



## Contents

<b>00 - Technical data</b>	<b>1</b>
<b>1 Safety information</b>	<b>1</b>
1.1 Application notes and safety information for LED headlights	1
1.2 Safety measures for working on vehicles with high-voltage system	1
1.3 Safety precautions when working in the vicinity of high-voltage components	2
1.4 Safety measures when working on vehicles with start/stop system	2
1.5 Safety precautions for when using test and measuring equipment during a road test	2
<b>2 Repair instructions</b>	<b>4</b>
2.1 Rules for cleanliness	4
2.2 General information	4
2.3 Contact corrosion	4
2.4 ESD workplace	4
2.5 Routing and attachment of lines	5
<b>3 Battery</b>	<b>6</b>
3.1 Battery - general notes	6
3.2 Types of battery	6
<b>27 - Starter, current supply, CCS</b>	<b>7</b>
<b>1 Battery</b>	<b>7</b>
1.1 Assembly overview - battery	7
1.2 Removing and installing battery	10
1.3 Disconnecting and connecting battery	16
1.4 Removing and installing battery tray	19
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	22
<b>2 Alternator</b>	<b>23</b>
2.1 Assembly overview - alternator	23
2.2 Removing and installing alternator	24
2.3 Checking alternator	27
2.4 Removing and installing poly V-belt pulley	27
2.5 Removing and installing voltage regulator	34
<b>3 Starter motor</b>	<b>37</b>
3.1 Assembly overview - starter	37
3.2 Removing and installing starter	38
<b>4 Cruise control system (CCS)</b>	<b>42</b>
<b>90 - Gauges, instruments</b>	<b>43</b>
<b>1 Dash panel insert</b>	<b>43</b>
1.1 Assembly overview - dash panel insert	43
1.2 Assembly overview - head-up display	44
1.3 Removing and installing dash panel insert KX2	45
1.4 Removing and installing control unit for head-up display	49
<b>2 Horn</b>	<b>51</b>
2.1 Assembly overview - horn	51
2.2 Removing and installing treble horn H2 and bass horn H7	51
2.3 Removing and installing bracket for treble horn H2/bass horn H7	52
<b>92 - Windscreen wash/wipe system</b>	<b>54</b>
<b>1 Windscreen wiper system</b>	<b>54</b>
1.1 Assembly overview - windscreen wiper system	54



1.2	Moving wipers to service position	57
1.3	Removing and installing wiper blade	57
1.4	Removing and installing wiper arms	58
1.5	Adjusting wiper arms	60
1.6	Removing and installing wiper motor V	61
1.7	Renewing wiper motor	62
1.8	Deactivating APP function of wiper motor	63
1.9	Removing and installing rain and light sensor	64
<b>2</b>	<b>Windscreen washer system</b>	<b>69</b>
2.1	Assembly overview - windscreen washer system	69
2.2	Removing and installing washer fluid reservoir	72
2.3	Removing and installing windscreen washer fluid level sender	75
2.4	Removing and installing windscreen washer pump	77
2.5	Removing and installing spray jets	78
2.6	Adjusting spray jets	79
<b>3</b>	<b>Rear window wiper system</b>	<b>80</b>
3.1	Assembly overview - rear window wiper system	80
3.2	Removing and installing wiper blade	80
3.3	Removing and installing wiper arm	81
3.4	Adjusting wiper arm	82
3.5	Removing and installing rear window wiper motor V12	83
<b>4</b>	<b>Rear window washer system</b>	<b>85</b>
4.1	Assembly overview - rear window washer system	85
4.2	Adjusting spray jet	86
<b>5</b>	<b>Washer fluid lines</b>	<b>87</b>
5.1	Repairing washer fluid lines	87
<b>94</b>	<b>Lights, bulbs, switches - exterior</b>	<b>88</b>
<b>1</b>	<b>Headlights</b>	<b>88</b>
1.1	Assembly overview - headlight	88
1.2	Removing and installing headlight	94
1.3	Adjusting headlights	95
1.4	Removing and installing front turn signal bulb M5/M7	95
1.5	Installing repair kit for headlight housing	98
1.6	Removing and installing headlight range control motor V48/V49	100
1.7	Removing and installing LED module for daytime running light and side light L176/L177	101
1.8	Removing and installing output module 1 for LED headlight A27/A31	103
1.9	Removing and installing trim cover for LED headlight	104
1.10	Removing and installing retaining frame for LED headlight	105
1.11	Removing and installing trim strip for LED headlight	107
1.12	Removing and installing bulbs for cornering light L148/L149	108
1.13	Removing and installing fibre optic cable for front contour lighting in radiator grille L363/L362	110
<b>2</b>	<b>Lights in exterior mirror</b>	<b>112</b>
2.1	Assembly overview - lights in exterior mirror	112
2.2	Removing and installing turn signal	114
2.3	Removing and installing entry light in exterior mirror	115
<b>3</b>	<b>Tail lights</b>	<b>117</b>
3.1	Assembly overview - tail light cluster in body	117
3.2	Assembly overview - tail lights in rear lid	117
3.3	Removing and installing tail light in rear lid	118
3.4	Removing and installing tail light cluster	120
<b>4</b>	<b>High-level brake light</b>	<b>122</b>
4.1	Assembly overview - high-level brake light	122
4.2	Removing and installing bulb for high-level brake light M25	124



<b>5</b>	<b>Number plate light</b> .....	<b>128</b>
5.1	Removing and installing number plate light X4/X5 .....	128
<b>6</b>	<b>Entry and start authorisation system</b> .....	<b>129</b>
6.1	Overview of fitting locations - entry and start authorisation system .....	129
6.2	Overview of fitting locations - keyless entry system .....	131
6.3	Removing and installing interface for entry and start system J965 .....	133
6.4	Removing and installing interior aerial 1 for entry and start system R138 .....	133
6.5	Removing and installing interior aerial 2 for entry and start system R139 .....	134
6.6	Removing and installing luggage compartment aerial for entry and start system R137 ..	135
6.7	Removing and installing rear bumper aerial for entry and start system R136 .....	136
6.8	Removing and installing rear lid power opening control unit J938 .....	136
6.9	Removing and installing rear lid power opening sender G750/G760 .....	137
<b>7</b>	<b>Steering column switch module</b> .....	<b>138</b>
7.1	Assembly overview - steering column switch module .....	138
7.2	Removing and installing steering column combination switch .....	139
7.3	Removing and installing immobiliser reader coil D2 .....	140
7.4	Removing and installing base for steering column combination switch .....	141
<b>8</b>	<b>Automatic headlight range control</b> .....	<b>142</b>
8.1	Assembly overview - automatic headlight range control .....	142
8.2	Removing and installing cornering light and headlight range control unit J745 .....	143
<b>9</b>	<b>Towing bracket</b> .....	<b>146</b>
9.1	Assembly overview - towing bracket socket .....	146
9.2	Trailer socket U10 .....	146
9.3	Removing and installing trailer detector control unit J345 .....	146
<b>96</b>	<b>Lights, bulbs, switches - interior</b> .....	<b>148</b>
<b>1</b>	<b>Lights</b> .....	<b>148</b>
1.1	Overview of fitting locations - lights in dash panel .....	148
1.2	Overview of fitting locations - lights in front doors .....	149
1.3	Overview of fitting locations - lights in rear doors .....	150
1.4	Overview of fitting locations - lights in centre console .....	151
1.5	Overview of fitting locations - lights in luggage compartment .....	152
1.6	Overview of fitting locations - lights in roof trim .....	153
1.7	Removing and installing glove compartment light W6 .....	154
1.8	Removing and installing front footwell light K268/K269 .....	155
1.9	Removing and installing Central locking SAFELOCK function warning lamp K133 .....	158
1.10	Removing and installing interior door handle illumination bulb L146/L147 .....	158
1.11	Removing and installing reflectors in door .....	159
1.12	Removing and installing front entry light W31/W32 .....	160
1.13	Removing and installing rear interior door handle illumination bulb L221/L222 .....	161
1.14	Removing and installing front passenger side airbag deactivated warning lamp K145 .....	162
1.15	Removing and installing light 2 for front door ambient lighting W97/W98 .....	163
1.16	Removing and installing bulb for background lighting in rear door L166/L167 .....	163
1.17	Removing and installing lights for dashboard background lighting L229/L230 .....	164
1.18	Removing and installing luggage compartment light W3/W115 .....	164
1.19	Removing and installing illuminated vanity mirror W20/W14 .....	165
1.20	Removing and installing bulb for front interior light W1 .....	166
1.21	Removing and installing bulb for rear interior light W43 .....	168
<b>2</b>	<b>Controls</b> .....	<b>170</b>
2.1	Overview of fitting locations - controls in dash panel .....	170
2.2	Overview of fitting locations - controls in front doors .....	171
2.3	Overview of fitting locations - controls in rear doors .....	172
2.4	Overview of fitting locations - controls in centre console .....	173
2.5	Overview of fitting locations - controls in luggage compartment .....	174
2.6	Overview of fitting locations - controls in roof trim .....	175



2.7	Removing and installing rotary light switch EX1	176
2.8	Removing and installing headlight range control regulator E102	177
2.9	Removing and installing centre console switch module EX23/EX30	178
2.10	Removing and installing hazard warning light switch EX3	179
2.11	Removing and installing glove compartment light switch E26	180
2.12	Removing and installing exterior mirror adjuster EX11	181
2.13	Removing and installing operating unit for window regulator in driver door E512	182
2.14	Removing and installing front passenger side window regulator button E716	183
2.15	Removing and installing driver side interior locking button for central locking system E308	183
2.16	Removing and installing rear lid remote release button E233	184
2.17	Removing and installing button for deactivating interior monitoring and vehicle inclination sensor E616	184
2.18	Removing and installing rear window regulator button E711/E713	185
2.19	Removing and installing Telematics button module E734	186
2.20	Removing and installing electromechanical parking brake button E538/auto-hold button E540	186
2.21	Removing and installing the starter button E378	187
2.22	Removing and installing electric hinged tow coupling attachment button E474	187
2.23	Removing and installing button to close rear lid in luggage compartment E406	188
2.24	Removing and installing rear lid warning buzzer H32	189
2.25	Removing and installing sunroof button E325	190
2.26	Removing and installing front interior light/reading light	190
2.27	Removing and installing rear interior light/reading light	192
<b>3</b>	<b>Anti-theft alarm system</b>	<b>195</b>
3.1	Assembly overview - interior monitor	195
3.2	Removing and installing alarm horn H12	195
3.3	Removing and installing anti-theft alarm sensor G578	196
<b>4</b>	<b>Cigarette lighter, socket</b>	<b>198</b>
4.1	Assembly overview - DC/AC converter with socket, 12 V-230 V	198
4.2	Removing and installing cigarette lighter U1	199
4.3	Removing and installing socket illumination bulb L42	199
4.4	Removing and installing rear cigarette lighter illumination bulb L32	199
4.5	Removing and installing electric socket U	199
4.6	Removing and installing DC/AC converter with socket, 12 V-230 V U13	199
<b>97 - Wiring</b>		<b>202</b>
<b>1</b>	<b>Relay carriers, fuse holders, electronics boxes</b>	<b>202</b>
1.1	Overview of fitting locations - relay carriers, fuse holders, E-boxes	202
1.2	Removing and installing electronics box (E-box)	206
1.3	Removing and installing relay and fuse holder in electronics box	207
1.4	Removing and installing relay and fuse carrier behind dash panel	210
1.5	Removing and installing main fuse carrier	212
<b>2</b>	<b>Select Control units</b>	<b>214</b>
2.1	Overview of fitting locations - control units	214
2.2	Removing and installing onboard supply control unit J519	215
2.3	Removing and installing data bus diagnostic interface J533	218
2.4	Removing and installing bracket for onboard supply control unit J519	219
<b>3</b>	<b>Connectors</b>	<b>222</b>
3.1	Repairing electrical wiring harnesses and plug-in connections	222
<b>4</b>	<b>Releasing and dismantling connector housings</b>	<b>223</b>
<b>5</b>	<b>Repairing aerial wires</b>	<b>224</b>
<b>6</b>	<b>Fibre optic cables</b>	<b>225</b>
<b>7</b>	<b>Vehicle diagnosis, testing and information systems</b>	<b>226</b>