



Contents

27 - Starter, current supply, CCS	1
1 Battery	1
1.1 General information on batteries	1
1.2 Types of batteries	1
1.3 Warning notices and safety regulations	1
1.4 Battery terminal connection	1
2 Checking battery	2
3 Charging battery	3
4 Disconnecting and reconnecting batteries	4
4.1 Disconnecting battery	4
4.2 Connecting battery	4
5 Removing and installing battery	7
5.1 Vehicles with bolted-on fuse holder	7
5.2 Vehicles with clipped-on fuse holder	9
6 Specified torques: battery	12
7 Starter	13
7.1 Checking starter B	13
7.2 Removing and installing starter	13
8 Specified torques: starter	18
9 Alternator	19
9.1 Checking alternator C	19
9.2 Alternator ▶ 04.99	19
9.3 Alternator 05.99 ▶	21
9.4 Alternator 05.00 ▶ (Hitachi)	23
9.5 Checking poly V-belt	23
9.6 Alternator, 4-cylinder 16V 1.4 l and 1.6 l fuel-injection engine	24
9.7 Alternator, 4-cylinder 1.6 l, 1.8l and 2.0 l fuel injection engine	27
9.8 Alternator, 5-cylinder 2.3 l fuel injection engine	33
9.9 Alternator, 6-cylinder fuel injection engine	38
9.10 Alternator, 4-cyl. SDI/TDI engine	42
9.11 Alternator, 4-cyl. unit-injector diesel engine	48
9.12 Renewing poly-V-belt pulley on alternator	52
9.13 Installing poly-V-belt pulley with freewheel	53
10 Torque settings: alternator	55
10.1 General torque settings for all vehicles	55
10.2 Torque settings for vehicles with 4-cyl. 16V 1.4 l and 1.6 l fuel-injection engine	55
10.3 Torque settings for vehicles with 4-cyl. 1.6 l, 1.8 l and 2.0 l fuel-injection engine	55
10.4 Torque settings for vehicles with 5-cyl. 2.3 l fuel-injection engine	55
10.5 Torque settings for vehicles with 6-cyl. fuel-injection engine	55
10.6 Torque settings for vehicles with 4-cyl. SDI/TDI engine	55
10.7 Torque settings for vehicles with 4-cyl. unit-injector diesel engine	56
11 Cruise control system (CCS)	57
90 - Gauges, instruments	58
1 Dash panel insert	58
1.1 General description	58
1.2 Renewing dash panel insert	59
1.3 Removing and installing dash panel insert	59
1.4 Dash panel insert, rear view	60
1.5 Pin assignment of connections on dash panel insert ▶ 04.99	62
1.6 Pin assignment of connections on dash panel insert 05.99 ▶	64



1.7	Pin assignment of connections on dash panel insert 05.02 ▶	67
1.8	Warning lamp symbols in dash panel insert	69
2	Service interval display	71
2.1	Resetting service interval display	71
92	Windscreen wash/wipe system	72
1	Windscreen wiper system	72
1.1	Removing and installing windscreen wiper system	72
1.2	Removing and installing wiper arms	75
1.3	Adjusting wiper blade park position	75
1.4	Removing and installing wiper rubber blade	76
1.5	Removing and installing aerodynamic wipers	77
1.6	Removing and installing wiper rubber blade, aerodynamic wiper	77
1.7	Removing and installing rain sensor G213	78
1.8	Fitting a new adhesive pad to the rain sensor (Valeo)	79
2	Windscreen washer system	84
2.1	Assembly overview - windscreen washer system, Golf/Bora	84
2.2	Removing and installing reservoir for windscreen and headlight washer system	85
2.3	Removing and installing windscreen and rear window washer pump V59	86
2.4	Removing and installing windscreen washer fluid level sender G33	87
2.5	Removing and installing windscreen washer jets	87
2.6	Adjusting windscreen washer system washer jets	87
3	Rear window wiper system	88
3.1	Assembly overview - rear window wiper system	88
3.2	Removing and installing rear window wiper	89
3.3	Adjusting rear window wiper park position	90
3.4	Renewing wiper rubber blade	90
4	Rear window washer system	92
4.1	Assembly overview - windscreen washer system, Golf hatchback	92
4.2	Assembly overview - windscreen washer system, Golf/Bora Variant	93
4.3	Renewing washer jet	94
4.4	Adjusting washer jet	94
5	Headlight washer system	95
5.1	Assembly overview - headlight washer system, Golf/Bora	95
5.2	Removing and installing headlight washer system pump V11	96
5.3	Removing and installing pop-up washer jet cylinder	96
5.4	Removing and installing washer jet assembly	97
5.5	Adjusting headlight washer system jets	97
5.6	Bleeding headlight washer system	98
6	Washer fluid line hose couplings	99
7	Hose repair	100
8	Torque settings: window wash/wipe system	101
94	Lights, bulbs, switches - exterior	102
1	Headlights - Golf	102
1.1	Assembly overview - headlight	102
1.2	Removing and installing headlight	104
1.3	Renewing headlight bulbs	104
1.4	Repairing upper headlight retaining tabs	106
1.5	Removing and installing left headlight range control motor V48 and right headlight range control motor V49	107
1.6	Converting headlights for driving on the left or right	108
1.7	Converting left-hand drive headlights for driving on the right	109
1.8	Adjusting headlights	110



2	Headlights - Bora	111
2.1	Assembly overview - headlight	111
2.2	Removing and installing headlight	112
2.3	Renewing headlight bulbs	113
2.4	Repairing upper headlight retaining tabs	115
2.5	Removing and installing left headlight range control motor V48 and right headlight range control motor V49	116
2.6	Converting headlights designed for driving on the right to driving on the left	117
2.7	Converting left-hand drive headlights for driving on the right	118
2.8	Adjusting headlights	118
3	Headlights with gas discharge bulbs	119
3.1	Fault finding	119
3.2	Assembly overview - headlights with gas discharge bulbs, Golf/Bora ▶ 04.02	119
3.3	Procedure and safety notes for gas discharge bulbs	121
3.4	Renewing bulbs in gas discharge headlight, Golf/Bora ▶ 04.02	123
3.5	Removing and installing left headlight starter J426 and right headlight starter J427 , vehicles ▶ 04.02	127
3.6	Removing and installing headlight range control unit J431 , vehicles ▶ 04.02	128
3.7	Assembly overview - headlights with gas discharge bulbs, Golf 05.02 ▶	129
3.8	Assembly overview - headlights with gas discharge bulbs, Bora 05.02 ▶	130
3.9	Renewing bulbs in gas discharge headlight, Golf/Bora 05.02 ▶	132
3.10	Removing and installing headlight range control unit , Golf 05.02 ▶	138
3.11	Removing and installing headlight range control unit , Bora 05.02 ▶	139
3.12	Removing and installing gas discharge light starter unit N195 , Golf	140
3.13	Removing and installing gas discharge light starter unit N195 , Bora	140
3.14	Removing and installing left headlight range control motor V48 and right headlight range control motor V49 , Golf	140
3.15	Removing and installing left headlight range control motor V48 and right headlight range control motor V49 , Bora	140
3.16	Removing and installing headlight	141
3.17	Repairing upper headlight retaining tabs	141
3.18	Adjusting headlights with gas discharge bulb	141
3.19	Headlight conversion for left-hand/right-hand traffic	142
3.20	Removing and installing front left vehicle level sender G78 and front right vehicle level sender G289	143
3.21	Checking and, if necessary, adjusting setting of front left vehicle level sender G78 and front right vehicle level sender G289	143
3.22	Removing and installing rear left vehicle level sender G76 and rear right vehicle level sender G77	144
3.23	Checking setting of rear left vehicle level sender G76 and rear right vehicle level sender G77	144
3.24	Coding headlight range control unit J431	145
4	Side mounted repeater turn signals	147
4.1	Removing and installing side mounted repeater turn signal	147
5	Tail lights	148
5.1	Assembly overview - tail lights, Golf	148
5.2	Assembly overview - tail lights, Bora	149
5.3	Assembly overview - tail lights, Golf Variant/Bora Variant	150
5.4	Removing and installing tail light, Golf	150
5.5	Removing and installing tail light, Bora	151
5.6	Removing and installing tail light, Golf Variant/Bora Variant	151
5.7	Removing and installing tail light bulb carrier, Golf/Bora	151
5.8	Removing and installing tail light bulb carrier, Golf Variant/Bora Variant	152
5.9	Torque settings: tail light	152
6	Number plate lights	153
6.1	Golf number plate light X	153
6.2	Golf Variant/Bora Variant number plate light X	154



6.3	Bora number plate light X	155
7	Additional brake lights	156
7.1	Removing and installing additional brake light, Golf	156
7.2	Removing and installing additional brake light, Bora	157
7.3	Removing and installing additional brake light, Golf Variant/Bora Variant	158
8	Steering column switch	159
8.1	Removing and installing steering column switch	159
8.2	Removing and installing horn plate H	159
8.3	Pin assignment on steering column switch	160
9	Ignition switch and lock cylinder	162
9.1	Removing and installing lock cylinder	162
9.2	Removing and installing ignition / starter switch	163
9.3	Pin assignment for ignition switch	164
10	Parking aid	165
10.1	General description	165
10.2	Assembly overview - parking aid	165
10.3	Removing and installing parking aid control unit	166
10.4	Removing and installing parking aid senders	167
10.5	Removing and installing parking aid warning buzzer	168
96	Lights, bulbs, switches - interior	169
1	Interior lights and switches	169
1.1	Removing and installing light switch E1	169
1.2	Removing and installing headlight range control regulator E102 with switches and instruments illumination regulator E20	169
1.3	Removing and installing sliding sunroof adjustment regulator E139	170
1.4	Removing and installing front interior light W1	170
1.5	Removing and installing window regulator switch	170
1.6	Removing and installing mirror adjustment switch E43 with mirror adjustment change-over switch E48	172
1.7	Removing and installing switches in centre of dash panel	172
1.8	Removing and installing door contact switch	175
1.9	Removing and installing bonnet contact switch F266	176
1.10	Removing and installing anti-theft alarm and vermin repellent system contact switch F120	176
1.11	Removing and installing luggage compartment light switch F5	176
1.12	Removing and installing glove compartment light W6	177
1.13	Removing and installing rear left reading light W11 and rear right reading light W12	177
1.14	Removing and installing rear reading light with interior monitoring sensor G273	178
1.15	Removing and installing luggage compartment light W3 , Golf/Bora	178
1.16	Removing and installing luggage compartment light W3 , Golf Variant/Bora Variant	178
1.17	Removing and installing remote fuel tank flap release switch E204	179
1.18	Removing and installing rear lid handle release button E234 , Bora	179
1.19	Removing and installing rear lid handle release button E234 , Golf Variant/Bora Variant	180
1.20	Removing and installing interior monitoring deactivation switch E267	180
1.21	Removing and installing operating mode change-over switch (petrol or gas) E382	180
2	Immobilizer	182
2.1	Renewing immobilizer control unit J362	182
2.2	Removing and installing immobilizer control unit J362	182
2.3	Removing and installing immobilizer reader coil D2	182
2.4	Transponder	182
3	Anti-theft alarm system (ATA)	184
3.1	Activating and deactivating anti-theft alarm	184
3.2	Removing and installing interior monitoring deactivation switch E267	185
3.3	Removing and installing interior monitoring sensor G273	185



3.4	Removing and installing bonnet contact switch F266	185
3.5	Central locking and anti-theft alarm system aerial R47	185
3.6	Removing and installing anti-theft alarm H8	185
4	Torque settings: lights, bulbs, switches - interior	188
4.1	Torque settings: anti-theft alarm system (ATA)	188
97 - Wiring		189
1	Vehicle diagnosis, testing and information systems	189
2	Removing and installing fuse holder and relay carrier	190
2.1	Removing and installing fuse holder	190
2.2	Removing and installing relay plate and 13-position relay carrier	190
2.3	A-pillar coupling station	191
2.4	Removing and installing fuse holder on battery	191
2.5	Removing and installing protective housing for relays in engine compartment	191
2.6	Removing and installing cable duct in engine compartment	191
2.7	Removing and installing protective housing in plenum chamber	192
2.8	Torque settings: fuse holder and relay carrier	193
3	Repairing wiring harness and connectors	194