

Section 3 Electrical system

Group 31 Battery

System voltage, with ignition off:

12.5 - 12.7 V

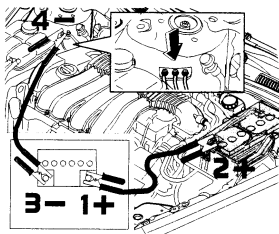
A newly charged battery may have a higher voltage.

Battery capacity

Cold start current* CCA SAE	Capacity	Reserve capacity** RC SAE	Recommended charge current
520 A	55 Ah	100 minutes	5.5 A
600 A	65 Ah	120 minutes	6 A
700 A	80 Ah	150 minutes	8 A

* Cold start current (CCA, SAE) is the discharge current which a battery can provide for 30 seconds, at a temperature of -18°C (0°F) without the voltage dropping below 7.2 V.

** Reserve capacity (RC, SAE) is the time taken at a temperature of +27°C (81°F), and a discharge current of 25 A, to reduce the voltage of a fully charged battery to 10.5 V.



Terminal for jump starting:

1. Install the (+) cable on the booster battery positive terminal (1+) and then on its own battery positive terminal (2+).
2. Install the (-) cable on the booster battery negative terminal (3-) and finally place the clamp on the upper mounting ground point on the right-hand spring strut.

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Group 32 Alternators / Charge regulator

Generators, electrical and mechanical data:

Generator (GEN) Type:	Denso DE120, 14V/120A Denso SC2, 14V/150A
B5244S4	86 02 920
B5254T3	86 02 920
Direction of rotation all	Clockwise
Current strength at 13.5 V: DE 120 A SC2 A Measured at a temperature of 25°C (77°F). Stabilised output voltage. Engine speed (RPM): 1800 rpm.	 67 84
Current strength at 13.5 V: DE 120 A SC2 A Measured at a temperature of 25°C (77°F). Stabilised output voltage. Engine speed (RPM): 6000 rpm.	 117 147

Group 33 Starter motor

PIN and test data:

Starter motor Type / Test data	PIN	
1.4kW Petrol 5cyl (RNC)	Volvo P/N.	86 02 924
Starter motor, type	Bosch 12 V 1.4 kW	
Direction of rotation	Clockwise	
Control solenoid:		
Lowest engagement voltage (20°C) V	7.8	
Lowest holding voltage (20°C) V	2.0	
Resistance:		
Between T50 and ground Ω	0.28±0.01	

Group 35 Lighting

Bulbs

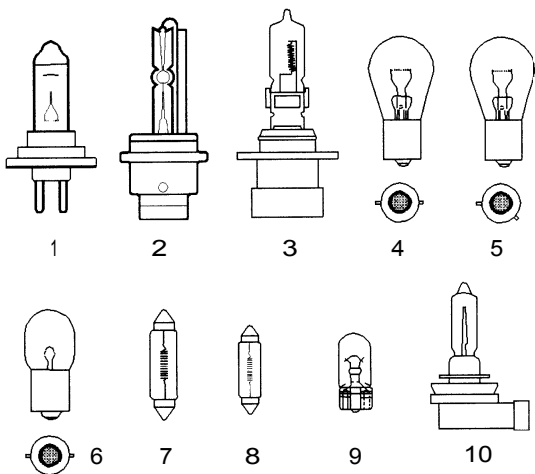
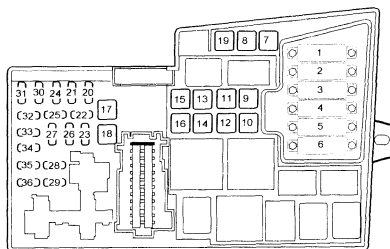
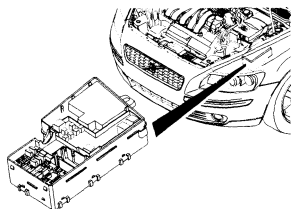


Fig. no. Type	Location:	Power W	Lamp type
1	Headlamps low beam	55	H11
2	Headlamp with Xenon bulb Warning: High voltage!	35	D2S
3	Headlamps high beam	55	HB3
4	Brake lamp, Fog lamp rear	21	P21 W
5	Turn signal lamps, Rear+front (yellow) .	21	PY 21 W
6	Tail lamps, Position / parking lamps	5	P21 /5W
7	Footwell-/Cargo compartment lighting	5	W5W
8	Vanity mirror	1.2	1.2W
9	Number plate lighting, Position/parking lamps in the headlamps	5	W5W
10	Side turn signal flasher (yellow) Fog lamps	55	1-111

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Group 37 Fuses

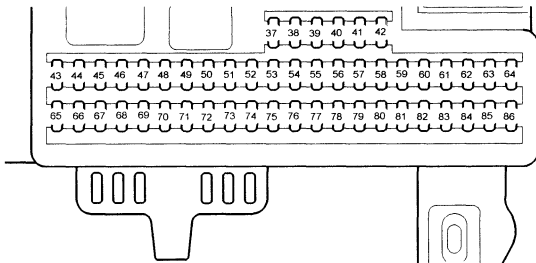


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Main fuses in the engine compartment, integrated relay I fusebox

Fuse number:	Function	A
1	Coolant fan radiator	50
2	Power steering (EPS)	80
3	Feed to passenger compartment fuse box, Relay comfort functions .	60
4	Feed to passenger compartment fuse box, Relay head light	60
5	Element climate unit	80
6	Not in use	10
7	ABS-pump (BCM)	30
8	ABS-valves (BCM) ...	20
9	Engine control module (ECM)	30
10	Fan climate control unit	40
11	Headlamp washer	20
12	Heated rear window	30
13	Starter motor	30
14	Electrical socket trailer(TRM), Parking assistance, Accessory module	40
15	Not in use	
16	Relay infotainment, Controll unit Audio (AUD)	30
17	Windscreen wipers (WMM)	30
18	Feed to passenger compartment fuse box, Relay reversing light, passenger compartment	40
19	Not in use	
20	Horn	15
21	Not in use	
22	Not in use	
23	Engine control module (ECM), Transmission control module (TCM)	10
24	Not in use	
25	Not in use	
26	Ignition switch, Relay starter motor	15
27	AC compressor	10
28	Not in use	
29	Front fog light	15
30	Engine control module (ECM)	3
31	Generator, voltage regulator	10
32	Fuel injectors	10
33	Heating element, Heated oxygen sensor	20
34	Ignition coils, engine control module	10

Main fuses in the engine compartment, integrated relay / fusebox		
Fuse number:	Function	A
35	Engine sensor valves, AC relay	15
36	Engine control module (ECM) sensor accelerator	10



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Passenger compartment fuses

Fuse number:	Function		A
37	Not in use		-
38	Not in use		-
39	Not in use		-
40	Not in use		-
41	Not in use		-
42	Not in use		-
43	Telephone (PHM), Volvo navigation system (VNS), Mediaplayer (MPM)		15
44	Supplement restraint system (SRS)		10
45	Electrical socket front/ rear		15
46	Passenger compartment lighting, glove compartment and footwells lighting		5
47	Roof lighting, Door mirror lighting		5
48	Relay windscreen washer, wiper rear windscreen		15
49	Supplement restraint system (SRS)/ Occupant weight sensor (OCS)		10
50	Not in use		-
51	Bi-Xenon headlights, Light length adjuster		10
52	Brake control module (BCM)		5
53	Power steering (EPS)		10
54	Transmission control module (TCM), Generator		10
55	Not in use		-
56	Siren		10

Passenger compartment fuses		
Fuse number:	Function	A
57	On board diagnostic socket, Engine control module (ECM), Central electronic module (CEM)	15
58	High beam right, Auxiliary lamps	7.5
59	High beam, Left, Auxiliary lamps	10
60	Seat heater driver's side (SHM)	15
61	Seat heater passenger side (SHM)	15
62	Moon roof	20
63	Power window rear, right hand side (RDM)	20
64	Radio, GPS	5
65	Audio system, Volvo navigation system (VNS), IR-sensor remote control	5
66	Climate control module (CCM) / Infotainment module (ICM)	10
67	Sub woofer ..	15
68	Cruise Control, steering wheel module (SWM)	5
69	Climate control, Rain sensor (RSM)	5
70	Not in use	-
71	Not in use	-
72	Not in use	-
73	Moon roof, front ceiling lighting, auto dim mirror, seat belt reminder ...	5
74	Fuel pump relay	15
75	Not in use	-
76	Not in use	-
77	12 Volt socket in trunk	15
78	Not in use	-
79	Back up lights	5
80	Not in use	-
81	Power window and door lock rear, driver's side. Left door module (LDM)	20
82	Power windows and door lock front, passenger side. Passenger door module (PDM)	25
83	Power windows and door lock front, driver's side. Driver door module (DDM)	25
84	Power passenger seat	25
85	Power driver's seat	25
86	Interior lighting relay, Power seats	5

Group 38 Instruments, sensors

Fuel level sensor:	Fuel tank unit, left-hand side: Measured across the terminal pin 5 and 6. Resistance Ω	Fuel tank unit, right-hand side: Measured across the terminal pin 6 and 7. Resistance Ω
Empty fuel tank	374	393
Half tank	133 - 136	129 - 133
Full fuel tank	12	12

Note! During installation the left level sensor must have a resistance in excess of 125 Ω

Engine coolant temperature (ECT) sensor:						
Temperature: $^{\circ}\text{C}$ ($^{\circ}\text{F}$)	0 $^{\circ}$ (32 $^{\circ}$)	10 $^{\circ}$ (50 $^{\circ}$)	20 $^{\circ}$ (68 $^{\circ}$)	40 $^{\circ}$ (104 $^{\circ}$)	80 $^{\circ}$ (176 $^{\circ}$)	100 $^{\circ}$ (212 $^{\circ}$)
Resistance Ω	5740	3700	2450	1150	318	184
Voltage Volt	2.65	2.10	1.62	0.92	0.29	0.17
Supply voltage	5V					
NTC- Resistor						

Intake air temperature (IAT) sensor inlet

Temperature: $^{\circ}\text{C}$ ($^{\circ}\text{F}$)	0 $^{\circ}$ (32 $^{\circ}$)	10 $^{\circ}$ (50 $^{\circ}$)	20 $^{\circ}$ (68 $^{\circ}$)	30 $^{\circ}$ (86 $^{\circ}$)
Resistance Ω	5886	3791	2510	1715
Supply voltage	5V			
NTC- Resistor				

Fuel temperature sensor

Temperature: $^{\circ}\text{C}$ ($^{\circ}\text{F}$)	0 $^{\circ}$ (32 $^{\circ}$)	10 $^{\circ}$ (50 $^{\circ}$)	20 $^{\circ}$ (68 $^{\circ}$)	30 $^{\circ}$ (86 $^{\circ}$)	40 $^{\circ}$ (104 $^{\circ}$)
Resistance ... Ω	5896	3792	2500	1707	1175
Supply voltage	5V				
NTC- Resistor					

Speedometer

Speedometer, resistance in sensor	Cannot be measured. Check using a VADIS station.
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