

## Section 3 Electrical system

### Group 31 Battery

System voltage .....	12 V
Ground connection .....	Negative terminal
Electrolyte spec. gravity (at 20°C (68°F)),	
fully charged battery .....	1.28
when charge should occur .....	1.21

#### Battery capacity

Volvo P/N	Cold start current* CCA SAE	Reserve capacity* RC SAE (DIN)	Recommended charge current
-1986, B 200/230 Diesel B 27/28		(60Ah)	5 A
		(88Ah)	7 A
		(70Ah)	6 A
1987-	440	85 (50Ah)	4 A
	450	90 (55Ah)	4 A
	520	100 (60Ah)	5 A
	600	125 (70Ah)	6 A

- Cold start current (CCA, SAE) is the discharge current which a battery can supply for 30 seconds at a temperature of - 18 °C (0° F) without falling below 7.2 V.  
Reserve capacity (RC, SAE) is the *time it takes* at a temperature of + 27° C, with a discharge current of 25 A, to *reduce the voltage* of a fully-charged battery to 10.5 V.

## Group 32 Generators

### Generators

Type	S.E.V. Marchal A 14/30 A	S.E.V. Marchal A 14/55 A	S.E.V. Marchal C 14/55 A
Manufacturer P/N .....	712 123 02 712 126 02 712 712 12	713 120 02	716 550 02 716 551 02 716 553 12
Nominal current .....A	35	55	55
Nominal output W	490	770	770
Max. speed.....r/s(rpm)	250 (15000)	225 (13500)	250 (15000)
Diameter, slip rings, new .....mm min. ....mm	34	34	34
Max. permitted radial runout, slip rings.....mm armature .....mm	0.07 0.05	0.07 0.05	0.07 0.05
Brushes, spring force ..... N min. length .....mm	1.3 - 2.5 5	1.3 - 2.5 5	1.3 - 2.5 5
Tightening torque fasteners .....Nm(ft lb) pulley nut "	4 (3) 40 (30)	4 (3) 40 (30)	4 (3) 40 (30)
<b>Test values</b>			
Resistance, rotor winding..... $\Omega$ stator winding..... $\Omega$	4.9 - 5.4 0.20 - 0.25*	3.5 - 4.3 0.17 - 0.23*	4.0 - 4.4 0.17 - 0.23*
Amperage at 14V (min. value) .....A at r/s (rpm) .....A at r/s (rpm) .....A at r/s (rpm)	21/33.3 (2000) 28/50.0 (3000) 32/66.7 (4000)	35/33.3 (2000) 48/50.0 (3000) 53/66.7 (4000)	36/33.3 (2000) 48/50.0 (3000) 53/66.7 (4000)

\* A low-range ohmmeter should be used.

## Generators

Type	S.E.V. Marchal D 14/70 A	Bosch K1 14V 35 A 20	Bosch K1 14V 55 A 20
Manuf. P/N.....	717 700 12	0 120 400 855, - 910, - 911	0 120 400 756, - 853, - 912, - 913, - 932, - 938, - 939, - 941, - 942
Nominal current.....A	70	35	55
Nominal output.....W	980	490	770
Max. speed.....r/s(rpm)	250 (15000)	225 (13500)	250 (15000)
Diameter, slip rings, new.....mm			
min. ....mm	34	31.5	31.5 (26.8)**
Max. permitted radial runout, slip rings.....mm	0.07	0.03	0.03
armature.....mm	0.05	0.05	0.05
Brushes, spring force.....N	1.3 - 2.5	3 - 4	3 - 4
min. length.....mm	5	5	5
Tightening torque fasteners..... Nm(ft lb)	4 (3)	4 (3)	4 (3)
pulley nut....."	40 (30)	40 (30)	40 (30)
<b>Test values</b>			
Resistance, rotor winding..... $\Omega$	3.0 - 5.0	4.0 - 4.4	4.0 - 4.4 (3.4 - 3.75)**
stator winding..... $\Omega$	0.08 - 0.18*	0.26 - 0.29*	0.26 - 0.29*
Amperage at 14V (min. value) ..... A at r/s (rpm)	36/33.3 (2000)	22/33.3 (2000)	22/33.3 (2000)
..... A at r/s (rpm)	48/50.0 (3000)	30/50.0 (3000)	30/50.0 (3000)
..... A at r/s (rpm)	53/66.7 (4000)	33/66.7 (4000)	33/66.7 (4000)

\* A low-range ohmmeter should be used.

\*\* Applies to generators with mounted regulator

## Generators

Type	Bosch K1 14V 55 A 20	Bosch K1 14V 65 A 20	Bosch N1 14V 70 A 20
Manuf. P/N.....	0 120 488 <b>258</b> 0 120 489 <b>065</b> , - <b>066</b> , - <b>069</b> , - <b>070</b> , - <b>285</b> , - <b>286</b> , - <b>297</b>	0 120 488 230, - <b>262</b>	0 120 450 <b>008</b> , - <b>009</b> , 0 120 469 <b>563</b> , - <b>564</b> , - <b>567</b> , - <b>568</b>
Nominal current..... A	55	65	70
Nominal output..... W	770	910	980
Max. speed..... r/s(rpm)	250 (15000)	250 (15000)	225 (13500)
Diameter, slip rings,			
new..... mm		28.0	
min. .... mm	31.5 (26.8)**	26.8	31.5 (26.8)**
Max. permitted radial runout,			
slip rings..... mm	0.03	0.03	0.03
armature..... mm	0.05	0.05	0.05
Brushes,			
spring force..... N	3 - 4	3 - 4	3 - 4
min. length..... mm	5	5	5
Tightening torques			
fasteners.. Nm(ft lb)	4 (3)	4 (3)	4 (3)
pulley nut..... "	40 (30)	45 - 55 (33 - 40)	40 (30)
<b>Test values</b>			
Resistance,			
rotor winding..... $\Omega$	4.0-4.4(3.4-3.75)**	2.8 $\pm$ 10%	4.0-4.4(3.4-3.75)**
stator winding..... $\Omega$	0.26 - 0.29*	0.1* $\pm$ 10%	0.1*
Amperage at 14V			
(min. value) .... A at r/s (rpm)	22/33.3 (2000)	23/25 (1500)	46/33.3 (2000)
..... A at r/s (rpm)	30/50.0 (3000)	44/35 (2100)	58/50.0 (3000)
..... A at r/s (rpm)	33/66.7 (4000)	65/100 (6000)	64/66.7 (4000)

\* A low-range ohmmeter should be used.

## Generators

Type	Bosch N1 14V 31/80 A	Bosch N1 14V 90 A 20	Bosch N1 14V31/100 A
Manufacturer P/N .....	0 120 469 785, - 787, - 993	0 120 469 609	0 120 468 012, - 016
Nominal current ..... A	80	90	100
Nominal output..... W	1120	1260	1400
Max. speed..... r/s(rpm)	250 (15000)	250 (15000)	250 (15000)
Diameter, slip rings, new..... mm		28.0	28.0
min. .... mm	26.8	26.8	26.8
Max. permitted radial runout, slip rings..... mm	0.03	0.03	0.03
armature..... mm	0.05	0.05	0.05
Brushes, spring force..... N		3 - 4	3 - 4
min. length ..... mm	5	5	5
Tightening torque fasteners..... Nm(ft lb)	4 (3)	4 (3)	4 (3)
pulley nut	45 - 55 (33 - 40)	35 - 45 (25 - 33)	45 - 55 (33 - 40)
<b>Test values</b>			
Resistance, rotor winding ..... $\Omega$	2.9	2.8 - 3.1	2.6
stator winding ..... $\Omega$	0.09*	0.07 - 0.08*	0.05*
Amperage at 14V (min. value) ..... A at r/s (rpm)	31/25 (1500)	34/25 (1500)	31/25 (1500)
..... A at r/s (rpm)	80/100 (6000)	60/33.3 (2000)	100/100(6000)
..... A at r/s (rpm)		90/100 (6000)	

\* A low-range ohmmeter should be used.

## Charge regulator

Make	Bosch	Marchal	Bosch
Manuf. P/N	0 190 601 006	72 317 102	0 192 062 005
Volvo P/N	241 534-7	12 34 519-5	1 3 08 030-4
<b>Conditions</b>			
Fully charged battery			
Temperature at regulator	+25° C	+25° C	+25° C
<b>Test values</b>			
Generator speed ..... r/s(rpm)	67 (4000)	100 (6000)	100 (6000)
Engine speed ..... r/s(rpm)	33 (2000)	50 (3000)	50 (3000)
Generator load ..... A	3 - 7	5 - 10	5 - 10
Regulating voltage, between B+ and D- on the generator			
Cold regulator ..... V	13.9 - 14.8	13.7 - 14.5	14.3 - 15.0
Hot regulator ..... V	13.8 - 14.3	13.5 - 14.1	14.05 - 14.35
<b>Regulator tolerance</b>			
Load 35 A generator with .....	28 A		
55 A generator with .....	44 A	47 A	47
70 A generator with .....	56 A	60 A	60
Permitted voltage drop compared with the previous reading..... V	0.45	0.30	0.30

**Charge regulator**  
(mounted regulator)

<b>Make</b>	<b>Bosch</b>		<b>Bosch</b>	
Manuf. P/N.....	1 197 311 <b>008</b>		1 197 311 <b>022</b>	
late type.....	1 192 052 <b>027</b>			
Volvo P/N.....	35 23 710-6		35 23 710-6	
late type.....				
<b>Conditions</b>	*	**	*	**
Battery charge ..... %	75	100	75	100
Ambient temperature ..... °C(°F)	+ 25 (+77)		+ 25 (+77)	
Temperature, warm regulator ..... °C(°F)			+ 60 - 80 (+140-176)	
<b>Test values</b>				
Generator speed..... r/s(rpm)	100 (6000)		100 (6000)	
Engine speed..... r/s(rpm)			42 (2500)	
Generator load..... A	30 - 50***	5 - 10	30 - 50***	
Regulating voltage, between B+ and D- on the generator				
Cold regulator ..... V	14.1 - 14.8	14.1 - 14.8		
Hot regulator ..... V	13.4 - 14.2	13.8 - 14.3	13.8 - 14.6	14.1 - 14.9
<b>Regulator tolerance</b>				
Load the generator with the rated output x 0.85				
Permitted voltage drop compared with the previous reading..... V		0 - 0.3		0 - 0.3

\* In the car

\*\* In bench test

\*\*\* This load is achieved when  
the engine is running.

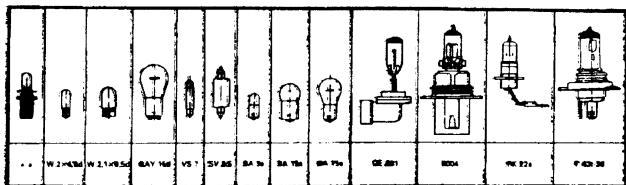
## Group 33 Starter motor

Type	Bosch GF 12V 1.1 kW	Bosch DW 12V 1.4 kW	Bosch JF 12V 2.0 kW
Manufacturer's P/N .....	0 001 311 103, -105, -106, -146	0 001 108 030, - 088	0 001 362 069, - 077, - 083
Clockwise rotation			
<b>Test values, mechanical</b>			
Armature end clearance..... mm	0.1 - 0.3	0.05 - 0.40	0.10 - 0.30
Frictional torque, armature brake..... Nm	30 - 35	0.9 - 1.4	0.45 - 0.75
Distance from pinion to ring gear..... mm	2.0 - 3.0	2.0 - 3.0	2.5 - 4.0
modulus..... mm	2.12	2.11	2.12
clearance torque..... Nm	1.4 - 2.2	0.12 - 0.18	0.28 - 0.40
Backlash..... mm	0.3 - 0.6	0.3 - 0.6	0.35 - 0.60
Min. commutator diameter..... mm	33.5	31.2	42.5
Carbon brushes min. length..... mm	13	8.0	8.5
Max. radial runout armature..... mm	0.05	0.05	0.05
commutator..... mm	0.05	0.05	0.05
<b>Test values, electrical</b>			
Unloaded starter motor, ..... V	11.5	11.5	11.5
..... max. A	70	75	95
..... min. r/s(rpm)	125 (7500)	48 (2900)	108 (6500)
Locked starter motor, ..... V	7	4.5	4.5
..... A	480 - 560	625 - 800	700 - 880
Lowest cut-in voltage control solenoid..... V	7.5	7.3	7.5

















Type	Bosch EW 12V 2.2 kW	Hitachi 12V 1.4 kW	Hitachi 12V 2.0 kW
Manufacturer P/N .....	0 001 218 017, -130	S 114 - 232	S 13 - 91
Clockwise rotation			
<b>Test values, mechanical</b>			
Armature end clearance .....	mm 0.05 - 0.30	0.03 - 0.10	0.2 - 0.5
Frictional torque armature brake .....	Nm 1.0 - 1.5		
Distance from, pinion to ring gear .....	mm 2.0 - 3.0		
modulus .....	mm 2.12	2.12	2.12
clearance torque .....	Nm 0.27 - 0.35		
clearance free play .....	mm	0.3 - 1.5	0.3 - 1.5
Backlash .....	mm 0.3 - 0.6		
Min. commutator diameter .....	mm 28.9	39.0	35.5
Brushes, min. length .....	mm 7.0	11.0	9.0
spring force .....	N	13.7 - 17.7	26.5 - 32.4
Max. radial runout armature .....	mm 0.05		
commutator .....	mm 0.01		
<b>Test values, electrical</b>			
Unloaded starter motor, .....	V 10.5	12.0	11.0
..... max. A	160	60	140
..... min. r/s(rpm)	70 (4200)	117 (7000)	65 (3900)
Locked starter motor, .....	V 3.0	6.0	3.0
..... A	720 - 950	650	880
Lowest cut-in voltage control solenoid .....	V 7.8	8.0	8

## Group 35 Lighting



144 822

Bulbs	Rating	Socket type	US/ CAN	No.
Headlight .....	60/55	P 431-38(H4)		2
Headlight, US/CAN .....	70/50 W	Semi-sealed	9004/HB1	2
Parking light .....	5 W (4 cp)	BA 15s	1157 NA	2
Parking/Turn signal, front, US/CAN 1993- .....	(32/3 cp) (24/2.2 cp)	BAY 15d	1157 NA	2
Turn signal, front .....	21 W (32 cp)	BA 15s		2
front US/CAN .....	21 W (24 cp)	BAY 15d	1157 NA	2
side .....	5 W	W 2.1x9.5d		2
rear .....	21 W (32 cp)	BA 15s	1156	2
Tail light .....	5 W (4 cp)	BA 15s	67	4
Brake light .....	21 W (32 cp)	BA 15s	1156	2
Brake light/Tail light .....	21/5 W (32/3 cp)	BAY 15d	1157	2
High-level brake light .....	21 W (32 cp)	BA 15s	1156	1
Rear fog light, 244 .....	21 W (32 cp)	BA 15s	1156	1
Rear fog light/tail light, 245 .....	21/5 W	BA 15d		1
Back-up (Reversing) light .....	21 W (32 cp)	BA 15s	1156	2
Number plate light, 1975-1978 .....	5 W	Sv 8.5		
1979-, 244 .....	4 W	BA 9s		2
245 .....	5 W	S 8.5-8		2

													
• •	W 2x4.6d	W 2.1x3.5d	BAV 16d	VE 7	SV 8.5	BA 9s	BA 15s	BA 15s	GE 881	8084	PK 22s	P 43i-38	

144 B37

Bulbs	Rating	Socket type	US/ CAN	No.
Courtesy light .....	10 W	SV 8.5		1
Glove compartment light .....	2 W	BA 9s		1
Engine compartment light .....	15 W	SV 8.5		1
Boot (trunk) light .....	15 W	SV 8.5		1
<b>Instrument lighting</b>				
Indicator and warning lights .....	1.2 W	W 2x4.6d *		11
Lighting .....	3 W	BA 7s		2
Indicator light, seat belts .....	2 W	BA 9s		1
Control and panel lighting .....	1.2 W	W 2x4.6d		

\* With holder, see diagram.

## Group 37 Fuses

240/260 1975

No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Headlight wipers; Tailgate wiper (245);	8
2		Windshield wipers; Blower motor Horn	16
3	Ignition lock 15	Heated rear window Overdrive (240)	16
4		Glove compartment light Reversing light Heated drivers seat; Air conditioning (A/C);	8
5		Instruments; Turn indicators; Indicator light, hazard warning flashers; Seat belt reminder; Relay, power windows(260);	5
6	Battery +	Hazard warning flashers; Rear courtesy light (245); Engine compartment light; Trunk (boot) light (260);	8
7		Clock; Fuel pump, injection engines;	8
8		Brake light; Courtesy light;	8
9	Ignition lock S	Spare;	5
10	Battery +	Day running lights (Sweden); Power windows (260);	8
11	Light switch	Left parking light; Left number plate light; (245 left + right);	5
12		Right parking light; Right number plate light; Control and panel lighting;	5

## 240/260 1976, 1977

No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Radio, antenna (USA 1977); Headlight wipers; Tailgate wash/wipe (245/265);	8
2		Windshield wipers; Blower fan; Horn; Cruise control (USA 1977);	16
3	Ignition lock 15	Heated rear window; Overdrive;	16
4		Glove compartment light; Backup (reversing) lights; Heated driver seat; Air conditioning (A/C); Relay, power windows (260); Seat belt reminder (USA);	8
5		Instruments; Turn indicators; Indicator light, hazard warning flashers; Relay, injection motor; Solenoid valve, carburettor; Seat belt reminder (excl. USA); Bulb failure sensor;	8
6	Battery +	Hazard warning flashers; Rear courtesy lighting (245/265); Engine compartment light; Trunk (boot) light (260);	8
7		Clock; Oxygen sensor (O2S) (USA 240 1977); Fuel pump, injection engines;	16
8		Stop (Brake) light; Courtesy light;	8
9	Ignition lock S	Day running lights (certain markets); Seat belt reminder (USA 1977);	8
10	Battery +	Spare; Power windows (260);	16
11	Light switch	Left parking light; Left number plate light; (245/265 left + right); Side indicator lights (1977, certain markets); Lights buzzer;	8
12		Right parking light; Right number plate light; Control and panel lighting;	8

No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Headlight wipers; Tailgate wiper (245,265); Windshield wash/wipe; Radio, antenna;	16
2		Blower fan; Horn; Cruise control	16
3	Ignition lock 15	Heated rear window; Overdrive;	16
4		Backup (reversing) lights; Heated driver seat; Air conditioning (A/C); Relay, power windows;	8
5		Instruments; Turn indicators; Bulb failure sensor; Indicator light, hazard warning flashers; Relay, injection motor; Solenoid valve, carburettor; Seat belt reminder; Power door mirrors;	8
6	Battery +	Stop (Brake) light; Rear courtesy lighting (245/265); Trunk (boot) lighting; Engine compartment light;	8
7		Fuel pump, injection engine; Oxygen sensor (O2S);	16
8		Clock; Courtesy light; Glove compartment lighting; Hazard warning flashers;	8
9	Ignition lock S	Day running lights; Seat belt reminder (USA);	8
10	Battery +	Spare; Power windows (260);	16
11	Light switch	Left parking light; Left number plate light; (245/265 left + right); Side indicator lights; Light buzzer; Rear foglight;	8
12		Right parking light; Right number plate light; Control and panel lighting; Relay, foglight;	8

240/260 1979

No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Headlight wipers; Tailgate wiper (245,265); Power door mirrors; Radio, antenna;	8
2		Windshield wipers; Horn;	16
3		Blower motor	16
4	Ignition lock S	Day running lights; Seat belt reminder; Key buzzer;	8
5	Relay for fuel pump	Fuel prepump (E/F engines)	8
6	Battery +	Stop (Brake) light; Delay relay, courtesy lighting;	8
7		Fuel pump	16
8		Courtesy lighting; Glove compartment lighting; Clock; Trunk (boot) lighting ; Engine compartment light;	8
9		Hazard warning flashers;	8
10		Power windows; Extra lights; Heated passenger seat (262);	16
11	Ignition lock 15	Heated rear window; Overdrive;	16
12		Backup (reversing) lights; Relay, power windows and heated passenger seat; Heated driver seat; Air conditioning (A/C);	8
13		Instruments; Bulb failure sensor; Turn indicators; Temperature warning (USA) Solenoid valve, carburettor; Seat belt reminder; Relay, fuel injection (E/F engines)	8
14		Spare	
15	Light switch	Left parking light; Number plate light; Side indicator lights (245,265); Rear foglight (certain markets);	8
16		Right parking light; Control and panel lighting; Light buzzer	8

No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Headlamp and tailgate wash/wipe; Power door mirrors; Radio; Cruise control;	8
2		Windshield wash/wipe; Horn;	16
3		Blower motor	16
4	Ignition lock S	Day running lights; Seat belt reminder; Key buzzer;	8
5	Relay for fuel pump	Fuel prepump (E/F engines);	8
6	Battery +	Stop (Brake) light; Delay relay, courtesy lighting;	8
7		Fuel Main pump (E/F engines) (via relay)	16
8		Courtesy lighting; Clock ; Glove compartment light; Engine compartment lighting; Trunk (boot) lighting; Power radio antenna ; Central locking;	8
9		Hazard warning flashers;	8
10		Power window lifts; Extra lights; Heated passenger seat (262);	16
11	Ignition lock	Overdrive; Heated back window;	16
12	15	Backup (reversing) lights;; Relay, power windows and heated passenger seat; Heated driver seat; Air conditioning (A/C);	8
13		Turn indicators; Bulb failure sensor; Instrument and indicator lamps; Seat belt reminder; Temperature warning (USA); Relay, main fuel pump; Solenoid valve, carburettor; Relay, engine cooling fan (FC);	8
14	Light relay	Rear fog light; Accessories;	8
15	Light switch	Left parking light; Number plate light; Side indicator lights (245,265)	8
16		Instrument and control lighting; Right parking light; Relay, extra light; Light buzzer	8



No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Trunk (boot) power opener; Headlight wash/wipe 1981-1983 (parking); Tailgate wiper (245,265); Power door mirrors; Radio; Cruise control;	8
2		Windshield wash/wipe; Headlight wash/wipe Horn;	16
3		Blower fan, standard heater; Blower fan, CU heater, speed 2-4;	25
4	Ignition lock S	Day running lights; Seat belt reminder; Key buzzer;	8
5	Relay for fuel pump	Fuel prepump (E/F engines);	8
6	Battery +	Stop (Brake) light; Delay relay, courtesy lighting; Cruise control;	8
7		Main fuel pump, E/F engines (via relay); Oxygen sensor (O2S);	16
8		Courtesy lighting; Clock; Glove compartment lighting; Engine compartment lighting; Trunk (boot) lighting; Power antennae; Central locking;	8
9		Hazard warning; Washers;	8
10		Power windows; Heated passenger seat (262);	16
11	Ignition lock 15	Heated rear window; Overdriver; Control module, ignition;	16
12		Backup (reversing) lights; Relay, power windows; Heated driver seat; Air conditioning (A/C); Blower fan; CU heater, speed 1; Relay, heated rear window;	8
13		Turn indicators; Instrument and indicator lamps; Seat belt reminder; Relay, main fuel pump; Control module, fuel; Solenoid valve, carburettor; Relay, engine cooling fan (FC); Fuel valve, diesel (240); Control module, diesel (240);	8
14	Light switch	Rear fog light; Accessory;	8
15	Light switch	Left parking light; Number plate light;	8
16		Instrument and control lighting; Right parking light; Relay, extra light; Buzzer for lights and key;	8

No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter Tailgate wash/wipe 245; Power door mirrors; Radio;	8
2		Windshield wash/wipe; Headlight wash/wipe; Horn;	16
3		Blower fan;	25
4	Relay for fuel pump	Fuel prepump, E/F engines;	8
5	Ignition lock 15	Day running lights;	8
6	(battery +)	Fuel pump	8
7		Stop (Brake) light;	16
8		Courtesy lighting; Clock ; Glove compartment lighting; Engine compartment lighting; Trunk (boot) lighting; Power radio antenna ; Central locking;	8
9		Hazard warning flashers;	8
10		Power windows;	16
11	Ignition lock 15	Heated rear window; Overdrive; Heated seat(s);	16
12		Backup (reversing) lights; Relay, power windows; Air conditioning (A/C); Blower motor, CU heater;	8
13		Turn indicators, Constant idle speed (CIS); Engine cooling fan (FC); Instrument and indicator lamps; Seat belt reminder, Relay, main fuel pump; Solenoid valve; Fuel valve, diesel ; Control module; Diesel	8
14	Light relay	Rear fog light; Accessories;	8
15	Light switch	Left parking light; Number plate light	8
16		Instrument and control lighting; Right parking light; Light buzzer	8

No.	Supplied by	Circuits protected	A	
1	Ignition lock X	Cigar lighter; Tailgate wiper (245); Power door mirrors; Radio B+; Cruise control; Light beam adjustment (Germany 1990);	8	
2		Windshield wash/wipe; Headlight wash/wipe; Horn;	16	
3		Blower fan;	25	
4	Relay for fuel pump	Fuel prepump, E/F engines; Oxygen sensor (O2S);	8	
5	(battery +)	Ignition lock 15 Day running lights; Reduced low beam (Great Britain 1989); PTC resistance 1990; Glow plug relay, diesel 1990;	8	
6		Fuel main pump (E/F engines)	16	
7		Stop (Brake) light; Cruise control - 1989;	8	
8		Courtesy lighting; Clock ; Glove compartment lighting; Engine compartment lighting; Trunk (boot) lighting; Power radio antenna ; Central locking; Radio Const +;	8	
9		Hazard warning flashers;	8	
10		Power windows;	16	
11		Ignition lock 15	Heated rear window; Overdrive;	16
12		15	Backup (reversing) lights;; Relay, power windows; Air conditioning (A/C);; Relay, heated rear window; Reduced low beam (Great Britain 1990); Cruise control - 1990;	8
13			Turn indicators; Heated seats; Seat belt reminder; Solenoid valve; PTC resistance 1989; Glow plug relay, diesel 1989;	16
14		Light relay	Rear fog light; Accessory;	8
15	Light switch	Left parking light; Number plate light	8	
16		Instrument and control lighting; Right parking light;	8	

No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Tailgate wash/wipe (245); Power door mirrors; Radio"+ACC"; Light beam adjustment;	8
2		Windshield wash/wipe; Headlight wash/wipe; Horn;	16
3		Blower motor	25
4	Relay, fuel pump	Fuel prepump; Oxygen sensor, heating (HO2S);	8
5	Ignition lock 15	Turn indicator switch; Backup (reversing) lights; Control module, preheating (Diesel);	16
6	30 - rail (battery +)	Fuel pump relay, MFI fuel system; Control module, MFI fuel system; Control module; distributor ignition (DI) system;	16
7	Light switch	Stop (Brake) light;	8
8		Courtesy lighting; Clock ; Glove compartment lighting; Trunk (boot) lighting; Power radio antenna ; Central locking; Radio "+Bat"; Automatic low beam (CAN);	8
9		Hazard warning flashers	8
10		Relay; power windows (supply);	16
11	Ignition lock 15 I	Heated rear window; Solenoid, overdrive AW 71;	16
12		Relay, AC delay; Relay, power windows (control); Relay, P-shift lock (control); Cruise control; Reduced low beam (Dim-Dip); Seat belt reminder, US/CAN	8
13		Heated seats; Relay, low beam (CAN);	16
14	Light switch	Rear fog light; Radio "dimmer";	8
15	Light switch	Left parking light; Number plate light; Bulb failure sensor, left;	8
16		Right parking light; Bulb failure sensor, right; Instrument / control lighting;	8

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No.	Supplied by	Circuits protected	A
1	Ignition lock X	Cigar lighter; Radio; Light beam adjustment; Ambient temperature sensor; Tailgate wash/wipe (245);	8
2		Windshield wash/wipe; Horn; Headlight wash/wipe;	16
3		Blower fan:	25
4	Relay, fuel pump	Fuel pump (in fuel tank); Heating, heated oxygen sensor (HO2S);	8
5	Ignition lock 15	Turn indicator; Backup (reversing) lights; Seat belt reminder; Control module, preheating (Diesel); Power and heated door mirrors;	16
6	Battery +	Fuel pump relay (- sept. 92); Control module, MFI fuel system (- sept. 92); Control module, distributor ignition (DI) system (- sept. 92); Spare (sept. 92 -);	16
7	Light switch	Stop (Brake) light; ABS anti-lock braking system (- sept. 92); Solenoid for P-shift lock;	8
8		Courtesy lighting; Clock ; Glove compartment lighting; Trunk (boot) lighting; Central locking; Radio; Power antenna; Automatic low beam (CAN);	8
9		Hazard warning flashers;	8
10		Power window lifts	16

No.	Supplied by	Circuits protected	A
11	Ignition lock 15 l	Heated rear window; Overdrive AW 70/71;	16
12		Relay, power windows; A/C airconditioning; Cruise control; Relay for tow hitch; Dim-Dip lighting (GB); Relay to P-shift lock; Exhaust temp. sensor (Japan); Switch for heated rear window (USA/CAN);	8
13		Heated seats; Relay, low beam (CAN);	16
14	Light switch	Radio; Ambient air temperature sensor; Rear foglight;	8
15	Light switch	Left parking and tail light; Bulb failure sensor, left; Number plate light	8
16		Right parking and tail light; Bulb failure sensor, right; Instrument and control lighting; Indicator lamp, parking light;	8
On cars built after 1992 there is also a fusebox beside the battery as below. Fuse no. 6 superseded.			
IGN	Battery +	Ignition lock,; Main lighting relay; Step relay, high/low beam; Fuse box;	60
MAIN		Fuel system (MFI), control module pos. 4; main relay pos. 3; Ignition system (DI), control module pos. 3;	30
ABS		ABS anti-lock system	40
AC		Engine cooling fan;	20

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<b>Fuel level sensor</b>	<b>Volume litres</b>	<b>Resistance <math>\Omega</math></b>
empty tank.....	0	296 $\pm$ 15
full tank .....	60	36 $\pm$ 2

<b>Engine coolant temperature (ETC) sensor</b>	<b>Temperature <math>^{\circ}\text{C}</math></b>	<b>Resistance <math>\Omega</math></b>
Resistance of sensor at various temperatures....	60 (140)	217 $\pm$ 36
	90 (194)	87 $\pm$ 15
	100 (212)	67 $\pm$ 11