



## 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 a start/stop system	2
1.5 Safety precautions when using test and measuring instruments during a road test	2
<b>2 Repair notes</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 Assembly overview - voltage converter (48 V/12 V)	13
1.3 Removing and installing voltage converter (48 V/12 V) A7	13
1.4 Removing and installing battery	15
1.5 Disconnecting and connecting battery	27
1.6 Removing and installing battery tray	31
1.7 Checking battery	33
1.8 Charging battery	33
1.9 Removing and installing earth wire with battery monitor control unit J367	33
1.10 Adapting battery monitor control unit J367	37
<b>2 Alternator</b>	<b>38</b>
2.1 Assembly overview - alternator	38
2.2 Removing and installing alternator	41
2.3 Checking alternator	47
2.4 Removing and installing poly V-belt pulley	48
2.5 Removing and installing voltage regulator	57
<b>3 Starter motor</b>	<b>61</b>
3.1 Assembly overview – starter	61
3.2 Removing and installing starter	64
<b>90 - Gauges, instruments</b>	<b>71</b>
<b>1 Dash panel insert</b>	<b>71</b>
1.1 Assembly overview - dash panel insert	71
1.2 Assembly overview - head-up display	72
1.3 Removing and installing dash panel insert KX2	73
1.4 Removing and installing control unit for head-up display	74
<b>2 Horn</b>	<b>76</b>
2.1 Assembly overview - horn	76
2.2 Removing and installing treble horn H2 and bass horn H7	76
<b>92 - Windscreen wash/wipe system</b>	<b>79</b>
<b>1 Windscreen wiper system</b>	<b>79</b>
1.1 Assembly overview - windscreen wiper system	79



1.2	Moving wipers to service position	81
1.3	Removing and installing wiper blade	82
1.4	Removing and installing wiper arms	83
1.5	Adjusting wiper arms	84
1.6	Removing and installing wiper motor V	86
1.7	Deactivating APP function of wiper motor	87
1.8	Removing and installing rain and light sensor	88
<b>2</b>	<b>Windscreen washer system</b>	<b>92</b>
2.1	Assembly overview - windscreen washer system	92
2.2	Removing and installing washer fluid reservoir	94
2.3	Removing and installing windscreen washer fluid level sender	96
2.4	Removing and installing windscreen washer pump	96
2.5	Removing and installing spray jets	97
2.6	Adjusting spray jets	98
<b>3</b>	<b>Rear window wiper system</b>	<b>99</b>
3.1	Assembly overview - rear window wiper system	99
3.2	Removing and installing wiper blade	99
3.3	Removing and installing wiper arm	100
3.4	Adjusting wiper arm	101
3.5	Removing and installing rear window wiper motor V12	102
<b>4</b>	<b>Rear window washer system</b>	<b>104</b>
4.1	Assembly overview - rear window washer system	104
4.2	Removing and installing washer fluid reservoir	105
4.3	Removing and installing rear window washer pump	105
4.4	Removing and installing spray jet	105
4.5	Adjusting spray jet	106
<b>5</b>	<b>Washer fluid lines</b>	<b>107</b>
5.1	Repairing washer fluid lines	107
<b>94</b>	<b>Lights, bulbs, switches - exterior</b>	<b>108</b>
<b>1</b>	<b>Headlights</b>	<b>108</b>
1.1	Assembly overview – headlight	108
1.2	Removing and installing headlight	115
1.3	Adjusting headlights	116
1.4	Installing repair kit for headlight housing	116
1.5	Removing and installing headlight range control motor V48/V49	119
1.6	Removing and installing front turn signal bulb	123
1.7	Removing and installing dipped-beam headlight bulb	125
1.8	Removing and installing main beam headlight bulb M30/M32, matrix LED headlights	125
1.9	Removing and installing LED modules for daytime running light and side light L176/L177	125
1.10	Removing and installing side light bulb M1/M3	127
1.11	Removing and installing output module 1 for LED headlight A31/A27	127
1.12	Removing and installing fibre optic cable for front contour lighting in radiator grille L362/ L363	128
<b>2</b>	<b>Fog lights</b>	<b>130</b>
2.1	Assembly overview - fog lights	130
2.2	Removing and installing fog light	130
<b>3</b>	<b>Lights in exterior mirror</b>	<b>132</b>
3.1	Assembly overview - lights in exterior mirror	132
3.2	Removing and installing turn signal	134
3.3	Removing and installing entry light in exterior mirror	135
<b>4</b>	<b>Lights in exterior door handle</b>	<b>136</b>
4.1	Assembly overview – lights in exterior door handle	136
4.2	Removing and installing bulb for exterior door handle lighting	136
<b>5</b>	<b>Tail lights</b>	<b>138</b>



5.1	Assembly overview - tail light cluster in body	138
5.2	Assembly overview - tail lights in rear lid	138
5.3	Removing and installing tail light in rear lid	139
5.4	Removing and installing tail light cluster in body	141
<b>6</b>	<b>High-level brake light</b>	<b>142</b>
6.1	Assembly overview – high-level brake light	142
6.2	Removing and installing high-level brake light	142
<b>7</b>	<b>Number plate light</b>	<b>144</b>
7.1	Removing and installing number plate light X4/X5	144
7.2	Removing and installing bulb for number plate light X4/X5	145
<b>8</b>	<b>Entry and start authorisation system</b>	<b>146</b>
8.1	Removing and installing interface for entry and start system J965	146
8.2	Control unit for break-in protection	147
8.3	Removing and installing door exterior handle contact sensor G605/G606	148
8.4	Removing and installing interior aerial 1 for entry and start authorisation R138	150
8.5	Removing and installing left entry and start authorisation aerial R200	151
8.6	Removing and installing right entry and start authorisation aerial R201	151
8.7	Removing and installing luggage compartment aerial for entry and start system R137	152
<b>9</b>	<b>Steering column switch module</b>	<b>154</b>
9.1	Assembly overview - steering column switch module	154
9.2	Removing and installing steering column switch module	156
9.3	Removing and installing turn signal switch E2	159
9.4	Removing and installing cruise control system switch E45	160
9.5	Removing and installing intermittent wiper switch E22	160
<b>10</b>	<b>Automatic headlight range control</b>	<b>161</b>
10.1	Overview of fitting locations – automatic headlight range control	161
10.2	Removing and installing cornering light and headlight range control unit J745	162
<b>11</b>	<b>Towing bracket</b>	<b>165</b>
11.1	Assembly overview - towing bracket socket	165
11.2	Trailer socket U10	165
11.3	Removing and installing trailer detector control unit J345	166
<b>96</b>	<b>Lights, bulbs, switches - interior</b>	<b>167</b>
<b>1</b>	<b>Lights</b>	<b>167</b>
1.1	Overview of fitting locations - lights in dash panel	167
1.2	Overview of fitting locations - lights in front doors	168
1.3	Overview of fitting locations - lights in rear doors	169
1.4	Overview of fitting locations - lights in centre console	170
1.5	Overview of fitting locations - lights in luggage compartment	171
1.6	Overview of fitting locations - lights in roof trim	172
1.7	Removing and installing glove compartment light W6	173
1.8	Removing and installing front footwell light K268/K269	174
1.9	Removing and installing Central locking SAFELOCK function warning lamp K133	175
1.10	Removing and installing luggage compartment light W3	176
1.11	Removing and installing illuminated vanity mirror W20/W14	177
1.12	Removing and installing front roof module WX3	178
1.13	Removing and installing bulb for rear reading light	179
<b>2</b>	<b>Controls</b>	<b>180</b>
2.1	Overview of fitting locations - controls in dash panel	180
2.2	Overview of fitting locations - controls in front doors	181
2.3	Overview of fitting locations - controls in rear doors	182
2.4	Overview of fitting locations – controls in centre console, manual gearbox	183
2.5	Overview of fitting locations – controls in centre console, automatic gearbox	184
2.6	Overview of fitting locations - controls in luggage compartment	185
2.7	Overview of fitting locations - controls in roof trim	186



2.8	Removing and installing operating unit for lighting EX59	188
2.9	Removing and installing exterior mirror adjuster EX11	188
2.10	Removing and installing driver side interior locking button for central locking system E308	189
2.11	Removing and installing glove compartment light switch E26	190
2.12	Removing and installing operating unit for window regulator in driver door E512	192
2.13	Removing and installing front passenger side window regulator button E716	193
2.14	Removing and installing door contact switch F2/F3	194
2.15	Removing and installing window regulator switch in rear door E52/E54	194
2.16	Removing and installing rear door contact switches F10/F11	195
2.17	Removing and installing rear lid contact switch for anti-theft alarm F123	195
2.18	Removing and installing vanity mirror contact switch F147/F148	195
2.19	Removing and installing sunroof button E325	195
2.20	Removing and installing front interior light/reading light	195
2.21	Removing and installing rear interior light/reading light	196
2.22	Removing and installing front right reading light button E634	196
2.23	Removing and installing the starter button E378	197
2.24	Removing and installing electromechanical parking brake button E538/auto-hold button E540	198
<b>3</b>	<b>Anti-theft alarm</b>	<b>200</b>
3.1	Assembly overview - interior monitor	200
3.2	Removing and installing alarm horn H12	200
3.3	Removing and installing anti-theft alarm sensor G578	202
<b>4</b>	<b>Cigarette lighter, socket</b>	<b>204</b>
4.1	Removing and installing cigarette lighter U1	204
4.2	Removing and installing socket illumination bulb L42	204
4.3	Removing and installing rear cigarette lighter illumination bulb L32	204
4.4	Removing and installing electric socket U	204
<b>97 - Wiring</b>		<b>205</b>
<b>1</b>	<b>Relay carriers, fuse holders, electronics boxes</b>	<b>205</b>
1.1	Overview of fitting locations - relay carriers, fuse holders, E-boxes	205
1.2	Removing and installing electronics box (E-box)	210
1.3	Removing and installing relay and fuse holder	213
1.4	Removing and installing relay and fuse carrier behind dash panel	216
1.5	Removing and installing fuse holder, battery	218
<b>2</b>	<b>Select Control units</b>	<b>219</b>
2.1	Overview of fitting locations - control units	219
2.2	Assembly overview - onboard supply control unit	222
2.3	Assembly overview - data bus diagnostic interface	224
2.4	Removing and installing onboard supply control unit J519	225
2.5	Removing and installing data bus diagnostic interface J533	229
2.6	Removing and installing bracket for onboard supply control unit J519	230
2.7	Renewing bracket for onboard supply control unit J519	232
<b>3</b>	<b>Connectors</b>	<b>234</b>
3.1	Repairing electrical wiring harnesses and plug-in connections	234
<b>4</b>	<b>Releasing and dismantling connector housings</b>	<b>235</b>
<b>5</b>	<b>Repairing aerial wires</b>	<b>236</b>
<b>6</b>	<b>Fibre optic cables</b>	<b>237</b>
<b>7</b>	<b>Vehicle diagnosis, testing and information systems</b>	<b>238</b>