the vehicle: in this chart lines which are not in use may be found (for example warning lamps not connected) but present in the printed circuit.

Components and Connectors



(B) For instrument panel '95 version only

TROUBLESHOOTING TABLE

Malfunction	Component												Test
	F15	C10	L17	L8	L44	L2	L10*	L9	R9	H17	H1	H10	
All lights on instrument panel are out	•	•											A
Speedometer		•	•										B
Rev counter		•											C
Oil press. gauge **		•		•									D
Oil temp. gauge **		•			•								E
Water temp. gauge		•					•						F
Fuel gauge		•						•					G
Handbrake warning lamp		•								•	•		H
Brake pad warning lamp		•										•	I
Min. oil press. warning lamp		•				•							J
Max. water temp. warning lamp		•					•						K
Seat belt warning lamp		•							•				L

* (TS) L5 e L7

** not present in the simplified cluster C

The malfunctions of warning lamps not indicated in theis section should be sought in the section reltive to the system to which they refer: e.g. for the dipped beam warning lamp refer to the section "Main and dipped beam headlights"

NOTE:
The malfunctions described below, for example the "warning lamp not working", are a grouping of all the cases in which the behaviour of the warning lamp does not correspond to the correct operation: e.g. the warning lamp comes on to signal an anomaly which does not exist, or vice-versa, a function is selected and the warning lamp does not show it. etc.

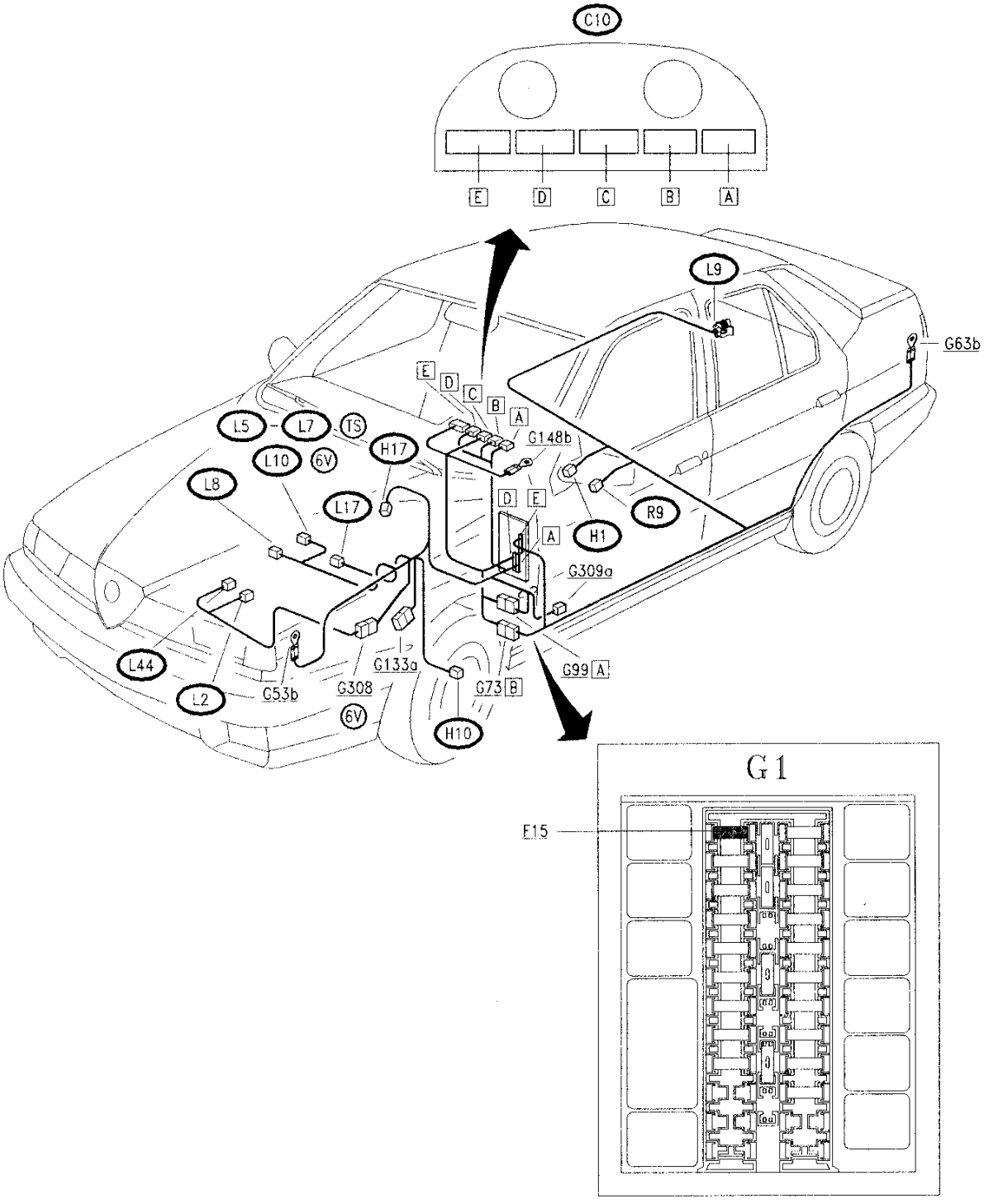
TROUBLESHOOTING

THE INSTRUMENT PANEL IS COMPLETELY OUT	TEST A

NOTE: if the indicators and warning lights are working normally but the instrument panel does not light up, refer to "Interior lighting", **test M**

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F15** in fusebox **G1**	OK ▶	Carry out **step A2**
	~~OK~~ ▶	Replace the fuse (10A)
A2 CHECK VOLTAGE – With ignition key engaged, verify 12V between pins E2 and E4 of instrument panel **C10**	OK ▶	Replace the instrument panel **C10**
	~~OK~~ ▶	Carry out **step A3**
A3 CHECK VOLTAGE – With ignition key engaged, verify 12V at pin E2 of **C10**	OK ▶	Restore wiring between pin E4 of **C10** and ground **G148b** (BLK)
	~~OK~~ ▶	Restore wiring between pin D12 of **G1** and pin E2 of **C10** (LTB-RED)

LOCATION OF COMPONENTS



TROUBLESHOOTING TABLE

Malfunction	Component												Test
	F15	C10	L17	L8	L44	L2	L10*	L9	R9	H17	H1	H10	
All lights on instrument panel are out	•	•											A
Speedometer		•	•										B
Rev counter		•											C
Oil press. gauge		•		•									D
Oil temp. gauge		•			•								E
Water temp. gauge		•					•						F
Fuel gauge		•						•					G
Handbrake warning lamp		•								•	•		H
Brake pad warning lamp		•										•	I
Min. oil press. warning lamp		•				•							J
Max. water temp. warning lamp		•					•						K
Seat belt warning lamp		•							•				L

* (TS) L5 e L7

The malfunctions of warning lamps not indicated in theis section should be sought in the section reltive to the system to which they refer: e.g. for the dipped beam warning lamp refer to the section "Main and dipped beam headlights"

NOTE:
The malfunctions described below, for example the "warning lamp not working", are a grouping of all the cases in which the behaviour of the warning lamp does not correspond to the correct operation: e.g. the warning lamp comes on to signal an anomaly which does not exist, or vice-versa, a function is selected and the warning lamp does not show it. etc.

TROUBLESHOOTING

THE INSTRUMENT PANEL IS COMPLETELY OUT	TEST A

NOTE: if the indicators and warning lights are working normally but the instrument panel does not light up, refer to "Interior lighting", **test M**

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F15** in fusebox **G1**	OK ➡	Carry out **step A2**
	OK ➡	Replace the fuse (10A)
A2 CHECK VOLTAGE – With ignition key engaged, verify 12V between pins E2 and E4 of instrument panel **C10**	OK ➡	Replace the instrument panel **C10**
	OK ➡	Carry out **step A3**
A3 CHECK VOLTAGE – With ignition key engaged, verify 12V at pin E2 of **C10**	OK ➡	Restore wiring between pin E4 of **C10** and ground **G148b**, across light **F42** (BLK)
	OK ➡	Restore wiring between pin D12 of **G1** and pin E2 of **C10** (LTB-RED)

SPEEDOMETER NOT WORKING	TEST B

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK VOLTAGE – With ignition key engaged, verify 12V between pins A and C of speedometer sensor **L17**	OK ➡ OK ➡	Carry out **step B3** Carry out **step B2**
B2 CHECK VOLTAGE – With ignition key engaged, verify 12V at pin C of **L17**	OK ➡ OK ➡	Restore wiring between pin A of **L17** and ground **G53b** -(TS) also across the solder- (BLK-PPL) Restore wiring between pin C of **L17** and pin A1 of instrument panel **C10** (LTB-RED)
B3 CHECK SENSOR – Check for correct functioning of the speedometer sensor operating as follows: • connect pins C and A respectively to 12V and ground • insert the shaft of an electric motor in the sensor • varying the speed of the motor, check that that the frequency of the signal also varies (between 1 and 7.5 V) in output from pin B (speedometer signal)	OK ➡ OK ➡	Carry out **step B4** Replace sensor **L17**
B4 CHECK SIGNAL – Operating as for the preceeding step, check that that the speedometer signal reaches pin A4 of instrument panel **C10**	OK ➡ OK ➡	Replace the instrument panel **C10** Restore wiring between pin B of **L17** and pin A4 of **C10**, also across the solder(LTB)

REV COUNTER NOT WORKING	TEST C

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
C1 CHECK SIGNAL – Check the correct functioning and connection of the rpm and timing sensor **S31** (refer to the section "Motronic ignition and injection system"). Check that, varying the engine rpm, the output signal from pin 74 of the Motronic control unit **S11** varies in frequency	OK ➡ ~~OK~~ ➡	Carry out **step C2** Replace the Motronic control unit **S11** (or the rpm and timing sensor **S31**)
C2 CHECK SIGNAL – Operating as for the previous step, check that the rev counter signal reaches pin D6 of instrument panel **C10**	OK ➡ ~~OK~~ ➡	Replace instrument panel **C10** Restore wiring between pin 74 of control unit **S11** and pin D6 of **C10**, across pin B of connector **G133a** (BRN-WHT)

OIL PRESSURE INDICATOR NOT WORKING	TEST D

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
D1 CHECK SENDER – Check for correct functioning of oil pressure indicator sensor **L8** : • varying the pressure of the engine oil (e.g. accelerating the engine) the resistance signal in output from pin **L8** should vary as a consequence, in accordance with the following table:	OK ➡	Carry out **step D2**
	OK ➡	Replace sender **L8**
D2 CHECK SIGNAL – Operating as for the previous step, check that the signal proportional to the pressure reaches pin D8 of instrument panel **C10**	OK ➡	Replace the instrument panel **C10**
	OK ➡	Restore wiring between **L8** and pin D8 of **C10** (GRY)

Oil pressure kg/cm2	Resistance Ω
0	290-320
0.4	255- 285
2	175-205
4	103-133
6	50- 80
8	0-40

OIL TEMPERATURE INDICATOR NOT WORKING	TEST E

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
E1 CHECK SENDER – Check for correct functioning of oil temperature indicator sender **L44** : • varying the temperature of the engine oil (e.g. "heating" the engine) the resistance signal in output from pin **L44** should vary as a consequence in accordance with the following table: Oil temperature °C / Resistance Ω 50 / 800-900 70 / 350-450 90 / 180-220	OK ➡ OK ➡	Carry out **step E2** Replace sender **L44**
E2 CHECK SIGNAL – Operating as for the previous step, check that the signal proportional to the temperature reaches pin B3 of instrument panel **C10**	OK ➡ OK ➡	Replace instrument panel **C10** Restore wiring between: • (TS) **L44** and pin B3 of **C10** (GRY) • (6V) **L44** and pin B3 of **C10**, across pin B of connector **G308** (GRY-RED)

WATER TEMPERATURE INDICATOR NOT WORKING	TEST F

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
F1 CHECK SENDER – Check for correct functioning of engine coolant liquid temperature indicator sender **L7**(TS), **L10**(6V): • varying the temperature of the engine coolant (e.g. "heating" the engine from cold) the resistance signal in output from sender **L10 (L7)** (pin with GRY-GRN cable) should vary as a consequence in accordance with the following table: Water temperature °C / Resistance Ω 40 / 900- 1400 60 / 470-600 80 / 235-300 90 / 174- 215	OK ➡ ~~OK~~ ➡	Carry out **step F2** Replace sender **L10 (L7)**
F2 CHECK SIGNAL – Operating as for the previous step, check that the signal proportional to the temperature reaches pin B1 of instrument panel **C10**	OK ➡ ~~OK~~ ➡	Replace the instrument panel **C10** Restore wiring between **L10 (L7)** and pin B1 of **C10** (GRY-GRN)

FUEL LEVEL INDICATOR NOT WORKING	TEST G

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
G1 CHECK SENDER – Check for correct functioning of fuel level indicator sender **L9**: • remove the sender **L9** and submerge it in a container of fuel: varying the level of the fuel, check that the resistance at the two pins of **L9** vary as a consequence between a value of 0-7 Ω at maximum level and a value of 290-320 Ω when the container is empty	OK ➡ ~~OK~~ ➡	Carry out **step G2** Replace sender **L9**
G2 CHECK SIGNAL – Operating as at the previous step but connecting the sender to to the vehicle, check that a signal proportional to the level of fuel in the container reaches pin E3 of instrument panel **C10**	OK ➡ ~~OK~~ ➡	Replace the instrument panel **C10** Carry out **step G3**
G3 CHECK EARTH – Check that pin A of sender **L9** is grounded (0V)	OK ➡ ~~OK~~ ➡	Restore wiring between: • pin B of **L9** and pin E3 of **G1** (PNK) • pin D6 of **G1** and pin E3 of instrument panel **C10** (PNK) Restore wiring between: • pin A of **L9** and pin E2 of **G1** (GRY-RED) • pin D5 of **G1** and ground **G53b**, across pin A4 of connector **G99** and the solder (GRY-RED and BLK-PPL)

HANDBRAKE AND BRAKE FLUID LEVEL WARNING LIGHT NOT WORKING	TEST H

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
H1 CHECK SWITCH – Check for correct functioning of the handbrake switch **H1**: • with handbrake engaged (lever raised) check for ground at the output pin of switch **H1** (wire WHT-BLK)	OK ➡	Carry out **step H2**
	~~OK~~ ➡	Check that switch **H1** is correctly secured, if not
H2 CHECK SWITCH – Check for correct functioning of the brake fluid minimum level switch **H17**: • with the reservoir at the minimum level, check for ground at pin 1 of switch **H17**	OK ➡	Carry out **step H4**
	~~OK~~ ➡	Carry out **step H3**
H3 CHECK EARTH – Check that pin 2 of **H17** is grounded	OK ➡	Replace switch **H17**
	~~OK~~ ➡	Restore wiring between pin 2 of **H17** and ground **G53b** (BLK)

(continues)

HANDBRAKE AND BRAKE FLUID LEVEL WARNING LIGHT NOT WORKING	TEST H

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
H4	CHECK EARTH		
– With handbrake on, check that pin C7 of instrument panel **C10** is grounded		OK ➡	Replace the relative warning lamp on the instrument panel **C10**
		OK ➡	Restore wiring between: • switch **H1** and pin E1 of **G1** (WHT-BLK) • pin 1 of switch **H17** and pin A4 of **G1** (WHT-BLK) • pin D4 of **G1** and pin C7 of instrument panel **C10** (WHT-BLK)

BRAKE PAD WEAR WARNING LAMP NOT WORKING	TEST I

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
I1 CHECK BRAKE PADS – Check the degree of wear of the brake pads (particularly those of the front left wheel)	OK ➡	Carry out **step I2**
	OK ➡	Replace brake pads
I2 CHECK SWITCH – Check for correct functioning of the front left brake pad switch **H10**: • remove the pad and check that the output pin of switch **H10** is grounded (wire GRY-YEL)	OK ➡	Carry out **step I3**
	OK ➡	Check that switch **H10** is correctly secured, if not replace it
I3 CHECK CONTINUITY – Check continuity between switch **H10** and pin D1 of instrument panel **C10**	OK ➡	Replace the relative warning lamp on the instrument panel **C10**
	OK ➡	Restore wiring between switch **H10** and pin D1 of instrument panel **C10** (GRY-YEL)

MINIMUM OIL PRESSURE WARNING LAMP NOT WORKING	TEST J

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
J1 CHECK PRESSURE SWITCH – Check for correct functioning of minimum oil pressure pressure switch **L2**: • starting the engine, when the pressure of the oil exceeds 0.5 bars approx., the ground signal at the output pin of switch **H1** should be interrupted (wire GRY-BLK)	OK ➡ ~~OK~~ ➡	Carry out **step J2** Check that the pressure switch **L2** is correctly secured, if not replace it
J2 CHECK CONTINUITY – Check continuity between pressure switch **L2** and pin D2 of instrument panel **C10**	OK ➡ ~~OK~~ ➡	Replace the relative warning lamp on the instrument panel **C10** Restore wiring between: - (TS) pressure switch **L2** and pin D2 of instrument panel **C10** (WHT-BLK) - (6V) pressure switch **L2** and pin D2 of instrument panel **C10**, across pin A of connector **G308** (WHT-BLK)

MAX. TEMPERATURE WARNING LAMP NOT WORKING	TEST K

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
K1 CHECK THERMAL SWITCH – Check for correct functioning of engine coolant max. temp. thermal switch **L5**(TS), **L10** (6V): • remove the thermal switch and with a suitable instrument and check that the contact closes at 115°C (6V) - 118 °C (TS)	OK ➡	Carry out **step K2**
	~~OK~~ ➡	Replace thermal switch **L10 (L5)**
K2 CHECK CONTINUITY – Check continuity between thermal switch **L10 (L5)** and pin D4 of instrument panel **C10**	OK ➡	Replace the relative warning light bulb on the instrument panel **C10**
	~~OK~~ ➡	Restore wiring between **L10 (L5)** and pin D4 of **C10** (GRY-RED)

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SEAT BELT WARNING LIGHT NOT WORKING	TEST L

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
L1 CHECK SWITCH – Check for correct functioning of the seat belt switch **R9**: • with the seat belt not fastened, check for a ground signal at pin 1 of switch **R9**	OK ➡ ~~OK~~ ➡	Carry out **step L3** Carry out **step L2**
L2 CHECK EARTH – Check that pin 2 of **R9** is grounded	OK ➡ ~~OK~~ ➡	Check that switch **R9** is correctly secured, otherwise replace it Restore wiring between pin 2 of **R9** and ground **G63b** (BLK)
L3 CHECK EARTH – With the seat belt not fastened, check that pin E8 of instrument panel **C10** is grounded	OK ➡ ~~OK~~ ➡	Replace the relative warning lamp on the instrument panel **C10** Restore wiring between pin 1 of switch **R9** and pin E8 of instrument panel **C10**, across pin B2 of connector **G73** (WHT)

CHECK PANEL

INDEX

GENERAL DESCRIPTION

The vehicle efficiency check device, the "Check Panel", continually verifies the correct operation of the most important electrical systems, particularly those connected with safety.
A display immediately alerts the driver if a malfunction or anomaly is detected in one of the controlled systems and the relative led-warning light then comes on.
When the ignition key is engaged an initial check of the controlled systems is carried out.

OPERATING LOGIC

The Check Panel device is formed by:

- a display **C16**, located in the centre of the dashboard;
- an electronic control unit **N59**, located in the fusebox **G1**;
- a series of sensors which measure the controlled values.

The operations are based on the capability of determining certain conditions of certain electrical functions:

- inappropriate electrical charge
- anomalous opening or closing of a circuit.

These functions are carried out, for a few of the controlled systems, by the electronic control unit **N59**, while the other signals reach the display **C16** straight from the sensors.

The controlled systems are the following:

- insufficient windscreen washer fluid indicator;
- insufficient engine oil level indicator;
- insufficient engine coolant indicator;
- stop-light malfunction indicator;
- rear fog light malfunction indicator;
- sidelights malfunction indicator;
- number plate light malfunction indicator;
- door open indicator.

A digital clock with relative buttons for adjustment and setting are also incorporated in the display.

N.B. Models not equipped with the complete Check Panel device are however fitted with a display with clock and the leds signalling "door open". For these models only the diagrams relative to

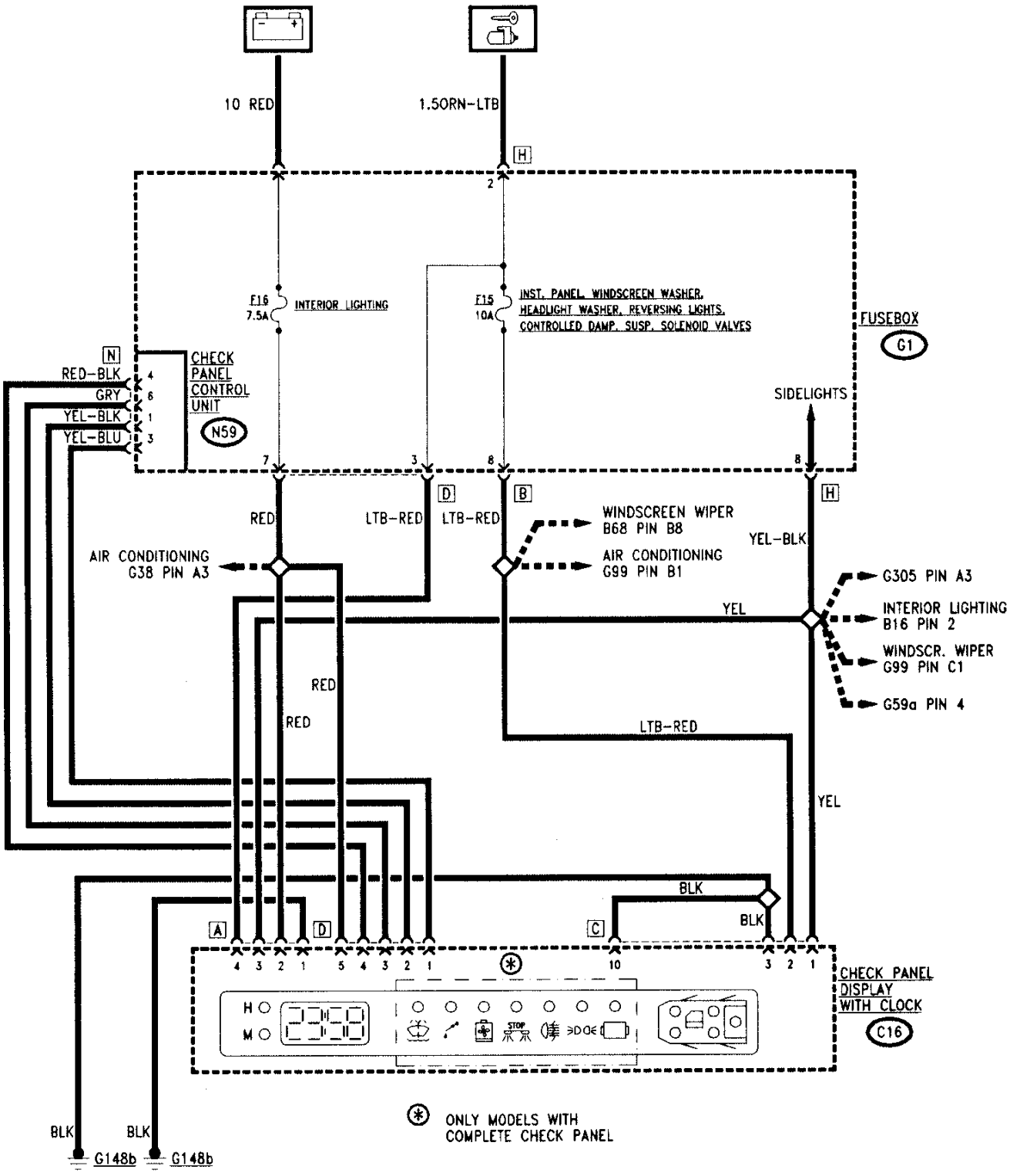
- **power supply and clock**

- **door open indicator**

should be considered

POWER SUPPLY AND CLOCK

Wiring Diagram



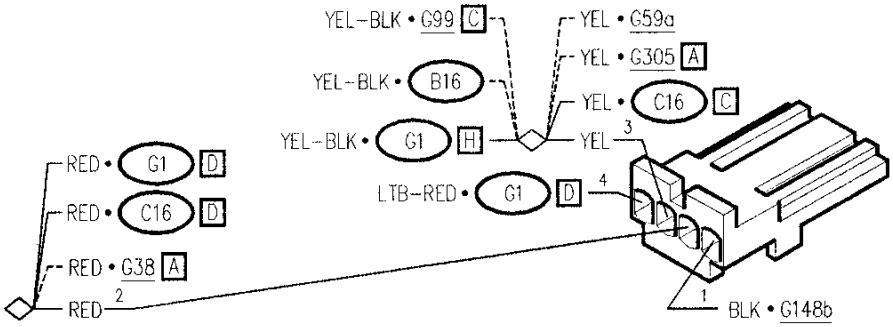
Functional Description

The display **C16** is supplied by battery voltage via fuse **F16** (7.5A) of fusebox **G1** which is connected to pin 5 of connector D of the display itself.
Pins 1,2,3,4 of connector D connect the display to the control unit **N59**.
Pin 1 of connector C receives a power supply signal from the sidelights circuit which, when the lights are on, lights up the ideograms on the display.

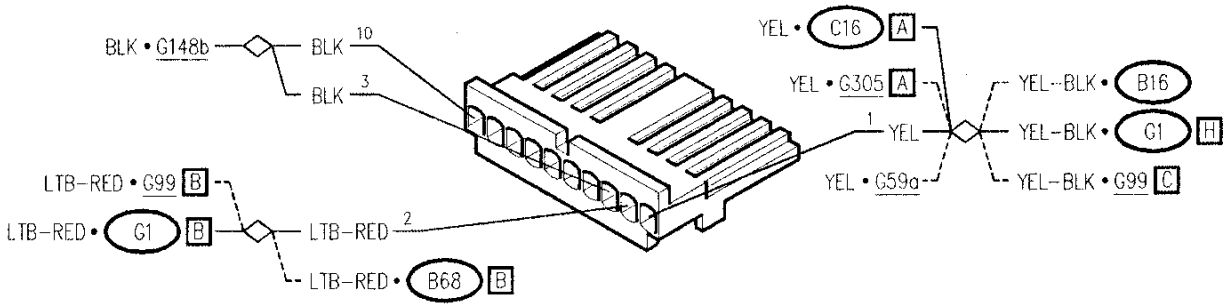
Pin 2 is turn-key supplied via fuse **F15** (10A) in fusebox **G1**, while pin 3 and pin 10 are grounded.
The clock is also directly supplied by battery voltage through fuse **F16** of fusebox **G1**, to pin 2 of connector A. Pin 1 of the connector is grounded while pin 4 reaches the turn-key supply which lights up the digits of the clock itself; a sidelights signal reaches pin 3 which lowers the light intensity of the display.

Components and Connectors

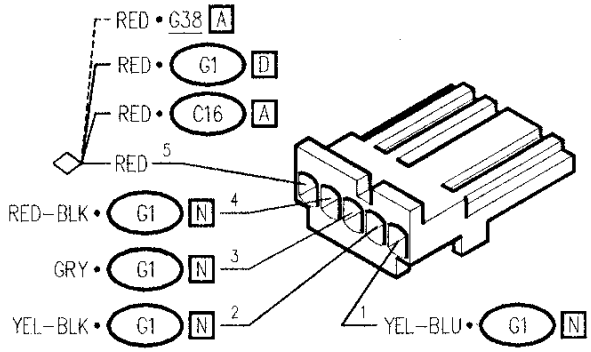
Check panel display with clock — C16 A



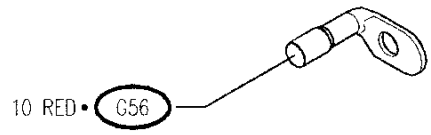
Check panel display with clock — C16 C



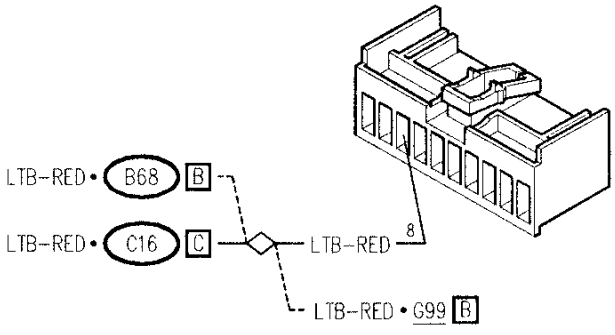
Check panel display with clock — C16 D



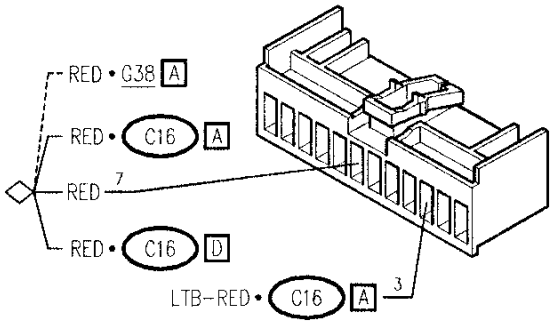
Fusebox — G1



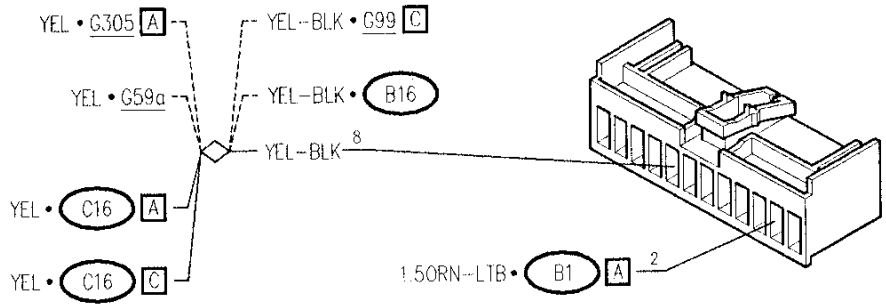
Fusebox — G1 B



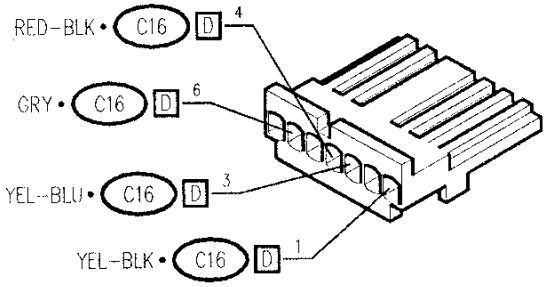
Fusebox — G1 D

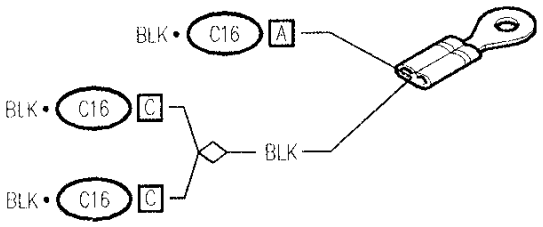


Fusebox	G1 H



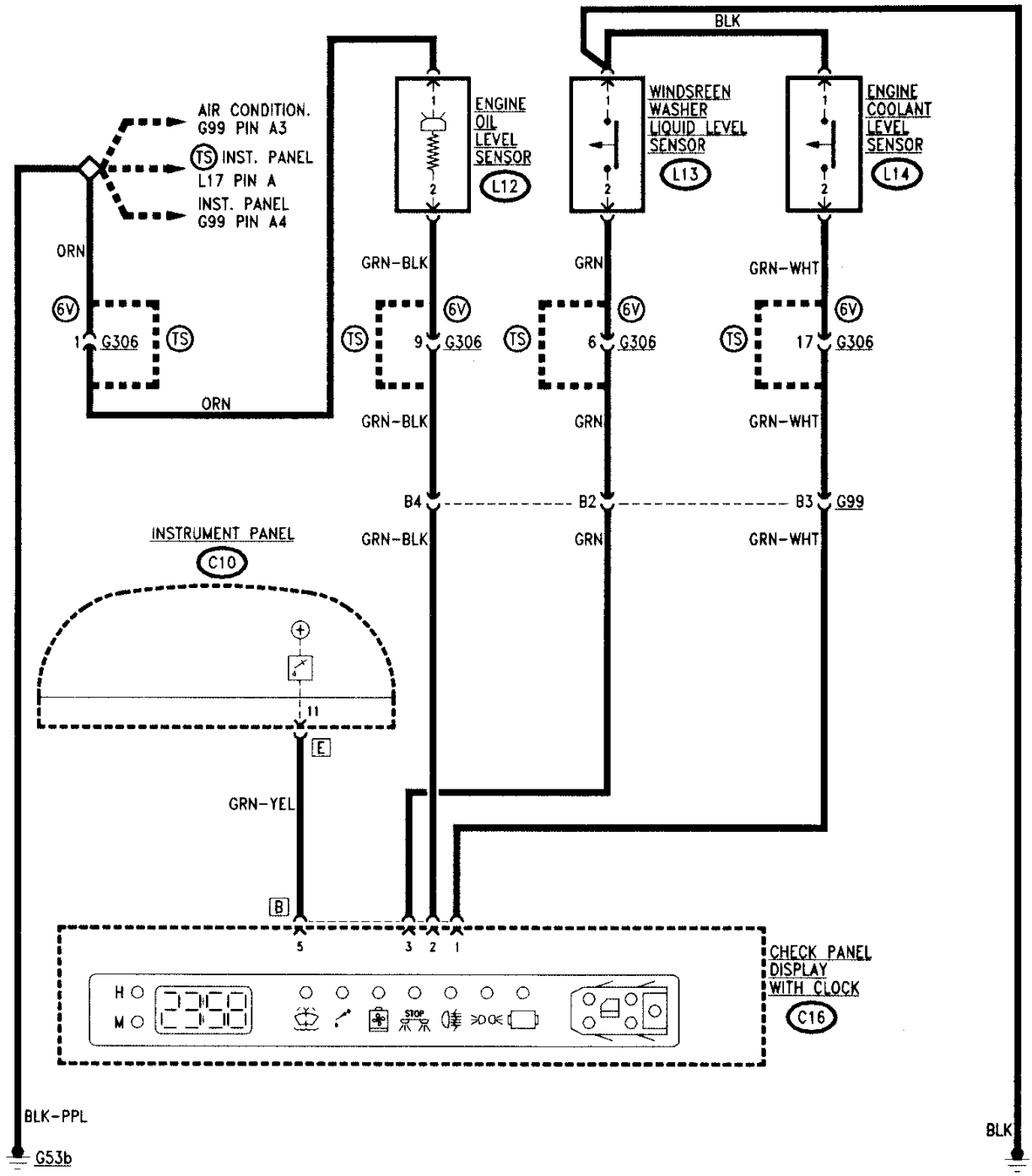
Fusebox	G1 N	Under-dashboard ground-left side	G148b





LEVELS CHECK

Wiring Diagram



Functional Description

Three special sensors, with a ground signal sent directly to display **C16**, alert the driver that the level of some of the fluids is insufficient.

The engine coolant level sensor **L14** is located in the relative reservoir. It is formed by a float which, when the level of the liquid falls, closes a contact of a hermetically sealed switch and sends a ground signal to display **C16**, at pin 1 of connector B.

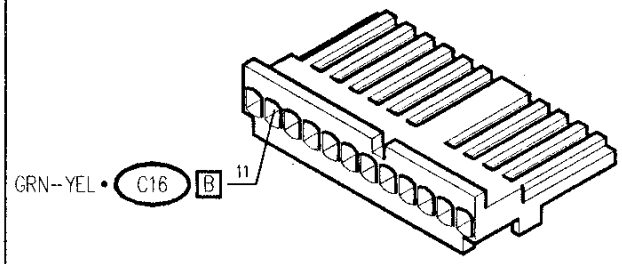
The windscreen washer liquid sensor **L13**, also located in the relative reservoir, like sensor **L14**, is composed of a contact which is closed by a float and sends a ground signal to pin 3 of connector B of display **C16**.

The engine oil level sensor **L12** is located at the tip of a rod immersed in the sump oil. It is composed of a pair of contacts located at the ends of a bimetal strip which is heated by a resistance. The heat generated is normally dissipated by the oil and the contacts stay closed; when the oil level falls the heat causes the circuit to open and interrupts the signal sent to pin 2 of connector B of display **C16**.

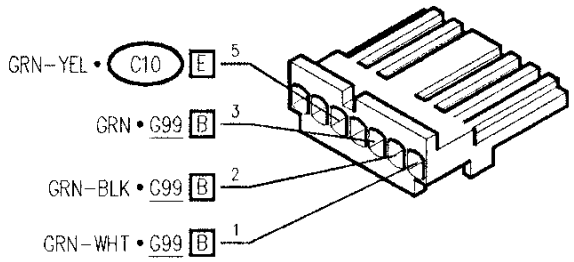
The same signal is sent by pin 5 to pin 11 of connector E of the instrument panel **C10** to light up the "Engine oil minimum level" warning lamp.

Components and Connectors

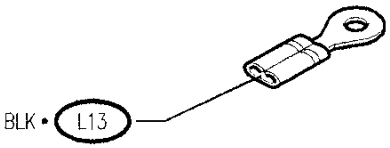
Instrument panel	C10 E



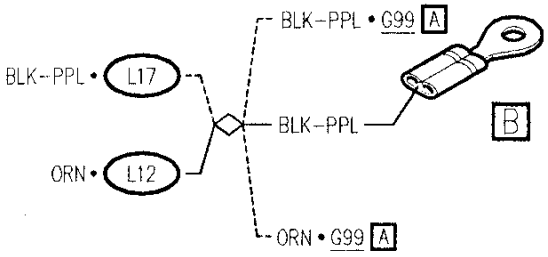
Check panel display with clock	C16 B



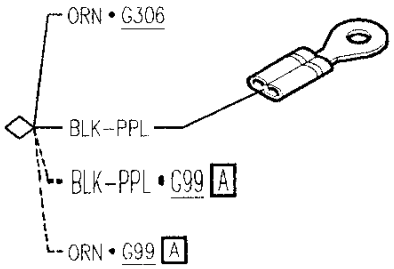
Engine compartment ground-right side	G53a



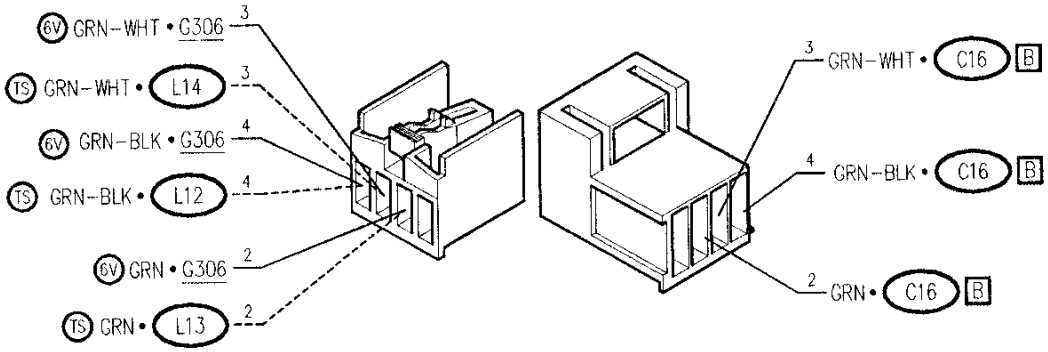
Engine compartment ground-left side TS	G53b



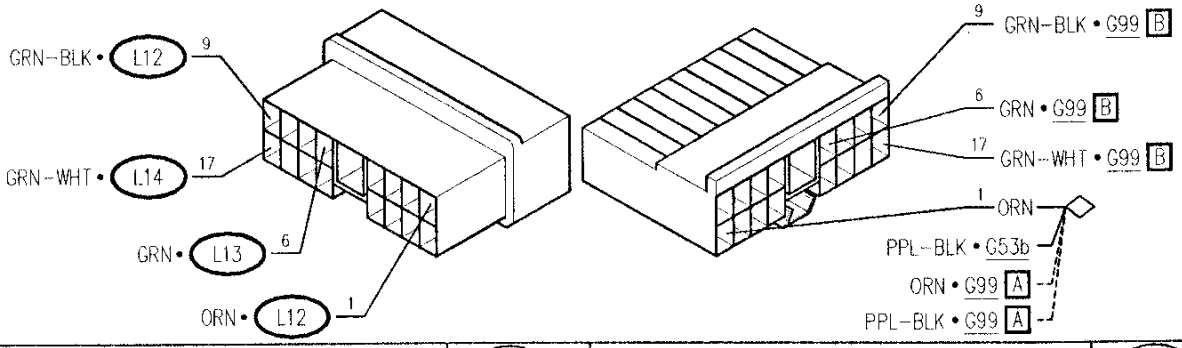
Engine compartment ground-left side 6V	G53b



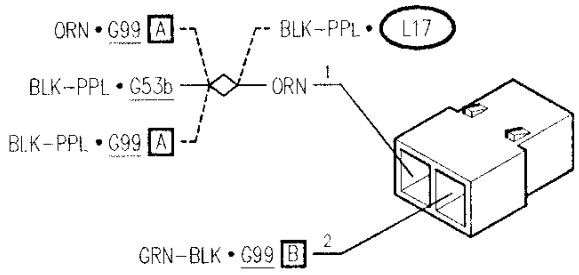
Dashboard/engine connection	G99 B

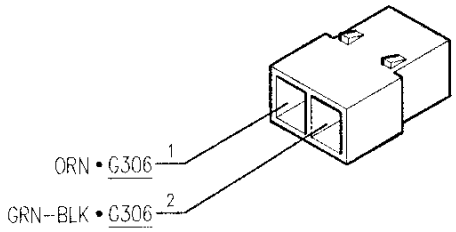


Engine wiring/right engine wiring connection	G306

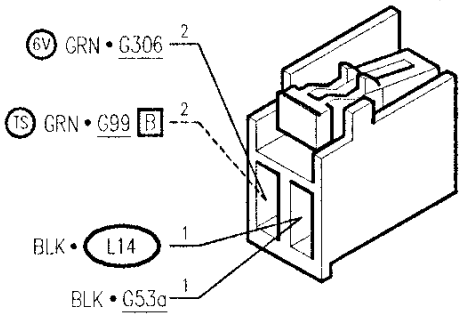


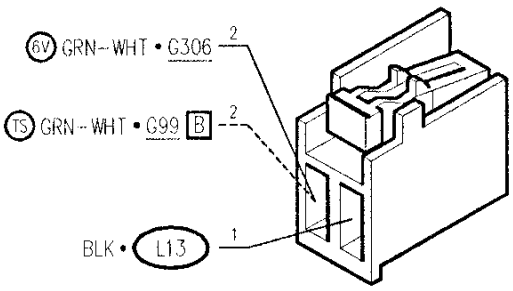
Engine oil level sensor **TS**	L12	Engine oil level sensor **6V**	L12





Windscreeen washer liquid level sensor	L13	Engine coolant level sensor	L14



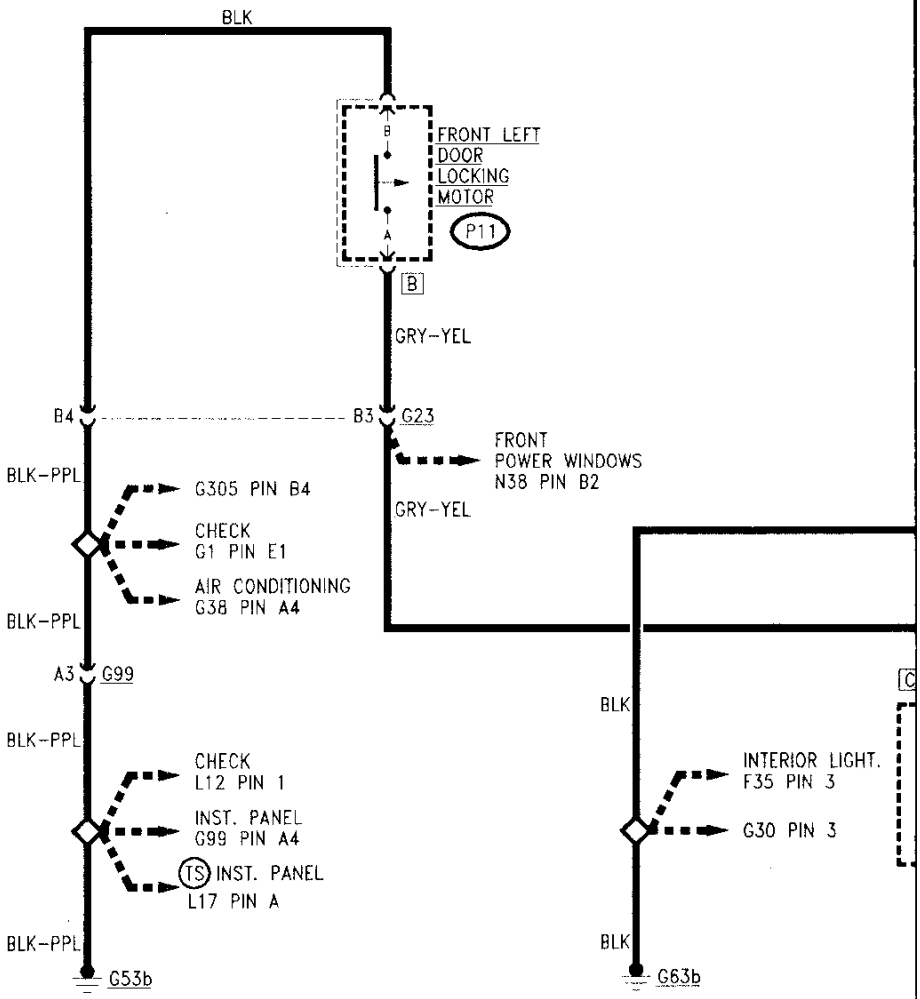


D

W

BOOT RELEASE
I52 PIN 85

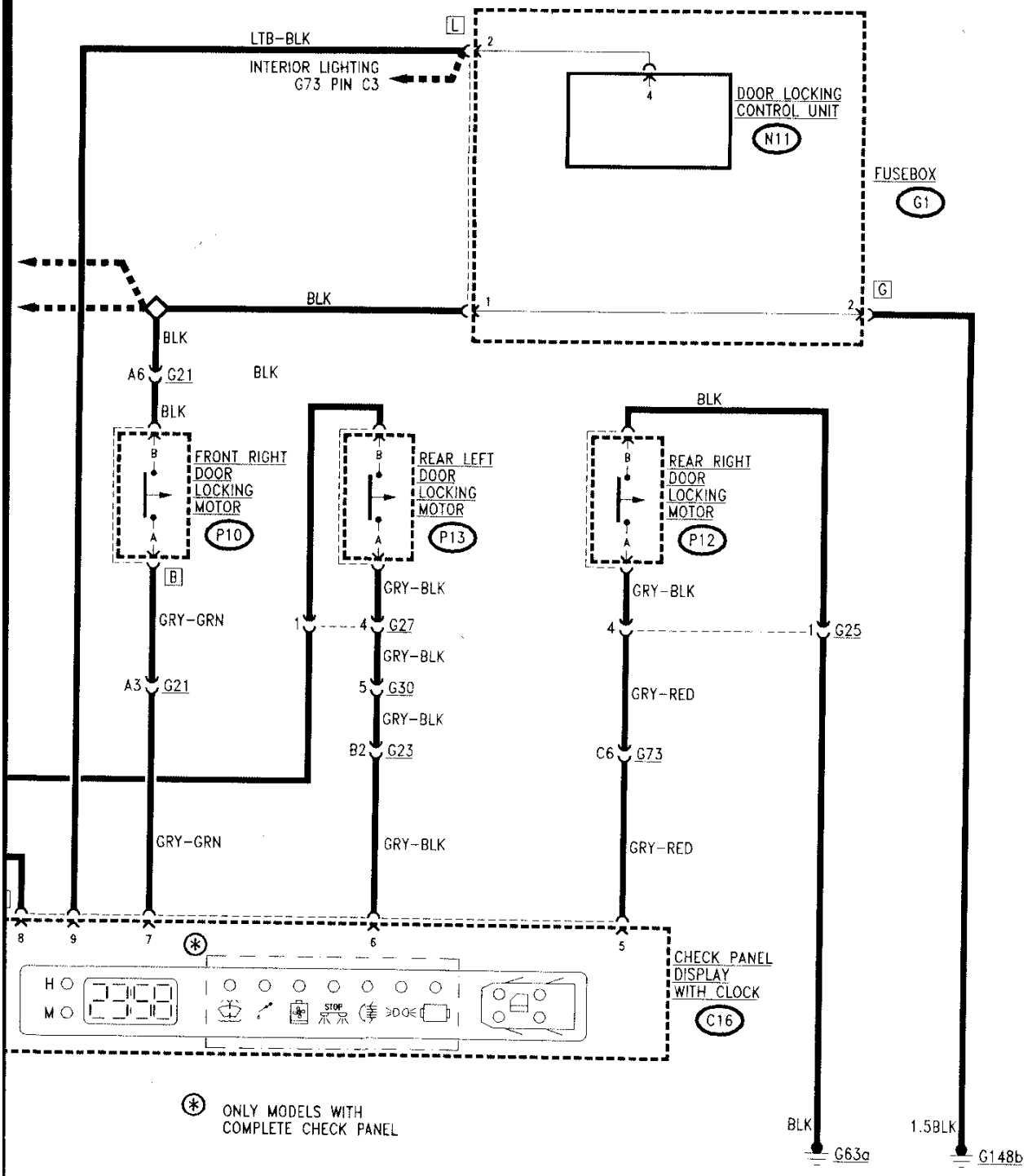
SUNROOF
I58 PIN 85



PA

OOR OPEN INDICATOR

iring Diagram



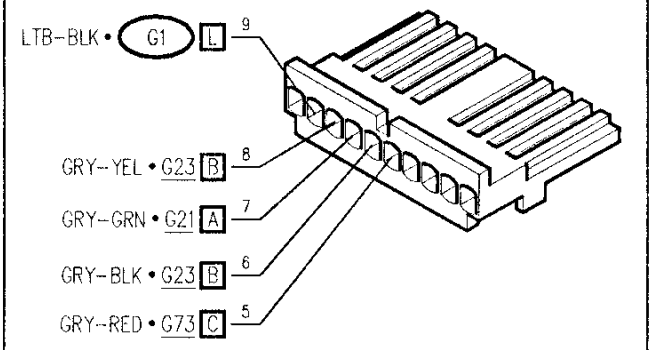
Functional Description

The door locking device - **P10**, **P11**, **P12**, **P13** - located on each door near the locks, also contains a micro-switch which closes when the door itself is open, and sends a ground signal to the display **C16** at pins 5,6,7 and 8 of connector C.

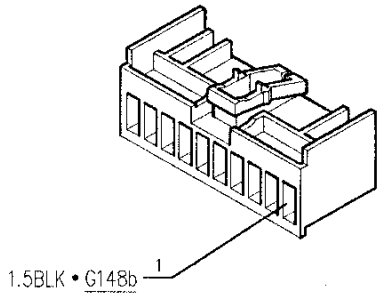
Pin 9 is connected to the door lock control unit **N11** and to the Check Panel control unit **N59**, located inside fusebox **G1**, in order to signal the incorrect closure of the doors and prevent locking/unlocking of the locks (see "Door locking system").

Components and Connectors

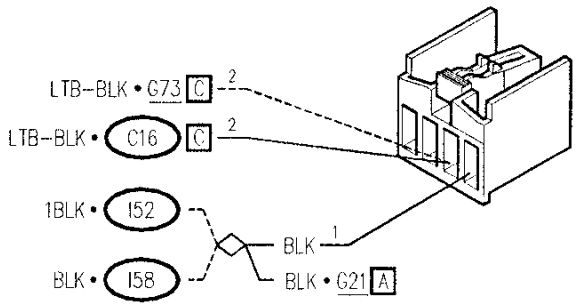
Check panel display with clock (C16) [C]



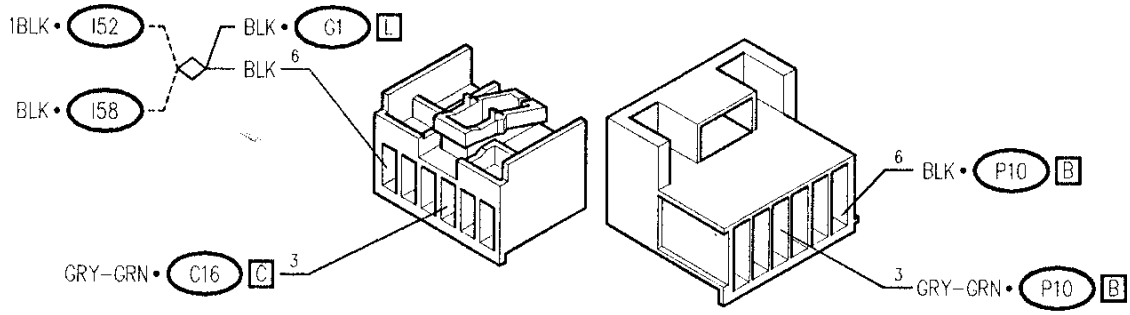
Fusebox (G1) [G]



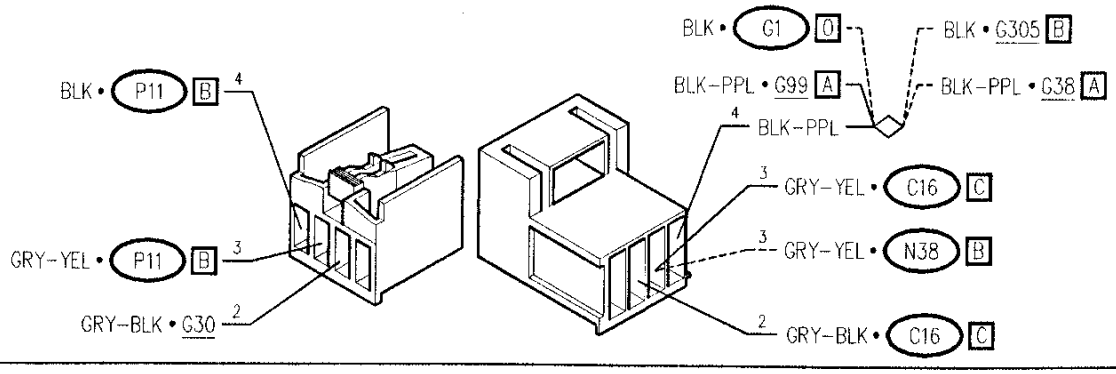
Fusebox (G1) [L]



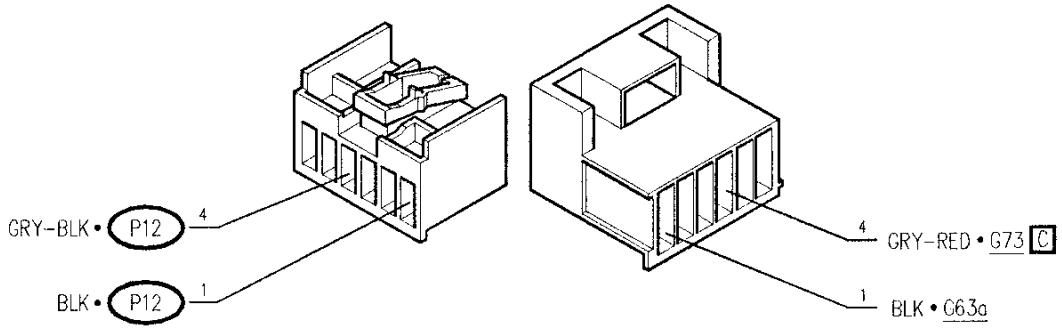
Connector for front right door wiring (G21) [A]



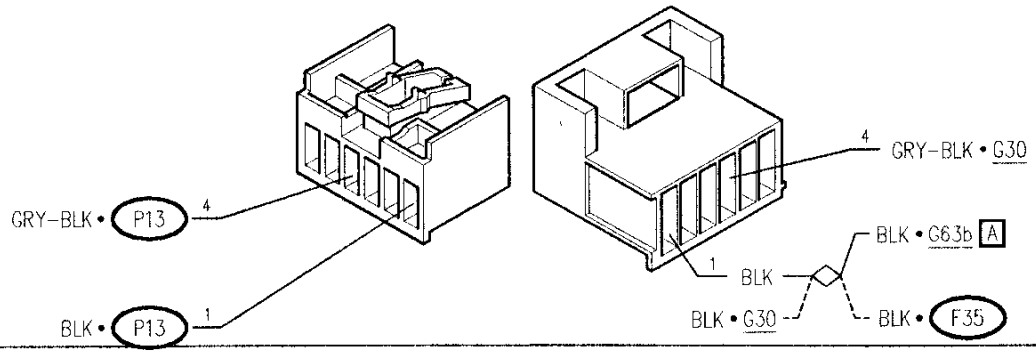
Connector for front left door wiring (G23) [B]



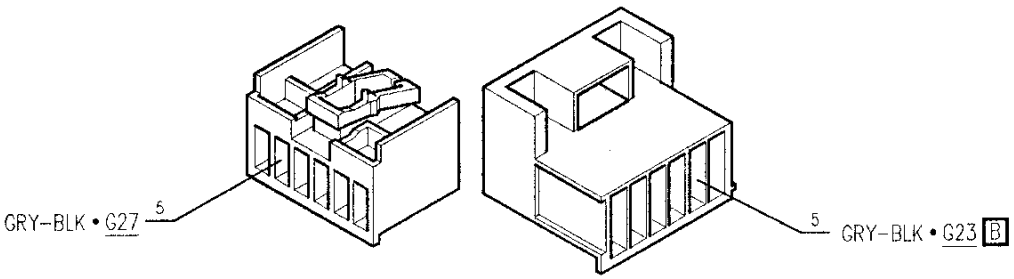
Connector for rear right door wiring — G25



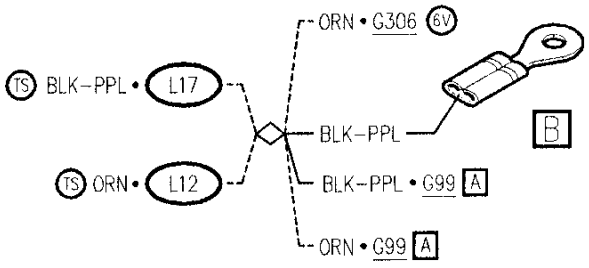
Connector for rear left door wiring — G27



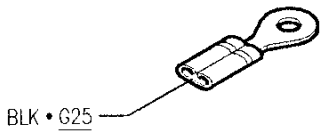
Connector for door lock — G30



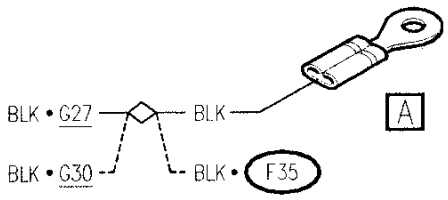
Engine compartment ground-left side — G53b



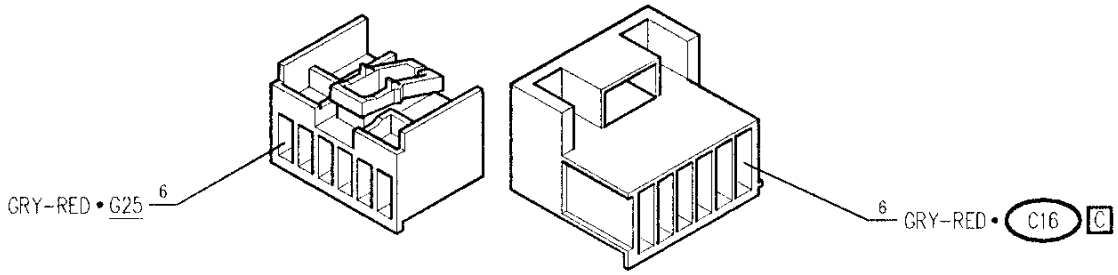
Rear right ground — G63a



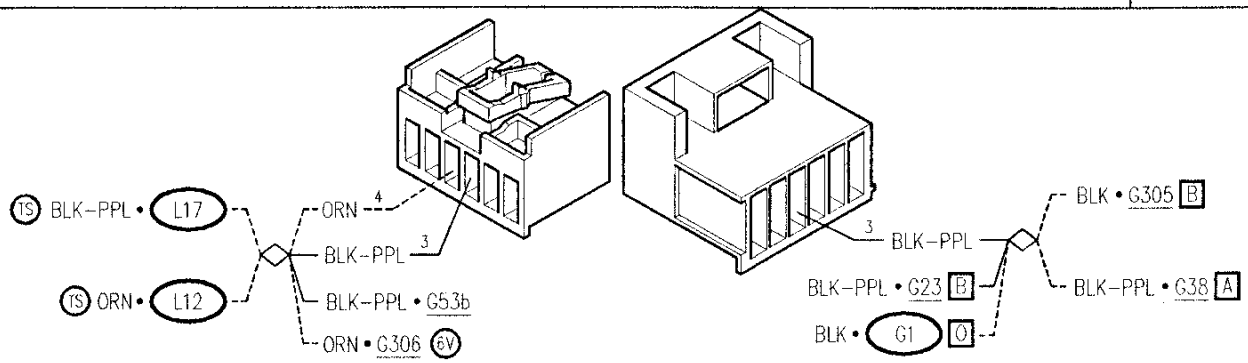
Rear left ground	G63b



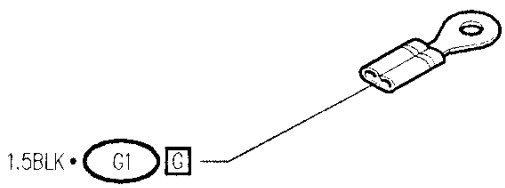
Connector for rear services	G73 C

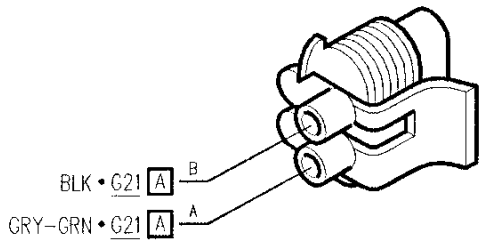


Dashboard/engine connection	G99 A

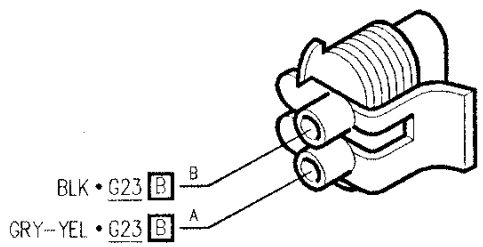


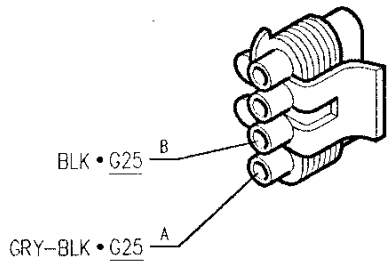
Under-dashboard ground-left side	G148b	Front-right door locking motor	P10 B



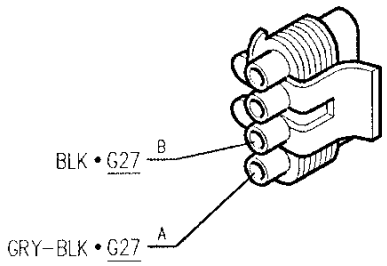


Front-left door locking motor	P11 B	Rear-right door locking motor	P12



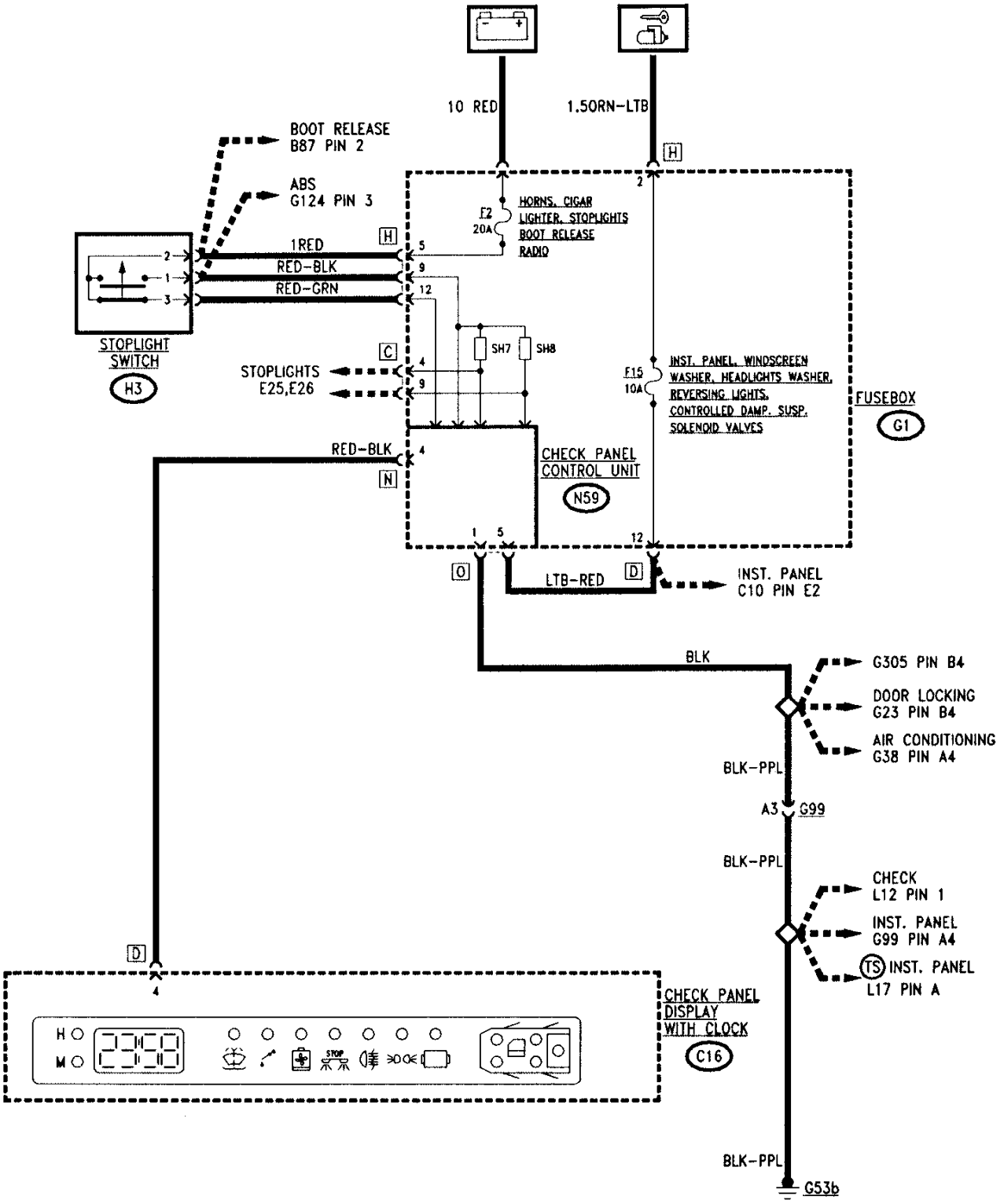


Rear-left door locking motor	P13



STOP LIGHTS CHECK

Wiring Diagram



Functional Description

Check Panel control unit

The Check Panel **N59** processes the various signals and sends them to the display **C16** throught the lines that exit pins 1, 3, 4 and 6 of connector N of the fusebox **G1** where the control unit **N59** is located.

The control unit is turn-key supplied via fuse **F15** (10A) to pin 5 of connector O of **G1**, while a ground reaches the control unit from pin 1 of the connector.

The control unit checks the electrical charge in the controlled circuits by way of a shunt ("SH1", "SH2"...) inserted in the circuits of fusebox **G1** on the lines carrying the signals to be checked by the control unit **N59**.

In the following three charts the control unit **N59** connections are illustrated along with the various controlled functions:

Stop light check

The control unit **N59** is connnected to the two contacts of the stop light switch **H3** via pins 9 and 12 of connector H in **G1**.

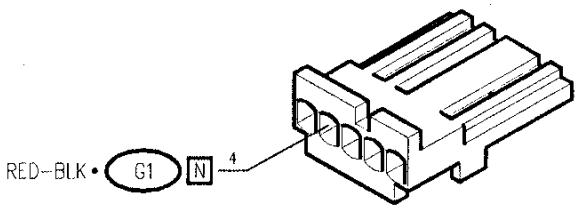
The control unit carries out two distinct checks through this signal:

- the first (only carried out when the brake pedal is depressed) checks for a possible anomaly in a single bulb or relative circuit, and the correct operation of the "working" contacts (N.O.) of switch **H3** (see "Stop-Lights");
- the second (continuous operation) controls the supply to the circuit (fuse **F2** of fusebox **G1**) and the correct operation of the contacts "at rest" (N.C.) of switch **H3** (see "Stop-Lights").

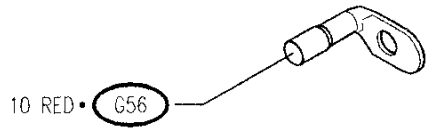
In both cases, if an anomaly is discovered, the control unit sends a signal to pin 4 of connector D of **C16** to light up the relative warning lamp.

Components and Connectors

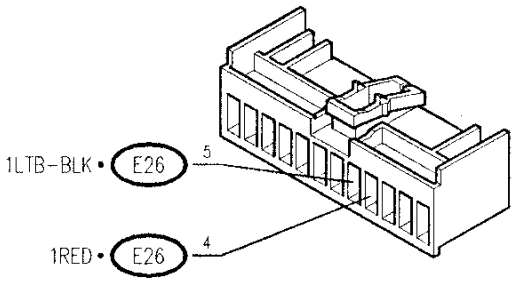
Check panel display with clock	C16 D



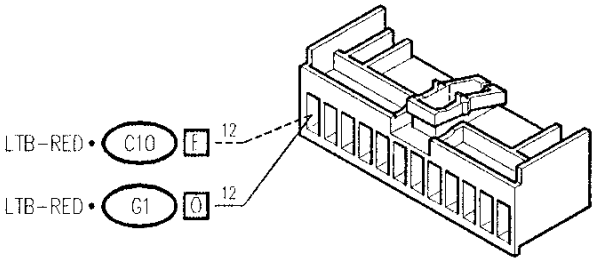
Fusebox	G1



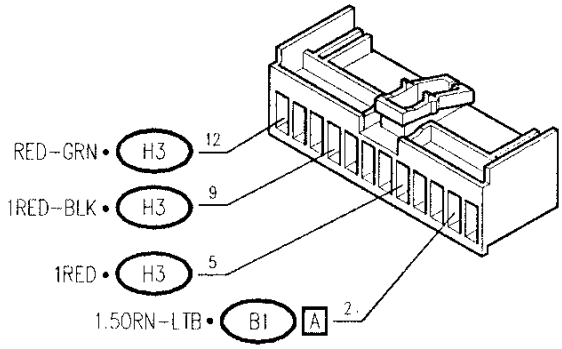
Fusebox	G1 C



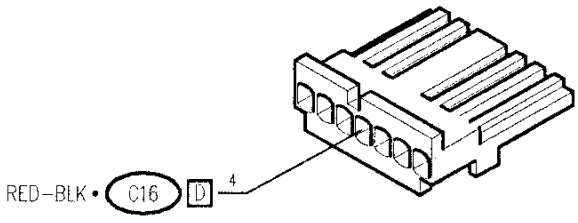
Fusebox	G1 D



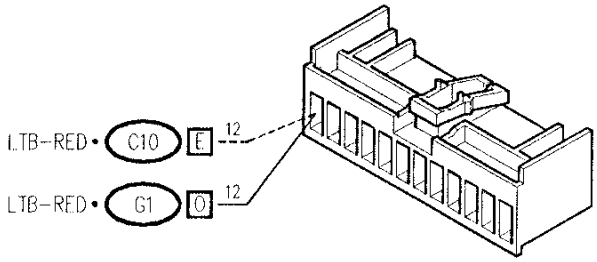
Fusebox	G1 H



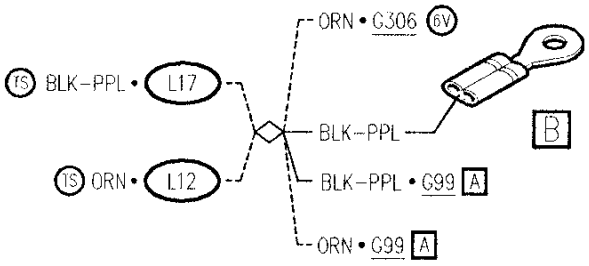
Fusebox	G1 N



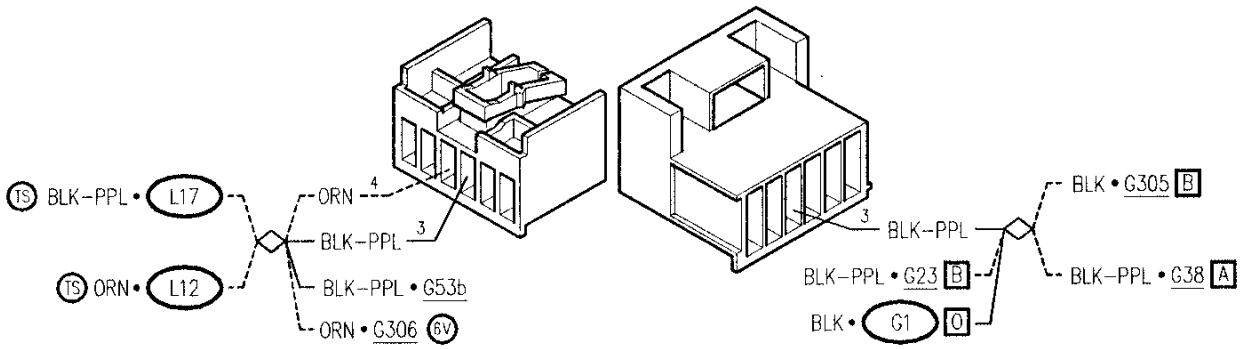
Fusebox	G1 O



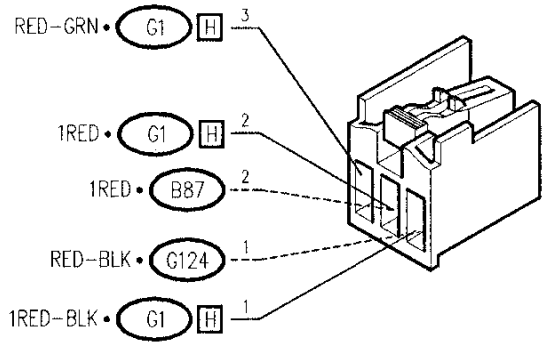
Engine compartment ground-left side	G53b



Dashboard/engine connection — G99 A

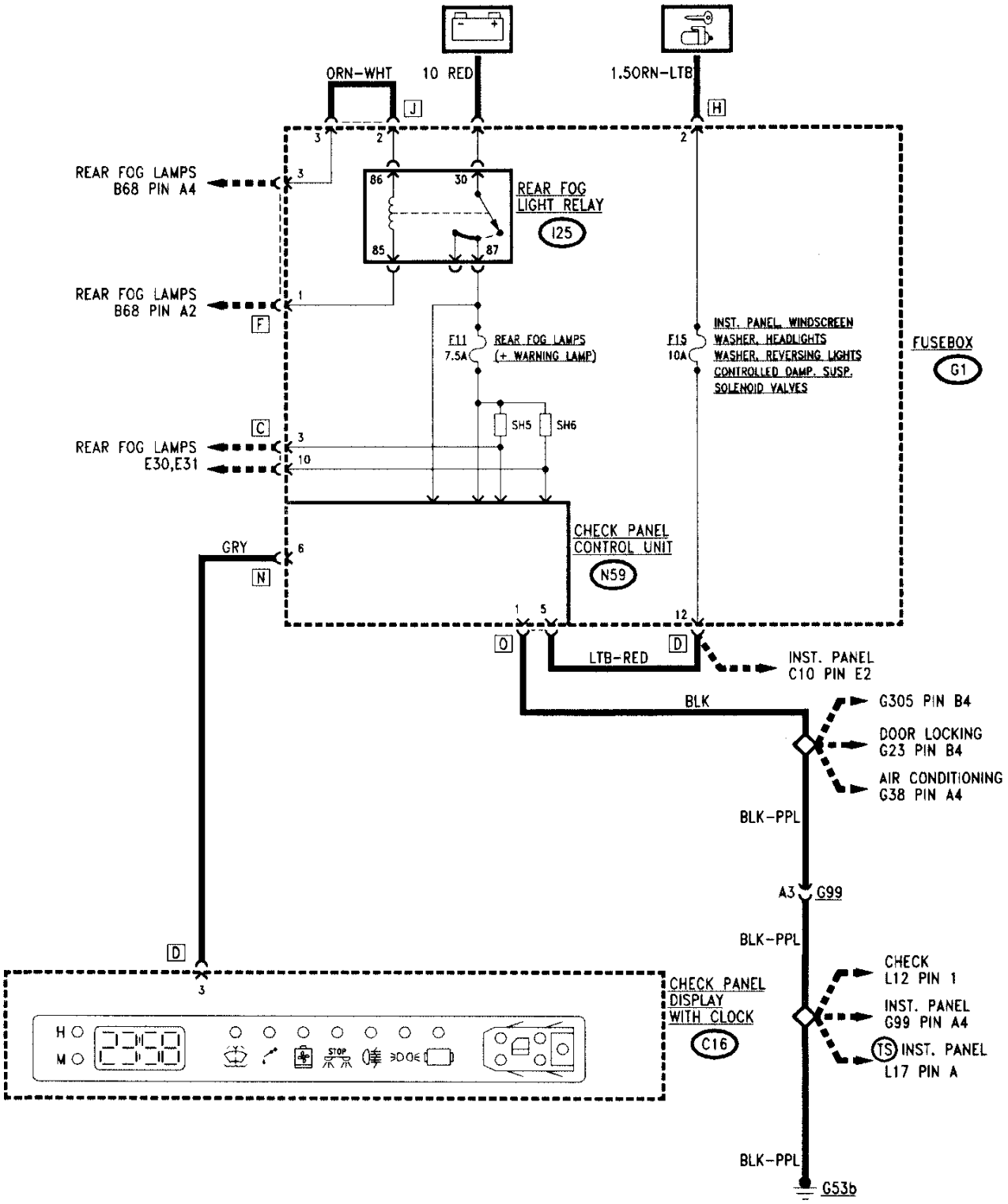


Stop light switch — H3



REAR FOG LIGHTS CHECK

Wiring Diagram



Functional Description

Control Unit

See "Stop lights check".

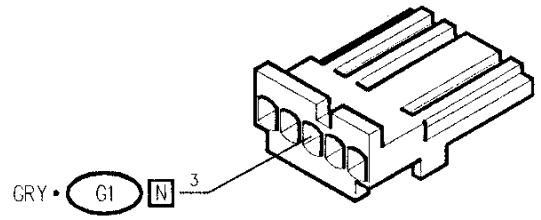
Rear fog lights check

Control unit **N59** is connected to the rear fog light power supply - fuse **F11** and relay **I25**, both in the fusebox **G1** - and to the rear fog lamp through pins 3 and 10 of connector C in fusebox **G1** (see "Rear and Front Foglamps").

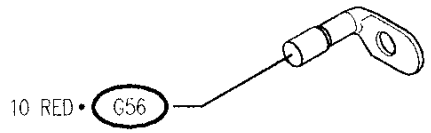
Through these signals the control unit checks for a possible malfunction of a single bulb or a failure in the power supply to fuse **F11**. If an anomaly is detected, the control unit sends a signal to pin 3 of connector D of **C16** and lights up the relative warning lamp.

Components and Connectors

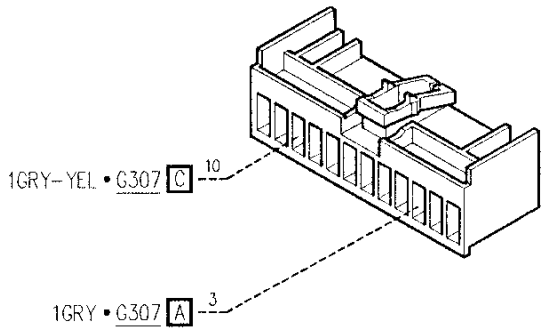
Check panel display with clock	C16 D



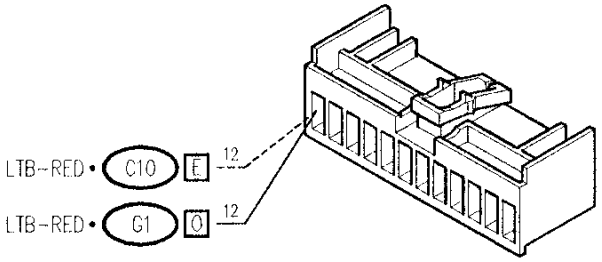
Fusebox	G1



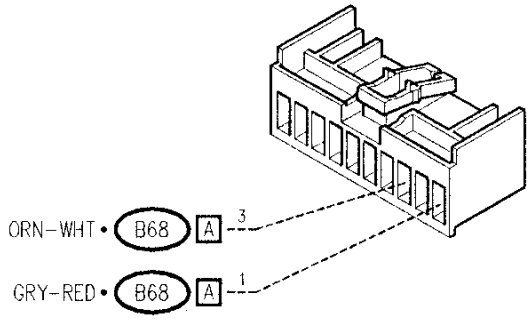
Fusebox	G1 C



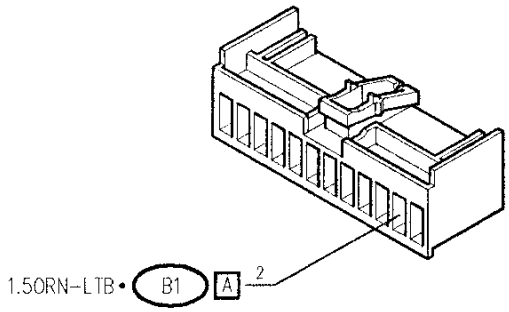
Fusebox	G1 D



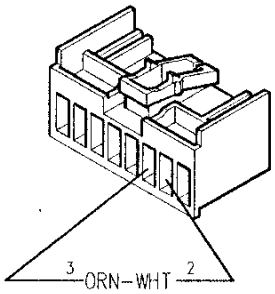
Fusebox	G1 F



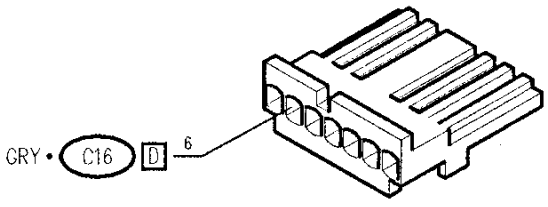
Fusebox	G1 H



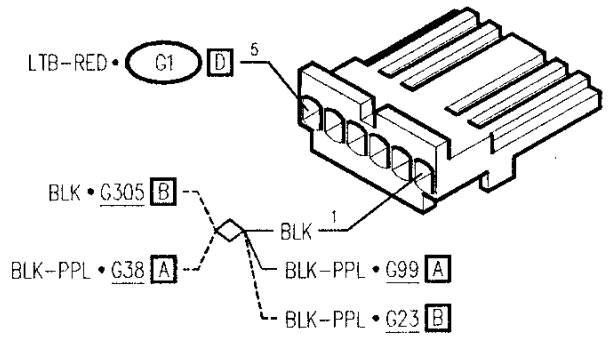
Fusebox	G1 J

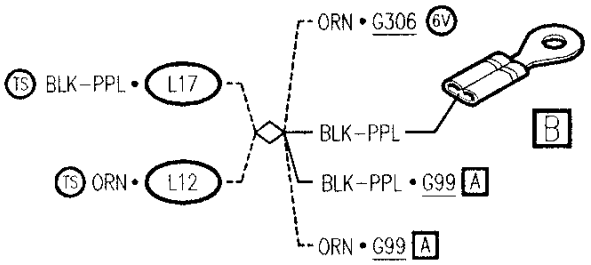


Fusebox	G1 N

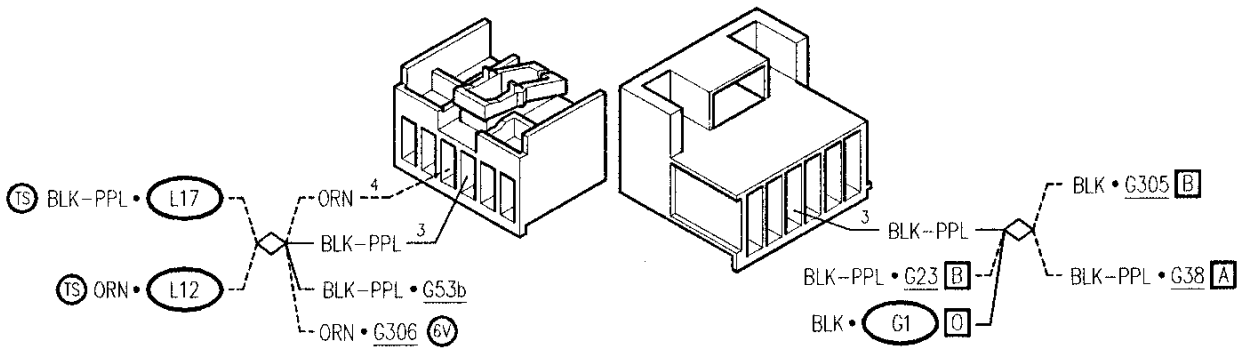


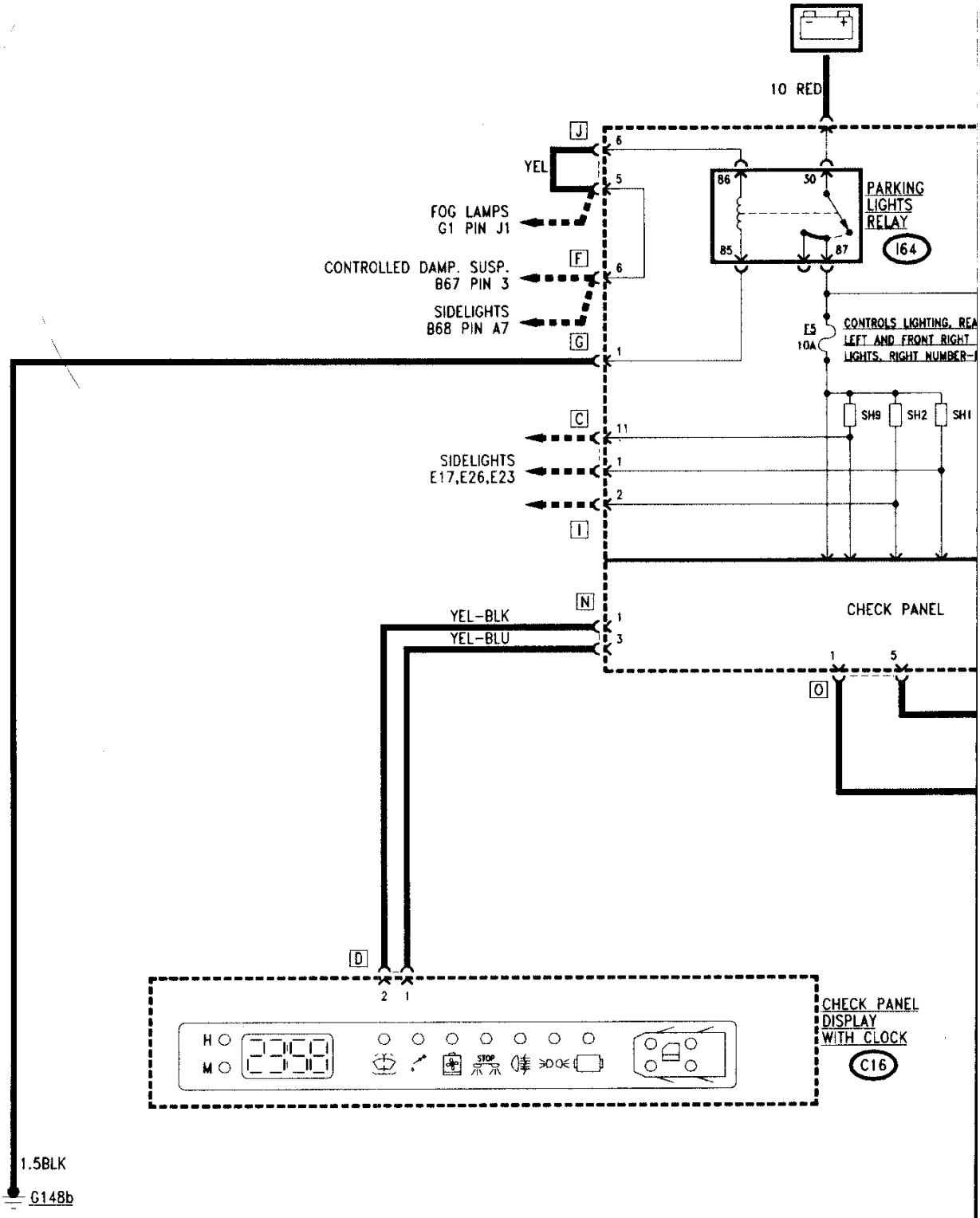
Fusebox	G1 O	Engine compartment ground-left side	G53b





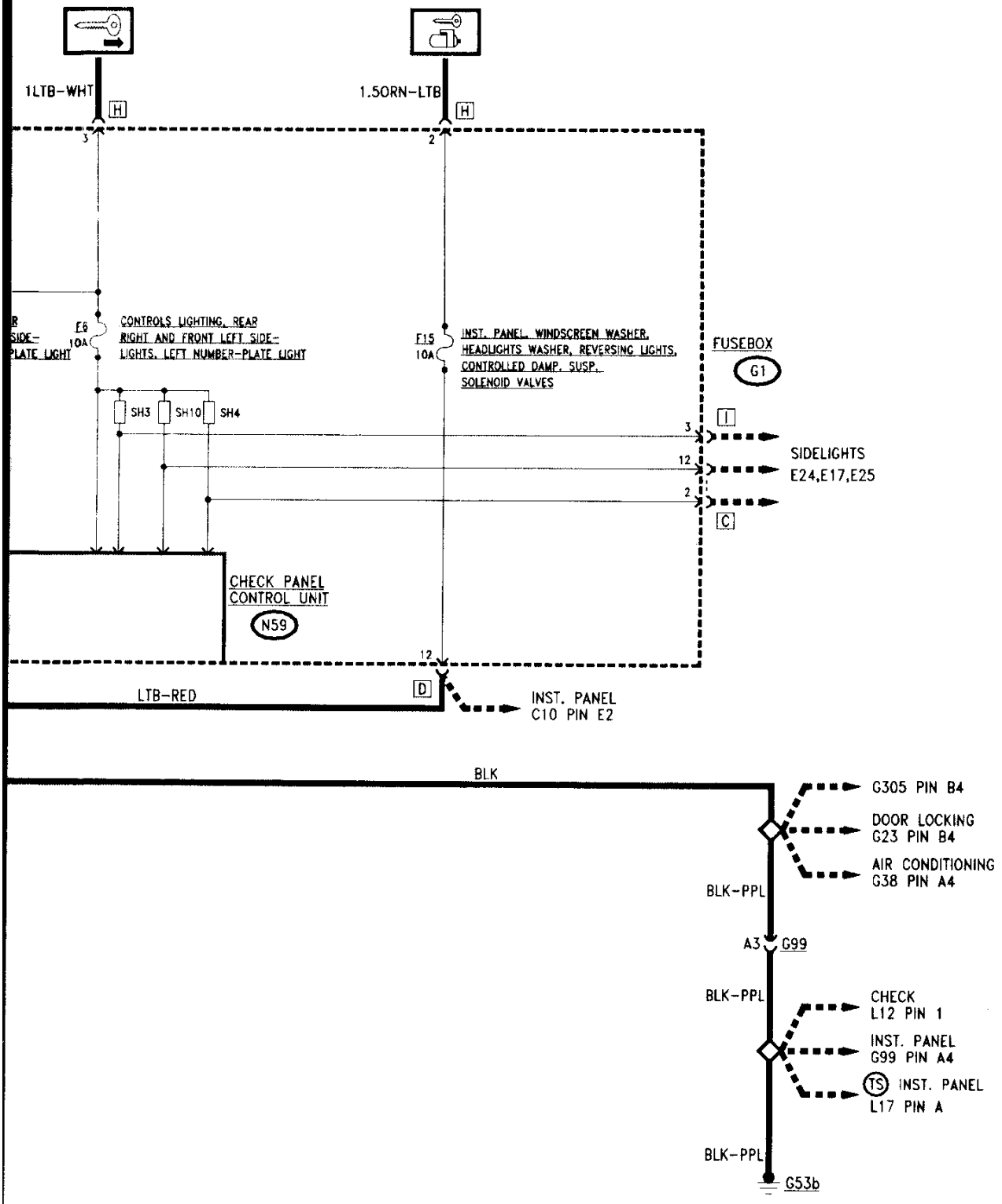
Dashboard/engine connection	G99 A




10 RED
J
6
YEL
5
FOG LAMPS
G1 PIN J1
F
CONTROLLED DAMP. SUSP.
B67 PIN 3
6
SIDELIGHTS
B68 PIN A7
G
1
86
30
85
87
PARKING
LIGHTS
RELAY
164
E5
10A
CONTROLS LIGHTING, REA
LEFT AND FRONT RIGHT
LIGHTS, RIGHT NUMBER-
SH9
SH2
SH1
C
11
SIDELIGHTS
E17,E26,E23
1
2
I
N
YEL-BLK
YEL-BLU
1
3
CHECK PANEL
1
5
O
D
2
1
H
M
CHECK PANEL
DISPLAY
WITH CLOCK
C16
1.5BLK
G148b

UMBERPLATE LIGHTS AND SIDELIGHTS CHECK

iring Diagram



Functional Description

Check Panel control unit

See "Stop lights check".

Numberplate lights and sidelights check

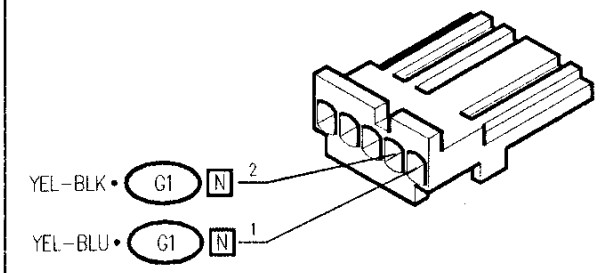
Control unit **N59** is connected to the sidelights power supply - fuses **F5** and **F6** and relay **I64** located in fusebox **G1** - and also to the sidelights bulbs both front and rear via pins 2 and 3 of connector I of **G1** and pins 1 and 2 of connector C of of **G1**, and to the numberplate lights through pin 11 and 12 of connector C of **G1** (see "Sidelights").

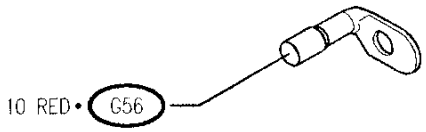
Through this signal the control unit checks for a possible malfunction of a single bulb or an interruption in the power supply to fuses **F5** and **F6**.
If an anomaly is detected, the control unit sends two signals to connector D of **C16** (pin 1 for numberplate lights and pin 2 for the sidelights) to illuminate the relative warning lamps.

NOTE: the simultaneous interruption of both fuse **F5** and fuse **F6** is not signalled: in this event though, as the sidelights are completely out, the relative "sidelights on" warning lamp on the instrument panel **C10** will be out.

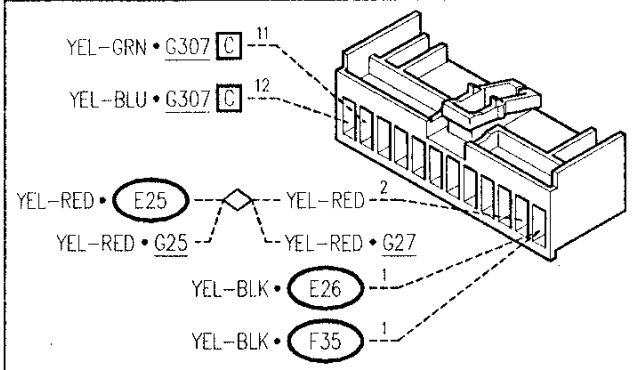
Components and Connectors

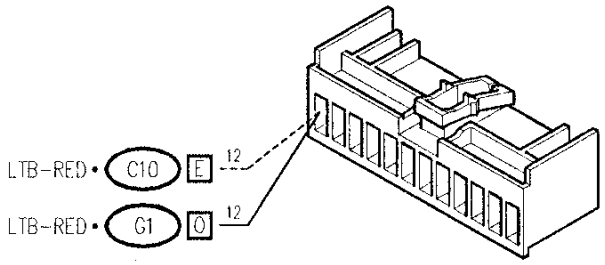
Check panel display with clock	C16 D	Fusebox	G1



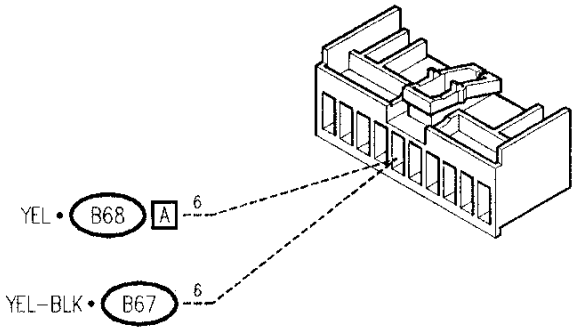


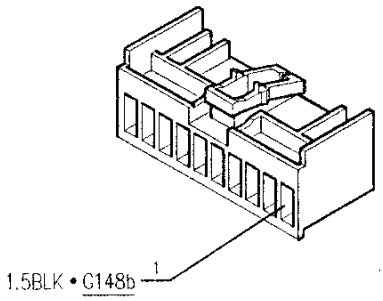
Fusebox	G1 C	Fusebox	G1 D



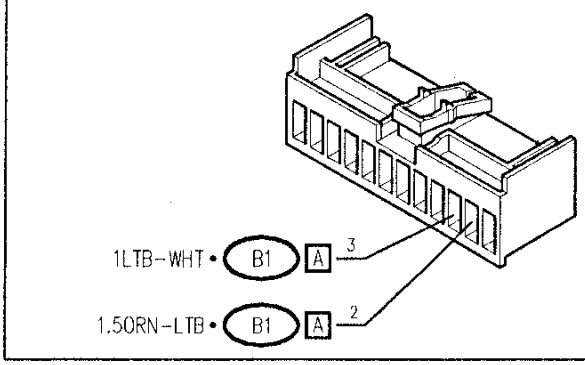


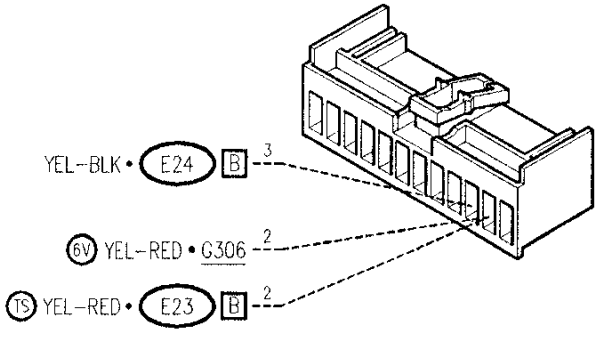
Fusebox	G1 F	Fusebox	G1 G



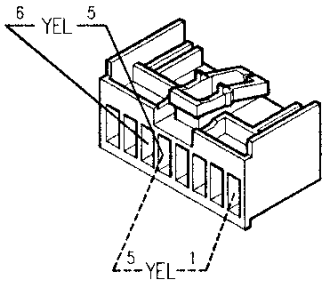


Fusebox	G1 H	Fusebox	G1 I

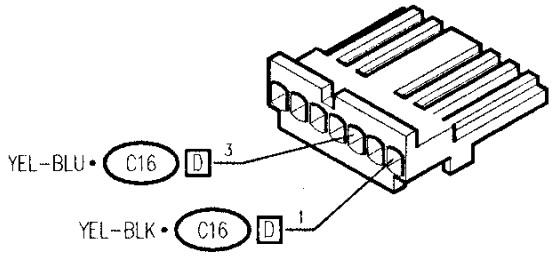




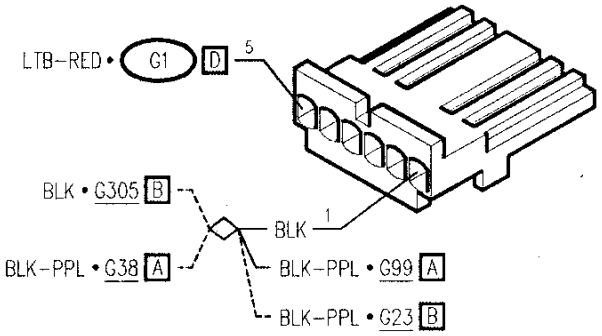
Fusebox	G1 J



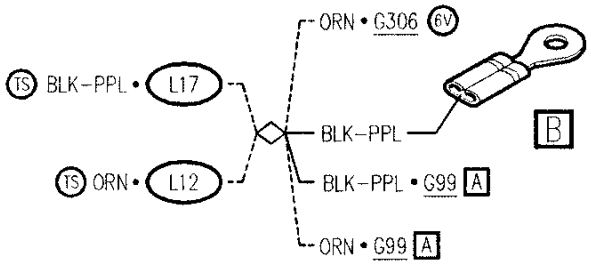
Fusebox	G1 N



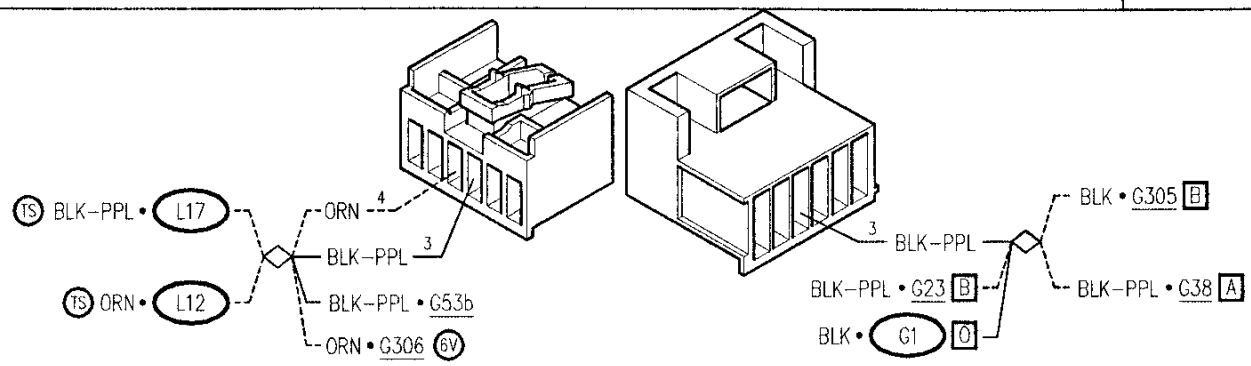
Fusebox	G1 O



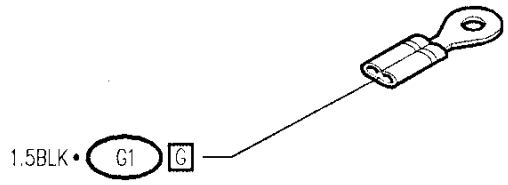
Engine compartment ground-left side	G53b



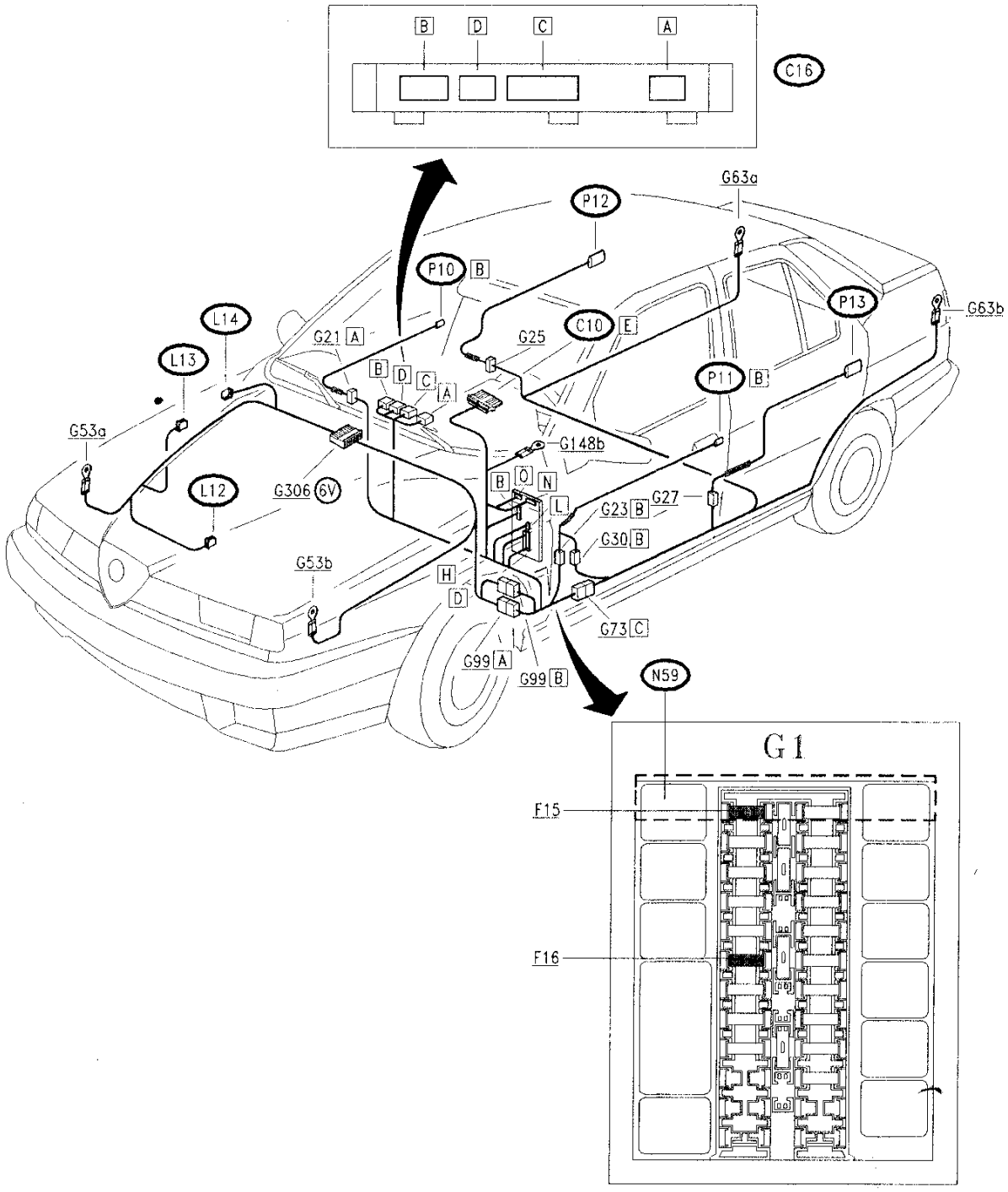
Dashboard/engine connection	G99 A



Under-dashboard ground-left side	G148b



LOCATION OF COMPONENTS



TROUBLESHOOTING TABLE

Malfunction	Component												Test
	F15	F16	C16	N59	P10	P11	P12	P13	L14	L13	L12	C10	
Display out	●	●	●										A
Clock		●	●										B
Display not lit up.			●										C
Front RH door open			●			●							D
Front LH door open			●		●								E
Rear RH door open			●					●					F
Rear LH door open			●				●						G
Water level			●						●				H
Oil level			●								●	●	I
Windscreen washer fluid level			●							●			J
Stop lights check			●	●									K
Rear fog lamps check			●	●									L
Numberplate lights and sidelights check			●	●									M

NOTE: The **tests** from **A** to **G** are valid for all models. The **tests** from **H** to **M** are only valid for models fitted with the complete Check Panel.

TROUBLESHOOTING

CHECK PANEL DISPLAY IS OUT	TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F15** in fusebox **G1**	OK ➡	Carry out **step A2**
	~~OK~~ ➡	Replace the fuse (10A)
A2 CHECK FUSE – Check for damage of fuse **F16** in fusebox **G1**	OK ➡	Carry out **step A3**
	~~OK~~ ➡	Replace the fuse (7.5 A)
A3 CHECK VOLTAGE – Verify 12V at pin D5 of display **C16**	OK ➡	Carry out **step A4**
	~~OK~~ ➡	Restore wiring between pin D7 of **G1** and pin D5 of display **C16**, across the solder (RED)

(segue)

CHECK PANEL DISPLAY IS OUT	TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A4 CHECK VOLTAGE – With ignition key engaged, verify 12V at pin C2 of display **C16**	OK ➡	Carry out **step A5**
	~~OK~~ ➡	Restore wiring between pin B8 of **G1** and pin C2 of display **C16**, across the solder (LTB-RED)
A5 CHECK GROUND – Check that pins C10 and C3 of display **C16** are grounded (0V)	OK ➡	Replace the display **C16**
	~~OK~~ ➡	Restore wiring between pin C10 and pin C3 of display **C16** and ground **G148b**, across the solder (BLK)

CLOCK NOT WORKING	TEST B

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK FUSE – Check for damage of fuse **F16** in fusebox **G1**	OK ➡	Carry out **step B2**
	~~OK~~ ➡	Replace the fuse (7.5 A)
B2 CHECK VOLTAGE – Verify 12V at pin A2 of display **C16**	OK ➡	Carry out **step B3**
	~~OK~~ ➡	Restore wiring between pin D7 of **G1** and pin A2 of display **C16**, across the solder (RED)
B3 CHECK VOLTAGE – With ignition key engaged, verify 12V at pin A4 of display **C16**	OK ➡	Carry out **step B4**
	~~OK~~ ➡	Restore wiring between pin D3 of **G1** and pin A4 of display **C16** (LTB-RED)
B4 CHECK GROUND – Check that pin A1 of display **C16** is grounded (0V)	OK ➡	Replace display **C16**
	~~OK~~ ➡	Restore wiring between pin A1 of display **C16** and ground **G148b** (BLK)

CHECK PANEL DISPLAY DOES NOT LIGHT UP	TEST C

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
C1 CHECK VOLTAGE – With sidelights on, verify 12V at pin C1 of display **C16**	OK ➡	Carry out **step C3**
	~~OK~~ ➡	Carry out **step C2**
C2 CHECK VOLTAGE – With sidelights on, verify 12V at pin H8 of **G1**	OK ➡	Restore wiring between pin H8 of **G1** and pin C1 of display **C16**, across the solder (YEL-BLK and YEL)
	~~OK~~ ➡	Check the sidelights circuit (see section "Sidelights")
C3 CHECK VOLTAGE – With sidelights on, verify 12V at pin A3 of display **C16**	OK ➡	Replace the display **C16**
	~~OK~~ ➡	Restore wiring between pin H8 of **G1** and pin A3 of display **C16**, across the solder (YEL-BLK and YEL)

ON OPENING THE FRONT LEFT DOOR, THE RELATIVE LED DOES NOT WORK	TEST D

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
D1 CHECK GROUND – Opening the front left door, verify 0V at pin BA of door locking device **P11**	OK ➡	Carry out **step D3**
	NO ➡	Carry out **step D2**
D2 CHECK GROUND – Verify 0V at pin BB of door locking device **P11**	OK ➡	Replace the door locking device **P11**
	NO ➡	Restore wiring between pin BB of **P11** and ground **G53b**, across pin B4 of connector **G23**, pin A3 of connector **G99** and the two solders (BLK)
D3 CHECK GROUND – Opening the front left door, verify 0V at pin C8 of Check Panel display **C16**	OK ➡	Replace the display **C16**
	NO ➡	Restore wiring between pin BA of **P11** and pin C8 of display **C16**, across pin B3 of connector **G23** (GRY- YEL)

ON OPENING THE FRONT RIGHT DOOR, THE RELATIVE LED DOES NOT WORK	TEST E

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
E1 CHECK GROUND – Opening the front right door, verify 0V at pin BA of door locking device **P10**	OK ➡	Carry out **step E3**
	~~OK~~ ➡	Carry out **step E2**
E2 CHECK GROUND – Verify 0V at pin BB of door locking device **P10**	OK ➡	Replace the door locking device **P10**
	~~OK~~ ➡	Restore wiring between pin BB of **P10** and pin L1 of **G1**, across pin A6 of connector **G21** and the solder (BLK)
E3 CHECK GROUND – Opening the front right door, verify 0V at pin C7 of Check Panel display **C16**	OK ➡	Replace the display **C16**
	~~OK~~ ➡	Restore wiring between pin BA of **P10** and pin C7 of display **C16**, across pin A3 of connector **G21** (GRY- GRN)

ON OPENING THE REAR LEFT DOOR, THE RELATIVE LED DOES NOT WORK	TEST F

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
F1 CHECK GROUND – Opening the rear left door, verify 0V at pin A of door locking device **P13**	OK ➡	Carry out **step F3**
	~~OK~~ ➡	Carry out **step F2**
F2 CHECK GROUND – Verify 0V at pin B of door locking device **P13**	OK ➡	Replace the door locking device **P13**
	~~OK~~ ➡	Restore wiring between pin B of **P13** and ground **G63b**, across pin 1 of connector **G27** and the solder (BLK)
F3 CHECK GROUND – Opening the rear left door, verify 0V at pin C6 of Check Panel display **C16**	OK ➡	Replace the display **C16**
	~~OK~~ ➡	Restore wiring between pin A of **P13** and pin C6 of display **C16**, across pin 4 of connector **G27**, pin 5 of connector **G30** and B2 of connector **G23** (GRY-BLK)

ON OPENING THE REAR RIGHT DOOR, THE RELATIVE LED DOES NOT WORK	TEST G

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
G1 CHECK GROUND – Opening the rear right door, verify 0V at pin A of door locking device **P12**	OK ➡	Carry out **step G3**
	~~OK~~ ➡	Carry out **step G2**
G2 CHECK GROUND – Verify 0V at pin B of door locking device **P12**	OK ➡	Replace the door locking device **P12**
	~~OK~~ ➡	Restore wiring between pin B of **P12** and ground **G63a**, across pin 1 of connector **G25** (BLK)
G3 CHECK GROUND – Opening the rear right door, verify 0V at pin C8 of Check Panel display **C16**	OK ➡	Replace the display **C16**
	~~OK~~ ➡	Restore wiring between pin A of **P12** and pin C5 of display **C16**, across pin 4 of connector **G25**, pin C6 of connector **G27** (GRY-BLK and GRY-RED)

WATER LEVEL LED NOT WORKING	TEST H

NOTE: "the led not working", means that it lights up to indicate and insufficient level while in reality the level is correct, or vice- versa it does not light up when the level is too low

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
H1 CHECK SENSOR – Check for correct functioning of engine coolant level sensor **L14**: • removing the sensor from the reservoir, there must be continuity between pins 1 and 2 of sensor **L14** itself	OK ➔ ~~OK~~ ➔	Carry out **step H2** Replace the sensor **L14**
H2 CHECK GROUND – Check that pin 1 of sensor **L14** is grounded (0V)	OK ➔ ~~OK~~ ➔	Carry out **step H3** Restore wiring between pin 1 of **L14** and ground **G53a**, across pin 1 of sensor **L13** (BLK)
H3 CHECK SIGNAL – With the sensor removed from the reservoir but still connected to the relative wiring, check for a ground signal (0V) at pin B1 of Check Panel display **C16**	OK ➔ ~~OK~~ ➔	Replace the Check Panel display **C16** Restore wiring between: - (TS) pin 2 of **L14** and pin B1 of **C16**, across pin *B3 of connector* **G99** (GRN-WHT) - (6V) pin 2 of **L14** and pin B1 of **C16**, across pin 17 of connector **G306** and pin B3 of connector **G99** (GRN-WHT)

ENGINE OIL LEVEL LED NOT WORKING	TEST I

NOTE: "the led not working", means that it lights up to indicate and insufficient level while in reality the level is correct, or vice- versa it does not light up when the level is too low

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
I1 CHECK SENSOR – Check for correct functioning of engine oil level sensor **L12** • removing the sensor from the engine block but without disconnecting the relative wiring, the contact must open between pins 1 and 2 of sensor **L12** itself	OK ➡ ~~OK~~ ➡	Carry out **step I2** Replace the sensor **L12**
I2 CHECK GROUND – Check that pin 1 of sensor **L12** is grounded (0V)	OK ➡ ~~OK~~ ➡	Carry out **step I3** Restore wiring between: - (TS) pin 1 of **L12** and ground **G53b**, across the solder (ORN and BLK-PPL) - (6V) pin 1 of **L12** and ground **G53b**, across pin 1 of connector **G306** and the solder (ORN and BLK-PPL)

(continues)

ENGINE OIL LEVEL LED NOT WORKING	TEST I

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
I3	CHECK SIGNAL		
– Removing the sensor from the engine block without disconnecting the relative wiring check that the signal at pin B2 of Check Panel display **C16** (*)is interrupted		OK ➔	Replace the Check Panel display **C16**
		~~OK~~ ➔	Restore wiring between: - (TS) pin 2 of **L12** and pin B2 of **C16**, across pin B4 of connector **G99** (GRN-BLK) - (6V) pin 2 of **L12** and pin B2 of **C16**, across pin 9 of connector **G306** and pin B4 of connector **G99** (GRN-BLK)

(*) NOTE: warning lamp on instrument panel:
removing the sensor from the engine block, also check for a ground signal at pin E11 of instrument panel **C10:** otherwise replace the relative lamp in the instrument panel **C10**, or restore the wiring between pin B5 of **C16** and pin E11 of **C10** (GRN-YEL).

WINDSCREEN WIPER LIQUID LEVEL LED NOT WORKING	TEST J

NOTE: "the led not working", means that it lights up to indicate and insufficient level while in reality the level is correct, or vice- versa it does not light up when the level is too low

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
J1	CHECK SENSOR		
– Check for correct functioning of the windscreen wiper liquid level sensor **L13**: • on removing the sensor from the reservoir, ther should be continuity between pins 1 and 2 of sensor **L13** itself		OK ➡ ~~OK~~ ➡	Carry out **step J2** Replace the sensor **L13**
J2	CHECK GROUND		
– Check that pin 1 of sensor **L13** is grounded (0V)		OK ➡ ~~OK~~ ➡	Carry out **step J3** Restore wiring between pin 1 of **L13** and ground **G53a** (BLK)
J3	CHECK SIGNAL		
– With the sensor removed from the reservoir but still connected to the relative wiring, check that a ground signal (0V) reaches pin B3 of Check Panel display **C16**		OK ➡ ~~OK~~ ➡	Replace the Check Panel display **C16** Restore wiring between: - (TS) pin 2 of **L13** and pin B3 of **C16**, across pin B2 of connector **G99** (GRN) - (6V) pin 2 of **L13** and pin B3 of **C16**, across pin 6 of connector **G306** and pin B2 of connector **G99** (GRN)

STOP LIGHT CHECK LED NOT WORKING	TEST K

N.B: The malfunction described as "led not working" can be grouped into three categories:
1. the led lights up normally when there is a malfunction in the stop light system.
In this case proceed to the tests indicated in the section "Stop-lights".
2. the led lights up but no malfunction is discovered in the stop light system (the tests indicated in the section "Stop-lights" have been carried out without a positive outcome) .
In this case carry out **test K**.
3. the led does not light up, but a malfunction in the stop light system has been discovered.
In this case, first carry out the tests indicated in the section "Stop-lights" to restore the correct functioning of the circuit, and then carry out **test K**

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
K1 CHECK FUSE – Check for damage of fuse **F15** in fusebox **G1**	OK ➡	Carry out **step K2**
	OK ➡	Replace the fuse (10A)
K2 CHECK CONTROL UNIT – Disconnect switch **H3** for example, or a bulb and, with the ignition key engaged, check for an output signal at pin N4 of **G1** (Check Panel control unit **N59**)	OK ➡	Carry out **step K5**
	OK ➡	Carry out **step K3**
K3 CHECK VOLTAGE – With ignition key engaged, verify 12 V at pin O5 of **G1** (Check Panel control unit **N59**)	OK ➡	Carry out **step K4**
	OK ➡	Restore wiring between pin D12 and pin O5 of **G1** (LTB-RED)

(continues)

STOP LIGHT CHECK LED NOT WORKING	TEST K

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
K4 CHECK GROUND – Verify 0V at pin O1 of **G1** (Check Panel control unit **N59**)	OK →	Replace the control unit **N49**
	~~OK~~ →	Restore wiring between pin O1 of **G1** and ground **G53b**, across the solders and pin A3 of connector **G99** (BLK and BLK- PPL)
K5 CHECK DISPLAY – Disconnect switch **H3** for example, or a bulb and, with the ignition key engaged, check for an output signal at pin D4 of display **C16**	OK →	Replace the display **C16**
	~~OK~~ →	Restore wiring between pin N4 of **G1** (Check Panel control unit **N59**) and pin D4 of display **C16** (RED-BLK)

REAR FOG LIGHTS CHECK LED NOT WORKING	TEST L

N.B: The malfunction described as "led not working" can be grouped into three categories:
1. the led lights up normally when there is a malfunction in the rear fog light system.
In this case proceed to the tests indicated in the section "Rear and front fog lights".
2. the led lights up but no malfunction is discivered in the rear fog light system (the tests indicated in the section "Rear and front fog lights" have been carried out without a positive outcome) .
In this case carry out **test L**.
3. the led does not light up, but a malfunction in the rear forg light system has been discovered.
In this case, first carry out the tests indicated in the section "Rear and front fog lights" to restore the correct functioning of the circuit, and then carry out **test L**

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
L1	CHECK FUSE		
– Check for damage of fuse **F15** in fusebox **G1**		OK ➡	Carry out **step L2**
		OK ➡	Replace the fuse (10A)
L2	CHECK CONTROL UNIT		
– Disconnect relay **I25** for example, or a bulb and, with the ignition key engaged, check for an output signal at pin N6 of **G1** (Check Panel control unit **N59**)		OK ➡	Carry out **step L5**
		OK ➡	Carry out **step L3**
L3	CHECK VOLTAGE		
– With ignition key engaged, verify 12 V at pin O5 of **G1** (Check Panel control unit **N59**)		OK ➡	Carry out **step L4**
		OK ➡	Restore wiring between pin D12 and pin O5 of **G1** (LTB-RED)

(continues)

REAR FOG LIGHTS CHECK LED NOT WORKING	TEST L

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
L4 CHECK GROUND – Verify 0V at pin O1 of **G1** (Check Panel control unit **N59**)	OK ➡	Replace the control unit **N49**
	~~OK~~ ➡	Restore wiring between pin O1 of **G1** and ground **G53b**, across the solders and pin A3 of connector **G99** (BLK and BLK- PPL)
L5 CHECK DISPLAY – Disconnect relay **I25** for example, or a bulb and, with the ignition key engaged, check for an output signal at pin D3 of display **C16**	OK ➡	Replace the display **C16**
	~~OK~~ ➡	Restore wiring between pin N6 of **G1** (Check Panel control unit **N59**) and pin D3 of display **C16** (GRY)

SIDELIGHTS AND NUMBERPLATE LIGHTS CHECK LED NOT WORKING	TEST M

N.B: The malfunction described as "led not working" can be grouped into three categories:
1. the led lights up normally when there is a malfunction in the sidelights or numberplate lights system.
In this case proceed to the tests indicated in the section "Sidelights".
2. the led lights up but no malfunction is discovered in the sidelights or numberplate lights system (the tests indicated in the section "Sidelights" have been carried out without a positive outcome) .
In this case carry out **test M**.
3. the led does not light up, but a malfunction in the sidelights or numberplate lights system has been discovered.
In this case, first carry out the tests indicated in the section "Sidelights" to restore the correct functioning of the circuit, and then carry out **test M**

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
M1 CHECK FUSE – Check for damage of fuse **F15** in fusebox **G1**	OK ➡ ~~OK~~ ➡	Carry out step **M2** Replace the fuse (10A)
M2 CHECK CONTROL UNIT – **Sidelights led:** Disconnect relay **I64** for example, or a bulb from the sidelights and, with the ignition key engaged, check for an output signal at pin N1 of **G1** (Check Panel control unit **N59**) **Numberplate lights led:** Disconnect a bulb from the numberplate light for example, and with the ignition key engaged, check for an output signal at pin N3 of **G1** (Check Panel control unit **N59**).	OK ➡ ~~OK~~ ➡	Carry out **step M5** Carry out **step M3**
M3 CHECK VOLTAGE – With ignition key engaged, verify 12 V at pin O5 of **G1** (Check Panel control unit **N59**)	OK ➡ ~~OK~~ ➡	Carry out **step M4** Restore wiring between pin D12 and pin O5 of **G1** (LTB-RED)

(continues)

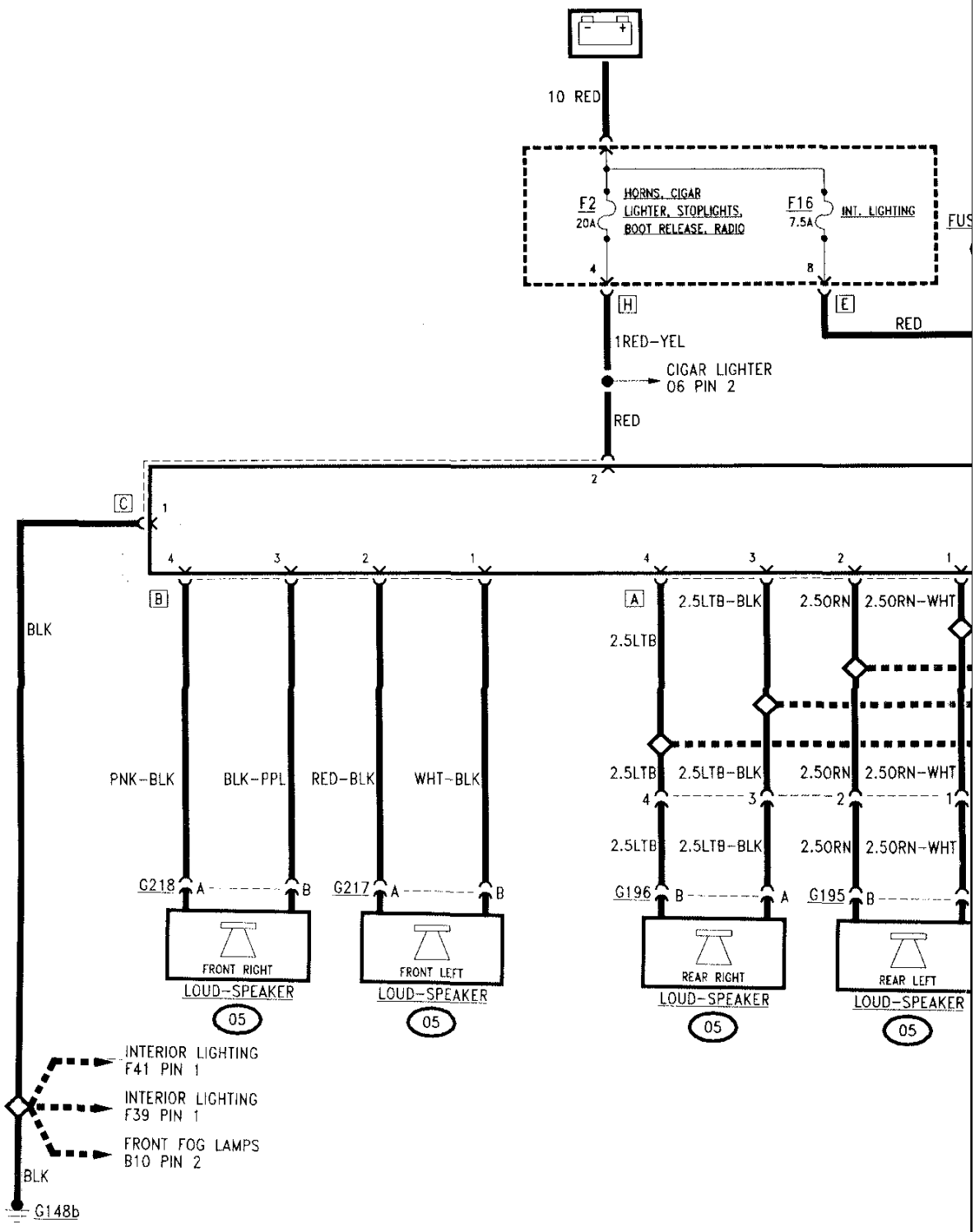
SIDELIGHTS AND NUMBERPLATE LIGHTS CHECK LED NOT WORKING	TEST M

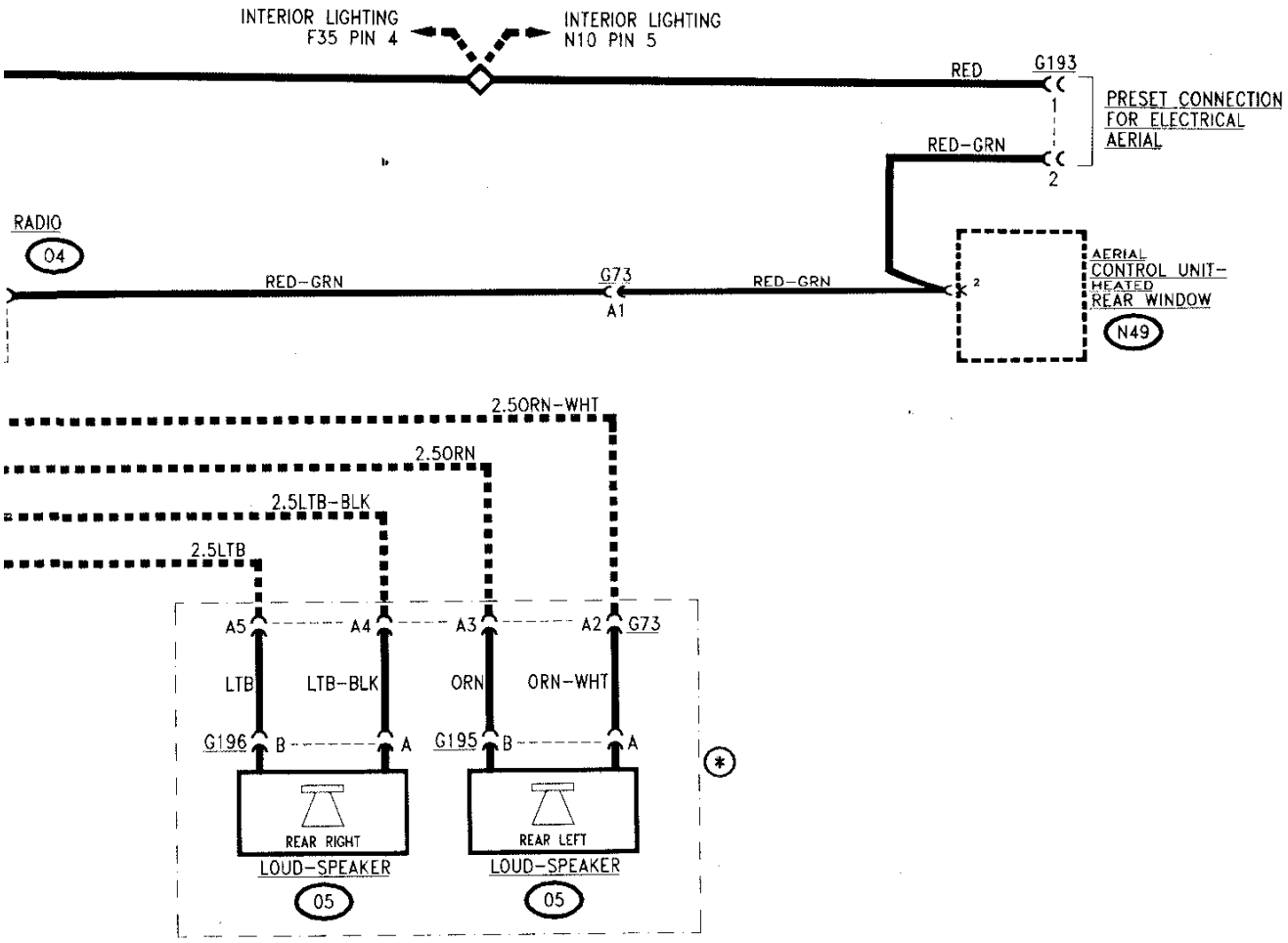
TEST PROCEDURE	RESULT	CORRECTIVE ACTION
M4 CHECK GROUND – Verify 0V at pin O1 of **G1** (Check Panel control unit **N59**)	OK ➡ ~~OK~~ ➡	Replace the control unit **N49** Restore wiring between pin O1 of **G1** and ground **G53b**, across the solders and pin A3 of connector **G99** (BLK and BLK- PPL)
M5 CHECK DISPLAY – **Sidelights led:** disconnect relay **I64** for example or a bulb from the sidelights and, with the ignition key engaged, check for a signal at pin D2 of display **C16** **Numberplate lights led:** disconnect a bulb from the numberplates light for example, and with the ignition key engaged, check for a signal at pin D1 of display **C16**	OK ➡ ~~OK~~ ➡	Replace the display **C16** Restore wiring between: • **sidelights led:** pin N1 of **G1** (Check Panel control unit **N59**) and pin D2 of display **C16** (YEL-BLK) • **numberplate lights led:** pin N3 of **G1** (Check Panel control unit **N59**) and pin D1 of display **C16** (YEL-BLU)

RADIO

IDEX

WIRING DIAGRAM





* VARIATION FOR MODELS WITHOUT CONTROLLED DAMPING SUSPENSIONS

GENERAL DESCRIPTION

The vehicle is preset for the installation of a car-radio and four speakers.
The front loudspeakers are located to the side on the upper part of the dashboard, while the rear loudspeakers are located on the shelf below the rear windscreens.
The housings equipped with the relative connector for the speakers are already present in the vehicle as is the radio housing and relative connectors.
The aerial is integrated in the heated rear window device, connected by a coaxial cable to the radio itself. The vehicle is also preset for the installation of an external electric aerial, automatically operated when the radio is switched on.
The radio circuit is constantly powered and it can be switched on at any time, even when the ignition key is disengaged.

FUNCTIONAL DESCRIPTION

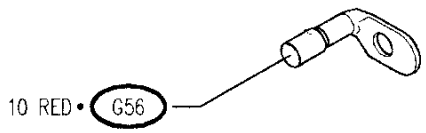
The radio **O4** is powered directly by the voltage from the battery through fuse **F2** (20A) in fusebox **G1**, to pin 2 of connector C; Pin 1 is grounded.
The signals are emitted from connector B towards the front loudspeakers **O5**, connected by preset connectors **G218** (right) and **G217** (left).
The signals towards the rear loudspeakers **O5**, connected by the preset connectors **G196** (right) and **G195** (left) are emitted from connector A.
NOTE: The routing of the wires differs depending on the version.
Pin 5 of connector A is connected to the control unit **N49**, which permits the device integrated with the heated rear windscreen to be used as an aerial, or the electric aerial to be used through the preset connector **G193**.
This arrangement permits the motor of the electric aerial to be supplied with battery voltge through fuse **F16** (7.5A).

TROUBLESHOOTING TABLE

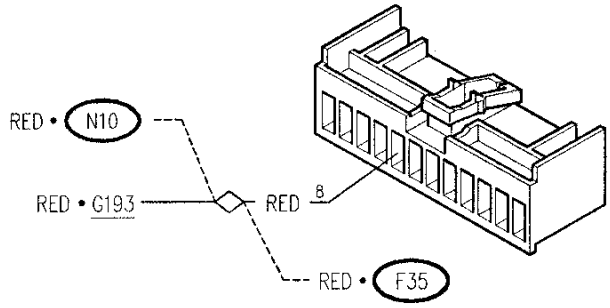
Malfunction	Component				Test
	F2	04	05	N49	
Radio	•	•			A
Bad reception		•		•	B
RH front speaker			•		C
LH front speaker			•		D
RH rear speaker			•		E
LH rear speaker			•		F

COMPONENTS AND CONNECTORS

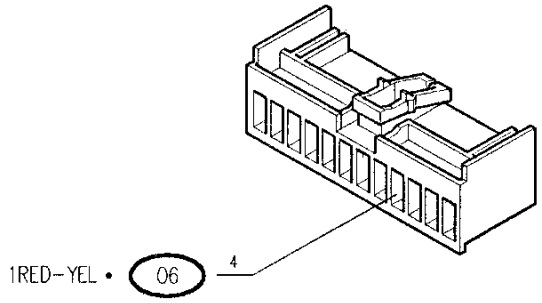
Fusebox	G1



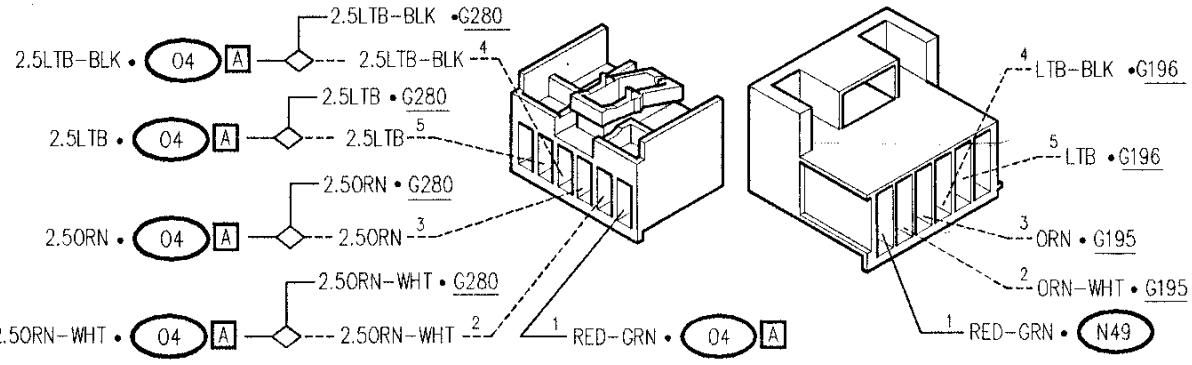
Fusebox	G1 E



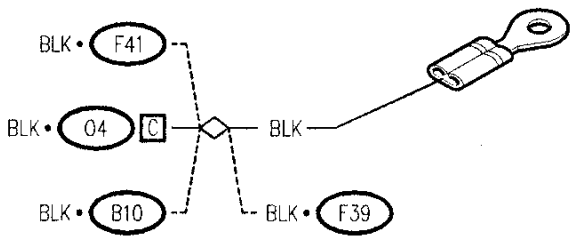
Fusebox	G1 H



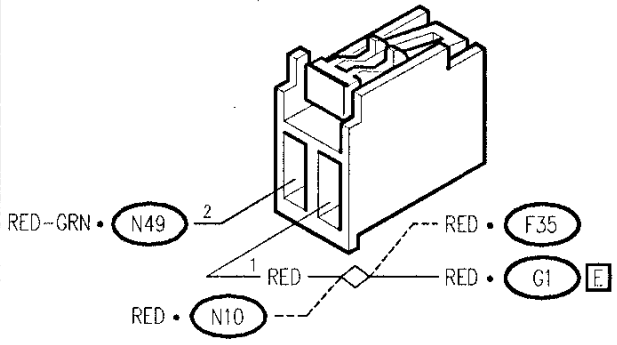
Connector for rear services	G73 A



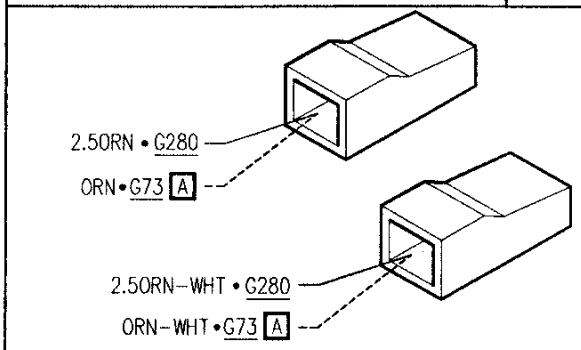
Under-dashboard ground-left side	G148b



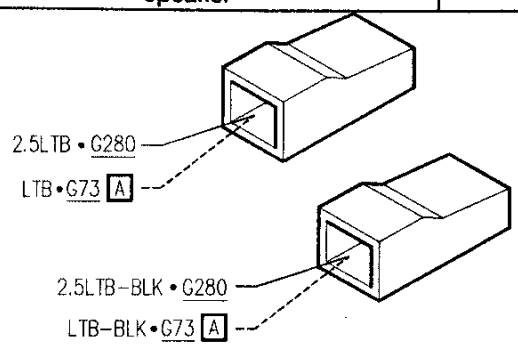
Preset connection for electric aerial	G193



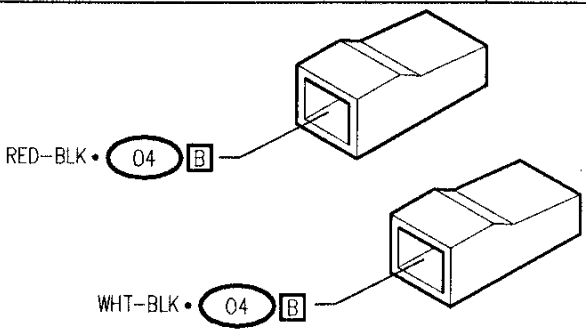
Preset connection for rear-left loud-speaker	G195



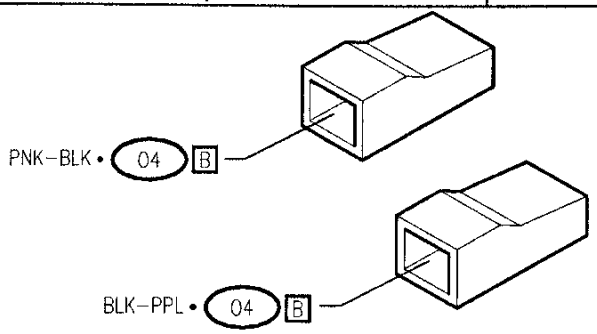
Preset connection for rear-right loud-speaker	G196



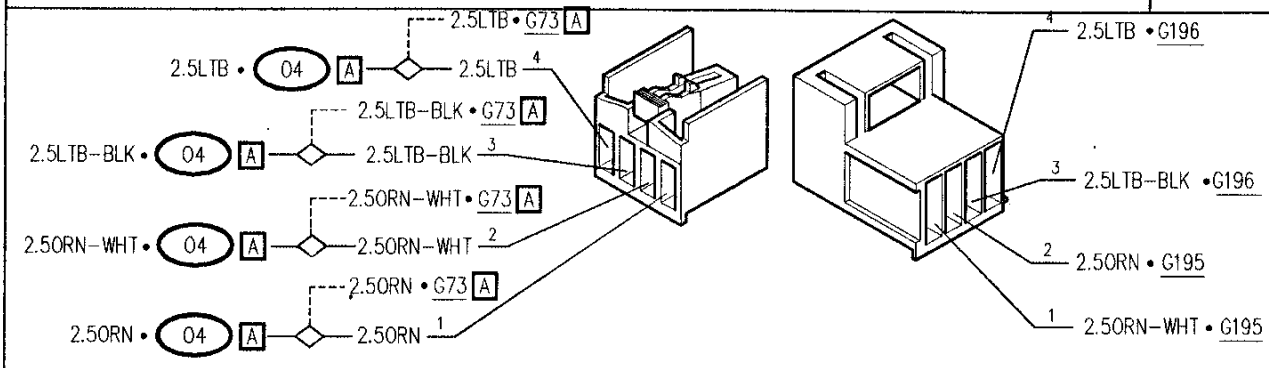
Preset connection for front-left loud-speaker	G217



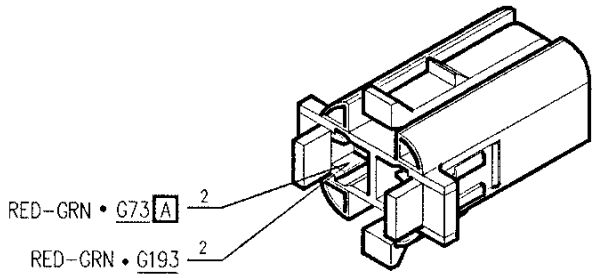
Preset connection for front-right loud-speaker	G218



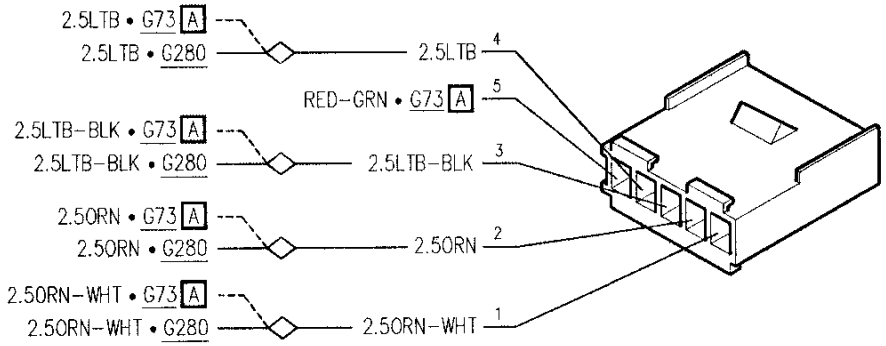
Radio wiring intermediate connector	G280



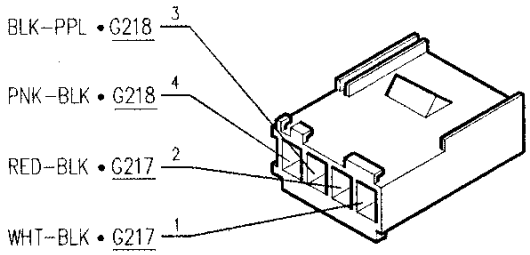
Aerial control unit - Heated rear window	N49



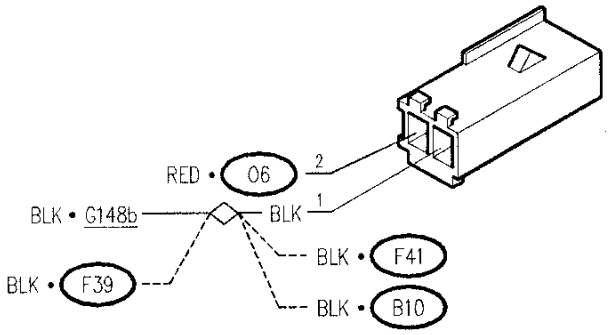
Radio — O4 A



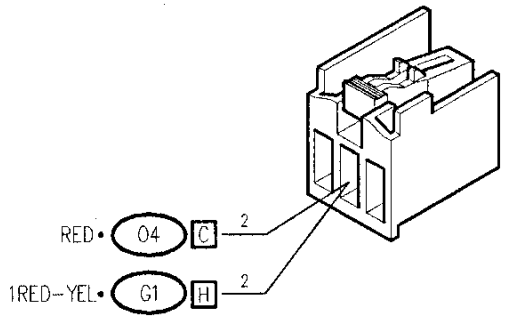
Radio — O4 B



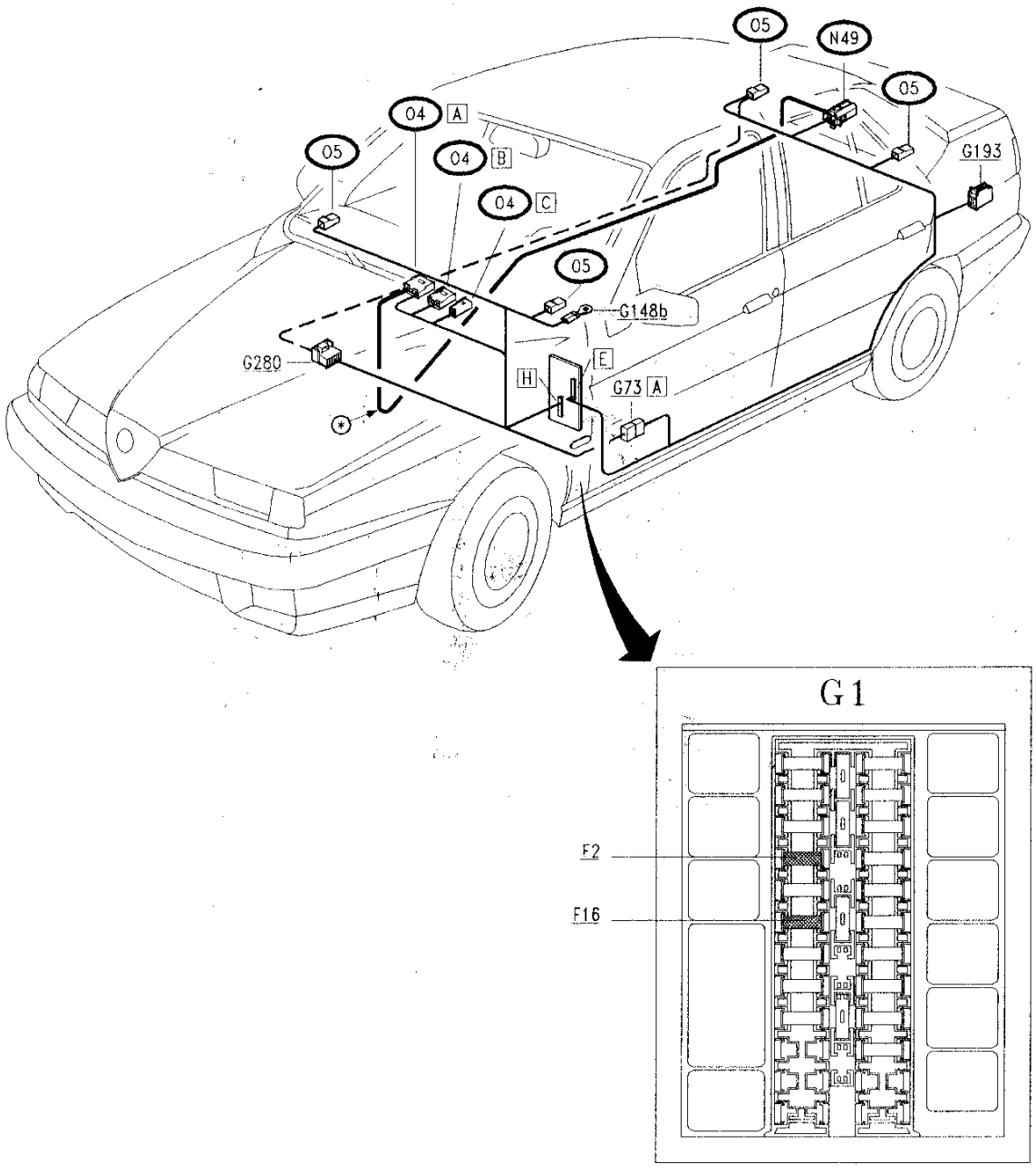
Radio — O4 C



Cigar lighter — O6



LOCATION OF COMPONENTS



(*) COAXIAL AERIAL CABLE

----- ALTERNATIVE FOR VERSIONS WITH CONTROLLED DAMPING SUSPENSION

TROUBLESHOOTING

RADIO NOT WORKING	TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F2** in fusebox **G1**	OK ➡	Carry out **step A2**
	~~OK~~ ➡	Replace fuse (20A)
A2 CHECK VOLTAGE – Verify 12V between pins C2 and C1 of the radio **O4**	OK ➡	Check and if necessary replace the radio **O4**
	~~OK~~ ➡	Carry out **step A3**
A3 CHECK VOLTAGE – Verify 12V at pin C2 of **O4**	OK ➡	Restore wiring between pin C1 of **O4** ground **G148b**, also across the solder (BLK)
	~~OK~~ ➡	Restore wiring between pin H4 of **G1** and pin C2 of **O4**, also across the solder (RED-YEL and RED)

BAD RADIO RECEPTION	TEST B

NOTE: anomalies and defects in the aerial/heated rear window control unit may be connected to the malfunctioning of the heated rear winscreen device (see "Heated rear window, heated adjustable rear-view mirrors")

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK CONTINUITY – Check the continuity between pin A5 of the radio **O4** and pin 2 of heated rear windscreen/aerial control unit **N49**	OK ➡	Carry out **step B2**
	OK ➡	Restore wiring between pin A5 of **O4** and pin 2 of **N49**, through pin A1 of connector **G73** (RED-GRN)
B2 CHECK COAXIAL CABLE – Check for damage of the coaxial cable which connects the radio **O4** to the **N49** device	OK ➡	Check and if necessary replace the control unit **N49** or the radio **O4**
	OK ➡	Replace coaxial cable

FRONT RIGHT LOUDSPEAKER NOT WORKING	TEST C

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
C1 CHECK LOUDSPEAKER – Check for correct functioning of loudspeaker	OK ➡	Carry out **step C2**
	~~OK~~ ➡	Replace faulty loud-speaker
C2 CHECK CONTINUITY – Check the continuity between: - pin B4 of the radio **O4** and pin A of connector **G218** - pin B3 of the radio **O4** and pin B of connector **G218**	OK ➡	Check and if necessary replace the radio **O4**
	~~OK~~ ➡	Restore wiring between: - pin B4 of **O4** and pin A of **G218** (PNK-BLK) - pin B3 of **O4** and pin B of **G218** (BLK-PPL)

FRONT LEFT LOUDSPEAKER NOT WORKING	TEST D

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
D1 CHECK LOUDSPEAKER – Check for correct functioning of the loudspeaker	OK ➡	Carry out **step D2**
	~~OK~~ ➡	Replace faulty loud-speaker
D2 CHECK CONTINUITY – Check the continuity between: - pin B2 of the radio **O4** and pin A of connector **G217** - pin B1 of the radio **O4** and pin B of connector **G217**	OK ➡	Check and if necessary replace the radio **O4**
	~~OK~~ ➡	Restore wiring between: - pin B2 of **O4** and pin A of **G217** (RED-BLK) - pin B1 of **O4** and pin B of **G217** (WHT-BLK)

REAR RIGHT LOUDSPEAKER NOT WORKING	TEST E

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
E1 CHECK LOUDSPEAKER – Check for correct functioning of loudspeaker	OK ➡	Carry out **step E2**
	OK ➡	Replace faulty loudspeaker
E2 CHECK CONTINUITY – Check the continuity between: - pin A4 of the radio **O4** and pin B of connector **G196** - pin A3 of the radio **O4** and pin A of connector **G196**	OK ➡	Check and if necessary replace the radio **O4**
	OK ➡	Restore wiring between: ● versions with controlled damping suspension.(*): - pin A4 of **O4** and pin 4 of connector **G280**, and pin 4 of **G280** and pin B of **G196** (LTB) - pin A3 of **O4** and pin 3 of connector **G280**, and pin 3 of **G280** and pin A of **G196** (LTB-BLK) ● versions without controlled damping suspension.: - pin A4 of **O4** and pin A5 of connector **G73**, and pin A5 of **G73** and pin B of **G196** (LTB) - pin A3 of **O4** and pin A4 of connector **G73**, and pin A4 of **G73** and pin A of **G196** (LTB-BLK)

(*) Note: if there is a hissing noise or other signs of malfunctioning of the rear loudspeakers, check that the condenser of the controlled damping suspension system control unit **N61** is correctly connected (see "Controlled damping suspension").

REAR LEFT LOUDSPEAKER NOT WORKING	TEST F

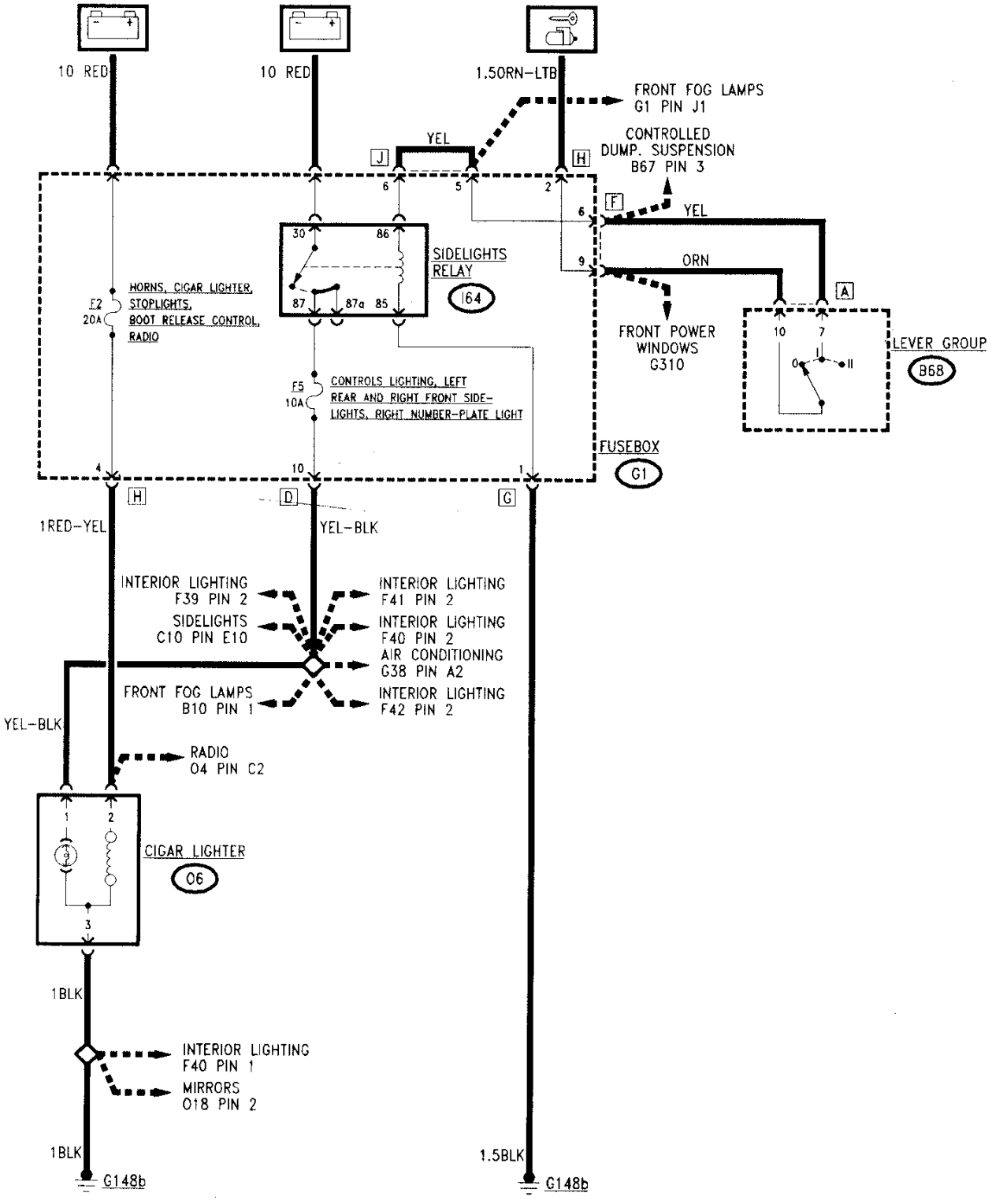
TEST PROCEDURE	RESULT	CORRECTIVE ACTION
F1 CHECK LOUDSPEAKER – Check for correct functioning of loudspeaker	OK ➡	Carry out **step F2**
	~~OK~~ ➡	Replace faulty loudspeaker
F2 CHECK CONTINUITY – Check the continuity between: - pin A2 of the radio **O4** and pin B of connector **G195** - pin A1 of the radio **O4** and pin A of connector **G195**	OK ➡	Check and if necessary replace the radio **O4**
	~~OK~~ ➡	Restore wiring between: ● versions with controlled damping suspension(*): - pin A2 of **O4** and pin 2 of connector **G280**, and pin 2 of **G280** and pin B of **G195** (ORN) - pin A1 of **O4** and pin 1 of connector **G280**, and pin 1 of **G280** and pin A of **G195** (ORN-WHT) ● versions without controlled damping suspension.: - pin A2 of **O4** and pin A3 of connector **G73**, and pin A3 of **G73** and pin B of **G195** (ORN) - pin A1 of **O4** and pin A2 of connector **G73**, and pin A2 of **G73** and pin A of **G195** (ORN-WHT)

(*) Note: if there is a hissing noise or other signs of malfunctioning of the rear loudspeakers, check that the condenser of the controlled damping suspension system control unit **N61** is correctly connected (see "Controlled damping suspension").

CIGAR LIGHTER

INDEX

WIRING DIAGRAM



GENERAL DESCRIPTION

There are three ashtrays for the occupants of the vehicle, one in the centre of the dashboard for the front seats and two in the rear door panels for the rear seats.
The cigar lighter resistence is located in the front ashtray (illuminated inside when the sidelights are selected) and can be engaged by pressing it into its socket; after a few seconds is pops out ready for use.
This socket, of the standard type, can also be used for the connection of other instruments or apparatus (as long as they operate on a 12V supply).

The socket is continuously supplied and for this reason can be used at any time even when the ignition key is disengaged.

FUNCTIONAL DESCRIPTION

The socket for the cigar lighter resistance **O6** is supplied directly by battery voltage through fuse **F2** (20A) in fusebox **G1**, which protects the circuit.

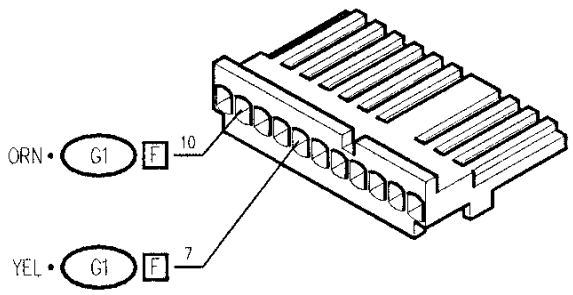
The lamp lighting the front ashtray **O6** is illuminated when the sidelights are selected; it is supplied, when the switch on the lever group **B68** is selected, by the voltage from the sidelights relay **I64** through fuse **F5** (10A) located in fusebox **G1**.

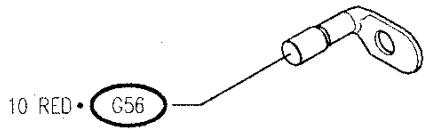
TROUBLESHOOTING TABLE

Malfunction	Component		Test
	F2	(O6)	
Cigar lighter - power socket	•	•	A
Ashtray light		•	B

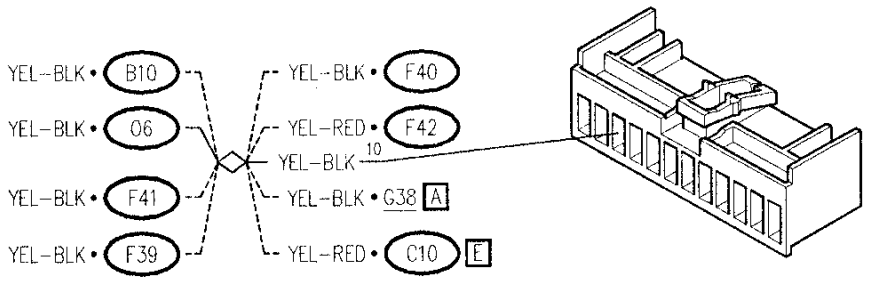
COMPONENTS AND CONNECTORS

Lever group	B68 A	Fusebox	G1

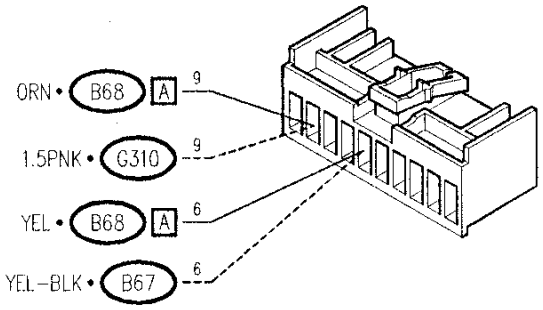


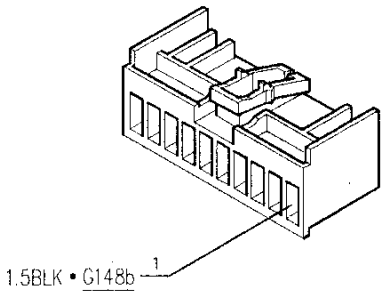


Fusebox	G1 D

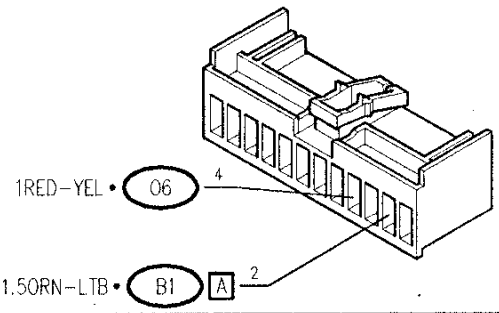


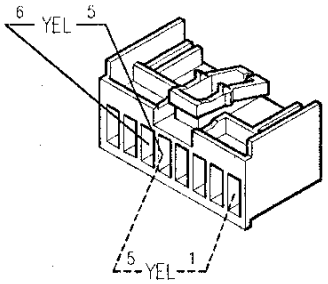
Fusebox	G1 F	Fusebox	G1 G



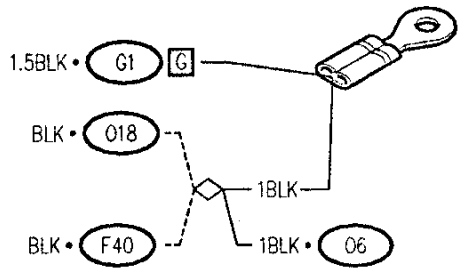


Fusebox	G1 H	Fusebox	G1 J

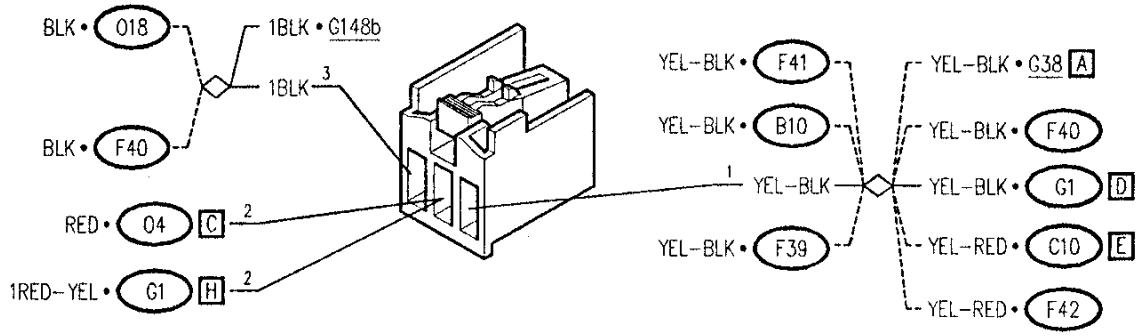




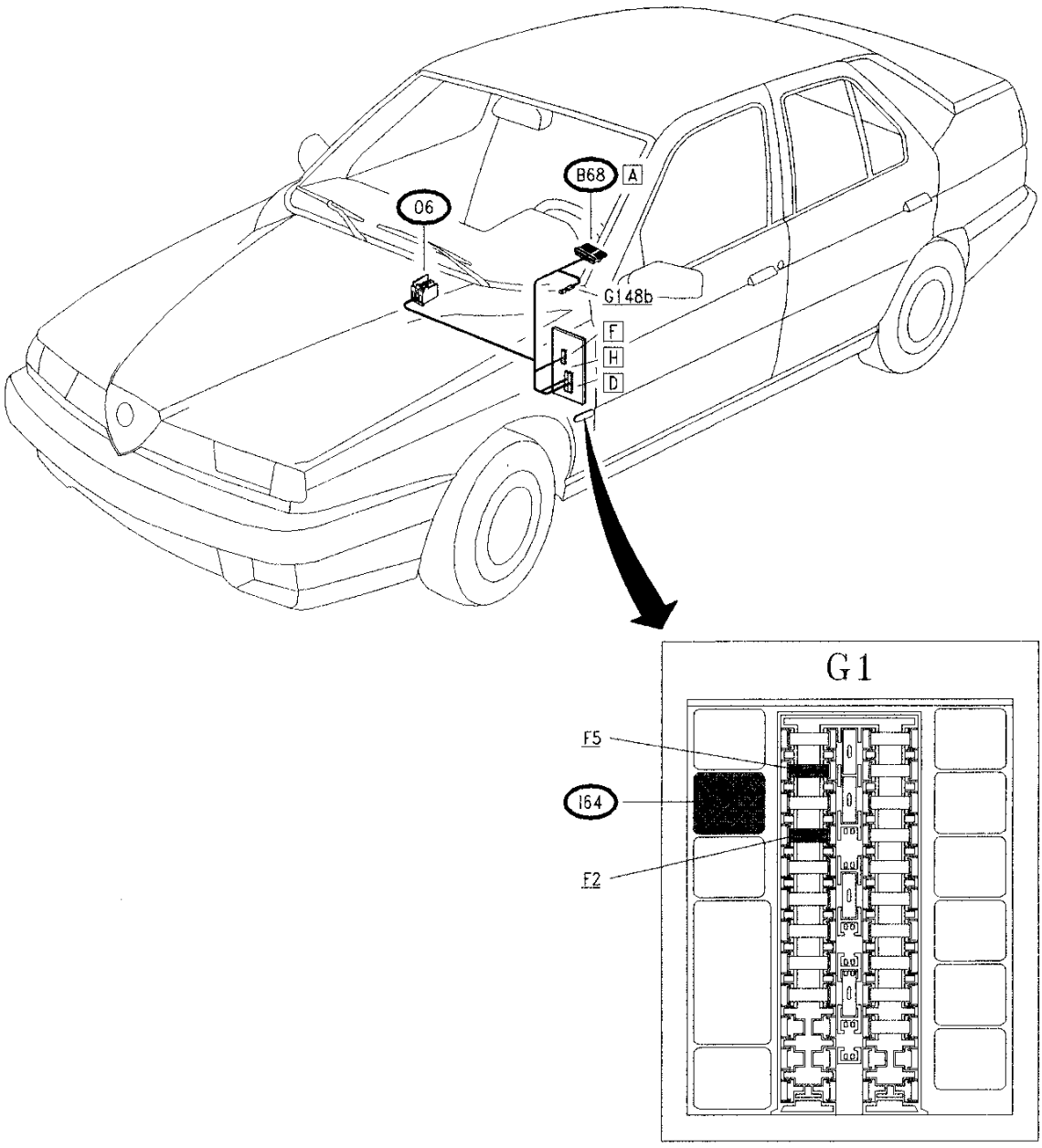
Under-dashboard ground-left side	G148b



Cigar lighter	O6



LOCATION OF COMPONENTS



TROUBLESHOOTING

CIGAR LIGHTER - SOCKET - NOT WORKING	TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F2** in fusebox **G1**	OK ➡	Carry out **step A2**
	~~OK~~ ➡	Replace fuse (20A)
A2 CHECK VOLTAGE – Verify 12V between pins 2 and 3 of cigar lighter **O6**	OK ➡	Replace cigar lighter **O6**
	~~OK~~ ➡	Carry out **step A4**
A3 CHECK VOLTAGE – Verify 12V at pin 2 of **O6**	OK ➡	Restore wiring between pin 3 of **O6** and ground **G148b**, also across the solder (BLK)
	~~OK~~ ➡	Restore wiring between pin H4 of **G1** and pin 2 of **O6** (RED- YEL)

ASHTRAY LIGHT NOT WORKING	TEST B

NOTE: if the cigar lighter socket is also not working, first carry out **test A**

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK VOLTAGE – With sidelights on, verify 12V between pins 1 and 3 of **O6**	OK ➡	Carry out **step B2**
	OK ➡	Carry out **step B3**
B2 CHECK BULB – Check for damage of front ashtray lamp	OK ➡	Check and if necessary replace the complete cigar lighter/ashtray unit **O6**
	OK ➡	Replace bulb
B3 CHECK VOLTAGE – With sidelights on, verify 12V at pin 1 of **O6**	OK ➡	Restore wiring between pin 3 of **O6** and ground **G148b** also across the solder (BLK)
	OK ➡	Carry out **step B4**

(continues)

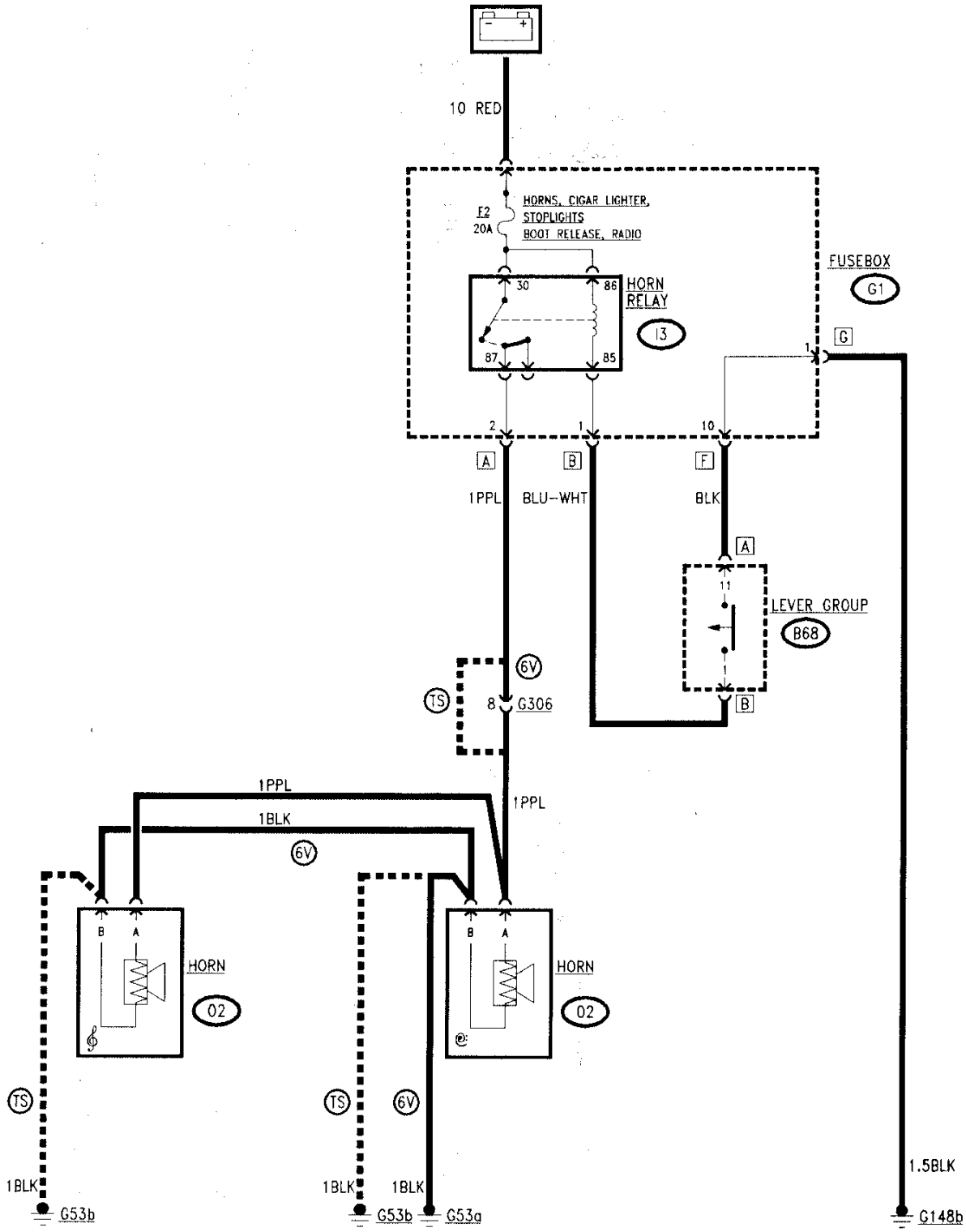
ASHTRAY LIGHT NOT WORKING	TEST B

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
B4	CHECK VOLTAGE		
– With sidelights on, verify 12V at pin O10 of **G1**		OK ➔	Restore wiring between pins 1of **O6** and pin D10 of **G1**, also across the solder (YEL-BLK)
		OK ➔	Check the sidelights circuit (see "Sidelights") and specifically fuse **F5** of **G1**

HORNS

INDEX

WIRING DIAGRAM



GENERAL DESCRIPTION

The vehicle is equipped with an acoustic warning system formed by two horns of different tone; one with a high tone and one with a low tone. The two horns are activated simultaneously.

The horns are activated in the traditional way by pressing the button located in the centre of the steering wheel.

For obvious reasons of safety, the horns can be sounded at any moment, even when the ignition key is disengaged.

FUNCTIONAL DESCRIPTION

The horn relay **I3**, located in fusebox **G1**, is supplied by battery voltage through fuse **F2** (20A), in **G1**.

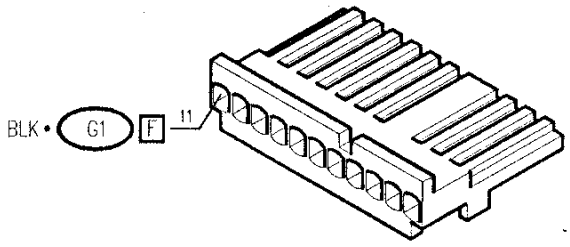
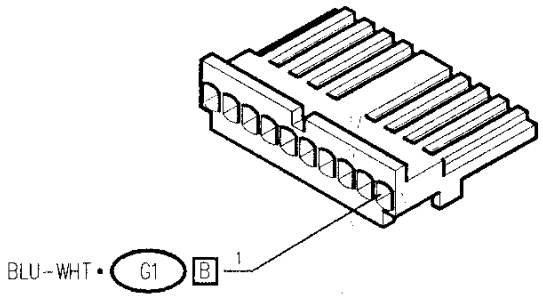
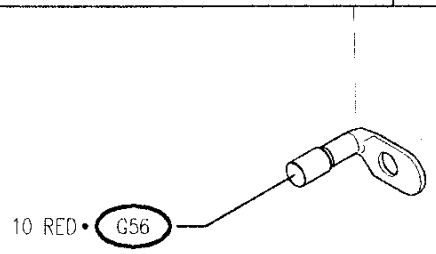
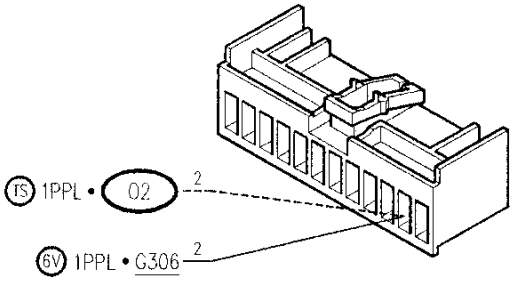
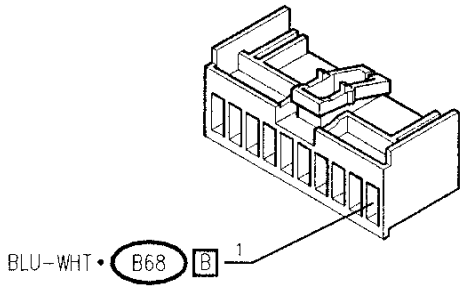
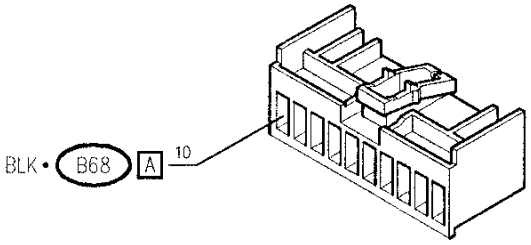
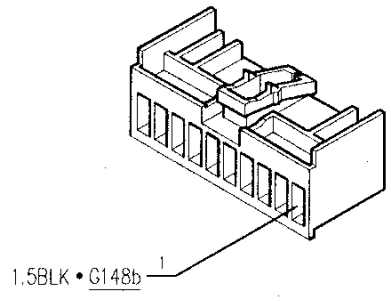
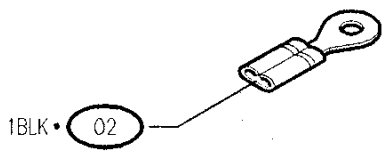
The coil of the relay **I3** is excited by an ground signal originating from the switch connected to the lever group **B68**.

In this way the supply is sent from the relay to the two horns **O2**, which are already grounded.

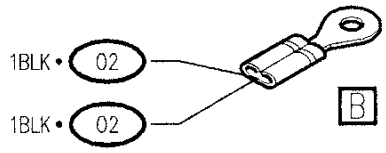
TROUBLESHOOTING TABLE

Malfunction	Component				Test
	F2	O2	I3	B68	
Horns not working	•	•	•	•	A
Horns working badly (out of tune)		•			B

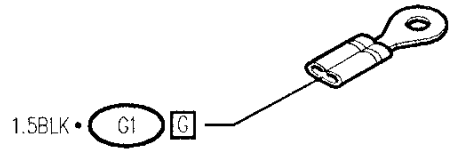
COMPONENTS AND CONNECTORS

Lever group B68 A	Lever group B68 B
	
Fusebox G1	**Fusebox G1 A**
	
Fusebox G1 B	**Fusebox G1 F**
	
Fusebox G1 G	**Engine compartment ground-right side G53a**
	

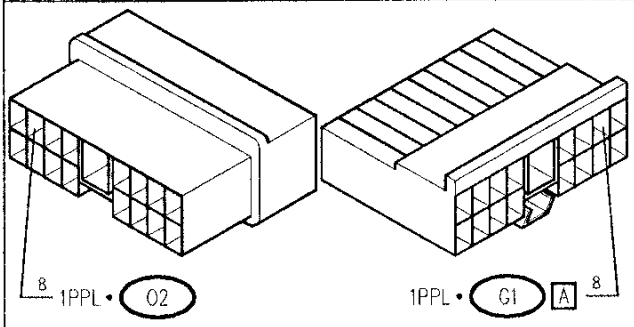
Engine compartment ground-left side	G53b



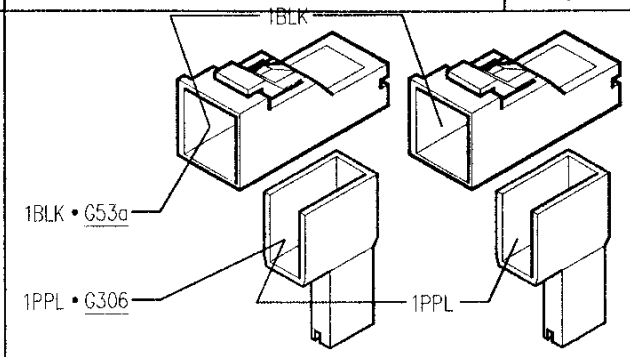
Under-dashboard ground-left side	G148b



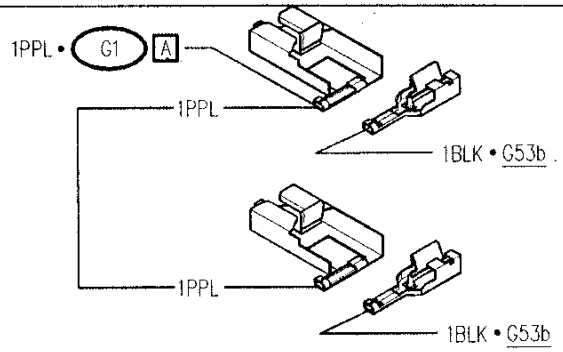
Engine wiring/right engine wiring connection	G306



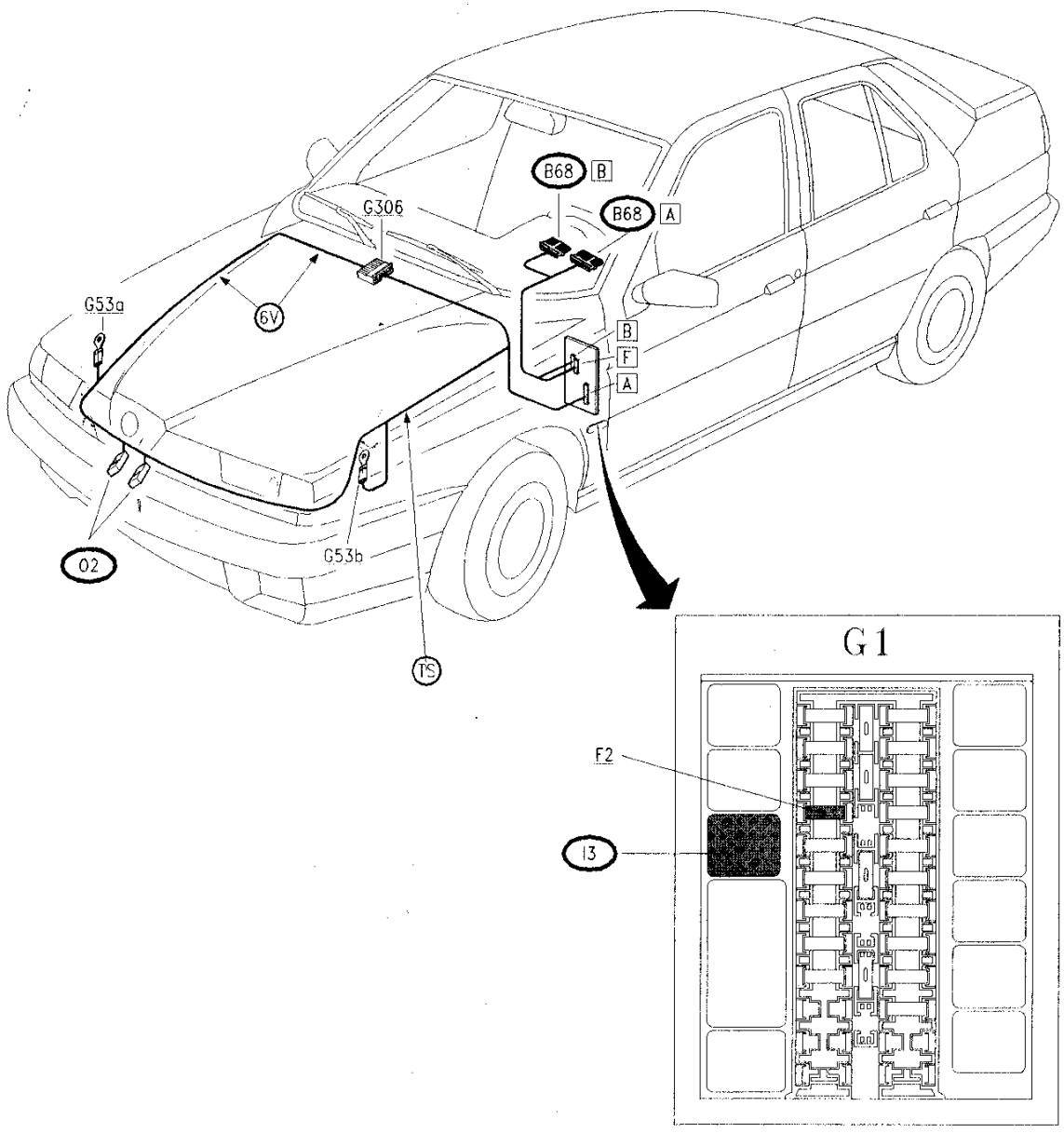
Horn 6V	O2



Horn TS	O2



LOCATION OF COMPONENTS



TROUBLESHOOTING

HORNS NOT WORKING	TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F2** of fusebox **G1**	OK ➡	Carry out **step A2**
	~~OK~~ ➡	Replace fuse (20A)
A2 CHECK RELAY – Check for correct functioning of horns relay **I3**	OK ➡	Carry out **step A3**
	~~OK~~ ➡	Replace relay **I3**
A3 CHECK VOLTAGE – Actuating horns, verify 12V between pins A and B of the two horns **O2**	OK ➡	Replace defective horns
	~~OK~~ ➡	Carry out **step A4**
A4 CHECK VOLTAGE – Actuating the horns, verify 12V at pin A of the two horns **O2**	OK ➡	Carry out **step A5**
	~~OK~~ ➡	Restore wiring between: - (TS) pin A2 of **G1** and pin A of the two horns **O2** (PPL) - (6V) pin A2 of **G1** and pin 8 of **G306**, and between pin 8 of **G306** and pin A of the two horns **O2** (PPL)

(continues)

HORNS NOT WORKING	TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A5 CHECK GROUND – Check that pins B of the two horns **O2** are grounded (0V)	OK ➡	Carry out **step A6**
	OK ➡	Restore wiring between pins B of **O2** and grounds (**G53a** and/or **G53b**) (BLK)
A6 CHECK SWITCH – Pressing the horn button, located in the centre of the steering wheel, check continuity between pin A11 and B1 of the lever group **B68**	OK ➡	Carry out **step A7**
	OK ➡	Replace central part of lever group **B68**
A7 CHECK GROUND – Verify 0V at pin A11 of **B68**	OK ➡	Restore wiring between pin B1 of **B68** and pin B1 of **G1** (BLU-WHT)
	OK ➡	Restore wiring between pin A11 of **B68** and pin F10 of **G1** (BLK)

HORNS WORKING BADLY (out of tune)	TEST B

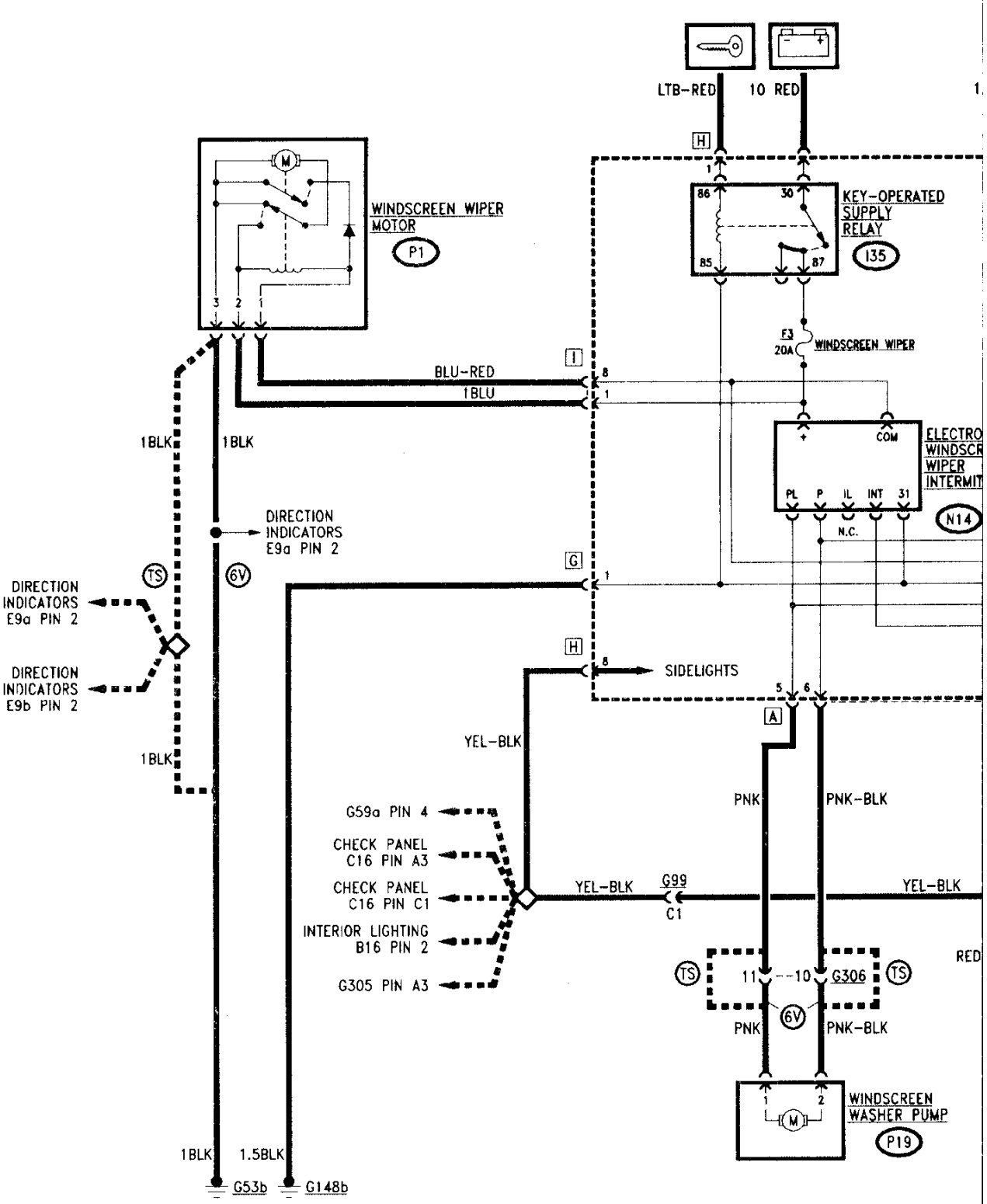
NOTE: if the horns are "out of tune", one of the two horns (either the higher or lower tone) is not working correctly

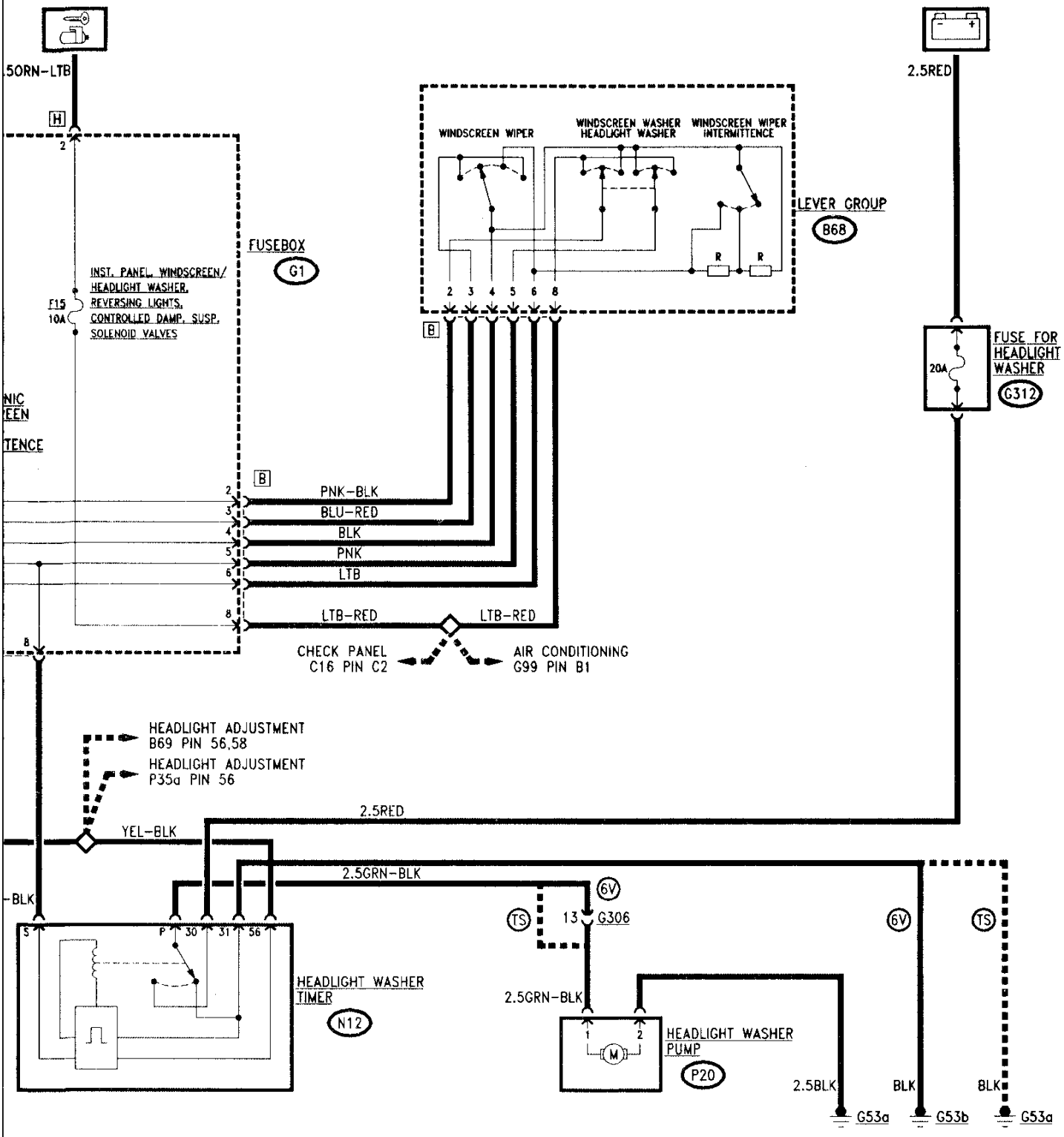
TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK VOLTAGE – Actuating the horns, verify 12V between pins A and B of both horns **O2**	OK ➡	Replace defective horn
	OK ➡	Carry out **step B2**
B2 CHECK VOLTAGE – Actuating the horns, verify 12V at pin A of both horns **O2**	OK ➡	Restore wiring between pins B of **O2** and the grounds (**G53a** and/or **G53b**) (BLK)
	OK ➡	Restore wiring between pins A of the two horns **O2** (PPL)

WINDSCREEN WASHER-WIPERS
HEADLIGHT WASHERS

NDEX

WIRING DIAGRAM




.50RN-LTB
H
2
FUSEBOX
G1
INST. PANEL, WINDSCREEN/ HEADLIGHT WASHER, REVERSING LIGHTS, CONTROLLED DAMP. SUSP. SOLENOID VALVES
F15
10A
NIC
EEN
TENCE
WINDSCREEN WIPER
WINDSCREEN WASHER HEADLIGHT WASHER
WINDSCREEN WIPER INTERMITTENCE
LEVER GROUP
B68
R
R
2 3 4 5 6 8
B
2.5RED
FUSE FOR HEADLIGHT WASHER
20A
G312
B
2
3
4
5
6
8
PNK-BLK
BLU-RED
BLK
PNK
LTB
LTB-RED
LTB-RED
8
CHECK PANEL C16 PIN C2
AIR CONDITIONING G99 PIN B1
HEADLIGHT ADJUSTMENT B69 PIN 56,58
HEADLIGHT ADJUSTMENT P35a PIN 56
2.5RED
YEL-BLK
2.5GRN-BLK
-BLK
S
P
30
31
56
HEADLIGHT WASHER TIMER
N12
TS
13
G306
6V
2.5GRN-BLK
1
2
M
HEADLIGHT WASHER PUMP
P20
6V
TS
2.5BLK
BLK
BLK
G53a
G53b
G53a

GENERAL DESCRIPTION

With the lever on the right-hand side of the steering wheel it is possible to engage the various windscreen wiper-washer and headlight washer functions.

The windscreen wiper device is equipped with both continuous and intermittent functions with variable speeds: pushing the lever upwards and holding it in this position will select the continuous function (75 passes per min.), interrupted when the lever is released; if the lever is pushed downwards until it stays, in the first position the intermittent function is engaged and in the second the continuous function is engaged. They remain engaged until the lever is once again pushed upwards.

With the lever in the rest position a knurled switch makes it possible to select the different intermittency lengths (45, 25 and 10 passes per minute approximately).

The windscreen washer function is selected by lightly pulling the lever: in this way the washer pump is actuated and at the same time the windscreen wipers are actuated for 3-4 seconds or until the lever is released.

With the sidelights on, the same controls automatically actuate the headlight washers: this is an electropneumatic device where a pump sends a detergent liquid to a pressure operated telescopic nozzle which comes out of the bumper bar and sprays a powerful jet of liquid onto the headlight until, when the pressure diminishes, it is retracted.

A timer actuates the headlight washer pump with successive impulses lasting approximately half a second.

NOTE: Actuating the windscreen washer (and headlight washer) if there is no detergent liquid in the reservoir may damage the pump.

(for greater detail refer to the "REPAIR MANUAL-BODY" Group 40)

The entire system is regulated by a windscreeen wiper intermittency device which controls the windscreen wiper motor, the windscreen washer pump and the headlight washer device (timer and relative pump).

The windscreen wiper and washer can be actuated with the ignition key inserted and the headlight washer as already mentioned, will only work if the sidelights are on.

FUNCTIONAL DESCRIPTION

The windscreen wiper intermittency **N14**, located in fuse-box **G1**, is turn-key supplied via the key-operated supply relay **I35** and the fuse **F3** (20A), in **G1**.

The windscreen wiper switch on the lever group **B68**, when actuated, sends one of two different signals depending on the function which has been selected; from pin 3 for continuous speed and from pin 6 for the intermittent speed.

The signal from pin 3 (continuous speed) reaches the intermittency **N14** (COM pin) and passes directly to the windscreen wiper motor **P1** as a command signal; the motor P1 is then grounded and supplied by the same line as intermittency **N14**. This is composed of a gear motor and by stop limit contacts and a supply relay.

The signal from pin 6 (intermittent speed) reaches the intermittency **N14** (INT pin) and is then sent to the motor **P1**.

Actuating the switch (knurled) of the lever group intermittency **B68** either no, or one or two resistances R are inserted on the same line in order to obtain the three different speeds of intermittency.

The windscreen washer switch (and headlight washer) of lever group **B68** once actuated, sends two signals from pin 2 and pin 5 which reach the intermittency **N14** (pins PL and P) to actuate the the windscreen wiper for 3-4 seconds and actuate the windscreen washer pump **P19**; a control signal is also sent to the headlight washer timer **N12**.

The timer **N12** is directly supplied by battery voltage via fuse **G312**.

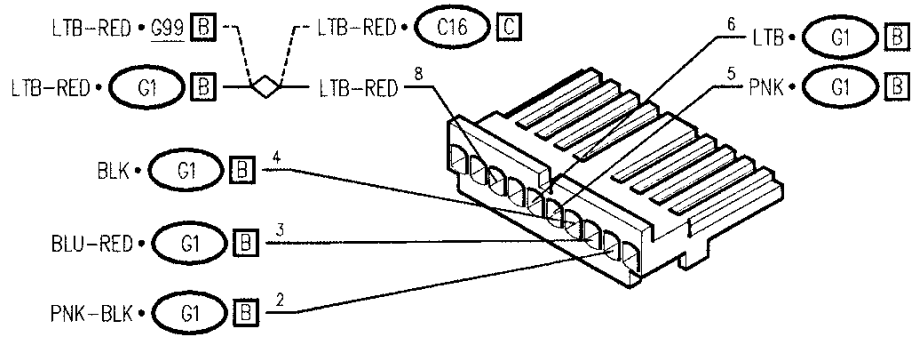
When the consensus signal resulting from the sidelights being on, reaches the relay in addition to the lever group switch command, the relay inside **N12** is excited which then supplies the headlight washer pump **P20** with half-second impulses.

TROUBLESHOOTING TABLE

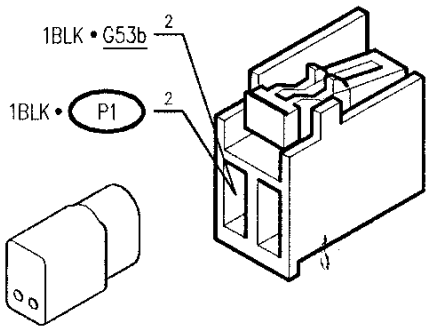
Malfunction	Component									Test
	F3	P1	N14	B68	F15	P19	G312	N12	P20	
Windscreen wiper (cont. speed)	●	●		●						A
Windscreen wiper intermittency			●	●						B
Windscreen washer			●	●	●	●				C
Headlight washer					●		●	●	●	D

COMPONENTS AND CONNECTORS

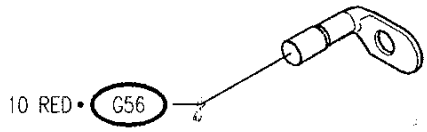
Lever group — B68 B



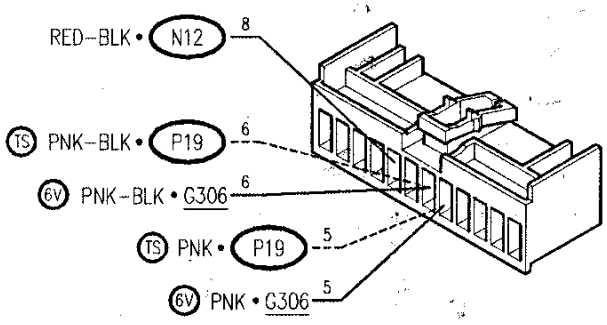
Left direction indicator light bulb — E9a



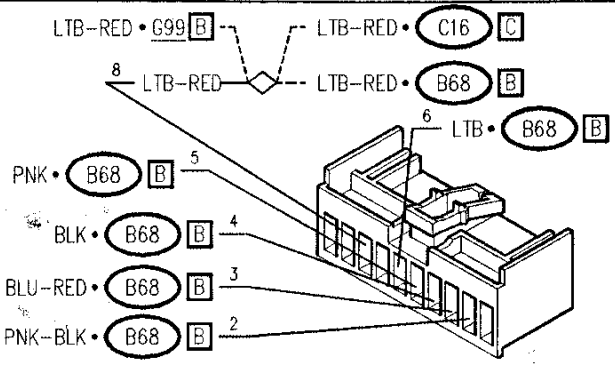
Fusebox — G1



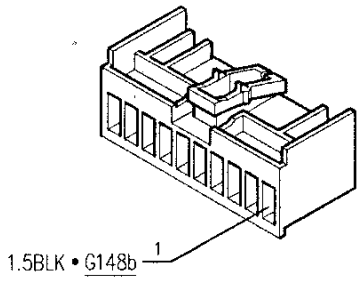
Fusebox — G1 A



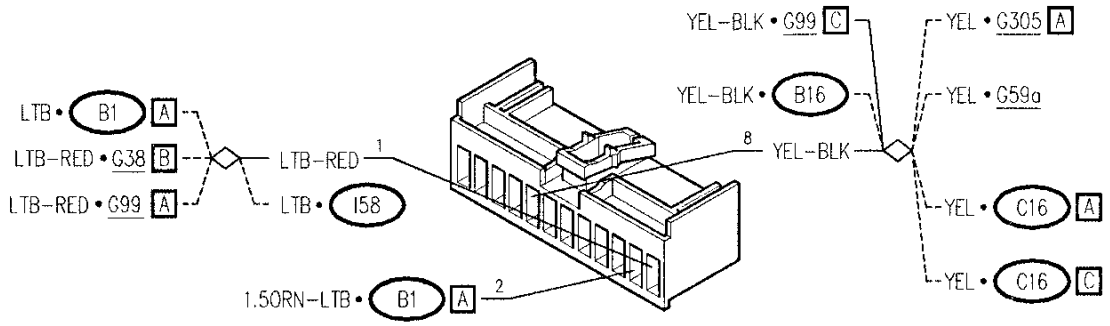
Fusebox — G1 B



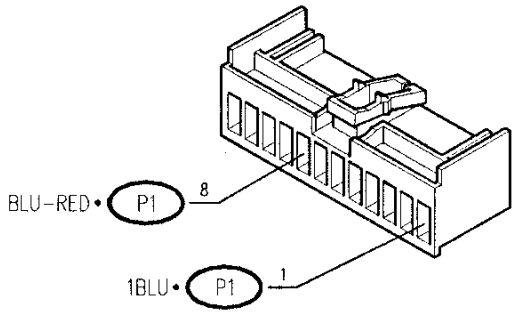
Fusebox — G1 G



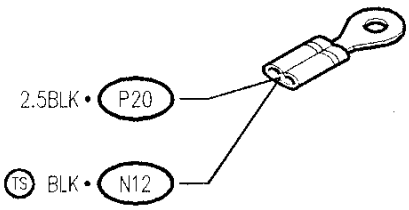
Fusebox G1 H



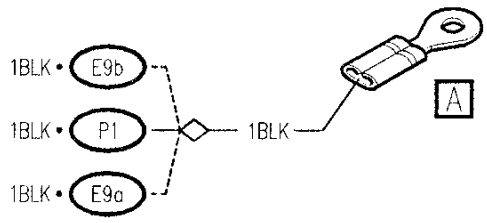
Fusebox G1 I



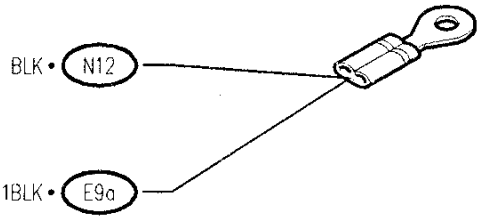
Engine compartment ground-right side G53a



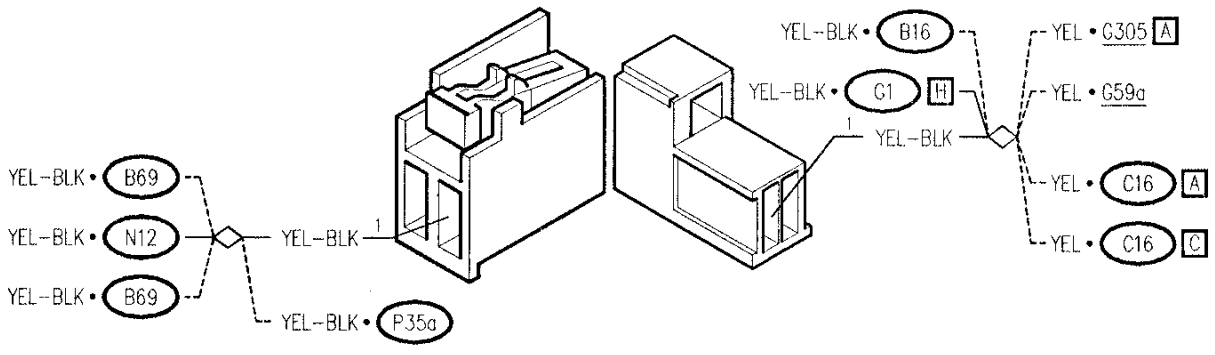
Engine compartment ground-left side TS G53b



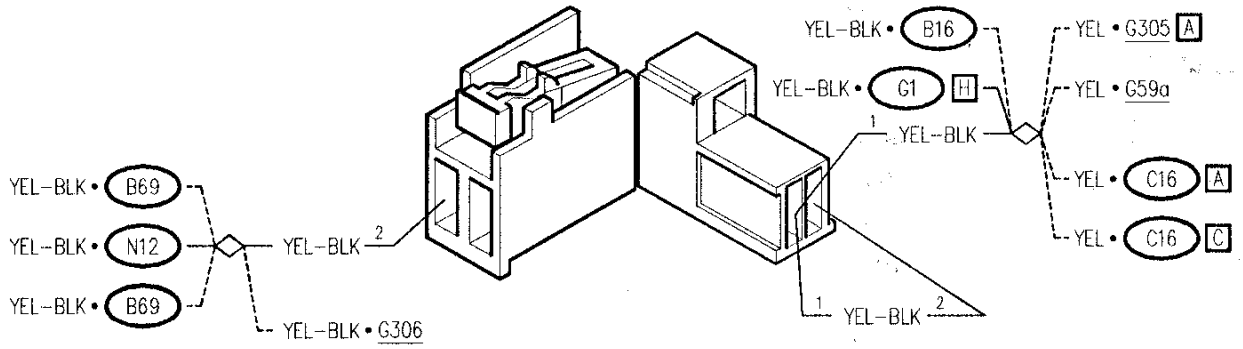
Engine compartment ground-left side 6V G53b



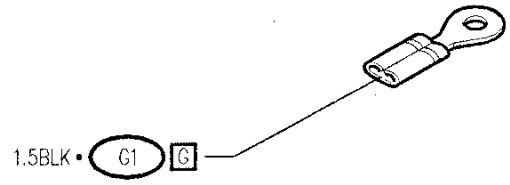
Dashboard/engine connection TS G99 C



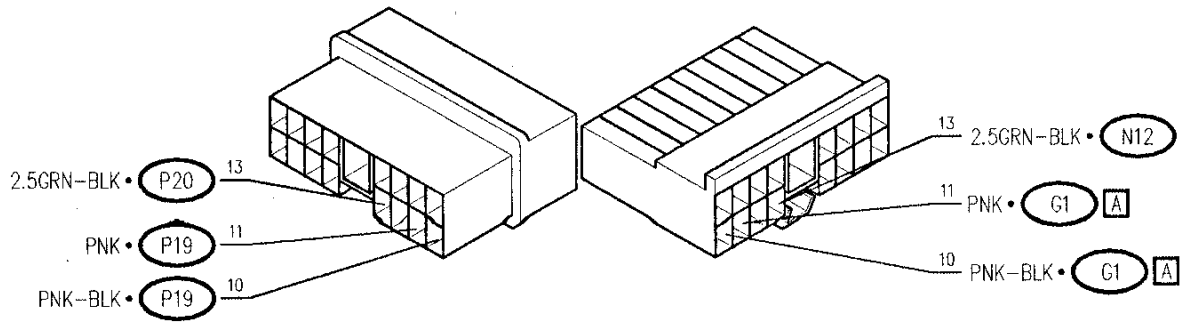
Dashboard/engine connection 6V	G99 C



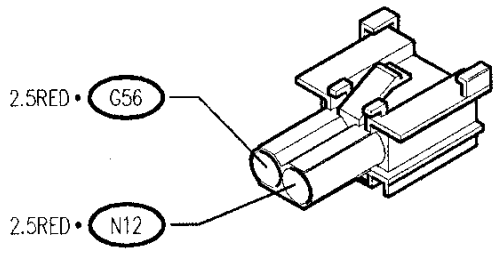
Under-dashboard ground-left side	G148b



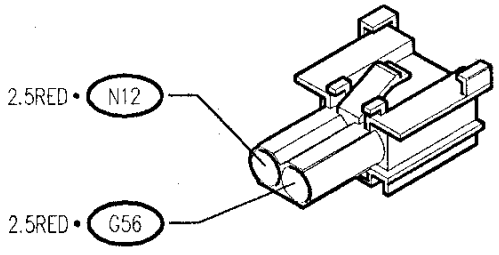
Engine wiring/right engine wiring connection	G306



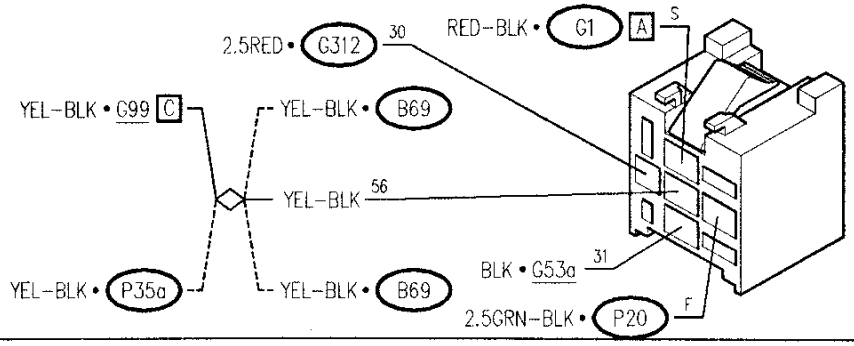
Fuse for headlight washer TS	G312



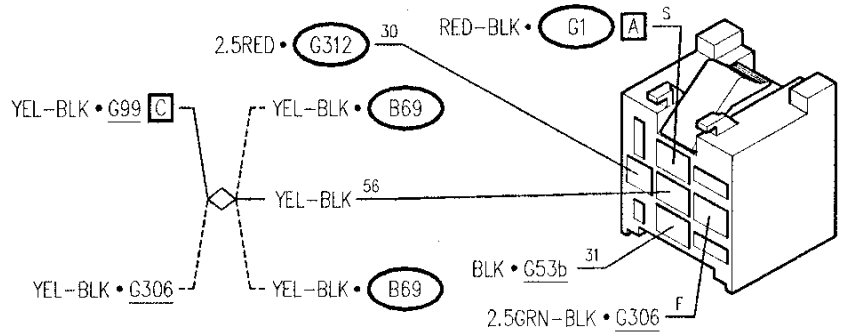
Fuse for headlight washer 6V	G312



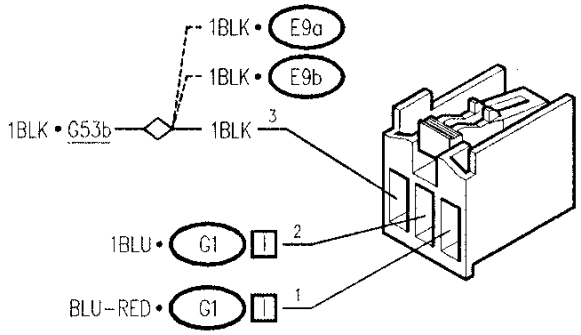
Headlight washer timer TS — N12



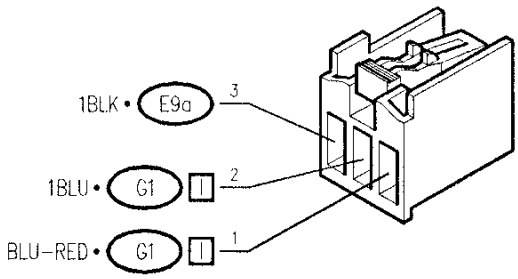
Headlight washer timer 6V — N12



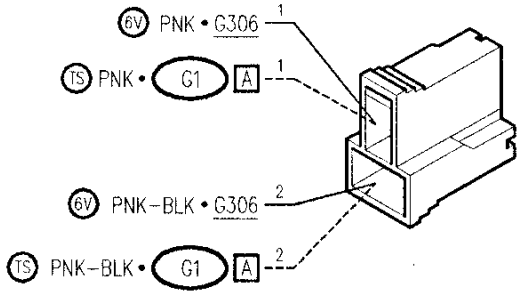
Windscreen wiper motor TS — P1



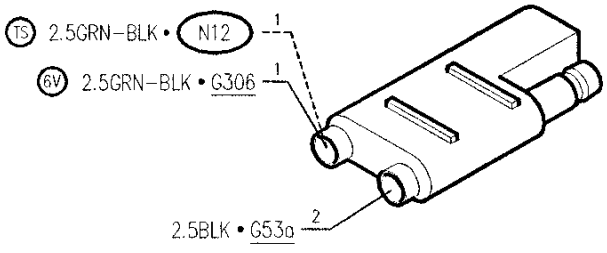
Windscreen wiper motor 6V — P1



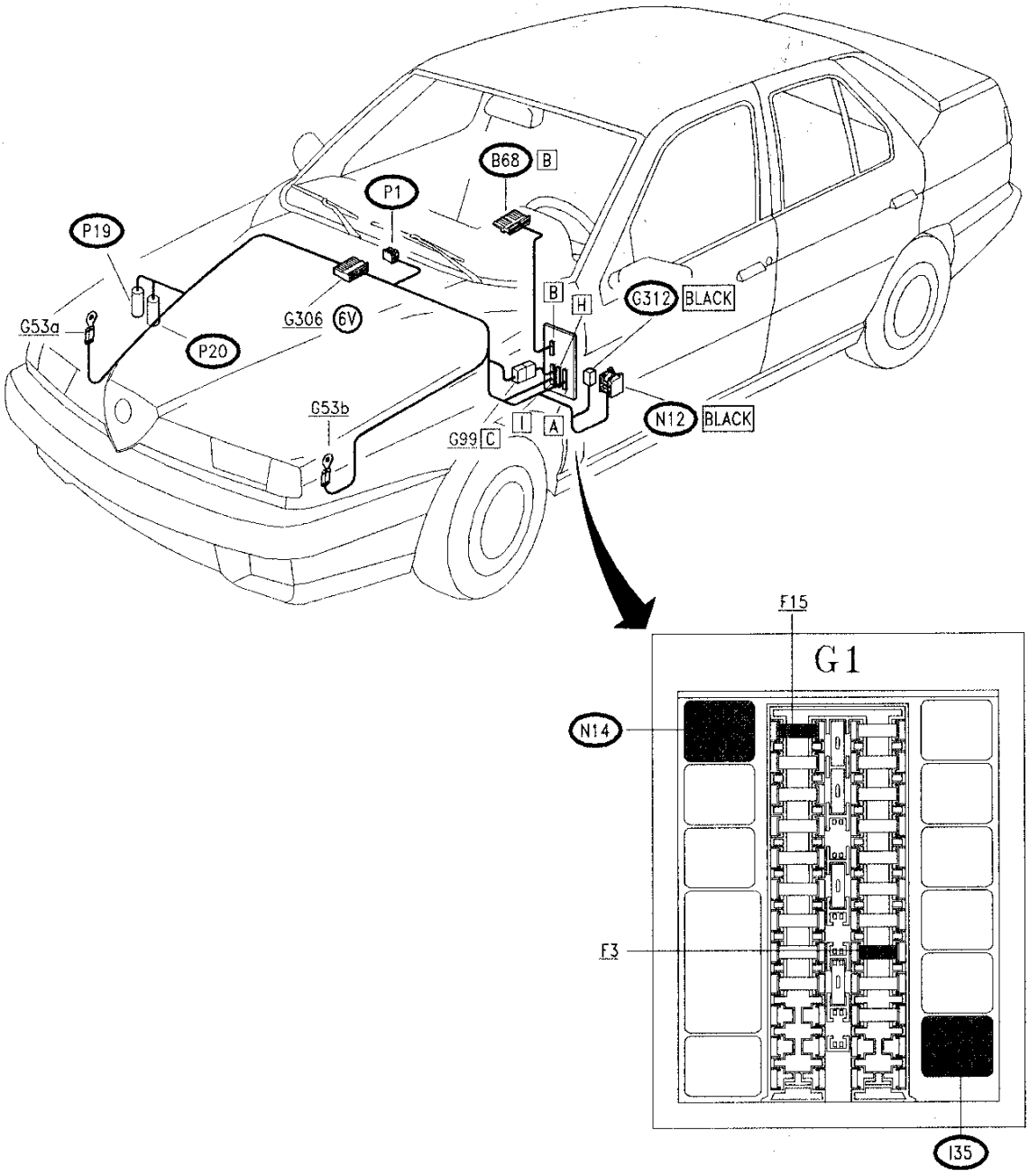
Windscreen washer pump — P19



Headlight washer pump — P20



LOCATION OF COMPONENTS



TROUBLESHOOTING

WINDSCREEN WIPERS NOT WORKING (continuous speed)	TEST A

NOTE: if the following circuits are also not working:
rear window and door mirror defroster, interior fan, seat adjustment and heating, rear power windows, etc.., check and if necessary replace the key-operated supply relay **I35**

TEST PRECEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F3** in fusebox **G1**	OK ➡	Carry out **step A2**
	~~OK~~ ➡	Replace fuse (20A)
A2 CHECK GROUND – Check that pin 3 of **P1** is grounded (0V)	OK ➡	Carry out **step A3**
	~~OK~~ ➡	Restore wiring between: - (TS) pin 3 of **P1** and ground **G53b**, also across the solder (BLK) - (6V) pin 3 of **P1** and ground **G53b**, across pin 2 of light **E9a** (BLK)
A3 CHECK VOLTAGE – With ignition key engaged and windscreen wiper function (continuous speed) engaged, check that pin 1 of **P1** is grounded (0V)	OK ➡	Carry out **step A4**
	~~OK~~ ➡	Carry out **step A5**

(continues)

WINDSCREEN WIPERS NOT WORKING (continuous speed)	TEST A

TEST PRECEDURE	RESULT	CORRECTIVE ACTION
A4 CHECK VOLTAGE – With ignition key engaged, verify 12V at pin 2 of windscreen wiper motor **P1**	OK ➡	Replace windscreen wiper motor group **P1**
	OK ➡	Restore wiring between pin I1 of **G1** and pin 2 of **P1** (BLU)
A5 CHECK GROUND – With ignition key engaged and windscreen wiper function (continuous speed) engaged, verify 0V at pin I8 of **G1**	OK ➡	Restore wiring between pin I8 of **G1** and pin 1 of motor **P1** (BLU-RED)
	OK ➡	Carry out **step A6**
A6 CHECK GROUND – With ignition key engaged and windscreen wiper function (continuous speed) engaged, verify 0V at pin B3 of lever group **B68**	OK ➡	Restore wiring between pin B3 of **G1** and pin B3 of **B68** (BLU-RED)
	OK ➡	Carry out **step A7**

(continues)

WINDSCREEN WIPERS NOT WORKING (continuous speed)	TEST A

TEST PRECEDURE		RESULT	CORRECTIVE ACTION
A7	CHECK LEVER GROUP		
– Engage the windscreen wiper function (continuous speed) and check continuity between pins B3 and B4 of lever group **B68**		OK ➡	Restore wiring between pin B4 of **G1** and pin B4 of **B68** (BLK)
		OK ➡	Replace lever group **B68**, right-hand part

WINDSCREEN WIPERS NOT WORKING (intermittence)	TEST B

NOTE: continuous speed functions normally however; if this is not the case first carry out the preceeding **test A**

TEST PRECEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK GROUND – With ignition key engaged and windscreen wiper function (intermittent) engaged, verify 0V at pin B6 of **G1**	OK ➡ ~~OK~~ ➡	Replace the electronic device of intermittence **N14** Carry out **step B2**
B2 CHECK LEVER GROUP – Engage the windscreen wiper function (intermittent) and check continuity between pins B6 and B4 of lever group **B68**. Also check that the resistance between pin B6 and pin B4 varies when the lower intermittence speeds are selected: • intermediate speed: approx 1.300 Ω • minimum speed: approx 4.700 Ω	OK ➡ ~~OK~~ ➡	Restore wiring between pin B6 of **G1** and pin B6 of **B68** (LTB) Replace lever group **B68**, right-hand part

WINDSCREEN WASHER NOT WORKING	TEST C

NOTE: the windscreen wipers should operate for a few seconds together with the windscreen washer: if this is not so check and if necessary replace the intermittence **N14**

TEST PRECEDURE	RESULT	CORRECTIVE ACTION
C1 CHECK FUSE – Check for damage of fuse **F15** in fusebox **G1**	OK ➡	Carry out **step C2**
	OK ➡	Replace il fuse (10A)
C2 CHECK VOLTAGE – With ignition key engaged, actuate the windscreen washer function and verify 12V between pin 1 and 2 windscreen washer pump **P19**	OK ➡	Replace il motor of **P19**
	OK ➡	Carry out **step C3**
C3 CHECK VOLTAGE – With ignition key engaged, actuate the windscreen washer function and verify 12V between pin A5 and A6 of **G1**	OK ➡	Restore wiring between: - (TS) pin A5 of **G1** and pin 1 of **P19** (PNK); pin A6 of **G1** and pin 2 of **P19** (PNK-BLK) - (6V) pin A5 of **G1** and pin 1 of **P19**, across pin 11 of connector **G306** (PNK); pin A6 of **G1** and pin 2 of **P19**, across pin 10 of connector **G306** (PNK-BLK)
	OK ➡	Carry out **step C4**

(continues)

WINDSCREEN WASHER NOT WORKING	TEST C

TEST PRECEDURE	RESULT	CORRECTIVE ACTION
C4 CHECK VOLTAGE – With ignition key engaged, verify 12 V at pin B8 of lever group **B68**	OK ➡	Carry out **step C5**
	OK ➡	Restore wiring between pin B8 of **G1** and pin B8 of **B68**, also across the solder (LTB-RED)
C5 CHECK LEVER GROUP – Engage the windscreen wiper function and check continuity between pins B2 and B8, and between pins B5 and B8 of lever group **B68**	OK ➡	Restore wiring between: • pin B2 of **G1** and pin B2 of **B68** (PNK-BLK) • pin B5 of **G1** and pin B5 of **B68** (PNK)
	OK ➡	Replace lever group **B68**, right-hand part

HEADLIGHT WASHER FUNCTION NOT WORKING	TEST D

NOTE: the windscreen washer however functions normally; if this is not the case, first carry out the preceeding **test C**
N.B.: the headlight washer function will only operate when the sidelights are switched on

TEST PRECEDURE	RESULT	CORRECTIVE ACTION
D1 CHECK FUSE – Check for damage of wander fuse **G312**	OK ➡	Carry out **step D2**
	OK ➡	Replace il fuse (20A)
D2 CHECK VOLTAGE – With ignition key engaged and sidelights on, actuate the windscreen wiper/washer function and verify, for at least half a second, 12V between pin 1 and 2 of the headlamp washer pump **P20**	OK ➡	Replace motor of **P20**
	OK ➡	Carry out **step D3**
D3 CHECK GROUND – Check that pin 2 of pump **P20** is grounded (0V)	OK ➡	Carry out **step D4**
	OK ➡	Restore wiring between pin 2 of **P20** and ground **G53a** (BLK)
D4 CHECK VOLTAGE – Verify 12 V at pin 30 of timer **N12**	OK ➡	Carry out **step D5**
	OK ➡	Restore wiring between pin 30 of **N12** and wander fuse **G312** (RED)

(continues)

HEADLIGHT WASHER FUNCTION NOT WORKING	TEST D

TEST PRECEDURE	RESULT	CORRECTIVE ACTION
D5 CHECK GROUND – Check that pin 31 of timer **N12** is grounded (0V)	OK ➡ ~~OK~~ ➡	Carry out **step D6** Restore wiring between: - (TS) pin 31 of **N12** and ground **G53a** (BLK) - (6V) pin 31 of **N12** and ground **G53b** (BLK)
D6 CHECK VOLTAGE – With sidelights on, verify 12 V at pin 56 of timer **N12**	OK ➡ ~~OK~~ ➡	Carry out **step D7** Restore wiring between pin 56 of **N12** and pin H8 of **G1**, across pin C1 of connector **G99** and the two solders. Also check that the sidelights are operating correctly (see "Sidelights")
D7 CHECK GROUND – Actuate the windscreen wiper/washer function and verify, 0V at pin S of timer **N12**	OK ➡ ~~OK~~ ➡	Carry out **step D8** Restore wiring between pin S of **N12** and pin A8 of **G1** (RED-BLK)

(continues)

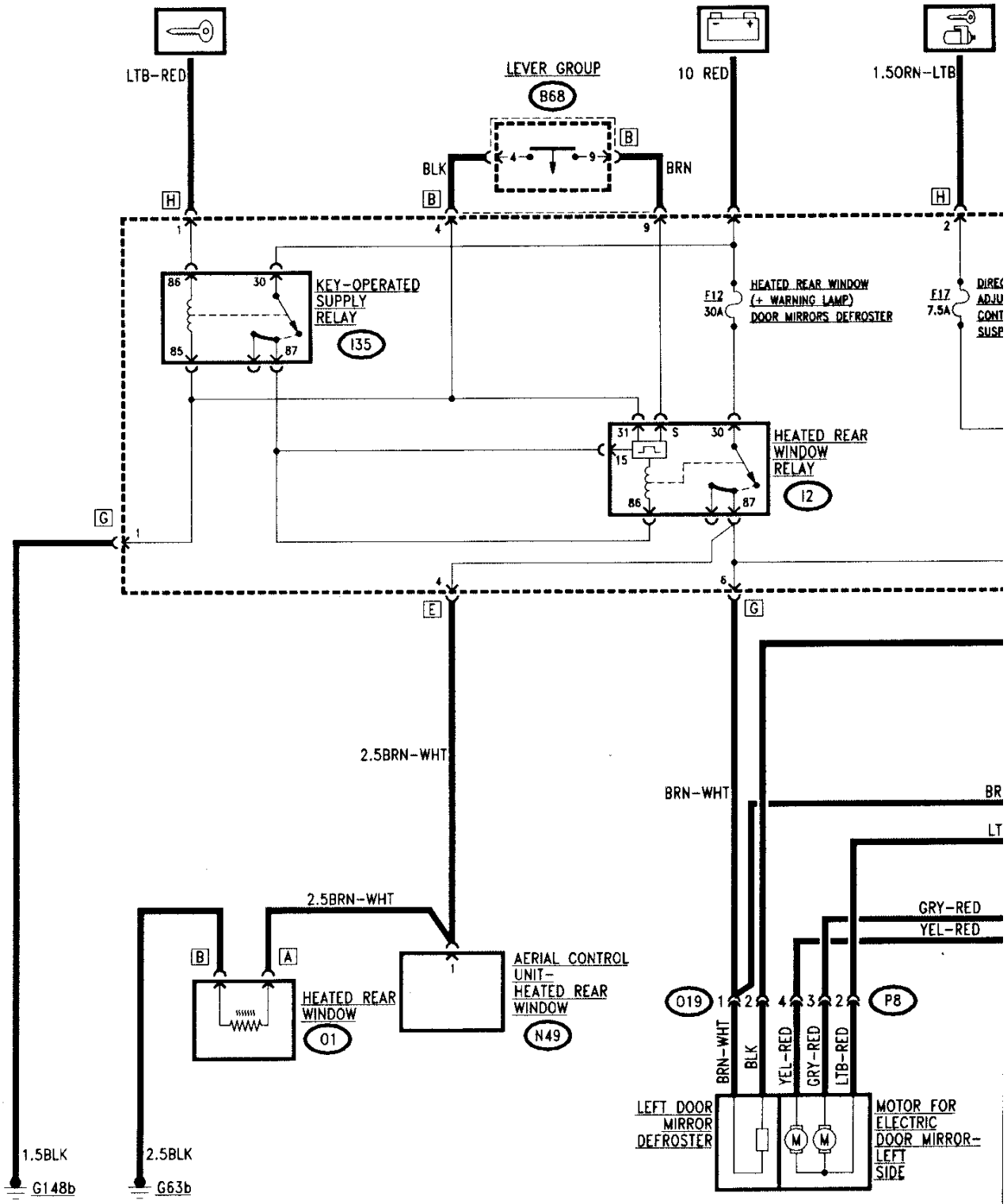
HEADLIGHT WASHER FUNCTION NOT WORKING	TEST D

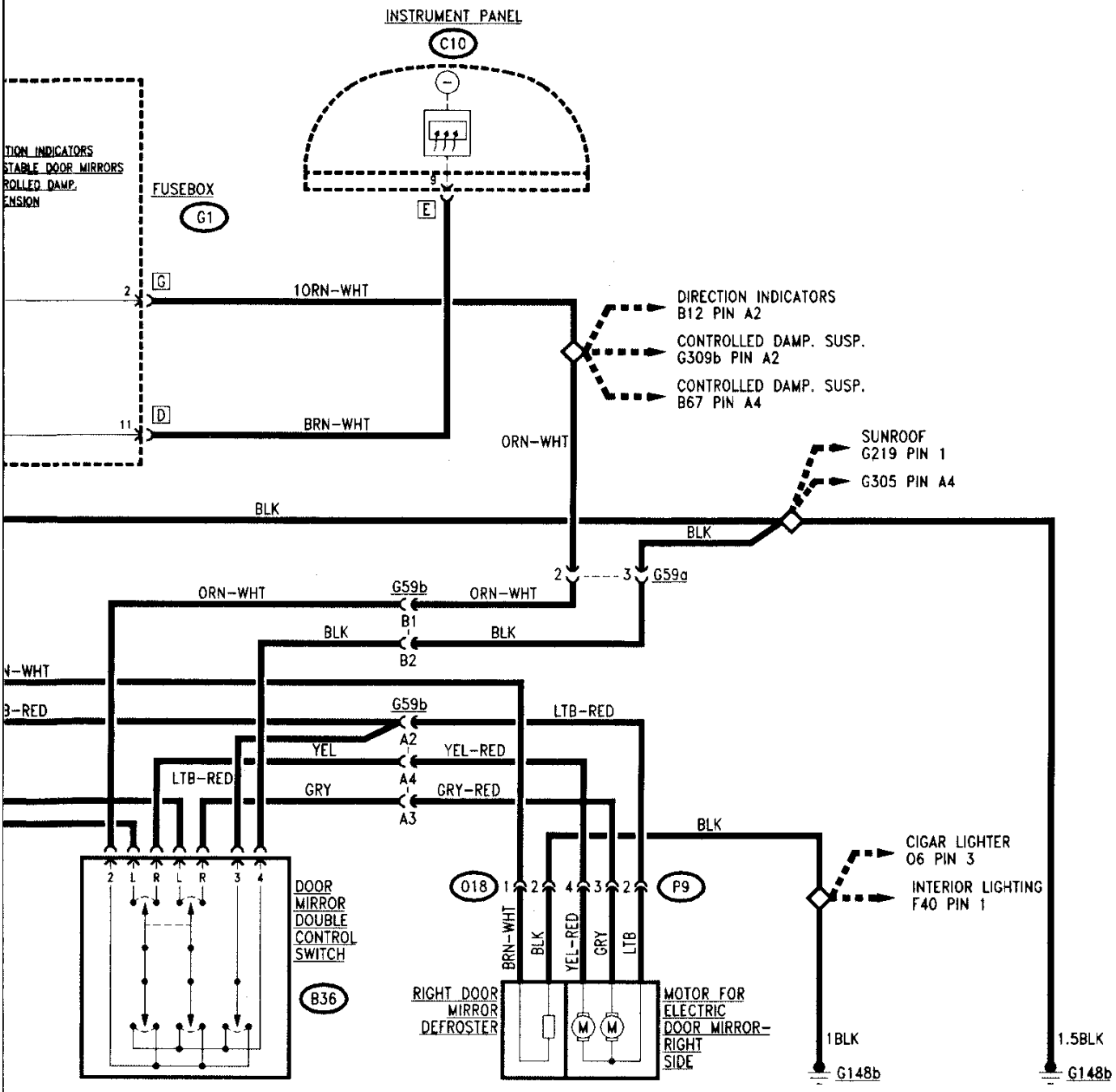
TEST PRECEDURE		RESULT	CORRECTIVE ACTION
D8	CHECK VOLTAGE		
– With ignition key engaged and sidelights on, actuate the windscreen wiper/washer function and verify, for at least half a second, 12V at pin P of timer **N12**		OK ➡	Restore wiring between: - (TS) pin P of **N12** and pin 1 of **P20** (GRN-BLK) - (6V) pin P of **N12** and pin 1 of **P20**, across pin 13 of connector **G306** (GRN-BLK)
		OK ➡	Replace timer **N12**

HEATED REAR WINDOW HEATED ADJUSTABLE REAR-VIEW MIRRORS

NDEX

WIRING DIAGRAM




INSTRUMENT PANEL
C10
TION INDICATORS
STABLE DOOR MIRRORS
ROLLED DAMP.
ENSION
FUSEBOX
G1
E
9
G
2
10RN-WHT
D
11
BRN-WHT
ORN-WHT
DIRECTION INDICATORS
B12 PIN A2
CONTROLLED DAMP. SUSP.
G309b PIN A2
CONTROLLED DAMP. SUSP.
B67 PIN A4
SUNROOF
G219 PIN 1
G305 PIN A4
BLK
BLK
2
3
G59a
G59b
ORN-WHT
ORN-WHT
B1
BLK
BLK
B2
N-WHT
B-RED
G59b
LTB-RED
A2
YEL
YEL-RED
LTB-RED
A4
GRY
GRY-RED
A3
BLK
CIGAR LIGHTER
O6 PIN 3
INTERIOR LIGHTING
F40 PIN 1
2 L R L R 3 4
DOOR
MIRROR
DOUBLE
CONTROL
SWITCH
B36
O18
1 2 4 3 2
P9
BRN-WHT
BLK
YEL-RED
GRY
LTB
RIGHT DOOR
MIRROR
DEFROSTER
MOTOR FOR
ELECTRIC
DOOR MIRROR-
RIGHT
SIDE
1BLK
G148b
1.5BLK
G148b

GENERAL DESCRIPTION

Heated rear window and defrosting of door mirrors

A lead wire is incorporated in the rear windscreen and the door mirrors which heats and therefore rapidly demists and/or defrosts the surfaces in contact with it when a current is passed through it.

This device is actuated by pushing the relative switch on the lever group; the resistances are deactivated automatically (20 minutes after the initial actuation and 10 minutes after successive actuations) through a timer incorporated in the heated rear window relay.

A warning light on the instrument panel signals that the function has been engaged.

Adjustment of door mirrors

The two door mirrors are adjusted through a switch which commands two electric motors located in each of the two mirrors (one motor rotates the mirror horizontally and the other vertically).

A single switch actuates both mirrors, left and right as a selector makes it possible to switch from one to the other.

FUNCTIONAL DESCRIPTION

Heated rear window and defrosting of door mirrors.

The key operated supply relay **I35** powers the coil of the heated rear window relay **I2** and the incorporated timer; the coil is excited by a ground signal from the timer when this receives (pin S) the command signal from the switch on the lever group **B68**.

Both relay **I35** and relay **I2** are located in fusebox **G1**.

When the relay contact closes **I2** battery voltage supplies the line which, protected by fuse **F12** (30A) in **G1**, reaches the heated rear window **O1** and the resistances of the door mirrors **O19** (left) and **O18** (right).

Power supply to the heated rear window **O1** passes via the control unit **N49** which also commands the antenna function incorporated in the rear window (see "Radio").

20 minutes after the switch on the lever group **B68** is actuated (successively every 10 minutes), the timer deactivates the coil **I2**, and disconnects all the circuits.

The same heated rear window supply signal is sent to the instrument panel **C10** in order to light up the relative warning lamp.

Adjusting of door mirrors

The double switch **B36** commands the electric motors located in the mirror **P8** (left) and **P9** (right).

The switch is turn-key supplied through fuse **F17** (7.5 A) in fusebox **G1**.

By actuating the switch in one of the two possible directions, positive and ground signals are sent to one of the two mirrors which determine the direction of rotation.

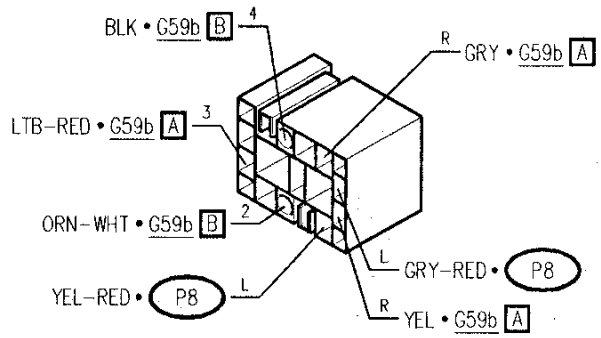
Depending on the position of the selector either the right **P9** (output signal from pins R of **B36**) or left-hand motors **P8** (signals from pins L of **B36**) are connected.

TROUBLESHOOTING TABLE

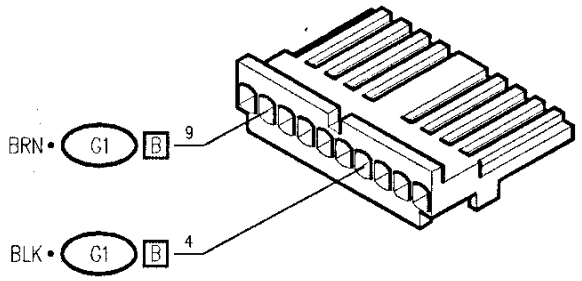
Malfunction	Component											Test
	F12	I2	B68	O1	O19	O18	C10	F17	P8	P9	B36	
Defrosting	•	•	•									A
Rear window				•								B
LH door mirror (defrosting)					•							C
RH door mirror (defrosting)						•						D
Rear window warning lamp							•					E
Door mirror adjustment								•			•	F
LH door mirror (adjustment)									•		•	G
RH door mirror (adjustment)										•	•	H

COMPONENTS AND CONNECTOR

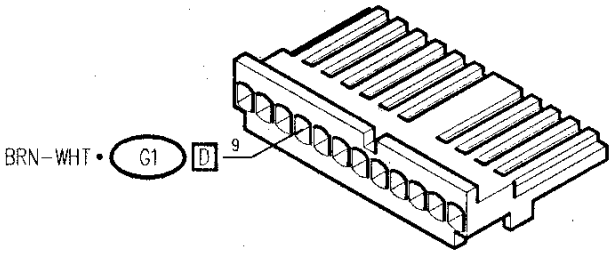
Door mirror double control switch (B36)



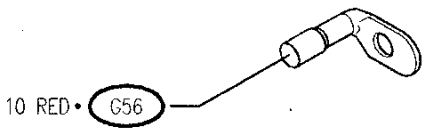
Lever group (B68 B)



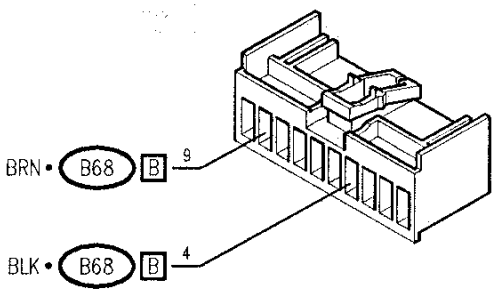
Instrument panel (C10 E)



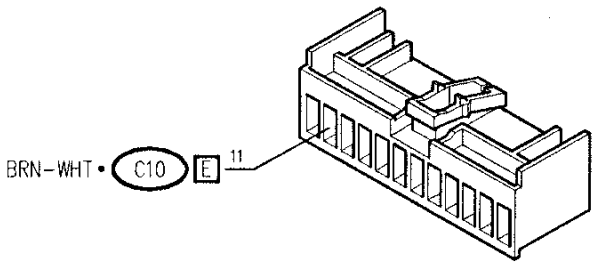
Fusebox (G1)



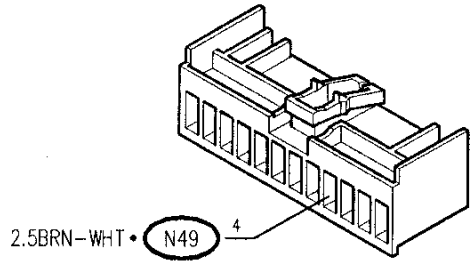
Fusebox (G1 B)



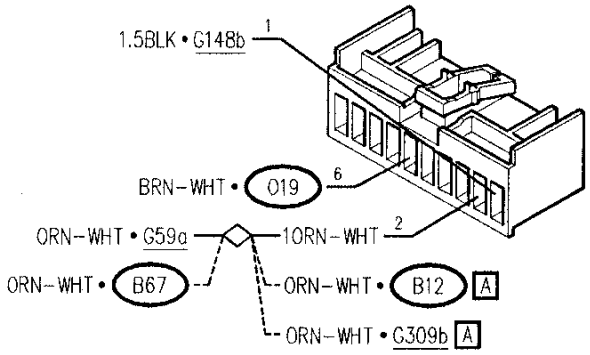
Fusebox (G1 D)



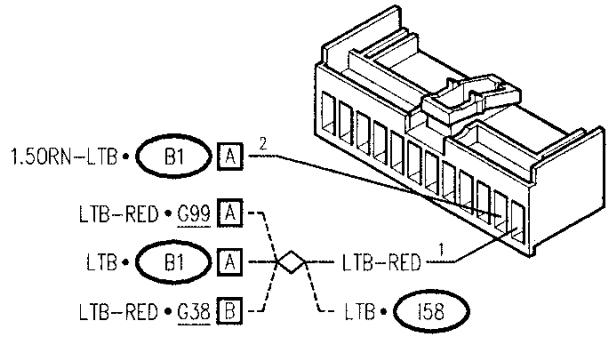
Fusebox (G1 E)



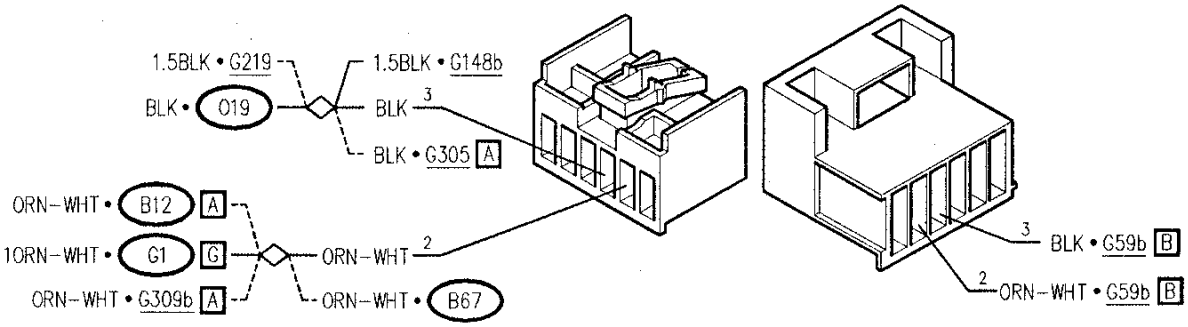
Fusebox (G1 G)



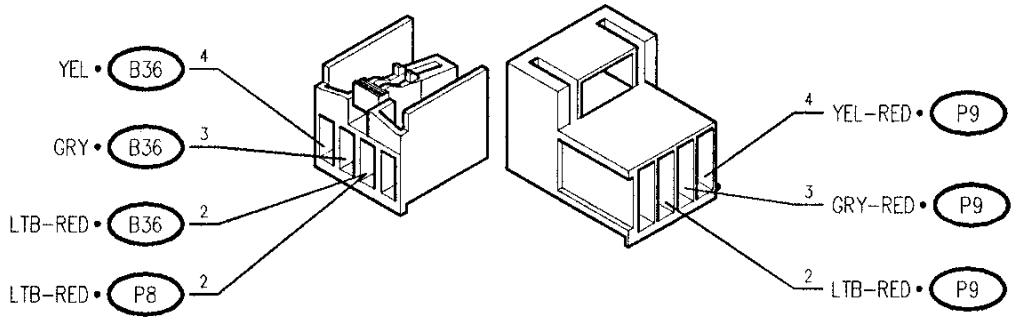
Fusebox	G1 H



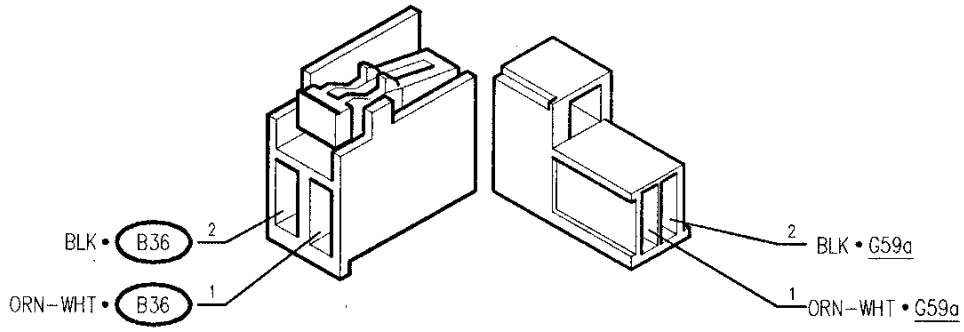
Right connector for electric door mirror	G59a



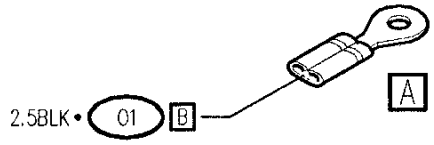
Left connector for electric door mirror	G59b A



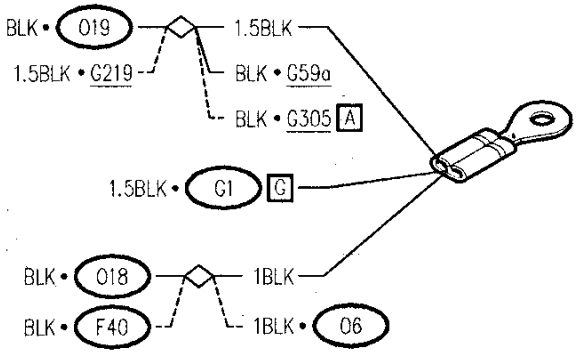
Left connector for electric door mirror	G59b B



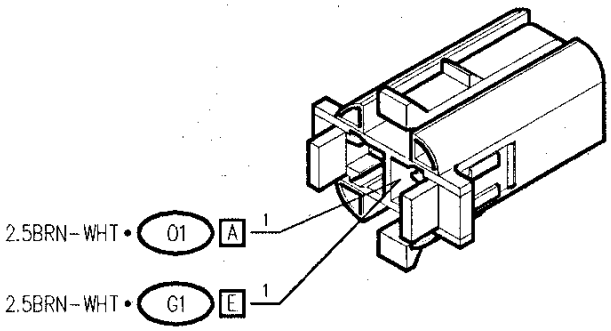
Rear left ground	G63b



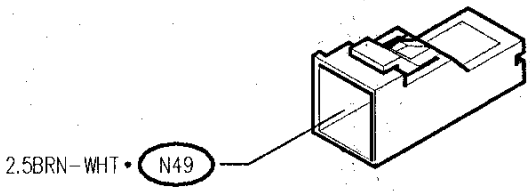
Under-dashboard ground-left side	G148b



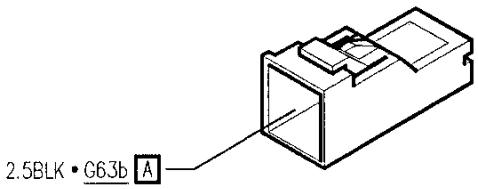
Aerial control unit-Heated rear window	N49



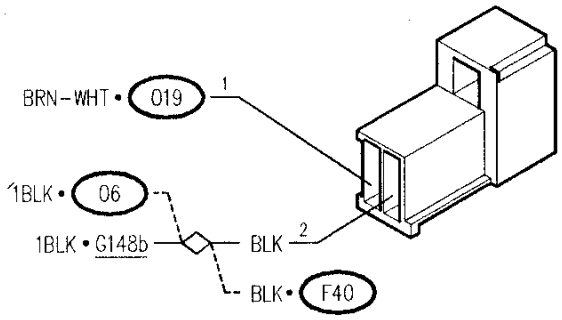
Heated rear window	O1 A



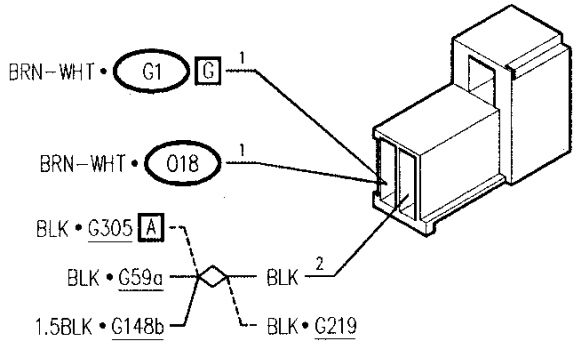
Heated rear window	O1 B



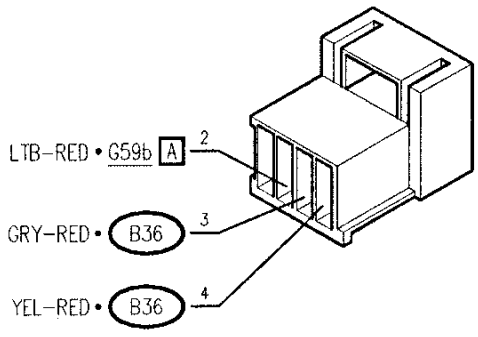
Right door mirror defroster	O18



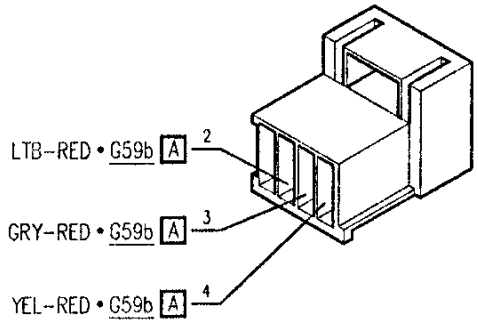
Left door mirror defroster	O19



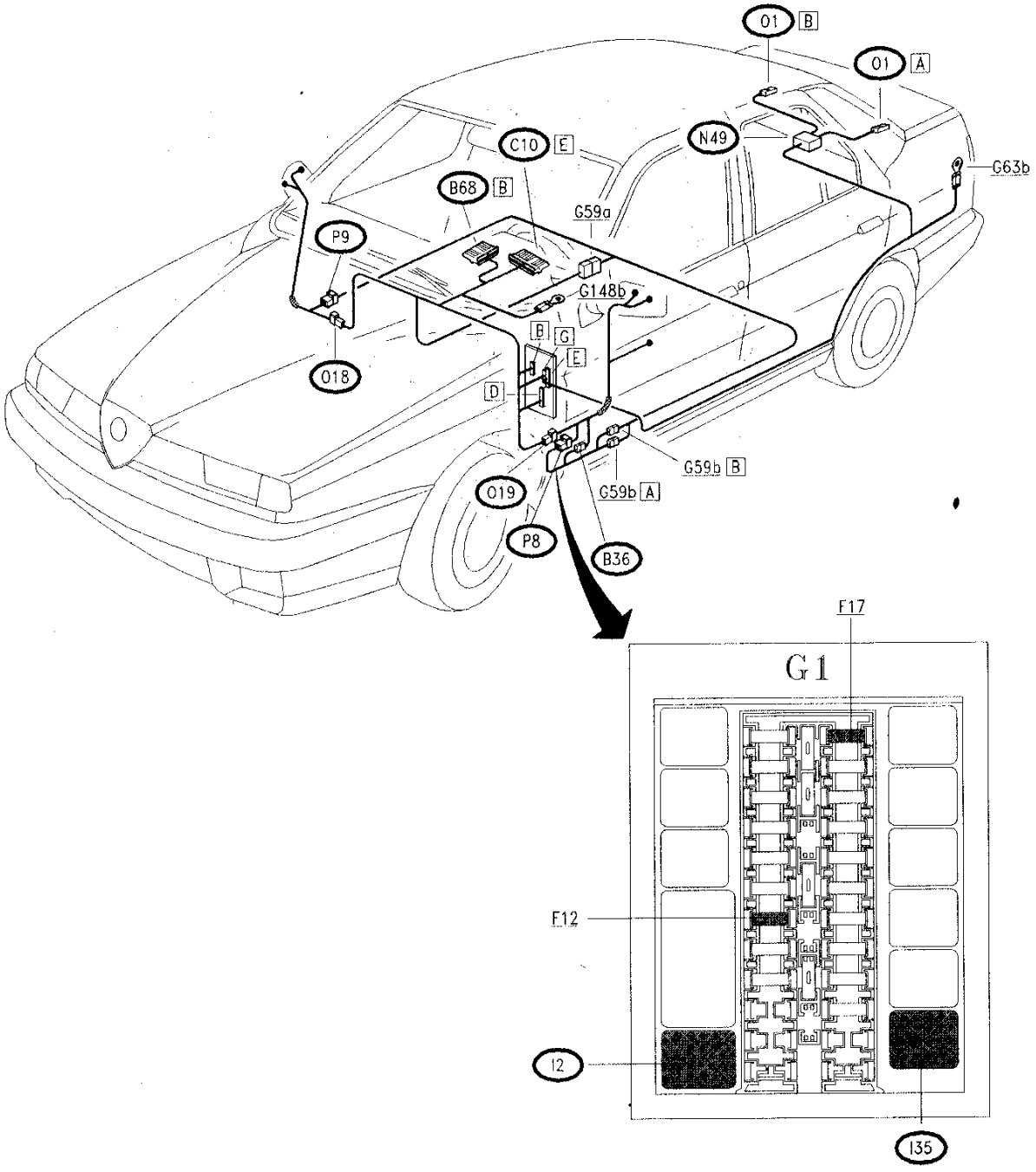
Motor for electric door mirror-left side	P8



Motor for electric door mirror-right side	P9



LOCATION OF COMPONENTS



TROUBLESHOOTING

NONE OF THE DEFROSTERS (REAR WINDOW AND DOOR MIRRORS) WORKING	TEST A

NOTE: if the following circuits are also not working:
windscreen wipers, interior fan, seat adjustment and heating, rear power windows, etc.., check and if necessary replace the key-operated supply relay **I35**

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
A1	CHECK FUSE		
– Check for damage of fuse **F12** of fusebox **G1**		OK ➡	Carry out **step A2**
		~~OK~~ ➡	Replace fuse (30A)
A2	CHECK RELAY		
– Check for correct functioning of heated rear window relay **I2** N.B.: the relay incorporated in the timer deactivates the coil after 20 minutes from the actuation signal (pin S) and after 10 minutes for successive actuations		OK ➡	Carry out **step A3**
		~~OK~~ ➡	Replace relay **I2**
A3	CHECK GROUND		
– Check that pin B4 of lever group **B68** is grounded (0V)		OK ➡	Carry out **step A4**
		~~OK~~ ➡	Restore wiring between pin B4 of **B68** and pin B4 of **G1** (BLK)
A4	CHECK LEVER GROUP		
– Pressing the switch to engage the defroster function, check continuity between pins B4 and B9 of lever group **B68**		OK ➡	Restore wiring between pin B9 of **B68** and pin B9 of **G1** (BRN)
		~~OK~~ ➡	Replace lever group **B68**, right-hand part

HEATED REAR WINDOW NOT WORKING	TEST B

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK VOLTAGE – With defroster function engaged, verify 12V between pins A and B of heated rear window **O1**	OK ➡	Replace rear window containing the defroster resistance **O1**
	~~OK~~ ➡	Carry out **step B2**
B2 CHECK GROUND – Check that pin B of rear window **O1** is grounded (0V)	OK ➡	Carry out **step B3**
	~~OK~~ ➡	Restore wiring between pin B of **O1** and ground **G63b** (BLK)
B3 CHECK VOLTAGE – With defroster function engaged, verify 12V at pin 1 of antenna-heated rear window control unit **N49**	OK ➡	Restore wiring between pin 1 of control unit **N49** and pin A of heated rear window **O1** (BRN-WHT)
	~~OK~~ ➡	Restore wiring between pin 1 of control unit **N49** and pin E4 of **G1** (BRN-WHT)

LEFT-HAND DOOR MIRROR DEFROSTER NOT WORKING	TEST C

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
C1 CHECK VOLTAGE – With defroster function engaged, verify 12V between pins 1 and 2 of the left-hand door mirror defroster **O19**	OK ➡	Replace the left-hand door mirror containing the defroster resistance **O19**
	~~OK~~ ➡	Carry out **step C2**
C2 CHECK GROUND – Check that pin 2 of the defroster **O19** is grounded (0V)	OK ➡	Restore wiring between pin 1 of **019** and pin G6 of **G1** (BRN-WHT) **NOTE:** in this case the right-hand door mirror will also not be working **O18** (see **Test D**)
	~~OK~~ ➡	Restore wiring between pin 2 of **O19** and ground **G148b**, also across the solder (BLK)

RIGHT-HAND DOOR MIRROR DEFROSTER NOT WORKING	TEST D

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
D1 CHECK VOLTAGE – With defroster function engaged, verify 12V between pins 1 and 2 of the right-hand door mirror defroster **O18**	OK ➡	Replace the right-hand door mirror containing the defroster resistance **O18**
	~~OK~~ ➡	Carry out **step D2**
D2 CHECK GROUND – Check that pin 2 of the defroster **O18** is grounded (0V)	OK ➡	Restore wiring between pin 1 of **018** and pin G6 of **G1**, across pin 1 of **O19** (BRN-WHT) **NOTE:** in this case the left-hand door mirror will also not be working **O19** (see **test C**)
	~~OK~~ ➡	Restore wiring between pin 2 of **O18** and ground **G148b**, also across the solder (BLK)

HEATED REAR WINDOW WARNING LAMP ON INSTRUMENT PANEL NOT WORKING	TEST E

NOTE : The defroster function works normally however

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
E1 CHECK GROUND – With defroster function engaged, verify ground signal 0 V at pin E9 of instrument panel **C10**	OK ➡	Carry out **step E2**
	~~OK~~ ➡	Restore wiring between pin D11 of **G1** and pin E9 of **C10** (BRN-WHT)
E2 CHECK WARNING LAMP – Check for damage of the heated rear window warning lamp, in the instrument panel **C10**	OK ➡	Check and if necessary replace the complete instrument panel **C10**
	~~OK~~ ➡	Replace the warning lamp

DOOR MIRROR ADJUSTMENT NOT WORKING	TEST F

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
F1 CHECK FUSE – Check for damage of fuse **F17** of fusebox **G1**	OK ➡	Carry out **step F2**
	~~OK~~ ➡	Replace fuse (7.5A)
F2 CHECK VOLTAGE – With ignition key engaged, verify 12 V between pins 2 and 4 of the door mirror adjustment switch **B36**	OK ➡	Replace double switch **B36**
	~~OK~~ ➡	Carry out **step F3**
F3 CHECK VOLTAGE – With ignition key engaged, verify 12 V between pins 2 and 3 of connector **G59a**	OK ➡	Restore wiring between: • pin 2 of **G59a** and pin 2 of **B36**, across pin B1 of connector **G59b** (ORN-WHT) • pin 3 of **G59a** and pin 4 of **B36** across pin B2 of connector **G59b** (BLK)
	~~OK~~ ➡	Restore wiring between: • pin 2 of **G59a** and pin G2 of **G1**, also across the solder (ORN-WHT) • pin 3 of **G59a** and ground **G148b**, also across the solder (BLK)

LEFT-HAND DOOR MIRROR ADJUSTMENT NOT WORKING	TEST G

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
G1 CHECK VOLTAGE – With ignition key engaged, select lever group for left-hand door mirror , actuate the switch and verify 12 V between pins 2 and 3 and between pins 2 and 4 of motor group **P8**	OK ➡ OK ➡	Replace motor group **P8** in left-hand door mirror Carry out **step G2**
G2 CHECK VOLTAGE – With ignition key engaged, select lever group for left-hand door mirror , actuate the switch and verify 12 V between pins 3 and L of switch **B36**	OK ➡ OK ➡	Replace double switch **B36** Restore wiring between: • pin 3 of **B36** and pin 2 of **P8**, across pin A2 of connector **G59b** (LTB-RED) • one of the pins L of **B36** and pin 3 of **P8** (GRY-RED) • the other pin L of **B36** and pin 4 of **P8** (YEL-RED)

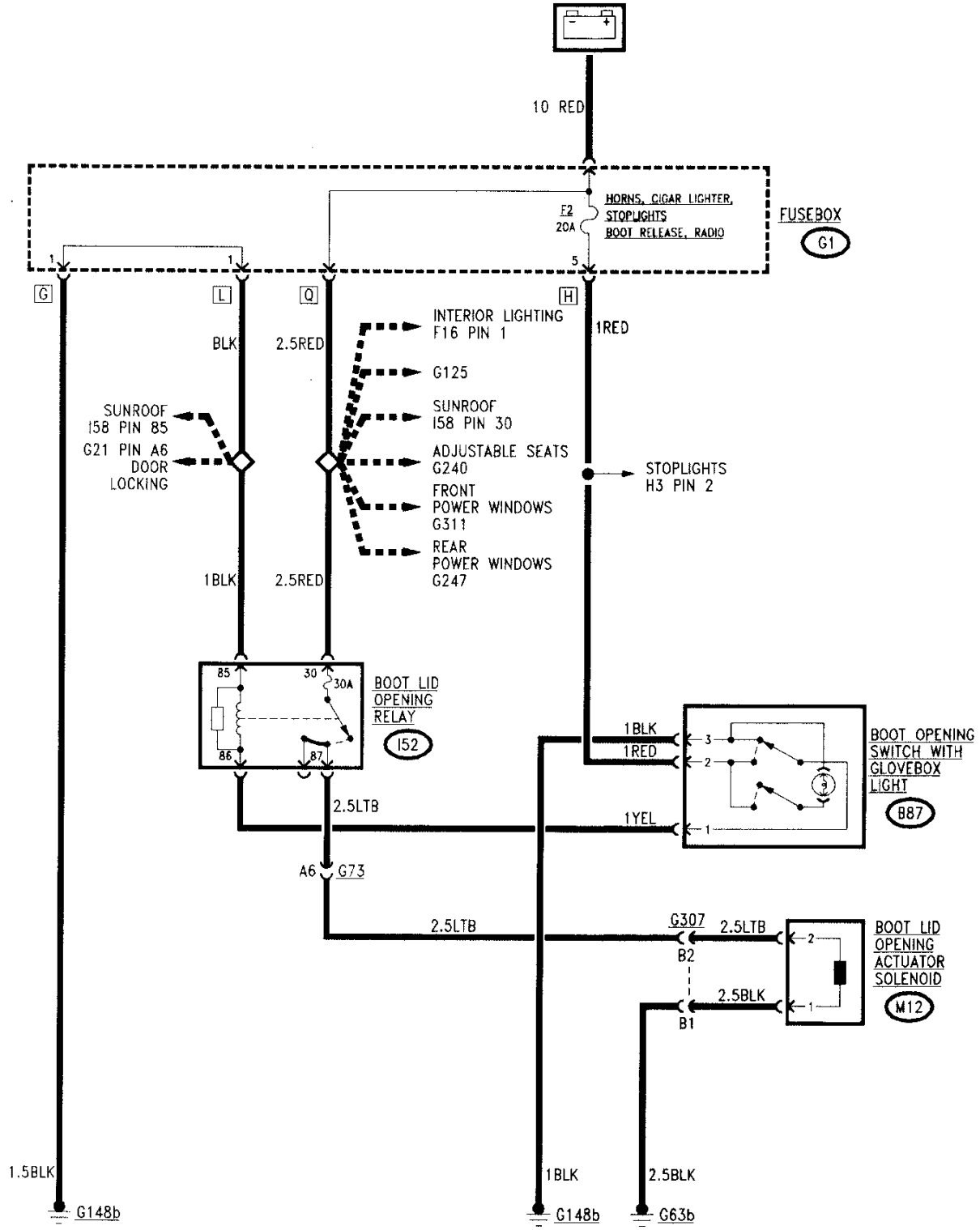
RIGHT-HAND DOOR MIRROR ADJUSTMENT NOT WORKING	TEST H

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
H1 CHECK VOLTAGE – With ignition key engaged, select lever group for right-hand door mirror, actuate the switch and verify 12 V between pins 2 and 3 and between pins 2 and 4 of motor group **P9**	OK ➡	Replace motor group **P9** in right-hand door mirror
	~~OK~~ ➡	Carry out **step H2**
H2 CHECK VOLTAGE – With ignition key engaged, select lever group for right-hand door mirror, actuate the switch and verify 12 V between pins 3 and R of switch **B36**	OK ➡	Replace double switch **B36**
	~~OK~~ ➡	Restore wiring between: • pin 3 of **B36** and pin 2 of **P9**, across pin A2 of connector **G59b** (LTB-RED) • one of the pins R of **B36** and pin 3 of **P9**, across pin A3 of connector **G59b** (GRY and GRY-RED) • the other pin R of **B36** and pin 4 of **P9**, across pin A4 of connector **G59b** (YEL and YEL-RED)

BOOT RELEASE CONTROL

INDEX

WIRING DIAGRAM



GENERAL DESCRIPTION

The boot lid can be opened either from outside the vehicle by inserting the key into the rear lock, or from inside the vehicle by an electric control.
For safety reasons the switch which controls the opening of the boot lid lock through a solenoid, is located inside the glovebox on the dashboard.
When the glovebox is opened a light automatically comes on which illuminates it and enables the switch to be easily located.

FUNCTIONAL DESCRIPTION

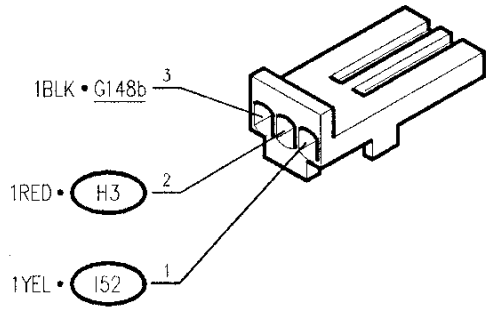
The boot lid opening relay **I52** controls the system.
The relay is powered directly by the battery throught the circuits of fusebox **G1**. The coil is grounded on one side and is excited by a positive signal originating from the boot opening switch **B87**. The battery voltage, after passing fuse **F2** (20A) of **G1** is transmitted on closure of the contact of switch **B87**, to the coil of relay **I52**.
The relay, protected by a fuse (30A) sends voltage to the boot lid opening actuator solenoid **M12** which opens the lock.
Another contact of switch **B87** closes automatically when the glovebox is opened and illuminates the glovebox light incorporated in switch **B87** using the same supply routed through fuse **F2**.

TROUBLESHOOTING TABLE

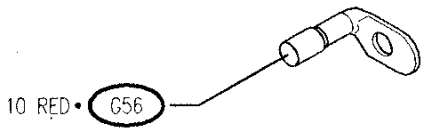
Malfunction	Component				Test
	F2	I52	M12	B87	
Boot opening device not working	•	•	•	•	A
Glovebox lamp not working	•			•	B

COMPONENTS AND CONNECTORS

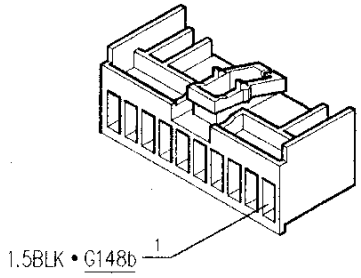
Boot opening switch with glovebox light	B87



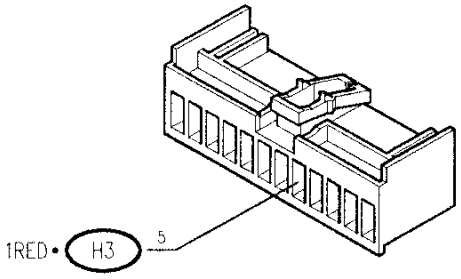
Fusebox	G1



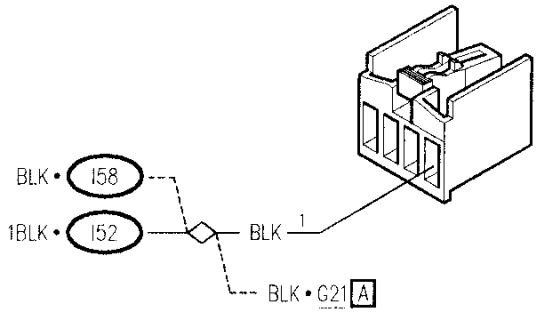
	G1 G



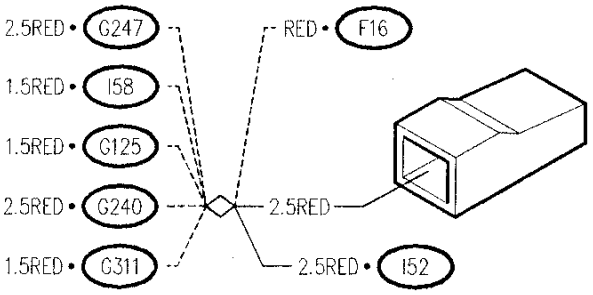
Fusebox	G1 H



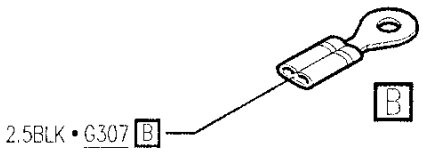
Fusebox	G1 L



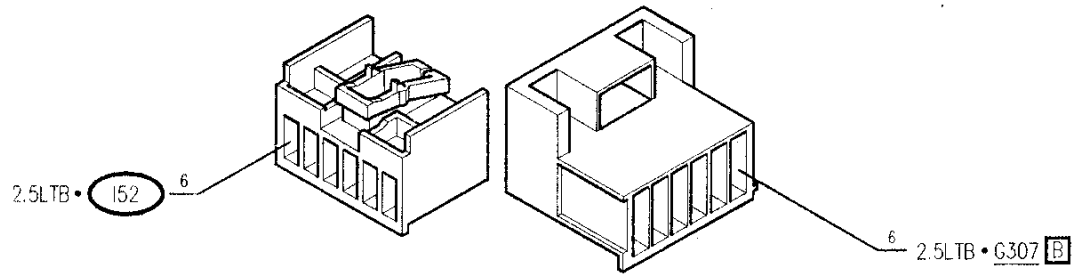
Fusebox	G1 Q



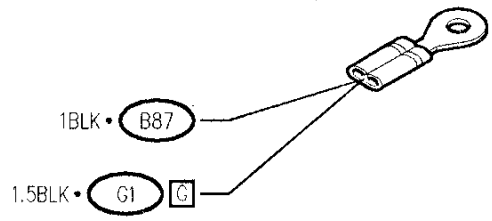
Rear left ground	G63b



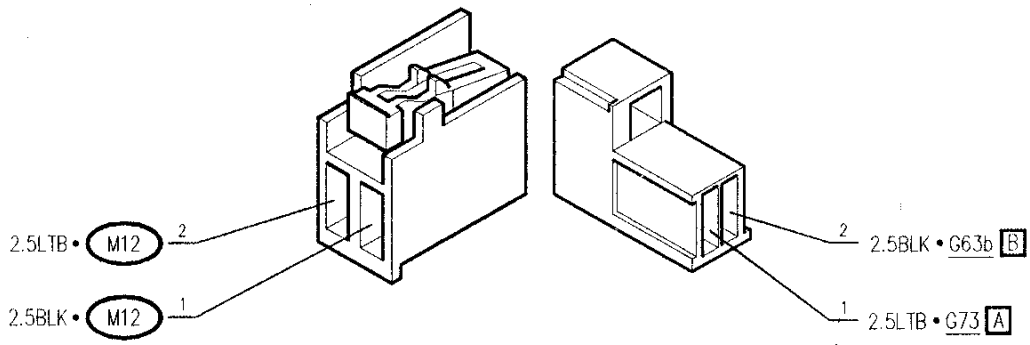
Connector for rear services	G73 A



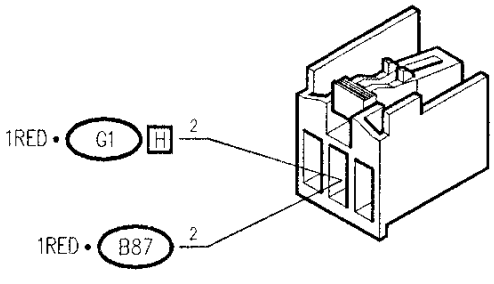
Under-dashboard ground-left side	G148b

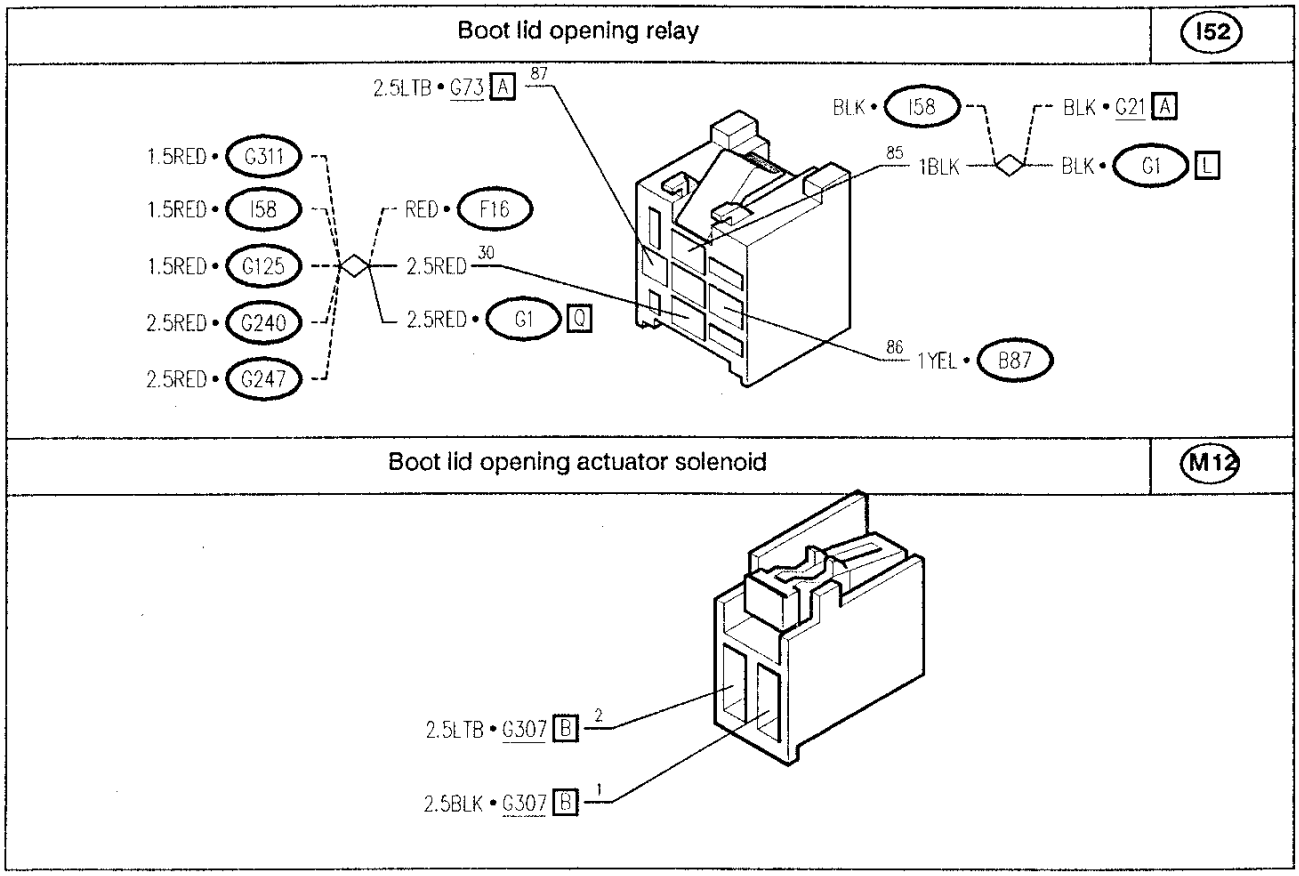


Rear wiring/luggage compartment wiring connection	G307 B

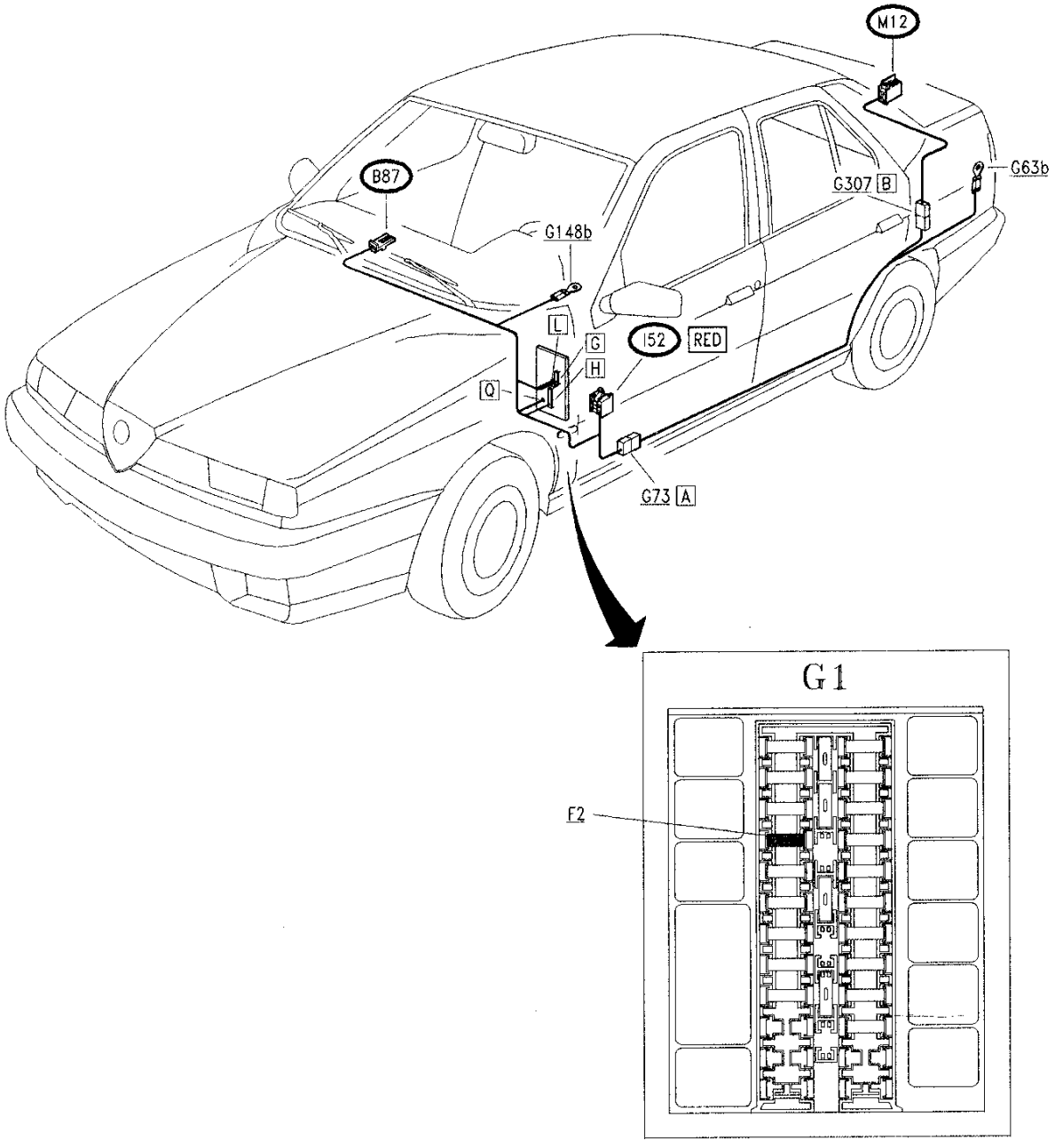


Stop light switch	H3




Boot lid opening relay
I52
2.5LTB • G73 A
87
BLK • I58
BLK • G21 A
85
1BLK
BLK • G1 L
1.5RED • G311
1.5RED • I58
1.5RED • G125
2.5RED • G240
2.5RED • G247
RED • F16
2.5RED
30
2.5RED • G1 Q
86
1YEL • B87
Boot lid opening actuator solenoid
M12
2.5LTB • G307 B
2
2.5BLK • G307 B
1

LOCATION OF COMPONENTS



TROUBLESHOOTING

BOOT LID OPENING DEVICE NOT WORKING	TEST A

NOTE: if the glovebox light is not working, also carry out **test B**

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A1 CHECK FUSE – Check for damage of fuse **F2** in fusebox **G1**	OK →	Carry out **step A2**
	~~OK~~ →	Replace fuse (20A)
A2 CHECK RELAY – Check correct functioning of boot lid opening relay **I52**, and relative fuse	OK →	Carry out **step A3**
	~~OK~~ →	Replace relay **I52** or fuse (30A)
A3 CHECK VOLTAGE – Verify 12V between pins 1 and 2 of solenoid **M12**	OK →	Check functioning, and if necessary replace the solenoid **M12**
	~~OK~~ →	Carry out **step A4**
A4 CHECK GROUND – Check that pin 1 of **M12** is grounded (0V)	OK →	Carry out **step A5**
	~~OK~~ →	Restore wiring between pin 1 of **M12** and ground **G63b**, through pin B1 of the connector **G307** (BLK)

(continues)

BOOT LID OPENING DEVICE NOT WORKING	TEST A

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
A5 CHECK VOLTAGE – Verify 12V at pin 2 of switch **B87**	OK ➡ ~~OK~~ ➡	Carry out **step A6** Restore wiring between pin 2 of **B87** and pin H5 of **G1**, through pin 2 of switch **H3** (RED) **N.B.** If the stop lights are also not working (see "Stop Lights").
A6 CHECK VOLTAGE – Actuating the boot release switch, verify 12V at pin 1 of switch **B87**	OK ➡ ~~OK~~ ➡	Carry out **step A7** Check functioning and if necessary replace switch **B87**
A7 CHECK VOLTAGE – Actuating the boot release switch, verify 12V at pin 86 of relay **I52**	OK ➡ ~~OK~~ ➡	Carry out **step A8** Restore wiring between pin 86 of **I52** and pin 1 of switch **B87** (YEL)
A8 CHECK GROUND – Check that pin 85 of **I52** is grounded (0V)	OK ➡ ~~OK~~ ➡	Carry out **step A9** Restore wiring between pin 85 of **I52** and pin L1 of **G1**, if necessary, also by soldering (BLK)

(continues)

BOOT LID OPENING DEVICE NOT WORKING	TEST A

TEST PROCEDURE		RESULT	CORRECTIVE ACTION
A9	CHECK VOLTAGE		
– Verify 12V at pin 30 of relay **I52**		OK ➡	Restore wiring between pin 87 of **I52** and pin 2 of **M12**, through pin A6 of connector **G73** and pin B2 of connector **G307** (LTB)
		OK ➡	Restore wiring between pin 30 of **I52** and pin Q of **G1**, if necessary, also by soldering (RED)

INTERNAL LIGHT IS NOT ILLUMINATED WHEN GLOVEBOX IS OPENED	TEST B

TEST PROCEDURE	RESULT	CORRECTIVE ACTION
B1 CHECK FUSE – Check for damage of fuse **F2** in fusebox **G1**	OK ➡	Carry out **step B2**
	OK ➡	Replace fuse (20A)
B2 CHECK VOLTAGE – With glovebox open, verify 12V between pins 2 and 3 of switch **B87**	OK ➡	Carry out **step B3**
	OK ➡	Carry out **step B4**
B3 CHECK BULB – Check for damage of glove box light bulb, inserted in switch **B87**	OK ➡	Replace complete switch **B87**
	OK ➡	Replace bulb
B4 CHECK VOLTAGE – Verify 12V at pin 2 of switch **B87**	OK ➡	Restore wiring between pins 3 of **B87** and ground **G148b** (BLK)
	OK ➡	Restore wiring between pin 2 of **B87** and pin H5 of **G1**, through pin 2 of switch **H3** (RED) **N.B.** If the stop lights are also not working (see "Stop Lights")