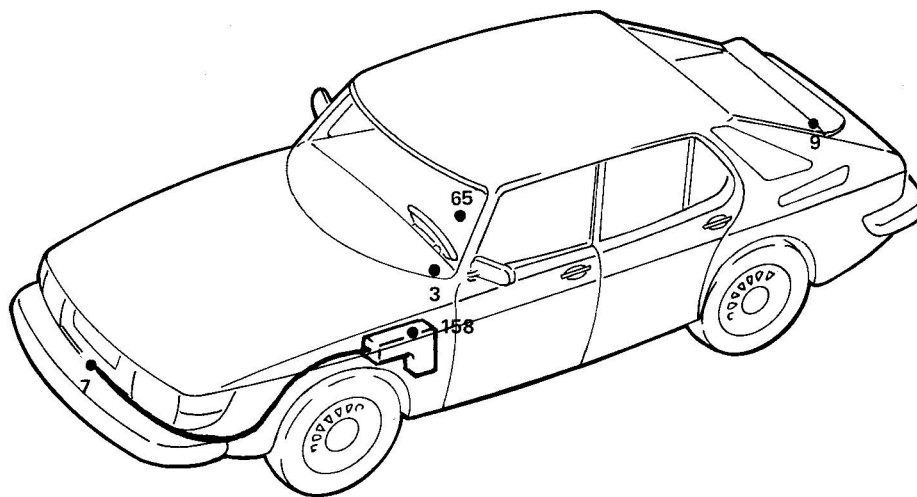


Earth connections

General

The car has certain earthing points which have "component numbers" and other earthing points at which the component is earthed directly to the chassis, such as temperature transmitters, oil pressure transmitters, etc. The locations of the earthing points with component numbers are the same in the Combi Coupé as in the Sedan.



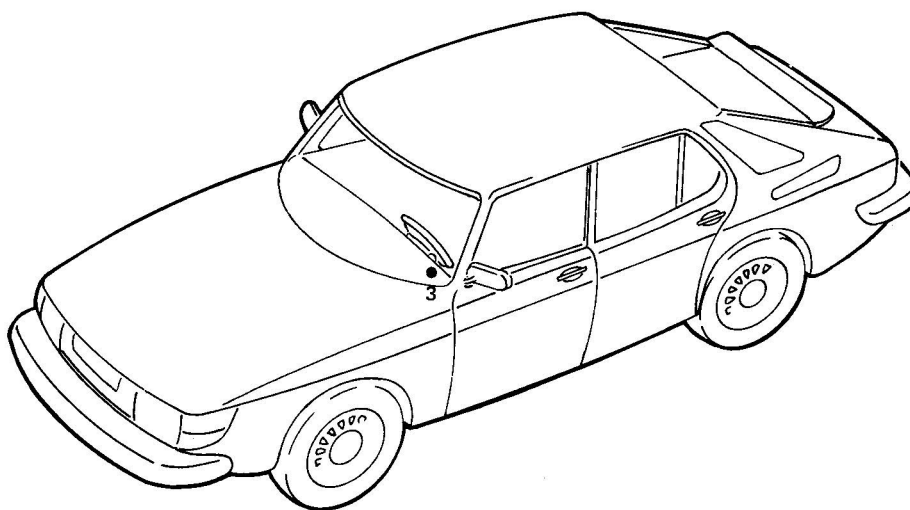
- 3 Earthing point in the facia
- 7 Earthing point on the radiator cross-member
- 9 Earthing point in the luggage compartment
- 65 Earthing point at the handbrake lever
- 158 Negative distribution terminal in the electrical distribution box

On the 1984 models, the negative pole of the battery is earthed by means of a braided conductor connected to earthing point 7 on the radiator cross-member below the radiator fan. The engine is also earthed by means of a braided conductor connected to earthing point 7.

On the 1985 - 1986 models, the battery is earthed by means of a 16 mm² conductor to earthing point 7. The engine is connected directly to the negative pole of the battery by means of a 25 mm² conductor.

From earthing point 7, a cable then runs to distribution terminal 158 in the electrical distribution box on the left-hand front wheel housing.

In addition, cars with fuel injection system are provided with a reference earthing point 201. This is located on the cylinder head of the engine, beside the lifting lug.

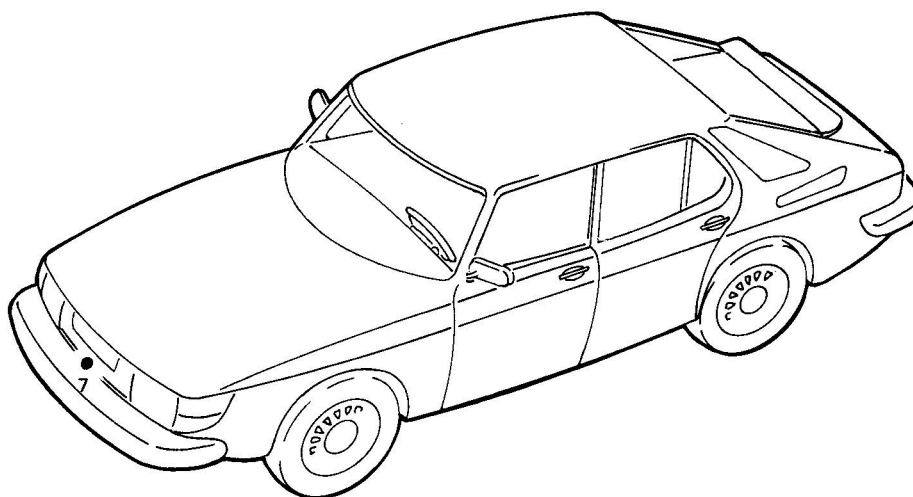


Components connected

Earthing point 3 is located to the left of the steering wheel, below the facia, behind the knee guard (on the front side of the instrument cross-member, behind the flasher relay).

The following components are connected (by means of screw terminals) to this earthing point. Some of the components listed below are fitted only to cars of certain versions or for certain markets.

10	Light switch	153	Lighting for the cigarette lighter
23	Flasher relay	154	Lighting for the heater controls
25	Hazard warning light switch	160	Switch for glove compartment illumination
36	Motor for the ventilation fan	161	Switch for the rear fog lights
47	Combined instrument	169	Switch, AC
48	Cigarette lighter	267	Earthing of the radio installation (across 2-pole connector 59 or 10-pole connector 98)
74	Resistor (half-speed) for the ventilation fan		
83	Relay for intermittent operation of the wind-screen wipers		
88	Switch for extra fog lamps		
116	Switch for the electrically heated rear window		
124	Switch for the left-hand electrically operated rear-view mirror		
125	Switch for the right-hand electrically operated rear-view mirror		
127	Motor for the right-hand electrically operated rear-view mirror (across the 4-pole connector 123 in the engine compartment at the right-hand door pillar and in the right-hand door)		
128	Cruise Control relay		
131	Electronic control unit for Cruise Control		
132	Sensor for the speed transmitter		
133	Clutch switch for Cruise Control		
143	Recirculation switch, AC		
148	Ashtray illumination (across a 2-pole connector in the facia)		



Components connected

Earthing point 7 is located below the radiator, on the right-hand side of the radiator cross-member. The following components are connected (by means of screw terminals) to this earthing point. Some of the components listed below are fitted only to cars of certain versions or for certain markets.

Negative distribution terminal 158 in the electrical distribution box is also connected to earthing point 7.

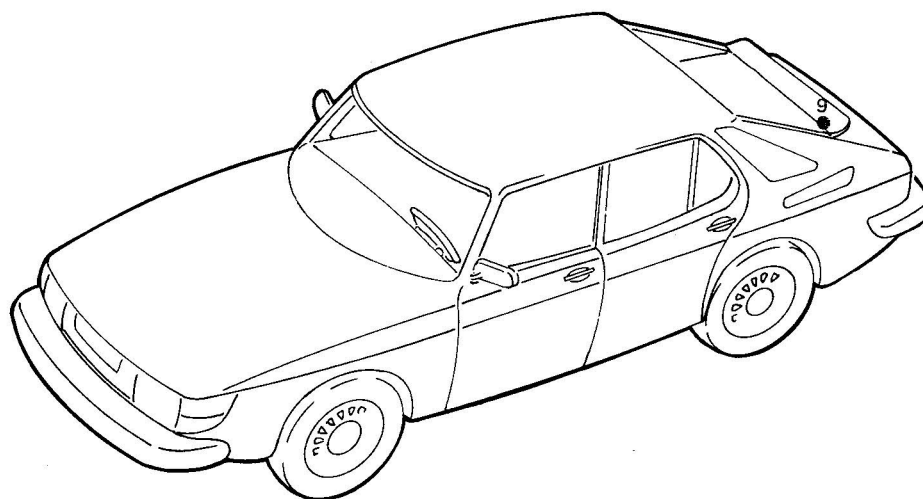
LH = left-hand side

RH = right-hand side

- 11 Headlamp full beam
- 12 Headlamp dipped beam
- 13 Parking lights
- 26 Time-delay relay for the radiator fan
- 27 Direction indicator lamp, left-hand front
- 28 Direction indicator lamp, right-hand front
- 37 Radiator fan motor (across 2-pole connector 59 at the radiator)
- 63 Washer motor (across 2-pole connector 59 on the right-hand side of the engine compartment, beside the washer fluid container)
- 66 Headlamp wiper motor (across 3-pole connector 57 in the engine compartment at the corresponding motor)
- 81 Driving lights
- 85 Extra fog lamps
- 93/118 Corner lights/driving lights
- 119 Side reversing lights
- 130 Coolant temperature switch
- 158 Negative distribution terminal
- 172 Radiator fan for the AC (across 2-pole connector 59 at the radiator fan motor)
- 179 Solenoid valve for the APC system
- 234 Side marker lights

Cars with 8-valve engine for the U.S.A., Canada and Japan

- 104 Hot start relay
- 105 Engine speed relay
- 106 Time-delay relay
- 138 Engine speed relay
- 203 Throttle valve angle transmitter



Components connected

Earthing point 9 is located under the spare wheel hatch in the luggage compartment, at the extreme rear on the centre member. The following components are connected (by means of screw terminals) to this earthing point. Some of the components listed below are fitted only to cars of certain versions or for certain markets.

LH = left-hand

RH = right-hand side

- 46 Fuel level transmitter (across 3-pole connector 57, under the luggage compartment floor, beside the transmitter)
- 101 Fuel feed pump (across 3-pole connector 57 under the luggage compartment floor)
- 103 Fuel pump (across 3-pole connector 57 under the luggage compartment floor)
- 177 Control unit for the APC system

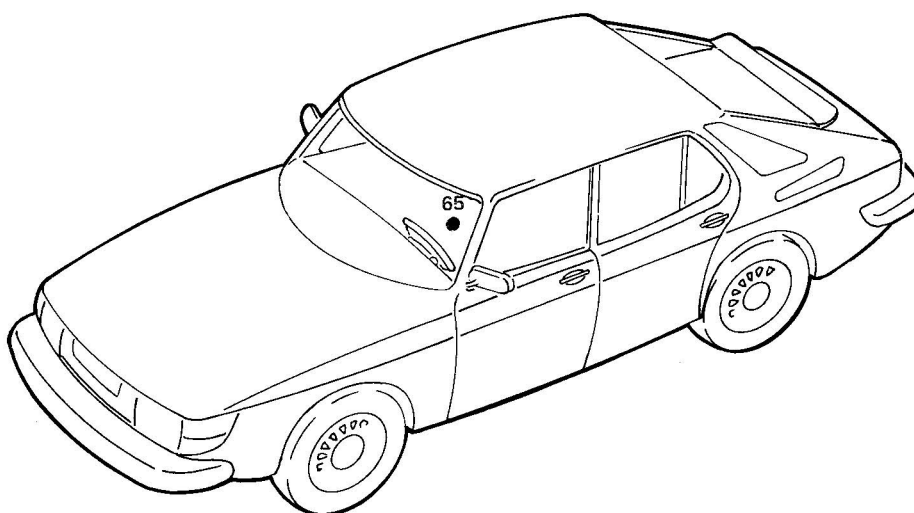
Sedan

- 14 Rear lights
- 15 Number plate illumination (across 3-pole connector 57 in the luggage compartment, to the left below the parcel shelf)
- 27 Direction indicator lamps, left-hand
- 28 Direction indicator lamps, right-hand
- 30 Brake lamps
- 32 Reversing lamps
- 33 Rear fog lights

Combi Coupé

The tailgate lighting is earthed to the tailgate which, in turn, is earthed to earthing point 9 across cable 211A SV 2.5 (across 3-pole connector 57 in the luggage compartment, at the left-hand air outlet).

- 14 Rear lights
- 15 Number plate illumination
- 27 Direction indicator lamps, left-hand
- 28 Direction indicator lamps, right-hand
- 30 Brake lamps
- 32 Reversing lamps
- 33 Rear fog lights
- 109 High-level brake lights (across single-pole connector 60 in the tailgate, at the left-hand rear light cluster)

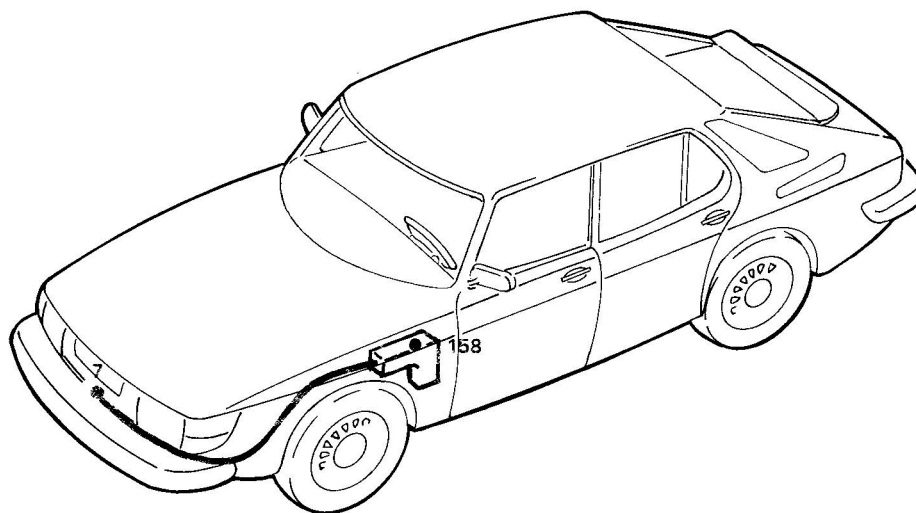


Components connected

Earthing point 65 is located between the left-hand front seat and the handbrake lever. The front seat must be removed before access can be gained to the earthing point.

The following components are connected (to the handbrake switch mounting screw) to this earthing point. Some of the components are only fitted to cars of certain versions or for certain markets.

- 43 Handbrake switch
- 53 Interior lighting switch
- 64 Heating pad with thermostat (across 2-pole connector 59 under the corresponding front seat)
- 82 Seat belt/ignition switch warning relay
- 121 Seat switch for the heating pad (across 2-pole connector 59, under the right-hand front seat)
- 151 Time-delay relay for the interior lighting (across 4-pole connector 123 under the back seat, to the left beside the relay)
- 162 Switch for the driver's door electric window regulator
- 163 Switch for the co-driver's door electric window regulator
- 175 Electronic unit for the central locking system
- 181 Switch for the electrically operated sunroof
- 183 Control unit for the central locking system, RH drive cars (across 3-pole connectors 57R in the right-hand front door and forward of the right-hand A-pillar, beside the upper hinge)
- 189 Switch for the rear-door electric window regulators
- 190 Switch for the left-hand rear electric window regulator
- 191 Switch for the right-hand rear electric window regulator
- 288 Burglar alarm switch (US)



Components connected

Distribution terminal 158 consists of a ring of flat pins and is connected to earthing point 7 on the radiator cross-member by means of cable 3 SV.

The terminal is located on the underside of the electrical distribution box. The following components are connected to the terminal. Some of the components listed below are fitted only to cars of certain versions or for certain markets.

- 7 Earthing point on the radiator cross-member
- 21 Ignition switch relay
- 38 Recirculation valve
- 62 Windscreen wiper motor
- 73 Timing service instrument socket
- 89 Side direction indicator, left-hand
- 90 Side direction indicator, right-hand
- 104 Hot start relay
- 126 Motor for the left-hand electrically operated rear-view mirror (across 4-pole connectors 123 in the engine compartment at the left-hand door upper hinge and in the left-hand front door)
- 147 Ignition pulse amplifier
- 156 Relay for the AC compressor
- 183 Control unit for the driver's central door lock (across 3-pole connectors 57 in the engine compartment at the left-hand door upper hinge and in the left-hand front door)

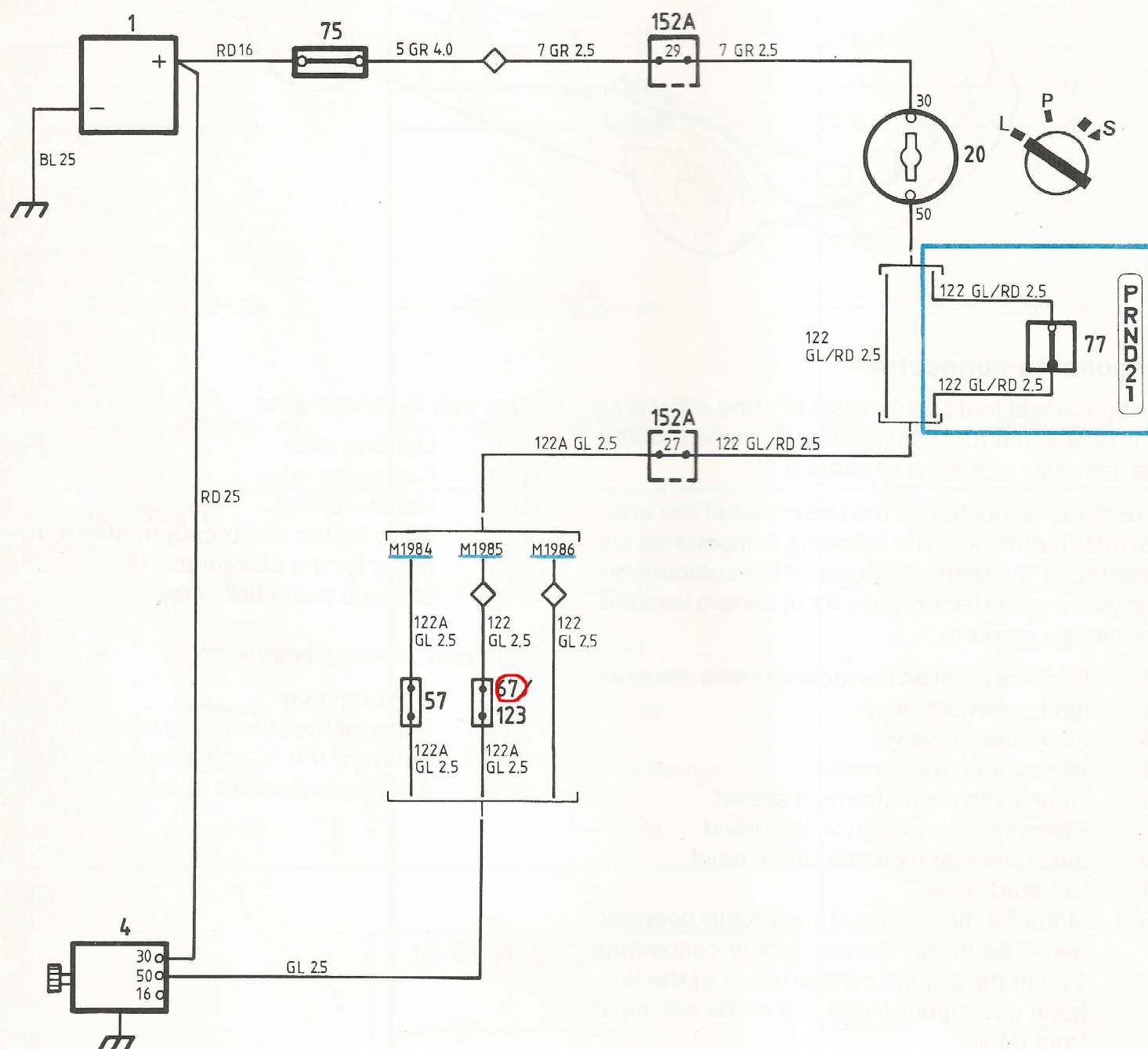
Cars with 8-valve engine

- 8 Lighting relay
- 102 Fuel pump relay
- 104 Hot start relay
- 113 Relay for the electrically heated rear window
- 155 Relay for the AC radiator fan
- 270 Shift-up indication relay

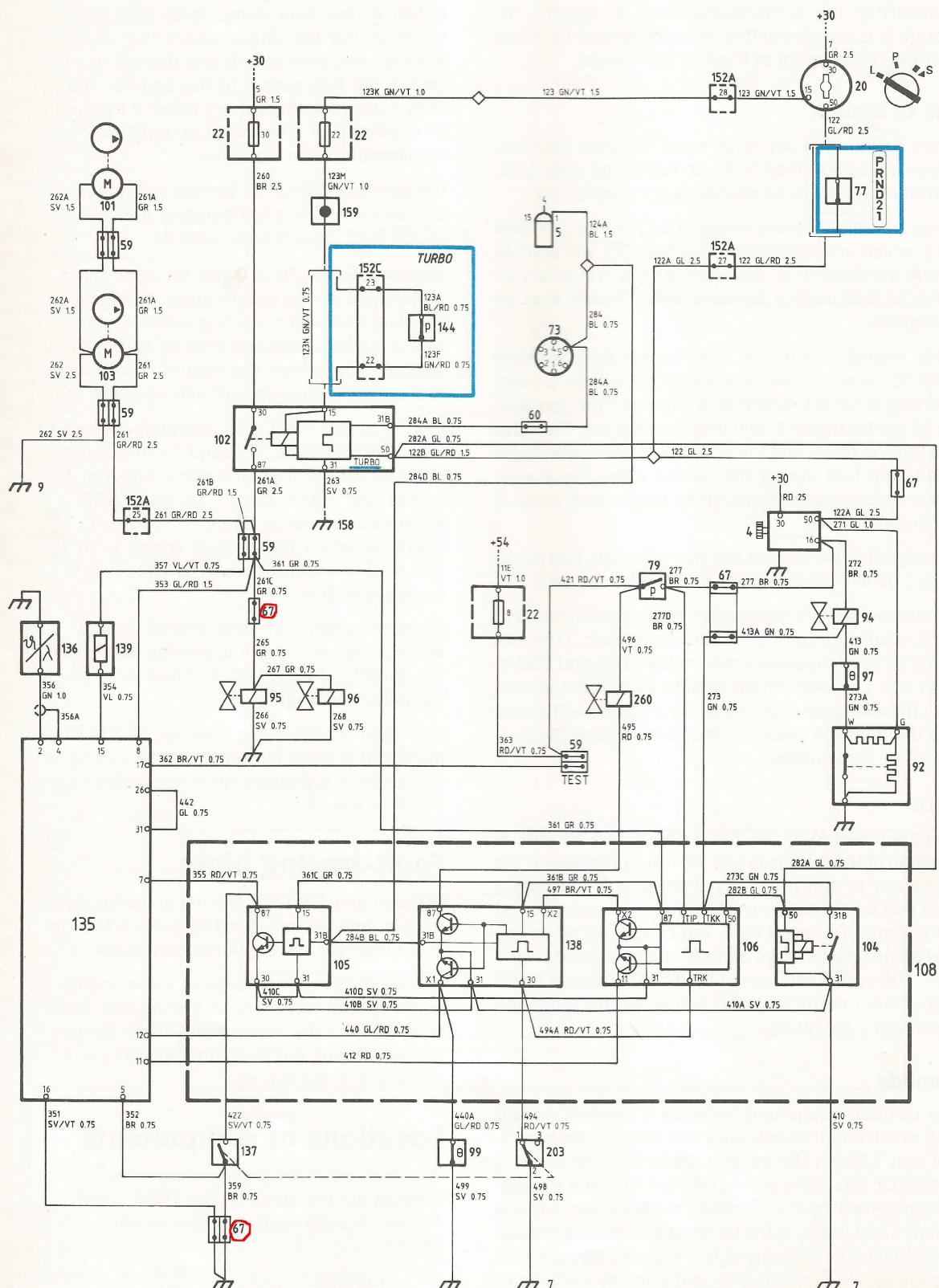
Cars with 16-valve engine

- 8 Lighting relay
- 113 Relay for the electrically heated rear window
- 155 Relay for the AC radiator fan
- 270 Shift-up indication relay

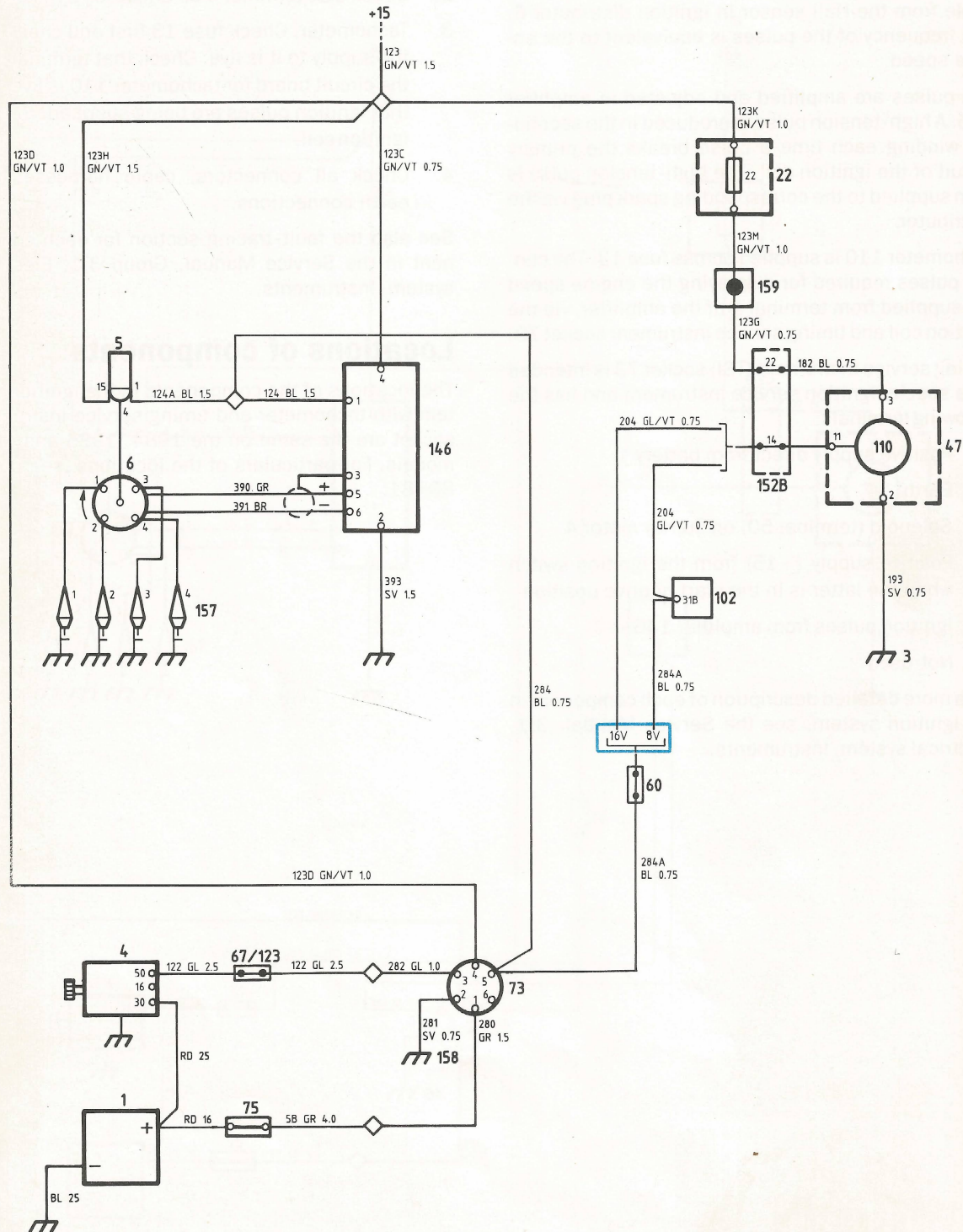
Starting system



CI fuel system with Lambda, 1985 models



Ignition system with tachometer and timing service instrument socket – 1985 models



Operation

This breakerless ignition system is equipped with a Hall sensor.

When the ignition switch is in the start or drive position, +15 is supplied to ignition coil 5 and amplifier 146.

The amplifier receives ignition pulses via a shielded cable from the Hall sensor in ignition distributor 6. The frequency of the pulses is equivalent to the engine speed.

The pulses are amplified and adjusted in amplifier 146. A high-tension pulse is produced in the secondary winding each time a pulse breaks the primary circuit of the ignition coil. The high-tension pulse is then supplied to the corresponding spark plug via the distributor.

Tachometer 110 is supplied across fuse 22. The control pulses required for displaying the engine speed are supplied from terminal 1 of the amplifier, via timing service instrument socket 73.

Timing service instrument (TSI) socket 73 is intended for a special ignition service instrument and has the following terminals:

1. Positive supply direct from battery 1
2. Earth
3. Solenoid (terminal 50) on starter motor 4
4. Positive supply (+15) from the ignition switch when the latter is in the start or drive position
5. Ignition pulses from amplifier 146
6. Not used

For a more detailed description of each component in the ignition system, see the Service Manual, 3:1, Electrical system, Instruments.

Fault-tracing hints

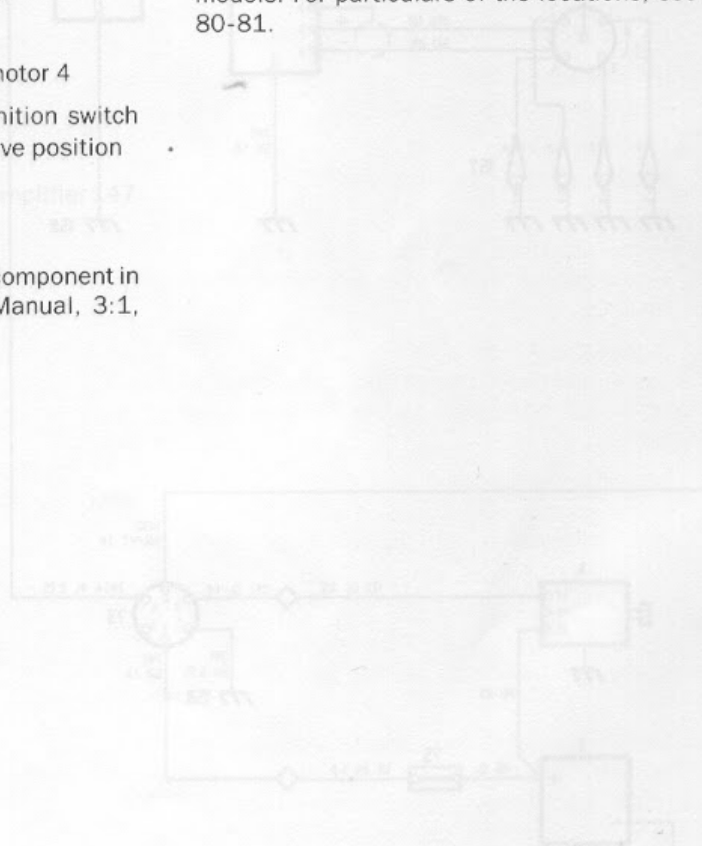
The ignition system will be energised when the ignition switch is in the drive position.

1. Check that terminal 15 on the ignition coil and terminal 4 on timing service instrument socket 73 are live.
2. Check that terminal 4 on amplifier 146 is live.
3. Tachometer: Check fuse 22 first and check that the supply to it is live. Check that terminal 3 on the circuit board for tachometer 110 is live, and that ignition pulses are being supplied from the amplifier.
4. Check all connectors, cable harnesses and earth connections.

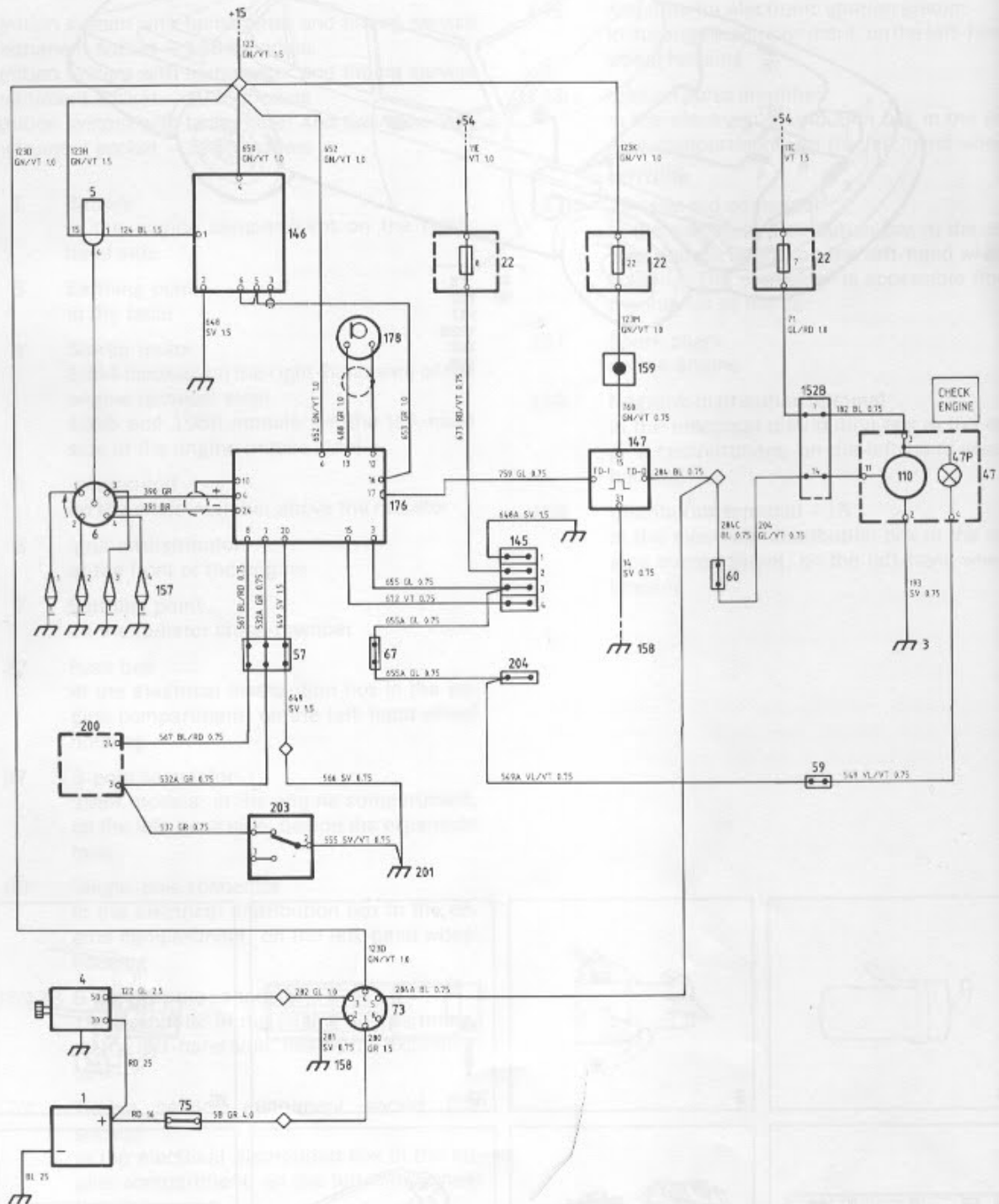
See also the fault-tracing section for each component in the Service Manual, Group 3:1, Electrical system, Instruments.

Locations of components

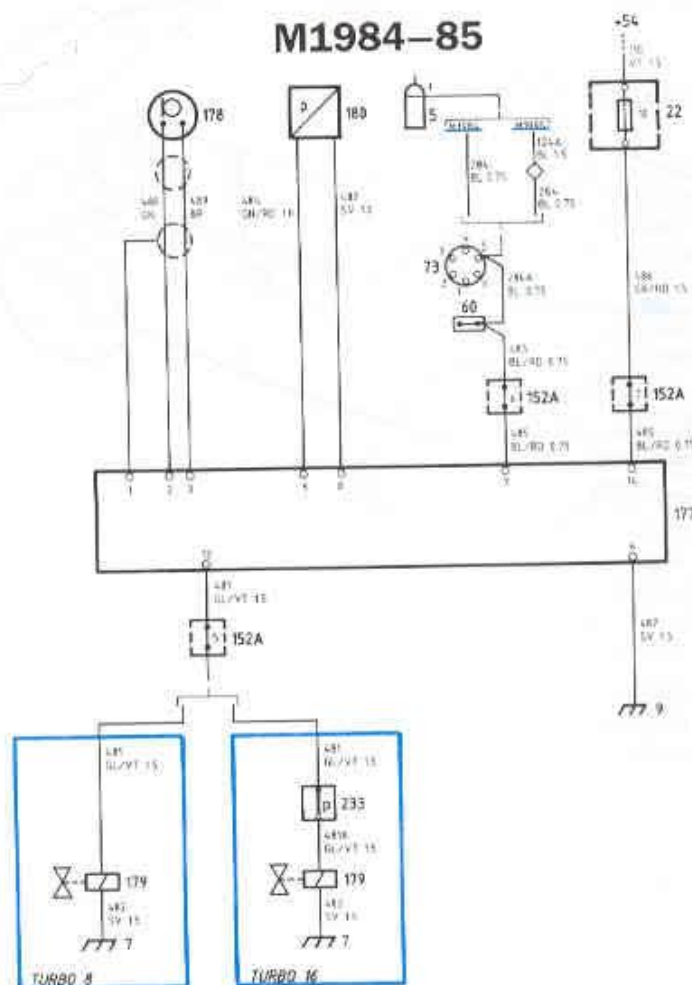
The locations of the components in the ignition system with tachometer and timing service instrument socket are the same on the 1984, 1985 and 1986 models. For particulars of the locations, see pages 80-81.



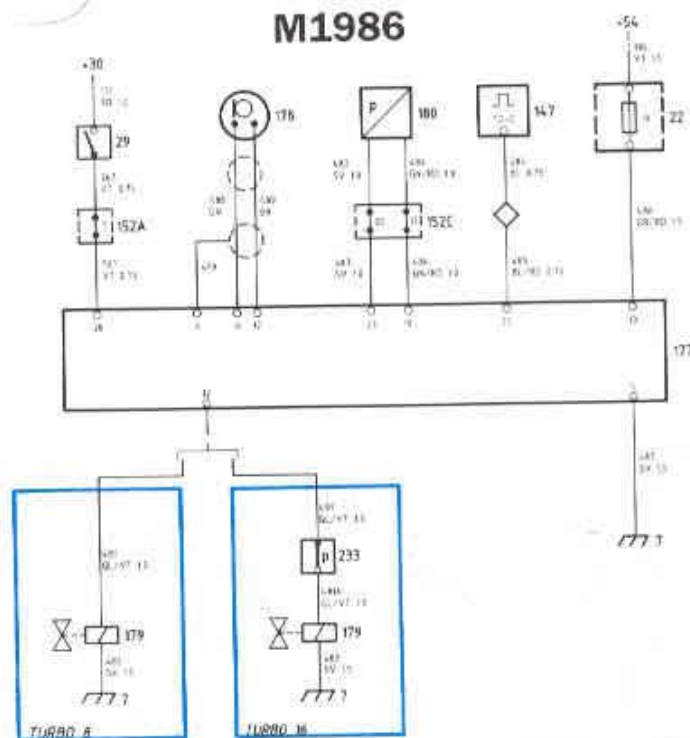
EZK ignition system with tachometer and timing service instrument socket



M1984-85



M1986



Operation

The engine is equipped with an Automatic Performance Control (APC) system, which enables the engine to adjust itself automatically to the grade of fuel supplied to it at any particular time.

1984 and 1985 models

The APC system is controlled by control unit 177, which is supplied (+54) from fuse 10 via the 29-pole white connector 152A. The unit receives signals from several sensors, processes the signals and then controls the charging pressure of the turbocharger via solenoid valve 179.

The system receives information from the following sensors:

- Knocking sensor 178, which senses any knocking in the engine.
- Pressure transmitter which senses the pressure in the intake pipe upstream of the butterfly valve.

The electrical signals from the sensors and from ignition coil 5 are fed continuously into the control unit. On the basis of the electrical signals received, the unit then controls the solenoid valve and thus the boost pressure from the turbocharger. Since the boost pressure is continuously adjusted to the octane rating of the fuel and the running conditions of the engine, it has proved unnecessary to provide the adjustment margins that must normally be allowed to avoid damage to the engine. As a result, maximum energy can be extracted from the fuel used on any particular occasion.

Cars with the Turbo 16 engine and Cruise Control are equipped with vacuum switch 233, which is actuated by the vacuum pump via a vacuum hose. When the contacts open, the control unit reduces the boost pressure to the basic value.

1986 models

The control unit has been replaced on the 1986 models (new pin numbers).

The operation is the same as on 1984 and 1985 models, except that the control pulses are supplied from ignition pulse amplifier 147 instead of from the ignition coil. In addition, brake light switch 29 applies a signal when the car is braked, which causes the control unit to reduce the boost pressure to the basic value.

Fault-tracing hints

The following items must always be taken into account before fault-tracing is started on the APC system:

1. Disconnect the connector from the control unit.
2. Disconnect the connector from the component which is suspected to be faulty.
3. Use an ohmmeter to check the wiring for any open circuits, etc.

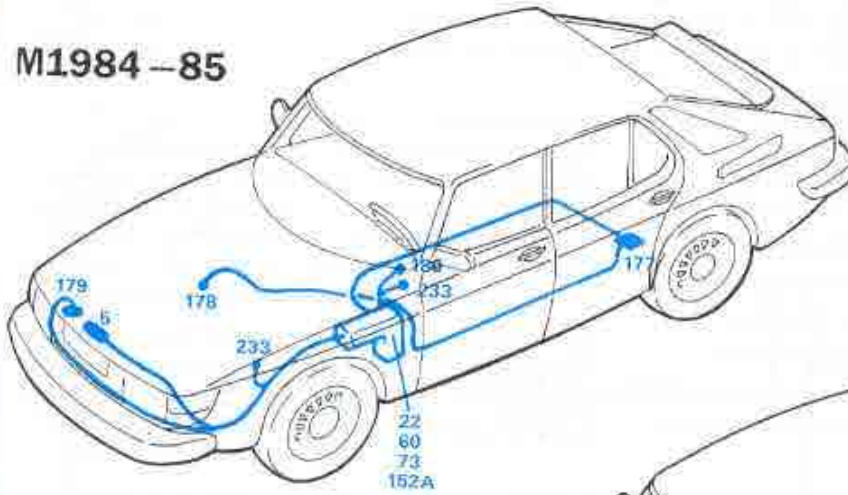
For other particulars, see the fault-tracing section in the Service Manual, Group 2, Engine.

Locations of components

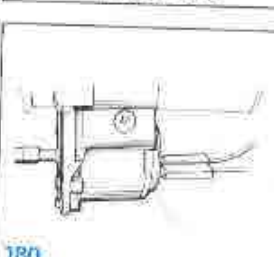
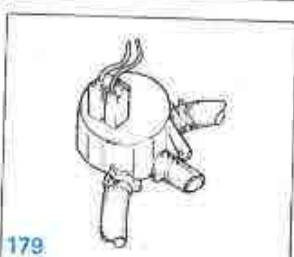
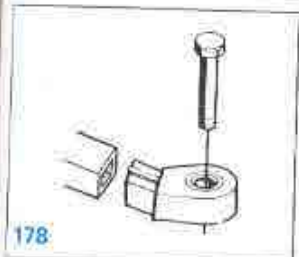
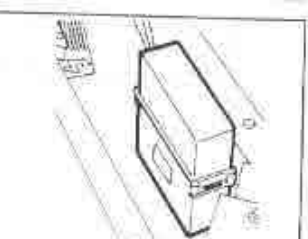
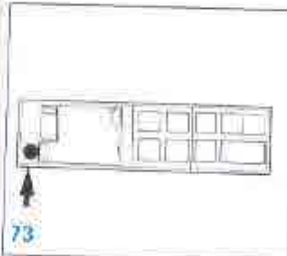
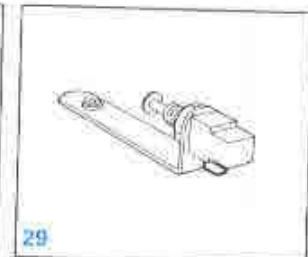
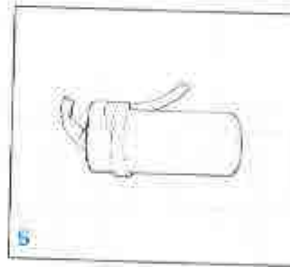
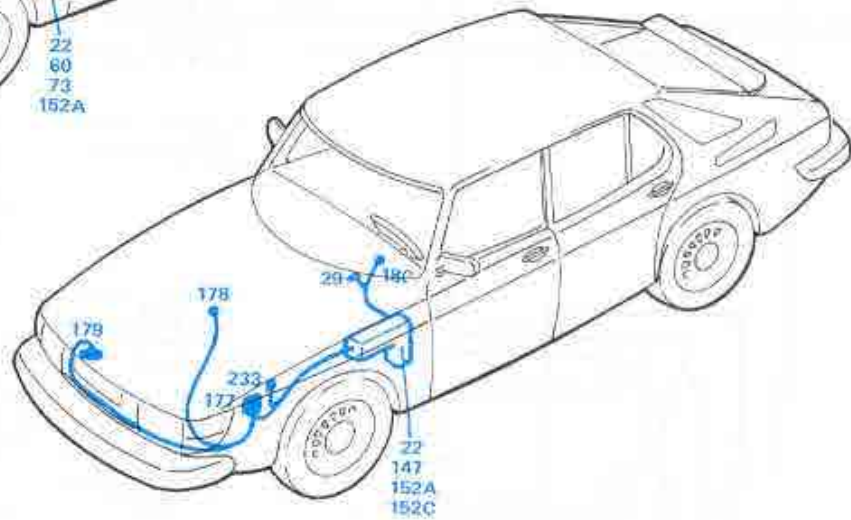
- 5 Ignition coil
on the cross-member above the radiator
- 7 Earthing point
on the radiator cross-member
- 9 Earthing point
in the luggage compartment
- 22 Fuse box
in the electrical distribution box in the engine compartment, on the left-hand wheel housing
- 29 Brake light switch
at the brake pedal
- 60 Single-pole connector
in the engine compartment, behind the expansion tank
- 73 Timing service instrument socket (TSI socket)
in the electrical distribution box in the engine compartment, on the left-hand wheel housing
- 147 Ignition pulse amplifier
in the electrical distribution box in the engine compartment, on the left-hand wheel housing
- 152A 29-pole white connector
152C 29-pole black connector
in the electrical distribution box in the engine compartment on the left-hand wheel housing. The connector is accessible from the interior of the car.
- 177 Control unit for the APC system
1984 and 1985 models: under the back seat, on the left-hand side
1986 models: in the engine compartment, forward of the left-hand wheel housing
- 178 Knocking sensor
on the engine, below the intake manifold
- 179 Solenoid valve
on the radiator fan casing
- 180 Pressure transmitter
under the fascia, to the left of the steering column (behind the knee shield)
- 233 Vacuum switch
in the engine compartment, on the left-hand wheel housing

Components

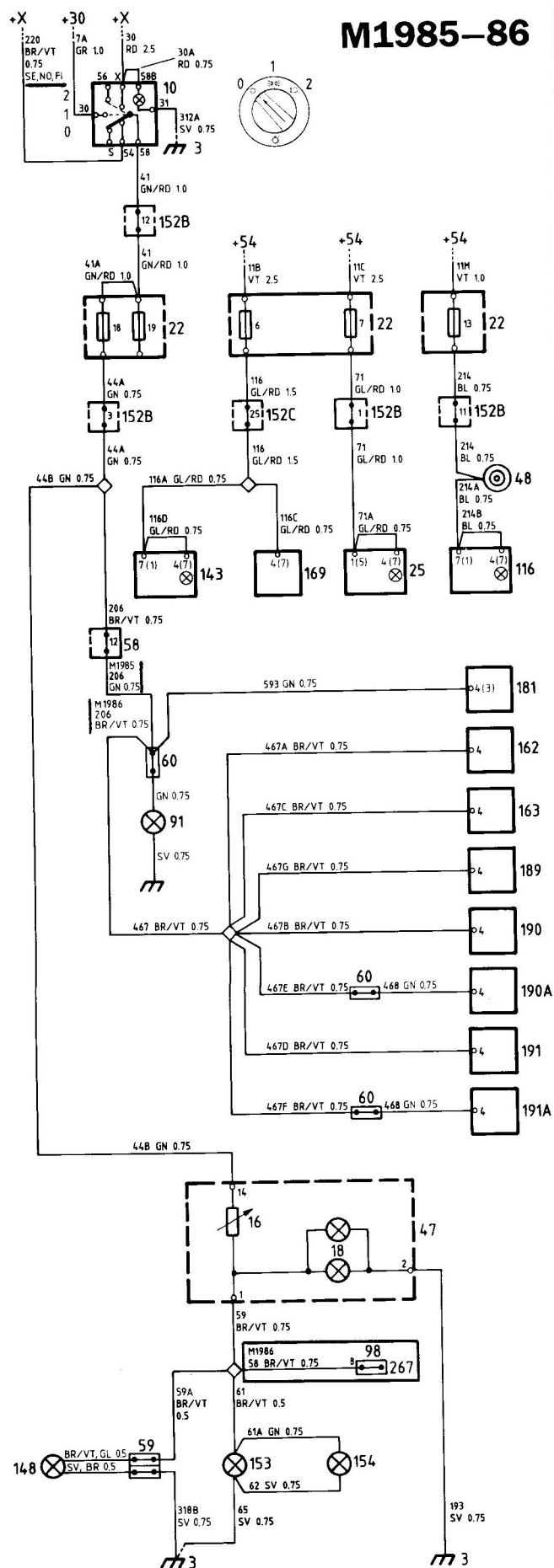
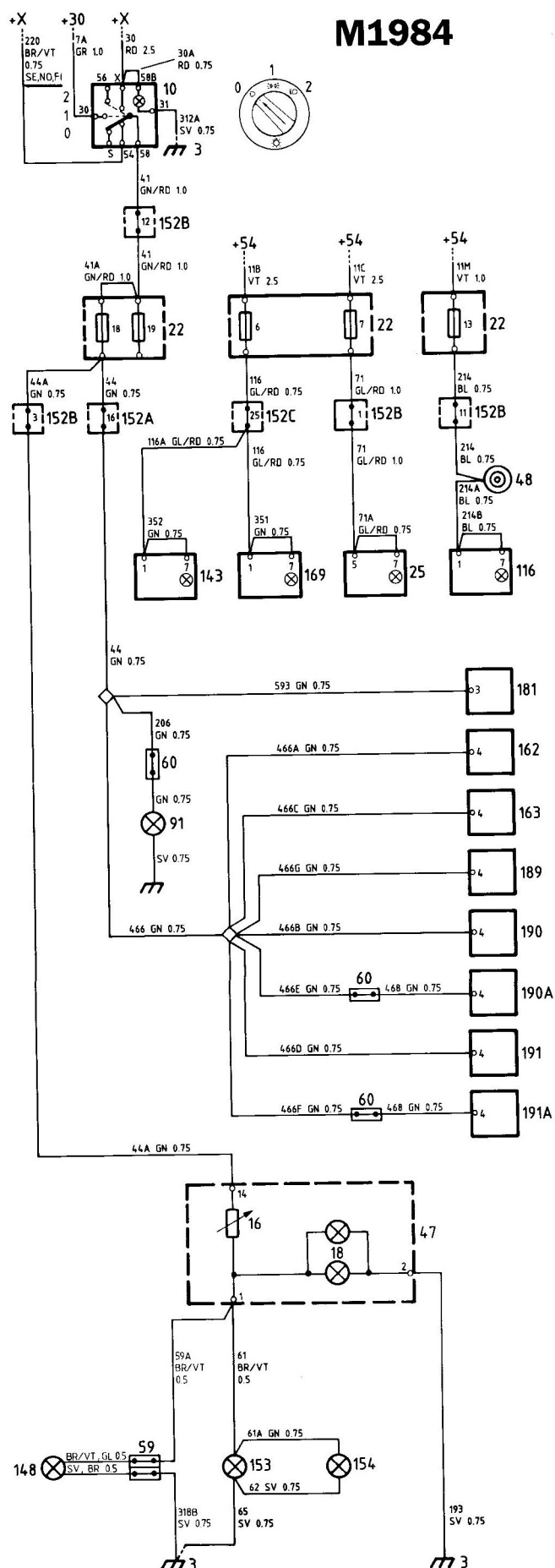
M1984-85



M1986



Lighting for controls



Operation

There are several market versions of the lighting for the controls. This section covers all markets except the U.S.A., Canadian and Japanese markets.

There are two diagrams, i.e. one for the 1984 models and the other for the 1985 and 1986 models. They show the supply to the switches, etc. on cars with built-in lamps.

Rheostat 16

The supply to rheostat 16 is live when light switch 10 is in position 1 or 2, via the 29-pole red connector 152B and fuse 18 (the same fuse that supplies the parking lights on the right-hand side of the car).

Cars with driving lights are equipped with additional cable 220 (brown/white), and the system is thus supplied, regardless of the position of the light switch.

The brightness of the following instrument lighting can be steplessly adjusted by means of rheostat 16 in combined instrument 47:

18	Combined instrument lighting
148	Ashtray illumination
153	Lighting for the cigarette lighter
154	Lighting for the heater controls

Switches on the centre console

If the car is equipped with electric windows, the brightness of the built-in lamps in the electric window regulator switches will remain constant.

162	Switch for driver's door electric window regulator
163	Switch for co-driver's door electric window regulator
189	Switch for the rear-door electric window regulators
190	Switch for left-hand rear electric window regulator
190A	Switch for left-hand rear electric window regulator
191	Switch for right-hand rear electric window regulator
191A	Switch for right-hand rear electric window regulator

(190A and 191A are located in the respective rear doors.)

Switch 181 for the electrically operated sunroof and gear indicating light 91 (on cars with automatic transmission) are supplied via the light switch.

Other switches

When the ignition switch is in the drive position, the lamps in the following switches are supplied (from distribution terminal +54) via a resistor in the respective switch, which reduces the brightness of the light. When the switch is depressed, the resistor is bypassed, and the light reaches full brightness.

25	Hazard warning light switch
116	Switch for the electrically heated rear window
143	Recirculation switch, AC
169	AC switch

1985 and 1986 models

The operation is the same as for the 1984 models, but the supply from fuse 18 differs somewhat.

In addition, the dial lighting for the radio (267) connected to connector 98 is adjusted via rheostat 16 (1986 models only).

The pin numbers shown in parentheses on certain switches apply to the 1985 models only.

Fault-tracing hints

1. Check the appropriate fuses and check that the supply to them is live.
2. Check the bulbs and check that the supply to them is live.
3. Check the connectors, cable harnesses and earth connections.

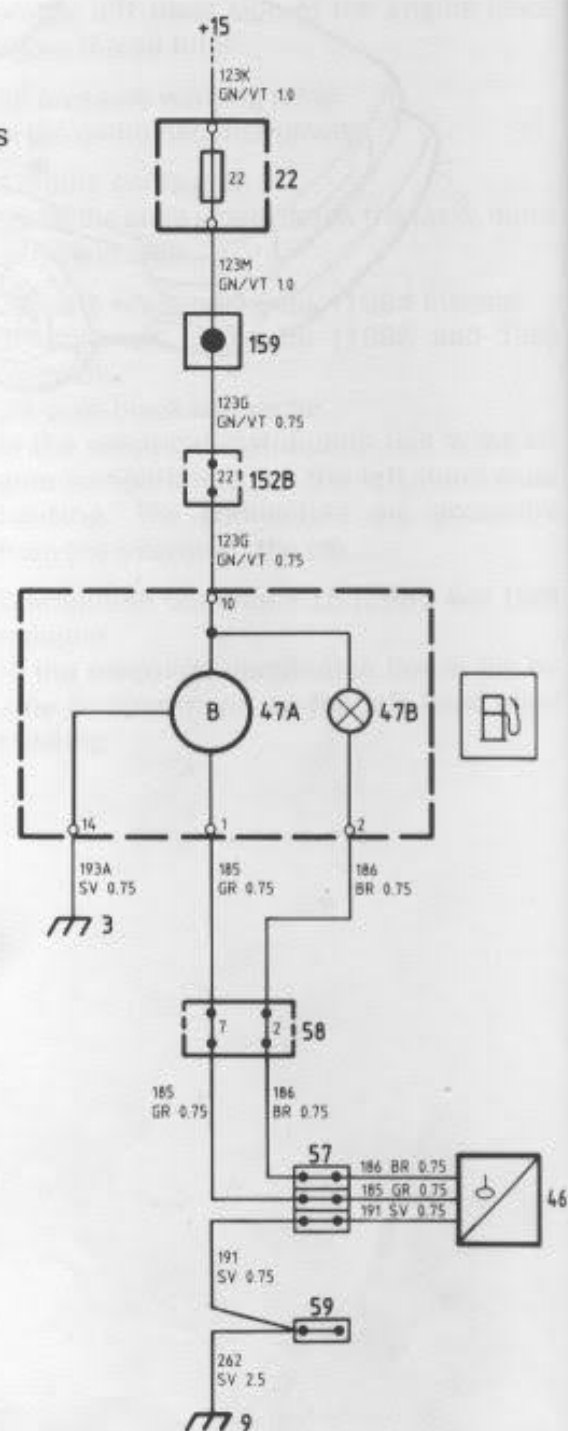
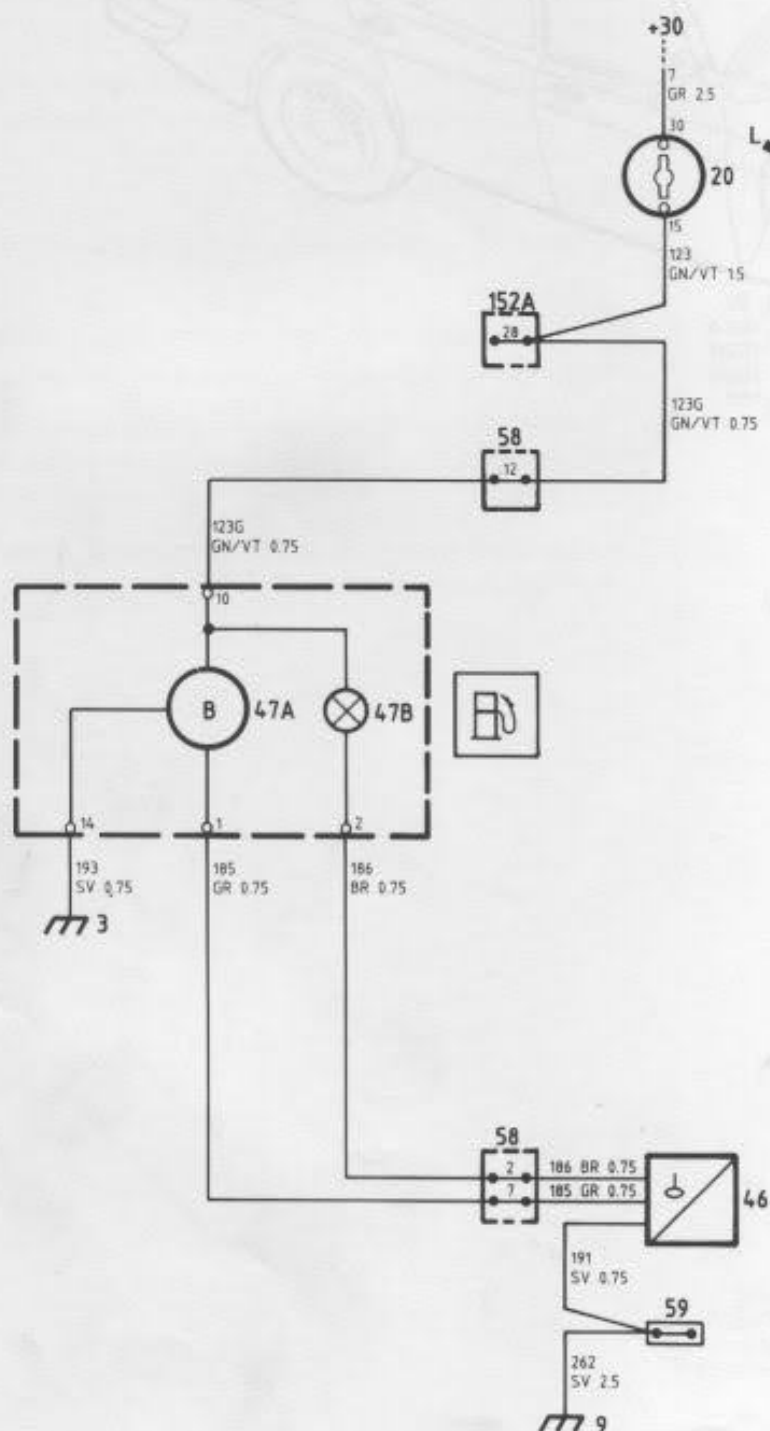
Locations of components

3	Earthing point in the facia	163	Switch for co-driver's door electric window regulator between the front seats, on the centre console
10	Light switch on the left-hand side of the facia	169	Switch, AC on the facia
16	Instrument lighting rheostat in the combined instrument	181	Switch for the electrically operated sunroof between the front seats, at the front on the centre console
18	Combined instrument lighting in the combined instrument, on the instrument panel	189	Switch for the rear-door electric window regulators between the front seats, on the centre console
22	Fuse box in the electrical distribution box in the engine compartment, on the left-hand wheel housing	190	Switch for left-hand rear electric window regulator between the front seats, on the centre console
25	Hazard warning light switch on the facia	190A	Switch for left-hand rear electric window regulator in the left-hand rear door
47	Combined instrument on the instrument panel	191	Switch for right-hand rear electric window regulator between the front seats, on the centre console
48	Cigarette lighter on the facia	191A	Switch for right-hand rear electric window regulator in the right-hand rear door
59	2-pole connector on the facia, behind the cigarette lighter		
60	Single-pole connector one in each rear door one between the front seats, under the front section of the centre console		
91	Gear indicating light between the front seats, at the gear selector		
98	10-pole connector (for radio 267) in the facia, behind the panel for the radio		
116	Switch for the electrically heated rear window on the facia		
143	Recirculation switch, AC on the facia		
148	Ashtray illumination on the facia, in the ashtray		
152A	29-pole white connector		
152B	29-pole red connector		
152C	29-pole black connector in the electrical distribution box in the engine compartment, on the left-hand wheel housing. The connector is accessible from the interior of the car.		
153	Lighting for the cigarette lighter on the facia, at the cigarette lighter		
154	Lighting for heater controls on the facia, at the respective heater control		
162	Switch for driver's door electric window regulator between the front seats, on the centre console		

Fuel gauge and warning lamp

M1984

M1985-86



Operation

The fuel gauge and the warning lamp for the fuel reserve keep the driver informed of the fuel level in the tank. The wiring on 1984 models differs from that of 1985 and 1986 models.

1984 models

When the ignition switch is in the drive position, a positive supply (+15) is taken via the 29-pole white connector 152A to:

- Fuel level gauge 47D in the combined instrument and through fuel level transmitter 46 in the fuel tank to earth, and
- Fuel reserve warning lamp 47B and through the fuel level transmitter in the fuel tank to earth.

Fuel level transmitter 46 adjusts the voltage so that the fuel gauge reading will correspond to the level sensed by the transmitter float in the tank.

When the fuel content of the tank has dropped to about 7 dm³ (litres) or less, the fuel reserve warning lamp will be earthed through the transmitter and the lamp will light up.

1985 and 1986 models

The operation is the same as on 1984 models, but the supply is taken via fuse 22. In addition, fuel level transmitter 46 is connected by means of a 3-pole connector (57).

Fault-tracing hints

The fuel gauge and the warning lamp for the fuel reserve will be operative when the ignition switch is in the drive position.

1984 models

1. Check the bulb and check that the supply to its terminals in the combined instrument is live.
2. Check that the terminals of the fuel gauge and the fuel level transmitter are live.
3. Check the connectors, cable harnesses and the earth connection of the fuel level transmitter.

1985 and 1986 models

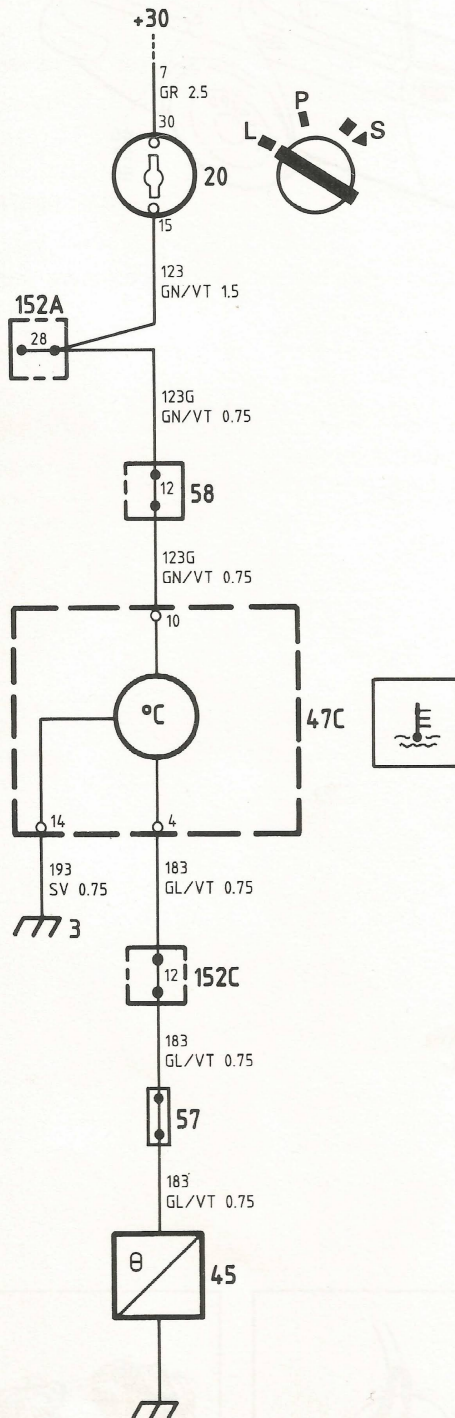
1. Check fuse 22 and check that the supply to it is live.
2. Check the bulb and check that the supply to its terminals in the combined instrument is live.
3. Check that the terminals of the fuel gauge and the fuel level transmitter are live.
4. Check the connectors, cable harnesses and the earth connection of the fuel level transmitter.

Locations of components

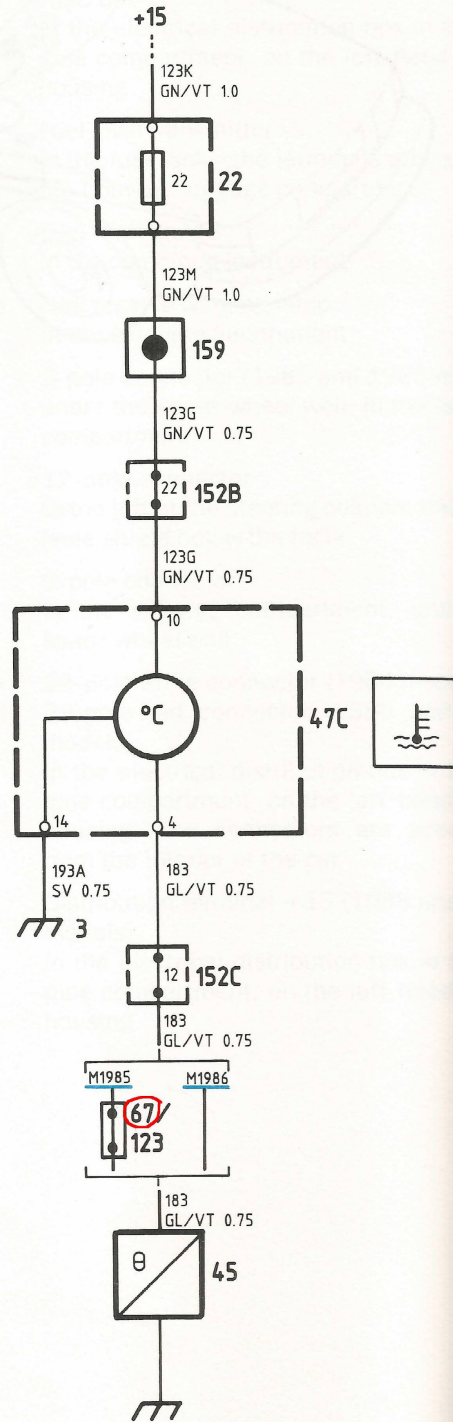
- 3 Earthing point
in the facia
- 9 Earthing point
in the luggage compartment
- 20 Ignition switch
between the front seats, at the gear lever
- 22 Fuse box
in the electrical distribution box in the engine compartment, on the left-hand wheel housing
- 46 Fuel level transmitter
in the fuel tank - the terminals are accessible from the luggage compartment
- 47A Fuel level gauge
in the combined instrument
- 47B Fuel reserve warning lamp
in the combined instrument
- 57 3-pole connector (1985 and 1986 models)
under the spare-wheel well, in the luggage compartment
- 58 12-pole connector
to the left of the steering column, under the knee shield below the facia
- 59 2-pole connector
in the luggage compartment, under the spare-wheel well
- 152A 29-pole white connector (1984 models)
- 152B 29-pole red connector (1985 and 1986 models)
in the electrical distribution box in the engine compartment, on the left-hand wheel housing. The connectors are accessible from the interior of the car
- 159 Distribution terminal +15 (1985 and 1986 models)
in the electrical distribution box in the engine compartment, on the left-hand wheel housing

Temperature gauge

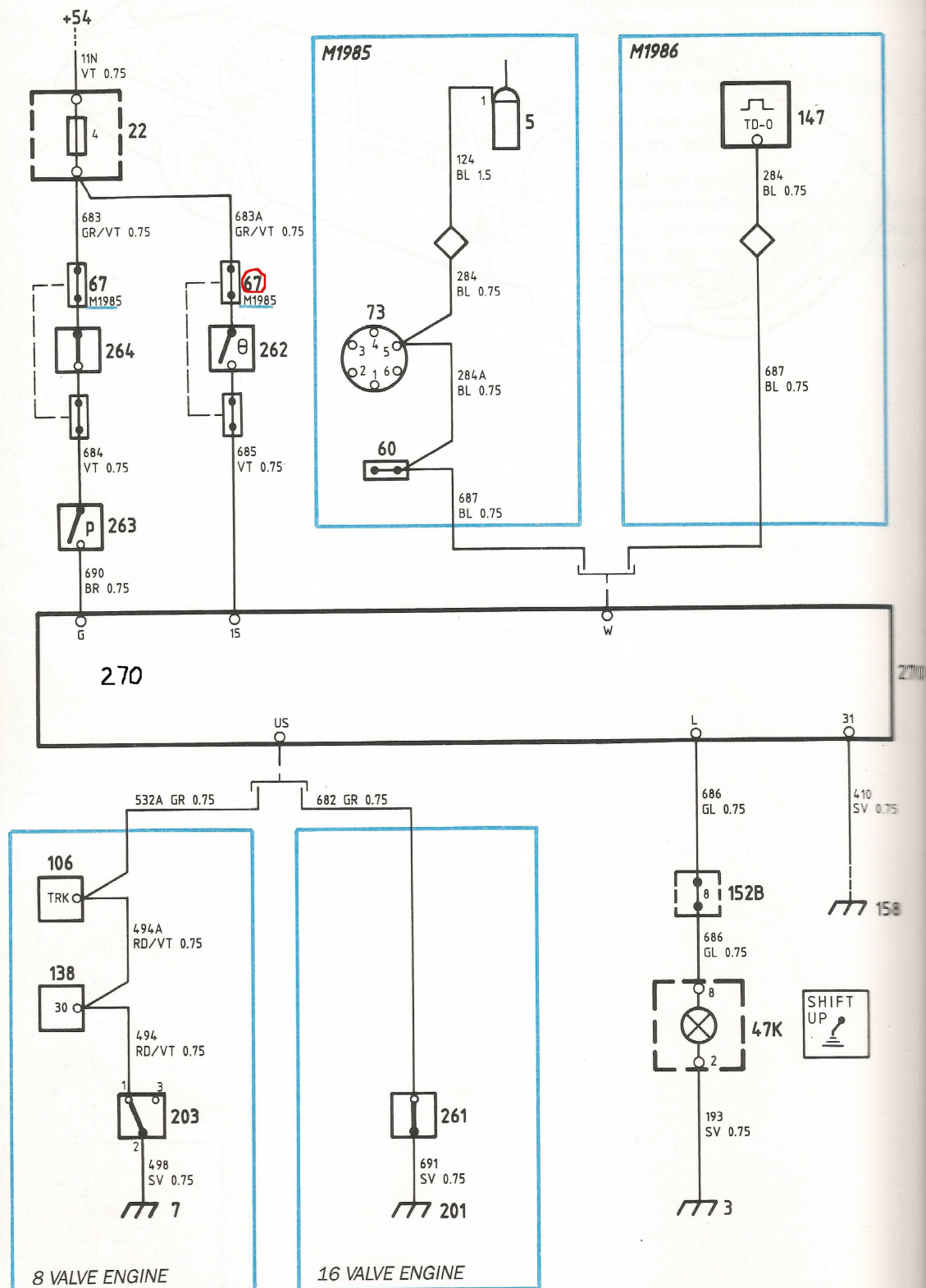
M1984



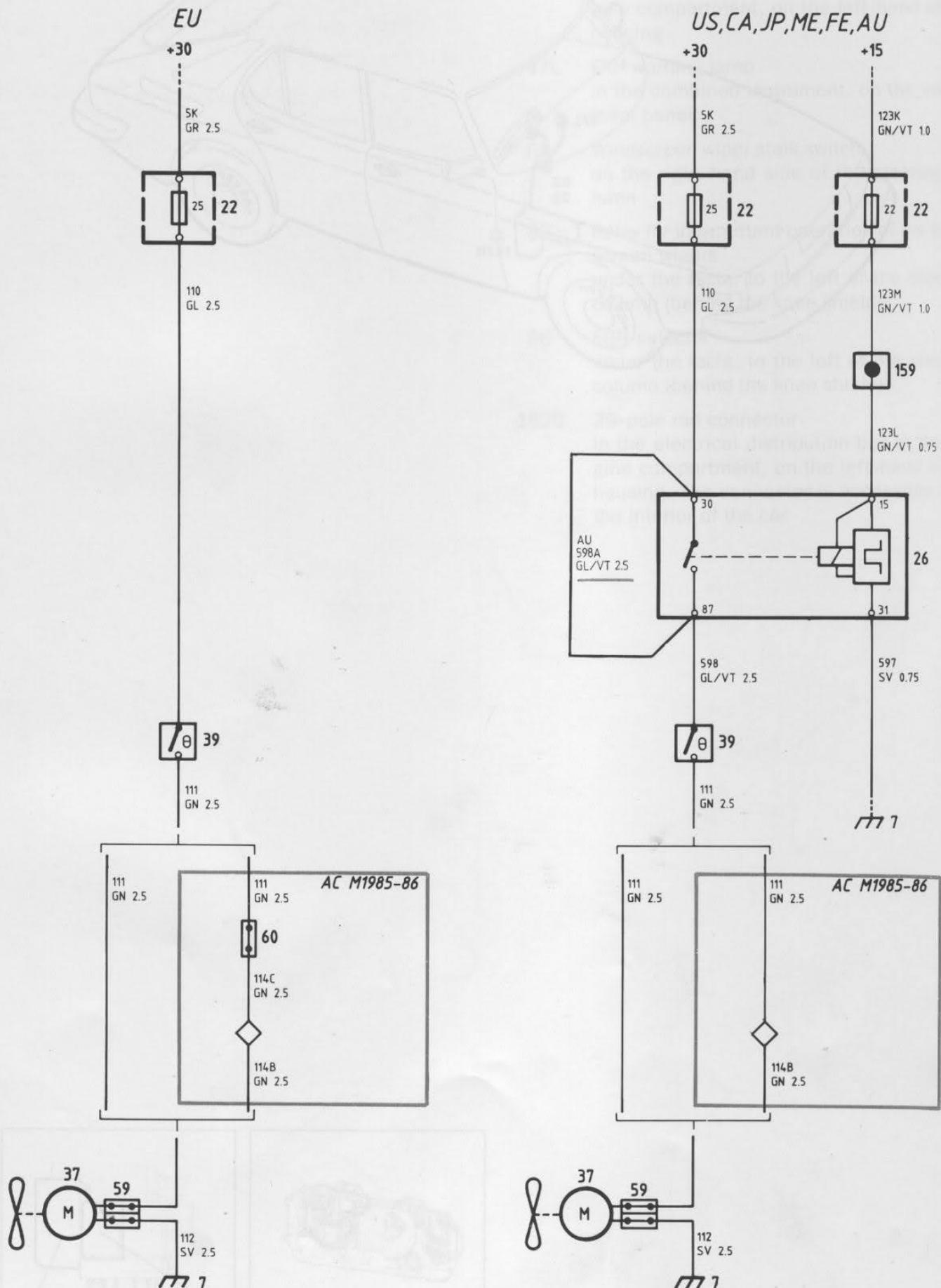
M1985-86



Shift-up indicator



Cooling system fan



Operation

Certain cars are equipped with an Air Conditioner (AC).

Compressor and radiator fan motor 37

The AC can be switched on and off by means of AC switch 169, which is supplied from fuse 6, via the 29-pole black connector 152C. When the switch is depressed, the lamp built into the button will be supplied directly (not via the resistor), so it will light up with full intensity.

Compressor 170 and ordinary radiator fan 37 are connected via relay 156, which is supplied from fuse 25. The relay will be energised when the following conditions are satisfied:

- Pressure switch 166 is closed, i.e. the refrigerant pressure is at least 2.8 bar.
- Anti-freeze thermostat (cycling clutch contact) 171 is closed, i.e. the ambient temperature is at least about +6 °C.
- Throttle switch 167 is closed, i.e. the butterfly valve is not open more than 70° (if the jumper is cut).
- Temperature switch 168 is closed. (The switch will open if the engine temperature exceeds around +115 °C.)

Solenoid valve 142, which raises the engine idling speed, is connected in parallel with the compressor and the radiator fan. Diode 173 reduces the voltage transients at the instant when the compressor is switched off.

AC radiator fan 172

Extra radiator fan 172 for the AC is connected via relay 155 and is supplied from fuse 6.

The relay coil is supplied from the contacts of relay 156 and from pressure switch 166. The AC radiator fan thus runs when AC switch 169 is depressed and pressure switch 166 is closed.

Recirculation valve

Recirculation valve 38, which controls the recirculation damper, will be switched on when recirculation switch 143 is depressed. The switch is supplied from fuse 6. When the switch is depressed, the lamp built into the switch will light up with full intensity.

The recirculation valve is also connected across main switch 149, when the air distribution control is in position 0 or ♦♦ (regardless of the position of switch 143). The supply is taken from fuse 9, via ventilation fan resistor 74.

Fault-tracing hints

As a general rule, supply to the unit is live when the ignition switch is in the drive position. If none of the components are faulty, check the cable harnesses, connectors and earth connections.

Compressor and radiator fan motor 37

1. Check fuses 6 and 25 and check that the supply to AC switch 169 and relay 156 is live.
2. Press the AC switch. Measure the voltage across pressure switch 166 (the pressure switch should be closed). Note that refrigerant will spray out when the pressure switch is disconnected. Caution: Risk of frostbite.
3. Check cycling clutch contact 171. (It should close at +6 °C.)
4. Check relay 156 and check that switches 167 and 168 in the earth circuit of the relay are closed when the engine is idling and at normal engine temperature, respectively.
5. Check that the supplies to the compressor and the radiator fan are live.

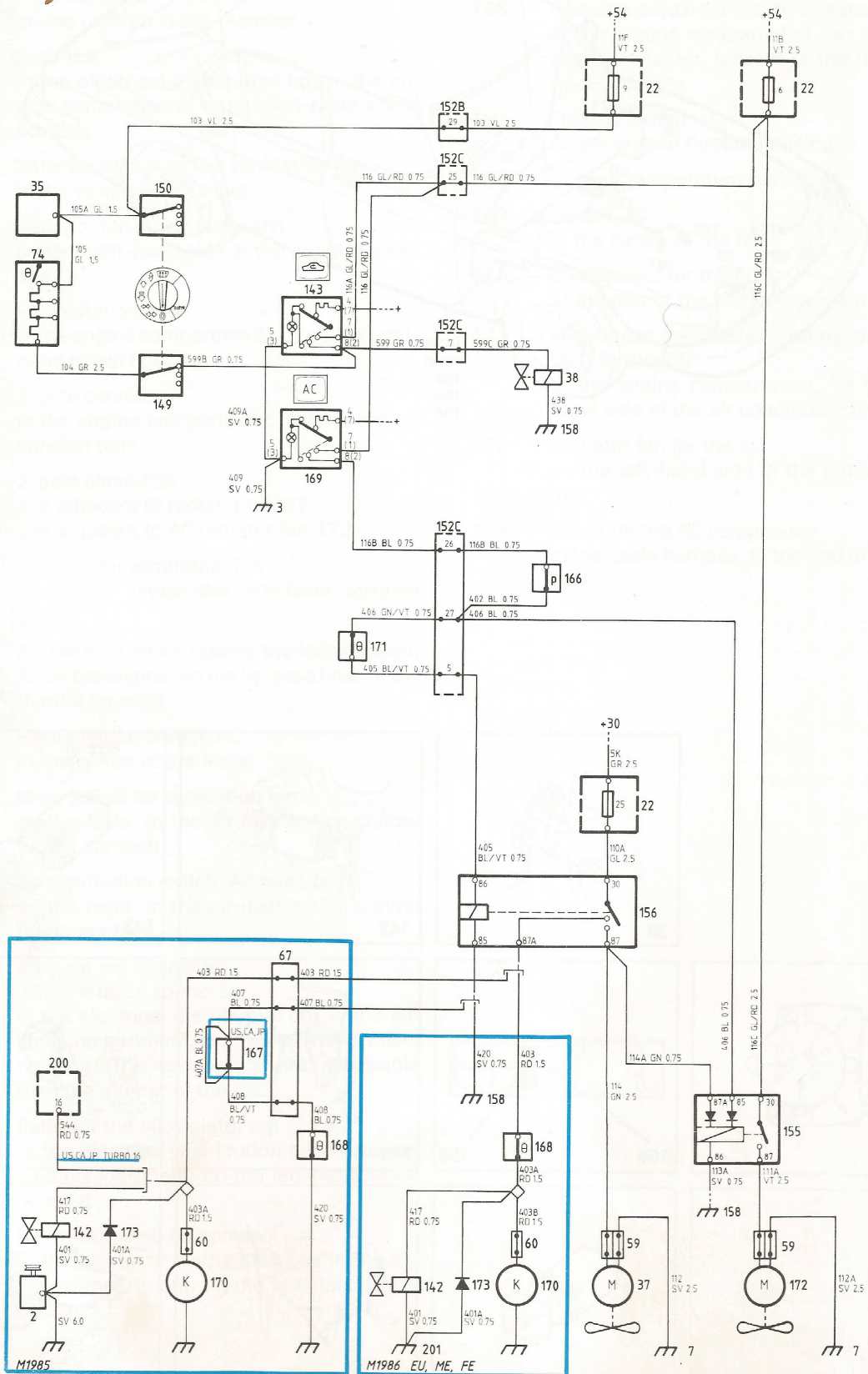
AC radiator fan 172

1. Check fuse 6 and check that the supply to the AC switch and to relay 155 is live.
2. Press the AC switch. Measure the voltage across pressure switch 166 (the pressure switch should be closed). Note that refrigerant will spray out when the pressure switch is disconnected. Caution: Risk of frostbite.
3. Check that relay 155 is being energised and that the supply to the AC radiator fan is live.

Recirculation

1. Check fuse 6 and check that the supply to recirculation switch 143 is live.
2. Press the switch and check that the recirculation valve is activated.
3. Check fuse 9 and check that the supply to main switch 149 in the air distribution control is live.
4. When the control is in position 0 or ♦♦, the recirculation valve should be activated.

Air Conditioner (AC) – 1985 and 1986 models



Operation

Some cars are equipped with an Air Conditioner (AC). NOTE: This section does not cover the 1986 models for markets in which the unit is equipped with a time delay relay, such as the U.S.A. market. For particulars of this unit, see the section entitled Air Conditioner (AC) - 1986 models with time delay relay.

Compressor and radiator fan motor 37

The AC can be switched on and off by means of AC switch 169, which is supplied from fuse 6, via the 29-pole black connector 152C. When the switch is depressed, the lamp built into the button will be supplied directly (not via the resistor), so it will light up with full intensity. (The pin numbers in parentheses refer to the 1985 models.)

Compressor 170 and ordinary radiator fan 37 are connected via relay 156, which is supplied from fuse 25. The relay will be energised when the following conditions are satisfied:

- Pressure switch 166 is closed, i.e. the refrigerant pressure is at least 2.8 bar.
- Anti-freeze thermostat (cycling clutch contact) 171 is closed, i.e. the ambient temperature is at least about +6 °C.
- Throttle switch 167 is closed, i.e. the butterfly valve is not open more than 70° (if the jumper is cut).
- Temperature switch 168 is closed. (The switch will open if the engine temperature exceeds around +115 °C.)

Diode 173, which is connected in parallel with the compressor, reduces the voltage transients at the instant when the compressor is switched off.

Idling speed compensation

On 1985 models for the U.S.A. market, the supply to control unit 200 for the fuel injection system will be live when the compressor is running. The control unit then regulates the idling speed by means of idling speed adjustment motor 272 of the fuel injection system.

On cars for other markets, idling speed compensation is carried out by solenoid valve 142, which is always open when the compressor and the radiator fan are running.

AC radiator fan 172

Extra radiator fan 172 for the AC is connected via relay 155 and is supplied from fuse 6.

The relay coil is supplied from the contacts of relay 156 and from pressure switch 166. The AC radiator fan thus runs when AC switch 169 is depressed and pressure switch 166 is closed.

Recirculation valve

Recirculation valve 38, which controls the recirculation damper, will be switched on when recirculation switch 143 is depressed. The switch is supplied from fuse 6. When the switch is depressed, the lamp built into the switch will light up with full intensity.

The recirculation valve is also connected across main switch 149 when the air distribution control is in position 0 or ♦♦ (regardless of the position of switch 143). The supply is taken from fuse 9, via ventilation fan resistor 74.

Fault-tracing hints

As a general rule, the supply to the unit is live when the ignition switch is in the drive position. If none of the components are faulty, check the cable harnesses, connectors and earth connections.

Compressor and radiator fan motor 37

1. Check fuses 6 and 25 and check that the supply to AC switch 169 and relay 156 is live.
2. Press the AC switch. Measure the voltage across pressure switch 166 (the pressure switch should be closed). Note that refrigerant will spray out when the pressure switch is disconnected. Caution: Risk of frostbite.
3. Check cycling clutch contact 171. (It should close at +6 °C.)
4. Check relay 156 and check that switches 167 and 168 in the earth circuit of the relay are closed when the engine is idling and at normal engine temperature, respectively.
5. Check that the supplies to the compressor and the radiator fan are live.

AC radiator fan 172

1. Check fuse 6 and check that the supplies to the AC switch and to relay 155 are live.
2. Press the AC switch. Measure the voltage across pressure switch 166 (the pressure switch should be closed). Note that refrigerant will spray out when the pressure switch is disconnected. Caution: Risk of frostbite.
3. Check that relay 155 is energised and that the supply to the AC radiator fan is live.

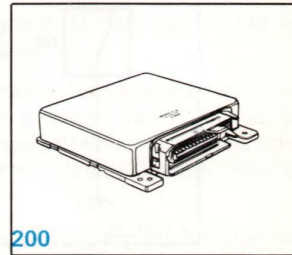
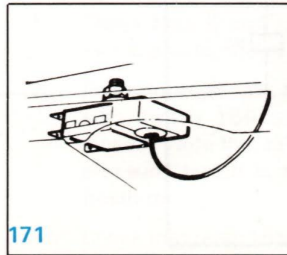
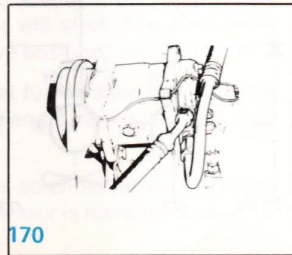
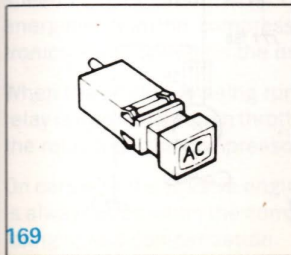
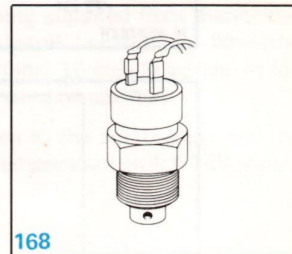
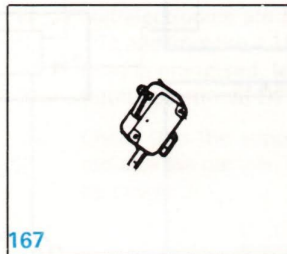
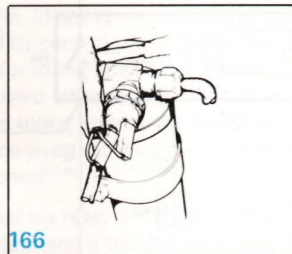
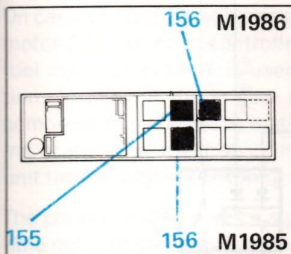
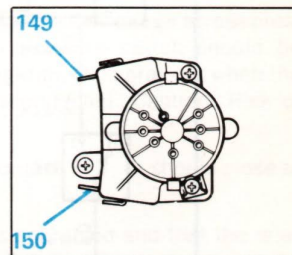
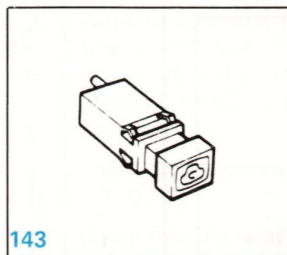
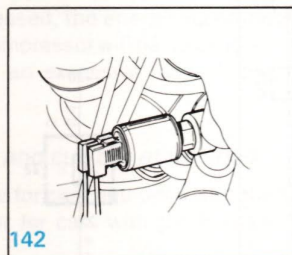
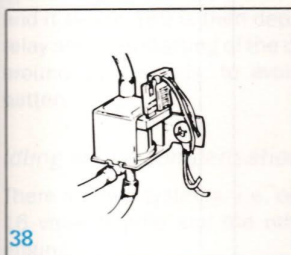
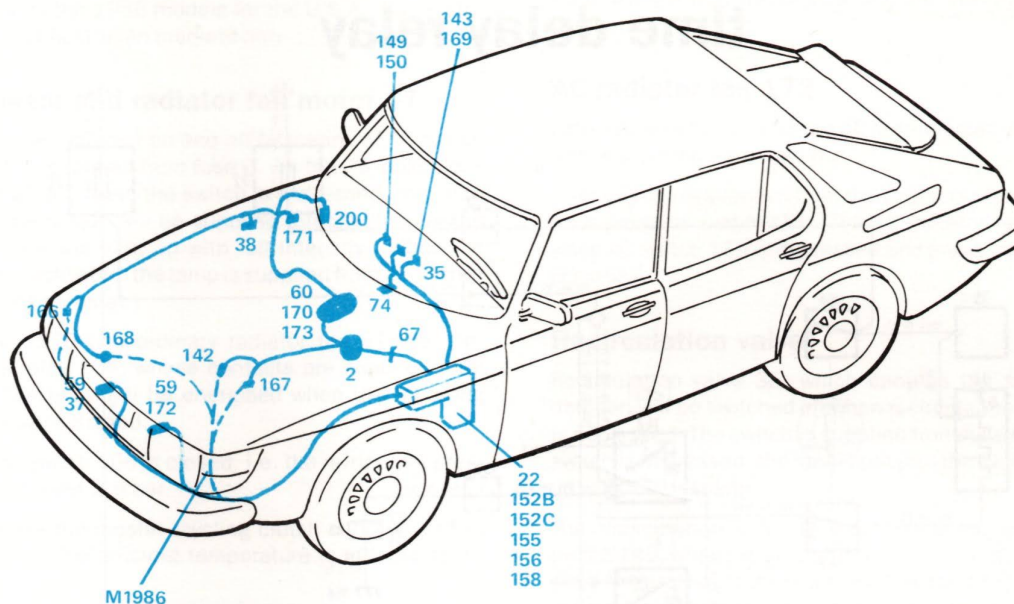
Recirculation

1. Check fuse 6 and check that the supply to recirculation switch 143 is live.
2. Press the switch and check that the recirculation valve is activated.
3. Check fuse 9 and check that the supply to main switch 149 in the air distribution control is live.
4. When the control is in position 0 or ♦♦, the recirculation valve should be activated.

Locations of components

- | | |
|--|---|
| <ol style="list-style-type: none"> 2 Alternator
on the left-hand side of the engine 3 Earthing point
in the facia 7 Earthing point
on the radiator cross-member 22 Fuse box
in the electrical distribution box in the engine compartment, on the left-hand wheel housing 35 Selector switch for the ventilation fan
in the centre of the facia 37 Radiator fan motor (ordinary)
on the right-hand side of the radiator package 38 Recirculation valve
in the engine compartment, above the right-hand wheel housing 57/67 3-pole/6-pole connector
in the engine compartment, behind the expansion tank 59 2-pole connector
one adjacent to radiator fan 37
one adjacent to AC radiator fan 172 74 Resistor for ventilation fan
accessible under the left-hand speaker grille 142 Solenoid valve for raising the idling speed, AC
on the engine, on the by-pass hose of the throttle housing 143 Recirculation switch, AC
in the centre of the facia 149 Main switch for ventilation fan
on the facia, in the air distribution control (upper contact) 150 Air distribution switch, AC position
on the facia, in the air distribution control (lower contact) | <ol style="list-style-type: none"> 152B 29-pole red connector 152C 29-pole black connector
in the electrical distribution box in the engine compartment, on the left-hand wheel housing. The connectors are accessible from the interior of the car. 155 Relay for the AC radiator fan
in the electrical distribution box in the engine compartment, on the left-hand wheel housing 156 Relay for the AC compressor
in the electrical distribution box in the engine compartment, on the left-hand wheel housing 158 Negative distribution terminal
in the electrical distribution box in the engine compartment, on the left-hand wheel housing 166 Pressure switch for the AC radiator fan
in the engine compartment, on the drying agent container, forward of the right-hand wheel housing 167 Throttle switch, AC
on the left-hand side of the engine throttle housing 168 Coolant temperature switch, AC
on the radiator inlet hose, near the distributor 169 Switch, AC
in the centre of the facia 170 Compressor for the AC
at the rear of the engine compartment 171 Anti-freeze thermostat (cycling clutch contact) for the AC
in the engine compartment, on the right-hand side of the air conditioner housing 172 Radiator fan for the AC
on the left-hand side of the radiator package 173 Diode for the AC compressor
in the cable harness, at the rear of the valve cover 200 Control unit for the fuel injection system
forward of the right-hand front door, below the facia on the left-hand side (behind the trim) |
|--|---|

Components



Operation

Certain cars are equipped with an Air Conditioner (AC). This section covers the 1986 models for the U.S.A., Canadian, Japanese and Australian markets only.

Compressor and radiator fan motor 37

The AC can be switched on and off by means of AC switch 169, which is supplied from fuse 6, via the 29-pole black connector 152C. When the switch is depressed, the lamp built into the button will be supplied directly (not via the resistor), so it will light up with full intensity. (When the switch is not activated, the lamp is supplied from the instrument lighting rheostat.)

Compressor 170 and ordinary radiator fan 37 are connected via relay 156, whose contacts are supplied from fuse 25. The relay will be energised when the following conditions are satisfied:

- Pressure switch 166 is closed, i.e. the refrigerant pressure is at least 2.8 bar.
- Anti-freeze thermostat (cycling clutch contact) 171 is closed, i.e. the ambient temperature is at least about +6 °C.

When the relay is energised, the compressor will be supplied only if temperature switch 168 is closed. (The switch will open if the engine temperature exceeds around +115 °C.)

Diode 173, which is connected in parallel with the compressor, reduces the voltage transients at the instant when the compressor is switched off.

Delayed connection when starting

Relay 156 is equipped with two time delay functions. One of them is activated whenever the engine is being started. Ignition switch 20 (in the start position) supplies pin 50, and if switch 169 is then depressed, the energising of the relay and thus starting of the compressor will be delayed for around 10 seconds, to avoid an excessive load on the battery.

Idling speed compensation and cut-out at full load

There are two systems, i.e. one for cars equipped with the 16-valve engine and the other for cars with the 8-valve engine.

On cars with the 16-valve engine, idling speed adjustment motor 272, which is controlled by control unit 200 for the fuel injection system, is used for idling speed compensation. To prevent the engine speed from falling when the compressor is started at engine idling speed, the energising of the relay electronics is delayed, to give the control unit time to adjust the idling speed.

The control unit receives a signal via relay pin 16 when the time delay of the relay is activated, and it then starts idling speed compensation. After 0.6 seconds, the relay will be energised and the compressor will start. The relay electronics are supplied (in the drive position) via pin 15.

When the engine is being run at full throttle, pin TK of the relay is earthed through throttle angle transmitter 203, and the relay trips the compressor.

On cars with the 8-valve engine, solenoid valve 142, which is always open when the compressor is running, is used for idling speed compensation.

When the engine is being run at full throttle (butterfly valve open more than 70°), pin TK of the relay is earthed through throttle angle transmitter 203, and the relay trips the compressor.

AC radiator fan 172

Extra radiator fan 172 for the AC is connected via relay 155 and is supplied from fuse 6.

The relay coil is supplied from the contacts of relay 156 and from pressure switch 166. The AC radiator fan thus runs when AC switch 169 is depressed and pressure switch 166 is closed.

Recirculation valve

Recirculation valve 38, which controls the recirculation damper, will be switched on when recirculation switch 143 is depressed. The switch is supplied from fuse 6. When the switch is depressed, the lamp built into the switch will light up with full intensity.

The recirculation valve is also connected across main switch 149, when the air distribution control is in position 0 or ♦♦ (regardless of the position of switch 143). The supply is taken from fuse 9, via ventilation fan resistor 74.

Fault-tracing hints

As a general rule, the supply to the unit is live when the ignition switch is in the drive position. If none of the components are faulty, check the cable harnesses, connectors and earth connections.

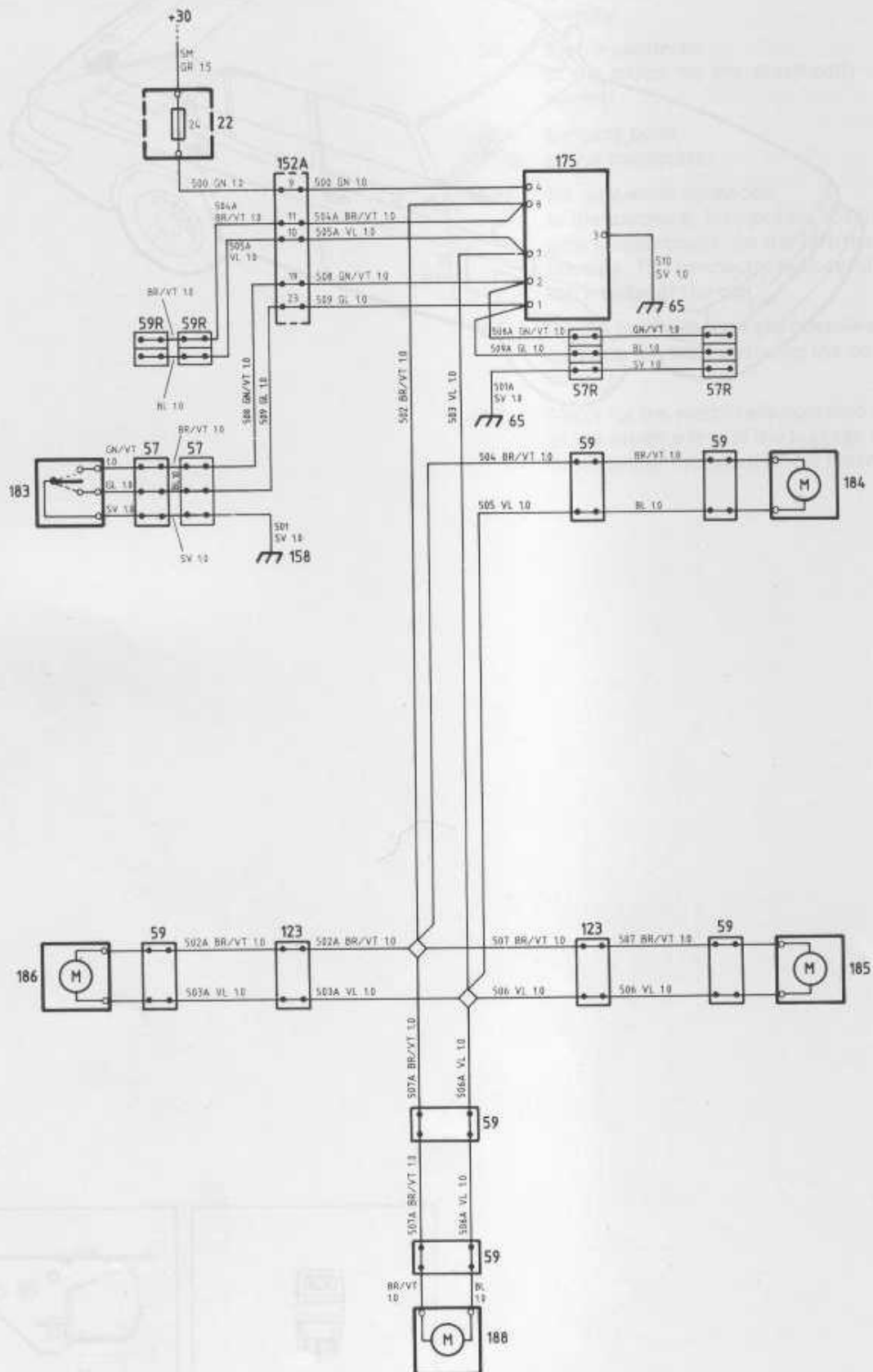
Compressor and radiator fan motor 37

1. Check fuses 6 and 25 and check that the supplies to AC switch 169 and relay 156 are live.
2. Press the AC switch. Measure the voltage across pressure switch 166 (the pressure switch should be closed). Note that refrigerant will spray out when the pressure switch is disconnected. Caution: Risk of frostbite.
3. Check cycling clutch contact 171. (It should close at +6 °C.)
4. Check that the relay is energised and that the relay contacts (87 and 87A) are live. If not, check that the coil/electronics are being supplied from thermostat 171 and from the +15 distribution terminal. When the relay is energised, terminal 16 should be live. At full throttle, terminal TK should be earthed.
5. Check that the supplies to the compressor and the radiator fan are live. (Temperature switch 168 should be closed.)

AC radiator fan 172

1. Check fuse 6 and check that the supply to the AC switch and to relay 155 is live.
2. Press the AC switch. Measure the voltage across pressure switch 166 (the pressure switch should be closed). Note that refrigerant will spray out when the pressure switch is disconnected. Caution: Risk of frostbite.
3. Check that relay 155 is being energised and that the supply to the AC radiator fan is live.

Central locking



Operation

The central locking system of the car locks or unlocks all doors and the luggage compartment lid when the key is turned in the lock of the driver's door.

Terminal 4 of electronic unit 175 for the central locking system is continuously supplied from fuse 24, via the 29-pole white connector 152A. The electronic unit is controlled by control unit 183, which is mounted in the driver's door.

When the driver's door is locked, terminal 1 of the electronic unit will be earthed across the control unit to negative distribution terminal 158. Current will then flow from output 8. All central locking motors (which are connected in parallel) will now be energised for approx. 1 second and the doors will lock. The motors are earthed through pin 7 of the electronic unit, and on from terminal 3 to earthing point 65.

When the driver's door is unlocked, terminal 2 of the electronic unit will instead be earthed across the control unit. The motors will now be energised from pin 7 instead, and will be earthed across pin 8 of the electronic unit (for approx. 1 second), causing the locks to open.

On right-hand drive cars, the control unit is connected to connector 57R, and motor 184 for the co-driver's door lock is connected to connector 59R.

Fault-tracing hints

1. Check fuse 24 and check that the supply to it is live.
2. Check that the supply to terminal 4 of electronic unit 175 is live.
3. Check that pin 7 of the electronic unit is live when the doors are being unlocked and that pin 8 is live when the doors are being locked.

Note that terminals 7 and 8 are energised for only around one second in conjunction with locking and unlocking. Measurement at these terminals must therefore be carried out when control unit 183 is switching over.

4. Check the connectors, cable harnesses and earth connections.

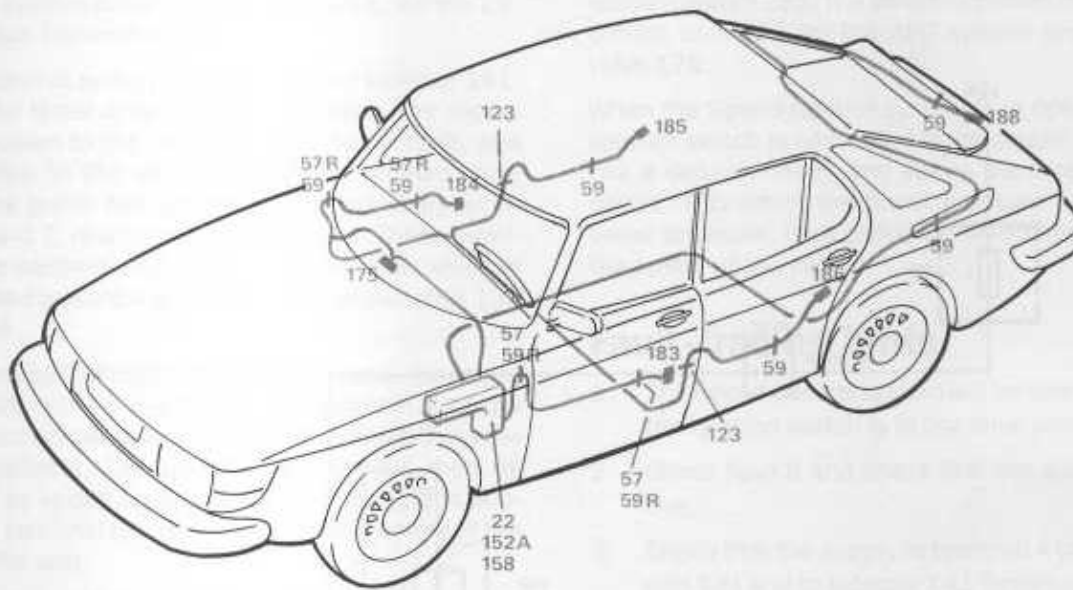
Note:

On testing, the actuating motors may be connected to terminals 7 and 8 of the electronic unit only. Do not connect them to any other power supply sources. Doing so may overload the motors and damage them.

Locations of components

- 22 Fuse box
in the electrical distribution box in the engine compartment, on the left-hand wheel housing
- 57 3-pole connector
one in the left-hand front door
one in the engine compartment, at the upper hinge of the left-hand front door, behind the electrical distribution box
- 57R 3-pole connector
one in the right-hand front door
one in the engine compartment, at the upper hinge of the right-hand front door
- 59 2-pole connector
one in the right-hand front door
one in the engine compartment, at the upper hinge of the right-hand front door
one in the left-hand rear door
one in the right-hand rear door
one in the luggage compartment lid, near the motor for the luggage compartment lock
one in the luggage compartment, above the left-hand wheel housing
- 59R 2-pole connector
one in the left-hand front door
one in the engine compartment, at the upper hinge of the left-hand front door, behind the electrical distribution box
- 65 Earthing point
at the handbrake
- 123 4-pole connector
one in the left-hand B pillar
one in the right-hand B pillar
- 152A 29-pole white connector
in the electrical distribution box in the engine compartment, on the left-hand wheel housing. The connector is accessible from the interior of the car
- 158 Negative distribution terminal
in the electrical distribution box in the engine compartment, on the left-hand wheel housing
- 175 Electronic unit for the central locking system
under the facia on the right-hand side, behind the knee shield
- 183 Control unit for the driver's central door lock
in the driver's door
- 184 Motor for the co-driver's door lock
in the co-driver's door, at the rear
- 185 Motor for the right-hand rear door lock
under the lock in the right-hand rear door
- 186 Motor for the left-hand rear door lock
under the lock in the left-hand rear door
- 188 Motor for the tailgate lock in the tailgate

Components

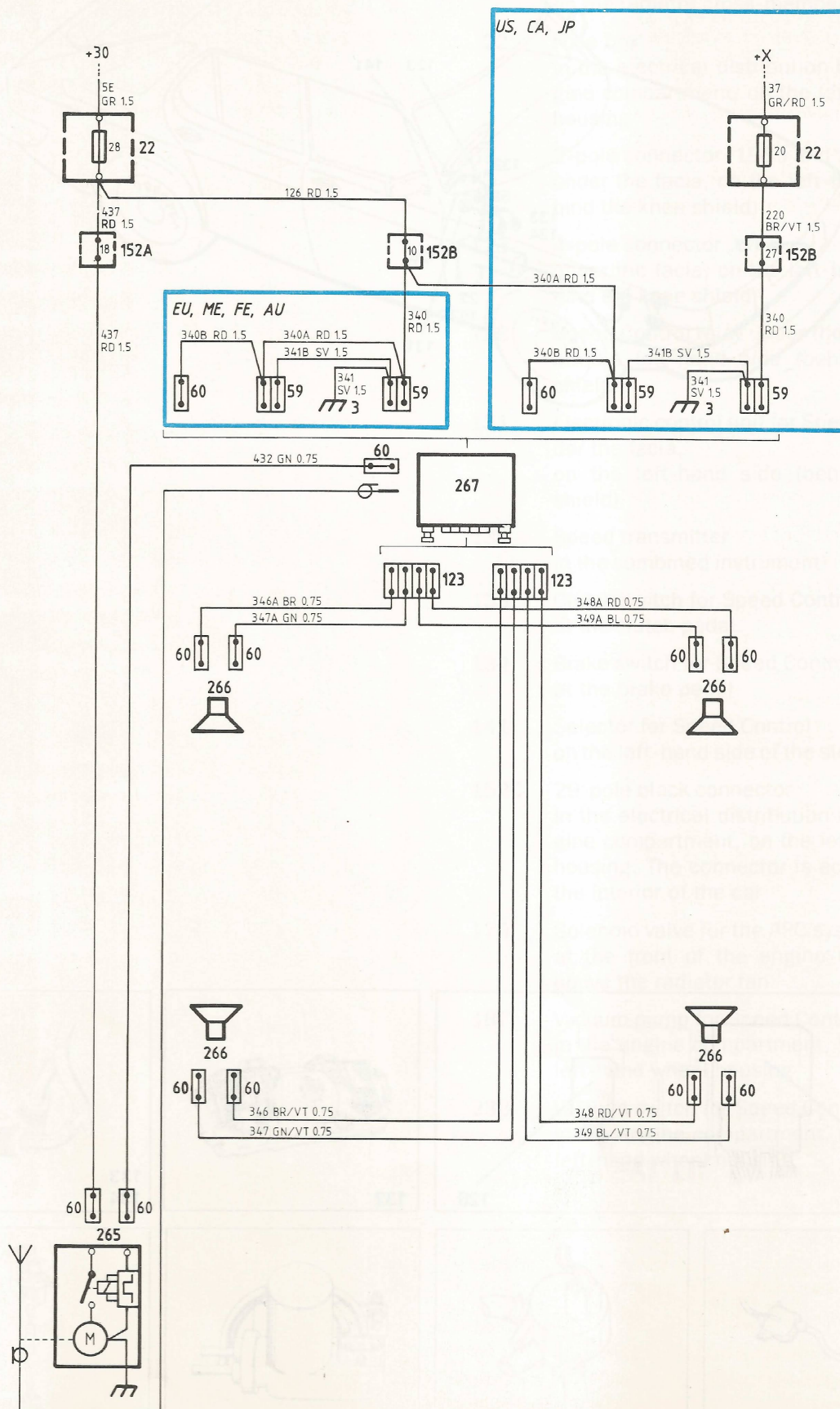


175

183
184
185
186

188

Radio installation – 1984 and 1985 models



Operation

Space has been reserved in the facia for a radio (267). On certain markets/models, the car has also been prepared for the installation of a radio by running the wiring for the speakers and an electrically operated aerial to various points in the car.

Power supply

European and other markets

The following connectors are included in the radio compartment in the facia:

- A single-pole connector (60) for the radio memory.
- A 2-pole connector (59) for the power supply to the radio and any booster amplifier, via fuse 28, which is supplied directly from the battery (regardless of the position of the ignition switch). Black = earth and red = positive supply.

U.S.A., Canadian and Japanese markets

The following connectors are included in the radio compartment in the facia:

- A single-pole connector (60) for the radio memory.
- A 2-pole connector (59) for the power supply to any booster amplifier, via fuse 28, which is supplied directly from the battery (regardless of the position of the ignition switch). Black = earth and red = positive supply.
- A 2-pole connector (59) for the power supply to the radio, via fuse 20, which is supplied when the ignition switch is in the park, drive or start positions. Black = earth and red = positive supply.

Speakers and aerial

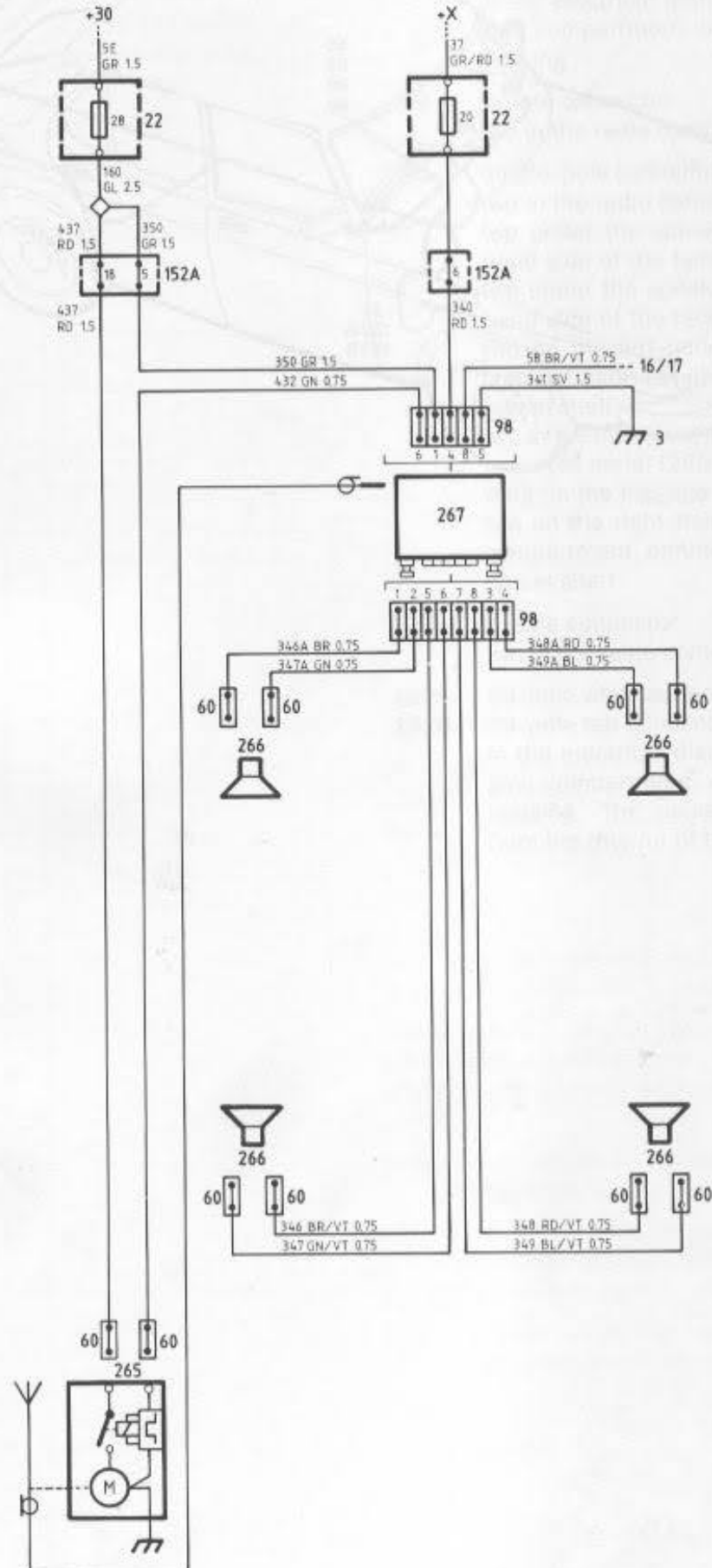
The following components are included in the radio compartment in the facia:

- Two 4-pole connectors (123) for the front speakers (266), one on each side of the facia. Each speaker is connected via single-pole connector 60.
- Two 4-pole connectors (123) for the rear speakers (266), one on each side of the parcel shelf.
- A single-pole connector (60) for control of the electrically operated aerial (265). The motor of the electrically operated aerial is supplied via fuse 28.
- A coaxial cable which runs to the mounting point for the aerial, on the left-hand rear wing.

Fault-tracing hints

1. Check the supply to the radio and the earth connection.
2. Check the connectors.
3. Check the existing cable harness for open circuits and short circuits to earth.

Radio installation – 1986 models



Operation

Space has been reserved in the fascia for a radio (267). On certain markets/models, the car has also been prepared for the installation of a radio by running the wiring for the speakers and an electrically operated aerial to various points in the car.

Two 10-pole connectors (98), one for the power supply and one for the speakers, are fitted in the radio compartment in the fascia. A coaxial cable has also been run to the mounting point for the aerial, on the left-hand rear wing.

Power supply

The following cables are connected to the upper 10-pole connector 98 shown on the wiring diagram:

Grey (pin 1) – Positive supply via fuse 28, which is supplied directly from the battery (regardless of the position of the ignition switch).

Red (pin 4) – Positive supply via the ignition switch and fuse 20. The radio is supplied when the ignition switch is in the park or drive positions.

Black (pin 5) – Earth.

Green (pin 6) – For control of the electrically operated aerial (265). The motor of the electrically operated aerial is supplied via fuse 28.

Brown/white (pin 8) – Dial lighting. The supply is taken from the instrument lighting rheostat 16/17.

Speakers

The speaker connections are made via the lower 10-pole connector.

Left-hand front:

Brown (pin 1)

Green (pin 2)

Right-hand front:

Blue (pin 3)

Red (pin 4)

Left-hand rear:

Brown/white (pin 5)

Green/white (pin 6)

Right-hand rear:

Blue/white (pin 7)

Red/white (pin 8)

Each speaker is connected via single-pole connector 60.

Fault-tracing hints

1. Check the supply to the radio and the earth connection.
2. Check the connectors.
3. Check the existing cable harness for open circuits and short circuits to earth.