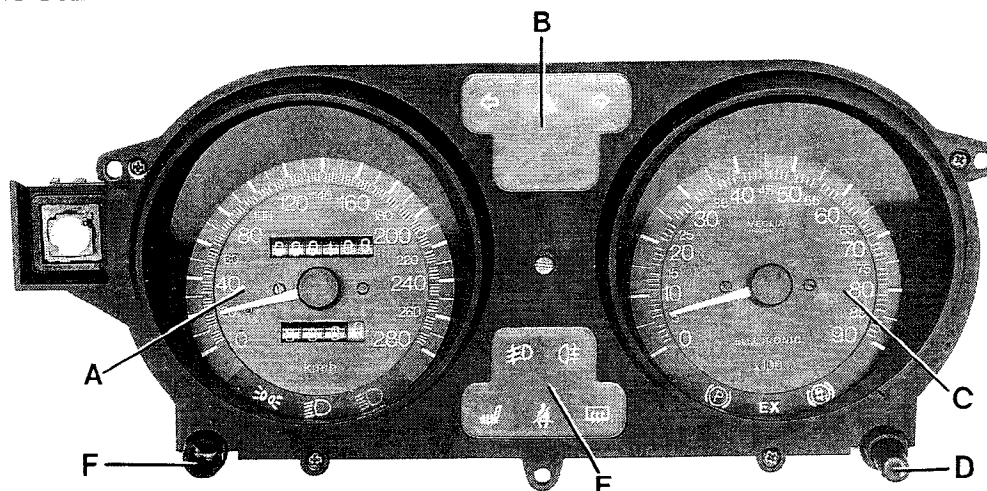


## INSTRUMENT PANEL

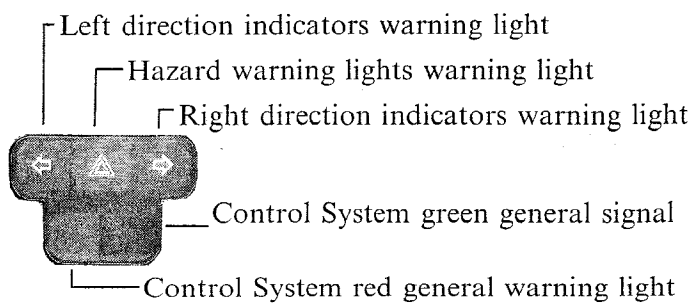


Front view of instrument panel

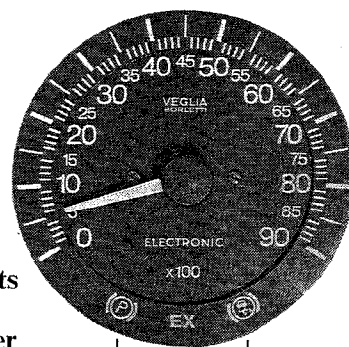
- A. Electronic speedometer with milometer and trip meter
- B. Upper group of warning lights
- C. Electronic rev counter
- D. Instrument panel light dimmer knob
- E. Lower group of warning lights
- F. Push button for zeroing trip meter.

View of warning lights  
incorporated in  
electronic speedometer

- Main beam headlamps warning light
- Dipped headlamps warning light
- Side lights warning light



Upper group of warning lights

View of warning lights  
incorporated in  
electronic speedometer

- Handbrake warning light
- Catalytic silencer overheating warning light
- Anti-lock brakes failure warning light

- Rear fog lamps warning light
- Front fog lamps warning light

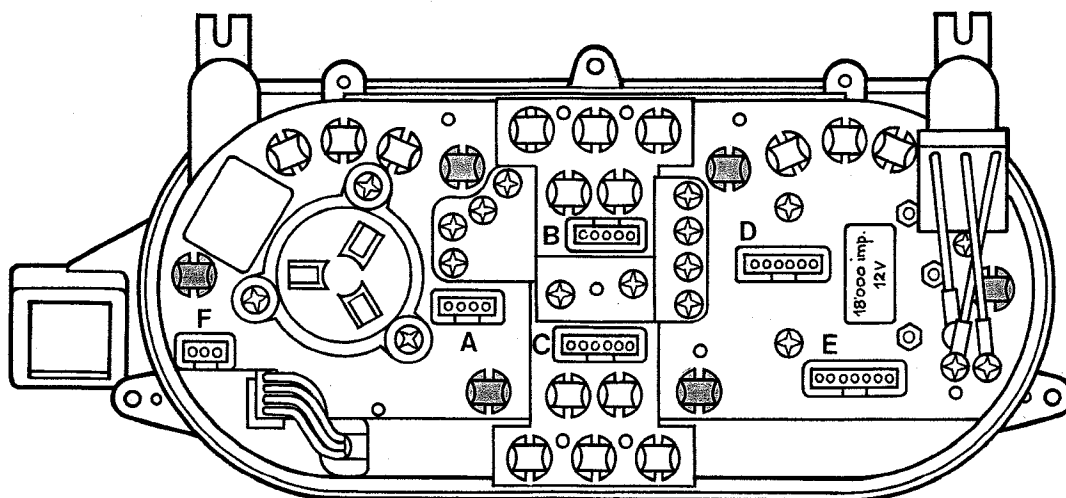
- Heated seats warning light

- Seat belts warning light

- Heated rear windscreen warning light

Lower group of warning lights

55.




**Rear view on instrument panel**

The letters identify the sockets for the connectors of the same name.

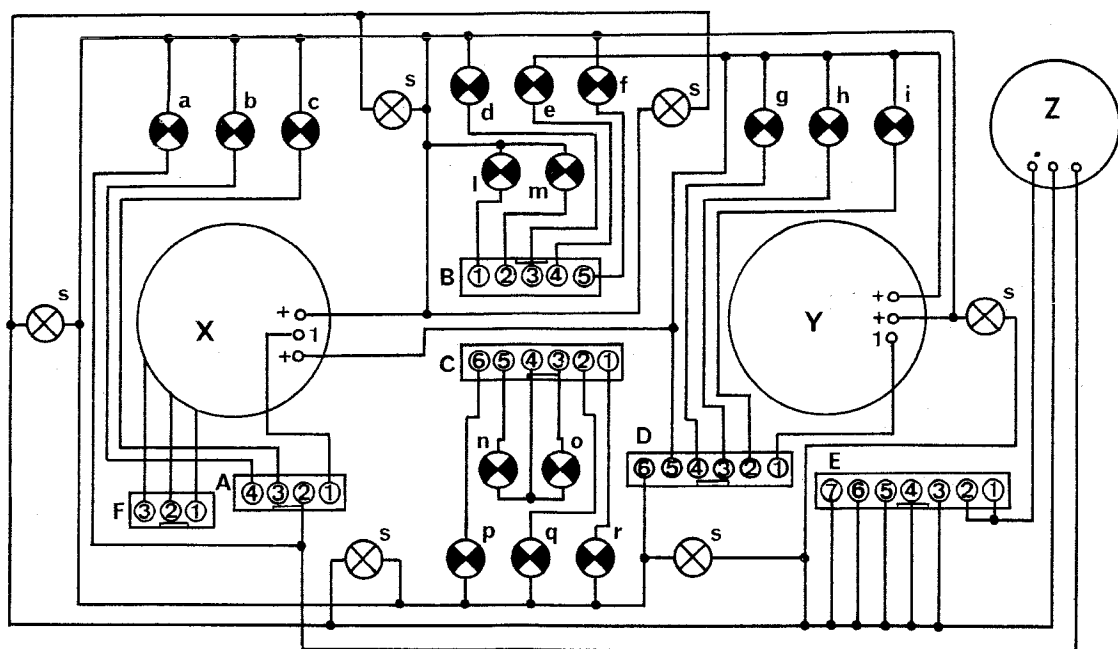
The bulb holders (complete with 2W bulbs) shown in colour belong to the instrument panel lights.

### CABLE COLOUR CODE AND DESCRIPTION OF CIRCUITS SUPPLIED BY EACH INDIVIDUAL CONNECTOR

ARRANGEMENT AND NUMBERING OF SOCKETS	REFERENCE NUMBER	CABLE COLOUR	DESCRIPTION OF CIRCUIT CONCERNED
<b>CONNECTOR A</b>			
	1	M	Signal for electronic speedometer
	2	GN	Side lights and instrument panel light warning light
	3	VN	Main beam headlamps warning light
	4	HN	Dipped headlamps warning light
<b>CONNECTOR B</b>			
	1	B	Front fog lamps warning light
	2	CB	Rear fog lamps warning light
	3	AG	Heated seats warning light
	4	-	Seat belts warning light
	5	HR	Heated rear windscreen warning light
<b>CONNECTOR C</b>			
	1	AB	Right direction indicator warning light
	2	LR	Hazard warning lights warning light
	3	V	Green general signal (Control System)
	4	RV	General warning lights positive (Control System)
	5	R	Red general warning light (Control System)
	6	AN	Left direction indicators warning light
<b>CONNECTOR D</b>			
	1	AB	Electronic rev counter signal
	2	AG	Anti-lock brakes failure warning light
	3	-	Catalytic silencer overheating warning light
	4	BR	Handbrake warning light
	5	R	+ Common
	6	N	Earth
<b>CONNECTOR F</b>			
	1	-	} Speedometer output signal
	2	-	
	3	-	

ARRANGEMENT AND NUMBERING OF SOCKETS	REFERENCE NUMBER	CABLE COLOUR	DESCRIPTION OF CIRCUIT CONCERNED
CONNECTOR E			
	1	G	Switch panel light
	2	GR	Automatic heater and air conditioning controls light
	3	BC	Engine oil pressure gauge light
	4	BN	Engine oil temperature gauge light
	5	BR	Coolant temperature gauge light
	6	BV	Fuel gauge light
	7	GN	Control System display panel light

**NOTE** The various connectors which emanate from connector E in the instrument panel receive a positive supply adjusted by the dimmer.



Instrument panel wiring diagram

A; B; C; D; E; F. Housings for connectors of the same name

X. Electronic speedometer with milometer and trip meter

Y. Electronic rev counter

Z. Instrument panel light dimmer

a. Side lights warning light

b. Dipped headlamps warning light

c. Main beam headlamps warning light

d. Heated seats warning light

e. Seat belts warning light

f. Heated rear windscreen warning light

g. Handbrake warning light

h. Catalytic silencer overheating warning light

i. Anti-lock brakes failure warning light

l. Front fog lamps warning light

m. Rear fog lamps warning light

n. Control System red general warning light

o. Control System green general signal

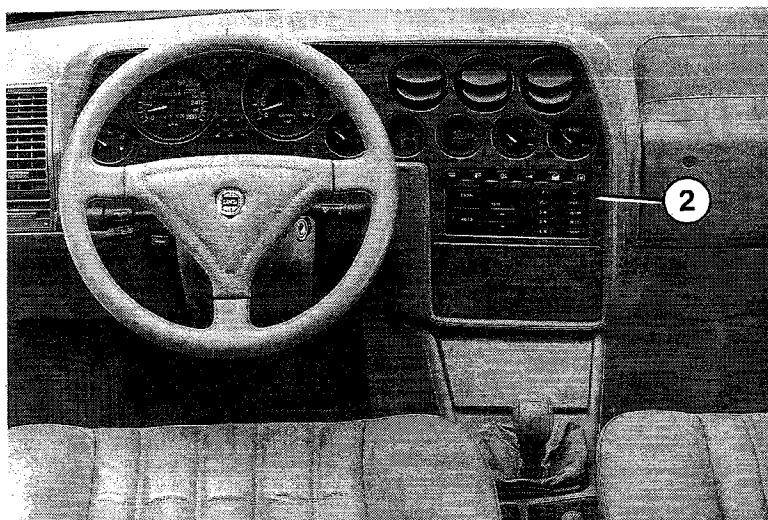
p. Left direction indicators warning light

q. Hazard warning lights warning light

r. Right direction indicators warning light

s. Instrument light bulbs

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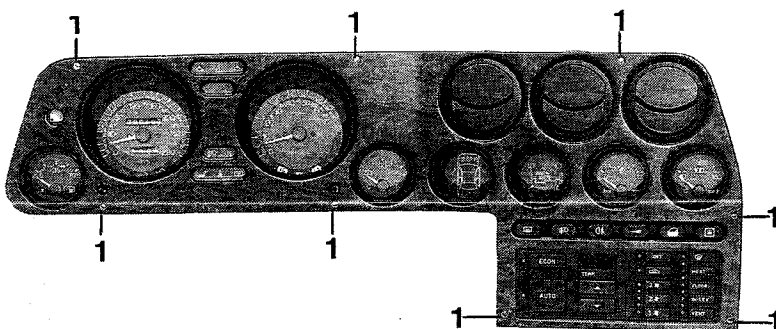
### Removing

In order to remove the instrument panel carry out the following operations in the order given:

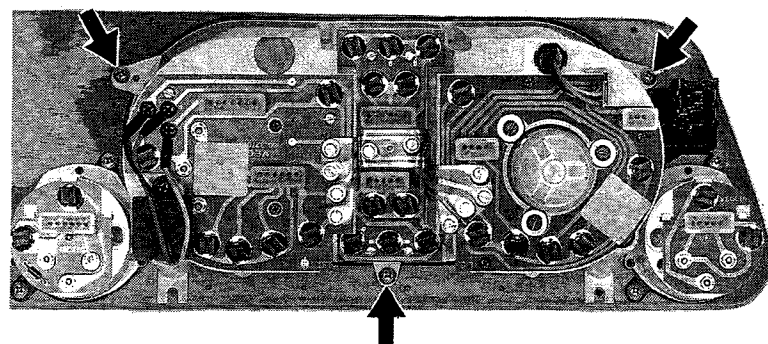
- using an appropriate spanner (2.5 mm) loosen the bolts (1) fixing the front lining (2) to the dashboard.

### View of various instruments and controls fitted in dashboard

- completely lower the steering column upper shaft and remove the steering wheel;
- partly remove the front lining-instrument assembly from its housing and disconnect the electrical connections from the speedometer, rev counter and fuel and coolant temperature gauges and lastly from the hazard warning light switches.

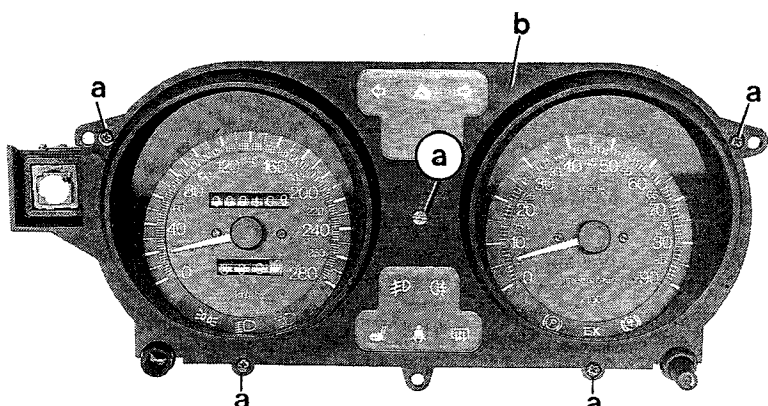


### Location of bolts (1) fixing front lining (2) to dashboard



Undo the bolts (shown by the arrows) which fix the instrument panel to the front lining (2).

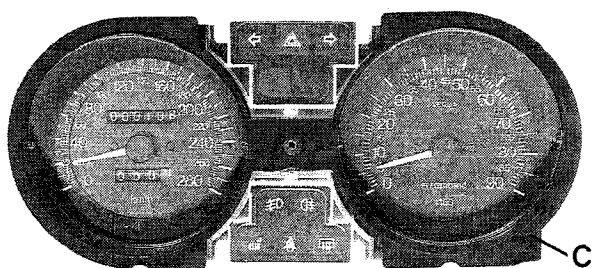
### View of instrument panel fixing to front lining for the other instruments



### Dismantling

Carry out the following operations in the order given:

- loosen the bolts (a) fixing the frame (b) and cowling and lens covers below to the instrument panel;
- remove the frame (b) and then the cowling (c).

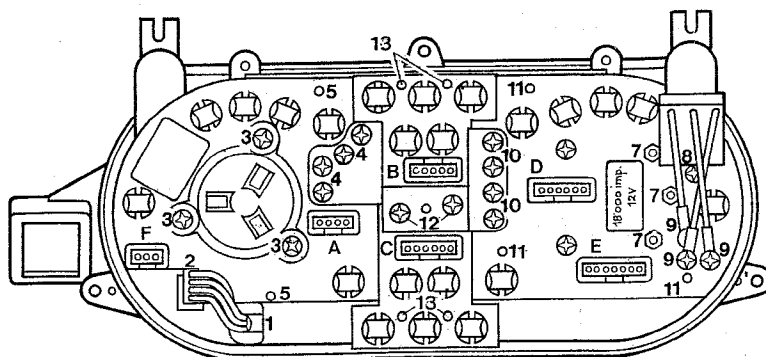


Instrument panel with frame removed

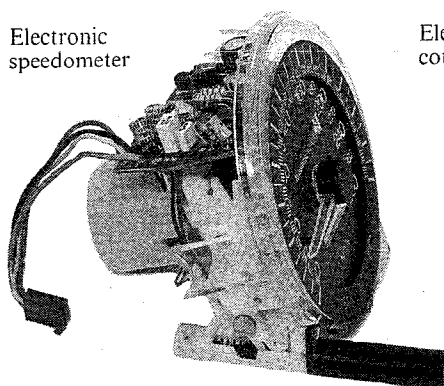
- remove the block (1) from its housing and disconnect the cables;
- disconnect the connector (2);
- loosen the bolts (3) and extract the electronic speedometer unit from the front section.

Rear view of instrument panel

- loosen the bolts (8 and 9) and remove the instrument panel light dimmer unit;
- loosen the nuts (7) and the bolts (6) and extract the electronic rev counter from the front section;
- see the table below for the other operations or the removal of the printed circuits.

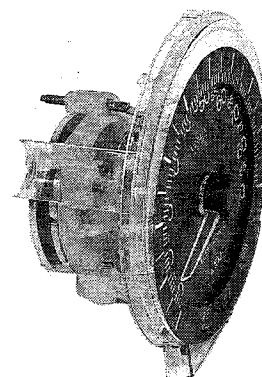


Instrument panel with frame, cowling and transparent covers removed



Electronic speedometer

Electronic rev counter



## COMPONENTS AND BOLTS TO BE REMOVED AND LOOSENED WHEN REMOVING THE PRINTED CIRCUITS

<p>Electronic speedometer printed circuit</p>	<p>Components A B C (see guide at foot of page)</p> <p>Bolts 3; 4; 5 (see large diagram above)</p>	<p>Components A B D (see guide at foot of page)</p> <p>Bolts 6; 9; 10; 11 Nuts 7 (see large diagram above)</p>	<p>Electronic rev counter printed circuit</p>
<p>Connection printed circuit</p>	<p>Components A B C D (see guide at foot of page)</p> <p>Bolts 3; 4; 6; 10; 12 Nuts 7 (see large diagram above)</p>	<p>Components A B (see guide at foot of page)</p> <p>Bolts 3; 4; 12; 13 (see large diagram above)</p>	<p>Centre printed circuit</p>

A Front frame

C Speedometer unit with milometer and trip meter

B Cowling with transparent covers

D Electronic rev counter

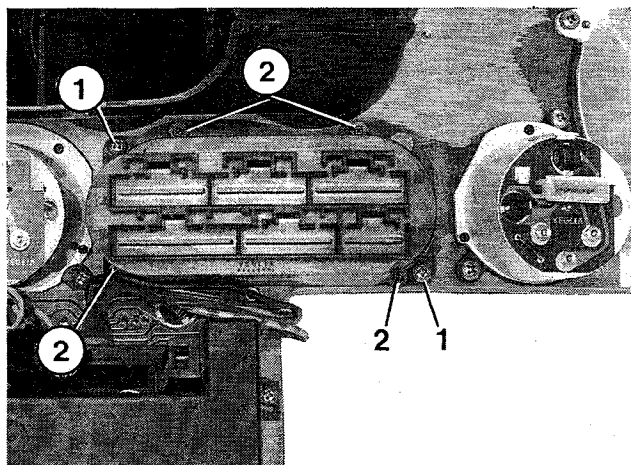
**NOTE** Bolts 4, 10 and 12 pass through and fixed on the inside to the instrument panel with the appropriate nuts.

55.

### DEVICE FOR CHECKING EFFICIENCY OF VEHICLE CONTROL SYSTEM

The Control System components comprise as follows:

- a group of display panels comprising an electronic module and two display panels which are in the centre of the lower section of the dashboard under the passenger compartment air intake vents;
- twelve sensors which provide the signals shown on the two display panels and the fuel level and coolant temperature gauges.



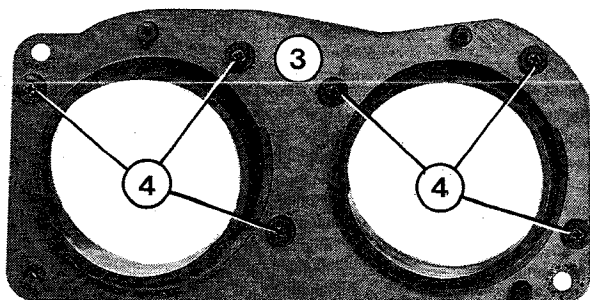
#### DISPLAY PANELS

##### Removing

In order to remove the Control System display panels carry out the first two operations described and illustrated for the instrument panel on page 4.

Extract the front lining/instrument assembly from its housing and after having disconnected the various electrical connections from the electronic module, loosen the bolts (1) fixing the latter to the front lining.

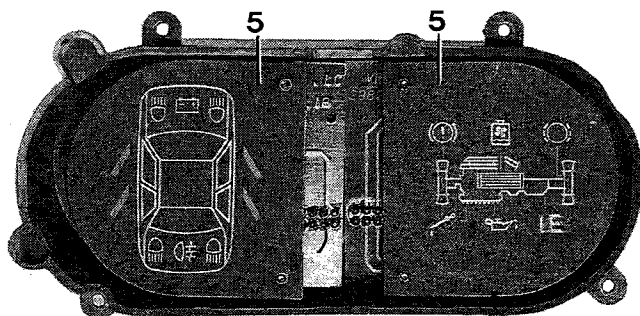
**View of display panels fixed to front lining common to the other instruments**



##### Dismantling

Undo the bolts (2) fixing the frame (3) complete with cowling and lens covers to the casing containing the electronic module.

**View of cowling with frame and lens covers**



3. Frame

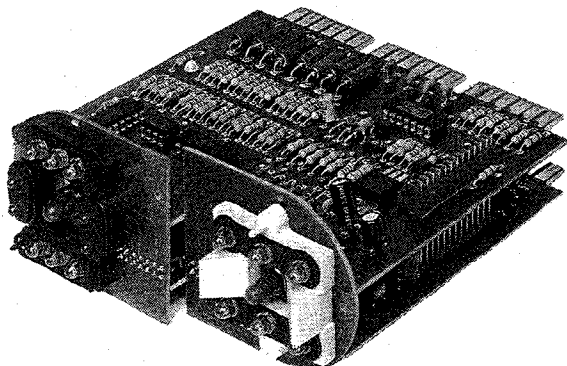
4. Bolts fixing cowlings and lens covers to frame (3)

After removing the front frame (3), remove the two plates with the ideograms (5) and, working carefully on the rear section, remove the two plates with the printed circuits from the electronic module casing.

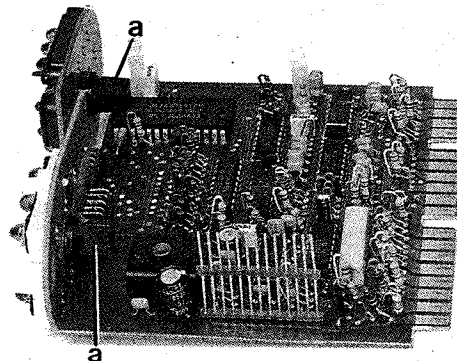
Lift the upper plate and release it from the lower one.

**View of display panels with cowling removed**

5. Plates with ideograms



**View of two plates with electronic module printed circuits**



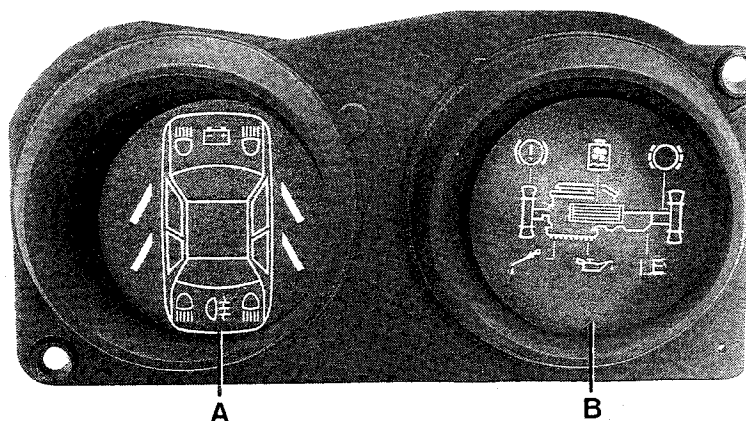
**View of lower plate**

a. Bulb holder and bulb.



## Front view of Control System display panels

- A. Display panel with warning lights for various lights and doors  
 B. Display panel with warning lights for power unit



Right front door not properly shut warning light

Right rear door not properly shut warning light

Right front side light failure warning light

Right side light, no. plate light or brake light failure warning light

Battery recharging warning light

Rear fog light failure warning light

Left front side light failure warning light

Left side light, no. plate light or brake light failure warning light

Left front door not properly shut warning light

Left rear door not properly shut warning light

Insufficient coolant level warning light

Insufficient brake fluid level warning light

Front brake pad wear warning light

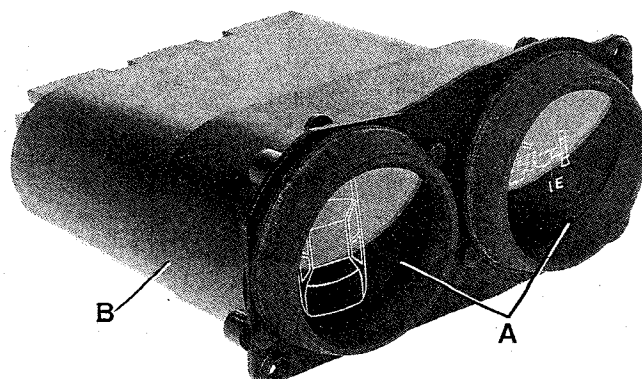
Insufficient engine oil level warning light

IE Injection electronic control unit failure warning light

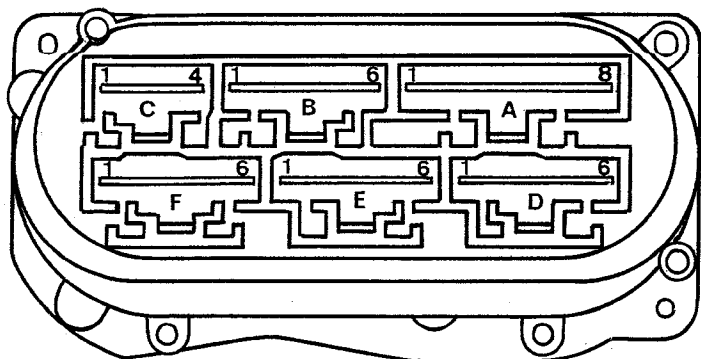
Insufficient engine oil pressure warning light

## View of Control System display panels

- A. Display panels  
 B. Electronic module



55.



Rear view of the electronic module which is an integral part of the Control System display panels

The letters identify the sockets for the connectors of the same name

The numbers identify the terminals for each housing

### COLOUR OF CABLES AND DESCRIPTION OF THE CIRCUITS SUPPLIED BY EACH INDIVIDUAL CONNECTOR

TERMINAL NO.	CABLE COLOUR	CIRCUIT CONCERNED		
CONNECTOR A				
1	RN	+ Common		
2	VB	Left front brake pad wear sensor		
3	BR	Right front brake pad wear sensor		
4	AB	Brake fluid level sensor		
5	HN	Engine oil pressure sensor		
6	B	Alternator recharging signal		
7	A	Positive for battery recharging warning light		
8	N	Earth		
CONNECTOR C				
1	CB	Doors not properly shut sensor	{	right rear
2	BR			left rear
3	BN			right front
4	VB			left front
CONNECTOR E				
1	GN	Left front side light		
2	GR	Right front side light		
3	HG	Brake lights supply		
4	H	Rear fog lamps supply		
5	SN	Left front and right rear side lights supply		
6	S	Right front and left rear side lights supply		

TERMINAL NO.	CABLE COLOUR	CIRCUIT CONCERNED
<b>CONNECTOR B</b>		
1	MB	Fuel reserve warning light
2	HR	Coolant overheating warning light
3	V	Green general signal (Control System)
4	RV	Positive for general warning lights (Control System)
5	R	Red general warning light (Control System)
6	GN	Display panel lights
<b>CONNECTOR D</b>		
1	RV	Positive for terminal 50 ignition switch
2	HR	Engine oil level sensor
3	R	Brake lights switch
4	VN	Coolant level sensor
5	HV	Coolant temperature sensor
6	HN	Injection electronic control unit signal
<b>CONNECTOR F</b>		
1	RV	Left brake light
2	RN	Right brake light
3	HR	Left rear fog lamp
4	MB	Right rear fog lamp
5	R	Left rear side light and no. plate light
6	G	Right rear side light and no. plate light



## OPERATION AND DISPLAY OF FAULTY COMPONENTS

## CHECK WITH ENGINE NOT RUNNING

When the engine is switched off and the ignition switch is turned to the ON position it is possible to check the following functions with the Control System:

LEVELS
<ul style="list-style-type: none"> <li>- Engine oil</li> <li>- Coolant</li> <li>- Brake fluid</li> </ul>

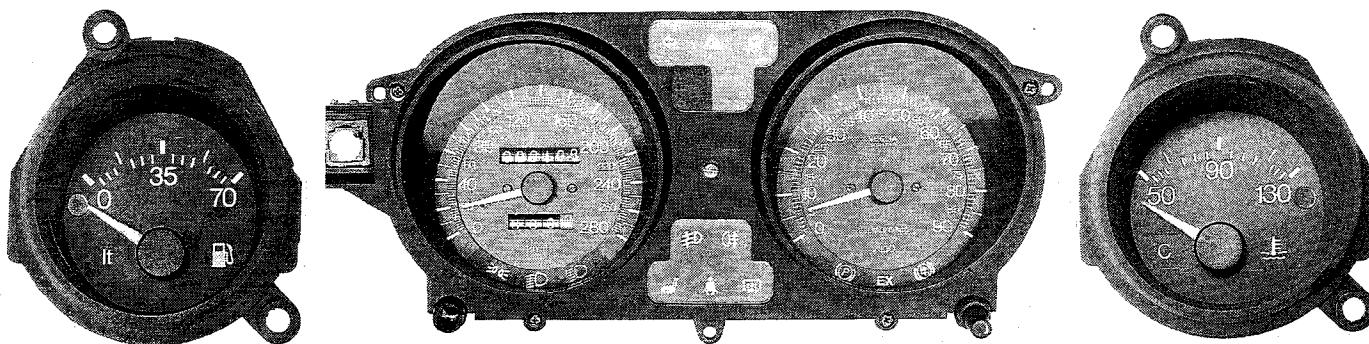
CIRCUIT CONTINUITY
<ul style="list-style-type: none"> <li>- Battery recharging</li> <li>- Insufficient engine oil pressure</li> <li>- Doors not properly shut</li> <li>- Brake lights (check on fuse and circuit for contacts in rest position for relevant switch)</li> </ul>

In addition, if the side lights, the dipped headlamps and the rear fog lamps are switched on and the brake pedal is pressed, then the Control System checks:



CIRCUIT CONTINUITY AND EFFICIENCY OF BULBS
<ul style="list-style-type: none"> <li>- Front side lights</li> <li>- Rear side lights and no. plate light</li> <li>- Brake lights</li> <li>- Rear fog lamps</li> </ul>

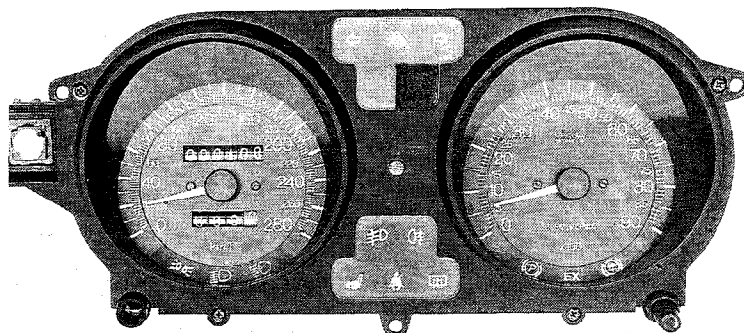
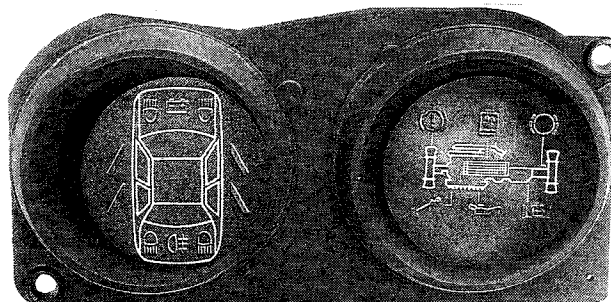
If the ignition switch is turned to the ON position and kept like this for a few moments before starting up the engine the signals highlighted in colour in the diagrams below should appear on the Control System display panels on the upper section of the instrument panel and on the two warning lights at the side of the panel:



All the warning lights in the two display panels should come on, those for the fuel level and the coolant temperature should light up and the red general warning light in the instrument panel should also come on.

After around 3 seconds (1.8 - 4) the above mentioned warning lights should go out and the green general signal in the instrument panel should light up.

After around 15 seconds (10 - 20) if the engine is not started up, the green general signal (shown in colour in the diagram at the side) should start flashing.



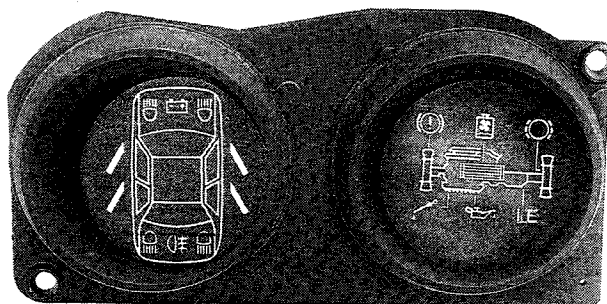
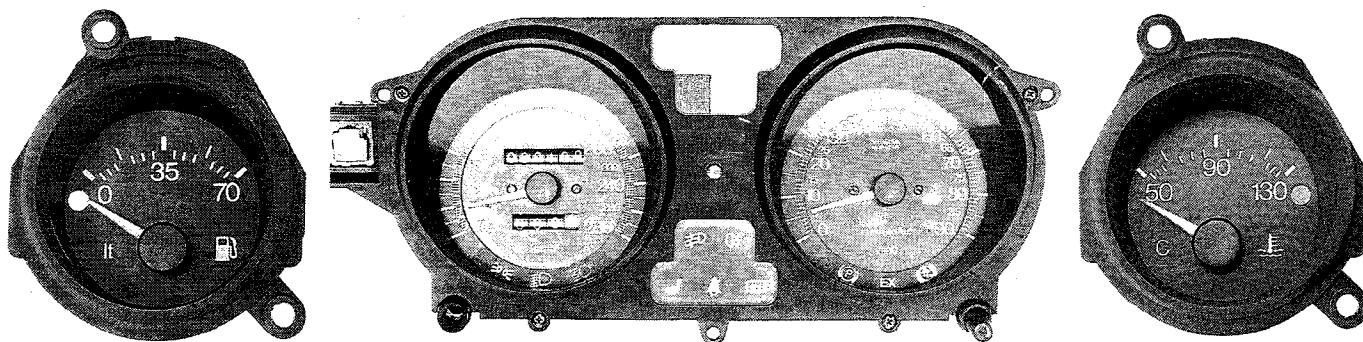
### 55.

The sequence illustrated on the previous page refers to a vehicle which is working properly, in other words displays no faults.

If, however, there are problems with the vehicle, the order in which the signals for the various instruments mentioned above appears changes are described and illustrated below.

If the ignition is switched to the ON position and kept like this for a few moments before starting up the engine then all the warning lights in the display panels, the two fuel level and coolant temperature warning lights and the red general warning light in the instrument panel all light up.

After around 3 seconds (1.8 - 4) the warning lights for the circuits which are working properly go out and the warning lights for the circuits which are faulty and the red general warning light in the instrument panel remain on, flashing.



**NOTE** *The diagrams illustrate the case of a vehicle where the engine oil level is insufficient and the rear fog lamps are not working properly.*

After about one minute (42 - 78 secs) the warning lights which have remained on start flashing and the red general warning light remains on continuously.

#### CHECK WITH ENGINE RUNNING

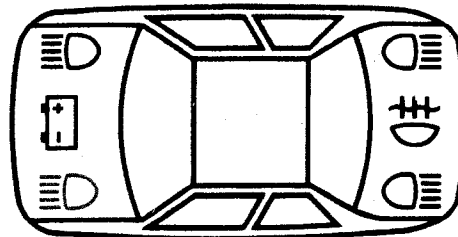
When the engine is running the Control System constantly checks the circuits described on the previous page plus the efficiency of the supply from the alternator, the engine oil lubrication pressure, the temperature of the coolant, the continuity of the engine oil level sensor, the front brake pad wear and also the efficiency of the injection system electronic control unit.

When the engine is running the level of the engine oil is not checked, only the continuity of the circuit.

## ANAYLISIS OF CIRCUITS CHECKED AND FAULTS SIGNALLED

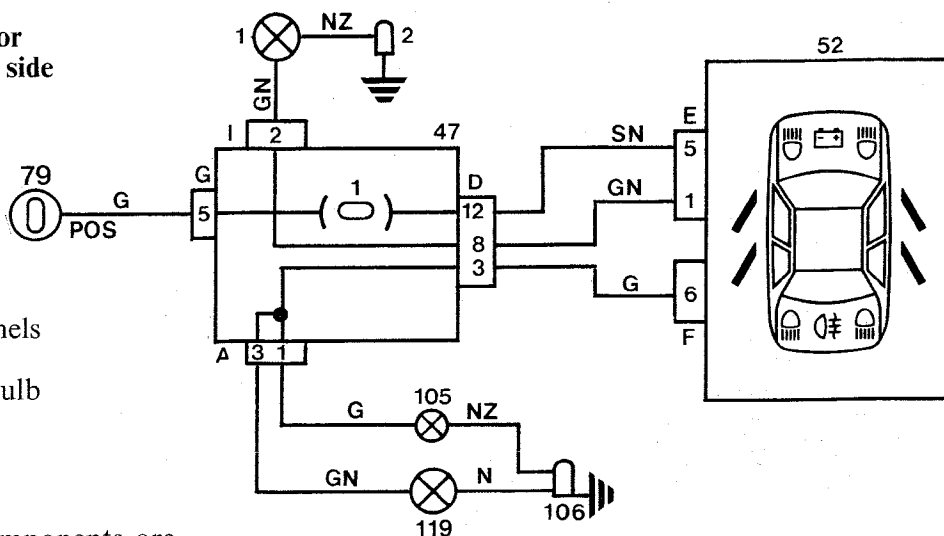
LEFT FRONT SIDE LIGHT FAILURE WARNING  
LIGHT

The warning light which signals that the bulb for the left front side light is burnt out is highlighted in colour in the diagram at the side.



Wiring diagram showing supply for bulbs for left front and right rear side lights and right no. plate light

1. Left front side light bulb
2. Left front earth cable loom
47. Control box
52. Control System display panels
79. Ignition switch
105. Right rear no. plate light bulb
106. Rear earth cable loom
119. Right rear side light bulb



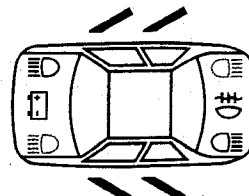
The numbers for the various components are the same as those used in the electrical system wiring diagrams.

The warning light which is being examined because of a fault may come on separately or at the same time as the one shown in colour in the diagram at the side.

For each individual case the search for the defect may be confined to a single section of the circuit.

In the case where two warning lights are on, the check must be extended to the entire circuit.

The correspondence between the warning lights which are on and the section of the circuit to be checked is illustrated diagrammatically in the table below.


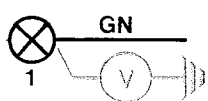
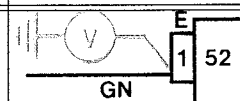
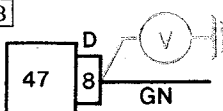


WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED	WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED
	<p>Circuit between left front side light bulb and display panel</p>		<p>Circuit between ignition switch and display panels</p>

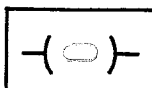
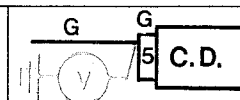
The checks for locating the fault and the subsequent repair operations for each individual section of the circuit are listed overleaf.

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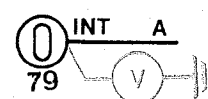
### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR THE FIRST CASE

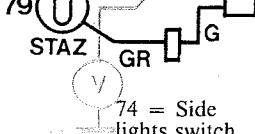
OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Check left front side light bulb	Bulb faulty	Replace bulb	[A] Replace the display panels 	Replace the NZ cable connected to earth 	Voltage 12V =	A
	Bulb okay				Voltage 0V =	
			Nil voltage		Voltage 12V =	B
[B]  47 = Control box	Nil voltage	Replace the GN cable between components 47 & 52	52 = VS = Display panels 47 = C.D. = Control box Voltage 12V =	Replace the GN cable which connects the control box to the bulb Nil voltage		
	Voltage 12V					
			Nil voltage		Replace the control box	

### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR THE SECOND CASE

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Check fuse no. 1	Fuse faulty	Replace fuse	Nil voltage		Voltage 12V	A
	Fuse okay				Voltage 0V	B
			Voltage 12V		Voltage 0V	C
					Voltage 12V	D

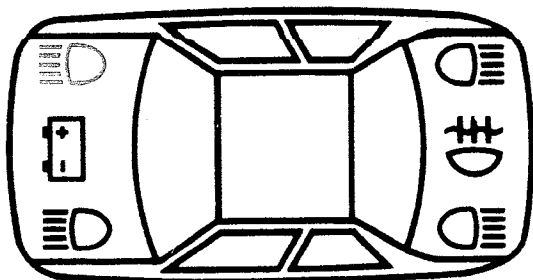
- [A] Replace the control box  
 [C] Replace the SN cable between the control box and the display panels  
 [D] As a further check, carry out the operation described at the top of the next page

[B] 79 = Ignition switch 	Voltage 12V =	Replace the G cable between switch 79 and control box	[A] Replace ignition switch 	Voltage 12V =	Replace switch ignition	A
	Nil voltage			Nil voltage		
					Voltage 0V =	B
					Voltage 12V =	

[B] INT A AN 74  74 = Side lights switch	Voltage 0V =	Replace cable A between the ignition switch and switch 74	<b>NOTE</b> During these operations the ignition switch should be in the ON position. Voltage 0V	Replace side lights switch Voltage 12V	Replace the GR cable which connects switch 74 to switch 79
	Voltage 12V =				



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### RIGHT FRONT SIDE LIGHT FAILURE WARNING LIGHT

The warning light which signals that the right front side light bulb is burnt out is highlighted in colour in the diagram at the side.

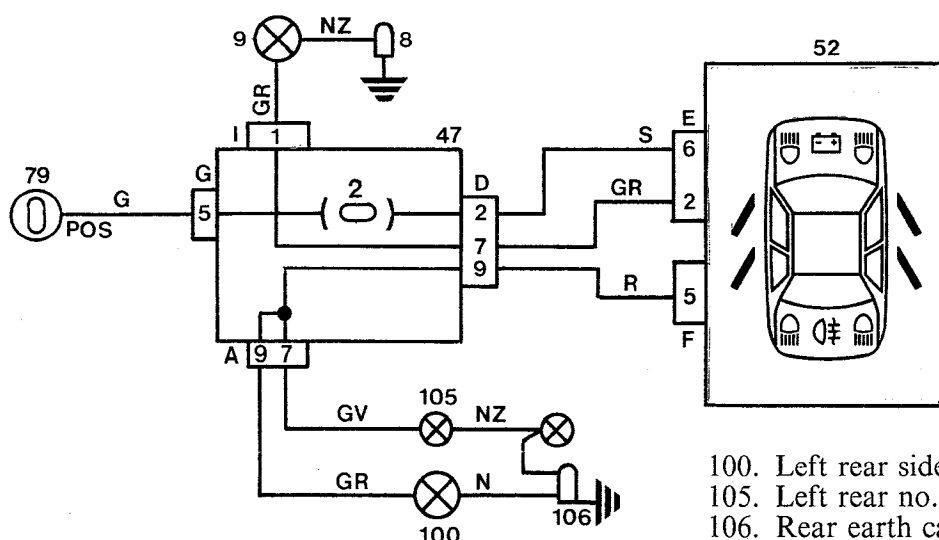
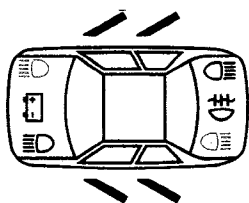


Diagram showing supply circuit for right front and left rear side light bulbs and left no. plate light

- 8. Right front earth cable loom
- 9. Right front side light bulb
- 47. Control box
- 52. Control System display panels
- 79. Ignition switch

- 100. Left rear side light bulb
- 105. Left rear no. plate light bulb
- 106. Rear earth cable loom

**NOTE** The numbers for the various components are the same as those used in the electrical system wiring diagrams.



The warning light being examined on account of a fault may come on separately or at the same time as the one highlighted in colour in the diagram at the side. For each individual case the search for the defect can be limited to one single section of the circuit.

In the case where two warning lights are on, the check has to be extended to cover the entire circuit.

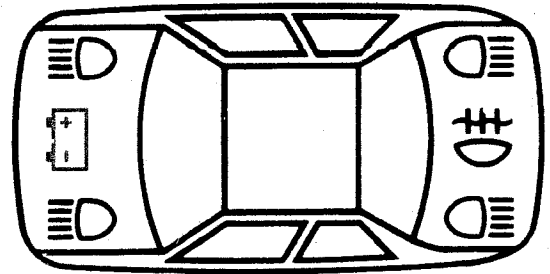
The correspondence between the warning lights which are on and the section of the circuit to be checked is illustrated diagrammatically in the table below:

WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED	WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED
	 Circuit between left front side light bulb and display panels		 Circuit between ignition switch and display panels

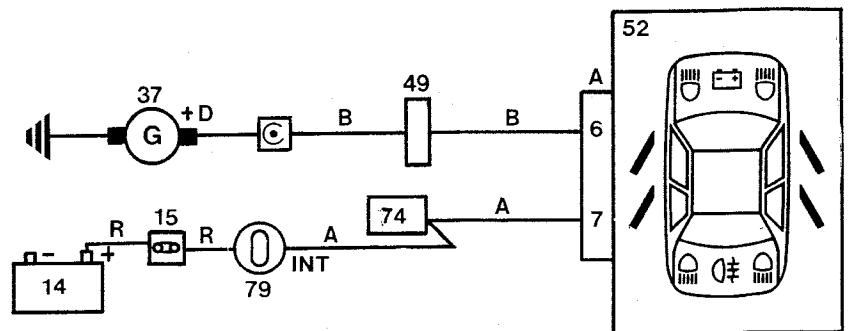
In the case of all the operations concerning the detection of the fault and its subsequent repair of the circuit, stick to the procedures described and illustrated previously for the left front side light failure warning light

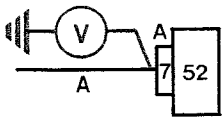
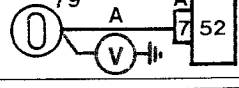
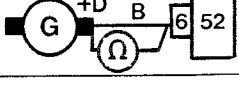
**BATTERY RECHARGING WARNING LIGHT**

If the warning light in question (highlighted in colour in the diagram at the side) comes on when the engine is switched off, this means that there is a break in the connection to the alternator whilst if it comes on whilst the engine is running, this indicates insufficient alternator output.

**Wiring diagram showing insufficient battery recharging circuit**

- 14. Battery
- 15. Connector
- 37. Alternator
- 49. Connection
- 52. Control System display panels
- 74. Dipped/main beam headlamps switch
- 79. Ignition switch

**ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN WARNING LIGHT REMAINS ON WITH ENGINE SWITCHED OFF**

OPERATIONS	RESULT	OPERATIONS	RESULT	REPAIR OPERATIONS
 52 Display panels	Nil voltage		Voltage 0V	Replace the ignition switch
			Voltage 12V	Replace the A cable(s) which is broken
	Voltage 12V		Resistance 0Ω	Replace the electronic module
			Infinite resistance	Replace the B cable(s) which is broken

**ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN WARNING LIGHT REMAINS ON WITH ENGINE RUNNING**

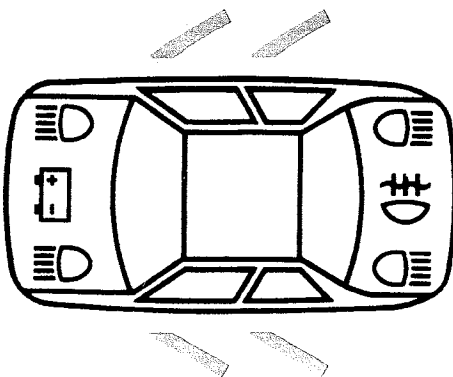
CHECKING OPERATIONS	RESULT	OPERATIONS TO BE CARRIED OUT
Check the condition and tension of the belt which drives the alternator pulley	Belt in good condition and tension perfect	Check the efficiency of the alternator by carrying out the tests described from page 1 onwards in section 55 of the Thema Manual print no.504.391

If the alternator is not working properly, replace the display panels.

**NOTE** When the engine is running, a possible break in the circuit is not signalled.  
After each check and replacement, turn the ignition switch to the OFF position and then to the ON position to cancel the information which has been previously stored in the memory.



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### FRONT AND REAR DOORS NOT PROPERLY SHUT WARNING LIGHTS

The warning lights in question are highlighted in colour in the diagram at the side. Each warning light represents one door as illustrated in the diagrammatic view of the vehicle in the display panel (see diagram at the side).

The space below contains the four circuits for the four warning lights, namely for the two front doors and the two rear doors.

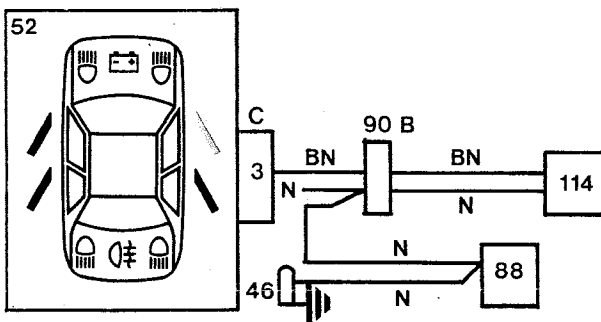


Diagram showing circuit signalling right front door not properly shut

46. Earth cable loom on upper steering control shaft

52. Control System display panels

88. Central locking control unit

90B. Connection

114. Sensor (microswitch) on right front door

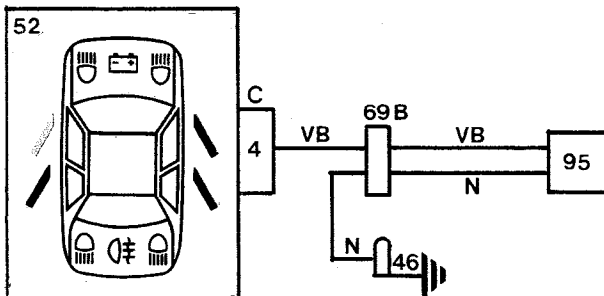


Diagram showing circuit signalling left front door not properly shut

46. Earth cable loom on upper steering control shaft

52. Control System display panels

69B. Connection

95. Sensor (microswitch) on left front door

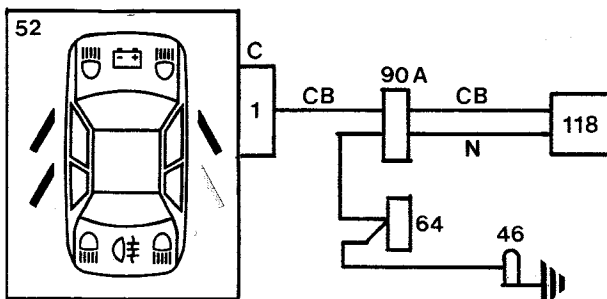


Diagram showing circuit signalling right rear door not properly shut

46. Earth cable loom on upper steering control shaft

52. Control System display panels

64. Connection

90A. Connection

118. Sensor (microswitch) on right rear door

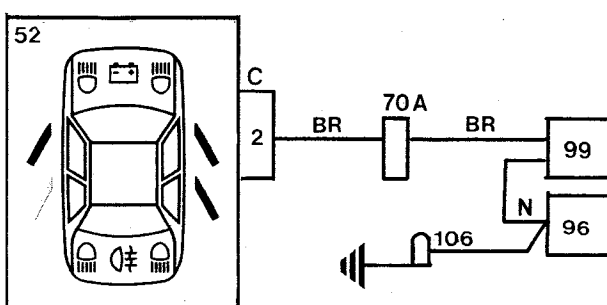


Diagram showing circuit signalling left rear door not properly shut

52. Control System display panels

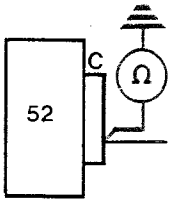

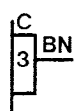
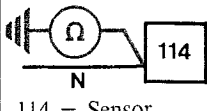

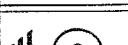
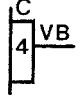
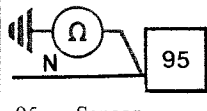


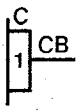
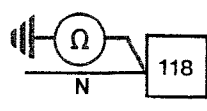


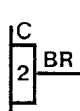
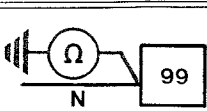
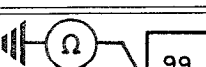
70A. Connection

96. Switch for left rear courtesy light

99. Sensor (microswitch) on left rear door

106. Rear earth cable loom

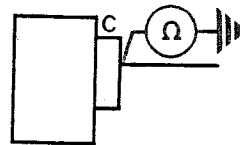
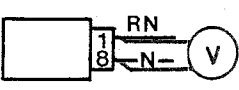
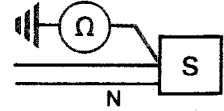
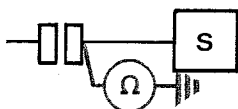
## ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN WARNING LIGHT REMAINS ON WITH DOOR PROPERLY SHUT

OPERATION	DOOR/REFERENCE CABLE-TERMINAL	RESULT	OPERATION	RESULT	OPERATION	RESULT	OP.
 52 = Control System display panels	Right front	Resist. = 0 Ω	 [A]				
		Infinite resistance	 [B]	Infinite resist.			
				Nil resistance			
						Infinite resist.	C
						Nil resistance	D
	Left front	Resist. = 0 Ω	 [A]				
		Infinite resistance	 [B]	Infinite resist.			
				Nil resistance			
						Infinite resist.	C
						Nil resistance	E
	Right rear	Resist. = 0 Ω	 [A]				
		Infinite resistance	 [B]	Infinite resist.			
				Nil resistance			
						Infinite resist.	C
						Nil resistance	F
	Left rear	Resist. = 0 Ω	 [A]				
		Infinite resistance	 [B]	Infinite resist.			
				Nil resistance			
						Infinite resist.	C
						Nil resistance	G

- [A] Replace the Control System display panels  
 [B] Replace the N cable(s) which is (are) broken connecting the sensor to the earth cable loom  
 [C] Replace the sensor  
 [D] Replace the broken BN cable(s) connecting the sensor (114) to the display panels (52)  
 [E] Replace the broken VB cable(s) connecting the sensor (95) to the display panels (52)  
 [F] Replace the broken CB cable(s) connecting the sensor (118) to the display panels (52)  
 [G] Replace the broken BR cable(s) connecting the sensor (99) to the display panels (52)

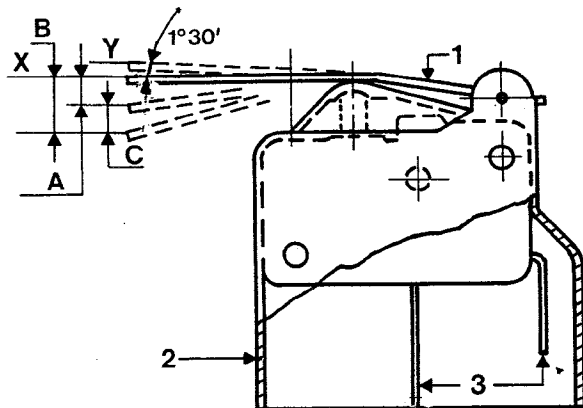
**NOTE** All the checks described above should be carried out with the doors properly shut or with the doors open but with the locks positioned as if they were shut.

## ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF WITH THE DOOR OPEN

OPERATION	RESULT	OPERATION	RESULT	OPERATION	RESULT	OP.
 C3 for right front door C4 for left front door C1 for right rear door C2 for left rear door	Infinite resistance	 [A] As above	Voltage 12V			
			Voltage 0V	Carry out the operations in the centre of page 13		
	Nil resistance	 [B]	Resistance 0 Ω	Replace the sensor		
			Infinite resistance		Nil resistance	Y
					Infinite resist.	Z

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- [Y] Replace the 2nd section of the cable (between the connection and the sensor) which connects the display panels to the sensor.
- [Z] Replace the 1st section of the cable (between the display panels and the connection) which connects the display panels to the sensor.

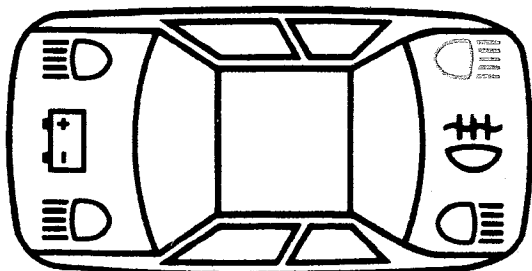
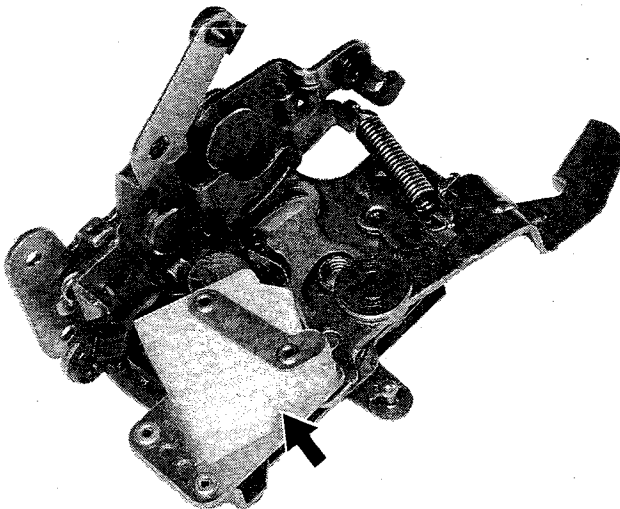


**View of the door closure sensor (microswitch)**

1. Microswitch control lever
  2. Plastic shield
  3. Pins
- A = 3-4 mm = travel for lever 1 per notch  
 B = 5-6 mm = max travel for lever 1  
 C = B-A = 1-3 mm = Working positions for lever (1) corresponding to open circuit  
 X = Rest position for lever (1)  
 Y = Rest position limit for lever (1) (tolerance = 1°30' from position X)

**NOTE** *The door closure sensor is of the normally closed contacts type.*

**View of microswitch fitted on the lock of a front door.**



### RIGHT REAR SIDE LIGHTS AND BRAKE LIGHT FAILURE WARNING LIGHT

The warning light in question is highlighted in colour in the diagram; if it comes on this means that that bulb for the right side light or the rear no. plate light is burnt out.

If, on the other hand, the warning light comes on when the brake pedal is pressed, this means that the right rear brake light is not working properly (off).






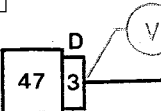
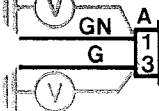
- NOTE** *The numbers for the various components are the same as those used in the electrical system wiring diagrams.*

The correspondence between the warning lights which are on and the section of the circuit to be checked is diagrammatically illustrated in the table below.






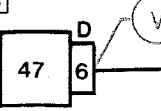
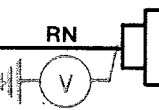
19

### 55.

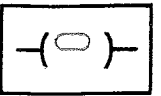
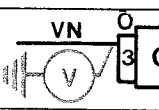
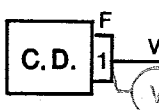
#### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR CASE **A**

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Check the right rear side light bulb and right no. plate light	Bulb faulty	Replace bulb	<b>A</b> Replace the display panels 	Voltage 12V = Check connection to earth of bulbs 	Voltage 0V = A Voltage 12V = B	
	Bulbs okay	119C  GN 105  G				
<b>B</b> 	Nil voltage	Replace the G cable between components 47 and 52	Voltage 12V = Nil voltage	Replace the GN cable or the G cable which connects the control box to the bulbs Replace the control box		
	Voltage 12V					

#### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR CASE **B**

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Check right brake light bulb	Bulb faulty	Replace bulb	<b>A</b> Replace the display panels 	Voltage 12V = Check bulb connection to earth 	Voltage 0V = A Voltage 12V = B	
	Bulb okay	 RN 1 				
<b>B</b> 	Nil voltage	Replace the RN cable between components 47 and 52	Voltage 12V = Nil voltage	Replace the RN cable which connects the control box to the bulb Replace the control box		
	Voltage 12V					

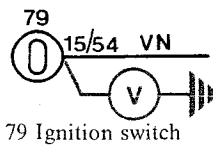
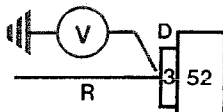
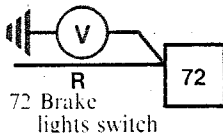
#### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR CASE **C**

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Check fuse no.15	Fuse faulty	Replace the fuse	Nil voltage Voltage 12V		Voltage 12V = A Voltage 0V = B Voltage 0V = C Voltage 12V = D	
	Fuse okay					

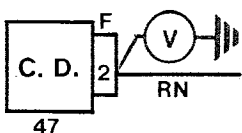
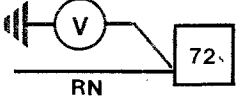
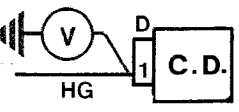
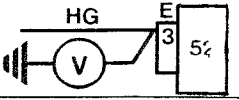
page 21

**A** Replace the control box.

**C** Replace the Vn cable which connects the control box to the brake lights switch.

OPERATIONS	RESULT	OPERATIONS	OPERATIONS	RESULT	OPERATIONS
<b>B</b>  79 Ignition switch	Nil voltage	Replace the ignition switch	<b>D</b>  R	Nil voltage	<b>Z</b>
	Voltage 12V	Replace the broken VN cable(s) connecting the ignition switch 79 to the control box		Voltage 12V	Replace the display panels
			<b>Z</b>  72 Brake lights switch	Voltage 12V	Replace the R cable between switch 72 and the display panel 52
				Nil voltage	Replace switch 72

#### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR CASE **D**

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 C. D. 47	Voltage 0V	 RN	Voltage 0V	Replace switch 72	<b>A</b> Replace the HG cable which connects the control box to unit 52	
	Voltage 12V		Voltage 12V	Replace the RN cable between the control box and switch 72		
	Voltage 12V	 HG	Voltage 0V	Replace the control box	 HG	Voltage 0V <b>A</b>
			Voltage 12V			Voltage 12V <b>B</b>

**B** Replace the Control System display panels.

**NOTE** Keep the brake pedal depressed during the above checking operations for case D.

The order of the checking and repair operations for the section of circuit for case **E** is the same as that for the 2nd case for the first warning light examined which is described on page 12.

In addition to case **F** which deals with the two supply circuits for the rear side lights and the brake lights and no. plate lights failing at the same time, there are two other possible conditions which may occur, namely:

- warning light being examined remains on despite the fact that the bulbs for the rear side lights and right brake light and no. plate light are on;
- warning light being examined is off despite the fact that one or more of the bulbs for the above mentioned rear lights on the right hand side is burnt out.

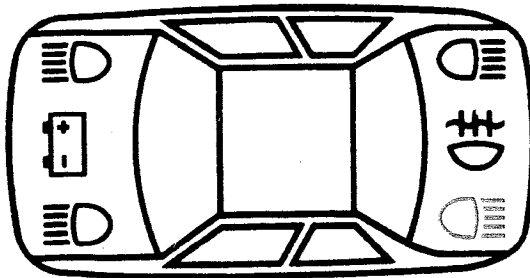
For the first case simply replace the Control System display panels.

In the second case, however, the ignition switch must be turned from the OFF position to the ON position and one must observe whether or not all the warning lights in the display panels come on for a short period. If the warning lights do come on (including or not including the one being examined) replace the display panels.

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In the case where all the warning lights do not come on, carry out the operations described and illustrated in the middle of page 13.

After the above checks the warning light should be on and the bulb or bulbs for the right side light, brake light or no. plate light should be off which makes it necessary to carry out the operations for case **A** or case **B** described on page 20.



### WARNING LIGHT SIGNALLING LEFT REAR SIDE LIGHT AND BRAKE LIGHT FAILURE

The warning light in question is highlighted in colour in the diagram at the side and if it comes on this means that the bulb for the left rear side light or no. plate light is burnt out.

If, however, the warning light comes on when the brake pedal is pressed this signals that the bulb for the left rear brake light is not working properly (off).

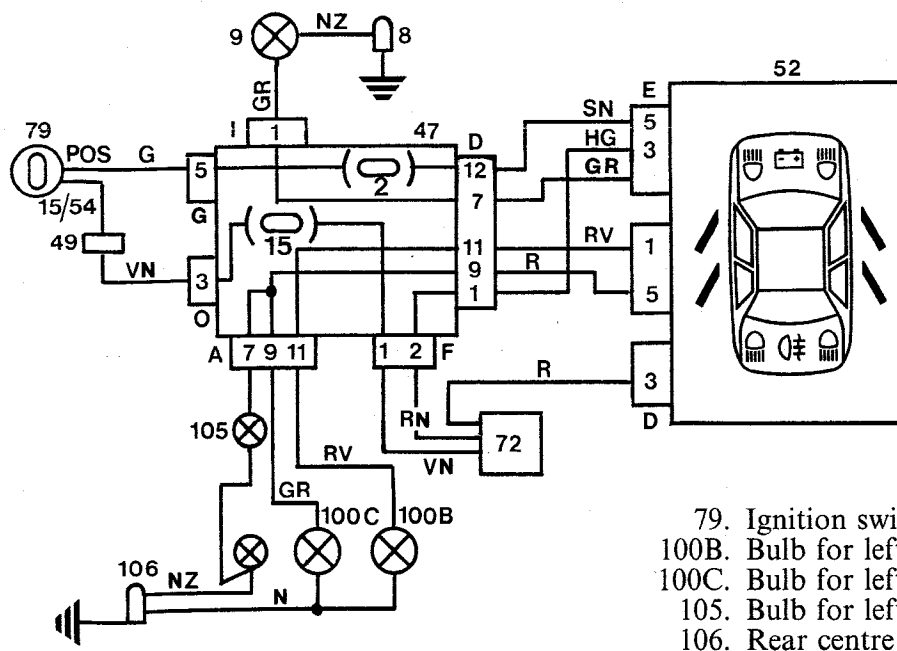


Diagram showing supply circuit for bulbs for right front and left rear side lights, left rear brake light and right rear no. plate light

- 8. Earth cable loom
- 9. Right front side light bulb
- 47. Control box
- 49. Connection
- 52. Control System display panels
- 72. Brake lights switch under brake pedal

- 79. Ignition switch
- 100B. Bulb for left rear brake light
- 100C. Bulb for left rear brake light
- 105. Bulb for left rear no. plate light
- 106. Rear centre earth cable loom

**NOTE** The numbers for the various components are the same as those used in the electrical system wiring diagrams.

The warning light being examined on account of a fault may come on separately or at the same time as the others.

For each individual case the search for the defect can be limited to a single section of the circuit.

The correspondence between the warning lights which are on and the section of the circuit to be checked is illustrated diagrammatically overleaf.

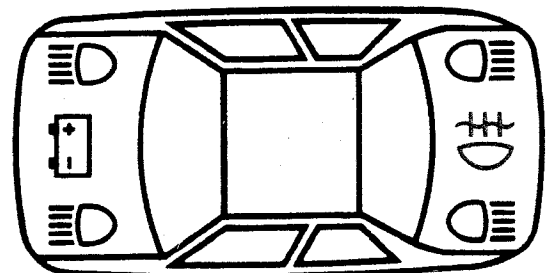


WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED	WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED
<b>A</b> 	 Circuit between bulbs for left rear side light and no. plate light and display panels	<b>B</b> 	When the brake pedal is pressed  Circuit between bulb for left rear brake light and display panels
<b>C</b> 	 Circuit between ignition switch and display panels	<b>D</b> 	When the brake pedal is pressed  Circuit between brake lights switch and display panels
<b>E</b> 	 Circuit between ignition switch and display panels	<b>F</b> 	Diagram for case <b>A</b> plus diagram for case <b>A</b> for the right rear warning light (see page 19). Or diagram for case <b>B</b> plus diagram for case <b>B</b> for the right rear warning light (see page 19).

For all the operations involved with locating the fault and then repairing the circuit, stick to the procedures previously described and illustrated for the warning light signalling a failure in the right rear side light, no. plate light or brake light.

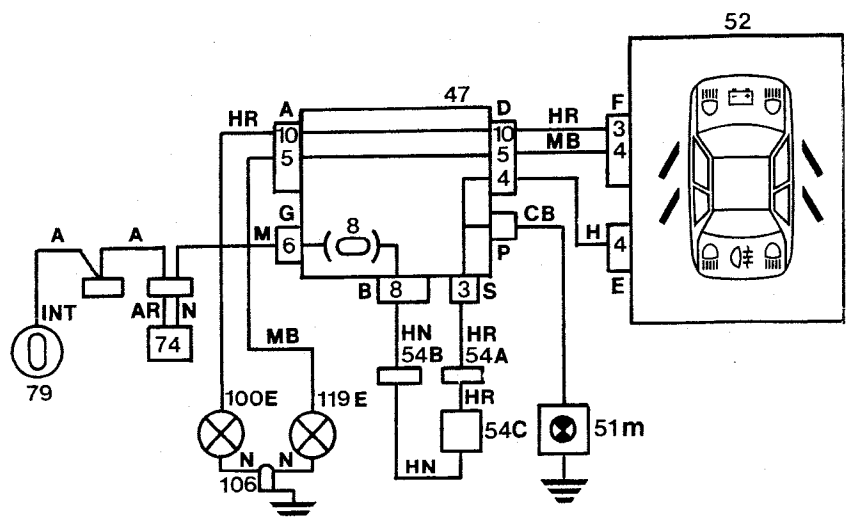
### WARNING LIGHT SIGNALLING REAR FOG LAMPS FAILURE

The warning light in question is highlighted in colour in the diagram at the side and if it comes on this signals that one or both of the rear fog lamp bulbs is off.



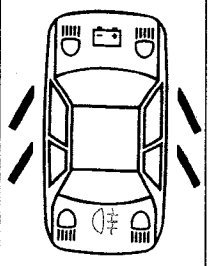
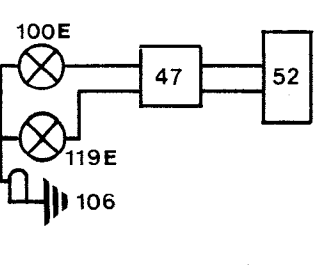
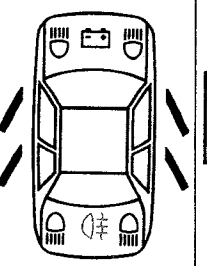
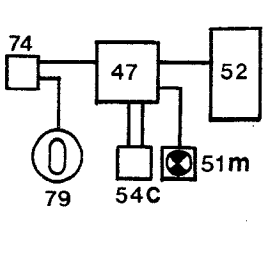
### Diagram showing supply circuit for bulbs for rear fog lamps

- 47. Control box
- 51m. Rear fog lamps warning light
- 52. Display panels
- 54A & 54B. Connections
- 54C. Rear fog lamps switch
- 74. Switch: side lights, headlamps - dipped and main beam
- 79. Ignition switch
- 100E. Bulb for left rear fog lamp
- 106. Rear earth cable loom
- 119E. Bulb for right rear fog lamps

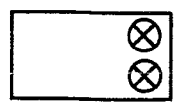
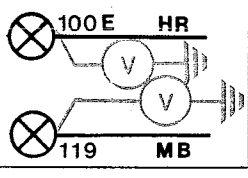
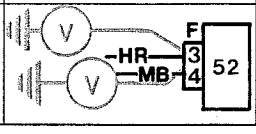
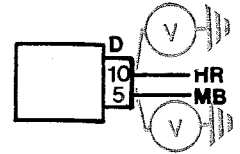
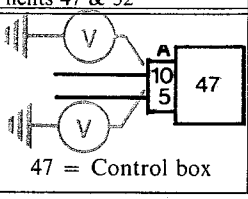
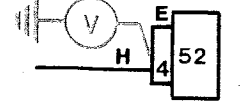
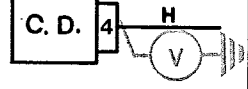


# 55.

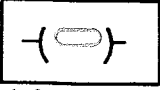
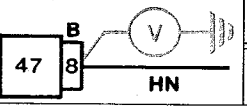
The search for the defect can be limited to one section of the circuit according to whether the warning light in the instrument panel for the rear fog lamps is on or off.  
The correspondence between the warning lights which are on and the section of the circuit to be checked is illustrated diagrammatically in the table below:

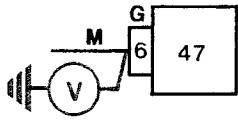


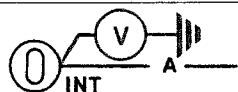
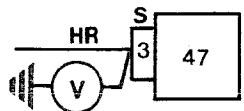
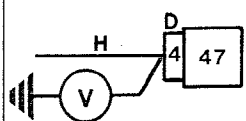
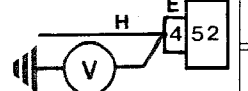
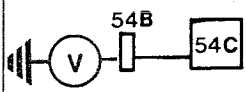
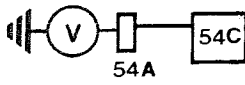
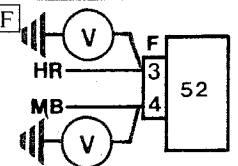
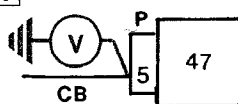
WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED	WARNING LIGHTS ON	SECTION OF CIRCUIT TO BE CHECKED
 Warning light in instrument panel			

### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR FIRST CASE

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Check rear fog lamps bulb(s)	Bulbs faulty	Replace bulb				
	Bulb(s) okay		Voltage 12V Nil voltage	Check connection a - 	Nil voltage Voltage 12V	B A
<b>A</b> 	Voltage 0V	Replace the broken cable(s) between components 47 & 52				
	Voltage 12V	 47 = Control box	Nil voltage Voltage 12V	Replace the control box Replace the HR cable or the MB cable or both connecting the control box to the bulb		
<b>B</b> 	Voltage 12V	Replace the display panels				
	Voltage 0V	<b>C. D.</b> 	Voltage 0V	Replace the control box		
			Voltage 12V	Replace the H cable between components 47 & 52		

### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING SECTION OF CIRCUIT FOR SECOND CASE

OPERATION	RESULT	OPERATIONS	RESULT	OPERATIONS
 Check fuse B	Fuse faulty	Replace fuse		
	Fuse okay		Voltage 0V Voltage 12V	Carry out op. <b>A</b> Carry out op. <b>B</b>

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
<b>A</b> 	Voltage 12V	Replace control unit 47		Replace cable M between components 47 & 74		
	Voltage 0V		Voltage 12V		Voltage 12V	C
			Voltage 0V		Voltage 0V	D
	<b>C</b> Replace the lights switch.					
	Voltage 12V	Replace the section of cable A which is broken between the ignition switch 79 and the lights switch 74				
	Voltage 0V	Replace the ignition switch				
<b>B</b> 	Voltage 12V		Voltage 0V	Replace control box 47		
			Voltage 12V		Voltage 0V	E
	Voltage 0V		Voltage 0V	Replace cable HN between components 47 & 54c		
			Voltage 12V		Voltage 0V	G
					Voltage 12V	H
	<b>E</b> Replace the H cable between the control box (D4) and the display panels (E4).					
<b>G</b> Replace the rear fog lamps switch						
<b>H</b> Replace the HR cable between connection 54A and the control box (S3).						
<b>F</b> 	Voltage 12V	Carry out the operations listed for the first case or for operation <b>Y</b> which follows				
	Voltage 0V	Replace the display panels and carry out operation <b>Y</b> which follows				
<b>Y</b> 	Voltage 0V	Replace the control box				
	Voltage 12V	Check bulb	Bulb okay	Replace cable CB between bulb and control box 47		
			Bulb faulty	Replace the bulb		

**NOTE** All the operations described previously must be carried out with the dipped headlamps and the rear fog lamps switched on.

Another two conditions may also occur, namely:

- warning light in question on despite the fact that the rear fog lamps are on;
- warning light in question off despite the fact that the rear fog lamps bulb(s) are off.

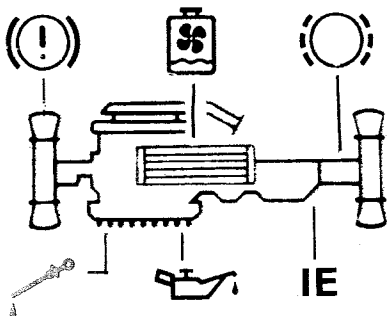
In the first case simply replace the Control System display panels.

In the second case, however, turn the ignition switch from the OFF position to the ON position and observe whether all the warning lights in the display panels come on for a short period or not.

If the warning lights do come on (including or excluding the one being examined) replace the display panels. If all the warning lights do not come on, carry out the operations described and illustrated in the centre of page 13.

55.

After the previous checks the warning light should be on and the bulb or bulbs for the rear fog lamps off which makes it necessary to carry out the operations for the two cases described on page 24.



WARNING LIGHT SIGNALLING INSUFFICIENT ENGINE OIL LEVEL

The warning light in question is highlighted in colour in the diagram at the side.

If the warning light comes on with the engine switched off this means that the oil level is insufficient whilst if it comes on when the engine is running this signals that there is a break in the circuit.

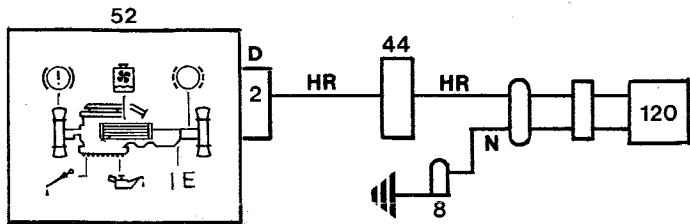
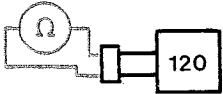
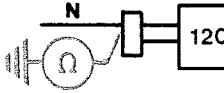
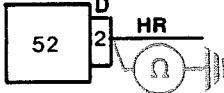



Diagram showing circuit signalling insufficient engine oil level

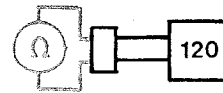
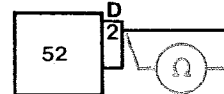
- 8. Right front earth cable loom
- 44. Connection
- 52. Display panels
- 120. Oil level sensor

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN WARNING LIGHT REMAINS ON IN SPITE OF THE LEVEL BEING CORRECT

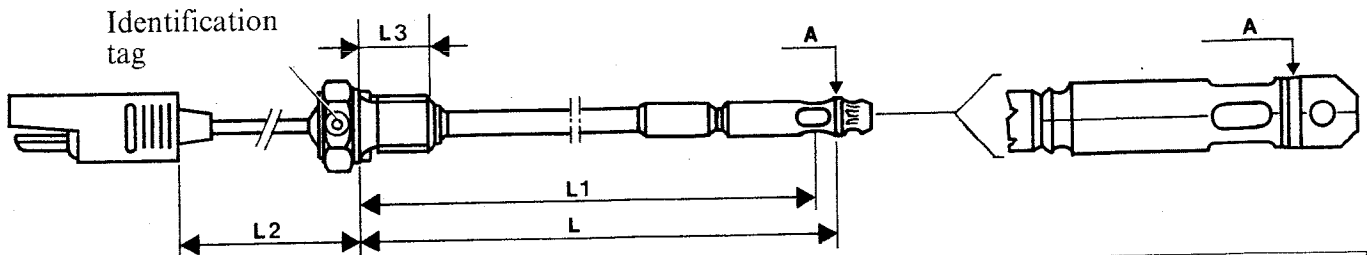
OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.	
 Disconnect the sensor electrical connection	Infinite resistance	Replace the sensor	 Reconnect the sensor electrical connection	Infinite resistance	Check a/o replace cable N connected to earth		
	A certain resistance value			Nil resistance		Nil resistance	A
						Infinite resistance	B
A Replace the display panels.							

 52 HR 44 HR	Infinite resistance	Replace cable HR between connection 44 and the sensor
	Nil resistance	Replace the HR cable between connection 44 and the display panels

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF IN SPITE OF THE OIL LEVEL BEING INSUFFICIENT

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	
 Disconnect the sensor electrical connection	Nil resistance	Replace the sensor			
	Infinite resistance				Resistance 0Ω
			Infinite resistance	Carry out the operations illustrated in the centre of page 13	

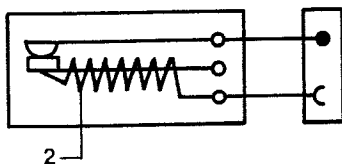
**NOTE** After each check and replacement turn the ignition switch to the OFF position and then to the ON position to cancel the information which was previously stored in the memory.  
In the second case after the last operation has been carried out and the information stored in the memory has been cancelled, if all the warning lights except for the oil level one come on for a brief period, do not carry out the checks described on page 13 as specified but rather replace the display panels straight away.



### View of engine oil level sensor

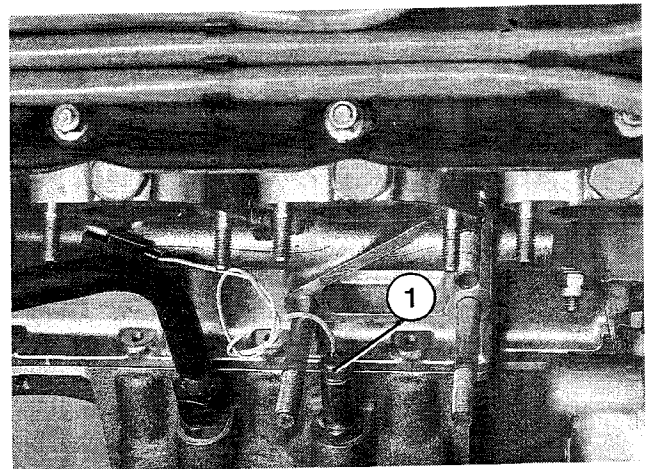
The difference between the two measurements L and L1 which is equal to 0 - 3 mm represents the tolerance for the opening of the electrical contacts beyond the minimum level A.  
Light blue coloured identification tag.

DIMENSIONS	
L	49 ÷ 50 mm
L1	47 ÷ 49 mm
L2	335 ÷ 350 mm
L3	11,5 ÷ 12,5 mm



### Sensor wiring diagram

2 Heater winding

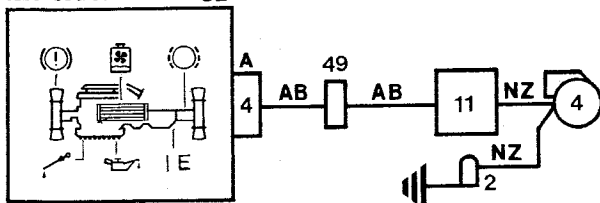


### Location of oil level sensor on engine

1 Oil level sensor

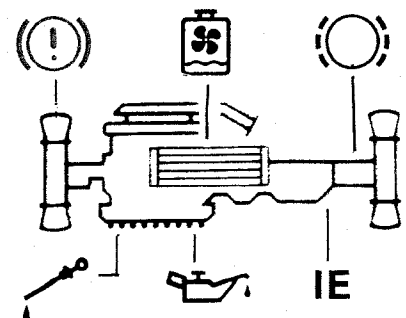
### WARNING LIGHT SIGNALLING INSUFFICIENT BRAKE FLUID LEVEL

The warning light in question is highlighted in colour in the diagram at the side.



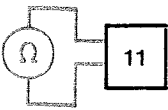
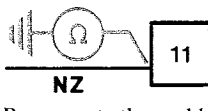
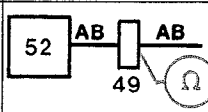
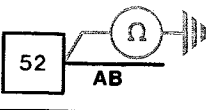
### Diagram showing circuit signalling insufficient brake fluid level

- 2. Right front earth cable loom
- 4. Horns
- 11. Brake fluid level sensor
- 49. Connection
- 52. Control System display panels


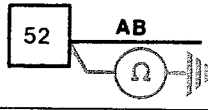


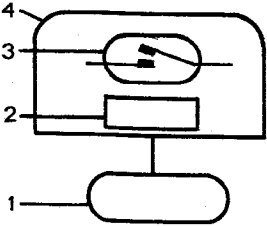
55.

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS ON DESPITE THE FACT THAT THE BRAKE FLUID LEVEL IS SUFFICIENT

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Disconnect the sensor cables	Infinite resistance	Replace the sensor		 Reconnect the cables to the sensor	Check a/o replace NZ cable(s) connected to earth	
	Nil resistance				 Nil resistance	B
					Infinite resistance	A
A Replace the AB cable between connection 49 and the sensor.						
 Nil resistance	Nil resistance	Replace the display panels				
	Infinite resistance	Replace the AB cable between connection 49 and the display panels				

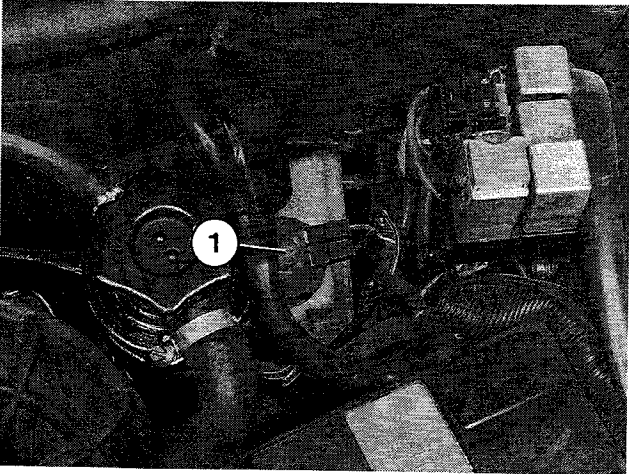
ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF DESPITE THE FACT THAT THE BRAKE FLUID LEVEL IS INSUFFICIENT

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS
	Nil resistance	Replace the sensor		
	Infinite resistance		Resistance 0Ω	Replace the section of cable AB connected to earth
			Infinite resistance	Carry out the operations illustrated in the centre of page 13



Diagrammatic representation of brake fluid level sensor

- 1. Float
- 2. Magnet
- 3. Bulb with contacts
- 4. Brake fluid reservoir cap



When the reservoir is full of fluid the float (1) rises upwards to the magnet (2) which makes its influence felt on the contacts, keeping them closed.

Location of brake fluid level sensor  
1. Sensor

WARNING LIGHT SIGNALLING INSUFFICIENT COOLANT LEVEL

The warning light in question is highlighted in colour in the diagram at the side.

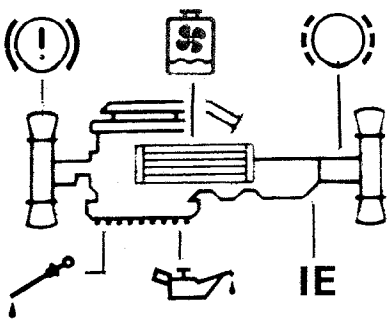
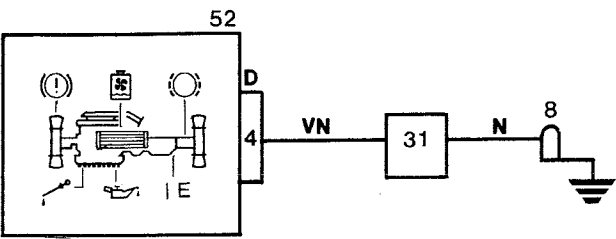
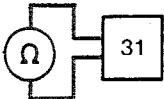

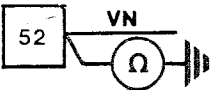



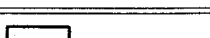
Diagram showing circuit signalling insufficient coolant level

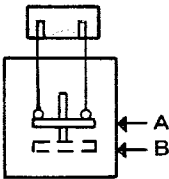
- 8. Right front earth cable loom
- 31. Coolant level sensor
- 52. Display panels

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS ON IN SPITE OF THE FACT THAT THE COOLANT LEVEL IS SUFFICIENT

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.	
 Disconnect cables from sensor	Infinite resist.	Replace the sensor	 Reconnect cables to sensor	Replace the N cable connected to earth			
	Nil resistance						
						Nil resistance	B
						Infinite resistance	A
<div><div>A</div> Replace the VN cable between the sensor and the display panels.</div> <div><div>B</div> Replace the display panels.</div>							

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF DESPITE THE FACT THAT THE COOLANT LEVEL IS INSUFFICIENT

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS
	Nil resistance	Replace the sensor		
	Infinite resistance		Resistance 0Ω	Replace the VN cable (connected to earth)
			Infinite resistance	Carry out the operations illustrated in the middle on page 13

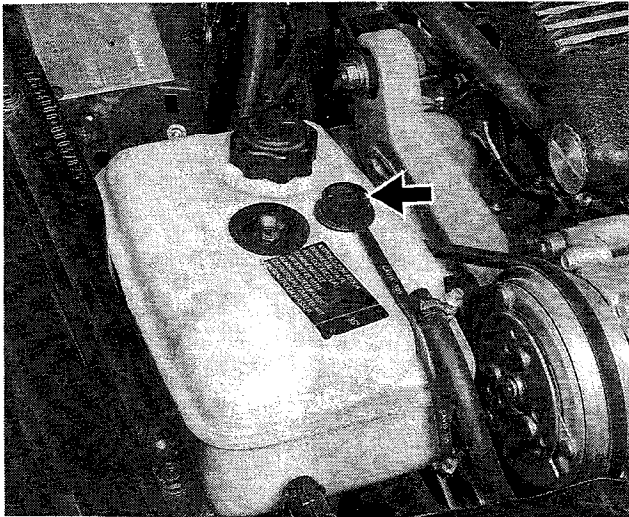


Coolant level sensor wiring diagram

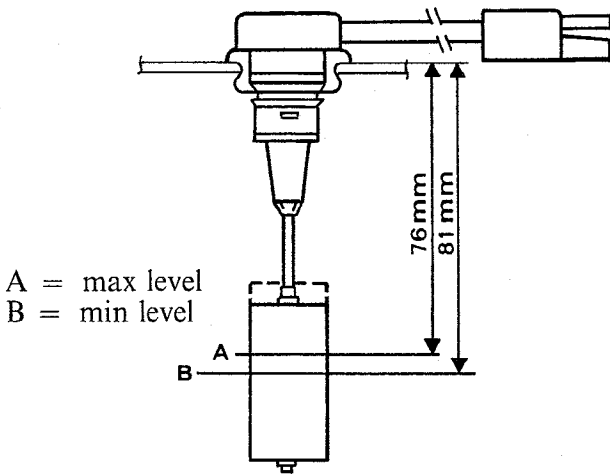
- A = maximum level corresponding to contacts closed
- B = minimum level corresponding to contacts open



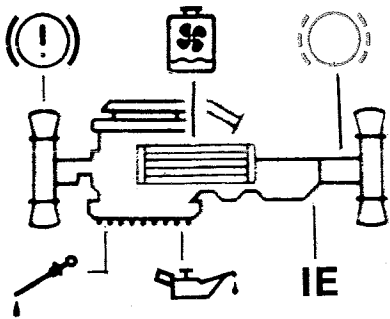
55.



View of sensor immersed in expansion tank.



Diagrammatic representation of coolant level sensor



WARNING LIGHT SIGNALLING FRONT BRAKE PAD WEAR

The warning light in question is highlighted in colour in the diagram at the side.

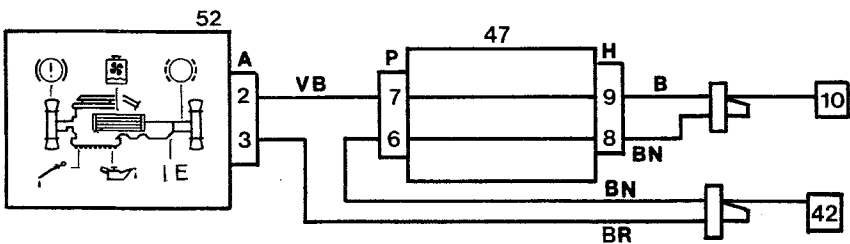
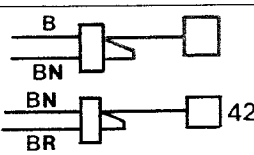


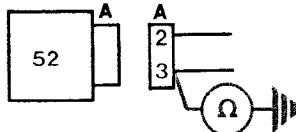
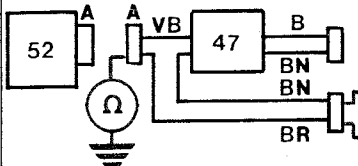
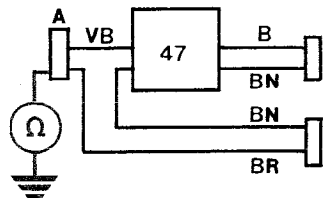
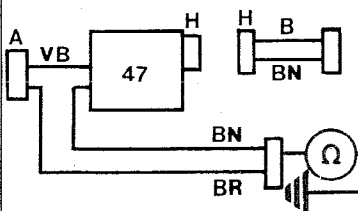
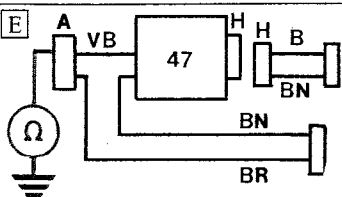
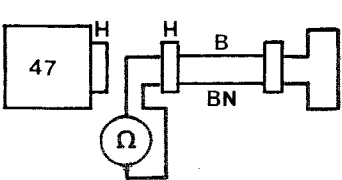
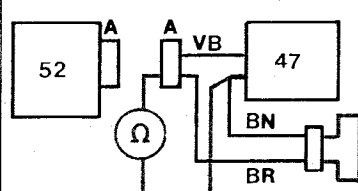
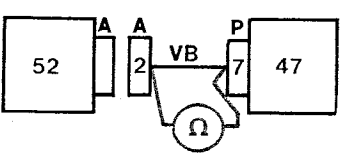


Diagram showing circuit signalling front brake pad wear

- 10. Left sensor
- 42. Right sensor
- 47. Control box
- 52. Display panels

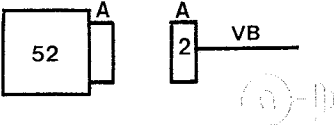
ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS ON DESPITE THE FACT THAT THE FRONT BRAKE PADS ARE NEW AND NOT WORN

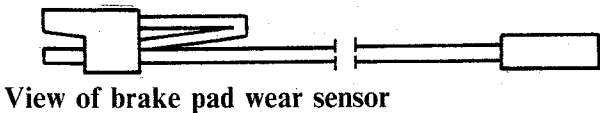
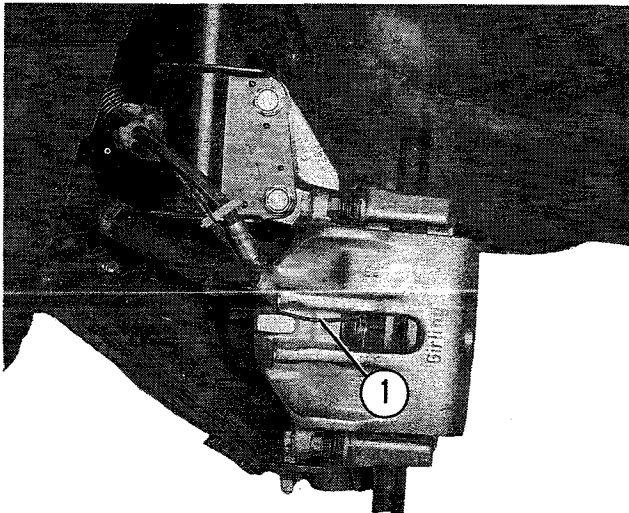
OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
 Disconnect the sensors and bridge the connections	Warning light off	 Reconnect	Warning light on	Replace sensor 42
			Warning light on	A
			Resistance 0 Ω	B
			Infinite resist.	C

OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
<div><div>A</div><div></div><div>Replace sensor 10 and reconnect sensor 42</div></div>	<div> Warning light off</div> <div> Warning light on</div>	Replace sensor 42		
<div><div>B</div><div></div></div>	Infinite resistance	Replace the display panels		
	Nil resistance	<div></div>	Infinite resistance	E
			Nil resistance	D
<div><div>D</div><div></div></div>	Nil resistance	Replace the BR cable between sensor 42 and unit 52		
	Infinite resistance	<div></div>	Nil resistance	Replace cable BN between components 47 & 42
			Infinite resistance	Replace cable BN between components 47 & 10
<div><div>E</div><div></div></div>	Nil resistance	Replace cable VB connecting components 52 and 47		
	Infinite resistance	Replace cable B which connects sensor 10 to the control box 47		
<div><div>C</div><div></div></div>	Infinite resistance	Replace cable B or cable BN which is broken		
	Nil resistance	<div></div>	Nil resistance	F
			Infinite resistance	G
G Check the continuity of cables BN and BR and replace whichever is broken				
<div><div>F</div><div></div></div>	Nil resistance	Replace the control box 47		
	Infinite resistance	Replace the VB cable which connects the control box to the display panels		

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ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF IN SPITE OF THE FACT THAT THE FRONT BRAKE PADS ARE WORN

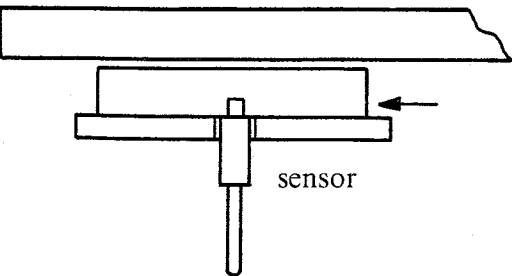
OPERATION	RESULT	OPERATIONS
 52 = Display panels	Infinite resistance	Check that the sensors are properly fitted to the brake pads If no fault can be found, replace the sensors because they are broken
	Nil resistance	Carry out the operations illustrated in the centre of pate 13 (second case)



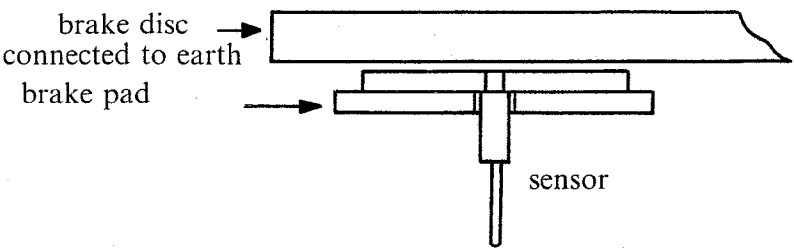
View of brake pad wear sensor

View of sensor fitted to brake pad

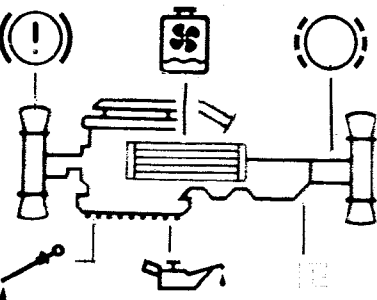
- 1. Brake pad wear sensor.



View of new brake pad



View of worn brake pad

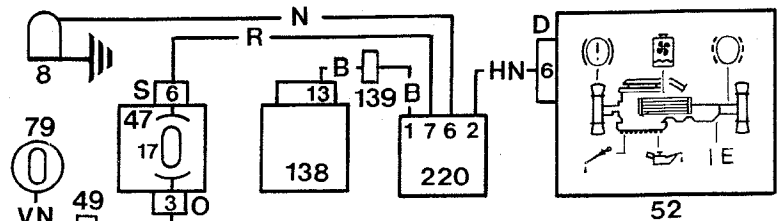


WARNING LIGHT SIGNALLING INJECTION ELECTRO-  
NIC CONTROL UNIT FAILURE

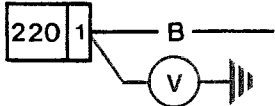
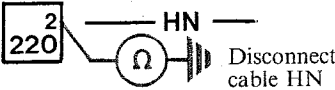
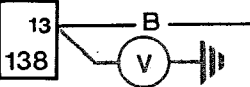
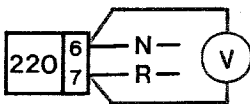
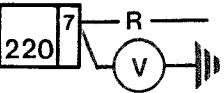
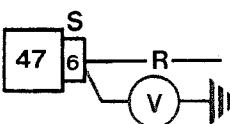
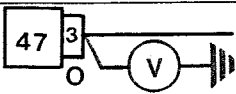
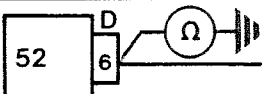
The warning light in question is highlighted in colour in the diagram at the side.

### Diagram showing circuit signalling injection electronic control unit failure



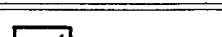
- 8. Right front earth cable loom
- 47. Control box
- 49 & 139. Connections
- 52. Display panels
- 79. Ignition switch
- 138. IE electronic control unit
- 220. Electronic module for warning light



### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS ON DESPITE THE FACT THAT THE ELECTRONIC CONTROL UNIT IS WORKING PROPERLY

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS
 <p>Ignition switch in ON position</p>	<p>A certain voltage value</p>	 <p>Disconnect cable HN</p>	<p>Nil resistance</p>	[A]
	<p>Nil voltage</p>		<p>A certain voltage value</p>	[C]
			<p>Nil voltage</p>	[D]
<p>[C] Replace the section of cable B which is broken</p> <p>[D] Check a/o replace the injection electronic control unit</p>				
<p>[A]</p> 	<p>Voltage = 12V</p>	<p>Replace the electronic module 220</p>		
	<p>Nil voltage</p>		<p>Voltage 12V</p>	[E]
			<p>Nil voltage</p>	[F]
<p>[E] Check the connection to earth of cable N and/or replace it</p>				
<p>[F]</p> 	<p>Voltage = 12V</p>	<p>Replace cable R</p>		
	<p>Nil voltage</p>		<p>Voltage 12V</p>	[G]
			<p>Nil voltage</p>	[H]
<p>[G] Check fuse 17 and if it is working properly replace the control box</p> <p>[H] Replace the section of cable VN which is broken</p>				
<p>[B]</p> 	<p>Nil resistance</p>	<p>Replace the HN cable</p>		
	<p>Infinite resistance</p>	<p>Replace the display panels</p>		

## ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF IN SPITE OF THE FACT THAT THE INJECTION ELECTRONIC CONTROL UNIT IS NOT WORKING PROPERLY

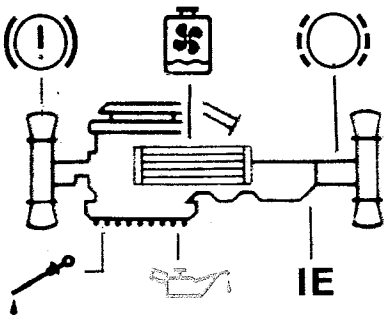
OPERATIONS		RESULTS	OPERATIONS	RESULTS	OPERATIONS
	Nil resistance		Nil resistance	Replace the display panels 52	
			Infinite resist.	Replace the HN cable	
	Infinite resistance		A certain voltage value	Replace the injection control unit 138	
			Nil voltage	Replace the electronic module 220*	

\* Before replacing the electronic module 220, carry out the above mentioned 

A
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 operation

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WARNING LIGHT SIGNALLING INSUFFICIENT ENGINE OIL PRESSURE

The warning light in question is highlighted in colour in the diagram at the side.

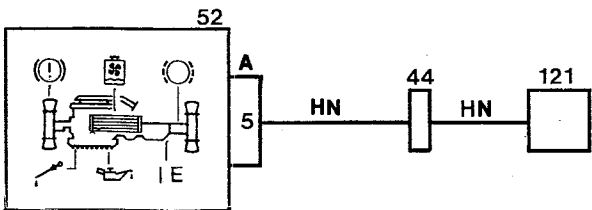

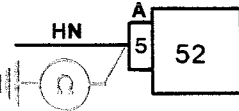



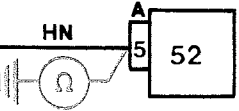
Diagram showing circuit signalling insufficient engine oil pressure

- 44. Connection
- 52. Display panels
- 121. Engine oil pressure sensor

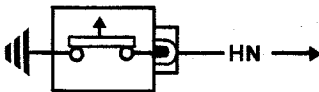
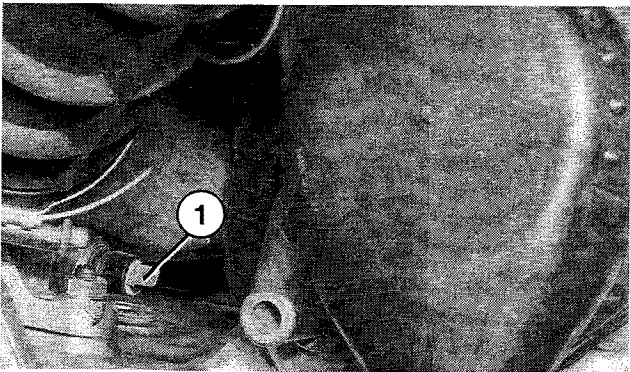
ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS ON IN SPITE OF THE FACT THAT THE ENGINE OIL PRESSURE IS GREATER THAN 0.5 BAR

OPERATION	RESULT	OPERATION	RESULT	OPERATION
 Disconnect the electrical connection from the sensor	Nil resistance	Replace the sensor		
	Infinite resistance		Nil resistance	Replace the section of the HN cable which is connected to earth
			Infinite resistance	Replace the display panels

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF IN SPITE OF THE FACT THAT THE ENGINE OIL PRESSURE IS VERY LOW

OPERATION	RESULT	OPERATION	RESULT	OPERATION
 Disconnect the electrical connection from the sensor	Infinite resistance	Replace the sensor		
	Nil resistance		Nil resistance	Carry out the operations described and illustrated in the centre of page 13
			Infinite resistance	Replace the section of the HN cable which is broken

**NOTE** After each check and replacement turn the ignition switch to the OFF position and then to the ON position to cancel the information which has been previously stored in the memory.



to the display panels

Sensor wiring diagram

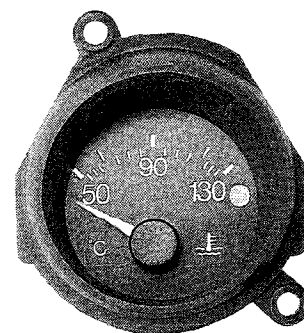
CALIBRATION VALUES	
Contacts open	Contacts close
0,196 ÷ 0,392 bar pressure increasing	0,196 ÷ 0,392 bar pressure decreasing

Location of oil pressure switch

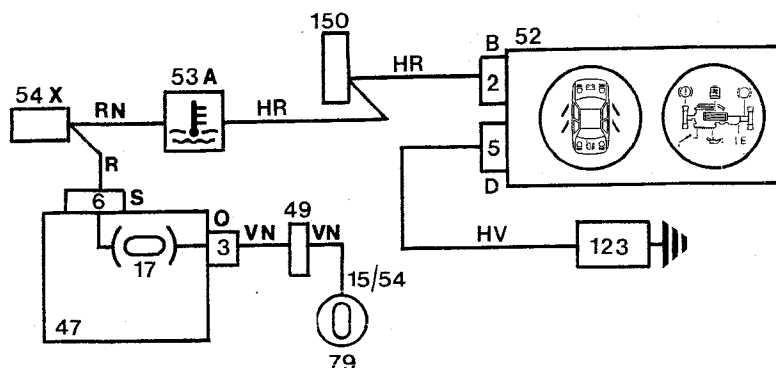
- 1. Oil pressure switch

**WARNING LIGHT SIGNALLING COOLANT OVERHEATING**

The warning light in question is highlighted in colour in the diagram at the side.

**Diagram showing circuit signalling coolant overheating**

- 47. Control box
- 49. Connection
- 52. Display panels
- 53A. Coolant overheating warning light
- 54X. Branch point
- 79. Ignition switch
- 123. Coolant temperature sensor
- 150. Diagnostic socket




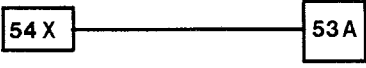
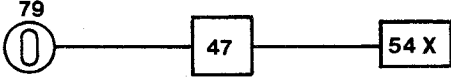
**ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS ON IN SPITE OF THE FACT THAT THE COOLANT TEMPERATURE IS BELOW 100°C**

OPERATION	RESULT	OPERATION	RESULT	OPERATION
	Nil resistance		Nil resistance	Replace the sensor
			Infinite resist.	Replace the HV cable between sensor & unit 52
	Infinite resistance		Nil resistance	Replace the display panels
			Infinite resistance	Replace the section of the HR cable which is connected to earth


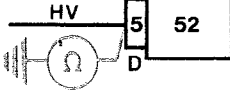


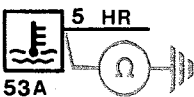
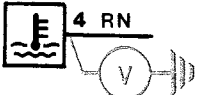
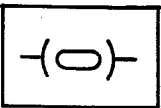
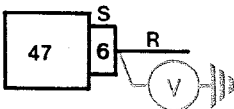
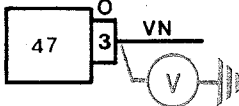
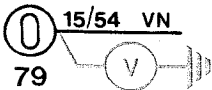
**ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF IN SPITE OF THE FACT THAT THE COOLANT TEMPERATURE IS ABOVE 120°C**

INSTRUMENTS OPERATING		SECTION OF CIRCUIT TO BE CHECKED
Fuel gauge	Oil temperature gauge	<p>Between sensor and warning light being examined</p>
Coolant temperature gauge	Oil pressure gauge	

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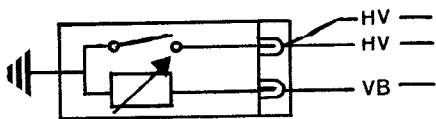
INSTRUMENTS OPERATING	SECTION OF CIRCUIT TO BE CHECKED
 Fuel gauge  Oil pressure gauge  Engine oil temperature gauge	 Between the branch point and the warning light being examined
None	 Between the ignition switch and the branch point

The various operations for the different sections of the circuit are listed and illustrated in order below

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.		
	Infinite resistance	Replace the sensor		Infinite resistance	Replace the HV cable between sensor and unit 52		Nil resistance	A
	Nil resistance			Nil resistance			Infinite resist.	B
<b>B</b> Replace the display panels								
	Infinite resistance	Replace the HR cable between units 150 and 52		Infinite resistance	Replace the HR cable between units 150 and 53A			
	Nil resistance			Nil resistance	Replace the printed circuit for the coolant temperature gauge			
	Nil voltage	Replace the RN cable which connects the instrument to the branch point						
	Voltage 12V	Replace the printed circuit for the coolant temperature gauge						
<b>C</b> Replace the control box 47								
	Fuse faulty	Replace the fuse		Voltage 12V	Replace the R cable		Voltage 12V	C
	Fuse okay			Voltage 0V			Voltage 0V	D
	Voltage 0V	Replace the ignition switch						
	Voltage 12V	Replace the section of the VN cable which is broken						

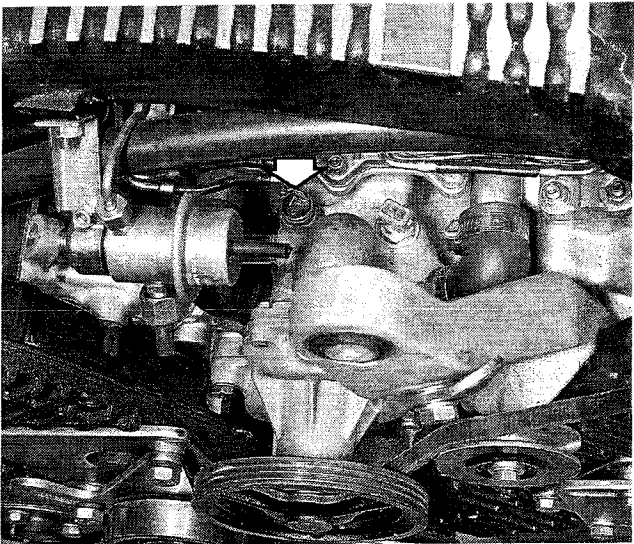


Sensor wiring diagram (sender unit - thermal switch)



CALIBRATION VALUES	
Contacts closed	Contacts open
118° ÷ 122°C	105° ÷ 111°C

Location of sender unit - max coolant temperature thermal switch on engine



FUEL RESERVE WARNING LIGHT

The warning light in question is highlighted in colour in the diagram at the side and should come on when there are between 8 and 10 litres of fuel left in the tank.

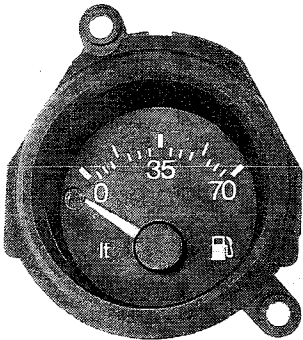
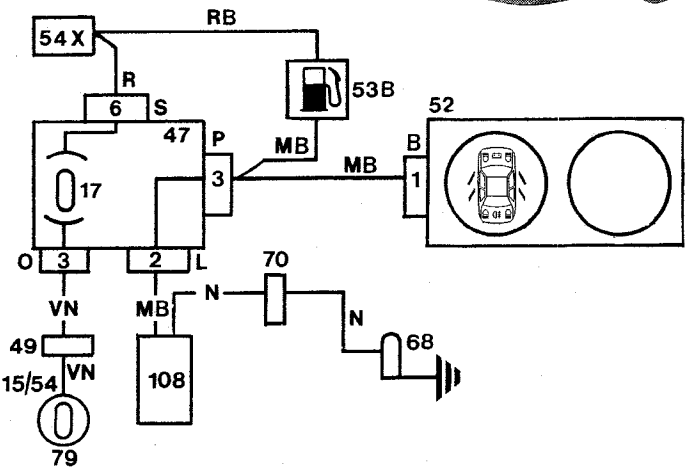


Diagram showing circuit signalling fuel reserve

- 47. Control box
- 49. Connection
- 52. Display panels
- 53B. Fuel reserve warning light
- 54X. Branch point
- 68. Earth cable loom on steering column upper shaft
- 70. Connection
- 79. Ignition switch
- 108. Fuel level gauge





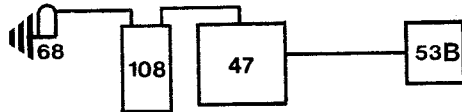




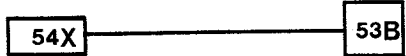

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS ON IN SPITE OF THE FUEL TANK BEING ALMOST FULL

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
	Nil resistance	Replace the fuel level gauge				
	Infinite resistance		Infinite resist.	Replace the MB cable between units 47 and 53B		
			Nil resistance		Infinite resist.	A
					Nil resistance	B

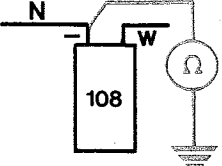
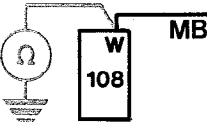

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- A Replace the control box
- B Replace the MB cable between control 108 and the control box 47

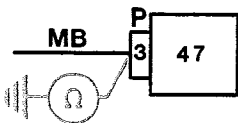

ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE WARNING LIGHT REMAINS OFF IN SPITE OF THE FUEL TANK BEING ALMOST EMPTY

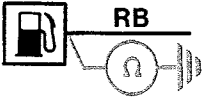
INSTRUMENTS OPERATING		SECTION OF CIRCUIT TO BE CHECKED
 Fuel gauge	 Engine oil pressure warning light	 Between the earth and the warning light being examined
 Coolant temperature warning light	 Engine oil temperature warning light	
 Coolant temperature warning light Engine oil pressure warning light	 Engine oil temperature warning light	 Between the branch point and the warning light being examined
None		 Between the ignition switch and branch point

The various operations for the different sections of the circuit are listed and illustrated in order below.

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
	Infinite resistance	Replace the broken section of the N cable				
	Nil resistance		Infinite resist.	Replace control 108		
			Nil resistance		Nil resistance	B
					Infinite resistance	A

- A Replace the MB cable which connects control 108 to the control box

	Infinite resistance	Replace the MB cable			
	Nil resistance		Infinite resistance	Replace the MB cable connecting units 47 and 53B	
			Nil resistance	Replace the printed circuit for the fuel gauge	

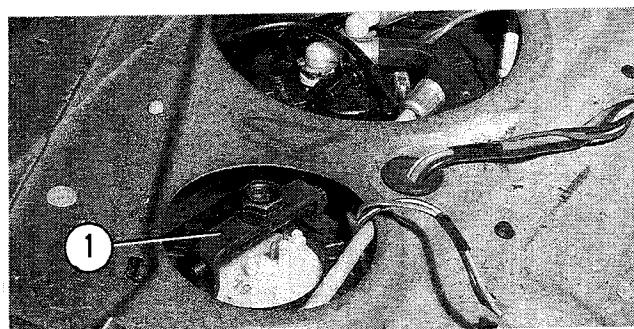
	Nil resistance	Replace the printed circuit for the fuel gauge
	Infinite resistance	Replace the MB cable which connects the instrument to the branch point

For the third section of the circuit, carry out the operations described and illustrated at the foot of page 36.

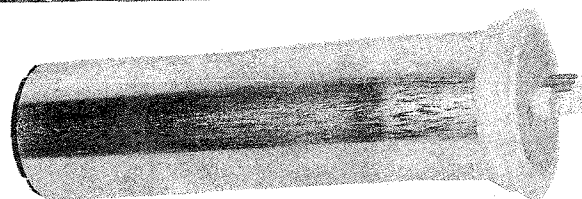
View of fuel gauge shield



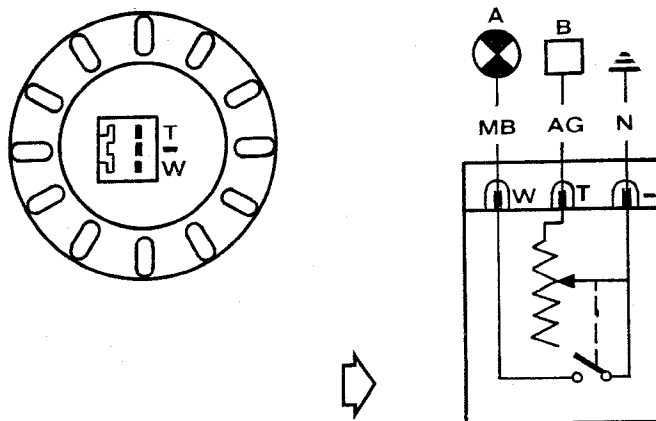
View of removal of fuel gauge using special tool (1)



View of fuel gauge

View of fuel gauge  
from above

T; -; W. Letters identifying connector sockets.

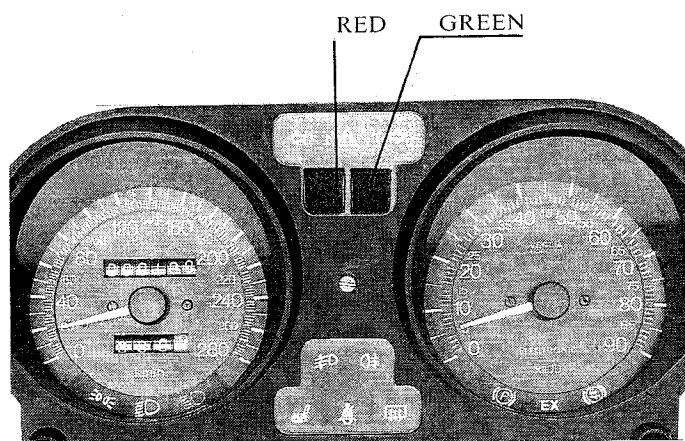


Fuel gauge wiring diagram

- A. Fuel reserve warning light
- B. Fuel gauge

### CONTROL SYSTEM RED AND GREEN GENERAL WARNING LIGHTS

The general warning lights are an integral part of the instrument panel and are highlighted in colour in the diagram at the side.



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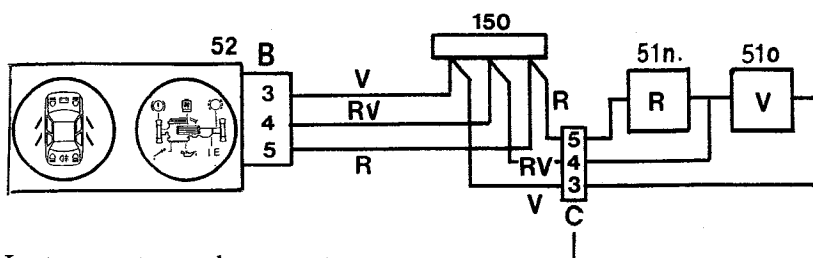


Diagram showing supply circuit for Control System red and green general warning light bulbs

51n. Warning light R = Red  
51o. Warning light V = Green  
52. Display panels  
105. Diagnostic socket

Instrument panel connector

### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE GREEN GENERAL WARNING LIGHT REMAINS OFF

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
<p>Directly supply the instrument panel</p>	<p>Warning light off</p> <p>Warning light on</p>	<p>Replace instrument panel bulb or printed circuit</p> <p>Disconnect connector B from the display panels</p>	<p>Warning light on</p> <p>Warning light off</p>	<p>Warning light on</p> <p>Warning light off</p>	<p>Voltage 0V</p> <p>Voltage 12V</p> <p>Voltage 0V</p> <p>Voltage 12V</p>	<p>A</p> <p>B</p> <p>C</p> <p>D</p>

- A Carry out the operations described and illustrated in the centre of page 5
- B Replace the display panels
- C Replace the section of the RV cable which is broken
- D Replace the section of the V cable which is broken

### ORDER OF OPERATIONS FOR CHECKING AND REPAIRING CIRCUIT WHEN THE RED GENERAL WARNING LIGHT REMAINS OFF

OPERATIONS	RESULT	OPERATIONS	RESULT	OPERATIONS	RESULT	OP.
<p>Directly supply the instrument panel</p>	<p>Warning light off</p> <p>Warning light on</p>	<p>Replace the instrument panel bulb or printed circuit</p> <p>Disconnect connector B from the display panels</p>	<p>Warning light on</p> <p>Warning light off</p>	<p>Warning light on</p> <p>Warning light off</p>	<p>Voltage 0V</p> <p>Voltage 12V</p> <p>Voltage 0V</p> <p>Voltage 12V</p>	<p>A</p> <p>B</p> <p>C</p> <p>D</p>

- A Carry out the operations described and illustrated at the centre of page 13
- B Replace the display panels
- C Replace the broken section of the RV cable
- D Replace the broken section of the R cable