



Contents

00 - Technical data	1
1 Safety information	1
1.1 Safety measures for working on vehicles with high-voltage system	1
1.2 Safety precautions when working in the vicinity of high-voltage components	2
1.3 Safety precautions when using testers and measuring instruments during a road test	2
1.4 Safety precautions when working on the cooling system	2
2 Identification	3
2.1 Engine number/engine data	3
3 Repair instructions	4
3.1 Contact corrosion	4
3.2 Routing and attachment of lines	4
3.3 Fitting radiator and condensers	4
3.4 Using impact drivers	4
3.5 Rules for cleanliness	5
4 Hazard classification of high-voltage system	6
10 - Removing and installing engine	13
1 Removing and installing rear motor	13
1.1 Assembly overview – motor	13
1.2 Removing engine	15
1.3 Securing engine on engine and gearbox support	22
1.4 Installing engine	26
2 Rear assembly mountings	31
19 - Cooling	32
1 Cooling system/coolant	32
1.1 Connection diagram - coolant hoses	32
1.2 Overview of fitting locations – cooling system	34
1.3 Assembly overview – cooling system	36
1.4 Checking cooling system for leaks	40
1.5 Draining coolant	43
1.6 Filling cooling system	44
1.7 Checking filling quality	54
1.8 Removing and installing coolant expansion tank	56
2 Coolant pump, regulation of cooling system	59
2.1 Assembly overview - electric coolant pump	59
2.2 Removing and installing coolant pump for high-voltage battery V590	60
2.3 Removing and installing coolant pump for low-temperature circuit V468	62
2.4 Assembly overview – coolant valves	63
2.5 Removing and installing mixing valve for high-voltage battery pre-heating V683	64
2.6 Removing and installing temperature sensor G18	67
2.7 Removing and installing coolant temperature sender 1 for high-voltage battery G898	67
2.8 Removing and installing coolant temperature sender 2 for high-voltage battery G899	69
3 Radiator, radiator fan	71
3.1 Assembly overview - radiator/radiator fan	71
3.2 Assembly overview – radiator cowl and radiator fan	71
3.3 Removing and installing radiator module	72
3.4 Dismantling and assembling radiator module	74
3.5 Removing and installing radiator cowl with radiator fan	77
3.6 Removing and installing radiator fan V7	78
3.7 Removing and installing control motor for radiator roller blind V711	79



93 - Electric drive systems	81
1 High-voltage components	81
1.1 Overview of fitting locations - high-voltage components	81
2 Warning stickers	82
2.1 Checking warning stickers	82
3 High-voltage battery unit	87
3.1 Visual inspection of high-voltage battery 1 AX2	87
3.2 Diagnosis of high-voltage battery 1 AX2	88
3.3 Leakage test of high-voltage battery 1 AX2	88
3.4 Searching for leaks from high-voltage battery	89
3.5 Removing and installing high-voltage battery 1 AX2	89
3.6 Raising high-voltage battery 1 AX2	109
3.7 Opening high-voltage battery 1 AX2	112
3.8 Closing high-voltage battery 1 AX2	113
3.9 Voltage and insulation measurement	118
3.10 Opening electrical circuit	120
3.11 Removing and installing switching unit for high-voltage battery	127
3.12 Removing and installing battery regulation control unit J840	132
3.13 Charging and discharging battery modules	133
3.14 Renewing lower part of battery housing	134
4 High-voltage battery components	136
4.1 Overview of fitting locations - battery modules	136
4.2 Assembly overview – high-voltage battery	140
4.3 Removing battery module	151
4.4 Installing battery module	156
4.5 Removing and installing battery modules control unit	161
4.6 Removing and installing connecting element	163
4.7 Removing and installing switching unit for high-voltage battery, negative terminal SX7	171
4.8 Removing and installing switching unit for high-voltage battery, positive terminal SX8	175
5 Power and control electronics for electric drive	179
5.1 Assembly overview - power and control electronics for electric drive	179
5.2 Removing and installing power and control electronics for electric drive	179
6 Electric drive motor	188
6.1 Assembly overview – electric drive motor	188
6.2 Calibrating three-phase current drive VX54	190
6.3 Removing and installing drive motor rotor position sender 1 G713	190
6.4 Leak testing of electric drive motor	191
7 Engine control unit	201
7.1 Assembly overview – motor control unit	201
7.2 Removing and installing engine control unit J623	201
7.3 Removing and installing bracket for engine/motor control unit J623	202
8 De-energising high-voltage system	203
9 Re-energising high-voltage system	205
10 Potential equalisation lines	206
10.1 Overview of fitting locations - potential equalisation lines	206
11 Charging socket	207
11.1 Assembly overview – charging socket	207
11.2 Removing and installing high-voltage battery charging socket 1 UX4	208
11.3 Manual release mechanism for charging socket	210
12 Charging unit for high-voltage battery	212
12.1 Assembly overview – charging unit for high-voltage battery	212
12.2 Removing and installing charging unit 1 for high-voltage battery AX4	212
13 Vehicle noise/engine sound	218



13.1	Overview of fitting locations – vehicle noise/engine sound	218
13.2	Removing and installing engine sound generator module 1 RX21	218
14	Accelerator pedal	220
14.1	Assembly overview - accelerator module	220
14.2	Removing and installing accelerator pedal module GX2	220
15	Voltage converter A19	222
15.1	Assembly overview - voltage converter A19	222
15.2	Removing and installing voltage converter A19	222