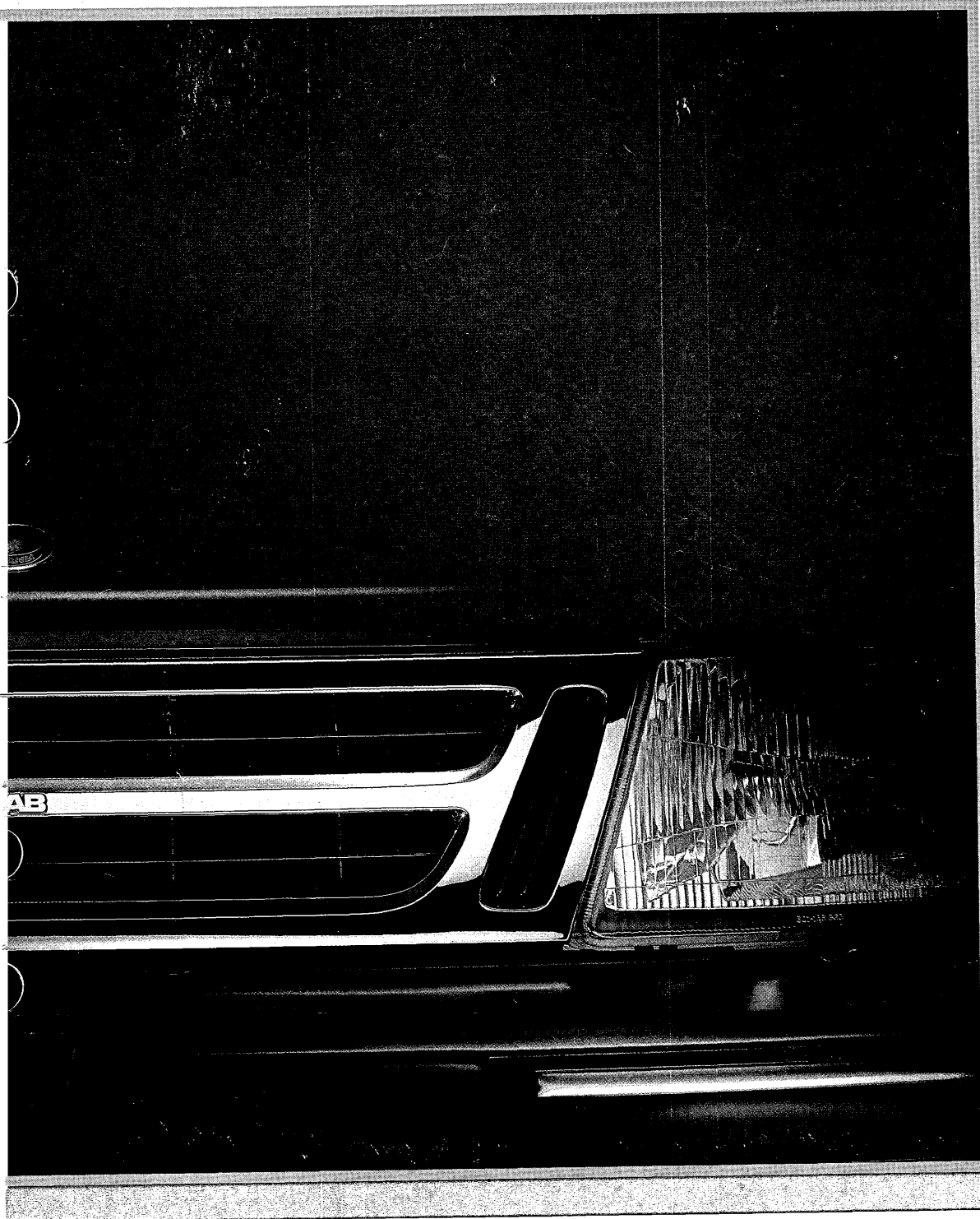


Saab 9000

SERVICE MANUAL



SAAB

14.453-6HP

Saab 9000

SERVICE MANUAL

0 News

M 1992

Foreword

This manual contains brief descriptions of the most important new features of the 1992 Saab 9000.

It is intended to be used as a service manual as well as a workbook for training instructors and mechanics.

Since no production cars are available at the time of writing, the information in this manual is not binding.

We reserve the right to introduce modifications without notice.

Saab Automobile AB

Technical data

Special tools

Service

Engine

Electrical system

Brakes

Front assembly, steering

Body

Units

The basic and derived units used throughout the Service Manual are in accordance with the SI system. (Système International d'Unités)

For users not familiar with the SI units, some non-Continental units are given in brackets after the respective SI unit.

The following symbols and abbreviations are used:

SI unit	Equivalent unit and symbol
Millimeter (mm)	inch (in)
Kilogramme (kg)	pound (lb)
Newton (N)	pound-force (lbf)
Newtonmeter (Nm)	foot pound (ft lb)
Atmosphere (bar)	pound-force per square inch (lbf/in ²) (Also abbreviated: psi)
Liter (l)	US liquid quart (liq qt) (Also abbreviated: qts)
°Celsius (°C)	US gallon (USgal) °Fahrenheit (°F)

Conversion factors

1 in = 25.4 mm	1 mm = 0.039 in
1 lb = 0.45 kg	1 kg = 2.20 lb
1 lbf = 4.45 N	1 N = 0.23 lbf
1 lbf ft = 1.36 Nm	1 Nm = 0.74 lbf ft
1 psi = 0.07 bar	1 bar = 14.5 lbf/in ²
1 US liq qt = 0.83 UKqt	1 l = 1.05 liq qt
	1 USgal = 0.83 UKgal
°F = °C x 9/5 + 32	°C = (°F - 32) x 5/9

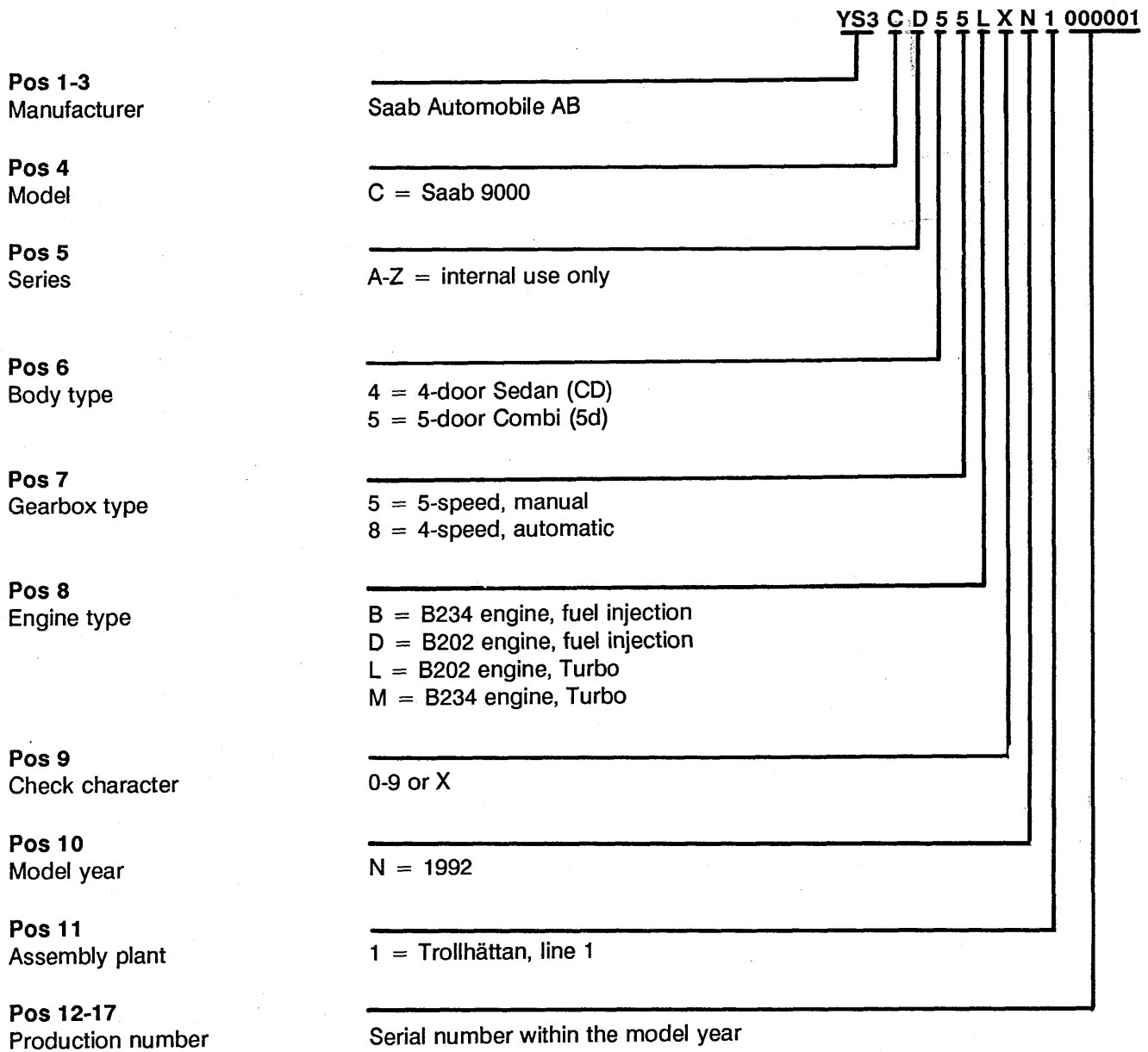
Market codes

The codes refer to market specifications

AT	Austria	GB	Great Britain
AU	Australia	GR	Greece
BE	Belgium	IS	Iceland
CA	Canada	IT	Italy
CH	Switzerland	JP	Japan
DE	Germany	ME	Middle East
DK	Denmark	NL	Netherlands
ES	Spain	NO	Norway
EU	Europe	SE	Sweden
FE	Far East	US	USA
FI	Finland	UC	US California
FR	France		

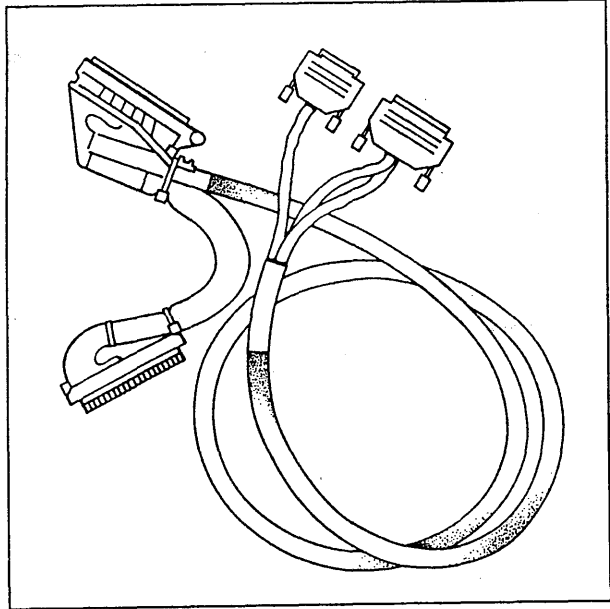
Technical data

Chassis number



Special tools

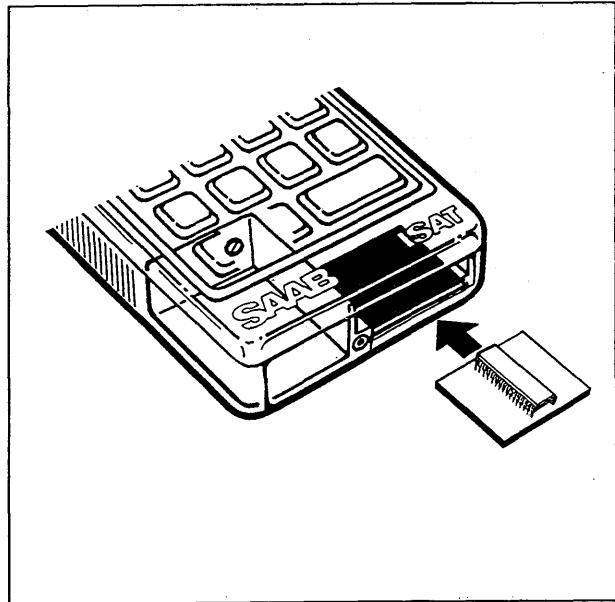
29-pole test cable for the Airbag, part No. 86 11 113. With double connector for connection between the control unit and connector. Used together with the Breakout Box, part No. 86 11 006.



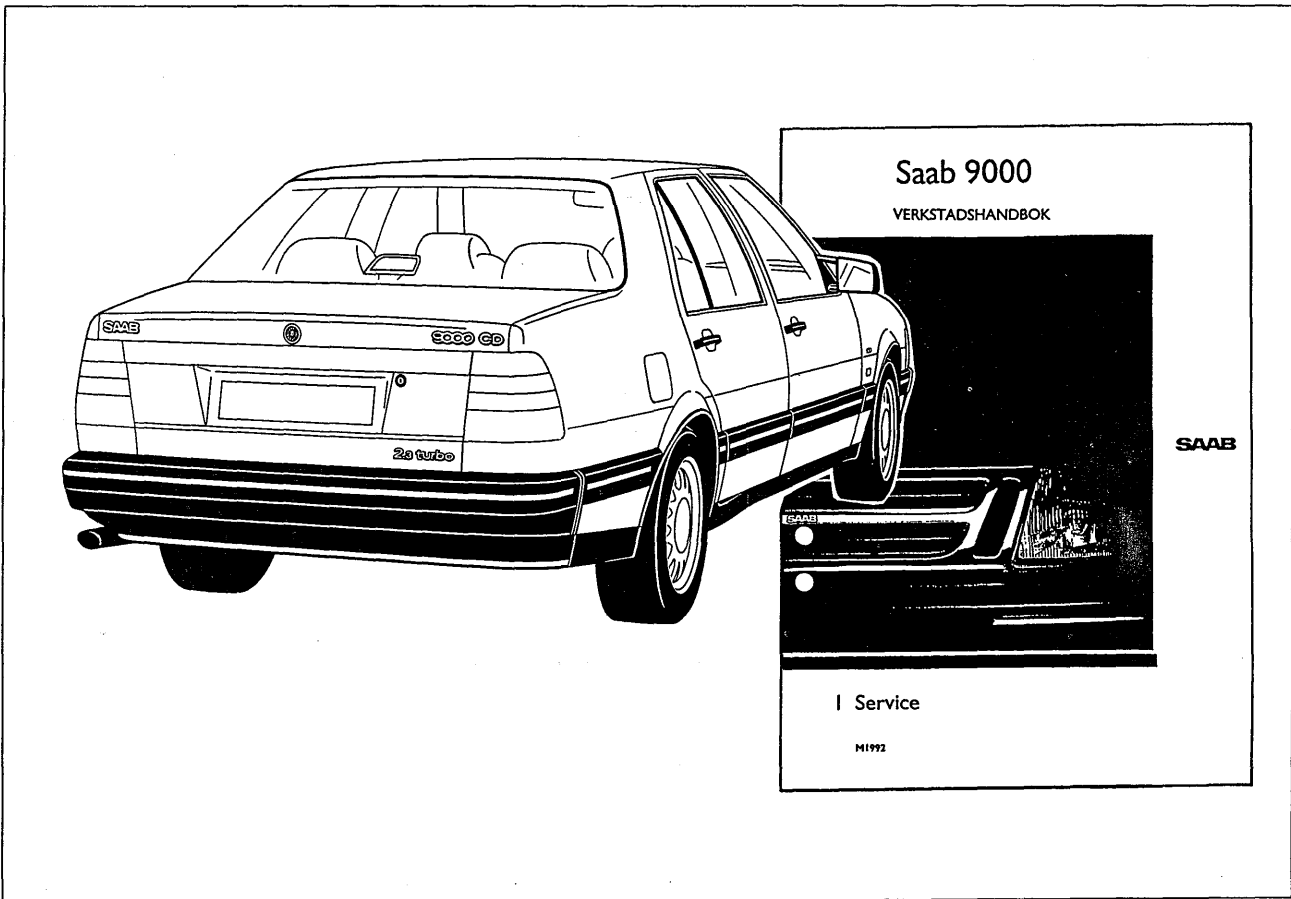
25-pole test cable for ASR, part No. 86 11 113. With double connector for connection between the control unit and connector. Used together with the Breakout Box, part No. 86 11 006.

A new special tool for checking the Cruise Control system (after changing to the 15-pin control unit and rversed polarity) is under development and will be presented together with fault-tracing methods in a Service Information sheet to be issued in the autumn of 1991.

Memory module for the ISAT, part No. 86 11 105. Updated for 1992 cars and containing all language versions.



Service



New service programme

From model year 1992 the service programme has been revised so that all particulars are now included in a single service manual, "1 Service".

This change is warranted by the simplification of the service programme that can be achieved through higher product quality and improved engineering design. In some cases this is also reflected by longer service intervals.

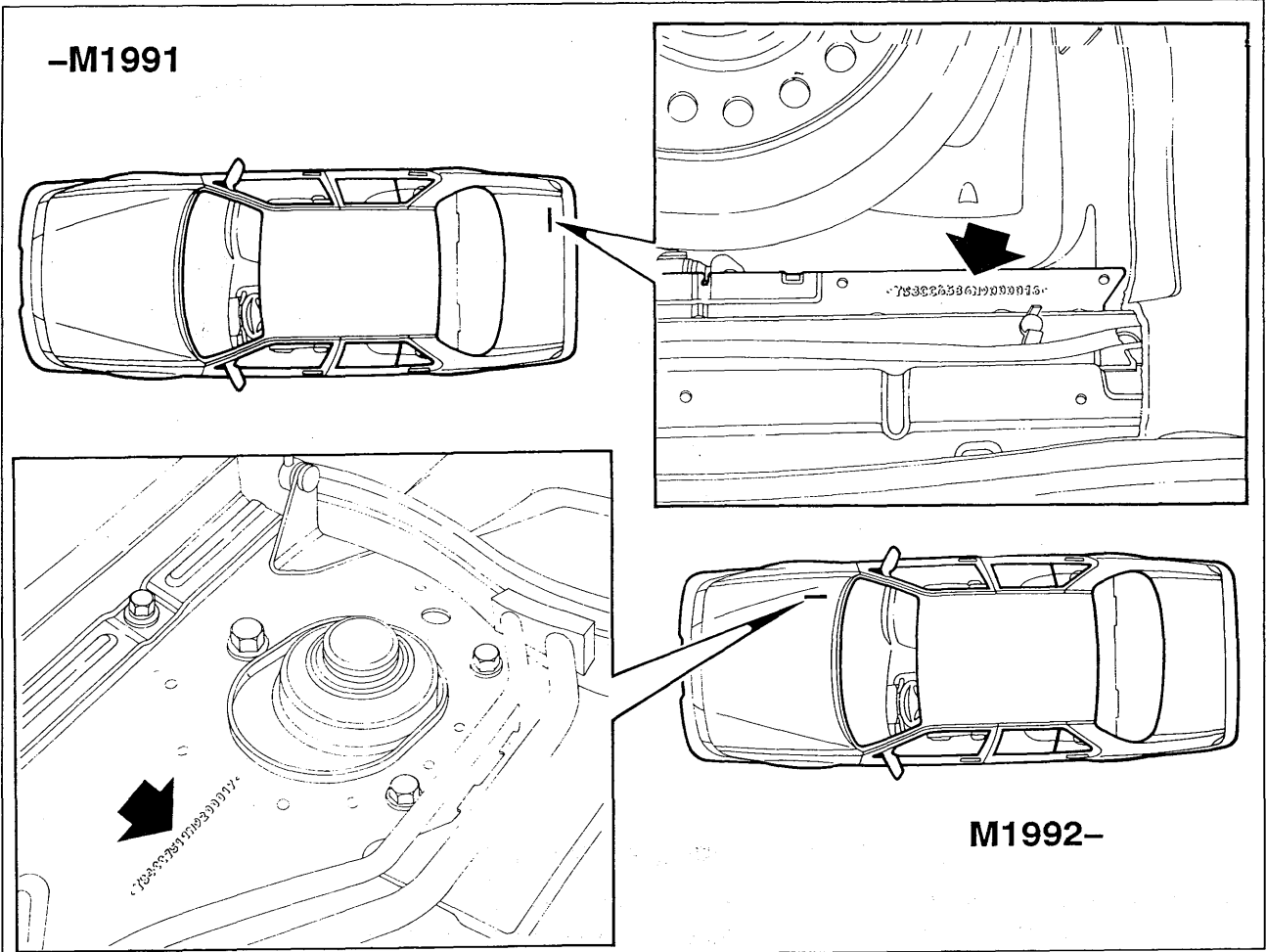
Briefly, the most important changes can be summarized as follows:

- **Service interval 1** replaces what was formerly called Warranty Service.
- **Saab Original Service** replaces what was formerly called Safety and Functional Service, Full Service, Maintenance Programme and Owner's Programme.

Pre-delivery inspection, which is the same as before, is of major importance in a highly competitive situation where customers have the right to expect a quality product.

Engine

New chassis number location	2	New intermediate silencer	8
Modified fuel filler pipe	2	Heat shields	8
Fuel filler cap central locking discontinued	2	Suspension hooks	8
Corrected tank capacity	5	Traction Control System	9
New charcoal canister for 9000CS models	6		
New coolant hoses between engine and heat exchanger	7		

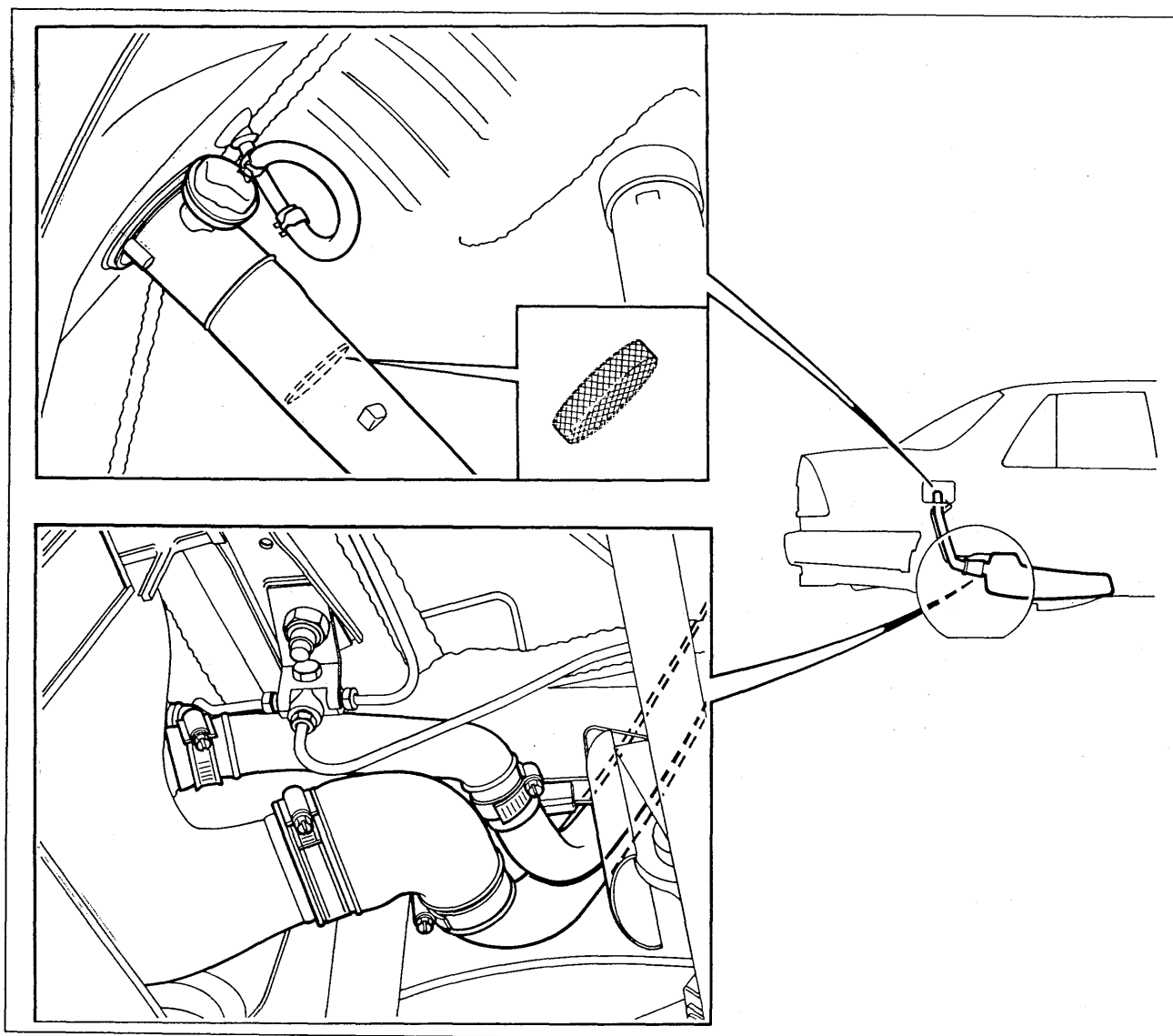


From 1992 models the chassis number is located on the right-hand structural member

New location of chassis number

From model year 1992, the location of the chassis number on all 9000 models is changed from the cross member in the luggage compartment to the right-hand structural member beside the upper mounting point for the MacPherson strut.

The number is covered by transparent corrosion-protecting tape and can be read right way up from the right-hand side of the car.



Modified fuel filler pipe

The fuel tank filler pipe on all 9000 models from 1992 is of new design.

On this new design, the rubber hose between the filler pipe and the collar is discontinued, which means that the two hose clips fitted earlier are also discontinued. The filler pipe and the vent pipe are integrated in a single unit, which greatly simplifies removal and fitting.

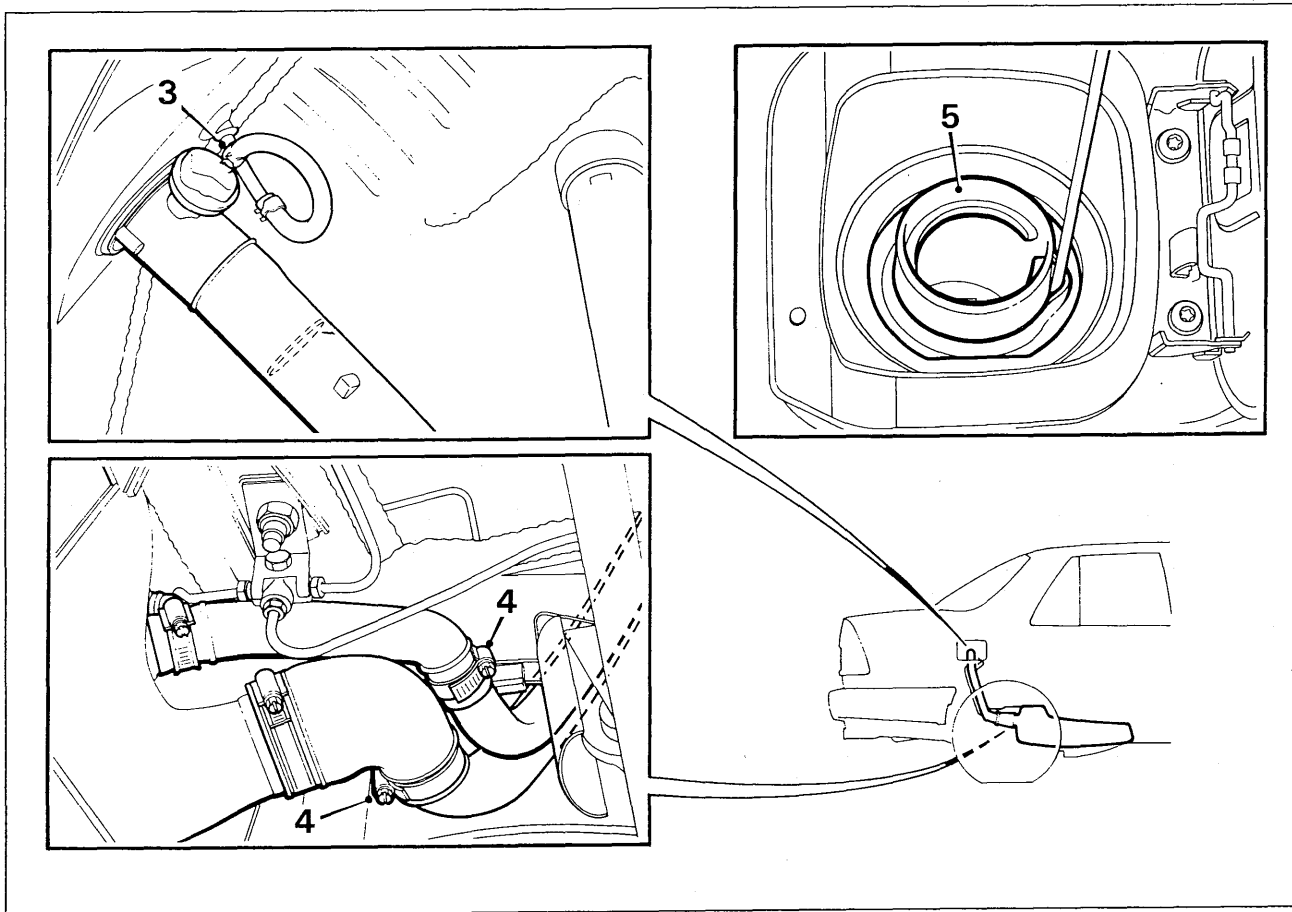
There are two versions of the fuel filler pipe; for cars with and without a charcoal canister for fuel evaporation.

The vent pipe nipple is repositioned at the same time as the hose is run slightly differently. Also the lead-throughs in the outer and inner bulkheads are new.

Central locking of the fuel filler cap discontinued

From 1992 cars, central locking of the fuel filler cap is discontinued. To prevent the theft of fuel by siphoning, a fine wire-mesh obstruction is mounted in the filler pipe.

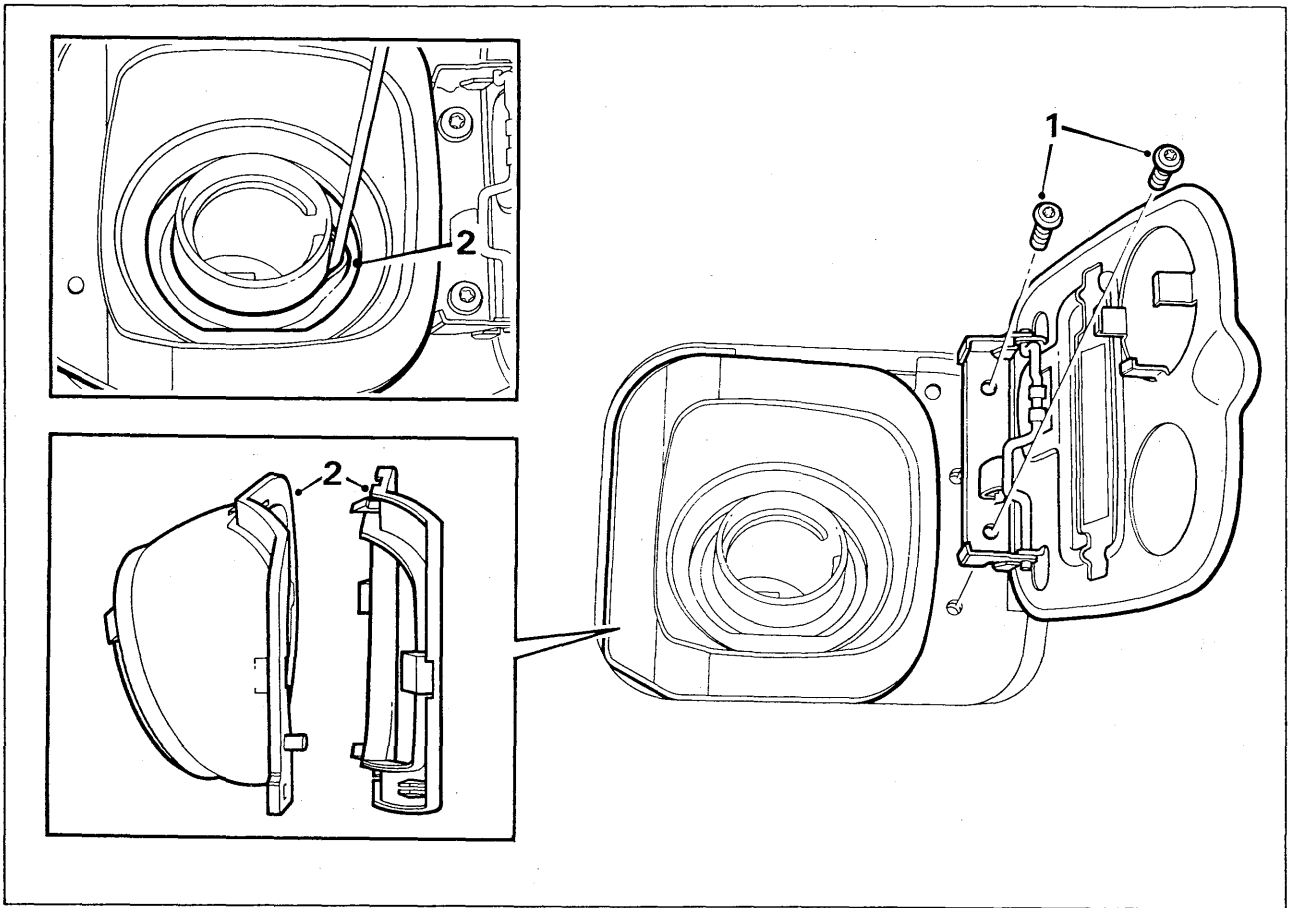
Certain models are also equipped with locking gas caps as standard equipment.



Changing the filler pipe

- 1 Raise the car and remove the right-hand rear wheel.
- 2 Clean the area round the filler pipe and its connections.
- 3 Remove the clip and disconnect the vent hose.
- 4 Remove the hose clips on the lower rubber hose.
- 5 Unscrew the filler cap and withdraw the fuel filler pipe.

Assemble in reverse order.

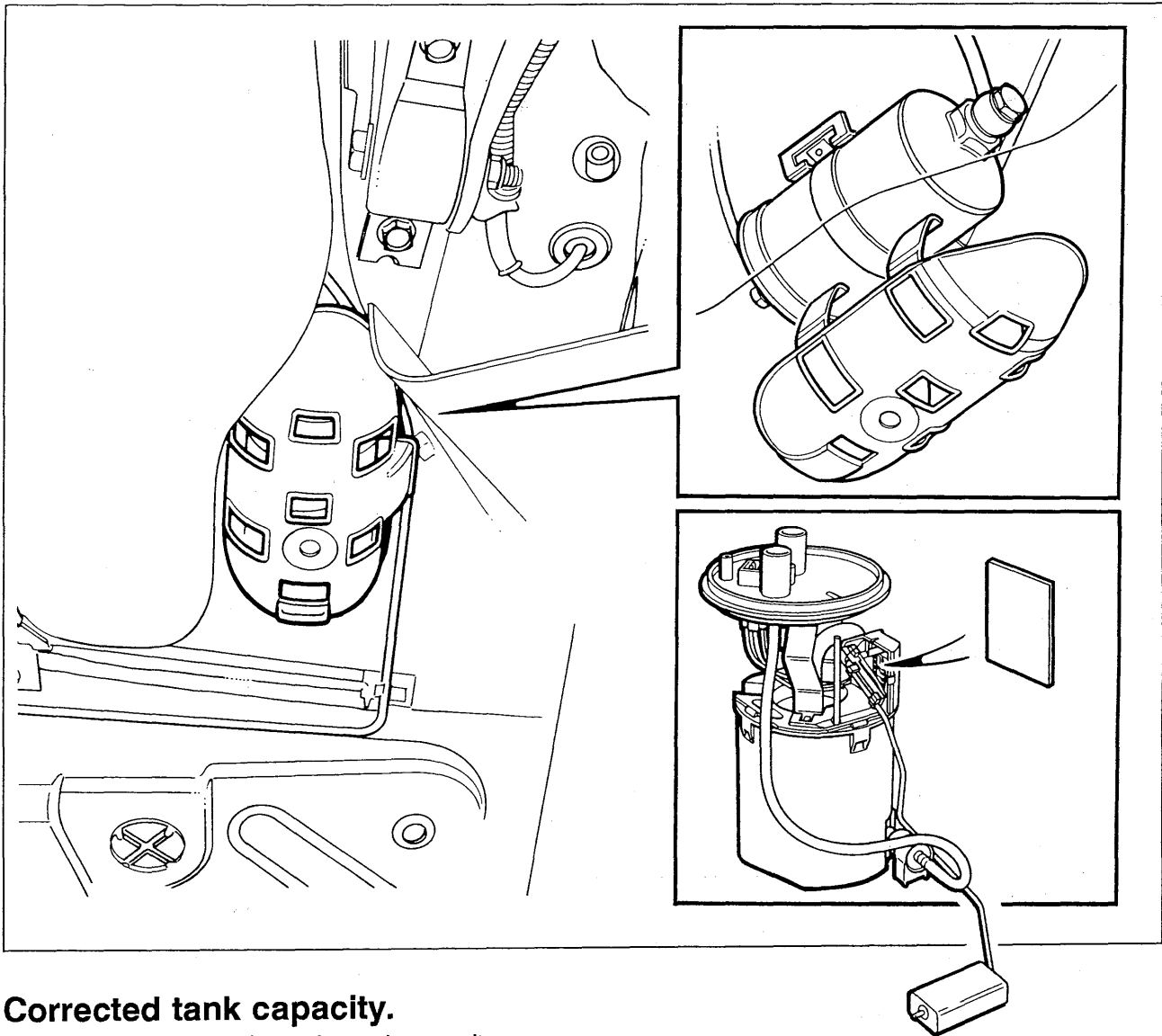


Changing the filler pipe

1 Remove the filler pipe cover (2 screws) and unscrew the filler cap.

2 Withdraw the filler pipe and clip.

Fit in reverse order.



Corrected tank capacity.

All Saab 9000 models have the tank capacity corrected to 65 litres.

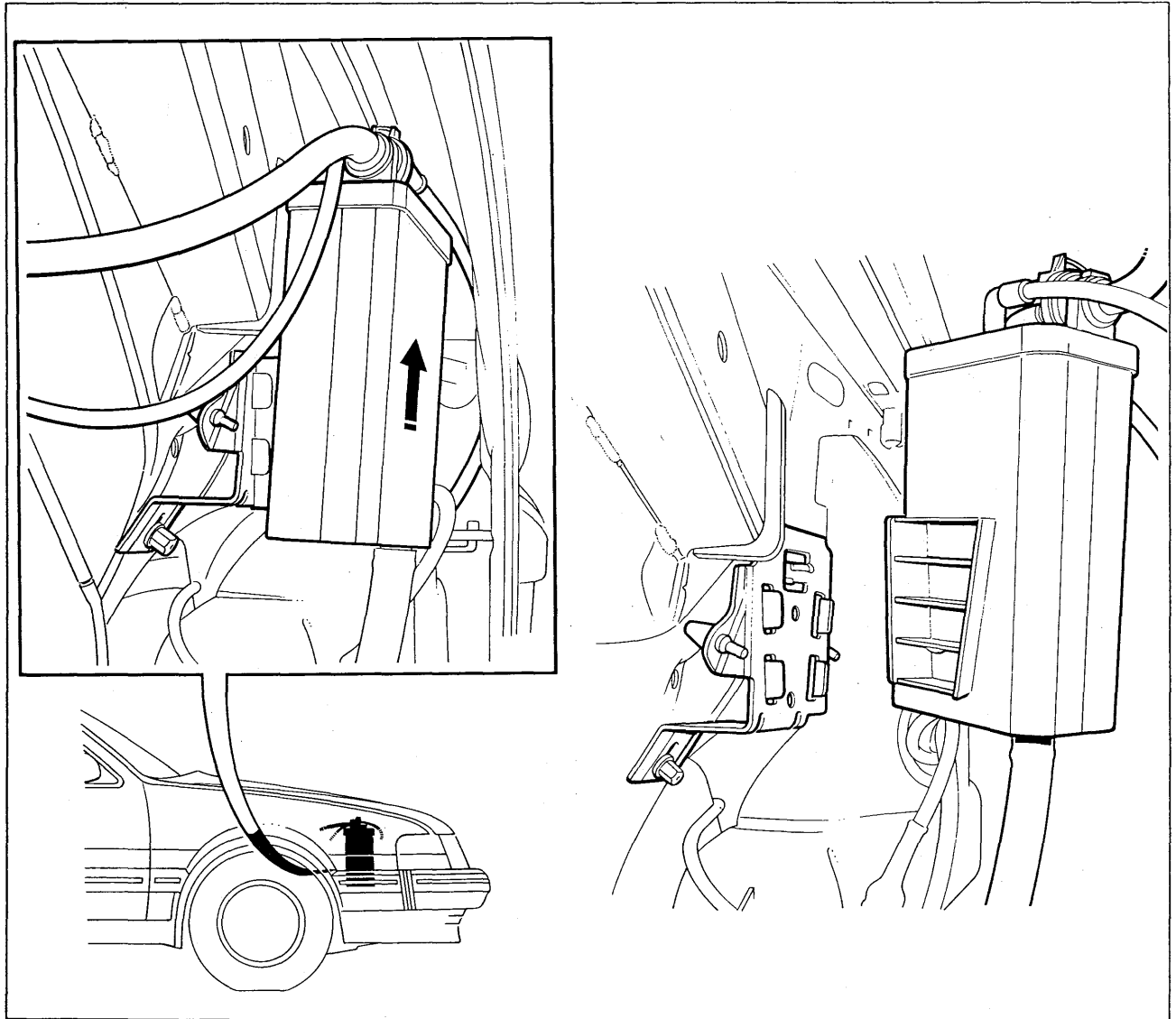
This modification also necessitates a new version of the printed circuit board for the level transmitter and

also an additional version of the fuel pump.

The fuel filter is provided with a protective plastic cover which clips in place for ease of removal and fitting.

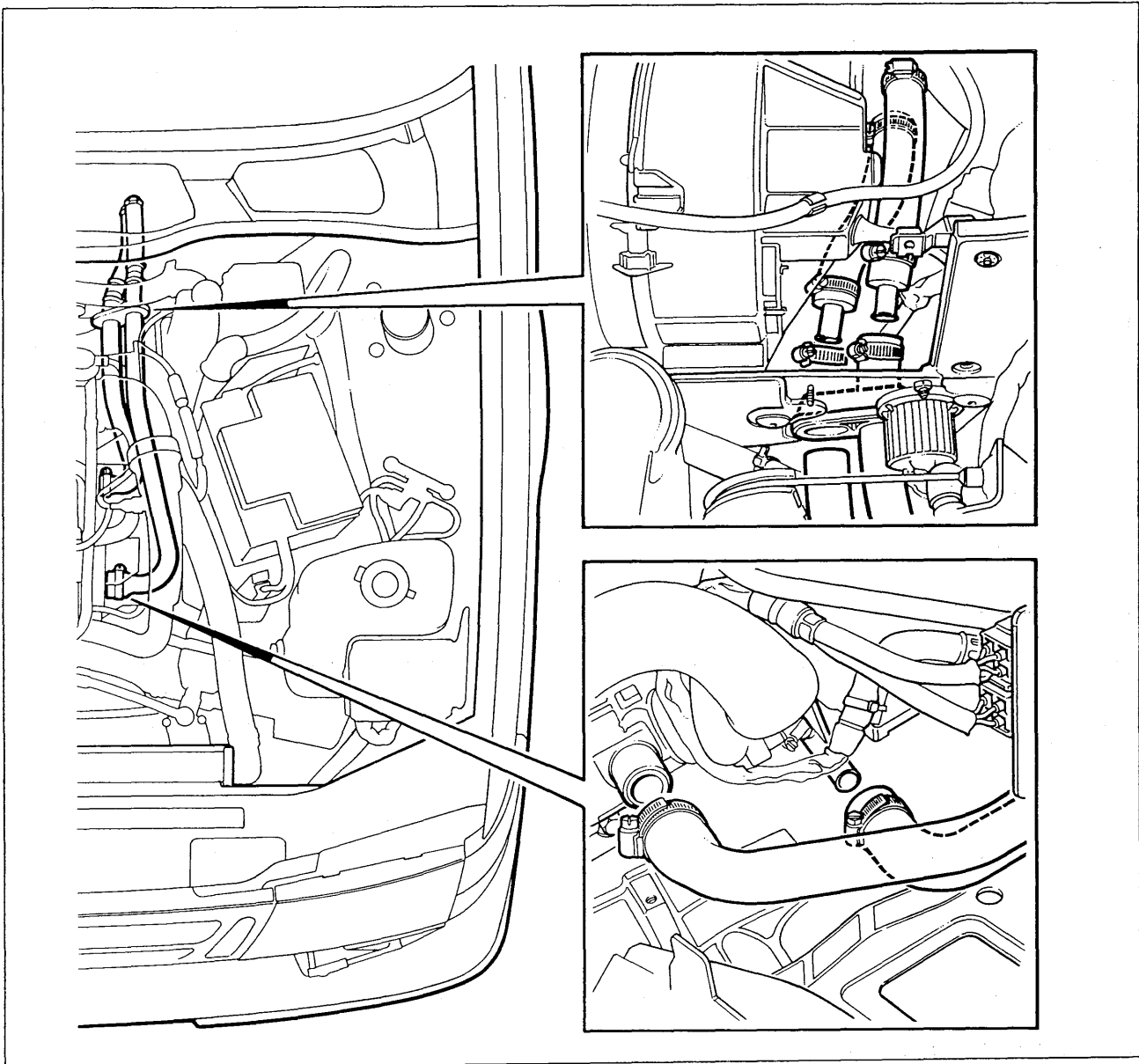
The tightening torque for the fuel pump cover lock-nut has been changed.

Tightening torque: 75 Nm (55.3 lbf ft)



New charcoal canister

Owing to the location of the washer fluid reservoir in the wheel housing, the charcoal canister is repositioned further back in the existing space. To retain the same capacity, the washer fluid reservoir is now rectangular in section. The mounting bracket has also been modified to simplify removal and fitting of the reservoir.



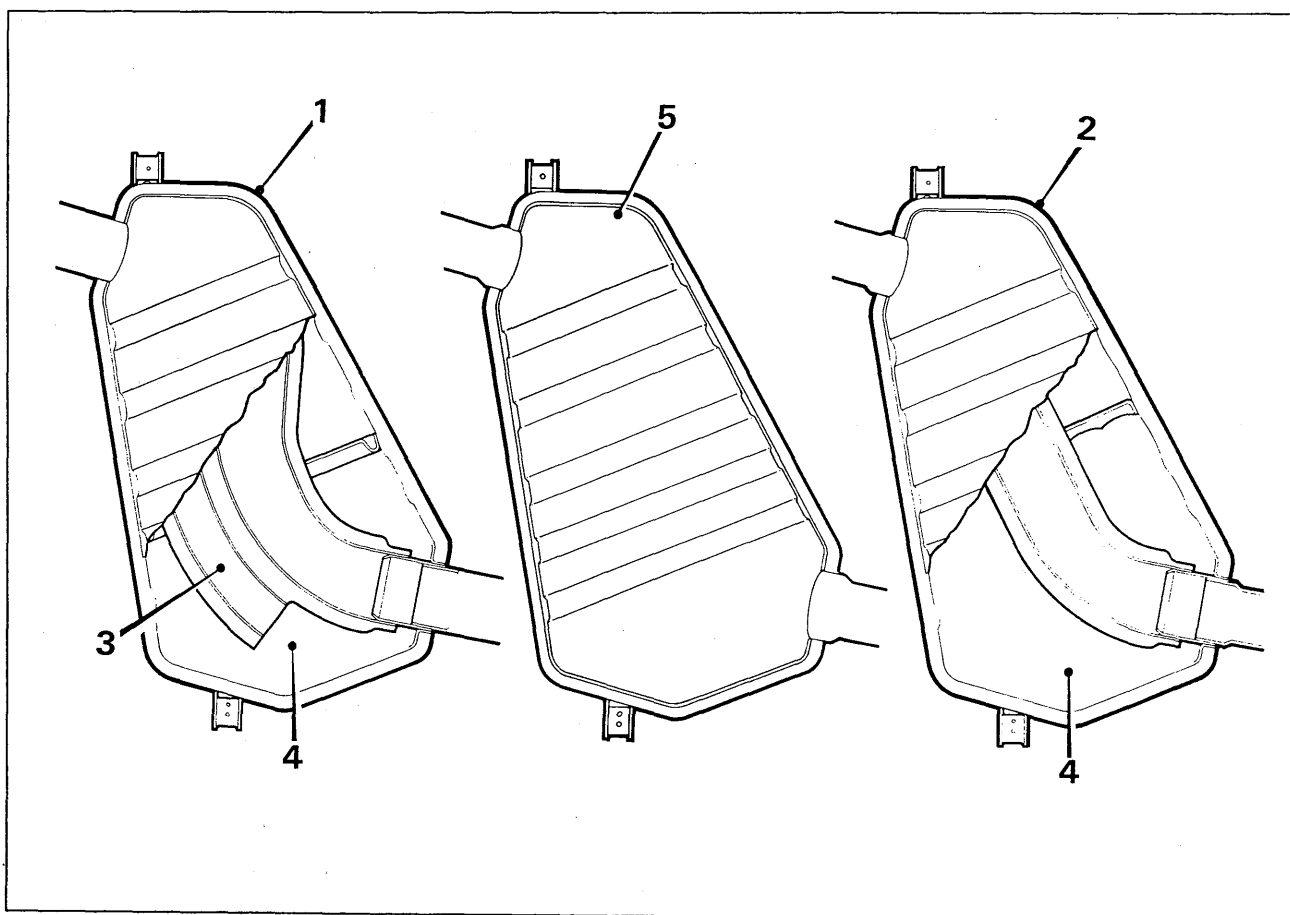
New coolant hoses between engine and heat exchanger

Owing to a modified version of the panel between the "aquarium space" and engine compartment, the hoses on 1992 and subsequent model year cars are severable immediately behind the panel. The hoses pass through the panel via a separate lead-through.

The water pump's return hose is connected to the heat exchanger's lower hose and the hose from the thermostat housing is connected to the heat exchanger's upper hose.

The ends of the hoses are joined together by means of a flanged plastic sleeve and ordinary hose clips, tightening torque 3-5 Nm.

The water pump return hose is now longer, with the result that the pump hose connection and the throttle housing preheating connection are now located directly beneath the throttle housing.



There are two versions of the silencer, one for turbo engines and one for non-turbo engines.

- 1 Turbo
- 2 Non-turbo engine
- 3 Resonator
- 4 Fully packed with insulation
- 5 New heat shield

New intermediate silencer

To improve the level of silence still further, especially for rear-seat passengers, measures have been taken to deal with the resonance of sound from the silencer.

All 1992 and subsequent 9000 models, B202 and B234 engines, are therefore fitted with a new intermediate silencer designed to damp out such resonance.

The intermediate silencer of the turbo version incorporates a "resonator" consisting of an extra internal pipe. By carefully adjusting the length of this pipe, it has been possible to eliminate the undesirable resonant frequencies.

On non-turbo versions the resonance-eliminating effect is achieved without resorting to a special "resonator pipe".

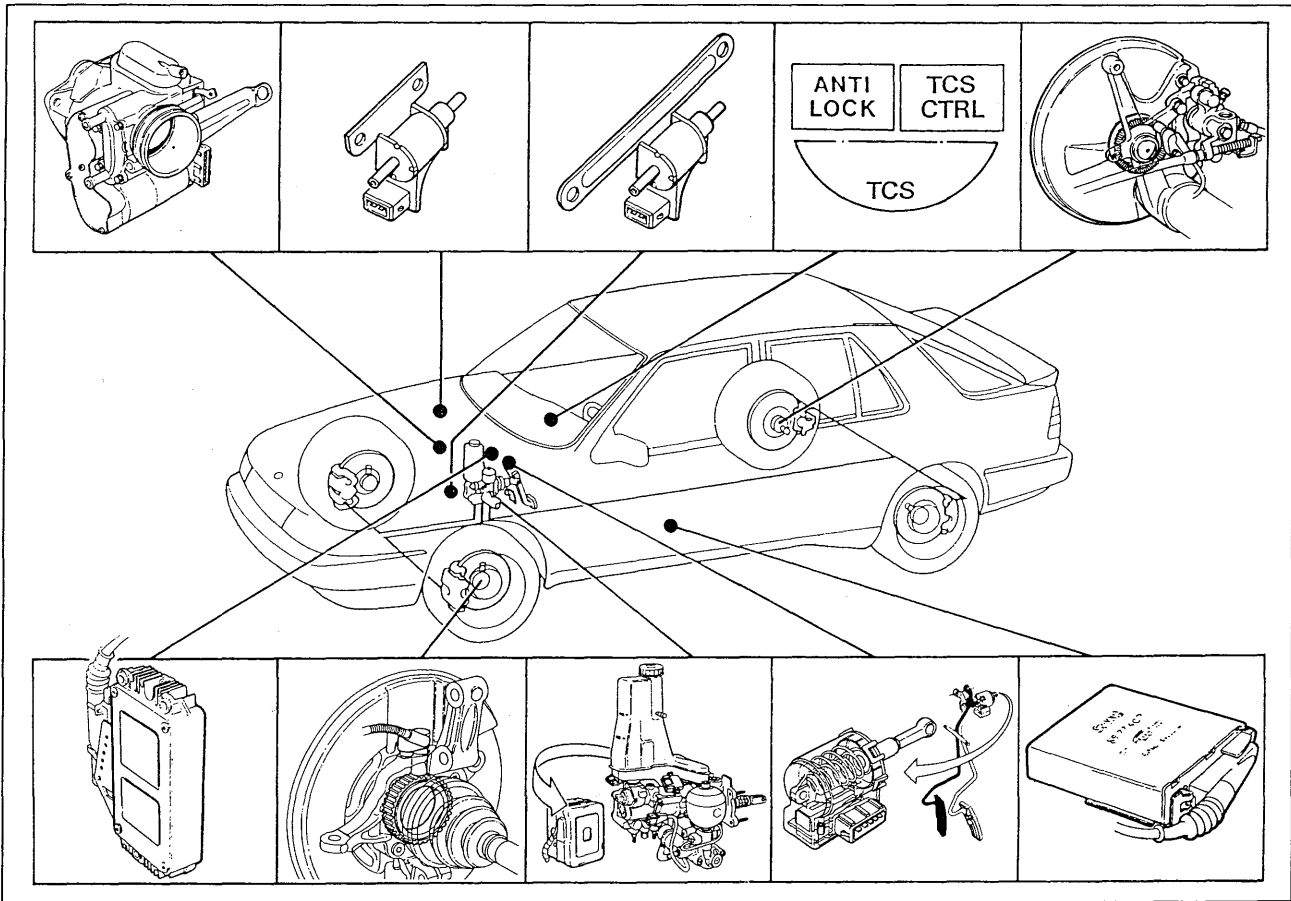
Heat shields

Owing to the modified shape of the silencer, the intermediate heat shield is also of different shape.

The heat shields are made of a light composite material and will be mounted directly on the exhaust system.

Suspension hooks

New suspension hooks are welded to the floor on both sides.



Traction Control System

From 1992, all 9000 Turbo models will be equipped with Saab's Traction Control System.

TCS has two slightly different variants, one for manual transmission models (TC/ABS) and one for au-

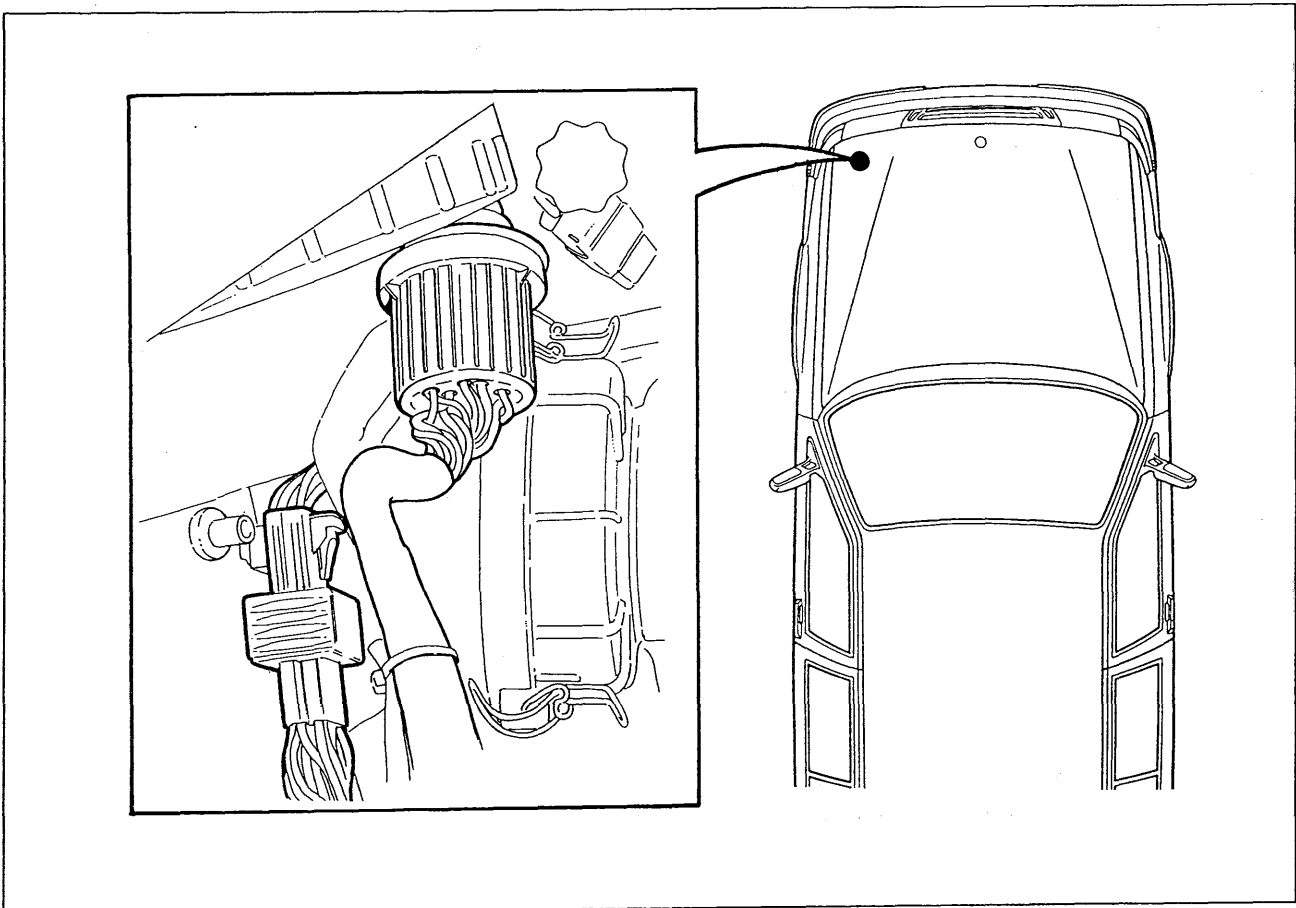
tomatic transmission models (ASR).

Refer to the combined Training/Service Manual 2:5, Traction Control System, for complete information.

Electrical system

Main wiring harness M1992	1	Hazard flasher switch	14
New earthing points	3	Washer system	
Relays	4	Reservoir	16
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Main wiring harness M1992



On 1992 and subsequent model year cars the main wiring harness can be separated into two parts at the left-hand structural member in the engine compartment. This is accomplished by means of a 24-pin and a 10-pin splashproof connector and the arrangement is provided because of additional electrical functions on the right-hand side.

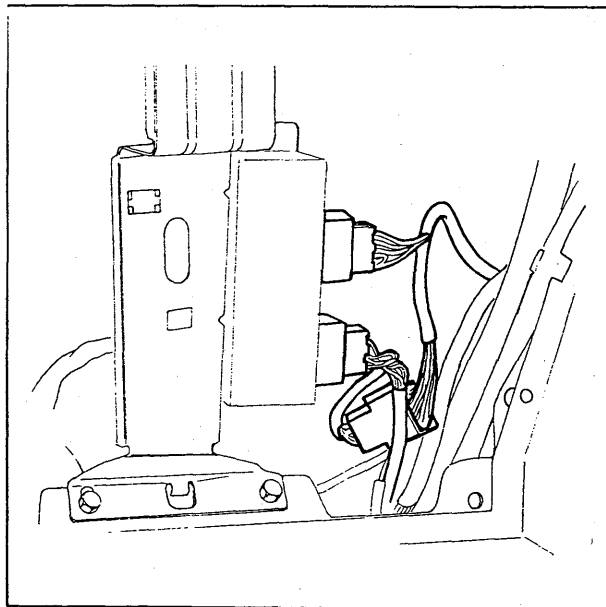
The possibility of dividing the wiring harness into two parts is also advantageous in the case of damage to the front assembly, when only a limited part of the harness need then be replaced.

2 Electrical system

On 1992 and subsequent model year cars, the 24-pin bayonet-type connector in the "aquarium" is repositioned so that apart from acting as an in-line connector, it also serves as a lead-through in the bulkhead between the engine compartment and the "aquarium" space.

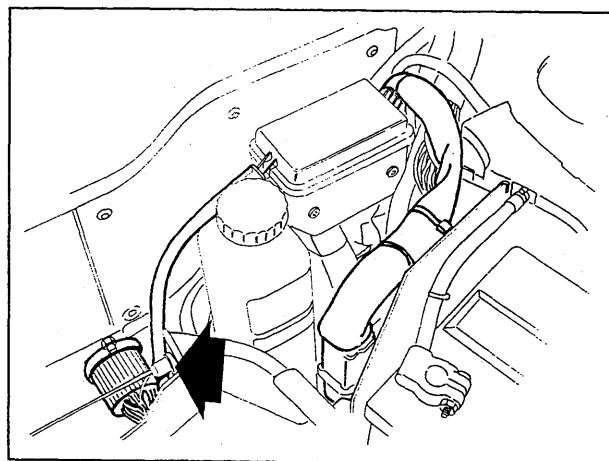
The main wiring harness is also detachable into two parts at the rear left-hand wheel housing by means of three 10-pin connectors, one adjacent to the aerial motor and two under the loudspeaker.

The filament monitor for the rear lights has been moved from the electrical distribution box and positioned adjacent to the aerial motor. This reduces the voltage drop occurring in the long leads previously used and also reduces the risk of indication errors.

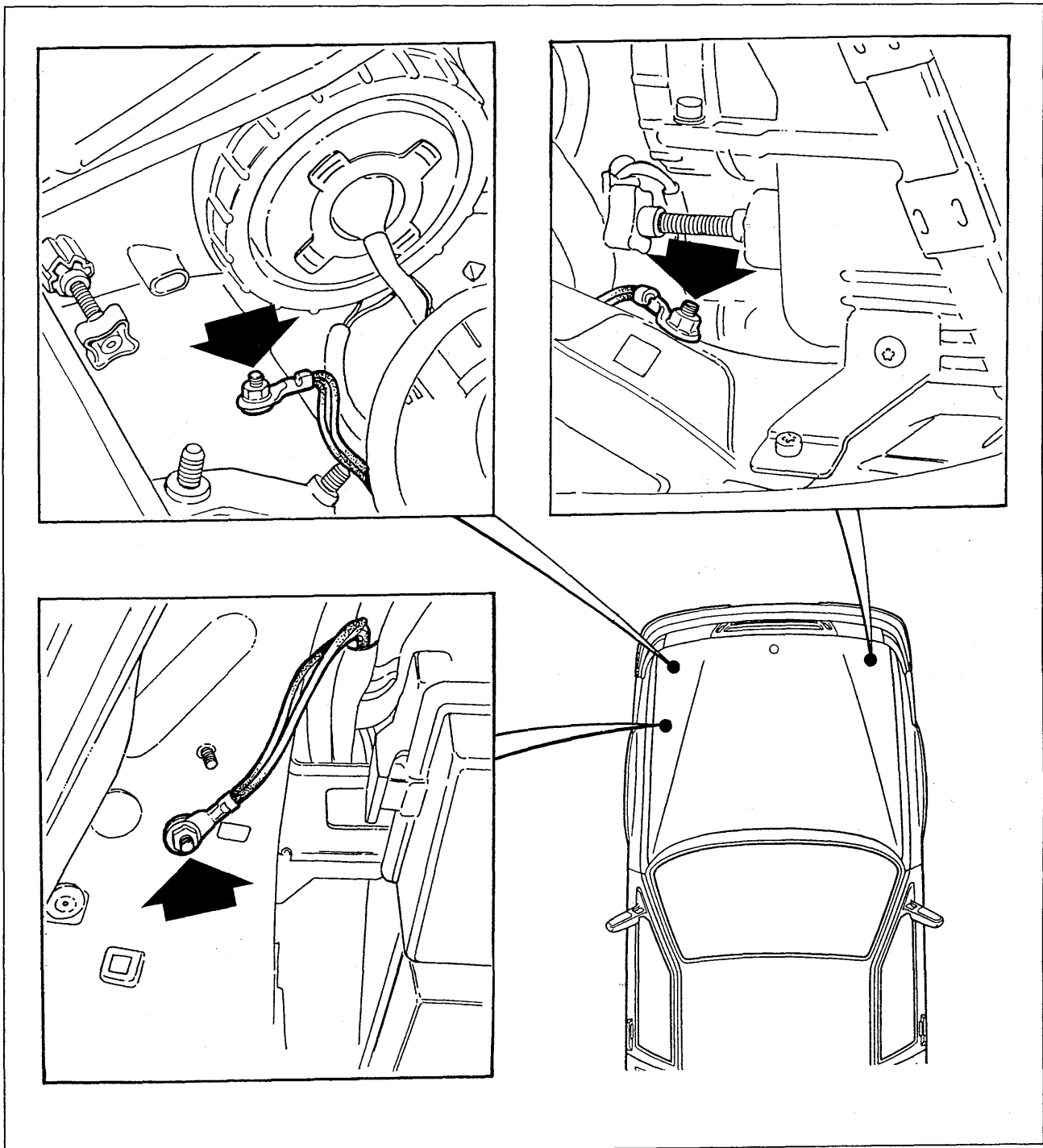


As a result of repositioning the DI/APC control unit, the separate wiring harness previously used for the ignition system is now integrated in the main and engine wiring harness.

The point where the ABS wiring harness is connected to the main wiring harness has been moved from the "aquarium" space and is now located between the "aquarium" panel and the battery shelf.

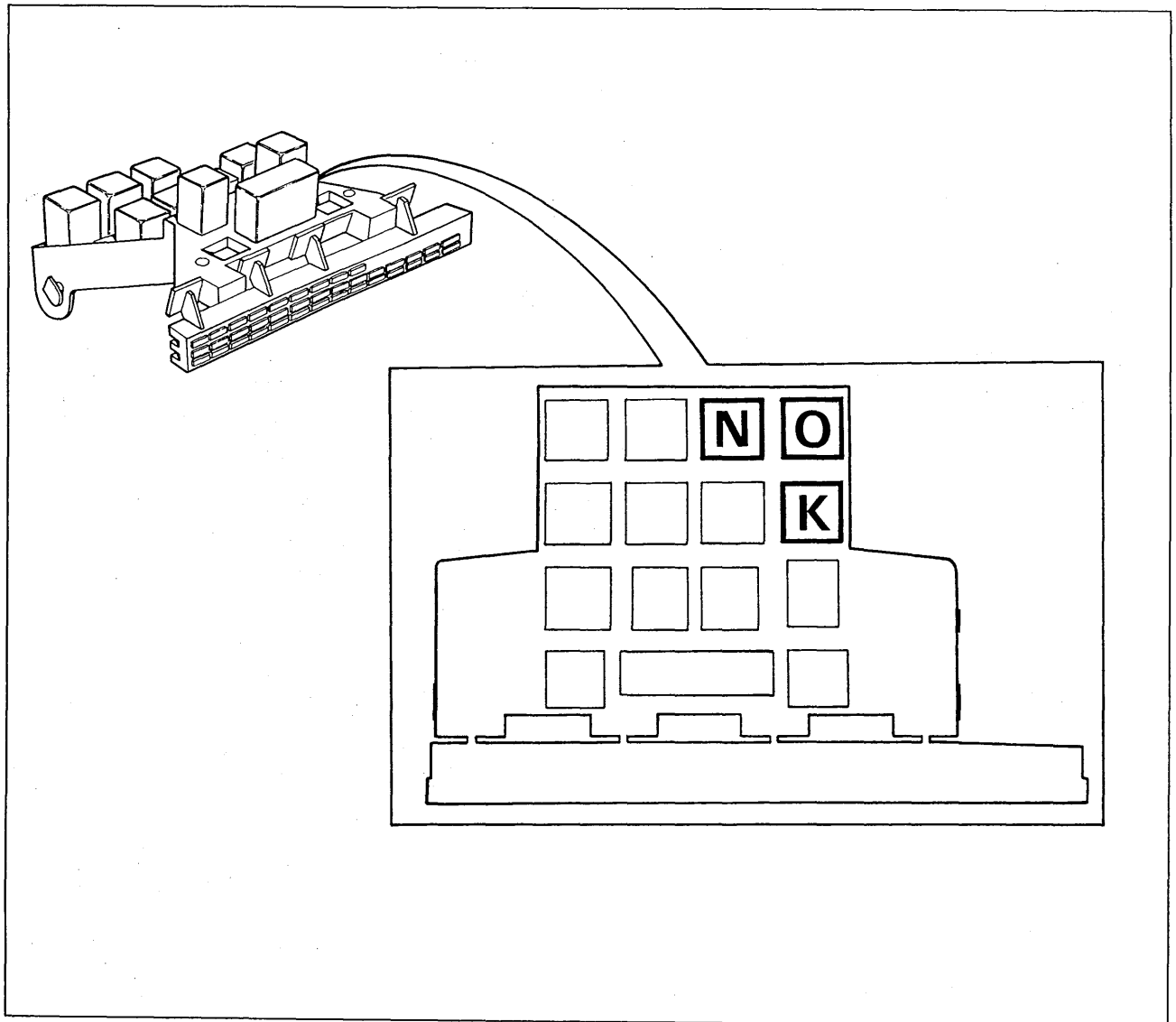


To simplify the fitting of extra foglights, leads for these are now pre-run and included in the wiring harness.



New earthing points

Three new earthing points have been added; one behind each headlamp and one on the left-hand structural member for the repositioned ABS control unit.

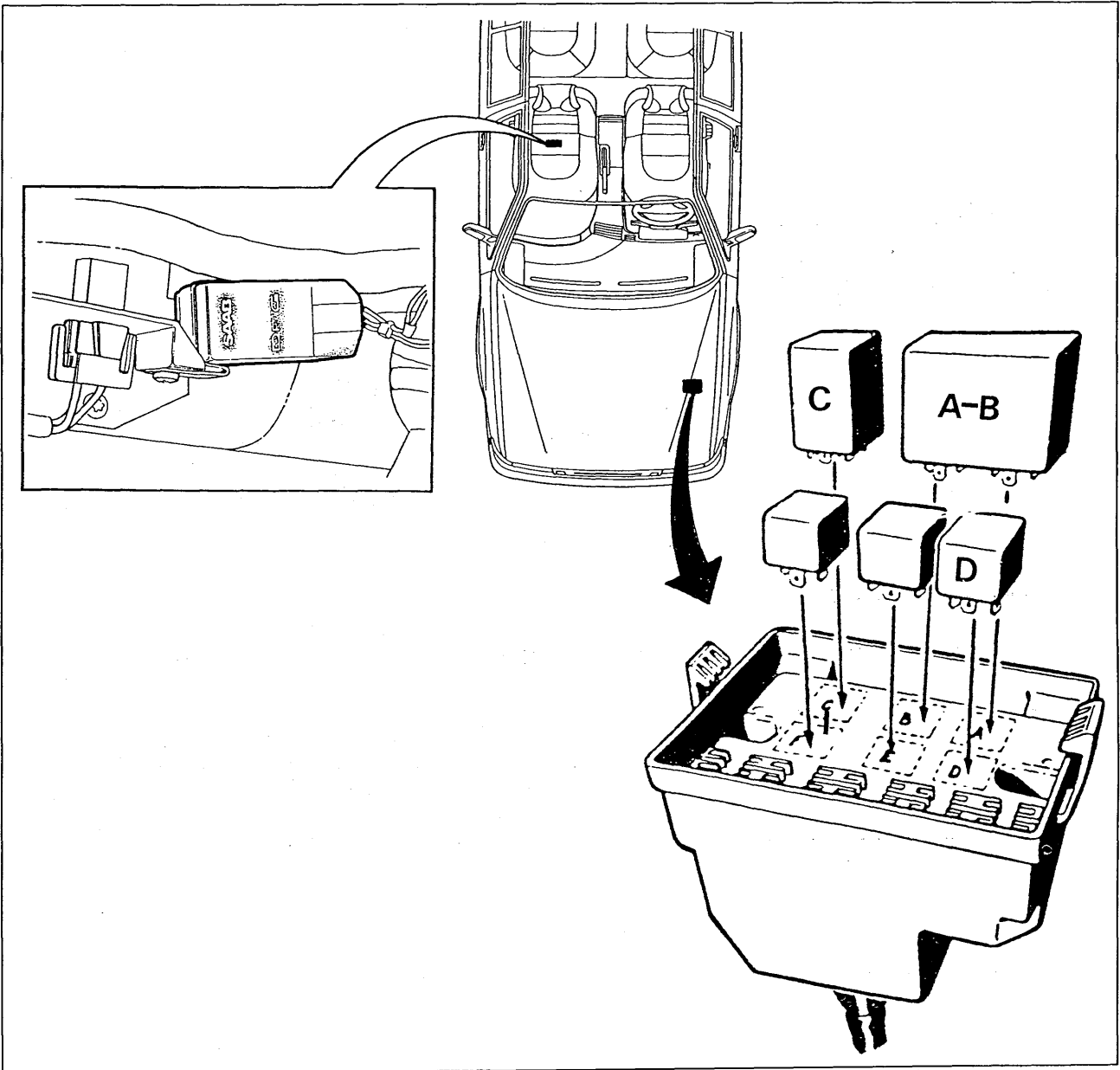


Relays

As a result of additional and modified functions, primarily for the lighting system, the following relays are new on 1992 cars:

Electrical distribution box, panel

Relay location	Function
N	Direction indicators
O	Extra
K	Prewiring, extra foglights

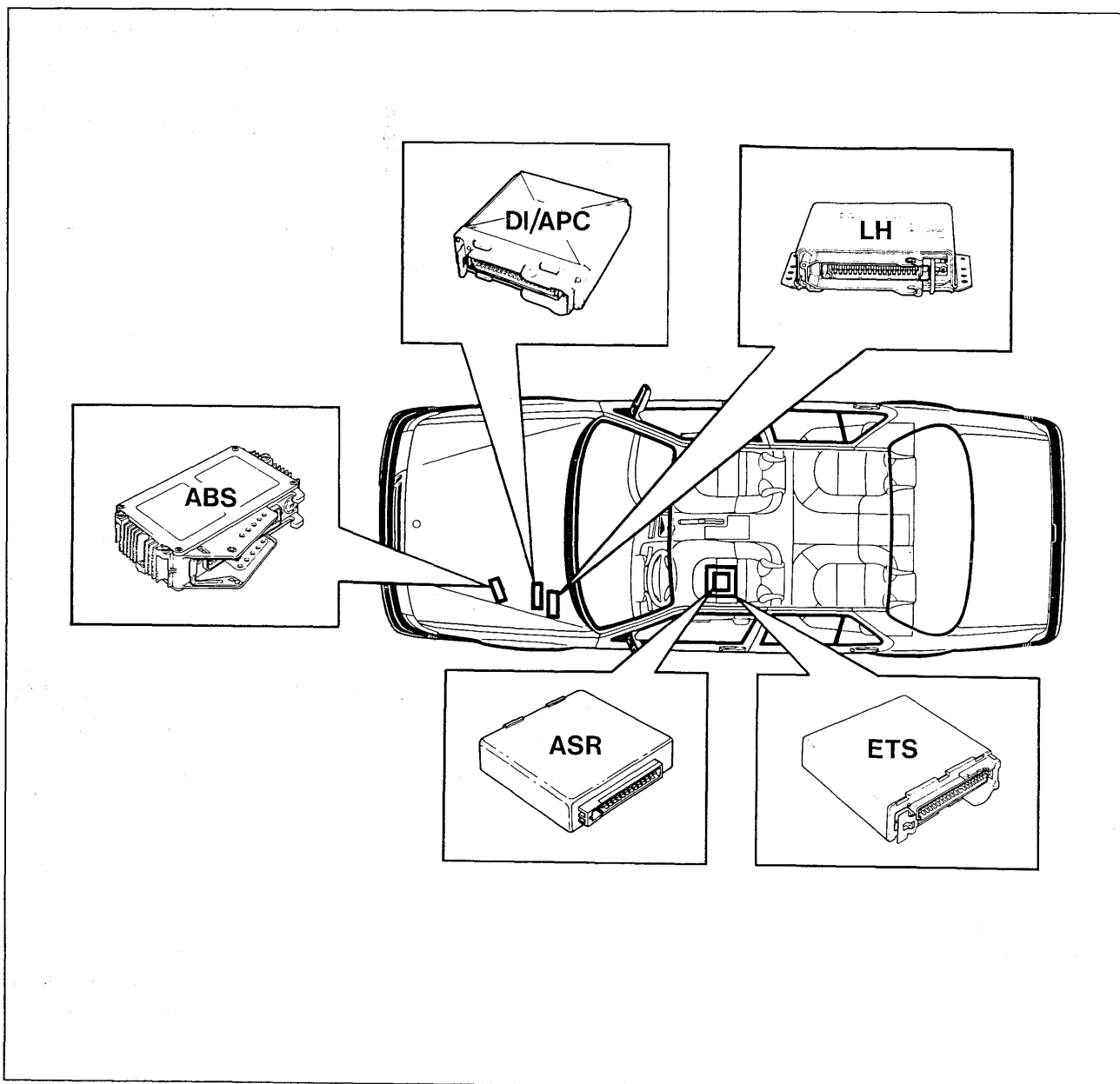


Electrical distribution box

Relay location	Function
A-B	Headlamps
C	Front lamp filament monitor
D	Dim dipped beam (Not US)

Bracket under right-hand front seat (JP)

Relay location	Function
Right-hand front seat	Temperature warning, catalytic converter



New location of control units

To improve occupant protection in side impact collisions, the front seat crossmember has been strengthened by a change in design and modified flange length. This change in flange length has reduced the space available for fitting the control units under the left-hand front seat.

LH and DI/APC (EZK)

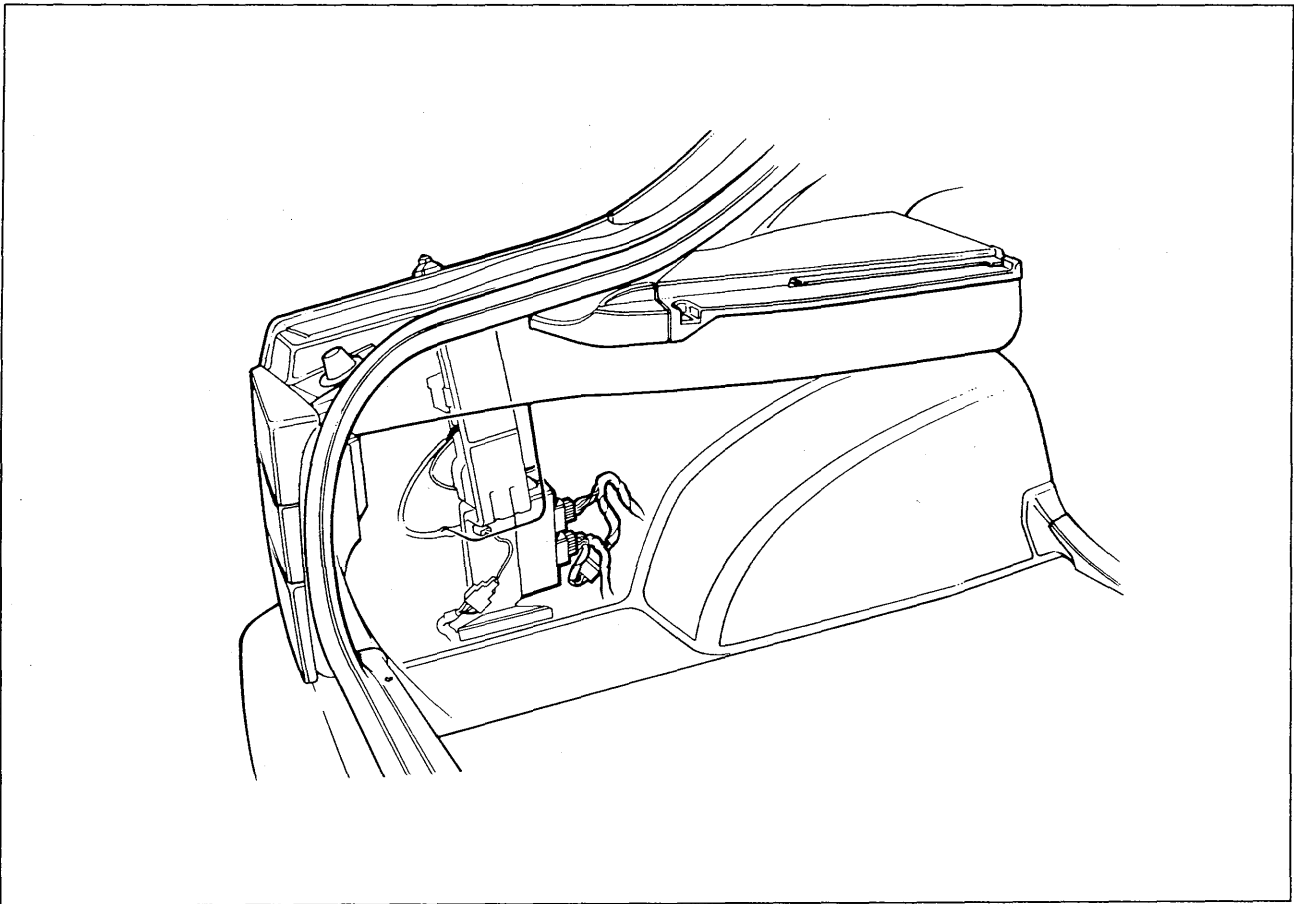
In conjunction with preparations for future modifications, this has resulted in a relocation of the control units for LH and DI/APC (or EZK) on a new bracket in the bulkhead area. This bracket is mounted on the upper part of the front bulkhead on the left-hand side.

ATS and ASR

The ETS control unit is located under the left-hand front seat, mounted on a new bracket. On cars with automatic transmission incorporating an anti-wheelpin system, the comparatively small ASR control unit is mounted on top of the ETS control unit and secured to the same bracket.

ABS and TC/ABS

The ABS control unit is mounted on the battery shelf.



Filament monitor

Rear lights and brake lights

Electronic circuitry for the filament monitor (pictogram) is located at the foot of the aerial inside the rear left-hand fender behind the carpeting in the trunk.

The wiring disconnects by means of 10-pin connectors fitted before and after the lamp electronics. Through separate voltage supplies and short monitoring circuits, undesirable voltage drops which can lead to incorrect information are avoided.



Modified instrument panel

Some minor modifications have been made to the instrument panel for 1992 Saab 9000 models. These changes concern the speedometer and tachometer.

Speedometer

The dial is of slightly different design and now includes a visible stop for the needle when at rest in the 0 position.

By using a digital instead of an analogue signal, fully linear speed indication is achieved. In other words, the needle moves at a constant rate when the car accelerates at a constant rate.

Instrument accuracy has been further improved and is now $\pm 1\%$.

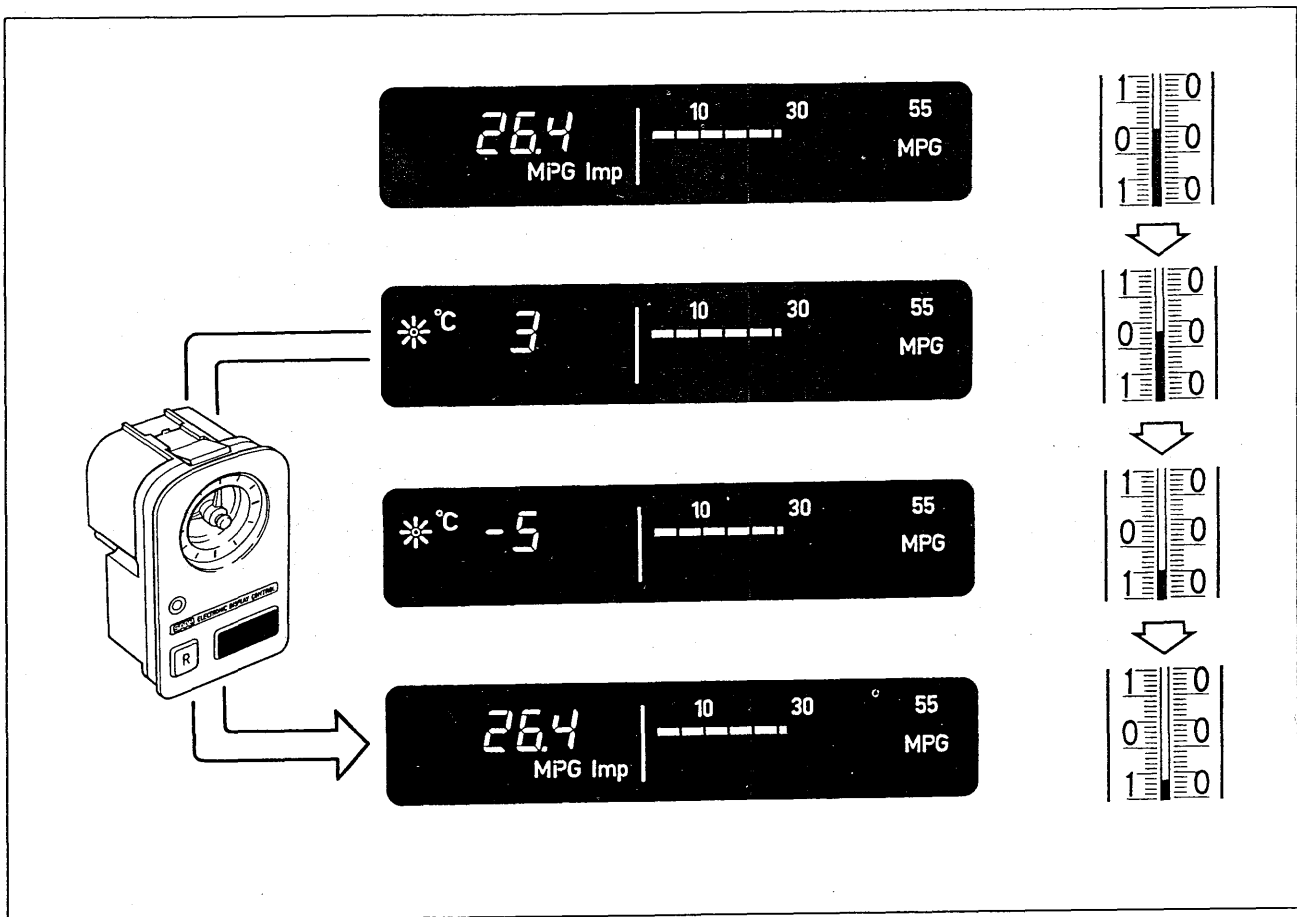
Temperature gauge

The transmitter and indicating dial system for the coolant temperature have been respecified (successively during model year 1991) so that more accurate indication of the temperature is possible.

Adaptation to the transmitter has been improved through rewind coils so that instrument error is reduced at high temperatures (on transition to the red zone)

Tachometer

A damping capacitor has been added to stabilize the reading, especially at idling speeds.



New EDU functions

An ice warning function has been added to the EDU instrument on 1992 and subsequent models. In practical terms, the instrument automatically displays the outside temperature whenever it is between -3°C and $+3^{\circ}\text{C}$.

The instrument continues to display the temperature until it rises above $+6^{\circ}\text{C}$ or drops below -6°C . In other words, it has a certain degree of hysteresis.

If the outdoor temperature function is not selected at the start of a journey, a unit previously displayed on the EDU can be reset by pressing the INFO button on the SCC panel (or the clock).

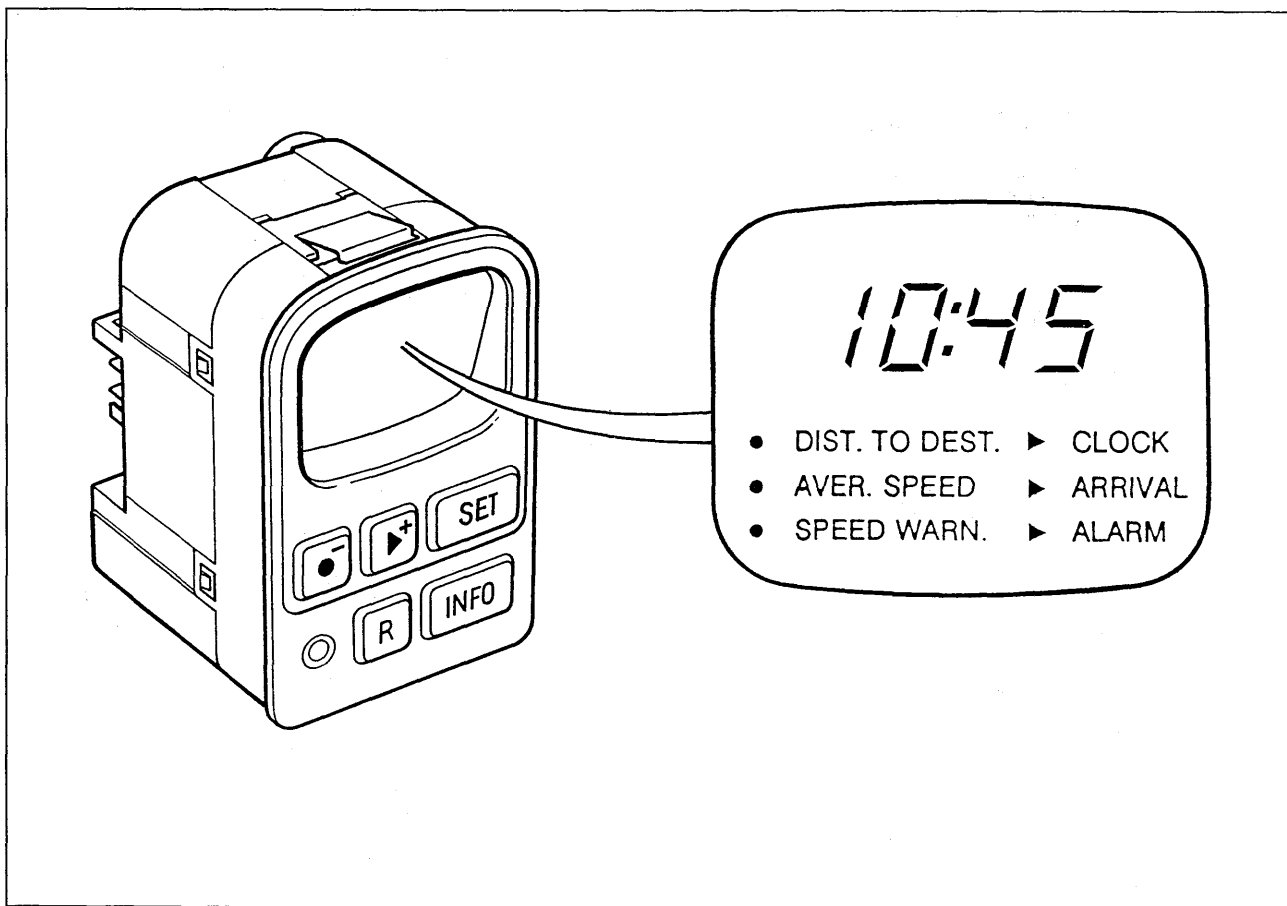
In diagnosis mode the EDU sends no temperature signals to the ACC on 1990-1991 model year cars. On 1992 and later model year cars the EDU sends a continuous temperature signal in diagnosis mode also. (The ACC requires a temperature signal from the EDU at least once every eight seconds for no error code to be displayed.)

Unit combinations M1992-

On 1992 and later model year cars the following combinations of units can be selected:

- litres/100 km + $^{\circ}\text{C}$
- MPG (US gal) + $^{\circ}\text{F}$
- MPG (imp. gal) + $^{\circ}\text{F}$
- MPG (imp. gal) + $^{\circ}\text{C}$

Another change on 1992 cars concerns the parameters determining "possible range on remaining fuel". As a result of this change, the figure is calculated appreciably faster than before.



Saab Car Computer (SCC)

SCC is the designation of a new generation of trip computers developed for 1992 model year cars. SCC stands for Saab Car Computer, a more logical and easier-to-use trip computer system than the earlier DCC system.

The instrument

The display and function buttons are of different design and layout, with symbols and text arranged in a way that is easier to understand.

Under the display showing the functions selected are two menus in which the selected unit is marked by a red circle in the left-hand menu and a red triangle in the right-hand menu.

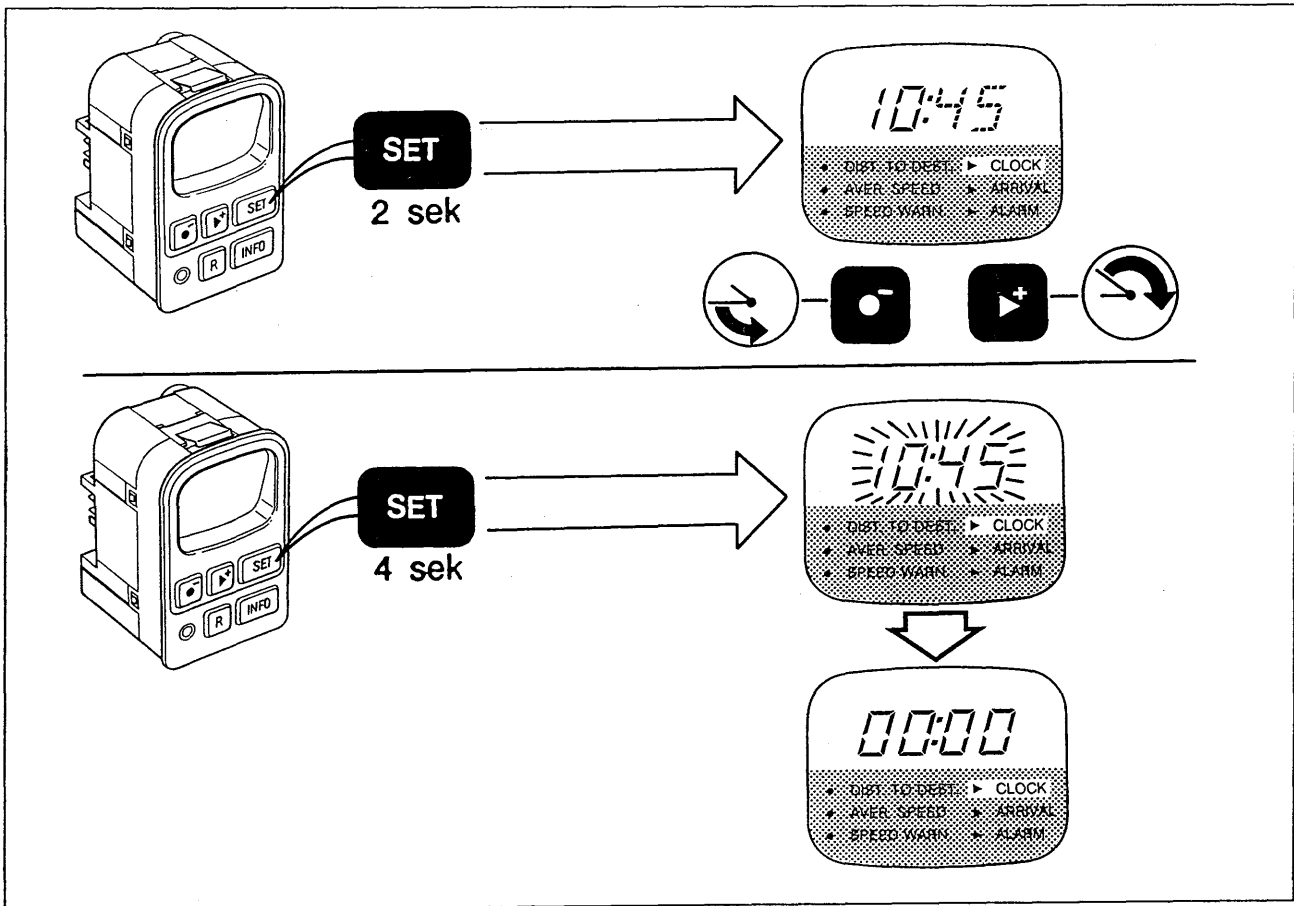
Press the circle button to choose the left-hand menu and the triangle button to choose the right-hand menu. The plus and minus signs on these buttons show the functions that can be set with the SET button, such as the time, distance to destination, arrival time, etc. Press the buttons (• or ►) repeatedly to select the desired function in the relevant menu.

The menu contains the following functions:
(left-hand side •)

- DIST. TO DEST. (distance to destination)
- AVER. SPEED (average speed)
- SPEED WARN. (speeding alarm)

(right-hand side ►)

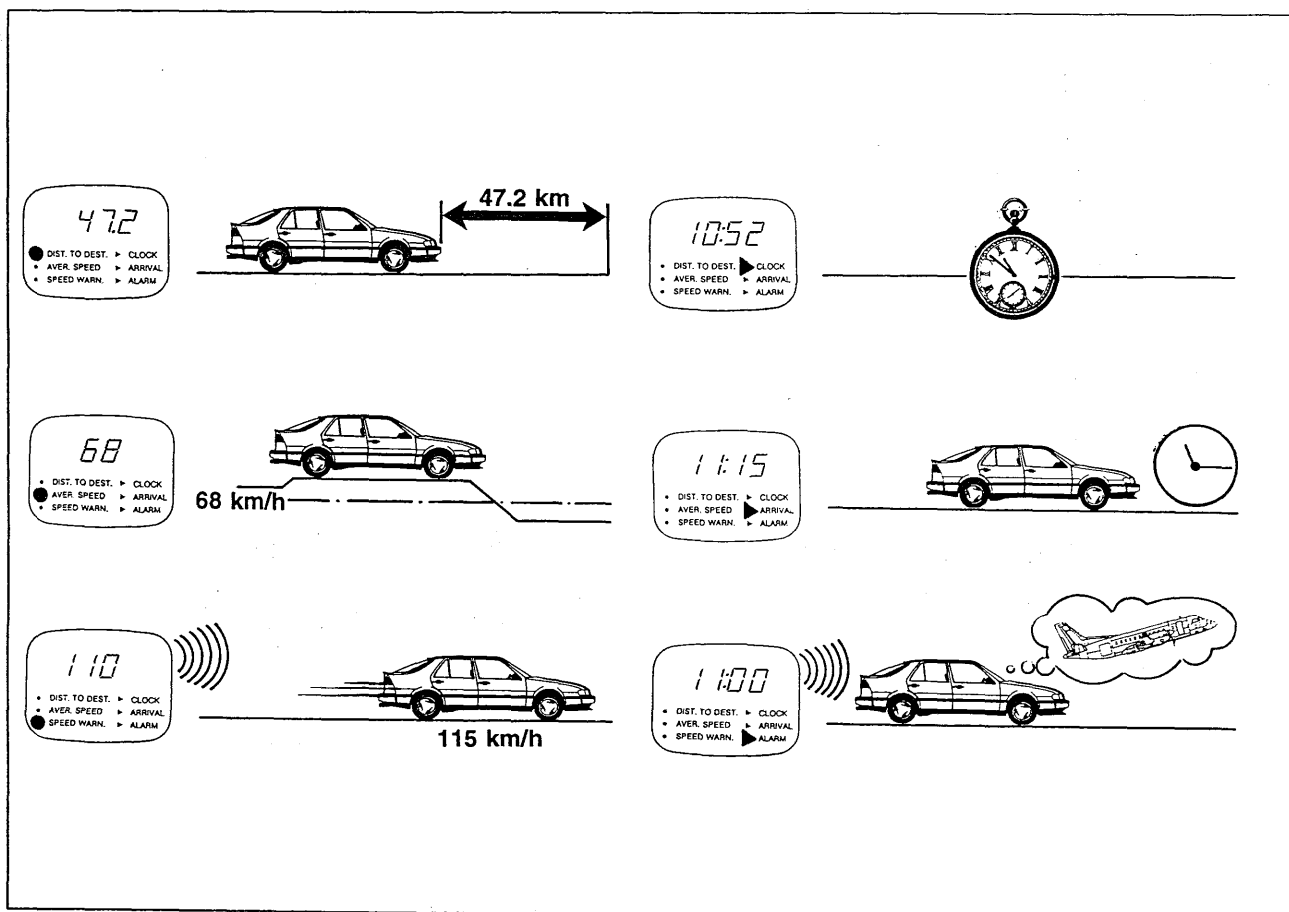
- CLOCK
- ARRIVAL (arrival time)
- ALARM



The SET button is used to reset (press for 2 seconds) and erase (press for 4 seconds) the figures displayed. The digits will start flashing in 2 seconds and change to 0 without flashing in 4 seconds.

As before, the R and INFO buttons are used to control the EDU but the INFO button also has an SCC function. When the ignition is switched off the clock function of the SCC can be selected by pressing the INFO button. The clock will be displayed for as long as the button is depressed.

When the ignition is switched on, "SAAB" appears briefly in the display.



Functions

DIST TO DEST

Counts down a preset number of kilometres or miles. Simultaneously it calculates the time of arrival (in ARRIVAL) on the basis of actual average speed and distance covered. Setting DIST TO DEST automatically resets the AVER SPEED and ARRIVAL functions to zero.

AVER SPEED

This function shows the average speed calculated from the last time it was reset to zero (actual speed is shown for the first 500 metres). Resetting takes place automatically when the DIST TO DEST function is set. It can also be reset manually, see under "Operating instructions" on the next page.

SPEED WARN

This function activates a buzzer when the preset speed is exceeded.

CLOCK

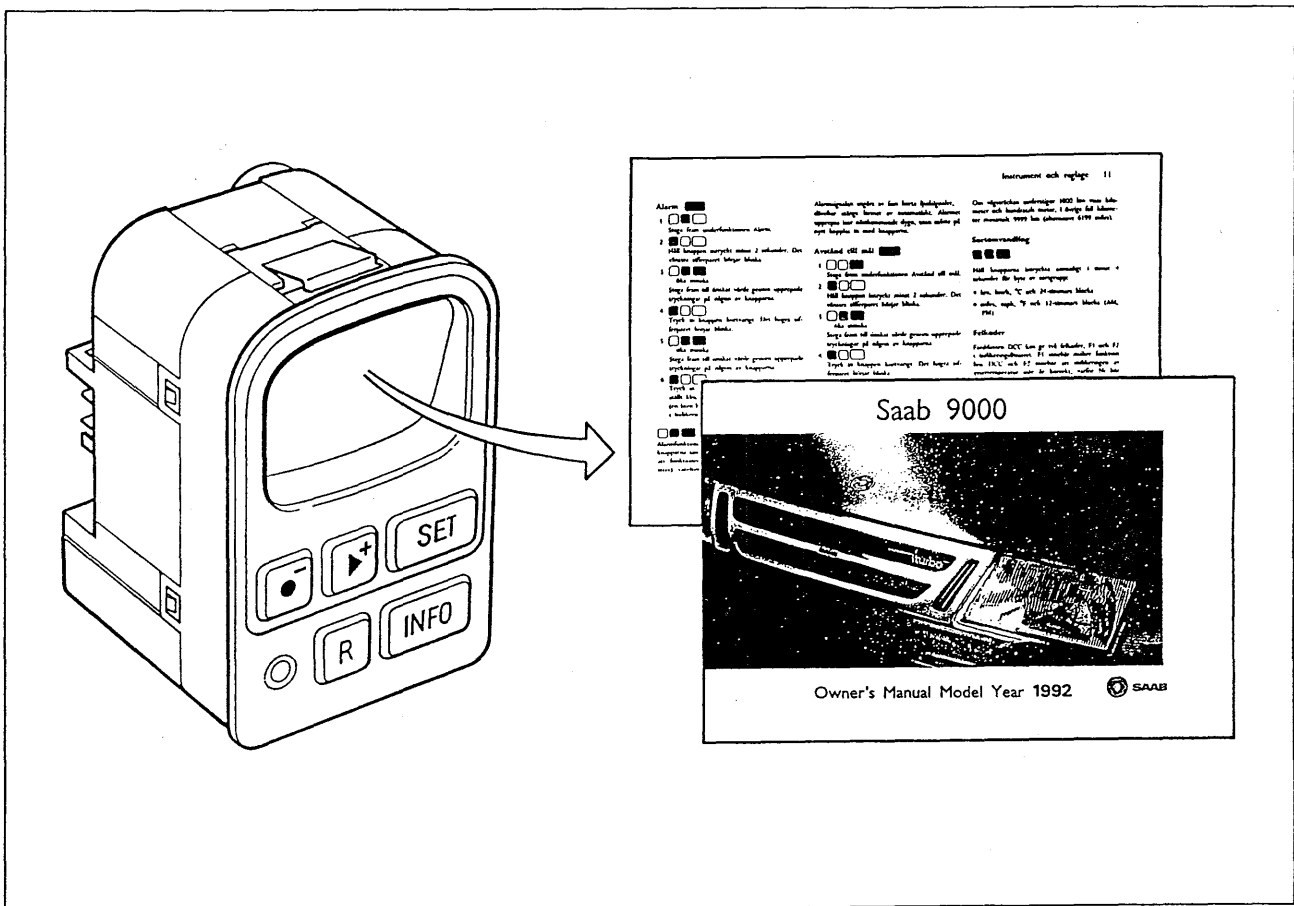
Shows the time.

ARRIVAL

This function shows the time of arrival calculated on the basis of actual average speed when the distance to the destination has been specified.

ALARM

This function causes a buzzer to sound at the preset time. This function has priority over the speeding alarm.



Operating instructions

For a more extensive description of how to operate and use the trip computer, refer to the Owner's Manual.

Figures are entered logically and in the same way for all functions.

Selecting and setting a function

- 1 Select the desired function with the plus/minus button.
- 2 Press SET until the figures start flashing (2 seconds).
- 3 Enter the desired setting with the plus/minus key.
- 4 Confirm and conclude selection by pressing SET briefly.

Resetting to zero

To reset a function, press SET for 4 seconds.

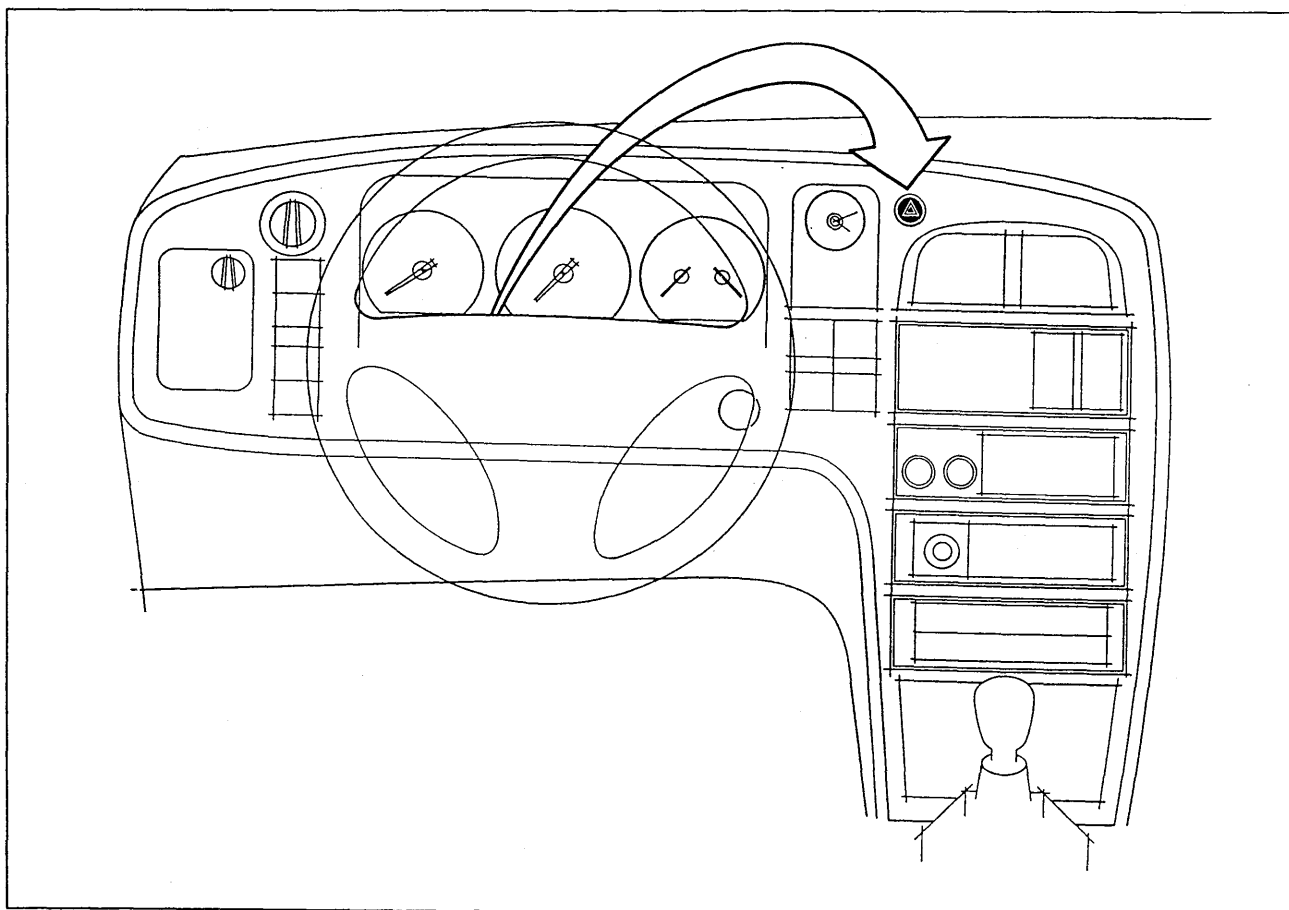
Calculations

- Time of arrival can be calculated on the basis of a desired average speed.
- The necessary average speed can be calculated on the basis of a desired arrival time.

For the above calculations to be possible, DIST TO DEST must be known and it must also be greater than zero.

Note:

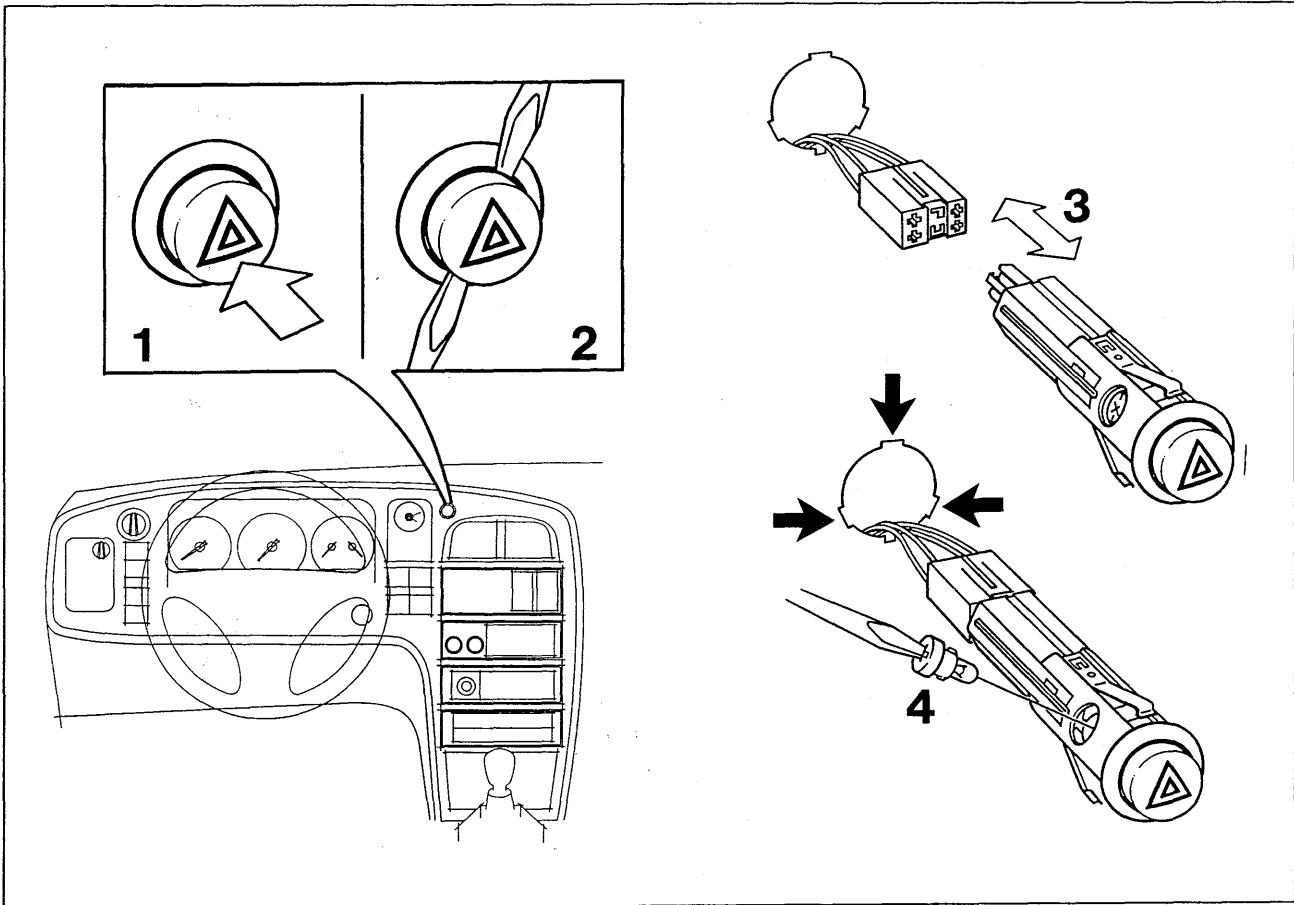
Regardless of when it is performed, a calculation never affects actual times or distances, etc.



In its new location, the hazard flasher switch is much easier to reach.

Hazard flasher switch

On 1992 and subsequent model year cars the hazard flasher switch is fitted in a different position on all 9000 models. Of push-push type, the switch is located in the upper part of the fascia between the clock and the centre air vent.



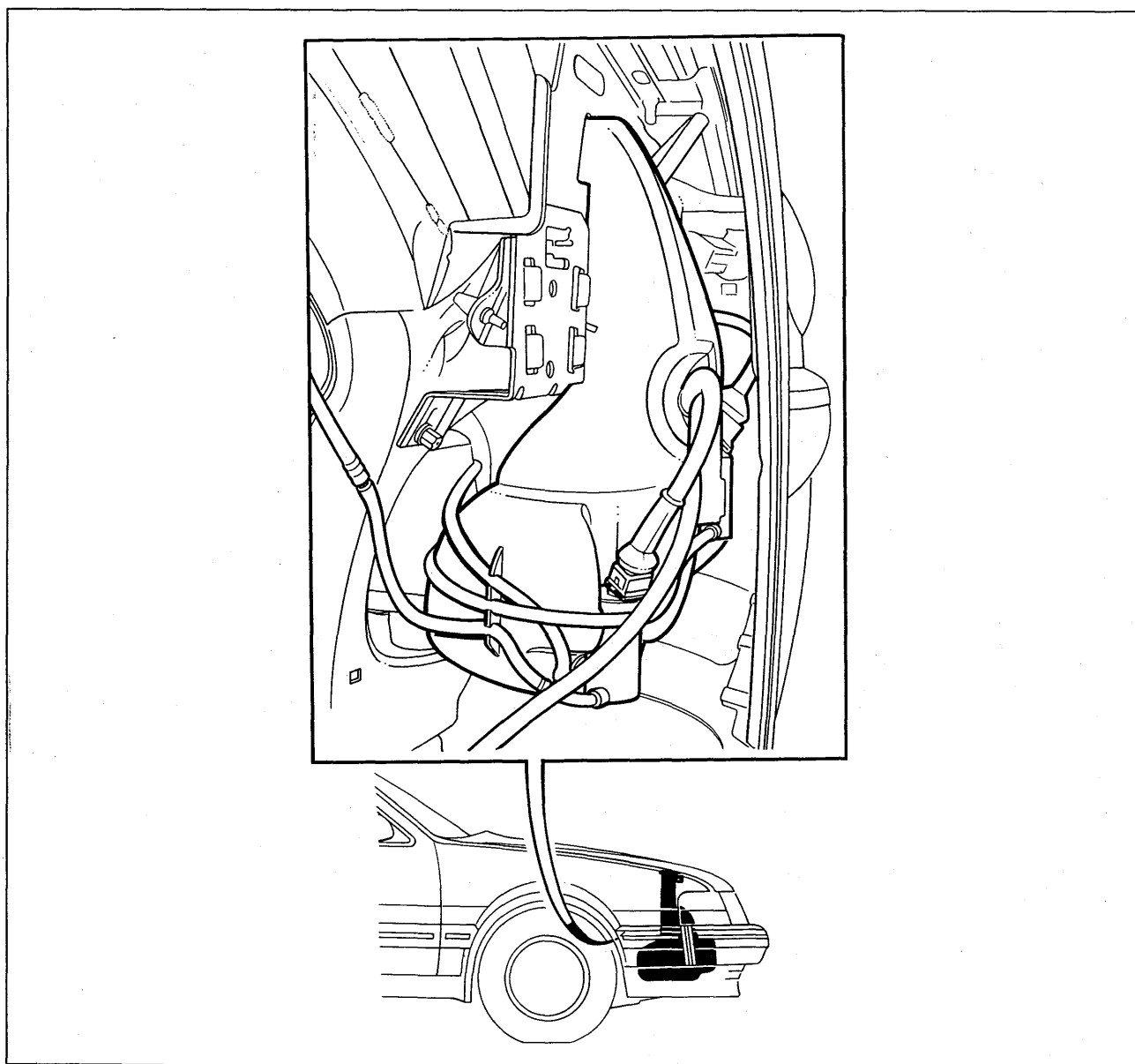
Changing the switch/bulb

Removal

- 1 Set the button in the upper (outer) position by activating it.
- 2 Withdraw the switch by means of two screwdrivers fitted in the special slots on both sides it.
- 3 To change the switch: simply disconnect the electric leads.
- 4 To change the bulb: remove the bulb holder and bulb, using a screwdriver.

Fitting

Note the locating slots in the panel aperture.
In other respects, refit in reverse order.



Washer system

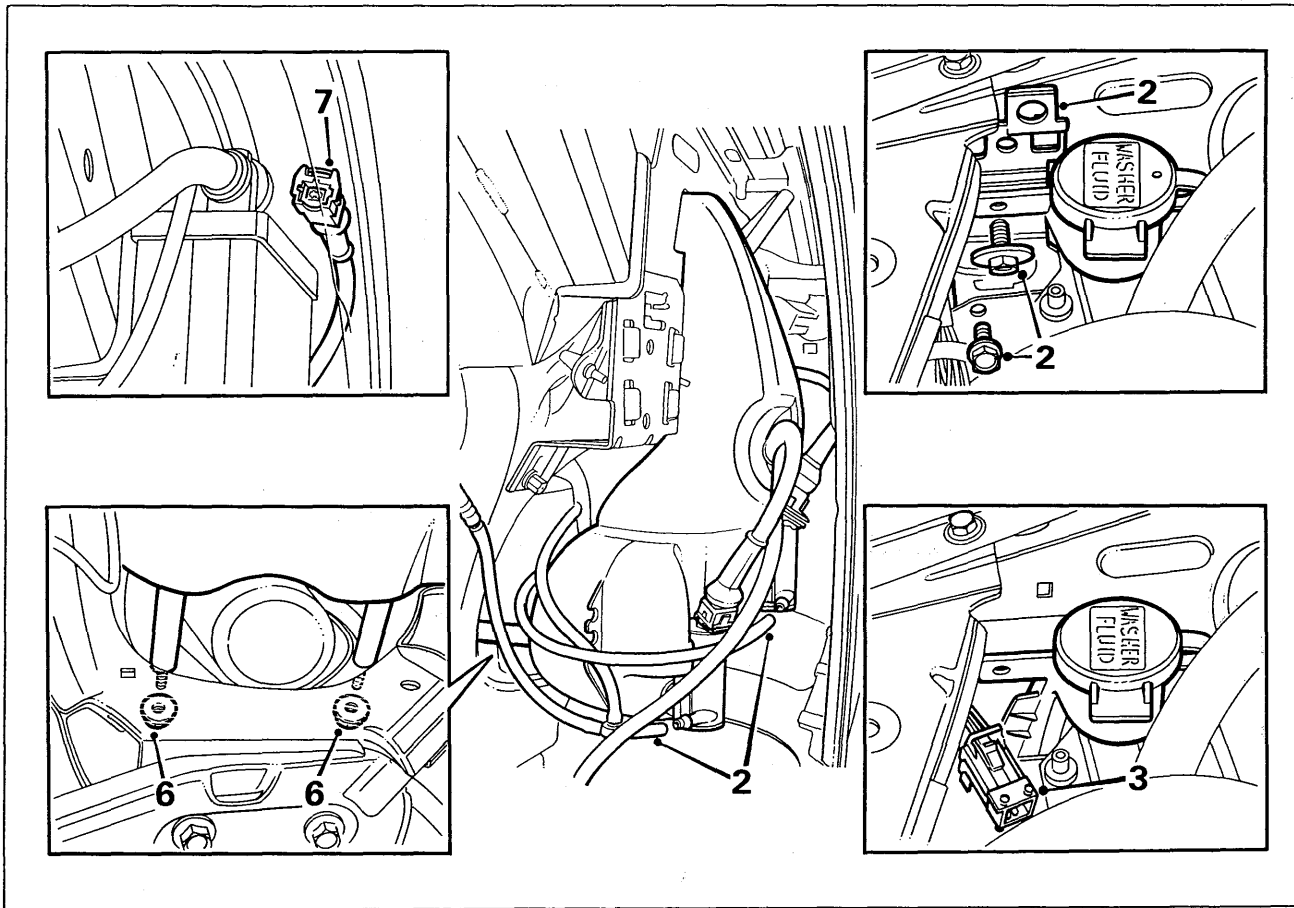
Fluid reservoir

To leave space for the subsequent fitting of a parking heater, the washer fluid reservoir on 1992 and subsequent model year cars is located in the front right-hand wheel housing.

Washer tubing

The headlamp washer tubing has been moved from above the radiator to the crossmember under the radiator together with the cable duct.

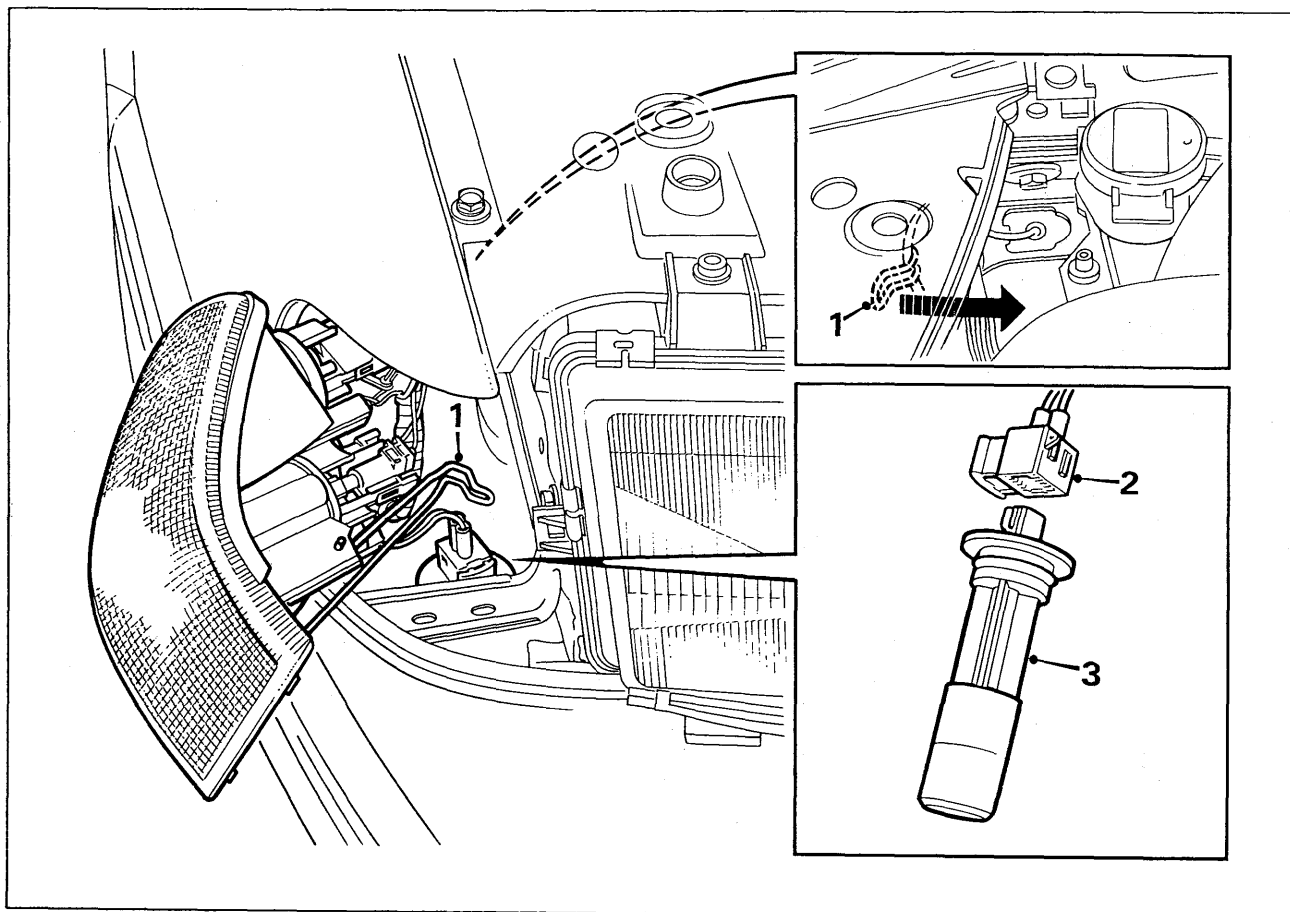
The windscreen washer tubing consists of both plastic and rubber tubes joined together behind the front bulkhead.



Changing the washer fluid reservoir

- 1 Remove the right-hand flasher lens by unhooking the wire clip (see Fig. on next page).
- 2 Unscrew the two bolts and remove the upper bracket.
- 3 Unplug the connector.
- 4 Raise the car and remove the front right-hand wheel.
- 5 Remove the lower part of the spoiler and the front wing liner on the right-hand side.
- 6 Unscrew the two reservoir retaining nuts (beside the AC drying agent container).
- 7 Disconnect the tubes, unplug the connector on the top of the charcoal canister and lift out the container with its wiring.

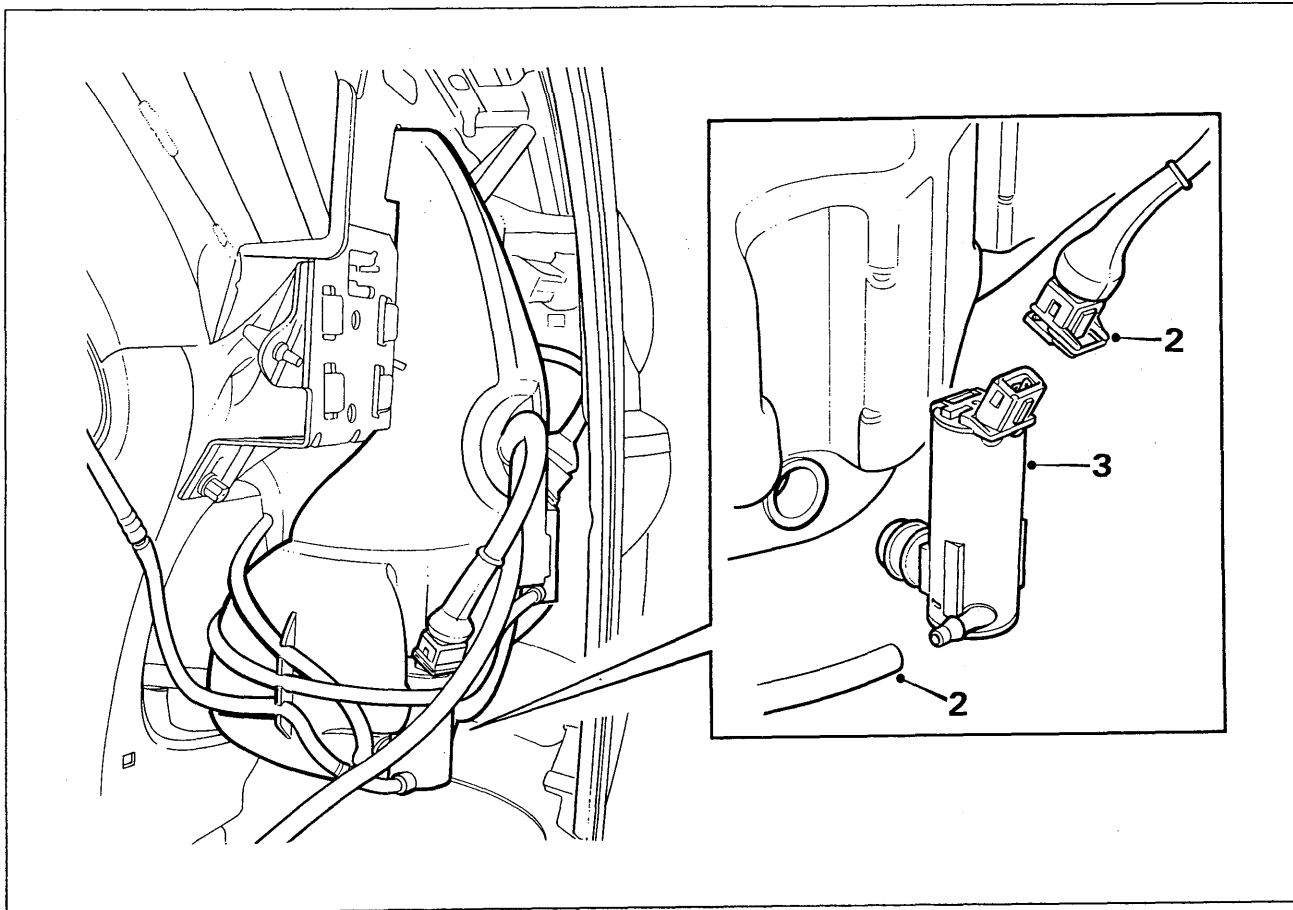
Fit in reverse order.



Changing the washer fluid level switch

- 1 Remove the right-hand flasher lens by unhooking the wire clip.
- 2 Unplug the connector on the level switch.
- 3 Remove the level switch.

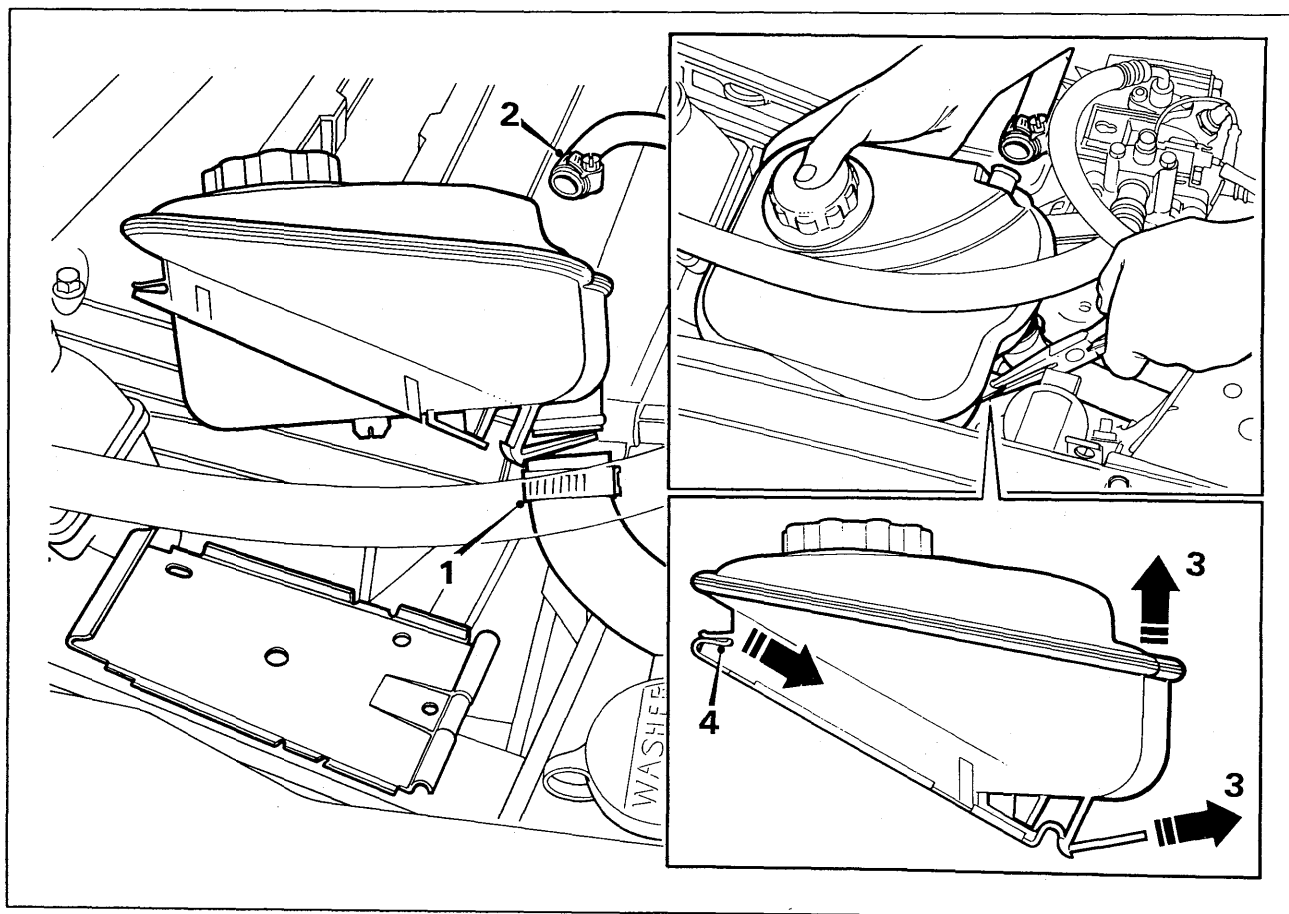
Fit in reverse order.



Changing the washer fluid pump

- 1 Remove the lower part of the spoiler on the right-hand side.
- 2 Disconnect the hoses and connector from the pump that is to be changed.
- 3 Remove the pump.

Fit in reverse order.



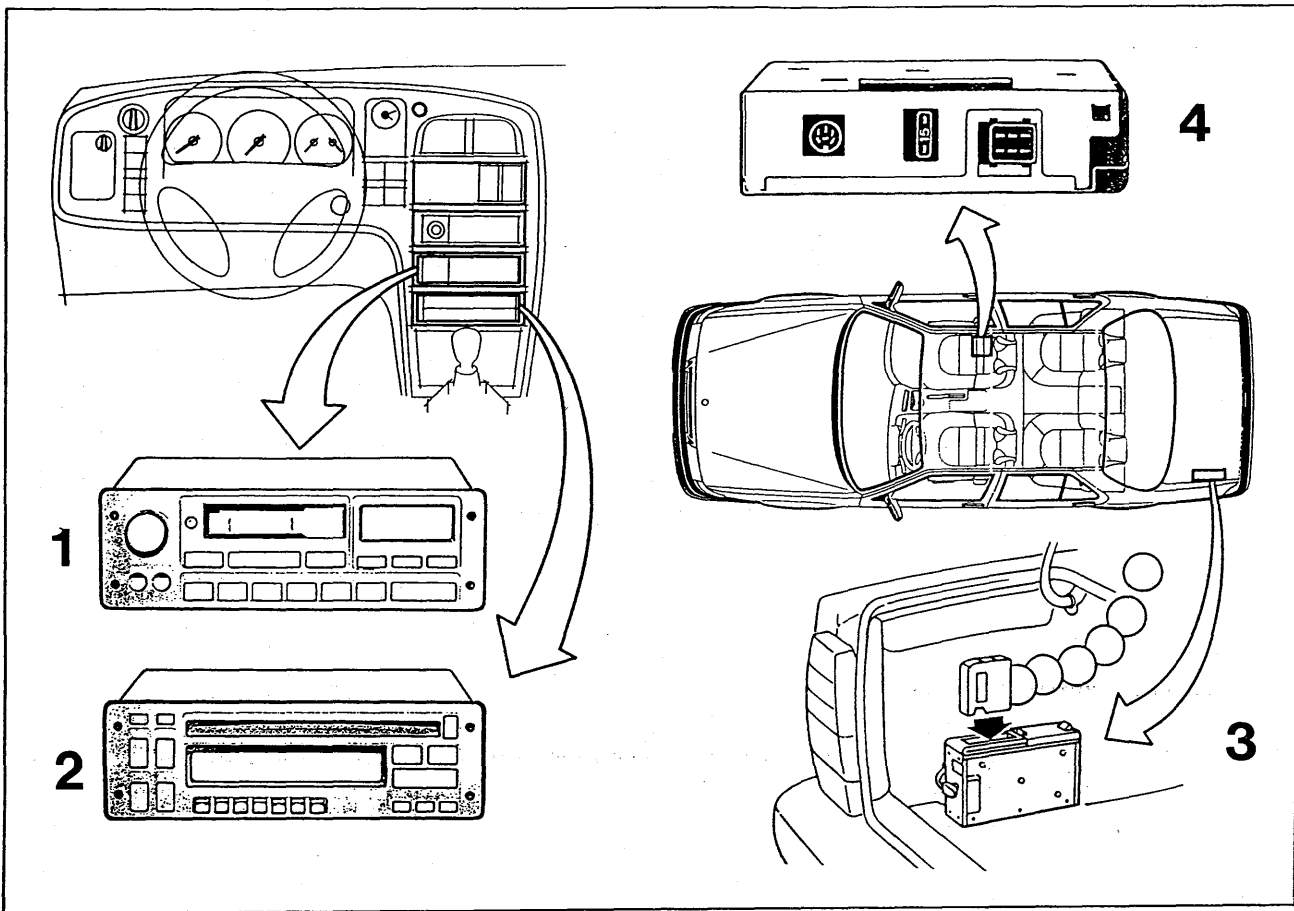
Expansion tank

To provide space for the filler pipe on the new washer fluid reservoir, the expansion tank has been redesigned and provided with an integral retaining clip. For the same reason, the hose between the radiator and expansion tank is run somewhat differently than before.

Changing the expansion tank

- 1 Disconnect the radiator hose and collect the coolant in a suitable receptacle.
- 2 Disconnect the water pump hose.
- 3 Raise the expansion tank (pull the tab up)
- 4 Unplug the connector from the level switch.

Fit in reverse order. Do not forget to fill up with coolant and bleed the system.



Audio system for USA and Canada

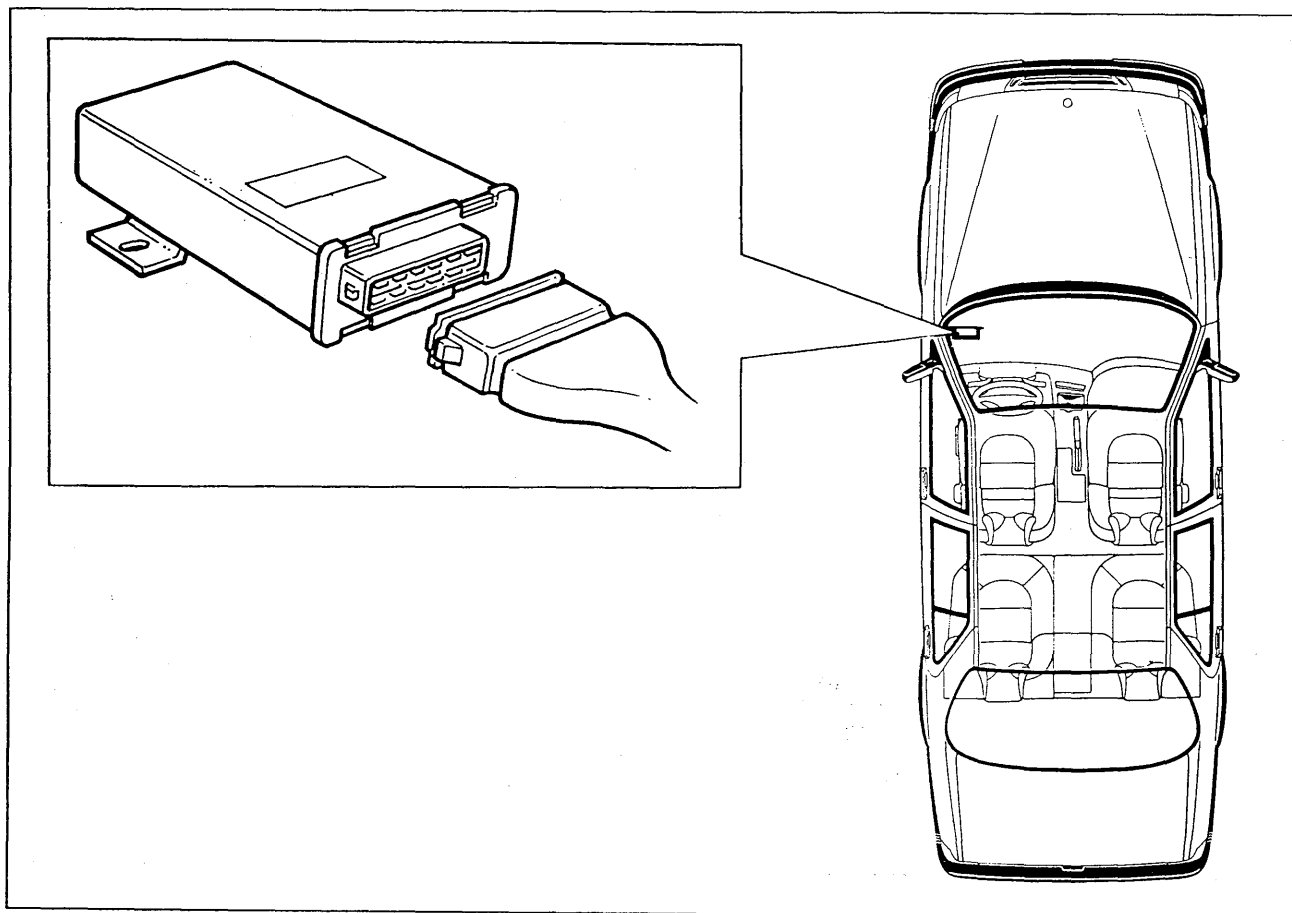
- 1 Radio/cassette player with amplifier 2x25 W (front speakers)
- 2 CD player with equalizer
- 3 CD changer
- 4 Amplifier 2 x 50 W (rear speakers)

Audio system for USA and Canada

A new audio system has been specially designed for the US and CA markets. It is installed in 1992 and subsequent model year cars and consists of the following components (depending on model):

- Radio/cassette player with amplifier 2x25 W (front speakers)
- CD player/Equalizer
- CD changer
- Amplifier 2 x 50 W (rear speakers)
- DIN cable for CD changer

All constituent components are of CLARION make.



Improved Cruise Control system (cars without TCS)

A new electronic unit in the Cruise Control system has separate circuits for the brake and clutch switches and the brake light switch, which further improves reliability.

The new electronic unit has a 15-pole connector and an integral relay function instead of the earthing function which was previously connected across the brake and clutch switches only.

Electric wiring diagrams M1992

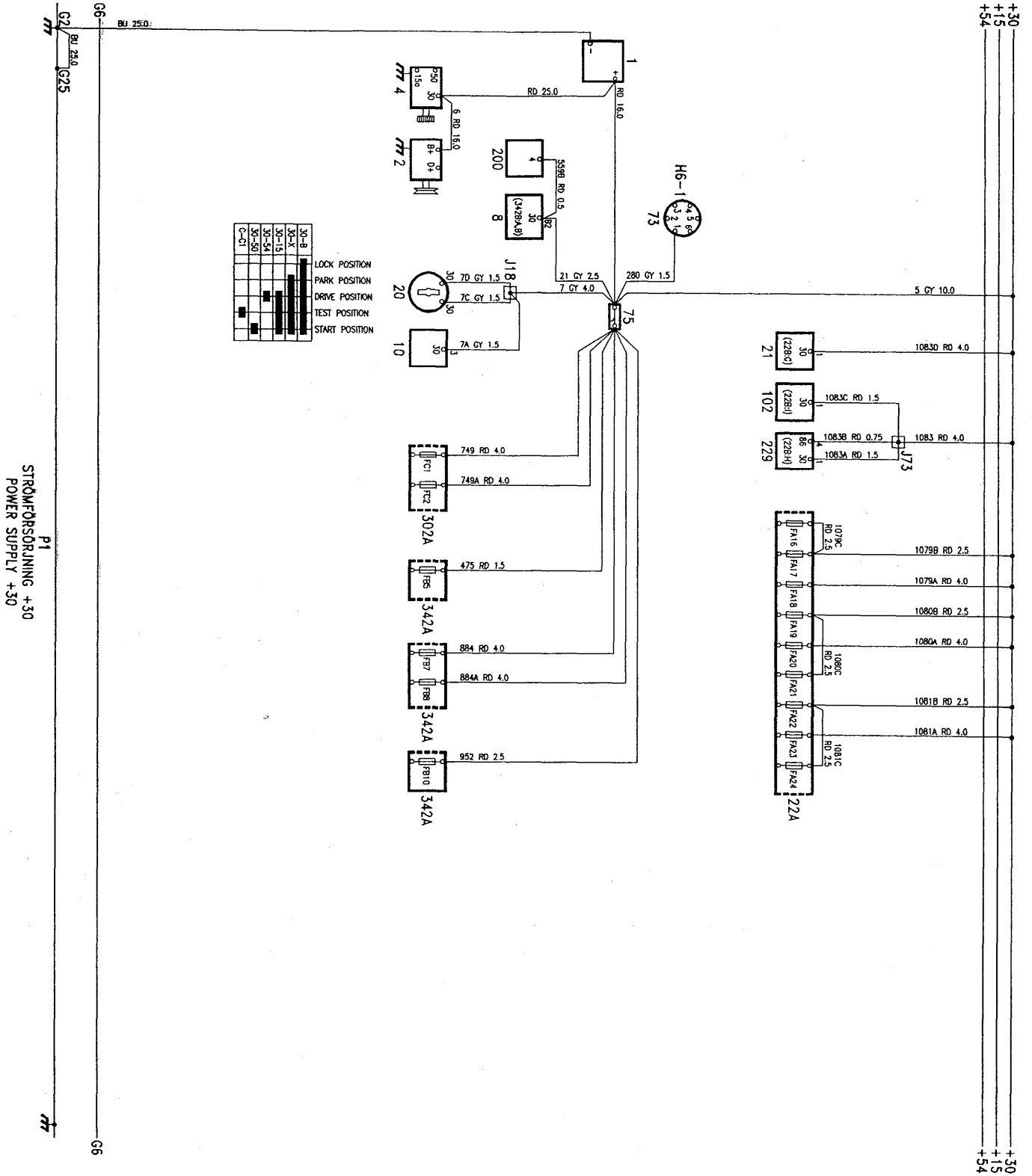
Supply +30	24	Glove compartment illumination	44
Supply +15	25	Lighting for instruments and controls	45
Supply +54	26	Windscreen and headlamp wipers	46
Starting and battery charging systems	27	EDU and SCC trip computers	47
DI ignition system	28	Indicating and warning lamps	48
DI-APC ignition system, LH 2.4.2	29	Pictogram—Filament monitor and oil pressure warning lamp	49
LH fuel system, 2.4.2 (DI/DI-APC)	30	Pictogram—Door indication	50
LH fuel system, 2.4.2 (ETS)	31	Air conditioning AC/ACC	51
Cooling system with two-speed fan	32	Automatic Climate Control ACC	52
Headlamps	33	Electrically heated rear window and electrically heated rearview mirrors	53
Daylight driving lights for USA, CA	36	Central locking system	54
Parking lights with/without side marker lights	37	Cruise Control	55
Foglights for US, CA	38	Radio installation for US, CA	58
Brake lights with high-level brake light	40	Anti-lock braking system (ABS) with ETS for automatic transmission	60
Reversing light	41	Airbag	65
Direction indicators, hazard flashers for US, CA	42	Anti-theft alarm for US, CA	68
Luggage compartment illumination	43		

Electric wiring diagram manuals M1992

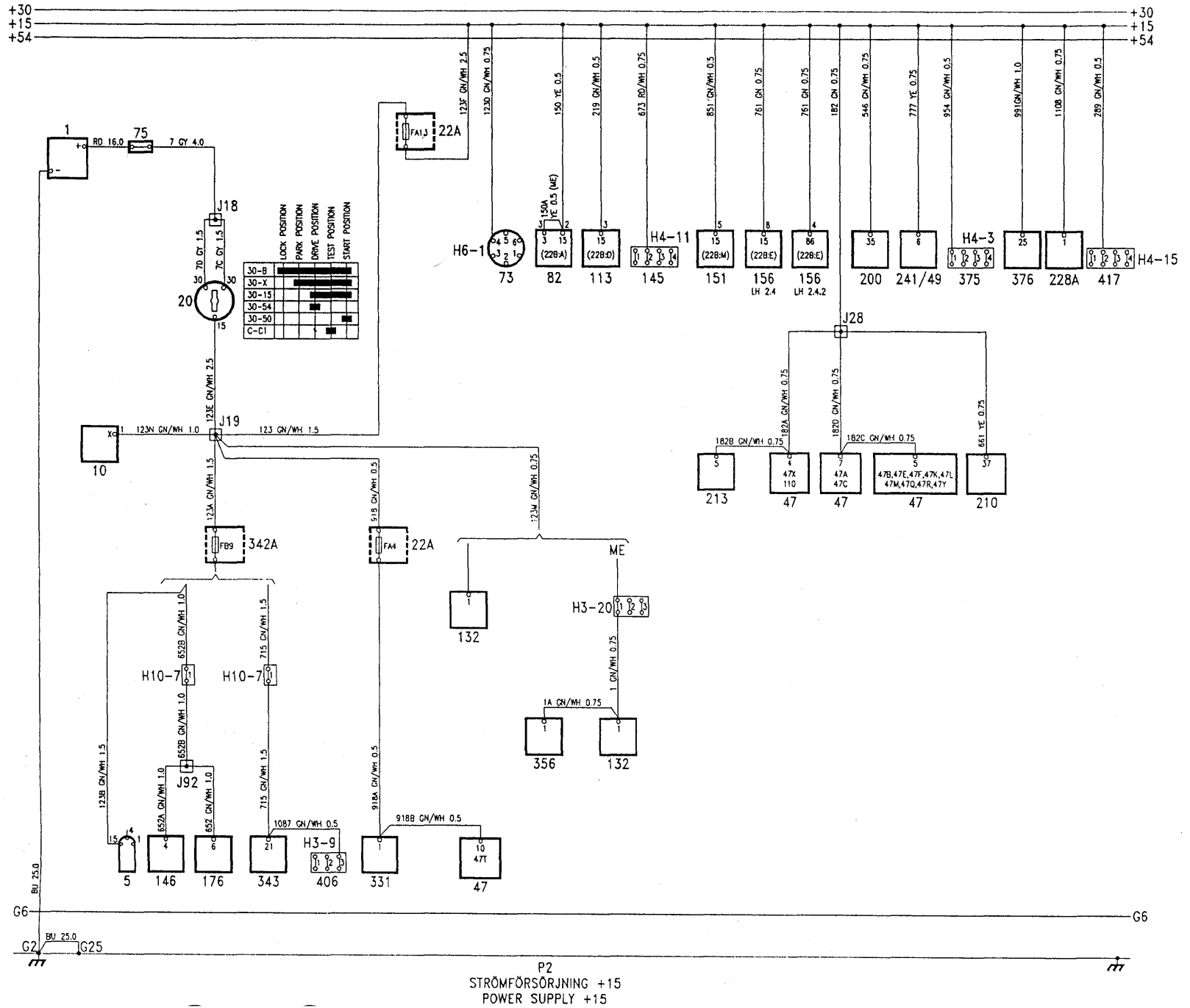
For technical printing reasons we have decided to reduce the size of the wiring diagrams in this edition to obviate the need for gatefolds. Legibility may have suffered as a result of this in some cases but separate M1992 wiring diagram manuals are expected to come out not later than a couple of months after this manual, so any inconvenience will be of a temporary nature only.

A description of operation is added to the wiring diagram only in cases where the changes are more extensive and is then given in full. In other cases, refer to the text in the relevant section of the manual.

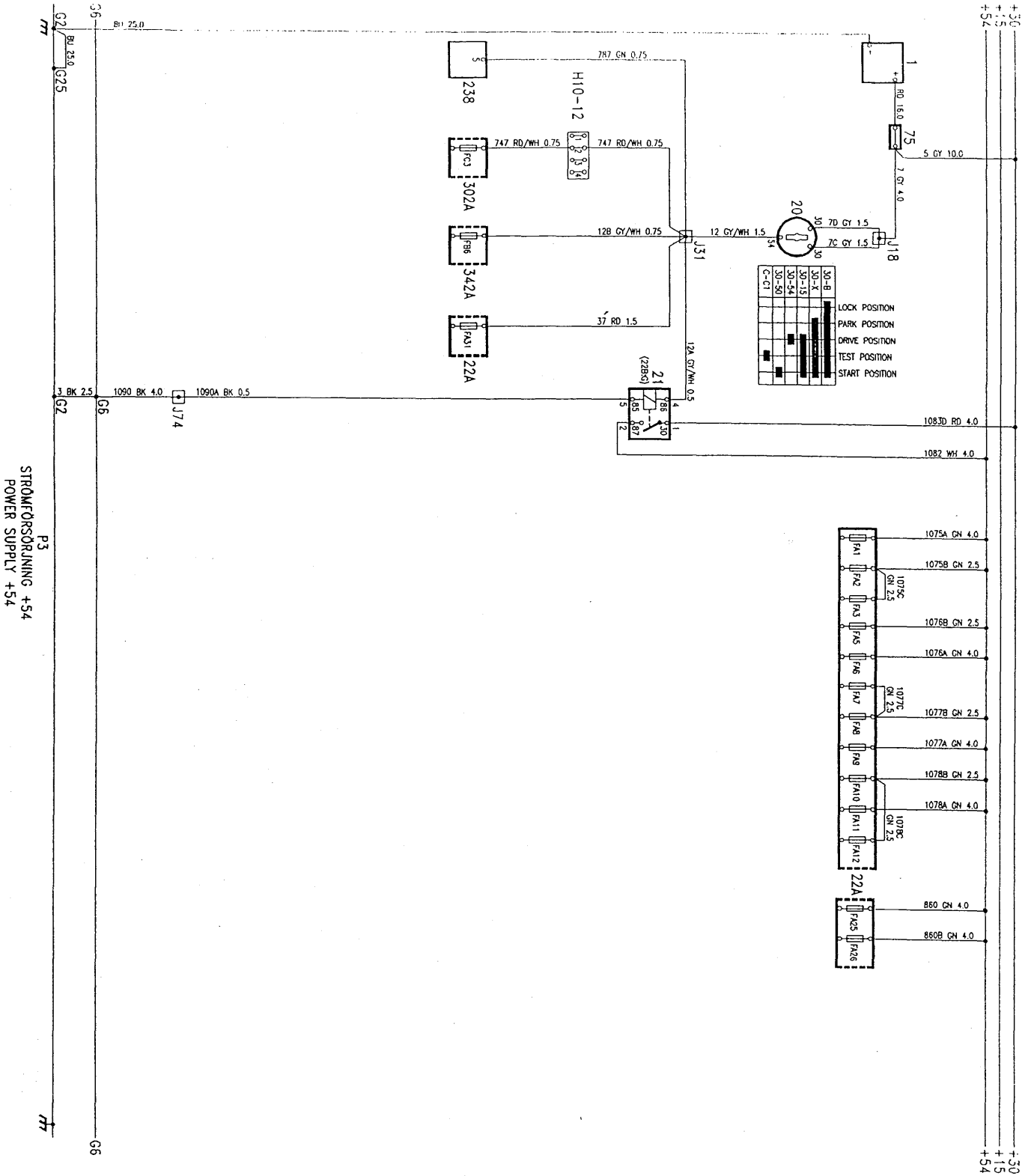
Supply +30



Supply +15

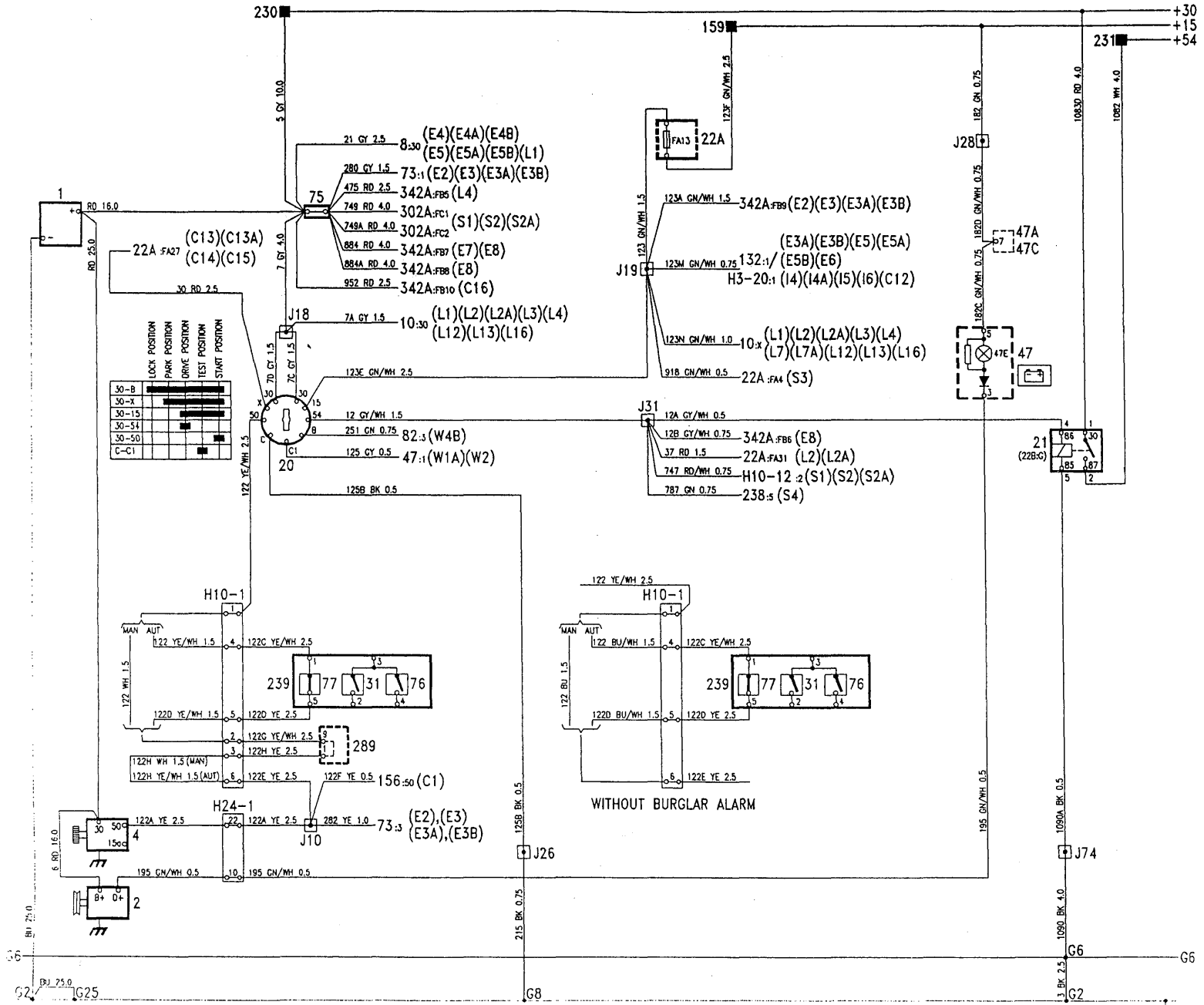


Supply +54



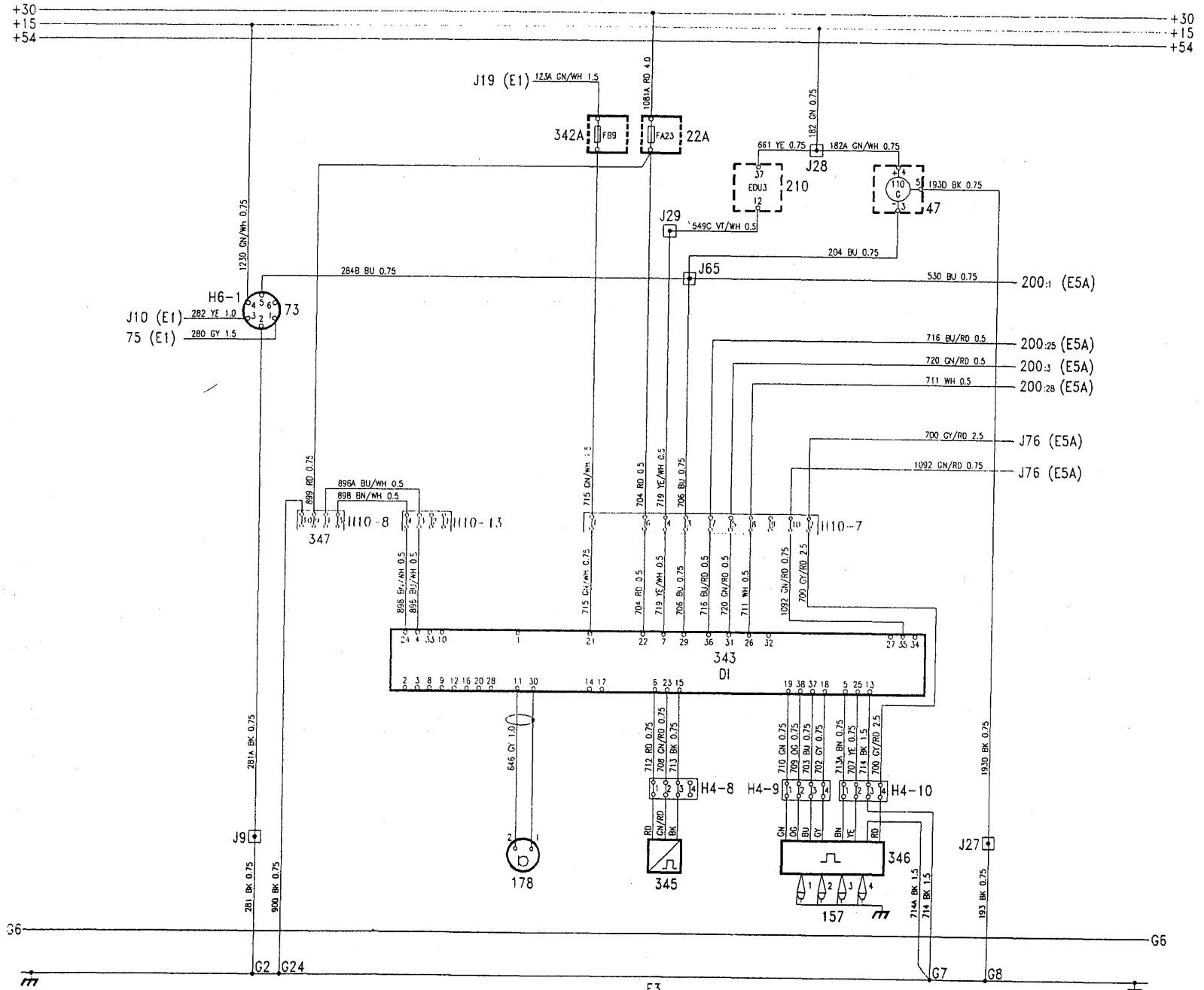
P3
STROMFÖRSÖRJNING +54
POWER SUPPLY +54

Starting and battery charging systems



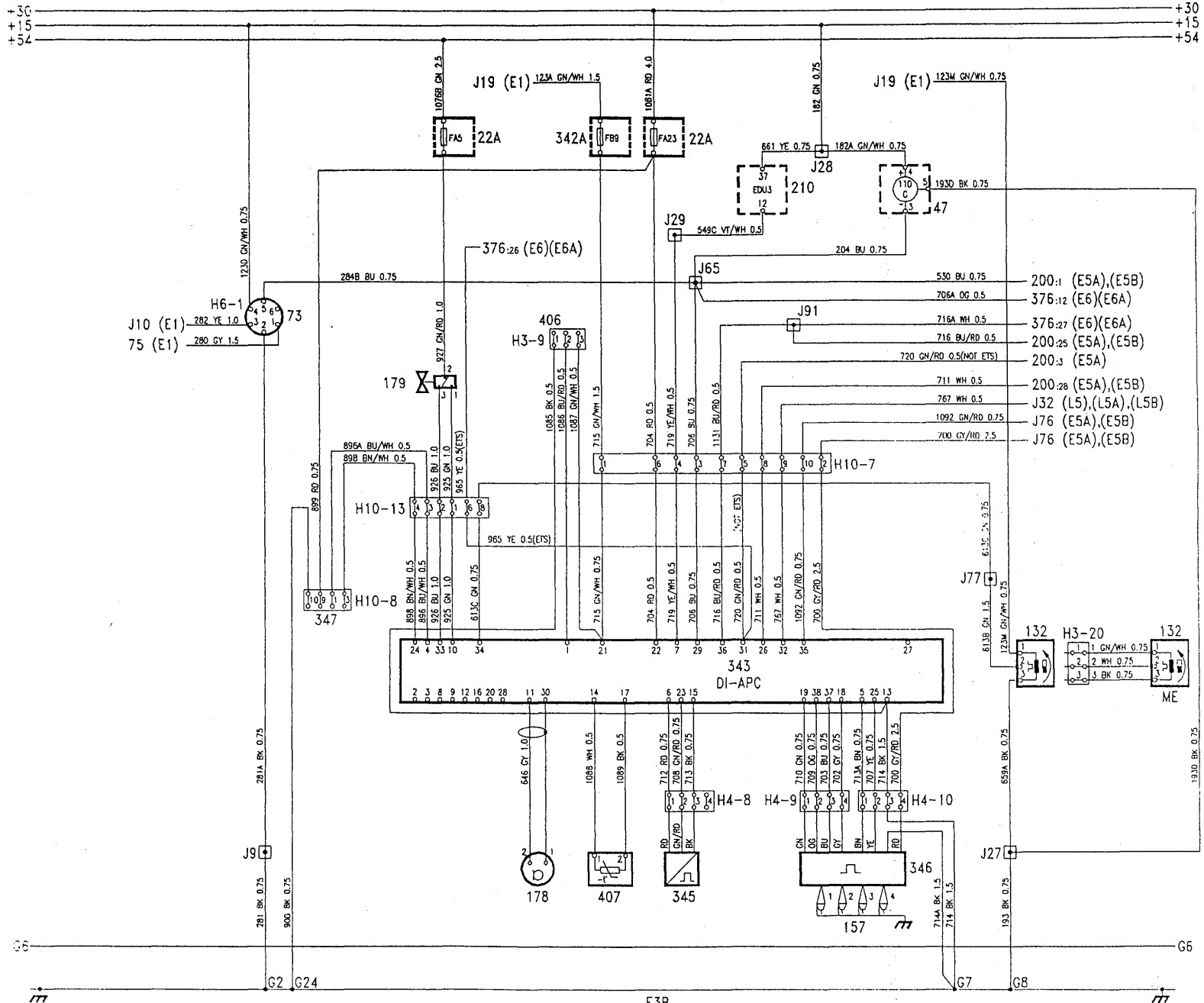
E1
START- OCH LADDNINGSSYSTEM
STARTING SYSTEM AND BATTERY CHARGING SYSTEM

DI ignition system LH 2.4.2 I16λ



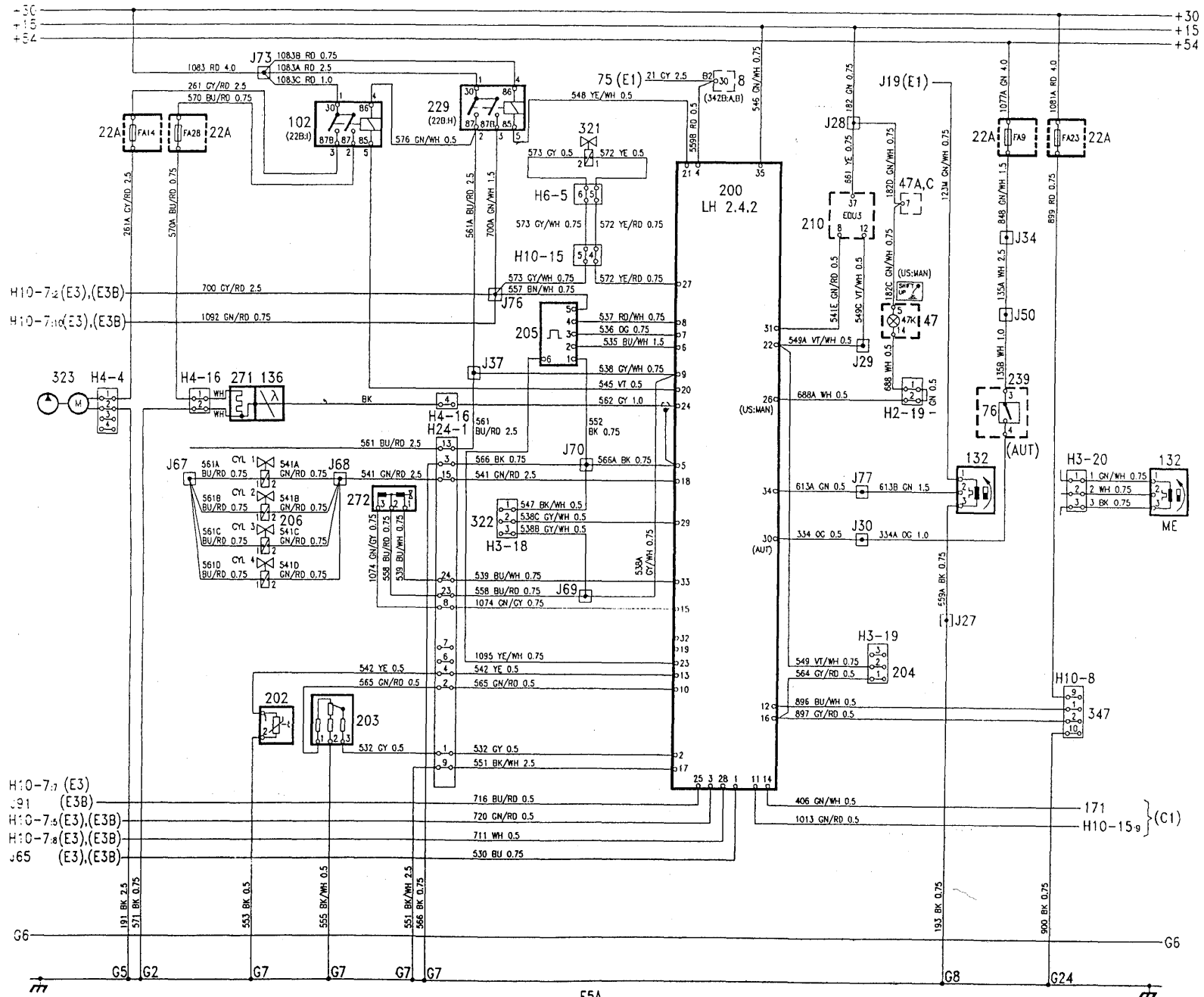
E3
TÄNDSYSTEM DI LH 2.4.2 I16, I16λ

DI-APC ignition system LH 2.4.2 T16/T16λ



E38
TÄNDSYSTEM DI-APC LH 2.4.2 T16/T16λ

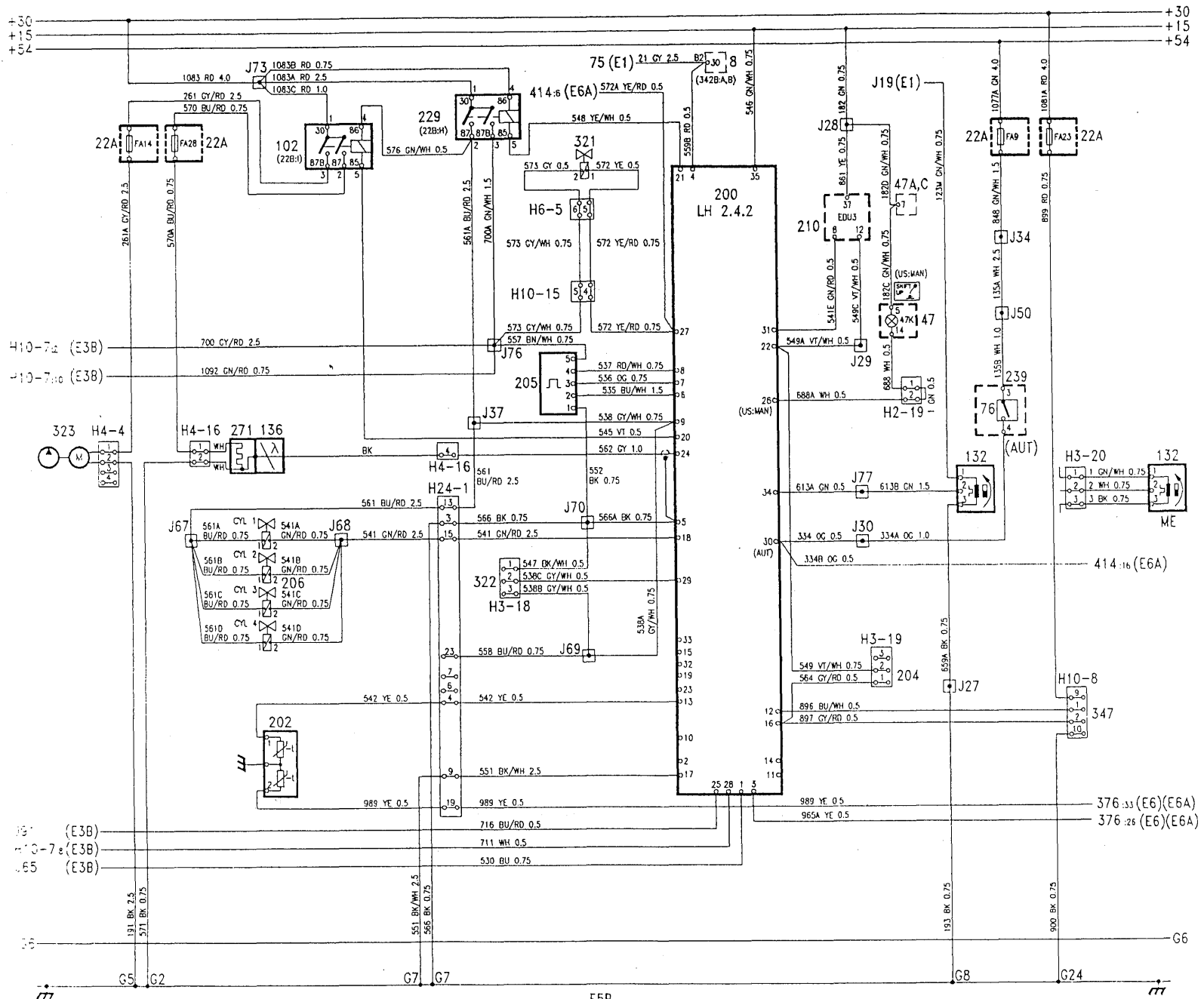
Fuel system LH 2.4.2: DI I16λ/B234i



E5A
BRÄNSLESYSTEM LH 2.4.2 (DI I16, I16λ / DI-APC T16, T16λ)
FUEL SYSTEM LH 2.4.2 (DI I16, I16λ / DI-APC T16, T16λ)

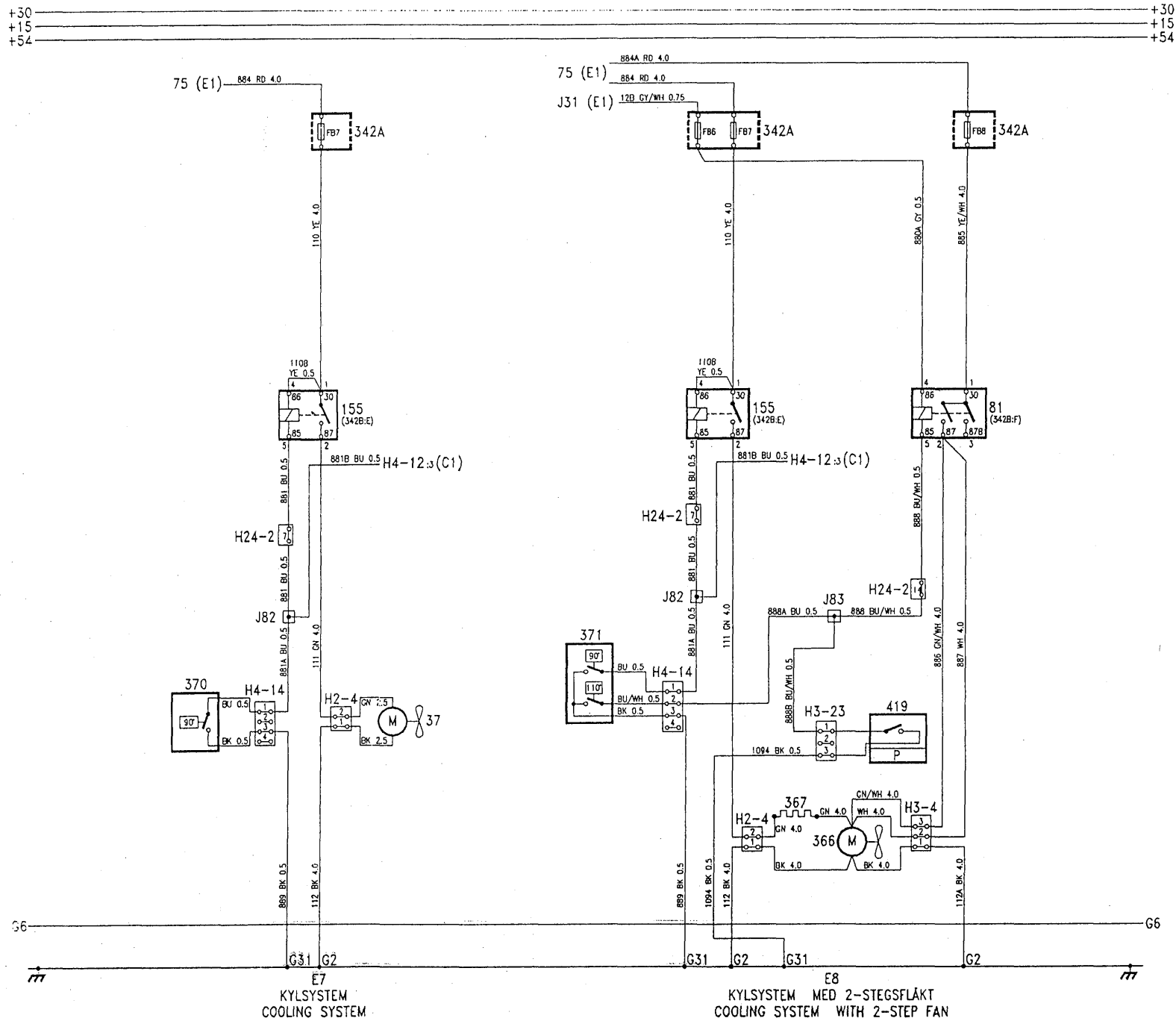
Saab 9000

Fuel system LH 2.4.2: DI-APC ETS T16λ (B234T)

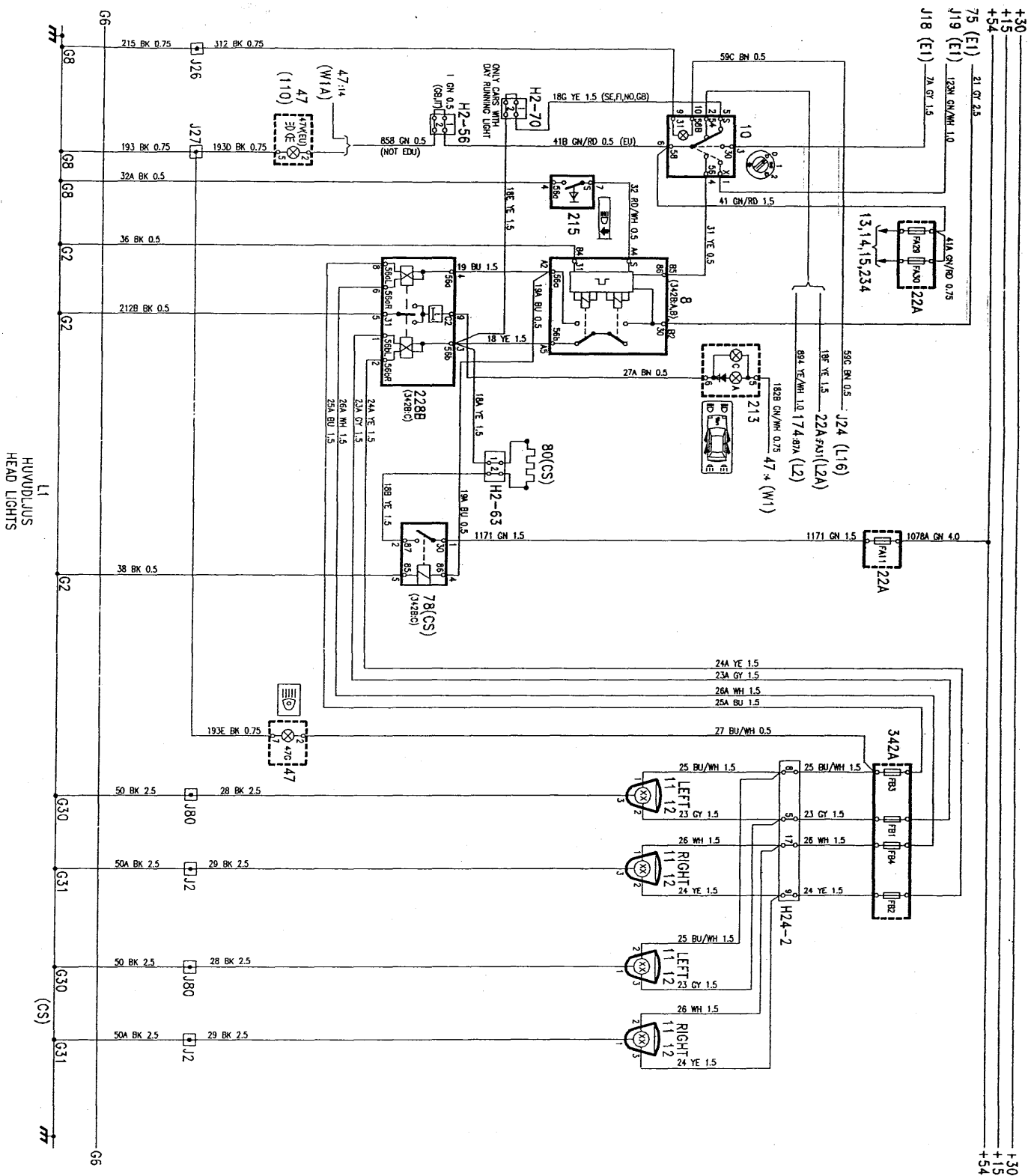


E5B
BRÄNSLESYSTEM LH 2.4.2 (DI-APC ETS T16λ)
FUEL SYSTEM LH 2.4.2 (DI-APC ETS T16λ)

Cooling system with 2-speed fan



Headlamps



Operation

When the headlamps are switched on, the parking lights, which also include the rear lights and the number plate illumination, also light up. The parking lights are dealt with in a separate section.

Full beam

Full beam headlamps can only be switched on when ignition switch 20 is in the drive position. Current will then flow to terminal X of light switch 10. Dipswitch 215 is spring-loaded.

When light switch 10 is in position 2, the supply to lighting relay 8 will be taken from terminal 56 of the light switch. The "upper" coil in lighting relay 8 will be energized, closing the circuit between terminals 30 and 56b in the relay.

When dipswitch 215 is operated, the "lower" coil will be energized, closing the circuit between terminals 30 and 56b in lighting relay 8.

Full beam filaments 11 are then supplied from terminal 56a of lighting relay 8, via filament monitor 228B and fuses 3 and 4 (fuse 3 also supplies full-beam warning lamp 47G).

When full beams are switched on, the supply to the parking lights is taken from the light switch in position 2, across terminal 58.

Headlamp flasher

Full beams can also be switched on, regardless of the position of the ignition switch and light switch, by keeping dipswitch 215 depressed. Both coils in lighting relay 8 will then be energized and the full beams will be supplied via filament monitor 228B and fuses 3 and 4.

Dipped beam

When light switch 10 is in position 2, the supply to lighting relay 8 will be taken from terminal 56 of the light switch. The "upper" coil in lighting relay 8 will be energized, closing the circuit between terminals 30 and 56b in the relay.

Dipped beam filaments 12 are then supplied from terminal 56b of lighting relay 8 via filament monitor 228B and fuses 1 and 2.

When the headlamps are dipped, the parking lights receive current from terminal 58 of the light switch.

Filament monitor

If one of the full or dipped beam filaments should fail, the relay in the filament monitor will be energized and terminal C2 will be earthed. Since a positive voltage is supplied to terminal 5 of pictogram 213, the warning lamps for the front lights and the central warning lamp will light up, see also the "Pictogram-Filament monitor" section.

"Headlamps on" warning lamp

Cars for certain markets are equipped with warning lamp 47V to show when the headlamps are switched on. The warning lamp is supplied from terminal 58 of light switch 10 via two-pole connector H2-56.

Fault-tracing hints

The headlamps will be on when ignition switch 20 is in the drive position and light switch 10 is in position 2.

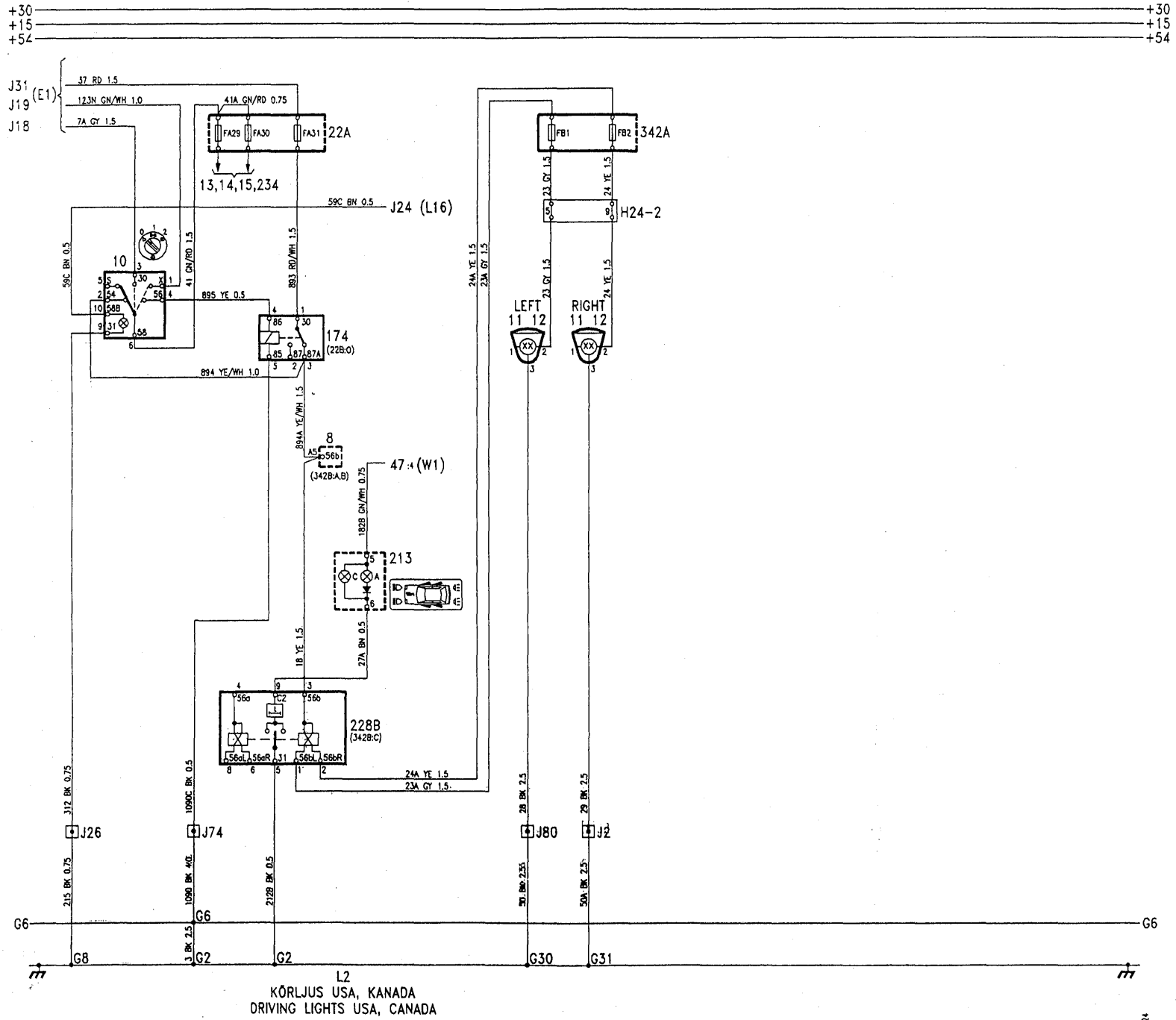
- 1 Check that fuses 3 and 4 (full beam) and 1 and 2 (dipped beam) are intact and that there is a supply of current to them.
- 2 Check that the bulbs are OK and that there is a supply of current to them.
- 3 Check the earthing of each lamp.
- 4 Check the light switch, lighting relay, dipswitch terminals and filament monitor terminals.
- 5 Using a meter connected to the terminals, check the operation of relay 78 and resistor 80.
- 6 Check the connectors, wiring harness and earth connections.

For particulars of fault tracing on the parking lights, see the "Parking lights" section.

Note:

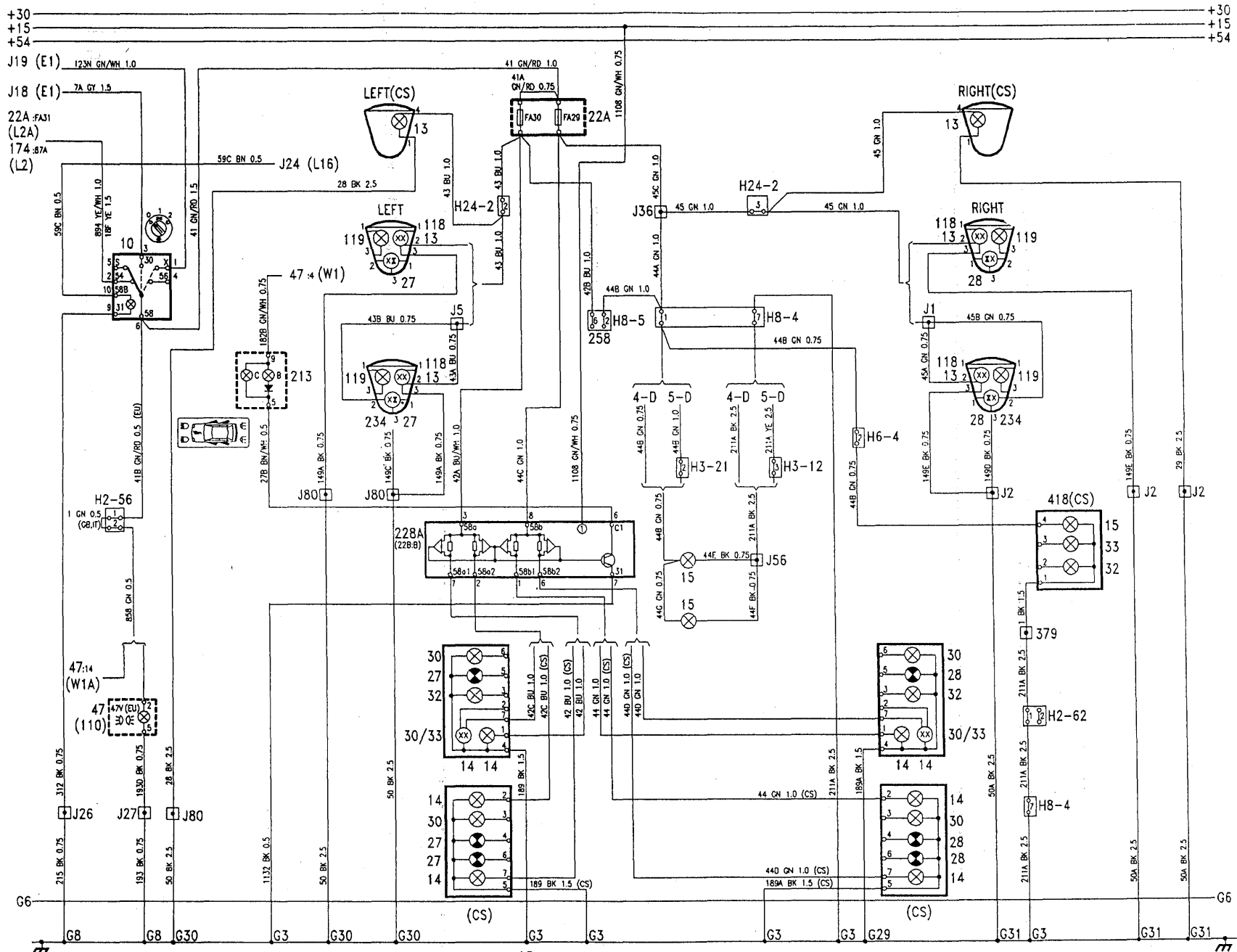
Whenever any of the bulbs needs changing, use a bulb of the correct rating. The bulbs in the pictogram may otherwise light up due to imbalance in the filament monitor coil.

Daylight driving lights - US, CA



L2
KÖR LJUS USA, CANADA
DRIVING LIGHTS USA, CANADA

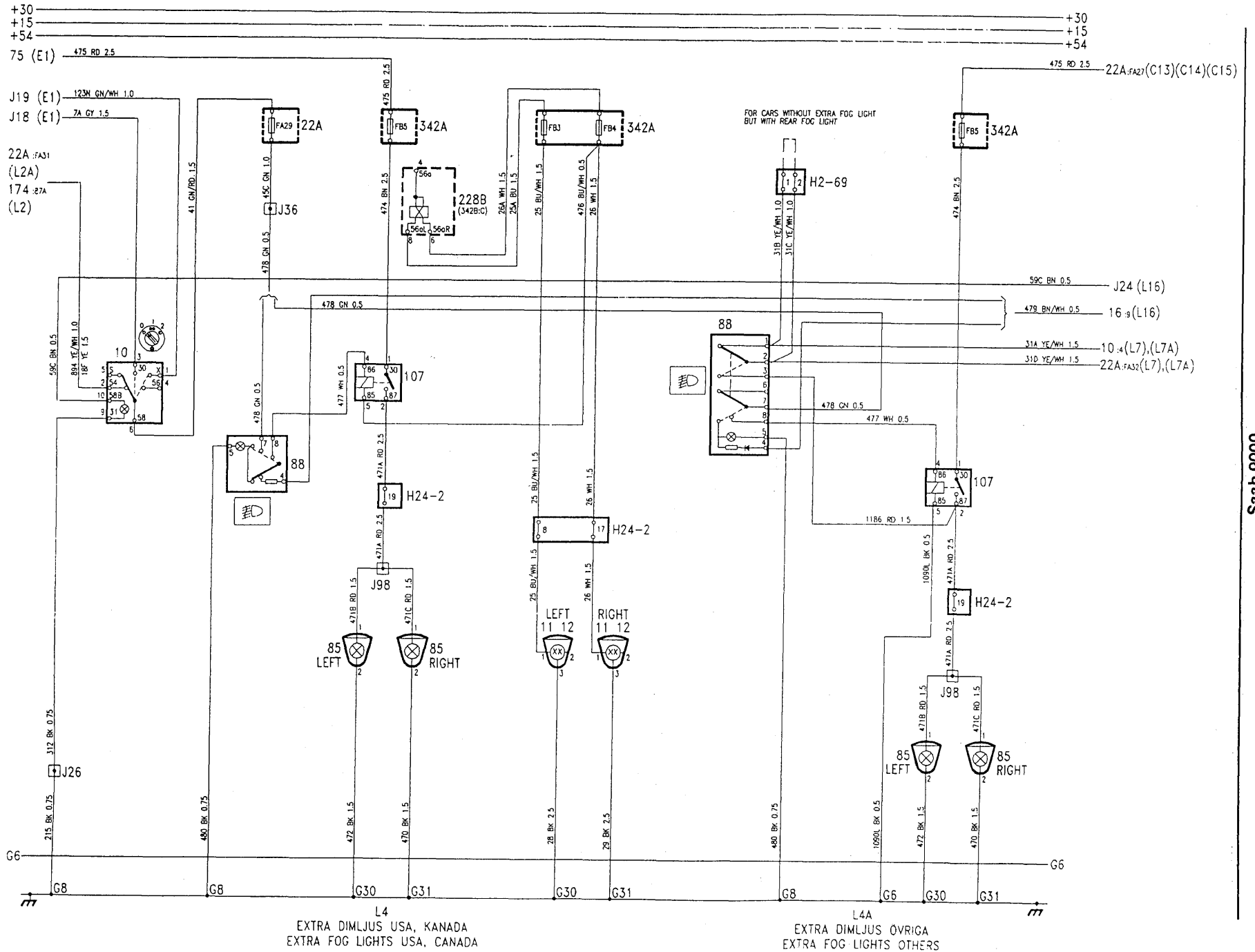
Parking lights with/without side marker lights



L3
PARKERINGS LJUS MED/UTAN SIDOMARKERINGS LJUS
PARKING LIGHTS WITH/WITHOUT SIDE MARKING LIGHTS

017 0026
A

Foglights - US, CA



Operation

The foglights are connected so that they can be switched on only if the daylight driving lights, parking lights or headlamps are switched on.

When light switch 10 is set to position 0 (daylight driving lights), position 1 (parking lights) or position 2 (headlamps), terminal 7 of switch 88 for the foglights will be connected to the positive supply via fuse 29 (which also supplies the parking lights).

When switch 88 is depressed, relay 107 will be energized and the lamp built into the switch will light up at full intensity. When the switch is not activated, its lamp is supplied with current from instrument lighting rheostat 16.

When the relay is energized, both foglights 86 will receive current from fuse 5 via the closed relay contact.

On cars with foglights and a rear foglight, the rear foglight is supplied with current via relay 107 and switch 88 for the foglights when the foglights are switched on.

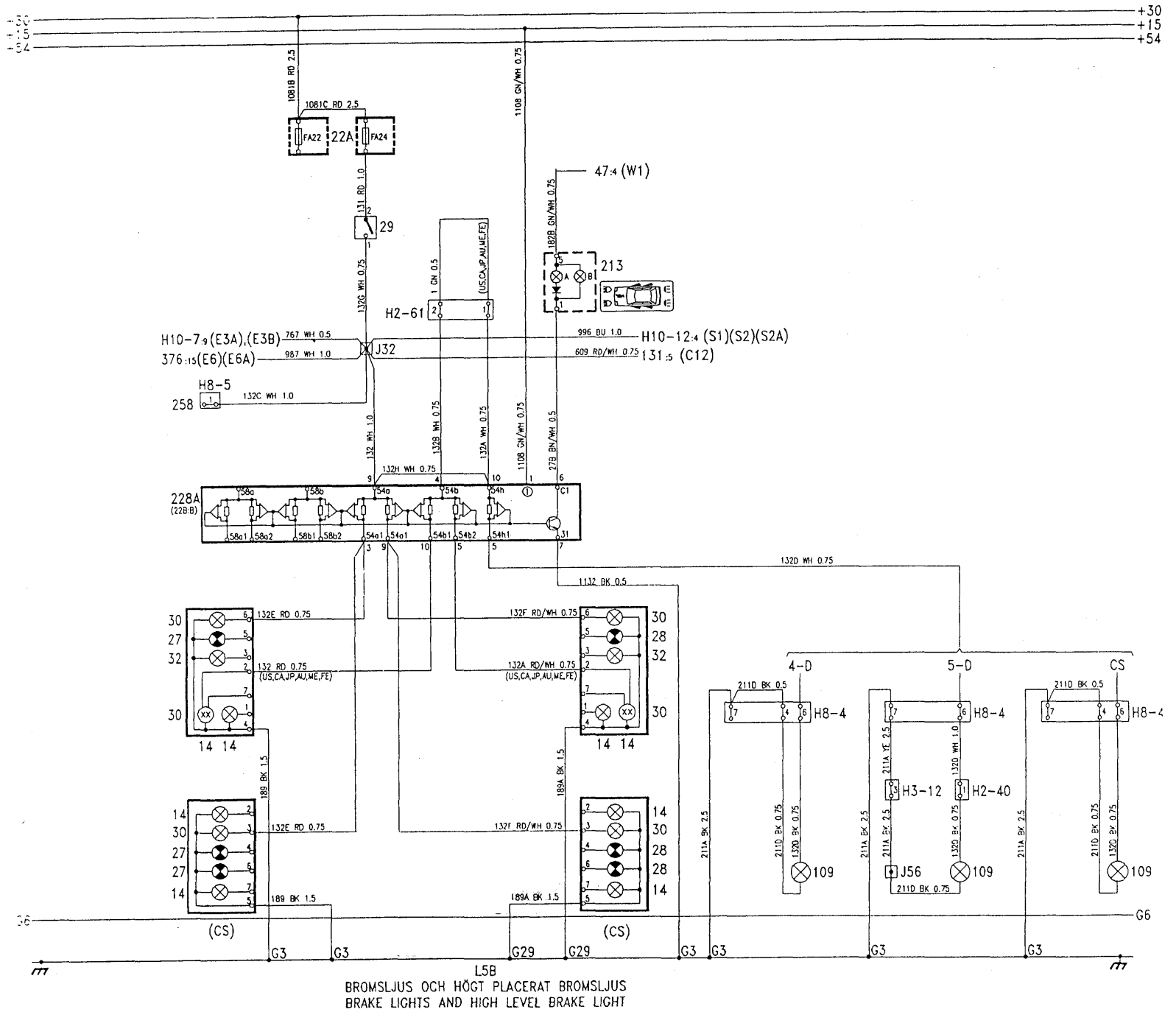
On cars without foglights but with a rear foglight, the rear foglight will not work unless a jumper wire is fitted to two-pole connector H2-69 (for further particulars and fault-tracing on the rear foglight, see the "Rear foglight" section).

Fault-tracing hints

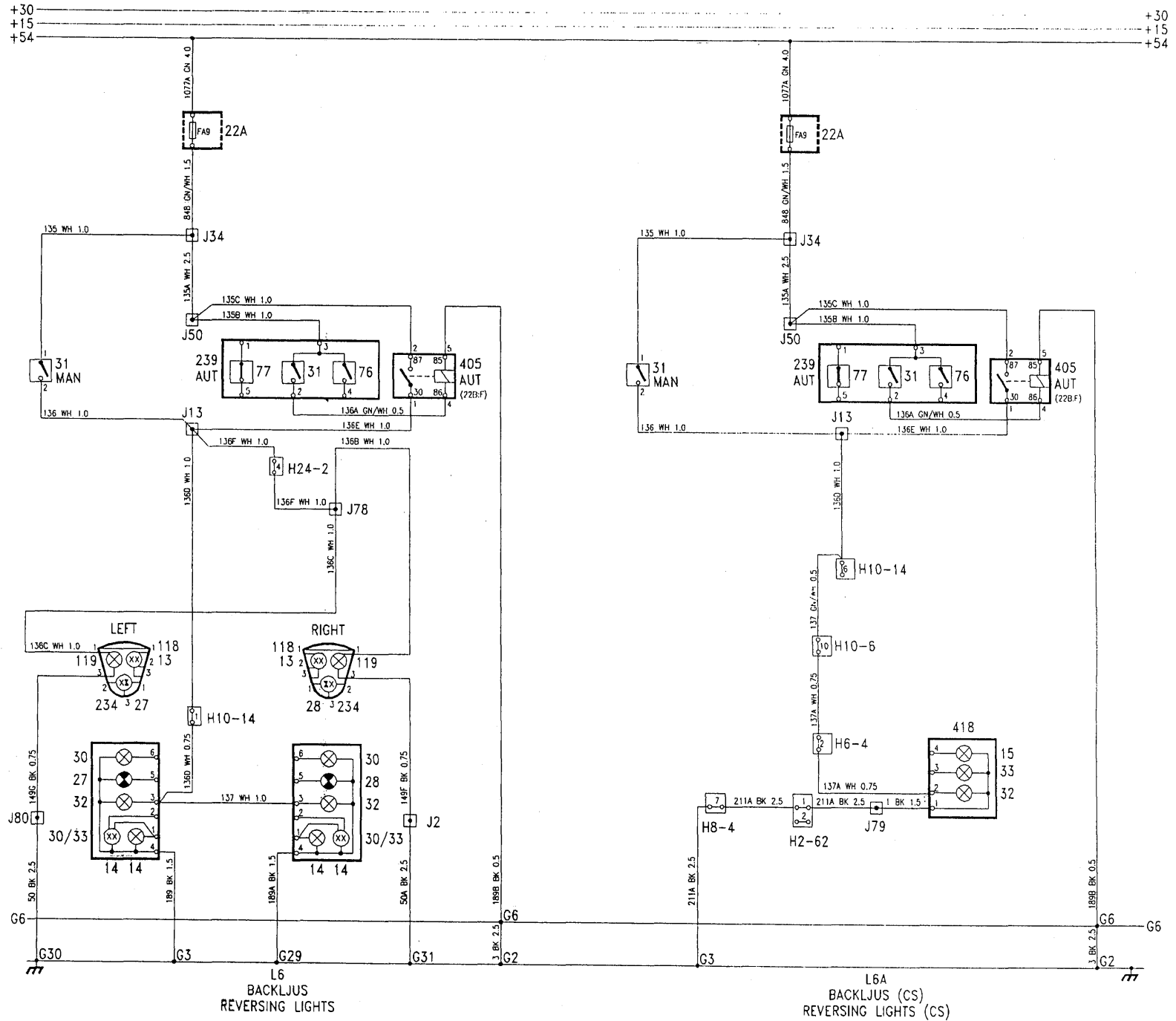
The foglights are switched on by depressing switch 88.

- 1 Check that fuses 5 and 29 are intact and that current reaches them.
- 2 Check that the relevant foglight bulb is OK and that current reaches it.
- 3 Check the earthing of the bulb and lamp.
- 4 Using a meter connected to the terminals, check the operation of relay 107, light switch 10 and switch 88.
- 5 Check the wiring harness, connectors and earth connections.

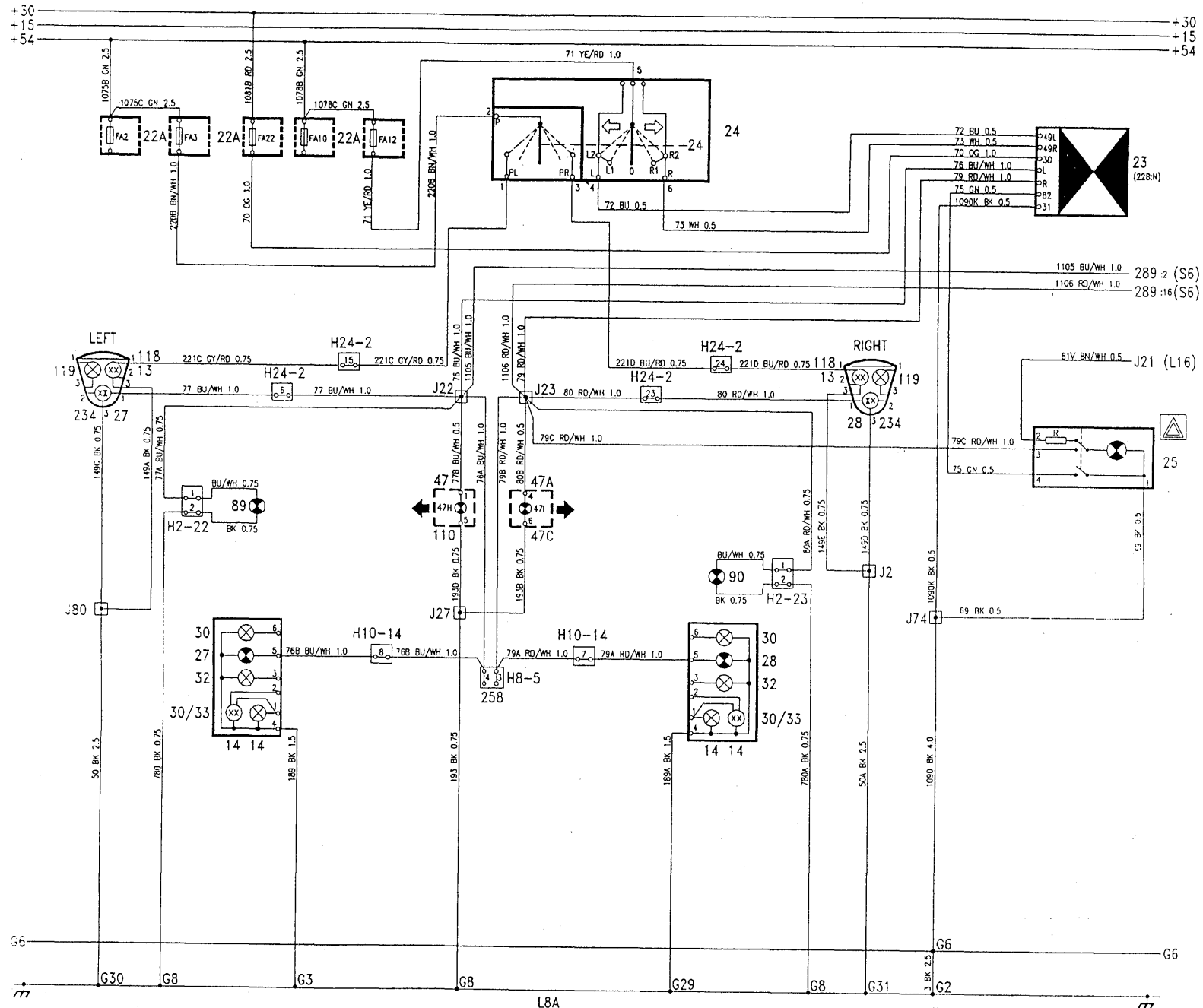
Brake lights and high-level brake light



Reversing light

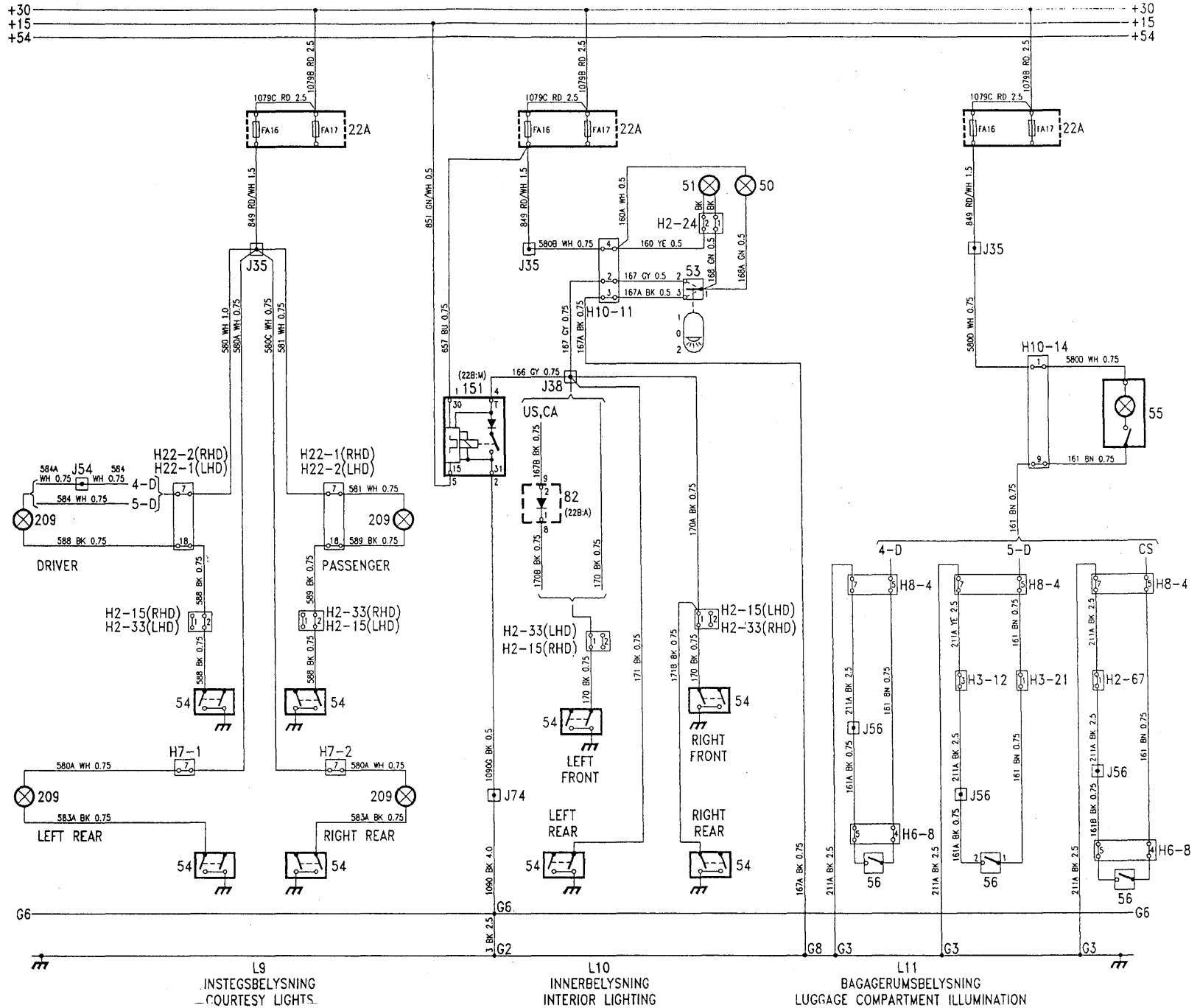


Direction indicators, hazard flashers, corner lights - US, CA

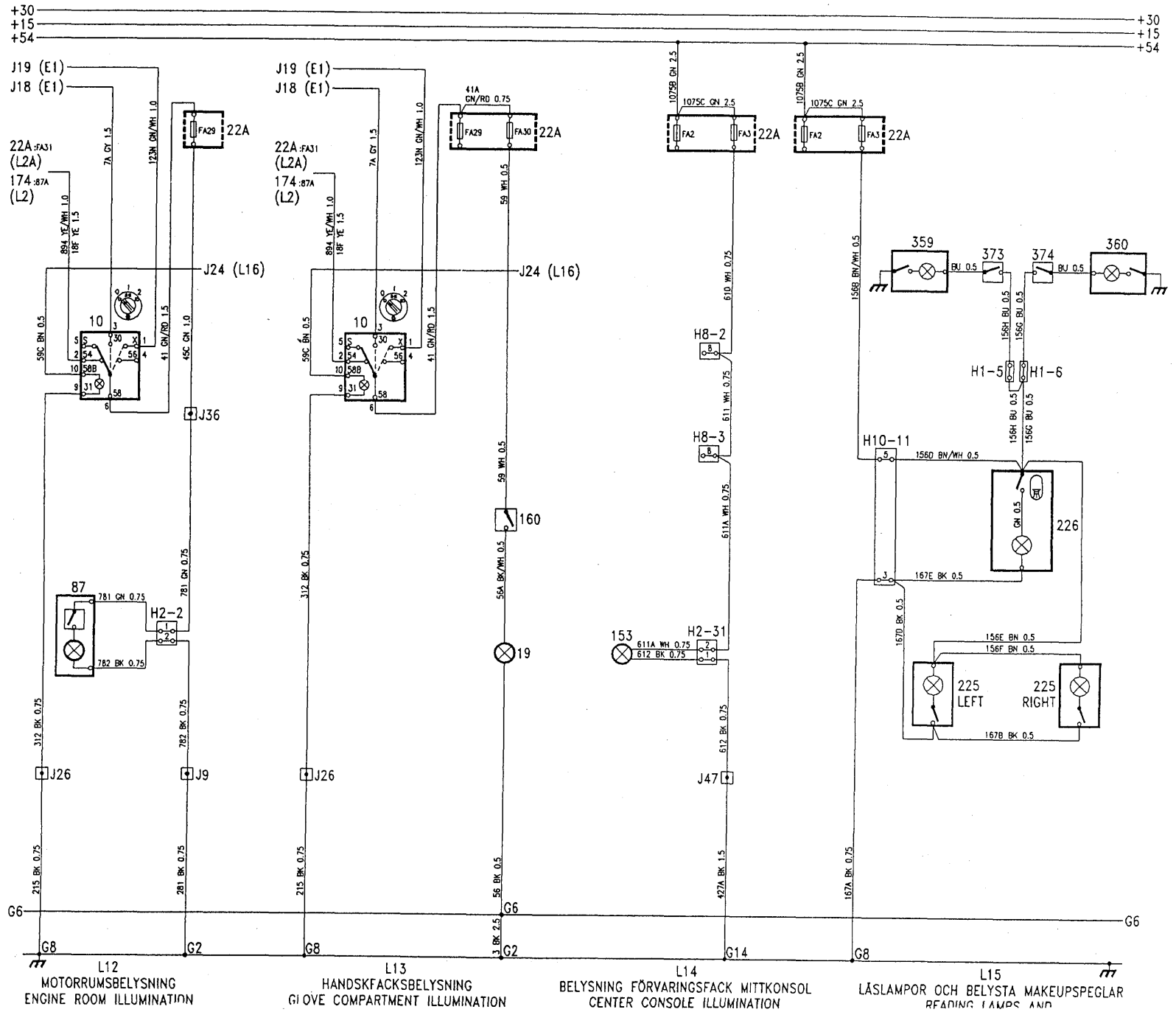


L8A
BLINKERS, VARNINGSBLINKERS, HÖRNLJUS
DIRECTION INDICATORS, HAZARD WARNING LIGHTS, CORNER LIGHTS

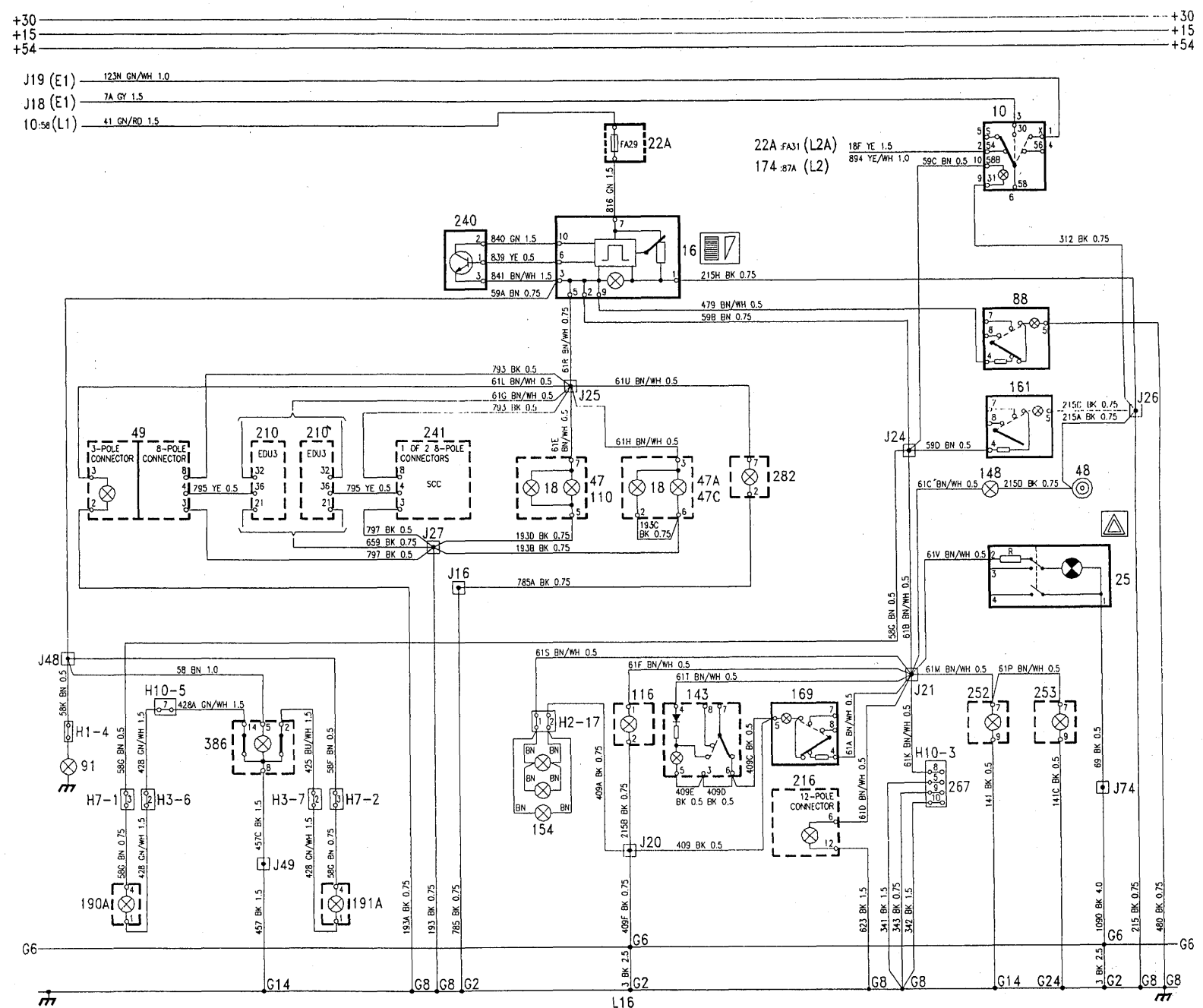
Luggage compartment illumination



Glove compartment illumination



Lighting for instruments and controls



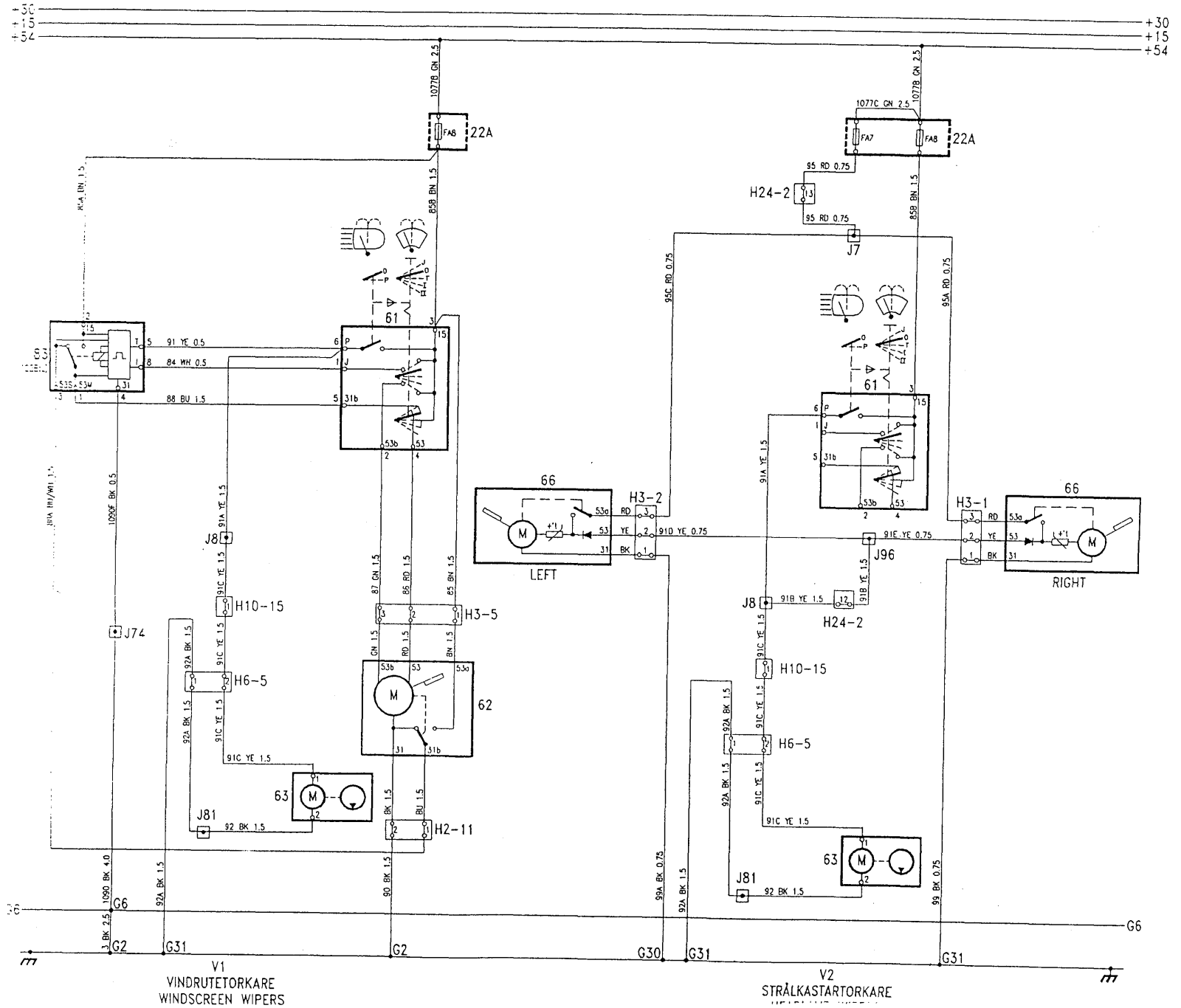
+30
+15
+54

J19 (E1) 123N GN/WH 1.0
J18 (E1) 7A GY 1.5
10:58 (L1) 41 GN/RO 1.5

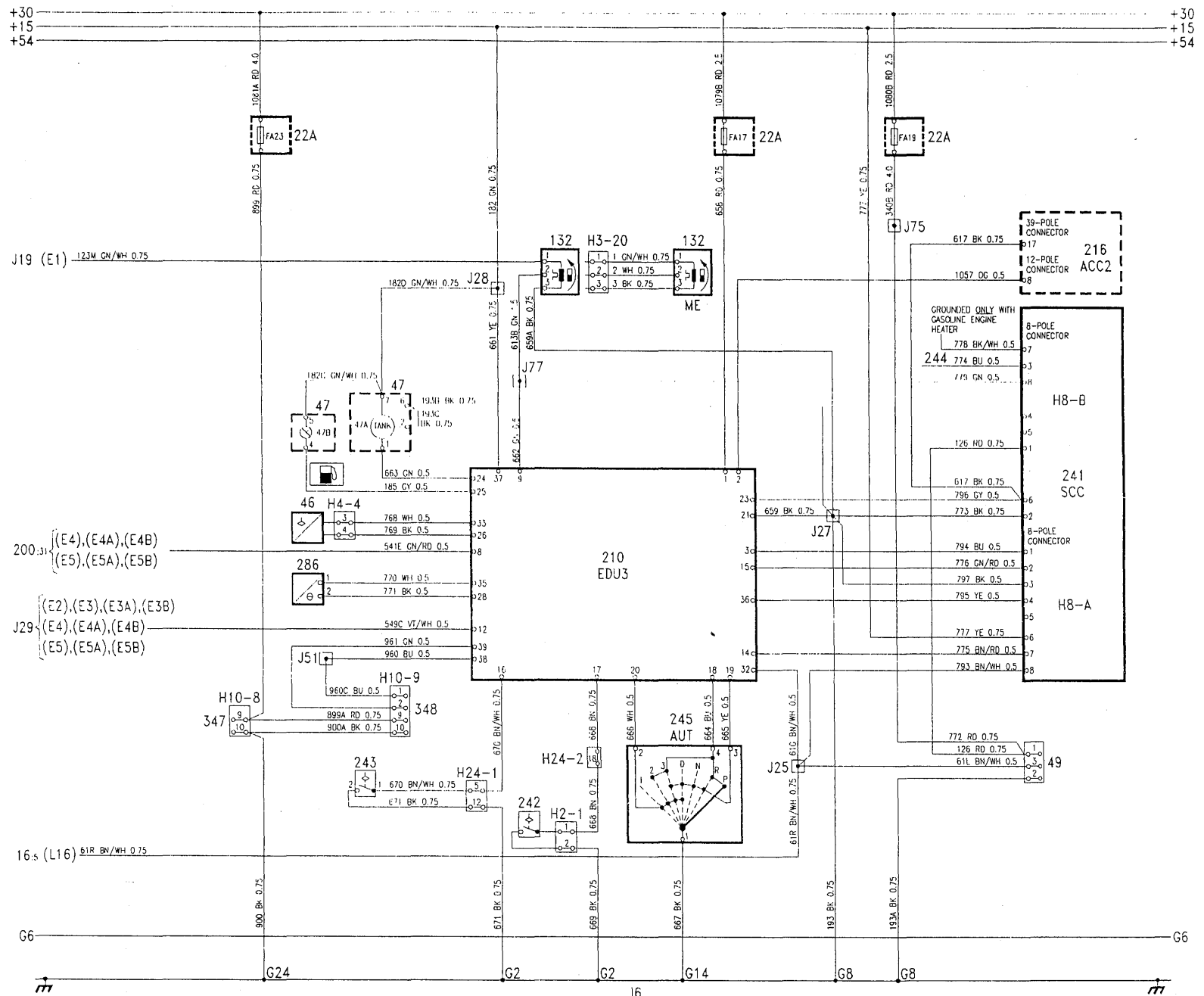
+30
+15
+54

L16
INSTRUMENT- OCH REGLAGEBELYSNING
LIGHTING FOR INSTRUMENTS AND CONTROLS

Windscreen and headlamp wipers

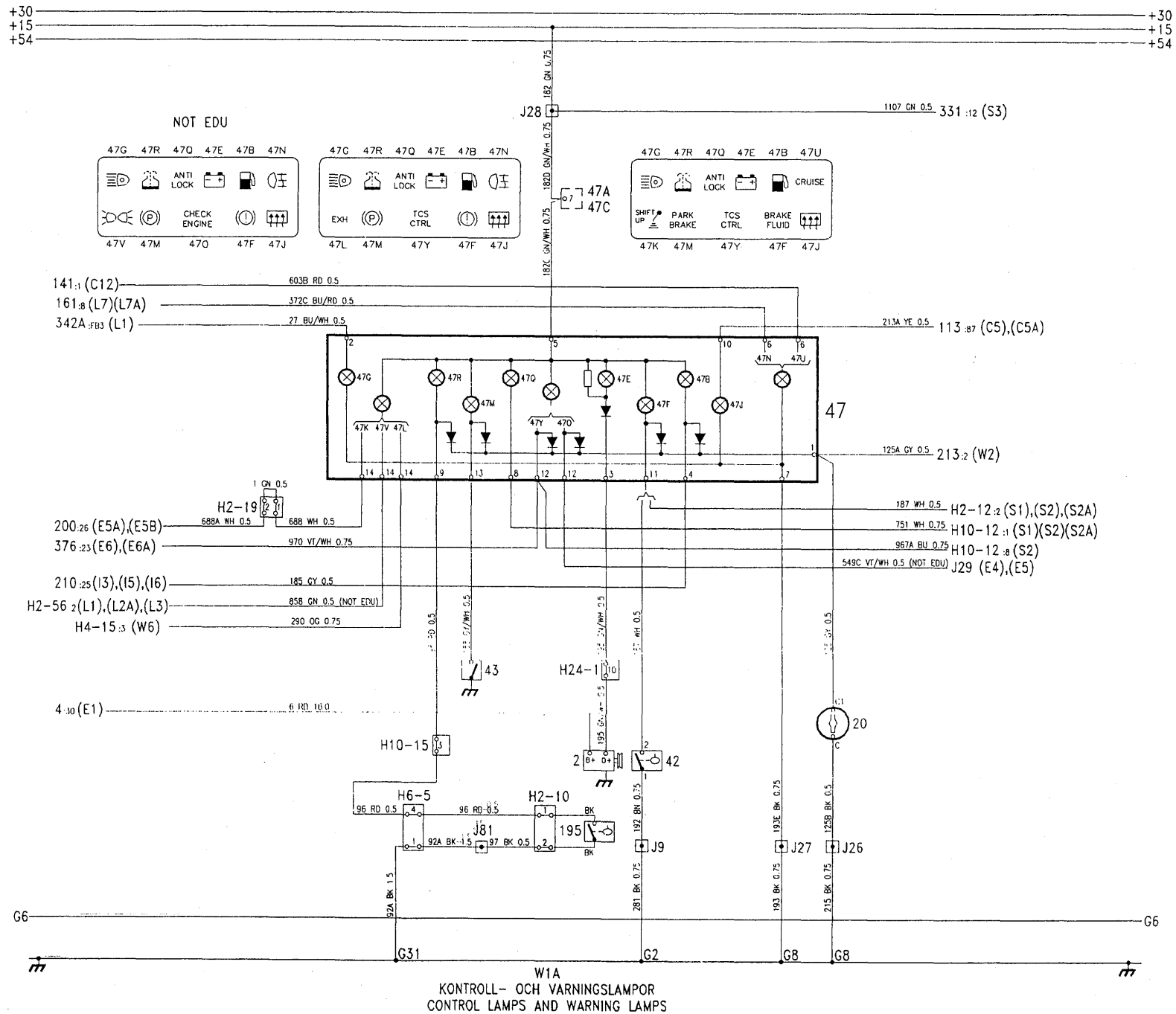


EDU and SCC trip computers

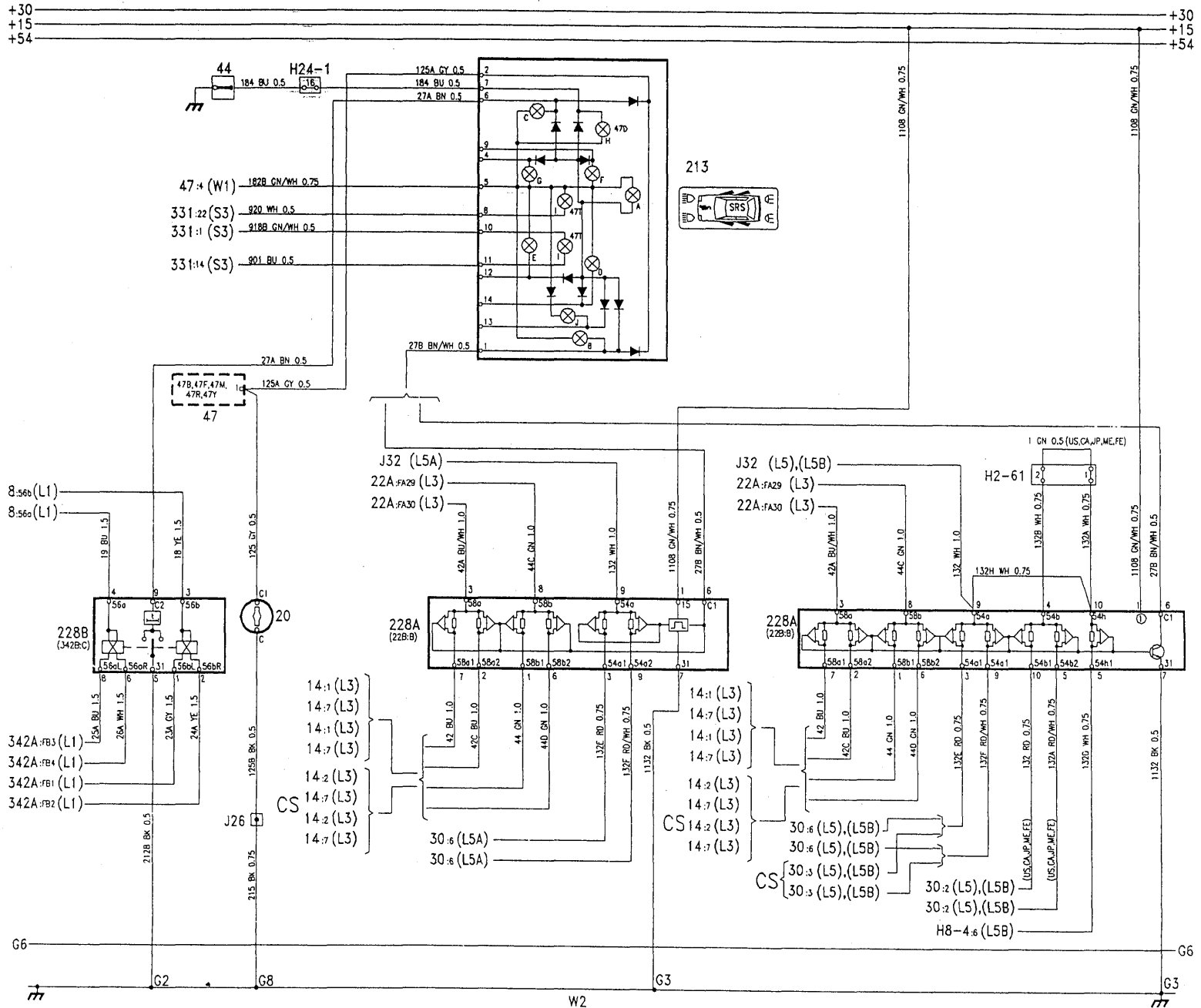


16
 FÄRDDATOR EDU3 OCH FÄRDDATOR SCC
 TRIP COMPUTER EDU3 AND TRIP COMPUTER SCC

Indicating and warning lamps

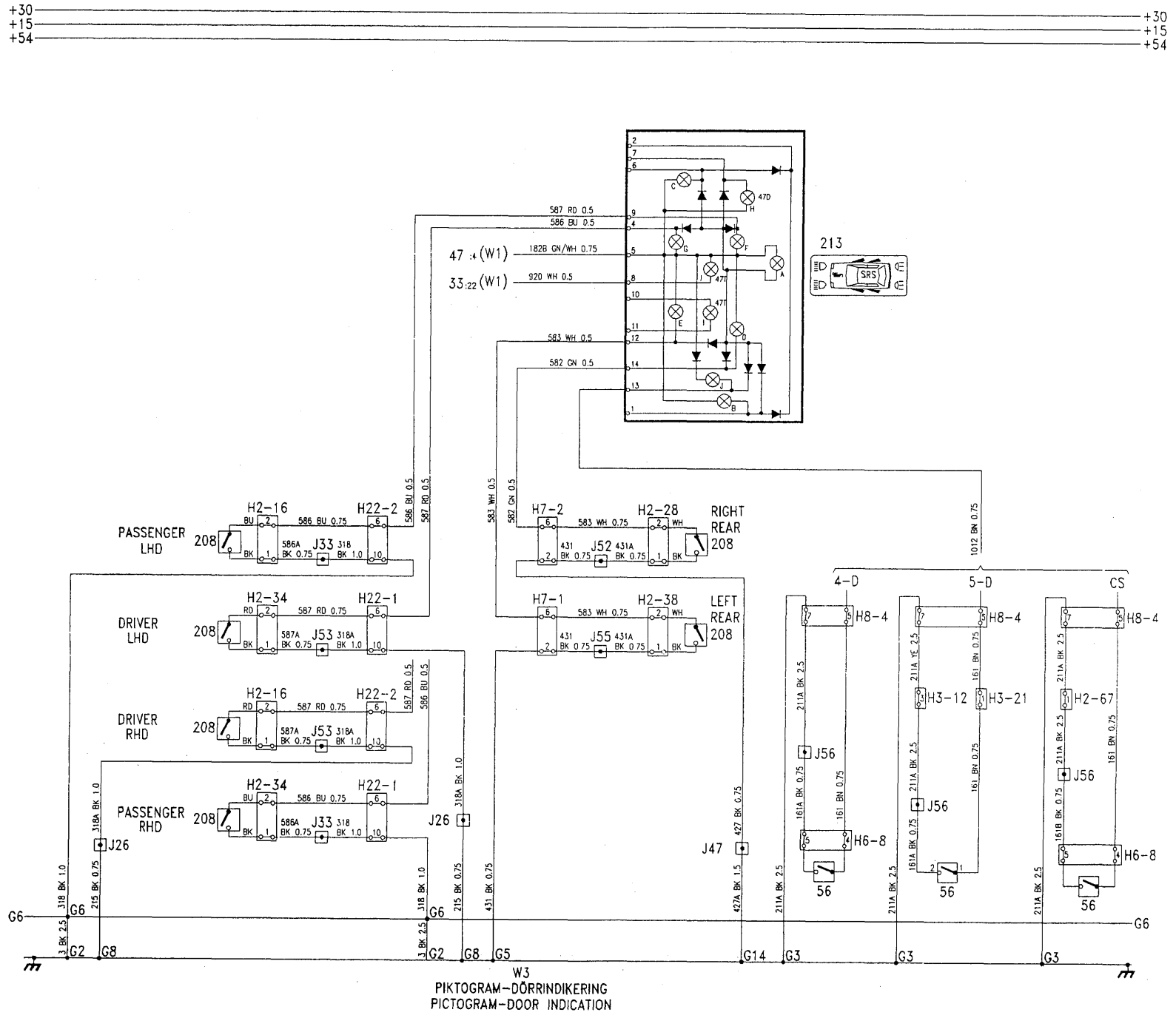


Pictogram — filament monitor and oil pressure warning lamp

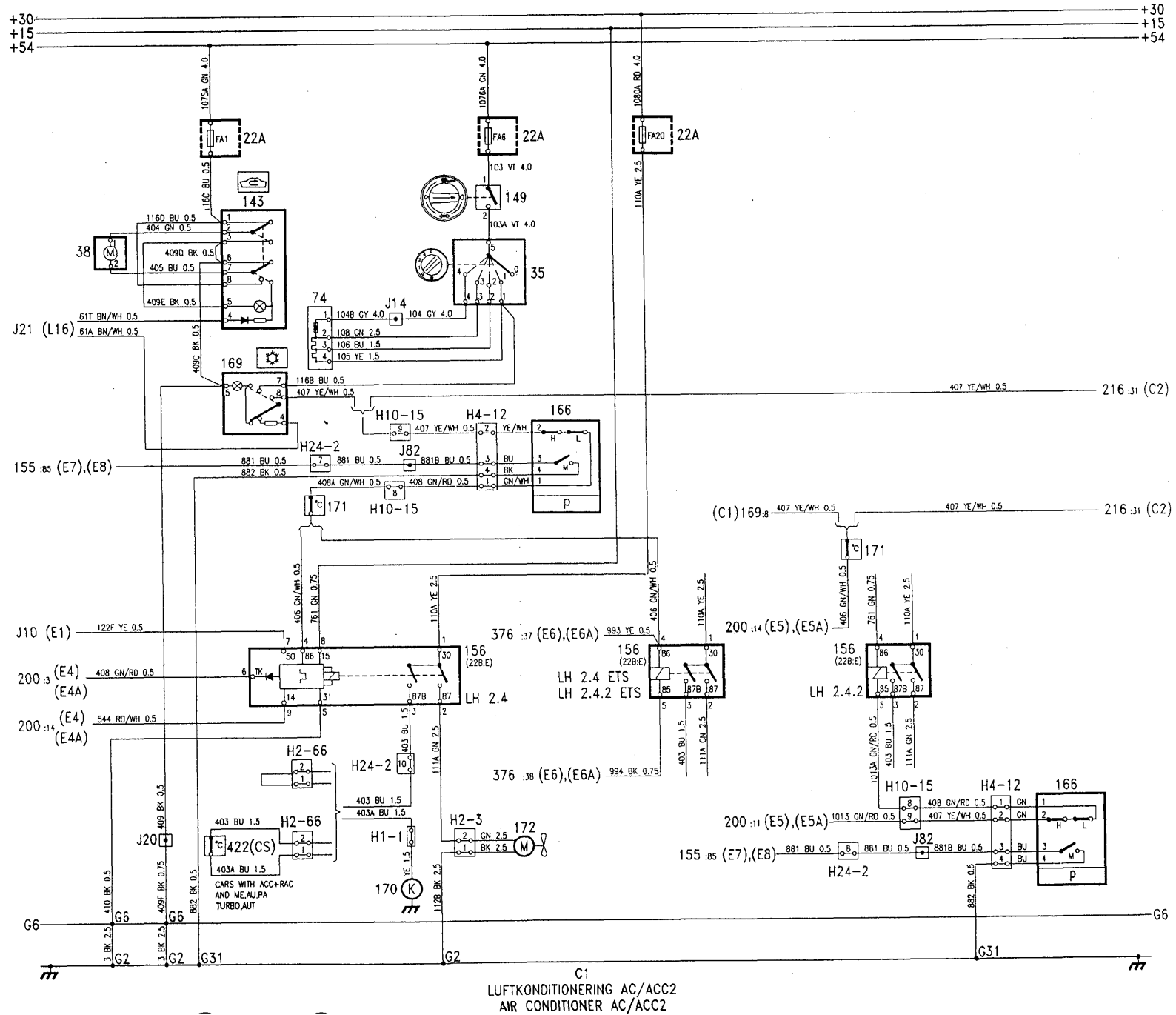


W2
PIKTOGRAM-GLÖDTRÄDSVAKT OCH VARNINGSLAMPA OJLJETRYCK

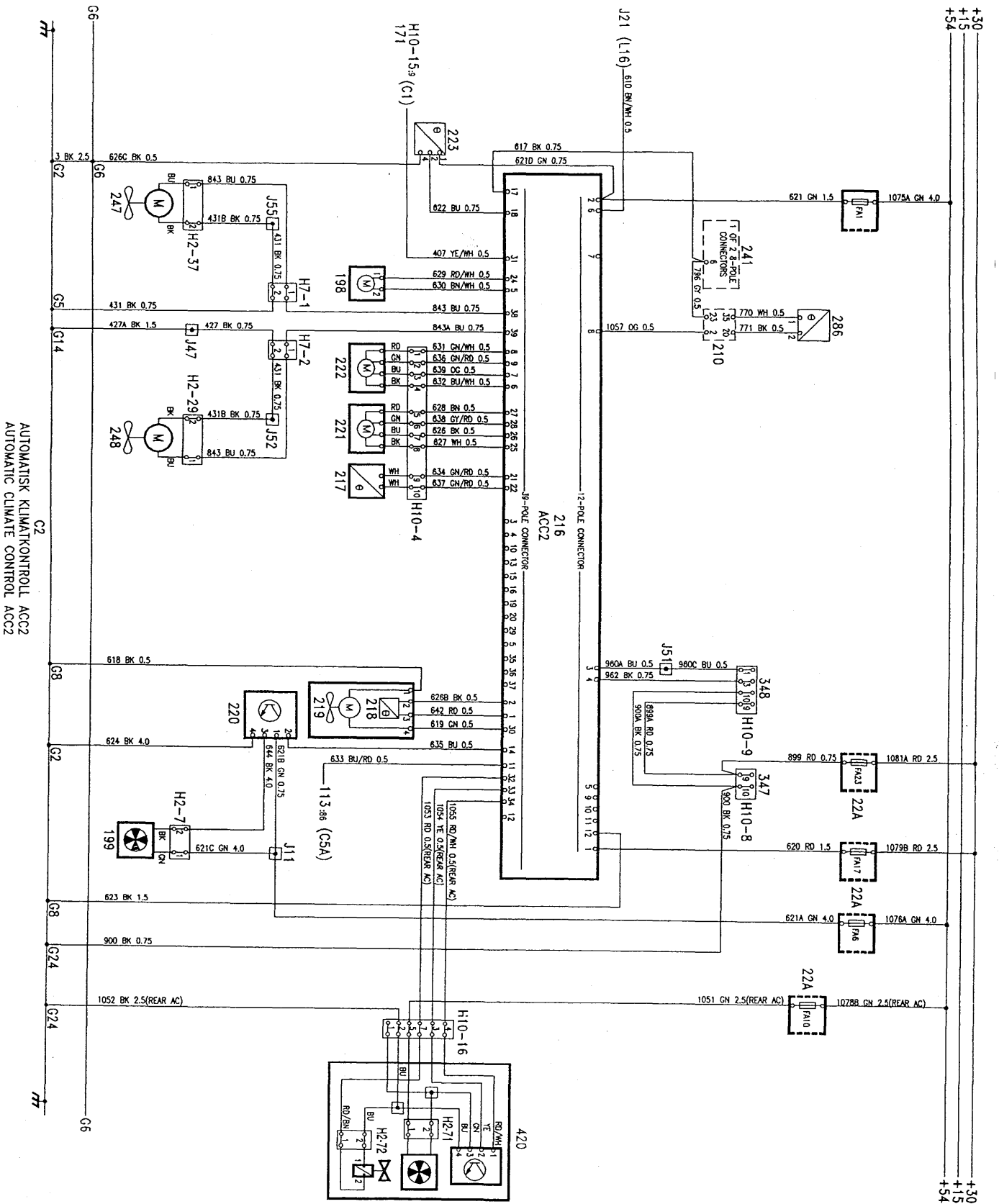
Pictogram — door indication



Air conditioning (AC/ACC)

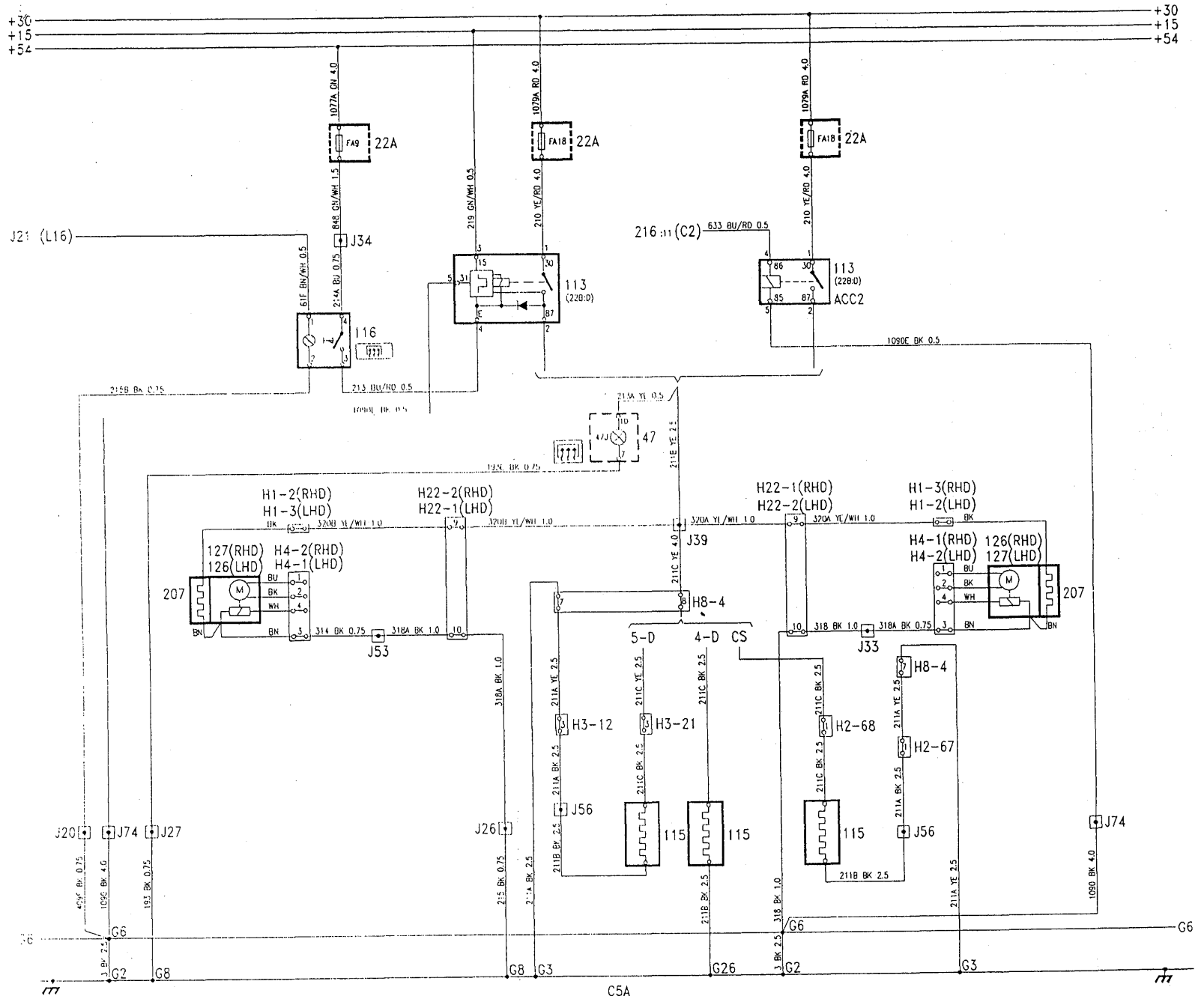


Automatic Climate Control (ACC)



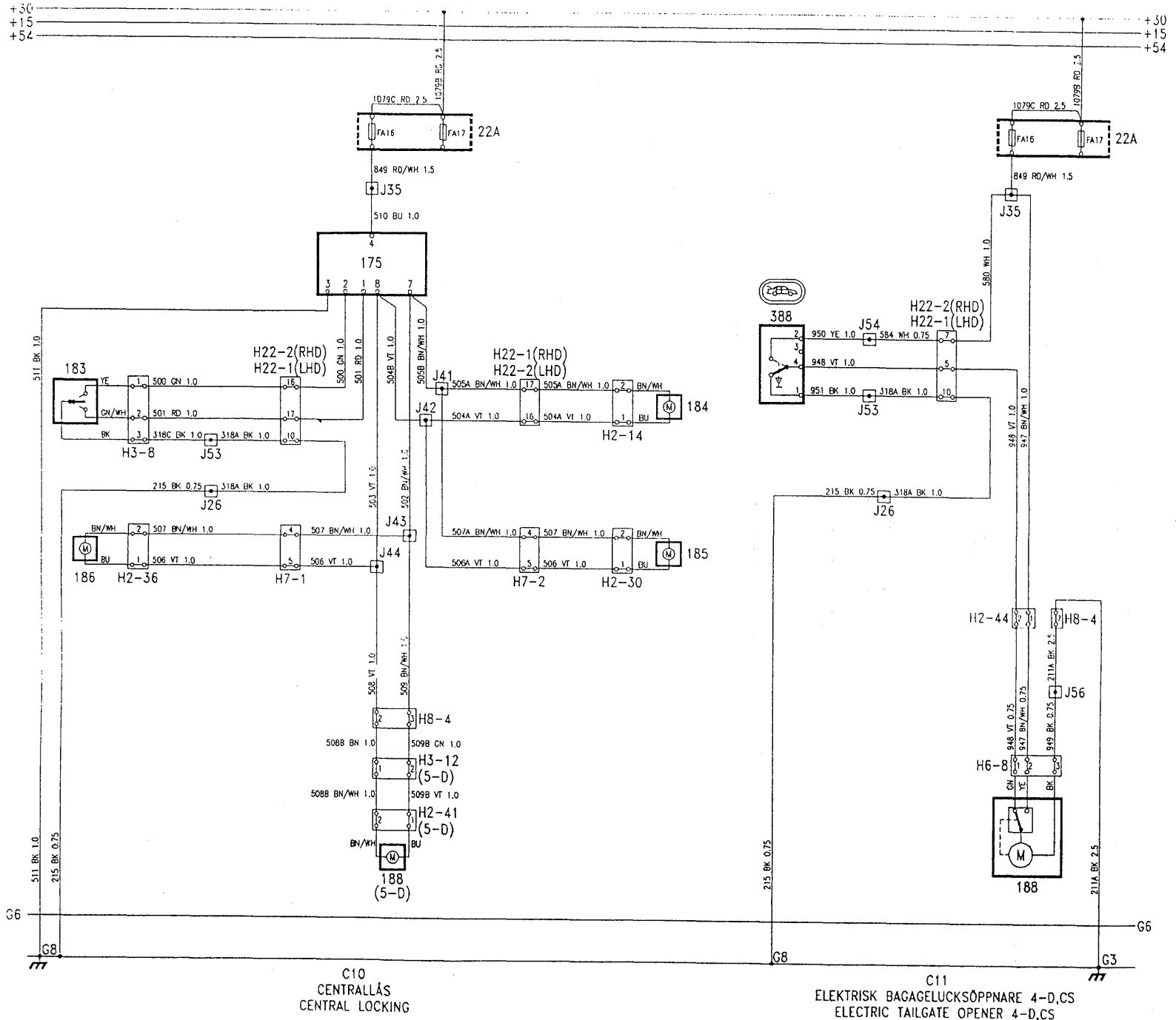
AUTOMATISK KLIMATKONTROLL ACC2
 AUTOMATIC CLIMATE CONTROL ACC2

Electrically heated rear window and electrically heated rearview mirrors

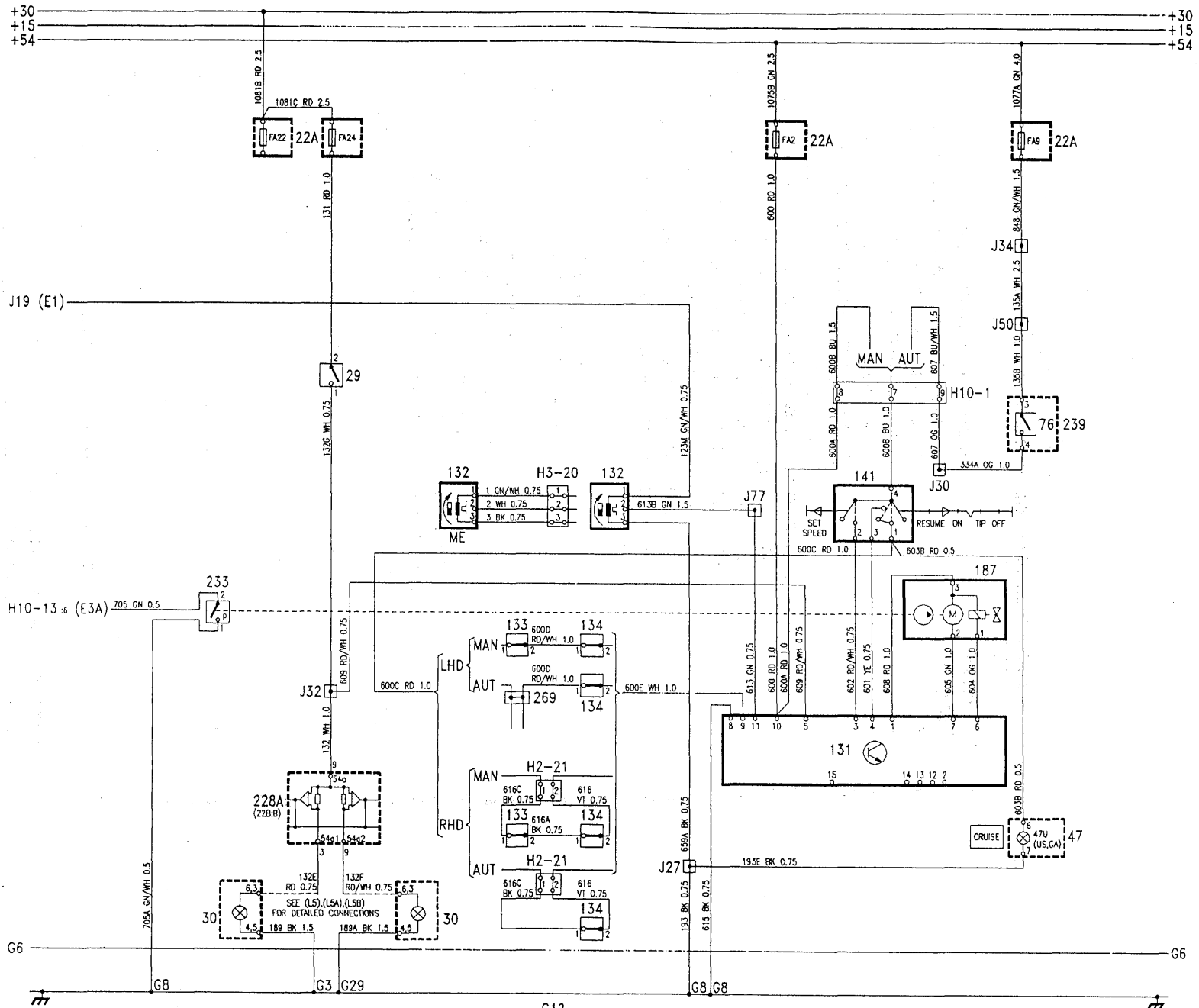


C5A
ELUPPVÄRM D BAKRUTA OCH ELUPPVÄRM DA BÄCKSPEGLÄR
ELECTRICALLY HEATED REAR WINDOW AND REAR-VIEW MIRROR

Central locking system



Cruise Control (cars without TCS)



C12 KONSTANTFARTHÄLLNINGSSYSTEM CRUISE CONTROL SYSTEM

Operation

The Cruise Control system consists of the following components:

- Sensor for speed transmitter 132 (in speedometer)
- Cruise Control selector 141
- Control unit 141 for Cruise Control
- Vacuum pump 187 for Cruise Control (with vacuum valve)
- Vacuum regulator (not shown in wiring diagram)
- Pedal switches 133 and 134

The Cruise Control system is switched in by means of selector 141. When this is set to ON, current is supplied to control unit terminal 9 from terminal 1 via pedal switches 133 and 134.

The vacuum pump and vacuum valve are supplied with battery voltage from control unit terminals 7 and 6. Earthing is via terminal 1 on the control unit. When the SET button is depressed, current will be supplied to terminal 3 of the control unit and the speed of the car will be sensed by speed transmitter 132. The speed is transmitted to the control unit and stored in its memory.

Vacuum 187 generates a vacuum in the vacuum regulator, corresponding to the selected speed. The vacuum regulator is connected by a chain to the accelerator linkage.

The speed of the car is continuously sensed and compared with the speed stored in the memory. In the event of a difference, the vacuum pump/valve will increase or decrease the vacuum in the regulator and the accelerator linkage will be reset.

When the vacuum pump is running, the vacuum in the regulator increases and the accelerator setting increases.

When the vacuum pump is not running and the vacuum valve is closed, the vacuum in the system remains constant.

When terminals 6 and 7 on the control unit are open (not energized), the vacuum pump will be stationary and the valve will be open, causing the vacuum in the regulator to drop. The accelerator setting will be reduced.

When the brake or clutch pedal is depressed, the voltage supply will be turned off by the corresponding pedal switch (133 or 134). At the same time, a valve in the pedal switches will open and eliminate the vacuum. The pedal switches thus turn off both the electrical and the vacuum systems.

Should a fault arise in either of the switches 133 and 134, the Cruise Control system will be switched out by brake light switch 29, since a positive voltage will be applied to terminal 5 of control unit 131 when the brakes are applied. The control unit memory is not erased, so that the selected speed can be resumed as soon as the brake pedal is released. This is done by pressing the selector to the RESUME position. Current will then be supplied to terminal 4 of the control unit.

A TIP position is provided between the ON and OFF positions of selector 141. When the selector is pressed to this position, the supply to terminal 9 of the control unit will be interrupted and the Cruise Control system will be switched out (the vacuum pump will stop and the vacuum valve will open). When the selector is released it will spring back to the ON position and current will again be supplied to terminal 9 of the control unit.

The selected speed can be resumed by pressing the selector to the RESUME position. Current will then be supplied to terminal 4 of the control unit.

Information in the memory of the control unit will be erased when the ignition is switched off.

Vacuum switch 233 is fitted to 2.0-litre Turbo cars equipped with a Cruise Control system. This switch is actuated by the vacuum pump via a hose. When the switch closes, control unit 343 will reduce pressure to the basic level via solenoid valve 179. This ensures smoother adjustment of the speed of the car.

Manual gearbox

The Cruise Control system is supplied with current from fuse 2.

Automatic transmission

The Cruise Control system is supplied with current from fuse 9 via switch 76. This means that the system will not be operative until the selector lever is in one of the drive positions.

Cars for the US and CA markets

Cars intended for these markets are equipped with a CRUISE indicator lamp (47U) which comes on when selector 141 is set to the ON position.

Fault-tracing hints

The Cruise Control system is activated by turning the ignition switch to the drive position.

ON position:

- 1 Check fuse 2 and also check that current reaches it (manual gearbox).
- 2 Check fuse 9 and also check that current reaches it and switch 76 (automatic transmission).
- 3 Check the voltage at terminal 4 of selector 141, the cable marked 600B and terminal 9 of control unit 131.
- 4 Check the voltage at terminal 1 of speed sensor 132.

A B set—position(spring-loaded)

- 1 Check the voltage at terminal 2 of the selector and at terminal 3 of the control unit.

RESUME position(spring-loaded)

- 1 Check the voltage at terminals 1 and 3 of the selector and at terminal 4 of the control unit.

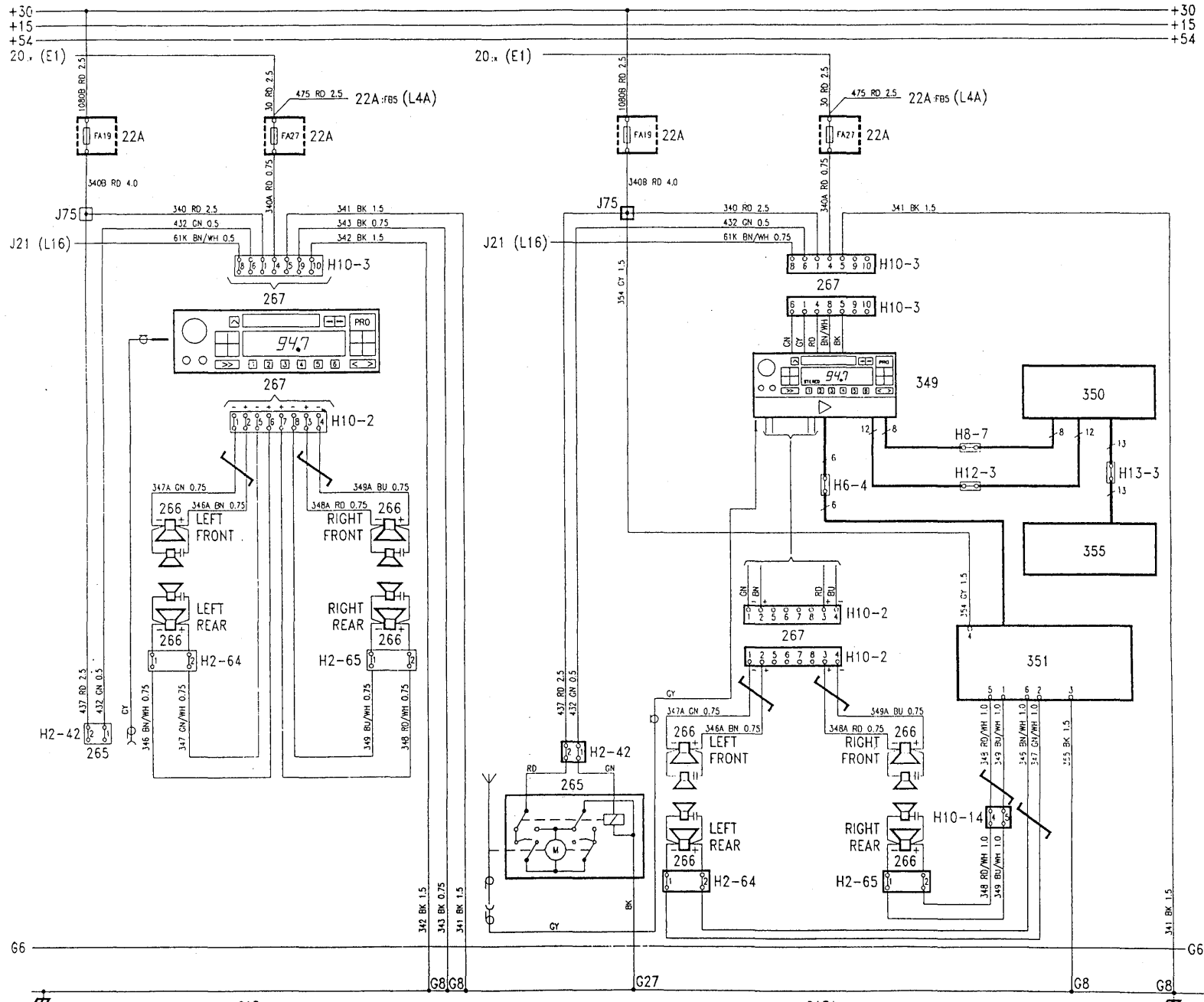
Vacuum pump, vacuum valve:

- 1 The vacuum pump can be tested by earthing pin 3 and applying a voltage to pin 2.
- 2 The vacuum valve can be tested by earthing pin 3 and applying a voltage to pin 1.

Vacuum hose

- 1 Check the vacuum hose for leakage (cracks), particularly close to the engine.

Radio installation, US and CA markets



C13
FÖRBEREDD RADIOINSTALLATION
PREPARED RADIO INSTALLATION

C13A
RADIOINSTALLATION USA
RADIO INSTALLATION USA

Operation

The fascia is equipped with a contact box 349 with radio and amplifier.

Some variants also have a contact box 350 for a CD player or equalizer mounted in the centre console.

An amplifier 351 for the rear speakers is installed under the passenger's seat. The front speakers are driven by the amplifier in the radio contact box.

The contact boxes for the radio, CD player/equalizer and amplifier under the passenger's seat are connected to each other by screened cables with DIN connectors.

An electrically operated aerial 265 is mounted in the luggage compartment on the left-hand side.

Some cars are equipped with a CD changer 355 installed in the luggage compartment.

Contact box for radio 349

In the bottom of the contact box are two blade fuses, 5 A and 10 A.

Amplifier 351

The amplifier is fitted with a 15 A blade fuse located between the connectors.

The amplifier has a fader switch with positions 1, 2 and 3.

1 = 900CV, 9000 4-door

2 = 900 3-door and 4-door

3 = 9000 5-door

Power supply

Connected to the upper 10-pin connector H10-3 shown in the wiring diagram are the following cables:

Red (pin 1) — positive supply via fuse 19 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 27. The radio is supplied with current when the ignition switch is in the parking or drive position.

Black (pin 5) — Earth

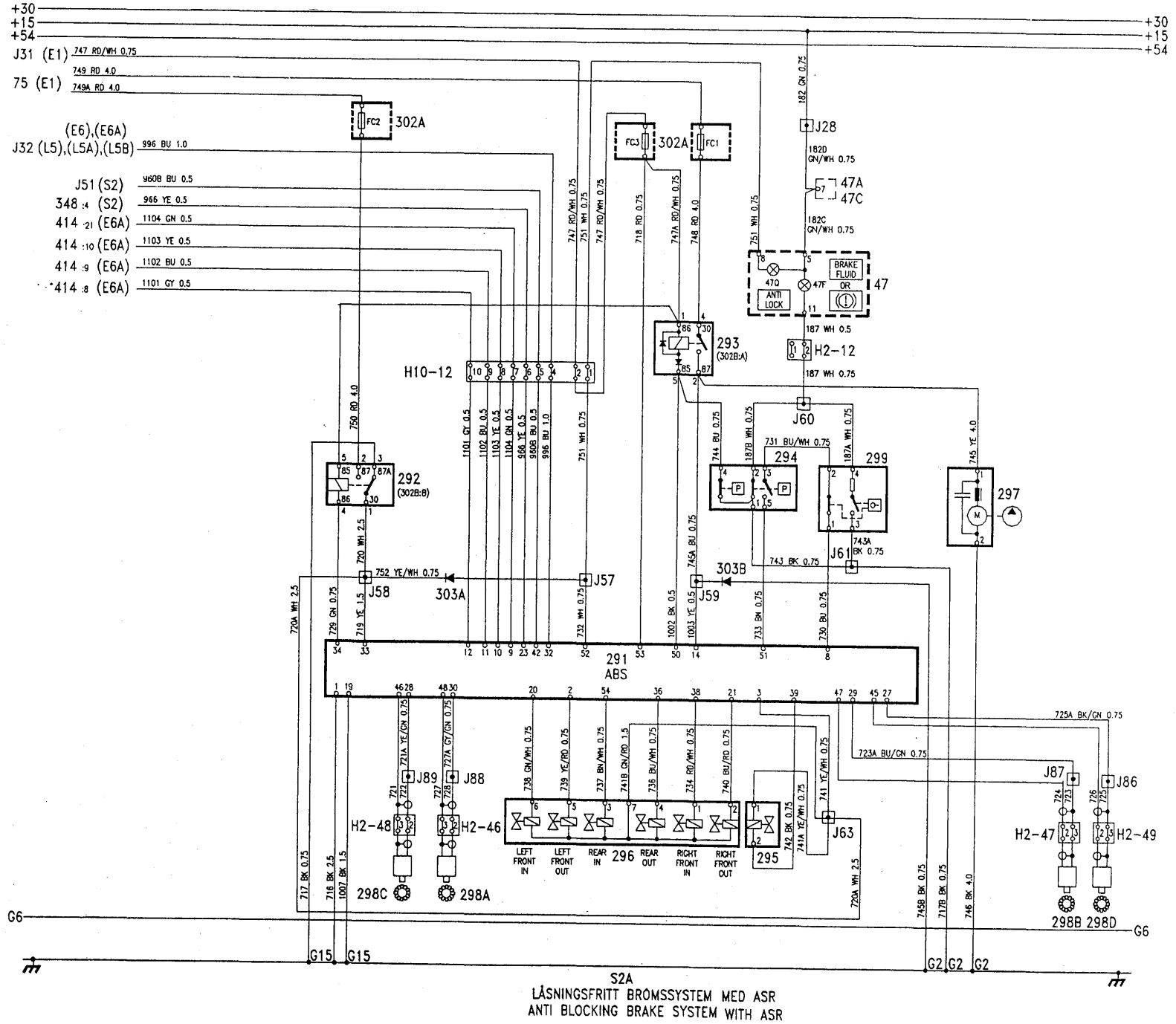
Green (pin 6) — control of the electrically operated aerial 265. The aerial motor is supplied with current via fuse 6.

Brown/white (pin 8) — Dial illumination. Current is taken from rheostat 16 which adjusts the intensity of lighting for the instruments and controls.

Fault-tracing hints

- 1 Check the voltage supply for the radio and the earth connections.
- 2 Check the fuses built into the radio contact box and amplifier.
- 3 Check the connectors.
- 4 Check the wiring harness for open circuits and short circuits to earth.

Anti-lock brakes (ABS) with ETS for automatic transmission



Operation

The brake system of cars equipped with the Anti-lock Brake System (ABS) is controlled and monitored electronically.

Only the electrical function of the system is described in this manual. The mechanical and hydraulic components are covered in Service Manual 5.2, ABS braking system.

From a sensor at each wheel of the car, the control unit receives information about the rotational speed of the wheels. If the wheels tend to lock, the control unit will regulate the braking effort - the pressure in the brake lines - by means of electric control valves. The braking effort on each front wheel is regulated individually, while that on the rear wheels is common to both.

The brake unit connected to the brake pedal does not use the vacuum in the engine manifold to provide the servo action. It is provided by an electrically driven hydraulic pump instead. The pressure is maintained at the required level by means of a pressure switch which controls the hydraulic pump motor.

The brake system is connected to two warning lamps on the fascia - one for the ABS system (ANTI LOCK) and one for the brakes. The latter is also fitted to cars without ABS. In cars for the US, CA and AU markets, the lamp is marked with the words BRAKE FLUID instead of the symbol.

The components of the ABS system receive current via fuses on relay and fuse board 302.

Control unit 291 is protected by the 10 A fuse. Main relay 292 and pump relay 293 are protected by the two 30 A fuses.

In addition, warning lamps 47Q and 47F are supplied with current (+15) via fuse 15 when the ignition switch is in the drive or starting position.

Power supply:

When the ignition switch is turned to the drive position, pin 53 of the control unit will be supplied with current (+54). The control unit is then earthed via pin 33 and main relay 292 is energized. The unit is thus supplied with current (+30) so that it can operate the control valves of the brake unit.

Operation of the warning lamps on starting

Every time the car is started, the brake system warning lamps light up so that the driver can see that they are OK. (How the warning lamps light up to indicate faults is covered in the section "Monitoring functions" below.

When the ignition switch is turned to the starting position, the +54 supply to main relay 292 will be cut off and the relay will release. This causes ABS warning lamp 47Q to be earthed to earthing point G15 via diode 303A and the relay contacts. Since the relay is always in the released state for at least 2 seconds when the engine is started, the lamp will light up during this time. (However, the lamp may remain on for up to 60 seconds until the correct hydraulic pressure has been reached.)

When the ignition switch is turned to the starting position it will pass through the test position. Brake fluid warning lamp 47F will then be earthed through ignition switch 20 and the lamp will light up.

Hydraulic pressure:

The brake unit accumulator is maintained at the correct pressure by a hydraulic pump, which is driven by motor 297 and controlled by warning lamp and pressure switch 294.

If the pressure is less than 140 bar when the car is started, contacts 4-1 will be closed. The coil of pump relay 293 is then earthed and motor 297 receives current via the relay contacts.

When the hydraulic pump has raised the pressure in the accumulator to 180 bar, the contacts will open and the motor will stop. When the pressure drops to 140 bar while the car is travelling, the contacts will close again and the pump will start. The pump requires 10-15 seconds to raise the pressure from 140 to 180 bar.

Brake light switch

Brake light switch 32 tells the control unit when braking takes place, causing the system to react faster.

Monitoring functions

For information about the operation of the lamps when the car is started, see above under "Operation of the warning lamps on starting".

Brake fluid warning lamp

Brake fluid warning lamp 47F lights up under the following conditions:

- If the level of the brake fluid drops to the MIN mark on the reservoir. The lamp is then earthed to earthing point G2 via contacts 4-3 of level switch 299.
- If the pressure in the brake unit accumulator is lower than 105 bar. The lamp is then earthed to earthing point G2 via contacts 2-1 of warning lamp and pressure switch 294. The contacts close at 105 bar and open at 134 bar (in this situation the ABS warning lamp also lights up).

Both contacts are open under normal operating conditions. Cars without ABS are also equipped with the brake fluid warning lamp, but it then only warns the driver that the level of the brake fluid in the reservoir is too low.

ABS warning lamp

The control unit monitors the operation of the ABS system and lights up the ABS ANTI LOCK warning lamp 47Q if a fault arises in the system. When this lamp is on, the ABS system is inoperative and the brakes work in the same way as a conventional brake system.

Since the lamp is earthed via pin 52 of control unit 291, it will light up if any of the following faults occurs:

- If the level of the brake fluid drops below the MIN mark on the reservoir. Contacts 1-2 of level switch 299 will open and break the circuit between pins 9 and 10 of the control unit. Contacts 3-5 of warning lamp and pressure switch 294 are closed under normal operating conditions (in this situation the brake fluid warning lamp also lights up).
- If the pressure in the brake unit accumulator is lower than 105 bar. Contacts 3-5 of warning lamp and pressure switch 294 will then open. Contacts 1-2 of level switch 299 are closed when the level of the brake fluid in the reservoir is correct. (The brake fluid warning lamp also lights up.)
- If the signal level from one of the wheel sensors 298 is too low.

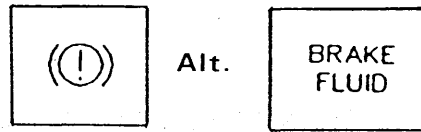
If one of the following faults arises, the lamp lights up because the control unit is no longer connected to earth via pin 33. Main relay 292 then releases and the lamp is earthed to earthing point G15 via the relay contacts.

- Open-circuit in the wiring (or a connector) for valve block 296, wheel sensors 298 or main valve 295.
- Fault in the control unit.

Summary of warning lamp indications

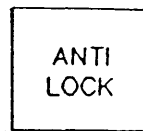
Brake fluid warning lamp lights up

Only the brake fluid warning lamp will light up if the level of the brake fluid in the reservoir has dropped slightly. Normal braking and the ABS system remain unaffected.



ABS warning lamp lights up

Only the ABS warning lamp will light up if the electronic control unit detects a fault in the ABS system. Normal braking power is still available but the ABS system is inoperative.



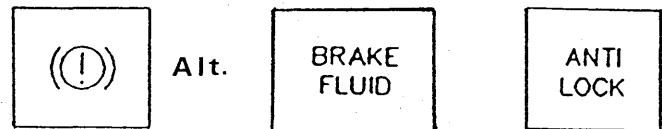
Brake fluid warning lamp and ABS warning lamp light up simultaneously

If both lamps are a light, it indicates that either the level of the brake fluid in the reservoir has dropped further or that the hydraulic pressure has dropped to below 105 bar (1,523 psi). This means that the ABS system is inoperative and only reduced braking power is available.

Joint activation due to low brake fluid level indicates that brake fluid is leaking out of the system. **Stop immediately and do not drive the car any further until it has been repaired.**

Joint activation due to low hydraulic pressure indicates that the servo action and brake pressure at the rear wheels are not in proportion to the pedal pressure.

Finally, when hydraulic pressure is zero, there will be no servo action and no brake pressure at the rear wheels. The front-wheel brake will operate normally, although without power assistance.



Fault tracing

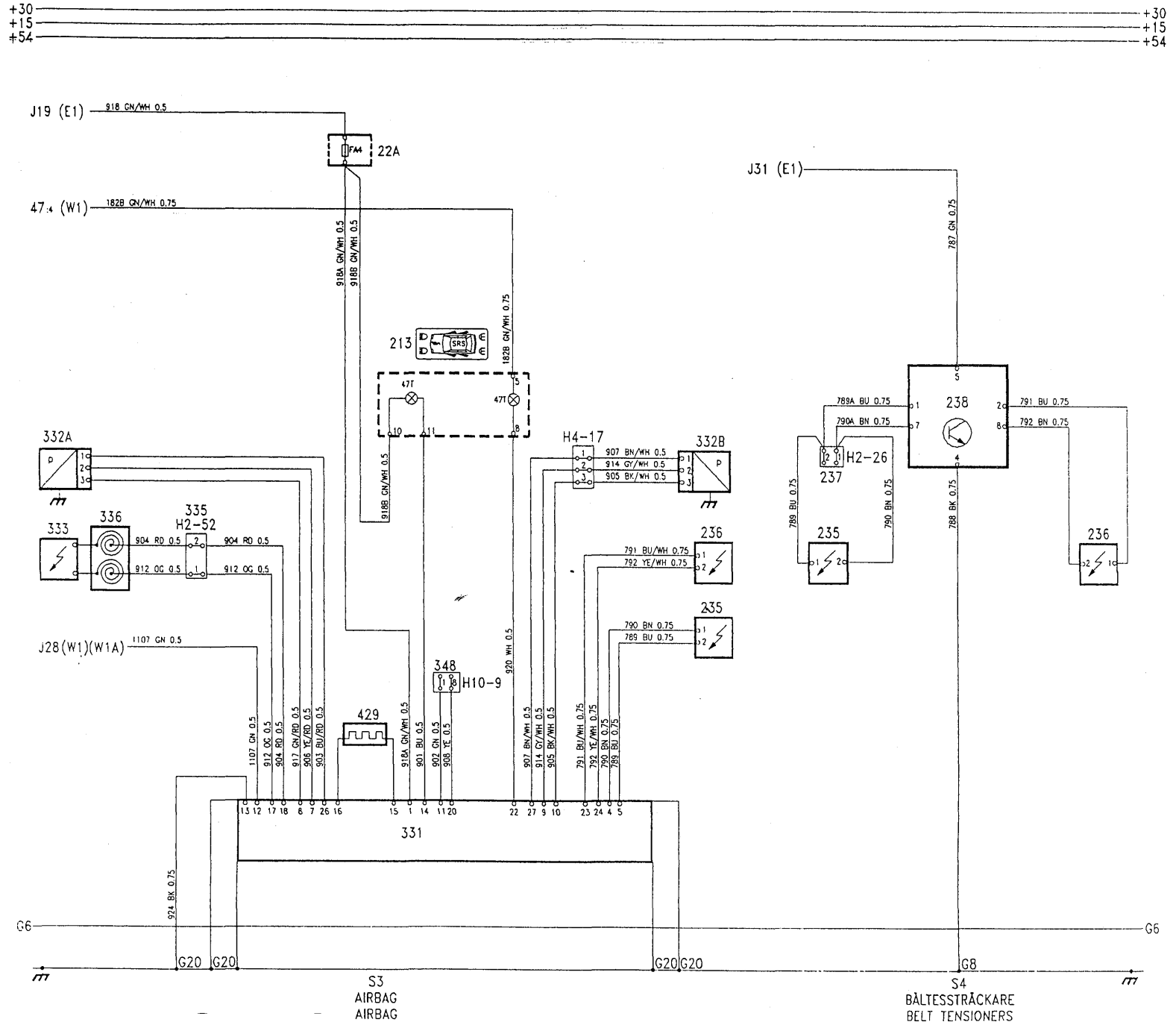
Fault diagnosis using the ISAT

For fault codes, see the "Brakes" section.

Test data:

Component	Reading	Remarks
298 Wheel sensor	800-1400 ohm min. 0.1 V~	reading when wheel is rotating at 1 rev/s
295 Main valve	2-5 ohm	
296 Inlet valve	5-7 ohm	IFL, IFR, IR
296 Outlet valve	3-5 ohm	OFL, OFR, OR
299 Brake fluid level switch		
Pins 1-2	10 ohm	switch closed, float at bottom
Pins 3-4	1 ohm	switch closed, float at top

Airbag



Operation

On cars equipped with an airbag, the steering wheel pad is marked SRS (Supplemental Restraint System).

The system consists of two front sensors, a safety sensor, an electronic unit and a steering wheel pad containing a gas generator and the airbag.

The system is activated when at least one of the two front sensors and the safety sensor are subjected to a retardation force equivalent to a frontal collision at about 20 km/h.

Front sensor

The sensor consists of a contact roller. Spring pressure holds the roller in a position of rest. When the roller is subjected to a force in excess of 16 g, it will roll forwards and make contact to close a circuit. Mounting of the front sensor is directionally dependent and it must therefore be installed facing the right way.

Electronic unit

The electronic unit contains a safety sensor, a capacitor pack and the diagnostic unit. Mounting of the unit is directionally dependent and it must therefore be installed facing the right way.

Steering wheel pad (Airbag module)

The steering wheel pad contains gas generators and the airbag.

Gas generator

The gas generator consists of a centre compartment and two annular compartments.

The centre compartment contains an electric detonator and an explosive charge and is in communication with the inner annular compartment.

Seatbelt tensioner

The seatbelt tensioner tensions the two front seatbelts when the system is activated.

SRS warning lamp

For safety reasons the pictogram has two SRS warning lamps 47T connected to separate fuses.

When the ignition switch is turned to the starting or drive position, one of the lamps (connected to pins 10 and 11 in the pictogram) lights up as a function check.

Voltage supply

For reasons of safety, the electronic unit is supplied with current from two sources so that it will still work even if one of the current supplies fails.

When the ignition switch is turned to the starting or drive position, the main voltage (+15) is supplied via fuse 4 to pin 1 of electronic unit 331 and redundant voltage via fuse 13 to pin 12 of electronic unit 331.

It takes about 10 seconds to charge the capacitor pack and render the system operative.

The capacitor pack serves as a power source for activation of the steering wheel pad and seatbelt tensioner.

Activation of the airbag and seatbelt tensioner

For the airbag and seatbelt tensioners to be activated, one of the front sensors and the safety sensor in the electronic unit must sense the retardation (front sensor at least 16 g, safety sensor at least 2 g) which arises in a collision.

The contacts in each sensor will then close and the capacitor pack in the electronic unit will discharge, sending a current pulse to the electric detonators in the airbag and seatbelt tensioners.

Earthing

Do not connect earth cables of other systems to the retaining screws of the front sensors and electronic unit, as doing so may cause disturbances in the system and give rise to fault indications from the diagnostic unit.

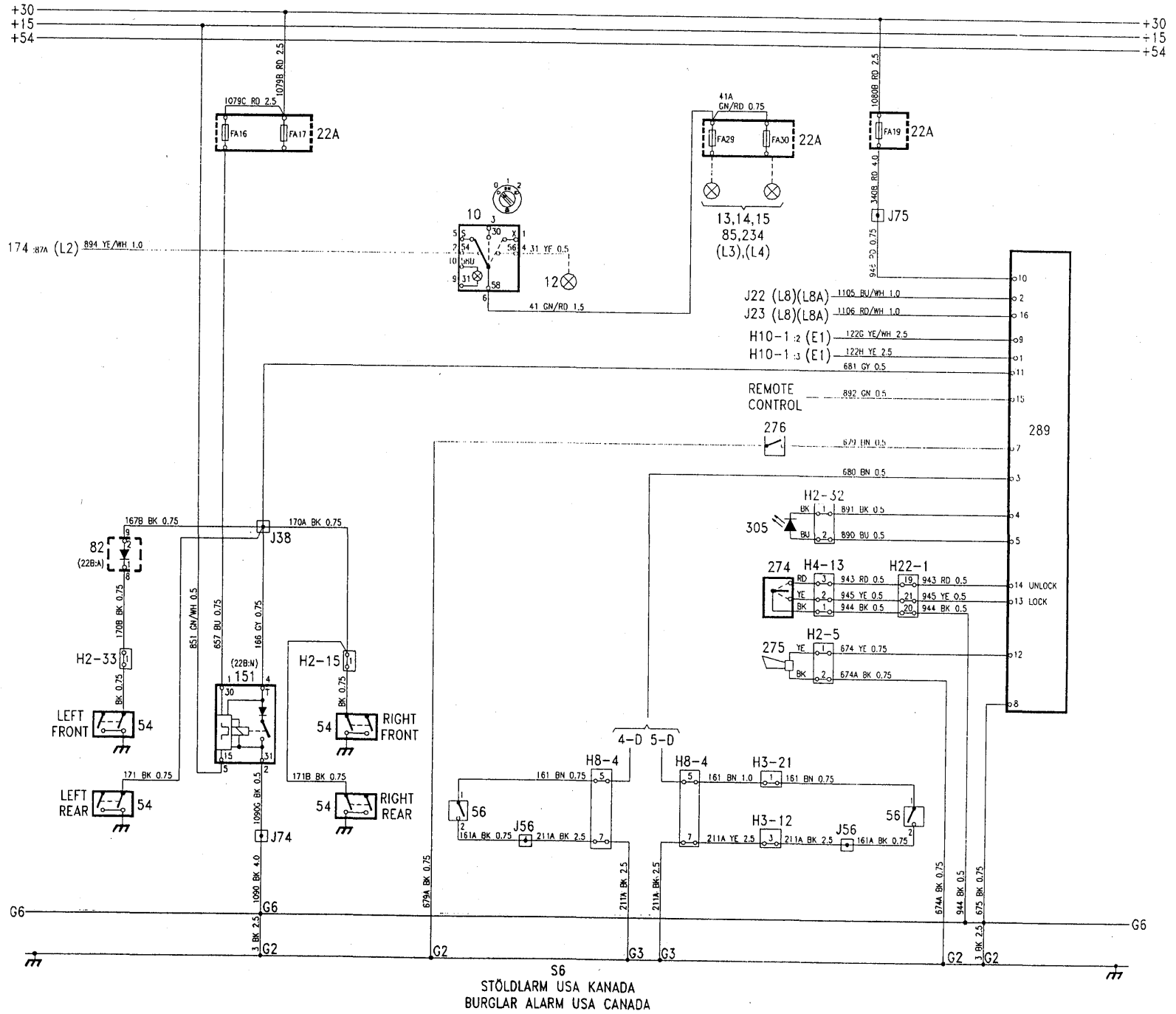
Fault-tracing

For fault tracing information, refer to 9000 Service Manual, sec. 8:6, Airbag 1992-.

Diagnostic unit

The diagnostic unit continuously monitors the system. Should a system fault arise, it will be indicated by the SRS lamp in the pictogram in the instrument panel lighting up. One lamp will shine with a steady light and the other lamp will flash. Five minutes later both lamps will shine with a steady light until the ignition is switched off.

Anti-theft alarm



Operation

New for M1992

The standard anti-theft alarm on the 9000 has been changed for M1992 as follows:

- The ECU incorporates an EEPROM so the sensitivity setting is not altered if power is interrupted.
- The system does not revert to transport mode if power is interrupted.
- The procedure for entering transport mode has changed.
- The alarm will now chirp each time the car is locked if the motion detector is disabled (either temporarily or permanently disabled).

Cars for the US market are equipped with a factory-fitted anti-theft alarm which is activated by a micro-switch (274) in the lock of the driver's door. The anti-theft alarm is deactivated when the door is unlocked.

Electronic unit 289 is supplied with current (+30) from fuse 19 via pin 10, regardless of the position of the ignition switch.

When the car is locked, activation of the anti-theft alarm will be delayed for 10 seconds (after the interior lighting goes out). Doors, hood or trunk can be opened during this period of time without activating the alarm. The delay cycle (10 seconds) starts when the last door, etc. has been closed.

When the anti-theft alarm is activated, it will be set off if any of the following switches closes:

- Door switches 54 connected to pin 11.
 - Luggage compartment switch 56 connected to pin 3.
 - Hood switch 276 connected to pin 7.
- In addition, the alarm will be set off if the motion detector in the electronic unit is triggered. This will occur if the car is subjected to jolts blows, vibration and the like.

When the alarm is triggered:

The LED in the left-hand speaker grille will start flashing at the rate of 2 flashes per second. The starter motor will be rendered inoperative if a door, hood, luggage compartment switch or motion detector has set off the alarm. The starting inhibitor relay in electronic unit 289 will operate and disconnect the starter motor for 0-15 minutes. The motion detector is disconnected while the starting inhibitor relay operates.

Positive voltage will be applied to pin 12 for siren 275 and pins 2 and 16 for the direction indicators. The siren sounds and the direction indicators flash for 50-60 seconds once every two seconds.

The alarm cycle will be repeated five times (at intervals of 15-seconds) if the switch that set off the alarm is not reset.

Alarm status (setting) is indicated by an LED (305) located by the left- hand speaker grille.

Anti-theft alarm status (setting)

LED

Status	LED
0 (no current)	extinguished
1 (disarmed)	extinguished
2 (armed)	1 flash/ s
3 (alarm triggered)	2 flashes/ s
5 (alarm disconnected, transport mode)	1 flash/ 4 s
7 (programming mode)	1 flash/ 2 s
8 (sensitivity test)	2 flashes/ s
9 (diagnostic mode)	steady light

Note:

If the alarm is put into an unwanted condition by mistake, such as if the starter motor is blocked or the alarm disconnected, it is **always** possible to return to the deactivated state by turning the key in the driver's door from neutral to the unlocked position three times in two seconds.

If the power supply for the alarm is cut off when it is in status 1, 2 or 3, it will return to the same status when power is restored.

If the alarm is in status 5, 7, 8 or 9 when the power supply is cut off, it will return to status 5 when power is restored.

Connection of the alarm, deactivated state

Turn the key in the driver's door from neutral to unlock three times in two seconds. This deactivates the alarm and the LED will go out.

This can always be done regardless of the status of the alarm.

Disconnection of the alarm, transport mode

- Make sure the alarm is in the deactivated state.
- Open the hood or trunk.
- Open a door.
- The driver's door must be closed.
- Turn the key in the driver's door from neutral to unlock and hold it in this position for at least 10 seconds.
- Then turn the key to the neutral position and wait five seconds. The LED will flash once.
- Now turn the key from the neutral position to the unlocked position twice within five seconds.

The alarm is now disconnected, ie in transport mode, and the LED flashes once every four seconds (for five minutes, then it goes out).

The transport mode can be used if the car is to be towed or transported, when it can be locked but the alarm need not be activated.

Temporary disconnection of the motion detector

If necessary (such as when using a car-ferry), the motion detector can be disconnected while the other alarm switches remain activated.

- Make sure the alarm is in the deactivated state.
- Lock the driver's door and hold the key in the locked position for at least three seconds until the siren sounds once. The motion detector is now disconnected but the alarm is activated.
- When the driver's door is later unlocked and re-locked, the motion detector is connected to the alarm again.

Permanent disconnection of the motion detector

If necessary, the motion detector can be disconnected permanently.

- Make sure that the alarm is in transport mode.
- Make sure that the hood and trunk are closed.
- Turn the key in the driver's door to the unlocked position and hold it there for about 10 seconds until the siren sounds and the direction indicators light up for one second. The LED will now start to flash once every two seconds.
- Open the hood or trunk **within 10 seconds**. The motion detector is now permanently disconnected and the LED flashes once every four seconds.

Turn the key in the driver's door to the unlocked position three times in two seconds. This deactivates the alarm and the LED goes out.

- Every time the car is locked the siren sounds once as a reminder that the motion detector is disconnected.

Reconnection of the motion detector

- Make sure that the alarm is in transport mode.
- Close the hood and trunk.
- Turn the key in the driver's door to the unlocked position and hold it there for about 10 seconds until the siren sounds and the direction indicators light up for one second. The motion detector is now reconnected and the LED starts to flash once every two seconds.
- Wait 10 seconds and the LED will start to flash twice per second.
- Turn the key in the driver's door to the unlocked position twice in two seconds. The LED will now flash once every four seconds.
- Turn the key in the driver's door to the unlocked position three times in two seconds. This deactivates the alarm and the LED goes out.

Setting the sensitivity of the motion detector

The sensitivity of the motion detector can be increased or decreased by 13 steps from the preprogrammed setting.

Note:

At the highest and lowest sensitivity settings the siren will sound and the direction indicators light up for one second. The programmed sensitivity will not change if the power supply for the alarm is cut off.

- Make sure the alarm is in transport mode.
- Make sure the hood and trunk are closed.
- Turn the key in the driver's door to the unlocked position and hold it there for about 10 seconds until the siren sounds and the direction indicators light up for one second. The LED will now start to flash once every two seconds.
- Ten seconds later the LED will start to flash twice per second.

To decrease sensitivity: Turn the key in the driver's door to the locked position and back to the neutral position and wait at least two seconds. This decreases sensitivity by one step. Sensitivity can be tested by striking a window or rearview mirror, for example. If this sets off the alarm, the siren will sound and the direction indicators light up for one second. Repeat until the desired sensitivity is obtained.

To increase sensitivity: Turn the key in the driver's door to the unlocked position and back to the neutral position and wait at least two seconds. This increases sensitivity by one step. Test the sensitivity as described above. Repeat until the desired sensitivity is obtained.

- When the desired sensitivity has been set, turn the key in the driver's door quickly to the unlocked position twice in succession. The motion detector is now connected at the programmed sensitivity and the LED will start to flash once every four seconds.
- Turn the key in the driver's door to the unlocked position three times in two seconds. This deactivates the alarm and the LED goes out.

Returning to preprogrammed sensitivity

Turn the key to the unlocked position three times in two seconds.

Checking alarm operation

Preparations:

- Make sure the alarm is in transport mode.
- Open the hood or trunk and close the doors.
- Turn the key in the driver's door to the unlocked position and hold it there for at least five seconds until the LED lights up and shines with a steady light. The alarm is now in diagnostic mode and the starter motor disconnected.

Note:

Three minutes later the alarm will automatically go into transport mode. To continue the alarm check, begin again from the point above.

Checking the motion detector:

- Jolt the car or strike the windscreen. The siren should sound twice and the direction indicators flash three times. This can only be done once each time the alarm is in diagnostic mode.

Door lock switch:

- Lock the driver's door. The direction indicators should flash three times. Unlock the door.

Door switches:

- Open one of the doors. The interior lighting comes on and the direction indicators should flash three times.

Close the door. The interior lighting goes out and the direction indicators should flash three times.

- Test the other switches - doors, hood and trunk - in the same way.

Note:

Do not open the doors until the interior lighting has gone out (about 15 seconds).

Starting inhibitor:

- Turn the ignition switch to the starting position. The starter motor should not be engaged. Three minutes later the alarm will automatically go into transport mode and the LED will start to flash once every four seconds.
- Turn the key in the driver's door to the unlocked position three times in two seconds. This deactivates the alarm and the LED goes out.

Remote control

The anti-theft alarm is prepared for operation by remote control. Cable 892 GN connected to pin 15 is intended for this purpose.

Fault-tracing hints

Difficulty experienced in changing the alarm from one status to another, such as when setting the sensitivity of the motion detector, might be due to poor electrical contact in the hood—or door switches.

- 1 Check that fuse 19 is intact.
- 2 Check that the alarm is in the correct status by watching the LED.
- 3 Check the alarm functions. See status 9 (diagnostic mode).
- 4 Check that the power supply reaches electronic unit 289 (terminals 8 and 10).
- 5 Check the connectors, wiring and earth connections.

In regard to fault-tracing on the direction indicators, refer to the "Direction indicators" section.

List of components

Numerical index

1	Battery	47R	Indicator lamp, washer fluid level
2	Alternator	47T	Airbag warning lamp
4	Starter motor	47U	Indicator lamp, Cruise Control, US, CA
5	Ignition coil	47V	Indicator lamp, headlamps, GB, IT
6	Distributor	47X	Indicator lamp TCS CTRL
8	Lighting relay	47Y	TCS warning lamp (Anti-spinn)
10	Light switch	48	Cigarette lighter
11	Full beam filament	49	Clock
12	Dipped beam filament	50	Roof lamp, centre
13	Parking lights	51	Roof lamp, front
14	Rear lights	53	Interior lighting switch
15	Number plate illumination	54	Door switches, interior lighting
16	Instrument lighting rheostat	55	Luggage compartment light
18	Instrument lighting	56	Luggage compartment light switch
19	Glove compartment light	61	Windscreen wiper stalk switch
20	Ignition switch	61A	Rear window wiper switch
21	Ignition switch relay	62	Windscreen wiper motor
22	Electrical distribution box, glove compartment	62A	Rear window wiper motor
22A	Fuse holder, glove compartment	63	Washer motor
22B	Relay holder, glove compartment	64	Heating pad
23	Flasher relay	66	Headlamp wiper motor, not for US: 5-D
24	Direction indicator stalk switch	68	Horn relay
25	Hazard flasher switch	69	Front passenger seat switch for seat belt warning lamp, not for US
27	Direction indicator lamps, left-hand	70	Seat belt switch, driver's side
28	Direction indicator lamps, right-hand	71	Seat belt switch, front seat passenger's side
29	Brake light switch	72	Seat-belt warning lamp
30	Brake lamps	73	Timing Service Instrument socket
31	Reversing light switch	74	Ventilation fan resistor
32	Reversing lamps	75	Distribution block, positive supply from battery
33	Rear fog light, SE, FI, EU, GB	76	Switch for raising the idling speed, automatic transmission
35	Ventilation fan selector switch	77	Start inhibitor switch, automatic transmission
36	Ventilation fan motor, AC	78	Dim dipped beam relay together with full beam, CS
37	Radiator fan motor	80	Dim dipped beam resistor, CS
38	Recirculation valve motor	81	Relay, two-speed radiator fan, US, ME, FE, AU
40	Horn	82	Seat belt/ignition switch warning relay, US, CA, ME, FE (LHD)
41	Horn switch	83	Relay for intermittent windscreen wiper operation
42	Brake warning switch	85	Extra fog lights, US, CA
43	Handbrake switch	87	Engine compartment light and switch
44	Oil pressure transmitter	88	Switch for extra fog lights
45	Coolant temperature transmitter	89	Side direction indicator, left-hand
46	Fuel level transmitter	90	Side direction indicator, right-hand
47	Main instrument panel	91	Gear indicating light
47A	Fuel level gauge	94	Cold starting valve, LH 2.4 I16λ, LH 2.4.2 I16
47B	Fuel reserve warning lamp	102	Fuel pump relay
47C	Coolant temperature gauge	107	Relay for extra fog lights
47D	Oil pressure warning lamp, in pictogram	109	High-level brake light
47E	Charging indicator lamp	110	Tachometer
47F	Brake warning lamp	111	Electronic speedometer
47G	Full beam indicator lamp	112	Electronic speedometer transmitter
47H	Indicator lamp, left-hand direction indicator	113	Relay for electrically heated rear window
47I	Indicator lamp, left-hand direction indicator	115	Electrically heated rear window
47J	Indicator lamp, rear window heater	116	Switch for electrically heated rear window
47K	Indicator lamp, SHIFT UP	118	Corner lights
47L	EXH warning lamp (prepared)		
47M	Indicator lamp, handbrake		
47N	Indicator lamp, rear fog light		
47O	CHECK ENGINE warning lamp		
47Q	ABS/ ABS-TCS warning lamp		

119	Side reversing light	202	Engine temperature transmitter (NTC resistor), LH fuel injection system
124	Switch for electrically operated rear-view mirror	203	Throttle angle transmitter, LH fuel injection system, not ETS
125	Left/right selector switch for electrically operated rear-view mirrors	204	Test socket, LH fuel injection system
126	Motor for left-hand electrically operated rear-view mirror	205	Air mass meter, LH fuel injection system
127	Motor for right-hand electrically operated rear-view mirror	206	Fuel injection valves, LH fuel injection system
131	Control unit for the Cruise Control system	207	Electrically heated rear-view mirrors
132	Speed transmitter	208	Door indication
133	Clutch switch for the Cruise Control system	209	Courtesy lights
134	Brake switch for the Cruise Control system	210	EDU trip computer (voltmeter, fuel consumption instrument)
136	Lambda sensor	213A	Central lamp in pictogram
141	Selector for the Cruise Control system	213B	Rear lights indication, pictogram
143	Recirculation switch, AC	213C	Front lights indication, pictogram
145	Test socket, EZK	213D	Right-hand rear door indication, pictogram
146	Amplifier for the electronic ignition system, TZ	213E	Left-hand rear door indication, pictogram
148	Ashtray illumination, front cigarette lighter	213F	Right-hand front door indication, pictogram
149	Main switch for ventilation fan	213G	Left-hand front door indication, pictogram
151	Time delay relay for interior lighting	213H	Oil pressure warning lamp (47D), pictogram
153	Lighting, centre console, rear ashtray	213I	Airbag warning lamp (47T), pictogram
154	Lighting for heater controls	213J	Luggage compartment lid indication, pictogram
155	Relay for the AC radiator fan	215	Dip switch
156	Time delay relay for the AC and ACC radiator fan	216	Climate control unit, ACC
157	Spark plug	217	Air mixture temperature transmitter, ACC
159	Distribution terminal, +15	218	Interior temperature transmitter, ACC
160	Glove compartment light switch	219	Suction fan, interior temperature transmitter, ACC
161	Rear fog light switch, SE, FI, EU, GB	220	Speed control, ventilation fan, ACC
164	Motor for electric window lift, left-hand front door	221	Air distribution damper motor, ACC
165	Motor for electric window lift, right-hand front door	222	Temperature control damper motor, ACC
166	Pressure switch for the AC and ACC radiator fan	223	Sun transmitter, ACC
169	Switch, AC	224	Seat-belt lock illumination
170	Compressor, AC and ACC	225	Reading lamp
171	Anti-freeze thermostat (cycling clutch switch), AC and ACC	226	Passenger's lamp
172	Radiator fan, AC and ACC	228A	Filament monitor, glove compartment
174	Relay for daylight driving lights, US, CA	228B	Filament monitor, engine compartment
175	Control unit for the central locking system	229	Main relay, LH fuel injection system
176	Control unit, EZK ignition system	230	Distribution terminal, +30
178	Knock sensor, EZK/DI-APC system	231	Distribution terminal, +54
179	Solenoid valve, DI-APC system	232	Stepping relay, electrically operated sunroof
182	Motor for the electrically operated sunroof	233	Vacuum switch, Cruise Control, Turbo DI-APC LH 2.4, ej ETS
183	Selector switch for the central locking system, driver's door	234	Side marker lights, US, CA
184	Motor for the right-hand front door lock	235	Seat-belt tensioner, left-hand
185	Motor for the right-hand rear door lock	236	Seat-belt tensioner, right-hand
186	Motor for the left-hand rear door lock	237	Test connector, seat-belt tensioner
187	Vacuum pump for the Cruise Control system	238	Control unit, seat-belt tensioners
188	Motor for the luggage compartment lock	239	Gear selector switch, automatic
190A	Switch for electric window lift, left-hand rear door	240	Electronic unit, instrument lighting rheostat
191A	Switch for electric window lift, right-hand rear door	241	Trip computer, SCC
193	Motor for electric window lift, left-hand rear door	242	Coolant level switch, EDU
194	Motor for electric window lift, right-hand rear door	243	Engine oil level switch, EDU
195	Level switch, washer fluid	244	Connector, heater, SCC
198	Motor, ACC recirculation damper	245	Selector lever switch, automatic, EDU
199	Motor, ACC ventilation fan	247	Fan, left-hand rear door, ACC
200	Control unit for the LH fuel injection system	248	Fan, right-hand rear door, ACC
		252	Rheostat for heating pad, driver's seat
		253	Heating pad rheostat, passenger's seat
		254	Heating pad temperature transmitter, driver's seat
		255	Heating pad thermostat, passenger's seat
		256	Buzzer, speed warning

258	Connector, trailer lighting	353	Radio/cassette player
265	Connection, electrically operated aerial	354	Amplifier
266	Connection, loudspeaker	355	CD changer US, CA
267	Connections, radio	356	Control unit, speed warning
269	Two-pole connector	357	Switch for left-hand electrically operated seat
271	Preheater, Lambda sensor	357A	Fore-and-aft adjustment motor for electrically operated seat, left-hand
272	Idling speed adjustment motor, LH fuel injection system, not ETS	357B	Front height adjustment motor for electrically operated seat, left-hand
274	Microswitch in driver's door, burglar alarm, US, CA	357C	Rear height adjustment motor for electrically operated seat, left-hand
275	Siren, anti-theft alarm, US, CA	357D	Backrest rake adjustment motor for electrically operated seat, left-hand
276	Hood switch, anti-theft alarm, US, CA	357E	Sensor, fore-and-aft adjustment, electrically operated seat with memory, left-hand
280	Headlamp beam control motor, left-hand, EU, GB	357F	Sensor, front height adjustment, electrically operated seat with memory, left-hand
281	Headlamp beam control motor, right-hand, EU, GB	357G	Sensor, rear height adjustment, electrically operated seat with memory, left-hand
282	Headlamp beam control switch, EU, GB	357H	Sensor, backrest rake adjustment, electrically operated seat with memory, left-hand
286	Outdoor temperature sensor, EDU/SCC	357J	Switch, electrically operated seat with memory, left-hand
289	Connection, anti-theft alarm control unit, US, CA	357K	Control unit, electrically operated seat with memory, left-hand
291	Control unit, ABS system	358	Switch for right-hand electrically operated seat
292	Main relay, ABS, TC/ABS system	358A	Fore-and-aft adjustment motor for electrically operated seat, right-hand
293	Pump relay, ABS, TC/ABS	358B	Front height adjustment motor for electrically operated seat, right-hand
294	Pressure switch, ABS, TC/ABS	358C	Rear height adjustment motor for electrically operated seat, right-hand
295	Main valve, ABS, TC/ABS	358D	Backrest rake adjustment motor for electrically operated seat, right-hand
296	Valve block, ABS, TC/ABS	358E	Sensor, fore-and-aft adjustment, electrically operated seat with memory, right-hand
297	Hydraulic pump motor, ABS, TC/ABS	358F	Sensor, front height adjustment, electrically operated seat with memory, right-hand
298A	Wheel sensor, left-hand front, ABS, TC/ABS	358G	Sensor, rear height adjustment, electrically operated seat with memory, right-hand
298B	Wheel sensor, right-hand front, ABS, TC/ABS	358H	Sensor, backrest rake adjustment, electrically operated seat with memory, right-hand
298C	Wheel sensor, left-hand rear, ABS, TC/ABS	358J	Switch, electrically operated seat with memory, right-hand
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G5	Earthing point, rear seat
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G7	Earthing point, engine
G8	Earthing point, instrument panel
G14	Earthing point, left-hand front seat member
G15	Earthing point, electronic unit, ABS, TC/ABS at TSI connector
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G29	Earthing point, right-hand rear lamp cluster

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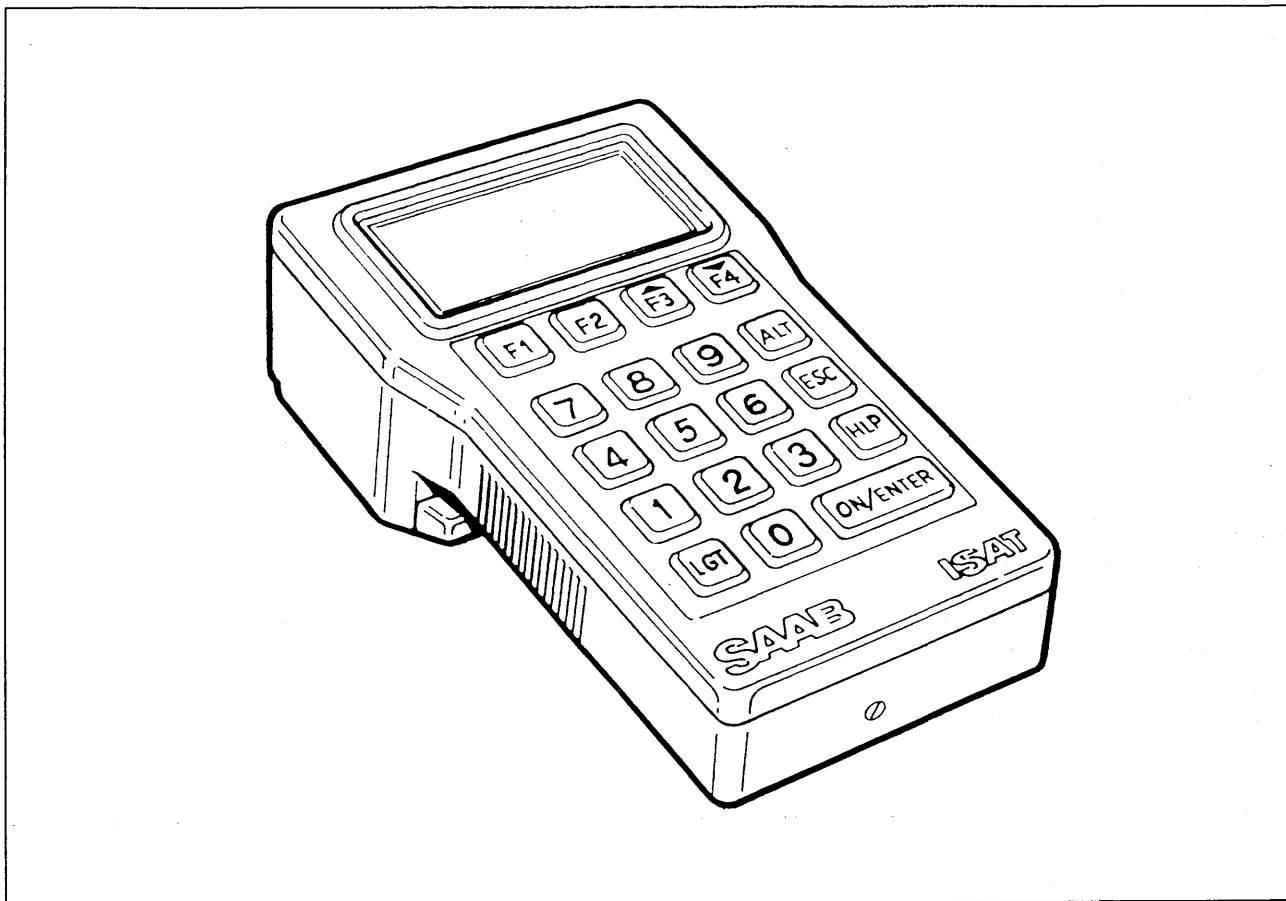
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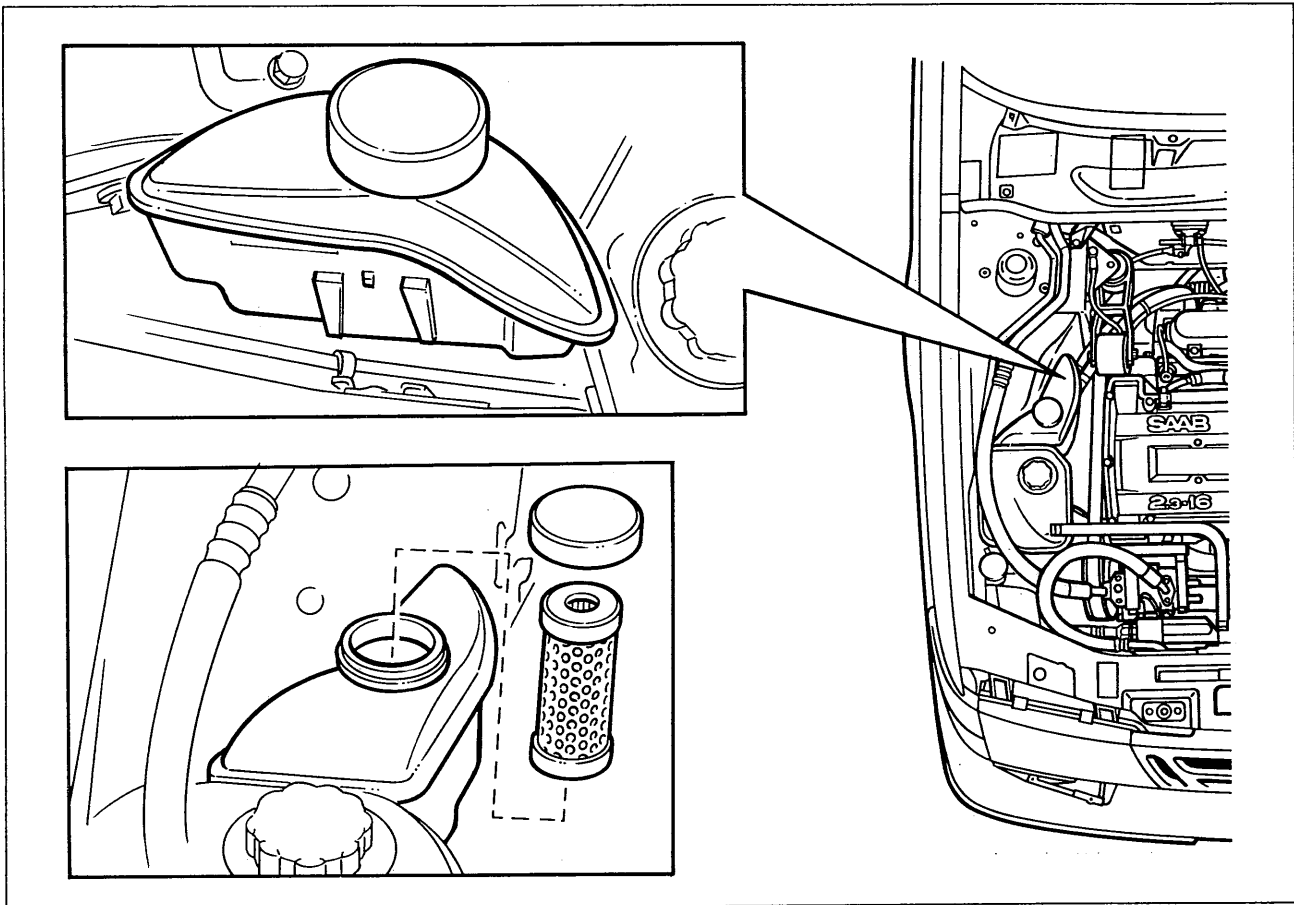
Brakes



The ABS system has not changed for M1992 except that diagnosis and fault tracing are performed using ISAT instead of the ABS Tester (this applies only to the 9000).

Refer to the combined Training/Service Manual 2:5, Tractrion Control System, for complete information.

Front assembly, steering



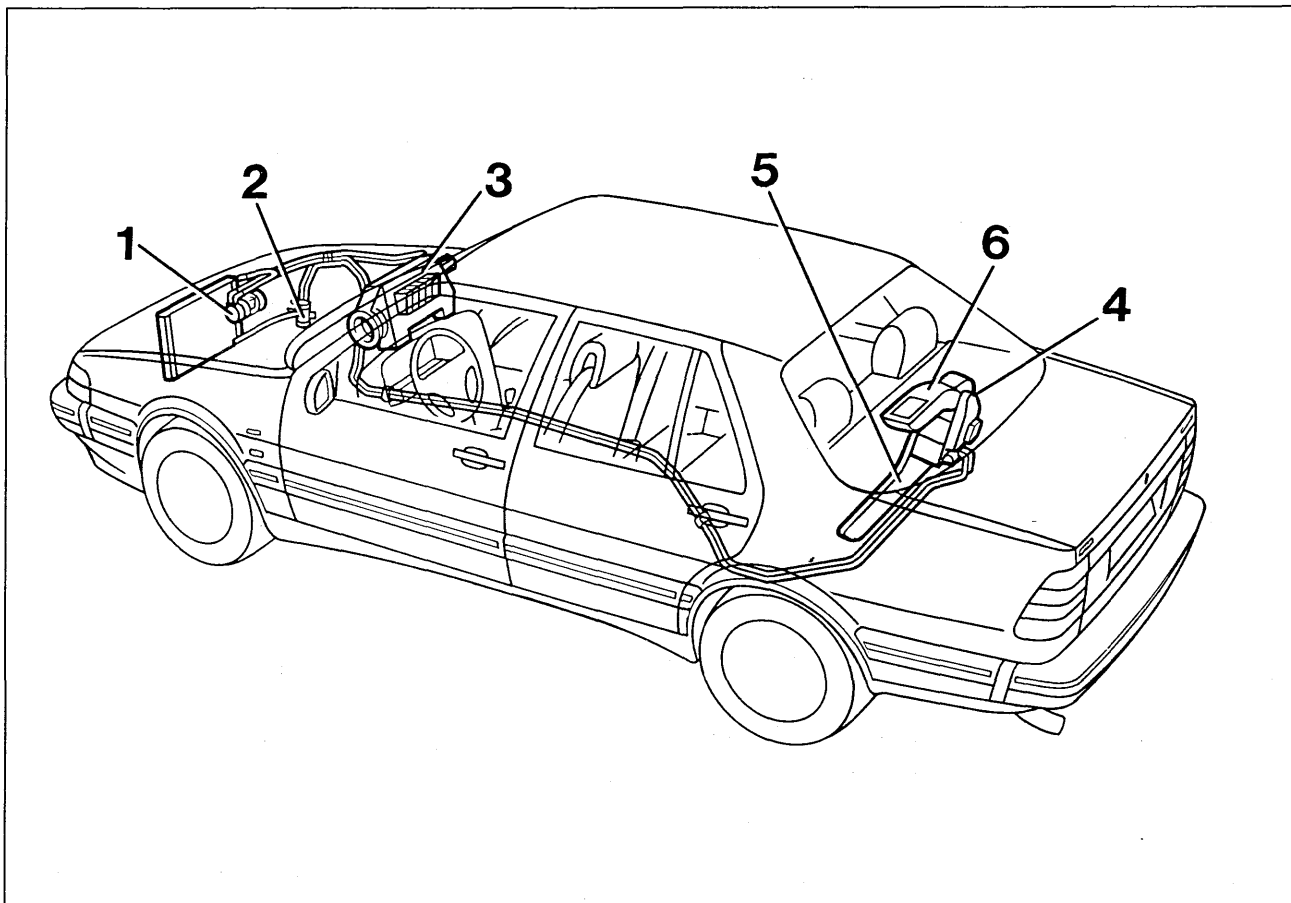
Power steering fluid reservoir

The power steering fluid reservoir is no longer bolted directly to the wheel arch. It is now mounted on a bracket which is bolted to the wheel arch. This makes the hydraulic fluid reservoir easier to remove and refit.

The reservoir is also equipped with a filter to reduce the risk of dirt entering the hydraulic fluid and being carried round the steering gear with it. This filter must be changed each time work is carried out on the power steering system or when any component in the system is changed.

Body

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- 1 Compressor
- 2 Drying agent container
- 3 Front evaporator casing
- 4 Rear evaporator casing with fan
- 5 Air intake
- 6 Air outlet

Rear AC

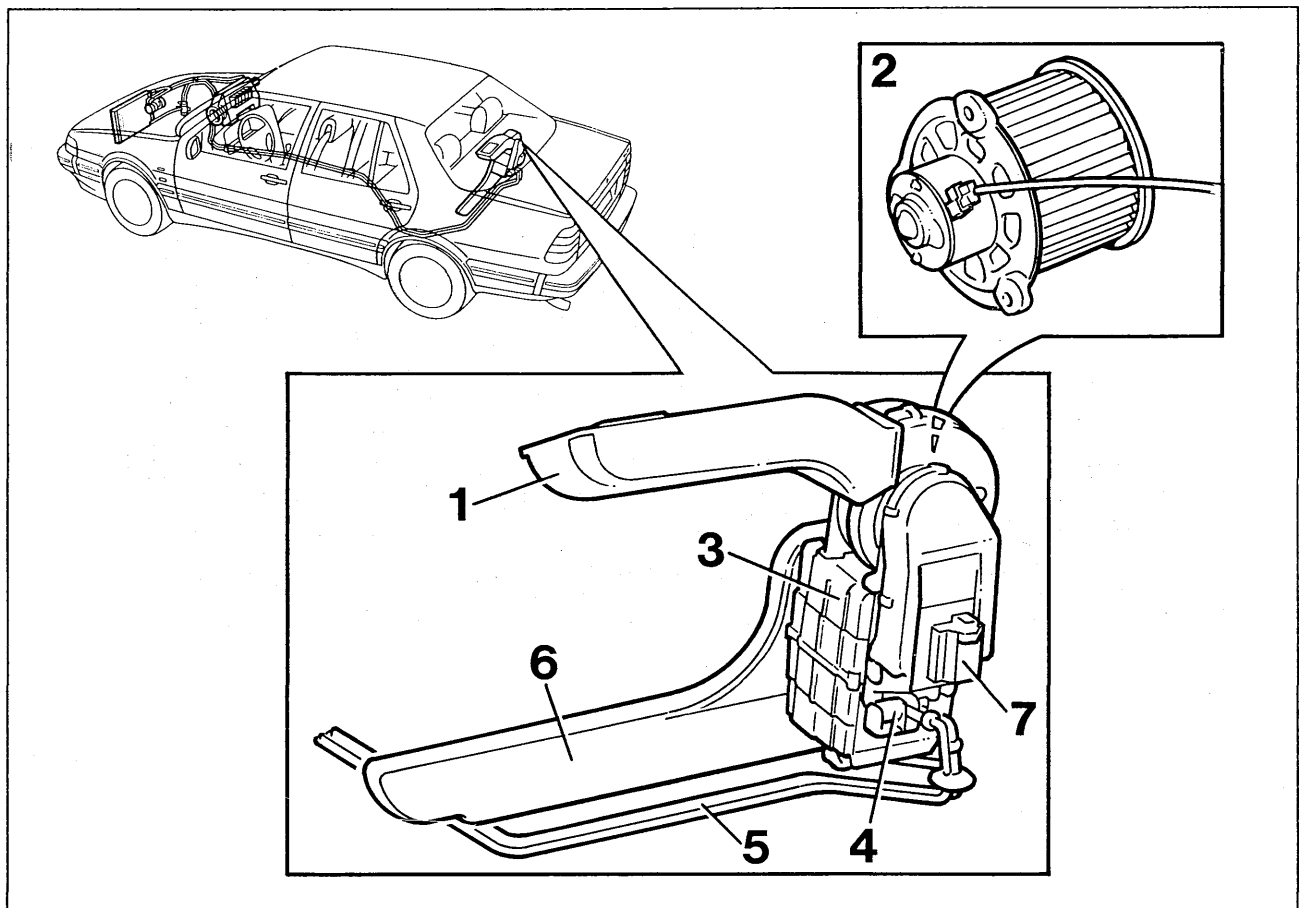
A rear AC (air conditioning) system is offered as a factory-fitted option for the Saab 9000 CD with ACC and R12 refrigerant.

The rear AC system complements the regular AC system. Cooled air is not only admitted to the cabin through the vents in the instrument panel but also through an air outlet in the parcel shelf. This ensures more efficient cooling of the cabin while the ventilation fan can run at a much slower speed, with less noise inside the car as a result.

In addition, cooling of the cabin will be much more uniform than before owing to the air outlet in the parcel shelf. The driver and front-seat passenger no

longer have to sit in a draught from the front panel vents but can now enjoy rapid and simultaneous cooling of the entire cabin

Note, however, the unsuitability of directing the vents in the centre of the instrument panel diagonally upwards when the rear AC is in operation. The two air currents will then meet at roof level and create a draught which the driver and front-seat passenger will feel on the back of their heads.



- 1 Air outlet
- 2 Fan
- 3 Evaporator
- 4 Solenoid valve
- 5 Refrigerant pipe
- 6 Air intake
- 7 Fan control unit

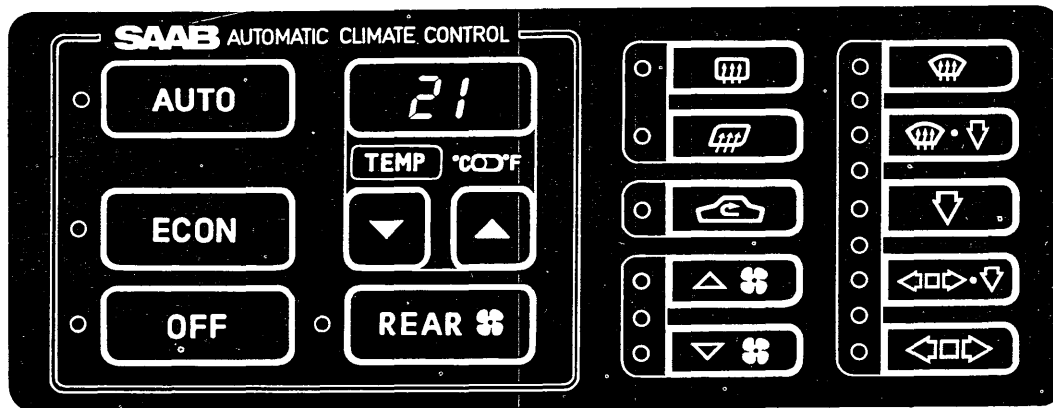
Operation

A rear evaporator with fan mounted in the luggage compartment sucks in air via an air intake under the rear seat. The air is cooled and discharged through the air outlet in the parcel shelf. Refrigerant is carried to and from the rear evaporator in two insulated pipes under the car. A solenoid valve on the rear evaporator ensures that the oil returns to the compressor when the rear AC unit is not in operation. Otherwise the oil could remain in the pipes under the car with compressor breakdown as a possible result. The solenoid valve also prevents circulation of refrigerant.

The compressor and condenser are the same as before but larger amounts of refrigerant and compressor oil are used. On cars with rear AC the correct amount of refrigerant is 1,350 grammes while the correct amount of compressor oil is 200 ml.

Note:

To keep down the number of stock parts, only compressors filled with 135 ml of oil are supplied as spare parts. The compressor must accordingly be topped up with oil before it is mounted in a car with rear AC.



Control

The rear AC is controlled by the ACC (Automatic Climate Control) system. It is turned on and off according to the outside temperature, cabin temperature and sunlight intensity.

When the ACC system's electronic unit automatically turns the rear AC on, the diode by the "REAR" button on the ACC control panel lights up.

Pressing "REAR" will turn off the rear AC unit. The ACC will continue to display "AUTO" and function as an ACC system with the front AC only. Pressing the "REAR" button once more will turn the rear AC on again, if the electronic unit considers it necessary in order to attain the selected temperature.

As before, fan speed can be increased or reduced at will. If the rear AC is in operation, the speed of the front and rear fans will change simultaneously. If the rear AC is not in operation, only the speed of the front fan will change.

If "REAR" and one of the buttons for increasing or reducing fan speed are pressed simultaneously, the speed of the rear fan only will be increased or reduced. It will be fixed at the speed of the fan at the moment the buttons are released. Only the front fan will be controlled automatically. Further manual adjustment of fan speed will affect only the front fan. As before, changing back from manual selection to automatic control is accomplished by pressing the "AUTO" button.

The rear AC unit can be turned on even if the electronic unit considers it unnecessary. Simultaneously pressing "REAR" and the button for increasing fan speed will cause the rear fan to start. The solenoid valve will open at the same time so that refrigerant is admitted to the evaporator. The anti-frost thermostat then determines whether or not the compressor is to start working, which will have the effect of putting the rear air conditioning unit into operation.

Performance testing

- Doors and windows should be closed.
- Engine speed should be 1,500-2,000 rpm.
- All panel vents should be open.
- The "LO" position on the ACC unit should be selected.

(Front fan at maximum speed, distribution flap in the VENT position and air recirculation on.)

- Rear fan at maximum speed.

Simultaneously press "REAR" and the button for increasing fan speed and keep them depressed for at least 15 seconds.

- Measure the temperature 100 mm inside the centre panel vent. Take a reading after five minutes.
- Then measure the temperature 50 mm inside the rear air outlet in the parcel shelf. Take a reading after five minutes.

The temperature readings should be between 6°C and 12°C. The difference between turn-on and turn-off should be 1.5-4°C.

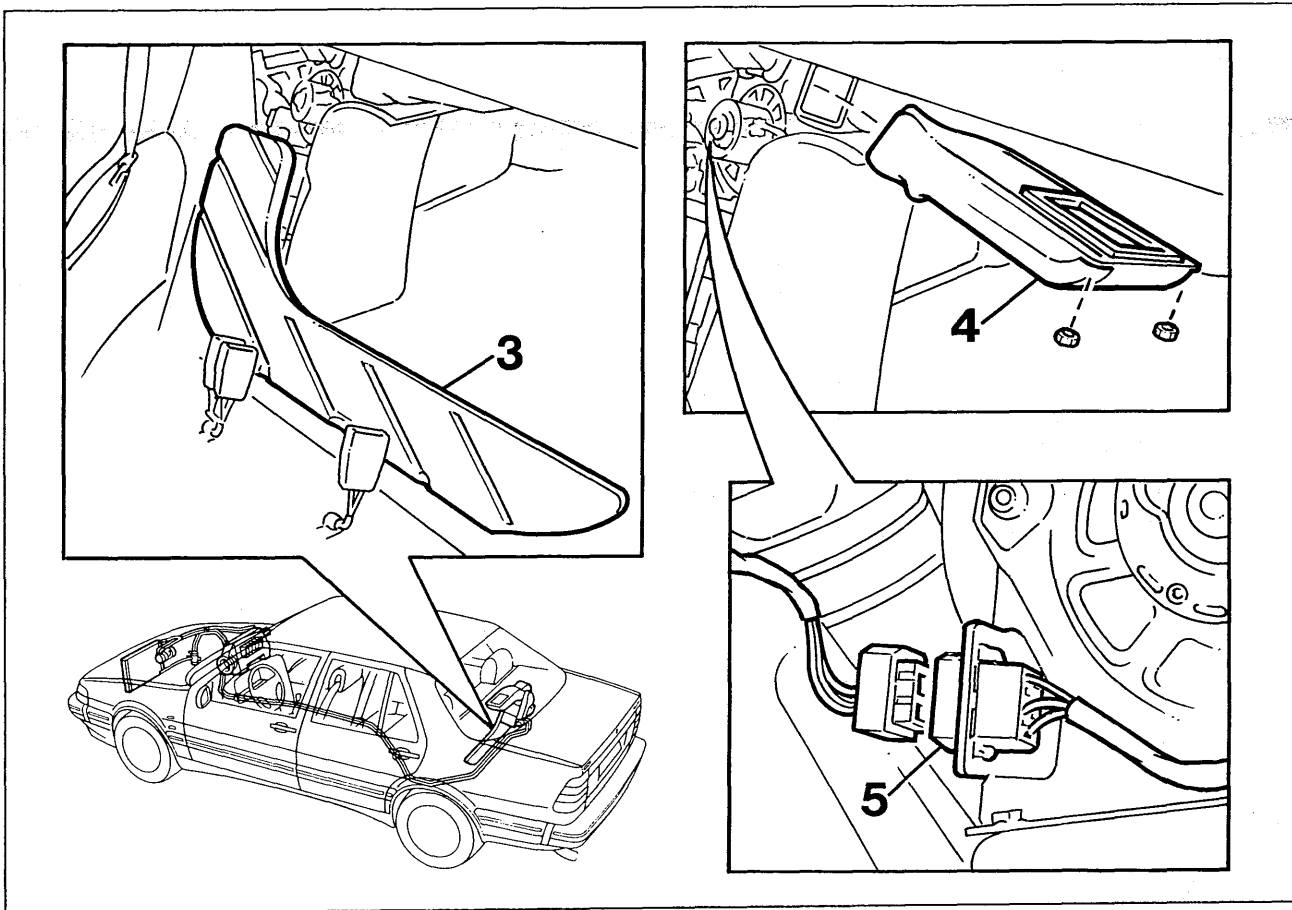
Command code

On account of the rear AC system, fault tracing on ACC 2 (Automatic Climate Control generation 2) is augmented by an additional command code.

Command code	Description
22B	Shows the control signal for the rear fan speed control, 0-5 V

Fault tracing

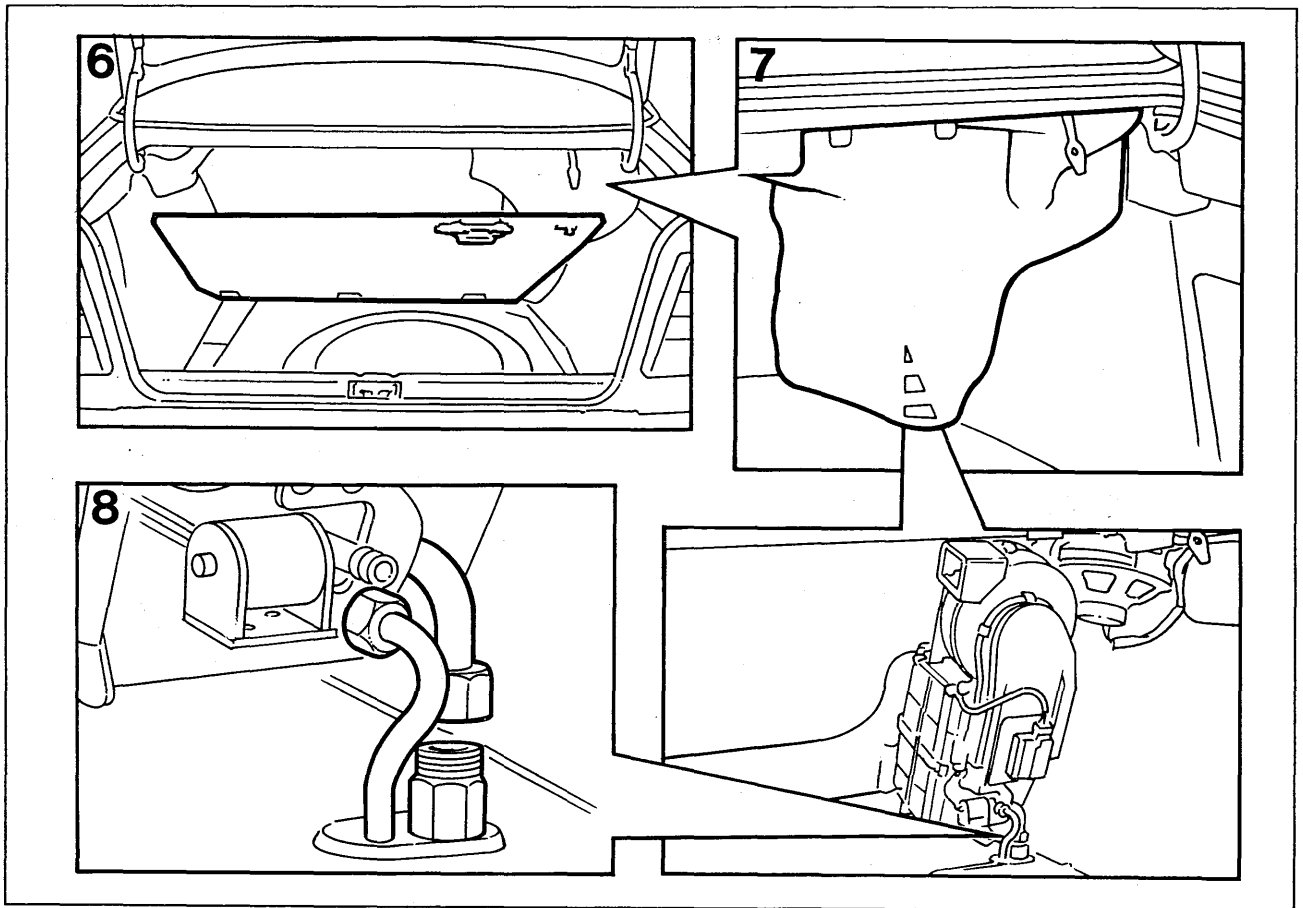
Fault tracing on the rear AC is in the course of preparation and will be presented in the autumn.



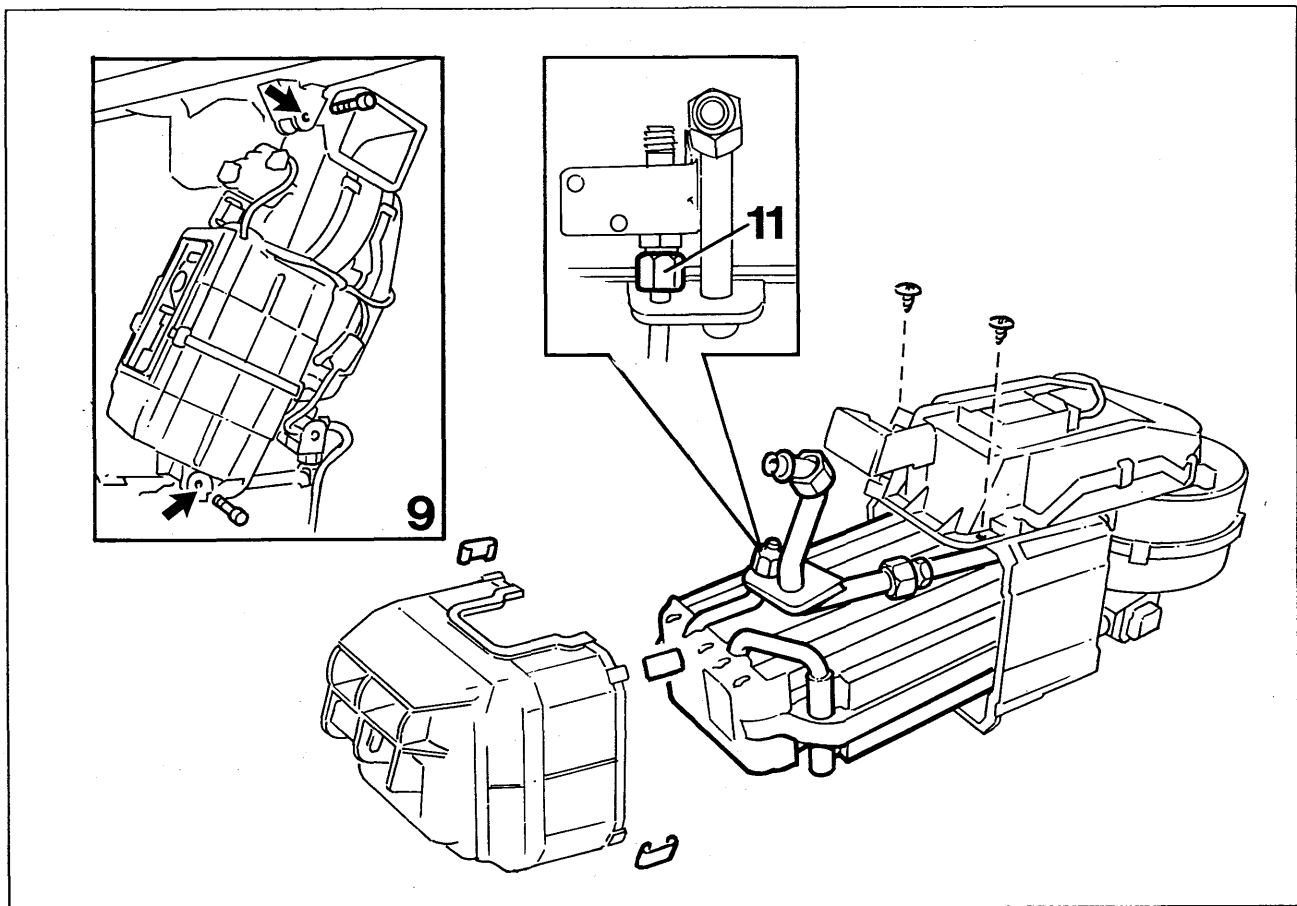
Rear evaporator

Removal

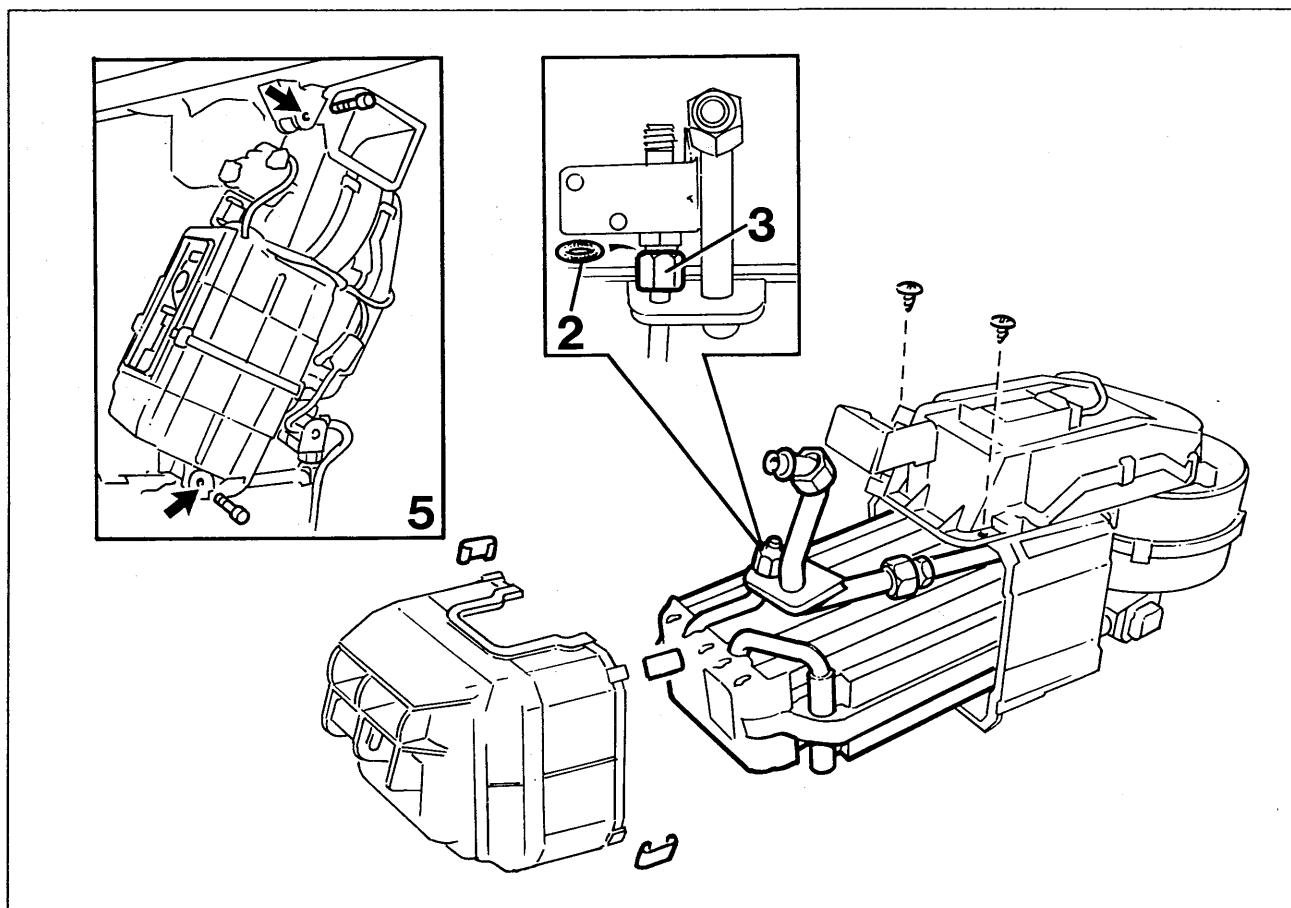
- 1 Purge the AC system of refrigerant.
- 2 Remove the seat backrest.
- 3 Remove the air intake.
- 4 Remove the air outlet duct.
- 5 Unplug the connector.



- 6 Remove the luggage compartment floor.
- 7 Remove the trim round the evaporator casing.
- 8 Undo the two refrigerant pipe connections. Use a holder-on.



- 9 Remove the two evaporator casing retaining bolts.
- 10 Remove the two screws and four clips securing the lower part of the evaporator casing.
- 11 Undo the connection to the solenoid valve.
- 12 Withdraw the evaporator from the evaporator casing.

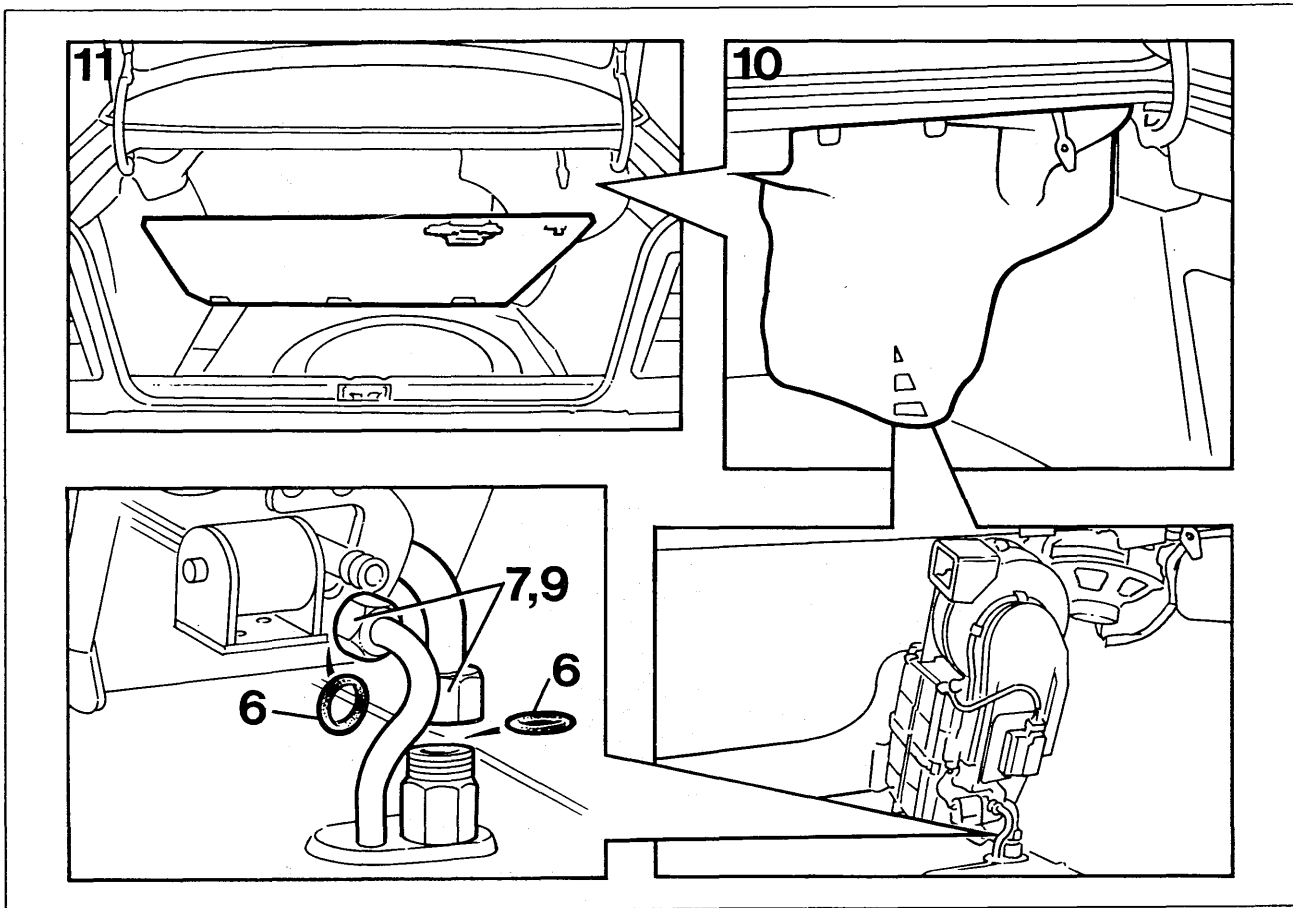


Fitting

- 1 Fit the evaporator in place in the evaporator casing.
- 2 Fit a new O-ring on the solenoid valve connection. Lubricate the O-ring with compressor oil.
- 3 Screw the connection together.

**Tightening torque: 10-18 Nm
(7.4-13.3 lbf ft)**

- 4 Fit the lower part of the evaporator casing in place. Press on the four clips and tighten the two screws.
- 5 Position the evaporator casing in the car without tightening the retaining bolts. Insert the end of the drain hose through the hole in the floor.



6 Fit new O-rings on the AC pipes. Lubricate the O-rings with compressor oil.

7 Join the pipe fittings together.

8 Tighten the evaporator casing retaining bolts.

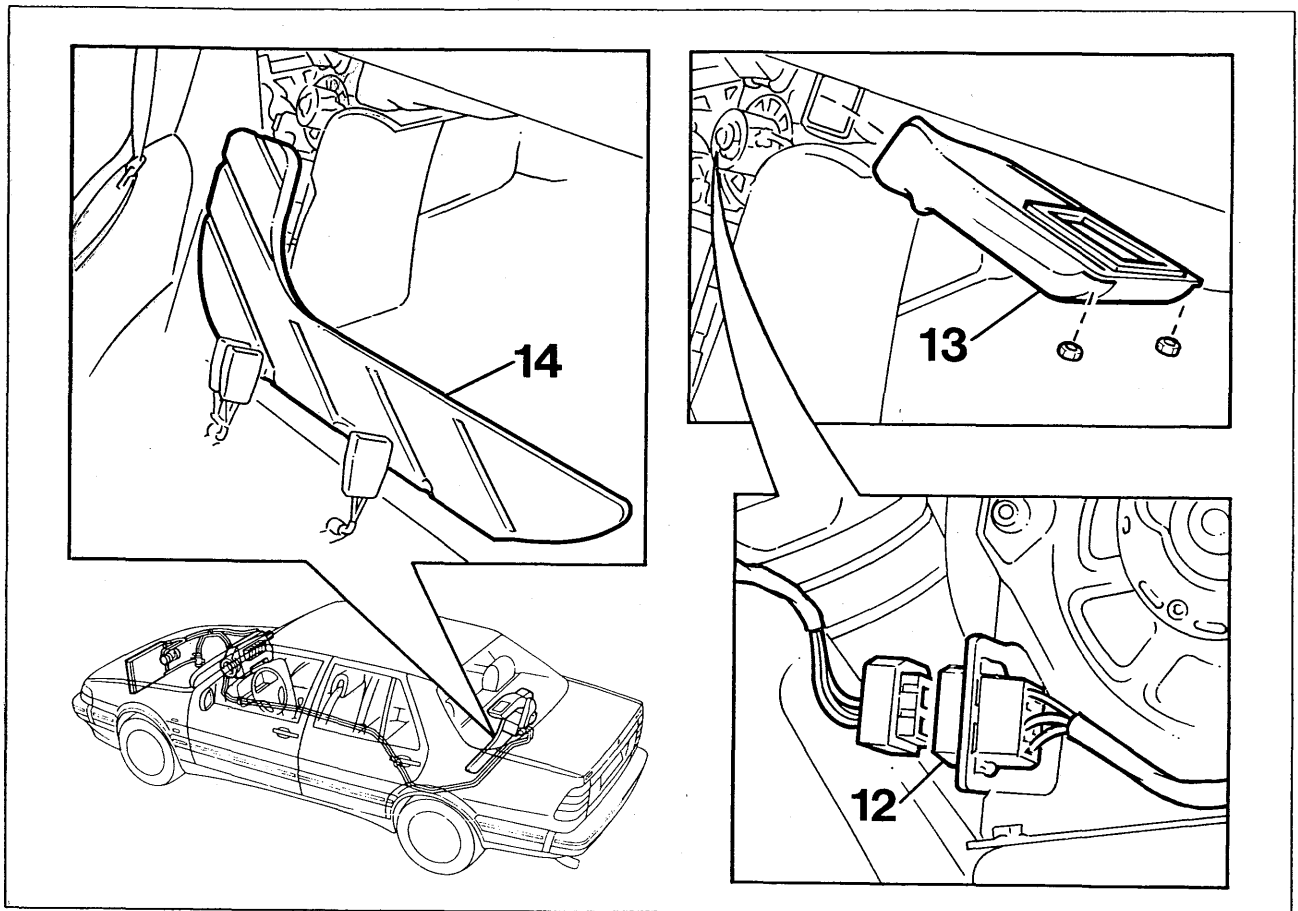
9 Tighten the AC pipe connections, Use a holder-on.

**Tightening torque, pressure pipe: 8-18 Nm
(5.9-13.3 lbf ft)**

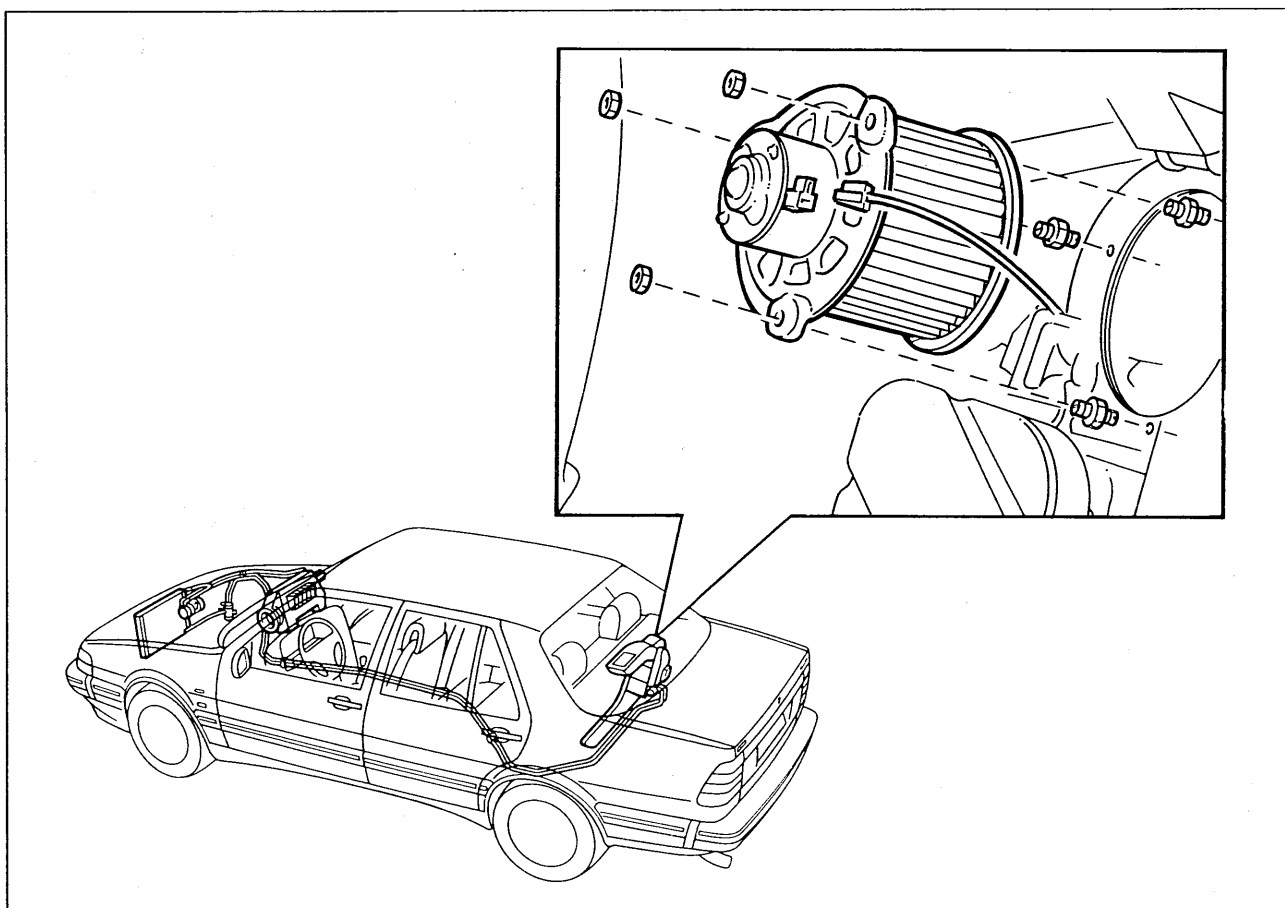
**Tightening torque, suction pipe: 20-40 Nm
(14.8-29.5 lbf ft)**

10 Fit the trim back in place round the evaporator casing.

11 Fit the luggage compartment floor back in place.



- 12 Plug in the connector.
- 13 Fit the air outlet duct back in place.
- 14 Fit the air outlet back in place.
- 15 Fit the seatback in place.
- 16 Charge the system with refrigerant.



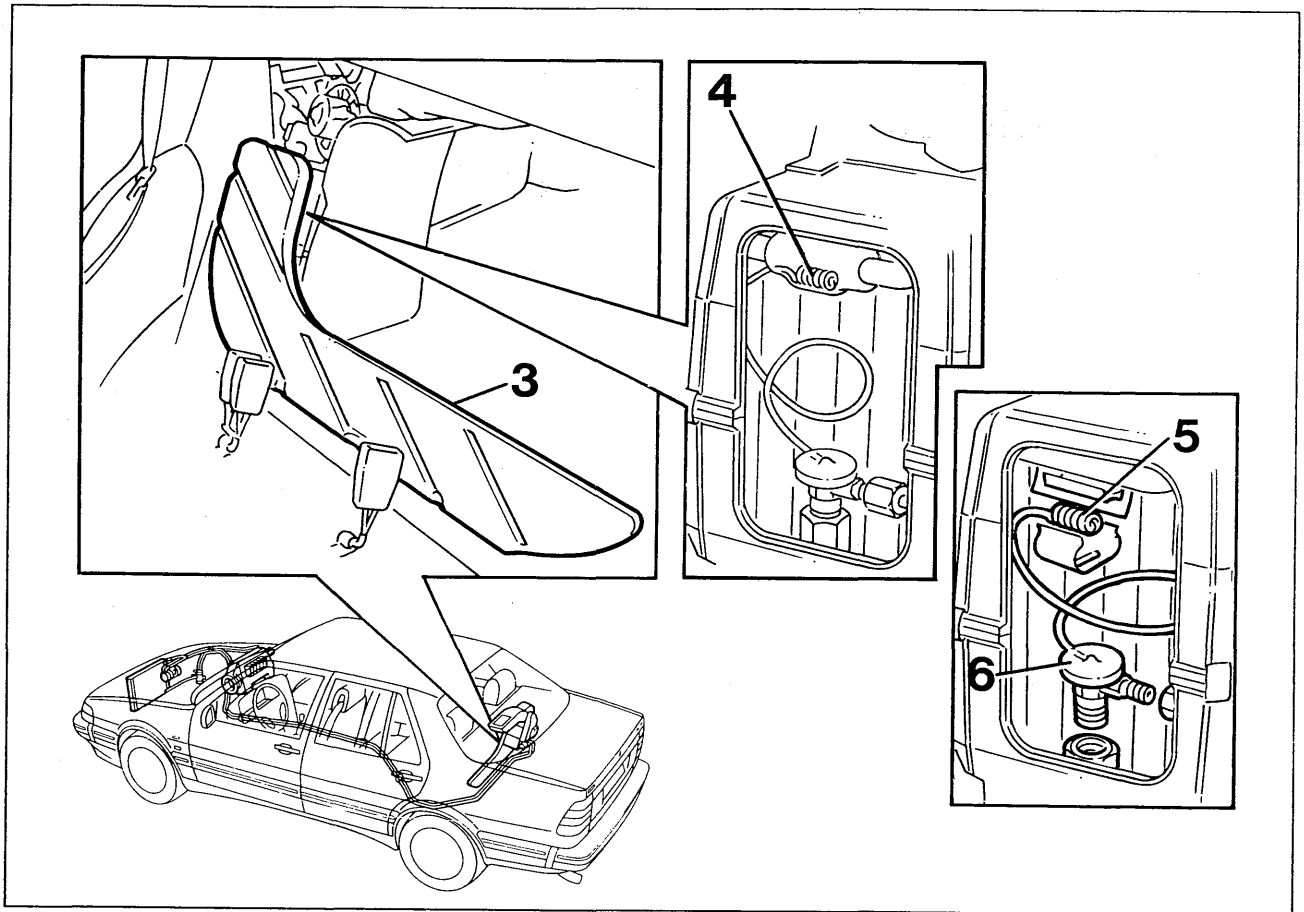
Rear fan

Removal

- 1 Remove the seatback.
- 2 Unscrew the three retaining bolts, unplug the connector and lift out the fan.

Fitting

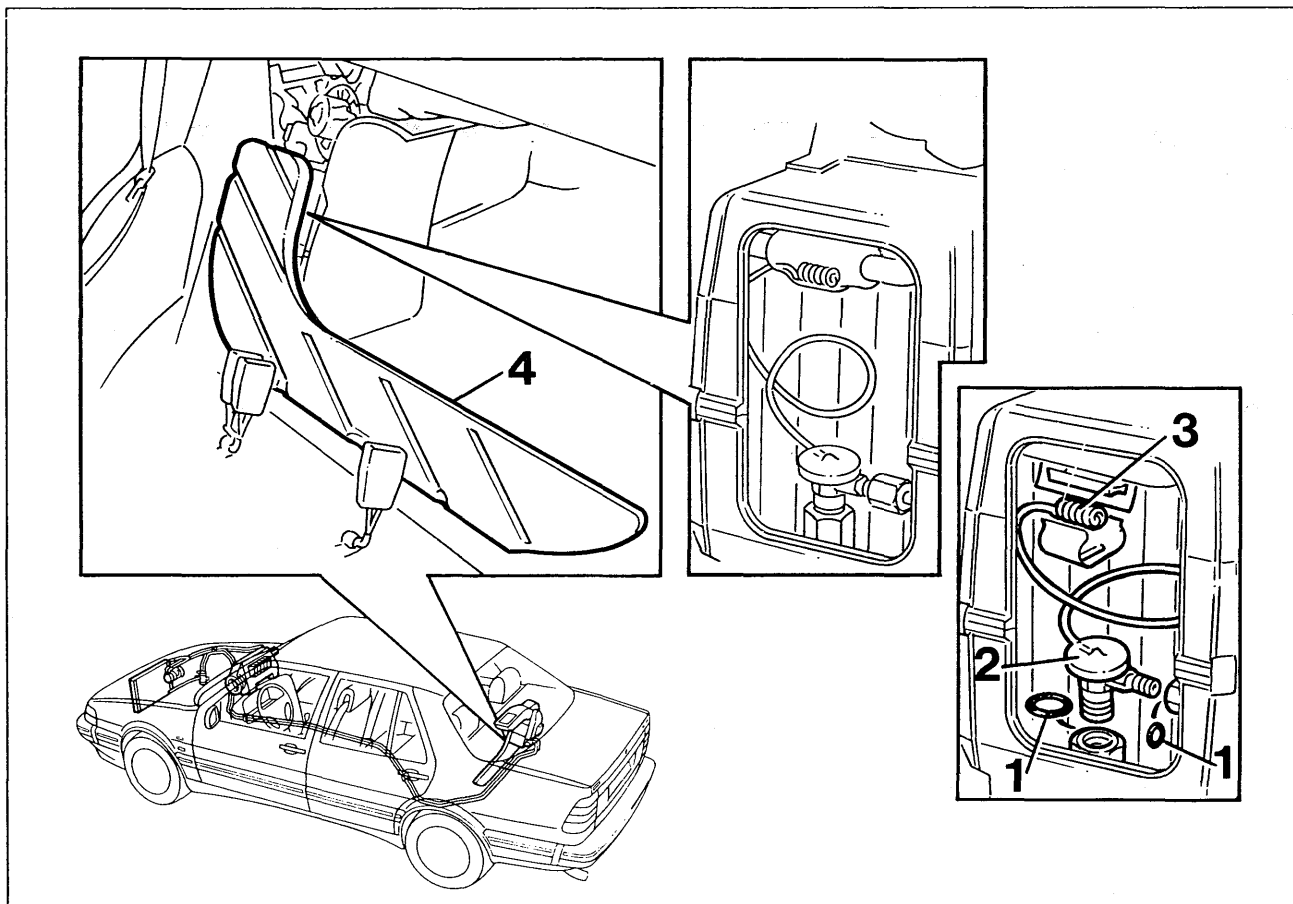
- 1 Position the fan, tighten the three retaining bolts and plug in the connector.
- 2 Fit the seatback in place.



Rear expansion valve

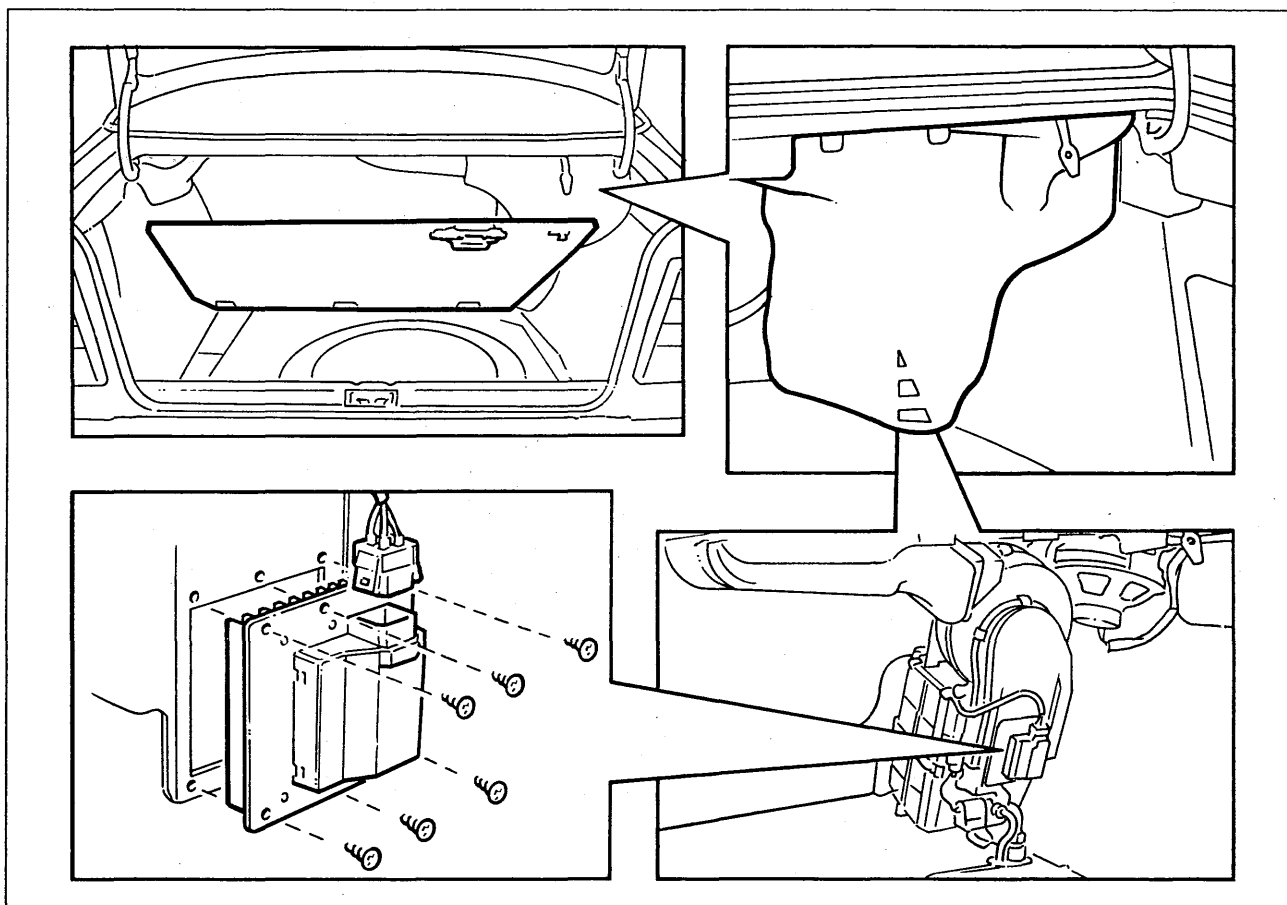
Removal

- 1 Purge the system of refrigerant.
- 2 Remove the seatback.
- 3 Remove the air intake.
- 4 Take note of the position of the capillary tube on the evaporator. It is extremely important to fit the tube back in exactly the same position on reassembly.
- 5 Then bend the foam plastic aside and remove the capillary tube.
- 6 Undo the expansion valve's pipe connections, using a holder-on, and lift out the expansion valve.



Fitting

- 1 Fit new O-rings on the expansion valve's pipe connections. Lubricate the O-rings with compressor oil.
- 2 Fit the expansion valve in place and tighten the pipe connections by means of a holder-on.
Tightening torque, pressure pipe: 10-18 Nm (7.4-13.3 lbf ft)
Tightening torque, suction pipe: 20-30 Nm (14.8-22.1 lbf ft)
- 3 Fit the capillary tube back on the evaporator casing as noted earlier when it was removed. It is extremely important to fit the tube back in exactly the same position as before.
- 4 Fit the air intake back in place.
- 5 Fit the seatback in place.
- 6 Charge the system with refrigerant.



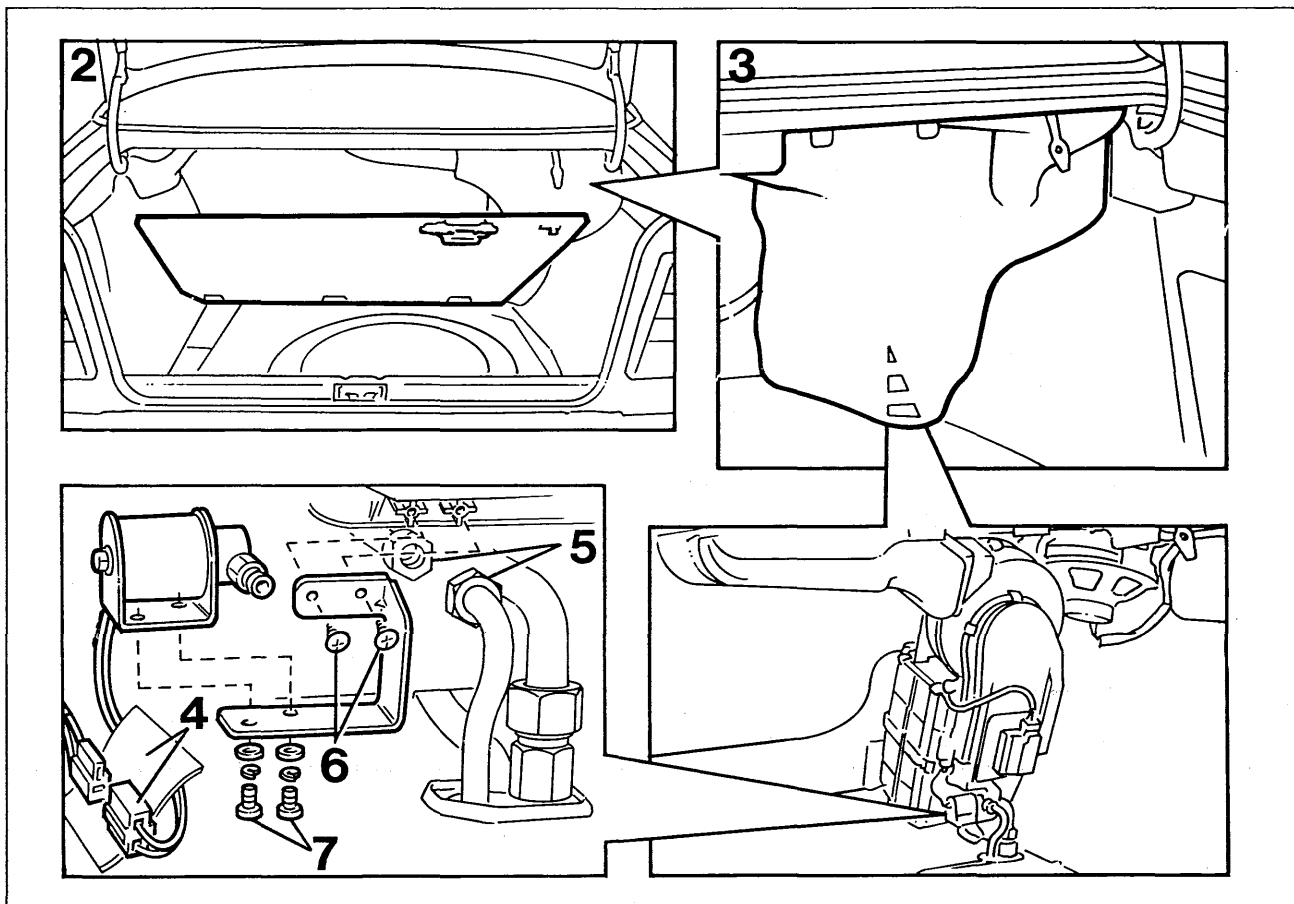
Fan control unit, rear evaporator

Removal

- 1 Remove the luggage compartment floor.
- 2 Remove the trim round the evaporator casing.
- 3 Unplug the connector.
- 4 Unscrew the control unit.

Fitting

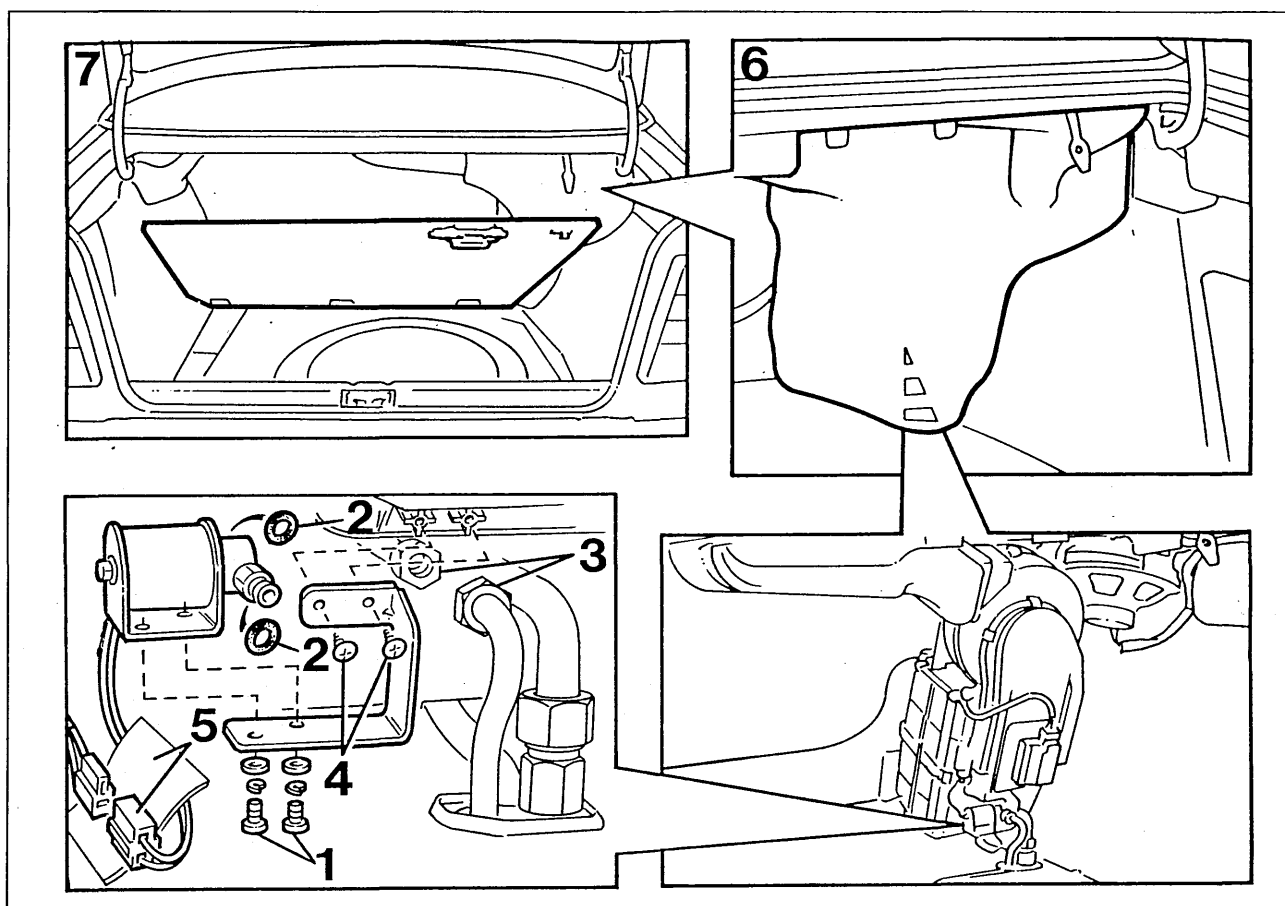
- 1 Screw the control unit to the evaporator casing.
- 2 Plug in the connector.
- 3 Fit the trim back round the evaporator casing.
- 4 Fit the luggage compartment floor back in place.



Solenoid valve, rear evaporator

Removal

- 1 Purge the AC system of refrigerant.
- 2 Remove the luggage compartment floor.
- 3 Remove the trim round the evaporator casing.
- 4 Remove the foam plastic and unplug the solenoid valve's connector.
- 5 Undo the solenoid valve's pipe connections. Use a holder-on.
- 6 Remove the two screws securing the solenoid valve bracket.
- 7 Remove the screws securing the solenoid valve to the bracket.

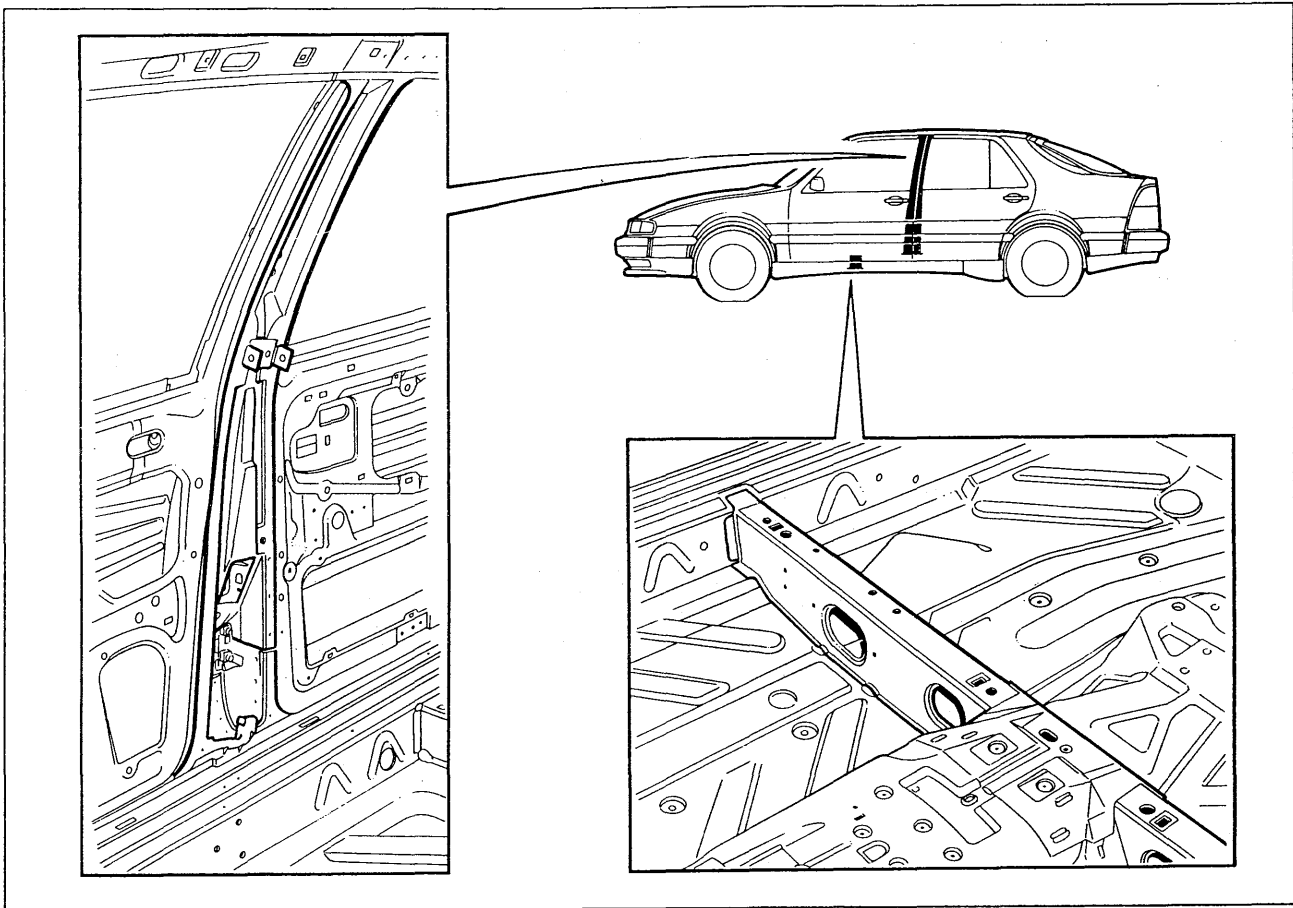


Fitting

- 1 Screw the solenoid valve to the bracket.
- 2 Fit new O-rings on the pipe connections. Lubricate the O-rings with compressor oil.
- 3 Tighten the solenoid valve's pipe connections. Use a holder-on.

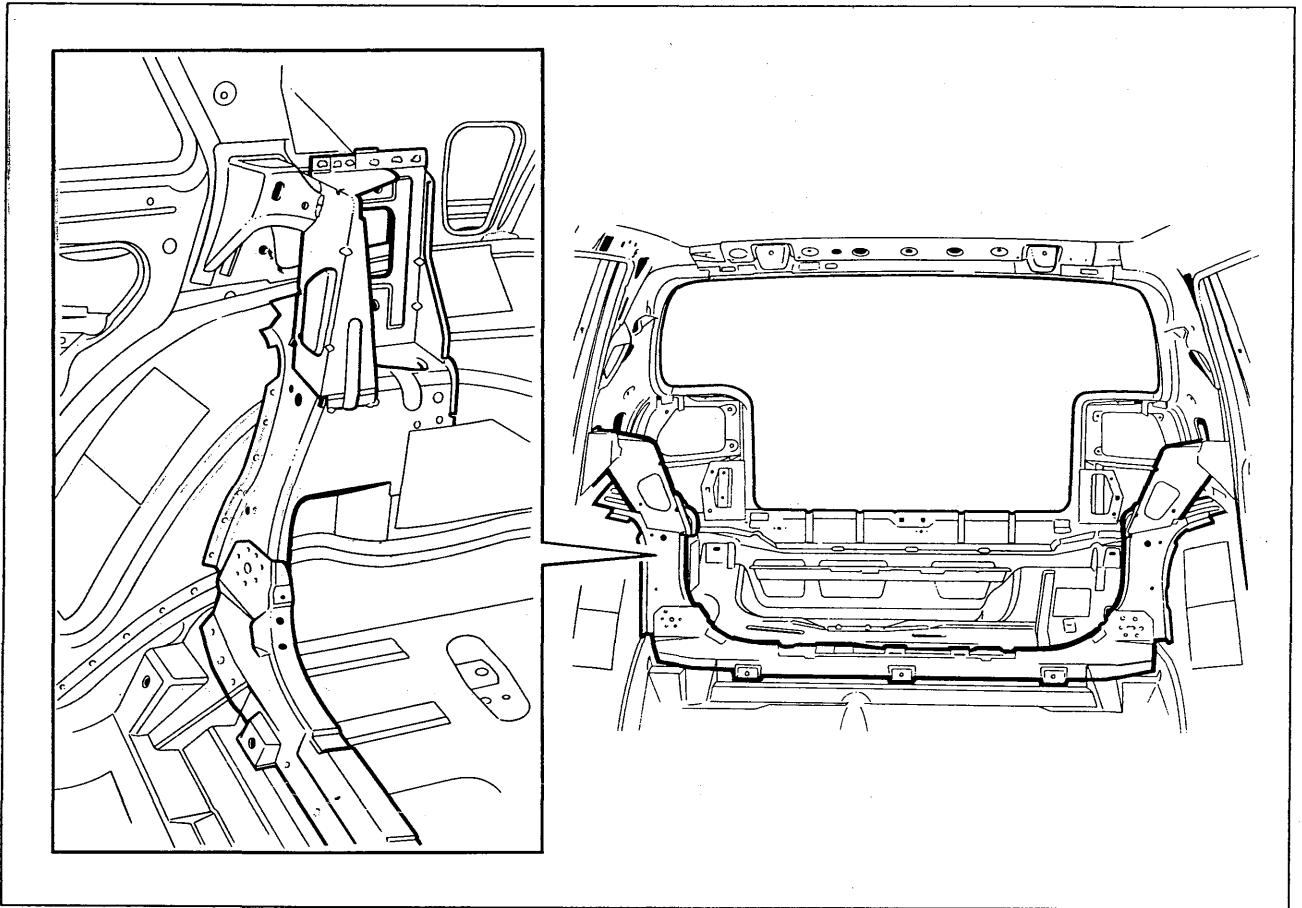
**Tightening torque: 10-18 Nm
(7.4-13.3 lbf ft)**

- 4 Screw the solenoid valve bracket in position.
- 5 Plug in the solenoid valve's connector and fit the foam plastic back in place round the connector.
- 6 Fit the trim back in place round the evaporator casing.
- 7 Fit the luggage compartment floor back in place.
- 8 Charge the system with refrigerant.



Collision safety

Protection for the occupants in the event of a side collision is further increased by reinforcement in the B pillar and the front seat cross-member. This reinforcement is a continuation of the measures taken to improve side collision protection that were introduced on 1991 model year cars.



Torsional rigidity reinforcement

The torsional rigidity of the rear part of the body has been improved on all Saab 9000 models. As a result of fitting a special stiffening member which extends from wheel housing to wheel housing, the car's already excellent roadholding is further improved at the same time as the level of noise for the rear-seat passengers is reduced.

Spring rates, dampers and anti-roll bars have been adapted to the stiffer body.

Body colours

Five new colours are introduced at the same time as two others are discontinued.

Colour code	Colour	Type	Remarks
153	Cirrus white	Solid	Discontinued
226	Beryl green	Metallic	Discontinued
221	Stratocumulus white	Solid	New colour
232	Derby grey	Solid	New colour
233	Carrara white	Solid	New colour
234	Nocturne blue	Metallic	New colour
235	Eucalyptus green	Metallic	New colour

Workshop information

User feedback

To

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Comments/suggestions

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Manual concerned:

It is important that Saab technicians in the field regard the Workshop Service Manual as their bible, and we therefore strive to make the manual easy to use and to provide accurate information.

By letting us have your views on this manual you will be helping us to maintain a high standard in our literature.

Note down any comments or suggestions you may have on a sheet of paper or take a copy of this page and send us your views at the above address. For greater convenience, you are also welcome to send your comments by fax, using the telephone number shown.



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Saab Automobile AB
Trollhättan, Sweden



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