VOLVO

Service Manual

Fault tracing
Repairs and Maintenance

Section 3(39)

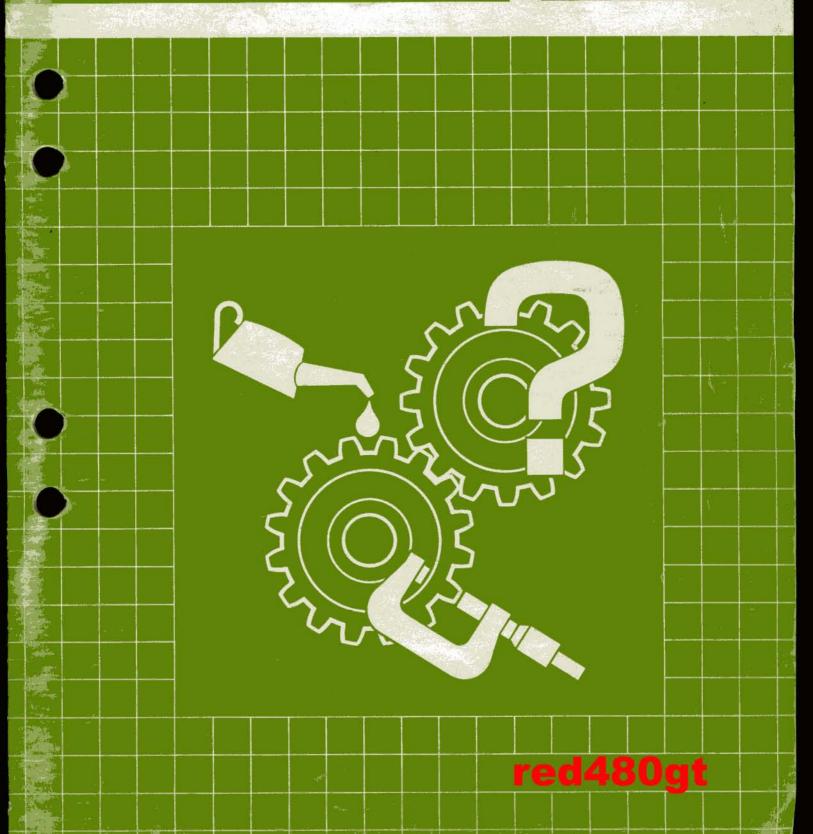
Wiring diagrams Supplement

480

1992-1994

August 1993

TP 3906031



Vehicles equipped with SRS

Warning:

Vehicles equipped with the Volvo Supplemental Restraint System (SRS) require special precautions when undergoing repair or servicing. Work on these vehicles should only be carried out by authorized Volvo mechanics.

Always refer to the SRS Service Manual.

Identification of vehicles with SRS

- The steering wheel is marked with the letters SRS.
- A special sticker is displayed on the windscreen.
- There is a sticker on the steering column universal joint.

SRS wiring harness

Cables must **never** be branched off the yellow SRS wiring harness!

When removing or fitting components, make sure that the wiring is not pinched off or damaged at any point.

SRS crash sensor

The SRS crash sensor is located in the centre console under the storage compartment.

Do not install accessories on or near the crash sensor.

Never unplug the connector from the sensor.

Repairs to the steering gear

Never release or dismantle the steering column/shaft or steering rack housing without first locking the contact reel and removing the steering wheel. Refer to the SRS Service Manual.

Volvo passenger cars are sold in different variants adapted to the specific requirements of the various countries. This market adaptation is based on such things as legal regulations, tax limitations and specific wishes of the market concerned.

For this reason illustrations and text may appear in this Service manual which are not relevant to the cars in your own country.

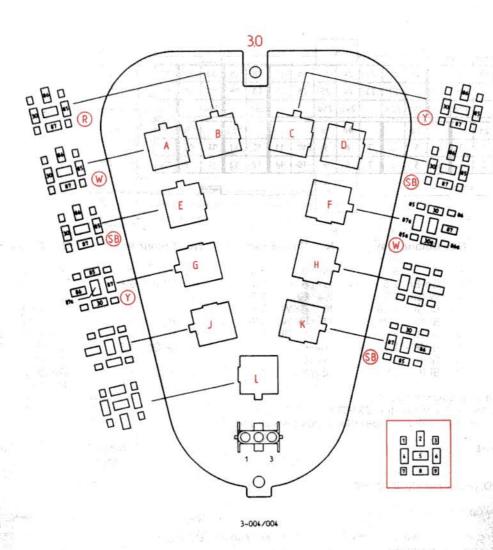
Contents

	Ps	age
	and the second s	
	A A CONTRACTOR OF THE PROPERTY	- 2
Contents	The control of the co	1
How to use the wiring diagrams		2
Fuses, location on the vehicle		3
Relays, location on the vehicle		4
Instrument panel		5
mod different parter minimum.		0
C 22 FI C		
Group 23. Fuel System		
Fuel injection and ignition, B20F engine		6
Group 26. Cooling system		
Auxiliary water pump, B18FT engine		8
(2) (2) (1) (1) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4		
Group 35. Lighting		
Brake lights and bulb failure detector		10
rog lights and rear rog lamps		12
Group 39. Radio		
Radio connections		14
Group 59. Anti-lock Brake System		
ABS Mk IV	4	16
		1.0
Group 83. Doors, etc.		
		10
Electrically operated door windows and tilting s	sun root	18
		will
Group 88. SRS		
Airbag		20
	The second of th	
Numerical components list		22

Order number: TP 3906031

We reserve the right to make alterations

Relays, location on the vehicle



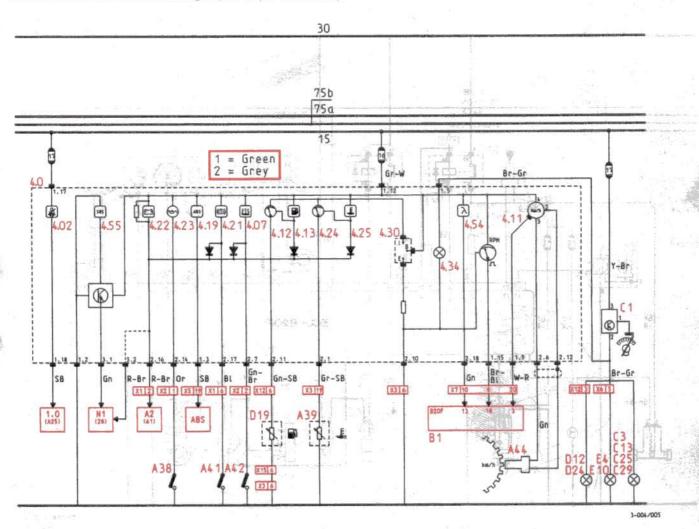
A second accessory relay has been added (3.05)

Relays used on the car

	No.	Colour of relay base	Component
	0.04	141	(A) B ()
	3.01	W	(A) Relay, headlights
	3.03	Υ	(C) Relay, terminal 15
	3.04	R	(B) Relay, terminal 75a
	3.05	SB	(K) Relay, terminal 75b
é	3.06	W	(F) Relay, headlight motors
	3.07	Υ	(G) Relay, rear fog lamps
	3.08	SB	(E) Relay, fog lights
	3.14	Υ	(G) Inhibitor relay, dimmed-dip beams (GB)
	3.22	SB	(D) Relay, auxiliary water pump
	B2	SB	Relay, fuel injection system
	B12	W	Fuel pump relay
	E7	R	Time-delay relay, AC compressor
	E8	SB	Relay, AC
	E11	R	Relay, AC cooling fan, stage 2
			A SECTION OF A CONTRACT OF THE PRODUCT OF THE PRODU

B2, B12, E7, E8 and E11 are mounted on the bracket near the heater blower.

With effect from chassis no. 581112, the Electronic Information Centre on 480S models has been replaced by a temperature and fuel gauge. The connectors have not been changed (two 18-pin connectors).



A Malfunction Identification Lamp (MIL lamp, \(\lambda \) symbol) has been added to monitor the content of the exhaust emissions.

Terminals, connector c21 Gn (grey)

	No.	Cable	Component
	1 -	BI-Gn	Fuse 31
P	2	Br	Earth
	3	SB	ABS
	4	Υ	Oil level transmitter
	5	Br-Gr	Rheostat, lighting
	6	Y-SB	'Door open' warning lamp
		Br	Earth
	7	Y-W	Rear window heating
	9	W-R	Hall transmitter - ECU
	10	Br-Bl	Fuse 28
	11	Gn-R	LH direction indicator
	12	R-W	Fuse 16
	13	BI-Gr	Rear fog lamp
	14	BI-Y	Fog lights
	15	Br-Bl	Rev-counter signal - ECU
	16	Gn-SB	Hazard warning lights
	17	Gr-W	Seat belt
	18	SB	Seat belt - CEM

Terminals, connector c20 Gr (grey)

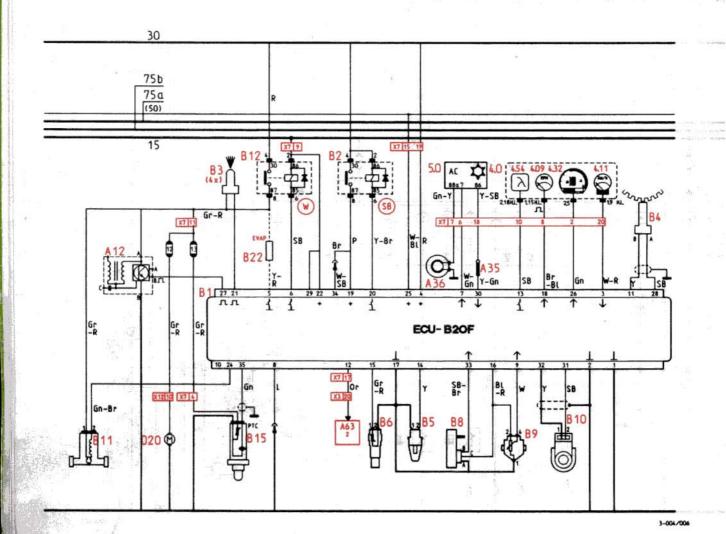
No.	Cable	Component Start Medium Grand
1	SB	Coolant temperature transmitter
2	Gr	Oil level transmitter
3	Gr-R	Fuse 21 rectination through empire
4	W-BI	Ambient air temperature transmitter
5	Gn	Injection signal - ECU
6	W	Speed transmitter
7	Gn-Br	Float, washer fluid
7 8	-	-
9	W	Oil temperature transmitter
10	Br-Bl	Earth, sensors its lugar house bits in
11	Gn-SB	Tank float unit
12		Earth, speed transmitter
13	BI	Bulb failure detector
14	Or	Oil pressure switch
15	Gn-Y	RH direction indicator
16	R-Br	Alternator
17	BI	Float, brake fluid/handbrake
18	SB	MIL (exhaust emission monitoring)

Terminals, connector c75 Gr

1	Gn	SRS	
2	R-Br	Alternator signal (output	ıt

36%

Fuel injection and ignition, B20F engine With effect from chassis no. 581012.



Instrument panel Ventilation and heating module (VM) Electronic ignition unit A12 Low pressure switch, AC A35 A36 Compressor clutch, AC

A63 Diagnostic tester **B1** ECU, fuel injection system B₂ Relay, fuel injection system

B3 Injector(s)

4.0

5.0

B4 Engine speed transmitter, flywheel **B5** Intake air temperature transmitter

B6 Coolant temperature transmitter

B8 Air pressure transmitter, fuel injection system

B9 Throttle valve switch

B10 Knock sensor

B11 Idle speed regulating valve

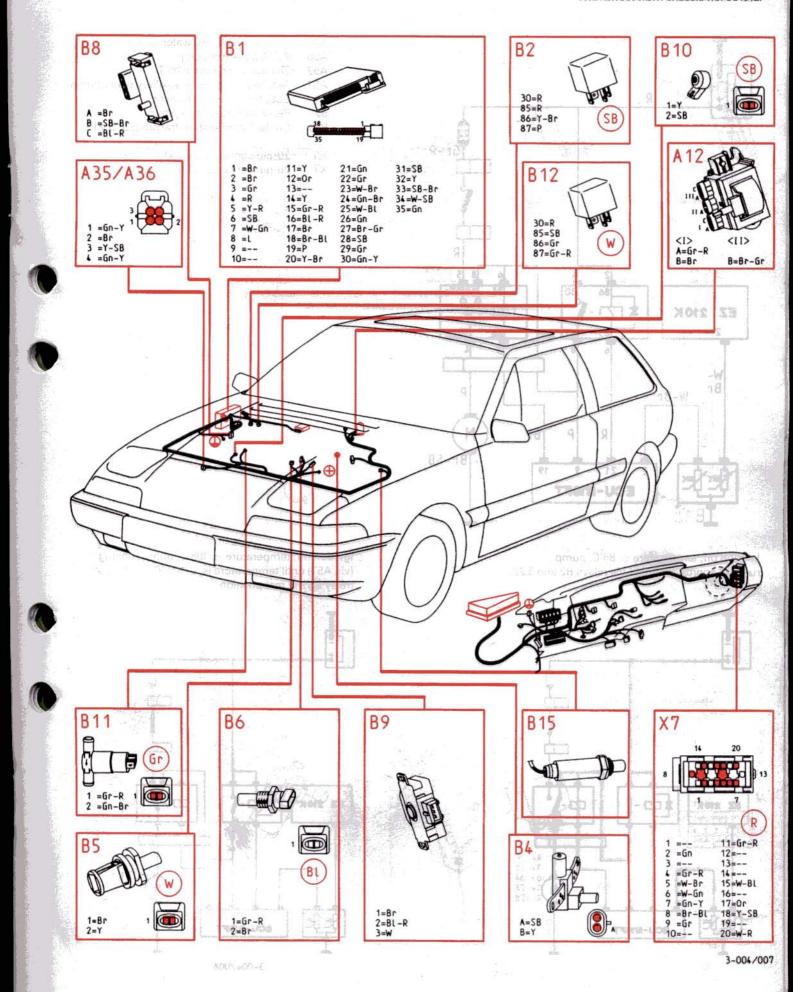
B12 Fuel pump relay B15 Oxygen sensor

B22 EVAPD20

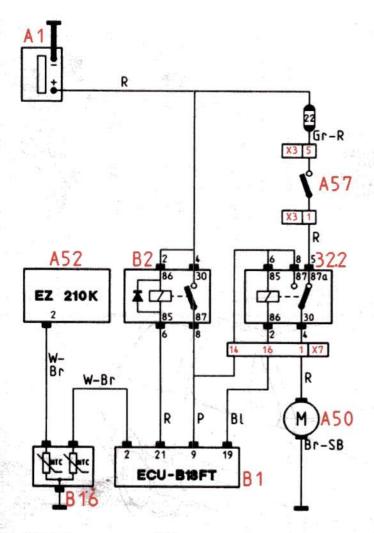
Fuel pump, fuel injection system D20

X3 20-pin connector (black) X7 20-pin connector (red) X12 20-pin connector (white)

Fuel injection and ignition, B20F engine With effect from chassis no. 581012.



Auxiliary water pump, B18FT engine With effect from chassis no. 577284.



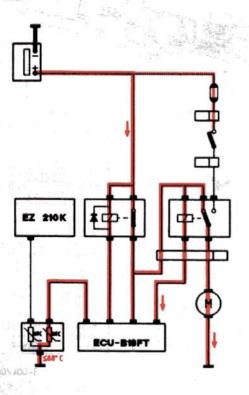
3.22 (D) Relay, auxiliary water pump A50 Auxiliary water pump A52 Electronic ignition, B18FT A57 Temperature sensor, auxiliary water pump B1

ECU, fuel injection system **B2** Relay, fuel injection system

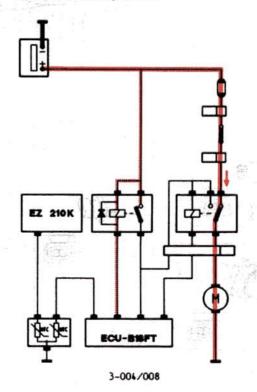
Coolant temperature transmitter, B18FT

X3 20-pin connector (black) X7 20-pin connector (red)

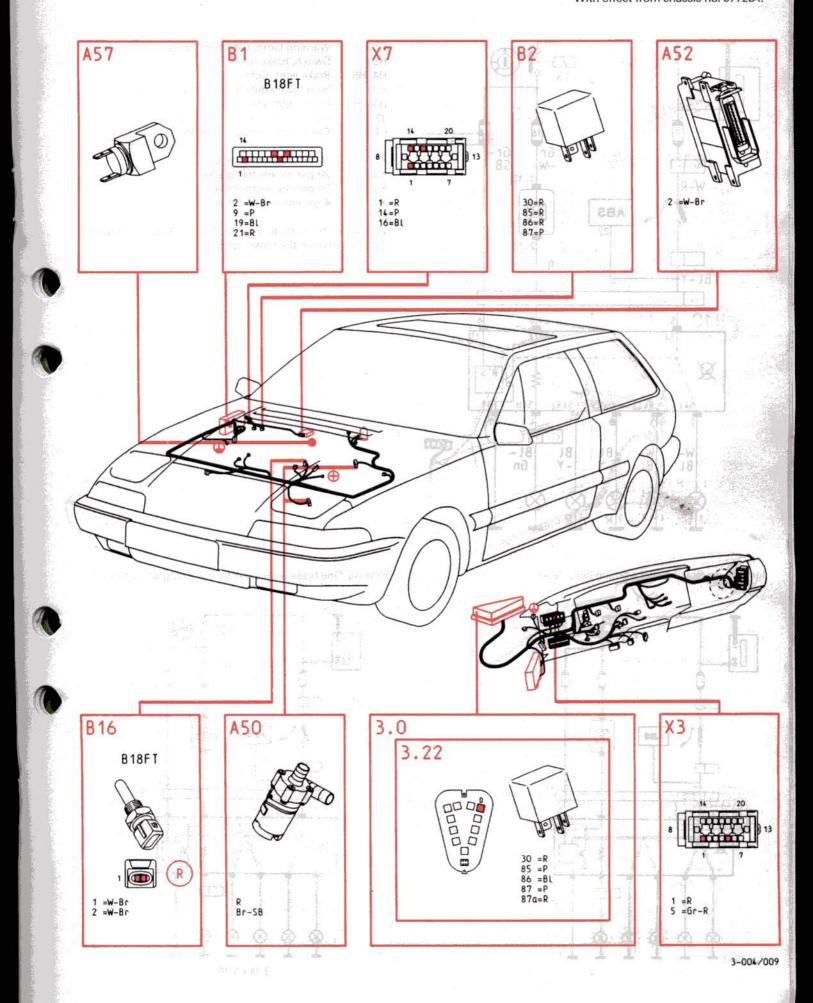
Ignition off, temperature ≤ 88°C, pump running approx. 1 minute via relays B2 and 3.22.



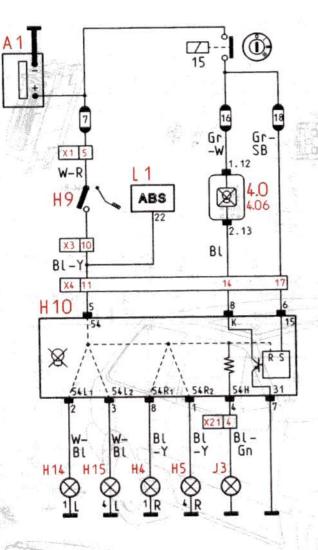
Ignition off, temperature ≥ 105°C, pump running (via A57) until temperature is ≤ 100 °C (relay 3.22 in rest position.



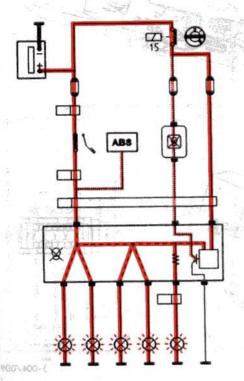
Auxiliary water pump, B18FT engine With effect from chassis no. 577284.



Brake lights with bulb failure detector



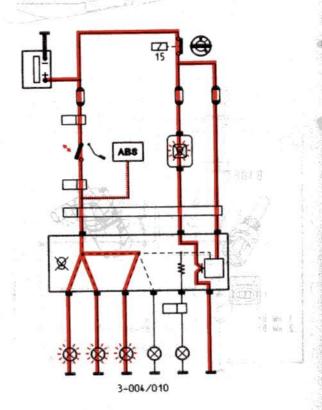
Ignition on. Braking and warning lamp reset.



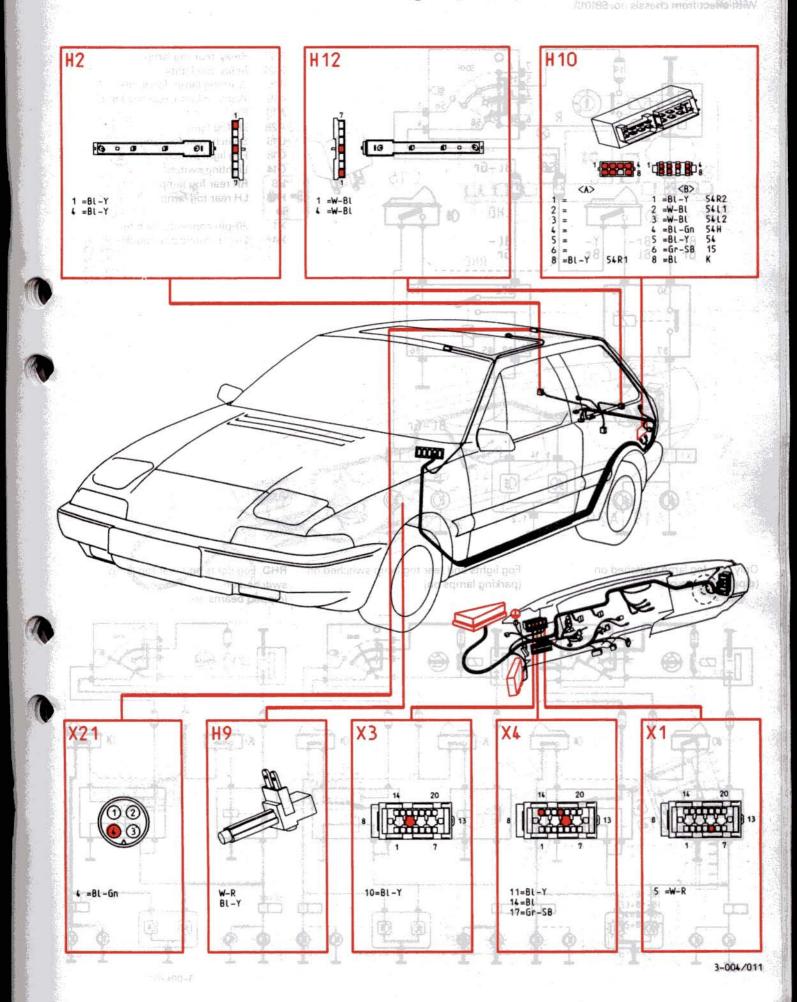
4.06 Warning lamp, defective bulb(s) H9 Switch, brake lights Brake light, right H4, H5 Bulb failure detector, rear lights H10 Brake light, left H14, H15 J3 High-level auxiliary brake light L1 Electronic Control Unit, ABS 20-pin connector (white) X1 X3 20-pin connector (black) X4 20-pin connector (blue) X21 4-pin connector (white)

With effect from model year 1994, the bulb failure detector operates only on the brake lights.

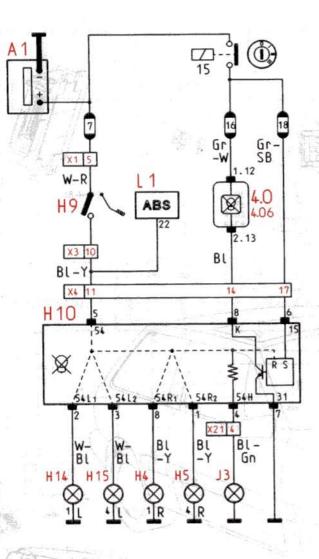




Brake lights with bulb failure detector



Brake lights with bulb failure detector

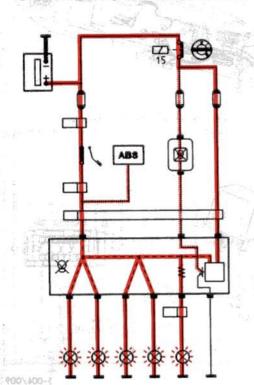


4.06 Warning lamp, defective bulb(s)
H9 Switch, brake lights
H4, H5 Brake light, right
H10 Bulb failure detector, rear lights
H14, H15 Brake light, left
J3 High-level auxiliary brake light
L1 Electronic Control Unit, ABS

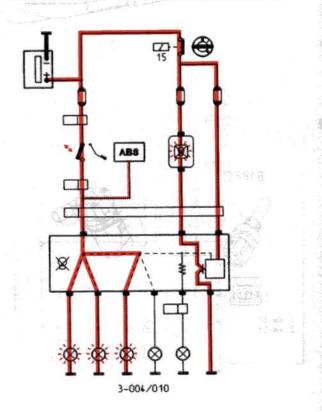
X1 20-pin connector (white)
X3 20-pin connector (black)
X4 20-pin connector (blue)
X21 4-pin connector (white)

With effect from model year 1994, the bulb failure detector operates only on the brake lights.

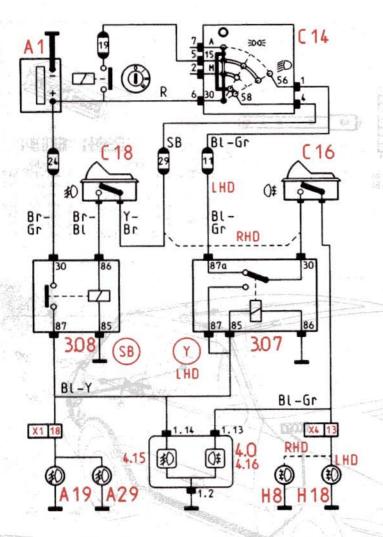
Ignition on. Braking and warning lamp reset.



Braking. One brake light defective, warning lamp glows.



Fog lights and rear fog lamps (2) 2018 With effect from chassis no. 581012.



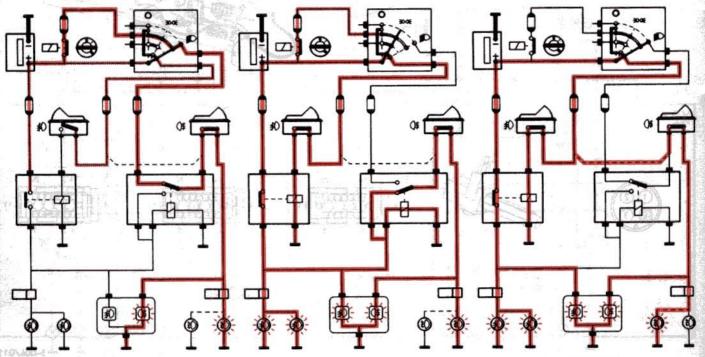
3.07 Relay, rear fog lamp 3.08 Relay, fog lights 4.15 Warning lamp, fog lights 4.16 Warning lamp, rear fog lamp RH fog light A19 LH fog light A29 C16 Switch, rear fog lamp C18 Fog light switch C14 Lighting switch H8 RH rear fog lamp LH rear fog lamp H18

X1 20-pin connector (white) X4 20-pin connector (blue)

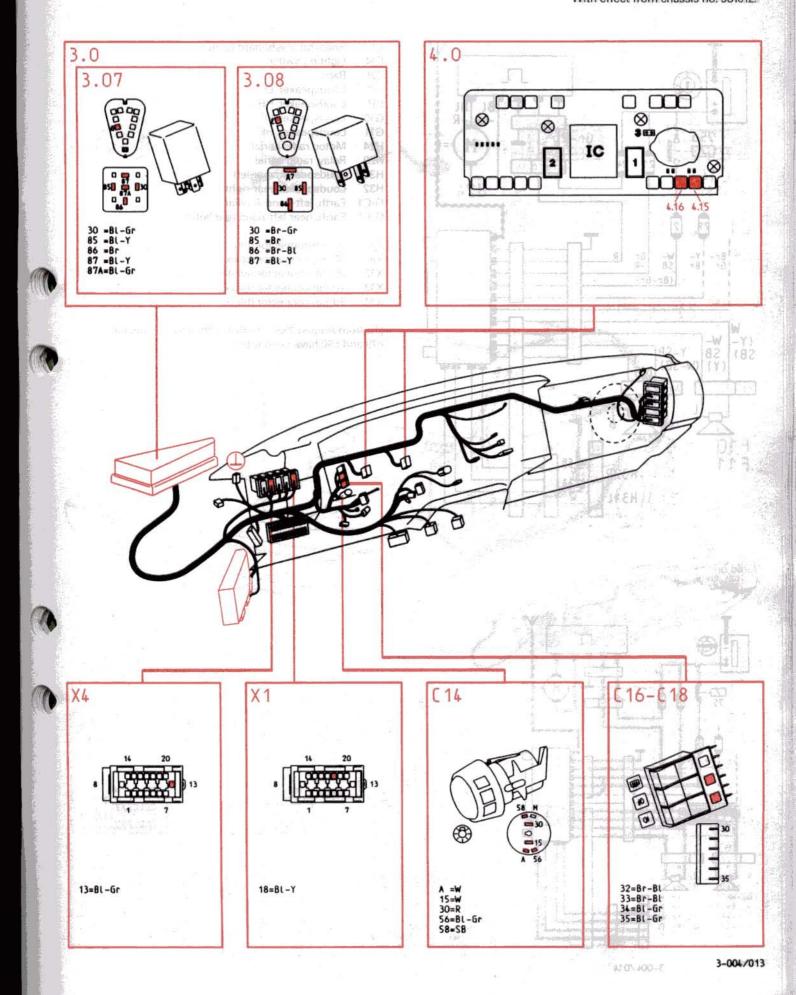
Only rear fog lamp switched on (dipped beams on)

Fog lights and rear fog lamp switched on (parking lamps on)

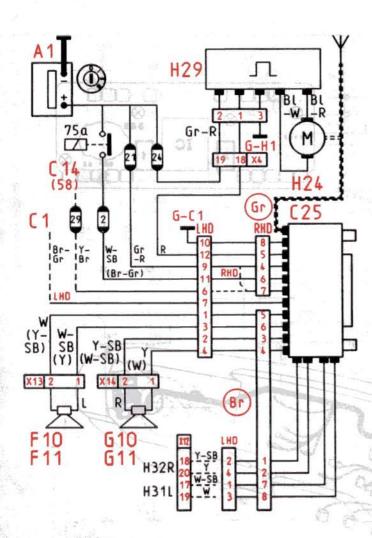
RHD. Fog lights and rear fog lamp switched on (dipped beams on)



Fog lights and rear fog lamps With effect from chassis no. 581012.



Radio connections With effect from chassis no. 581012.



C1 Rheostat, dashboard lighting C14 Lighting switch

C25 Radio

F10 Loudspeaker, LF

Loudspeaker, HF F11 Loudspeaker, LF G10

Loudspeaker, HF G11

Motor, radio aerial H24

H29 Relay, radio aerial

H31 Loudspeaker, rear-left H32 Loudspeaker, rear-right

G-C1 Earth, left-hand A-pillar

G-H1 Earth, near left-hand rear light

X4 20-pin connector (blue)

X8 14-pin connector (black) X12 20-pin connector (white)

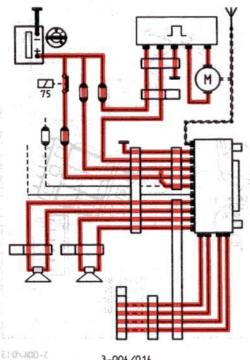
X13 20-pin connector (black)

X14 20-pin connector (black)

(As from August 1992 (for RHD cars only) connectors c79 and c80 have been fitted.)

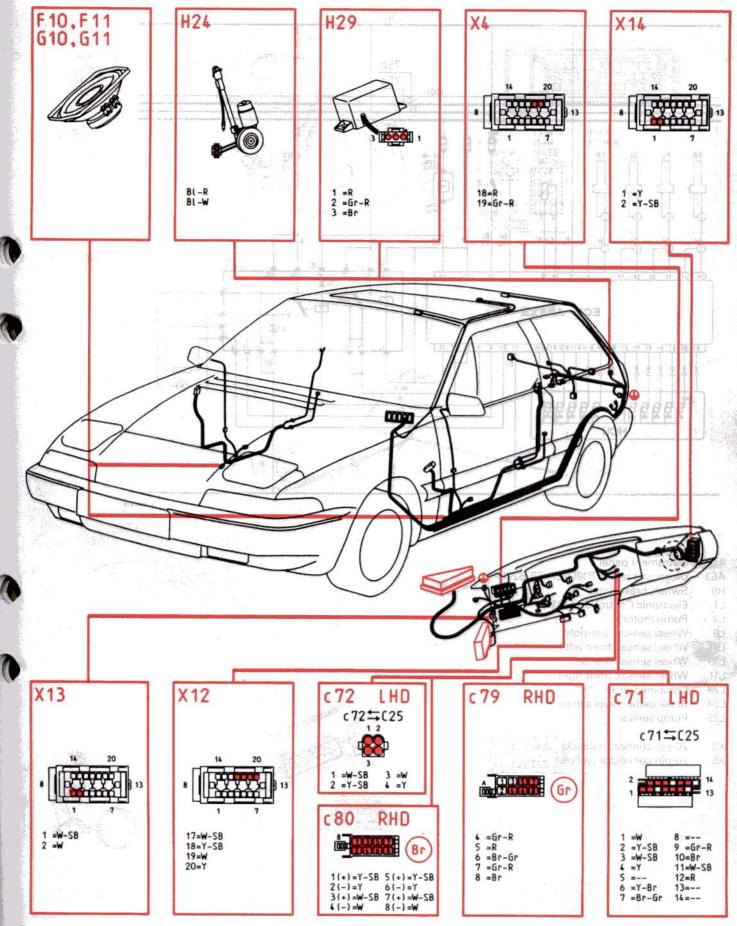
13-1BoEl

Radio on.

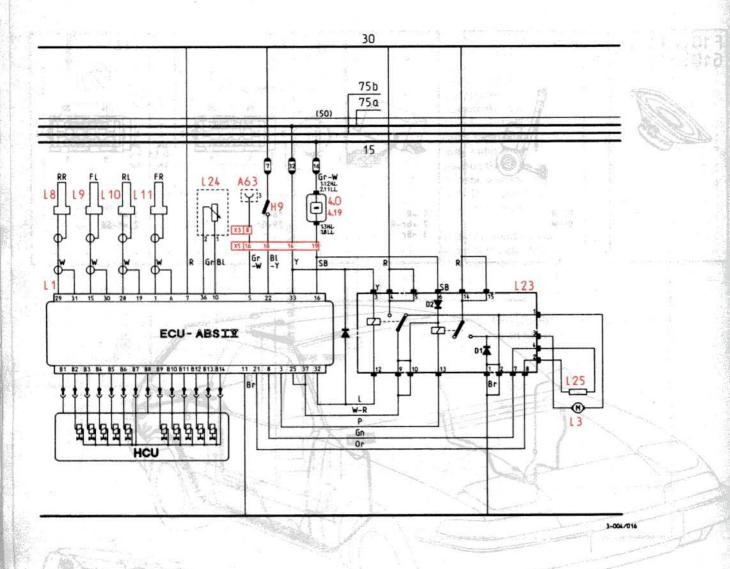


Radio connections

With effect from chassis no. 581012.



3-004/015



Diagnostic tester, B18U/EP/FP, B20U/F A63 Switch, brake lights H9 Electronic Control Unit, ABS L1 L3 Pump motor Wheel sensor, rear-right L8

Instrument panel

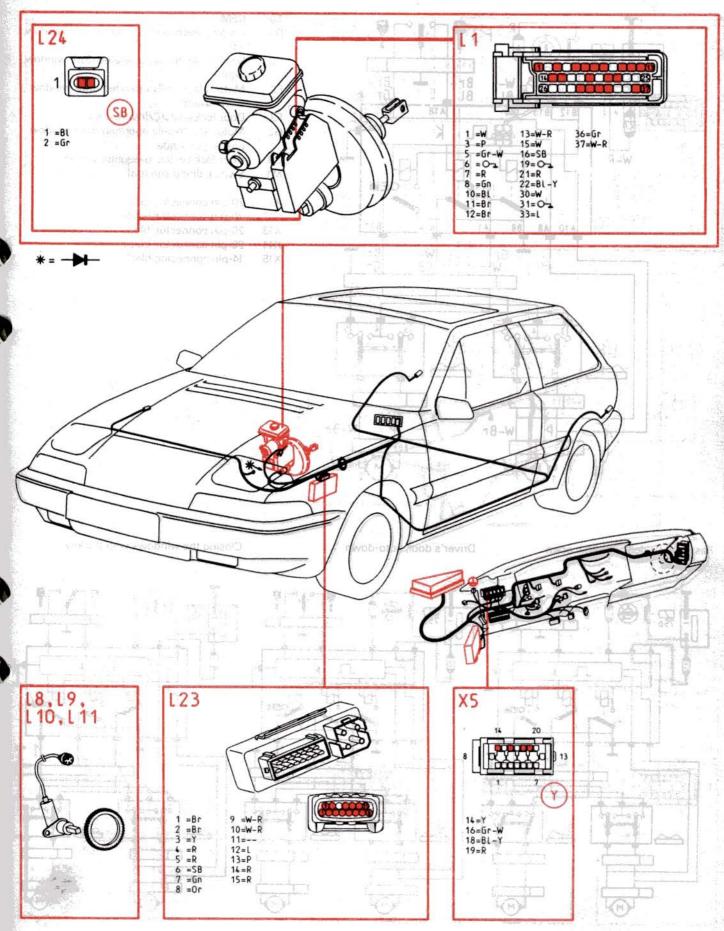
Wheel sensor, front-left L9 Wheel sensor, rear-left L10 Wheel sensor, front-right L11

L23 Combined relay L24

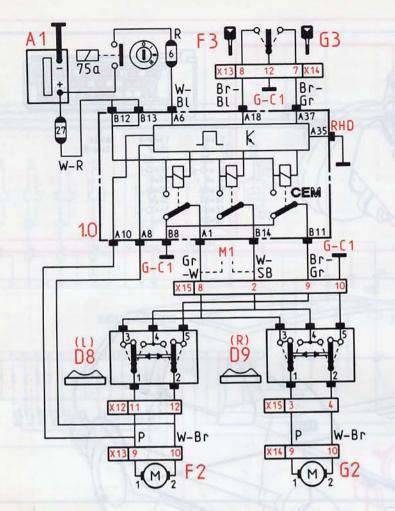
4.0

Brake pedal travel sensor Pump sensor L25

20-pin connector (black) X3 X5 20-pin connector (yellow) 25 A 19 months of the end of the same OHA to Long With effect from chassis no. 581012.



Electrically operated door windows and sun roof Minor modifications to the wiring diagram. For RHD cars: additional earth connection at A35.



1.0 CEM Switch, electrically operated door window, D8 Switch, electrically operated door window, D9 F2 Motor, electrically operated door window, driver's side Door lock switch, drivers door F3 Motor, electrically operated door window, G2 passenger's side G3 Door lock switch, passenger's door M1 Switch, tilting sun roof X4 20-pin connector, blue 20-pin connector, white X12 X13 20-pin connector, black

20-pin connector, black

14-pin connector, black

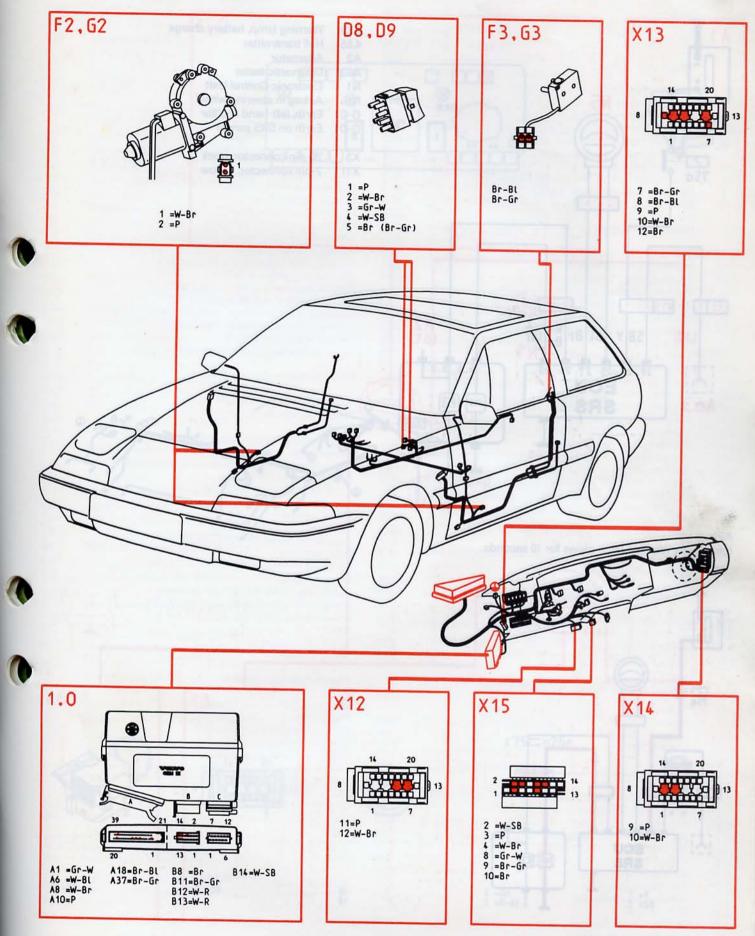
3-004/018

X14

X15

Closing the windows with the key Driver's door, auto-down Passenger's door, window open

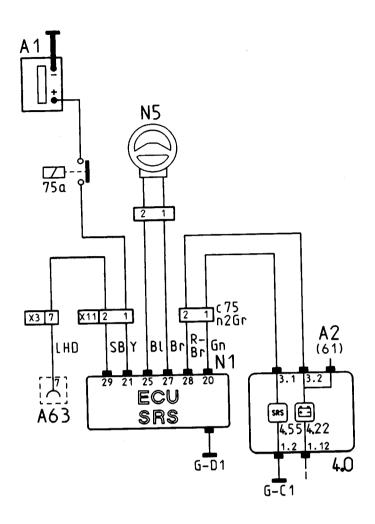
Electrically operated door windows and sun roof Minor modifications to the wiring diagram. For RHD cars: additional earth connection at A35.



3-004/019

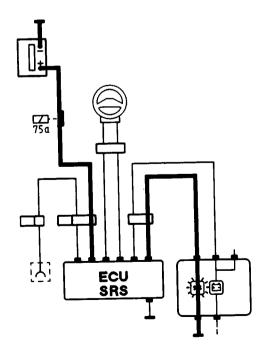
SRS - airbag

Minor modifications to the wiring diagram. For RHD cars: additional earth connection at A35.



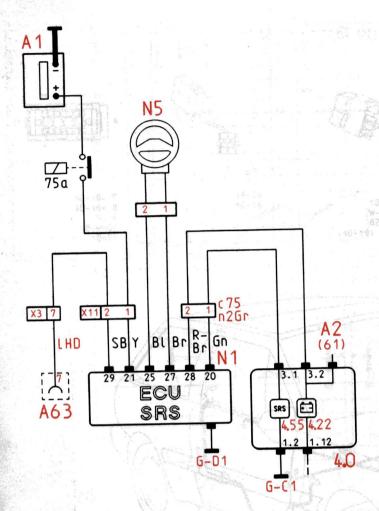
Warning lamp, battery charge 4.22 Hall transmitter 4.55 Alternator A2 Diagnostic tester A63 **Electronic Control Unit** N1 Airbag in steering wheel N5 Earth, left-hand A-pillar G-C1 G-D1 Earth on SRS sensor 20-pin connector, black Х3 2-pin connector, yellow X11

Airbag. Ignition on. Warning lamp glows for 10 seconds.



3-004/020

SRS - airbag
Minor modifications to the wiring diagram. For RHD cars: additional earth connection at A35.



4.55 Hall transmitter A2 Alternator Diagnostic tester A63 Electronic Control Unit N1 Airbag in steering wheel N5

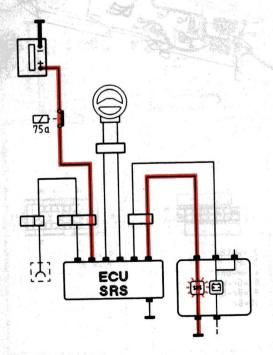
Warning lamp, battery charge

4.22

Earth, left-hand A-pillar G-C1 Earth on SRS sensor

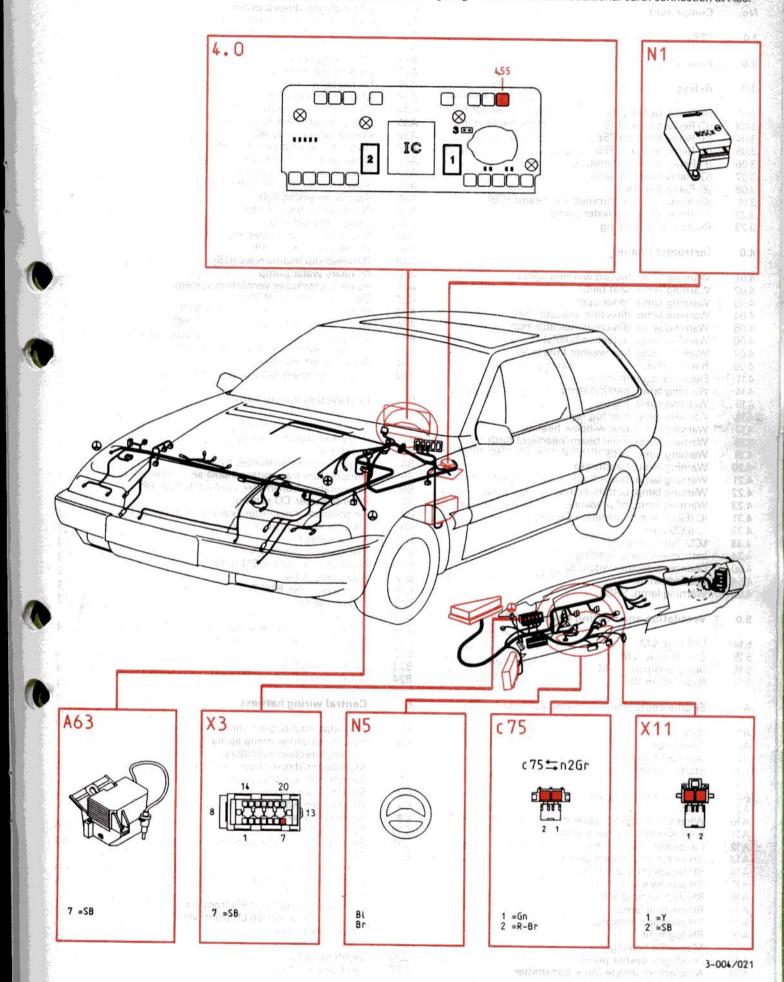
20-pin connector, black Х3 2-pin connector, yellow X11

Airbag. Ignition on. Warning lamp glows for 10 seconds.



3-004/020

3-ECK /019



Numerical components list

No	o. (Component	A23 A24	LH headlight, dipped beam LH headlight, main beam
1.0)	CEM	A25	LH auxiliary driving light
2.0	0	Fuse box	A26 A27	LH day-running light LH parking lamp
3.0	0	Relays	A28 A29	LH direction indicator LH fog light
		# 1 T	A30	Motor, LH headlight
3.0	01	(A) Relay, headlights	A34 A35	Thermal switch, cooling fan Low pressure switch, AC
3.0	03	(C) Relay, terminal 15	A36	Compressor clutch, AC
3.0		(B) Relay, terminal 75a	A39	Coolant temperature transmitter, IC
	05	(K) Relay, terminal 75b	A41	Float, brake fluid indicator
		(F) Relay, headlight motors	A42	Float, washer fluid indicator
		(G) Relay, rear fog lamp	A44	Speed transmitter, final drive, HL
		(E) Relay, fog lights	A45	Switch, reversing lights
	14	(G) Inhibitor relay, dimmed-dip beams (GB)	A46	Windscreen wiper motor
		(D) Relay, auxiliary water pump	A47	Switch, bonnet lock
3.	29	Relay, speed warning	A48	Oil pressure transmitter, HL
		Instrument penal	A48	Oil pressure switch, HL
4.	.0	Instrument panel	A49	Dimmed-dip beams relay (GB)
	04	Manaina lama bozard worning lights	A50	Auxiliary water pump
		Warning lamp, hazard warning lights	A51	Heating, crankcase ventilation system
4.		Warning lamp, seat belts Warning lamp, 'door open'	A52	Electronic ignition, B18FT
	03	Warning lamp, door open Warning lamp, direction indicator, left	A53	Output stage and ignition coil, B18FT
	.04	Warning lamp, direction indicator, right	A54	Boost pressure regulating valve, B18FT
	.05	Warning lamp, direction indicator, right	A57	Temperature transmitter, auxiliary water pump
	.06	Warning lamp, defective bulb(s)	A58	Oil level and temperature transmitter
	.07	Warning lamp, low washer fluid level	A62	Switch, start interlock, AT
	.09	Rev-counter	A63	Diagnostic tester, B18EP/FP + CEM + ABS
	.11	Electronic speedometer	700	Diagnostic tester, E 1921
	.14	Warning lamp, parking lamp	В	Fuel system wiring harness
	.15	Warning lamp, fog lights		ruer system winnig names
	.16	Warning lamp, rear fog lamp	B1	ECU, fuel injection system
	.17	Warning lamp, rear window heating	B2	Relay, fuel injection system
	.18	Warning lamp, main beam/headlight flash	B3	Injector(s)
	.19	Warning lamp, ABS	B4	Engine speed transmitter, flywheel
	.20	Warning lamp, handbrake	B5	Temperature transmitter, intake air
	.21	Warning lamp, brake fluid	B6	Temperature transmitter, coolant, B18EP/FP
	.22	Warning lamp, battery charge	B7	Potentiometer, CO setting
	.23	Warning lamp, oil pressure	B8	Air pressure transmitter, fuel injection system
	.31	IC (Electronic Information Centre)	B9	Throttle valve position sensor
	.32	IC (LCD panel)	B10	Knock sensor
	.33	LCD illumination, IC	B11	Idle speed regulating valve
	1.34	Instrument panel lighting Channel selector switch, IC	B11.1	Diagnostic tester for B11 (B18FT)
	1.50	MIL indication	B12	Fuel pump relay
	1.54		B14	Air mass meter, B18FT
4	1.55	Warning lamp, SRS5.	B15	Oxygen sensor
	5.0	Ventilation and heating module (VM)	B15.1	Diagnostic tester for oxygen sensor
	0.0	ventulation and heating module (vin)	B16	Coolant temperature transmitter, B18FT
	5.14	Lighting, VM	B20	Fuse (next to B12), fuel pump
	5.15	On/off relay, VM	B22	EVAP
	5.16	Relay, position 4, VM	B23	Earth connection
	5.17	Relay, AC in VM	B24	Safety switch, AC
		583. 97 av - 43	С	Central wiring harness
,	A	Engine compartment wiring harness		Sales attends Sales and Policies
	41	Battery	C1	Rheostat, dashboard lighting
. /	42	Alternator	C3	Switch, hazard warning lights
	42	Voltage regulator	C4	Switch, direction indicators
1	A3	Starter motor	C5	Main beam/dipped beam switch
-	A4	Horn	C6	Switch, rear window wiper
	A5	Engine cooling fan, radiator	C7	Switch, rear window washer
,	A7	Horn	C8	Windscreen wash/wipe switch
	A10	Windscreen washer pump	C9	Ignition/starter switch
	A11	Rear window washer pump	C10	Switch, horn
	A12	Electronic ignition unit	C11	Switch, rear window heating
	A13	RH headlight, dipped beam	C13	Clock
	A14	RH headlight, main beam	C14	Lighting switch
	A15	RH auxiliary driving light	C16	Switch, rear fog lamp
	A16	RH day-running light	C18	Fog light switch
	A17	RH parking lamp	C21	Bulb, side repeater on RH front wing Bulb, side repeater on LH front wing
	A18	RH direction indicator	C22	
	A19	RH fog light	C24	Cable, radio aerial Radio
	A20	Motor, RH headlight	C25 C26	Lighting, radio
	A21	Headlight washer pump	C26	Ignition switch light
	A22	Ambient air temperature transmitter	627	ignition switch light

	C28	Lighting, hazard warning switch	н	Rear end wiring harness
	C29	Lighting, central instrument panel		The Properties of Artist Properties and Committee and Comm
	C30	Switch, glove-box light	H1	Rear-right direction indicator
	C31	Glove-box light	H2, H3	Rear light, right
	C32	Oil pressure gauge	H4, H5	Brake light, right
	C33	Battery voltmeter	H6	Reversing light, right
	C34	Lighting, lighting switch	H7	Number plate light, right
	C39	LED, car alarm	H8	Rear fog lamp, right
	-20		H9	Switch, brake lights
	D	Tunnel console wiring harness	H10	Bulb failure detector, rear lights
			H11	Rear-left direction indicator
	D1	Switch lighting, centre console	H12/13	
	D2	Switch, seat heating, driver's seat	H14/15	
	D3	Bulb, seat heating switch, driver's seat	H16	Reversing light, left
	D4	Switch, seat heating, passenger's seat	H17	Number plate light, left
	D5	Bulb, seat heating switch, passenger's seat	H18	Rear fog lamp, left
	D6	Switch, auxiliary driving lights	H20	Boot light
	D7	Door mirror, driver's side (left)	H21	Switch, boot light
6	D8	Switch, electrically operated door window, left	H22	Switch, tailgate lock
	D9	Switch, electrically operated door window, right	H24	Motor, radio aerial
-	D10	Door mirror, right	H25	Radio aerial
	D11	Cigar lighter	H29	Relay, aerial motor
	D12	Cigar lighter illumination	H31	Loudspeaker, rear-left
la.	D13	Seat belt contact, driver	H32	Loudspeaker, rearright
	D14	Seat heating element and thermostat, left		,,
,	D15	Seat heating element and thermostat, right	J	Tailgate wiring harness
	D16	Seat cushion contact, front passenger seat		3
	D17	Seat belt contact, passenger	J1	Heating element, rear window
	D18	Switch, handbrake	J2	Rear window wiper motor
	D19	Tank transmitter, fuel gauge	J3	High-level auxiliary brake light
	D20	Fuel injection pump		3
	D24	Lighting, selector scale, AT	K	Interior lighting wiring harness
	E	Heating system wiring harness	K2	Switch, interior light
		3 2 30	K3	Bulb, interior light
	E1	Blower motor	K4	Switch, front-left reading lamp
	E2	Series resistors, heater blower	K5	Front-left reading lamp
	E3	Switch, heater blower	K6	Switch, front-right reading lamp
	E4	Lighting, heater blower switch	K7	Front-right reading lamp
	E7	Time-delay relay, AC compressor, B18FT		
	E8	Relay, AC cooling fan, stage 1	L	Wiring harness for ABS
	E11	Relay, AC cooling fan, stage 2		3
N.	E12	Pressure switch, AC, 25 bar	L1	ECU
ð			L3	Pump motor
4	F	Door wiring harness - driver's side	L8	Wheel sensor, rear-right
			L9	Wheel sensor, front-left
	F1	Heating element, door mirror	L10	Wheel sensor, rear-left
	F2	Motor, electrically operated door window, driver's side	L11	Wheel sensor, front-right
	F3	Door lock switch, driver's side	L23	Combined relay
,	F5	Motors, door mirror, driver's side	L24	Brake pedal travel sensor
8	F6	Switch, keyhole light	L25	Pump sensor
	F7	Keyhole light		
4	F8	Courtesy switch, driver's door	M	Sun roof wiring harness
	F10	Loudspeaker, LF		same same same same same same same same
	F11	Loudspeaker, HF	M1	Switch, tilting sun roof
			M3	Motor, tilting sun roof
	G	Door wiring harness - passenger's side	3348	motor, titting darrioor
			N	SRS wiring harness - airbag
	G1	Heating element, door mirror		3
	G2	Motor, electrically operated door window, passenger's	N1	Electronic Control Unit
		side		Airbag, steering wheel module
	G3	Door lock switch, passenger's side		o, mg module
	G4	Motor, central locking system		
	G5	Motors, door mirror, passenger's side		
	G6	Courtesy switch, passenger's door		
	G10	Loudspeaker, LF		
	G11	Loudspeaker, HF		

Field report form

	То:	From:
	Volvo Car Corporation Afd. Service Technical Support P.O. Box 1015 5700 MC Helmond	
	The Netherlands	
	Concerns publication:	
7		
	Section: Page	TP no.
	Suggestions/reasoning:	
)		

Do you have any useful comment or other ideas concerning this manual? If so, make a copy of this page and send them to us at the above address.

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