There are no special points to be noted when removing the battery.
However, inspections are to be made and precautions taken to obtain better battery performance.

A – INSPECTION

Check and ensure that:

- the battery body and cover are not cracked or broken,
- the top of the battery is clean,
- the terminals are in good condition.

It is essential that:

- there is no sulphation on the terminals and clips,
- the terminals and clips are cleaned and greased if sulphation is present,
- the clips are correctly tightened on the terminals. If incorrectly tightened, this may cause starting or charging faults which may create sparks which could cause the battery to explode.
- the electrolyte level is checked

For batteries having a row of removable plugs:

- Remove the cover either by hand or using a tool (rigid spatula).
- Check the electrolyte level which should cover the plates in each of the cells.
- Top up the level using distilled water if necessary.

Note: Certain batteries have clear bodies which enable the electrolyte level to be seen.

Never add electrolyte or other products to the battery.

B – PRECAUTIONS

Remember that a battery

- contains sulphuric acid, which is a dangerous product,
- when charging, produces oxygen and hydrogen; the mixture of these two gasses produces an explosive gas.

1) DANGER = ACID

The sulphuric acid solution is a highly aggressive, toxic and corrosive product. It attacks the skin, clothing and concrete and corrodes most metals.

It is therefore important to take the following precautions when handling a battery:

- wear goggles to protect the eyes,
- wear anti-acid gloves and clothing.

If any acid is splashed, rinse all affected parts with copious amounts of water. If acid is splashed in the eyes, consult a doctor.

2) DANGER = RISK OF EXPLOSION

When a battery is charging (either in the vehicle or removed from the vehicle), oxygen and hydrogen are formed. The formation of gas is at a maximum when the battery is fully charged and the amount of gas is proportional to the intensity of the charging current.

Oxygen and hydrogen combine in open spaces, on the surface of plates and form a detonating mixture. This mixture is highly explosive.

The slightest spark, a cigarette, or a lit match are sufficient to cause an explosion. The explosion is so strong that the battery may shatter, spraying acid across the surrounding area. Any persons in the vicinity are in danger (from splinters and acid splashes). Splashes of acid are harmful to eyes, face and hands, and also attack clothing.

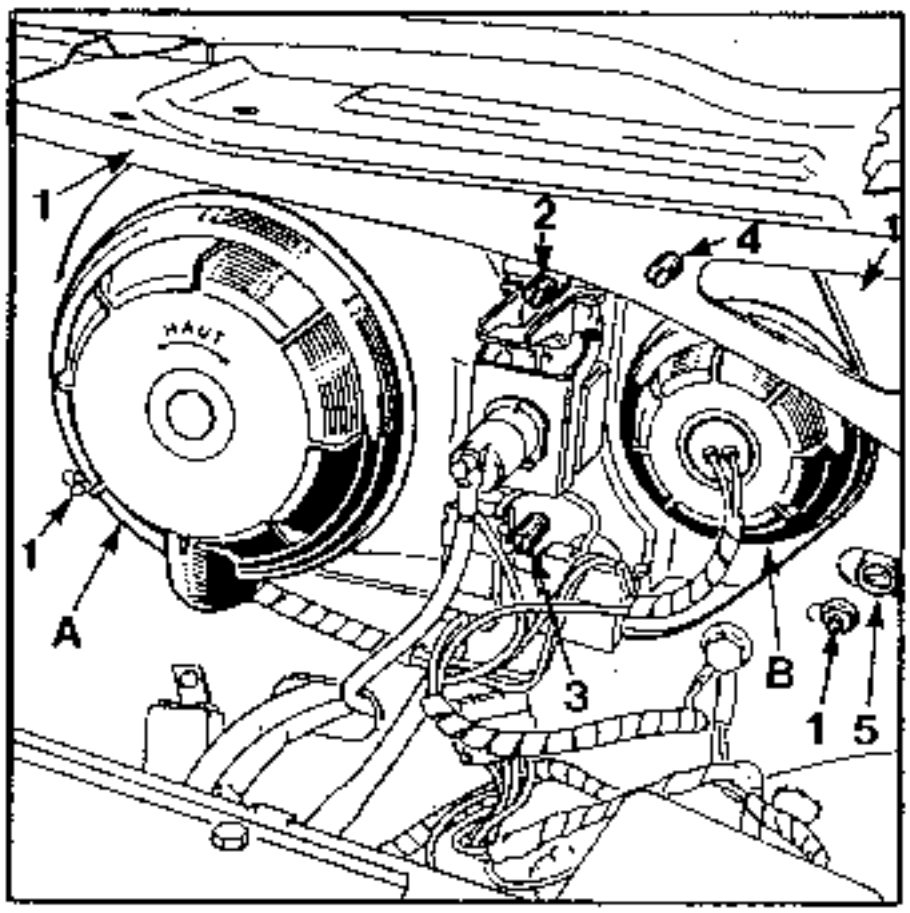
Protection against the risk of explosion, which may occur if a battery is handled carelessly, must be taken seriously. Avoid all risks of sparks.

- Ensure that all accessories are switched off before disconnecting or connecting the battery.
- When charging a battery, switch the charger off before disconnecting or reconnecting the battery.
- Never place a metal object on the top of the battery, or a short circuit will be produced between the terminals.
- Never bring a naked flame, blow lamp, hot air gun, cigarette or lighted match near a battery.

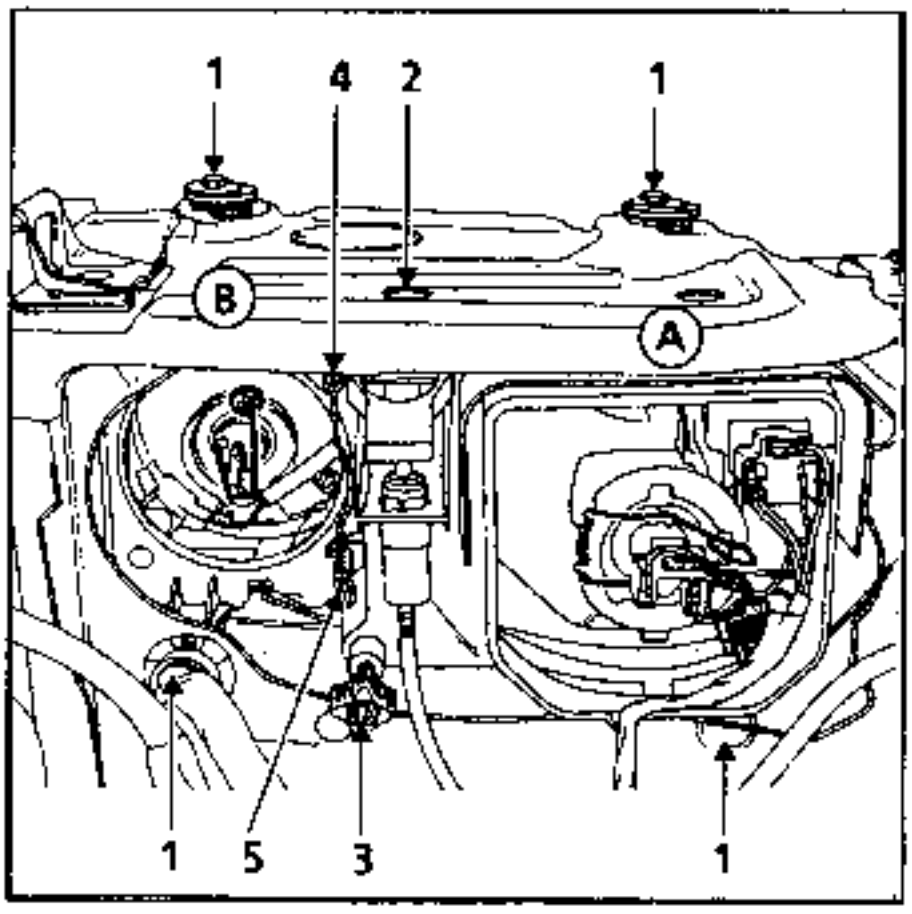
REMOVING:

- Disconnect connectors,
- Remove nuts (1).

Assembly, phase I



Assembly, phase II



Special notes for refitting

After the lights have been refitted, they must be adjusted.

Adjustment:

Check that the vehicle is empty.

Set the adjustment control to "no load" position.

For type "A" headlight unit:

- Adjust screw (2) for height,
- Adjust screw (3) for direction.

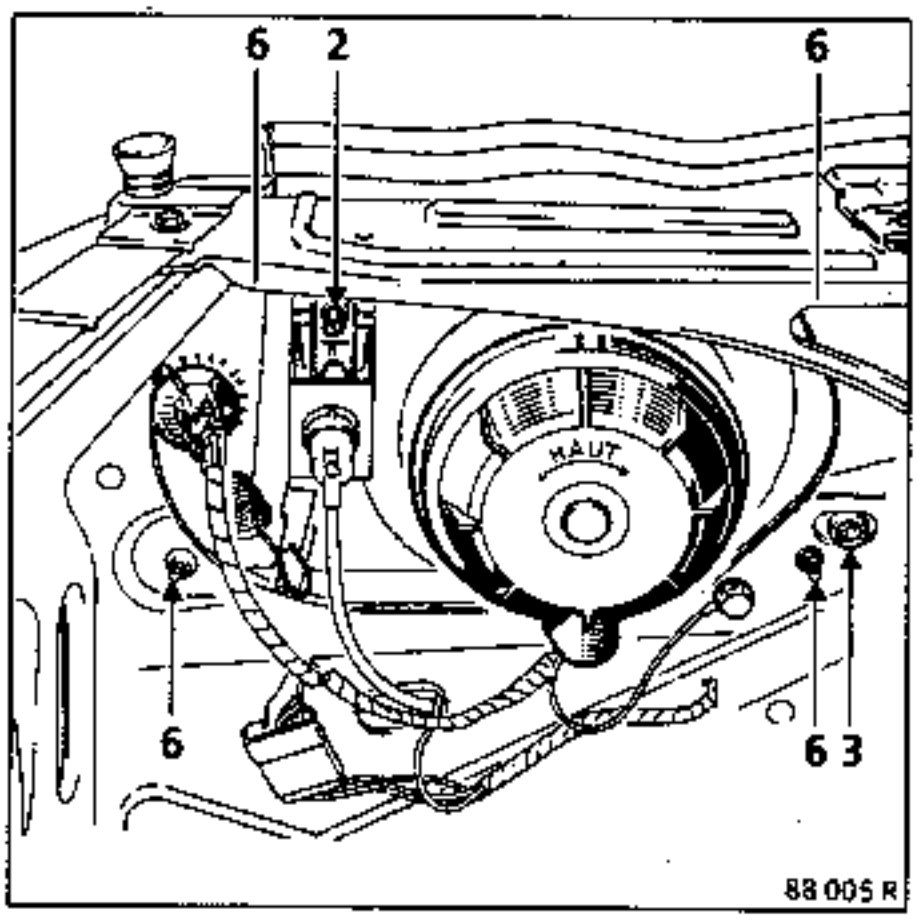
For "type B" headlight unit:

- Adjust screw (4) for height,
- Adjust screw (5) for direction

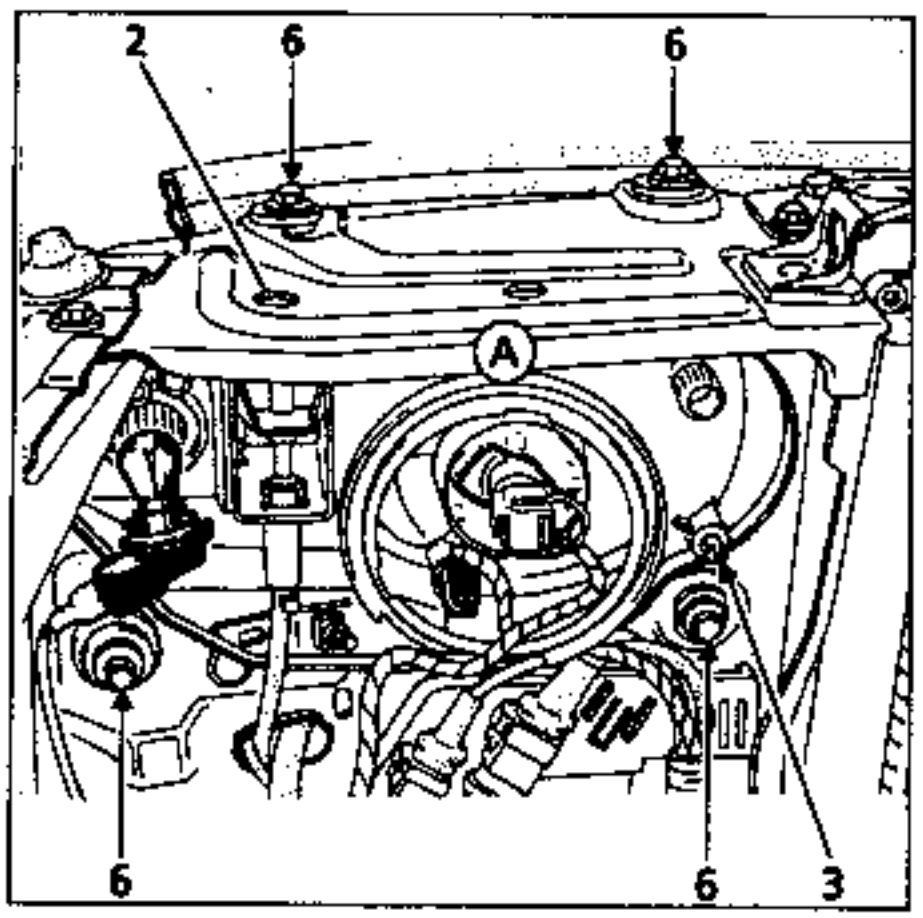
Remove:

- Disconnect connectors.
- Remove nuts (6).

Assembly, phase I



Assembly, phase II



Special notes for refitting

The light units must be adjusted after refitting.

Adjustment:

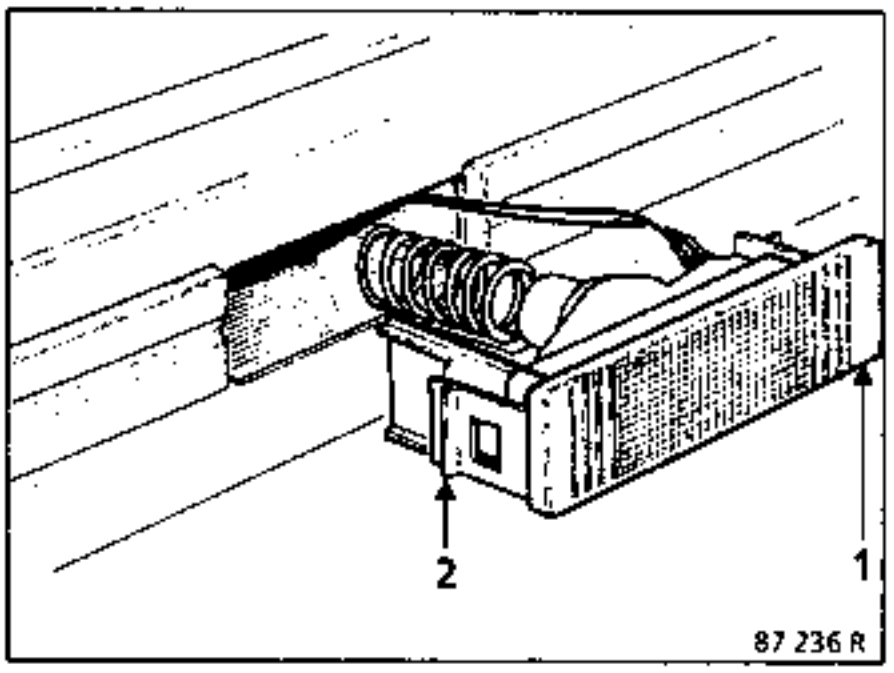
Check that the vehicle is empty.

The adjustment control is in the "vehicle unladen" position.

- Adjust screw (2) for height,
- Adjust screw (3) for direction.

INDICATORS IN THE BUMPER

Press lightly (1) and release the lug (2) with a thin blade.

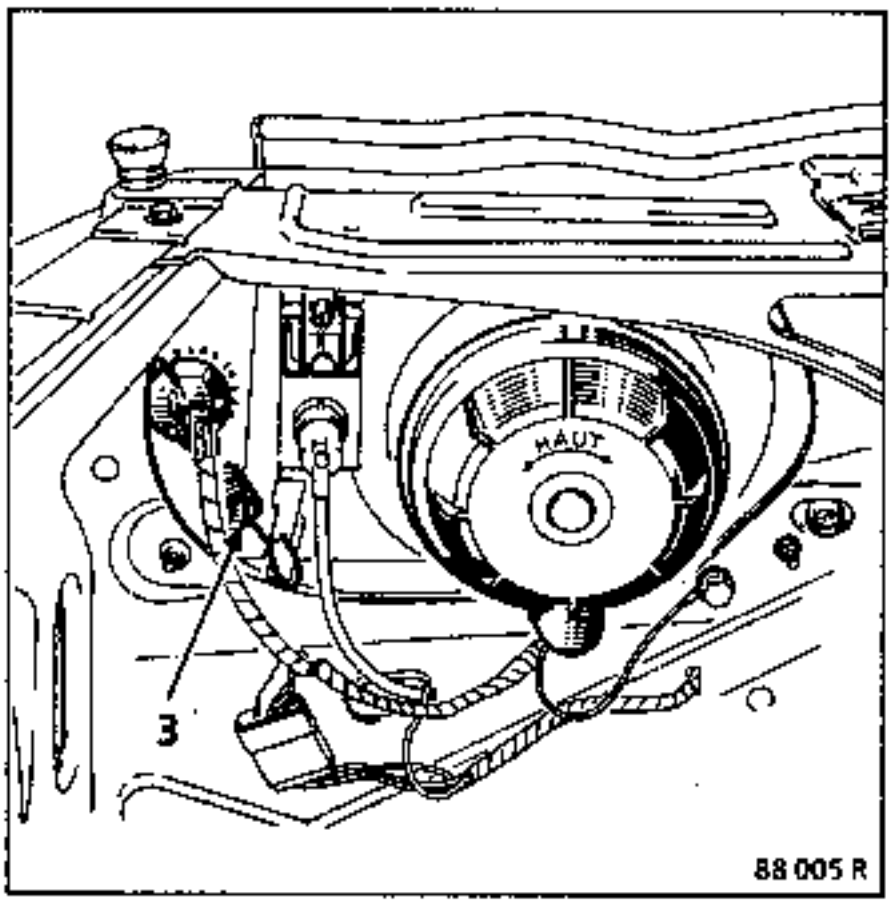


INDICATORS BONDED TO THE LIGHT UNIT (phase I)

Remove:

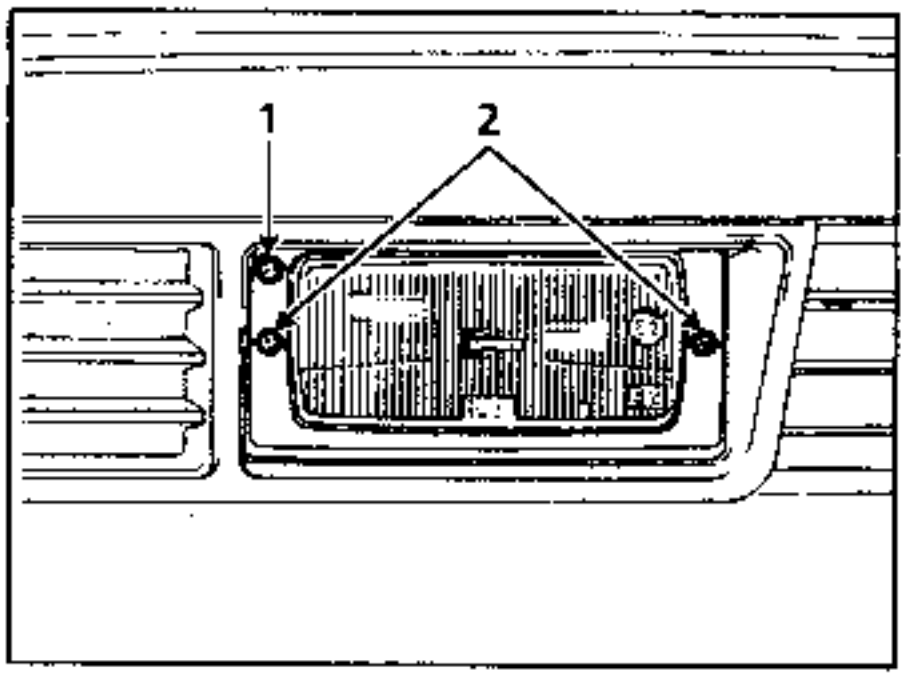
- the bulb holder,
- the spring (3),

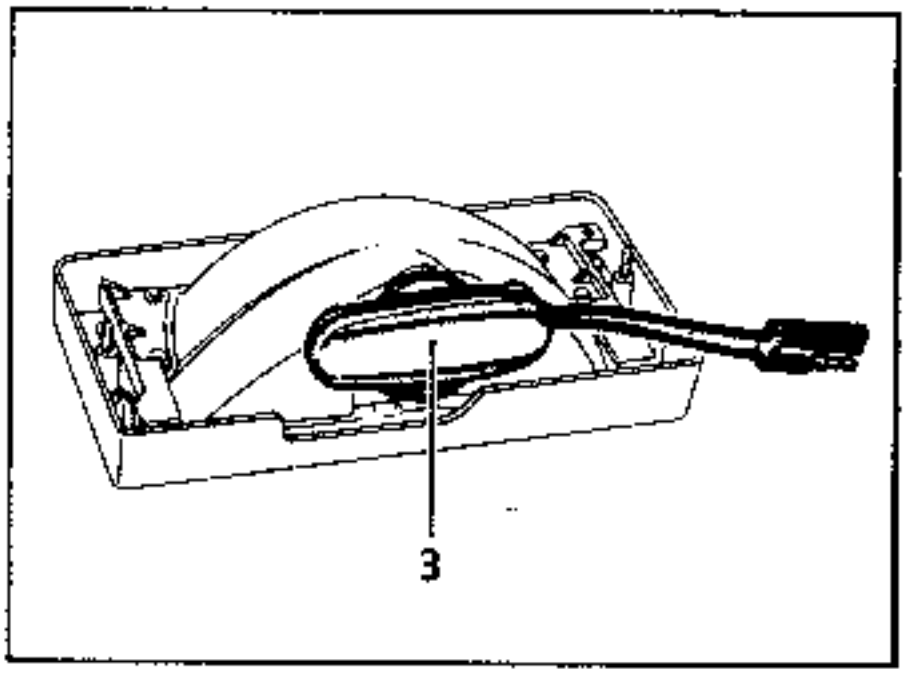
Take the light out towards the front.



Note : On the Renault 25 phase II, the indicator is integrated in the light unit.

For vehicles fitted with fog lights





REMOVING

- Unscrew mounting bolts (2),
- Take out the light unit towards the front,
- Disconnect the two wires.

REPLACING THE BULB

- Turn the bulb holder (3) a quarter of a turn and take it out (3).
- Remove the bulb.
- Hold the new bulb with a cloth or piece of paper and slide it into its holder.

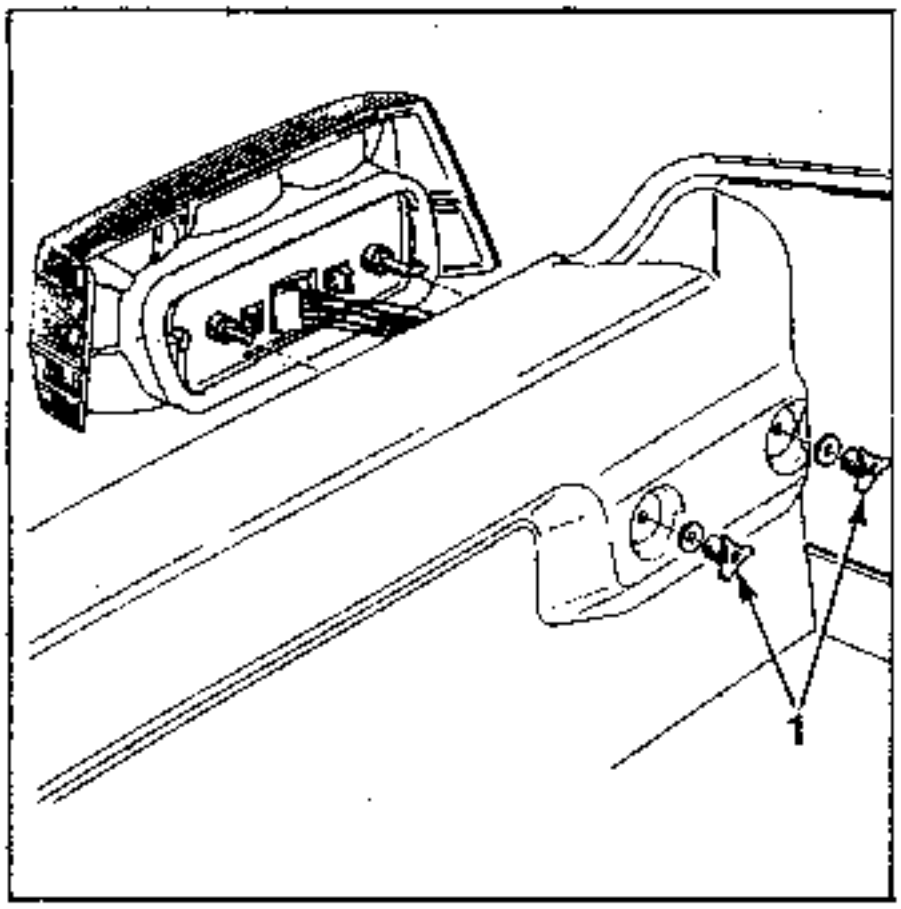
Adjust the height of the headlight:

- Screw (1).

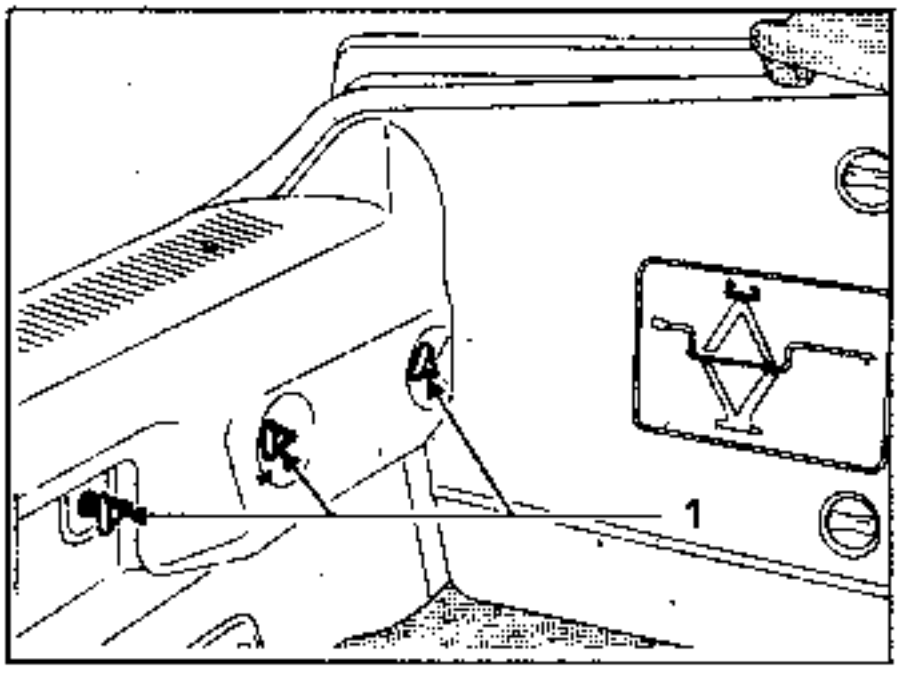
REMOVING

– Remove nuts (1) behind the lights, release the light and disconnect the connector.

Assembly, phase I

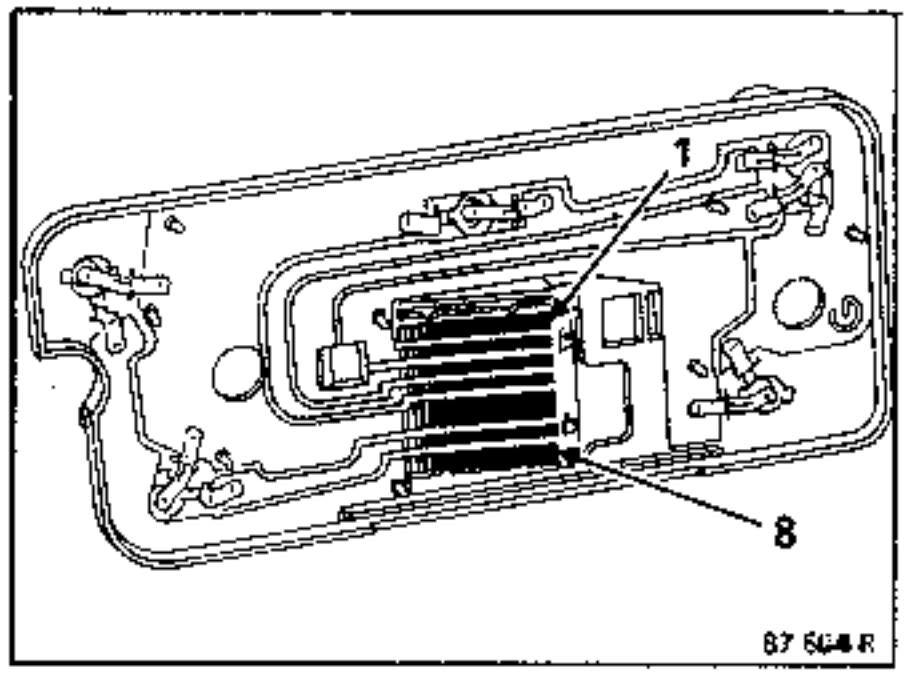


Assembly, phase II



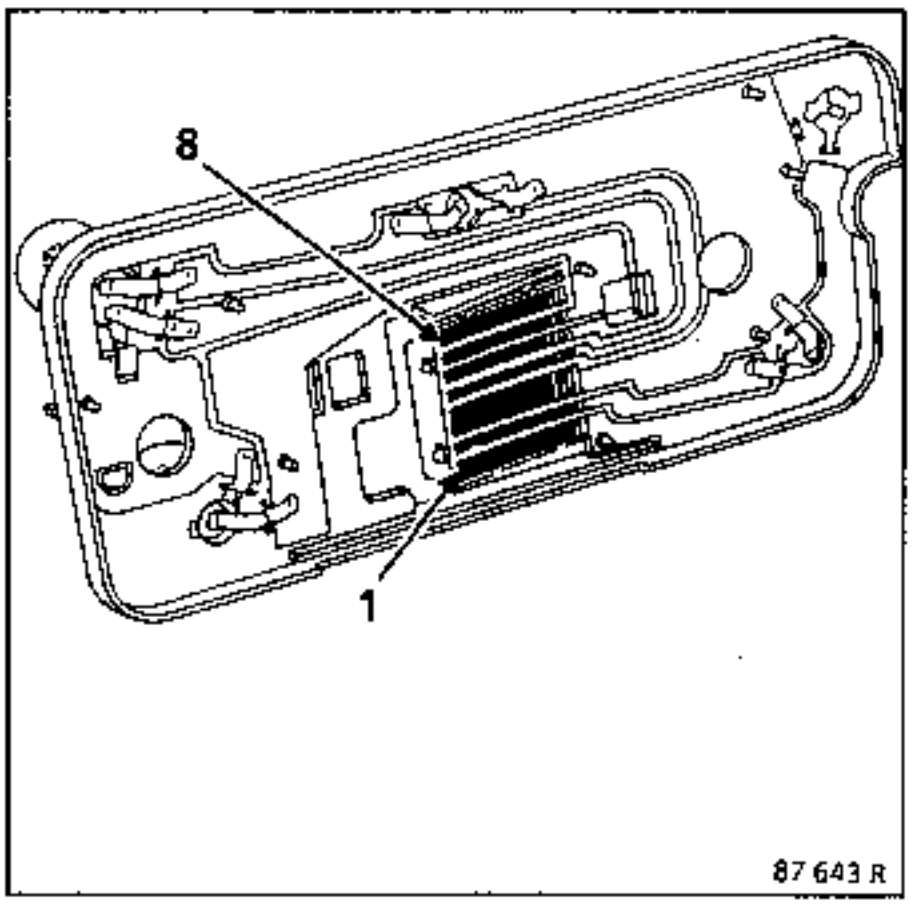
CONNECTIONS (phase I)

Left hand light



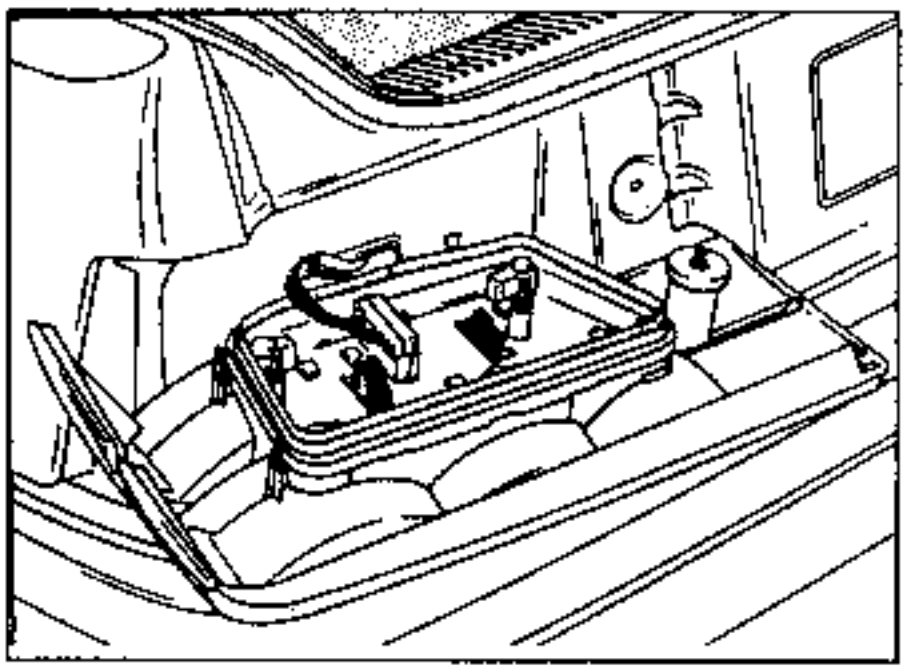
Track	Allocation
1	Fog light
2	Reversing light
3	Earth
4	Not used
5	Side light
6	Stop light
7	Left-hand indicator
8	Not used

Right-hand light



Track	Allocation
1	Not used
2	Right-hand indicator
3	Stop light
4	Side light
5	Not used
6	Earth
7	Reversing light
8	Fog light

CONNECTIONS (phase II).



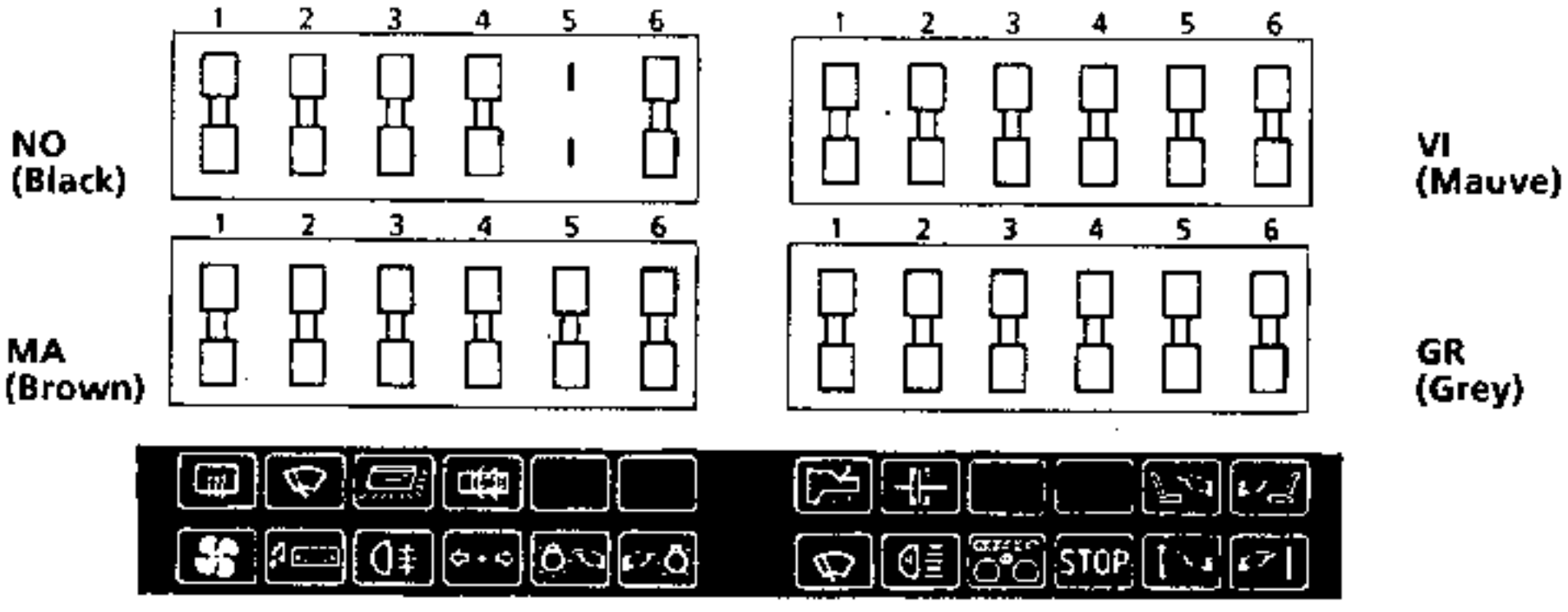
Left-hand connector

Track	Allocation
1	Left-hand indicator
2	Stop light
3	Side light
4	Not used
5	Earth
6	Not used
7	Reversing light
8	Fog light

Right-hand connector

Track	Allocation
1	Fog light
2	Reversing light
3	Earth
4	Not used
5	Side light
6	Not used
7	Stop light
8	Right-hand indicator

POSITION AND ALLOCATION



Fuse box with the most fuses

Black connector

No.	Rating (A)	Allocation
1	20	Rear window de-icer (Model Year 1984 to December 1986)
	30	Rear window de-icer with time delay (since January 1987)
2	10 or 15	Fixed wiper park position (Model Year 1984 to 1987)
		Fixed wiper park position + diagnostic socket (from Model Year 1988 onwards)
3	15	Cigar lighter, roof light, plip (Model Year 1984)
	5	Roof light, plip (from Model Year 1985 onwards)
4	25	Central locking , + before ignition seat memory
5	—	+ Before ignition caravan feed
	or 30	Seat / neon (limousine)
6	15	+ Before ignition, rear window fixed wiper park position (from Model Year 1986 onwards)

Mauve connector

No.	Rating (A)	Allocation
1	2	Automatic transmission, 3 speeds
	5	Automatic transmission, 4 speeds
2	5	+ After ignition, heating/air conditioning control (Model Year 1984)
	10	+ After ignition, heating/air conditioning control (from Model Year 1985 onwards)

Mauve connector (continued)

No.	Rating (A)	Allocation
3	25	+ After ignition, cigar lighter, reversing light, automatic transmission selector, cruise control, adjusting seat (from Model Year 1989 onwards)
4	15	Front fog light (from Model Year 1989 onwards)
5	30	Left hand seat (Model Year 1984 to 1988)
	20	Cooling fan (from Model Year 1989 onwards)
6	30	Right-hand seat (Model Year 1984 to 1988)
	30	Right-hand and left-hand seats (from Model Year 1989 onwards)

Brown connector

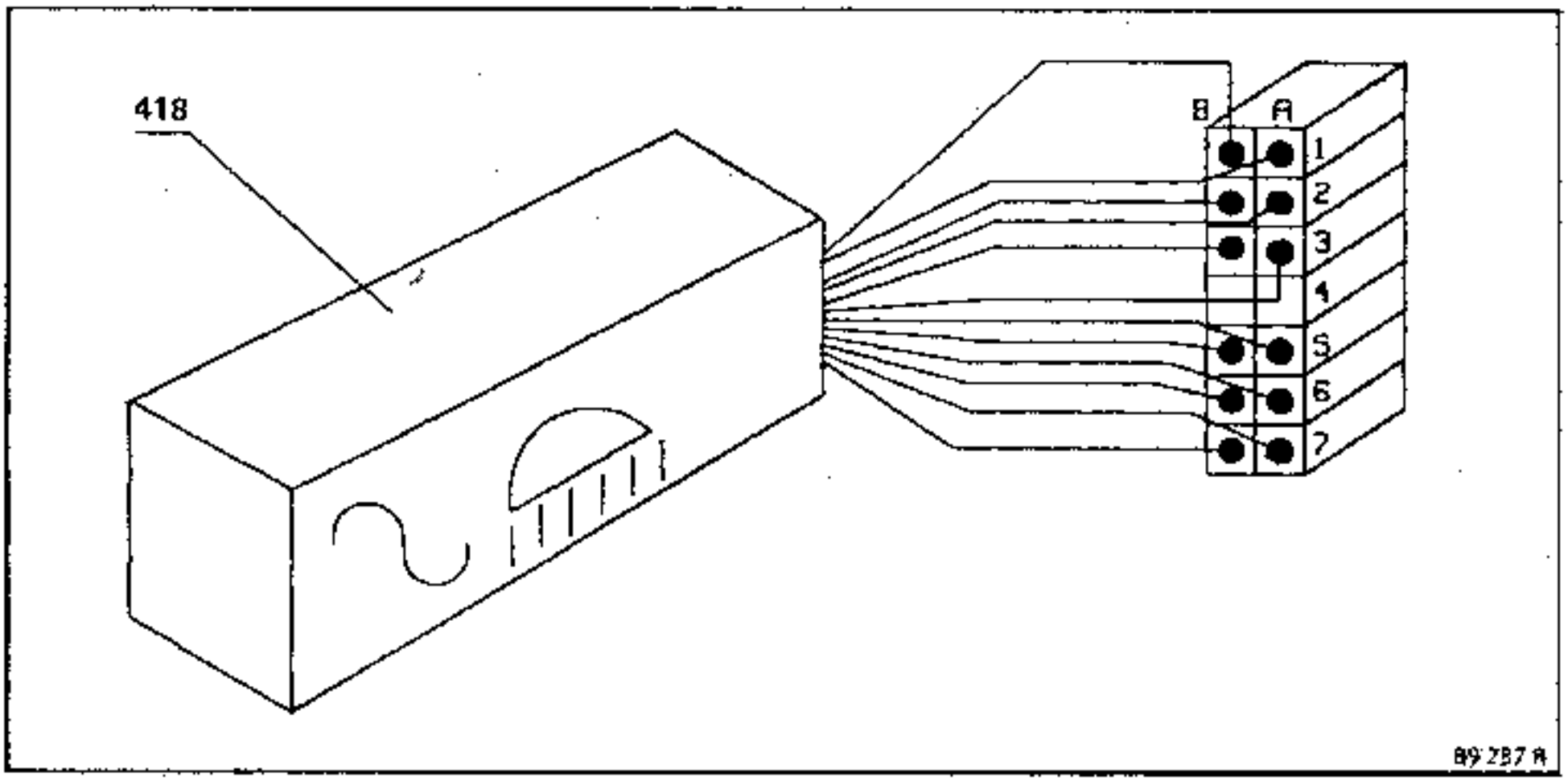
No.	Rating (A)	Allocation
1	25	Heating, air conditioning
2	10	Radio, Alarm
3	7 5	Rear fog light
4	10	Direction indicator (central flasher unit)
5	5	Left-hand side light, bulb monitor, lighting switches
6	5	Right hand side light, bulb monitor, lighting rheostat, lighting switches

Grey connector

No.	Rating (A)	Allocation
1	10	Windscreen wiper (Model Year 1984)
	15	Windscreen wiper (from Model Year 1985 onwards)
2	5	Reversing light (Model Year 1984)
	15	Reversing light, cigar lighter (Model Year 1985 to 1988)
	7 5	Reversing light (from Model Year 1989 onwards)
3	3	Instrument panel, automatic transmission selector lighting, voice synthesizer
4	10	Stop lights, cruise control (1989), "lights on" warning buzzer
5	30	Left-hand window winder, electrically operated rear-view mirrors
6	30	Right hand window winder, sun roof

The **RENAULT 25 Limousine** is equipped with two neon lights operating on a **220 volts AC power supply**. This voltage is obtained by a converter which transforms 12 volts DC into 220 volts AC. The converter (418) is in the right-hand rear wing and can be accessed via the luggage compartment.

CONNECTIONS



CONNECTOR

1 A – Return, right-hand neon.
2 A – Power supply, right-hand neon (220 volts AC).
3 A – Earth.
4 A – Not used
5 A – + Before ignition.
6 A – Return, left-hand neon.
7 A – Power supply, left-hand neon (220 volts AC).

1 B – Return right-hand neon.
2 B – Power supply, right-hand neon (220 volts AC)
3 B – Return, door closed switch.
4 B – Not used.
5 B – Lighting control.
6 B – Return, left-hand neon.
7 B – Power supply, left-hand neon (220 volts AC).

1) DESCRIPTION :

The anti-intrusion alarm comprises:

- 1 alarm computer for processing and managing information,
- 1 volumetric detection unit (ultrasound), + warning light,
- 1 auto-feed siren (option), with key lock to activate or deactivate,
- 1 key lock for deactivating the horn.

2) LOCATION OF COMPONENTS :

2.1 Alarm computer:

Fixed on to the dashboard above the glove box.

2.2 Volumetric detection unit :

In the roof console with plip incorporating warning light.

2.3 Auto-feed siren

In the plenum chamber, on the right of the windscreen washer reservoir.

It is equipped with a key lock protected by a sealed cap. Ensure that this cap is properly closed to prevent water entering, which will damage the siren irreparably.

2.4 Key lock for deactivating horn :

This lock is in the glove box, at the top left-hand side near to the light.

This lock allows you to disarm the alarm when working on the vehicle. Also, take the precaution of deactivating the siren (if the vehicle is equipped with one) using the key.

NOTE :
When the vehicle is equipped with the alarm and the auto-feed siren as an option, the key is used for both locks.

ADVICE:
Ensure that the alarm and siren keys are not separated from the vehicle keys.

3) OPERATION:

This alarm gives the vehicle:

- Volumetric protection of the passenger compartment by an ultrasound field. Any change in the interior (disruption of emission and reception of ultrasound signals) will activate the alarm.
- Perimetric protection. The alarm is connected to the opening elements on the vehicle (front and rear doors, tailgate and bonnet); if one of these elements is opened, the alarm will be activated immediately.

4) ALARM SIGNALS - VISUAL AND AUDIO :

As determined by current legislation, when the alarm is activated the dipped headlights*, the hazard warning lights and the original vehicle horn or siren (if a siren is fitted) will operate alternately for 25 seconds (± 5 s). After 25 seconds (± 5 s) silence, the alarm will be reset automatically.

* : Depending on the country

NOTE :
After 3 successive activations, the alarm deactivates but the warning light remains flashing, simulating standby.

5) PUTTING THE ALARM INTO STANDBY:

The alarm is put into standby when the infra red control (plip) is used to lock the doors (does not operate with the door key).

A "closing" signal is sent via track 5 of the plip to track 6 of the alarm unit (MTIS 15-track, black) (see diagram)

This signal operates the perimetric and volumetric monitoring systems. The light on the roof console illuminates and the hazard warning lights flash twice to indicate the systems are active The roof console warning light remains illuminated for 20 seconds, then flashes During the period, the sensors monitor and assess the passenger compartment. They reset each time the alarm is set to take into account any change in volume (luggage, parcels, etc).

After the alarm has been set, any change in volume (example: a window is broken, a foreign body comes into the passenger compartment or any other movement in the passenger compartment) disturbs the ultrasound emission and reception fields and sets the alarm off immediately

The same applies for the vehicle's opening elements which send an earth to the alarm unit if opened via the door, bonnet and tailgate switches.

The alarm may only operate correctly if all the doors, the bonnet, the tailgate, the windows and the sun roof (depending on version) are correctly closed.

ATTENTION :
If an animal is left in the vehicle, its movements may trigger the alarm

If the alarm is set off incorrectly, check that the user has **nothing on the rear view mirror which could swing**.

When setting the alarm system, check that the hazard warning lights flash. If they do not, one of the doors, the bonnet or the tailgate is not correctly closed. Perimetric detection is not activated

When the element is closed, the lights flash to show the system is correctly activated.

6) TURNING THE ALARM OFF:

The alarm is turned off when the infra red remote control is used to unlock the doors. An opening signal is sent via track 3 of the plip to track 5 of the alarm unit This signal turns the volumetric and perimetric detection systems off (this also applies when the alarm has been set off).

When the alarm is turned off, the hazard warning lights flash and the roof console warning light extinguishes.

ATTENTION :
If the door key is used and the alarm is on standby, the opening of a door will activate the alarm. Further key operation will not cancel the alarm.

The lock, concealed in the glove box, confirms or cancels the last alarm condition authorised by the remote control.

7) DURATION OF OPERATION :

After 5 weeks in continuous stand by, the battery will be drained so that the vehicle will not operate correctly.

8) SIREN:

When fitting the new siren, drive the vehicle for 2 1/2 hours to ensure the internal battery is fully charged to allow correct automatic operation.

9) TESTING THE ALARM:

- Use the plip to set the alarm.
- Check that the hazard warning lights flash twice and the warning light illuminates; if not, operate the alarm disarming lock in the glove box

10) PERIMETRIC DETECTION TEST :

- Use the plip to set the alarm.
- Unlock a door using the key and open it; the alarm should sound (dipped headlights *, hazard warning lights, horn or siren operate alternately, depending on options).

  * : depending on country

- Stop the alarm using the plip.

11) VOLUMETRIC DETECTION TEST :

- Half open a front or rear window
- Set the alarm using the plip and wait until the warning light flashes.
- Put your arm through the half open window and move it around in the passenger compartment; the alarm should sound. If it does not, adjust the sensitivity of the ultrasound module

12) ADJUSTING ULTRASOUND SENSITIVITY :

- Put alarm in accessories position (first notch); the warning light lights up each time a movement is detected but it does not activate the alarm,.
- Remove the rubber plug next to the warning light.
- Use a small screwdriver. Turn the potentiometer clockwise to increase sensitivity and anti-clockwise to reduce sensitivity

SENSITIVITY ADJUSTMENT TABLE

- Adjust sensitivity using the potentiometer.
- Reduce the value to reduce sensitivity and vice versa. Take the reading between tracks 2 and 4 of the detection unit electronic circuit

Trim	
Cloth	Leather
110 kΩ	90 kΩ

13) CHECK:

- Open a window, get out of the car, put your arm into the passenger compartment; the warning light should light up when the arm is moved.
- Continue adjustment until the desired sensitivity is obtained.
- Replace the rubber plug

ATTENTION :
Do not set the ultrasound system so that it is too sensitive; there is a risk that the alarm may trigger incorrectly.

14) ALARM COMPUTER CONNECTOR TRACK ALLOCATION :

(A) MTIS 15-TRACK

1 Control, auto-feed siren
2 + 12V after ignition
3 + 12 V accessories (1st position on ignition switch)
4 Earth
5 Plip unlocking information
6 Plip locking information
7 Front right-hand door 1st notch switch
8 Rear left-hand door 1st notch switch
9 Rear right-hand door 1st notch switch
10 Tailgate switch
11 Bonnet switch
12 Front left-hand door 1st notch switch
13 Ultrasound activation
14 Ultrasound detection
15 Warning light control

(B) 5-TRACK

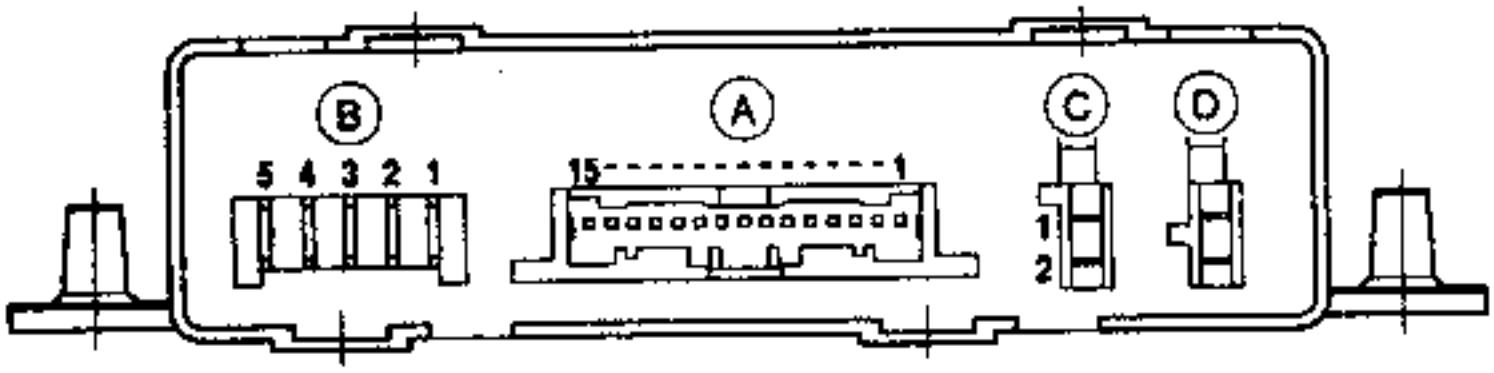
1 Left-hand direction indicators
2 Right-hand direction indicators
3 Dipped headlights
4 Horn
5 + 12V before ignition

(C) MIC 2-TRACK

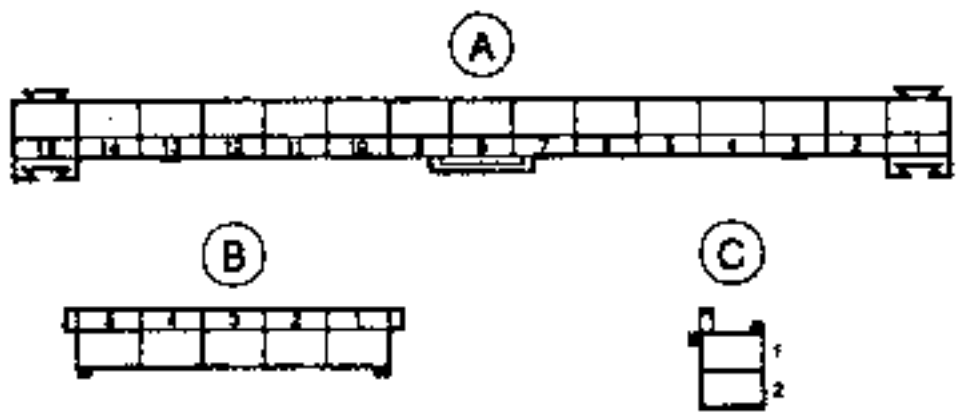
1 Switch
2 Switch

(D) NOT USED

* : depending on country



Alarm unit

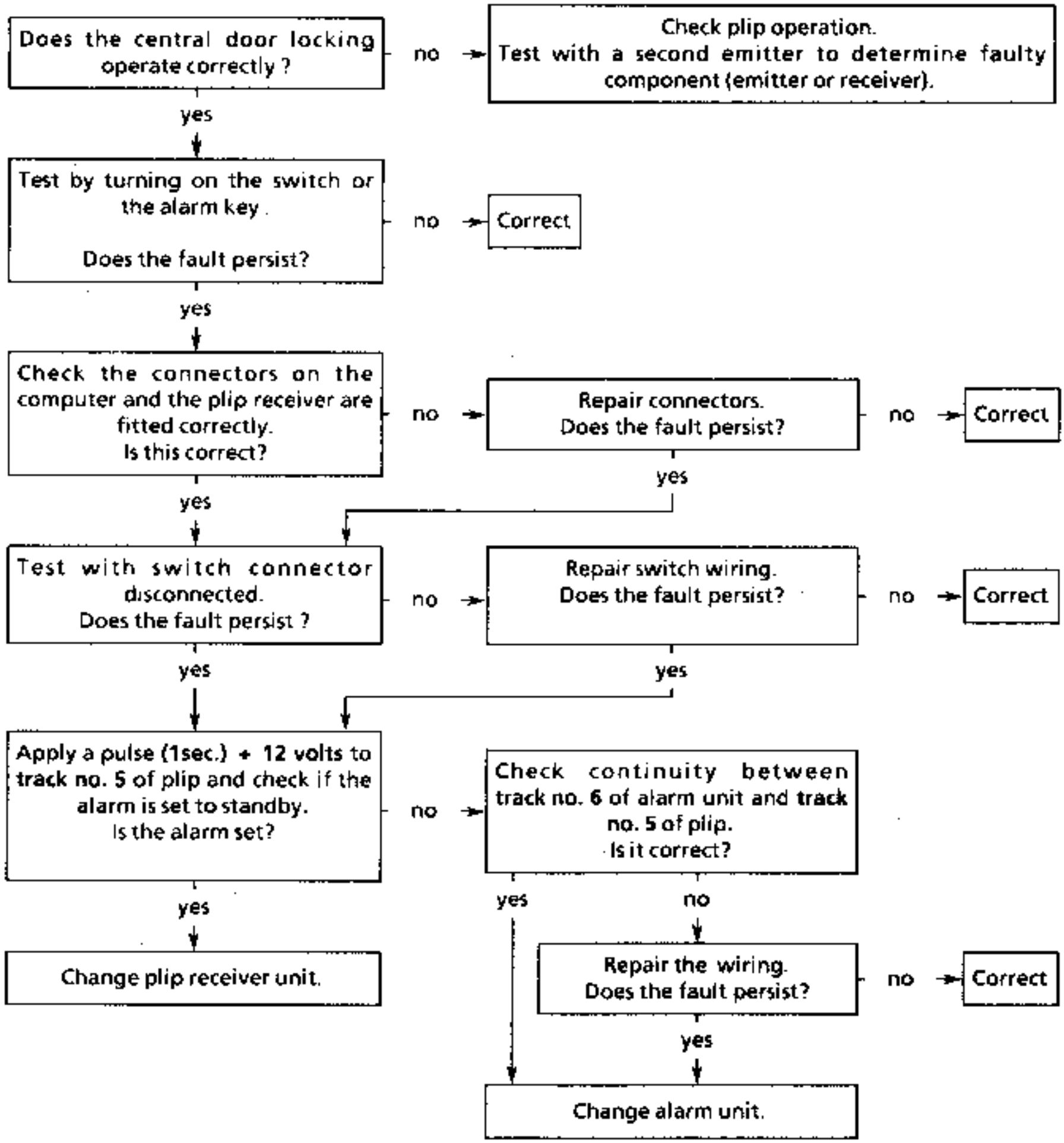


Wiring harness connectors

NOTE : The wiring harness connectors are shown on the side of the wires.

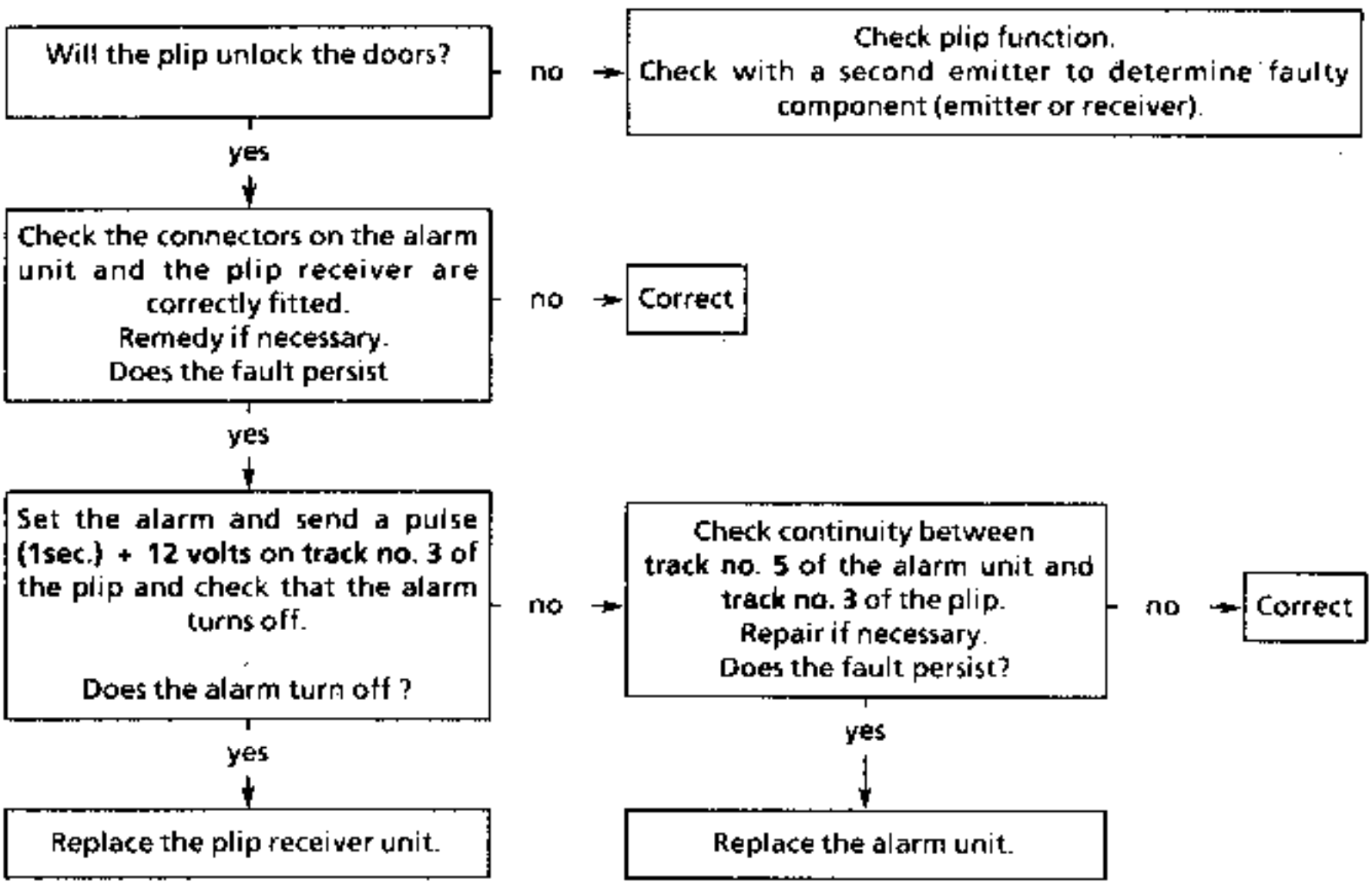
FAULT FINDING

CHART 1 : PLIP WILL NOT SET ALARM

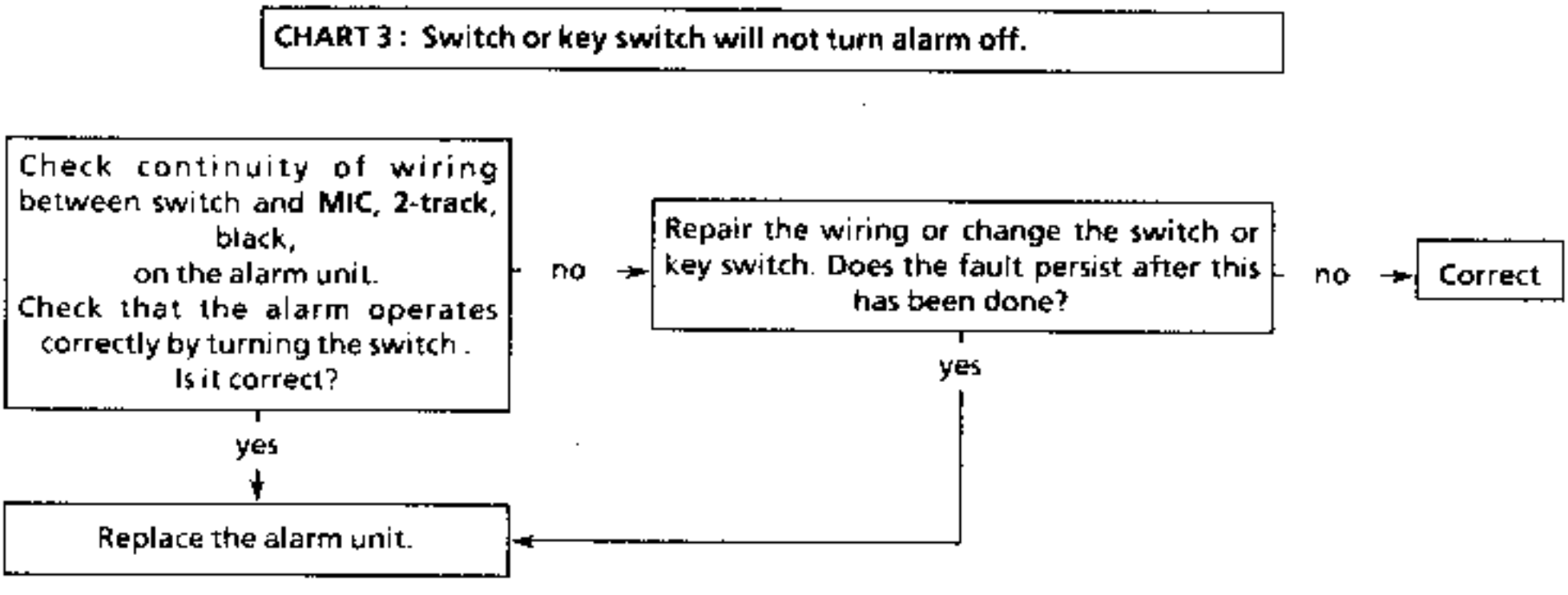


FAULT FINDING

CHART 2 : Plip will not deactivate the alarm.



FAULT FINDING



FAULT FINDING

CHART 4 : Alarm set off incorrectly - Alarm on stand by

Set the alarm and check that it does not activate by pressing on all the opening elements (doors, bonnet, tailgate).
Is the alarm set off?

- no → Check switch adjustment and condition of opening element which is causing the problem. Adjust or repair
- yes ↓

Leave the bonnet open to stop perimetric protection and set the alarm.
NOTE : It is to be expected that the hazard warning lights will not flash.
Tap one of the windows sharply with the flat of your hand.
Is the alarm set off?

- no → See **CHART 5**. Alarm set off when driving.
- yes ↓

Check the detector sensitivity terminals **4** (earth) and **2**.
Setting value : see table in appendix.
Is the setting correct?

- no → Adjust as appropriate for the type of vehicle and interior trim.
  Does the fault persist?
  - no → Correct
  - yes ↓
- yes ↓

Check wiring continuity between the detector and the alarm unit.

Detector { **1 and 13** / **2 and 14** / **3 and 15** } Alarm Unit
4 and vehicle earth

Track 4 on alarm unit and vehicle earth.
Repair if necessary.
Does the fault persist?

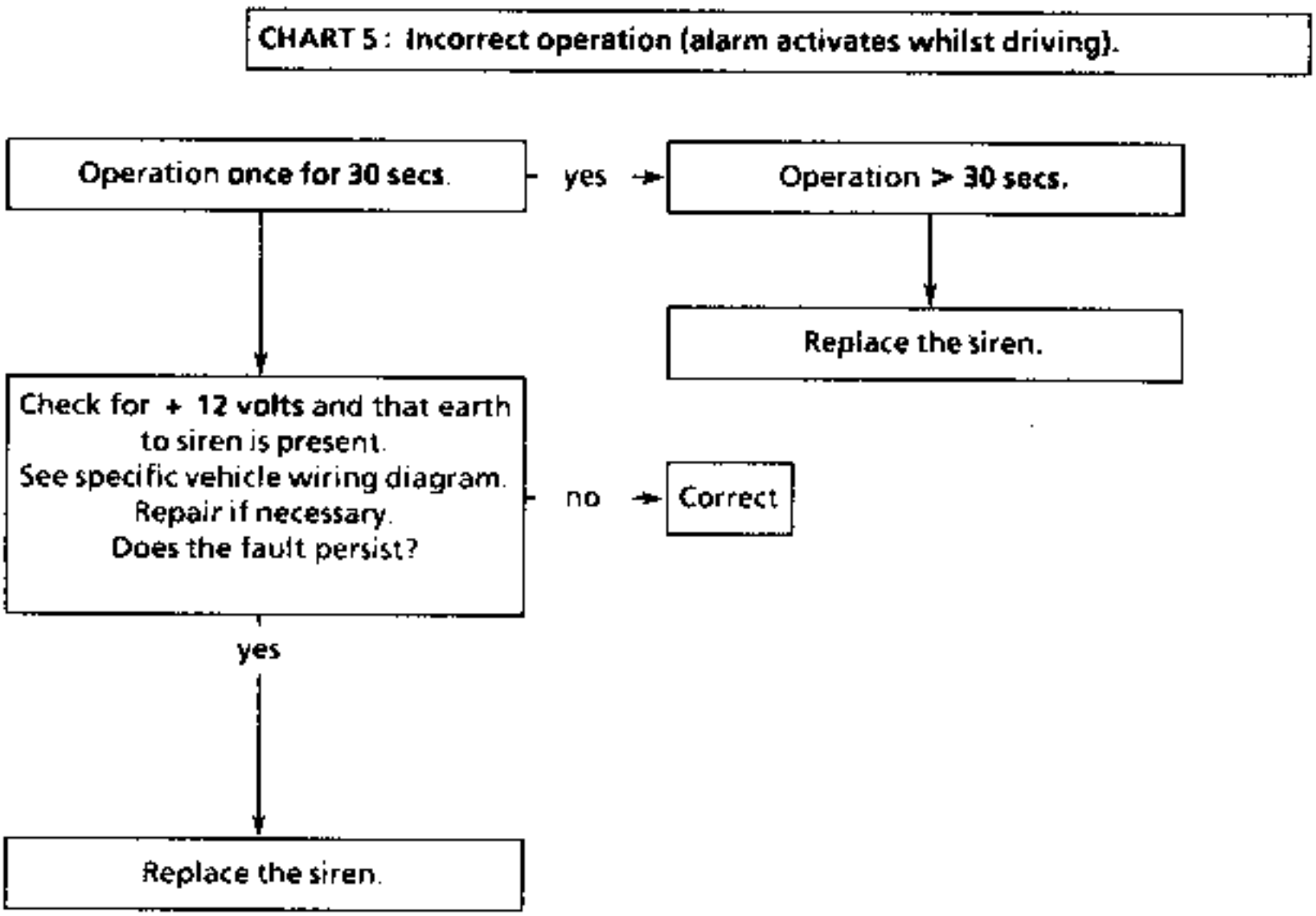
- no → Correct
- yes ↓

Replace the detector.
Does the fault persist?

- no → Correct
- yes ↓

Replace the alarm unit.

FAULT FINDING



FAULT FINDING

CHART 6 : Incorrect operation (Hazard warning lights do not illuminate when the alarm is set).

Check the warning lights operate correctly by pressing the warning lights switch.
Do they operate correctly?
- no → Check hazard warning lights.
- yes ↓

Check fused feed at **track no. 5 (5-track** connector on alarm unit).
Repair if necessary.
Does the fault persist?
- no → Correct
- yes ↓

Test by pressing the security switch (in the passenger compartment)
Does it operate correctly?
- no → STOP
- yes ↓

Check that all the opening elements (doors, bonnet, tailgate) close correctly
If necessary, repeat adjustment of opening element(s).
Does the fault persist?
- no → Correct
- yes ↓

On the **15-track connector**, check that continuity is infinity for wires corresponding to opening elements.
Is it correct?
- no → Trace the element at fault and check the wiring for the switch concerned.
  Does the fault persist after repair?
  - no → Correct
  - yes ↓ Replace the switch.
- yes ↓

Sit in the vehicle, close all opening elements, set the alarm and check **+ 12 volts (2 pulses)** on **track 1** of alarm unit.
Reset the alarm and repeat the operation for **track 2**.
Is it correct?
- no → Replace the alarm unit.
- yes ↓

Check wiring continuity for **tracks 1 and 2 (5-track** connector on alarm unit) and dashboard connector.
Repair.

FAULT FINDING

CHART 7 : Incorrect operation (Dipped headlights do not operate when alarm is set off).

Check operation of dipped headlights.
Is this correct?

- no → Repair vehicle dipped headlights.
- yes ↓

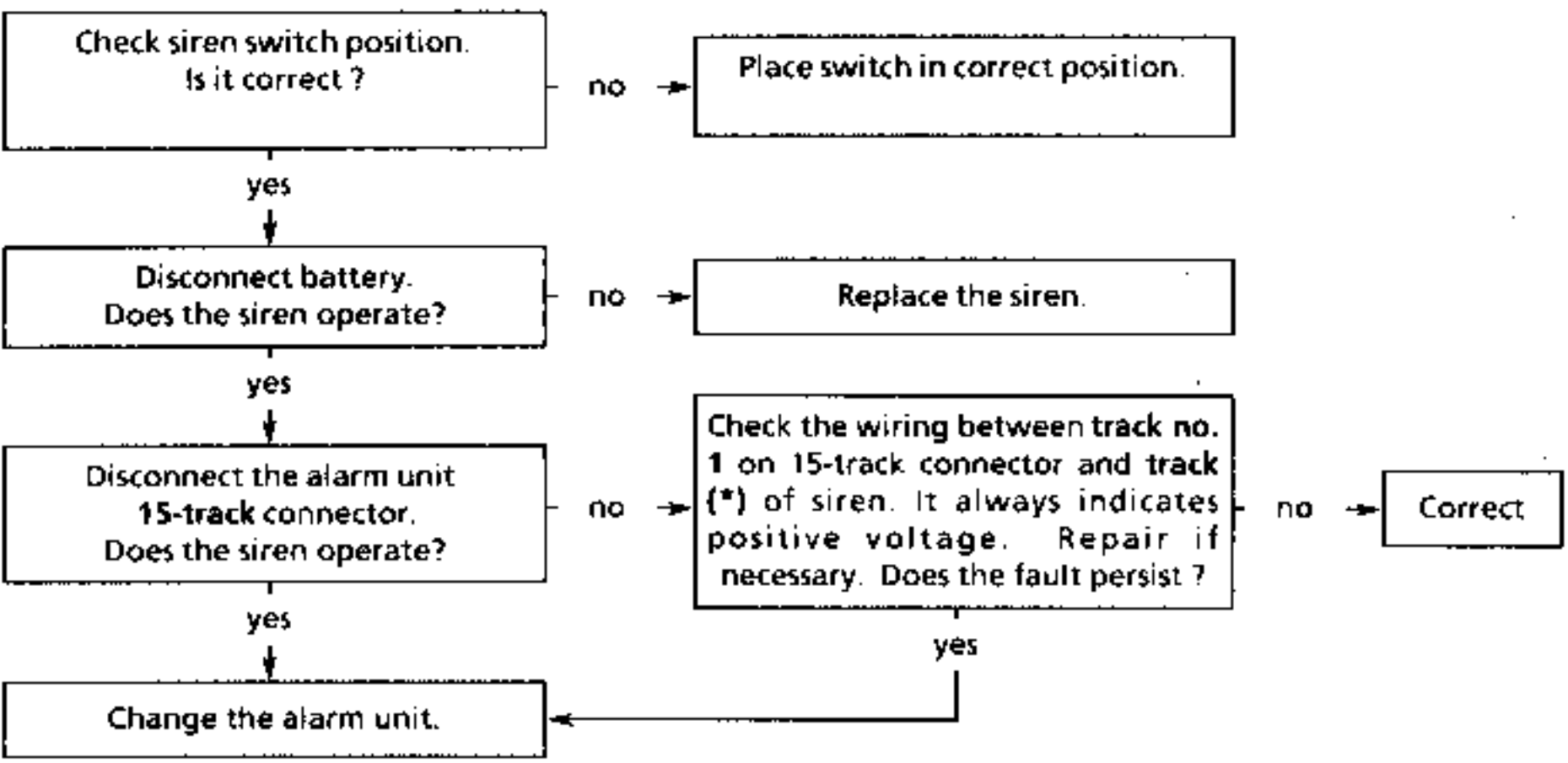
Set off alarm and check output no. 3 of 5-track connector on alarm unit for + 12 volts (pulses).
Are there pulses of + 12 volts ?

- no → Replace the alarm unit.
- yes ↓

Check continuity of wiring between track no. 3 (5-track connector on alarm unit) and dashboard connector.
Repair.

FAULT FINDING

CHART 8 : Incorrect operation (no horn alarm) (vehicle with siren).



(*) See wiring diagram specific to the vehicle.

FAULT FINDING

CHART 9 : Incorrect operation (no horn) (vehicle without siren).

Check operation of vehicle horn.
Does it operate ?

no → Repair vehicle horn.

yes ↓

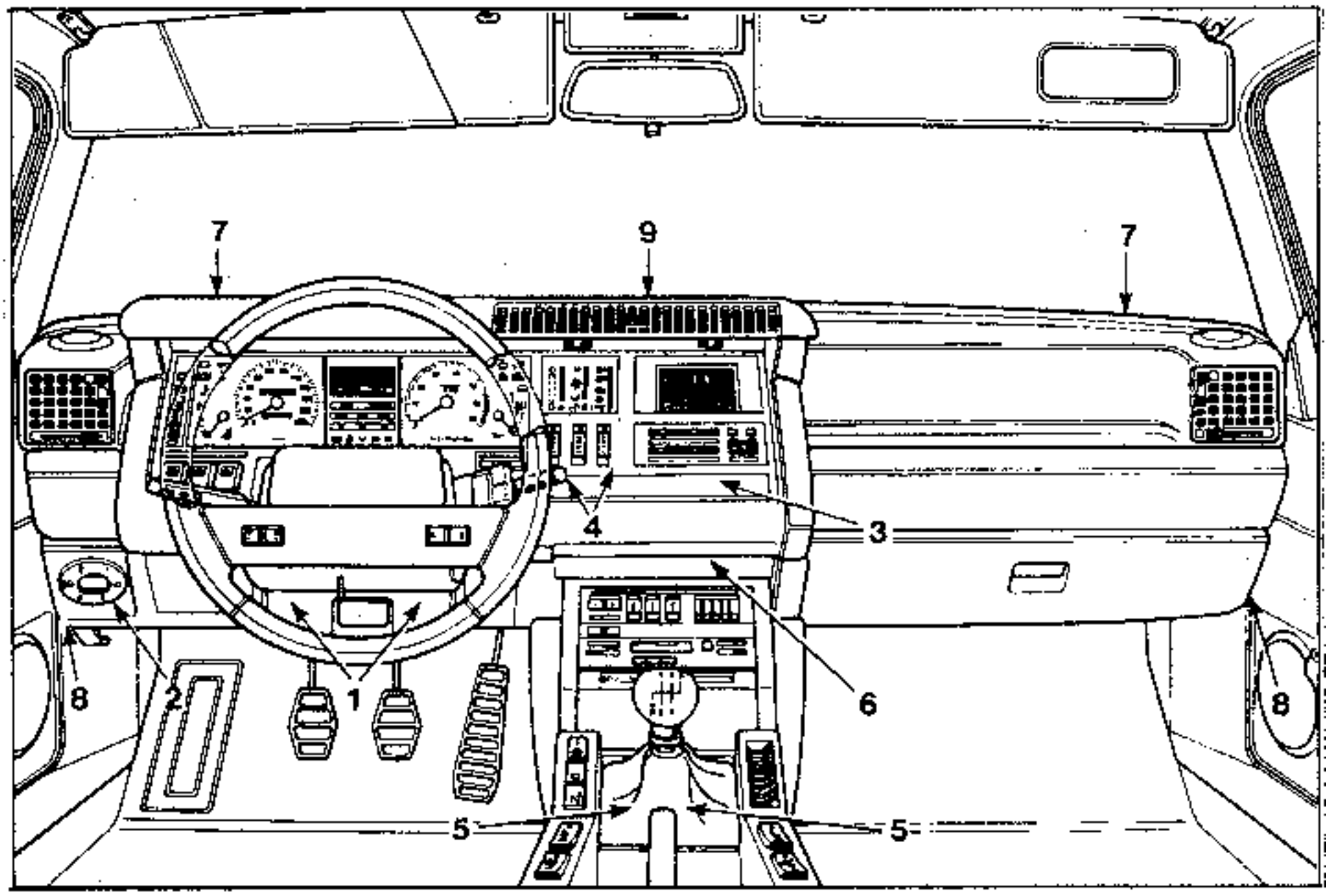
Set off alarm and check **output no. 4** of **5-track** connector on alarm unit for **+ 12 volts** (pulses).
Are there pulses of **+ 12 Volts** ?

no → Change alarm unit.

yes ↓

Check wiring continuity between **track no. 4** (5-track connector on alarm unit) and dashboard connector.
Repair.

REMOVAL



Remove the lower trim panels on the right hand and left hand side of the body (MR Bodywork).

Disconnect the battery

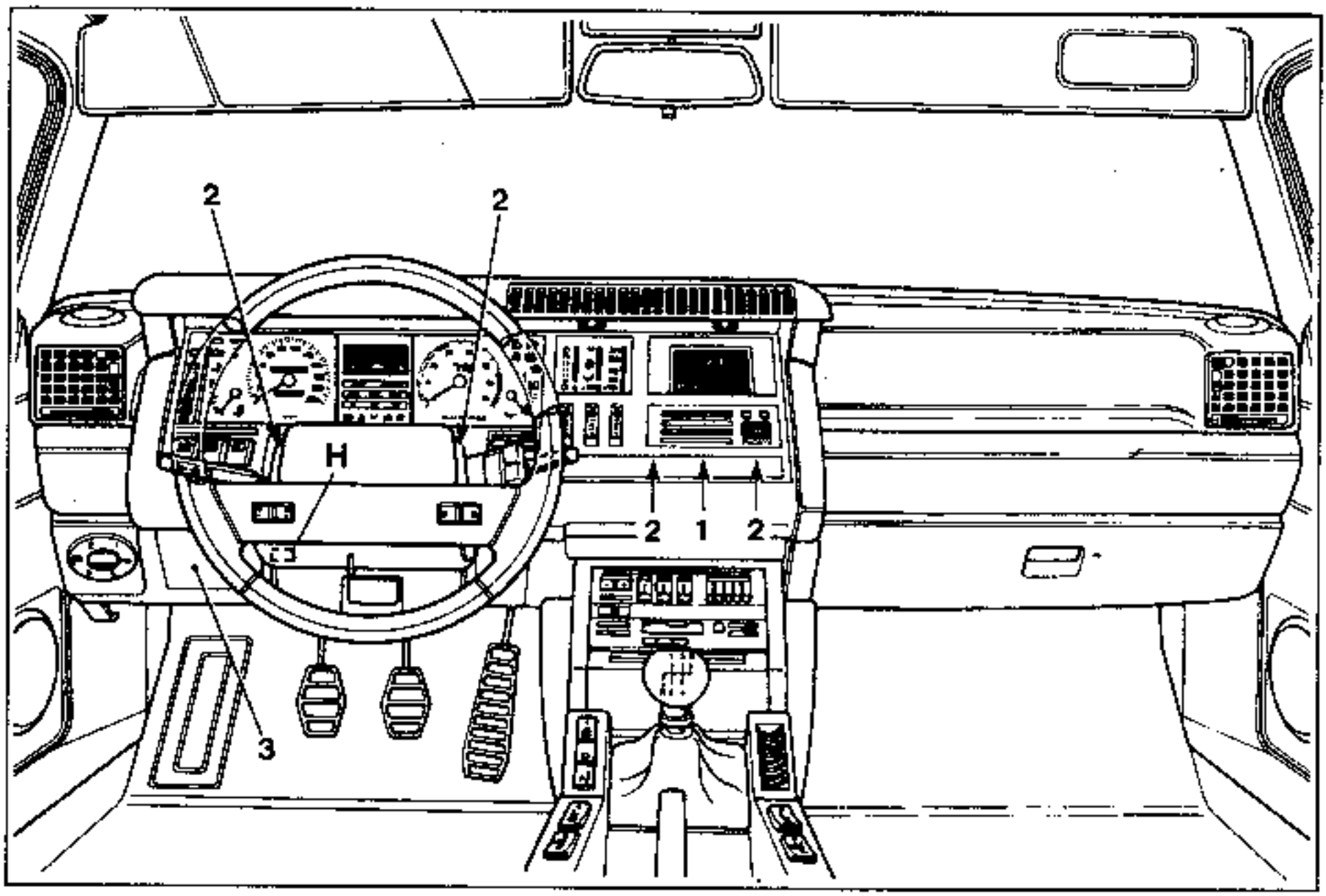
Remove:
- the steering wheel,
- the bottom half-casing,
- the top half casing,
- the lower protective casing,
- steering column mounting nuts (1),
- the headlight beam setting knob (2), the dial with adjustment values and the two mounting screws,
- embellisher (3),
- the heater control panel fixing screws (4),
- screws (5) for securing console and rear mounting,
- the handbrake dust cover, pull back the console and disconnect the connectors (use a piece of cloth to protect the radio),
- the heater control panel fixing screw (6).

Disconnect connectors for:
- rear wiring harnesses at right and left,
- right-hand and left-hand door wiring harnesses,
- right-hand and left-hand side member wiring harnesses,
- heater wiring,
- stop lights switch and air conditioning clutch wiring

Remove screws (7) under the scuttle top panel without removing the panel.

Release mounting fittings (8) and pull the dashboard horizontally to release from mounting points (9)

REMOVAL



Disconnect the battery.

Remove:
- the steering wheel,
- the bottom half-casing,
- the upper half-casing,
- the embellisher (1),
- the mounting screws (2),
- storage pocket or voice synthesizer speaker (3).

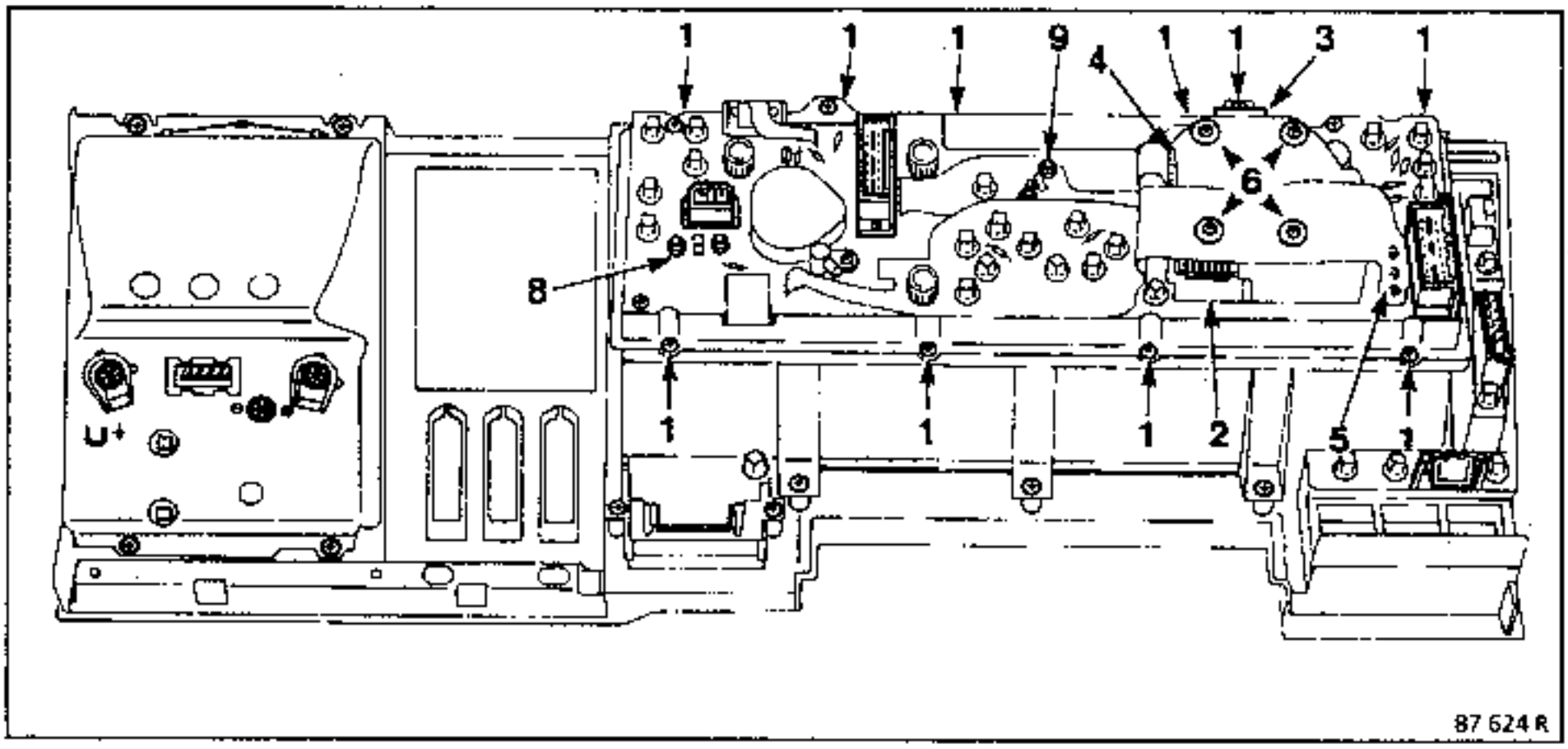
Disconnect connectors (start with the speedometer connector H) and the boost pressure gauge pipe.

Take out the panel starting at the bottom.

Important :
From **Model Year 1991** onwards, certain precautions must be taken:
- When the instrument panel is removed with or without the dashboard.
- When working on the instrument panel which has been removed.

Make sure the instrument panel is always kept in the same position (vertical) as when installed in the vehicle, for the following reasons:
- The receivers (fuel gauge, oil pressure, etc.) in the instrument panel contain silicone. This is used for damping the needles.
  If the instrument panel is placed in another position for more than **10 minutes**, the silicone may escape. In this case, the needle of the receivers concerned will no longer be damped and the relevant receivers will have to be replaced.

REMOVAL (continued)

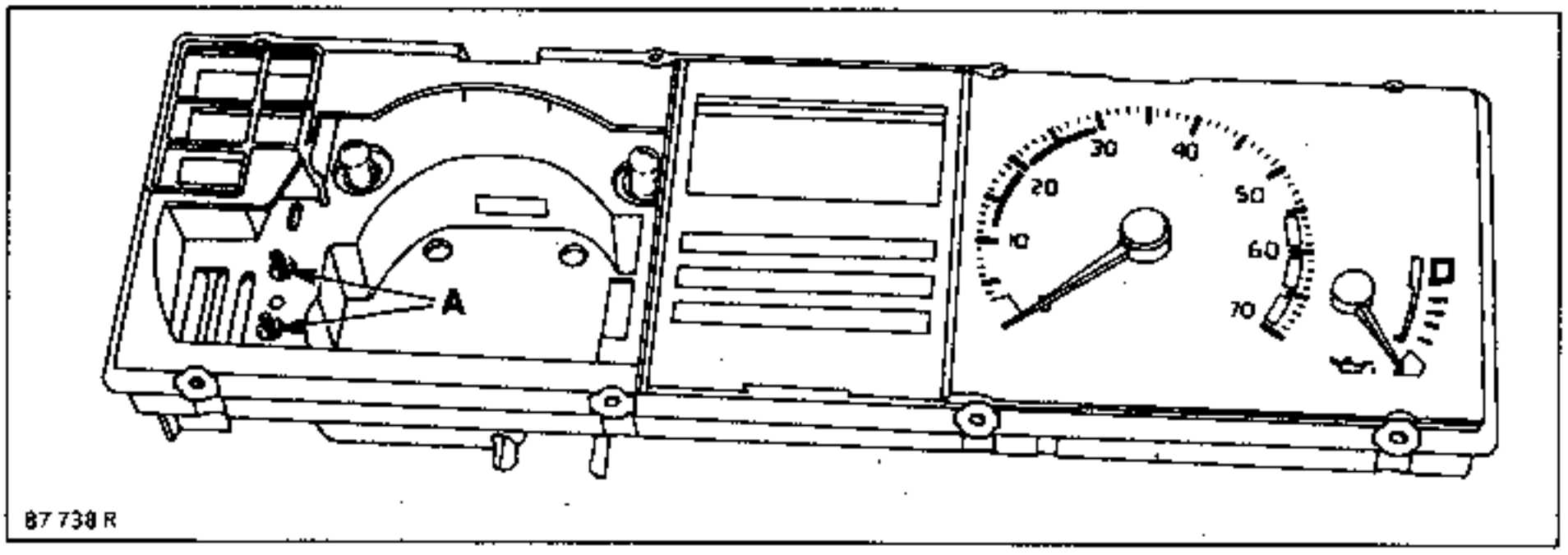


After removing the control panel, remove the screws (1).

SPEEDOMETER

Remove:
- The plastic cover (2).
- The printed circuit (3). **Note which way round it is fitted.**

- The printed circuit connector (4).
- Coolant temperature gauge nuts (5).
- Screws (6).



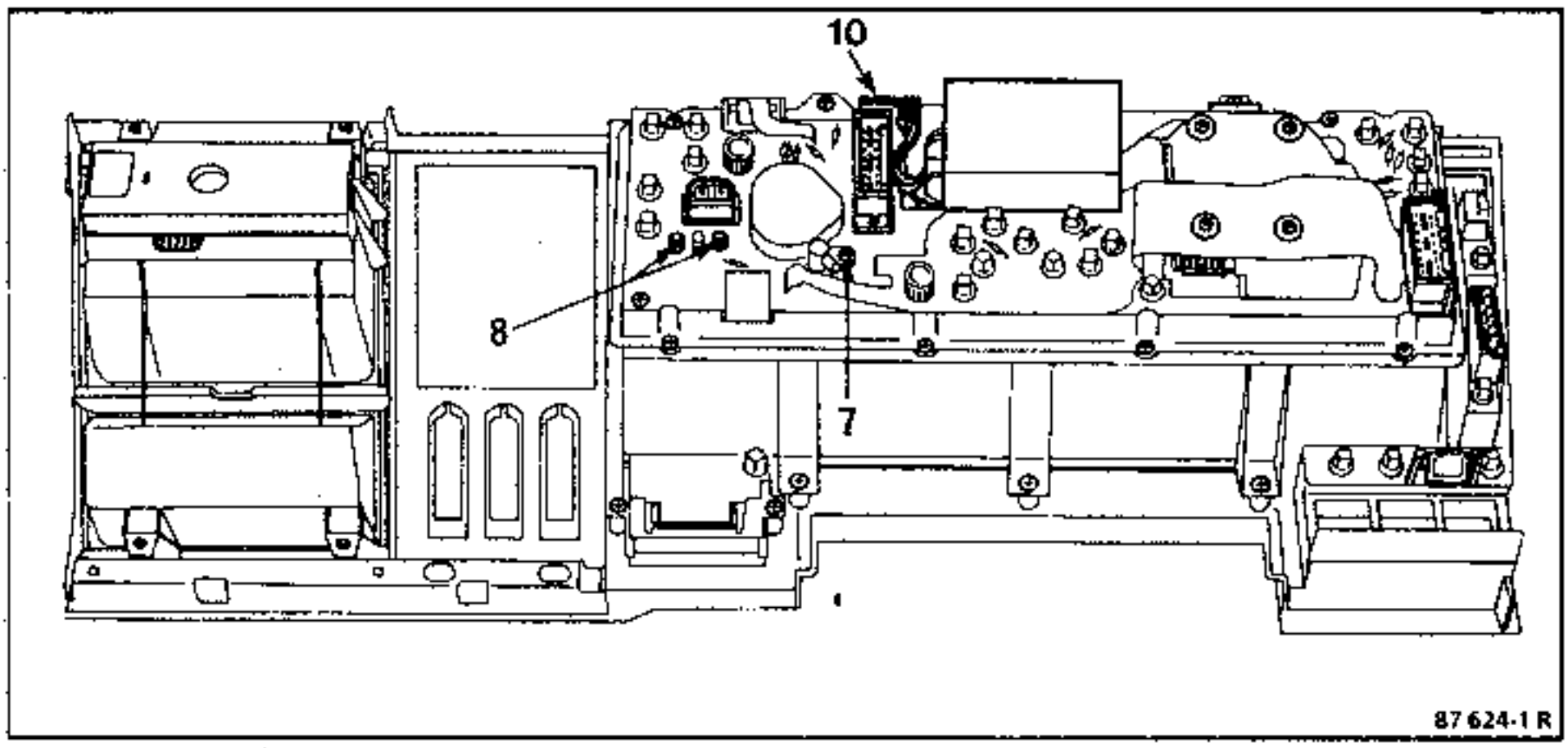
Note :
Depending on the version, instrument panel connections may be made with terminals (A). Fix them before refitting the units.

REV COUNTER

Remove:
- The speedometer
- Boost pressure gauge union screws **(7)**.
- Engine oil level indicator/oil pressure gauge screws **(8)**

FUEL GAUGE

Remove:
- The speedometer.
- The rev counter.
- The fixing nuts **(9)** (see previous page).



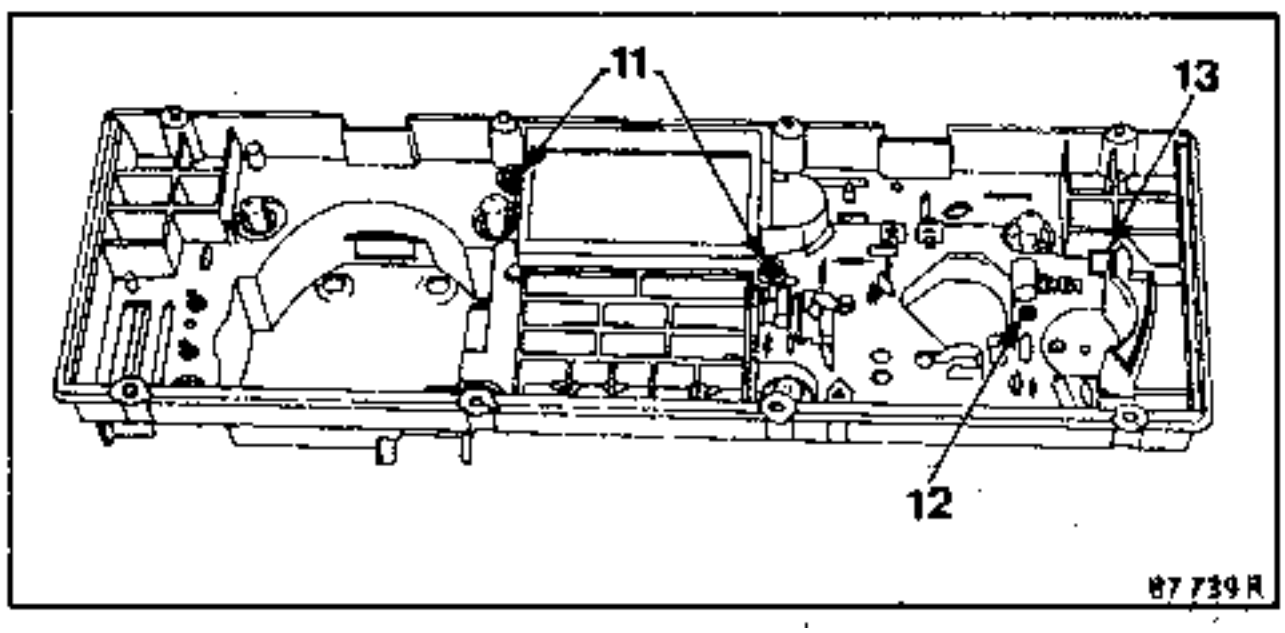
87 624-1 R

FUEL CONSUMPTION MODULE

Remove:
- The speedometer
- The rev counter.
- The printed circuit connector **(10)**.
- The screws **(11)**

OIL LEVEL INDICATOR/OIL PRESSURE GAUGE PRINTED CIRCUIT

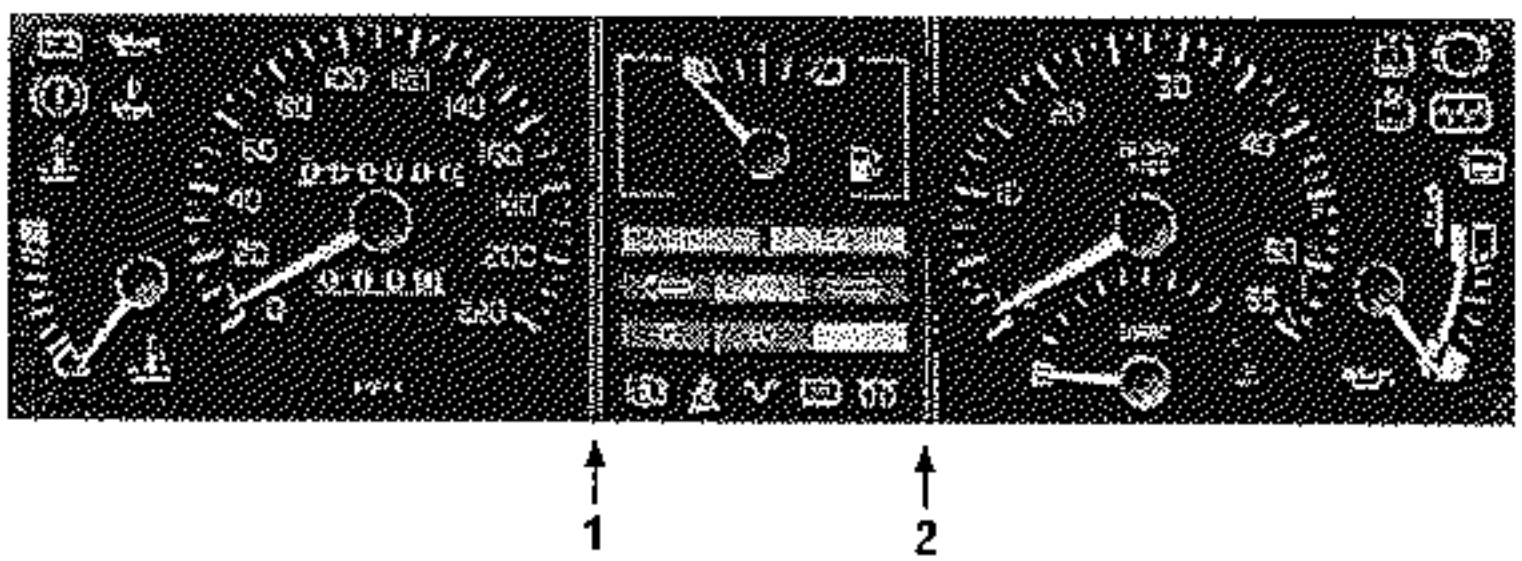
Remove:
- The speedometer.
- The rev counter.
- Screw **(12)**
  Screw **(13)**



87 739 R

DESCRIPTION

- Mechanically controlled speedometer.
- Rev counter with specific integrated circuit
- Coolant temperature.
- Oil pressure and level with specific integrated circuit.
- Fuel gauge
- Printed circuit assembly.
- Warning lights.



1 and 2 - Receiving unit block separators.

CONNECTIONS

9-track connector (black)

1 - Coolant temperature warning light.

2 - Nivocode warning light (brakes).

3 - Charging circuit warning light.

4 - Not used.

5 - Not used.

6 - Coolant temperature gauge.

7 - + After ignition.

8 - Earth.

9 - Instrument panel lighting.

13-track connector (black)

1 - Preheating system warning light.

2 - Not used.

3 - RH direction indicators tell-tale.

4 - Headlight main beam warning light.

5 - Heated screen warning light.

6 - Not used.

7 - Headlight dipped beam warning light.

8 - Handbrake warning light.

9 - Headlight dipped beam warning light earth.

10 - Not used.

11 - Side and rear lights warning light.

12 - ABS warning light.

13 - Left-hand direction indicator tell-tale.

5-track connector (black)

1 - Minimum fuel level warning light.

2 - Fuel level gauge earth.

3 - Instrument panel earth.

4 - Fuel gauge.

5 - Trip zeroing.

11-track connector (black)

1 - Oil pressure warning light.

2 - Not used.

3 - + After ignition.

4 - Eco/perf indicator light. (automatic transmission).

5 - Injection or automatic transmission defect warning light.

6 - Brake pad wear warning light.

7 - Minimum coolant or automatic transmission defect (phase II) warning light.

8 - Minimum windscreen washer fluid warning light.

9 - Earth.

10 - Diesel rev counter.

11 - Petrol rev counter.

3-track connector (black)

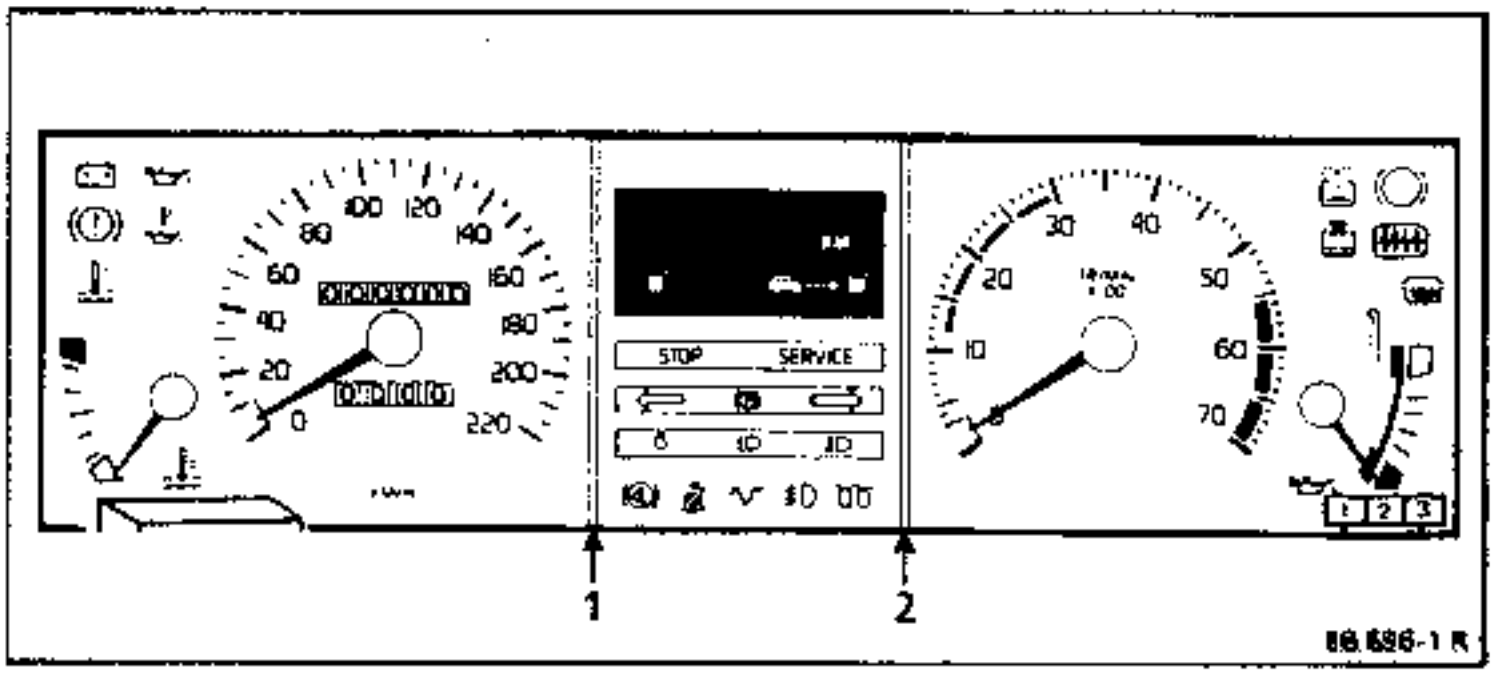
1 - Oil level sensor.

2 - Not used.

3 - Oil level sensor.

DESCRIPTION

- Electronic speedometer.
- Milometer (total and trip counters).
- Electronic rev counter.
- Electronic oil pressure and level.
- On board computer (travelling parameters)
- Coolant temperature.
- Fuel gauge.
- Printed circuit assembly.
- Warning lights.



1 and 2 - Receiving unit block separators

Note :
This section only deals with the instrument panel For the on board computer, please refer to the "On board computer" manual.

CONNECTIONS

15-track connector (blue)

1 - Battery charge warning light.
2 - Not used.
3 - Not used.
4 - Not used.
5 - Injection or automatic transmission defect warning light.
6 - Coolant temperature warning light.
7 - Not used.
8 - Not used.
9 - Not used.
10 - Not used.
11 - Not used.
12 - Not used.
13 - Coolant temperature indicator.
14 - Not used.
15 - Heater plugs warning light.

15-track connector (blue)

1 - Not used.
2 - Oil pressure warning light.
3 - + After ignition.
4 - Not used.
5 - Left-hand direction indicator tell-tale.
6 - Direction indicators tell-tale feed.
7 - Handbrake warning light.
8 - Main beam warning light.
9 - Headlight dipped beam warning light earth.
10 - Right-hand indicator warning light.
11 - Dipped headlight warning light.
12 - Side and rear lights warning light.
13 - Not used.
14 - Not used.
15 - Cruise control warning light.

15-track connector (red)

1 - ADAC function selection.
2 - ADAC "on".
3 - Fuel gauge indicator.
4 - Low fuel warning (voice synthesizer).
5 - Zeroing control.
6 - Earth.
7 - Not used
8 - Not used.
9 - Cruise control gauge information.
10 - Speed information - voice synthesizer.
11 - ADAC illumination.
12 - Low fuel warning light.
13 - Not used.
14 - Oil pressure indicator.
15 - Not used

15-track connector (black)

1 - + Before ignition.
2 - Fuel gauge indicator earth.
3 - Fuel flow signal (R injection).
4 - Not used.
5 - Fuel flow gauge signal (Bosch injection).
6 - Fuel flow gauge earth (Bosch injection).
7 - Rev counter, petrol.
8 - Rev counter, diesel.
9 - Not used.
10 - Low screen wash warning light.
11 - Low coolant warning light.
12 - Earth.
13 - Lighting.
14 - Brake pad wear warning light.
15 - Automatic transmission warning light.

CONNECTIONS

3-track connector (black)

1 - Oil level sensor.
2 - Not used.
3 - Oil level sensor.

5-track connector (black)

1 - Screening.
2 - – speed sensor.
3 - + speed sensor.
4 - Not used.
5 - Not used.

ADAC connector (11-track)

1 - Low fuel level warning (to voice synthesizer).
2 - Fuel gauge.
3 - Start key.
4 - Function selection.
5 - Fuel gauge earth.
6 - + Before ignition.
7 - Fuel flow information (R injection).
8 - Not used.
9 - Fuel flow information (Bosch injection).
10 - Earth.
11 - + After ignition.

Speedometer printed circuit connector (from top to bottom).

1 - Return to zero.
2 - Earth.
3 - + After ignition.
4 - + After ignition.
5 - Speed info to synth.

(1 to 5: 5 tracks used on low-range board)

6 - Speed information.
7 - Earth (screening).
8 - Not used.

(6 to 8: 3 printed circuit tracks to consumption module)

Oil gauge and pressure printed circuit connector.

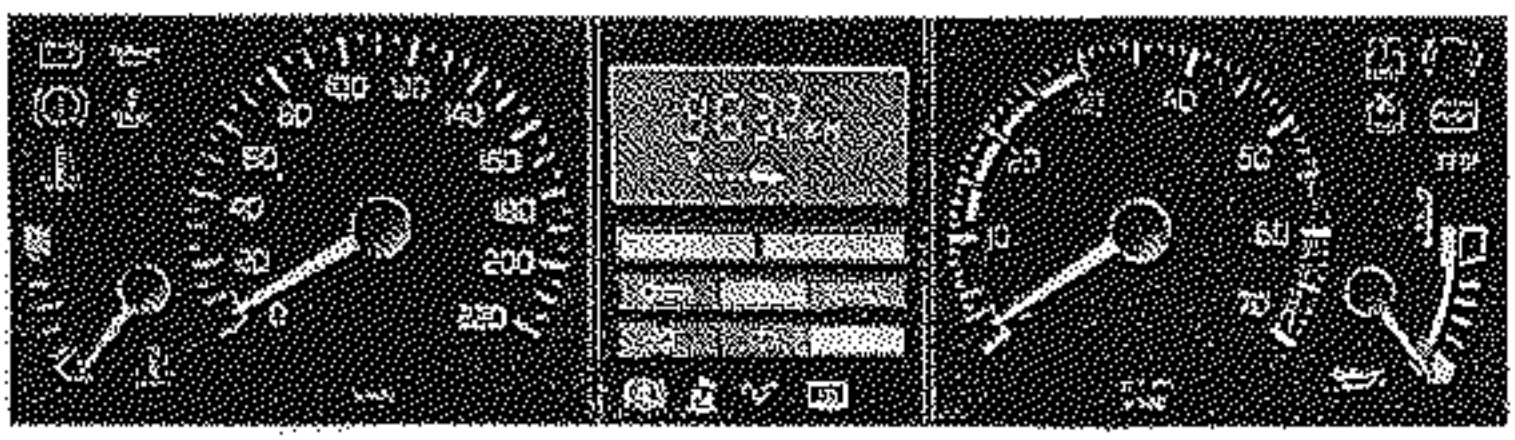
1 - + After ignition.
2 - Terminal 1 oil level/pressure galvanometer.
3 - Earth.
4 - Oil pressure gauge switch (– warning light).
5 - + Oil pressure warning light.
6 - Oil pressure sensor information.
7 - Terminal 2 oil level/pressure galvanometer.

Rev counter printed circuit connector.

1 - + After ignition.
2 - Earth.
3 - Rev counter information, diesel.
4 - Rev counter information, petrol.

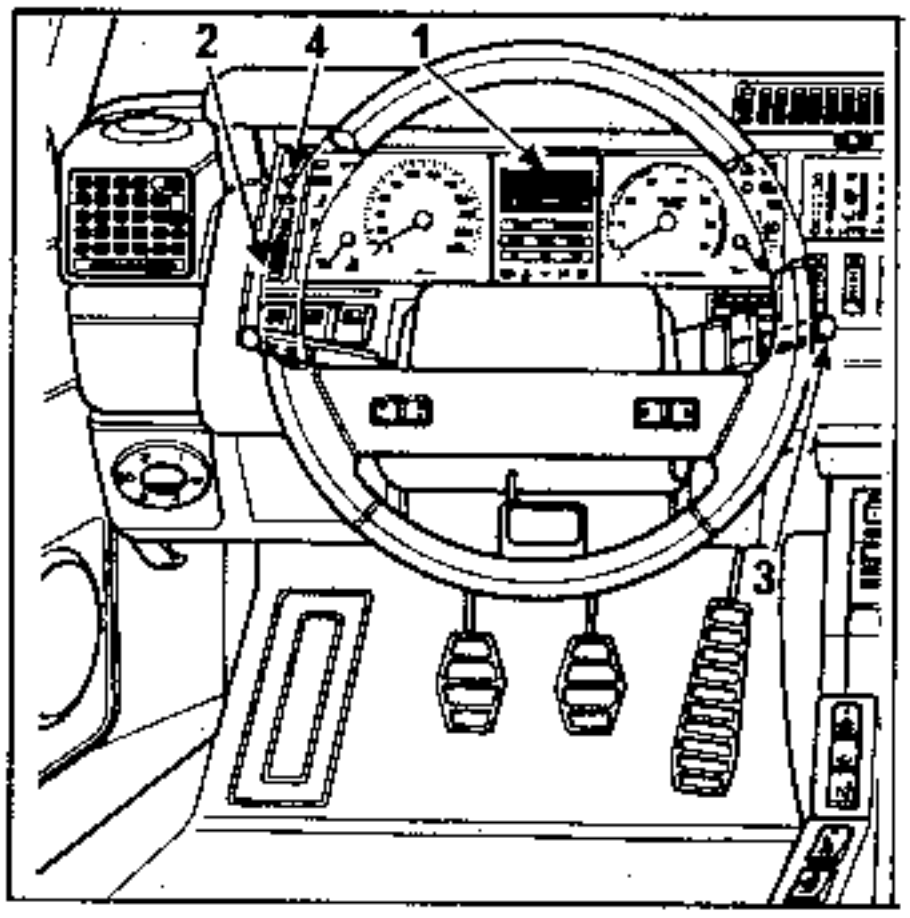
DESCRIPTION

- Electronic speedometer.
- Milometer (total and trip counters).
- Electronic rev counter.
- Electronic oil pressure and level.
- On board computer (travelling parameters)
- Coolant temperature.
- Fuel gauge.
- Printed circuit assembly.
- Warning lights



Special point:
This instrument panel cannot be dismantled

Note :
This section only deals with the instrument panel. For the on board computer, please refer to the "on board computer" manual.



1 - Display module

2 - Milometer.

3 - Selection of on-board computer.

4 - Reset key for zeroing memories

This instrument panel differs outwardly from the previous version by the omission of counter windows on the speedometer.

The electronics are centred on one single circuit, containing a microprocessor which controls:
- display on galvanometer of vehicle speed, rev counter, oil level/pressure,
- display on LCD of the milometer/trip counter and on board computer information.

This panel also includes a more advanced fault finding function.

DISPLAY LOGIC MODULE

The display module contains two loops:

- the milometer loop consisting of 2 types of screen,
  and
- the on-board computer loop consisting of 5 types of screen.

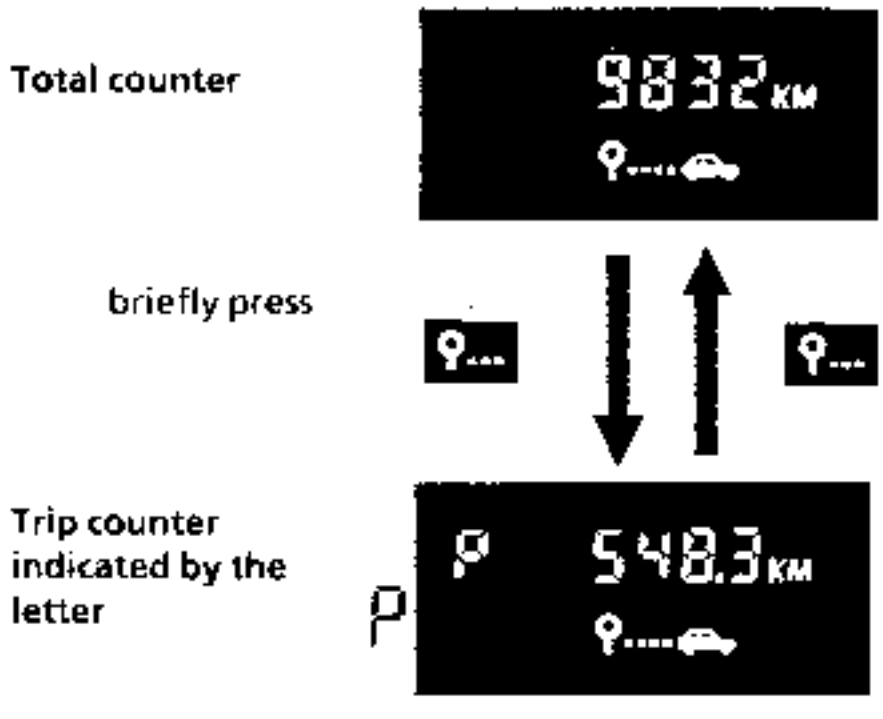
It is possible to move from one loop to another via selection keys (2 or 3)

When the loop is changed, the last screen to have been selected on this loop is displayed.

Likewise, the display recalled when the ignition is switched on is the one which was displayed when the ignition was last switched off.

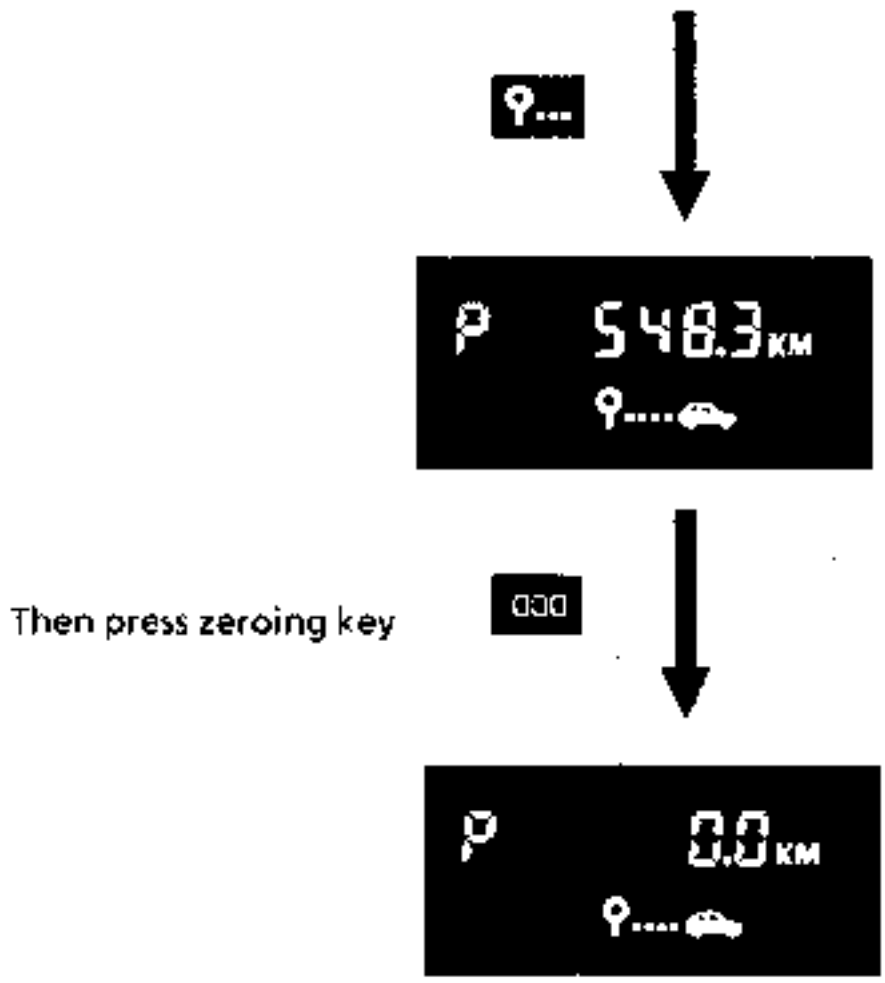
MILOMETER LOOP

Press switch 2 to select the milometer and trip counter display in sequence.



RESET TRIP COUNTER TO ZERO

Select display of trip counter by pressing key 2.

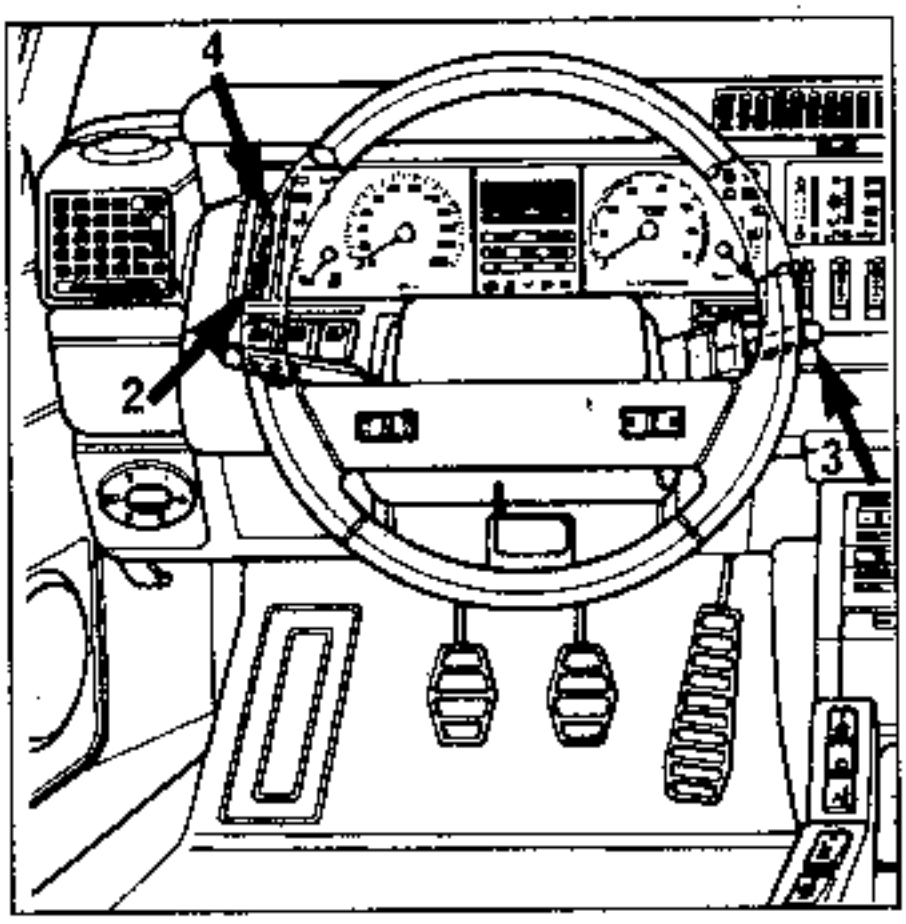


Comments:
This operation does not zero the on-board computer.
The trip counter is zeroed automatically when the memory capacity is exceeded **(9,999 miles)**.

The microprocessor in this instrument panel contains a test programme:

- for the receivers it controls (speedometer, rev counter, oil pressure gauge and liquid crystal displays),
  and
- the necessary sensors (oil level sensors, oil pressure sensors, fuel gauge, information on flow).

ACCESS TO THE FAULT FINDING MODE



Press the three buttons simultaneously:

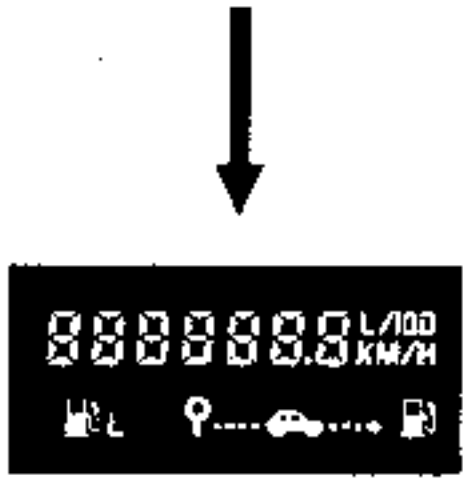
1 

2 

3 

for more than one second.

CHECKING THE DISPLAY



The microprocessor then performs a checking routine for the liquid crystal display. (All the segments are illuminated, except one which remains extinguished and moves in turn through all possible positions).

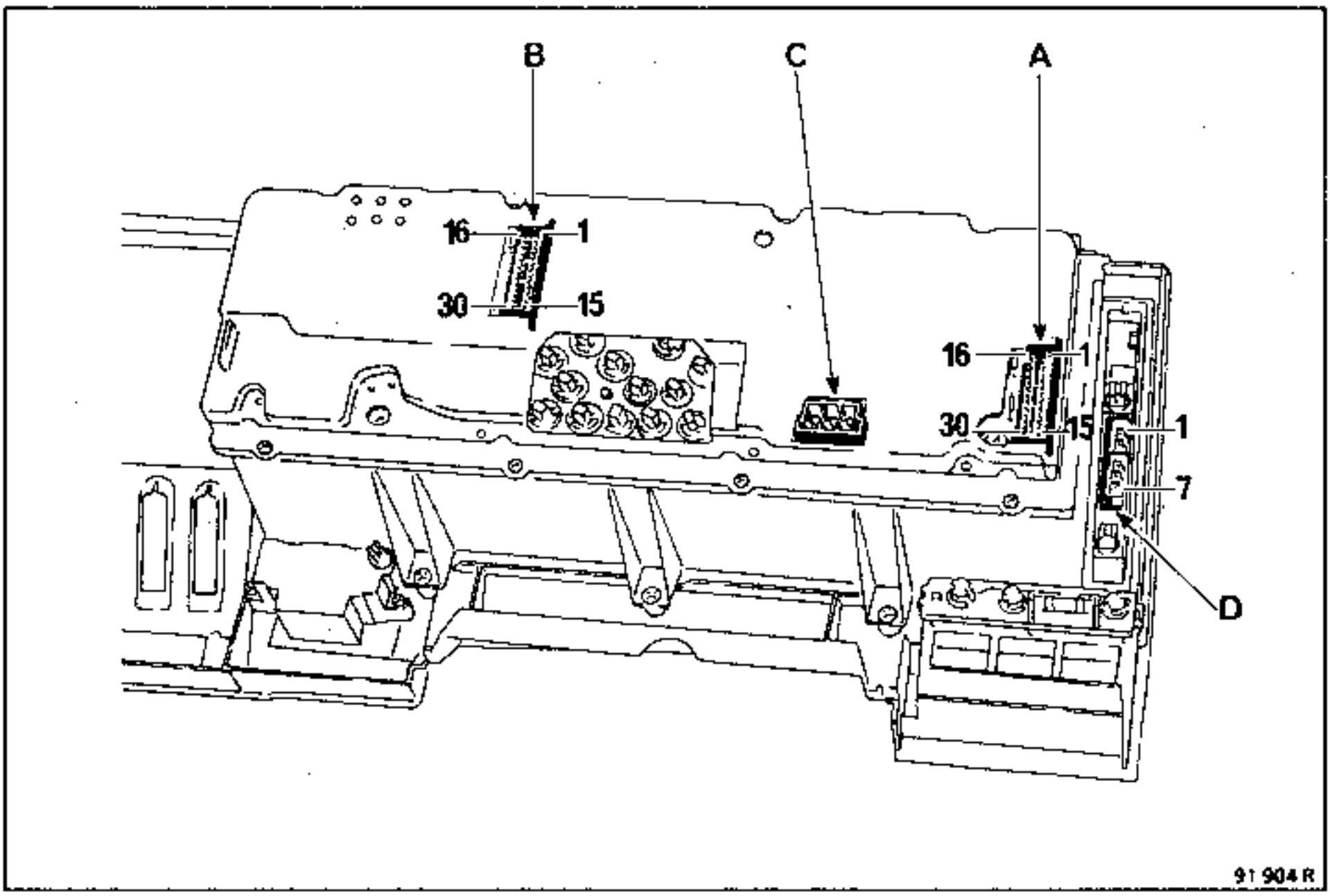
This checks the state of the display quickly and systematically.

At the same time the microprocessor moves the speedometer needle in steps of **40 km/h** (the needle must remain stable at **40, 80, 120, 160, 200 km/h**) and the rev counter in steps of **1000 rpm**.

It also moves the needle of the oil pressure level receiver, which must remain stable in four positions:

1 rest position
2 minimum level
3 maximum level
4 maximum deviation

CONNECTION



CONNECTOR A (blue socket)

1 - Oil level sensor (+).
2 - Oil level sensor (–).
3 - Oil temperature warning light (*).
4 - Brake failure warning light
5 - Not used.
6 - Battery charging warning light.
7 - Coolant temperature warning light.
8 - + After ignition (*).
9 - + After ignition.
10 - Not used.
11 - Not used.
12 - Not used.
13 - ABS warning light.
14 - Earth.
15 - Not used
16 - Zero reset push button.
17 - Milometer push button.
18 - On-board computer push button
19 - Oil pressure warning light.
20 - Coolant temperature sensor.
21 - Earth (*).
22 - Not used.
23 - Oil pressure sensor.
24 - Not used.
25 - Not used.
26 - Warning light for lamps.
27 - Left-hand indicator warning light.
28 - Cruise control warning light (+).
29 - Not used
30 - Cruise control warning light (-)

(*) function not used

CONNECTOR B (red socket)

1 - Minimum fuel warning light to the voice synthesizer.
2 - Speed signal to the cruise control and voice synthesizer.
3 - Earth (*).
4 - Display module illumination.
5 - Rev counter information.
6 - Fuel flow information.
7 - Fuel gauge earth.
8 - Fuel gauge information.
9 - Brake failure warning light (*).
10 - Headlights warning light.
11 - Right-hand indicator warning light.
12 - Dipped headlights warning light (+).
13 - Instrument cluster illumination (–).
14 - Instrument cluster illumination (+).
15 - Dipped headlights warning light (–).
16 - + After ignition (*).
17 - Speed signal to injection unit.
18 - Brake pad wear warning lights.
19 - Low screen wash warning light.
20 - Electronic failure warning light.
21 - + Before ignition.
22 - Earth.
23 - Not used
24 - Not used
25 - Not used.
26 - Not used.
27 - Handbrake warning light.
28 - Instrument cluster illumination (–) (*).
29 - Instrument cluster illumination (+) (*).
30 - Low coolant level warning light.

CONNECTOR C (Speed sensor)

A1 - Sensor earth.
A3 - Speed sensor (+).
B1 - Sensor earth.
B2 - Screening.
B3 - Speed sensor (+).

Note: The speed sensor contacts are gold plated and duplicated to eliminate all risk of contact failure.

CONNECTOR D (illumination rheostat)

1 - Illumination via rheostat.
2 - Zero reset.
3 - Not used.
4 - Milometer selection.
5 - Illumination of rheostat unit.
6 - Earth.
7 - Not used.

(*) function not used

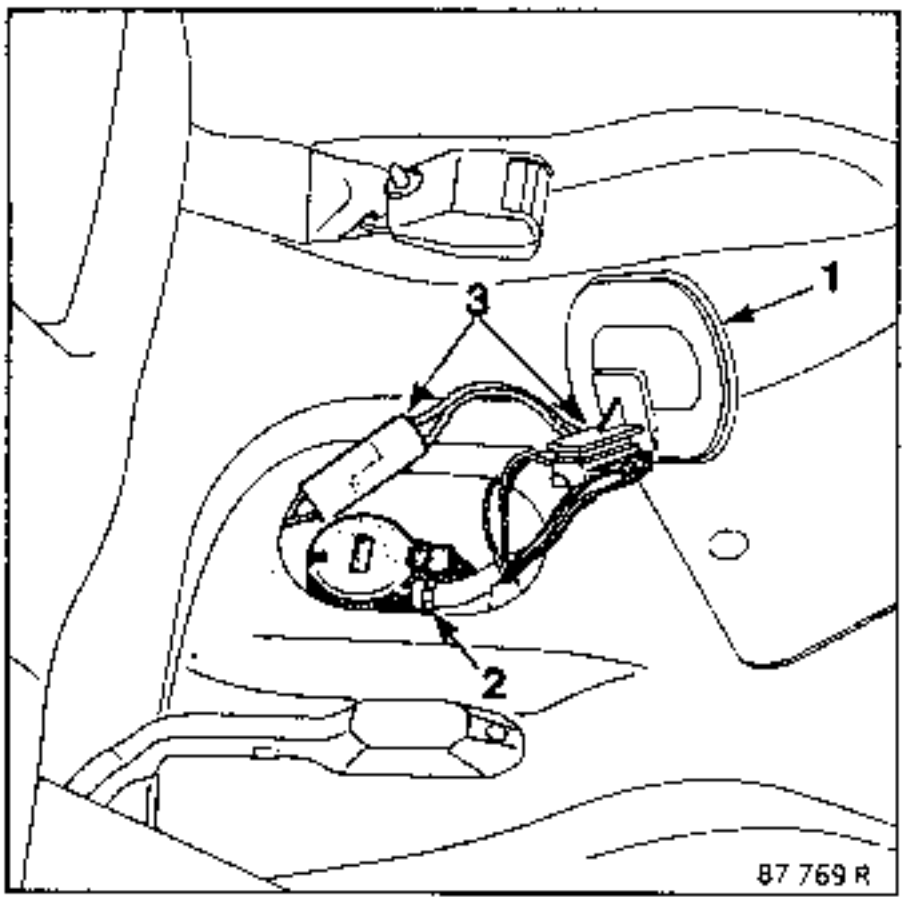
REMOVAL:

Before removing the fuel level sensor, the following precautions must be taken:
- Do not smoke.
- Do not bring naked flames or glowing materials into the working area (welding, etc.).

After draining the fuel from the tank, close the container firmly.

Disconnect the battery.

Partially tilt the rear seatback forward and remove one pivot screw on each side. Return the seatback to its normal position.



Remove:
- the plastic cover (1),
- the clip (2) and the pipe.

Disconnect the connectors (3).

Remove the locking ring, using a locally manufactured tool.

Note : For vehicles with a lever-type gauge, hold the gauge to prevent it from rotating (risk of lever twisting).

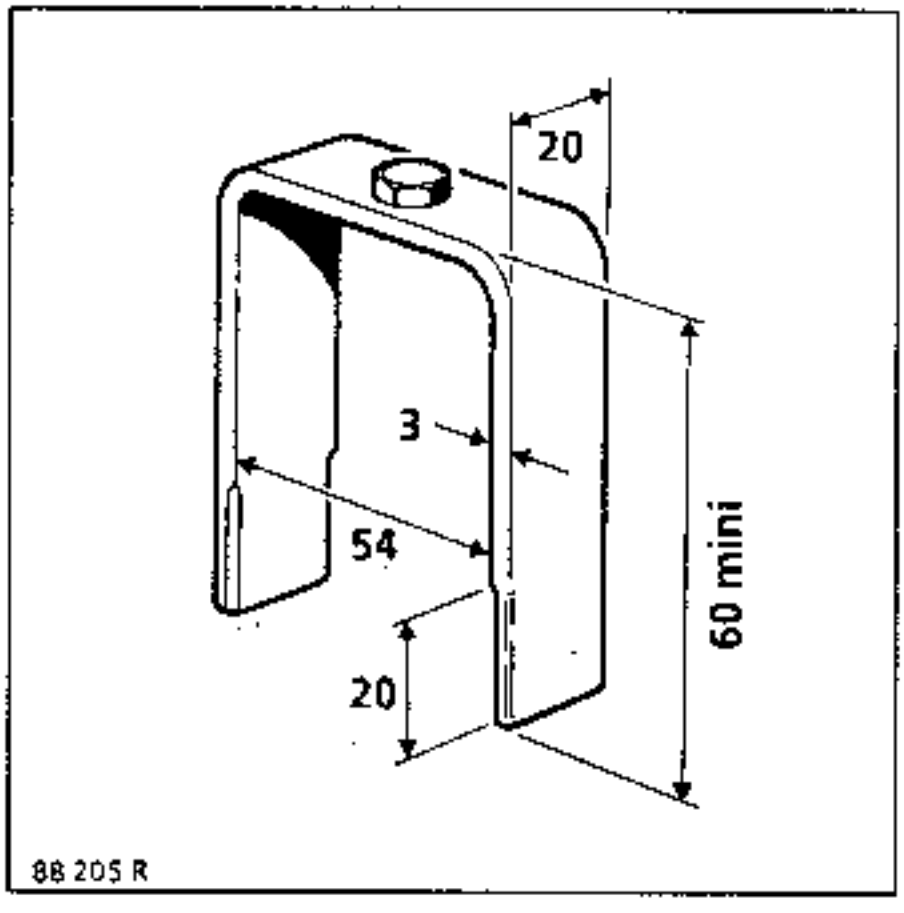
Making the tool

Use a flat piece of metal **20 x 3 x 185 mm**.

Drill a hole in the centre and weld in a hex head bolt (**10 mm A/F**).

While heating the metal, bend it to make a **U** shape.

Adjust so that it will fit easily into the recesses of the plastic nut.

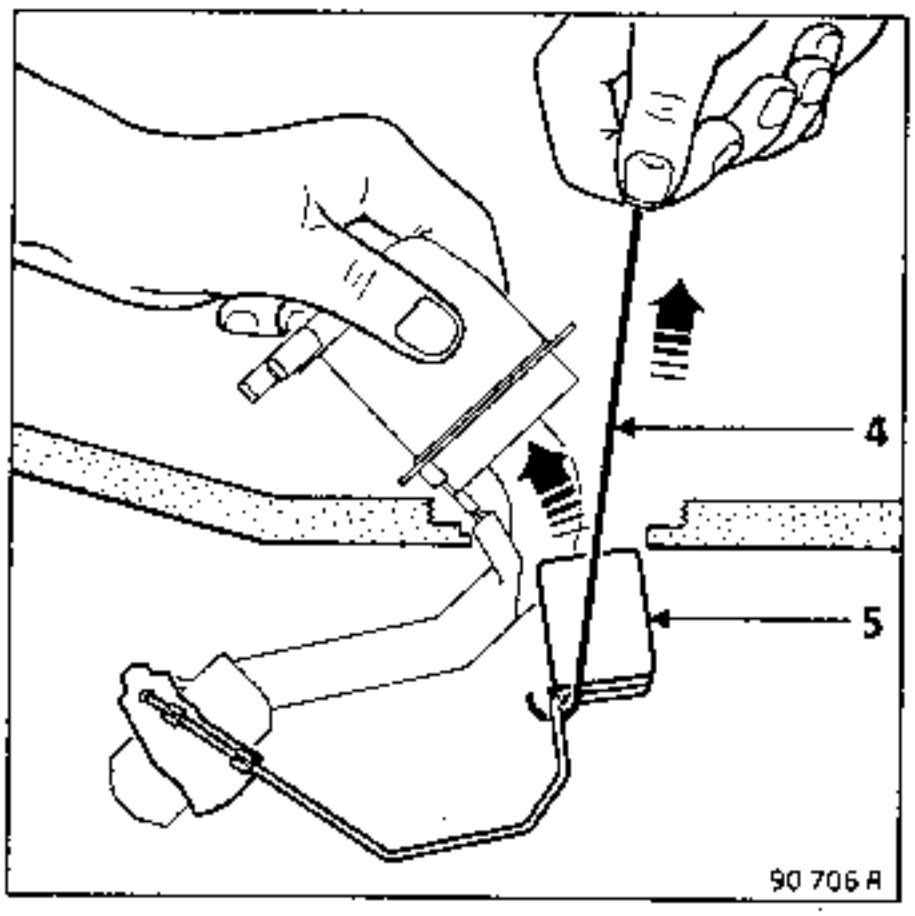


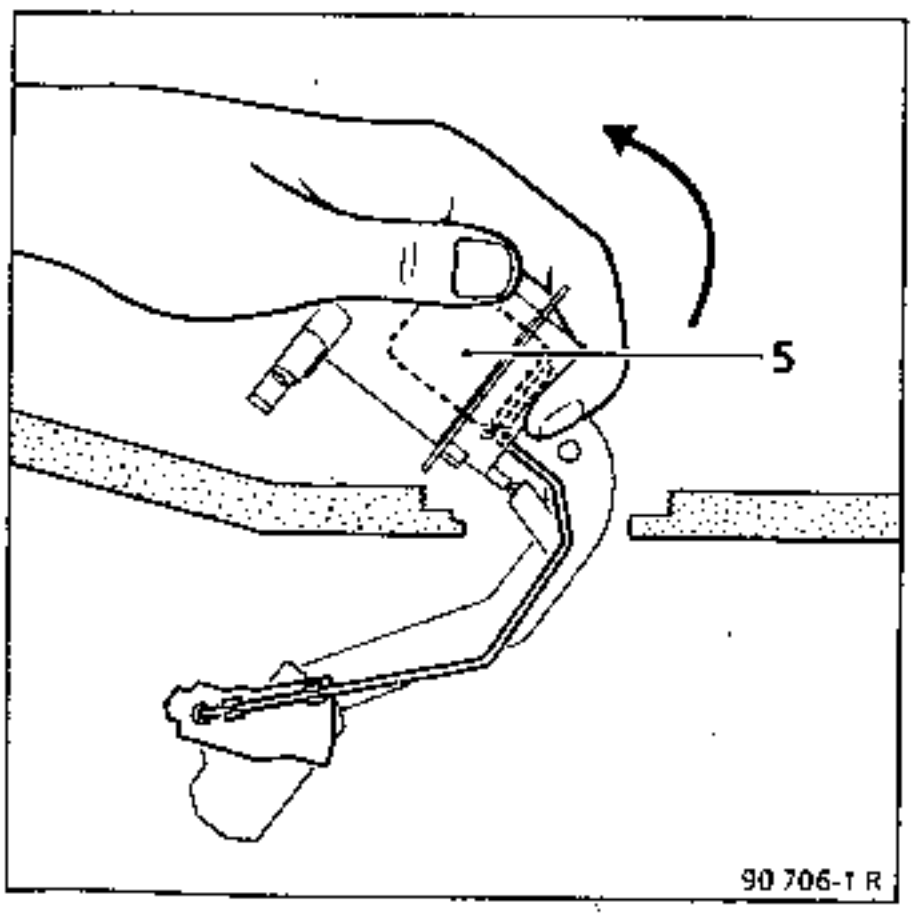
REMOVAL (continued)

Special points on the lever-type sender unit :

Tilt the top of the sender unit until the float can be seen.

Using a piece of bent wire (4), retrieve the float (5) and hold it in top position.

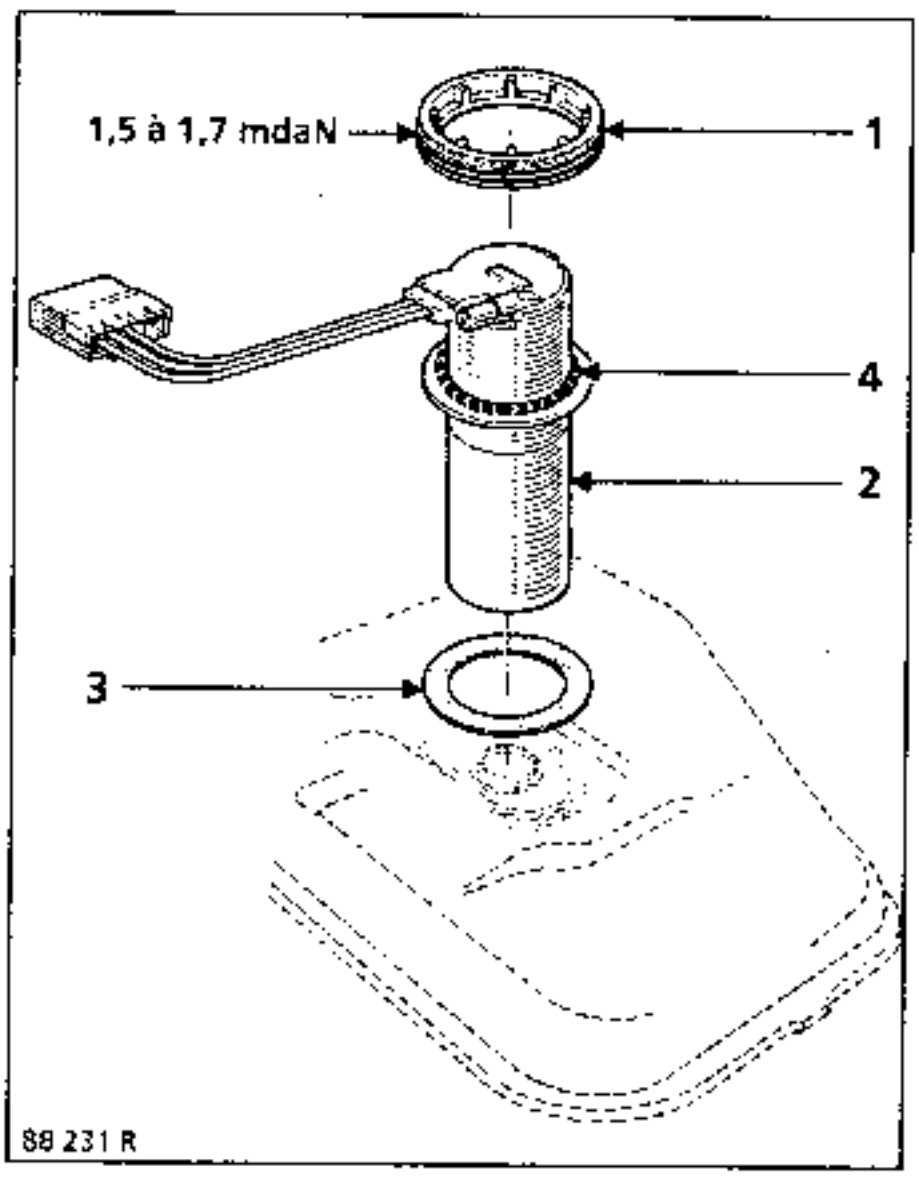




Take out the unit completely

REFITTING:

- Apply some sealer (sealer for bonded windscreen)
- Fit a new seal on the tank.
- Position the locking ring on the sender unit and tighten it to between **1.5 and 1.7 daN.m**.



1 - Nut.

2 - Sender unit or plate.

3 - Seal.

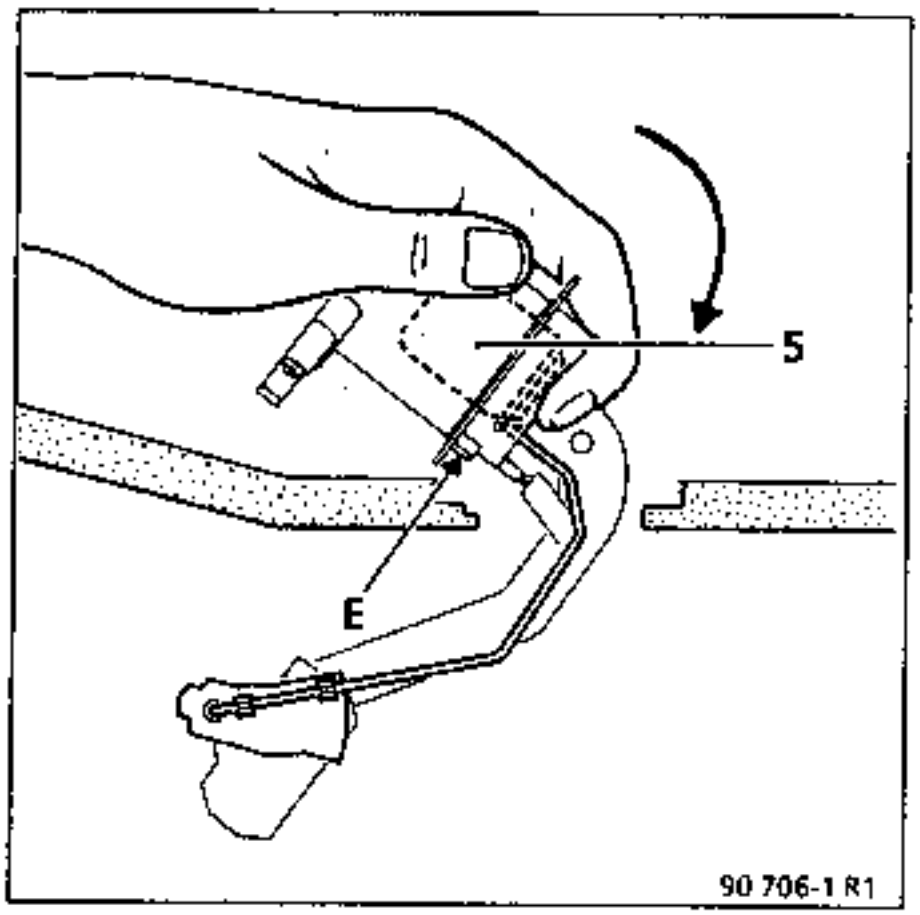
4 - Bead of mastic.

REFITTING (continued)

Special points on the lever-type sender unit :

Hold the float **(5)** in top position and insert the sender unit into the tank.

Fit lug **(E)** in housing.



Tighten the locking ring, holding the head of the sender unit in position.

Connect the pipe and fit a clip.

Connect the connector.

Note :
If a sender unit has to be replaced, the parts department will supply sender units equipped with a mounting fitting.

CONNECTIONS

Tubular sender unit

Track	Designation
1	Fuel gauge information
2	Low warning light (without ADAC).
3	Sender unit earth via instrument panel.
4	Priming pump earth.
5	+ priming pump.

Sender unit with computer (Model Years 1987 and 1988).

Track	Designation
1	Earth via computer.
2	+ sender unit via computer.
3	Information on level to sender unit
4	Priming pump earth.
5	+ priming pump.

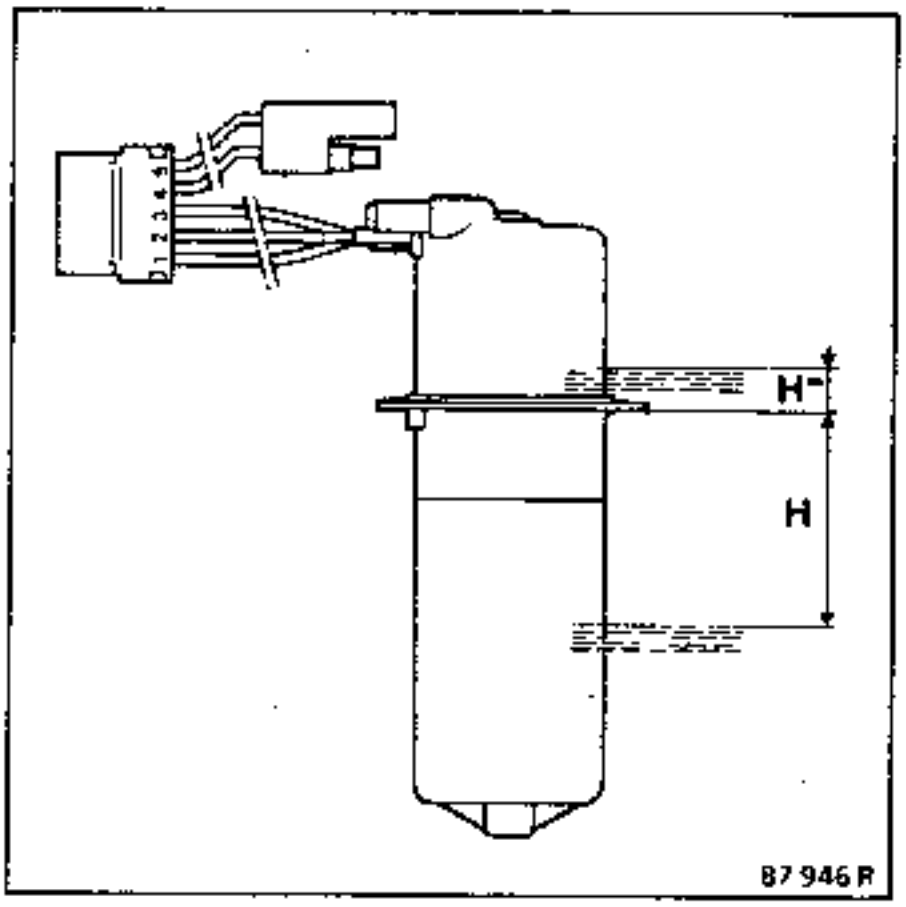
Lever type sender unit.

Track	Designation
1	Information on fuel level.
2	Not used.
3	Sender unit earth via instrument panel.
4	Not used.
5	Not used.

CHECK

Tubular sender unit without ADAC

Height (H)	Resistance
– 16 mm	7 Ω ± 7 Ω
6 mm	50 Ω ± 10 Ω
37 mm	100 Ω ± 20 Ω
66 mm	160 Ω ± 25 Ω
85 mm	280 Ω ± 30 Ω
85 mm	Warning light extinguished
88.5 mm	Warning light illuminated

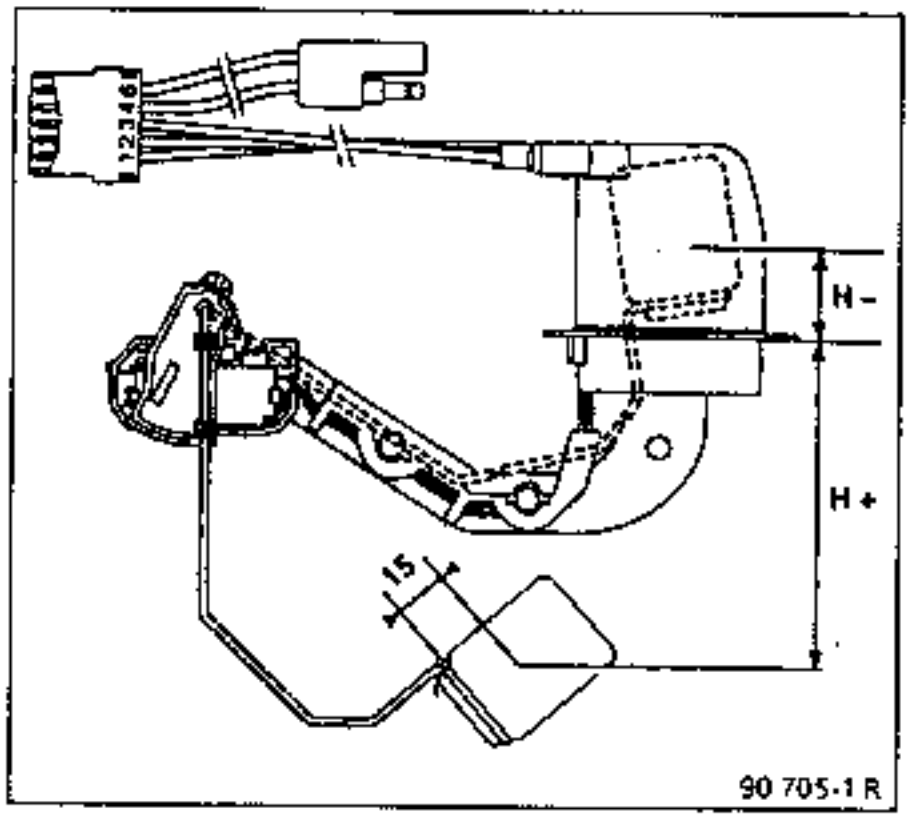


Tubular sender unit with ADAC

Height (H)	Resistance
– 29 mm	360 Ω ± 40 Ω
1 mm	220 Ω ± 30 Ω
59 mm	120 Ω ± 20 Ω
92 mm	25 Ω ± 5 Ω

Lever-type sender unit

Height (H)	Resistance in Ω	
	MY 87-88	MY 89-90-91
– 30 ± 5	360 ± 10	8 ± 5
7 ± 5	275 ± 20	96 ± 10
35 ± 5	190 ± 20	180 ± 10
63 ± 5	108 ± 10	263 ± 10
92 ± 5	26 ± 10	348 ± 5



Note :
Values given as examples. Make sure the resistance varies by moving the float.

DESCRIPTION :

The cruise control allows the vehicle to maintain a constant speed without the driver keeping his foot on the accelerator pedal.

There is no limiting action.

The function only operates from **30 mph (50 km/h)**.

The function has three sections:

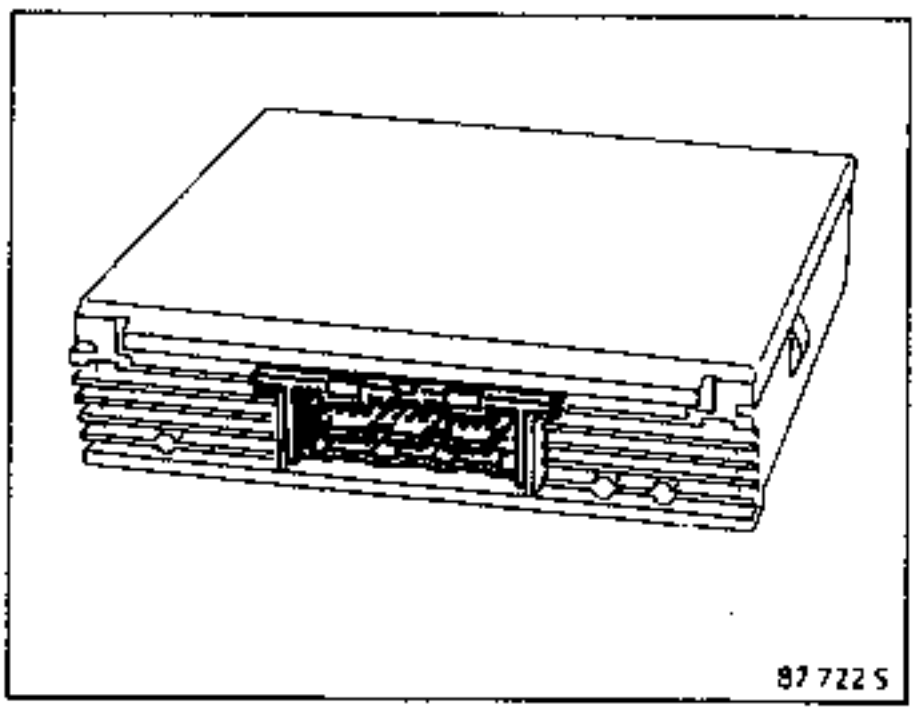
1) A pneumatic section with:
   - A vacuum pump.
   - A governing solenoid valve.
   - A safety vent solenoid valve.
   - A control valve acting by deforming a flexible diaphragm on the throttle control.

2) An electronic section with:
   - The cruise control computer which compares the vehicle's actual speed to the driver's required speed.

3) A control and safety section with:
   - The on/off control.
   - The steering wheel switches which allow the function to be changed.
   - The brake and clutch switches, which cancel regulation when activated, even if only slightly.

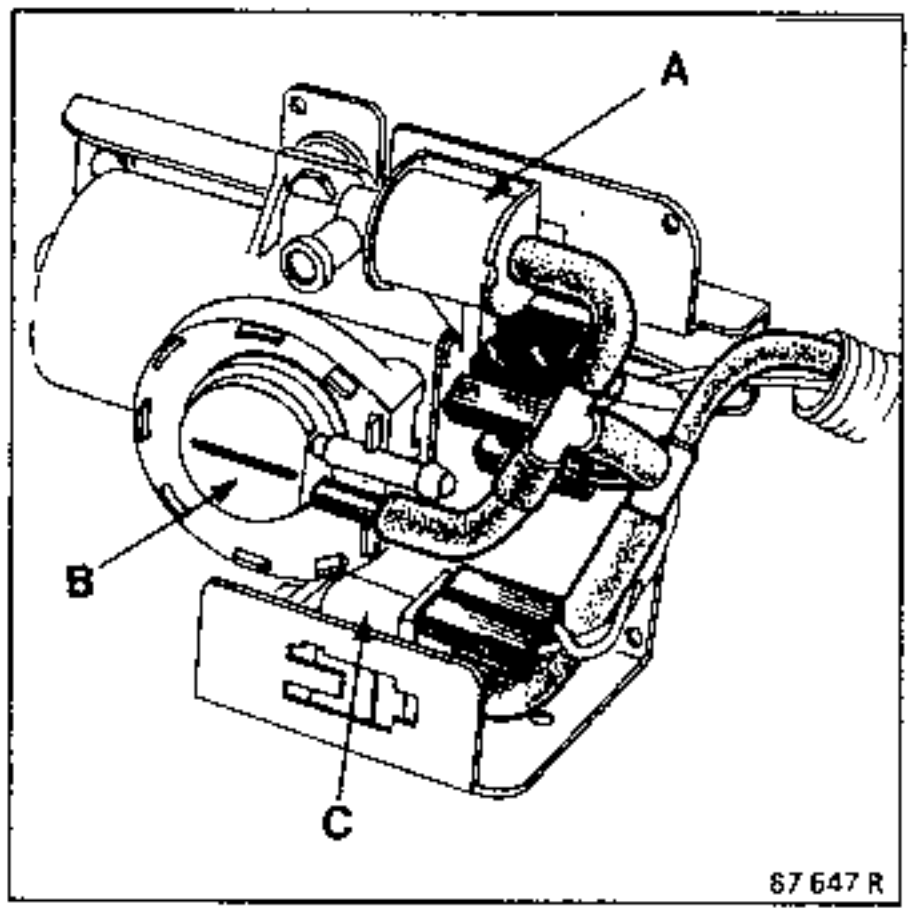
Location of elements:

Cruise control computer



This is located under the dashboard, above the glove box on the passenger side.

The vacuum pump and the solenoid valves



- **Safety solenoid valve (A)**
  Black body and black connectors.

- **Vacuum pump (B)**
  Yellow connectors.

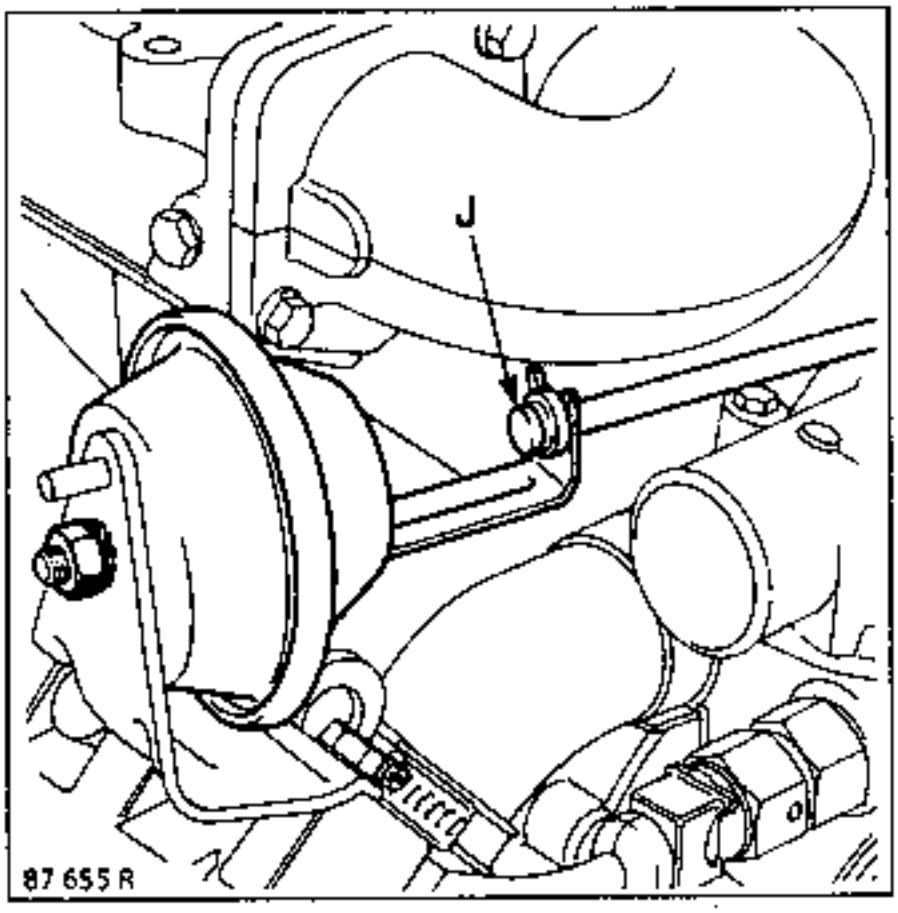
- **Governing solenoid valve (C)**
  Red body and red connectors.

These are located underneath the right-hand headlight unit.

Remove:
- the shield,
- the assembly securing nuts.

Disconnect the connector and the vacuum pipe.

The control valve



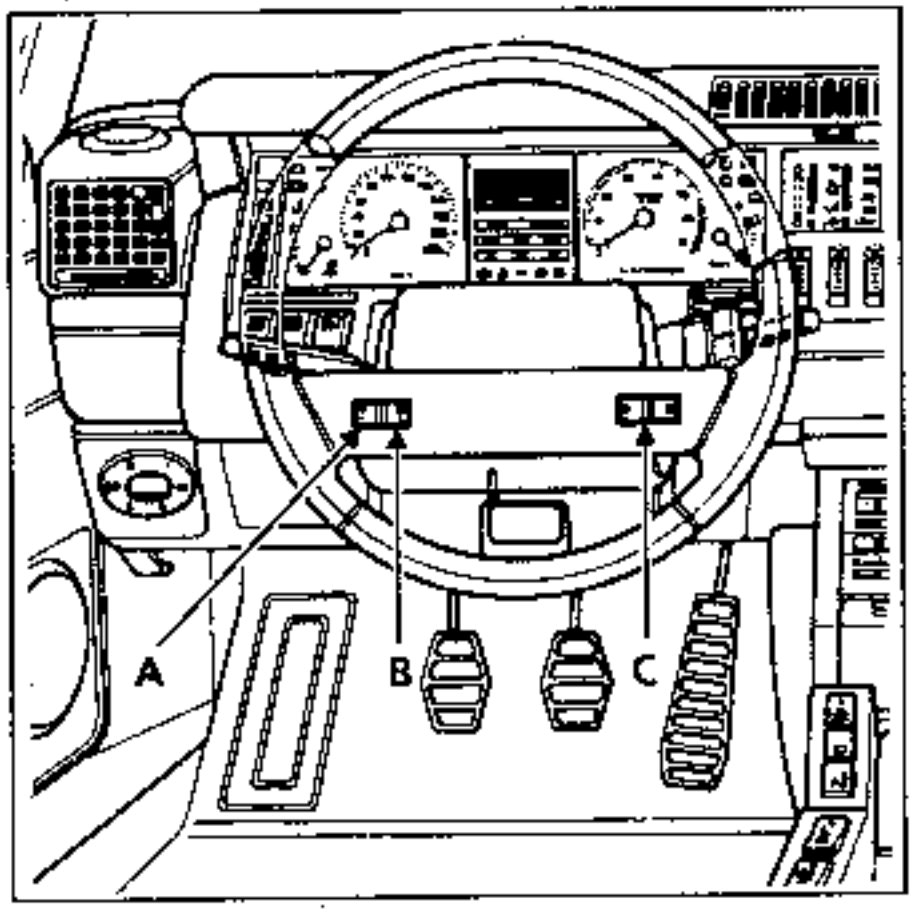
This is located on the cylinder head cover and acts on the accelerator control.

The control valve operates on the throttle control as well as the pedal control.

The assembly does not affect foot control of the accelerator especially during regulation.

The pedal's weight ensures it follows all the valve's movements, so that the driver may increase the vehicle speed himself at any moment.

Steering wheel switches



Left-hand switch :

It has **3 functions** :
- Regulation operation **(A)** ($\sqrt{-}$).
- Speed reduction **(A)** ($\sqrt{-}$).
- Increase in speed **(B)** (R +).
- Recall of previously stored speed and regulation **(B)** (R +).

Right-hand switch:

It has **one function only:**
- Cancels regulation when it is operative, no function when cruise control is not activated (regulation not operative) **(C)**.

In both cases, the speed previously memorised is retained.

On/Off switch

This is located on the centre console on the left-hand side of the gear lever.

Operation tell-tale

This is on the instrument panel.
It illuminates during regulation.

OPERATION

When the ignition is on, the + after ignition feeds the cruise control switch.

When the ignition is on, the + after ignition feeds the cruise control computer on track 12.

The computer then feeds the vacuum pump and the two solenoid valves via track 11.

The cruise control electronic system monitors 2 parameters :

1) Actual vehicle speed measured by the vehicle speed sensor or speedometer.

2) Memorisation of the desired vehicle speed via the steering wheel controls.

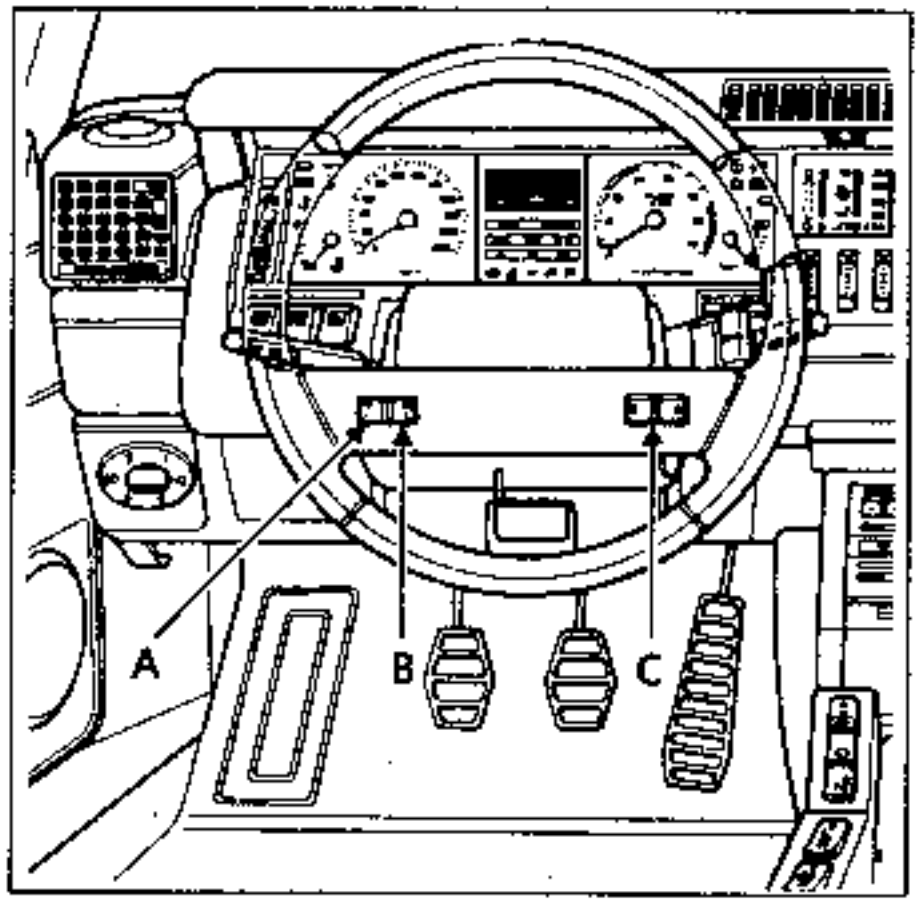
These two items of information are continually compared, to control the vacuum pump which creates a vacuum at the pneumatic valve, acting on the accelerator control.

The stability of the vehicle speed (regulated speed) is ensured by the pulsing commands of the earth from the vacuum pump or the governing valve.

Note :
The safety solenoid valve vents the circuit when its earth is suppressed. This earth which operates the valve is only transmitted by the cruise control computer if the vehicle speed is at least 30 mph / 50 km/h.

REGULATION

Having pressed the cruise control switch, when the vehicle is moving at a stable speed (above 30 mph / 50 km/h), press the left-hand switch (A) ($\sqrt{-}$). The cruise control tell-tale symbol illuminates. The control speed is memorised and the accelerator pedal no longer needs to be depressed.



From this moment, by pressing the left-hand side of switch (B) (R +) the control speed may be increased, or the accelerator pedal may be depressed and then the left-hand side of the switch (B) (R +) pressed, when the desired speed is reached, in order to store it in the memory.

Note :
The memorised speed may be exceeded by pressing the accelerator pedal.
When the accelerator pedal is no longer depressed, the vehicle returns to the programmed speed.
Speed memorisation is continuous from 30 mph /50 km/h.

It is also possible to reduce the cruise speed by pressing the left-hand side of the switch (A) ($\sqrt{-}$).

SAFETY

Safety is ensured by:
- 1 stop lights switch.
- 1 clutch switch (manual gearbox only).

1) Model Year 1984 :

When the brake pedal is pressed, **track 7** of the cruise control computer is supplied with power.

When the clutch pedal is pressed, a connection is made between **tracks 8 and 9** of the cruise control computer.

In both cases, the cruise control electronics cut the earth on **track 4**, feeding the safety solenoid valve, and the pneumatic circuit is vented; the vehicle speed is no longer regulated.

Note :
If the vehicle is equipped with automatic transmission, cruise control is cancelled if the gear lever is in park or neutral **(Model Year 1984 only)**.

2) Model Year 1985 :

When the brake pedal is pressed, **track 7** of the cruise control switch is supplied with power.

When the clutch pedal is pressed, the earth transmitted by the stop lights at **track 7** of the cruise control computer is cut.

In both cases, the cruise control electronics cut the earth on **track 4**, feeding the safety solenoid valve, and the pneumatic circuit is vented; the vehicle speed is no longer regulated.

Note :
Speed control is cancelled when the engine speed reaches **5500 rpm ± 300 rpm (Model Year 1985 only)**.

The right-hand switch **(C)** on the steering wheel (either side (0)) interrupts cruise control by connecting **tracks 8 and 9** of the cruise control computer.

The computer electronics cut:

- Earth on **track 4**, feeding the safety solenoid valve.
- Earth on **track 3**, feeding the governing solenoid valve.
- Earth on **track 1**, feeding the vacuum pump.

The safety solenoid vents the pneumatic circuit.

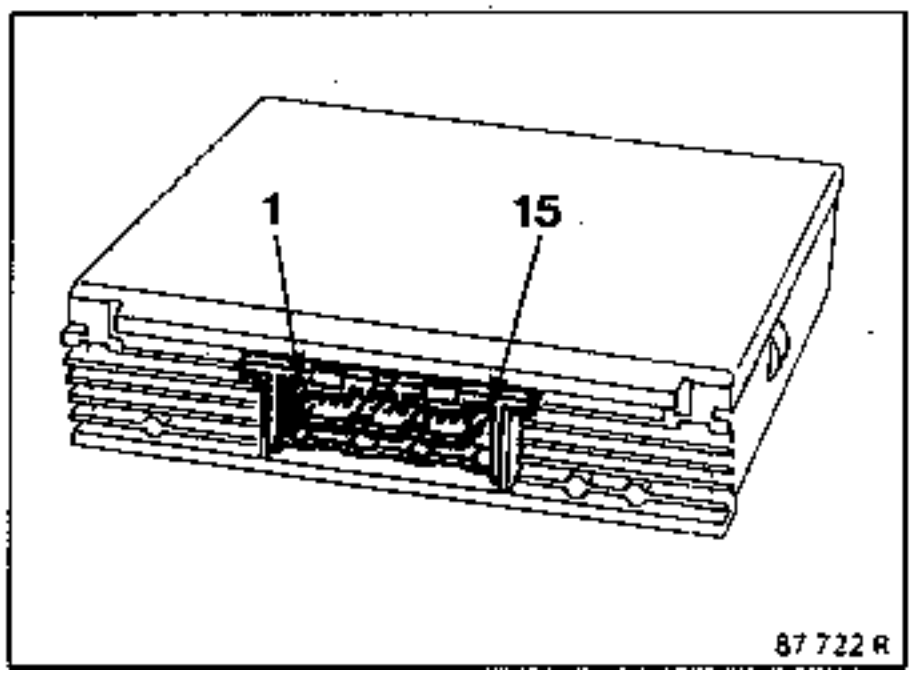
The speed remains stored in the memory for all these safety functions.

To recall the stored speed, press the left-hand steering wheel switch **(B)** (R +).

The computer electronics automatically return the vehicle to the memorised speed (as soon as the vehicle reaches **30 mph/ 50 km/h**).

Note :
Cutting the feed to the cruise control regulator by the stop/start switch, or by turning the ignition off, cancels the speed stored in the memory.

Computer connections



Model Year 1984

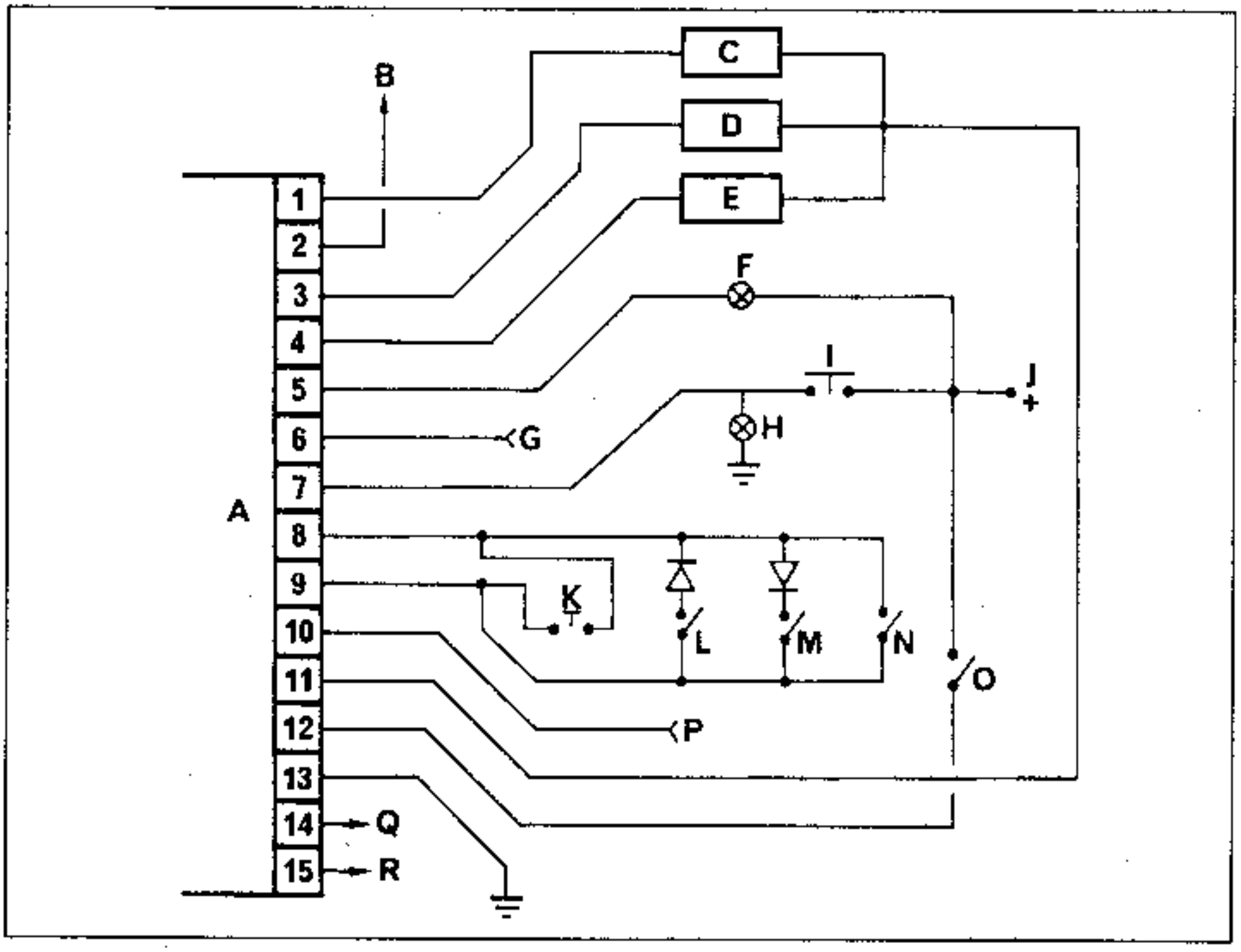
1 - Vacuum pump.
2 - Diagnostic socket.
3 - Governing solenoid valve.
4 - Safety solenoid valve.
5 - Warning light on instrument panel.
6 - Speed information input.
7 - Safety information (stop lights).
8 - Steering wheel inner track.
9 - Steering wheel outer track.
10 - Automatic transmission information.
11 - Feed to pump and solenoid valve.
12 - + feed.
13 - Earth.
14 - Pulse generator earth or connected to terminal 15, if electric speedometer fitted.
15 - Not connected if pulse generator fitted or connected to terminal 14, if electric speedometer fitted.

Model Year 1985

1 - Vacuum pump.
2 - Diagnostic socket.
3 - Governing solenoid valve.
4 - Safety solenoid valve.
5 - Warning light on instrument panel.
6 - Speed information input.
7 - Safety information (stop lights).
8 - Steering wheel inner track.
9 - Steering wheel outer track.
10 - Engine speed information.
11 - Feed to pump and solenoid valves
12 - + feed.
13 - Earth
14 - Engine selection:
- 4 cylinders not connected.
- 6 cylinders to earth.

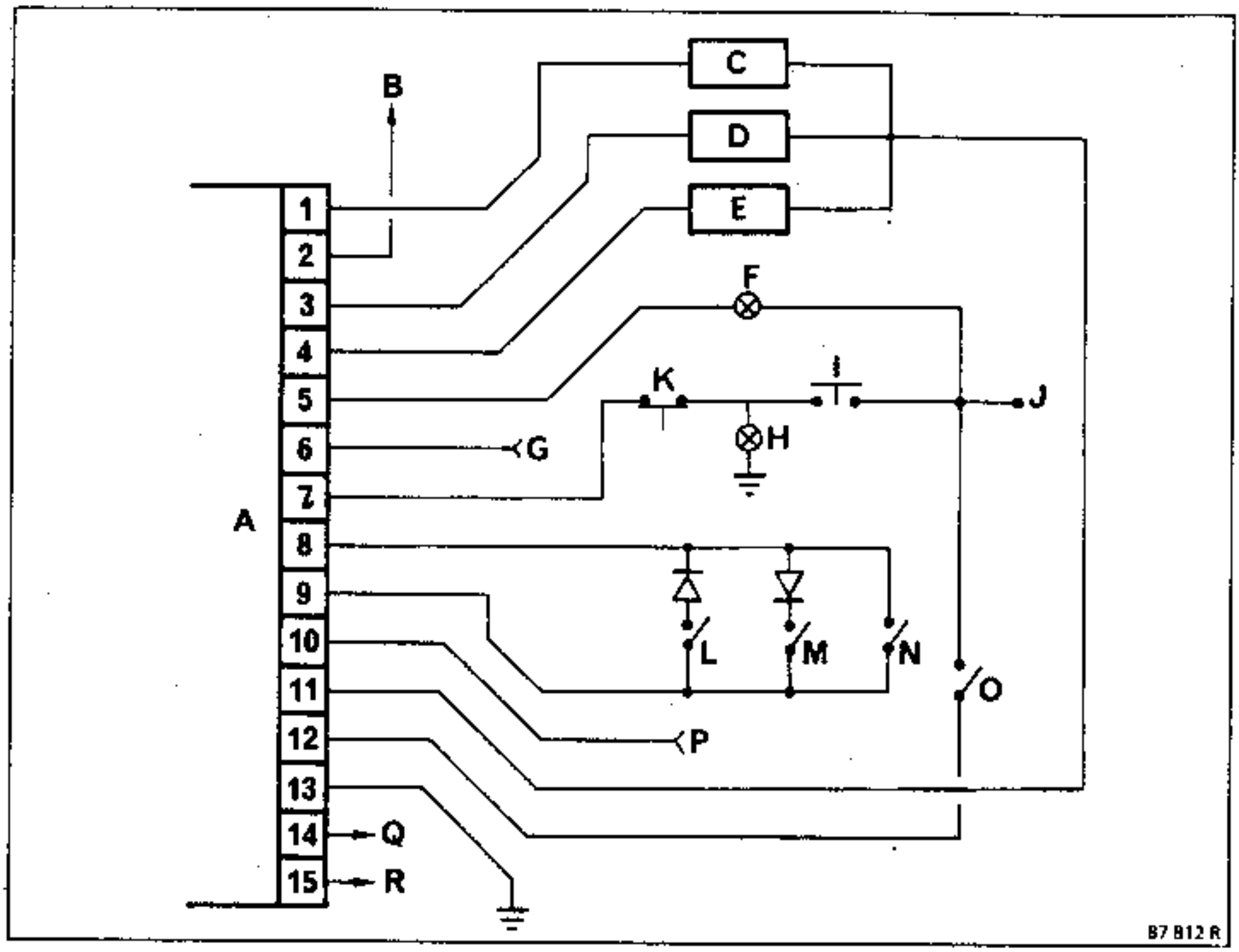
15 - Speed sensor selection:
- Disconnected Halmo.
- Electric speedometer earthed.

Theoretical wiring diagram (Model Year 1984)



A. Computer
B. To diagnostic socket
C. Vacuum pump
D. Governing solenoid valve
E. Safety solenoid valve
F. Warning light on instrument panel
G. Speed information input
H. Stop light bulb
I. Stop lights switch
J. + After ignition switch
K. Declutching switch
L. Steering wheel switch : N → −
M. Steering wheel switch : R +
N. Steering wheel switch : O
O. On/Off switch
P. Neutral or park (automatic transmission)
Q. With electronic speedometer : Terminals 14 and 15 connected
With pulse generator:
- Generator earth on terminal 14
- Terminal 15 : not used

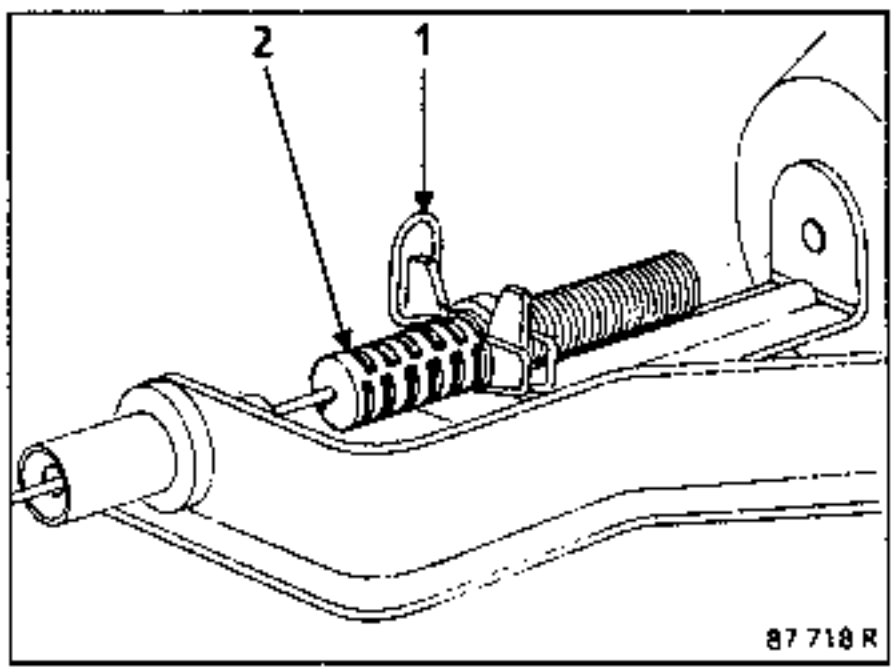
Theoretical wiring diagram (Model Year 1985)



A. Computer
B. To diagnostic socket
C. Vacuum pump
D. Governing solenoid valve
E. Safety solenoid valve
F. Warning light on instrument panel
G. Speed information input
H. Stop light bulb
I. Stop lights switch
J. + after ignition switch
K. Declutching switch
L. Steering wheel switch: N → –
M. Steering wheel switch : R +
N. Steering wheel switch: O
O. On/Off switch
P. Engine speed information input
Q. Engine selection : – 4 cylinders not connected
– 6 cylinders to earth
R. Speed sensor selection : – Halmo not connected
– Electric speedometer to earth

ADJUSTING THE MECHANICAL CONTROL

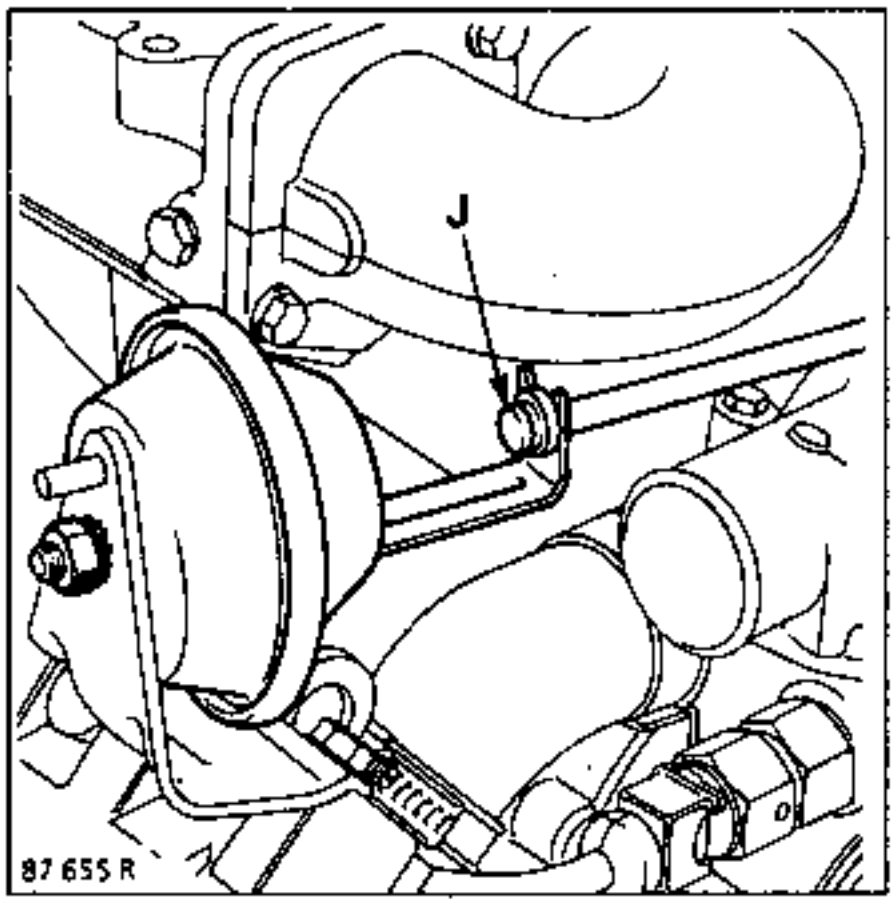
With the valve in the rest position and the throttle control in the idle speed position, there should be a safety clearance of 1.5 mm maximum.



DIESEL ENGINE

Adjust the clearance by moving the clip (1).

If necessary, turn the spindle by 90° in order to change splines (2).



PETROL ENGINE

Adjust clearance (J) by altering the length of the spindle.

FAULT FINDING

The computer is designed to emit a coded signal transmitted by a direct connection to the diagnostic plug.

There is no incident warning light on the instrument panel.

Any defective operation of the cruise control will be noticed directly by the driver in a road test.

Each time the cruise control is switched on it automatically self-tests for certain peripheral units marked with a * (see following page).

Some intermittent failures are stored in the memory during a road test. They are erased if the cruise control or the ignition is switched off.

READ-OUT ON THE BAR GRAPH

The processing of the diagnostic code enables 12 pieces of information to be read simultaneously in 2 tests (the read-outs are of the all or nothing type) according to the instructions given on the control card.

DIGITAL DISPLAY READ-OUT

This shows:

- the cruise control number (02),
- the voltage measurements.

PULSE GENERATOR

Used to simulate a vehicle speed and to check the operation of the control valve when the vehicle is stationary.

CONNECTIONS ON VEHICLE

- Connect the XR 25 harness to the vehicle's diagnostic socket
- Switch on the ignition without starting (and key N on the cruise control switched on).
- Check that the XR 25 self-tests (all the displays must function).
- Key in D 02 on the keyboard.

Display read-off on XR 25 

Put the test card corresponding to number 02 in its location.

Defect detection principle

- By comparing the displays (bar graphs) with the test card and the fault finding table.

Depending on the test performed, it will be necessary to work on the vehicle to locate the defect exactly (components disconnected, fitting of shunts): precise instructions will be found on the fault finding table.

TEST 1

Bar graph read out in left-hand column

BRAKE PEDAL RAISED

No code	0	Switch N on? Check fuse - 12 V on terminal 12 of computer Earth of computer terminal 13 - connection of computer terminal 2 to terminal 4 on diagnostic plug.
Code displayed	0	TESTS 2 - 3 - 4 - 5 - 6 not possible
Brake pedal switch	1	Battery voltage present at computer terminal 7 instead of 0 volts. ** Check that brake pedal is raised properly. Check adjustment of brake switch.
Speed sensor	2	Should illuminate and extinguish when vehicle pushed, otherwise: check speed sensor/harness.
Motor circuit * Pump (cut)	3	**Disconnect the 4-track connector on servo motor unit.** Check continuity of terminals 1 and 2 at pump motor end. If good : harness cut or open circuit at computer end.
Governing solenoid valve* circuit (cut)	4	**Disconnect the 4-track connector on servo motor unit.** Check continuity of terminals 1 and 3 at pump motor end. If good : harness cut or open circuit at computer end.
Steering wheel switches circuit	5 6	If read-outs 5 and 6 do not conform to test card, check: steering wheel track harness steering wheel switches

** Check that the clutch switch is properly closed (on 85 model).

TEST 2

Bar graph read-outs in left-hand column

BRAKE PEDAL DEPRESSED FOR WHOLE OF TEST 2

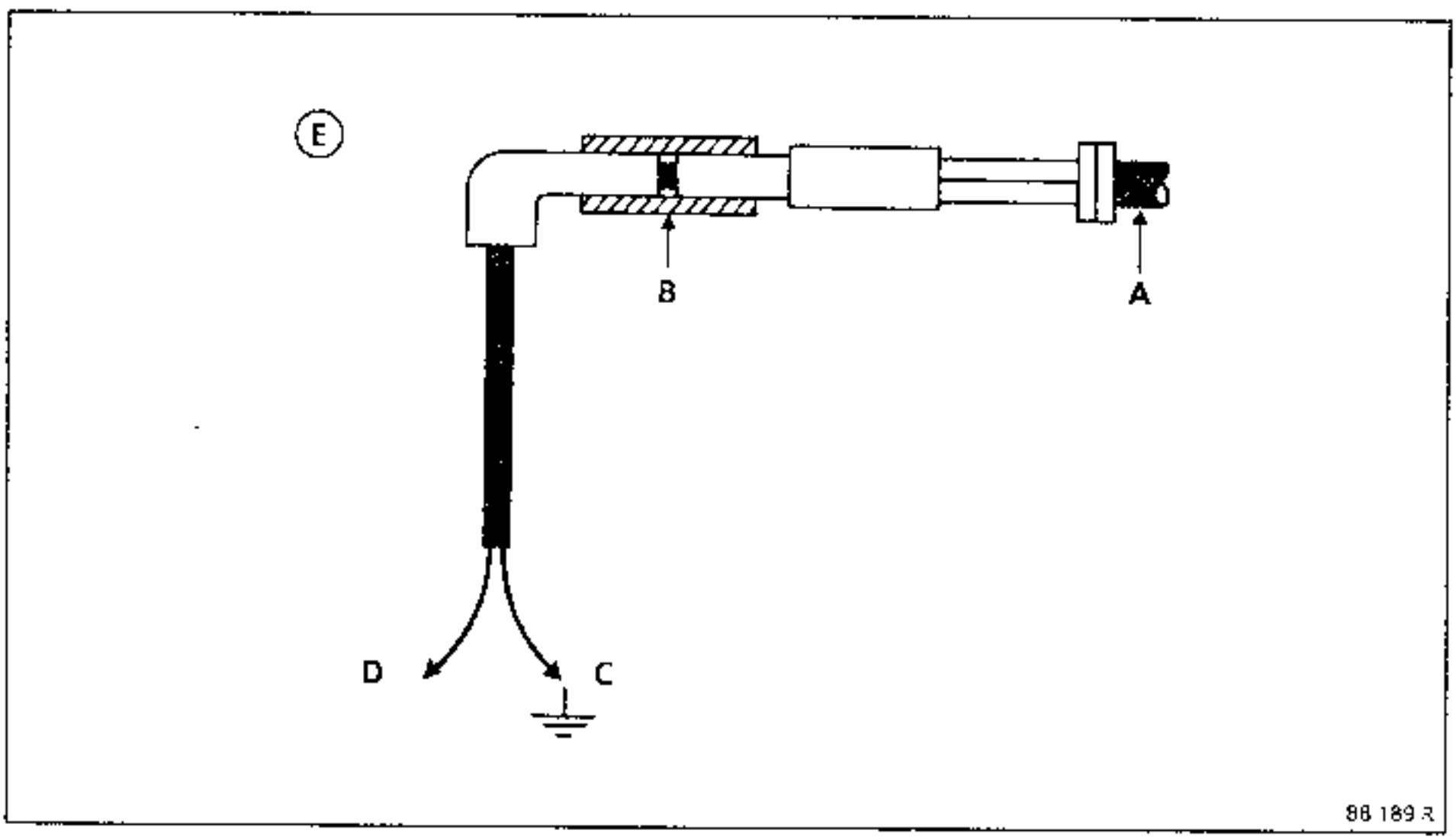
Code displayed 2.0 **Brake pedal switch** 2.1	TESTS 2.2 - 2.3 - 2.4 - 2.5 - 2.6 not possible 0 volts at terminal 7 instead of battery voltage ** Check that the brake pedal is properly depressed. Check operation of stop lights (cut wires) Check adjustment of brake switch Check connection between computer terminal 7/brake switches/ + After ignition.
Conformity of speed sensor/harness 2.2	If electric speedometer : 2.2 INCORRECT Check presence of shunt between 14 and 15 on connector/computer. If pulse generator : 2.2 INCORRECT Check harness.
Motor circuit * pump (short-circuit) 2.3	**Disconnect the 4-track connector on pump motor unit.** Press switch N and activate the cruise control. 2.3 Servo motor short-circuiting 2.3 Harness short-circuiting
Solenoid valve circuit * pump (short-circuit) 2.4	**Disconnect the 4-track connector on servo motor unit.** Press switch N and activate cruise control. 2.4 Governing solenoid valve short-circuiting. 2.4 Harness short-circuiting
Automatic gearbox function selector circuit* ** 2.5	On automatic transmission: selector lever on P or N 2.5 CORRECT 2.5 Harness - contact cut
Safety solenoid valve circuit (short-circuit) 2.6	2.6 Safety solenoid valve or connection harness short-circuiting.

** Check that the clutch switch is properly closed (on 85 model)

*** No read-out on 85 model

Vehicle speed simulation by XR 25 pulse generator

Use an AEI sensor as an aid



A Speed sensor on vehicle to be tested
B Rubber tube
C Vehicle earth
D To terminal G of XR 25
E AEI sensor

Select a frequency: key in G1 on keyboard.

Put ON/OFF switch on. Visually check control valve operation via the throttle butterfly aperture.

If it does not operate (if test 1 and test 2 are correct) :

- Check electrical continuity of safety solenoid valve (terminals 1 and 4 of 4-track connector at pump motor end).
- Check condition of rubber pipes

DESCRIPTION

The cruise control allows the vehicle to maintain a constant speed without the driver keeping his foot on the accelerator pedal.

There is no limiting action.

The function only operates from 19 mph/30 km/h.

The function has three sections:

1. A pneumatic section with:
- a vacuum pump,
- a safety vent solenoid valve,
- a control valve acting by deforming a flexible diaphragm on the throttle control.

2. An electronic section with:
- The cruise control computer which compares the vehicle's actual speed to the driver's required speed,
- An engine excess speed relay intended to avoid excess speed if the cruise control is used in the intermediate gears (for petrol engine only).

3. A control and safety section with:
- The on/off control
- The steering wheel switches which allow the function to be changed.
- The stop lights and clutch switches, which cancel regulation when activated, even if only slightly.

Location of elements.

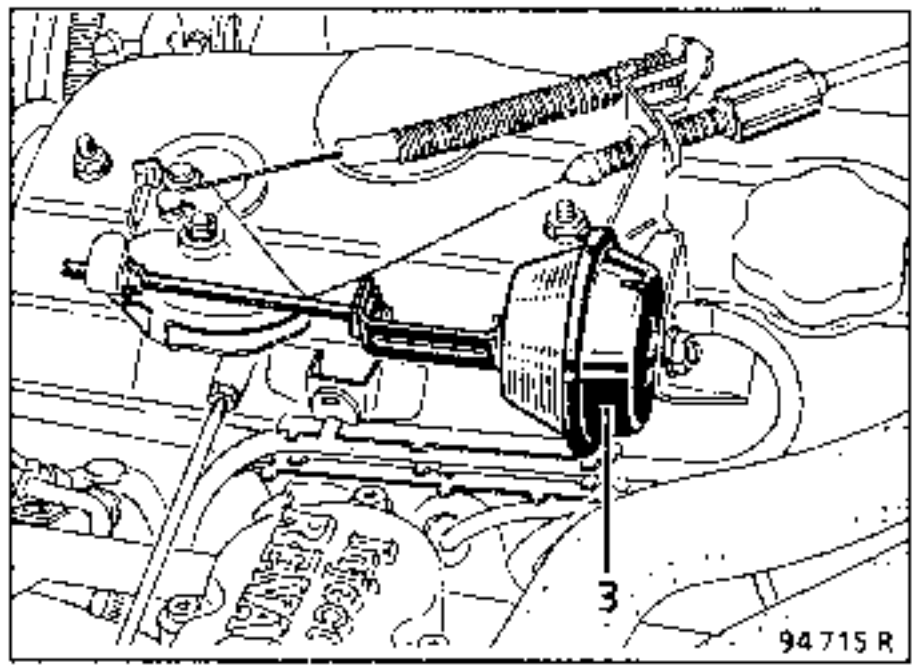
- **Cruise control computer**
  This is located under the dashboard, above the glove box on the passenger side.

- **Engine excess speed relay**
  It is located on the relay board, above the fuse box on the driver's side.

- **The vacuum pump and the safety solenoid valve**
  These are located under the right-hand headlamp unit (behind the bumper).

- **The control valve (3).**

  This is located on the cylinder head cover and acts on the accelerator control.

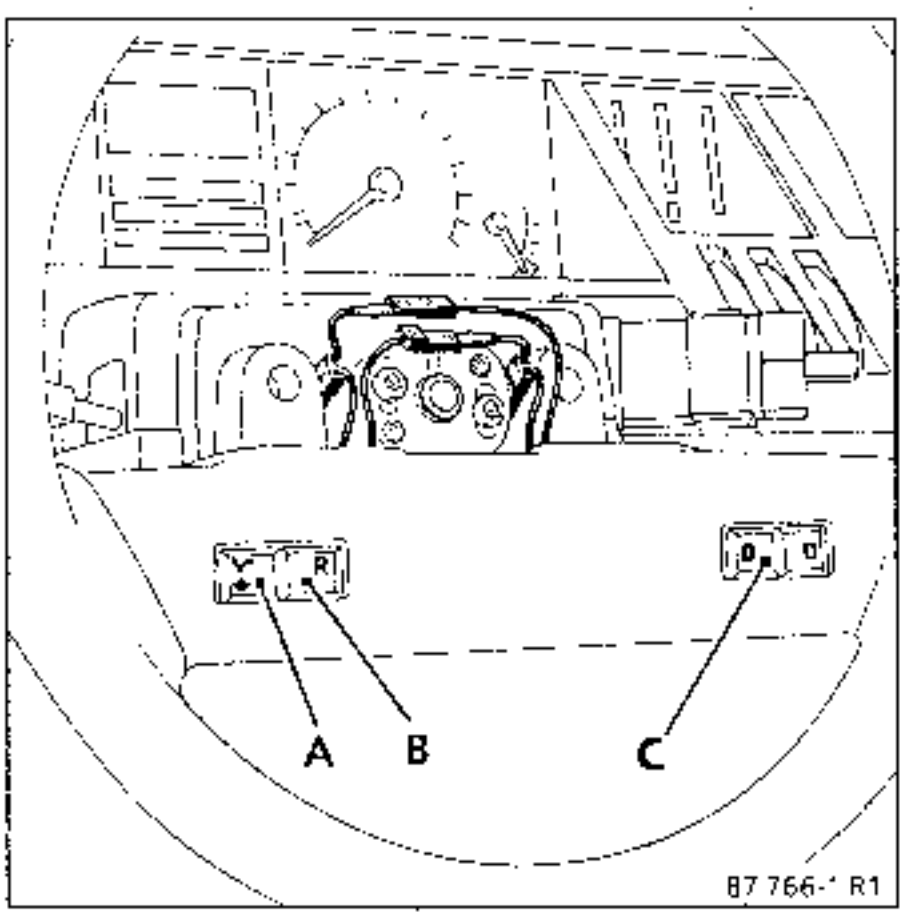


The control valve operates on the throttle control as well as the pedal control

The assembly does not affect foot control of the accelerator especially during regulation.

The pedal's weight ensures it follows all the valve's movements, so that the driver may increase the vehicle speed himself at any moment.

- Steering wheel switches.



Left-hand switch:

It has three functions:

- Regulation operation on side (A) ($\sqrt{+}$),
- Increase in speed on side (A) ($\sqrt{+}$),
- Recall of previously stored speed and regulation (B) (R).

Right-hand switch: (C)

This has one function only:

- Cancels regulation when it is operative, no function when cruise control is not activated (regulation not operative)

In both cases, the speed previously memorised is retained.

Operation:

When the ignition is on, the + after ignition feeds the cruise control switch.

When the ignition is on, the + after ignition feeds the cruise control computer on **track 5** and the engine excess speed relay.

The excess speed relay in turn supplies the cruise control unit **track 7** via the stop lights and clutch safety switches, connected in series, and also the vacuum pump **track A** and safety solenoid valve **track 2.**

NOTE : The earth, which allows the solenoid valve and the instrument panel warning light to operate, is is only transmitted by track 1 of the cruise control computer if the vehicle speed is at least 19 mph/30 kp/h.

The steering wheel is equipped with two switches. The switch allows the driver to accelerate and to memorise a vehicle speed.

If **(+)** is pressed, the voltage on **track 3** of the cruise control (5 volts) passes through a 100 Ω resistor; the vehicle accelerates as long as pressure is applied. It is also possible to accelerate using the foot pedal and press **(+)** as soon as the desired speed is attained

The information is processed by the cruise control electronics. The cruise control monitors two parameters:

- Actual vehicle speed measured at **track 9** by the speed sensor or the electric speedometer, if the vehicle is equipped with one.
- Memorisation of the desired speed via **track 3** of the cruise control unit.

This information is continually compared, thus allowing the pump to be controlled **(track B)**. Vacuum will be applied to the pneumatic valve, ensuring that vehicle speed remains constant. (The pump has a governing solenoid valve.)

If regulation is interrupted (if brake or clutch pedal are operated) press **(R)** on the switch. The voltage on **track 3** of the cruise control unit passes through a 330 Ω resistor. The information processed by the computer electronics will automatically return the vehicle to the speed memorised previously.

The purpose of the switch is to interrupt cruise control by earthing **track 3** of the cruise control unit. Information from **track 6** controls **track C** of the pump solenoid valve, which vents the pneumatic circuit.

SAFETY

Safety is ensured by :
- 1 Engine excess speed relay,
- 2 Stop light switches,
- 1 Clutch switch fitted during production.

When the engine reaches 5400 rpm, the excess speed relay, receiving data from the rev counter track, reaches its switching threshold. The supply to the cruise control unit safety circuit (track 7) is interrupted as is the earth to track 1. As track 2 of the safety solenoid valve and the pump are no longer supplied, the pneumatic circuit vacuum is reduced, the vehicle speed falls and the warning light is extinguished. Pressure applied to the brake or clutch pedal would have the same effect.

The stop lights switch also sends information (stop) to track 2 of the cruise control. The electronics cut the earth at track 1. The solenoid valve vents the circuit.

NOTE : The memorised speed may be exceeded by pressing the accelerator pedal; when the accelerator pedal is no longer depressed, the vehicle returns to the programmed speed. The range within which a regulated speed may be memorised is between approx. 19 mph/30 kp/h and 100 mph/162 kp/h.

LOCATION OF COMPONENTS

Cruise control computer

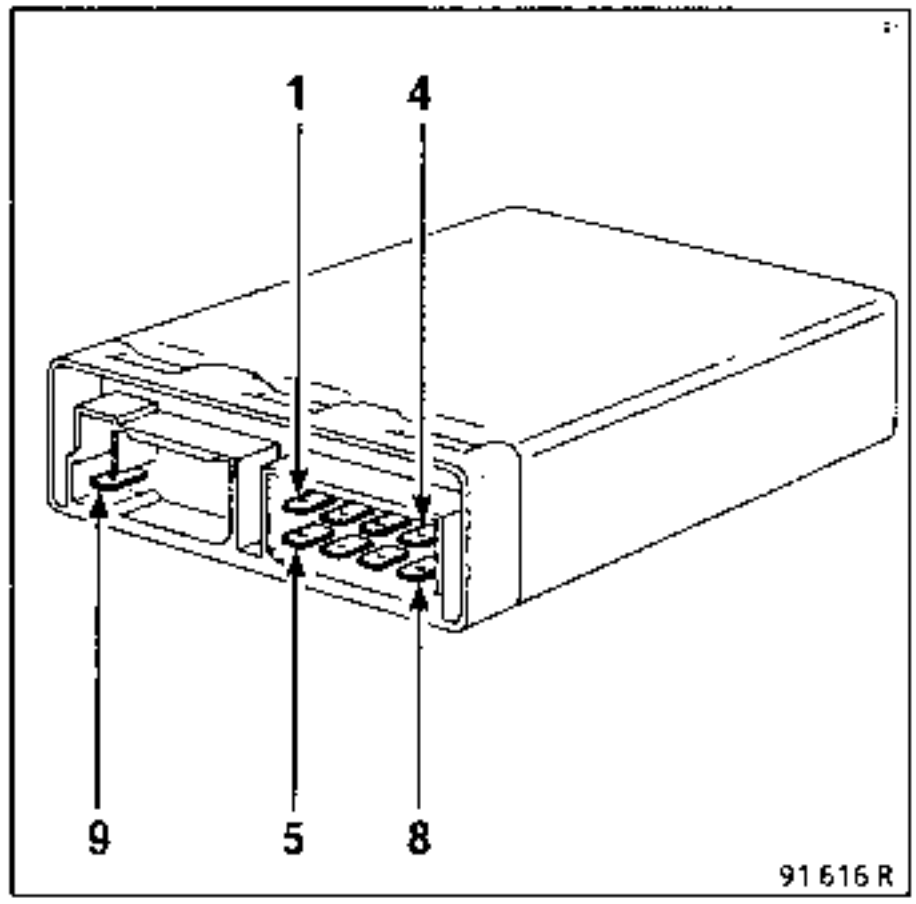
This is located under the dashboard, above the glove box.

Engine excess speed relay

This is located on the left of the relay board on a metal bracket secured by a torx bolt

The vacuum pump and security solenoid valve

These are located under the right-hand lamp unit, behind the bumper.



1 Solenoid valve control
2 Stop lights input
3 Steering wheel control
4 Pump control(accelerator)
5 Feed (+ 12 volts)
6 Deceleration control
7 Brake/clutch safety
8 Earth
9 Speed information

DIAGNOSTIC

If the system operates incorrectly, a series of tests may be performed at the steering wheel track terminals.

Remove the central cover but do not disconnect the leads.

Place a voltmeter between track terminals **(A)** and **(B)** (see diagram).

Switch on the ignition and press the cruise control switch.

The voltage should be approx 5 volts (supplied by track 3 of the cruise control unit).

Press the steering wheel switches in turn. The values should be :

R = 2 5 volts approx.
\+ = 1.3 volt approx.
0 = 0 volt

Switch off the ignition, connect an ohmmeter between the track terminals. The values must be as follows:

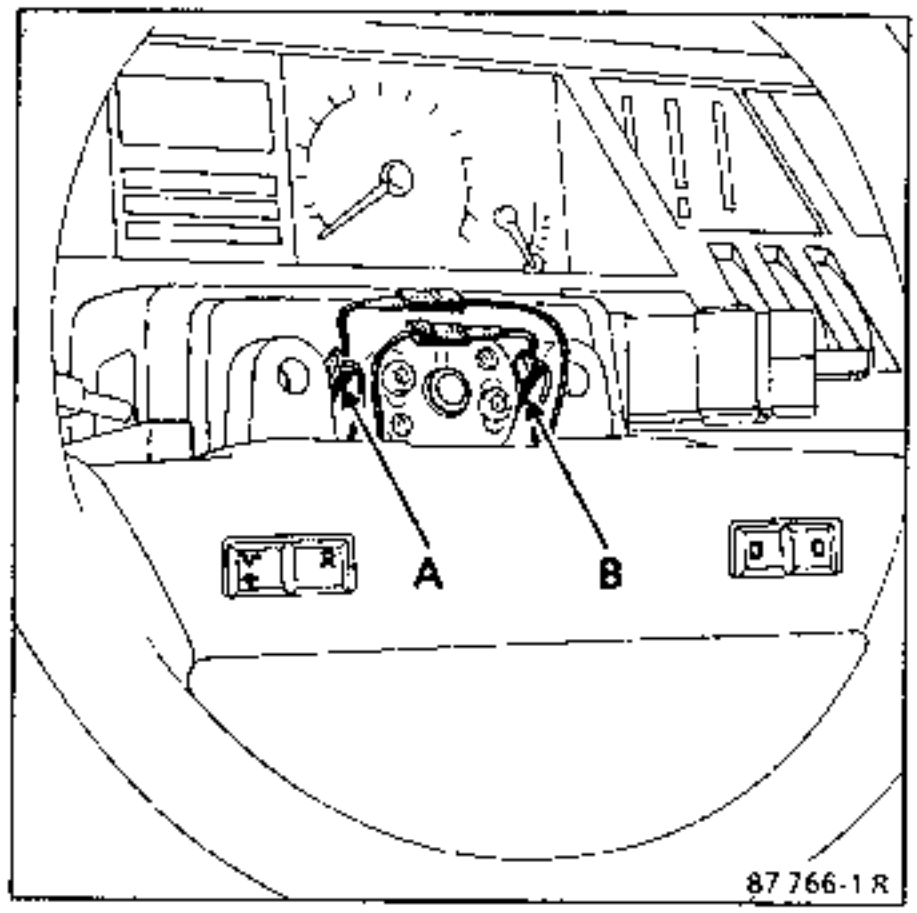
R = 330 Ω ± 15
\+ = 100 Ω ± 5
0 = Earth

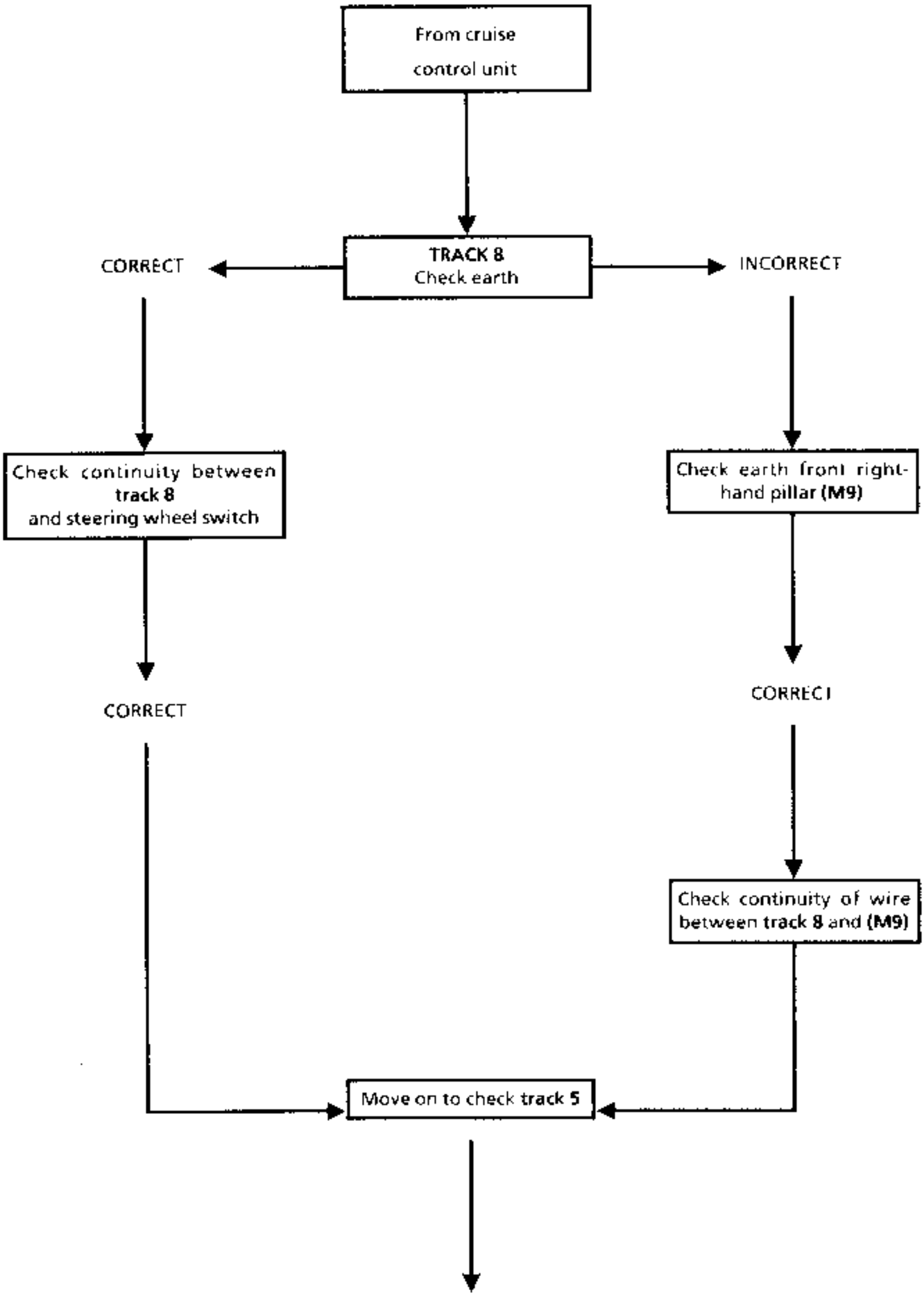
With these measurements, it is possible to control:

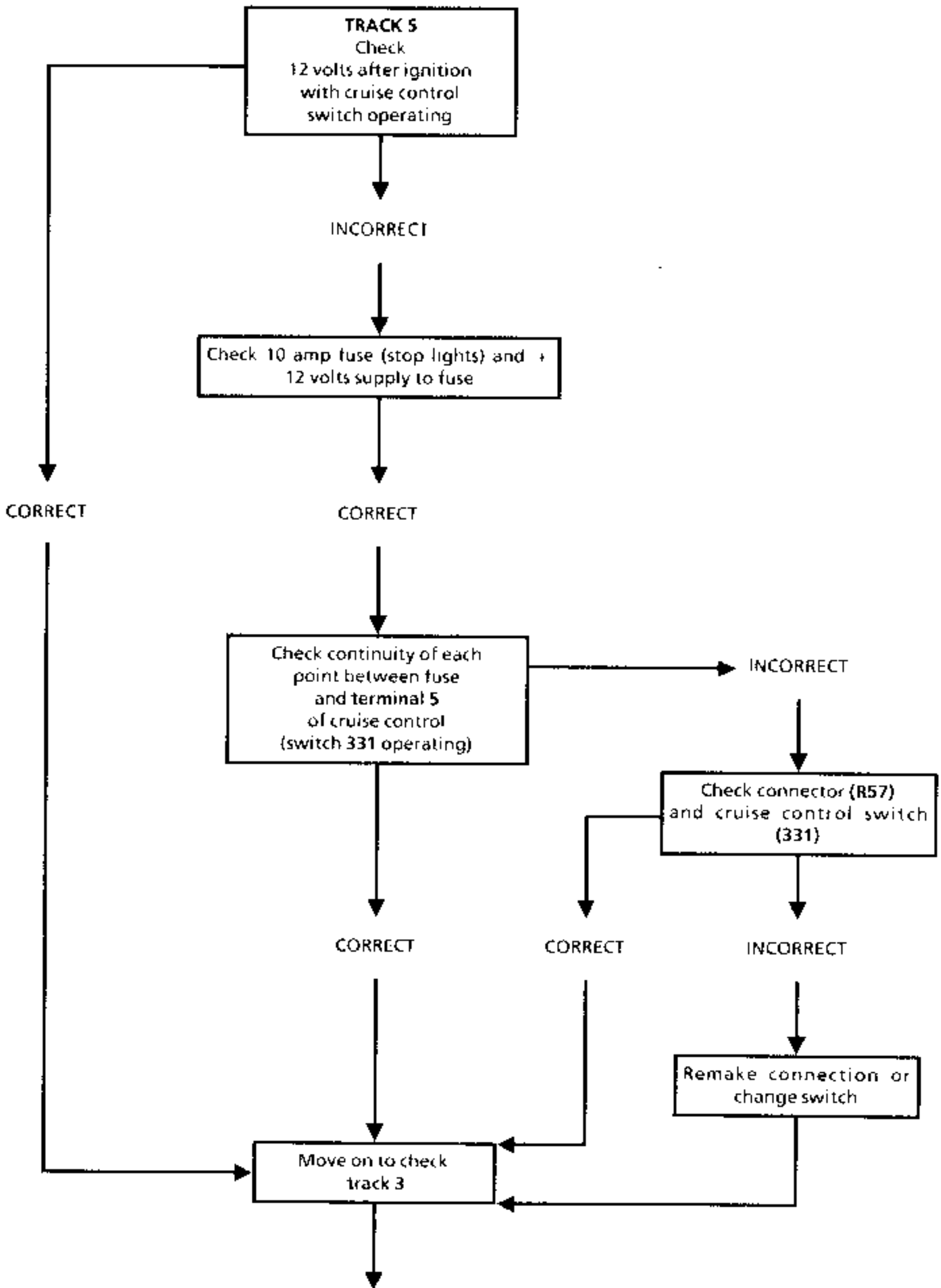
- Earth to cruise control track 8
- The 5 volts output supply from track 3,
- the 12 volts supply at track 5,
- The steering wheel switch resistances.

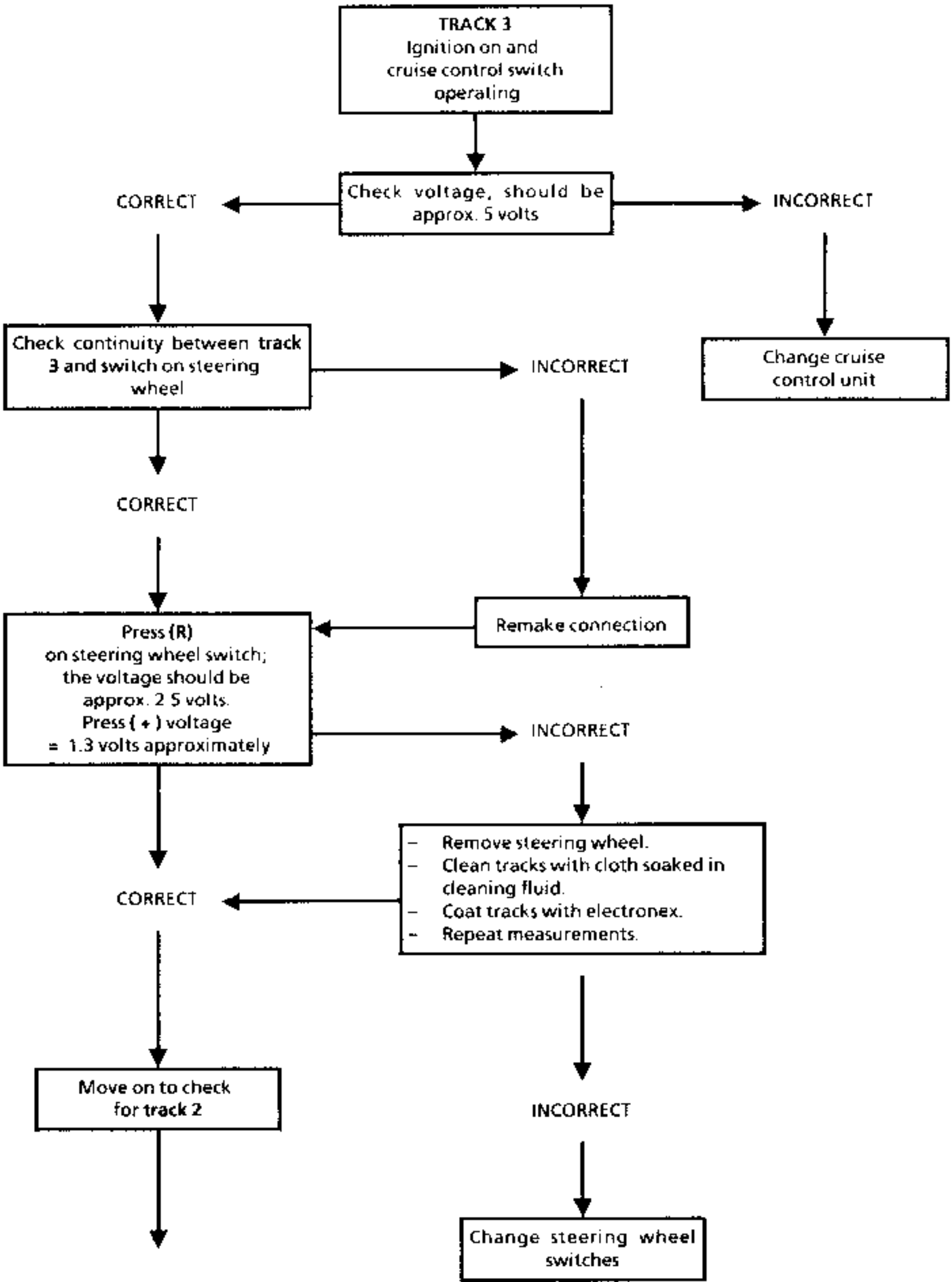
***If the values are not correct** : work through the fault finding chart from the start (see following pages).*

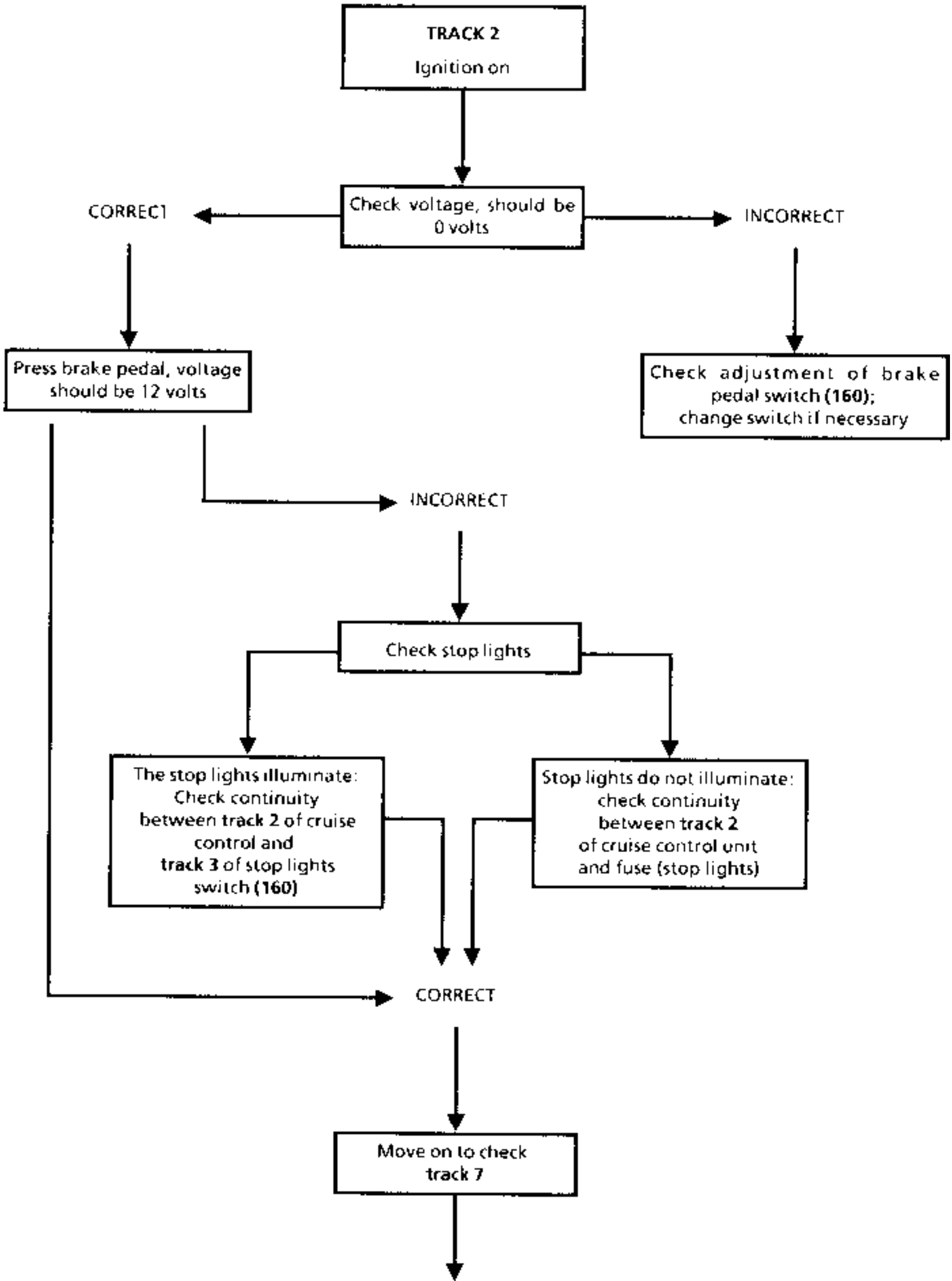
***If the values are correct** : work through the fault finding chart starting with the check for track 2 (page 39).*

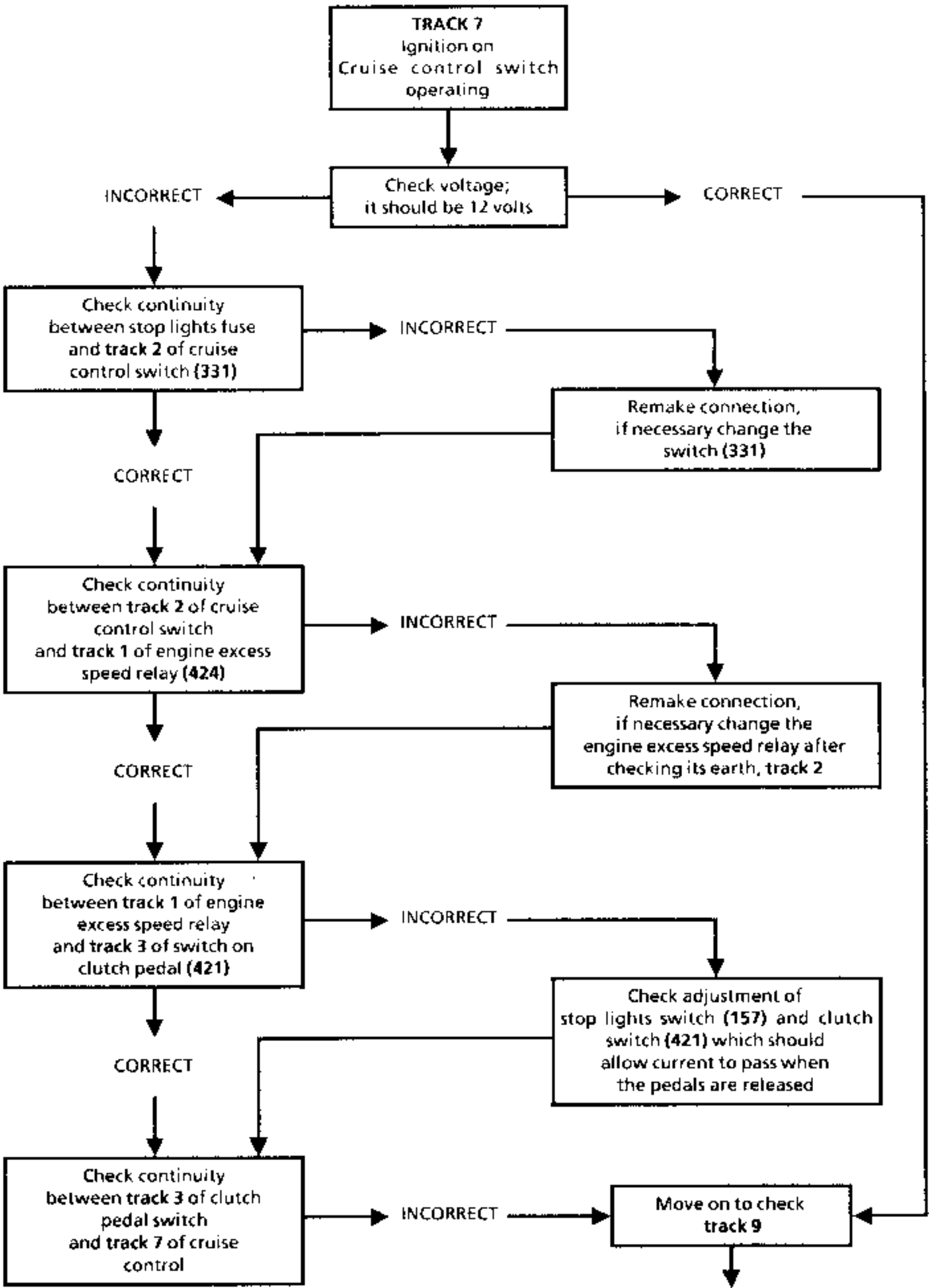



From cruise control unit
TRACK 8
Check earth
CORRECT
INCORRECT
Check continuity between track 8 and steering wheel switch
CORRECT
Check earth front right-hand pillar (M9)
CORRECT
Check continuity of wire between track 8 and (M9)
Move on to check track 5


TRACK 5
Check
12 volts after ignition
with cruise control
switch operating
INCORRECT
Check 10 amp fuse (stop lights) and
12 volts supply to fuse
CORRECT
CORRECT
Check continuity of each
point between fuse
and terminal 5
of cruise control
(switch 331 operating)
INCORRECT
Check connector (R57)
and cruise control switch
(331)
CORRECT
CORRECT
INCORRECT
Remake connection or
change switch
Move on to check
track 3


TRACK 3
Ignition on and cruise control switch operating
Check voltage, should be approx. 5 volts
CORRECT
INCORRECT
Change cruise control unit
Check continuity between track 3 and switch on steering wheel
INCORRECT
CORRECT
Remake connection
Press (R) on steering wheel switch; the voltage should be approx. 2 5 volts. Press (+) voltage = 1.3 volts approximately
INCORRECT
- Remove steering wheel.
- Clean tracks with cloth soaked in cleaning fluid.
- Coat tracks with electronex.
- Repeat measurements.
CORRECT
INCORRECT
Move on to check for track 2
Change steering wheel switches


TRACK 2
Ignition on
Check voltage, should be 0 volts
CORRECT
INCORRECT
Press brake pedal, voltage should be 12 volts
Check adjustment of brake pedal switch (160); change switch if necessary
INCORRECT
Check stop lights
The stop lights illuminate: Check continuity between track 2 of cruise control and track 3 of stop lights switch (160)
Stop lights do not illuminate: check continuity between track 2 of cruise control unit and fuse (stop lights)
CORRECT
Move on to check track 7


TRACK 7
Ignition on
Cruise control switch operating
Check voltage; it should be 12 volts
INCORRECT
CORRECT
Check continuity between stop lights fuse and track 2 of cruise control switch (331)
INCORRECT
Remake connection, if necessary change the switch (331)
CORRECT
Check continuity between track 2 of cruise control switch and track 1 of engine excess speed relay (424)
INCORRECT
Remake connection, if necessary change the engine excess speed relay after checking its earth, track 2
CORRECT
Check continuity between track 1 of engine excess speed relay and track 3 of switch on clutch pedal (421)
INCORRECT
Check adjustment of stop lights switch (157) and clutch switch (421) which should allow current to pass when the pedals are released
CORRECT
Check continuity between track 3 of clutch pedal switch and track 7 of cruise control
INCORRECT
Move on to check track 9

TRACK 9

In order to ensure that the vehicle speed data is correctly delivered by the electric speedometer or speed sensor, run the voice synthesizer with the vehicle moving to obtain information of the type "*handbrake not released*" or "*front left hand door not closed*"

CORRECT

Change cruise control computer, after ensuring the connection and continuity of track **9** are correct

INCORRECT

Change speed sensor or electric speedometer, if the vehicle is equipped with one

CHECK PUMP (344) AND SAFETY SOLENOID VALVE (345)

Check continuity between the following leads:

- **track 7** of cruise control unit and **track A** of pump
- **track 4** of cruise control and **track B** of pump,
- **track 6** of cruise control and **track C** pump,
- then **track 7** of cruise control and **track 2** of safety solenoid valve
- **track 1** of cruise control and **track 1** of solenoid valve.

CORRECT

INCORRECT

Disconnect connector (R61), supply track B1 with + 12 volts, earth track B2; the safety solenoid valve should close

Remake electrical connection

CORRECT

INCORRECT → Change solenoid vale

Earth track A1. the pump should operate → INCORRECT → Change pump

CORRECT

Earth track A2; the governing solenoid valve should operate → INCORRECT → Change pump

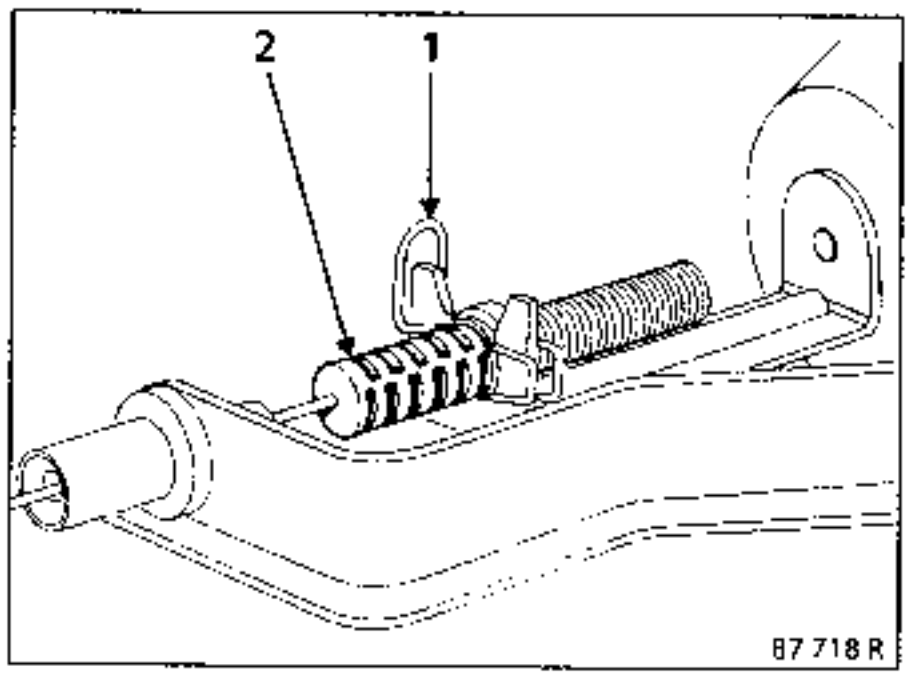
CORRECT

Change the cruise control computer.

NOTE : Vehicles with diesel engines do not have an engine excess speed relay

ADJUSTING THE MECHANICAL CONTROL

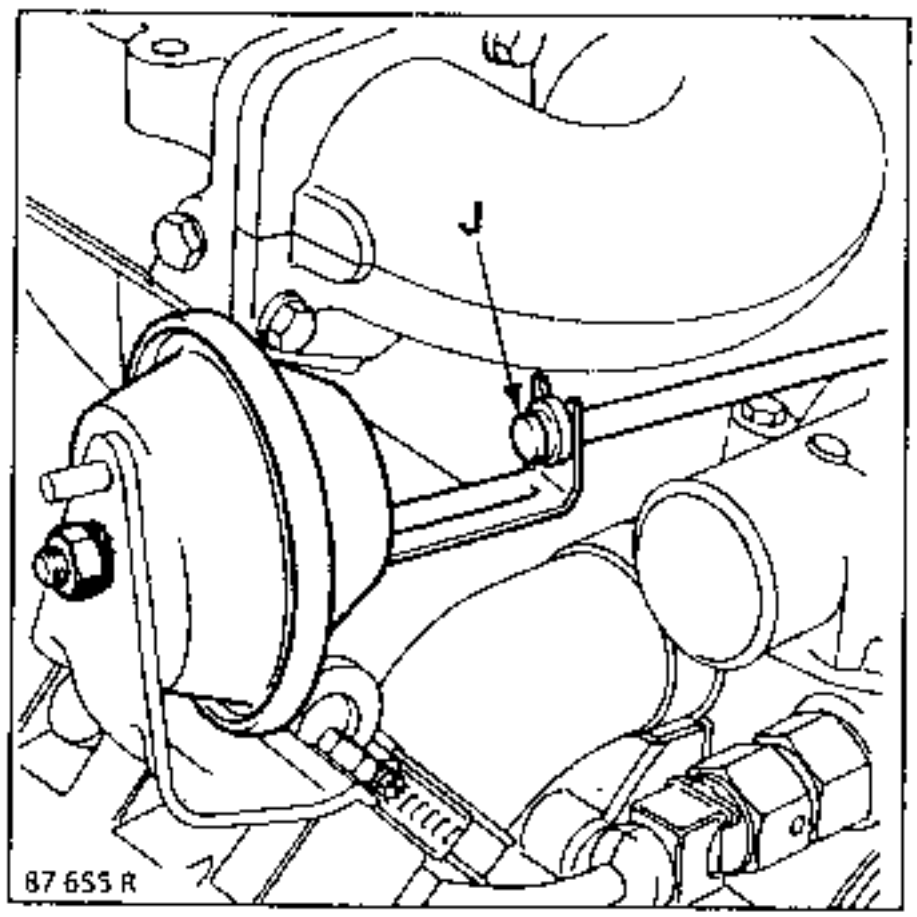
With the valve in rest position and the throttle controlling the idle speed position there should be a safety clearance of 1.5 mm maximum.



DIESEL ENGINE

Adjust the clearance by moving the clip (1).

If necessary, turn the spindle by 90°in order to change the splines (2).



PETROL ENGINE

Adjust clearance (J) by altering the length of the spindle.

General points

Control keys:

1) Cancellation key (1)

- Model Years 84 to 86
  This key enables you to stop at will the emission of all advance warning and reminder messages.
  Warning messages (drop in oil pressure, battery charging circuit, drop in brake pressure, engine overheating) can be transmitted

- Model Year 87 to 88
  This key enables you to stop at will the emission of all spoken messages.
  Only the "lights on" reminder sound cannot be cancelled.

2) "TEST" key (2)

This key enables spoken information to be tested with the ignition **switched on and the engine not running** (irrespective of the position of the key (1)).

ATTENTION:

The "TEST" key **is inoperative if the engine is running or the ignition switched off**

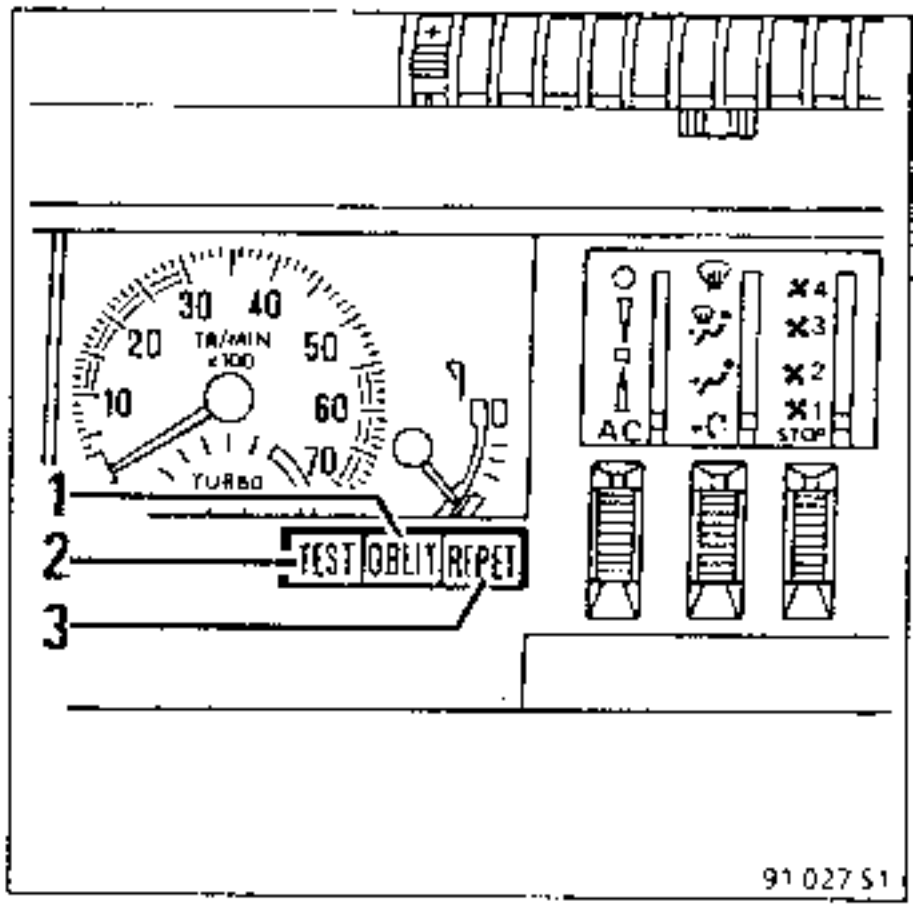
The spoken information **is interrupted** by switching off the ignition or starting the engine or when the vehicle's speed is not zero

3) Repetition of messages (3)

Spoken messages stored in the memory or present at the time of the request will be emitted
If no incident is detected, the spoken message will be: "The functions tested are not defective".

ATTENTION :

If the repeat key is pressed while a message is being emitted, that message will stop and the entire message repeated



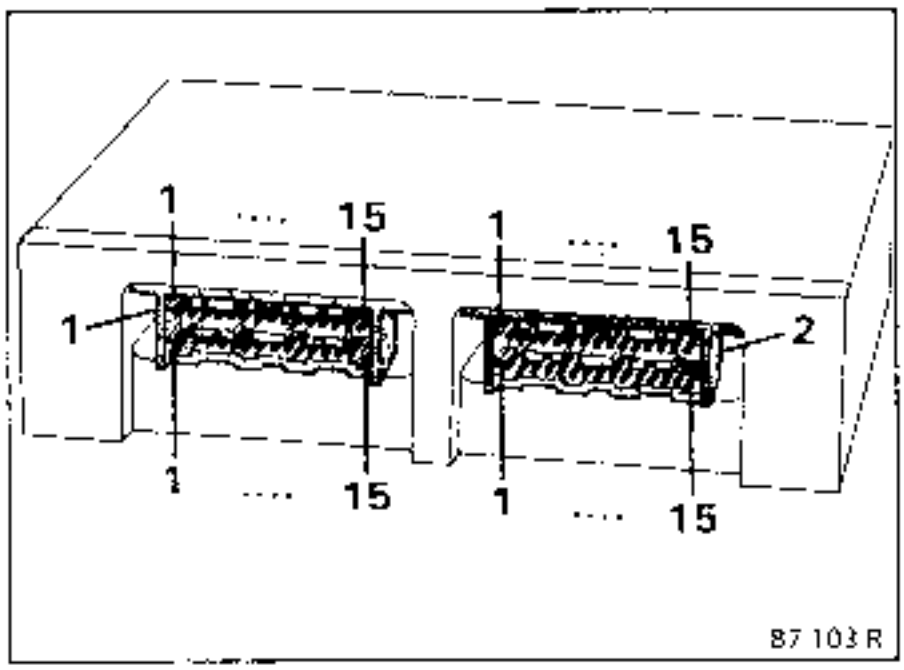
Connections:

Track	Description
1.	Lighting
2	Not used
3.	Test
4.	Earth
5	Cancellation
6.	Not used
7.	Not used
8	Repetition
9.	+ before ignition

Computer.

It is located under the dashboard, above the glove box on the passenger side

Connections:



Connector (Red)

Track	Description
1.	+ before ignition
2	Earth
3.	Diesel rev counter
4.	Not used
5.	Petrol rev counter
6.	Not used
7.	• Coolant temperature (Model Years 84 to 86) • + after ignition (Model Years 87 and 88)
8	• Connected to terminal 9 (Model Year 84 to 86) • Not used (Model Year 87 and 88)
9	• Connected to terminal 8 (Model Years 84 to 86) • Coolant temperature (Model Years 87 and 88)
10.	Brake pads
11.	Left-hand stop light failure
12.	Right-hand stop light failure
13.	Side and tail light failure
14	Not used
15.	Speed signal

Connector (Blue)

Track	Description
1.	Oil pressure switch
2.	Minimum coolant
3.	Not used
4.	Pressure drop indicator/nivocode
5	Handbrake
6.	Front left-hand door
7.	Front right-hand door
8.	Bonnet
9.	Low fuel level
10.	Not used
11.	Starter information (Model Years 84 to 86)
12.	Not used
13	Cancellation
14.	Repeat
15.	Test

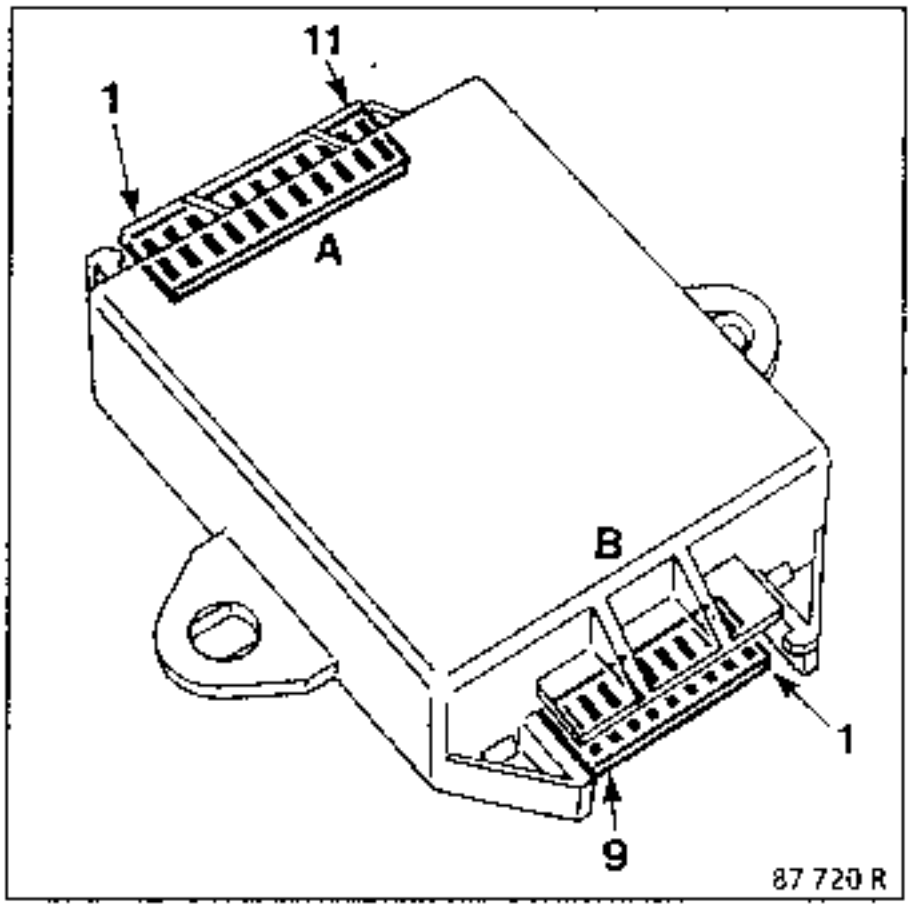
Connector (Black)

Track	Description
1	Rear left-hand door
2.	Rear right-hand door
3.	Tailgate
4.	Not used
5.	Not used
6.	Battery charging circuit warning light
7.	Not used
8.	Not used
9.	Not used
10	Not used
11.	Radio cut-off
12.	Speaker
13.	Speaker
14.	Side and tail lights
15.	+ after ignition

Bulb monitor

This is located under the dashboard, above the glove box on the passenger side

Connections:



9-track connector (B)

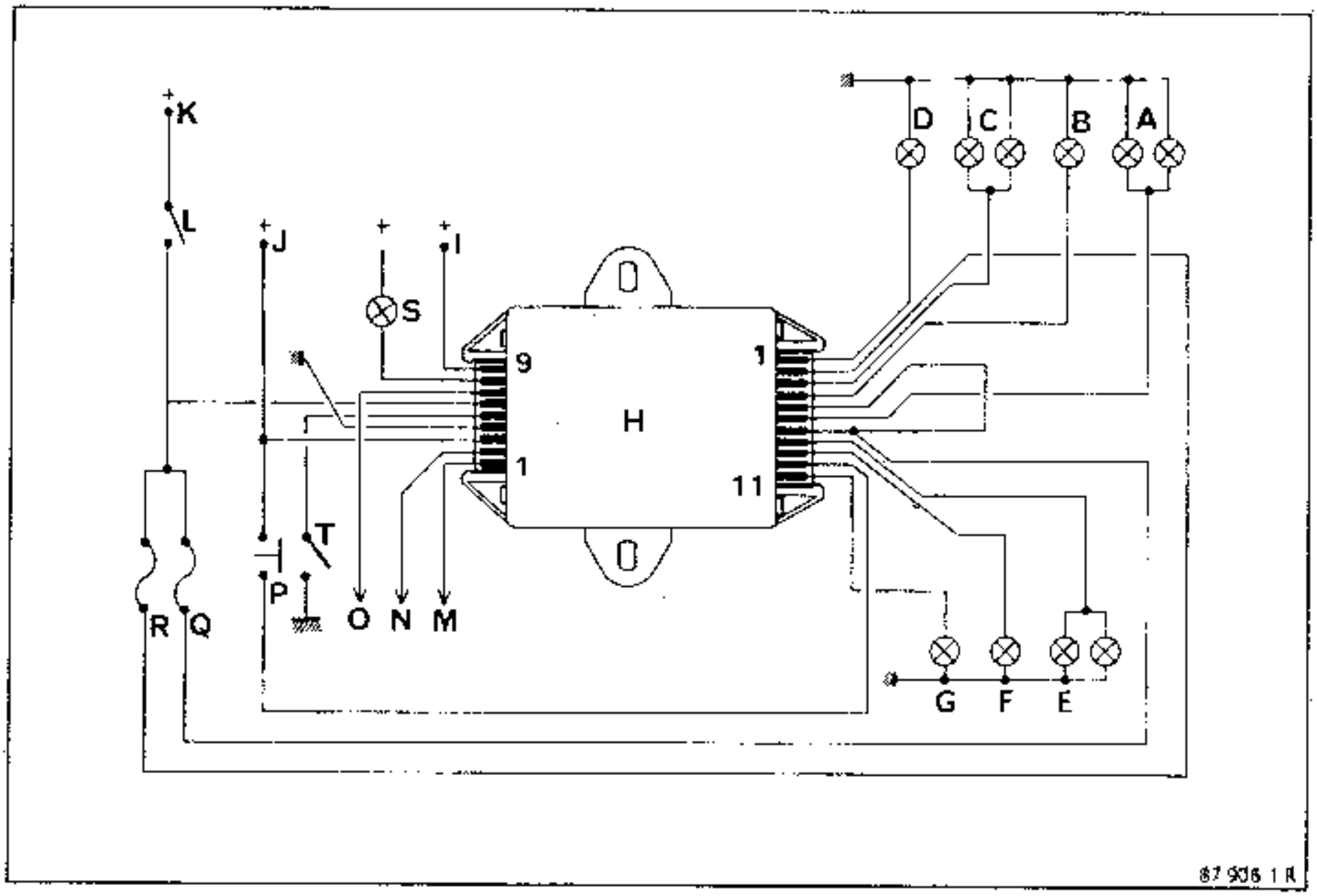
Track	Description
1.	Right-hand stop light failure
2.	Left-hand stop light failure
3.	Before stop lights switch
4.	Earth
5.	Handbrake switch (Germany)
6.	Side and tail lights before fuses
7.	Side and tail lights failure
8.	Feed for handbrake warning light (Germany)
9.	+ after ignition

11-track connector (A)

Track	Description
1.	Front right-hand side light
2.	Feed after right-hand side lights fuse
3.	Rear right-hand tail light
4.	Front left-hand side light
5.	Connected to terminal 7
6.	Rear left-hand tail light
7.	Feed after left-hand side and rear lights fuse and connected to terminal 5
8	Number plate lights
9.	Left-hand stop light
10.	+ After stop lights switch
11.	Right-hand stop light

ATTENTION : Defective bulbs are not detected if the bulb monitor is not supplied with power (example : fuse).

Theoretical wiring diagram



A	.	Left hand rear light
B	.	Left hand side light
C	.	Right hand rear light.
D	.	Right-hand side light
E	.	Number plate lights
F		Left-hand stop light bulb
G		Right-hand stop light bulb
H	.	Computer
I	.	+ after ignition
J		+ after ignition.
K	.	+ before ignition.
L	.	Side lights switch.
M	.	Right-hand stop light failure.
N	.	Left-hand stop light failure.
O		Side lights failure
P		Stop lights switch
Q	.	Left hand side lights fuse.
R	.	Right hand side lights fuse
S		+ handbrake warning light.
T	.	Handbrake switch.

NOTE :

The wires of S and T are connected by a shunt in the unit **except** for vehicles to **Germany,** where there is a stop lights switch fault detector (see next page) on the handbrake warning light.

- SPECIAL POINT FOR VEHICLES, TO GERMAN SPECIFICATION

On vehicles for Germany, there is a stop lights switch fault detector

On the black 9-track connector

Track **5** : Stop lights switch earth information.
Track **8** : Handbrake warning light feed.

NOTE: If the bulb monitor detects a fault with the stop lights switch, the fuse or the stop lights circuit, the handbrake warning light will flash (after the brake has been applied)

Fault finding: Ignition on.

Action on vehicle	Status of warning light	Fault finding
Brake pedal released. (ignition on)	Flashing	Correct
	Extinguished	Check: - warning light, - instrument panel printed circuit, - continuity, - insulation. Otherwise change the bulb monitor.
Pressing down and then releasing brake pedal. (ignition on)	Flashing stops	Correct
	Flashing	Fault with stop lights switch, fuse or stop lights circuit.
Handbrake applied. (Ignition on)	Illuminated	Correct
	Extinguished	Fault with handbrake switch.

CONDITIONS UNDER WHICH MESSAGES APPEAR

Type of spoken message	Condition under which message appears	Fault detected by :	Stored in memory until ignition switched off
Drop in oil pressure **	- Ignition on. - Engine has been running for **10 seconds.** - Fault for **2 seconds.**	Oil pressure switch (earthed)	
Engine overheating **	- Ignition on - Oil pressure has been correct for **20 seconds**	Thermal switch (earthed)	
Battery electrical charging circuit failure **	- Oil pressure has been correct for **60 seconds** Fault for **10 seconds.**	Alternator regulator (Warning light lead earthed)	
Braking system failure **	- Ignition on.	Sensor on fluid reservoir (earthed)	X
Min coolant level	- Ignition on - Fault for **30 seconds**	Sensor (earthed)	X
Min fuel level	Ignition on - Fault for **30 seconds.**	On diesel version by fuel tank sender unit (Earthed) Other version *	X
Right-hand and left-hand stop light	- Ignition on - Fault for **2 seconds**	Earthed via bulb monitor box.	X
Brake pads	- Ignition on. - Fault for **30 seconds** counted as from moment when ignition switched on.	Brake pads (Earthed)	X
Side lights	- Ignition on - Headlights on - Fault for **4 seconds**	Earthed via bulb monitor	X
Left-hand rear door Right-hand rear door Front right-hand door Front left-hand door Tailgate - bonnet	- Ignition on. - Speed above **9 ± 3 mph/ 15 ± 5 km/h**	Door switch (earthed)	
Handbrake	- Ignition on - Speed above **9 ± 3 mph/ 15 ± 5 km/h.**	Switch (earthed)	
Lights "on" reminder – Model Year 84 to 86 Spoken message. – Model Years 87 to 88 Emission of audible message, pressing repeat key (3), once will cause emission of spoken message	- Ignition off. - Side and tail lights illuminated - Driver's door open	Earthed by door switch and side and tail lights.	

* For vehicles with an on-board computer,when 5 litres of fuel is displayed it is equivalent to the minimum fuel level switch sending a signal to the voice synthesizer unit (earthed).

** If the incident persists, when the ignition is switched off, a message giving advice will be emitted.

. THE DIFFERENT TYPES OF MESSAGES

1) Spoken messages

a) Warnings

- Drop in oil pressure
  Engine overheating
  Battery charging circuit
- Braking warning

b) Advance warnings

  Low fuel level
- Brake pads

c) Reminders

- Doors
  Luggage compartment
- Bonnet
  Handbrake

d) Lighting defects

- Stop lights on right or left
- Side or tail lights

e) Message that vehicle is operating correctly
- The functions tested are not defective

2) **Audible signals** (Model Year 87 to 88)

- In the case of the "lights on" reminder, an audible signal sounds; to obtain the spoken message, the REP key must be depressed.

NOTE. If there is any fault on the vehicle, the spoken messages and audible signals will only be delivered once by the voice synthesizer until the ignition is switched off. The REP key must be pressed in to have the messages repeated

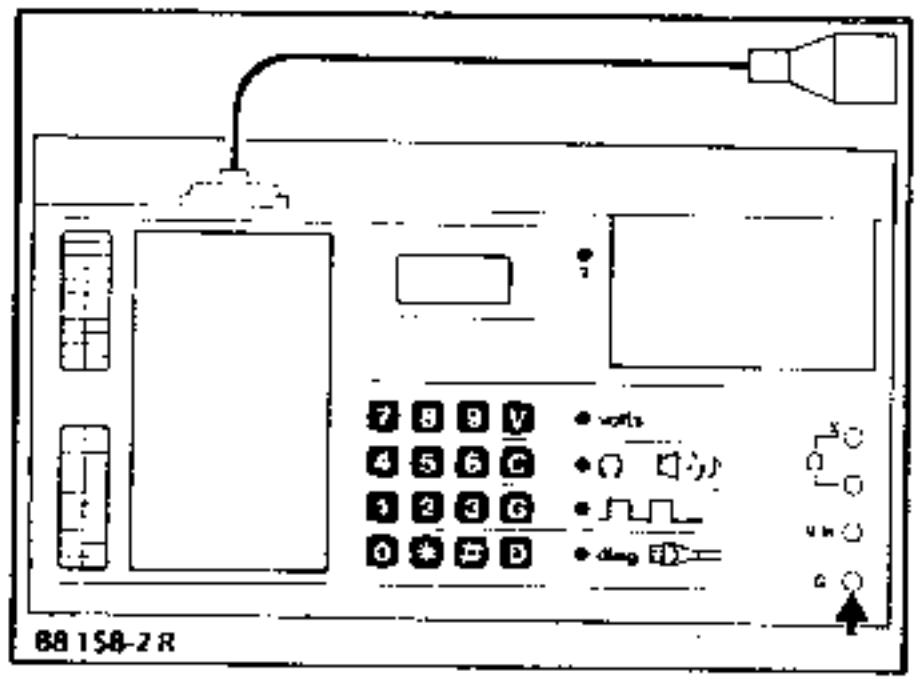
- FAULT FINDING

A. SPECIFIC METHODS OF FAULT FINDING FOR THE VOICE SYNTHESIZER

Please note that the voice synthesizer only delivers a reminder or lighting fault message once (to have the message repeated, switch the ignition off and on)

- Simulation with the XR 25 in **G 6** position (see simulation) :

  . track **5** of the red voice synthesizer connector . information that engine running,
  . track **15** of the red voice synthesizer connector . information on speed



Simulation of a sensor fault by holding earth to voice synthesizer screening

If a message is generated during simulation to the voice synthesizer terminals, check continuity, wiring insulation and connectors to sensor

FAULT FINDING (continued)

- Simulation of a fault (ignition on) by earthing the corresponding track

Track/Connector	Description	Time required	Information required	
			Engine running	Speed
7/Red	Coolant temp (84 to 86)	1 second	YES	NO
9/Red	Coolant temp (87 and 88)	1 second	YES	NO
10/Red	Brake pad wear	30 seconds	YES	NO
11/Red	Left-hand stop light	2 seconds	NO	NO
12/Red	Right-hand stop light	2 seconds	NO	NO
13/Red	Side lights	4 seconds	NO	NO
1/Black	Rear left-hand door	1 second	NO	YES
2/Black	Rear right-hand door	1 second	NO	YES
3/Black	Luggage compartment	1 second	NO	YES
6/Black	Alternator charge	10 seconds	YES	NO
1/Blue	Oil pressure	2 seconds	YES	NO
4/Blue	Low brake fluid	2 seconds	YES	NO
5/Blue	Handbrake	1 second	NO	YES
6/Blue	Front left-hand door	1 second	NO	YES
7/Blue	Front right hand door	1 second	NO	YES
8/Blue	Bonnet	1 second	NO	YES
9/Blue	Low fuel level 0	30 seconds	NO	YES

ATTENTION: If a message is generated during simulation, check the continuity, wiring insulation and connectors to the sensor(s) concerned

NOTE : For a lighting failure message, the bulb monitor must also be tested.

2) Fault which disappears during simulation of a lighting failure

Checking operation of bulb monitor:

- Remove a side lights fuse, track **5** or **6** of the brown fuse-holder connector,
- Remove stop lights fuse, track **4** of the grey fuse-holder connector, switch on ignition.

The bulb monitor must be earthed at the black 9-track connector.

- Right-hand stop light failure at track 1
- Left-hand stop light failure at track 2
- Side lights failure at track 7

If the earths are as specified, check the connectors between the bulb monitor and the voice synthesizer

If the earths are not as specified, check the connectors, continuity and insulation of the lighting circuit at fault.

Otherwise change the bulb monitor.

1 - DESCRIPTION

From June 1988, the voice synthesizer operates differently :

- The TEST key is no longer fitted,
- the cancellation key is replaced by key (II),
- implementation of the pressed-in DIS (DIScreet) key: all the messages are replaced by an audible signal.

A. OPERATION OF THE KEYS

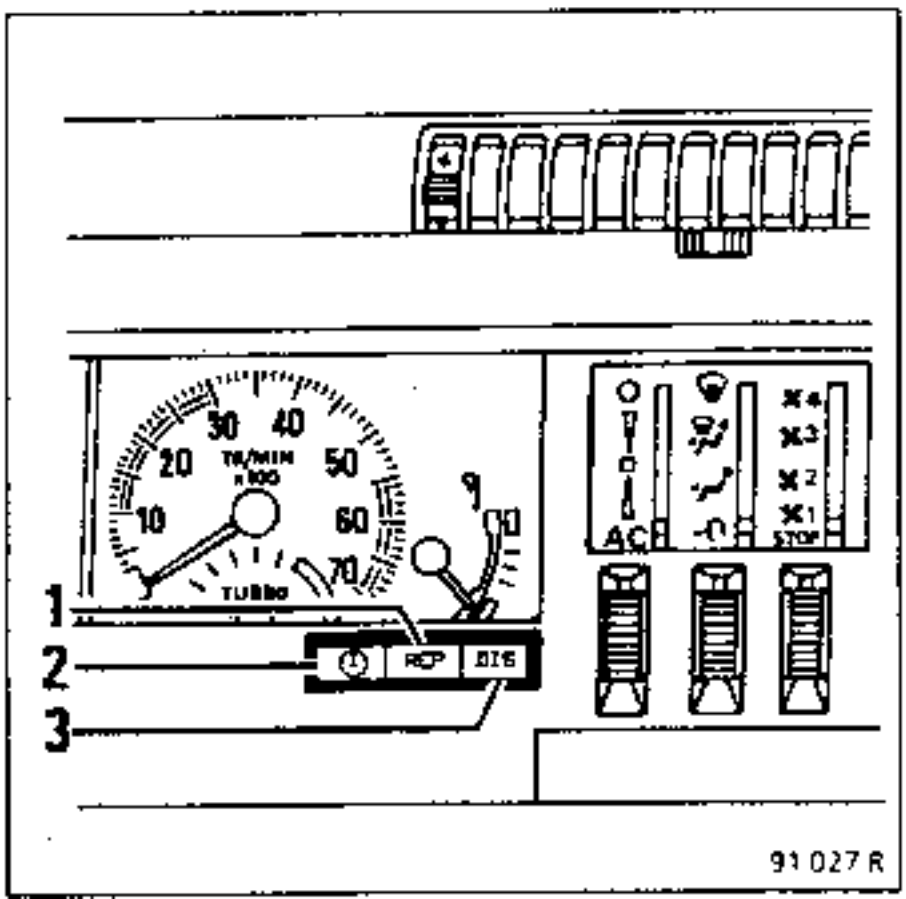
1) **Key (II)**

- On/off switch.
  This pressed-in key stops the emission of audible and spoken messages.

2) **REP key (REPetition)**

- Press button.
- Spoken messages stored in the memory or present at the time of the request will be emitted.
- If no incident is detected, the message will be "Vehicle functions under surveillance"

NOTE: If the repeat key is pressed while a message is being emitted, that message will stop and the entire message repeated.



3) **DIS (DIScreet) key**

- Switch, with key pressed in: change to discreet mode. All spoken messages will thus be replaced by an audible signal.

NOTES:

- If the REP key is pressed, a spoken version of the corresponding message is transmitted,
- In discreet mode, all the memorised or existing messages will be replaced by an audible signal.

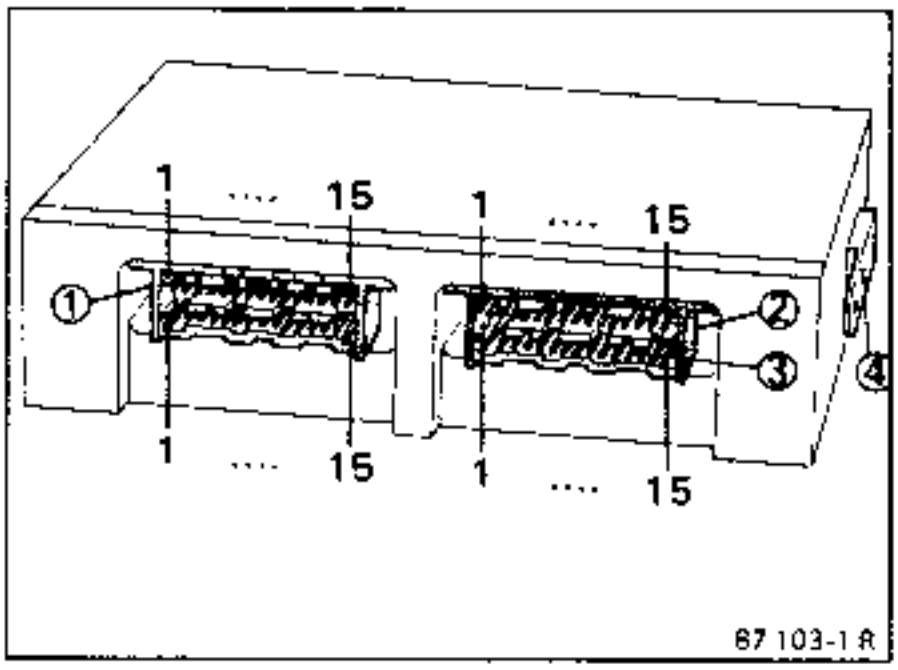
Connection:

Track	Description
1.	+ Before voice synthesizer control switch
2.	Not used
3.	+ feed, voice synthesizer unit
4.	Repetition
5.	Lighting
6.	Not used
7.	Not used
8.	Discreet
9.	Earth

Computer.

It is located under the dashboard, above the glove box on the passenger side.

Connections:



Red Connector

Track	Designation
1.	+ before ignition
2.	Earth
3.	Rev counter information (diesel)
4.	Not used
5.	Rev counter information (petrol)
6	Not used
7.	+ after ignition
8.	Not used
9.	Coolant temperature information
10.	Worn brake pad information
11.	Left-hand stop light failure information
12.	Right-hand stop light failure information
13.	Side lights failure information
14.	Not used
15.	Speed information

Blue Connector

Track	Description
1.	Oil pressure switch
2.	Not used
3.	Not used
4.	Information on drop in pressure, nivocode
5.	Handbrake switch
6.	Front left-hand door switch
7.	Front right-hand door switch
8.	Bonnet switch
9.	Low fuel level
10. to 13.	Not used
14.	REP key (REPetition)
15.	DIS key (DIScreet)

Black Connector

Track	Description
1.	Rear left-hand door switch
2.	Rear right-hand door switch
3.	Tailgate switch
4. + 5.	Not used
6.	Battery charging circuit warning light
7. + 10.	Not used
11.	Radio cut-off
12. + 13.	Voice synthesizer speaker
14.	Single-stalk side and tail lights information
15.	+ after ignition

Screened Socket

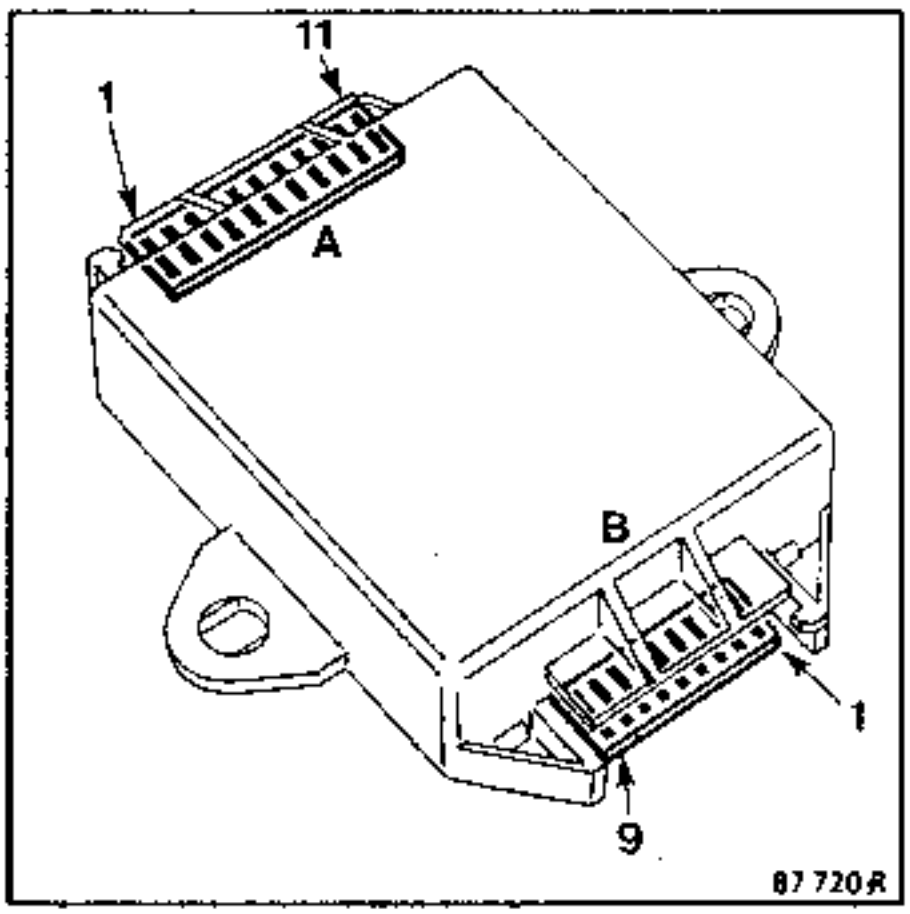
Anti-interference for voice synthesizer unit.

ATTENTION : For the system to operate correctly, it is essential that terminal (4) (see figure) is earthed.

Bulb monitor

It is located under the dashboard, above the glove box on the passenger side.

Connections.



9-track connector (B)

Track	Description
1.	Right-hand stop light failure
2.	Left-hand stop light failure
3	Feed, fuse to stop lights and switch
4.	Earth
5.	Handbrake switch earth return (Germany)
6.	Information, side lights, fuses
7	Side lights failure
8.	Feed, handbrake warning light (Germany)
9.	+ after ignition

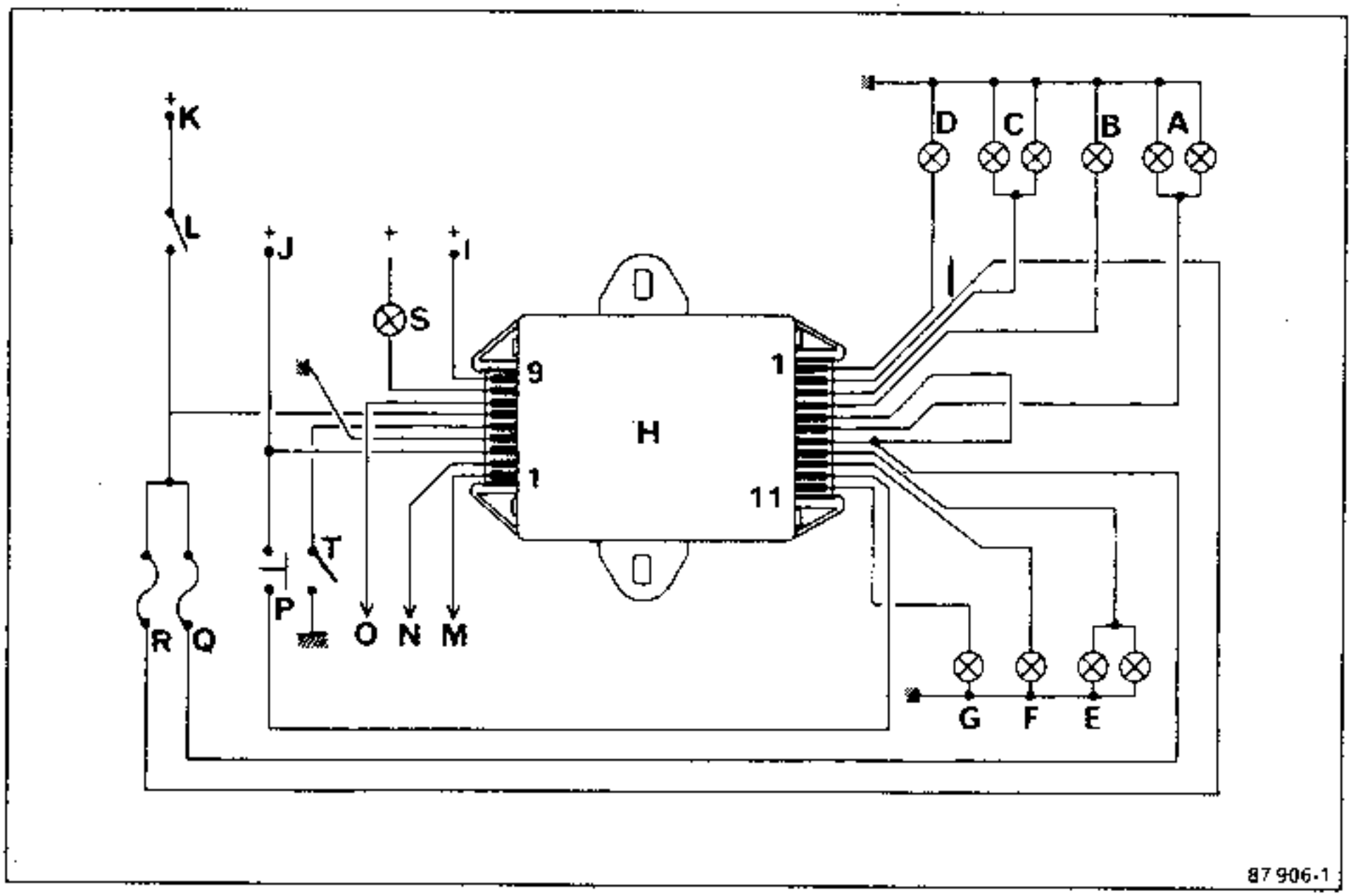
NOTE: Tracks **5** and **8** are connected together, except for vehicles for Germany (see special features, features for Germany)

11-track connector (A)

Track	Description
1.	Return, right-hand side light
2.	Feed, right-hand side lights
3.	Return, right-hand rear light
4.	Return, left-hand side light
5.	Connected to terminal 7 of the same connector
6	Return, left-hand rear light
7.	Feed, fuse and left-hand side and tail lights
8	Feed, number plate lighting
9.	Return, left-hand stop light
10.	Feed, brake pedal stop switch
11.	Return, right-hand stop light

ATTENTION : Defective bulbs are not detected if the bulb monitor is not supplied with power (example: fuse).

Theoretical wiring diagram



A . Rear left-hand lights.
B . Left-hand side light.
C . Rear right-hand lights.
D . Right-hand side light.
E . Number plate lights.
F . Left-hand stop light bulb.
G . Right-hand stop light bulb
H . Computer.
I . + after ignition.
J . + after ignition.
K . + before ignition.
L . Side lights switch.
M . Right-hand stop light failure.
N . Left-hand stop light failure.
O . Side lights failure.
P . Stop lights switch.
Q . Fuse, left-hand side lights.
R . Fuse, right-hand side lights.
S . + handbrake warning light.
T . Handbrake switch.

NOTE :

- The wires of S and T are connected by a shunt in the unit **except** for vehicles to **Germany**, where there is a stop lights switch fault detector (see next page) on the handbrake warning light.

- SPECIAL POINTS FOR VEHICLES, GERMAN SPECIFICATION

On vehicles for Germany, there is a stop lights switch fault detector

On the black, 9-track connector

Track **5** : Stop lights switch earth information.
Track **8** : Handbrake warning light feed

NOTE: If the bulb monitor detects a fault with the stop lights switch, the fuse or the stop lights circuit, the handbrake warning light will flash (after the brake has been applied).

Fault finding: Ignition on.

Action on vehicle	Status of warning light	Fault finding
Brake pedal released (Ignition on)	Flashing	Correct
	Extinguished	Check: warning light, - instrument panel printed circuit, - continuity, - insulation Otherwise change the bulb monitor
Pressing down and then releasing brake pedal. (ignition on)	Flashing stops	Correct
	Flashing	Fault with stop lights switch, fuse or stop lights circuit.
Handbrake applied (ignition on)	Illuminated	Correct
	Extinguished	Fault with handbrake switch

CONDITIONS UNDER WHICH MESSAGES APPEAR

Type of spoken message	Condition under which message appears	Fault detected by	Stored in memory until ignition switched off
Drop in oil pressure : stop vehicle, switch off engine, probable cause: oil level Consult vehicle documentation.	Ignition on - Engine has been running for **10 seconds** Fault for **2 seconds**	Pressure switch	NO
Engine overheating: Stop vehicle, no action - engine hot. Consult vehicle documentation	- Ignition on Oil pressure has been correct for **20 seconds** - Fault for **1 second**	Thermal switch (earthed)	NO
Battery charging circuit fault: Check alternator belt. Consult vehicle documentation	- Ignition on - Fault for **10 seconds**	Alternator regulator (earthed)	NO
Braking problem: safety circuit operating, avoid sudden braking Consult vehicle documentation.	- Ignition on - Fault for **2 seconds**	Sensor on fluid reservoir (earthed)	NO
Operating on fuel reserve: vehicle can only travel for limited number of miles.	- Ignition on - Fault for **30 seconds**	- **Diesel** Fuel tank sender unit - **Petrol** On-board computer, display of 5 litres is equivalent to min. fuel level	YES
Left-hand stop light defective	- Ignition on - Fault for **2 seconds**	Bulb monitor (earthed)	YES
Right-hand stop light defective.	- Ignition on - Fault for **2 seconds**	Bulb monitor (earthed)	YES
Side lights defective.	- Ignition on Headlights on - Fault for **4 seconds**	Bulb monitor (earthed)	NO
Brake pads Have pads checked soon.	- Ignition on - Fault for total of **30 seconds** since ignition switched on	Brake pads (earthed)	YES
Left-hand rear door not closed Right-hand rear door not closed Right-hand front door not closed Left-hand front door not closed. Luggage compartment not closed Bonnet not closed.	- Ignition on - Speed above **10 mph/ 15 km/h** - Fault for **1 second**	Door switch (earthed)	NO

Type of spoken message	Conditions under which message appears	Fault detected by:	Stored in memory until ignition switched off
Handbrake applied.	- Ignition on - Speed above 10 mph/ 15 km/h - Fault for 1 second	Handbrake switch (earthed)	NO
Side lights illuminated.	- Ignition off - Headlights on. - Fault for 1 second	Door switch (earthed)	YES
Vehicle operation being monitored.	- Ignition on - No fault found		NO

E. THE DIFFERENT TYPES OF MESSAGES

1) Spoken messages

a) Warnings

- Drop in oil pressure
- Engine overheating
- Battery charging circuit
- Braking warning

b) Advance warnings

- Low fuel level
- Brake pads

c) Reminders

- Doors
- Luggage compartment
- Bonnet
- Parking brake

d) Lighting defects

- Stop lights on right or left
- Side lights

e) Message that vehicle is operating correctly

- Vehicle operation being monitored.

2) Audible signals

- In the case of the "lights on" reminder, an audible signal sounds; to obtain the spoken message, the REP key must be depressed.
- In discreet mode all messages are replaced by an audible signal.

NOTE: If there is any fault on the vehicle, the spoken messages and audible signals will only be delivered once by the voice synthesizer until the ignition is switched off. The REP key must be pressed in to have the messages repeated.

All spoken messages are preceded by an audible signal.

FAULT FINDING

PROBLEM SPECIFIC TO A MESSAGE

1) Simulation of a defect

- Simulation of a fault by earthing the corresponding track.
- Ignition on.

Track/Connector	Description	Time required	Information required	
			Engine running	Speed
9/Red	Coolant temp.	1 second	YES	NO
10/Red	Brake pad wear	30 seconds	YES	NO
11/Red	LH stop light	2 seconds	NO	NO
12/Red	RH stop light	2 seconds	NO	NO
13/Red	Side lights	4 seconds	NO	NO
1/Black	Rear LH door	1 second	NO	YES
2/Black	Rear RH door	1 second	NO	YES
3/Black	Luggage compart.	1 second	NO	YES
6/Black	Alternator charge	10 seconds	YES	NO
1/Blue	Oil pressure	2 seconds	YES	NO
4/Blue	Low brake fluid	2 seconds	YES	NO
5/Blue	Handbrake	1 second	NO	YES
6/Blue	Front LH door	1 second	NO	YES
7/Blue	Front RH door	1 second	NO	YES
8/Blue	Bonnet	1 second	NO	YES
9/Blue	Low fuel level	30 seconds	NO	YES

ATTENTION: If a message is generated during simulation, check the continuity, wiring insulation and connectors to the sensor(s) concerned.

NOTE: For a lighting failure message, the bulb monitor must also be tested.

2) Fault which disappears during simulation (1) of a lighting failure

- Checking operation of bulb monitor:

  . Remove a side lights fuse, track **5** or **6** of the brown fuse-holder connector,
  . Remove stop lights fuse, track **4** of the grey fuse-holder connector,
  . switch on ignition.

The bulb monitor must be earthed at the black 9-track connector

- Right-hand stop-light failure at track **1**.
- Left-hand stop light failure at track **2**.
- Side lights failure at track **7**.

If the earths are as specified, check the connectors between the bulb monitors and the voice synthesizer.

If the earths are not as specified, check the connectors, continuity and insulation of the lighting circuit at fault.

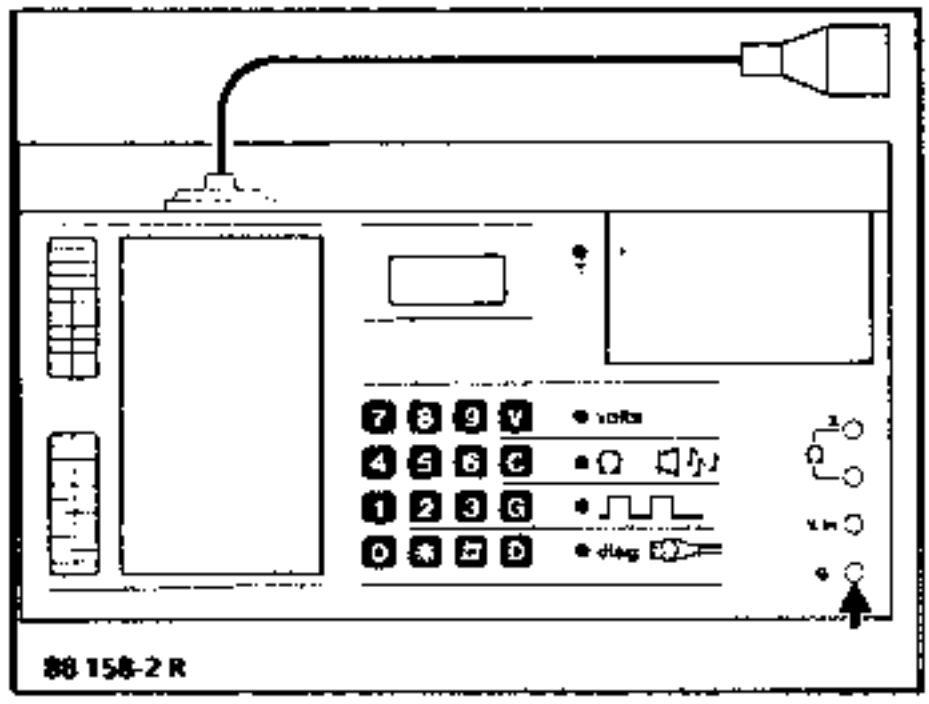
Otherwise change the bulb monitor.

FAULT FINDING

- **Simulation using the XR 25**

For messages which require data on engine or vehicle speed, this data can be simulated using the XR 25.

- Connect the diagnostic socket
- Put a cassette in the XR 25 (the number is irrelevant).
- Connect the sensor wire to the blue terminal (G) of the XR 25 (pulse generator)



- Position the sensor on the track.

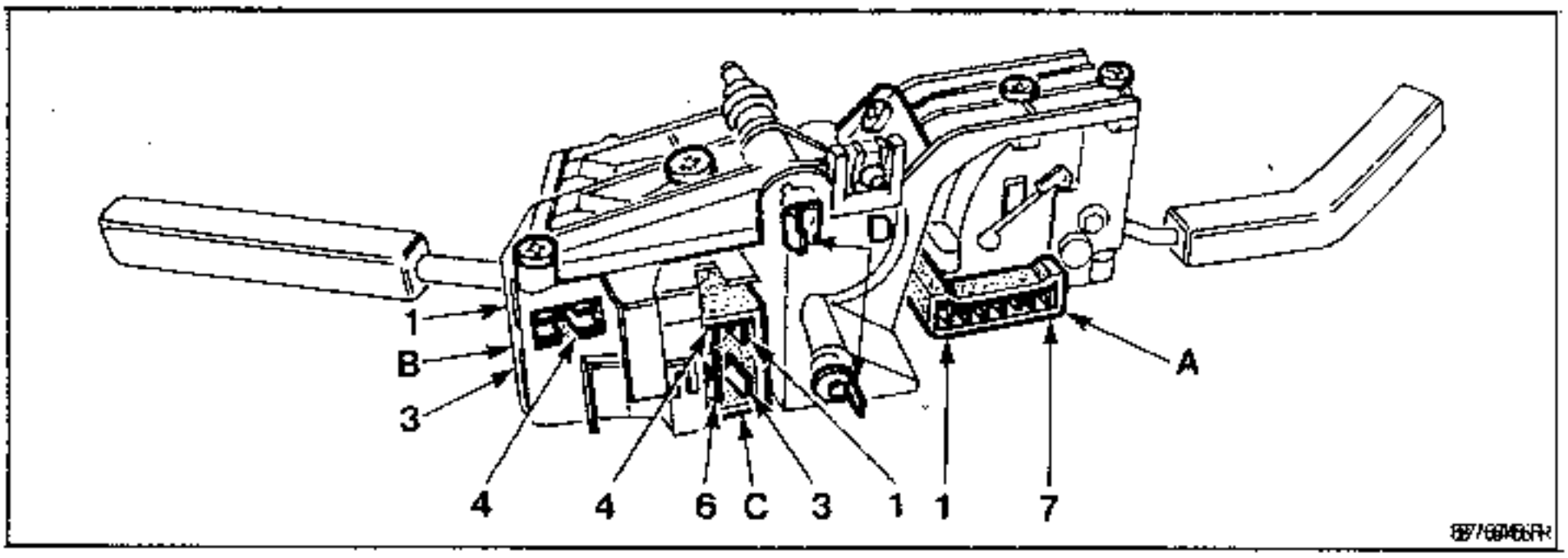
15 red connector for vehicle speed information,
3 red connector for engine speed information (diesel),
5 red connector for engine speed information (petrol).

- Press (G) then (6) on the XR 25 keypad

NOTE:

If a message is generated during simulation, check the continuity, wiring insulation and connectors to the sensor(s) concerned (vehicle or engine speed information).

For a lighting failure message, the bulb monitor must also be tested



REMOVING

Disconnect the battery.

Remove:
- The steering wheel
- The two half-cowlings

Disconnect the connectors
Unscrew the two screws underneath the switch to be removed

Connections:

Windscreen wiper connector (A)

Track	Description
1.	Timer input
2	+ after ignition
3	Fast wiping speed
4.	Normal wiping speed
5.	Park
6.	+ after ignition
7	Windscreen washer

Lighting connector (B)

Track	Description
1	Headlights main beam
2.	Headlights dipped beam
3.	+ before ignition
4	Side lights

Direction indicators - Horn connector (C)

Track	Description
1.	Horn
2.	Fog lamp output (depending on version)
3	+ before ignition
4.	Right-hand direction indicator
5.	Flasher unit
6.	Left-hand direction indicator

Connector (D)

Cruise control.

REMOVAL

Disconnect the battery.

Remove:
- The steering wheel with the wheels in a straight line.
- The two half-cowlings.

Remove the plastic surround from the ignition switch.

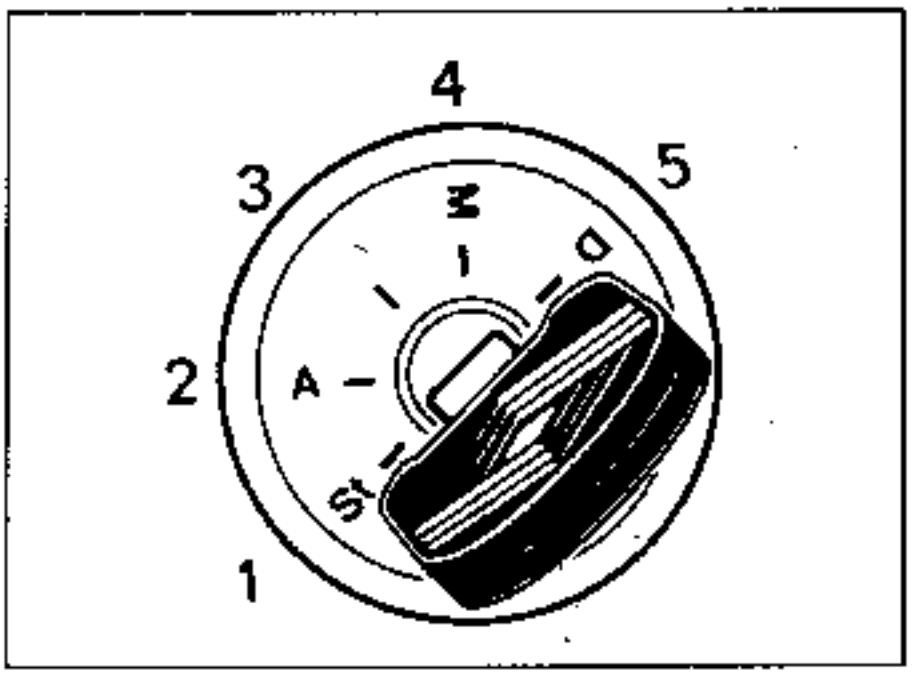
Remove the steering column cover.

Disconnect the two ignition switch connectors.

Remove the ignition switch mounting bolt.

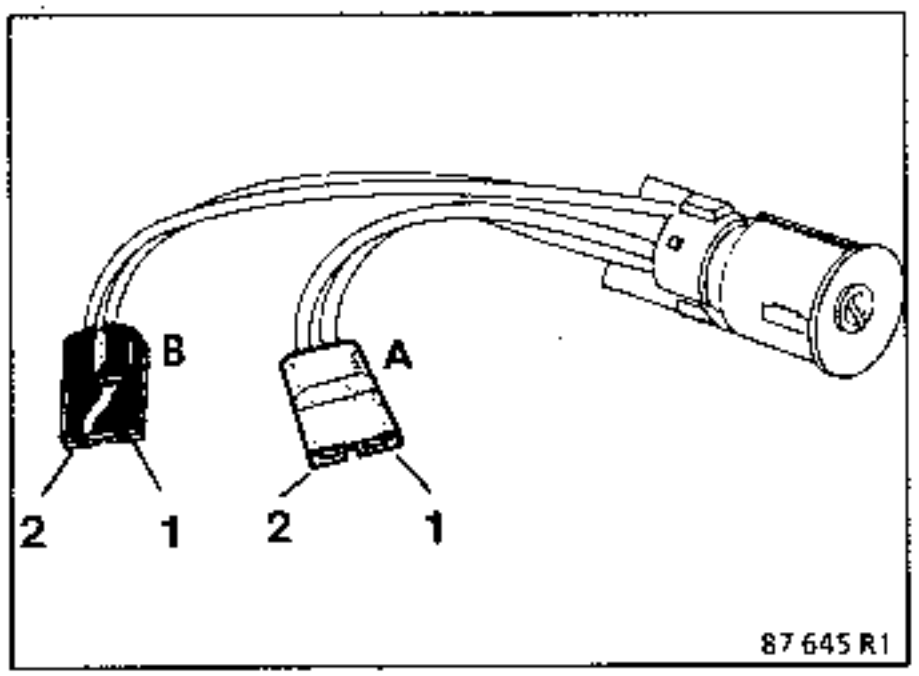
Put the key in position (3).

Press the retaining lug and remove the ignition switch.



When refitting ensure that the wiring is correctly routed.

CONNECTIONS



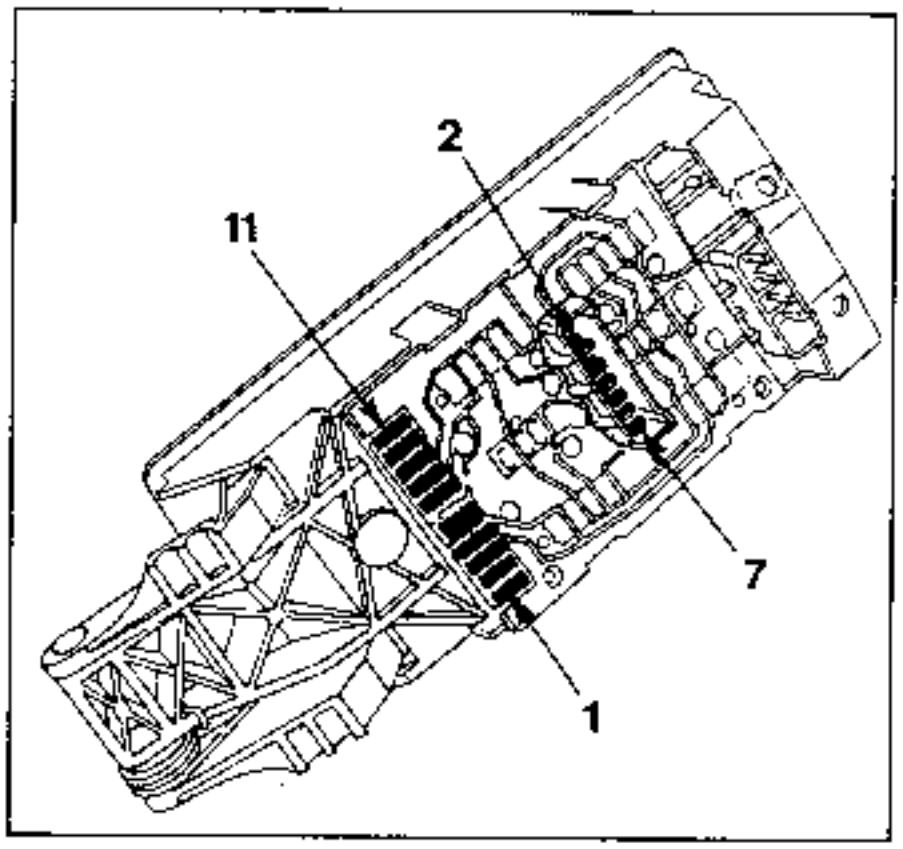
Black connector (B)

Track	Description
1.	+ before ignition
2.	Starter

Grey connector (A)

Track	Description
1.	Accessories
2.	+ after ignition

ARM REST BOARD CONNECTIONS



Connector (11-track)

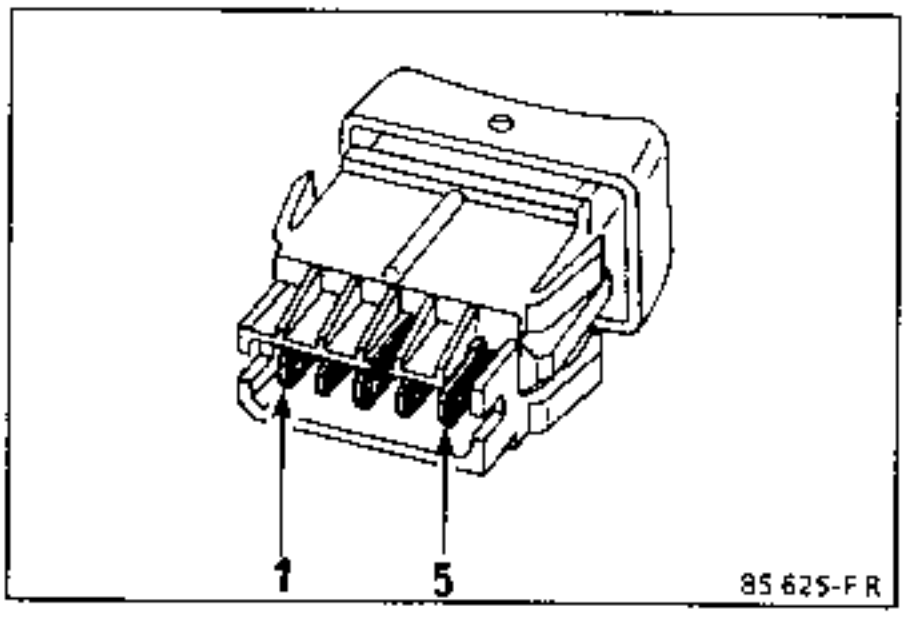
Track	Description
1.	Driver's window normal lowering
2.	To rear switch on driver's side
3.	Driver's window normal raising
4.	To rear switch on driver's side
5.	Driver's window lowering by pulses
6.	Locating point
7.	Illumination
8.	To rear switch on passenger's side
9.	To rear switch on passenger's side
10.	To passenger's switch
11.	Driver's window raising by pulses

Connector (7-track)

Track	Description
1.	Not used
2.	+ after ignition switch on passenger's side
3.	Earth
4.	Earth
5.	Earth after isolator switch
6.	+ after ignition switch on driver's side
7.	To switch on passenger's side

Child safety switch

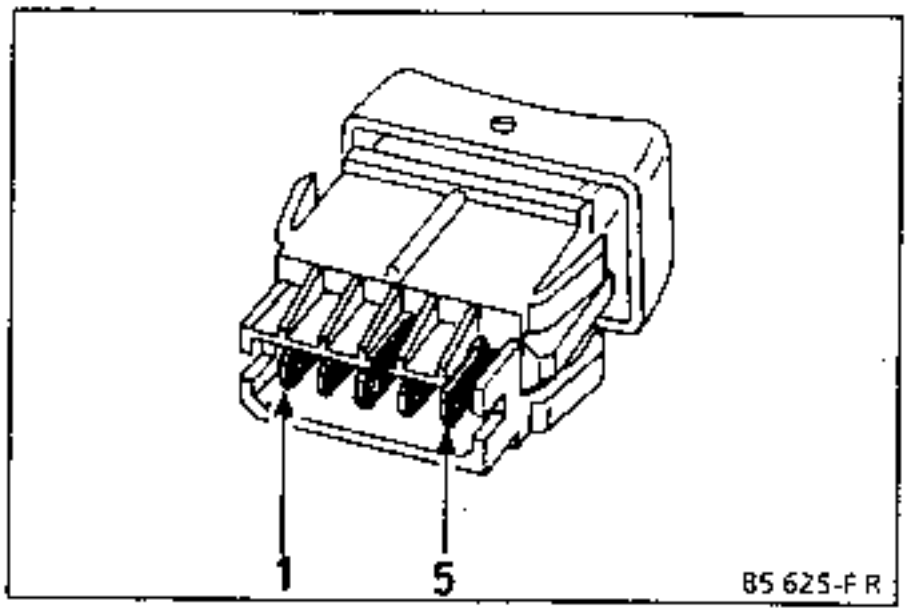
Prevents operation of the rear window winders.



Connections

Track	Description
1.	Not used
2.	Rear window winder switch
3.	Earth
4.	Earth, illumination
5	+ illumination

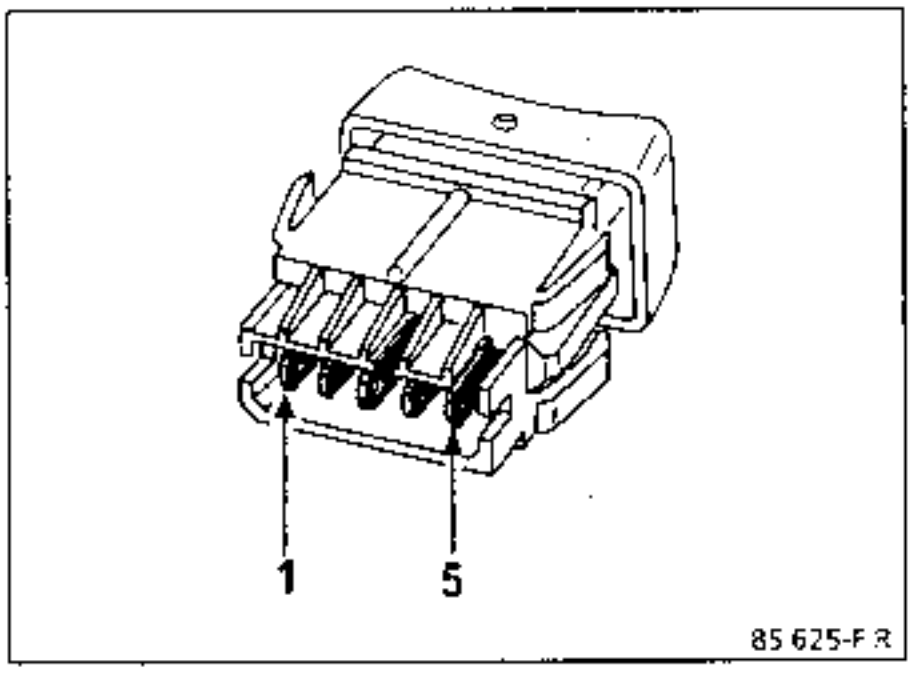
Driver's window winder switch



Connections

Track	Description
1	Window winder or pulse unit
2.	+ after ignition
3.	Earth
4.	+ illumination
5.	Window winder or pulse unit

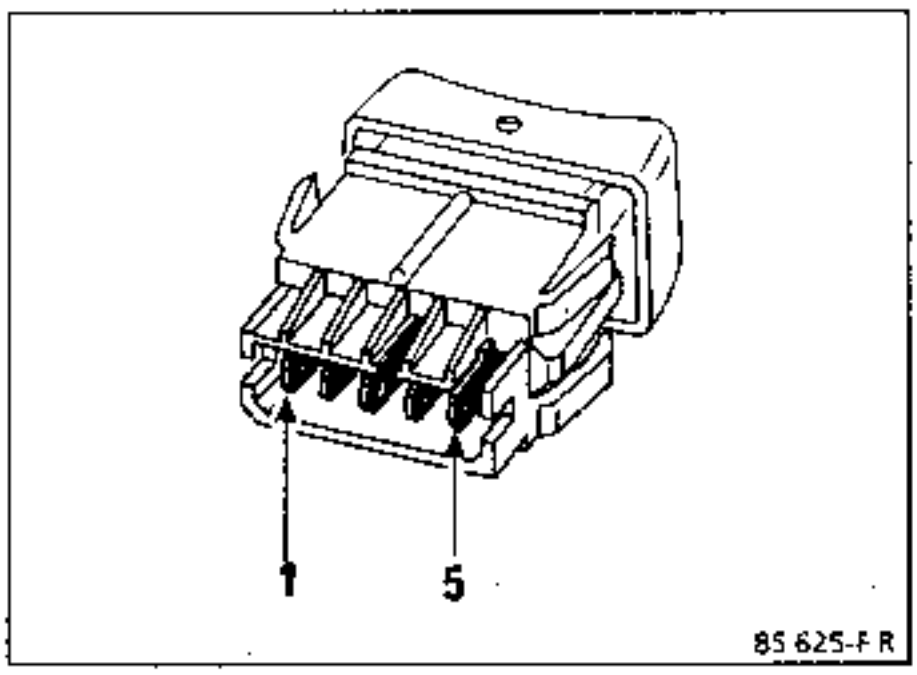
Driver's pulse window winder switch



Connections

Track	Description
1.	Pulse unit
2.	+ after ignition
3.	Earth
4.	+ illumination
5.	Pulse unit

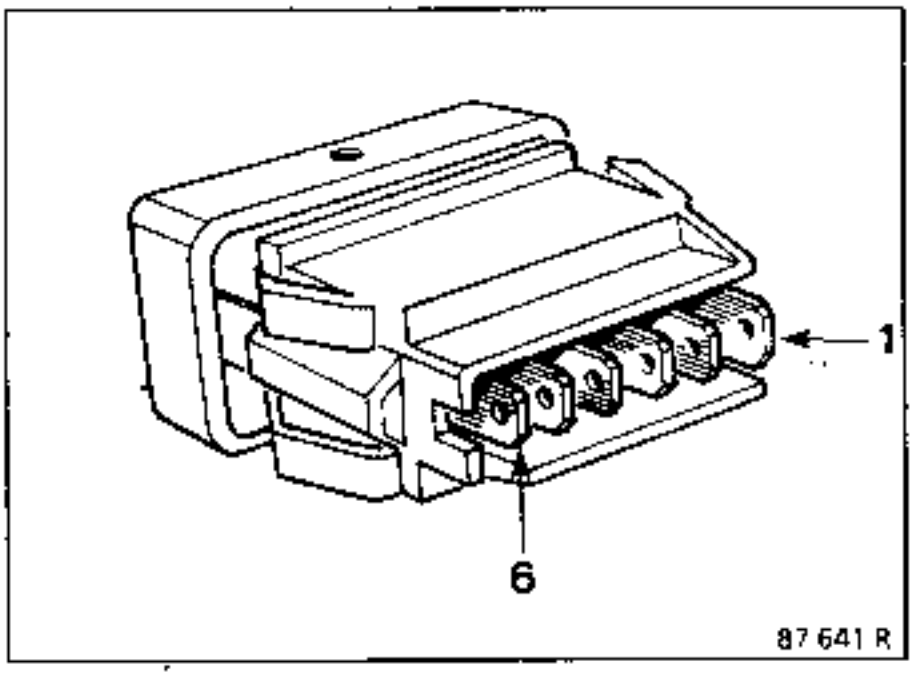
Passenger window winder switch on driver's door



Connections

Track	Description
1.	Rear window winder
2.	+ after ignition
3.	Earth
4.	+ illumination
5.	Rear window winder

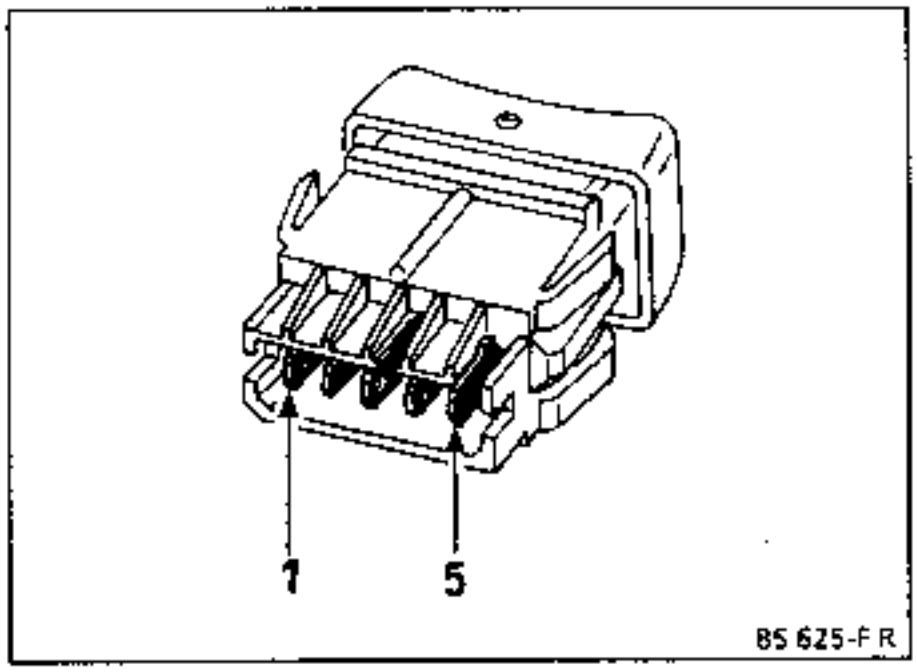
Passenger window winder switch on passenger's door



Connections

Track	Description
1.	+ illumination
2.	Rear window winder
3.	Driver's switch
4	Earth
5.	Driver's switch
6.	Rear window winder

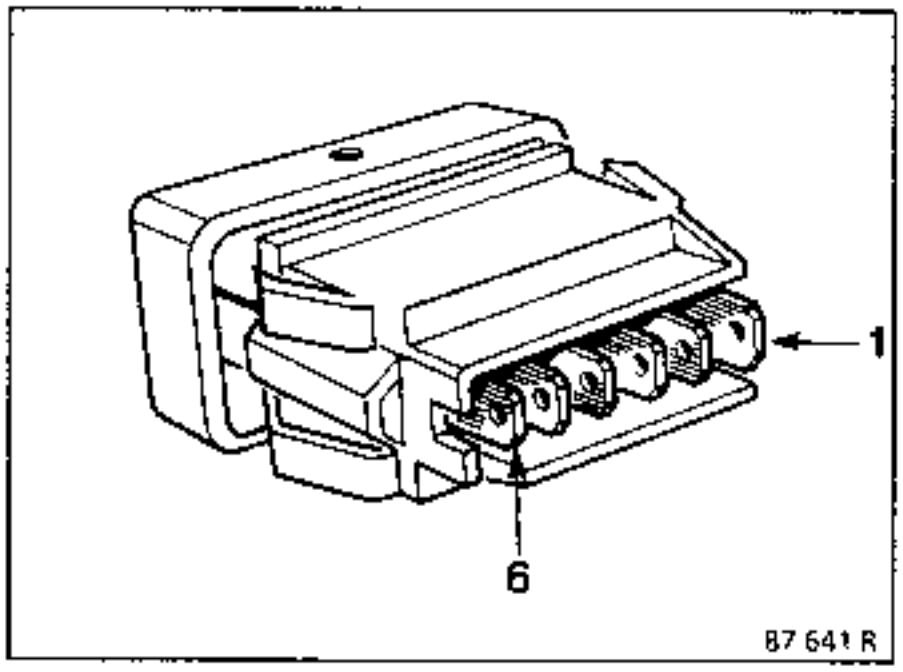
Rear right-hand and left-hand window winder switch on driver's door



Connections

Track	Description
1.	Rear window winder
2.	+ after ignition
3.	Earth
4.	+ illumination
5.	Rear window winder

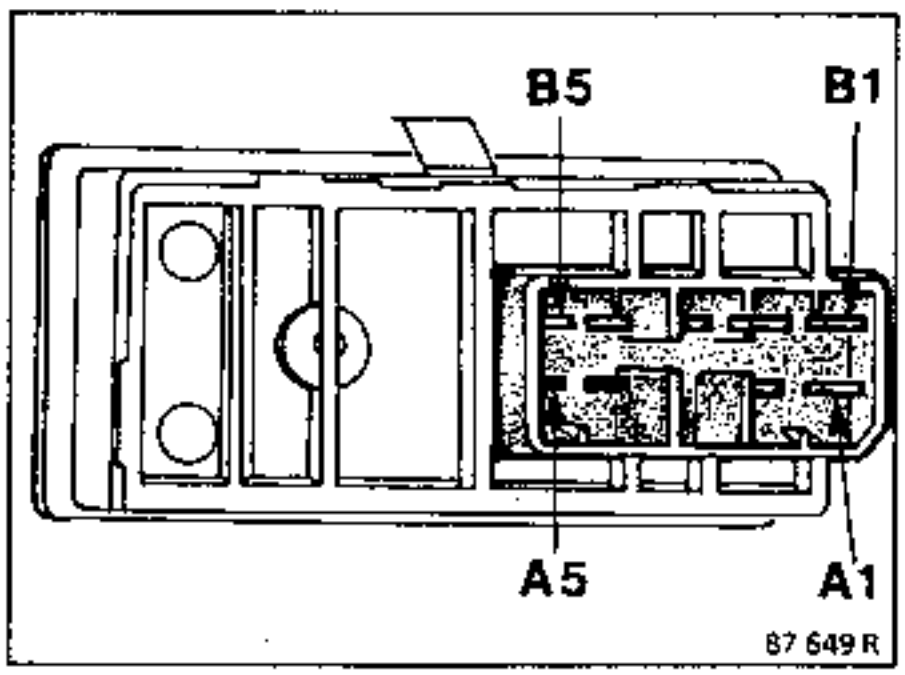
Rear right-hand and left-hand window winder on console



Connections

Track	Description
1.	+ illumination
2.	Rear window winder
3.	Driver's switch
4.	Earth via isolator switch
5.	Driver's switch
6.	Rear window winder

REAR VIEW MIRROR CONTROL SWITCH



track	Right-hand mirror				Left-hand mirror			
	up	dn	right	eft	up	dn	right	left
A1	+	−						
A2					+	−		
A4			+	−				
A5							+	−
B1	Feed after ignition							
B2	−	+	−	+	−	+	−	+
B3	−	+	−	+	−	+	−	+
B4	Illumination							
B5	Earth							

Check

Check current feed (same fuse as the driver's window winder), earth, then feed and polarity to each function.

Example:

SWITCH ON LEFT-HAND SIDE

Control to raise mirror:
- Terminal A2 : +
- Terminal B2 : −
- Terminal B3 : −

Control to lower mirror:
- Terminal A2 : −
- Terminal B2 : +
- Terminal B3 : +

REAR VIEW MIRROR CONNECTOR

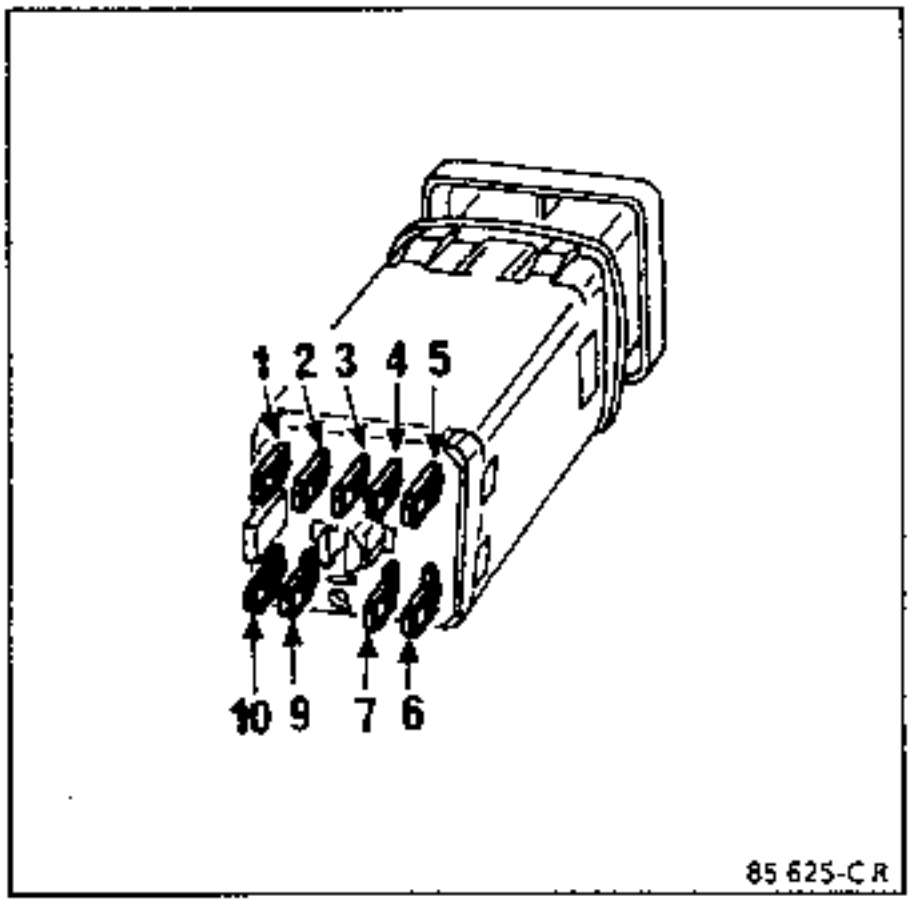
Track	Description
1.	Up/down - right/left common
2.	Up/down
3.	Right/left
4.	De-icing
5.	Earth

Example:

Current fed to terminals 1 and 2 will raise or lower the mirror depending on polarity.

Note: The mirrors are de-iced when the rear screen de-icer is switched on.

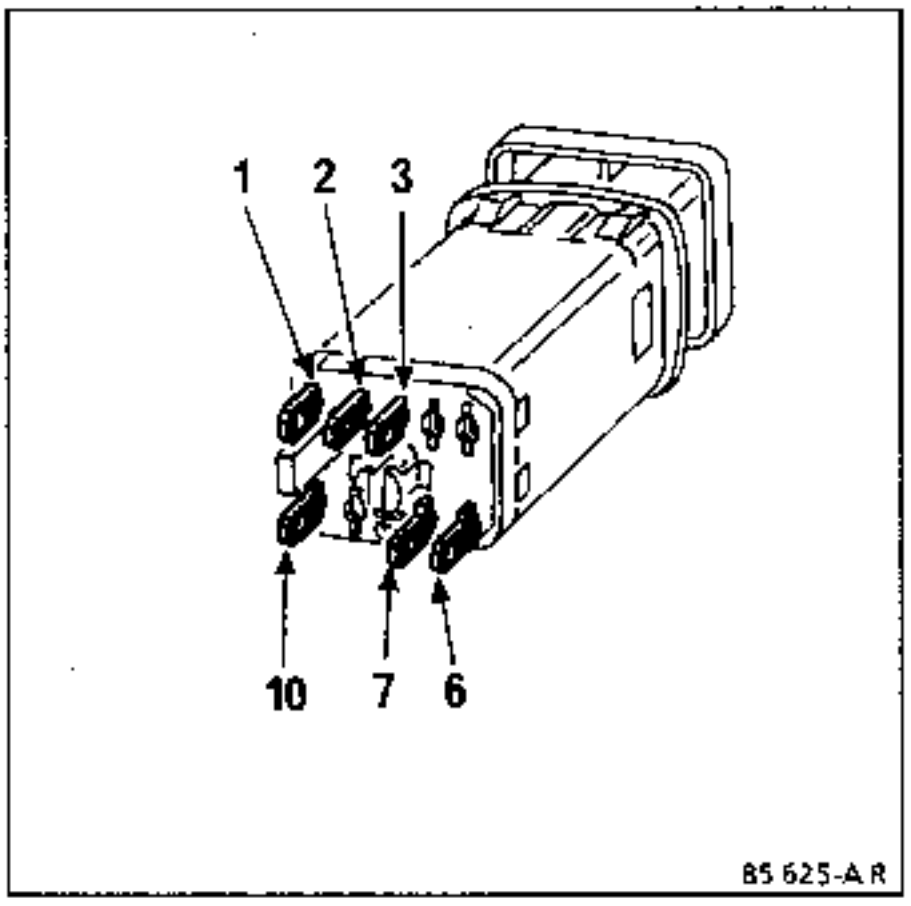
Hazard warning lights switch



Connections

Track	Description
1.	Right-hand indicators
2.	Left-hand indicators
3.	+ illumination
4.	+ before ignition
5.	+ accessories
6.	+ flasher unit
7.	Earth
8.	Not used
9.	Indicator switch
10.	Warning light

Rear screen de-icing switch



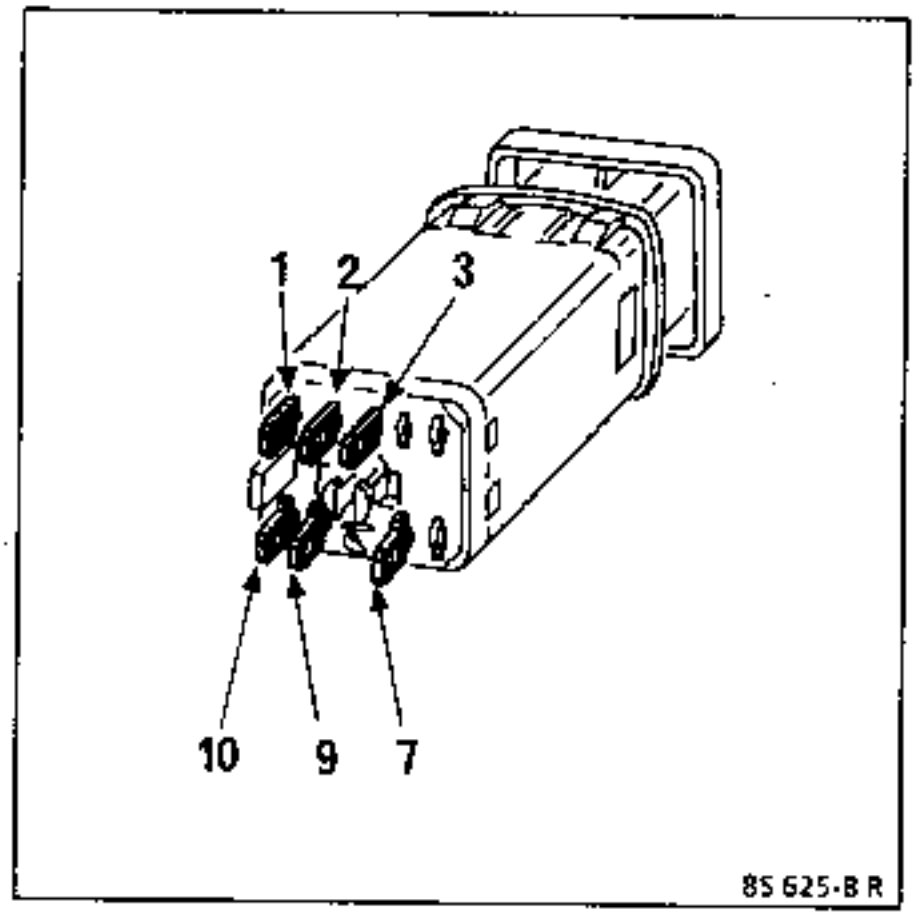
Connections (without timer)

Track	Description
1.	+ after ignition
2.	Relay control
3.	+ illumination
6.	Not used
7.	Earth
10.	Warning light

Connections (with timer)

Track	Description
1.	+ after ignition
2.	Timer switch
3.	+ illumination
7.	Earth

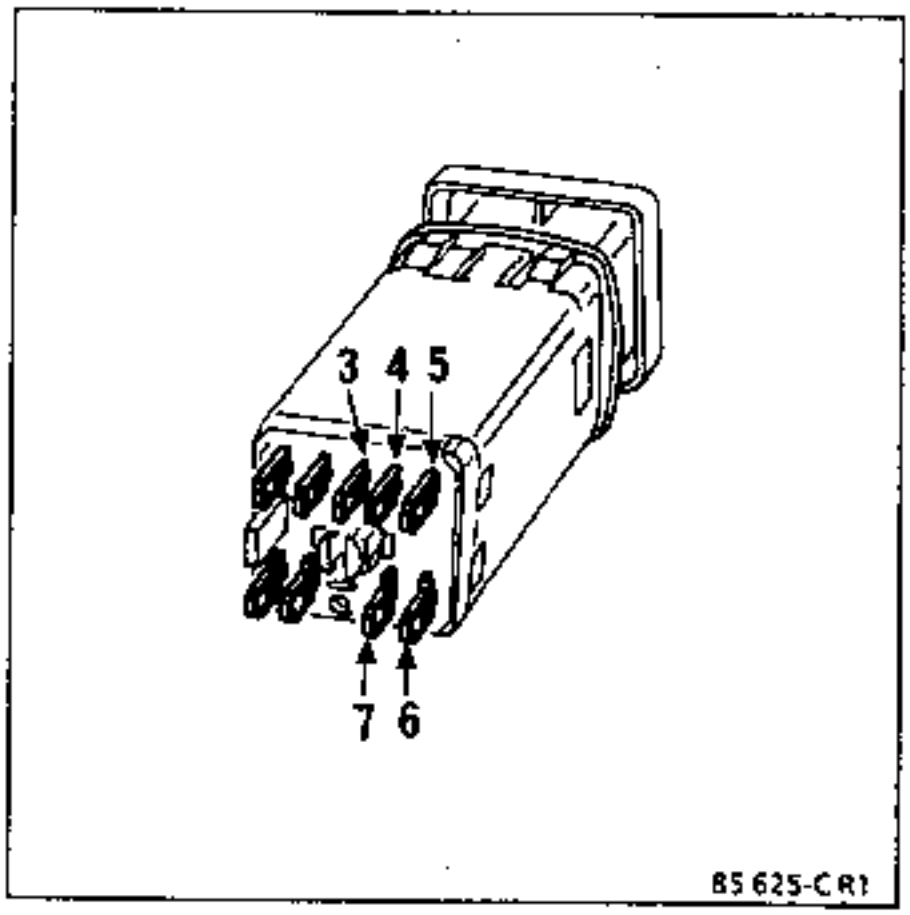
Switch for rear fog lights



Connections

Track	Description
1.	Not used
2.	Dipped headlights
3.	+ illumination
7.	Earth
9.	Not used
10.	Warning light and rear fog lights

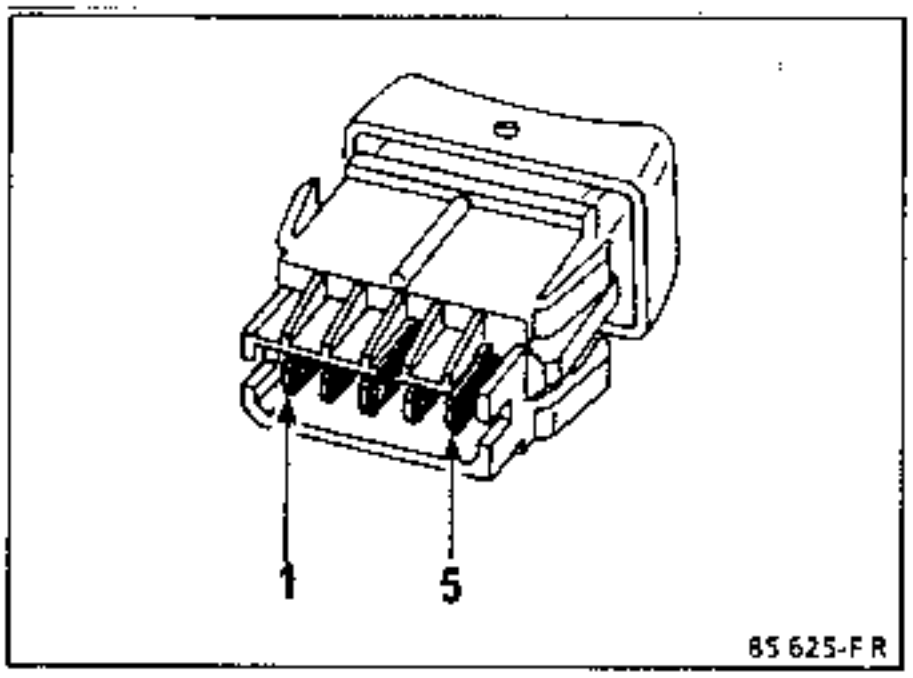
Switch for front fog lights



Connections

Track	Description
3.	+ illumination
4.	Relay for front fog lights
5.	Earth
6.	Not used
7.	Earth, illumination

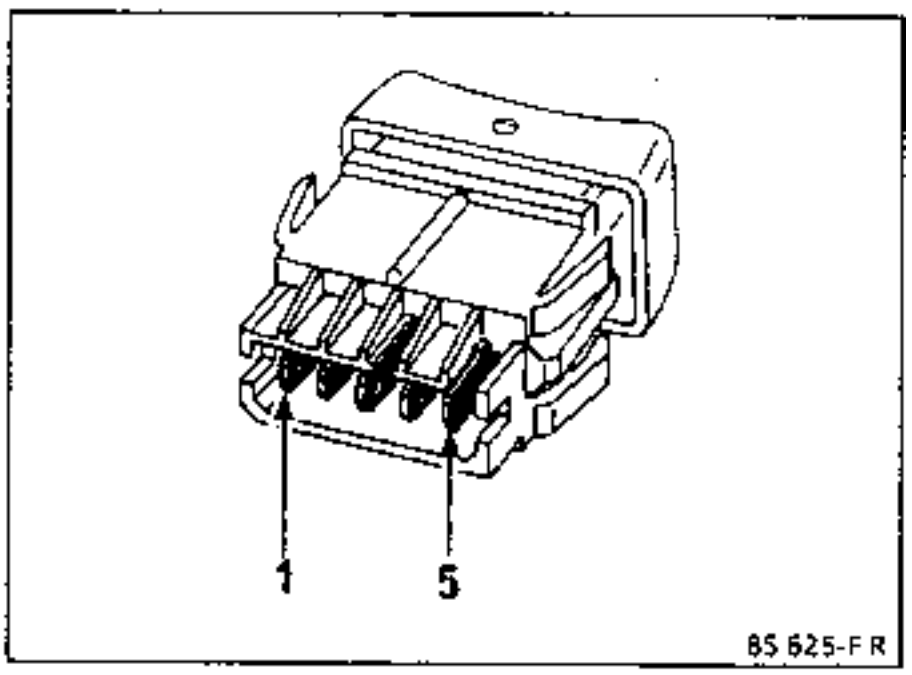
Door central locking switch



Connections

Track	Description
1.	Timer relay (closing)
2.	Earth
3.	+ before ignition
4.	+ illumination
5.	Timer relay (opening)

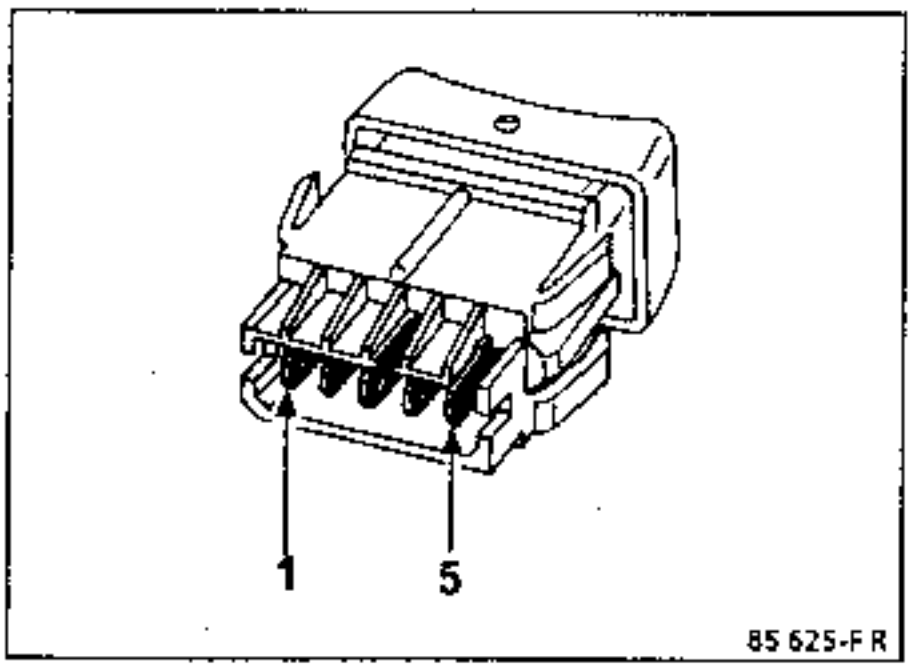
Rear window wiper switch (single)



Connections

Track	Description
1.	+ illumination
2.	Earth
3.	+ before ignition
4.	Earth
5.	Windscreen wiper motor

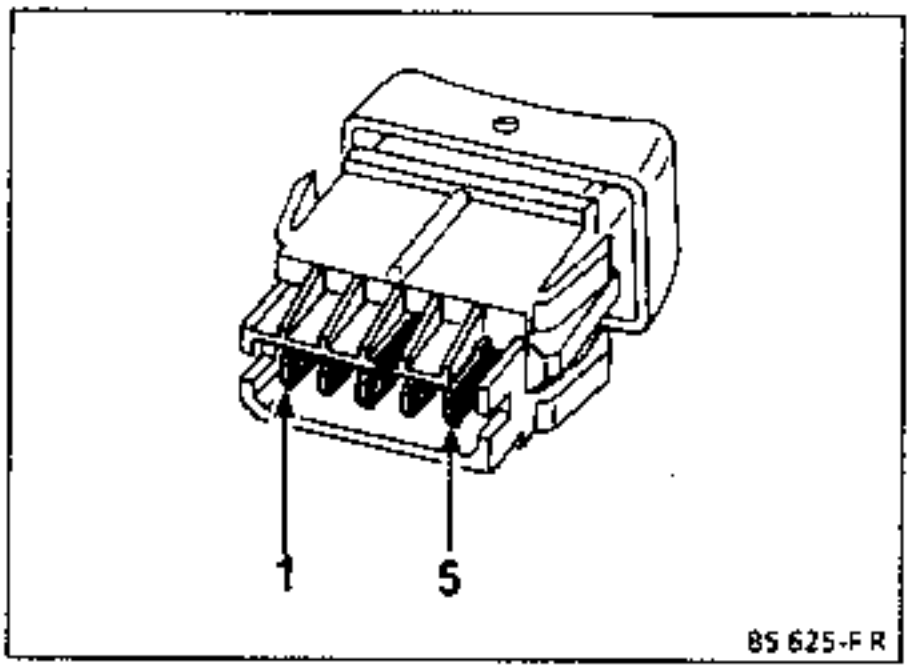
Cruise control switch



Connections

Track	Description
1.	Not used
2.	Electronic computer
3.	+ after ignition
4.	+ illumination
5.	Earth

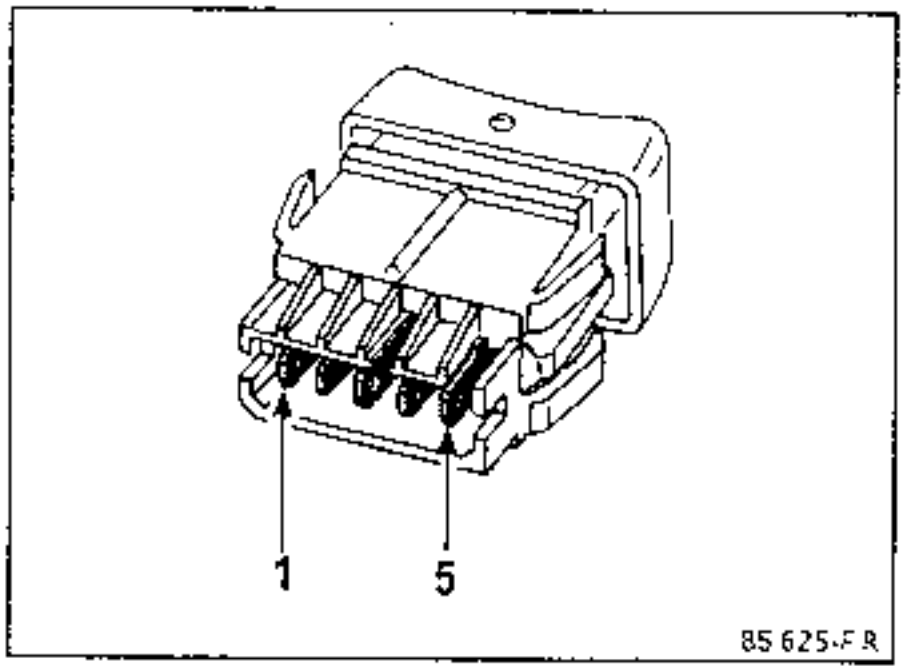
Rear screen wiper and deicing switch (for front fog lights option)



Connections

Track	Description
1.	Windscreen wiper motor
2	Earth
3.	+ after ignition
4.	+ illumination
5.	Rear screen with de-icing facility

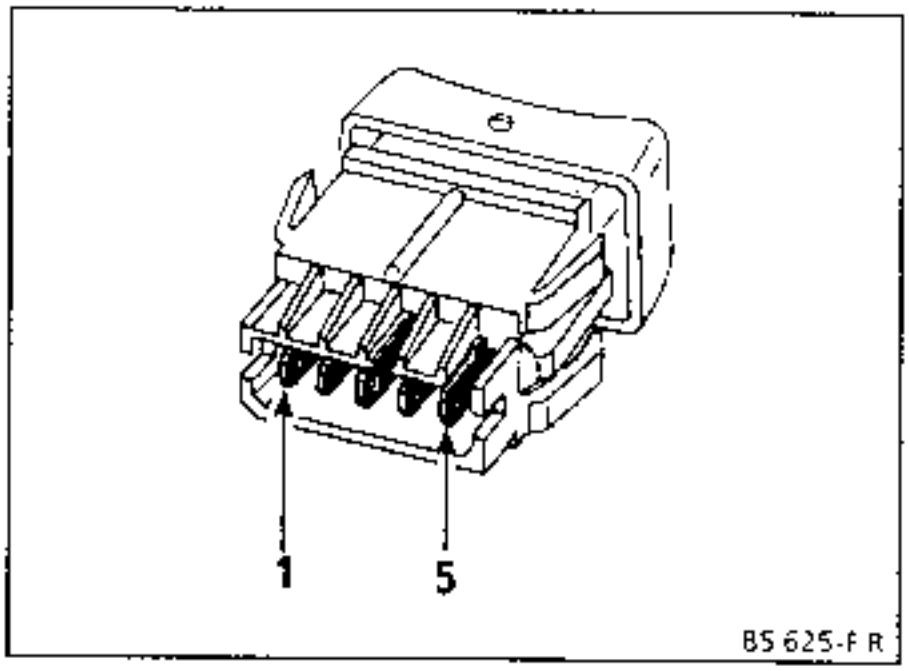
Electric seat switches without memory (all identical)



Connections

Track	Description
1.	Motor
2.	+ after ignition
3.	Earth
4.	+ illumination
5.	Motor

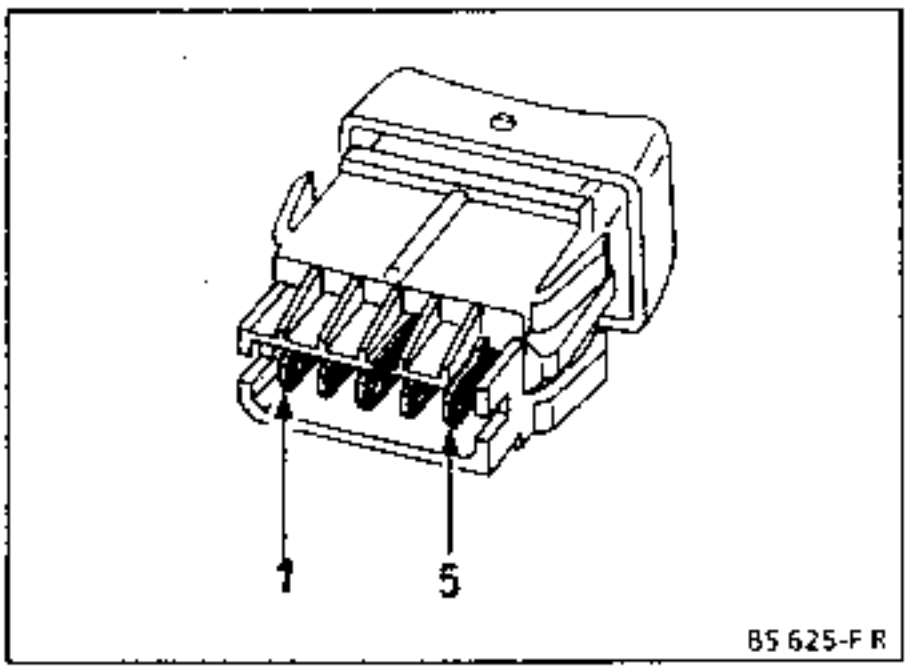
EXC switch (Automatic Transmission AR4)



Connections

Track	Description
1.	Warning light for EXC
2.	Information for EXC computer
3.	Earth
4.	+ illumination
5.	Earth, illumination

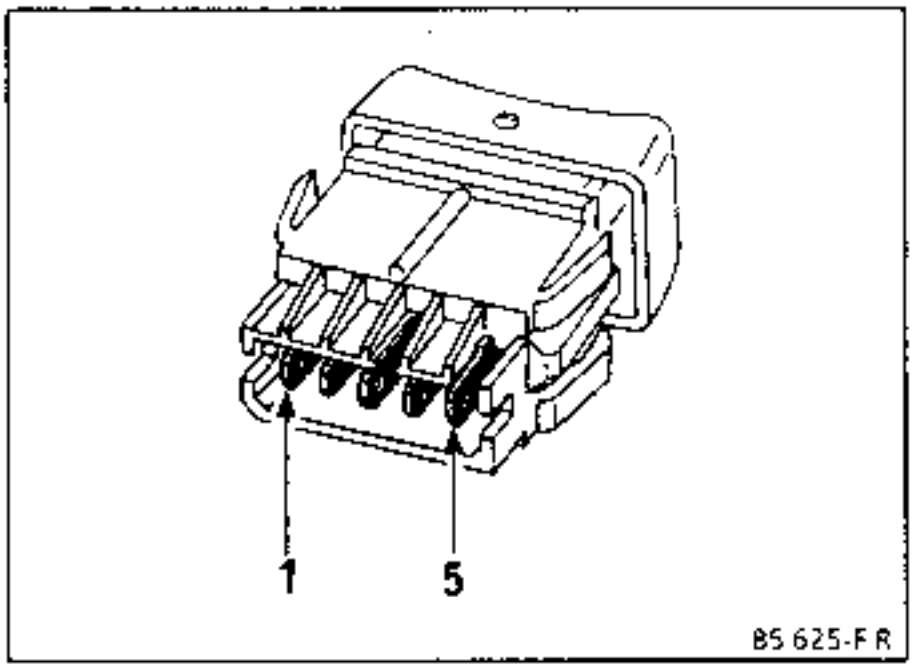
Interior light switch



Connections

Track	Description
1.	Reading light
2.	Not used
3.	Earth
4.	Not used
5.	Interior light control

Sun roof switch



Connections

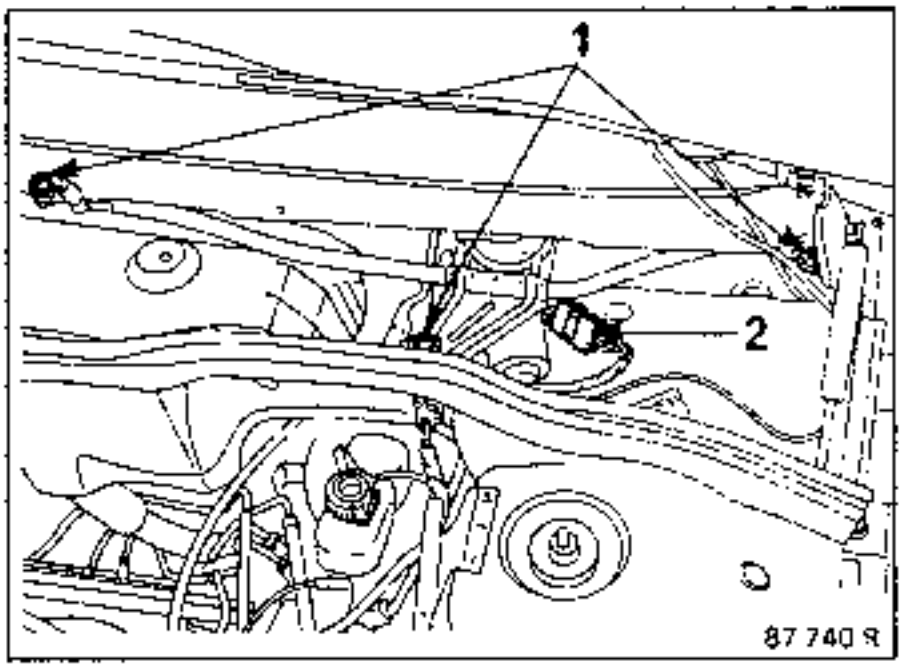
Track	Description
1.	Motor + or -
2.	Earth
3.	+ after ignition
4.	Not used
5.	Motor + or -

REMOVAL:

Disconnect the battery.

Remove:
- The two wiper arms (Note: The right-hand and left-hand wiper arms are different.)
- The scuttle grille
- The three screws (1) securing the mechanism
- The connector (2)

Take out the assembly.



REFITTING:

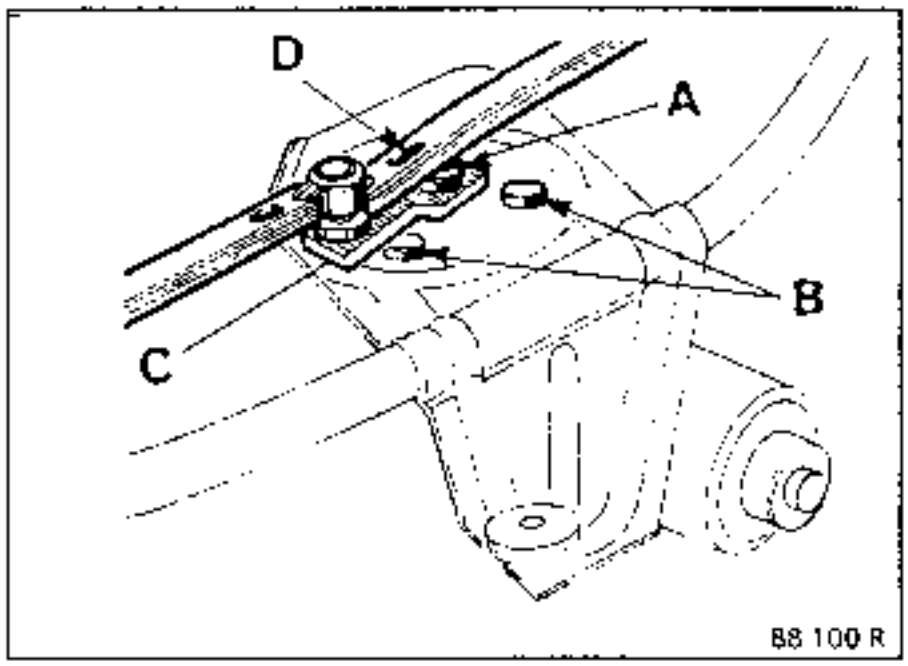
Reconnect the link unit after refitting the mechanism.

Check that the motor is in the park position before refitting the wiper arms.

Removing - Refitting the motor (mechanism removed)

Unscrew nut (A) holding the driving arm.

Unscrew the three bolts (B) holding the motor; remove the motor.



When refitting, check that arms (C) and (D) are correctly aligned and the motor is in the "park" position.

Connections (Model Year 84 to 86)

Track	Description
1	Fast wipe
2.	Earth
3.	+ park
4.	Normal wipe
5.	Park

Connections (Model Year 87 to 91)

Track	Description
A1.	+ park
A3.	Earth
B1.	Normal wipe
B2.	Fast wipe
B3.	Park

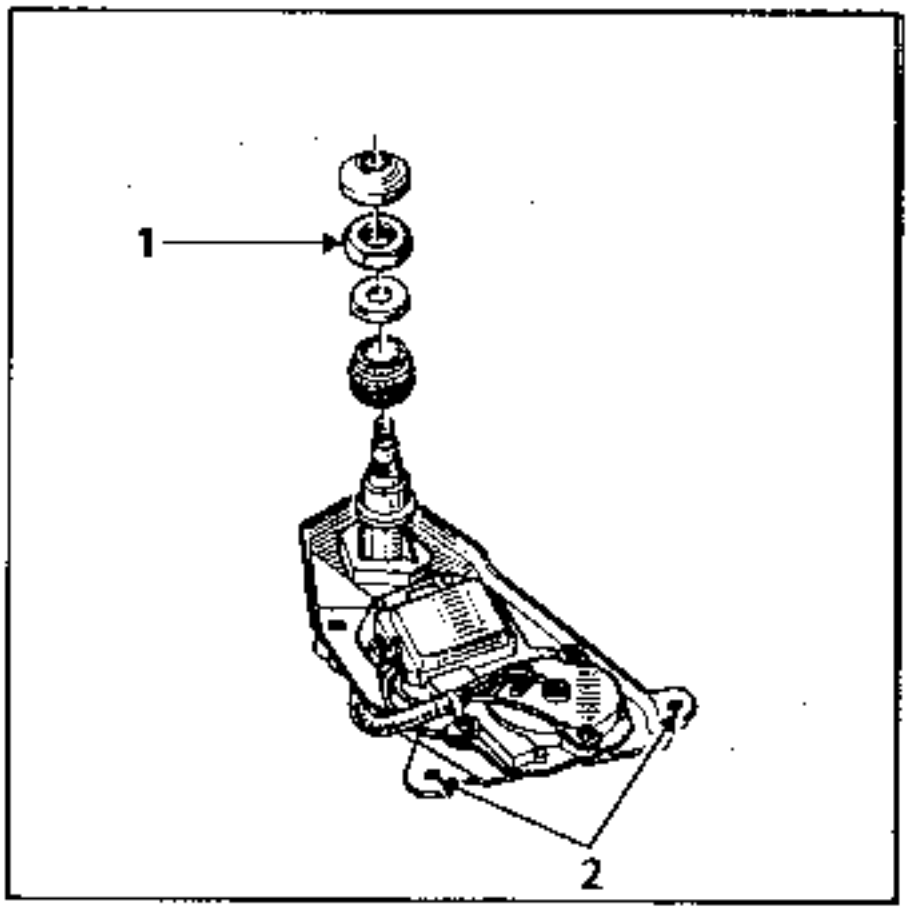
REMOVAL:

Disconnect the battery

Remove:
- The wiper arm
- Nut (1)
- The inner tailgate trim

Disconnect the connector.

Take out the screws securing the motor (2) and remove the motor



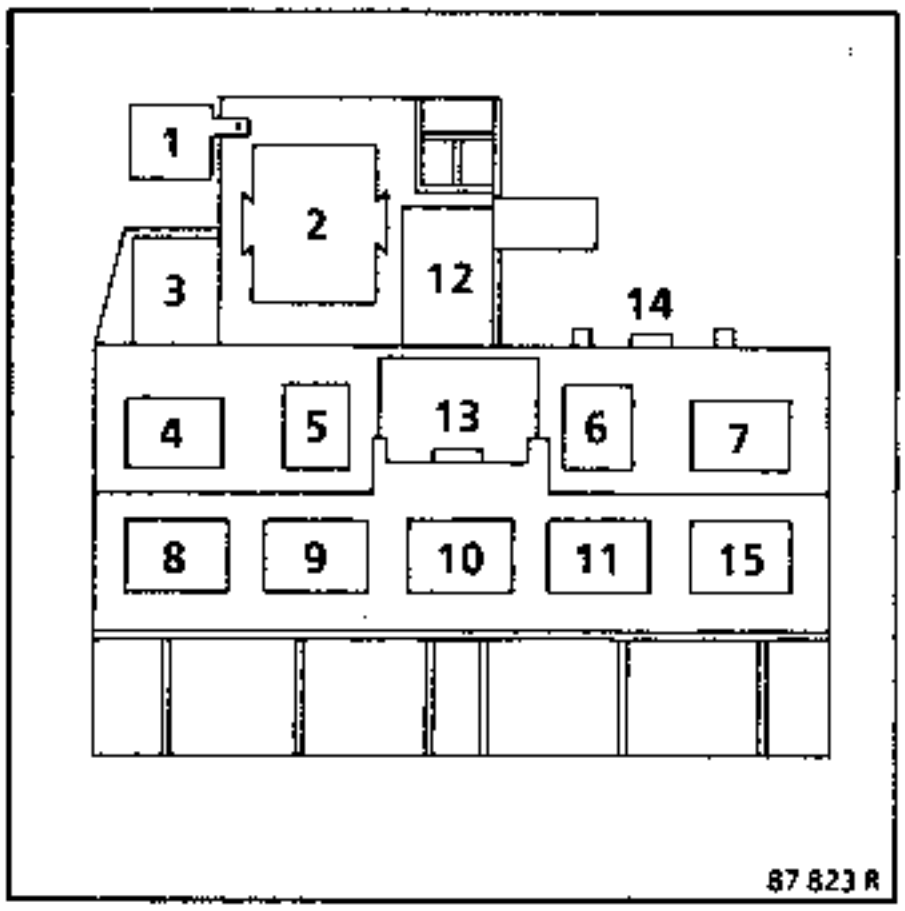
REFITTING:

When refitting, ensure the motor is in the park position before refitting the wiper.

Connections

Track	Description
1.	Rear screen wiper
2	Earth
3.	+ park

Position and allocation



The relays are located above the fuse box.

To gain access to this unit, remove the voice synthesizer speaker or the storage pocket (depending on version) on the driver's side.

1) Rpm relay (B298)
or cruise control relay (88 to 91)
or coolant level sensor unit (B295)

2) Wiper timer relay

3) Interior lights timer relay

4) Door locking timer relay

5) "Lights on" reminder buzzer

6) Flasher unit (or see 15)
or circuit cut-out relay

7) Headlamp relay (or see 11)
or excess speed relay (Arabia)
or low fuel level relay (V6 Model Year 91)

8) Air conditioning relay or shunt

9) Lighting rheostat relay

10) Rear screen de icer relay
or rear screen de icer timer unit

11) Starter relay (automatic transmission) or shunt (manual gearbox)

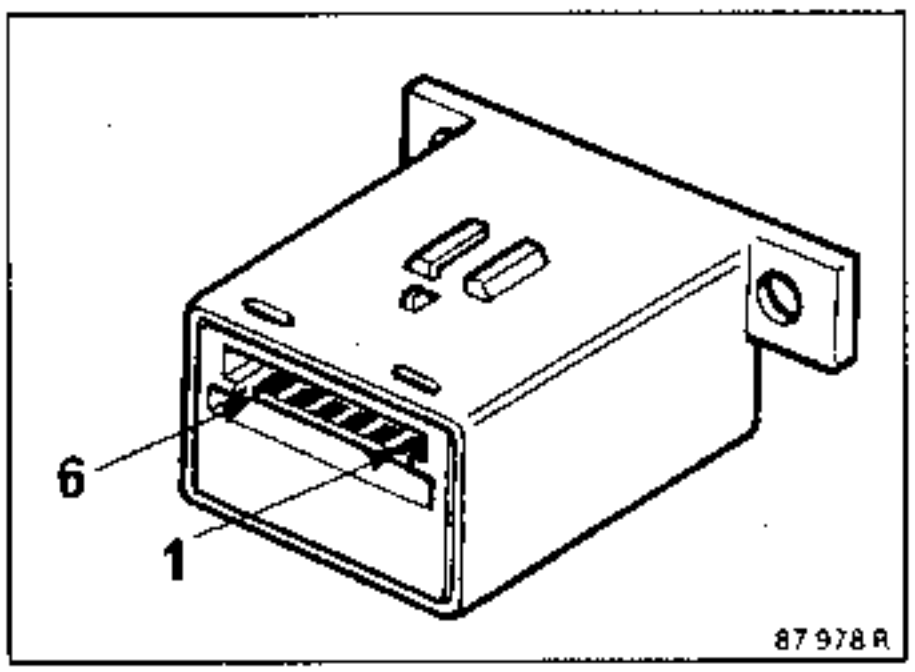
12) Junction with wiring harness, driver's door

13) Junction with wiring harness, driver's door

14) General power supply

15) Flasher unit (or see 6)

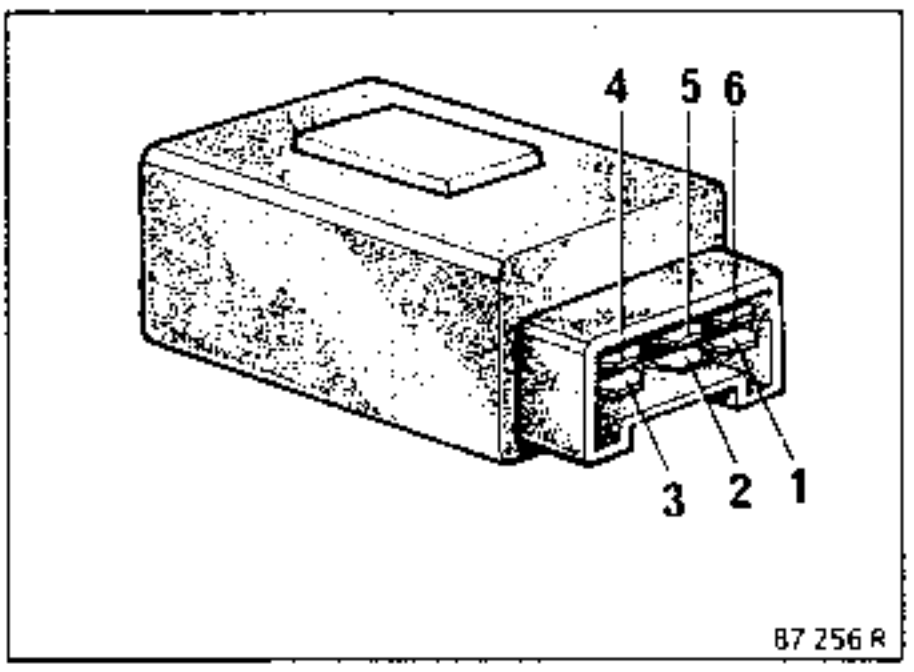
Wiper timer



Connections

Track	Description
1.	Earth
2.	Washer pump
3.	Timed sequence
4.	Wiper park motor
5.	+ after ignition
6.	Normal wipe speed via timer

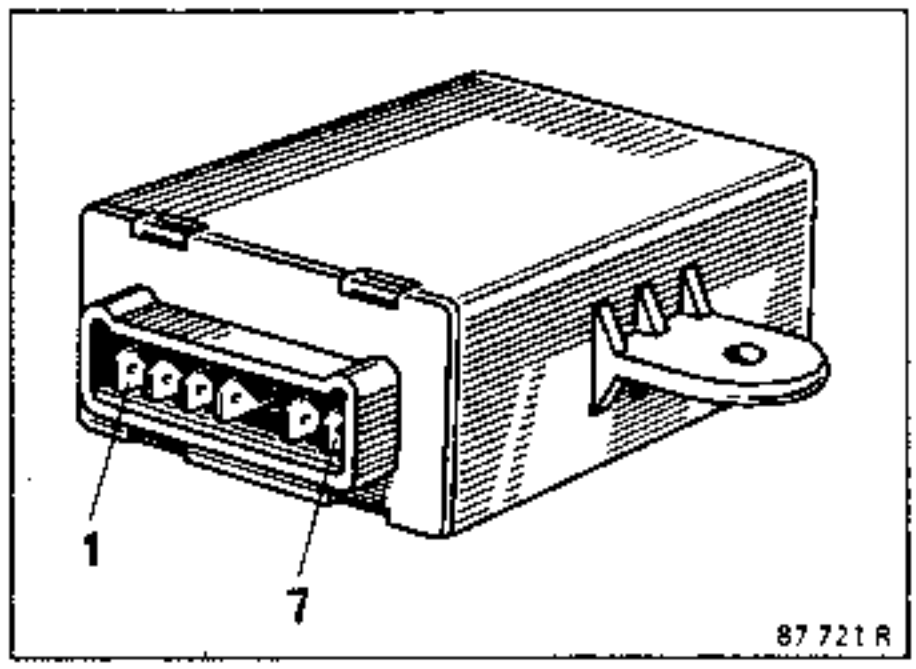
Door lock timer



Connections

Track	Description
1.	Closing control signal
2.	Earth
3.	Opening control signal
4.	Motor
5.	+ before ignition
6.	Motor

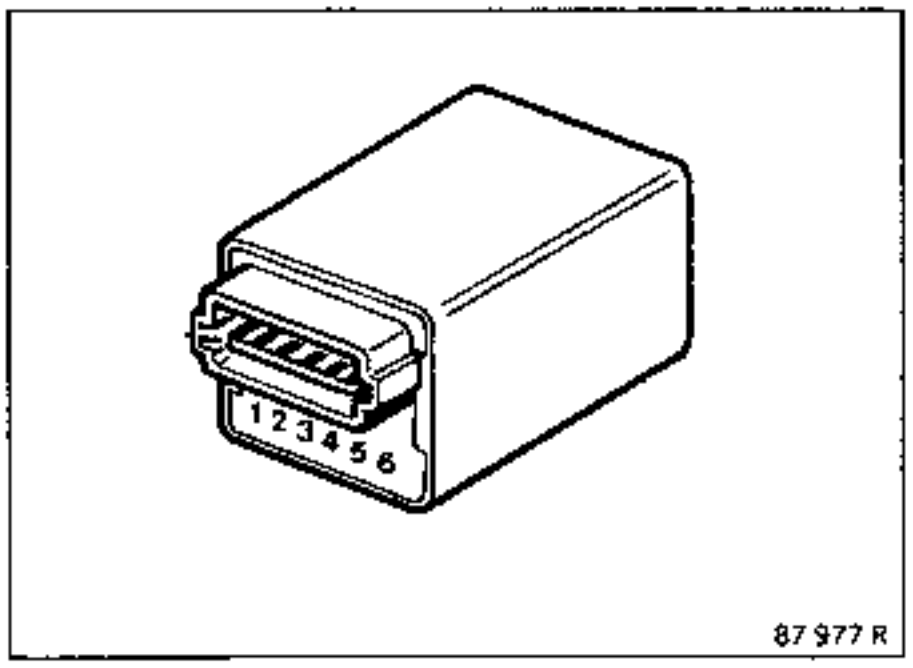
Tailgate control



Connections

Track	Description
1.	Motor
2.	Tailgate closing
3.	Tailgate opening
4.	Earth
5.	Not used
6.	+ before ignition
7.	Motor

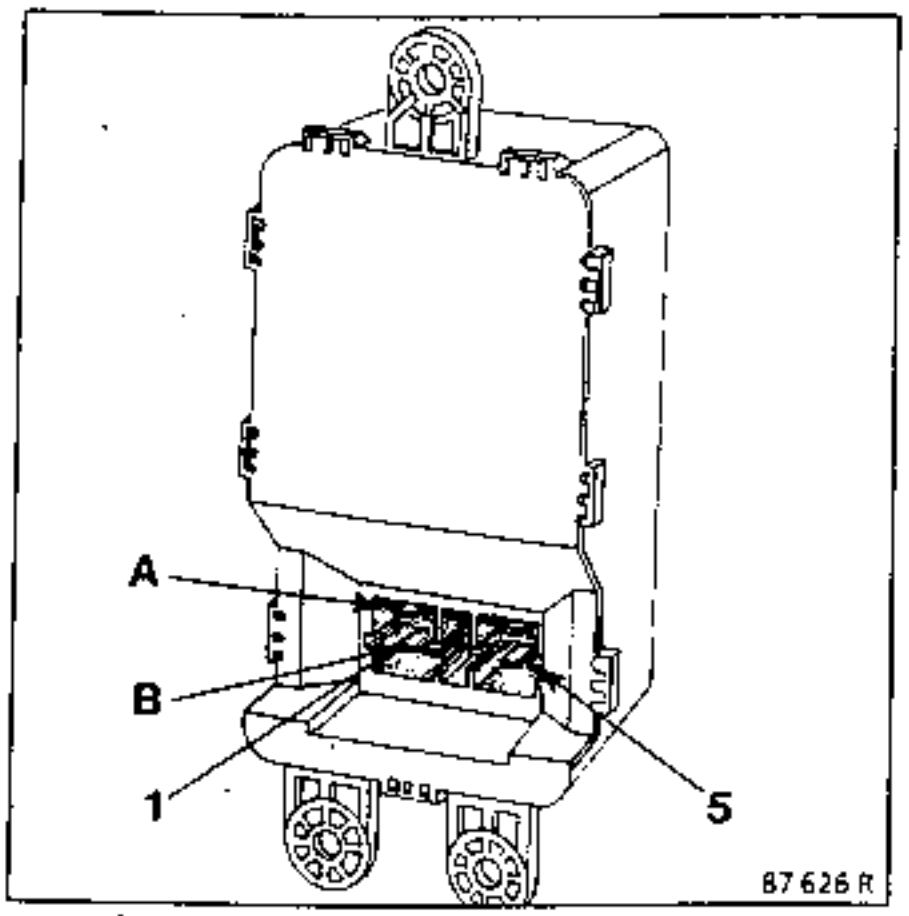
Interior lights timer



Connections

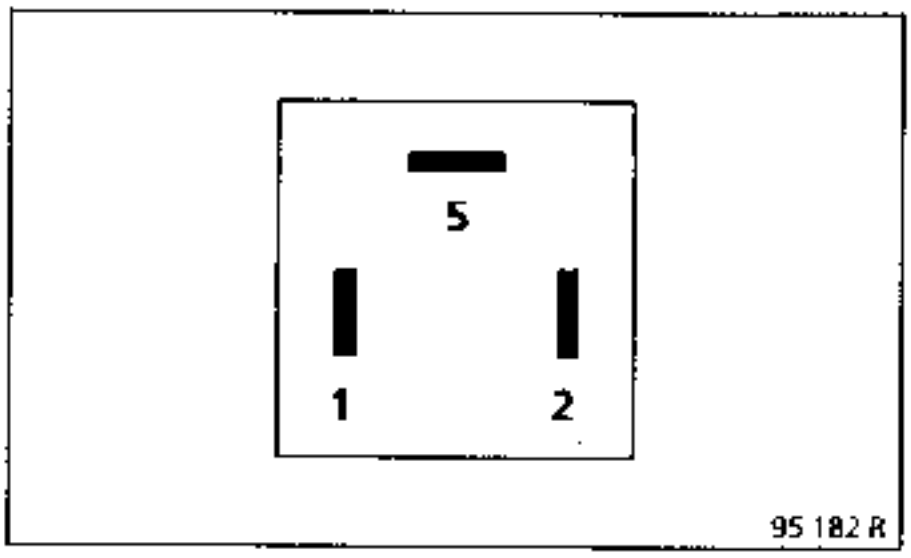
Track	Description
1.	+ before ignition
2.	Interior lights common earth
3.	Earth
4.	Not used
5.	Interior lights switch
6.	Infra-red remote control

Connections



Track	Description
A1.	Motor
A2.	Earth
A4.	Motor
A5.	+ after ignition
B1.	Pulse up control
B2.	Pulse down control
B4.	Normal down control
B5.	Normal up control

Lights on reminder buzzer



Connections

Track	Description
1.	+ after ignition
2.	Information, lamp units
5.	Door switch information

NOTE : The number of tracks used is marked on the assembly.

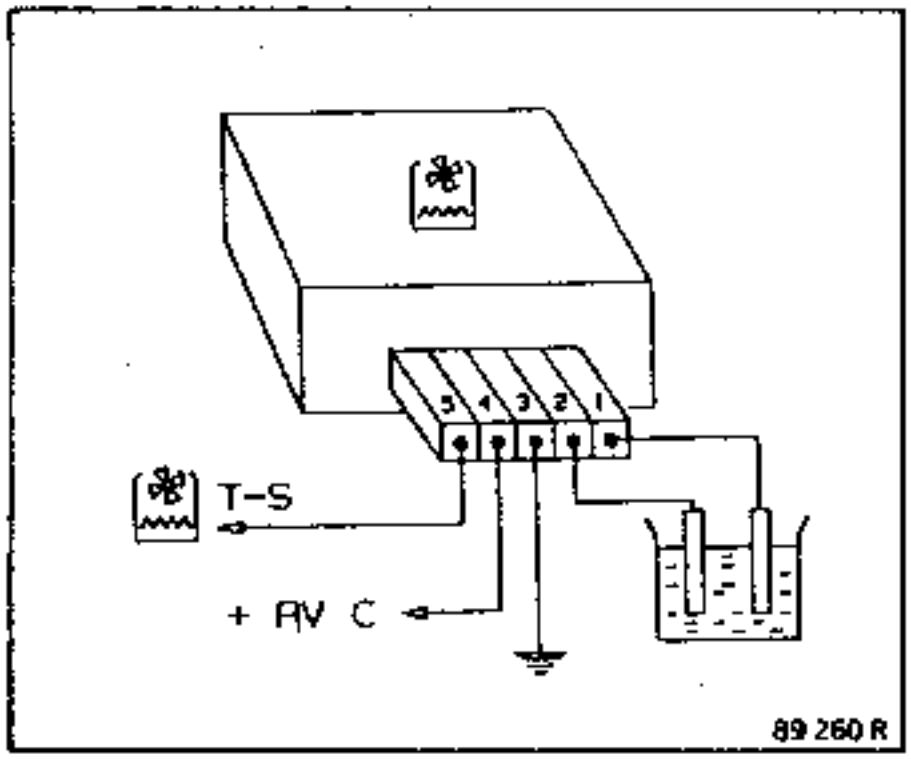
From Model Year 1986 to Model Year 1988, Renault 25 V6 Turbo vehicles are fitted with a minimum coolant level detector.

The expansion bottle is fitted with two electrode sensors (compound-filled).

The minimum coolant sensor unit sends alternating current to one side of the sensor.

If coolant is present, the current passes to the other side of the sensor. If this does not occur, the lack of coolant is registered by the unit, which generates a warning.

Connection diagram



89 260 R

+ AVC : + before ignition
T – S : Warning light or voice synthesizer

It is located above the relay plate.

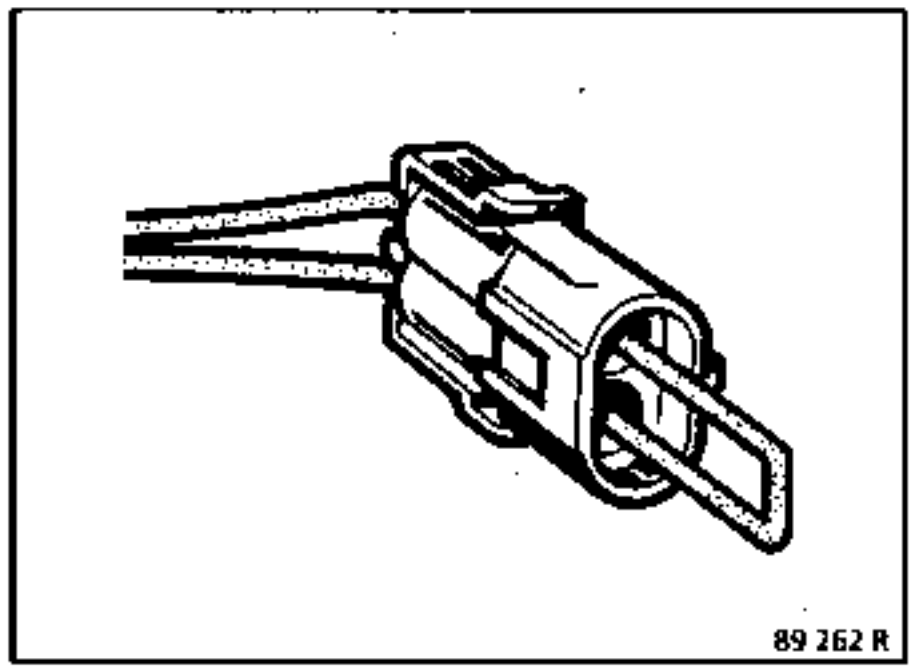
Fault finding

If the voice synthesizer message is emitted or the "Min coolant" warning light illuminates, check

that the sensor is correctly connected and the level. If it is correct, disconnect the sensor connector and proceed as follows:

- Switch on the ignition

  Using a wire, shunt terminals (A) and (B) of the socket on the wiring harness side.


89 262 R

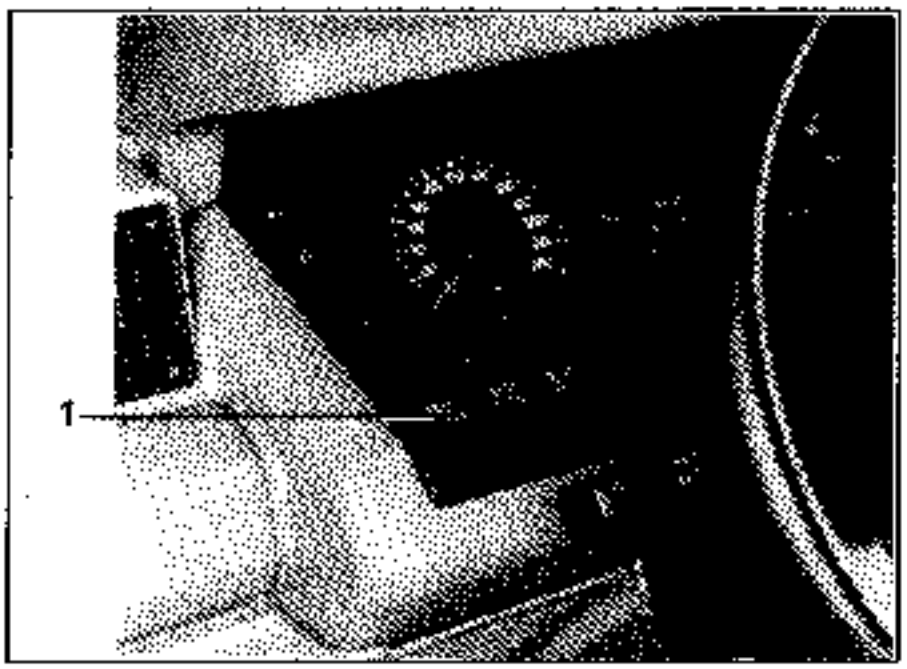
Warning light status	(after 10 seconds)
Extinguished	Stays illuminated
Break in sensor wire Change the sensor	Check continuity and insulation of wiring, if CORRECT, change the sensor unit.

DESCRIPTION

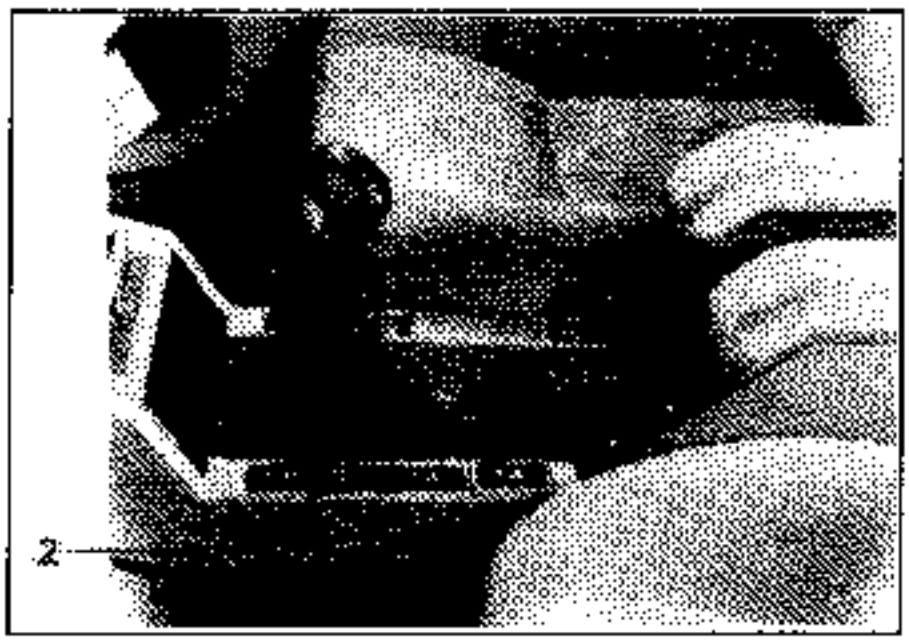
This system electrically de ices the rear screen using a de-icing grid, applied by the silk screen process on the inside of the screen

The system is turned on either:

- By pressing key (1) on the instrument panel (without front fog lights option).



- By pressing key (2) on the centre console (if front fog lights option is fitted).

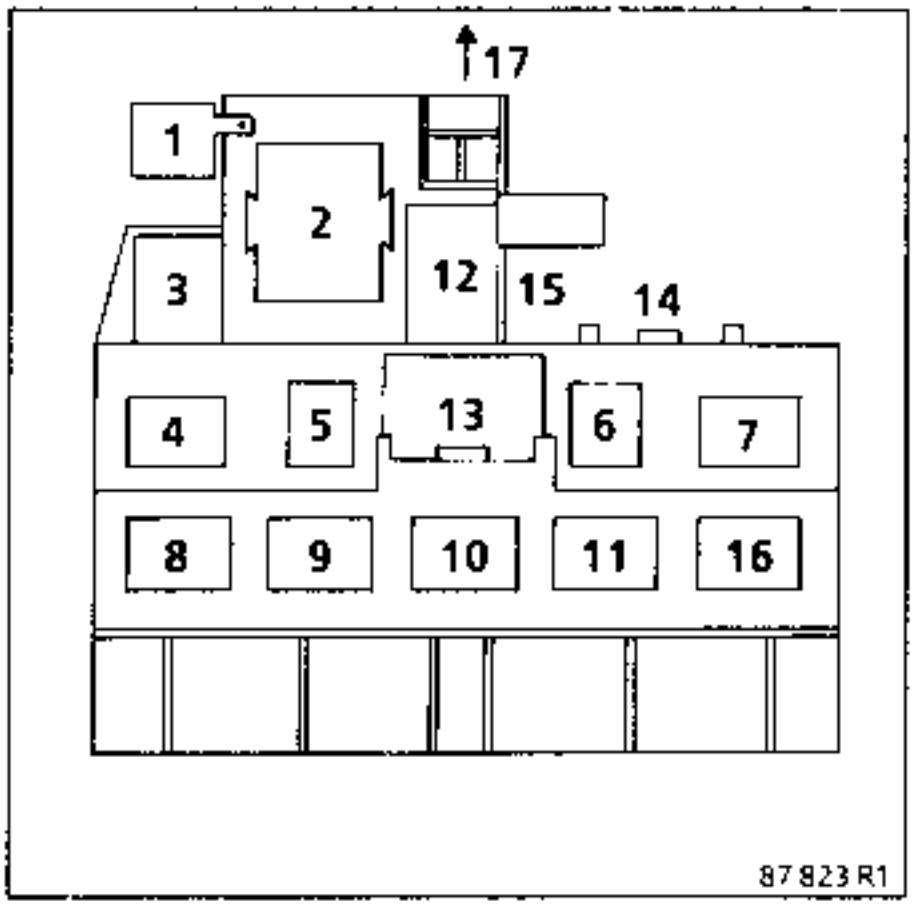


Since the start of 1987 the rear window de-icer is timed to operate for 15 minutes.

However, the rear window de icer can be stopped before the end of the set period by pressing the switch again.

Location of the timer relay

It is located in place of the rear window relay without a timer (10)



In this case, the leed relay is secured above the relay board by a metal bracket (17)

The rear screen de-icer grid may have an accidental break, affecting the operation of that section.

A voltmeter is used to determine the exact location of the break.

This type of break may be repaired using rear screen de-icer varnish, part number 77 01 421 135 (2 g pack).

USING A VOLTMETER TO DETERMINE THE EXACT LOCATION OF A BREAK IN THE GRID

Turn the ignition on.

Turn the rear screen de-icer on.

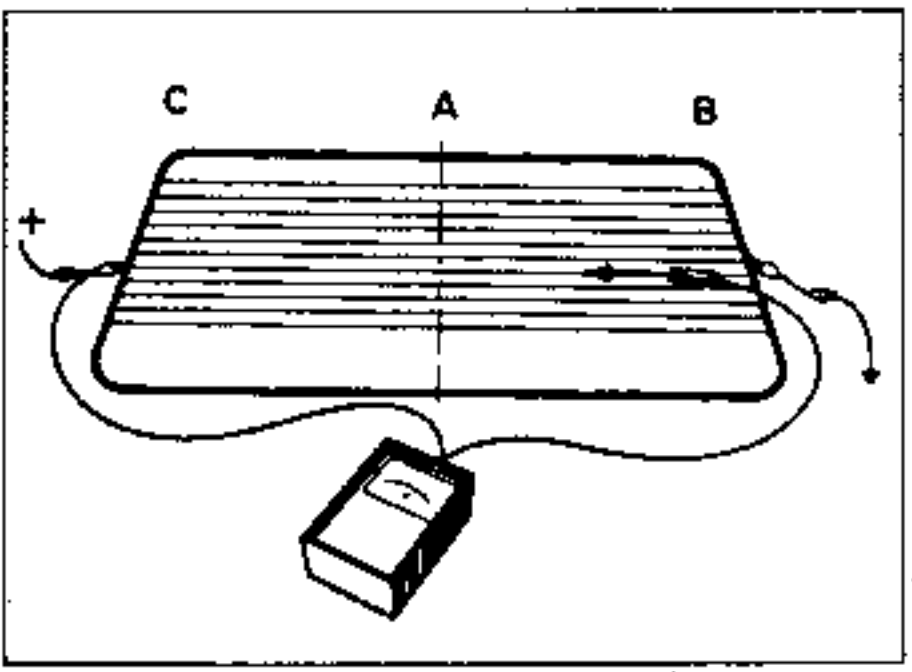
DETECTION BETWEEN LINES B AND A

Connect the + lead from the voltmeter to the feed terminal of the de-icer grid.

Put the negative voltmeter lead on a filament on the negative terminal side of the grid (line B). A voltage close the battery voltage should be read.

Move the negative wire towards line A (arrow) : the voltage should drop progressively.

If the voltage drops sharply, the grid is broken at this point (carry out this operation for each filament.



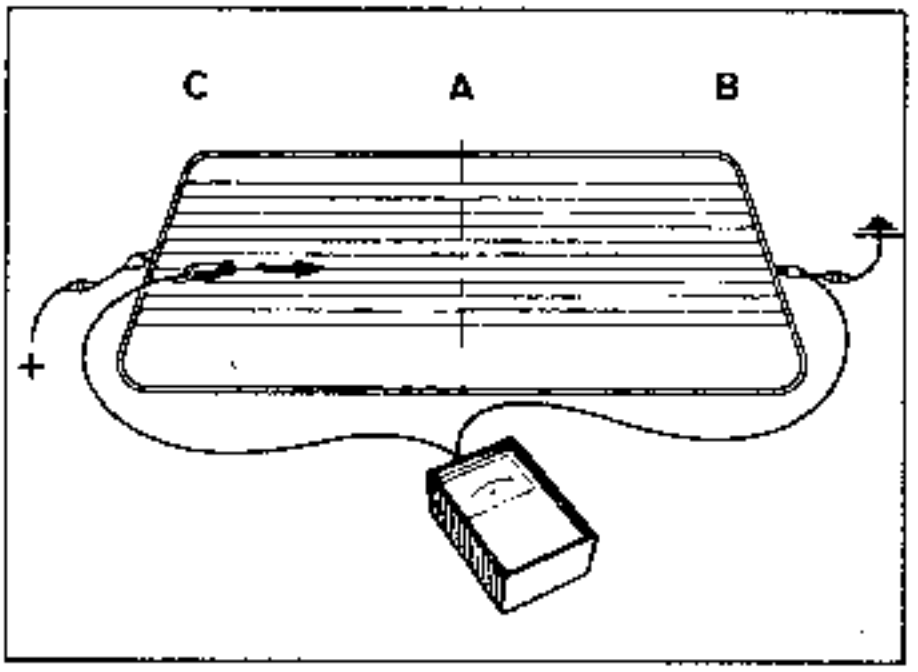
DETECTION OF LINES C AND A

Connect the negative lead of the voltmeter to the negative terminal on the grid.

Put the positive lead from the voltmeter on a filament on the positive terminal side of the grid (line C) ; a voltage close to the battery voltage should be read.

Move the positive wire towards line A (arrow) ; the voltage should drop progressively.

If the voltage drops sharply, the grid is broken at this point (carry out this operation for each filament).



REPAIRING THE FILAMENT

Clean the area in question to remove all grease and dust using alcohol or a glass cleaning agent. Dry with a clean dry cloth.

In order to obtain a straight line when repairing, apply adhesive tape either side of the filament to be repaired, leaving the filament exposed in the centre.

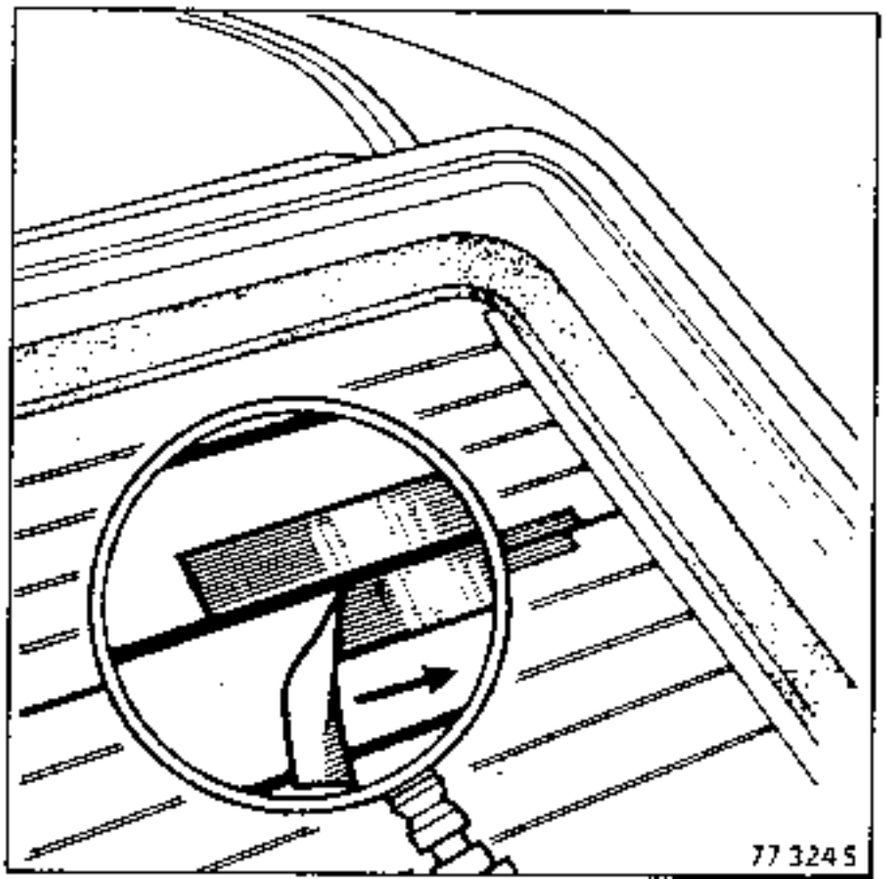
Before using the varnish, shake the bottle well to mix in any silver deposits.

REPAIR

Using a small paintbrush, apply a sufficient thickness of varnish to make the repair. If applying successive coats, allow each coat to dry before applying the next, to a maximum of three coats.

If the varnish is too thick, any excess may be removed using a knife or razor blade after several hours have passed, to ensure that the product has hardened correctly.

The adhesive tape should only be removed after an hour. The tape should be pulled off at right angles to the filament, as shown in the diagram. The varnish should be applied at an ambient temperature of 20°C and is completely hardened after 3 hours. If it is applied at a lower temperature, it may take slightly longer to harden fully.



GENERAL POINTS

The system allows three different driving positions to be memorised.

Three different adjustments are possible for each position:
- Distance from the steering wheel
- Seat height
  Seatback rake

The system incorporates safety devices preventing its activation when the vehicle is moving.

The computer controls three electric motors connected to three potentiometers for measuring the positions.

Data from the infra-red remote control enables the seats to be adjusted during a 15 second period, without the ignition being switched on and after the signal to unlock the doors has been emitted

DESCRIPTION

COMPUTER

It is located in the centre console under the handbrake control.

Note : The computer does not retain the memorised positions if the permanent feed is cut (battery disconnected).

Connections

Grey connector (9-track)

Track	Description
A1.	+ before ignition
A2.	Feed, seatback motor
A4.	Feed, forwards motor
B1.	Feed, seat raising motor
B2.	Earth, forwards motor
B3.	Earth, computer
B4	Earth, seat raising motor
B5	Earth, backseat motor

Black connector (15-track)

Track	Description
1.	Memorising, key 5
2.	Memorising, key 2
3	Memorising, key 1
4.	Memo key
5.	Not used
6.	Not used
7.	Sensor, seat raiser
8.	Sensor, seat raiser
9.	Sensor, seatback
10.	Sensor, seatback
11	Sensor, forwards
12.	Sensor, forwards
13	Diagnostic socket, line K
14.	Plip information
15	Speed information

Red connector (15 track)

Track	Description
1.	On/off key
2	+ before ignition
3	Diagnostic socket, line L
4.	Computer earth
5.	+ after ignition
6	Not used
7.	Not used
8.	Not used
9	Shunt to track 11
10	On/off key
11	Shunt to track 9
12.	Common sensor
13	Seat control
14.	Position selection
15.	Common memorising keys

THE SEAT

The seat consists of:

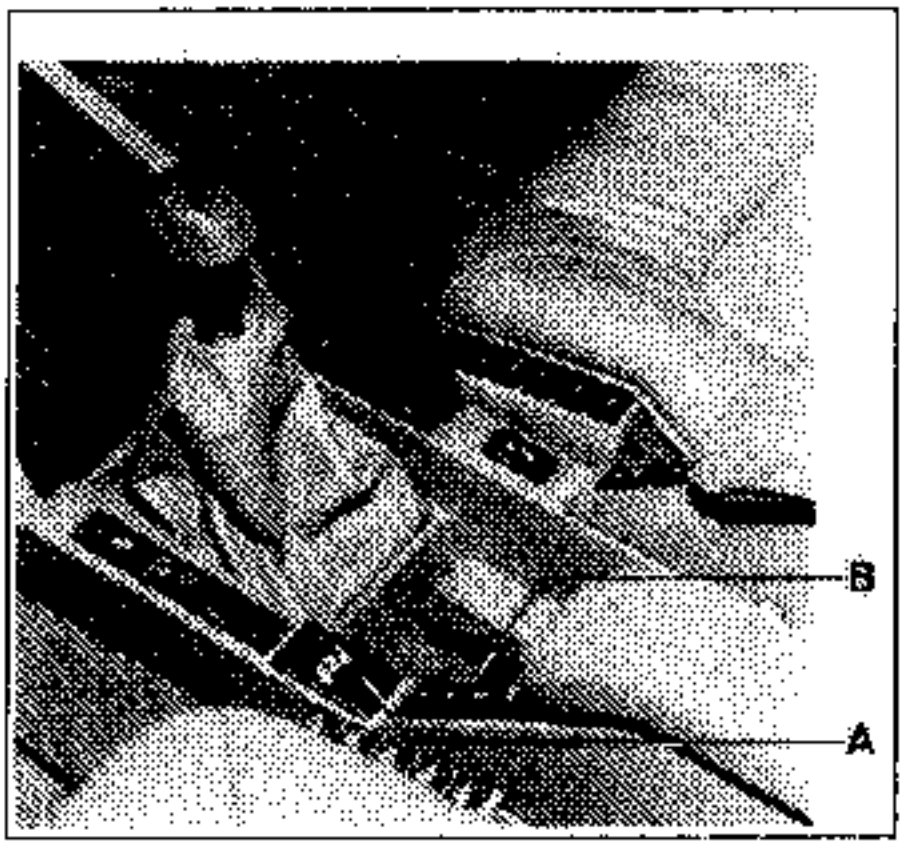
- 4 motors (for 3 movements) :
  - 1 longitudinal
  - 1 height
  - 2 seatback rake
- 3 position potentiometers (one per movement),

The controls :

These consist of:

- 1 control keyboard for manual adjustment mode (A).
- 1 keyboard for automatic mode (B).

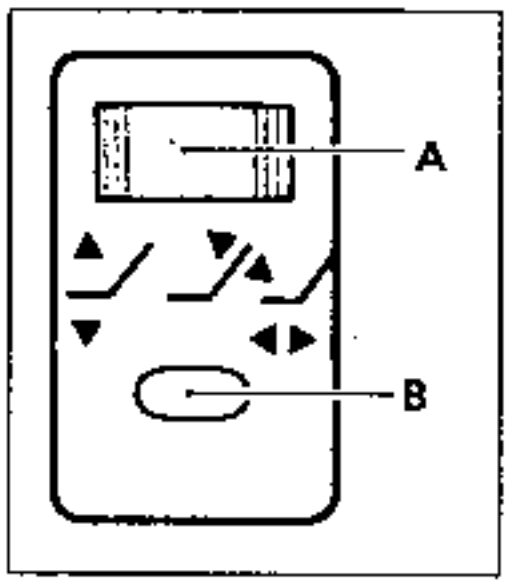
They are located on the centre console.



Control keyboard for manual mode

The control keyboard contains:

- 1 selection switch of the position to modify (A),
- 1 selection switch for direction of seat movement (B)



Connections

Track	Description
A1.	Common direction of movement
A2.	Common position selection
A4.	Raising
B1.	Forwards and direction of movement
B2.	Seatback and direction of movement
B3.	+ illumination
B4.	Earth

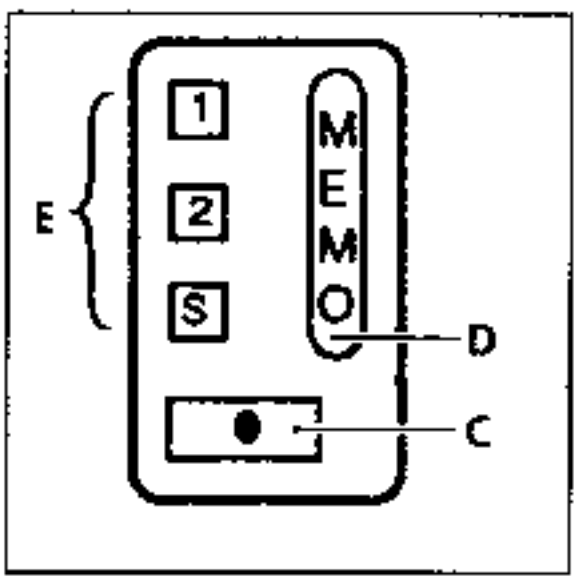
Control keyboard for automatic mode

The control keyboard comprises:

- 1 ON/OFF switch (C) which, when pressed in, supplies power to the computer.
  If the feed is cut by this switch, all functions for the driver's seat, for both manual mode and automatic mode, are cut. (This switch does not affect the passenger seat.)

- 1 "Memo" button (D), which stores all the adjustments made previously.

- 3 buttons "1.2.S." (E), which allow three preset positions to be selected.
  - either in memory mode
  - or recall mode



Connections

Track	Description
A1.	+ illumination
A2.	ON/OFF switch
A3.	Not used
A4.	"Memo" button
A5.	Common button
B1.	ON/OFF switch
B2.	Earth
B3.	Button "S"
B4.	Button "2"
B5.	Button "1"

Position potentiometers

There are three potentiometers.

They inform the computer of the position of each motor shaft (longitudinal, height, seatback rake).

Automatic adjustment mode

Store in memory.

While using the manual mode, adjust the seat to the desired positions.

Press the "Memo" key to memorise the preset positions.

Less than 3 seconds later, press key 1, 2, or S, to select the preset positions for a driver (key 1 for the first driver, key 2 for the second driver, etc.).

RECALLING PRESET POSITIONS

This can be done in two ways:

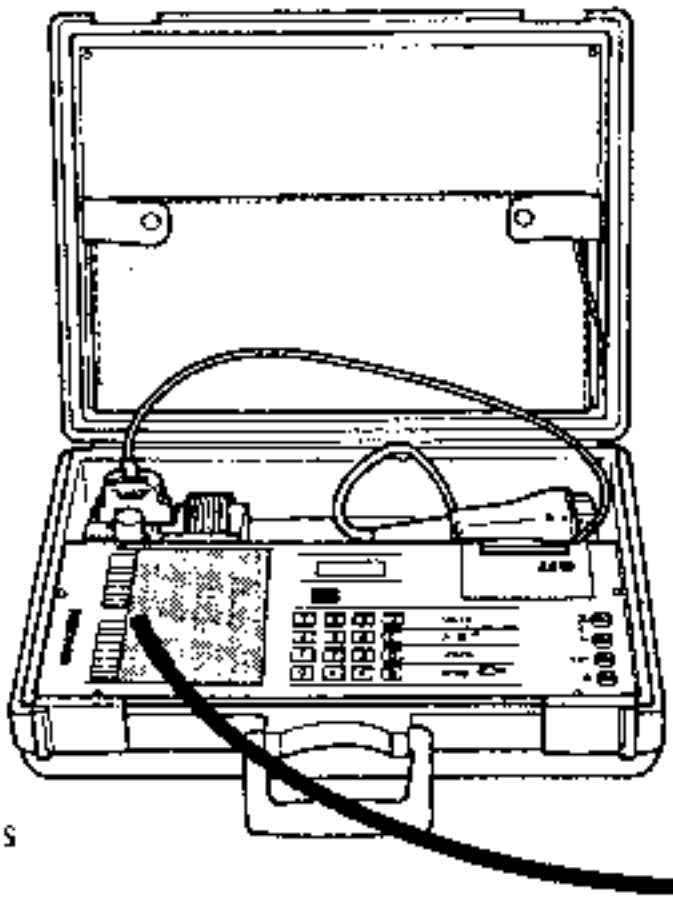
1) Within 15 seconds of unlocking the door by infra-red remote control, by pressing the key for the relevant driver the preset position stored under this key are recalled
   (on/off switch pressed in).

2) With + after ignition, by pressing the key for the relevant driver the preset position stored under this key are recalled, if the vehicle speed is less than 10 mph/15 km/h.
   (on/off switch pressed in).

FAULT FINDING

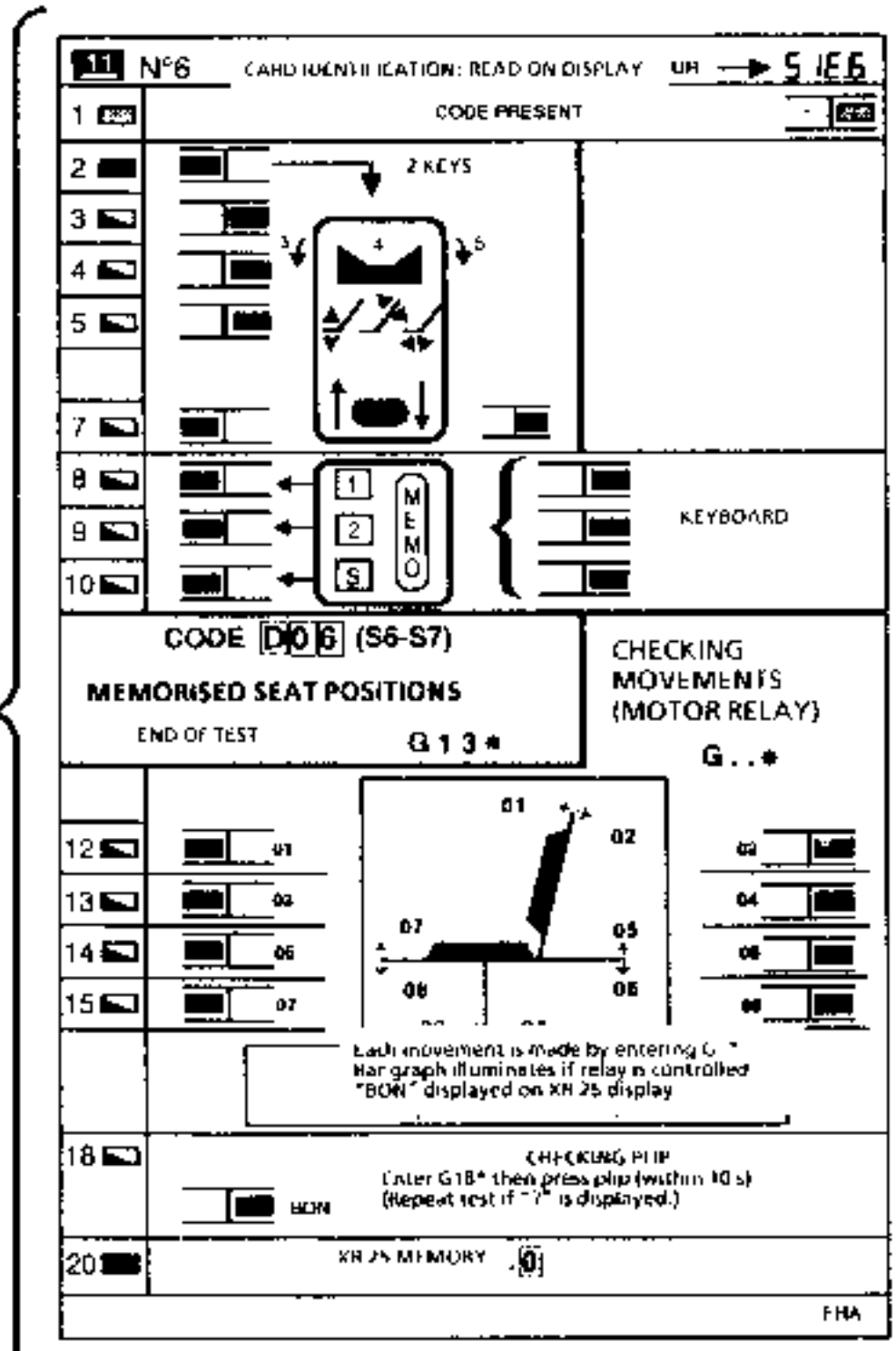
This system can be checked using the XR 25.

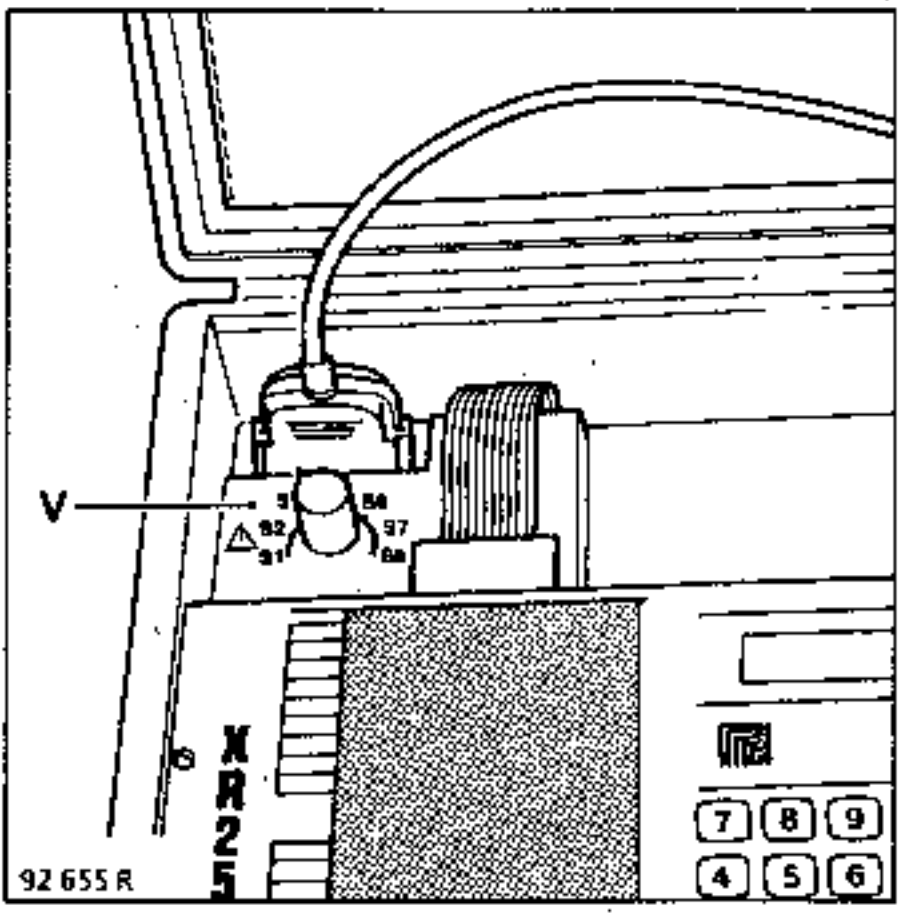
Connecting up the XR 25



92 656 S

Connect the XR 25 to the vehicle's diagnostic socket and set the selector to **S6 - S7**.





92 655 R

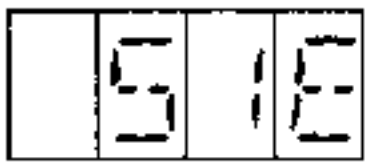
NOTE : The "**V**" warning light must be extinguished. If this warning light is illuminated, disconnect and then reconnect the diagnostic socket. If it remains illuminated, check the XR 25 wiring and the battery voltage

Note:
It is normal for the seat not to move when the controls are tested using the XR 25.

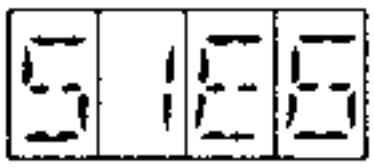
FAULT FINDING (continued)

Analysing the operation of the system with the XR 25 and the latest cassette .

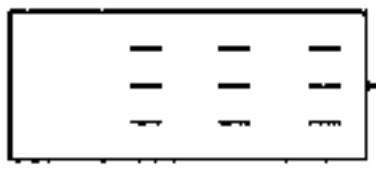
- Vehicle stationary, ignition on, on/off switch pressed in
- Enter code **D** **0** **6**
- The following appears on the central display:



then



or

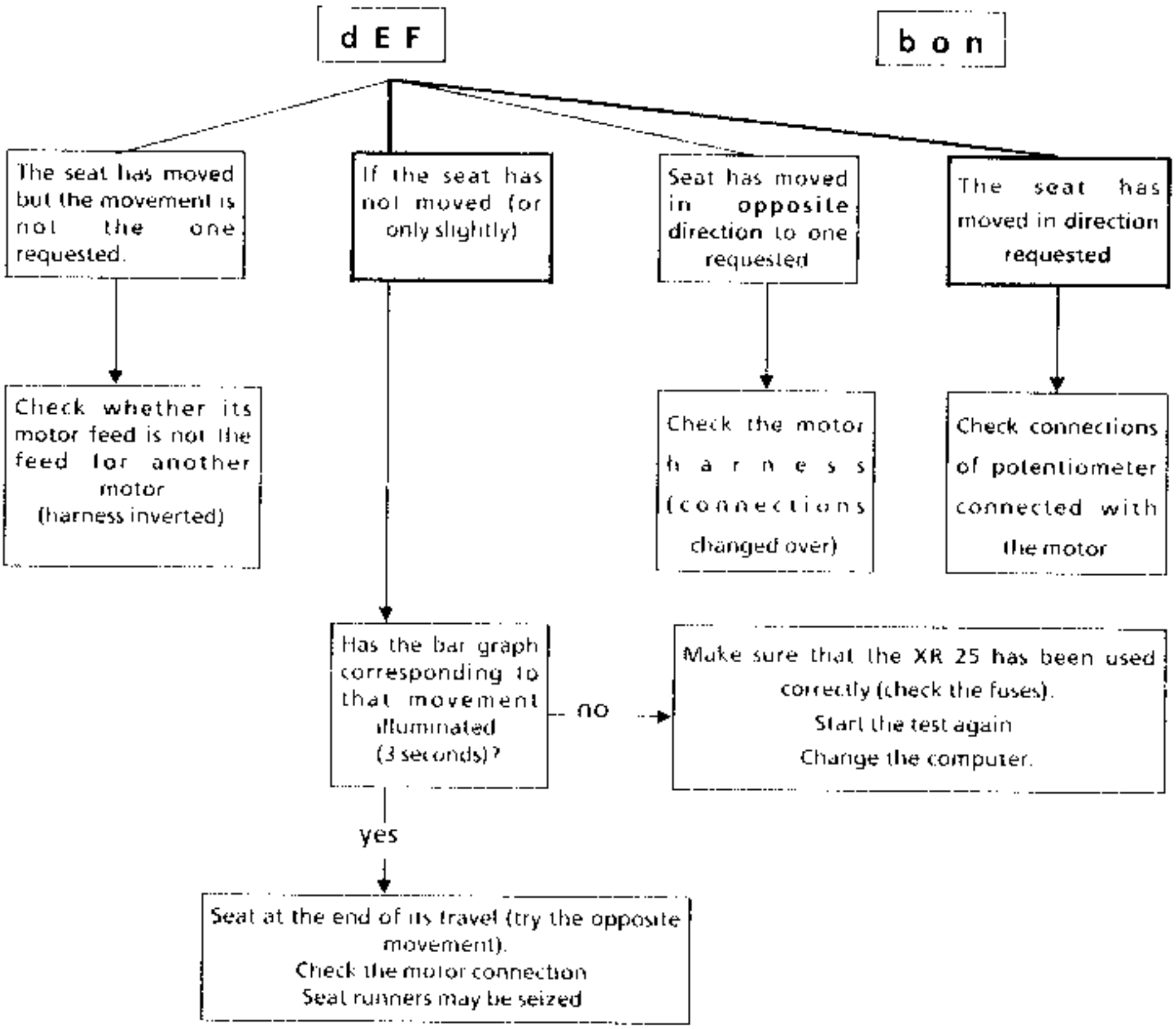


Indicates that dialogue has not been established.

Bar graphs	
1 RH side 1	The bar graph may illuminate after a delay of 30 to 40 seconds. This is because of the time required for the computer to test itself. To reduce this amount of time: – Enter G13* (you will hear a bleep), then D06. The diagnostic sequence will appear after 3 seconds. If bar graph 1 does not illuminate (not possible to test the keys): – Check: ISO unit selector not set at S6 - S7. Switch for cassette (cassette 7 only) in the wrong position. Vehicle's ignition not switched on. On/off switch not on. – Check the earth and fuses for the computer (25A and 30A). (This is only if none of the seat functions work). – Check the diagnostic connections between the computer and diagnostic plug: terminals 3 (515 → 10 diagnostic plug) 13 (515 → 11 diagnostic plug) **NOTE** : It is normal for bar graphs 1 to 10 not to illuminate if tests 12 - 13 - 14 - 15 - 18 are performed (for the seat movement and plip) since, in these tests, the computer is no longer in the same mode.
2 LH side 2	Correct, if the left-hand side of this bar graph is illuminated. Indicates that the vehicle has a keyboard. If the right-hand side is illuminated, the harness is not to the vehicle's specification.
3 to 10	**Checking the keys** (press them one after the other). If one of the bar graphs does not illuminate when the corresponding key is pressed: – check the continuity of the harness corresponding to the key. If one of the bar graphs is still illuminated, even when the corresponding key is pressed: – check that it is working mechanically and check the corresponding harness. If several bar graphs (except 8 - 9 - 10) illuminate at the same time when a key is pressed: – Disconnect 517. If the incident persists: – check harness between keyboard and computer. If the incident is remedied: – Change keyboard 517.

12 LH 12 RH **13 LH 13 RH** **14 LH 14 RH**	Each time a request for the seat to move is entered, the corresponding bar graph should illuminate (2 seconds) If it does not illuminate, it means that the computer has not received the signal from the XR 25. – (See the next page)
15 LH 15 RH	Not used at present (bar graphs do not illuminate)

Displays read off on the XR 25 at the end of each seat movement



	Checking the signal from the infra-red sensor
18 LH	If it does not illuminate when the plip is activated If the doors are locking and unlocking correctly, check the connection between the computer and the infra-red receiver (terminal 14 of the computer). – (See the next page)

– Checking the seat movements

The XR 25 can activate six movements (by means of its keyboard). Even if the seat controls are not in use, each request is made by pressing key G on the XR 25, followed by a number (from 1 to 6) then*:

G1*	:	the seatback moves forward	G2*	:	the seatback moves backwards
G3*	:	the seat moves forwards	G4*	:	the seat moves backwards
G5*	:	the seat is raised	G6*	:	the seat is lowered

Each movement request illuminates the corresponding bar graph (for example, G1* illuminates line no. 12 on the left-hand side). This indicates that the computer has correctly received the request (bar graph illuminates for approximately 3 seconds); the seat should move as requested.

- When the seat is moving : the value of the development of the potentiometer connected with the seat motor is shown on the XR 25 centre display.

- At the end of seat movement : "bon" (= Correct) or "dEF" is displayed.
  If the seat is at the end of its travel with no movement, "dEF" will be displayed.
  Make the seat move in the opposite direction (for example, by pressing : G2*) to make sure that it is working.

NOTE : It is normal for the seat control keys not to affect the seat movements during this test.

– Testing the infra-red remote control signal

(The signal from the infra-red receiver to the computer is tested.)

Enter G18* on the XR 25 keyboard and press the plip twice within 15 seconds.

The right-hand side of bar graph 18 should illuminate (direct the plip towards the receiver).

After 15 seconds the infra-red transmitter will no longer be active so the bar graph will not illuminate any longer.

To repeat the test, enter G18*.

NOTE : If the plip is integral with the ignition key, use the second key to switch on the ignition

– Testing the vehicle speed data

This data is not displayed on the XR 25.

During a road test, if the vehicle speed is greater than approximately 10 mph/15 km/h, the "Memo" keys (1 - 2 - S) should not react. If they do react, it means that the computer is not receiving the vehicle speed data.

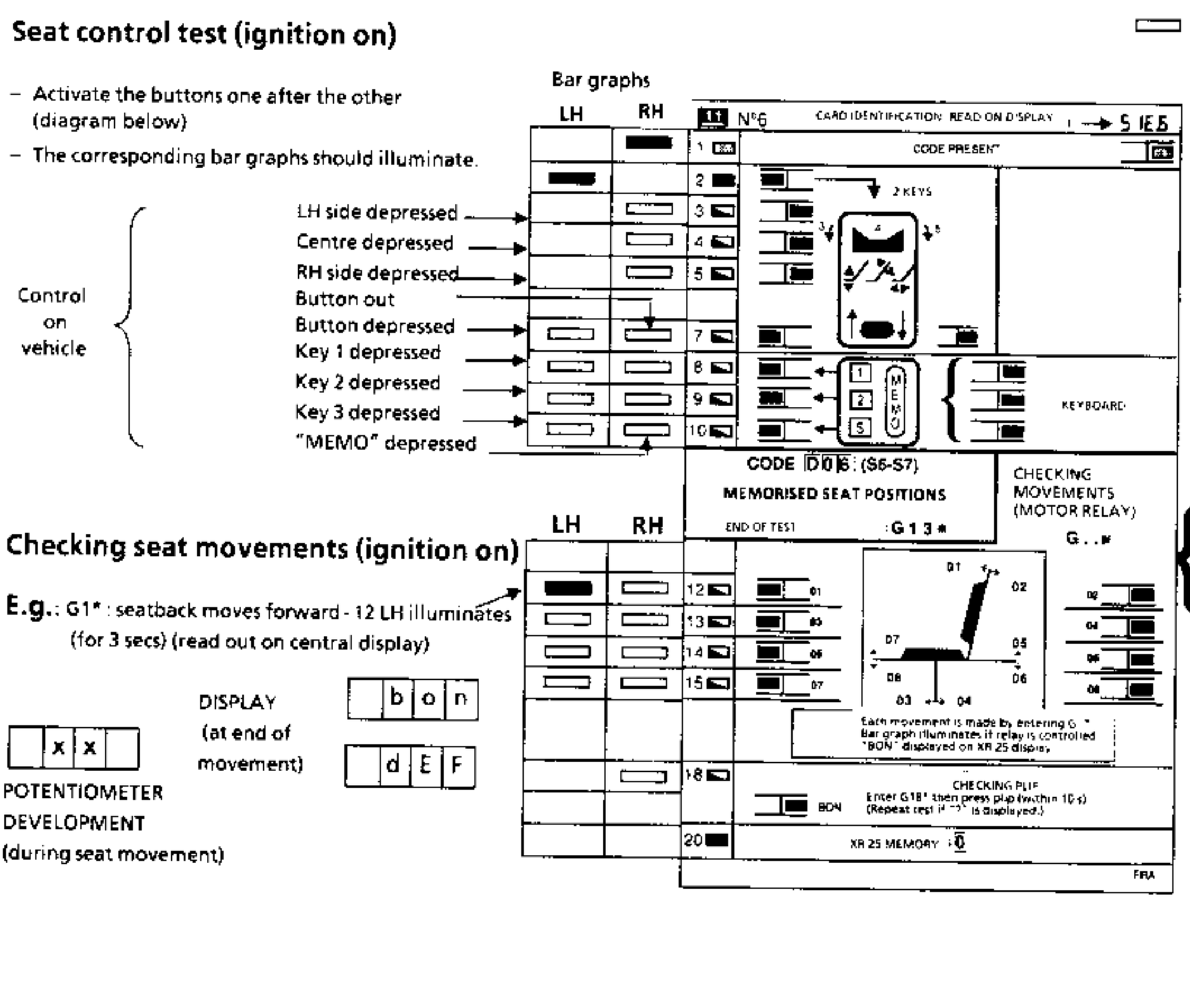
IMPORTANT

When the XR 25 is testing bar graphs 1 - 2 - 3, the seat control keys no longer affect the seat movements: the computer is communicating solely with the XR 25. (This is normal since it is in its testing mode.)

DISPLAY OF TESTS ON THE XR 25

Seat control test (ignition on)

- Activate the buttons one after the other (diagram below)
- The corresponding bar graphs should illuminate.



Indicates part of bar graph which may illuminate

Checking seat movements (ignition on)

E.g.: G1* : seatback moves forward - 12 LH illuminates (for 3 secs) (read out on central display)

Les flèches montrent le sens des déplacements après une demande sur le clavier.

ex. G1* : dossier Avance

DISPLAY (at end of movement)

	b	o	n

	d	E	F

	x	x	

POTENTIOMETER DEVELOPMENT (during seat movement)

(PLIP = TIR)