

## GROUP 40

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To read the electric diagrams related to:

- INJECTION L-JETRONIC ( **\*** **6V iniezione** ) refer to: WORKSHOP MANUAL - Petrol engines - Group 04.
- IGNITION, STARTING, CHARGING SYSTEM **1.6** **1.8** **2.0** **\*** **6V iniezione** refer to: WORKSHOP MANUAL - Petrol engines - Group 05.
- STARTING, CHARGING SYSTEM **2.0** **turbodiesel** refer to: WORKSHOP MANUAL **turbodiesel** **2.0** (intercooler) - Group 05.

N.B. Updating of wiring diagrams relating to model **2.5** are not available at the time when going to press.

## STANDARDS AND PRECAUTIONS FOR OPERATIONS ON ELECTRICAL SYSTEM

The electronic control units installed on the vehicle are built with components capable of withstanding the electrical loads of the system to which they belong. Consequently every system modification may directly damage the control units. For example, the control unit may supply the relay coil, but it

certainly cannot directly supply the electrical loads connected to the relay's contact. Great care must also be taken over the electrical power supply polarities, in that the control unit protection is included in the power supply system and not on the input and output connections. When installing electrical accessories

on the car, it is always advisable to disconnect the electrical control units during installation and to carry out the functional checks on the accessories with the control units disconnected. In any case, it is highly inadvisable to connect from the control units wiring.

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The following precautions must therefore be taken:

- Do not connect the control unit output directly to the load.
  - Under no circumstances operate directly on devices with wires connected to "positive" or to "ground", without having previously disconnected the control unit.
  - Do not short-circuit the system sensors, except when this is allowed or specified in the "Workshop Manual".
- 

The possible consequences of operating on the systems must always be anticipated to avoid the

risk of damage. Whenever not all the technical data of the components concerned is perfectly known,

operations should be avoided altogether.

# HOW TO READ THE WIRING DIAGRAM

## WARNING:

Before starting the operations, make sure that the ignition key is in the "ST" position, and the battery ground cable disconnected. At the end of operations, and after having reconnected the battery, proceed to initialize the Trip Computer, where present (refer to: Group 43 - Electronic Devices - Trip Computer).

For detection of failures present in the electric circuits, the following types of diagrams are available.

## POWER SUPPLY DISTRIBUTION

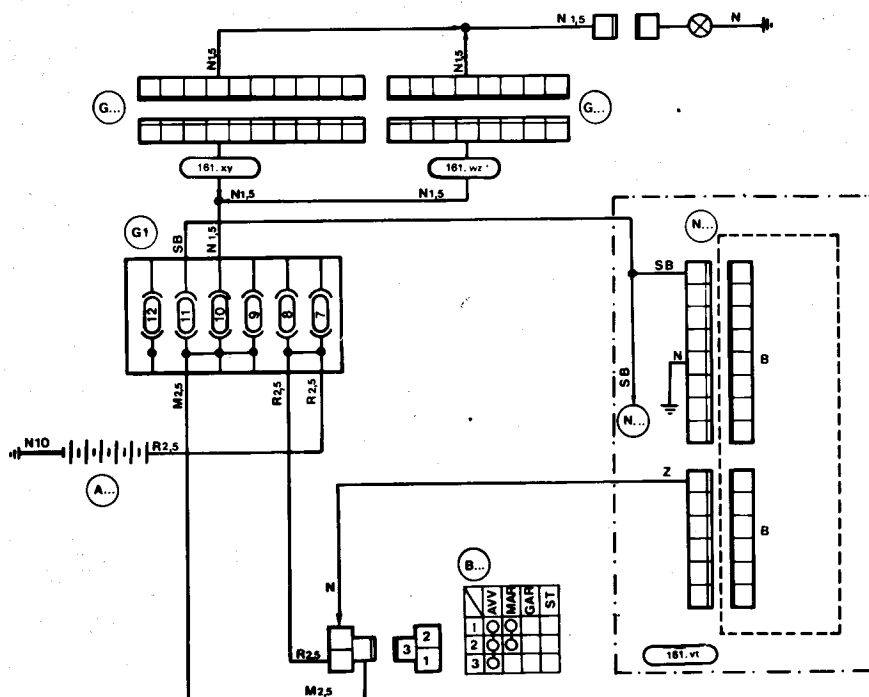
This type of diagram is helpful in the identification of specific troubles related to the part of electric diagrams concerning supply; e.g.: the windscreen wiper fails to operate. A first check shows that the instrument supply is efficient.

From the distribution diagram, it can be noted that the supply of both instrument and windscreen wiper are realized via ignition switch and fusebox. The result is then that the ignition switch operates correctly and no failure is present along the wiring between battery and switch itself. The failure must then be due either to fusebox (see: Fuses - Services protected by Fuses) or to the following parts of the electric system, that is, in the wiring, in the windscreen wiper or in the ground connection. For the fault identification, refer then to the windscreen wiper wiring diagram.

## WIRING DIAGRAM

For each load, the diagram allows the following to be identified: the type and number of connectors, the components, the terminal positions inside the connectors, color coding of wires, and connector codes. Besides, for those cases where the different car versions involve variations of the electric diagram the wiring diagram sets in evidence each variation by properly dividing the part of the circuit concerned.

## SYMBOLS



## COMPONENTS IDENTIFICATION

In the wiring diagrams, each component is identified by a reference designation composed of a letter and a number (e.g. E7). The letter identifies the component type, according to the following symbols:

- A Start - recharge
- B Manual electric controls
- C Board instruments
- D Lamp indicators
- E Outside lights
- F Inside lights
- G Fusebox - connector - grounds
- H Switches
- I Relays
- L Transmitters
- M Electromagnets - solenoid valves
- N Electronic devices - intermittences - timers
- O Ancillary equipment
- P Motors
- Q Air ventilation - conditioning
- R Safety devices
- S Electronic injection

The reference designation can be followed by a capital or small letter:

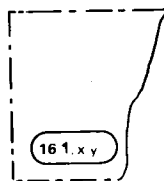
- the capital letter (i.e. <sup>G95</sup>Q) identifies only the fuse box connectors
- the small letter (i.e. <sup>G46</sup>a) identifies the connectors having same reference number but different functions.

To identify each component, refer to "Key to Wiring Diagrams".

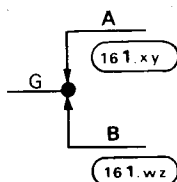
### Variations

Each wiring diagram is applicable for several models of the **Alfa 75** range. Any variation between each model, is emphasized by the following symbols:

- the chain line, on wiring diagram, delimits those areas containing the specific variations for the models indicated with "161.xy".



- the connection identifies two wiring variations, which are present in alternative and connected to the same point. The wiring variations refer to the models indicated with the symbols "161.xy" and "161.wz" respectively.



The models of the **Alfa 75** range are identified through the following table:

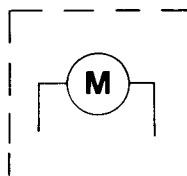
161.00 (*)	<b>Alfa 75</b>	<b>1.6</b>	lhd
161.01	<b>Alfa 75</b>	<b>1.6</b>	rhd
161.02	<b>Alfa 75</b>	<b>1.8</b>	lhd
161.03	<b>Alfa 75</b>	<b>1.8</b>	rhd
162.08	<b>Alfa 75</b>	<b>2.0</b>	lhd
162.09	<b>Alfa 75</b>	<b>2.0</b>	rhd
161.04	<b>Alfa 75</b>	<b>2.0</b>	turbodiesel
161.18	<b>Alfa 75</b>	<b>6V iniezione</b>	lhd
161.19	<b>Alfa 75</b>	<b>6V iniezione</b>	rhd

(\*) The wiring diagrams related to model **1.6** lhd are the same as those related to model **1.8** lhd.

Therefore, unless specific indications, they will be identified, for both models, with the single number **161.02**, related to the greater displacement model

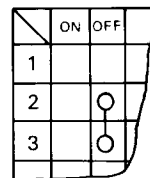
### Optionals

The components mounted upon request are enclosed by a short dashes line.



## Switches

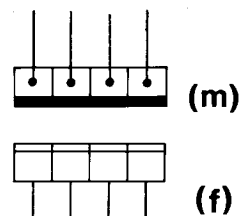
They are shown through a table. The table simulates the switch and shows, in the horizontal plane, the positions of the control or switch to be operated and, in the vertical plane, the terminals between which the continuity is generated.



In the example below, the continuity is present between terminals 2 and 3, with the control set to position ON.

## Connectors

The figure shows the type of diagram used to identify the two connectors related to each junction: for the male connector diagram (m) is applicable, for the female connector, diagram (f) is applicable.



## Cables

The indication referring to both colour and section of cables, is provided in proximity to the end of each cable.

### a. Cable colours

- A Light blue
- AB Light blue - white
- AG Light blue - yellow
- AN Light blue - black
- AR Light blue - red
- B White

## ELECTRICAL SYSTEM

**BN** White black  
**BR** White red  
**BL** Blue  
**BLN** Blue black  
**BLR** Blue red  
**Br** Dark brown  
**C** Orange  
**CB** Orange white  
**CN** Orange black  
**G** Yellow  
**GB** Yellow white  
**GN** Yellow black  
**GR** Yellow red  
**GV** Yellow green  
**H** Grey  
**HG** Grey yellow  
**HN** Grey black  
**HR** Grey red  
**HV** Grey green  
**M** Brown

**MB** Brown white  
**MG** Brown yellow  
**N** Black  
**NZ** Black purple  
**No** Hazel brown  
**R** Red  
**RN** Red black  
**S** Pink  
**SB** Pink white  
**SN** Pink black  
**V** Green  
**VB** Green white  
**VN** Green black  
**Z** Purple  
**ZB** Purple white  
**ZN** Purple black

In the event of mixed colour, the base colour is indicated first, followed by the stripe colour.  
Ex.: BN = White with Black stripes.

### b. Cables section

The number following the cable colour indication, identifies the section in mm<sup>2</sup>.

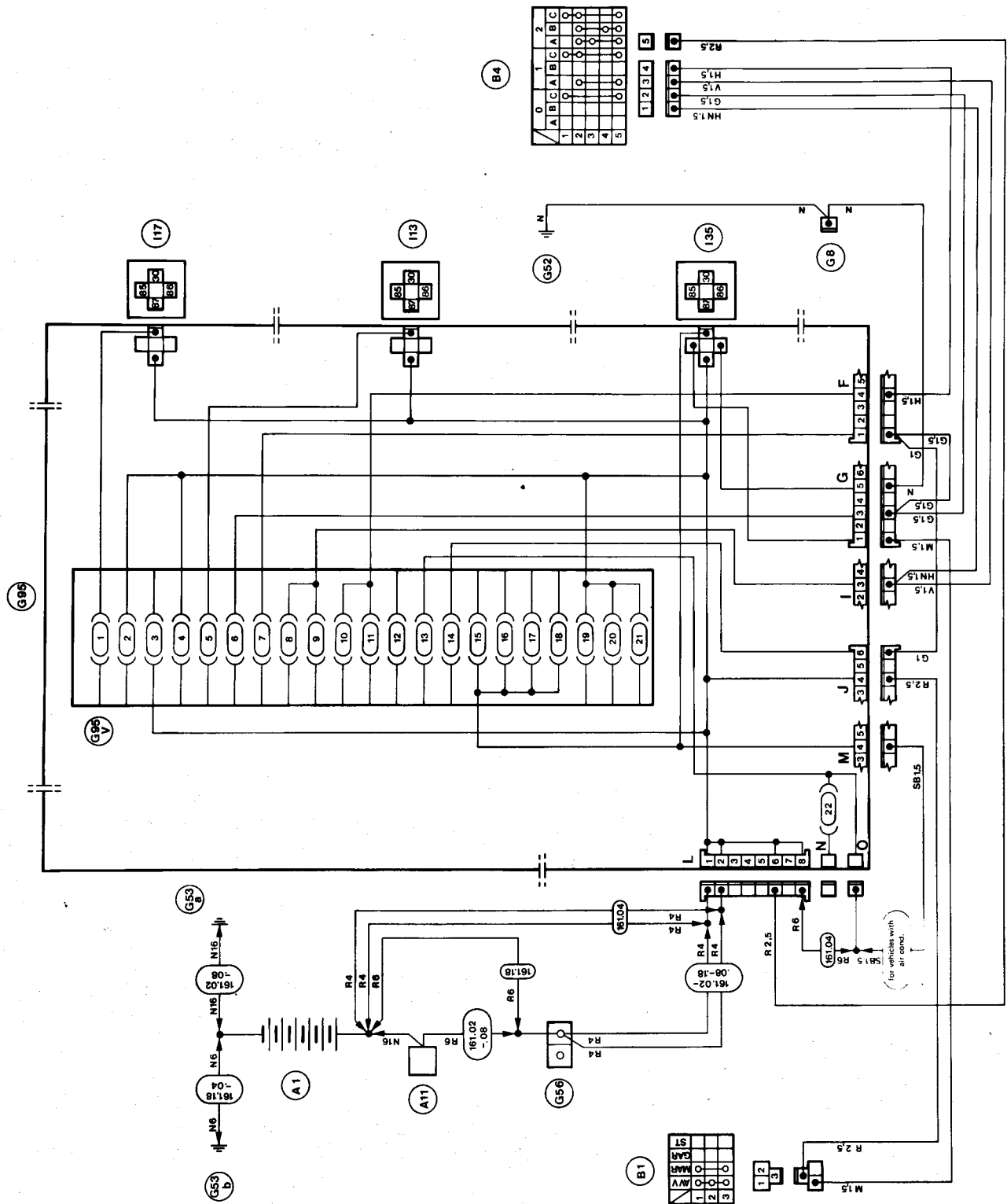
#### Note

The cable section not indicated, is 0.5 mm<sup>2</sup> (0.00078 in<sup>2</sup>).

E.g. **BN 1.5** = white cable with black stripes, having 1.5 mm<sup>2</sup> (0.00234 in<sup>2</sup>) section.

# POWER SUPPLY DISTRIBUTION

## POWER SUPPLY DISTRIBUTION DIAGRAM



## FUSES

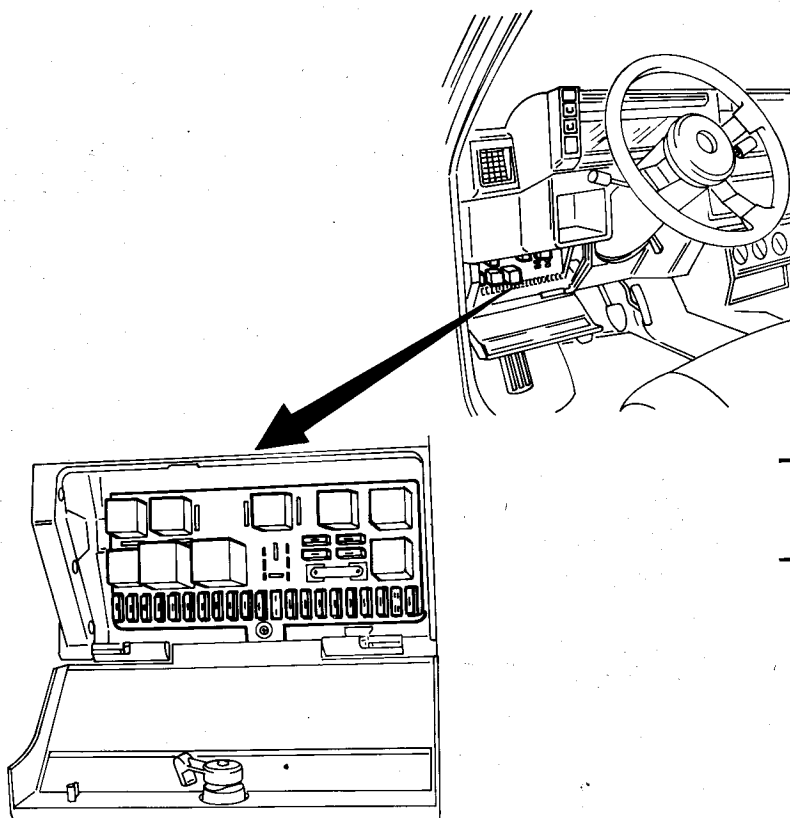
### CAUTION:

- Should a fuse blow, before replacing it, make sure that the cause of failure has been removed.
- Use only fuses having same amperage. Do never use fuses having amperage greater than that prescribed.
- Insert the fuse correctly into its housing.

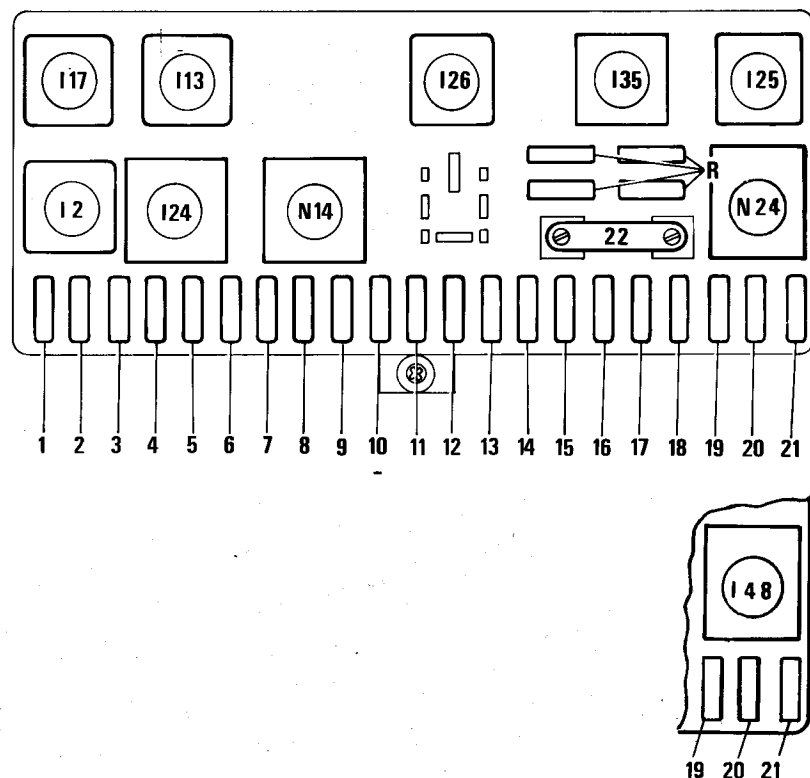
### LOCATION

The fuses are arranged on the central fusebox, located in the special drawer of dashboard, on the left of the steering wheel column. In a few models, free fuses are inserted in the electric system for particular loads. Their location and the protected services, are described in the chapters related to the specific loads.

On the fusebox, four housings have been obtained for the spare fuses.



### SERVICES PROTECTED BY FUSES



R: Spare fuses


- 12 Heated rear screen relay
- 113 Rear power window relay
- 117 Foglight relay
- 124 Side/Hazard lights relay
- 125 Rear fog light relay
- 126 Roof lamp relay
- 135 Key operated supply relay
- 148 Ignition switch-operated relay for ALFA ROMEO Control and instruments
- N14 Windscreen wiper intermittence
- N24 Pulse converter for Trip Computer models: 6V iniezione

For models 75 only

# ELECTRICAL SYSTEM

The following table specifies, for each model, the services which are protected by each fuse.

**Table "Fuses"**

Fuse Number	Service Protected	Ampere	Model								
			1.6		1.8		2.0		2.0	6V 	
			LHD	RHD	LHD	RHD	LHD	RHD	T.D.	LHD	RHD
1	Fog light	15	○	○	○	○	○	○	○	○	○
2	Door lock	25 (△) 10 (▲)	X	X	X	X	X	X	X	X	X
3	Heated rear window	20	X	X	X	X	X	X	X	X	X
4	Headlight washer	20	●	●	●	●	●	●	●	●	●
5	Rear power window	25	●	●	●	●	X	X	●	●	●
6	Front left and rear right side lights	7,5	X	X	X	X	X	X	X	X	X
7	Front right and rear left side lights	7,5	X	X	X	X	X	X	X	X	X
8	Left full beam	7,5	X	X	X	X	X	X	X	X	X
9	Right full beam	7,5	X	X	X	X	X	X	X	X	X
10	Right low beam	10	X	X	X	X	X	X	X	X	X
11	Left low beam	7,5	X	X	X	X	X	X	X	X	X
12	ALFA ROMEO Control Ignition switch-operated relay I48	10	X	X	X	X	X	X	X	X	X
13 (*)	Electric fuel pump	7,5 (△) 15 (▲)	(1)	(1)	(1)	(1)	(1)	(1)	X	X	X
14	Instruments lighting	7,5	X	X	X	X	X	X	X	X	X
15	+ 15 V switches	15	X	X	X	X	X	X	X	X	X
	Cluster lighting		X	X	X	X	X	X	X	X	X
	Clock		X	X	X	X	—	—	X	X	X
	Trip computer		—	—	—	—	X	X	—	●	●
	Windscreen wash/wipe		X	X	X	X	X	X	X	X	X
16	Heater	20	X	X	X	X	X	X	X	X	X
17	Reverse light switch + 15 V roof switches Rear cigar lighter Sun roof (**)	15	X	X	X	X	X	X	X	X	X

○ Available as spare part

● Optional


X Standard

T.D. 

(\*) Except for 

(\*\*) For  only

(△) For models  only

(▲) For models  only

(1) Only for vehicles with air-conditioner

# ELECTRICAL SYSTEM

Table "Fuses" (continued)

Fuse Number	Service Protected	Ampere	Model								
			16		18		20		20	6V	
			LHD	RHD	LHD	RHD	LHD	RHD	T.D.	LHD	RHD
18	Front power windows	25	X	X	X	X	X	X	X	X	X
19	Passenger compartment roof lamp	15	X	X	X	X	X	X	X	X	X
	passenger compartment spot light		X	X	X	X	X	X	X	X	X
	Clock - Fusebox lamp		○	○	○	○	○	○	○	○	○
	Car radio - electric aerial		X	X	X	X	X	X	X	X	X
20 (*)	+ 30 V possible service	15 (△)									
		20 (▲)									
21	Stop lights	15	X	X	X	X	X	X	X	X	X
	Front cigar lighter		X	X	X	X	X	X	X	X	X
22	Pre - heating glow plugs	50	-	-	-	-	-	-	X	-	-
			75 6V 3.0								
			LHD				RHD				
13	+ 15 V coil of multi-function relay for electronic injection unit	15	X				X				
20	Electronic injection control unit + 30 V Fuel pump Rear window wiper	20	X				X				

(\*) Except for 75 6V 3.0

○ Available as spare part

● Optional

X Standard

T.D. turbodiesel

(△) For models Alfa 75 only

(▲) For models 75 only

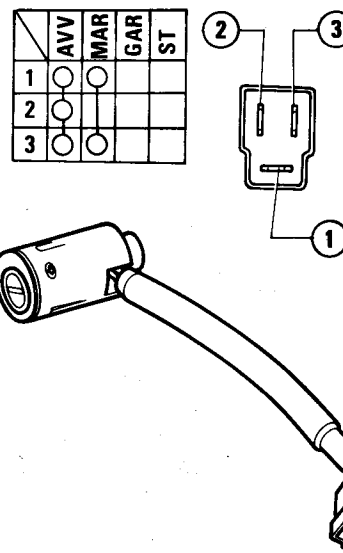
## IGNITION SWITCH

### REMOVAL AND INSTALLATION

For removing and installing the ignition switch unit refer to: **WORKSHOP MANUAL - mechanical units - Group 23 - Steering Wheel and Column.**

### CHECK

Check the ignition switch functioning verifying that the electric continuity between terminals occurs in compliance with the indications shown in the Table.



# ELECTROMECHANIC DEVICES AND INTERMITTENCES

## RELAYS

### LOCATION

The relays are positioned as follows:

- on the central fusebox
- on the boards housed in the front right-hand and left-hand corners of engine compartment.

For locating each device, refer to the following figure, with the aid of table "Relays".

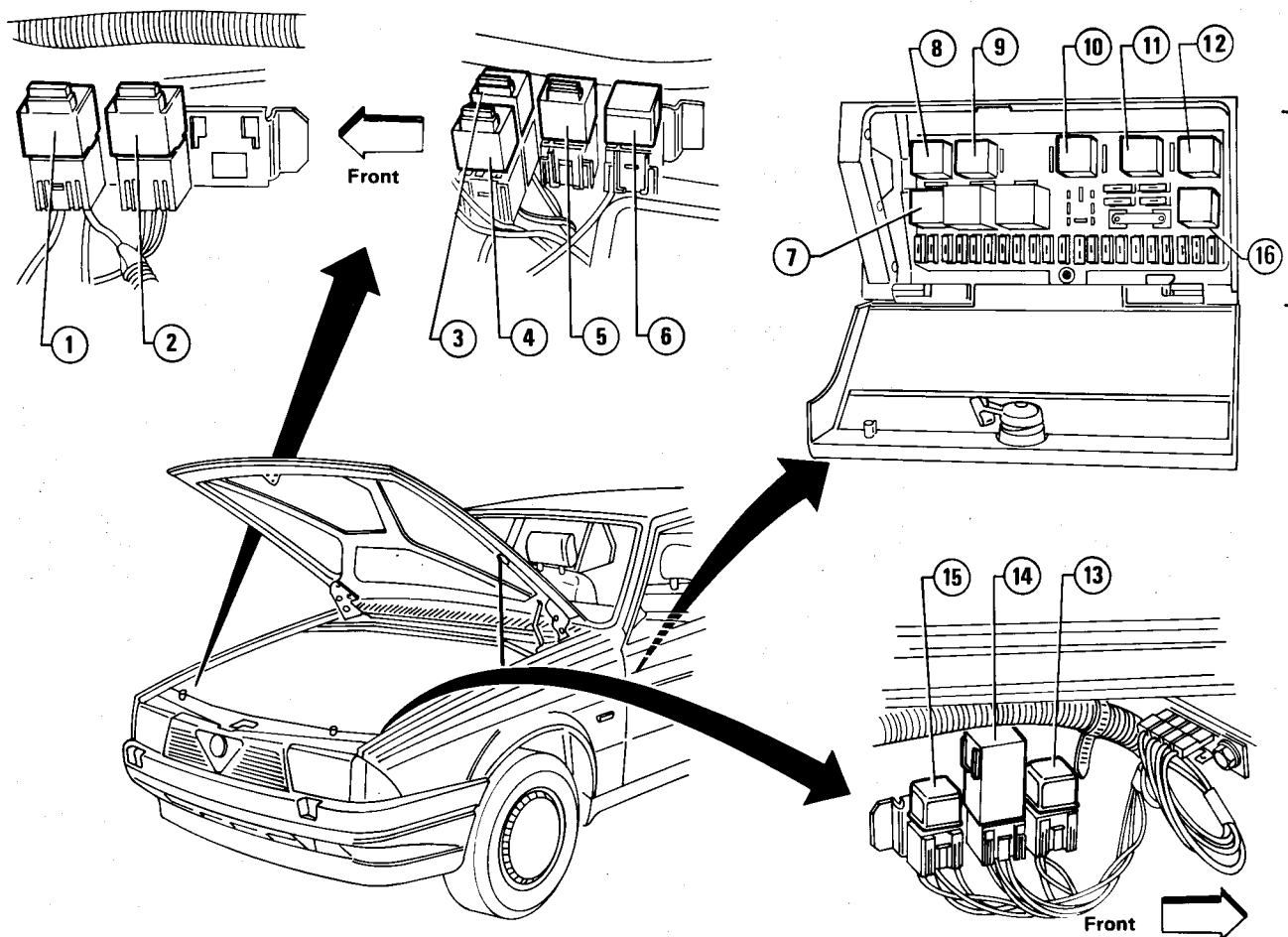
### CHECK

Verify that relays are in conformity with the type shown in table "Relays".

### Location

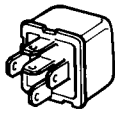
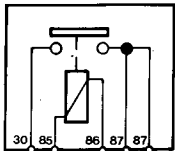
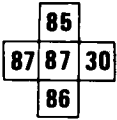

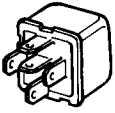
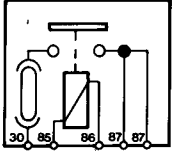
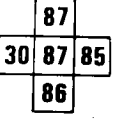

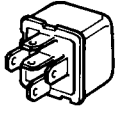
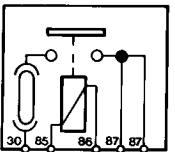
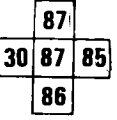
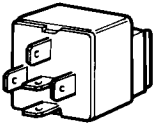
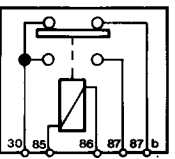
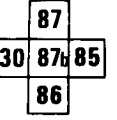
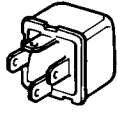
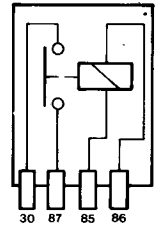
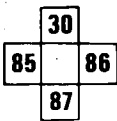
1.6 1.8 2.0 6V iniezione

2.0 turbodiesel



# ELECTRICAL SYSTEM

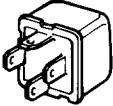
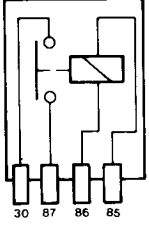
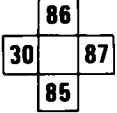

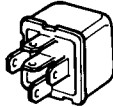
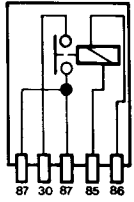
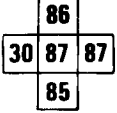
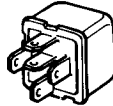
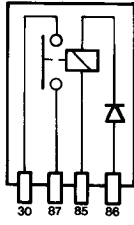
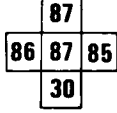
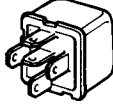
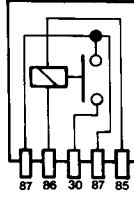
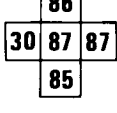

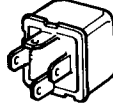
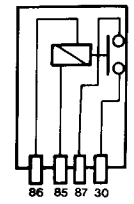
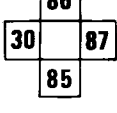
**Table "Relays"**

Component			Vehicle	External view	Internal diagram	Symbols
Name	Ref Des.	Posit.				
Horns relay	I 3	13	All vehicles			
Engine cooling fan relay	I 1	1	<b>16</b> <b>18</b> <b>20</b>  <b>6V iniezione</b>		 NOTE: a 30 A fuse is used	
		3	<b>20</b> <b>turbodiesel</b>			
Relay for compressor electromagnetic coupling (vehicles with air conditioner)	Q 17	2	<b>16</b> <b>18</b> <b>20</b>  <b>6V iniezione</b>		 NOTE: a 10 A fuse is used	
		4	<b>20</b> <b>turbodiesel</b>			
Supplementary engine cooling fan relay	I 23	5	<b>20</b> <b>turbodiesel</b>			
Key - operated supply relay (1) NOTE: the relay serves to control the following: — cluster warning lamps — A.R. Control — Window wipers — Power window motor	I 35	11	All models			

(1) The engine starts even if the relay is faulty but the services it controls can no longer be activated.

# ELECTRICAL SYSTEM

**Table "Relays" (continued)**

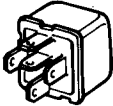
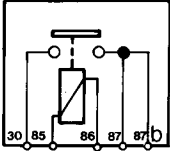
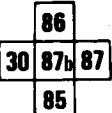
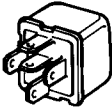
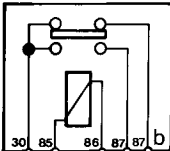
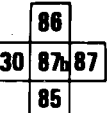
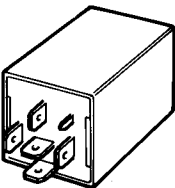
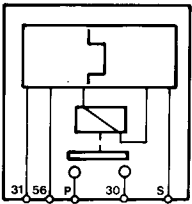
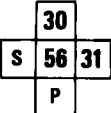
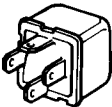
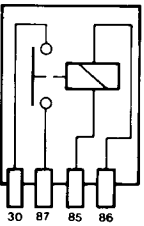
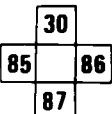
Component			Vehicle	External view	Internal diagram	Symbols
Name	Ref Des.	Posit.				
Foglight relay	I 17	8	All vehicles			
Rear fog light relay	I 25	12	<b>1.6</b> * <b>1.8</b> * <b>2.0</b> *  <b>6V iniezione</b> * <b>2.0 (turbodiesel)</b> *			
Heated rear screen relay	I 2	7	All vehicles			
Passenger compartment roof lamp relay	I 26	10	All vehicles			
Rear power window relay	I 13	9	<b>1.6</b> ** <b>1.8</b> ** <b>2.0</b> **  <b>6V iniezione</b> <b>2.0 (turbodiesel)</b> **			

\* For Switzerland only

\*\* Optional

# ELECTRICAL SYSTEM

Table "Relays" (continued)

Component			Vehicle	External view	Internal diagram	Symbols
Name	Ref Des.	Posit.				
Starter inhibitor relay	I 10	6	20 <b>turbodiesel</b>			
Brake liquid level switch relay	I 14	15	20 <b>6V iniezione</b>			
Headlight wiper timer	N 12	14	All vehicles			
Ignition switch-operated relay for ALFA ROMEO Control and instruments	I 48	16	All vehicles			

## TIMERS AND INTERMITTENCES

### LOCATION

Timers and intermittences are located on the central fusebox. To locate the various devices, refer to

the following figure with the aid of table "Timers and Intermittences".

### CHECK

Verify that timers and intermittences are in accordance with the type shown in table "Timers and Intermittences".

## Location

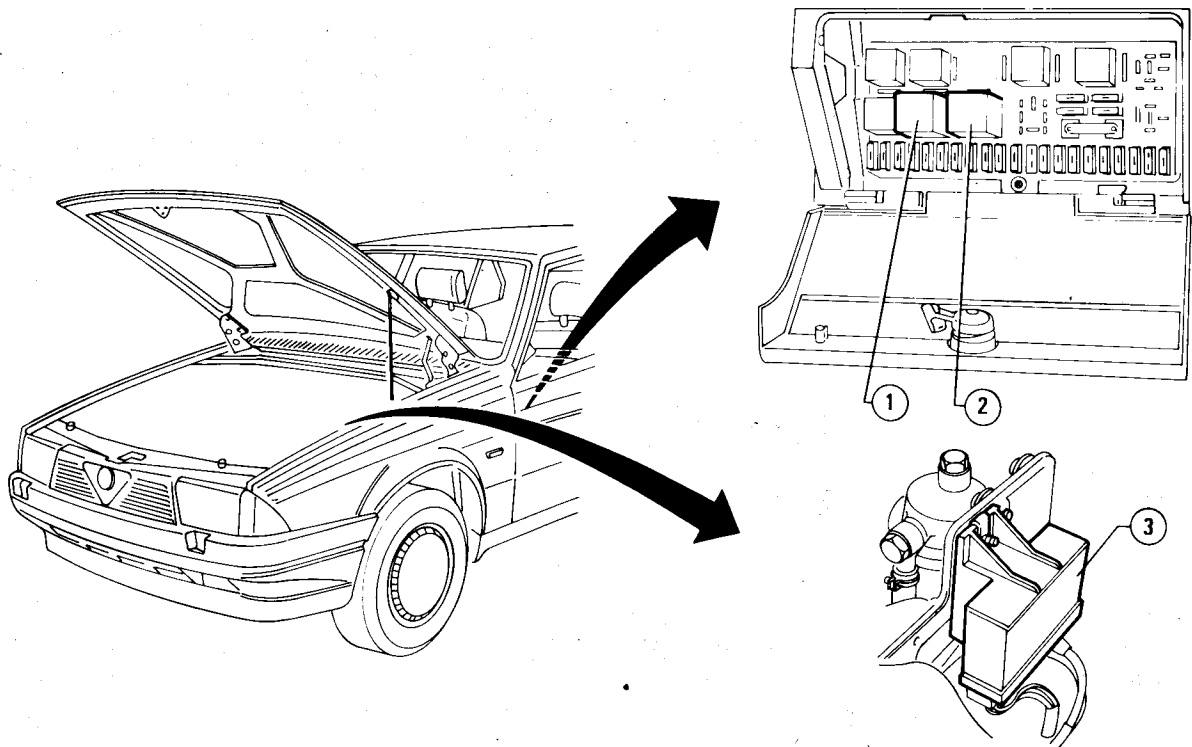
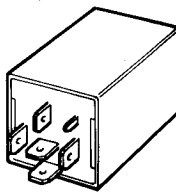
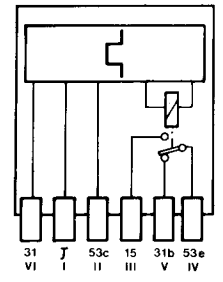
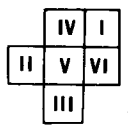
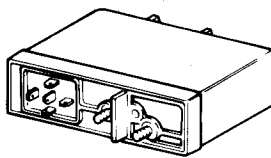
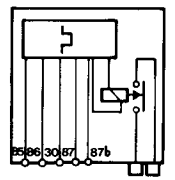
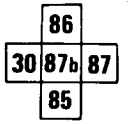
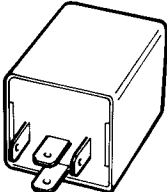
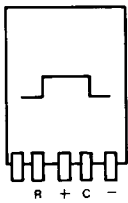
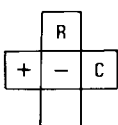


Table "Timers and Intermittences"

Component			Vehicle	External view	Internal diagram	Symbols
Name	Ref Des.	Posit.				
Electronic windscreen wiper intermittence	N 14	2	All vehicles			
Pre - heating glow - plug timer	N 6	3	<b>2.0</b> (turbo diesel)			

## ELECTRICAL SYSTEM

Table "Timers and Intermittences" (continued)

Component			Vehicle	External view	Internal diagram	Symbols
Name	Ref Des.	Posit.				
Side/hazard lights intermittence	I 24	1	All vehicles			

## LIGHTING SYSTEM

### WARNING:

Before starting the operations on the lighting system, make sure that the ignition key is in the "ST" position, and the battery ground cable disconnected.

## LAMPS

### TYPES OF LAMPS

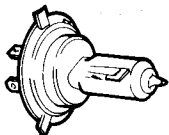
#### CAUTION:

When replacing the lamps, use the original type supplied by ALFA ROMEO.

The lamps used for the vehicle are of five types; remove them by following the below procedure.

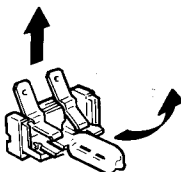
#### 1. Halogen lamp - type A

To remove it from lampholder, detach the connector, remove the retaining spring and withdraw it taking the utmost care to prevent touching it with bare hands.



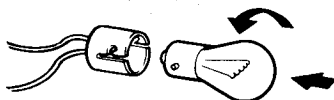
#### 2. Halogen lamp - type A'

It is secured to lampholder by two contact clips and two fixed points. Withdraw it from lampholder by removing the two contact clips and release it from the fixed points. Take the utmost care to prevent touching it with bare hands.



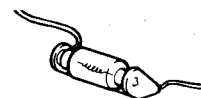
#### 3. Bayonet lamp - type B

To remove it from lampholder, press the bulb, rotate it counterclockwise, then withdraw it.



#### 4. Cylindrical lamp - type C

To remove it from lampholder, release it from the contacts by pulling towards lampholder outside.



#### 5. All-glass lamp - type D

It is pressed in the lampholder, remove it by pulling the bulb towards lampholder outside.



Install the lamps by reversing the order of removal.

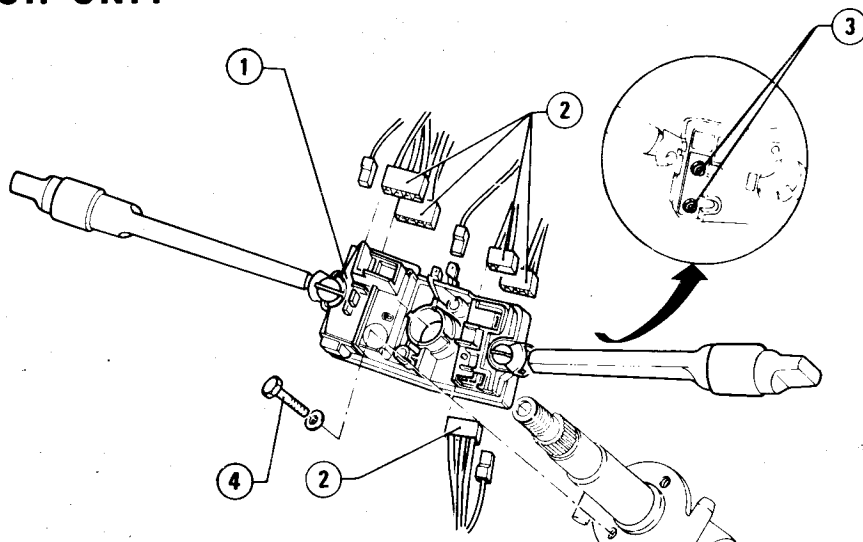
## ELECTRICAL SYSTEM

**Table "Lamps"**

The lamp features (type and electric power absorbed) are listed in the following table.

Lamps	Electric Power (W)	Type
Front combination lamps:		
— Low/full beam (halogen lamp)	55/60	A
— Front sidelight	5/21	D
— Front direction light	21	B
Fog lamp	55	A
Direction side indicator lamp	5	D
Rear combination lamps:		
— Rear direction light	21	B
— Rear sidelight	5	B
— Stop light	21	B
— Rear fog light	21	B
Reverse lamp	21	B
Number plate lamp	21	B
Cluster warning lamps	1.2	D
Cluster lighting lamps	1.2	D
Roof lamps	4	C
Spot lamps	5	D
Cigar lighter lamps	1.2	D
Engine compartment lamp	4	C
Luggage compartment lamp	4	C
ALFA ROMEO Control lighting lamps	1.2	D
Trip Computer lighting lamps	1.2	D

## COMBINATION SWITCH UNIT



- 1 Combination switch
- 2 Connectors
- 3 Nuts
- 4 Screw

## REMOVAL

1. Remove the steering wheel (refer to: **WORKSHOP MANUAL - mechanical units - Group 23 - Steering Wheel and Column**).
2. Unscrew the six securing screws and remove both lower and upper fairing of steering column (refer to: **WORKSHOP MANUAL - mechanical units - Group 23 - Steering Wheel and Column**).
3. With reference to the exploded view, detach connectors (2) of the combination switch unit.
4. Remove the combination switch unit unscrewing the two screws (1) securing it to the steering column. If necessary, disassemble the combination switch and separate the two levers by operating on nuts (3).

Perform the following to ensure the correct automatic return of direction indicators.

- **Lubricate** the release ring in the coupling area with the combination switch using the grease prescribed:

**MASCHERPA - Elettrolube 2G**

- Tighten the nut securing the steering wheel to the prescribed torque.

**(T) : Tightening torque**

Nut securing steering wheel  
 28 to 32 N·m  
 (2.65 to 3.26 kg·m  
 19.16 to 23.57 ft·lb)

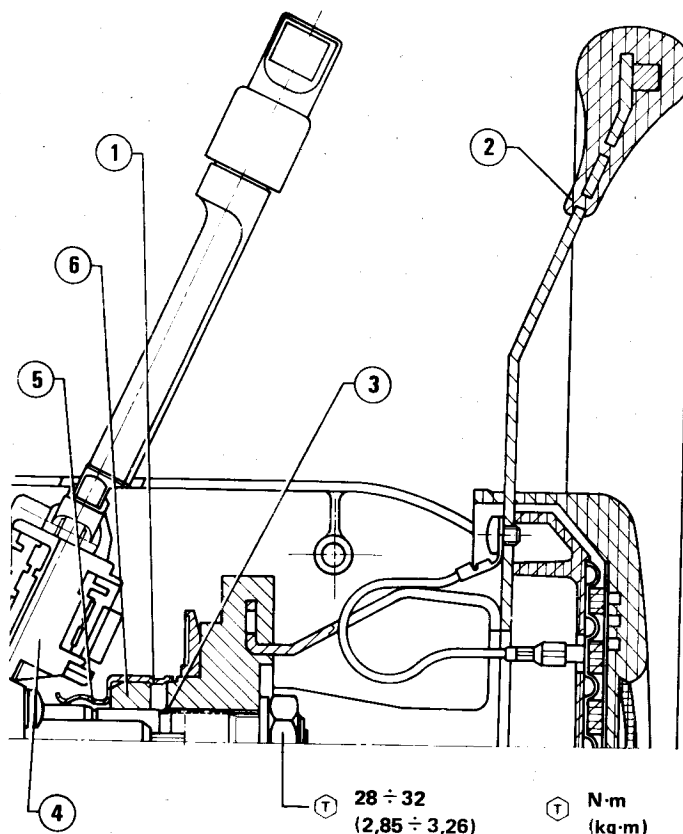
## CHECK

Check for good conditions of wiring. Verify proper functioning of combination switch by checking, with a tester, that continuity between terminals is in compliance with the following tables.

## INSTALLATION

Carry out installation by reversing the order of removal, complying with the following.

- Adjust the drive position of combination switch. To this purpose, secure drive clip on hub aligning clip indentation with seat obtained on the hub.



- 1 Drive clip indentation
- 2 Steering wheel
- 3 Hub seat

- 4 Combination switch
- 5 Drive clip
- 6 Steering wheel hub

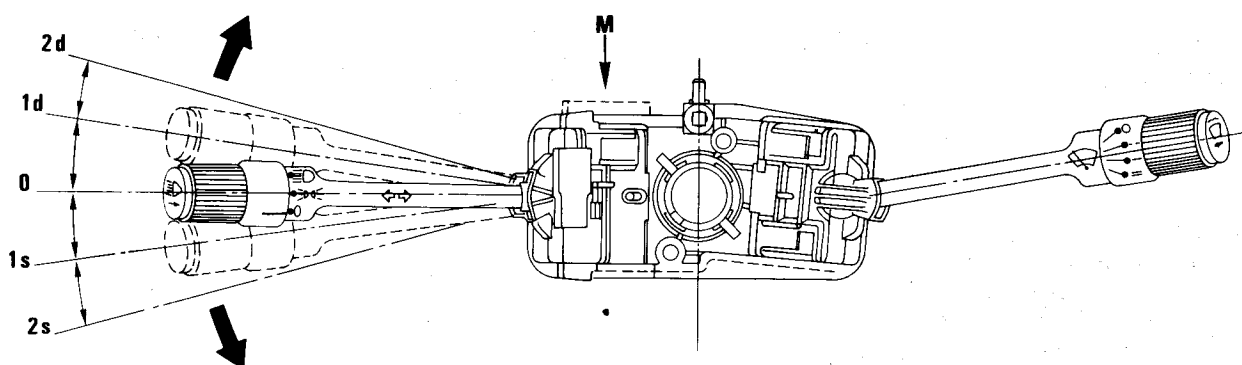
**(T) 28 ÷ 32**  
**(2,85 ÷ 3,26)**

**(T) N·m**  
**(kg·m)**

## ELECTRICAL SYSTEM

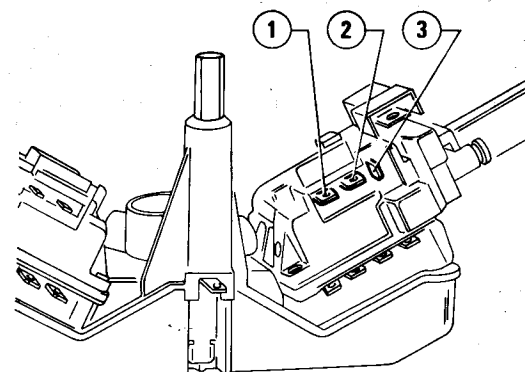
### Direction indicators control

	Control	Position	Service enabled
Left lever	Movement parallel to steering wheel plane	2 d	— right direction fixed indicator with automatic release
		1 d	— right direction indicator for lane changing with automatic release
		0	— zero position
		1 s	— left direction indicator for lane changing with automatic release
		2 s	— left direction fixed indicator with automatic release



	1d	2d	1s	2s
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

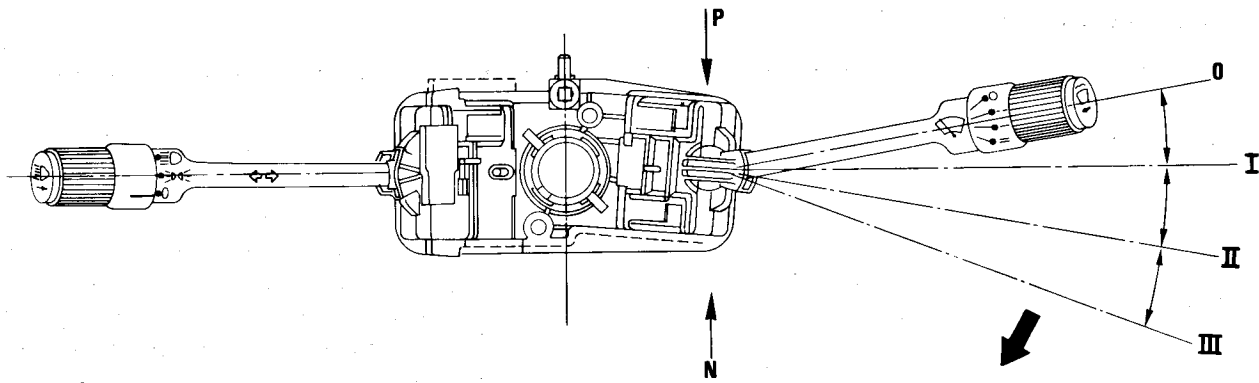
View from M



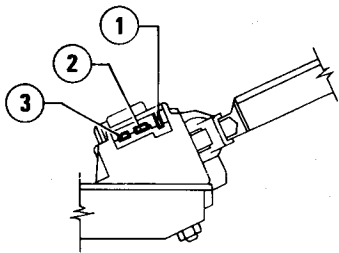
### Windscreen wiper control

	Control	Position	Service enabled
Right lever	Movement parallel to steering wheel plane	0	— zero position (OFF)
		1	— windscreen wiper intermittence (INT)
		2	— windscreen wiper 1st speed (1° V)
		3	— windscreen wiper 2nd speed (2° V)

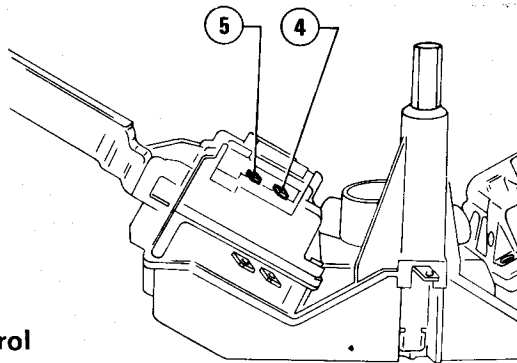
# ELECTRICAL SYSTEM



View from N



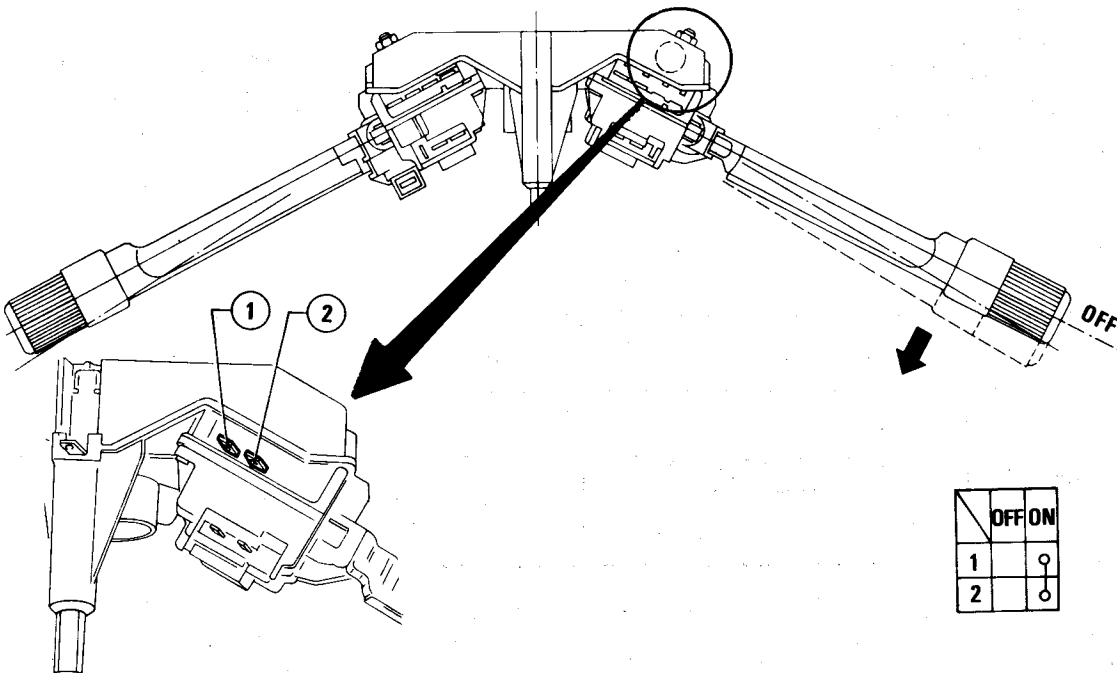
View from P



	OFF	INT	1 V	2 V
0				
I				
II				
III				

## Windscreen/headlight washer control

Control	Position	Service enabled
Right lever	OFF ON	<ul style="list-style-type: none"> <li>— zero position</li> <li>— windshield washer with wiping stroke driven by control unit</li> <li>— windscreen washer with wiping stroke driven by control unit (paired to rotation of the left lever knob to positions 1 and 2)</li> </ul>

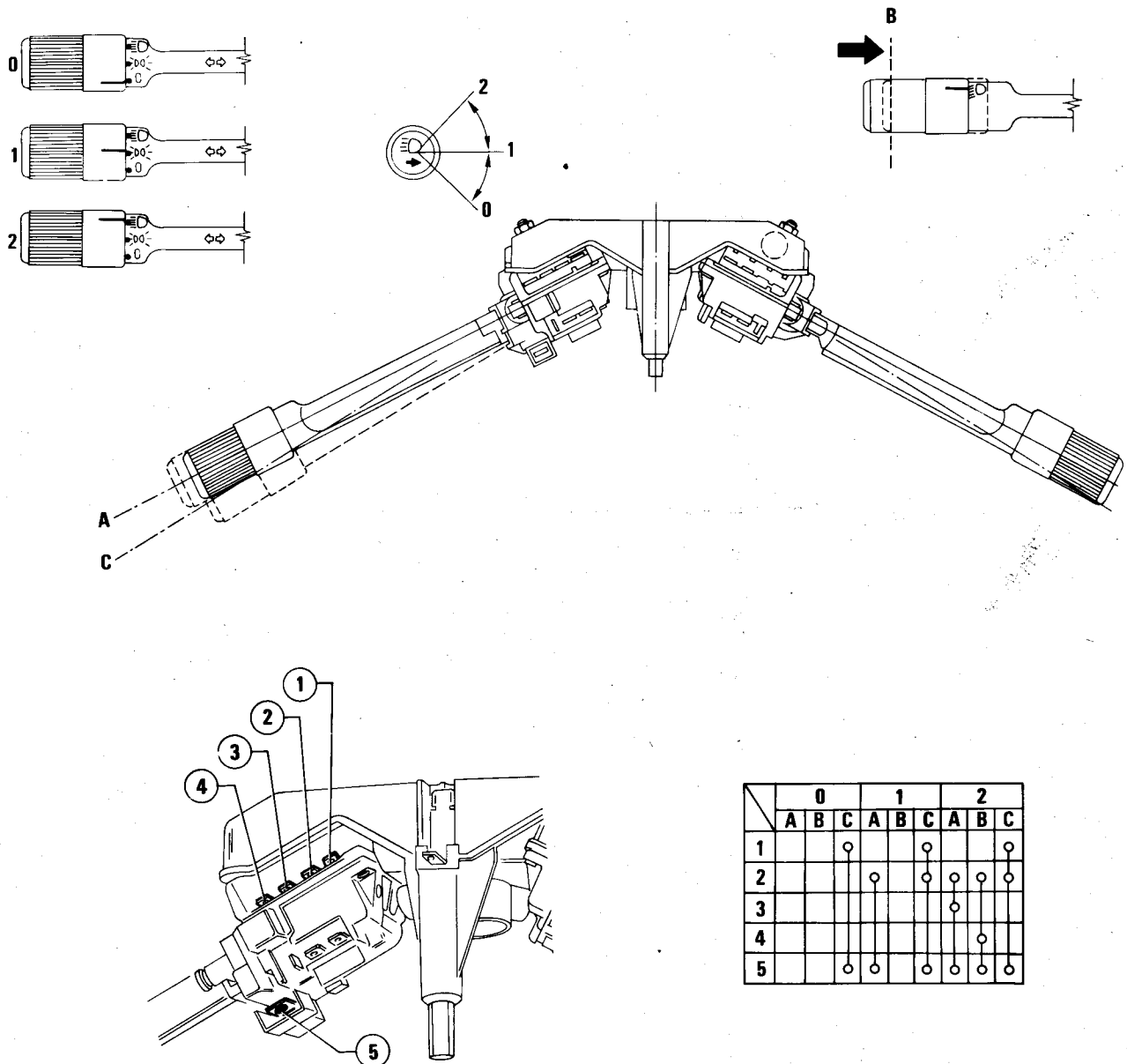


	OFF	ON
1		
2		

# ELECTRICAL SYSTEM

## External lights control

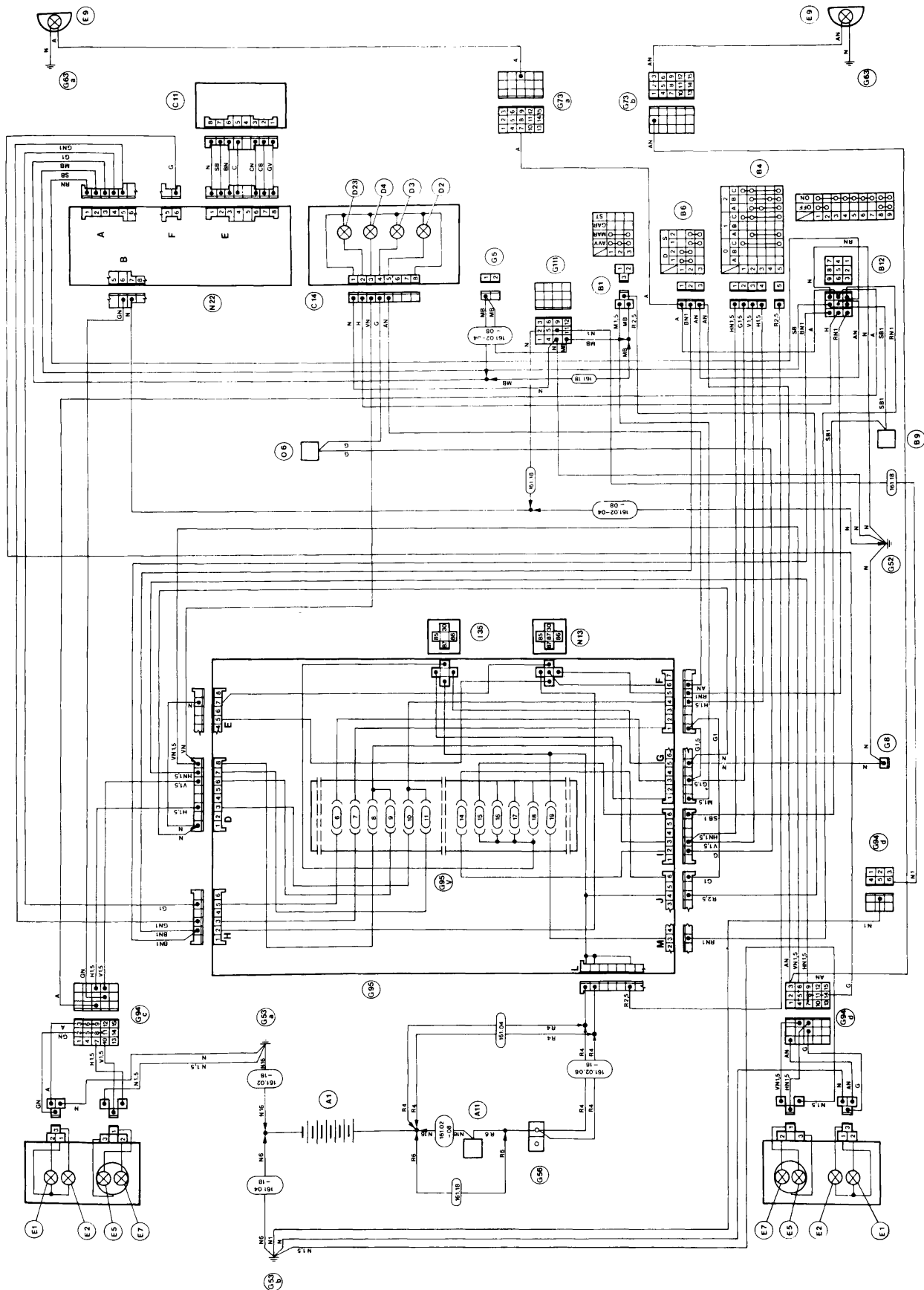
Control		Position	Service enabled
Left lever	Knob rotation	0	— zero position
		1	— side lights
		2	— full beams fog light and rear fog light enabling
	Knob pressing in the arrow direction and knob releasing	B	— low beams (paired to rotation to position 2)
	Movement parallel to steering wheel axis	A	— zero position
		C	— full beam flashing (paired to rotation to positions 0 and 1)



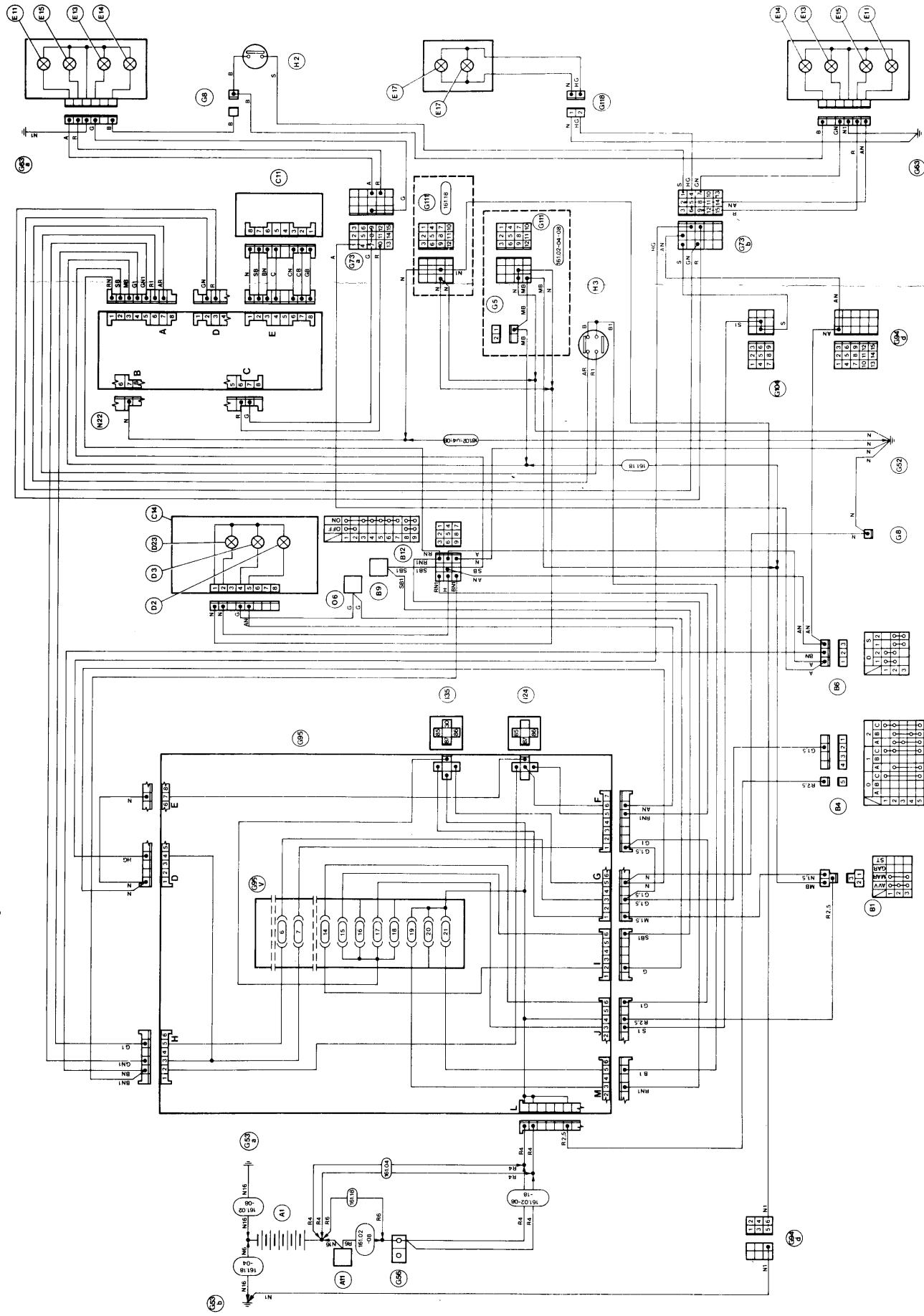
## ELECTRICAL SYSTEM

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EXTERNAL LIGHTING - FRONT SIDE (wiring diagram)



## EXTERNAL LIGHTING - REAR SIDE (wiring diagram)



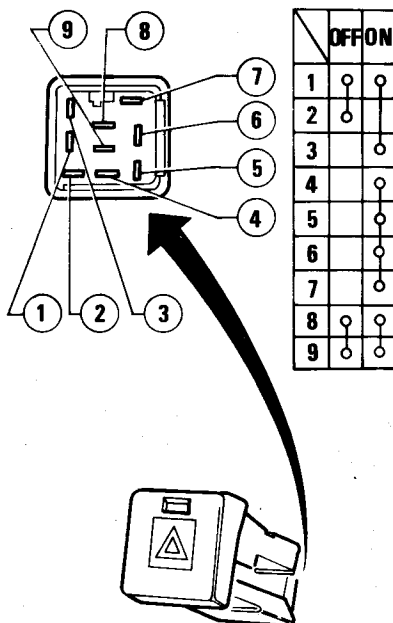
## HEADLIGHT SWITCH

The sidelights/low beam/full beam switching, takes place through the knob of combination switch left lever (refer to: Combination Switch Unit).

## DIRECTION LIGHT SWITCH

The direction indicators are operated through the left lever of combination switch (refer to: Combination Switch Unit).

## HAZARD LIGHT SWITCH



### Location

The hazard lights switch is located on cluster left-hand side (refer to: Group 66 - Dashboard).

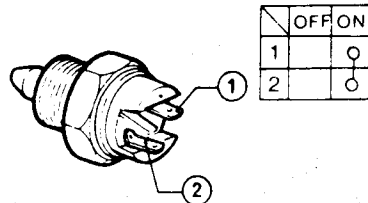
### Check

Check the switch correct functioning verifying that the continuity between terminals occurs as per the indications given in the table.

## REPLACEMENT OF EXTERNAL LIGHTING WARNING LAMPS

To replace the warning lamps of side lights, full beam headlights, direction lights, hazard lights, refer to: Warning Lamps Panel.

## REVERSE LIGHT SWITCH



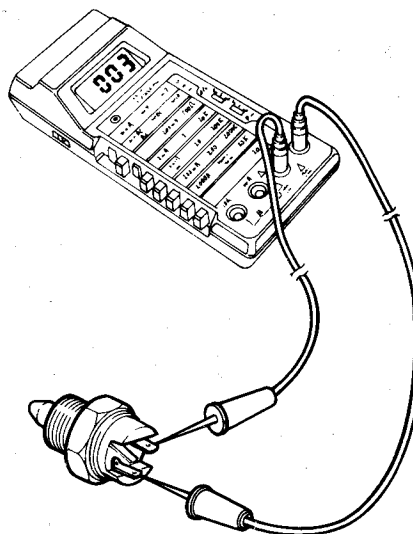
### Location

It is mounted on the speed gear/differential casing (refer to: WORKSHOP MANUAL - mechanical units - Group 17 - Overhaul at Bench of the Speed Gear/Differential Casing).

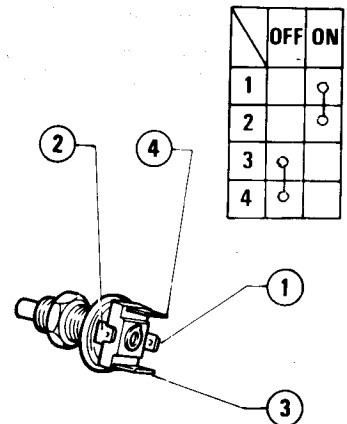
### Check

Connect a tester to terminals of the reverse switch, and verify the following resistance values.

When in the OFF position =  $\infty$   
When in the ON position =  $0\Omega$



## STOP LIGHT SWITCH

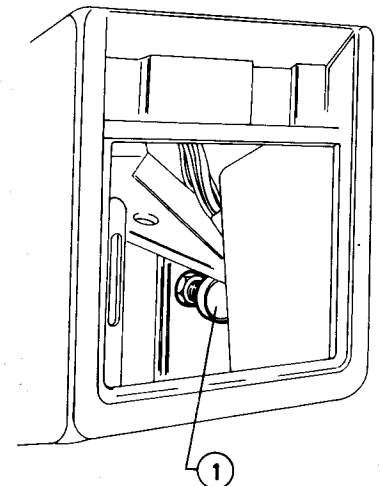


### Location

The stop light switch is mounted on the special bracket on the steering column rear support.

### Removal

1. Remove the door-lock control unit from its seat in the lower side of dashboard (underneath cluster) (refer to: Group 66 - Doorblock Control Unit).
2. Operating from the glove box opening, unscrew the plastic nut securing switch.



1 Stop light switch

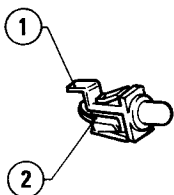
3. Withdraw switch from bracket, and detach wiring.
4. Carry out installation by reversing the order of removal.

## Check

Check the switch correct functioning, verifying that the electric continuity between terminals is as per the indications provided in the table.

## HANDBRAKE WARNING LAMP SWITCH

	OFF	ON
1		○
2		○



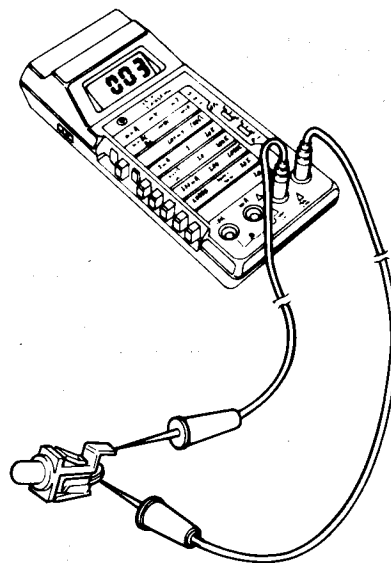
## Location

It is mounted on the special bracket secured to the handbrake lever support (refer to: WORKSHOP MANUAL - mechanical units - Group 22 - Parking Brake).

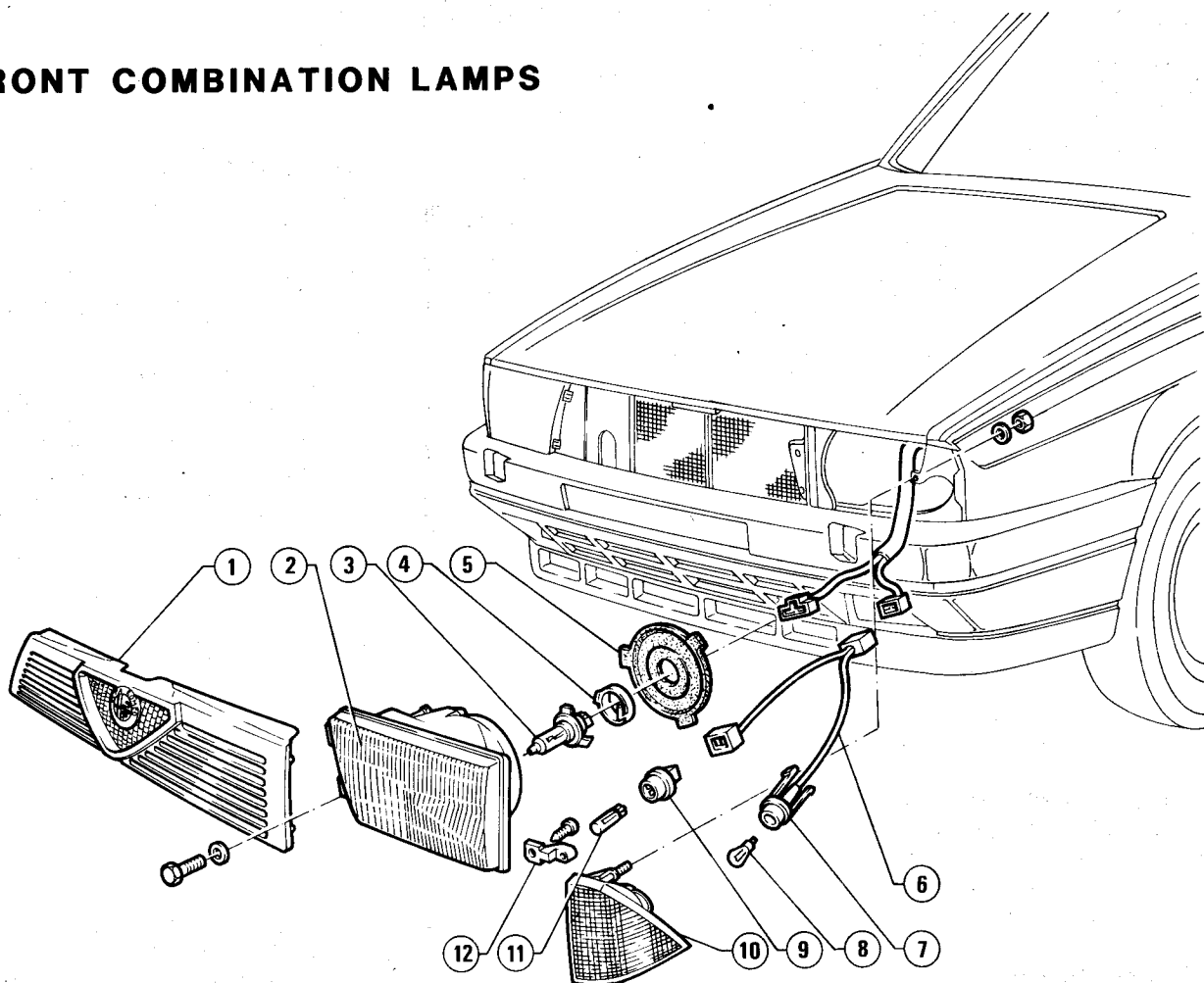
## Check

Connect a tester to the switch terminals and verify the following resistance values.

When in the OFF position =  $\infty$   
When in the ON position  $\cong 0\Omega$



## FRONT COMBINATION LAMPS



- 1 Radiator grille
- 2 Front combination lamp
- 3 Halogen lamp
- 4 Securing clip

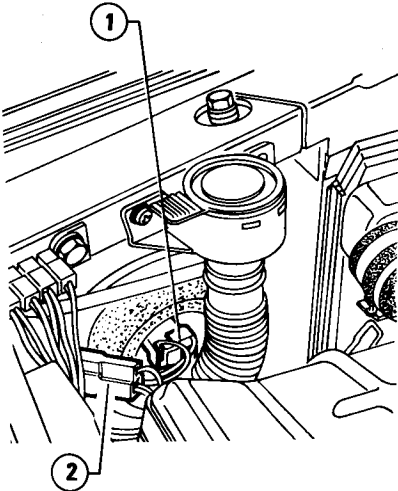
- 5 Guard
- 6 Wiring
- 7 Direction indicator lamp holder
- 8 Direction indicator bulb

- 9 Side light lamp holder
- 10 Transparent cover
- 11 Side light bulb
- 12 Securing clip

## ELECTRICAL SYSTEM

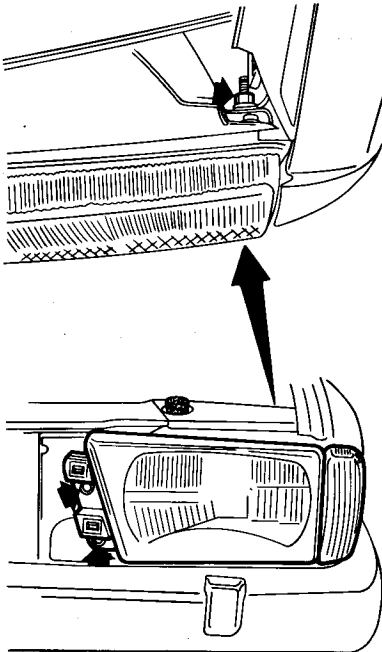
### REMOVAL AND INSTALLATION

1. Remove radiator grille (refer to: Group 75 - Radiator Grille).
2. Operating from the engine compartment inside, detach wiring ① and ②.



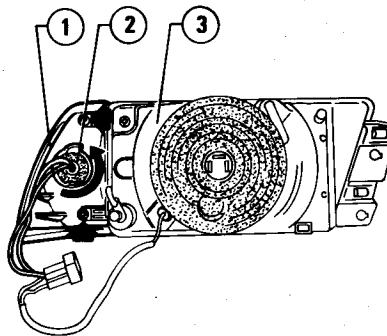
- 1 Low/full beam lamps wiring  
2 Side/direction lamps wiring

3. Unscrew the three nuts securing combination lamp to body.



4. Remove the combination lamp.
5. If necessary, separate the direction indicator from headlamp unit.
  - a. Rotate lampholder ② counterclockwise, and remove it.

- b. Unscrew the two screws securing transparent cover ① to combination lamp ③. Remove transparent cover and recover the two clip.



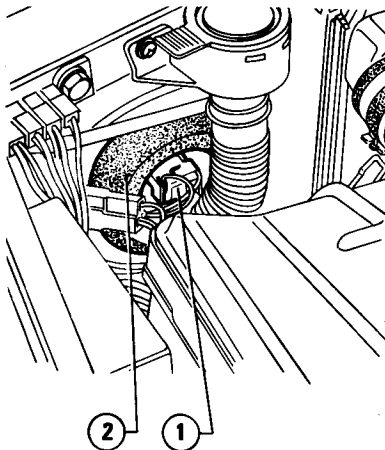
- 1 Transparent cover  
2 Direction indicator lampholder  
3 Front combination lamp

6. Install the direction indicator and the combination lamp, by reversing the order of removal.
7. Adjust the luminous beam by following the procedures described in "Setting of Headlight Low Beams".

### LAMP REPLACEMENT

#### Headlights and front sidelights

1. Operating from the engine compartment inside, disconnect wiring ② and remove rubber protection ①.



- 1 Rubber protection  
2 Wiring

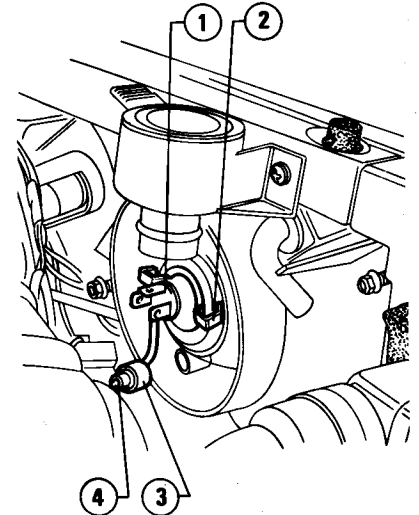
2. Press and rotate fastener ② counterclockwise and remove it.
3. Withdraw the halogen lamp ① and replace it. When installing it, position the lamp correctly, mating the notches present on the cup with the corresponding ones of the

combination lamp.

#### CAUTION:

Never touch the headlight halogen lamp ① glass with bare hands, if so, wash the lamp with alcohol.

4. To replace the sidelight lamp ④, remove lampholder ③ and withdraw the lamp by pulling the bulb.

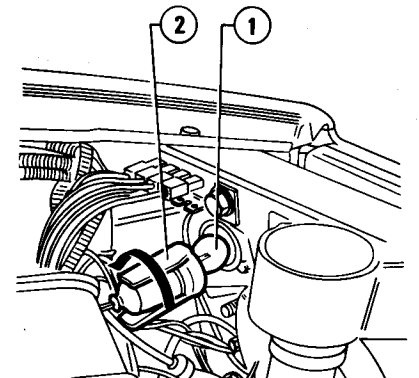


- 1 Halogen lamp  
2 Fastener  
3 Lampholder  
4 Sidelight lamp

5. Reassemble by reversing the order of removal.

#### Direction lights

1. Operating from the passenger compartment inside, press and rotate lampholder ② counterclockwise, and remove it.
2. Press lamp ① bulb, and rotate it to remove the lamp.
3. Replace the lamp and install lampholder ②.



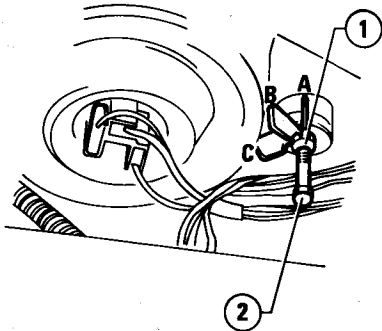
- 1 Lamp  
2 Lampholder

## SETTING OF HEADLIGHTS LOW BEAM

### Setting headlights in relation to load

To carry out this setting, rotate lever ① until it is in the correct position shown in the table.

Position	Load conditions
A	Vehicle unladen
B	Average load.
C	Full load



- 1 Low beam position adjusting lever
- 2 Vertical direction adjusting screw

### Luminous beam setting

Follow the below procedure to adjust the headlights low beam.

1. Check that tyres are inflated at the right pressure and that car is

unladen and without fuel.

2. Verify that the lever for low beam position adjustment is in the "A" position (refer to: Setting Headlights in Relation to Load).

3. Position the vehicle and the possible test equipment on a horizontal plane. If no test equipment is available, place the car in front of a clear screen.

4. Move vehicle backwards of about 10 m (32.8 ft) and switch on the low beams. The luminous beam must be in compliance with the geometric dimensions provided in figure.

A = distance of headlight centre from ground

B = height of luminous beam

C = 10 m (32.8 ft)

Orientation is correct when the following condition is obtained:

**16 18 20** and **20** (turbodiesel)

B = 480 mm (18.9 in)

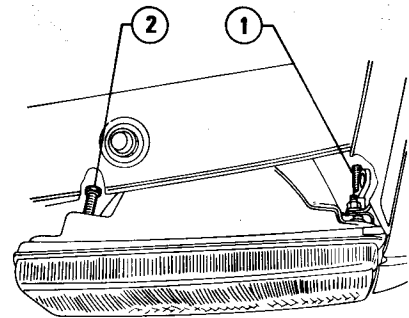
Data non available for

**6V iniezione**

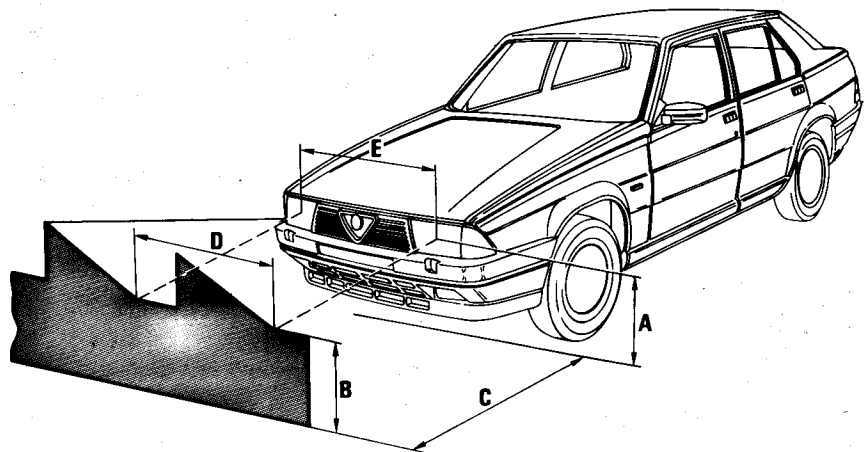
The distance D between centre of luminous beams, must be equal to the distance E between headlight centre.

The dimensions indicated in the diagram, comply with the provisions in force in Italy. For other Countries, comply with the national provisions.

To correct the possible setting errors, operate, from the engine compartment inside, on the adjusting screws related to the headlights shown in the figure below.

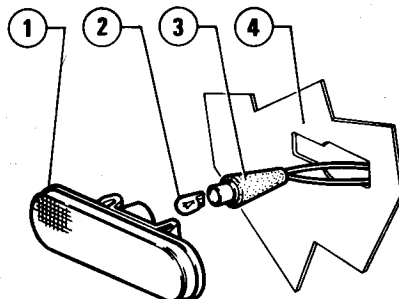


- 1 Horizontal direction adjusting screw
- 2 Vertical direction adjusting screw



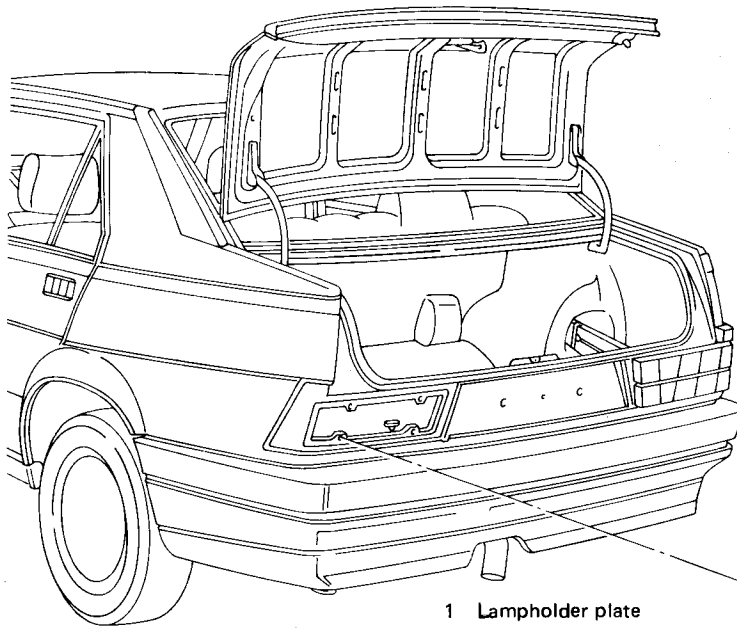
## SIDE REPEATERS

1. Press on one side, and remove indicator ① from bumper.
2. Withdraw lampholder ③ from direction indicator ①.
3. Replace lamp ② by pulling the relevant bulb.
4. Install direction indicator by reversing order of removal.

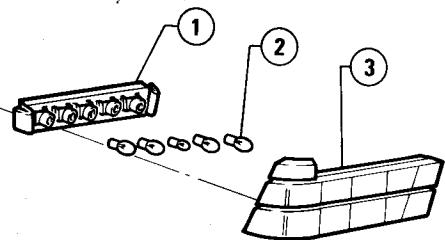


- 1 Direction indicator
- 2 Lamp
- 3 Lampholder
- 4 Fender

## REAR COMBINATION LAMPS

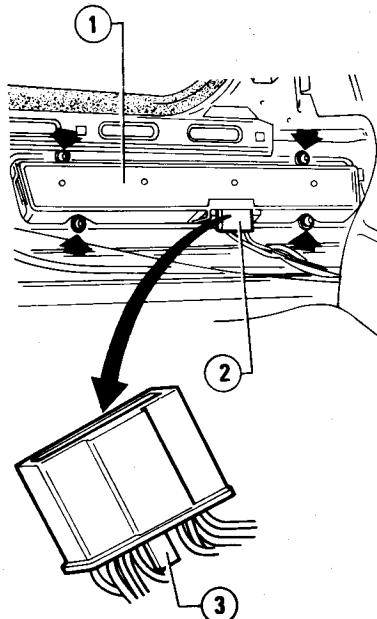


- 1 Lampholder plate
- 2 Lamp
- 3 Transparent strip



### REMOVAL AND INSTALLATION

1. Operating from the luggage compartment inside, remove the rear trimming (refer to: Group 66 - Rear Trim).
2. Detach wiring (2) by pulling lever (3) forward.
3. Unscrew the five nuts securing combination lamp (1) to body, and remove.

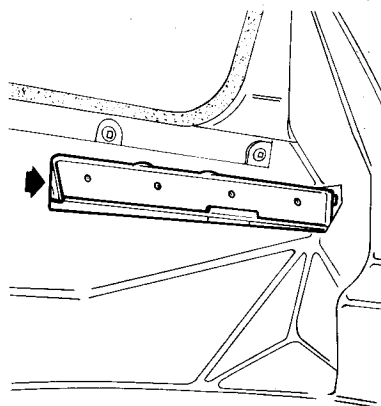


- 1 Combination lamp
- 2 Wiring
- 3 Lever

4. Install the combination lamp by reversing the order of removal.

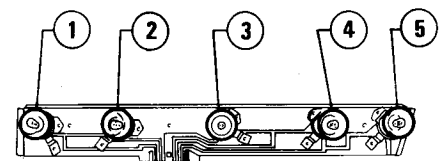
### LAMP REPLACEMENT

1. Open the boot.
2. Operating from the luggage compartment inside, slowly press the lampholder plate, pull, and remove it.



4. Replace the lamp and install the lampholder plate.

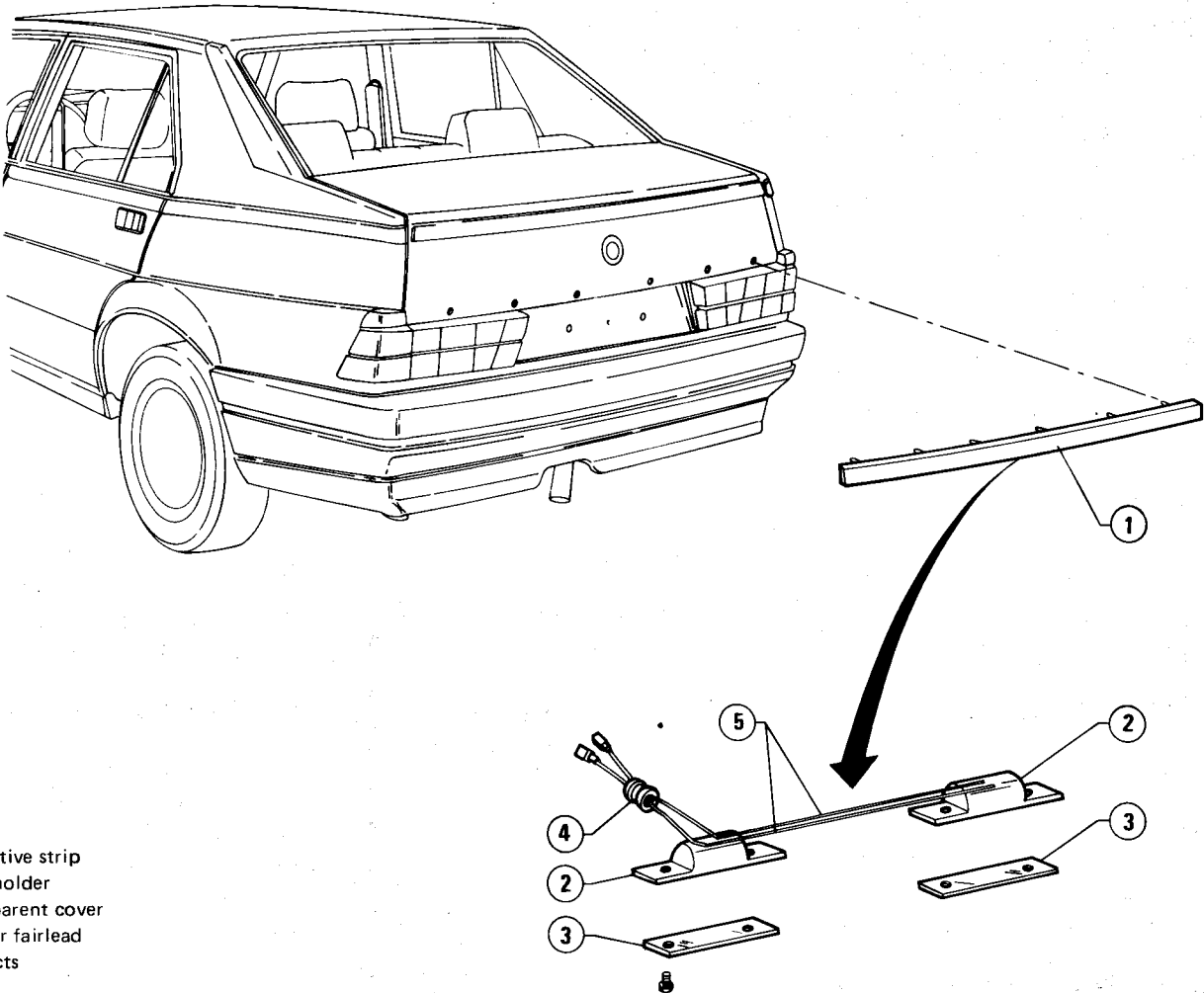
For the identification of lamps location, refer to the diagram below. The diagram refers to the left combination lamp; the right - hand one, is specular with respect with the left one.



- 1 Direction indicators
- 2 Stop light
- 3 Side light
- 4 Rear fog light
- 5 Reverse light

3. Press the bulb of the lamp to be replaced, rotate lamp and remove it.

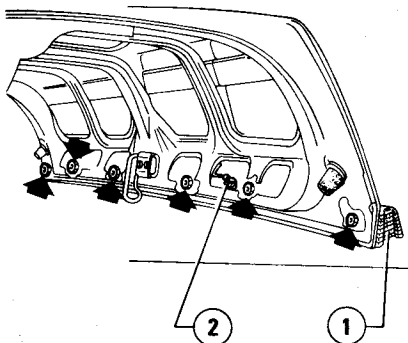
## REAR REFRACTIVE STRIP AND NUMBER PLATE LIGHTS



### REMOVAL AND INSTALLATION OF REAR REFRACTIVE STRIP

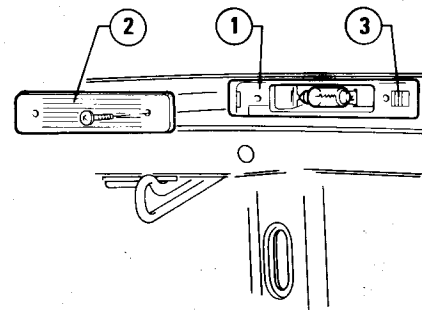
1. Open the boot lid, disconnect wiring (2), and unscrew the six nuts securing strip (1) to boot lid. Remove the strip.

2. Install the refractive strip by reversing the order of removal.



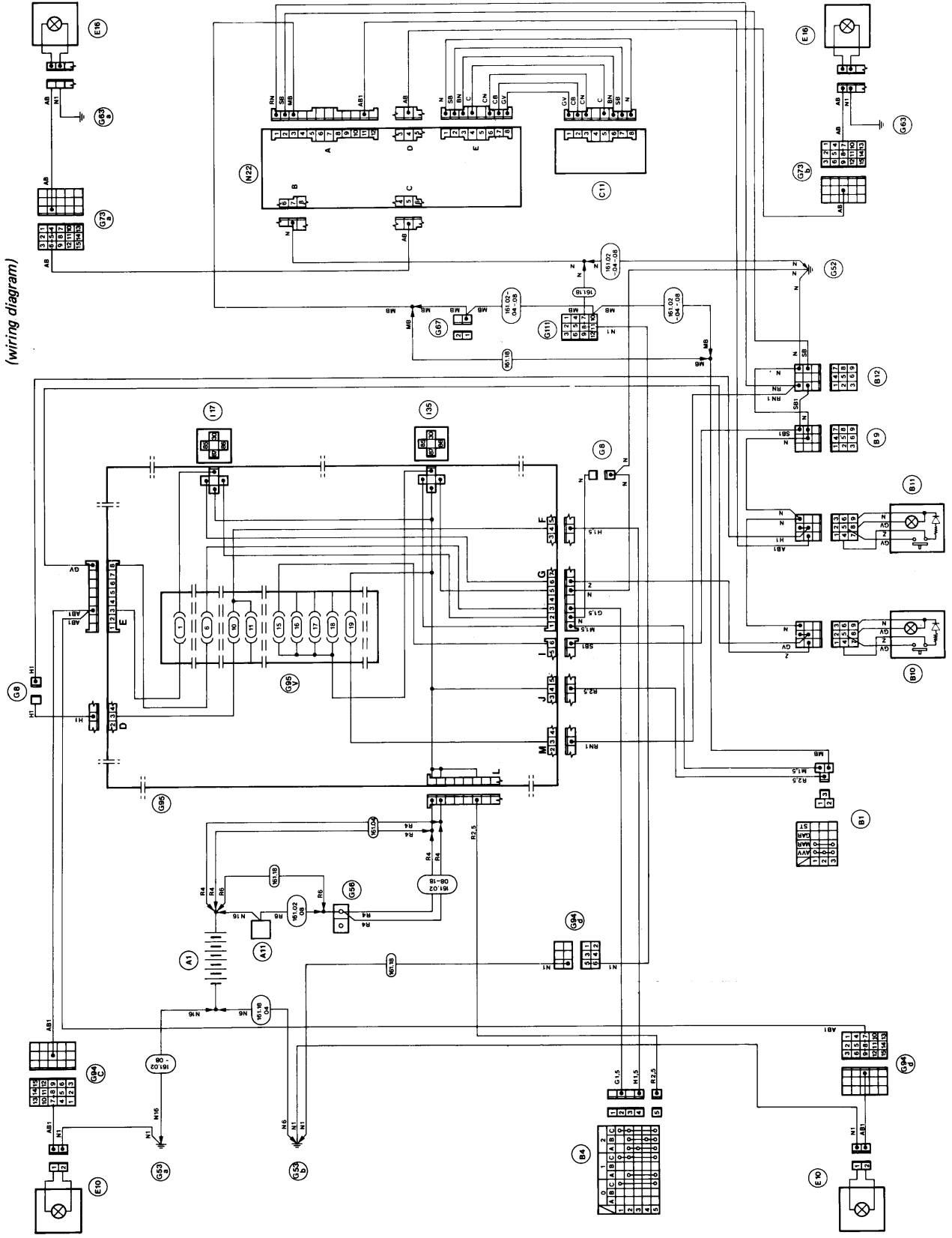
### REPLACEMENT OF NUMBER PLATE LIGHTS

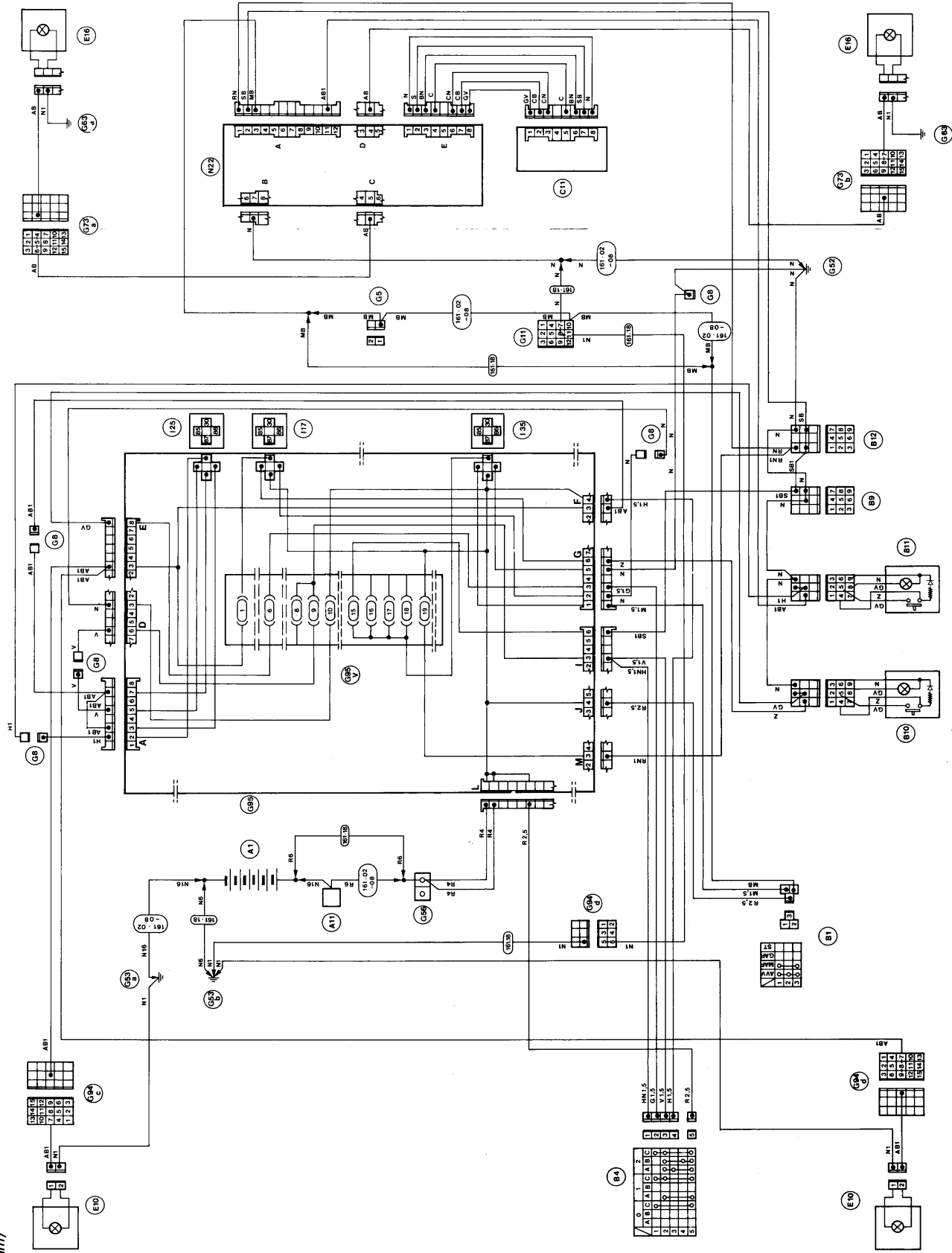
1. Unscrew the two screws securing each transparent cover (2) and remove these last.  
2. Withdraw the bulb and replace it.  
3. If required, to remove the lampholders first disconnect the wiring, then operate with a screwdriver on clip (3), and withdraw lampholders (1).



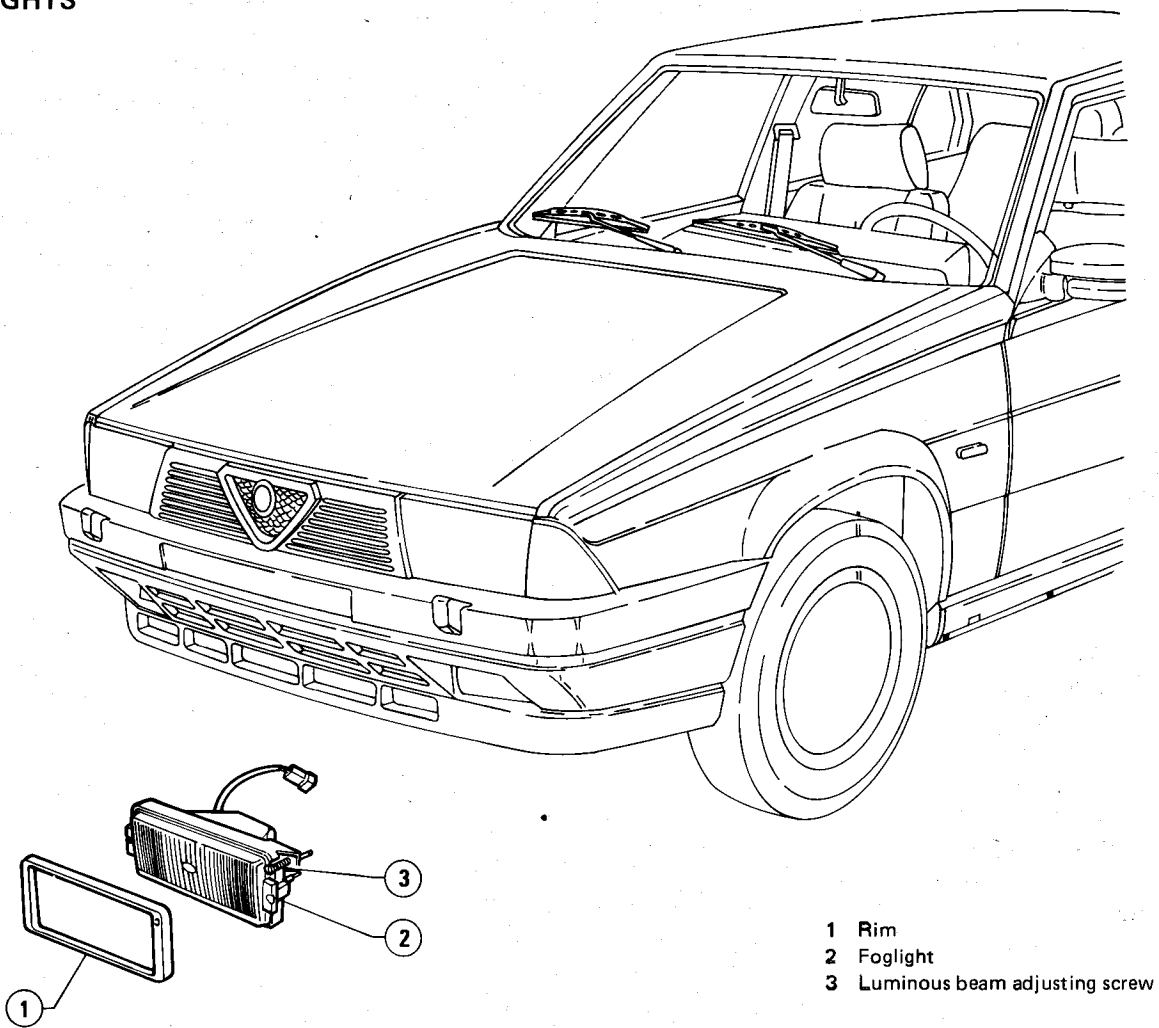
1 Lampholder  
2 Transparent cover  
3 Clip

4. Install lampholder by reversing the order of removal.

**FOGLIGHTS AND REAR FOGLIGHTS** (Except Switzerland)  
(wiring diagram)

**FOGLIGHTS AND REAR FOGLIGHTS** (For Switzerland)  
(wiring diagram)

## FOGLIGHTS



### Removal and installation

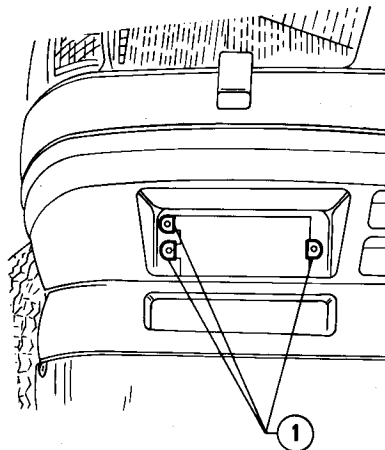
With reference to the exploded view, operate as follows.

1. Remove rim (1), pressure-inserted in the foglight compartment of front bumper.

2. Disconnect wiring and remove the foglight, fixed with three pins, from front bumper.

3. Install the foglight by reversing the order of removal.

Since clips (1) (refer to the following figure) could be damaged when removing, it is good practice to replace them when installing.



1 Clips

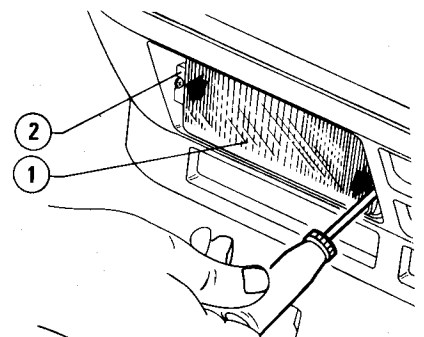
4. If necessary, adjust the luminous beam in the vertical direction, by operating on screw (3) (refer to the exploded view).

### Lamps replacement

1. Remove the headlight rim (refer

to: Removal and Installation).

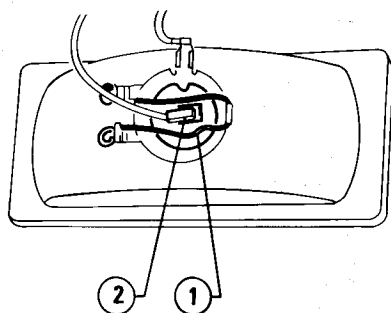
2. Unscrew the screws and remove the two plates (2), separating foglight (1) from rear protection.



1 Foglight  
2 Plates

3. Release clip (1), and carefully remove lampholder and bulb.

## ELECTRICAL SYSTEM



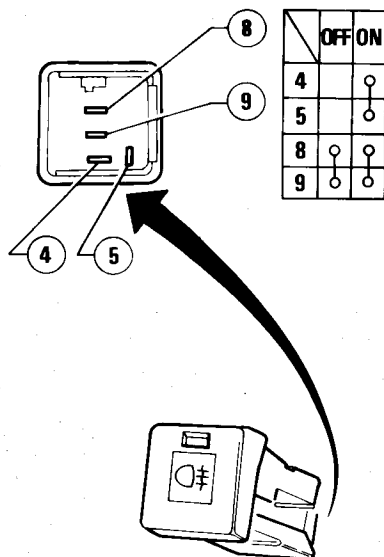
- 1 Clip securing lampholder
- 2 Lampholder

### CAUTION:

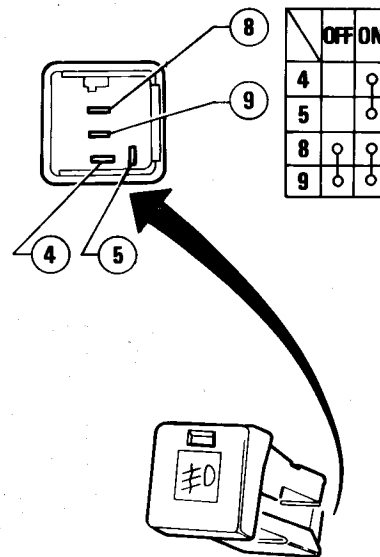
Never touch the halogen lamp bulb with bare hands; if so, wash it with alcohol.

- 4. Install lampholder directing it correctly, and secure the related clip.

### FOG LIGHT SWITCH



### REAR FOG LIGHT SWITCH



### REAR FOG LAMPS

#### Location

The rear fog lamps are housed in the rear combination lamps (refer to: Rear Combination Lamps).

#### Replacement

To replace the rear fog lamps, refer to: Rear Combination Lamps - Lamp Replacement.

#### Location

This switch is located on the right-hand side of cluster (refer to: Group 66 - Dashboard).

#### Check

Check the switch correct functioning verifying that the continuity between terminals occurs as per the indications given in the table.

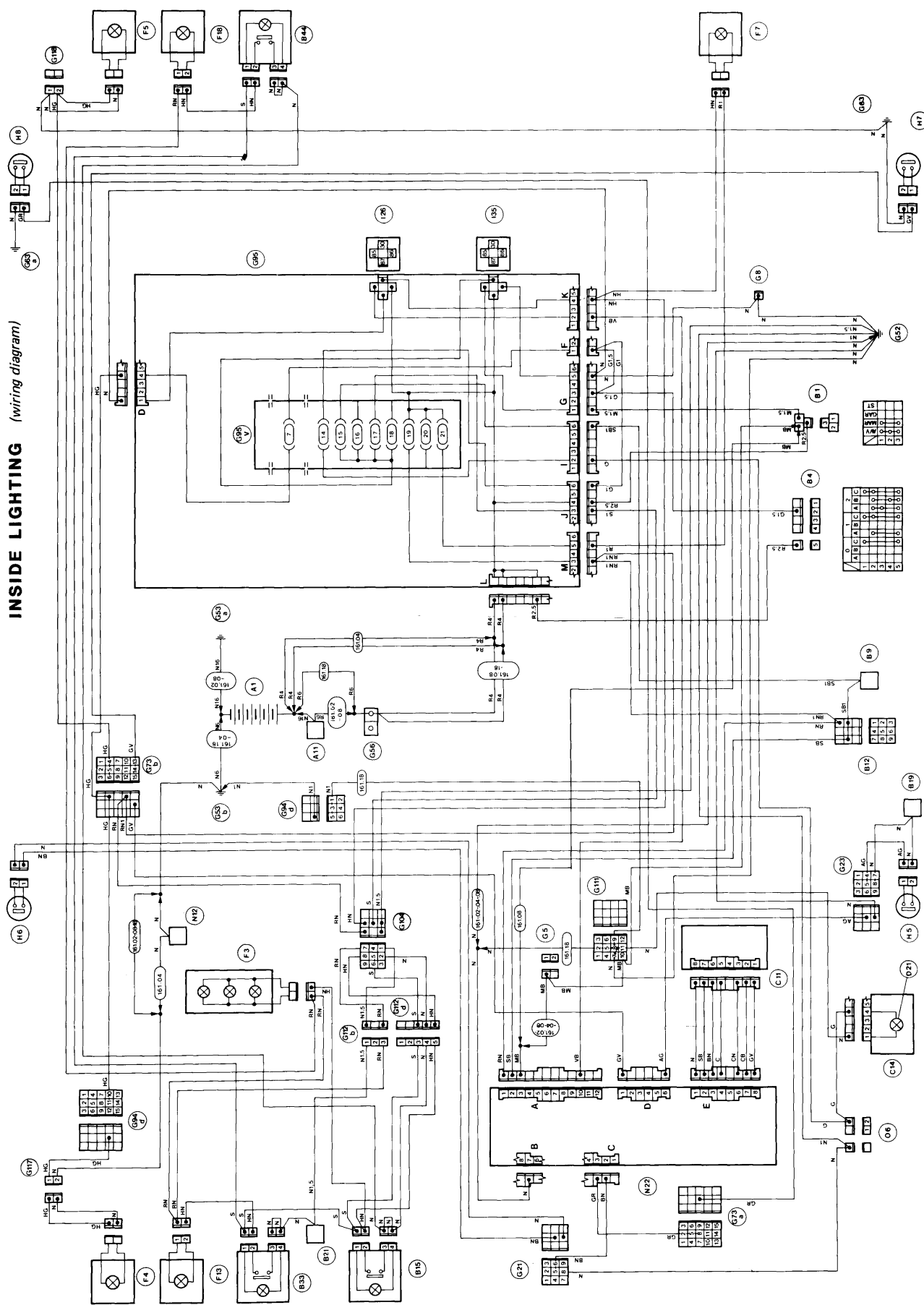
#### Location

This switch is located on the right-hand side of cluster (refer to: Group 66 - Dashboard).

#### Check

Check the switch correct functioning verifying that the continuity between terminals occurs as per the indications given in the table.

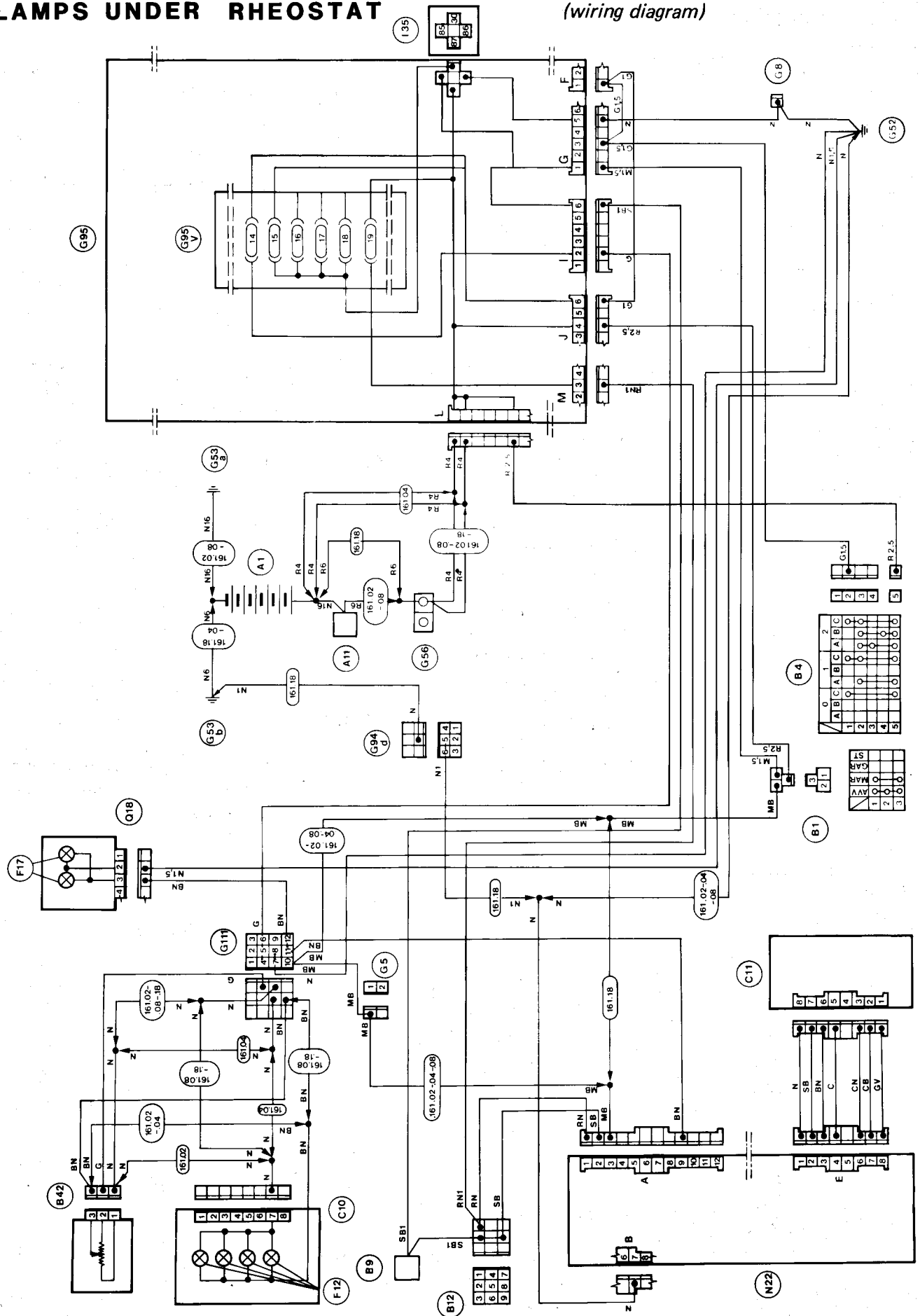
## INSIDE LIGHTING *(wiring diagram)*





## LAMPS UNDER RHEOSTAT

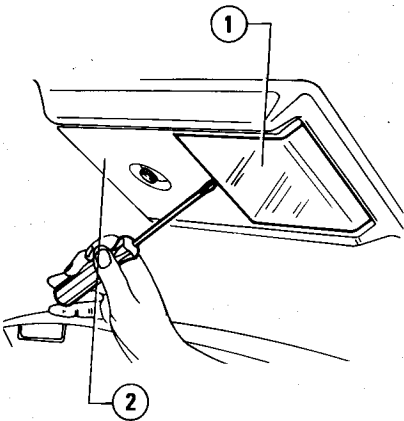
(wiring diagram)



## PASSENGER COMPARTMENT ROOF LAMP

### Lamp replacement

1. Remove the transparent cover ① which is pressure inserted in the lampholder ②, by means of a suitable tool.



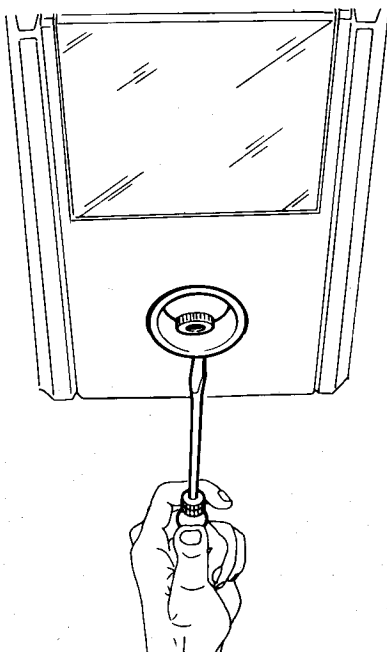
1 Transparent cover  
2 Lampholder

2. Withdraw and replace the faulty lamp. Reinstall transparent cover.

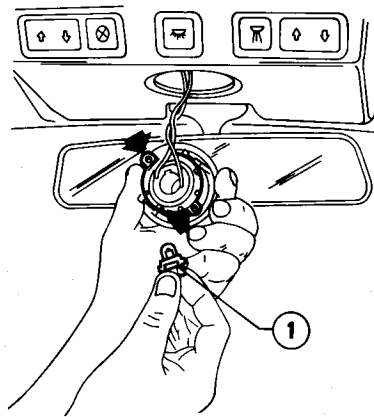
## FRONT AND REAR SPOT LIGHT

### Lamp replacement

1. Remove the spot unit, which is pressure inserted into its seat on the longitudinal roof panel, by means of a suitable tool.



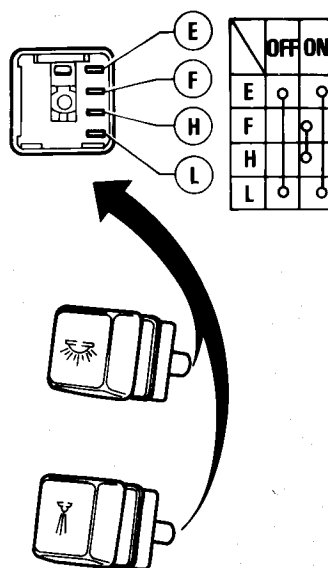
2. Unscrew lampholder ① and remove it from the spot light.
3. Remove and replace the bulb, and install lampholder.
4. If required to remove the spot light, unscrew the two screws securing the components, and separate them.



1 Lampholder

5. Install the spot by reversing the order of removal.

## SWITCHES FOR PASSENGER COMPARTMENT ROOF LAMP AND SPOT



### Location

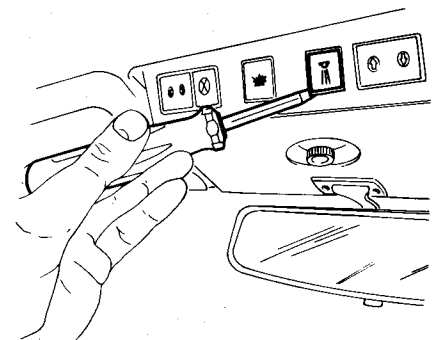
The passenger compartment and spot light switches are located on the roof front panel; the central spot light

switch is located on the roof central panel (refer to: Group 66 - Inside Trim - Roof Panel).

The following procedures are applicable for all switches.

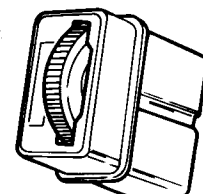
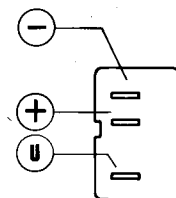
### Removal and installation

1. Using a suitable tool, remove the switch from its seat.
2. Disconnect wiring and remove the switch.



3. Install switch by reversing the order of removal, and pressure insert it into its seat.

## CLUSTER RHEOSTAT



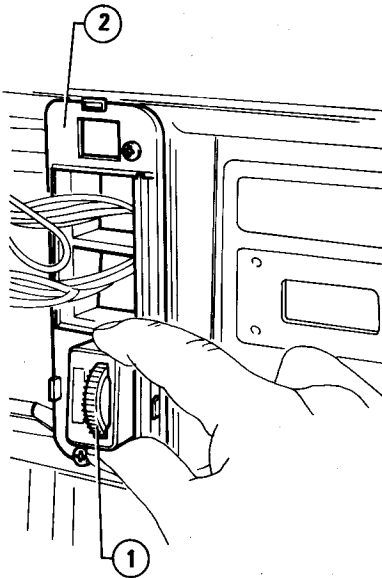
## ELECTRICAL SYSTEM

### Location

It is located on the left-hand side of cluster (refer to: Group 66 - Dashboard).

### Removal and installation

1. Remove cover from its seat (refer to: Group 66 - Dashboard - Removal and Installation).
2. Withdraw rheostat (1) from rim (2).



- 1 Rheostat  
2 Rim

3. Carry out installation by reversing the order of removal.

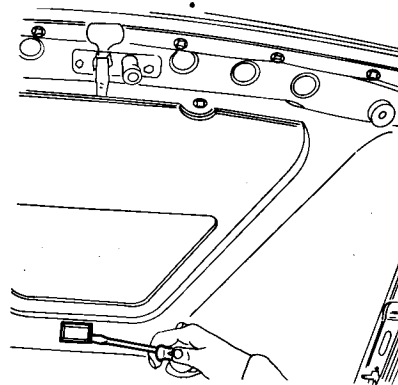
### Check

With the lights on and operating on cursor, verify that the brightness of the lamps under rheostat changes. If not so, replace the rheostat.

### ENGINE COMPARTMENT LAMP

#### Lamp replacement

1. Open the bonnet and, by means of a suitable tool, remove the transparent strip, which is pressure-inserted in the bonnet itself.

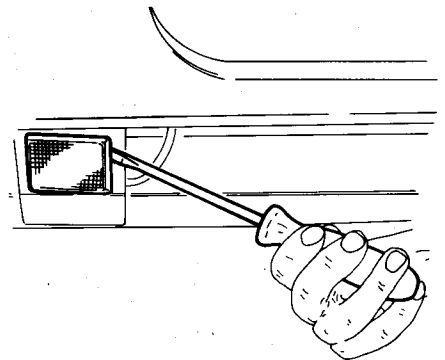


2. Withdraw and replace the lamp.
3. Install the transparent strip by reversing the order of removal.

### LUGGAGE COMPARTMENT LAMP

#### Lamp replacement

1. Open the boot and, by means of a suitable tool, remove the lamp-holder, which is pressure-inserted in the body.



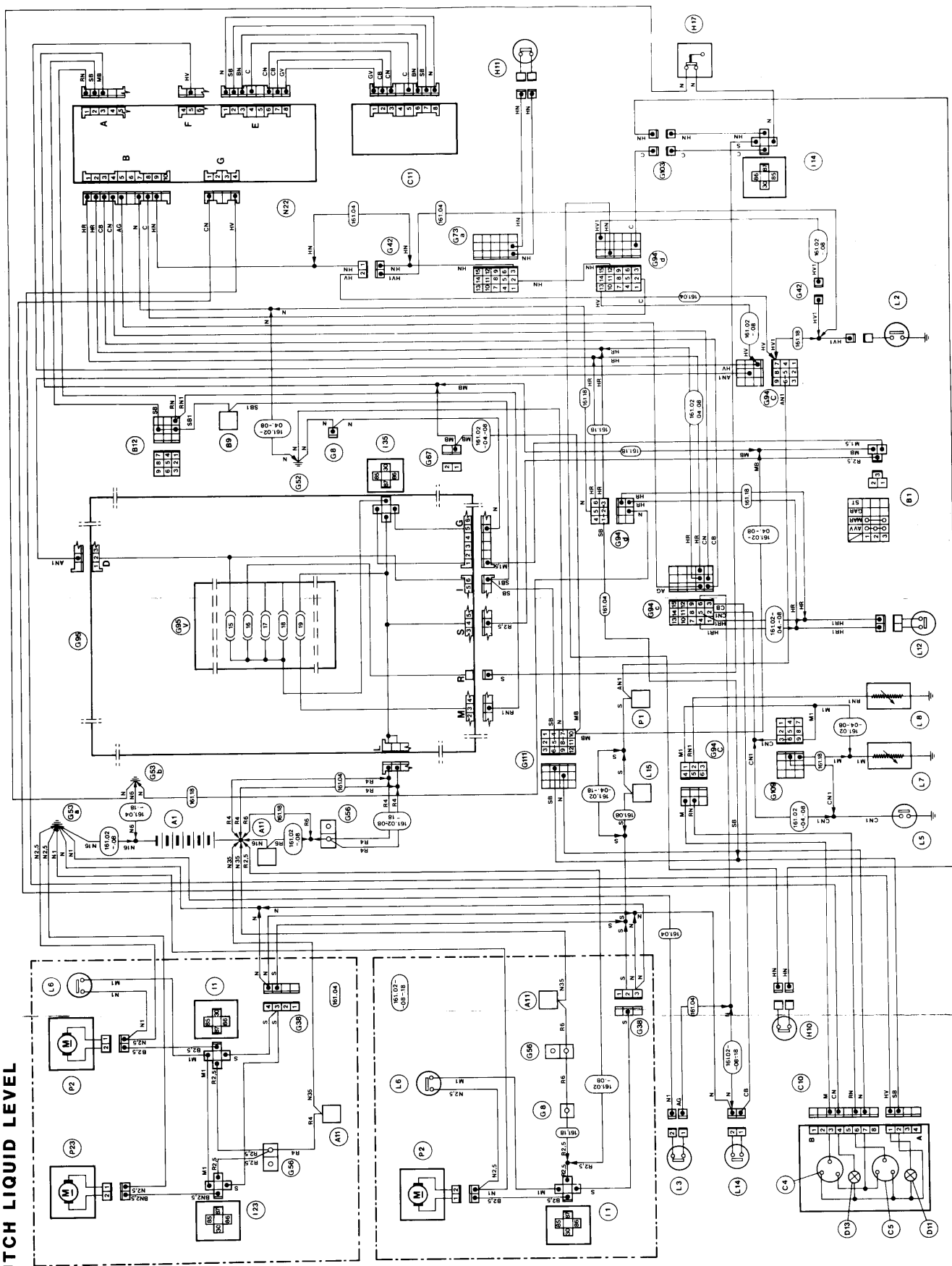
2. Withdraw and replace the lamp.
3. Install the lampholder by reversing the order of removal.

## ELECTRICAL SYSTEM

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ENGINE COOLING DOWN, LUBRICATION, AND BRAKES  
AND CLUTCH LIQUID LEVEL

## SENSOR AND SENDERS



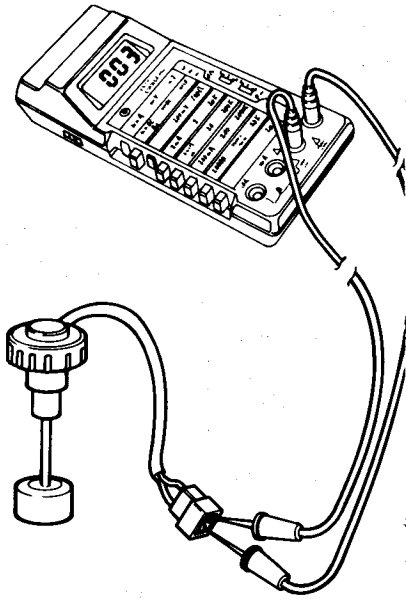
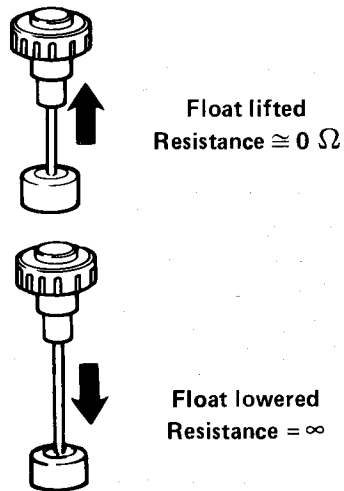
## COOLANT LEVEL SENSOR

### Location

It is inserted in the header tank of the cooling system.

### Check

Connect a tester to the sensor connector as per the figure, and verify the following resistance values.



## BRAKE AND CLUTCH FLUID MINIMUM LEVEL SENDER

### Location

It is inserted in the brake and clutch fluid tank.

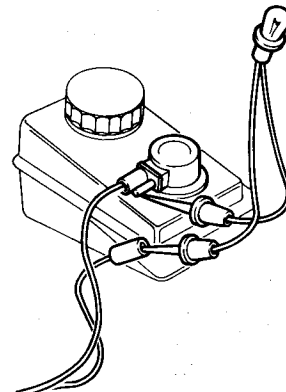
### Check

1. Set the ignition key to the MAR position.

2. Connect a warning lamp to the pins of float plug, as shown in the figure.

3. Check the device proper functioning by verifying the following.

Float lifted:  
warning lamp off  
Float lowered:  
warning lamp on





## ELECTRICAL SYSTEM

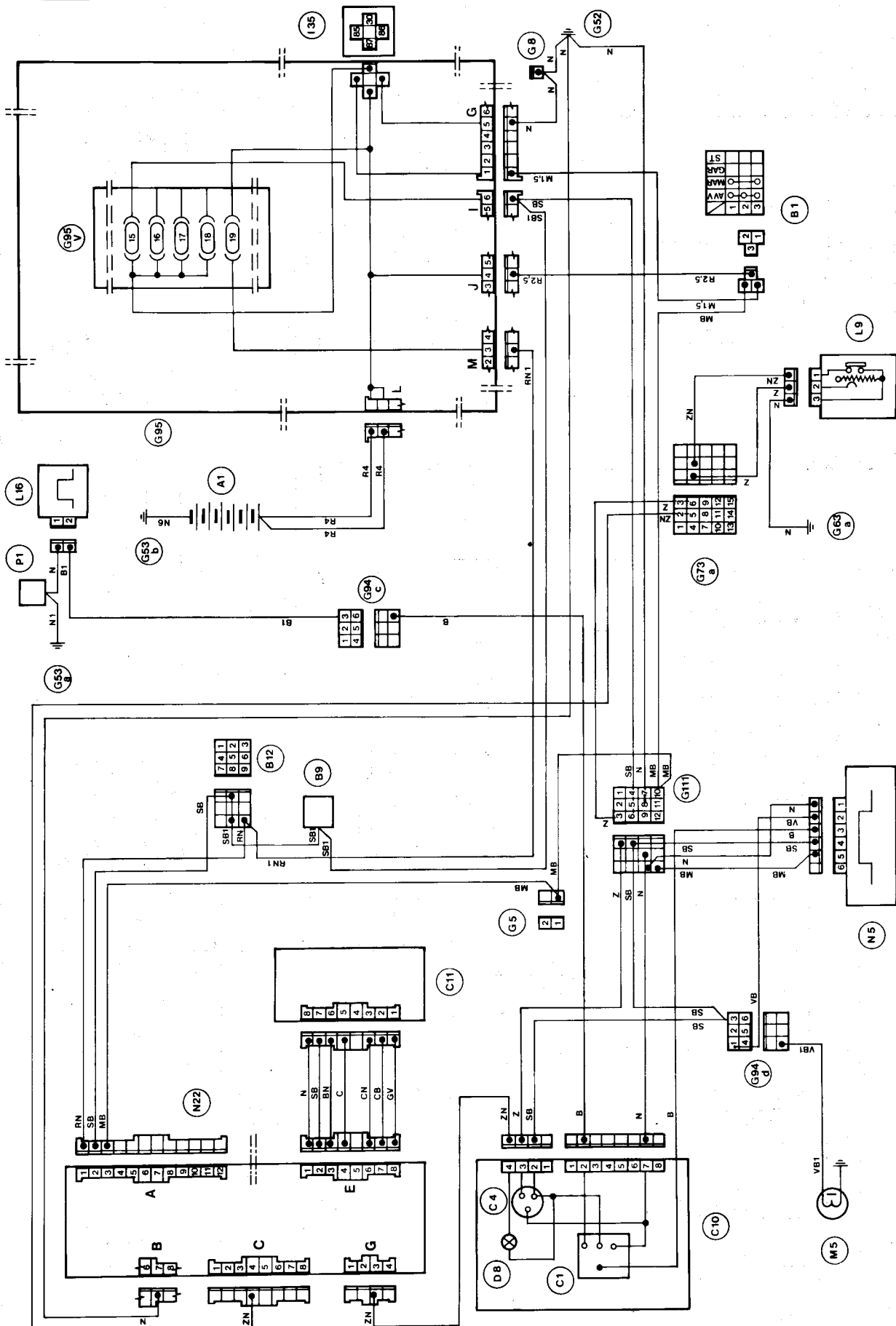
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## FUEL SUPPLY, REV COUNTER AND TACHYMETERIC SWITCH

20 (turbo-diesel)

(wiring diagram)

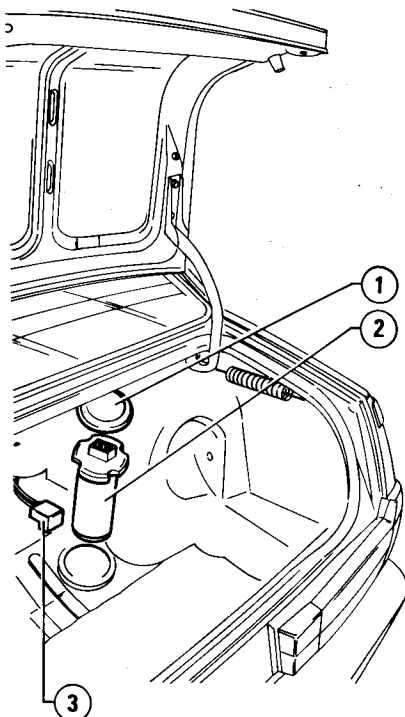


## FUEL LEVEL INDICATOR SENDER

### Location

The fuel level indicator sender is located on the right-hand side of passenger compartment.

### Removal and installation



- 1 Plug
- 2 Fuel level indicator sender
- 3 Wiring

1. Remove the luggage compartment bottom trimming.
2. Remove the pressure-inserted plastic plug (1).
3. Disconnect sender wiring.
4. Rotate sender counterclockwise, and remove it from tank.
5. Install the sender by reversing the order of removal.

## TACHYMETERIC SWITCH DEVICE

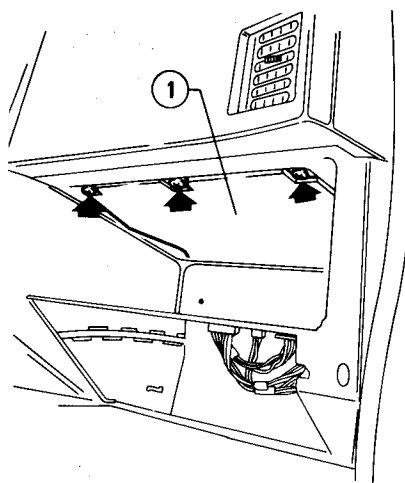
**2.0** **turbodiesel**

### Location

This device is located inside the dashboard, on the lid above the right-hand glove box.

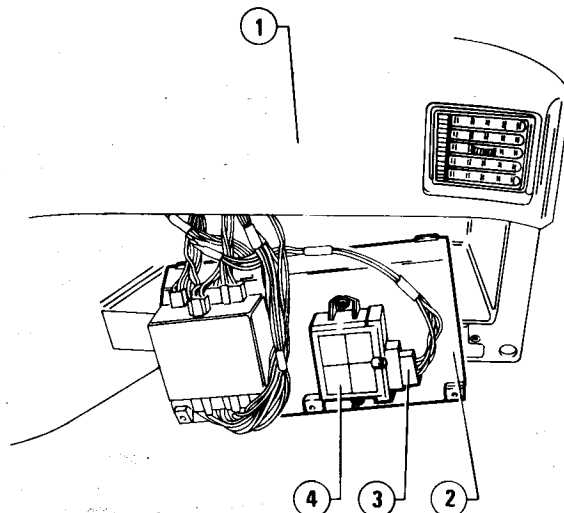
### Removal and installation

1. Remove the glove box. Unscrew the three screws securing lid (1), and overturn it.



- 1 Lid

2. Unscrew the two nuts securing the tachymetric switch device (4), disconnect wiring (3), and remove the device.



- 1 Dashboard
- 2 Lid

3. Install the device on vehicle, by reversing the order of removal.

## INJECTION CONTROL UNIT

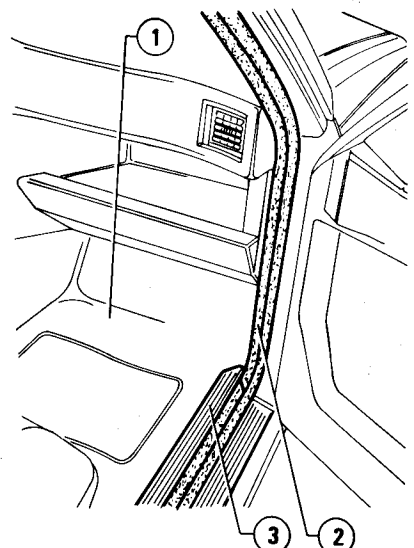
**6V** **iniezione**

### Location

It is located in the special compartment obtained in the front-hand side of vehicle floor.

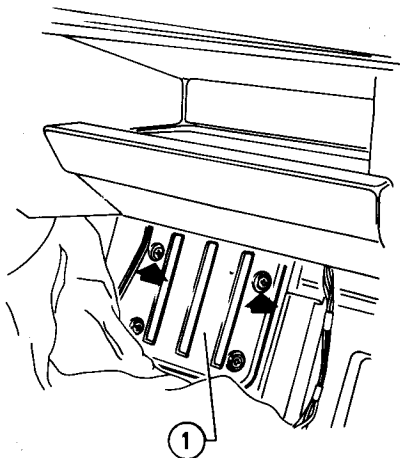
### Removal and installation

1. Lift the front left kickplate (3), unstuck a portion of the door frame rubber sealing (2), and lift floor trim (1), uncovering the injection control unit housing lid.



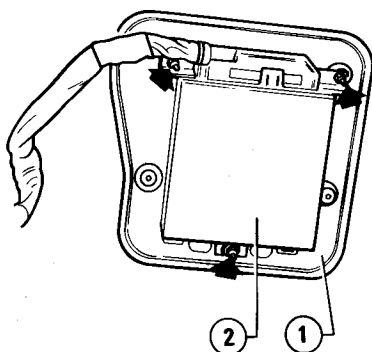
- 1 Floor trim
- 2 Door frame rubber sealing
- 3 Front left-hand kick plate

2. Unscrew the two nuts securing lid ①, and overturn it to gain access to control unit.



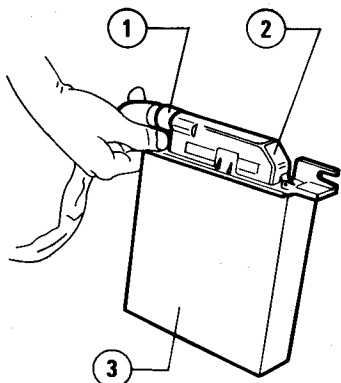
1 Lid

3. Unscrew the three nuts shown in the figure and remove injection control unit ② from lid ①.



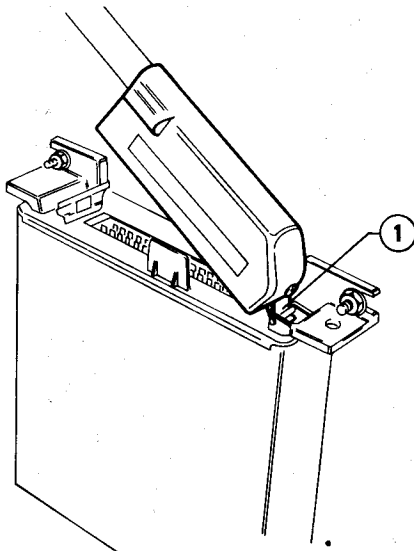
1 Lid  
2 Injection control unit

4. Operate lever ①, and disconnect wiring ② from injection control unit ③.



1 Lever  
2 Wiring  
3 Injection control unit

5. Install the injection control unit on vehicle, by reversing the order of removal, taking care to insert connector hook ① correctly into its seat on the injection control unit.



1 Hook

## INERTIA-OPERATED SWITCH

(Vehicles 16 18 20 with air conditioner)

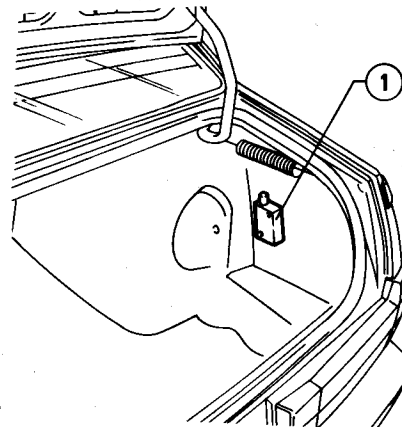
In the event of collision, this switch interrupts the electric supply of fuel pump.

### Location

It is housed on right-hand side wall of luggage compartment.

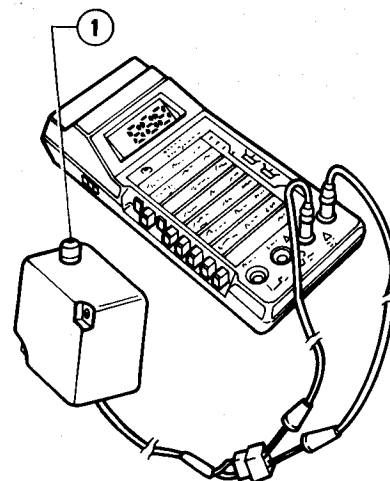
### Removal and installation

1. Disconnect the switch wiring.
2. Unscrew the two securing screws, and remove switch ①.



1 Inertia-operated switch

### Check



1 Re-activation pushbutton

Use a tester to check switch functioning. Operate as follows.

1. Lightly knock the switch, thus causing the device to be activated. In this condition, verify the resistance value by connecting tester as per figure.

**After knock**  
Resistance value =  $\infty$

2. Press the re-activation pushbutton ① (see figure) and verify again the resistance value.

**After re-activation**  
Resistance value  $\cong 0$

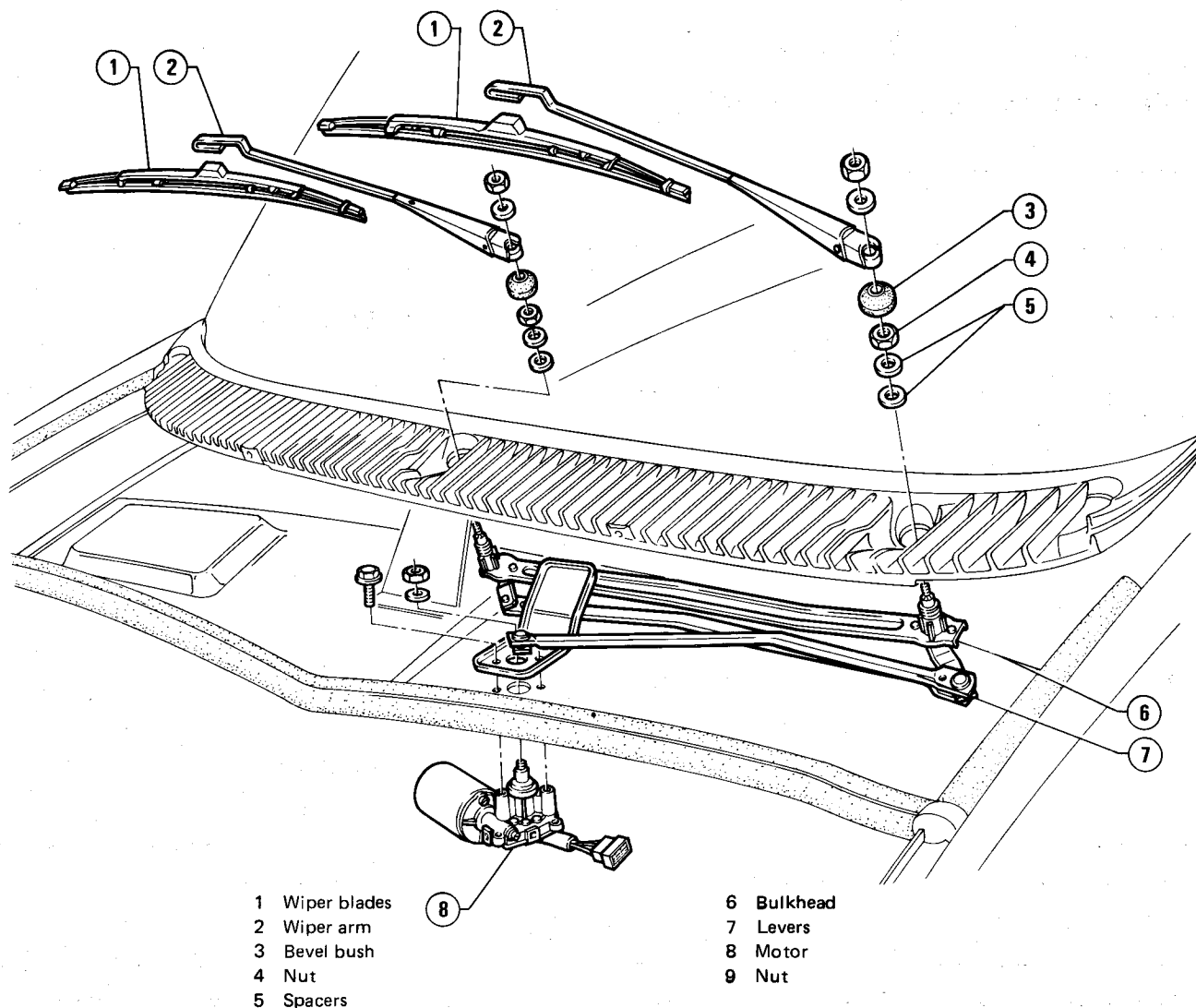
# WINDSCREEN WASH/WIPE AND HEADLIGHT WASHER



## ELECTRICAL SYSTEM

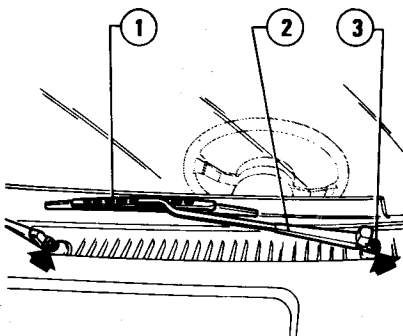
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## WINDSCREEN WIPER



## REMOVAL AND INSTALLATION

1. Remove blades ① from wiper arms.
2. Lift the covers ③ of nuts securing wiper arms ②, unscrew the nuts and remove wiper arms.



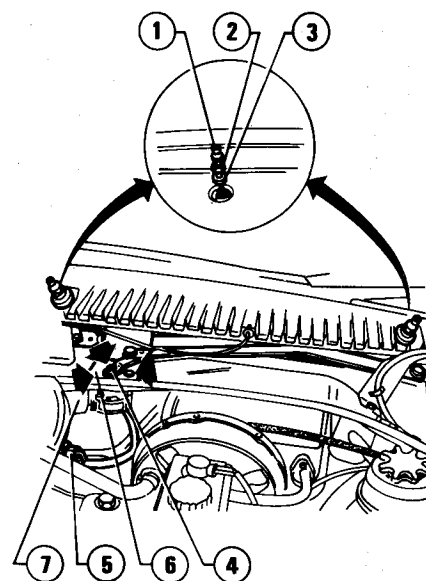
- 1 Wiper blades  
2 Wiper arm  
3 Guard

3. Open the bonnet and disconnect motor wiring ⑤.

4. Withdraw bush ①, unscrew nut ② and remove it together with spacer ③.

5. Unscrew nut ④ which secures motor pin to linkage.

6. Unscrew the three screws securing bracket ⑥ to scuttle and motor ⑦. Remove both motor and windscreen wiper levers.



- 1 Bush  
2 Nut  
3 Spacer  
4 Nut  
5 Wiring  
6 Bracket  
7 Motor

## ELECTRICAL SYSTEM

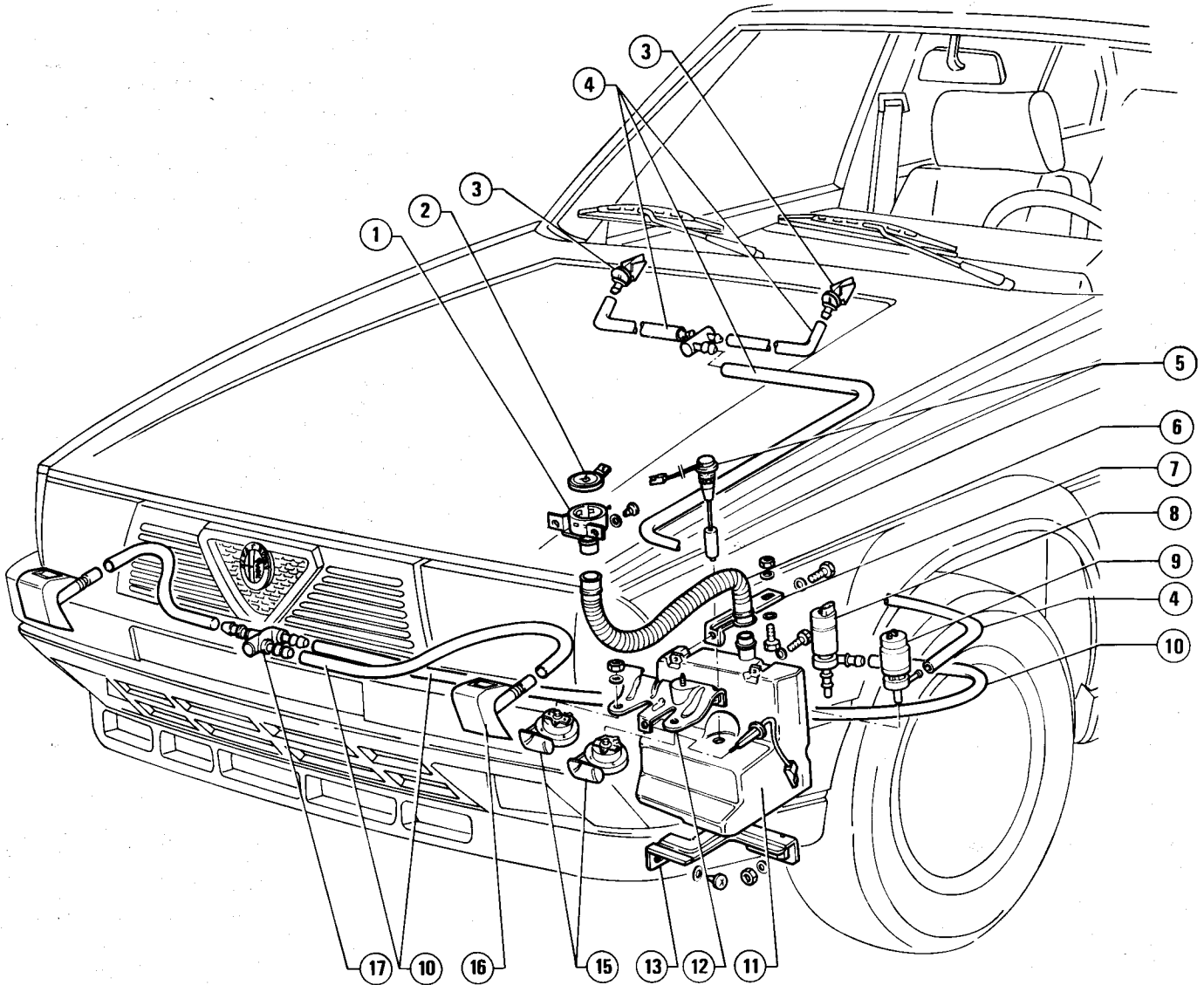
7. Install the windscreen wiper by reversing the order of removal.

### TROUBLE DIAGNOSIS AND CORRECTIONS

Condition	Probable cause	Corrective action
Windscreen wiper fails to operate	<ul style="list-style-type: none"> <li>• Fuse blown</li> <li>• Connection loosened or interrupted</li> <li>• Control contact faulty</li> <li>• Foreign matter interrupts the correct movement of blades control levers</li> <li>• Control rod disconnected</li> <li>• Arm shaft seized</li> </ul>	<p>Replace fuse</p> <p>Restore connection</p> <p>Check combination switch unit (right-hand lever); replace if required</p> <p>Remove foreign matter</p> <p>Connect control rod</p> <p>Replace arm shaft</p>
Windscreen wiper operating speed too low	<ul style="list-style-type: none"> <li>• Short circuit of motor armature</li> <li>• Blades worn or shaft seized</li> <li>• Supply voltage low</li> <li>• Motor, if noisy</li> </ul>	<p>Replace motor</p> <p>Replace blades</p> <p>Check supply</p> <p>Replace motor</p>
Windscreen wiper fails to stop correctly	<ul style="list-style-type: none"> <li>• Stopper faulty</li> <li>• Windscreen wiper motor faulty</li> </ul>	<p>Replace stopper</p> <p>Replace motor</p>
Windscreen wiper fails to operate intermittently but operates at low and high speeds	<ul style="list-style-type: none"> <li>• Windscreen wiper control faulty</li> <li>• Circuit faulty</li> <li>• Intermittence device faulty</li> </ul>	<p>Replace combination switch unit (right-hand lever)</p> <p>Check the circuit</p> <p>Replace intermittence device</p>
Intermittence speed too low for proper wiping	<ul style="list-style-type: none"> <li>• Stopper faulty</li> <li>• Intermittence device faulty</li> </ul>	<p>Replace stopper</p> <p>Replace intermittence device</p>
Intermittence speed too high for proper wiping	<ul style="list-style-type: none"> <li>• Line voltage lower than 10 V</li> <li>• Intermittence device faulty</li> </ul>	<p>Restore line voltage correct value</p> <p>Replace intermittence device</p>
Intermittence speed changes incorrectly	<ul style="list-style-type: none"> <li>• Windscreen wiper switch faulty</li> <li>• Circuit faulty</li> <li>• Windscreen wiper motor faulty</li> <li>• Intermittence device faulty</li> </ul>	<p>Replace combination switch unit (right - hand lever)</p> <p>Check circuit</p> <p>Replace motor</p> <p>Replace intermittence device</p>

## WINDSCREEN AND HEADLIGHTS WASHERS

16 18 20 20 turbodiesel



- |                                      |   |
|--------------------------------------|---|
| 1 Tank filler                        | 11 Tank                                 |
| 2 Cap                                | 12 Bracket                              |
| 3 Windscreen washer spray nozzles    | 13 Bracket                              |
| 4 Windscreen washer piping           | 14 Temperature sensor                   |
| 5 Liquid level sensor                | 15 Horns                                |
| 6 Tank filler pipe                   | 16 Bumper guards with spray nozzles (*) |
| 7 Bracket                            | 17 Headlight piping union               |
| 8 Headlight washer electric pump (*) |   |
| 9 Windscreen washer electric pump    |   |
| 10 Headlight washer piping (*)       |   |

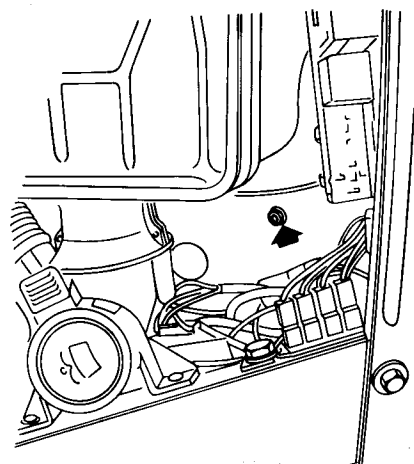
(\*) Not standard for all models

## TANK

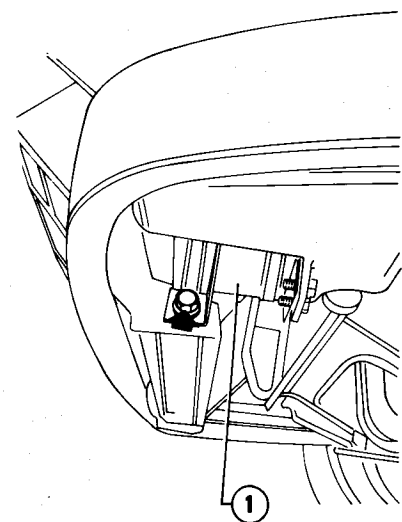
### Removal and installation

**16 18 20 20** **turbodiesel**

1. Open the boot lid and unscrew the nut securing the windscreen washer tank.



2. Operating from under the vehicle, unscrew the screw securing bracket ① to body.



1 Tank support bracket

3. Slightly moving the tank, detach piping of windscreen washer electric pump and, if mounted, that of the headlight washer electric pump; then suitably plug pump delivery.
4. Unscrew the screw securing tank, positioned between tank itself and apron.

5. Carefully lower the tank and disconnect all wiring. Remove tank.
6. Install the tank by reversing the order of removal.

**6V iniezione**

As per **Alfa 90**

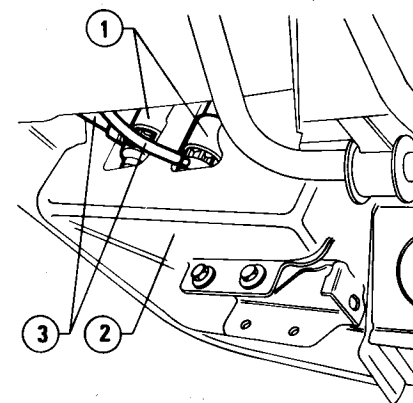
### WINDSCREEN AND HEADLIGHT WASHER ELECTRIC PUMPS

The following procedure is applicable for both pumps.

#### Removal and installation

**16 18 20 20** **turbodiesel**

1. Remove apron (refer to: Group 75 - Apron).
2. Operating from under the vehicle, detach the wiring and the delivery hose ③ taking care to prevent any leaks.
3. Remove pump ①, by withdrawing it from tank ②, plugging suitably the related hole.



- 1 Electric pumps
- 2 Tank
- 3 Piping

4. Install the pump by reversing the order of removal.

**6V iniezione**

As per **Alfa 90**

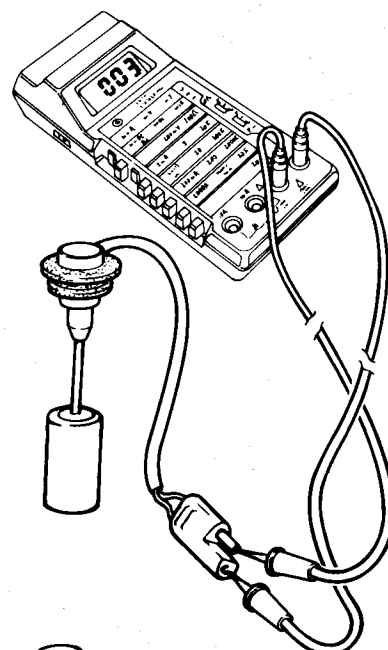
## WINDSCREEN/HEADLIGHT WASHER LIQUID LEVEL SENSOR

### Location

The sensor is inserted in the windscreen/headlight washer liquid tank.

### Check

1. Connect the two tips of a tester to the sensor connector, operating as per figure.
2. Check sensor functioning verifying the resistance values as shown in the figure.



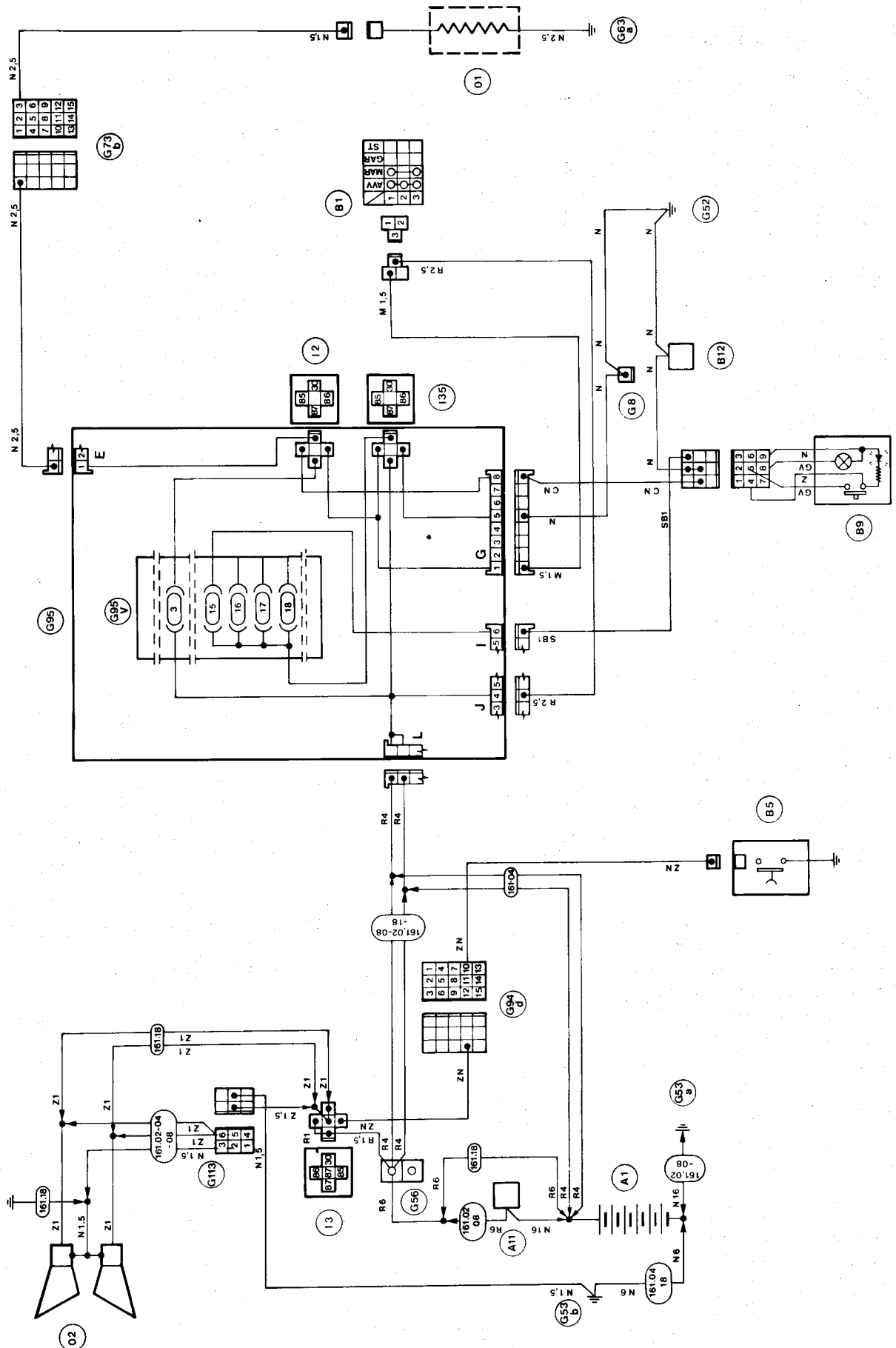
Float lifted  
Resistance = 0 Ω



Float lowered  
Resistance = ∞

## ELECTRIC ACCESSORIES

## HORNS AND HEATED REAR WINDOW (wiring diagram)



## HORNS

### Location

**16 18 20 20** **turbodiesel**

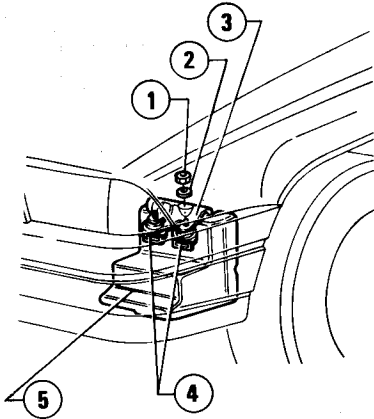
They are mounted inside bumper, on the support bracket installed on windscreen/headlight washer tank.

**6V iniezione**

As per **Alfa 90**

### Removal and installation

**16 18 20 20** **turbodiesel**



- 1 Nut
- 2 Washer
- 3 Support bracket
- 4 Horns
- 5 Windscreen washer tank

1. For an easier operation, set the vehicle on a lift.
2. Remove windscreen washer tank (refer to: Windscreen/Headlight Washer - Tank).
3. Unscrew the nut securing horns to support bracket; remove horns.

4. Install horns by reversing the order of removal.

**6V iniezione**

As per **Alfa 90**

## HORNS CONTROL PUSHBUTTON

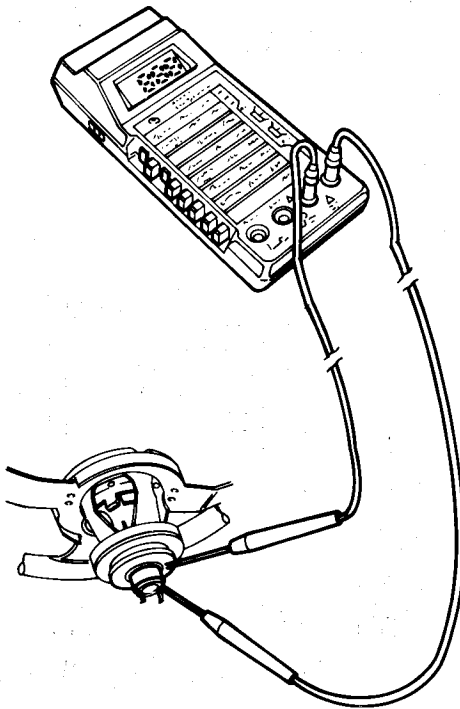
### Location

It is located in the centre of steering wheel (refer to: WORKSHOP MANUAL - mechanical units - Group 23 - Steering Wheel and Column).

### Check

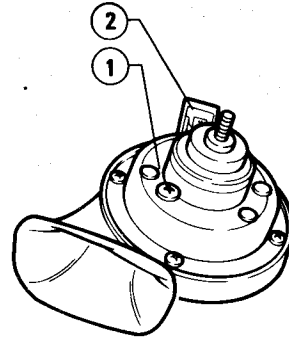
1. Connect the tester tips to the pushbutton terminals, operating as per figure.
2. Check the pushbutton correct functioning, verifying the following resistance values:

Pushbutton released =  $\infty$   
Pushbutton pressed  $\approx 0 \Omega$



## HORNS SETTING

Carry out the horns setting by operating on adjusting screw (1). At the end of the operation, let a drop of paint fall on the screw to tighten it.



- 1 Adjusting screw
- 2 Connector

## ELECTRICAL SYSTEM

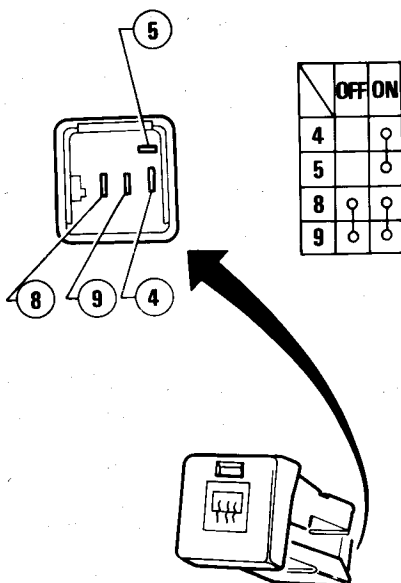
### TROUBLE DIAGNOSIS AND CORRECTIONS

Before starting the trouble diagnosis operations verify proper functioning of both low and high horns.

Condition	Probable cause	Corrective action
One horn only operates	<ul style="list-style-type: none"> <li>One horn faulty</li> <li>Electric connections loosened or faulty</li> </ul>	Replace the faulty horn Restore connection continuity
Poor tone quality on one side	Tone adjustment incorrect	Adjust tone by operating on the related adjusting screw (Refer to: Horns Setting: item ①)
Both horns volume is low	<ul style="list-style-type: none"> <li>Battery charge poor</li> <li>Alternator inefficient</li> <li>Electric connections loosened or faulty</li> </ul>	Recharge or replace battery Replace alternator Restore connection continuity
Both horns fail to operate	<ul style="list-style-type: none"> <li>Wiring interrupted</li> <li>Control pushbutton faulty</li> <li>Battery discharged</li> <li>Horns faulty</li> <li>Relay faulty</li> </ul>	Restore wiring continuity Replace pushbutton Recharge battery Replace horns Replace relay

### HEATED REAR WINDOW

#### HEATED REAR WINDOW SWITCH



#### Location

This switch is inserted on the left-hand side of cluster (refer to: Group 66 - Dashboard).

#### Check

Check the switch functioning verifying that the continuity between terminals takes place in compliance with the indications given in the table.

	OFF	ON
4		○
5		○
8	○	○
9	○	○

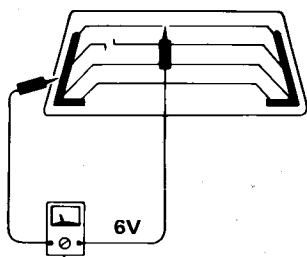
#### HEATED REAR WINDOW FILAMENT

#### Check

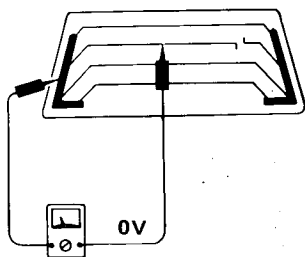
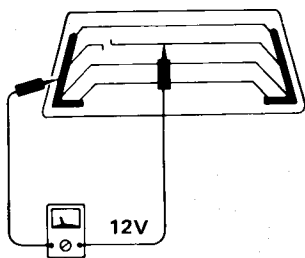
Check filament good conditions operating as follows.

1. Activate the heated rear window.
2. Set one tester terminal (positioned on the Volt scale (V)) at the end and the other in the middle of each filament.

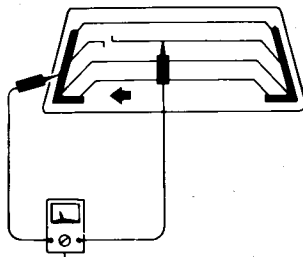
If the filament is in good conditions, the voltmeter indication must be 6 V.



If the filament is interrupted, the voltmeter indication must be 0 or 12 Volt.



3. To identify the interruption, it is necessary to move the tester tip along the filament, and set in evidence the point in which the instrument index moves abruptly.



Or, after having verified that current flows properly to the heated rear window, check the filament electric continuity via the switching on of a warning lamp parallel-connected to the leads of the filament under check.

## Filament repair

### Tools and materials for the repair

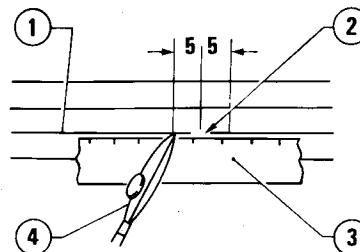
1. Conductor silver compound
2. Ruler (30 cm (11.8 in) length)
3. Ruling pen
4. Heat gun
5. Alcohol
6. Cloth

### Repair

1. Clean the wire and the surrounding area with a cloth soaked in alcohol.
2. Put a slight amount of conductor silver compound on the ruling pen end.

Shake the silver compound box before use.

3. Position a ruler on the rear window, in correspondence with the interrupted wire and, by means of the ruling pen, lay the silver compound so as to cover the wire in the interrupted area, on both sides, for about 5 mm (0.2 in).



- 1 Filament
- 2 Interruption
- 3 Ruler
- 4 Ruling pen

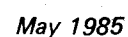
4. Dry the ruling pen end in order to remove the silver compound residuous.

5. Once the repair has been carried out wait for about 10 minutes, then verify the continuity of the wire concerned.

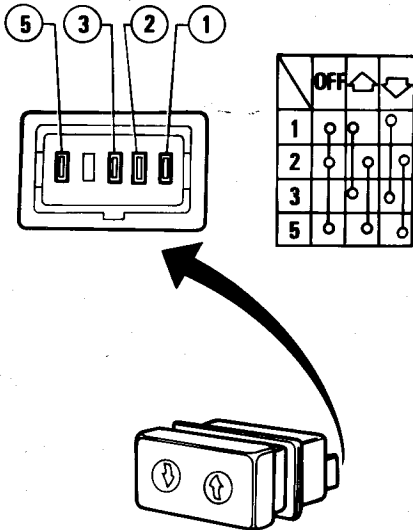
During the test, do not touch the repaired filament.

6. Heat the repaired area with a hot air jet for about 20 minutes, keeping the heat-gun orifice at about 3 cm (1.18 in) from the surface. If a heat-gun is not available, let dry for 24 hours.

## POWER WINDOWS *(wiring diagram)*



## POWER WINDOWS SWITCHES



### Location

The two switches of front power windows, are inserted in the roof

front panel (refer to: Group 66 - Internal Trimming - Roof).

The two switches of rear power windows, are inserted in the rear part of central console (refer to: Group 66 - Consoles - Central Console). The following procedures are applicable for all switches.

### Removal and installation

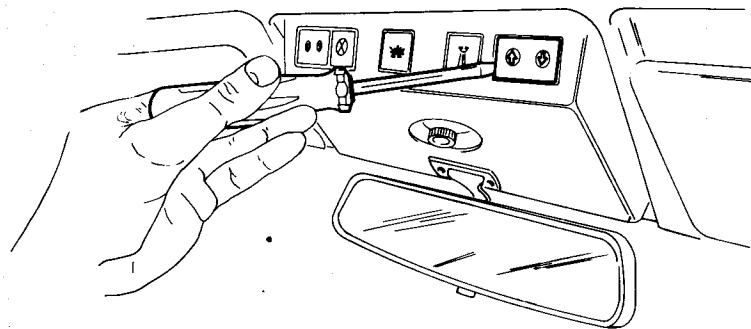
1. By means of a suitable tool,

withdraw the switch casing from its seat on the roof panel, detach wiring and remove the switch.

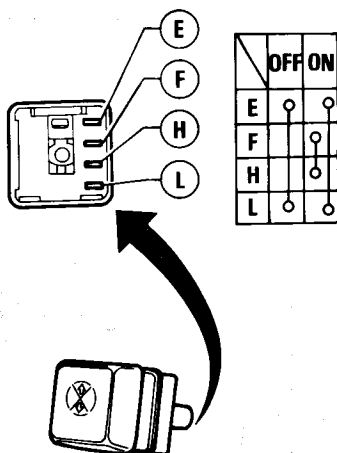
2. Install the switch by reversing the order of removal, and pressure-insert it into its seat.

### Check

Check the switch functioning verifying that the electric continuity between terminals occurs in compliance with the indications given in the table.



## INHIBITOR SWITCH FOR REAR POWER WINDOW



### Location

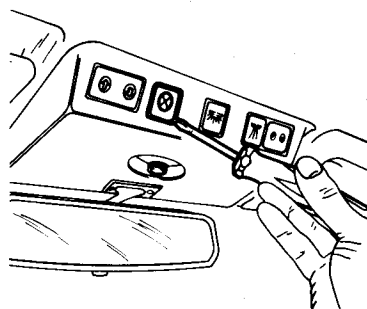
It is inserted in the roof front panel (refer to: Group 66 - Internal Trimming - Roof).

### Removal and installation

1. By means of a suitable tool, withdraw the switch casing from its seat, disconnect wiring and remove the switch.

### Check

Check the switch functioning verifying that the electric continuity between terminals occurs in compliance with the indications given in the table.



2. Install the switch by reversing the order of removal, and pressure-insert it into its seat.

## POWER WINDOW MOTORS

### Removal and installation

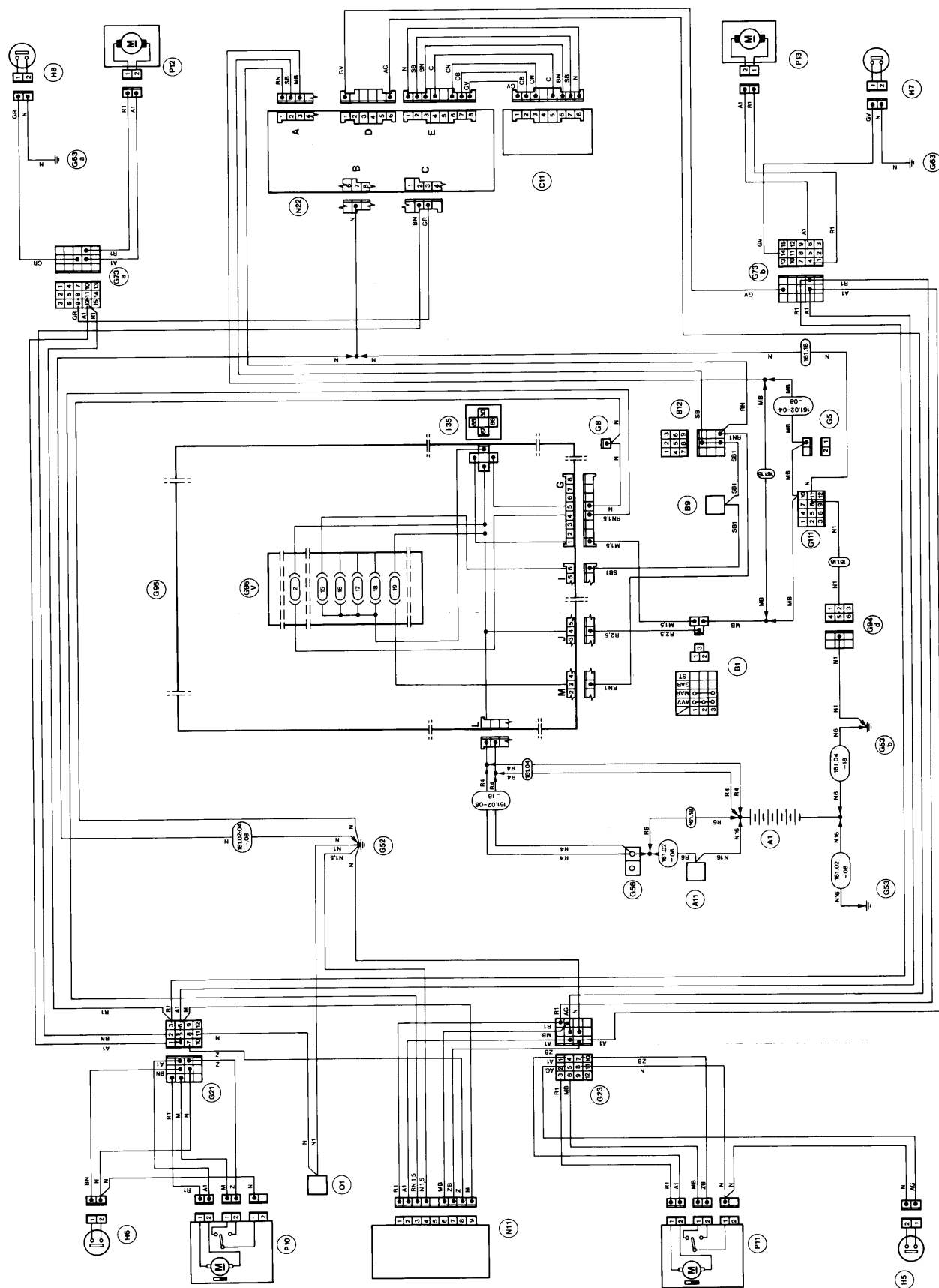
For these procedures, refer to: Group 55 - Front Doors; Rear Doors - Power Window Devices and Windows).

### Check

By means of a warning lamp verify that, with the control switch in the contact position, the current flows correctly to motor terminals. If not so, replace the motor (refer to: Group 55 - Front Doors - Rear Doors - Power Window Devices and Windows).

## DOOR-LOCK DEVICE

(wiring diagram)



## ELECTRICAL SYSTEM

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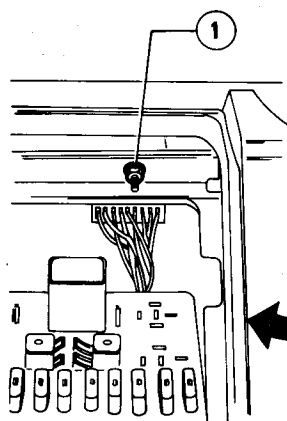
## DOOR LOCK CONTROL UNIT

### Location

This control unit is secured to the bracket inside the dashboard, above the central fusebox (refer to: Wiring).

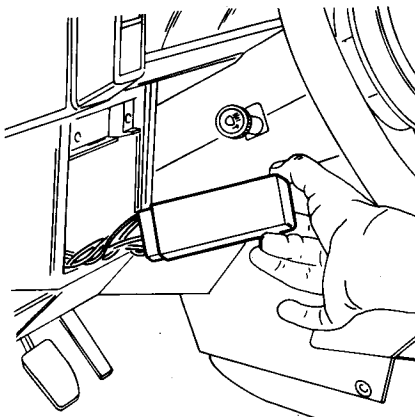
### Removal and installation

1. By means of a suitable tool, withdraw glove box ② from dashboard (refer to: Group 66 - Dashboard).
2. Operating from central fusebox inside, unscrew nut ①.

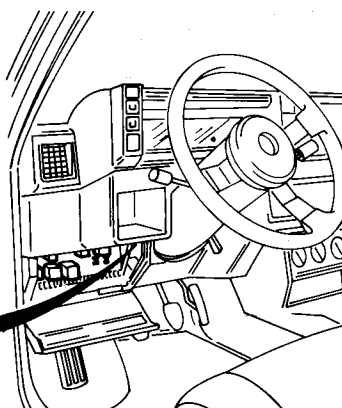


- 1 Nut
- 2 Glove box

3. Withdraw the door-lock control unit through the dashboard opening, in correspondence with glovebox.

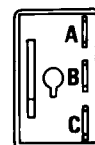


4. Disconnect wiring and remove the door lock control unit, complete with related bracket.

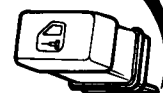


5. Install the control unit on vehicle by reversing the order of removal.

## DOOR UNLOCK SWITCH



	OFF	ON
A		
B		○
C		○



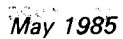
### Location

It is inserted in the special seat on the front left-hand door panel (refer to: Group 55 - Front Doors).

### Check

Check the switch functioning verifying that the electric continuity between terminals occurs in compliance with the indications given in the table.

## CAR RADIO, CLOCK AND CIGAR LIGHTER *(wiring diagram)*



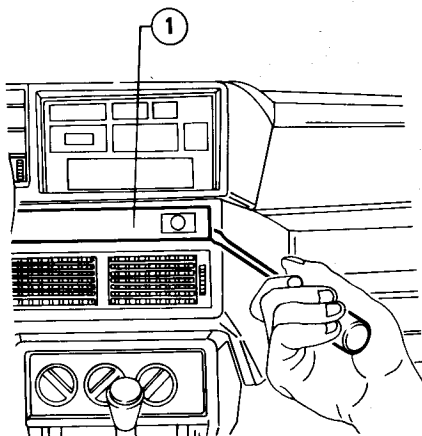
## FRONT CIGAR LIGHTER

### LOCATION

It is located on the dashboard, above the central air vents.

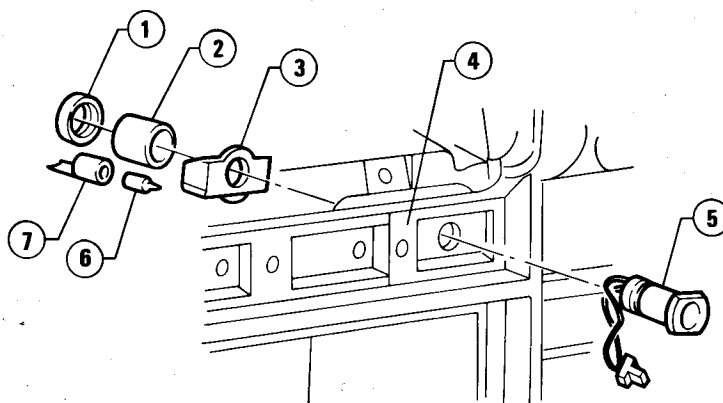
### Removal and installation

1. Withdraw cigar lighter from its seat.
2. By means of a suitable tool, withdraw panel ① from its casing on central console, and disconnect the wiring.



1 Panel

3. Using a suitable tool, remove the central air vent support (complete with air vents) (refer to: Group 66 - Dashboard - Removal and Installation).
4. Operating through the air vent support compartment, disconnect wiring of both cigar lighter and lighting lamp.
5. With reference to the following exploded view, unscrew ring nut ①, and remove front cigar lighter body, by disassembling it.



- 1 Ring nut
- 2 Cigar lighter covering
- 3 Transparent cover
- 4 Dashboard

- 5 Cigar lighter seat
- 6 Bulb
- 7 Lampholder

6. Install the cigar lighter, by reversing the order of removal.

### Lamp replacement

1. Remove central console rear part (refer to: Group 66 - Consoles - Central Console).
2. Operating through the air vent support compartment, disconnect lamp wiring.
3. Lift and withdraw lampholder from its seat in the transparent cover; replace the lighting lamp. Should the operation be difficult, disassemble the cigar lighter body (refer to: Removal and Installation) and operate on the transparent cover separated.
4. Carry out the installation by reversing the order of removal.

### Check

1. Remove the air vent support (refer to: Group 66 - Dashboard - Removal and Installation).
2. Without detaching the wiring, check, by means of a warning lamp, that the current flows to the terminals of cigar lighter casing and check wiring good conditions.

3. If the lamp illuminates, and the cigar lighter is faulty, replace only the cigar lighter. If not so, replace both cigar lighter and its casing (refer to: Removal and Installation).

## REAR CIGAR LIGHTER

### Location

It is inserted in the rear part of central console (refer to: Group 66 - Consoles - Central Console).

### Removal and installation

For removal and installation of the rear cigar lighter refer to: Group 66 - Consoles - Central Console).

### Lamp replacement

1. Remove central console rear part (refer to: GR. 66 - Central Console).

2. Lower and withdraw lampholder from its seat in the transparent cover, and replace the bulb.
3. Install by reversing the order of removal.

## CLOCK

(models **16** **18** **2.0** **turbodiesel** **6V iniezione** ).

### Location

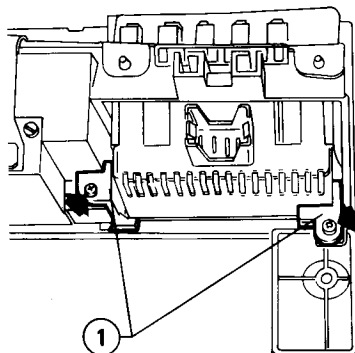
It is inserted on the instrument panel beside the ALFA ROMEO Control display.

### Removal and installation

1. Remove the instrument panel from its seat on the dashboard (refer to: Group 66 - Dashboard - Removal

and Installation).

2. Unscrew the two screws and remove plates ①.

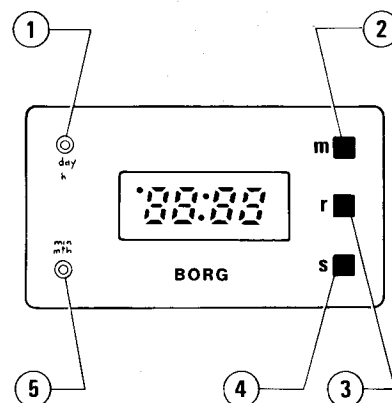


1 Securing plates

The colour of the indications displayed is green.

For an easier comprehension of the clock functioning, refer to the given

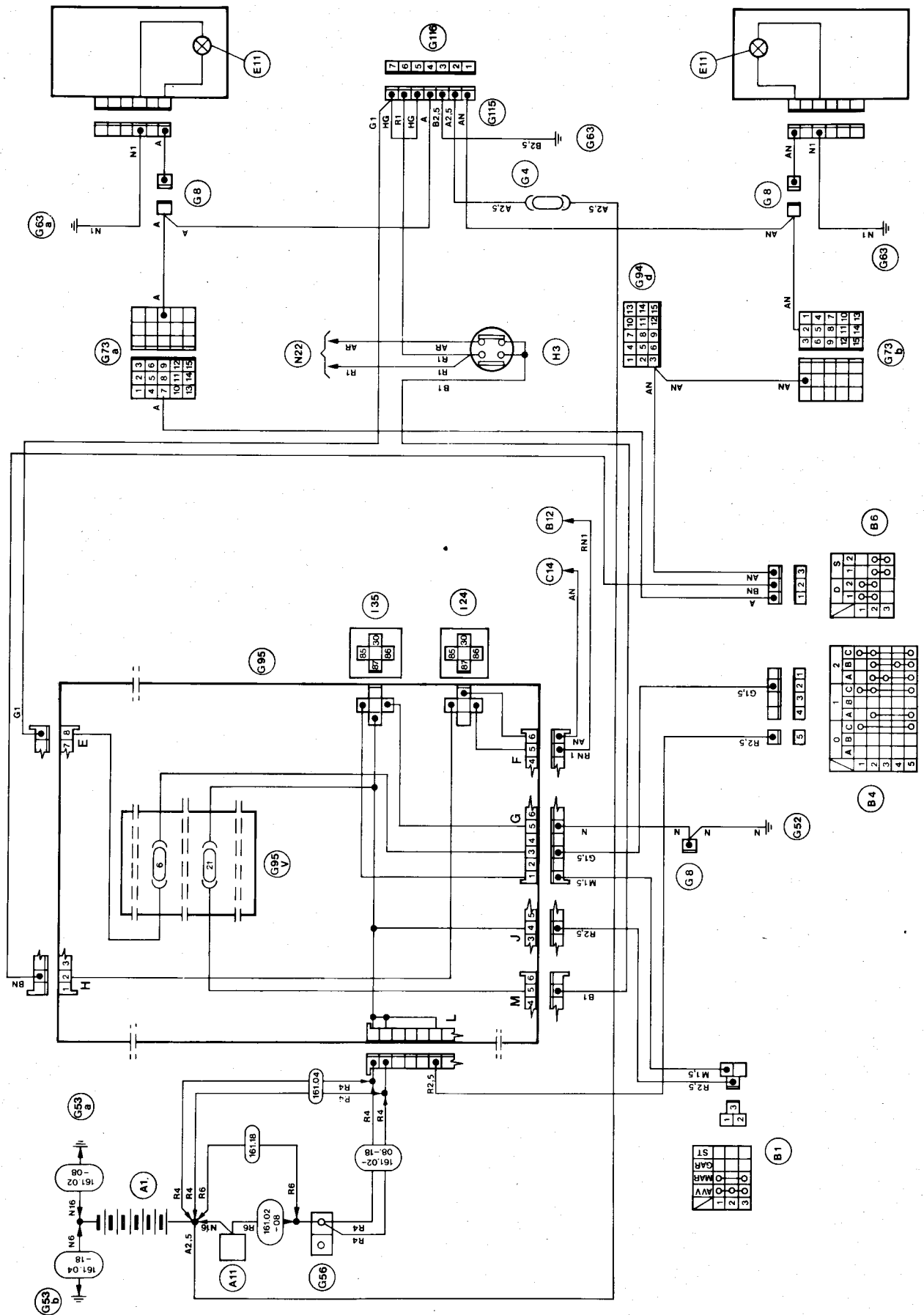
indications and the related sequence.



- 1 Hour or day setting pushbutton
- 2 Function display revolver pushbutton (i.e.: press this pushbutton in sequence to obtain the functions in the sequence shown below)
  - a) Time-hour
  - b) Date
  - c) Chronometer
- 3 Chronometer reset
- 4 Chronometer start/stop  
Right time setting
- 5 Month or minutes setting pushbutton

# ELECTRICAL SYSTEM

## TOW HOOK (wiring diagram)



## ELECTRICAL SYSTEM

---

### ELECTRIC CONNECTION

As regards the electric connection, make use of a seven pin connector (12 V) according to CUNA CN 165-30 specifications.

For correct execution of electric connection, follow the procedure below:

- a. Connect the vehicle ground cable to that of trailer by means of a 7-pin connector, making use of a cable with  $2.5 \text{ mm}^2$  ( $0.0039 \text{ in}^2$ ) section.
- b. Preset the electric circuit related to the direction indicators intermittence device for an additional

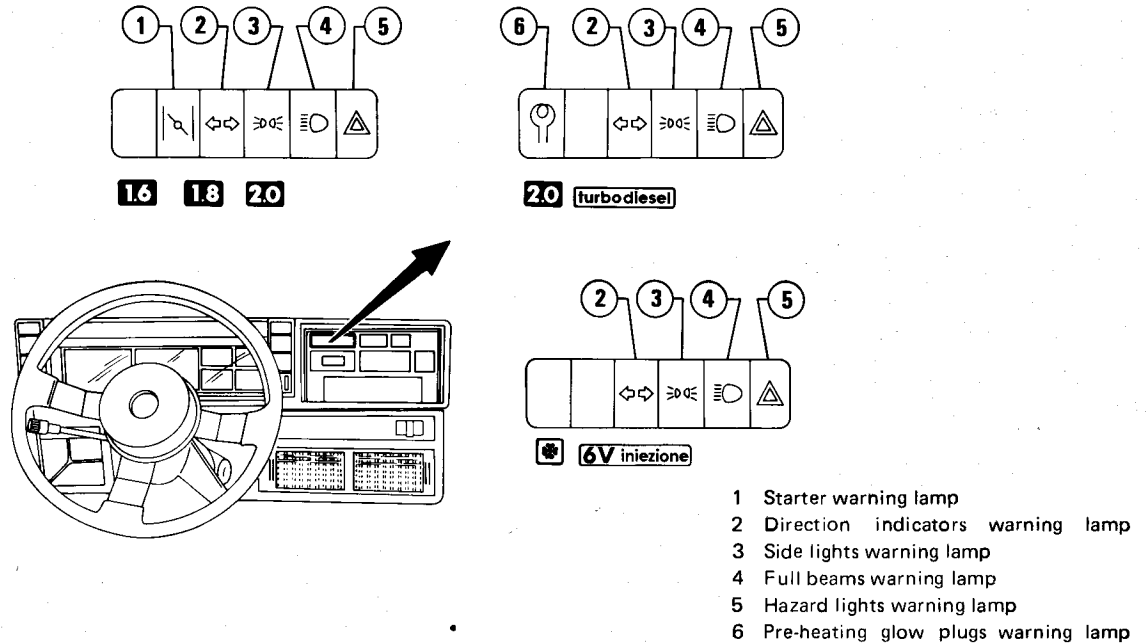
load of two lamps (21 W).

- c. The holes required to feed through the cables should be protected by means of grommets. For the maximum towing weight, refer to Group 00 - Weights and Loads.

# WARNING LAMP PANEL

## CAUTION:

As regards the warning lamp panel wiring diagram, refer to the diagrams related to the single functions.



## Location

The warning lamp panel is located on the instrument panel on cluster right-hand side.

## WARNING LAMPS

### Replacement

1. Remove the ashtray and unscrew the two screws securing ashtray seat and instrument panel to dashboard (refer to: Group 66 - Dashboard).
2. Remove the instrument panel without disconnecting wiring.
3. Rotate and remove lampholder and replace the warning lamp.

- 1 Lampholder for hazard lights warning lamp
- 2 Lampholder for full beams warning lamp
- 3 Lampholder for side lights warning lamp
- 4 Lampholder for direction indicators warning lamp

- 5 Lampholder for starter on warning lamp ( **16 18 20** )
- 6 Lampholder for pre-heating glow-plugs warning lamp ( **2.0 turbodiesel** )

4. Carry out installation by reversing the order of removal.

## WARNING LAMP CIRCUIT

### Removal and installation

1. Remove instrument panel and

## ELECTRICAL SYSTEM

disconnect wiring (refer to: Group 66 - Dashboard).

2. Rotate and remove warning lampholder ②, and lighting lampholder ①.

3. Remove warning lamp circuit ③ releasing it from the plastic pins and lampholders seat.

4. Install the lampholder circuit, by inserting terminals correctly into

their seats.

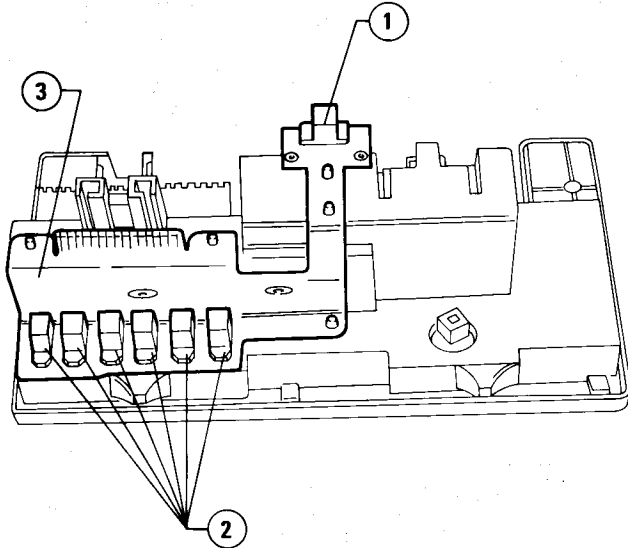
---

**CAUTION:**

**Operate carefully to prevent damaging the printed circuit board.**

---

5. Execute the Trip Computer initialization procedure (refer to: Group 43 - Electronic Devices - Trip Computer).



1 Lighting lampholder  
2 Warning lampholder

3 Warning lamps supply circuit

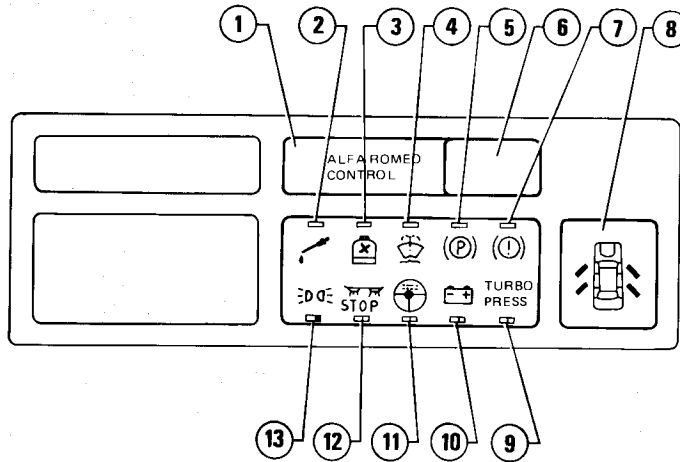
# FA ROMEO CONTROL

(ing diagram)

## ALFA ROMEO CONTROL DISPLAY

The activated function is indicated by a red LED.

For an easier comprehension of the symbols used, refer to the ALFA ROMEO Control indications, pairing them to the related symbols.



- 1 Red alarm warning lamp disable key
- 2 Engine oil level warning lamp
- 3 Coolant level warning lamp
- 4 Windscreen washer liquid level warning lamp
- 5 Handbrake efficiency warning lamp
- 6 General red alarm warning lamp
- 7 Brake oil level and pad wear warning lamp

- 8 Door lock efficiency warning lamp
- 9 Turbocharger max pressure warning lamp
- 10 Generator efficiency warning lamp

- 11 Cluster warning lamps efficiency warning lamp
- 12 Stop lights efficiency warning lamp
- 13 Side/rear fog lights efficiency warning lamp

### Location

The ALFA ROMEO Control display is housed on the instrument panel, on cluster right-hand side.

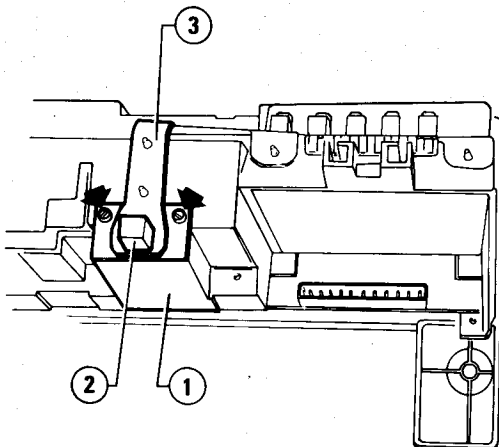
### Removal and installation

1. Remove instrument panel and disconnect wiring (refer to: Group 66 - Dashboard).
2. Remove clock or Trip Computer

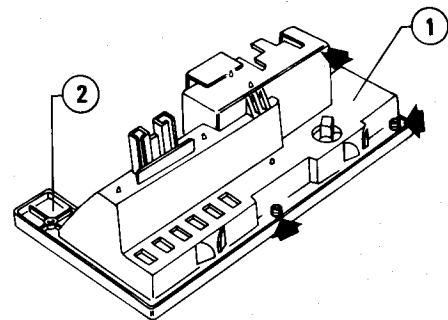
(refer to: Clock - Removal and Installation).

3. Rotate and remove lighting lampholder ②.
4. Unscrew the two screws shown in the figure and remove transparent cover ①, taking care to prevent damaging printed circuit board ③.
5. Remove the warning lamp circuit (refer to: Warning Lamp Panel - Warning Lamp Circuit).

6. Unscrew the three screws securing display ① to instrument panel ②.



- 1 Transparent cover
- 2 Lighting lampholder
- 3 Warning lamps circuit



- 1 ALFA ROMEO Control display
- 2 Instrument panel

7. Separate display from panel, recovering the transparent cover.
8. Install display by reversing the order of removal.

**Take care to position the transparent cover correctly.**

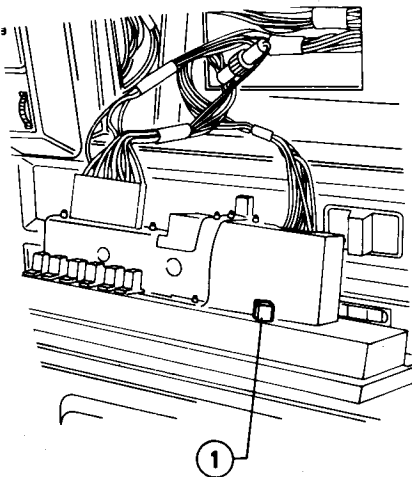
9. Carry out the device final inspection (refer to: Group 43 - Electronic Devices - ALFA ROMEO Control).

10. Execute the Trip Computer initialization procedure (refer to: Group 43 - Electronic Devices - Trip Computer).

### Replacement of alarm general warning lamp

1. Remove instrument panel without disconnecting wiring (refer to: Group 66 - Dashboard).

2. Rotate and remove lampholder ①, and replace the bulb.



1 Alarm general warning lamp lampholder

3. Install panel by reversing the order of removal.

### ALFA ROMEO CONTROL CONTROL UNIT

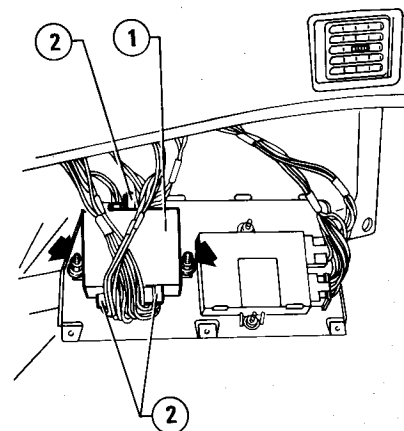
#### Location

It is housed inside the dashboard on the lid above the right-hand glove compartment.

#### Removal and installation

1. Unscrew the screws securing the lid and overturn it (refer to: Fuel Supply - Tachymetric Switch Device).

2. Unscrew the two nuts securing control unit ①, disconnect wiring ②, and disconnect control unit.



1 ALFA ROMEO Control control unit  
2 Wiring

3. Carry out installation by reversing the order of removal.

4. Inspect the device (refer to: Group 43 - Electronic Devices ALFA ROMEO Control).



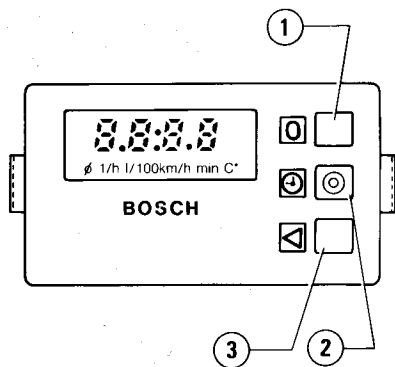
**TRIP COMPUTER**  **6V iniezione** *(wiring diagram)*

## TRIP COMPUTER

### CAUTION:

Should the vehicle not be used for long periods of time, it is good practice to disconnect the Trip Computer ground cable.

For an easier comprehension of the data, refer to the Trip Computer indications, and the related sequence.



- 1 Function reset pushbutton  
-chronometer control - hours and minutes correction
- 2 Clock select pushbutton
- 3 Function select pushbutton (revolver type sequence)
  - a) Immediate consumption
  - b) Average consumption
  - c) Average speed
  - d) Endurance
  - e) Chronometer
  - f) External temperature

### Location

It is housed on the instrument panel, besides the ALFA ROMEO Control display.

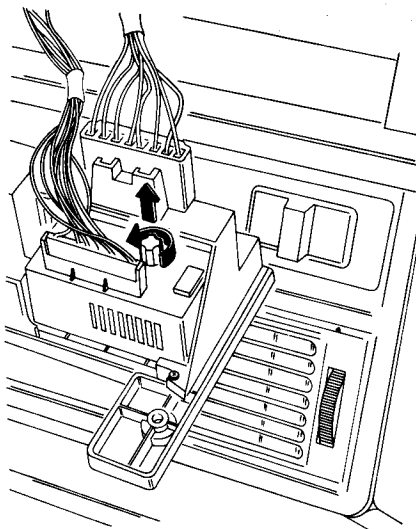
### Removal and installation

1. Remove the Trip Computer operating as per the clock removal (refer to: Clock - Removal and Installation).
2. Install the Trip Computer by reversing the order of removal.

3. Carry out the initialization, Tests and, if necessary, Setting procedures (refer to: Group 43 - Electronic Devices - Trip Computer).

### Lighting lamp replacement

1. Remove instrument panel without disconnecting wiring.
2. Remove lampholder and replace the lamp.



3. Install the Trip Computer by reversing the order of removal.

## OUTSIDE TEMPERATURE SENSOR

### Location

**20**

It is housed inside the bumper, on the support bracket mounted on windscreen/headlight washer tank.

 **6V iniezione**

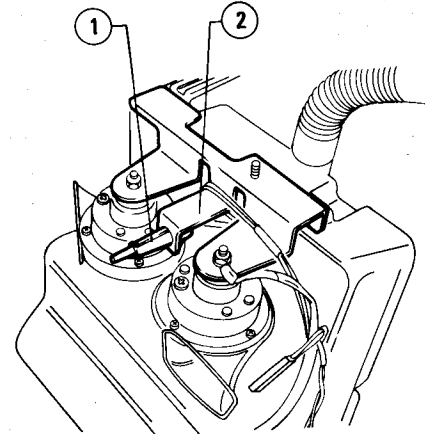
It is housed in front of front right-hand side wheel, under the head-lamp.

### Removal and installation

To facilitate the operation, set vehicle on a lift.

**20**

1. Remove the windscreen washer tank (refer to: Windscreen/Headlight Washer - Tank).
2. Withdraw the outside temperature sensor ① from the seat on bracket ②.



- 1 Outside temperature sensor
- 2 Bracket

3. Install sensor by reversing the order of removal.

 **6V iniezione**

1. Withdraw sensor from body.
2. Disconnect wiring and remove sensor.

## FLOW GAUGE

**20**

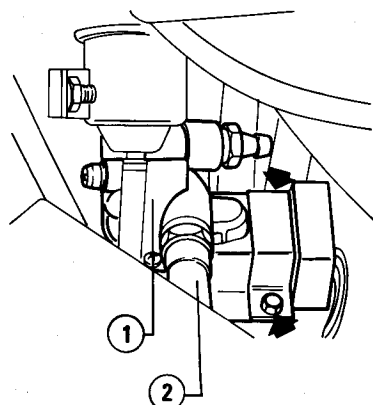
### Location

It is housed on the related bracket on the right-hand side of engine compartment, underneath air cleaner.

## Removal and installation

**WARNING:**  
Operation is to be performed on cold engine.

1. Disconnect the flow gauge wiring.
2. Remove the flow gauge.
  - a. Loosen the clamps securing hose, and disconnect fuel supply piping (2). Plug the piping.
  - b. Unscrew the two screws shown in the figure, and remove flow gauge (1).



- 1 Flow gauge  
2 Piping

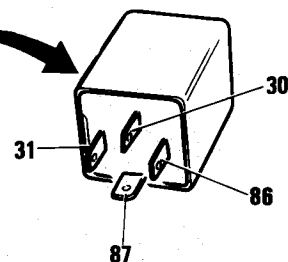
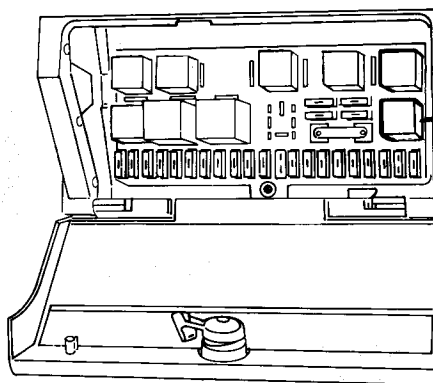
3. Install the flow gauge by reversing the order of removal.

## PULSE CONVERTER FOR TRIP COMPUTER



### Location

It is inserted on the central fusebox in correspondence with position 16.



## Removal and installation

1. Withdraw the pulse converter from its seat; if required, use a suitable tool.
2. Refit the converter into its seat.

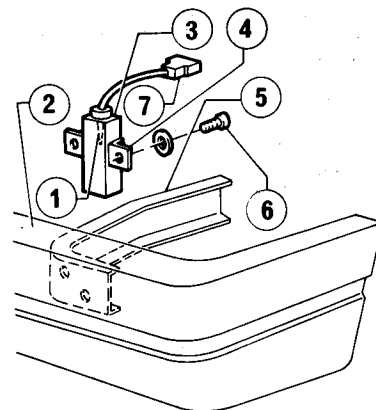
## Technical features

Nominal voltage 12 V  
Operating voltage 9 to 16 V

### Pin out:

Pin 30: Trip signal input  
Pin 31: Ground  
Pin 86: +  
Pin 87: Trip Signal output

2. Detach connector (7) of air temperature sensor.
3. Unscrew self-threading screws (6) and remove protective container (3) along with bracket (4).
4. Remove sensor (1) from container (3).



## AIR TEMPERATURE SENSOR

### Location

The air temperature sensor is inserted inside a container secured with a bracket, on the left-hand side of bumper near the bracket which secures bumper to body.

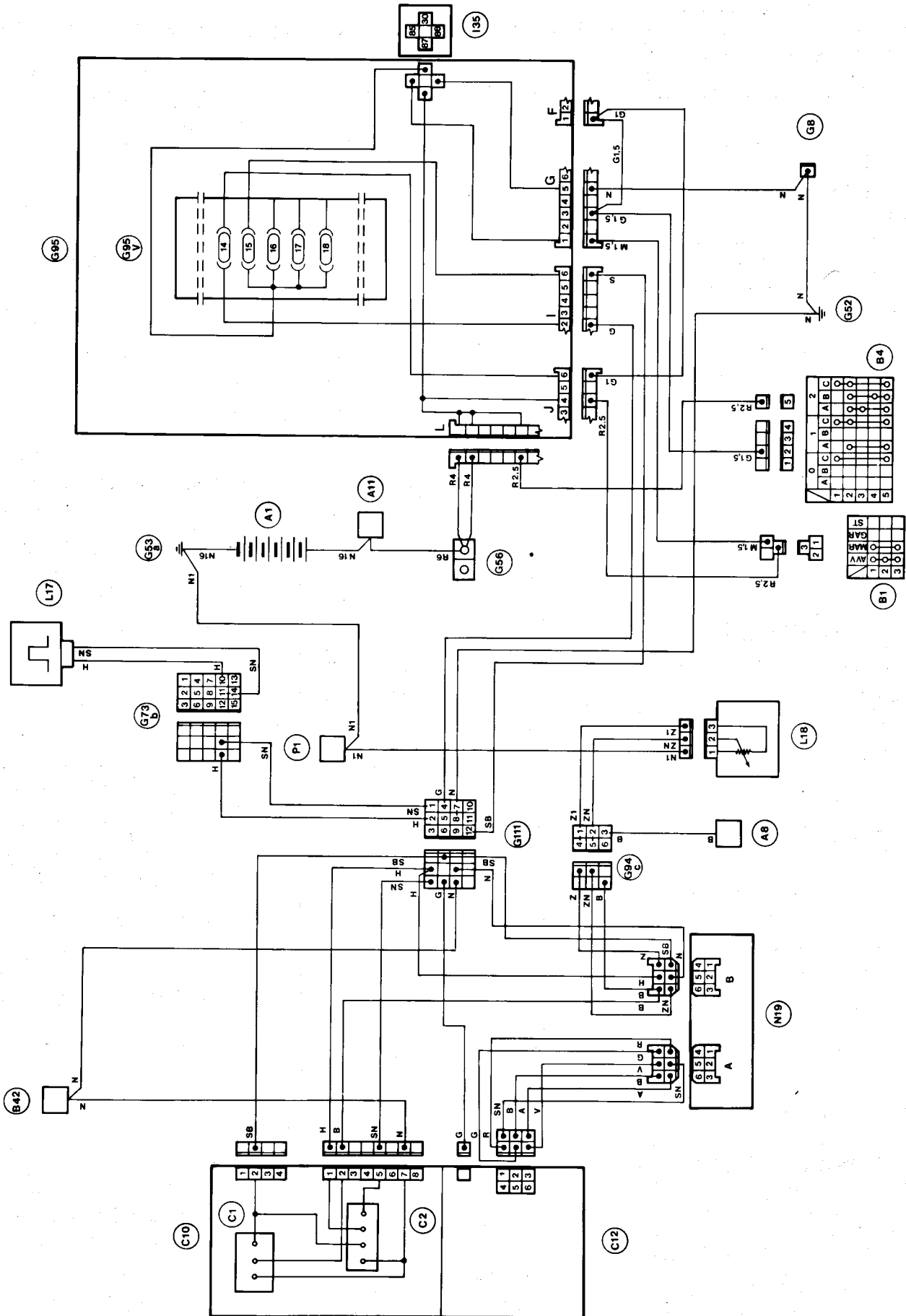
## Removal and installation

1. Place the vehicle on a lift.

- 1 Air temperature sensor
- 2 Bumper
- 3 Protective container
- 4 Bracket supporting protective container
- 5 Bracket securing bumper to body
- 6 Screws securing bracket
- 7 Connector

# ELECTRICAL SYSTEM

## PERFORMANCE GAUGE 16 18 (wiring diagram)



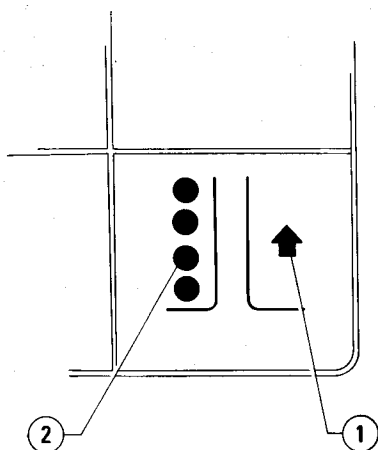
## DISPLAY

### Location

It is housed on cluster (refer to: Group 43 - Cluster - Removal and Installation).

### Removal and installation

To replace the performance gauge display, refer to: Group 43 - Cluster - Disassembly and Reassembly.



- 1 Gear shift arrow
- 2 Immediate consumption LED

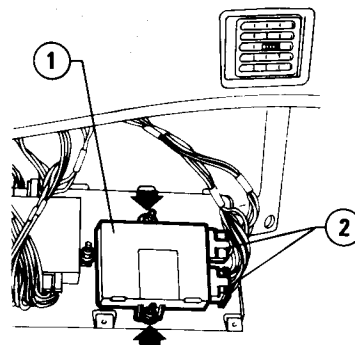
## PERFORMANCE GAUGE CONTROL UNIT

### Location

It is housed inside the dashboard, on the lid above the right-hand side glove box.

### Removal and installation

1. Unscrew the screws securing the lid and overturn it (refer to: Fuel Supply - Tachymetric Switch Device).
2. Unscrew the two nuts securing control unit ① to lid, disconnect wiring ② and remove the control unit.



- 1 Performance gauge control unit
- 2 Wiring

3. Carry out installation by reversing the order of removal.

## ELECTRICAL SYSTEM

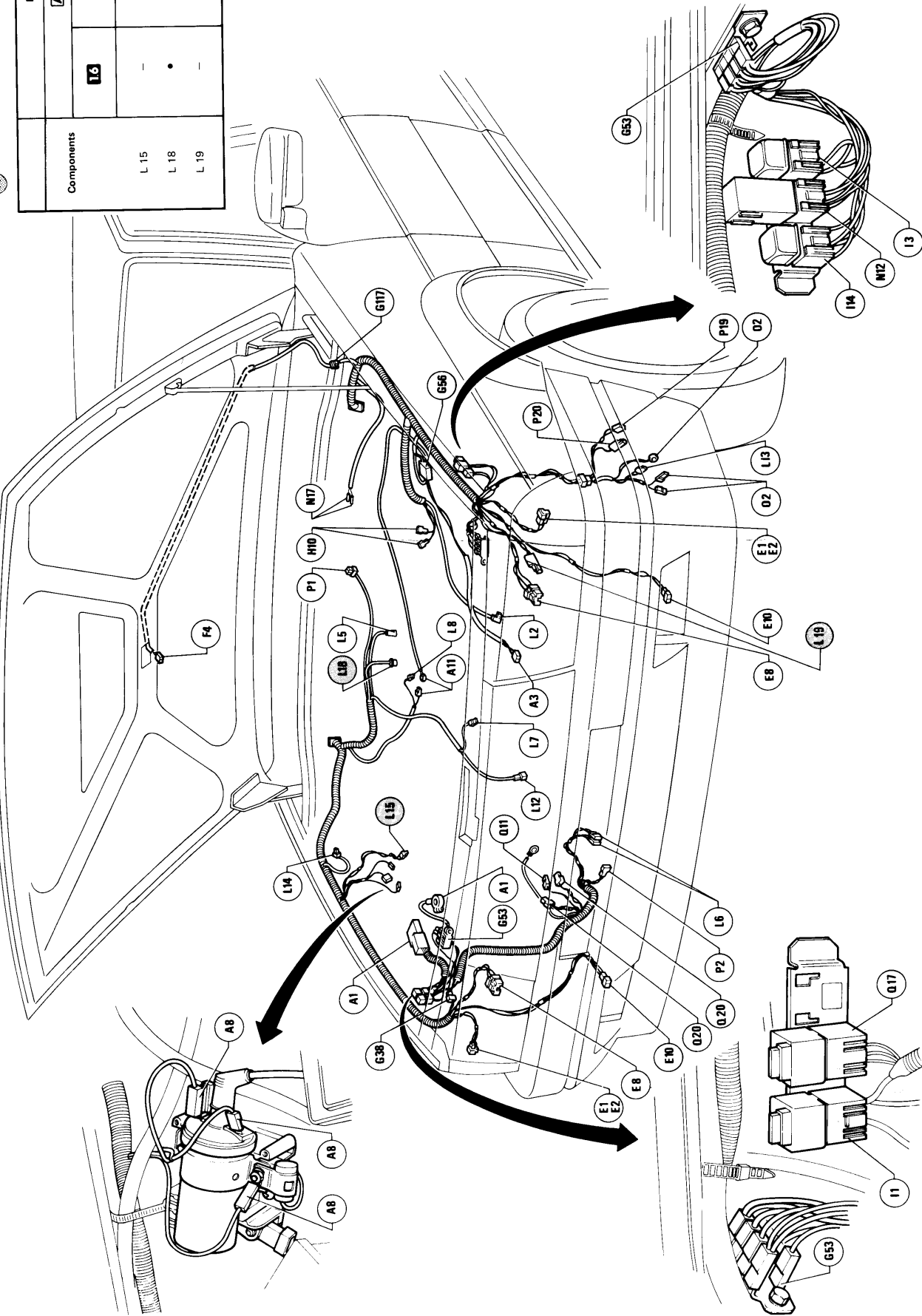
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WIRING

ENGINE COMPARTMENT WIRING 16 18 20

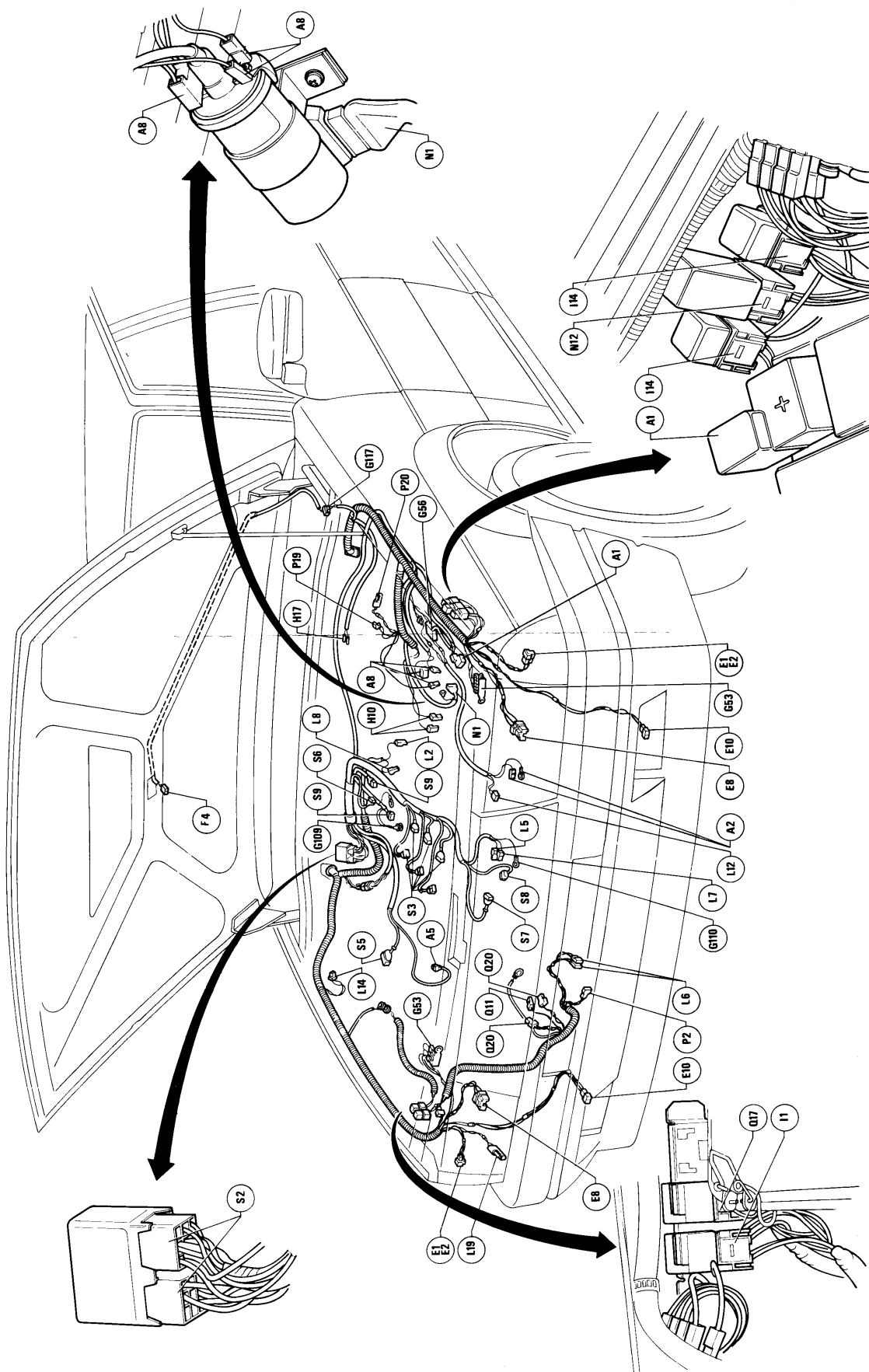
- xx Components common to all models  
yy Components not present in all models

Components	Models			
	16	18	20	
L 15	—	—	•	•
L 18	•	•	—	—
L 19	—	—	—	•

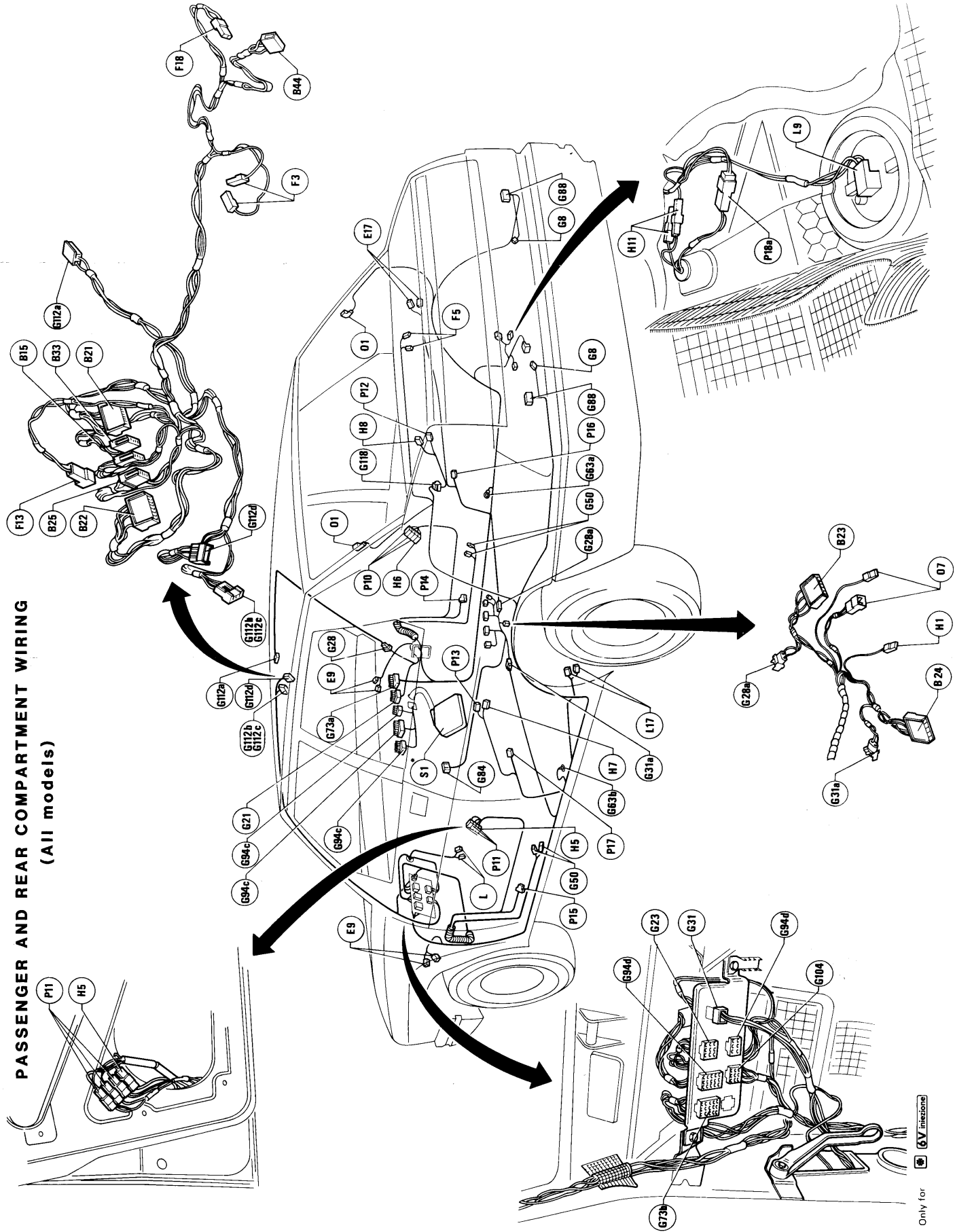




ENGINE COMPARTMENT WIRING  6V hi-torque



# PASSENGER AND REAR COMPARTMENT WIRING (All models)

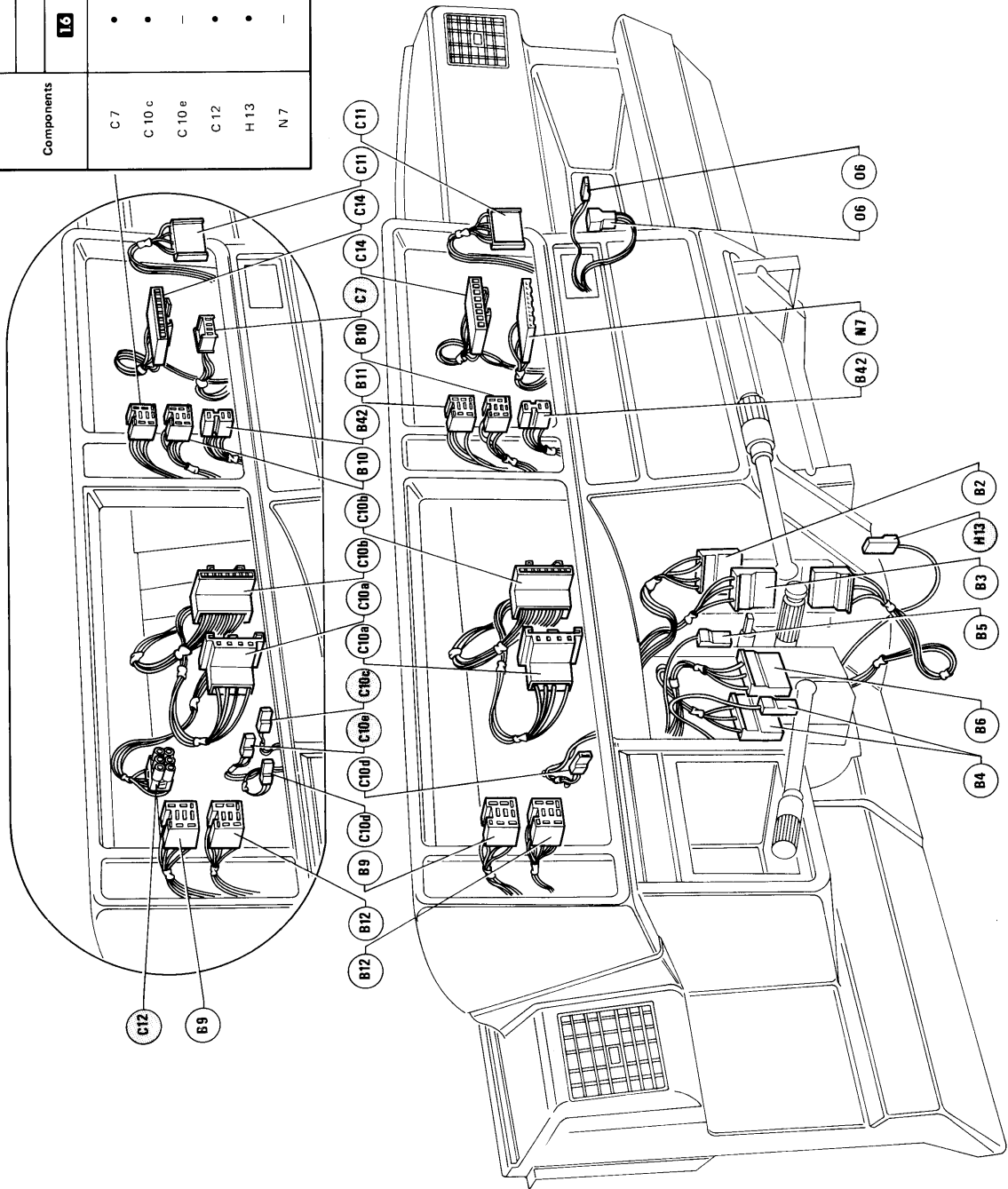


(\*) Only for 6V injection

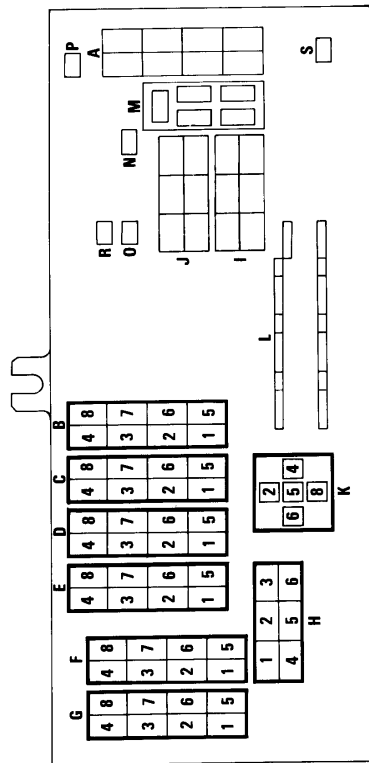
DASHBOARD WIRING - PASSENGER COMPARTMENT SIDE (All models)

- xx Components common to all models
- yy Components not present in all models

Components	Models				
	16	18	20	20	20
C 7	•	•	•	•	•
C 10 c	•	•	•	•	•
C 10 e	•	•	•	•	•
C 12	•	•	•	•	•
H 13	•	•	•	•	•
N 7	•	•	•	•	•




Pin - out location for connectors G, F, E, D, C, B, H and K



### Fusebox - Rear view

Pin	Colour	Service
1	M	Ignition switch
	VN	Connector for injection power supply wiring (1)
2	N	Intermediate connector ( <u>SWF</u> - <u>AUS</u> versions excepted)
3	G	Fusebox: connector F, pin 1
	G	Combination switch
4	RN	Door lock control unit
5	N	Intermediate connector ( <u>LI</u> <u>SWF</u> and <u>AUS</u> versions excepted)
	N	Fusebox: connector D, pin 1
6	Z	Fog lights switch
7	—	Free
8	CN	Heated rear window switch

(1)  **GVA Iniezione** versions excepted

**Connector F: brown colour**

Pin	Colour	Service
1	G	Fusebox: connector J, pin 6
2	G	Fusebox: connector G, pin 3
3	—	Free
4	AB	Fusebox: connector A, pin 7
5	H	Combination switch
6	RN	Hazard lights switch
7	AN	Warning lamps panel
8	—	Free
	—	Free

(1)  **6V iniezione** versions excepted

Pin	Colour	Service
1	N	Heated rear window
2	—	Free
3	AB	Left fog light
	AB	Right fog light
4	RN	Rear power windows switch
5	—	Free
6	—	Free
7	N	Fusebox, connector D, pin 1
8	GV	Fog lights switch

**Connector C: blue colour**

Pin	Colour	Service
1	Z	Combination switch: windscreen wiper
2	RN	Combination switch: windscreen wiper
3	BN	Headlights wiper timer
	BN	Combination switch: head lights wash/wipe
4	—	Free
5	HN	Windscreen wiper motor
6	—	Free
7	—	Free
8	—	Free

Connector H: black colour

Pin	Colour	Service
1	RN	Headlights wiper timer
2	BN	Combination switch, direction indicators
3	BN	Hazard lights switch
4	GN	ALFA ROMEO Control: connector A, pin 5
5	—	Free
6	G	ALFA ROMEO Control: connector A, pin 4
	SB	Fuel electric pump (1)

(1) SN colour for  6V Inlezone version, valid for air - conditioned vehicles

**Connector D: green colour**

Pin	Colour	Service
1	N	Fusebox: connector G, pin 5
	N	Fusebox: connector E, pin 7
2	AN	Windscreen wiper motor
	SN	Combination switch: windscreen wiper
3	H	Front right combination lamp: full beam light
	H	Rear fog lights switch
4	H/G	Number plate lights
5	SB	Rear power window inhibitor switch
6	V	Front right combination lamp: low beam light
	V	Intermediate connector (CII version)
7	HN	Front left combination lamp: low beam light
8	VN	Front left combination lamp: full beam light
	VN	Warning lamps panel

### Connector B

Pin	Colour	Service
		Not connected

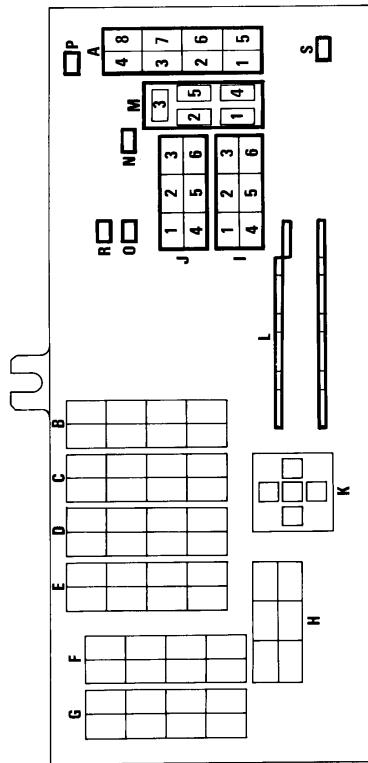
## Connector K

Pin	Colour	Service
2	VB	ALFA ROMEO Control: connector A, pin 10
4	HN	Passenger compartment roof lamp switch
	HN	Fuse light (1)
5	—	Free
6	—	Free
8	—	Free

(1) For **2.0** **turbodiesel**  **6V iniezione** versions

# ELECTRICAL SYSTEM

Pin - out location for connectors L, I, J, O, R, N, M, A, P and S



Fusebox - Rear view

Connector L

Pin	Colour	Service
1	R	Combination switch power supply
2	R	Fusebox: connector O (1)
3	R	Terminal board for battery power supply cables
4	R	Terminal board for battery power supply cables

(1) For **20** **turbodiesel** version

Connector I: red colour

Pin	Colour	Service
1	—	Free
2	G	Cigar lighter
3	G	Lamp dimmer rheostat
4	V	Combination switch
5	HN	Combination switch
6	—	Free
7	—	Free
8	SB	Cluster
9	SB	Heated rear window switch

Connector J: yellow colour

Pin	Colour	Service
1	—	Free
2	S	Brake pad wear sensor
3	S	Rear power window inhibitor switch
4	R	Ignition switch
5	—	Free
6	G	Fusebox: connector F, pin 1

Connector O

Pin	Colour	Service
1	—	Free
2	SB	Fusebox: connector M, pin 4 (2)
3	R	Fusebox: connector L (1)

(1) For **20** **turbodiesel** version  
(2) For air conditioned vehicles

Connector R

Pin	Colour	Service
1	S	Brake fluid level relay (1) (2)

(1) For **20** **turbodiesel** version  
(2) For **20** carburettors, **6V** **injection** versions

Connector M

Pin	Colour	Service
1	SB	Rear cigar lighter (2)
2	R	Front power window switches
3	RN	Hazard lights switch
4	RN	Engine compartment lamp
5	SB	Fusebox: connector O (1)
6	R	Fuse light
7	B	Stop light switch

(1) Not connected on **20** **turbodiesel** version  
(2) Connected on **6V** **injection** version only

Connector P (1)

Pin	Colour	Service
1	R	Relay set (Injection system)

(1) Connected on **6V** **injection** version only

Connector N (1)

Pin	Colour	Service
1	N	Glow plug pre-heating control unit

(1) Connected on **20** **turbodiesel** version only

Connector A: grey colour (1)

Pin	Colour	Service
1	HN	TRIP COMPUTER (3) (4)
2	H	Rear fog lights switch (2) (3)
3	AB	Fusebox: connector A, pin 7 (2) (3)
4	N	TRIP COMPUTER ground (3) (4)
5	V	Intermediate connector (2) (3)
6	SB	Cluster (3) (4)
7	AB	Fusebox: connector F, pin 3 (2) (3)
8	AB	Fusebox: connector A, pin 3 (2) (3)
9	H	TRIP COMPUTER: speedometer pulse generator (3) (4)

(1) Not connected on **20** **turbodiesel** version  
(2) For **13** **20** versions (for **13** only)  
(3) For **6V** **injection** version (for **13** only)  
(4) For **6V** **injection** version (for **13** excepted)

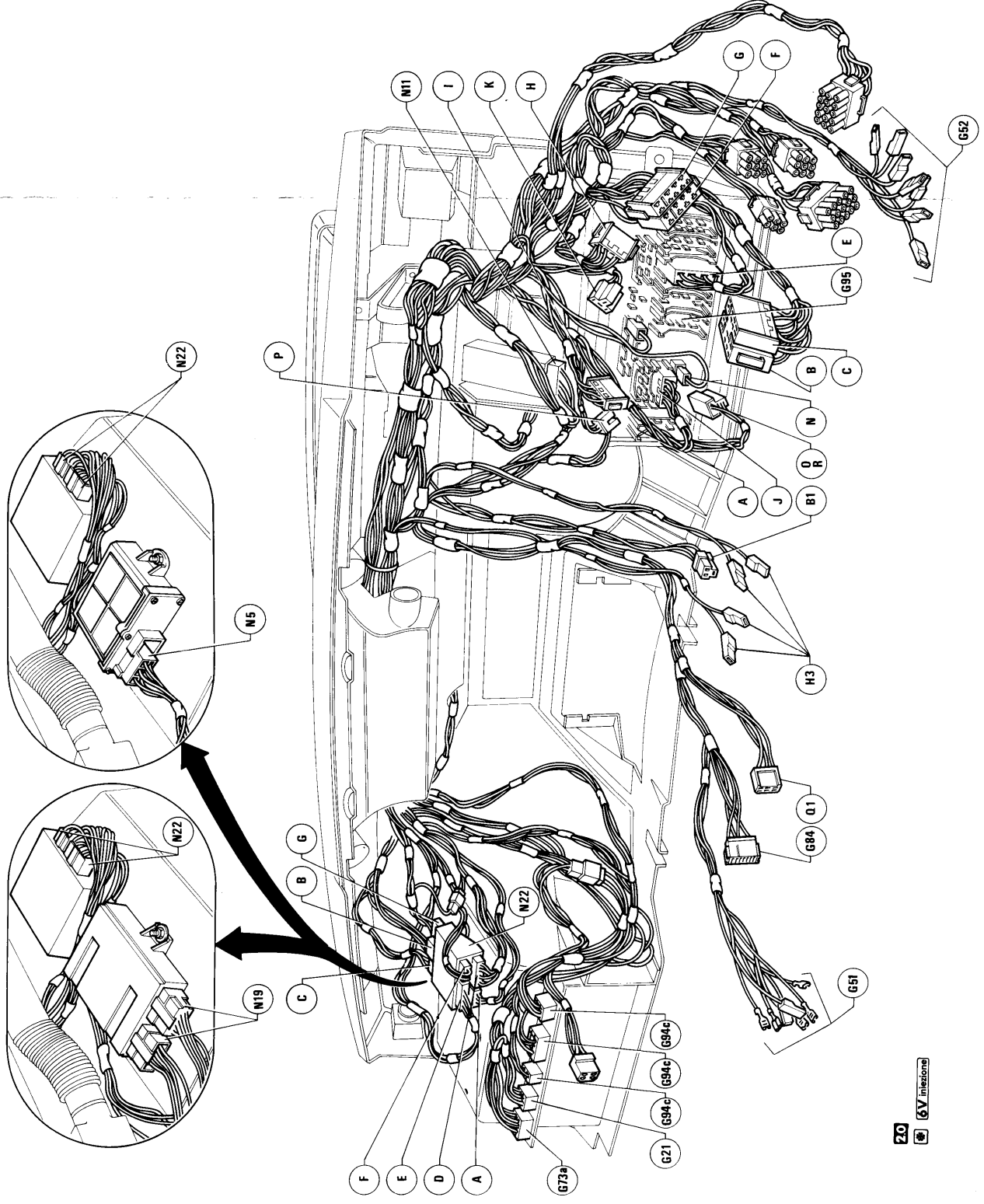
Connector S

Pin	Colour	Service
1	—	Free

## DASHBOARD WIRING - ENGINE COMPARTMENT SIDE (All models)

16 13

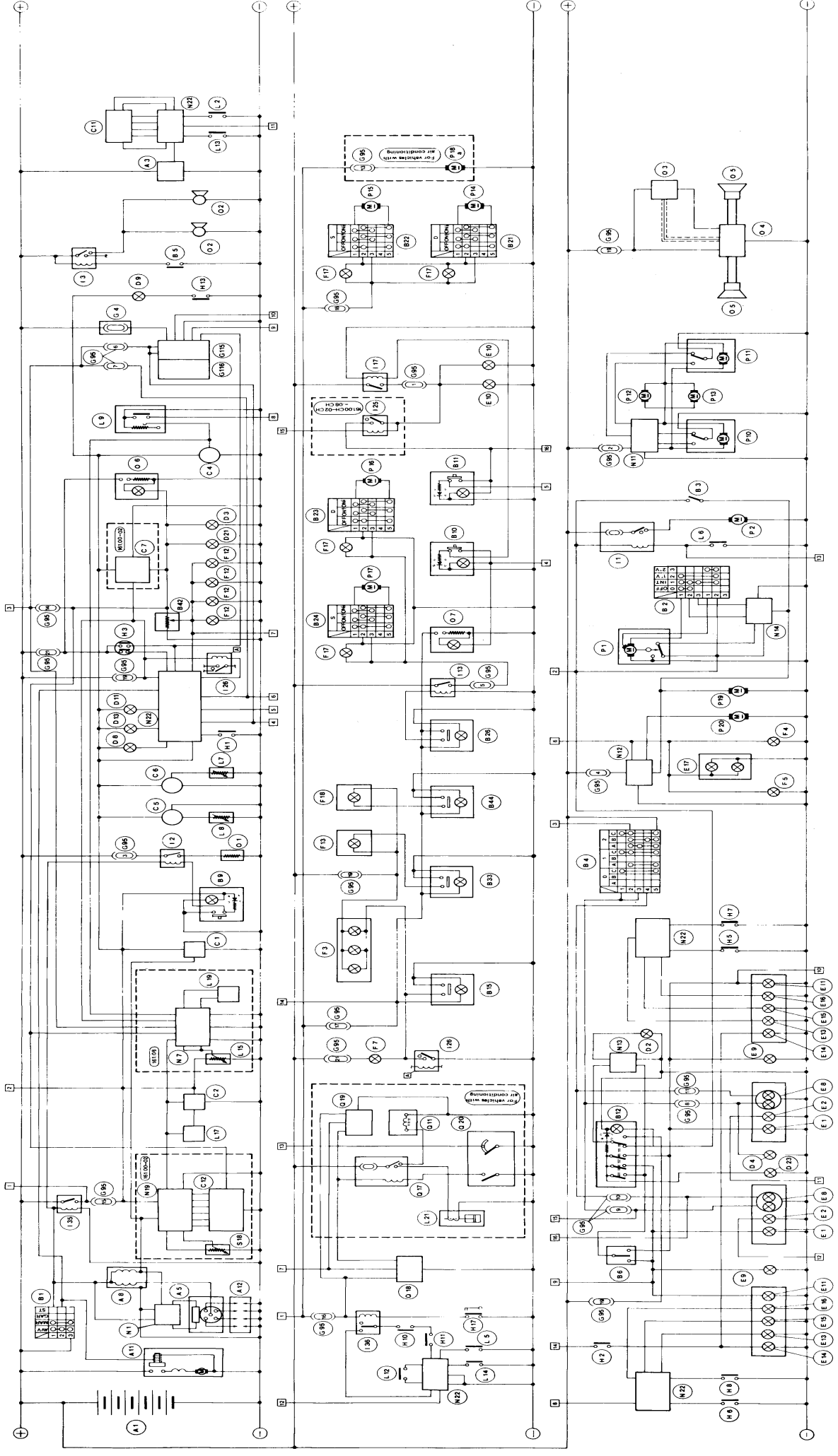
20 turbo diesel

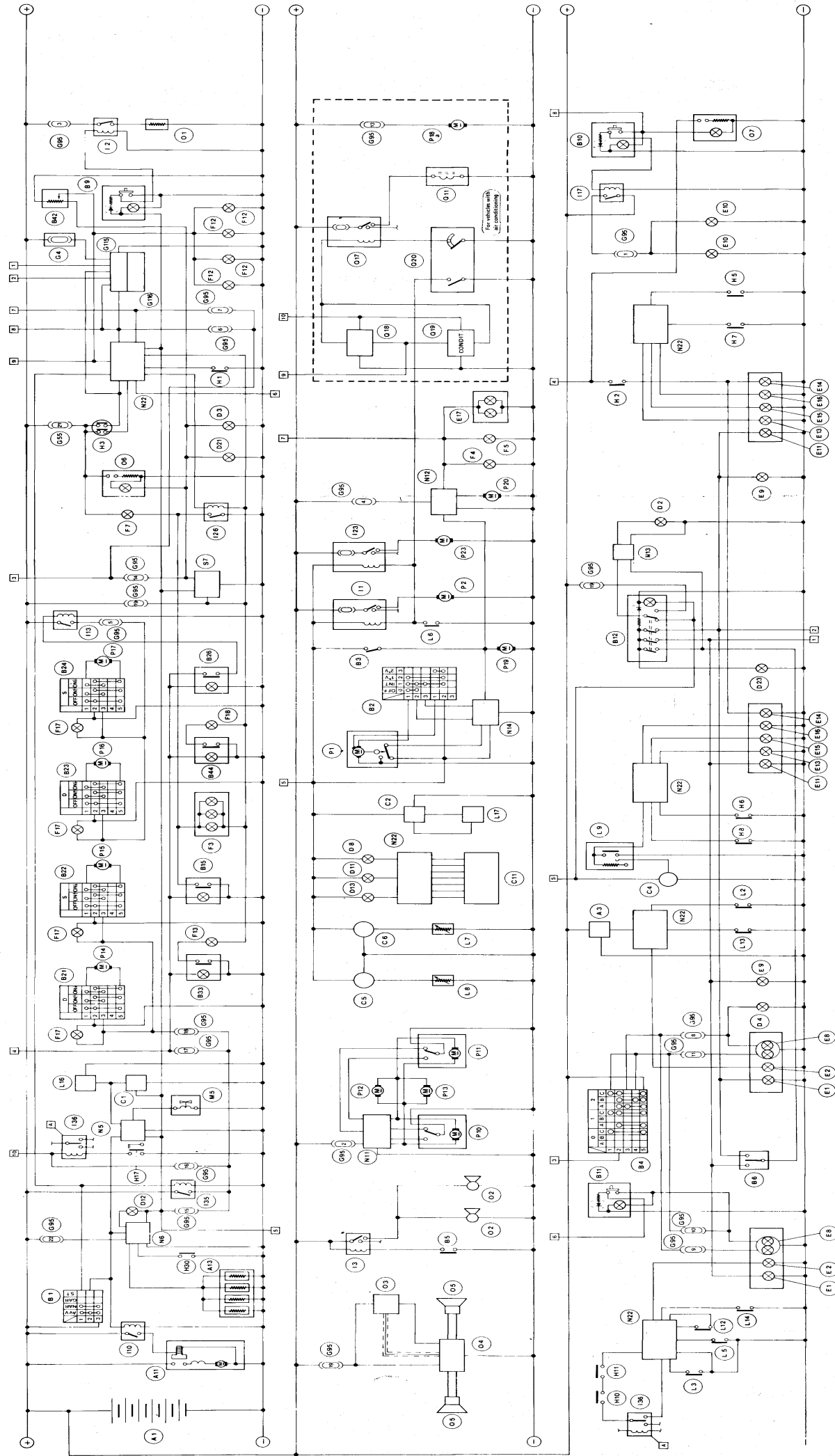


20 6V in diesel

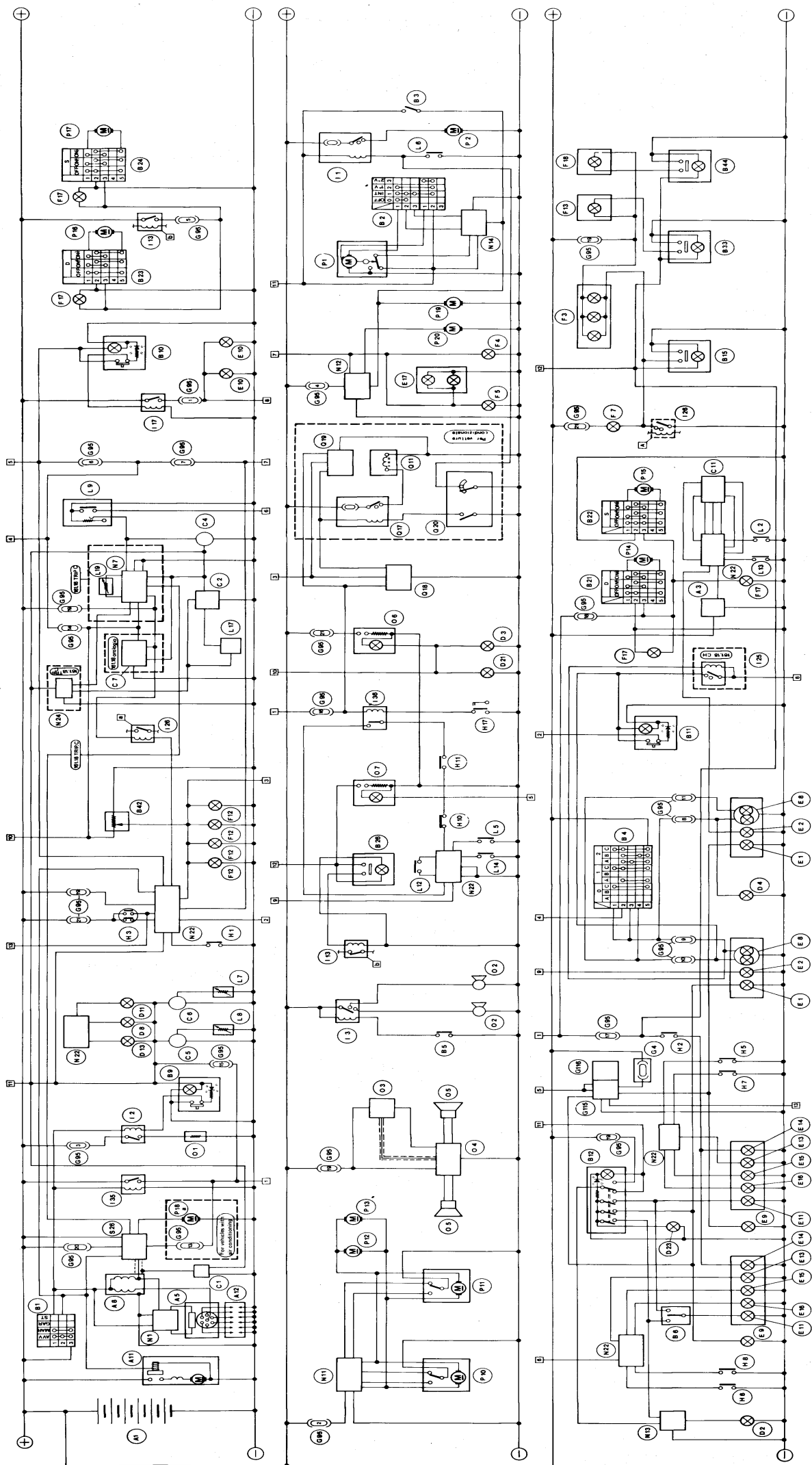
## FUNCTIONAL DIAGRAM

1.6 1.8 2.0





5 V line zone



## ELECTRICAL SYSTEM

---

# KEY TO WIRING DIAGRAM

## A: STARTING - CHARGING

- A1 Battery
- A2 Alternator
- A3 Alternator with integral electronic voltage regulator
- A4 Voltage regulator
- A5 Ignition distributor
- A6 Impulse generator
- A7 Rotor
- A8 Ignition coil
- A9 Coil resistor
- A10 2-way connector for coil
- A11 Starter motor
- A12 Spark plugs
- A13 Pre-heating glow plugs
- A14 Alternator cable terminal board

## B: MANUAL ELECTRIC CONTROLS

- B1 Ignition switch
- B2 Windscreen wiper control
- B3 Windscreen and/or headlamp washer pump control
- B4 Control for side lights, flashing, low/full beam headlamps
- B5 Horn control switch
- B6 Direction indicators control
- B7 Low beam flashing control switch
- B8 Full beam flashing control switch
- B9 Heated rear window control switch
- B10 Fog lamp control switch
- B11 Rear fog lamp control switch
- B12 Road hazard lights control switch
- B13 Passenger compartment front roof lamp control switch
- B14 Passenger compartment rear roof lamp control switch
- B15 Passenger compartment roof lamp control switch
- B16 Cluster lighting dimmer rheostat
- B17 Gearbox oil level warning lamp switch
- B18 Door lock control switch on front right door
- B19 Door lock control switch on front left door
- B20 Interior door locking switch
- B21 Front right power window control switch
- B22 Front left power window control switch
- B23 Rear right power window control switch
- B24 Rear left power window control switch
- B25 Rear power window inhibitor switch
- B26 Rear power window and rear cigar lighter inhibitor switch
- B27 Front seat height control switch
- B28 Front left backrest control switch
- B29 Front right backrest control switch
- B30 Door mirror control switch
- B31 Antenna control switch
- B32 Windscreen washer pump control
- B33 Front spot switch
- B34 Rear left spot switch
- B35 Rear right spot switch
- B36 Door mirror double control switch
- B37 Side light control switch
- B38 Rear window wiper control switch
- B39 Trip odometer recall microswitch
- B40 Trip odometer reset microswitch
- B41 VF electronic rheostat
- B42 Lamp dimmer rheostat
- B43 Internal control switch for door unlock
- B44 Rear spot light control switch

## C: INSTRUMENTS

- C1 Electronic rev-counter
- C2 Electronic speedometer
- C3 Voltmeter
- C4 Fuel level gauge
- C5 Oil pressure gauge
- C6 Coolant temperature gauge
- C7 Clock
- C8 Space free for instrument
- C9 Turbocharger air pressure gauge
- C10 Cluster (\*)
- C11 ALFA ROMEO Control display
- C12 Performance gauge display
- C13 Optoelectronic cluster
- C14 Warning lamp panel

(\*) C10 a/b/c/d/e/f Cluster connectors

## D: WARNING LAMPS

- D1 Alternator warning lamp
- D2 Direction indicator warning lamp
- D3 Side light warning lamp
- D4 Full beam warning lamp
- D5 Brake fluid low level warning lamp
- D6 Heater/ventilation warning lamp
- D7 Handbrake warning lamp
- D8 Fuel reserve warning lamp
- D9 Choke warning lamp
- D10 Handbrake ON - brake fluid level warning lamp
- D11 Engine oil minimum pressure warning lamp
- D12 Pre-heating glow plug warning lamp
- D13 Engine coolant high temperature warning lamp
- D14 Maximum air pressure warning lamp
- D15 Minimum fuel pressure warning lamp
- D16 Warning lamp free
- D17 Gear position warning lamp
- D18 Manual injection advance warning lamp
- D19 Brake pad wear warning lamp
- D20 Rear drive engagement warning lamp
- D21 ALFA ROMEO Control warning lamp
- D22 Heated rear window warning lamp
- D23 Hazard lights warning lamp
- D24 Rear fog light warning lamp
- D25 Fog light warning lamp
- D26 Injection diagnosis warning lamp

## E: EXTERNAL LIGHTS

- E1 Front direction indicator warning lamp
- E2 Front side light
- E3 Front direction indicator and side light
- E4 Front side marker light
- E5 Low beam light
- E6 Low beam light with incorporated side light
- E7 Full beam light
- E8 Low and full beam light
- E9 Side repeater
- E10 Fog light

## ELECTRICAL SYSTEM

### E: EXTERNAL LIGHTS (continued)

- E11 Rear direction indicator
- E12 Rear side marker light
- E13 Rear side light
- E14 Reversing light
- E15 Stop light
- E16 Rear fog lamp
- E17 Numberplate light
- E18 Stop and rear side light
- E19 Rear right light
- E20 Rear left light

### F: INTERIOR LIGHTS

- F1 Passenger compartment front roof lamp
- F2 Passenger compartment rear roof lamp
- F3 Passenger compartment roof lamp
- F4 Engine compartment lamp
- F5 Luggage compartment lamp
- F6 Door open signalling light
- F7 Fuse light
- F8 Heater/ventilation controls lighting lamp
- F9 Glovebox light
- F10 Ashtray light
- F11 Map light
- F12 Cluster light
- F13 Front spot
- F14 Rear right spot
- F15 Rear left spot
- F16 Ignition switch light
- F17 Switch illumination light
- F18 Rear spot light

### G: FUSEBOX - CONNECTORS - GROUNDS

- G1 Fusebox
- G2 Auxiliary fusebox
- G3 Fusebox terminal
- G4 Free fusebox
- G5 Multiple connector
- G6 Multiple connector B - cluster
- G7 Multiple connector R - cluster
- G8 Single connector
- G9 Connector between front left door wiring and door mirror switch
- G10 Connector between front right door wiring and door mirror switch
- G11 Connector between board wiring and rear wiring
- G12 Connector between board wiring and courtesy mirror switch
- G13 Connector between board wiring and console wiring
- G14 3-way connector between board wiring and door wiring
- G15 2-way connector between board wiring and door wiring
- G16 6-way connector between board wiring and door wiring
- G17 Connector between board wiring and front right door wiring
- G18 Connector between board wiring and front left door wiring
- G19 Connector between board wiring and passenger compartment roof lamp
- G20 Connector for front right door - locking motor
- G21 Connector for front right door wiring

- G22 Connector for front left door - locking motor
- G23 Connector for front left door wiring
- G24 Connector for rear right door - locking motor
- G25 Connector for rear right door wiring
- G26 Connector for rear left door - locking motor
- G27 Connector for rear left door wiring
- G28 Connector between front right door wiring and power window switch
- G28a Connector between rear right door wiring and power window switch
- G29 Connector between door lock wiring and rear power windows
- G30 Connector for power windows and door lock
- G31 Connector between front left door wiring and power window switch
- G31a Connector between rear left door wiring and power window switch
- G32 Connector between console wiring and rear right door wiring
- G33 Connector between console wiring and rear left door wiring
- G34 Connector for power window supply cable
- G35 Connector between rear wiring and rear right tail light wiring
- G36 Connector for power window switch cables
- G37 Connector for multiswitch on steering column
- G38 Connector for air conditioner wiring
- G39 Connector for clock wiring
- G40 Connector for door lock control unit
- G41 Connector for tachymetric switch - rev counter pulse generator
- G42 Connector between alternator and min engine oil pressure switch
- G43 Connector for heater/ventilation control cables
- G44 Connector for rear fog lamp
- G45 Connector for headlight wash/wipe cables
- G46 Connector for headlights
- G47 Connector for right side - repeater cables
- G48 Connector between electric door mirror and left side - repeater cables
- G49 Connector available
- G50 Provision for loud speaker cables
- G51 Provision for car radio cables
- G52 Fusebox ground
- G53 Engine compartment ground
- G53a Engine compartment ground - right side
- G53b Engine compartment ground - left side
- G54 Passenger compartment ground
- G55 Hood ledge panel ground
- G56 Branch terminal board
- G57 Provision for fuel cut-off solenoid valve
- G58 Connector for cigar lighter
- G59 Connector for electric door mirror
- G60 Injector wiring ground
- G61 Connector for ignition coil
- G62 Clutch switch connector
- G63 Rear ground
- G63a Rear right ground
- G63b Rear left ground
- G64 Connector for Trip Computer - clock
- G65 Coaxial cable
- G66 Motronic wiring ground
- G67 Motronic connector
- G68 Connector A with board wiring
- G69 Connector B with board wiring
- G70 Connector C with board wiring
- G71 Connector for warning lamp on instruments

## ELECTRICAL SYSTEM

### G: FUSEBOX - CONNECTORS - GRUNDS (continued)

G72 Connector for seat back adjustment wiring  
G73 Connector for rear services  
G73a Connector for right rear services  
G73b Connector for left rear services  
G74 Connectors between Telelevel rear wiring and ALFA ROMEO Control  
G75 Connector between right and left roof panel services  
G76 Connector for roof panel services - right side  
G77 Connector for roof panel services - left side  
G78 Connector for front door services wiring  
G79 Connector for rear door services wiring  
G80 Connector for board wiring  
G81 Connector for front left seat back adjustment  
G82 Connector for front right seat back adjustment  
G83 Rear connector for fast idle device  
G84 Console cable connector  
G85 Front services connector  
G86 Connector for passenger compartment roof lamp  
G87 Connector for rear door - locking motors  
G88 Connector for rear tail lights  
G89 Intermediate connector A  
G90 Intermediate connector B  
G91 Rear door sensors ground  
G92 Luggage compartment ground  
G93 Windscreen frame upper cross member ground  
G94 Engine compartment connector  
G94a 10-way connector for engine compartment  
G94b 8-way connector for engine compartment  
G94c Engine compartment connector - right side  
G94d Engine compartment connector - left side  
G95 Central fusebox  
G95A Connector for switches  
G95B Connector for switches  
G95C Connector for cluster warning lamps  
G95D Connector for ALFA ROMEO Control  
G95E Connector for console  
G95F Connector for fog light - rear fog light  
G95G Connector for combination switch  
G95H Connector for LH interface  
G95I Connector for RH interface  
G95L Connector for clock - rheostats  
G95M Connector for sun - roof  
G95N Connector for battery  
G95O Connector for ignition switch  
G95P Connector for door services  
G95Q Connector for performance gauge  
G95R Connector for heated rear window  
G95S Connector for cluster  
G95V Fuses  
G96 Single connector for ALFA ROMEO Control - cluster  
G97 Connector for left doors services  
G98 Connector for right doors services  
G99a Connector for engine dashboard (A)  
G99b Connector for engine dashboard (B)  
G99c Connector for engine dashboard (C)  
G99d Connector for engine dashboard (D)  
G100 Connector for console - doors wiring  
G101 Trip Computer connector  
G102 Optoelectronic cluster connector  
G103 Connector for grounds and brakes fluid tank  
G104 Connector for roof panel left pillar  
G105 Connector for ashtray lamp  
G106 Seat grounds

G107 Connector for fuel pump  
G108 CEM wiring ground  
G109 Injection wiring connector  
G110 Thermostat housing ground  
G111 Connector for dashboard instruments wiring  
G112a Connector A for roof wiring  
G112b Connector B for roof wiring  
G112c Connector C for roof wiring  
G112d Connector D for roof wiring  
G113 Connector for front left-hand fender  
G114 Connector for outside temperature sensor  
G115 Connector for tow bar vehicle socket  
G116 Connector for tow bar trailer plug  
G117 Connector for engine compartment lamp  
G118 Connector for luggage compartment lamp

### H: SWITCHES

H1 Handbrake switch  
H2 Reversing light switch  
H3 Stop light switch  
H4 Courtesy light switch on pillar  
H5 Left front door open indicator switch  
H6 Right front door open indicator switch  
H7 Left rear door open indicator switch  
H8 Right rear door open indicator switch  
H9 Right front brake pad switch  
H10 Left front brake pad switch  
H11 Right rear brake pad switch  
H12 Left rear brake pad switch  
H13 Choke switch  
H14 Injection advance switch  
H15 Gearbox oil low level switch (magnetic bulb)  
H16 Starting and reverse inhibitor switch  
H17 Brake fluid minimum level check switch  
H18 Fast-idle switch in gearbox  
H19 Low fuel pressure switch  
H20 Inertia switch  
H21 Clutch pedal fast-idle switch  
H22 Ignition microswitch  
H23 Engine compartment lamp switch  
H24 Luggage compartment lamp switch  
H25 Glovebox light switch  
H26 Switch on rear door for rear screen wiper  
H27 Switch on rear door for heated rear screen  
H28 Carburettor contact/switch  
H29 Switch for rear drive engagement warning lamp  
H30 R.p.m. - activated microswitch  
H31 Switch for idle r.p.m. adjusting screw on carburetor  
H32 Microswitch on carburetor for inserting timing variator

### I: RELAYS

I1 Engine cooling fan relay  
I2 Heated rear window relay  
I3 Horn relay  
I4 Headlight wiper relay  
I5 Auxiliary relay for headlight wiper timer  
I6 Fast idle relay  
I7 Fuel pipe closing relay  
I8 Relay excluding retarded rotor arm  
I9 Glow plug relay  
I10 Starter inhibitor relay

## ELECTRICAL SYSTEM

### I: RELAYS (continued)

- I11 Front power window and seat raising relay
- I12 Front power window relay
- I13 Rear power window relay
- I14 Brake fluid automatic warning lamp control relay
- I15 Low fuel pressure warning light relay
- I16 Headlight relay
- I17 Fog light relay
- I18 Double contact relay
- I19 Headlight washer pump relay
- I20 Beam change over relay
- I21 Full beam exclusion relay
- I22 Low beam exclusion relay
- I23 Supplementary engine cooling fan relay
- I24 Direction and hazard lights relay
- I25 Rear fog light relay
- I26 Roof lamp relay
- I27 Seat height adjustment relay
- I28 Hazard lights relay
- I29 Fuel pump relay
- I30 Relay with CEM diode
- I31 Front power windows/heater relay
- I32 Advance variation control unit relay
- I33 Carburetor microswitch relay
- I34 Rear fog light exclusion relay
- I35 Key-operated supply relay
- I36 Relay for brake wear and liquid level

### L: SENDERS

- L1 Low fuel pressure switch
- L2 Low oil pressure switch
- L3 Max air pressure switch
- L4 Thermal switch for engine cooling electromagnetic coupling
- L5 Thermal switch for engine coolant max temperature
- L6 Thermal switch for engine cooling electric fan
- L7 Engine coolant temperature gauge sender
- L8 Oil pressure gauge sender
- L9 Fuel level gauge sender
- L10 Sender for engine coolant temperature gauge and max temperature warning lamp contact
- L11 Retarded rotor arm cut-out pressure switch
- L12 Engine oil level sensor
- L13 Windscreen washing liquid level sensor
- L14 Engine coolant level sensor
- L15 Fuel flow sensor
- L16 Rev counter impulse generator
- L17 Speedometer pulse generator
- L18 Load sender
- L19 External temperature sensor
- L20 Photoelectric cell
- L21 Solenoid valve regulating the supercharging pressure
- L22 Knocking sensor
- L23 Potentiometer
- L24 Coolant temperature sensor for ignition advance adjustment
- L25 Thermal switch for engine coolant

### M: SOLENOIDS - SOLENOID VALVES

- M1 Fuel cut-off solenoid valve
- M2 Injection pump solenoid valve
- M3 Solenoid with injectio pump fuel cut-off microswitch
- M4 Fast idle solenoid
- M5 Engine stop solenoid
- M6 Fuel pipe closing electromagnet
- M7 Door opening/closing electromagnet
- M8 Auxiliary air solenoid valve (for A/C equipped car)
- M9 Pierburg solenoid valve (for idle r.p.m.)

### N: ELECTRONIC DEVICES - INTERMITTENCES - TIMERS

- N1 Electronic ignition module
- N2 Connector for Marelli module
- N3 Capacitor for electronic ignition
- N4 Connector for Bosch module
- N5 Tachymetric switch device
- N6 Phare-heating glow-plug timer
- N7 Trip Computer
- N8 ALFA ROMEO Control
- N9 Brake pad wear control unit
- N10 Roof lamp timer
- N11 Door lock control unit
- N12 Headlight wiper timer
- N13 Road hazard and direction indicators intermittence
- N14 Electronic windscreen wiper intermittence
- N15 Electronic windscreen wiper intermittence and warning light control
- N16 Tachymetric control unit
- N17 Trip control unit for fuel flow
- N18 Electronic device for headlamps and flashing
- N19 Performance gauge control unit
- N20 Advance variation control unit
- N21 Power module
- N22 ALFA ROMEO Control control unit
- N23 Ignition control unit
- N24 Pulse converter

### O: ANCILLARY EQUIPMENT

- O1 Heated rear window
- O2 Horn
- O3 Electrically-operated antenna
- O4 Radio
- O5 Speaker
- O6 Cigar lighter
- O7 Rear cigar lighter

### P: ELECTRIC MOTORS

- P1 Windscreen wiper motor
- P2 Engine cooling fan motor
- P3 Engine cooling fan electromagnetic drive
- P4 Headlight wiper motor

## ELECTRICAL SYSTEM

### P: ELECTRIC MOTORS (continued)

- P5 Front left seat adjustment motor
- P6 Front right backrest adjustment motor
- P7 Front left backrest adjustment motor
- P8 Motor for electric door mirror - right side
- P9 Motor for electric door mirror - left side
- P10 Front right door locking motor
- P11 Front left door locking motor
- P12 Rear right door locking motor
- P13 Rear left door locking motor
- P14 Front right power window motor
- P15 Front left power window motor
- P16 Rear right power window motor
- P17 Rear left power window motor
- P18a Fuel electric pump
- P18b Auxiliary fuel electric pump
- P19 Windscreen washer pump
- P20 Headlight washer pump
- P21 Rear window wiper motor
- P22 Rear window washer pump motor
- P23 Supplementary engine cooling fan motor

### Q: HEAT/VENT - AIR CONDITIONING SYSTEM

- Q1 Heater/ventilation electric fan
- Q2 Pneumatic pushbutton control for air conditioning
- Q3 Pneumatic pushbutton control for ventilation
- Q4 Heater/ventilation electric fan control
- Q5 Heater blower fan speed adjustment resistance
- Q6 Switch on flap for heater blower fan
- Q7 Fluid thermostat
- Q8 Electromagnetic coupling pressure switch
- Q9 Minimum pressure switch
- Q10 Maximum pressure switch
- Q11 Compressor electromagnetic coupling
- Q12 Thermostatic switch for exclusion of compressor electromagnetic coupling
- Q13 Supplementary conditioner fan
- Q14 Relay for supplementary conditioner fan and electromagnetic compressor coupling
- Q15 Heater/ventilation electric fan relay
- Q16 Relay for simultaneous control of engine cooling fan and supplementary fan
- Q17 Relay for simultaneous control of engine cooling electromagnetic coupling and supplementary fan
- Q18 Heater
- Q19 Cooler
- Q20 Min and max pressure switch (Trinary)

### R: SAFETY DEVICES

- R1 Seat belt device
- R2 Catalytic converter temperature indicator
- R3 Thermocouple for catalytic converter temperature detection
- R4 Unfastened seat belt buzzer
- R5 Open door buzzer
- R6 Mileometer
- R7 Seat belt warning lamp
- R8 30,000 mile warning lamp
- R9 Switch on seat belts
- R10 Catalytic converter maximum temperature warning light

### S: ELECTRONIC FUEL INJECTION

- S1 Injection control unit
- S2 Relay set
- S3 Electroinjectors
- S4 Cold start-up electroinjector
- S5 Air flow gauge
- S6 Throttle switch
- S7 Engine coolant temperature sensor
- S8 Thermo-time switch
- S9 Auxiliary air valve
- S10  $\text{CO}_2$  sensor ( $\lambda$ )
- S11 Motronic Control unit
- S12 Motronic relay
- S13 Timing sensor
- S14 Rev sensor
- S15 Timing variator device
- S16 Altitude air regulator
- S17 CEM control unit
- S17A CEM Control unit white connector
- S17B CEM control unit black connector
- S18 Throttle angle sensor
- S19 Hall sensor
- S20 Deton sensor
- S21 Throttle actuator
- S22 Electroinjector terminal
- S23 Electroinjector resistor
- S24 Electroinjector terminal board
- S25 Autodiagnosis connector
- S26 Injection system

VARIATIONS **1.8-2.0**

CH

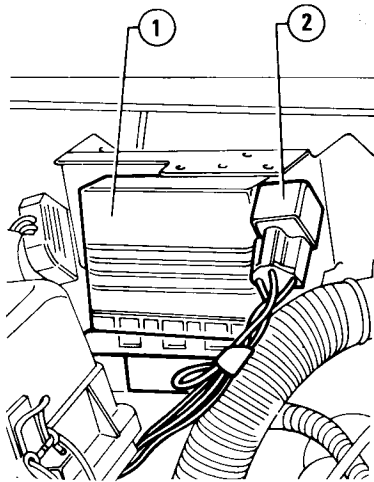
SWE

**IGNITION  
CONTROL UNITS  
LOCATION**

It is housed in the engine compartment, on the front right-hand side of dashboard sheet panel.

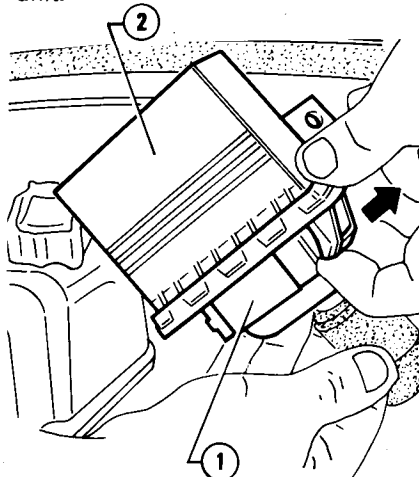
**REMOVAL AND  
INSTALLATION**

1. Unscrew the screw securing relay (2), and detach it from the support.
2. Unscrew the two screws shown in the figure, and disconnect control unit (1) from support.



1 Ignition control unit  
2 Timing variator relay

3. Operating as shown in the figure, move lever securing the multiple conductor connector (1) to ignition control unit (2); remove the control unit.

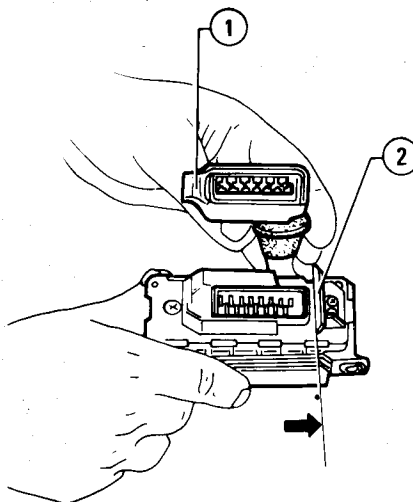


1 Multiple conductor connector  
2 Ignition control unit

4. Insert tab (1) of multiple conductor connector into its seat on the electronic control unit, then move lever (2), as per figure, and insert connector.

**CAUTION:**

Make sure that connector is correctly inserted in the control unit.



1 Tab 2 Lever

5. Re-position the control unit on the related support, then secure it with two screws.
6. Reconnect the timing variator relay to support.

**TIMING VARIATOR  
RELAY****LOCATION**

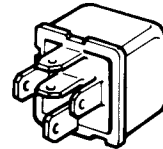
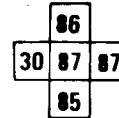
It is in correspondence with the electronic control unit on the front right-hand side of dashboard sheet panel.

**REMOVAL AND  
INSTALLATION**

Refer to: "Ignition Control Unit".

**CAUTION:**

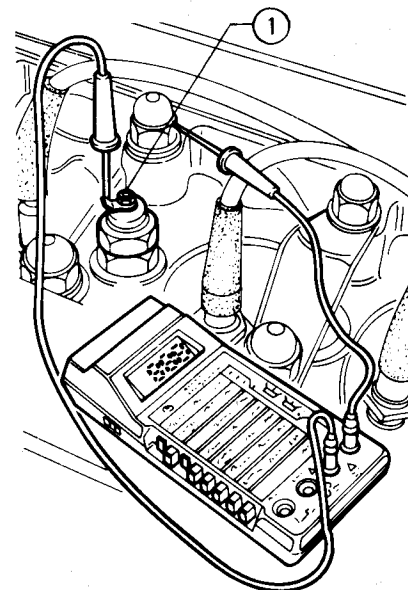
Relay must be of the type shown in the figure.

**COOLANT  
TEMPERATURE  
SWITCH****LOCATION**

The ON-OFF type switch is housed on head, between 3rd and 4th cylinder.

**CHECK**

1. On cold engine, detach supply connector.
2. Set the ends of a tester between switch terminal and ground. Verify that circuit is closed (tester indicates  $0 \Omega$ ).
3. Start the engine, bring it to normal running temperature, then switch it off.
4. Set the ends of a tester between switch terminal and ground. Verify that circuit is open (tester indicates  $\infty$ ).



1 Coolant temperature switch

5. If the values are not those indicated, replace the switch.

- T** : Tightening torque  
 Switch on cylinder head  
 20 to 25 N·m  
 (2 to 2.5 kg·m  
 14.46 to 18.08 ft·lb)

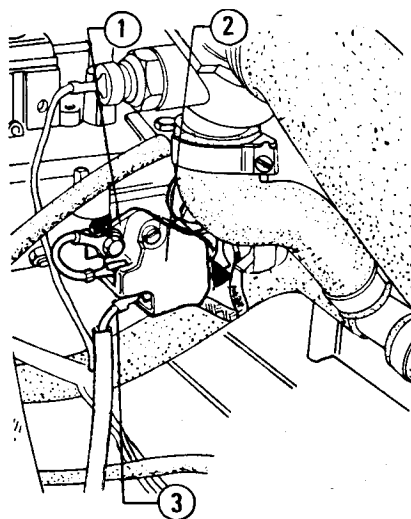
## R.P.M. - ACTIVATED MICROSWITCH

### LOCATION

The ON-OFF type switch is located on the front side of front carburetor; it is activated by a cam connected to throttle valves shaft.

### REMOVAL

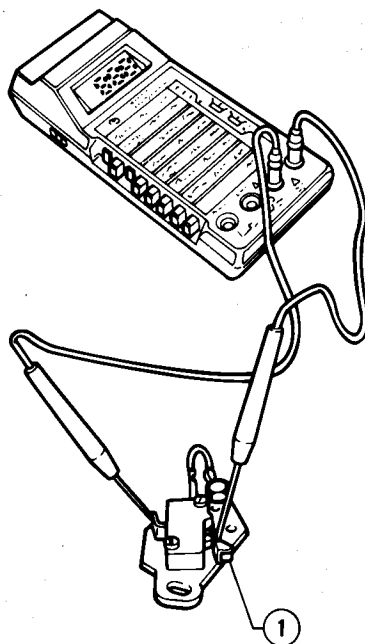
1. Disconnect cable (3).
2. Unscrew the two screws shown in the figure and remove micro-switch (2) from carburetor, together with support plate (1).



- 1 Microswitch support plate  
 2 R.p.m. - activated microswitch  
 3 Supply cable

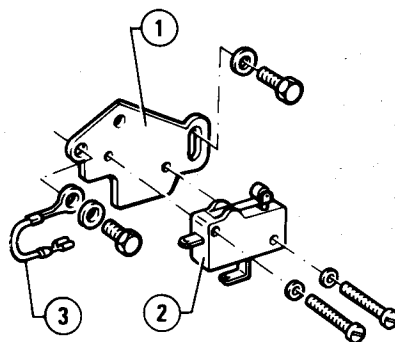
### CHECKS AND INSPECTIONS

1. Place the ends of a tester between input and output of micro-switch, and verify that circuit is open (tester indicates: ∞).
2. Push lever (1) and verify that circuit is closed (tester indicates: 0 Ω).



1 Microswitch operating lever

3. If the values are not those indicated, separate microswitch from the support, by operating the screws shown in the figure, and replace it.



- 1 Support  
 2 Microswitch  
 3 Ground cable

### INSTALLATION

Carry out installation by reversing the order of removal.

Once carried out the operation, adjust the microswitch (refer to: Group 00 - Fuel System - R.p.m. activated microswitch

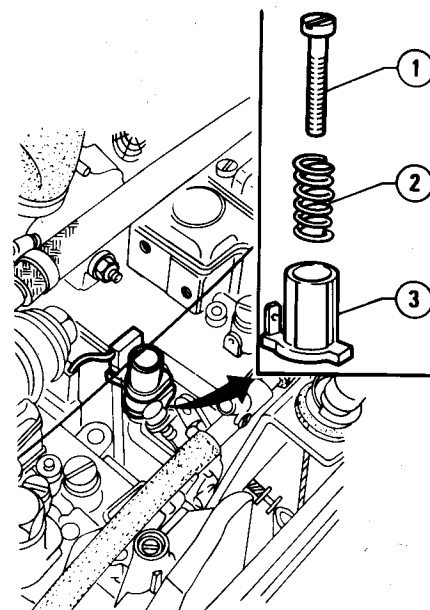
**18** CH SWF **20** CH SWF

### LOCATION

The ON-OFF type switch is part of the idle r.p.m. adjusting screw. It is located on the rear carburetor.

### REMOVAL AND INSTALLATION

1. Detach supply connector.
2. Unscrew the idle r.p.m. adjusting screw (1) until withdrawing it together with spring (2) and support (3).
3. Check components efficiency and, particularly, that thermal is not oxidized.



- 1 Idle r.p.m. adjusting screw  
 2 Spring  
 3 Support

4. Carry out installation by reversing the order of removal.

Once carried out the operation, adjust the idle r.p.m., by strictly following the procedure given in Group 00 - Fuel System - Check and Adjustment of Idle r.p.m. and Exhaust Emissions **18** CH SWF

**20** CH SWF