

Contents

27	- Starter, Current supply	1
1	Battery	1
1.1	Battery	1
1.2	Notes on handling batteries	1
1.3	Battery with condition indicator	3
1.4	Battery with condition indicator and without sealing plugs	3
1.5	Visual check	4
1.6	Checking electrolyte level	4
1.7	Checking specific gravity of all cells	6
1.8	No load voltage measurement	8
1.9	Checking voltage under load	9
1.10	Battery charging	11
1.11	Removing and installing battery	12
1.12	Quick charging/starting boost	13
2	Removing and installing alternator	13
2.1	Removing and installing alternator	13
2.2	Vehicles with V6 petrol engine	14
2.3	Vehicles with V8 petrol engine (3.7 ltr. and 4.2 ltr.)	17
2.4	Vehicles with W12 petrol engine	18
2.5	Vehicles with V6 TDI engine	21
2.6	Vehicles with V8 TDI engine	23
2.7	Replacing voltage regulator	28
2.8	Removing and installing ribbed belt pulley without free-wheel	29
2.9	Removing and installing ribbed belt pulley with free-wheel	29
3	Removing and installing starter	30
3.1	Removing and installing starter	30
3.2	Vehicles with V6 petrol engine	30
3.3	Vehicles with V8 petrol engine (3.7 ltr. and 4.2 ltr.)	31
3.4	Vehicles with W12 petrol engine	34
3.5	Vehicles with V6 TDI engine	44
3.6	Vehicles with V8 TDI engine	45
4	Cruise control system (CCS) for vehicles with electronic throttle	53
4.1	Cruise control system (CCS) for vehicles with electronic throttle	53
5	Cruise control system (CCS) for vehicles without electronic throttle (mechanical throttle)	53
5.1	Cruise control system (CCS) for vehicles without electronic throttle (mechanical throttle)	53
5.2	General notes	53
5.3	Removing and installing control unit for cruise control system -J213	53
5.4	Contact assignment of 12-pin connector for CCS control unit	54
5.5	Removing and installing vacuum pump for CCS -V18	55
90	- Gauges, Instruments	56
1	Dash panel insert	56
1.1	Dash panel insert	56
1.2	General notes	56
1.3	Fault message "dEF" on trip recorder display	56
1.4	Removing and installing dash panel insert	56
1.5	Multi-pin connectors on dash panel insert	57
1.6	Assignment of contacts at multi-pin connectors	58
1.7	Servicing radio-controlled clock	61
1.8	Checking vehicle speed signal	62
1.9	Testing signal from fuel gauge sender -G	63
1.10	Testing signal from coolant temperature sender -G2	64
1.11	Testing fuel consumption signal (engine connected to drive train CAN bus)	65



92 - Windscreen wipe and wash system	66
1 Servicing windscreen wiper system	66
1.1 Servicing windscreen wiper system	66
1.2 General notes	66
1.3 Removing and installing windscreen wiper system	67
1.4 Setting wiper blade park position	70
1.5 Eliminating wiper blade judder	70
2 Servicing windscreen washer system	72
2.1 Servicing windscreen washer system	72
2.2 General notes	72
2.3 General overview (all versions except S8)	72
2.4 General overview for S8	73
2.5 Removing and installing washer fluid container (all versions except S8)	73
2.6 Removing and installing washer fluid container on S8	74
2.7 Removing and installing spray jets	76
2.8 Adjusting jets	76
3 Servicing headlight washer system	77
3.1 Servicing headlight washer system	77
3.2 General notes	77
3.3 Removing and installing headlight washer spray jets	77
3.4 Adjusting jets	78
3.5 Removing and installing washer fluid container	78
3.6 Removing and installing pump for headlight washer system (all versions except S8)	79
3.7 Removing and installing pump for headlight washer system on S8	79
94 - Lights, Lamps, Switches - exterior	80
1 Servicing headlights	80
1.1 Servicing headlights	80
1.2 General notes	80
1.3 General overview - halogen headlights	81
1.4 General overview - gas-discharge headlights	83
1.5 General overview - gas-discharge headlights (Bi-xenon)	85
1.6 Removing and installing headlights	88
1.7 Installing repair kit for headlight housing	88
1.8 Adjusting headlights (halogen headlights)	89
1.9 Adjusting headlights (gas-discharge headlights)	89
1.10 Converting headlights for LH or RH traffic	92
1.11 Changing bulbs in headlight	93
1.12 Changing gas discharge lamp (Bi-xenon headlight)	102
1.13 Removing and installing headlight range control motor - halogen headlights	103
1.14 Removing and installing headlight range control motor - gas discharge headlights	105
1.15 Removing and installing gas-discharge lamp starter unit -N195	107
1.16 Removing and installing gas discharge lamp control unit, left -J343	108
1.17 Removing and installing gas discharge lamp control unit, right -J344	109
1.18 Removing and installing gas-discharge headlight control unit from MY 01	109
1.19 Removing and installing gas-discharge lamp control unit - main beam	110
2 Servicing fog lights	111
2.1 Servicing fog lights	111
2.2 Removing and installing fog lights	111
2.3 Adjusting fog lights	111
2.4 Replacing front fog light bulb	112
3 Servicing rear lights	113
3.1 Servicing rear lights	113
3.2 Removing and installing bulb carrier in side panel	113
3.3 Removing and installing rear light in side panel	113

3.4	Removing and installing number plate lights	114
3.5	Removing and installing rear light bulbs in boot lid	115
3.6	Removing and installing rear light in boot lid	115
4	Removing and installing high-level brake light	116
4.1	Removing and installing high-level brake light	116
5	Side mounted turn signals	118
5.1	Side mounted turn signals	118
5.2	Removing and installing side mounted turn signals	118
6	Servicing steering column switches	118
6.1	Servicing steering column switches	118
6.2	General notes	118
6.3	Removing and installing steering column switches	119
6.4	Wiring connections on steering column switch	119
7	Servicing lock cylinder and ignition/starter switch	121
7.1	Servicing lock cylinder and ignition/starter switch	121
7.2	General notes	121
7.3	Removing and installing lock cylinder	122
7.4	Removing and installing ignition/starter switch	123
7.5	Wiring connections on ignition/starter switch	123
8	Servicing acoustic parking system	124
8.1	Servicing acoustic parking system	124
8.2	General notes	124
8.3	General overview of parking aid	125
8.4	Removing and installing parking aid control unit -J446	126
8.5	Removing and installing warning buzzer for front parking aid -H22	127
8.6	Removing and installing warning buzzer for rear parking aid -H15	128
8.7	Removing and installing front acoustic parking aid senders	128
8.8	Removing and installing rear parking aid senders	129
9	Servicing automatic headlight range control system	130
9.1	Servicing automatic headlight range control system	130
9.2	General notes	130
9.3	General overview of automatic headlight range control	131
9.4	Removing and installing control unit for automatic headlight range control -J431	132
96	Lights, Lamps, Switches - interior	134
1	Servicing switches	134
1.1	Servicing switches	134
1.2	Removing and installing switches in centre console	134
1.3	Removing and installing hazard warning light switch	135
1.4	Removing and installing light switch	136
1.5	Removing and installing electric steering column adjustment switch	136
1.6	Removing and installing front seat heating switch	136
1.7	Removing and installing sunroof switch	136
1.8	Removing and installing adjuster for headlight range control	137
1.9	Removing and installing switch for glove box light	138
1.10	Removing and installing luggage compartment release switch -E164 and interior monitor switch -E183	138
1.11	Removing and installing interior central locking switch -E150	139
1.12	Removing and installing mirror adjuster switch	139
1.13	Removing and installing front window lifter switches	140
1.14	Removing and installing rear window lifter switches	140
1.15	Removing and installing memory operating unit, driver seat -E97	141
1.16	Removing and installing rear seat heating switch	141
1.17	Removing and installing door contact switch	142
1.18	Removing and installing bonnet contact switch -F120	142
1.19	Removing and installing boot lid/tailgate contact switch	142



2	Servicing immobilizer	144
2.1	Servicing immobilizer	144
2.2	Defective transponder and/or lost keys	144
2.3	Renewing reader coil	144
2.4	Procedure when replacing the lock set or the dash panel insert	144
2.5	Testing the system	145
3	Servicing interior monitor	146
3.1	Servicing interior monitor	146
3.2	General notes	146
3.3	Removing and installing control unit for ultrasonic sensors -J347	146
3.4	Removing and installing ultrasonic sensors -G170/G171	147
4	Servicing interior lights	148
4.1	Servicing interior lights	148
4.2	General notes	148
4.3	Removing and installing front interior light	149
4.4	Removing and installing rear interior light	150
4.5	Removing and installing front reading light	151
4.6	Removing and installing rear reading light	152
4.7	Removing and installing light for make-up mirror	152
4.8	Removing and installing glove box light	153
4.9	Removing and installing luggage compartment lights	154
4.10	Removing and installing sill courtesy lights and door reflectors	154
4.11	Removing and installing footwell lights	155
5	Servicing lock cylinder heating	156
5.1	Servicing lock cylinder heating	156
5.2	General notes	156
5.3	Removing and installing control unit for lock cylinder heating	156
6	Servicing horn	157
6.1	Servicing horn	157
6.2	General notes	157
6.3	Removing and installing horn	157
6.4	Removing and installing horn for anti-theft alarm	158
7	Heated steering wheel	158
7.1	Heated steering wheel	158
7.2	Servicing heated steering wheel	158
8	Servicing socket for trailer hitch	159
8.1	Servicing socket for trailer hitch	159
8.2	General notes	159
8.3	Removing and installing trailer hitch socket	159
8.4	Pin allocation of trailer hitch socket	160
97 - Wiring	161	
1	Relay carrier, fuse carrier	161
1.1	Relay carrier, fuse carrier	161
1.2	General notes	161
1.3	Electronics box in plenum chamber	161
1.4	Electronics box in passenger's footwell	162
1.5	Fuse carrier on right in passenger's footwell	163
1.6	Relay carrier below storage compartment on driver's side	163
1.7	Auxiliary relay carrier at right of luggage compartment	164
1.8	Removing and installing heated windscreen control unit -J505	164
2	Repairing wiring and plug connectors	165
2.1	Repairing wiring and plug connectors	165
2.2	General notes	165
2.3	General notes	165
2.4	Repairing a 0.35 mm ² /0.22mm ² wiring connection	166

2.5	Supplementary notes on repair of CAN bus wiring	167
2.6	Safety precautions when repairing wiring and plug connectors	168
2.7	Replacement of aerial wires	168
2.8	Assembly overview for an aerial wire	169