



Contents

00 - Technical data	1
1 Safety information	1
1.1 Safety measures when working on vehicles with a start/stop system	1
1.2 Safety precautions when using testers and measuring instruments during a road test	1
1.3 Application notes and safety information for LED headlights	1
2 Repair instructions	2
2.1 Rules for cleanliness	2
2.2 General information	2
2.3 Contact corrosion	2
2.4 ESD workplace	2
2.5 Routing and attachment of lines	3
3 Battery	4
3.1 Battery - general notes	4
3.2 Types of battery	4
27 - Starter, current supply, CCS	5
1 Battery	5
1.1 Assembly overview – battery	5
1.2 Removing and installing battery	8
1.3 Disconnecting and connecting battery	15
1.4 Removing and installing battery tray	18
1.5 Checking battery	20
1.6 Charging battery	20
1.7 Removing and installing earth wire with battery monitor control unit J367	21
1.8 Adapting battery monitor control unit J367	23
2 Alternator	24
2.1 Assembly overview – alternator	24
2.2 Removing and installing alternator	26
2.3 Checking alternator	33
2.4 Removing and installing poly V-belt pulley	34
2.5 Removing and installing voltage regulator	42
3 Starter	46
3.1 Assembly overview – starter	46
3.2 Removing and installing starter	48
4 Start/stop system	56
4.1 General description - start/stop system	56
4.2 Overview of fitting locations - start/stop system	56
4.3 Removing and installing voltage stabiliser	56
90 - Gauges, instruments	59
1 Dash panel insert	59
1.1 Assembly overview – dash panel insert	59
1.2 Assembly overview – head-up display	60
1.3 Removing and installing dash panel insert KX2	61
1.4 Removing and installing control unit for head-up display	66
2 Horn	68
2.1 Assembly overview – horn	68
2.2 Removing and installing treble horn H2 and bass horn H7	68
2.3 Removing and installing bracket for horns	69
92 - Windscreen wash/wipe system	71
1 Windscreen wiper system	71



1.1	Assembly overview – windscreen wiper system	71
1.2	Moving wipers to service position	74
1.3	Removing and installing wiper blade	74
1.4	Removing and installing wiper arms	75
1.5	Adjusting wiper arms	76
1.6	Removing and installing wiper motor V	78
1.7	Renewing wiper motor	79
1.8	Deactivating APP function of wiper motor	82
1.9	Removing and installing rain and light sensor	82
2	Windscreen washer system	87
2.1	Assembly overview – windscreen washer system	87
2.2	Removing and installing washer fluid reservoir	90
2.3	Removing and installing windscreen washer fluid level sender	95
2.4	Removing and installing windscreen washer pump	97
2.5	Removing and installing spray jets	99
2.6	Adjusting spray jets	100
3	Rear window wiper system	101
3.1	Assembly overview – rear window wiper system	101
3.2	Removing and installing wiper blade	101
3.3	Removing and installing wiper arm	102
3.4	Adjusting wiper arm	103
3.5	Removing and installing rear window wiper motor V12	104
4	Rear window washer system	107
4.1	Assembly overview – rear window washer system	107
4.2	Removing and installing washer fluid reservoir	108
4.3	Removing and installing rear window washer pump	109
4.4	Removing and installing spray jet	109
4.5	Adjusting spray jet	109
5	Washer fluid lines	110
5.1	Repairing washer fluid lines	110
94	Lights, bulbs, switches - exterior	111
1	Headlights	111
1.1	Assembly overview – headlight	111
1.2	Removing and installing headlight	117
1.3	Adjusting headlights	119
1.4	Adjusting headlight installation position	120
1.5	Removing and installing front turn signal bulb M5/M7	122
1.6	Installing repair kit for headlight housing	123
1.7	Converting headlights from driving on right to driving on left	125
1.8	Removing and installing headlight range control motor V48/V49	125
1.9	Removing and installing headlight dipped beam bulb	130
1.10	Removing and installing headlight main beam bulb M30/M32	133
1.11	Removing and installing LED modules for daytime running light and side light L176/L177	135
1.12	Removing and installing daytime running light, only “GTE”	137
1.13	Removing and installing headlight fan V407/V408	138
1.14	Removing and installing output module 1 for LED headlight A27 / A31	140
1.15	Removing and installing control motor sender for VARILIS headlight G695/G696	143
1.16	Removing and installing control motor for VARILIS headlight V446/V447	143
1.17	Removing and installing swivel module position sensor G474/G475	143
1.18	Removing and installing dynamic cornering light control motor V318/V319	144
2	Fog lights	145
2.1	Assembly overview - fog lights	145
2.2	Removing and installing fog light	145
3	Lights in exterior mirror	147



3.1	Assembly overview - lights in exterior mirror	147
3.2	Removing and installing turn signal	149
3.3	Removing and installing entry light in exterior mirror	150
4	Tail light cluster	151
4.1	Assembly overview – tail light cluster in body	151
4.2	Assembly overview – tail light clusters in rear lid	152
4.3	Removing and installing tail light in rear lid	152
4.4	Removing and installing tail light cluster	154
4.5	Adjusting installation position of tail light	155
5	High-level brake light	158
5.1	Assembly overview – high-level brake light	158
5.2	Removing and installing high-level brake light	159
6	Number plate light	163
6.1	Removing and installing number plate light X4/X5	163
7	Entry and start authorisation system	166
7.1	Overview of fitting locations - entry and start authorisation system	166
7.2	Overview of fitting locations - keyless entry system	168
7.3	Removing and installing entry and start authorisation control unit J518	171
7.4	Removing and installing door exterior handle contact sensor G415/G416	173
7.5	Removing and installing contact sensor for rear exterior door handle G417/G418	173
7.6	Removing and installing interior aerial 1 for entry and start system R138	173
7.7	Removing and installing interior aerial 2 for entry and start system R139	174
7.8	Removing and installing driver side aerial for entry and start system R134	175
7.9	Removing and installing front passenger side aerial for entry and start system R135	175
7.10	Removing and installing rear bumper aerial for entry and start system R136	176
7.11	Removing and installing luggage compartment aerial for entry and start system R137	176
7.12	Removing and installing rear entry and start authorisation aerial R165/R166	177
7.13	Removing and installing rear lid power opening control unit J938	177
7.14	Removing and installing rear lid power opening sender G750/G760	178
8	Steering column switch module	179
8.1	Assembly overview – steering column switch module	179
8.2	Removing and installing steering column switch module	181
8.3	Removing and installing steering column electronics control unit J527	185
8.4	Removing and installing turn signal switch E2	190
8.5	Removing and installing intermittent wiper switch E22	192
8.6	Removing and installing immobiliser reader coil D2	192
8.7	Removing and installing base for steering column combination switch	193
9	Automatic headlight range control	194
9.1	Assembly overview - automatic headlight range control	194
9.2	Removing and installing cornering light and headlight range control unit J745	196
10	Towing bracket	199
10.1	Assembly overview - towing bracket socket	199
10.2	Trailer socket U10	199
10.3	Removing and installing trailer detector control unit J345	200
96	Lights, bulbs, switches - interior	202
1	Lights	203
1.1	Overview of fitting locations – lights in dash panel	204
1.2	Overview of fitting locations – lights in front doors	204
1.3	Overview of fitting locations – lights in rear doors	205
1.4	Overview of fitting locations - lights in centre console	206
1.5	Overview of fitting locations – lights in luggage compartment	207
1.6	Overview of fitting locations – lights in roof trim	209
1.7	Removing and installing glove compartment light W6	211
1.8	Removing and installing front footwell light K268/K269	212



1.9	Removing and installing Central locking SAFELOCK function warning lamp K133	213
1.10	Removing and installing light 2 for front door background lighting L203/L204	214
1.11	Removing and installing front entry light W31/W32	215
1.12	Removing and installing door warning lamp W30/W36	217
1.13	Removing and installing bulb 1 for background lighting in rear door L201/L202	217
1.14	Removing and installing rear entry light W33/W34	218
1.15	Removing and installing rear door warning lamp W37/W38	218
1.16	Removing and installing light 1 for front door background lighting L199/L200	218
1.17	Removing and installing bulb for background lighting in rear door L166/L167	219
1.18	Removing and installing interior door handle illumination bulb L146/L147	219
1.19	Removing and installing light for rear interior door handle illumination L221/L222	220
1.20	Removing and installing light 1 for dash panel contour lighting L243/light 2 for dash panel contour lighting L244	220
1.21	Removing and installing selector lever position display Y26	220
1.22	Removing and installing illuminated vanity mirror W20/W14	220
1.23	Removing and installing luggage compartment light W3	221
1.24	Removing and installing bulb for rear interior light W43	223
1.25	Removing and installing bulb for front reading light W13/W19	223
1.26	Removing and installing bulb for rear reading light W11/W12	223
1.27	Renewing bulb of rear interior light W47/W48	224
2	Controls	227
2.1	Overview of fitting locations – controls in dash panel	228
2.2	Overview of fitting locations – controls in front doors	230
2.3	Overview of fitting locations – controls in rear doors	230
2.4	Overview of fitting locations - controls in centre console	231
2.5	Overview of fitting locations – controls in luggage compartment	232
2.6	Overview of fitting locations – controls in roof trim	233
2.7	Removing and installing rotary light switch EX1	234
2.8	Removing and installing headlight range control regulator E102	236
2.9	Removing and installing rear roller blind switch E149	236
2.10	Removing and installing TCS and ESP button E256	236
2.11	Removing and installing steering wheel heater button E522	237
2.12	Removing and installing sport program button E541	237
2.13	Removing and installing button for electric drive E656	237
2.14	Removing and installing Start/Stop operation button E693	237
2.15	Removing and installing front passenger side airbag deactivated warning lamp K145	237
2.16	Removing and installing driving mode selection button E735	238
2.17	Removing and installing switch module in centre console EX23/EX30	238
2.18	Removing and installing bulb for front interior light W1	241
2.19	Removing and installing Telematics button module E734	243
2.20	Removing and installing hazard warning light switch EX3	243
2.21	Removing and installing buttons for seat heating E653/E654	244
2.22	Removing and installing glove compartment light switch E26	244
2.23	Removing and installing exterior mirror adjuster EX11	245
2.24	Removing and installing operating unit for window regulator in driver door E512	246
2.25	Removing and installing front passenger side window regulator button E716	247
2.26	Removing and installing driver side interior locking button for central locking system E308	248
2.27	Removing and installing rear lid remote release button E233	248
2.28	Removing and installing button for deactivating interior monitoring and vehicle inclination sensor E616	250
2.29	Removing and installing door contact switch F2/F3	251
2.30	Removing and installing rear window regulator button E711/E713	251
2.31	Removing and installing rear door contact switches F10/F11	252
2.32	Removing and installing electromechanical parking brake button E538/auto-hold button E540	252
2.33	Removing and installing the starter button E378	253



2.34	Removing and installing rear lid warning buzzer H32	253
2.35	Removing and installing rear lid contact switch	254
2.36	Removing and installing rear lid closure button E574	254
2.37	Removing and installing electric hinged tow coupling attachment button E474	255
2.38	Removing and installing vanity mirror contact switch F147/F148	256
2.39	Removing and installing sunroof button E325	257
2.40	Removing and installing front interior light WX1	257
2.41	Removing and installing rear interior light WX2	258
2.42	Removing and installing front reading light button E634/E633	259
3	Anti-theft alarm	260
3.1	Assembly overview – interior monitor	260
3.2	Removing and installing alarm horn H12	261
3.3	Removing and installing anti-theft alarm sensor G578	262
4	Cigarette lighter, socket	264
4.1	Assembly overview - DC/AC converter with socket, 12 V-230 V	264
4.2	Removing and installing cigarette lighter U1	265
4.3	Removing and installing socket illumination bulb L42	265
4.4	Removing and installing rear cigarette lighter illumination bulb L32	265
4.5	Removing and installing electric socket U	265
4.6	Removing and installing DC/AC converter with socket, 12 V-230 V U13	265
97 - Wiring		268
1	Relay carriers, fuse holders, electronics boxes	268
1.1	Overview of fitting locations - relay carriers, fuse holders, electronics boxes	268
1.2	Removing and installing electronics box	273
1.3	Removing and installing relay and fuse holder in electronics box	276
1.4	Removing and installing relay and fuse carrier behind dash panel	278
1.5	Removing and installing main fuse holder	280
2	Control units	285
2.1	Overview of fitting locations - control units	285
2.2	Assembly overview - control units	286
2.3	Assembly overview - data bus diagnostic interface	288
2.4	Assembly overview - special vehicle control unit and voltage stabiliser	289
2.5	Removing and installing onboard supply control unit J519	290
2.6	Removing and installing data bus diagnostic interface J533	294
2.7	Removing and installing bracket for onboard supply control unit J519	295
2.8	Renewing bracket for onboard supply control unit J519	298
2.9	Removing and installing rear lid control unit J605	299
2.10	Removing and installing special vehicle control unit J608	301
2.11	Removing and installing bracket for special vehicle control unit J608	302
3	Connectors	304
3.1	Repairing electrical wiring harnesses and plug-in connections	304
4	Releasing and dismantling connector housings	305
5	Repairing aerial wires	306
6	Fibre optic cables	307
7	Vehicle diagnosis, testing and information systems	308