

Section 3 Electrical system

Group 31 Battery

System voltage	12 V
Ground terminal	Negative pole

Battery capacity

Cold start current* CCA SAE	Capacity (DIN)	Reserve capacity** RC SAE	Recommended charge current
520 A	50 Ah	90	5.5 A
600 A	65 Ah	115	6.0 A

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

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

Group 32 Generator / Charge regulator

Information concerning the generator and the charge regulator which is not included in these tables,

see the corresponding section in: **SN 70 Section 3, Group 32.**

Generator (GEN). Electrical and mechanical data

Generator type	Valeo	Bosch NC
	14.1 V 80 A	14 V 55/100 A
Volvo P/N.	94 42 188	91 62 683
Direction of rotation	clockwise	clockwise
Maximum current strength A	80	100
Maximum output W	1120	1400
Maximum speed r/s (rpm)	300 (18000)	300 (18000)
Carbon brushes, minimum length ... mm	5.5	5.0
Tightening torques:		
Mounting screws governor rear cover Nm	4.5	4.5 - 5.5
Nut for pulley fixed + freewheel Nm	115	60 - 70
Test values:		
Resistance, rotor winding Ω	2.9	2.6
Resistance, stator winding Ω	0.03*	0.02*

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Group 32 Generator/ Charge regulator

Generator type	Valeo 14.1 V 80 A	Bosch NC 14 V 55/100 A
Current strength at 14V V (minimum value) A at r/s (rpm)	52 at 33.3 (2000) 80 at 83 (5000) 108 at 100 (6000)	55 at 30 (1,800) 100 at 100 (6000)

* /phase.

Use a low ohmmeter.

Charge regulator

Charge regulators, type	Bosch		Valeo	
	In the car	On the test bench	In the car	On the test bench
Volvo P/N.	91 28 982		94 42 403	
Conditions:				
Battery charging %	75	100	75	100
..... °C	25	25	25	25
Temperature, regulator warm °C	60 - 80	60 - 80	60 - 80	60 - 80
Test values:				
Generator (GEN) speed r/s (rpm)	100 (6000)		100 (6000)	
Engine speed (RPM) r/s (rpm)	50 (3000)		40 (2400)	
Generator (GEN) load A	30 - 50*		30 - 50*	
Control voltage between B+ and D- on the generator V	13.4 - 14.2	13.7 - 14.5	13.8 - 14.6	14.1 - 14.9
Control tolerance: load the generator (GEN) with 0.85 A rated output. Permitted voltage drop compared to previous reading V	0 - 0.3		0 - 0.3	

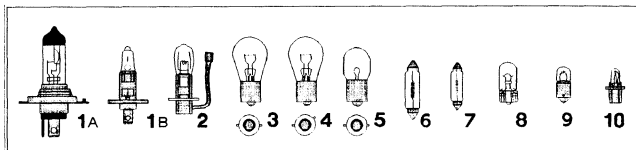
* This load is reached when the engine is running.

Group 33 Starter motor

Technical and electrical data:

Starter motor, type	Bosch 12 V 1.4 kW	Bosch 12 V 2.0 kW
Volvo P/N.	86 02 085 91 62 617 91 62 618	94 59 468
Direction of rotation	Clockwise	Clockwise
Test value, starter motor unloaded:		
12.0 V and maximum 70 A, minimum rpm (r/s)	2900	
12.0 V and maximum 85 A, minimum rpm (r/s)		4900
Test value, starter motor locked:		
4.0 V and 0 rpm	A 650-750	
4.0 V and 0 rpm	A	700 - 1000
Control solenoid:		
Lowest connection voltage	V 7.4	8.0

Group 35 Lighting



A 1510800

Bulbs. market dependent :

Bulb position:	Power (W)	Socket type	US/CAN	Fig. no.
Headlamps	55	H7		1B
US/CAN, high	70		9005/HB3	
US/CAN, low	60		9006/HB4	
Fog lamps	55	PK 14.5 s	H3	2
Front parking lamps	5 (4cp)	BA 15 s	67	5
Tail lamp, 4-D	5 (4cp)	BA 15 s	67	5

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Group 37 Fuses

Bulb position:	Power (W)	Socket type	US/CAN	Fig. no.
Parking lamps / Turn signal lamps, front, USA/CAN	24 / 2.2cp	BAY 15 d	1157 NA	3
Turn signal lamps				
Front	21/4	BAU 15 s	1156	3
Rear	21 (32cp)	BAU 15 s	1156	3
Side	5	W 2.1 x 9.5 d yellow		8
Stop (brake) lamps:				
Standard	21 (32cp)	BA 15 s	1156	3
High mounted	21 (32cp)	Special	1156	3
Spoiler	5	W 2.1 x 9.5 d		8
Fog tail lamp, 4-D	21 (32cp)	BA 15 s	1156	3
Reversing lamps	21 (32cp)	BA 15 s	1156	3
Number plate lighting	5	W 2.1 x 9.5 d		8
Door open warning lamp	3	W 2.1 x 9.5 d		8
Courtesy lighting	5	W 2.1 x 9.5 d		8
Roof lighting	5	BA 9 s		9
	5	Convertible: W 2.1 x 9.5 d		8
Rear reading lamps	5	BA 9 s		9
	5	Convertible: W 2.1 x 9.5 d		8
Cargo compartment lighting	10	SV 8.5		6
Glove compartment lighting	2	BA 9 s		9
Vanity mirror lighting	5	SV 8.5		6
Instrument lighting	3	W 2.1 x 9.5 d		8
Lighting control	1.2 + 1.5	Special		
Warning / indicator lamps	1.2	W 2 x 4.6 d		10

Group 37 Fuses

11A/1-9, Main fuses in the integrated relay / fusebox in the engine compartment		
Fuse number:	Function	A
1	Engine cooling fan (FC)	60
2	Fuses 11C/30-37 (Convertible, 30-36) via overload relay X -98, Fuses 11C/26-29 via overload relay 15I 99-, Fuses 11C/25-29 via overload relay 15I	50
3	Starter motor -98, Pulsed secondary air injection system (PAIR) pump	50

11A/1-9, Main fuses in the integrated relay / fusebox in the engine compartment		
Fuse number:	Function	A
4	ABS control module	50
5	Main lighting relay with bulb failure warning sensor	50
6	Fuses 11C/5-10	60
7	Fuses 11C/11-17, 11C/39-40 (Convertible, 11C/39-42)	50(60)
8	Fuses 11B/1, 11B/2-5 via the main relay for the fuel injection system	60
9	Convertible, Fuses 11C/37 via the relay for the right-hand power windows, Fuse 11C/38 via the relay for the left-hand power windows	60

11B/1-5, Fuses in the integrated relay / fusebox in the engine compartment		
Fuse number:	Function	A
1	Ignition switch, Engine control module (ECM), Main relay fuel injection system -98, AW50-42 gearbox control module (TCM)	10
2	Engine control module (ECM), Injectors, Idle air control (IAC) valve -98, Mass air flow (MAF) sensor 99-, Accelerator pedal (AP) position sensor, A/C relay, AW55-50 gearbox control module, Electronic throttle module (ETM)	15
3	Fuel pump -98, Ignition discharge module (IDM) and ignition coil 99-, Mass air flow (MAF) sensor	15
4	-98, AW50-42 gearbox control module (TCM) 99-, Spark plugs with ignition coils	15
5	Heated oxygen sensor (HO2S) front / rear, Canister purge (CP) valve, -98, Solenoid valve pulsed secondary air injection system (PAIR) EVAP canister shut-off valve, -98 Relay for the pulsed secondary air injection system (PAIR) pump, Turbocharger (TC) control valve, PTC resistor air preheating -98, A/C relay 99-, Solenoid valve variable valve slide, Camshaft reset valve VVT	20

11C/1-42, Fuses, passenger, compartment fusebox		
No.	Function	A
1	Central locking, Soft top operation	10
2	99-, Fog lamp front, Combined instrument panel	15

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Group 37 Fuses

11C/1-42, Fuses, passenger, compartment fusebox		
No.	Function	A
3	99-, Control module central locking / Anti-theft alarm, Mode selector AW50-42, RTI control module	15
4	Immobilizer 99-, Engine control module (ECM), Shift-Lock	10
5	Climate control unit, Data link connector (DLC)	15
6	Control module central locking / Anti-theft alarm, Alarm siren, Alarm horn	20
7	Radio / Amplifier	20
8	Immobilizer, Light switch, Combined instrument panel	15
9	Amplifier	30
10	Anti-theft alarm, Ignition switch Convertible, -98, Ignition switch	10 10
11	Brake lamp, Cruise control, Automatic gearbox AW50-42	10
12	Radio, Additional heater	30
13	Turn signal lamps / Hazard warning signal flashers, High beam flash, Control module central locking / Anti-theft alarm -98, Remote unit central locking / Anti-theft alarm Coupe, -98, Glass breakage sensor	15 15
14	Heated rear window, Heated door mirrors	40
15	Courtesy lighting, Glove compartment lighting, Footwell lighting, Door open warning lamps, Cargo compartment lighting, Seat belt reminder, RTI Convertible, Power windows	10
16	Radio, Tow hitch wiring, Accessory wiring, Cooling box	30
17	Front fog lamps	20
18	Key warning	10
19	Left high beam, Accessory	15
20	Right high beam, High beam indicator lamp	15
21	Left low beam	15
22	Right low beam	15
23	Parking lamps, Tail lamps, Number plate lighting	10
24	Parking lamps, Tail lamps, Bulb failure warning sensor	10
25		10
26	Light switch	15
27	Back-up (reversing) lamps, Turn signal indicator	15
28	Heated seats	25

11C/1-42, Fuses, passenger, compartment fusebox		
No.	Function	A
29	15l-rail (15/4): Heated rear window, Heated door mirrors, Seat belt reminder, Cruise control, Bulb failure warning sensor, Alarm siren, Tow hitch, Accessories Convertible, -98, Shift-Lock, Exhaust temperature sensor	10
30	Cigarette lighter / 12 V power outlet front, RTI 99-, Cigarette lighter / 12 V power outlet rear	10
31	Climate control	20
32	Radio Coupe, Amplifier Convertible, Switch filter rear bass speakers, soft-top control module, Relay boot / antenna lock 99-, ECC control module, Retracting door mirrors Coupe, 99-, Power sunroof, Instrument and control panel lighting, Ashtray lighting Convertible, 99-, Power sunroof, roof lamp button lighting, RTI	10
33	X-rail (15/8): Headlamp range adjustment	15
34	Windscreen wiper / washer, Headlamp wiper / washer, Horn	25
35	Accessories, Rear view mirror Convertible, Power windows, Audible warning soft-top -98, Instrument and control panel lighting, Ashtray lighting 99-, Remote garage door opener. Driver's vanity mirror lighting applies only to the Coupe. Lighting, roof lamp buttons. RTI system	10
36	Seat belt reminder, Key warning	10
37	Power windows Coupe, Power sun roof	*
38	Convertible, Power windows	*
39	Left side power seat	*
40	Right side power seat	*
41	Power soft-top	*
42	Power soft-top	*

* Automatic fuse

Relays in the integrated relay / fusebox, engine compartment	
Position	Function
1	Main relay fuel injection system (2/32)
2	-98, Relay pulsed secondary air injection system (PAIR) pump (2/53) Electronic throttle module (ETM) relay (up to week 49 1998 inclusive)

Relays in the integrated relay / fusebox, engine compartment	
Position	Function
3	Starter motor (2/35)
4	A/C (2/22)

Relays, central electrical unit	
Position	Function
101-102	
103	Fuel pump (FP) (2/23)
104	Main lighting relay with bulb failure warning sensor (2/1)
105	X-supply overload relay (2/30)
106	Overload relay 15l supply (2/6)
108	Main lighting relay with bulb failure warning sensor (2/1)
201	Fog lamps (2/2)
202	Alarm horn (2/77)
203	Windscreen wiper intermittent relay (2/4)
204	Tailgate wiper intermittent relay (2/16)
	-98, Convertible, Audible warning signal, soft-top (7/117)
205	-98, Convertible, Boot lid opening (2/67)
206	Power windows left side (2/99)
208	Heated rear window / door mirrors (2/44)
210	Convertible, Power windows right (2/100)
212	Seat belt reminder / key reminder (2/5)
214	Convertible, Automatic fuses 11C/41-42
215	-

Other relays	
Position	Function
2/11	Engine cooling fan (FC)
7/1	Rear bulb failure warning sensor

Group 38 Instruments

Fuel level sensor	Volume litres	Resistance Ω
Empty fuel tank	0	325 \pm 2.5
Full fuel tank	73	10 \pm 2.5

Temperature sensor	Temperature °C (°F)	Resistance Ω
Resistance at various temperatures	20 (68)	2800
	60 (140)	560
	90 (212)	206

Speedometer, resistance in sensor	Ω	1820 \pm 180
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