

## Contents

<b>00 - Technical data</b>	<b>1</b>
<b>1 Identification</b>	<b>1</b>
1.1 Motor designation, EQ310, EQ151	1
1.2 Motor designation, EQ550, EQ150	2
1.3 Motor data	2
<b>2 Electrical components</b>	<b>5</b>
2.1 Access to diagnoses	5
<b>3 Hazard classification of high-voltage system</b>	<b>7</b>
3.1 Hazard classification of the high-voltage system	7
<b>10 - Removing and installing engine</b>	<b>17</b>
<b>1 Safety information and repair notes</b>	<b>17</b>
1.1 Safety information	17
1.2 Repair instructions	17
<b>2 Removing and installing front motor</b>	<b>18</b>
2.1 Assembly overview – front motor, left-hand drive vehicles	18
2.2 Assembly overview – front motor, right-hand drive vehicles	20
2.3 Removing front motor, left-hand drive vehicles	22
2.4 Removing front motor, right-hand drive vehicles	24
2.5 Securing motor to engine and gearbox support, front motor	26
2.6 Installing front motor, left-hand drive vehicles	28
2.7 Installing front motor, right-hand drive vehicles	30
<b>3 Removing and installing the rear engine, EQ310</b>	<b>33</b>
3.1 Assembly overview - rear motor	33
3.2 Removing rear motor	35
3.3 Securing motor to engine and gearbox support, rear motor	41
3.4 Installing rear motor	43
<b>4 Removing and installing the rear engine, EQ550</b>	<b>47</b>
4.1 Assembly overview - rear motor	47
4.2 Removing rear motor	49
4.3 Installing rear motor	55
<b>5 Front assembly mountings</b>	<b>59</b>
5.1 Removing and installing motor mountings	59
5.2 Removing and installing gearbox mountings	59
<b>6 Rear assembly mountings</b>	<b>60</b>
6.1 Removing and installing assembly mountings	60
<b>19 - Cooling</b>	<b>61</b>
<b>1 Safety information and repair notes</b>	<b>61</b>
1.1 Safety information	61
1.2 Repair instructions	61
<b>2 Cooling system/coolant</b>	<b>62</b>
2.1 Connection diagram – coolant hoses, refrigerant R744	62
2.2 Connection diagram – coolant hoses, refrigerant R1234yf	63
2.3 Overview of fitting locations – cooling system, rear-wheel drive	65
2.4 Overview of fitting locations – cooling system, all-wheel drive	67
2.5 Assembly overview – cooling system, rear-wheel drive	69
2.6 Assembly overview – cooling system, all-wheel drive	74
2.7 Checking cooling system for leaks	78
2.8 Removing and installing coolant expansion tank	81
2.9 Checking filling quality	82
2.10 Draining coolant	84



2.11	Filling cooling system	86
<b>3</b>	<b>Cooling system/coolant, vehicles with integrated voltage converter</b>	<b>89</b>
3.1	Connection diagram – coolant hoses, refrigerant R744	89
3.2	Connection diagram – coolant hoses, refrigerant R134a	90
3.3	Overview of fitting locations – cooling system, rear-wheel drive	92
3.4	Overview of fitting locations – cooling system, all-wheel drive	94
3.5	Assembly overview – cooling system, rear-wheel drive	96
3.6	Assembly overview – cooling system, all-wheel drive	101
3.7	Checking cooling system for leaks	105
3.8	Removing and installing coolant expansion tank	108
3.9	Checking filling quality	109
3.10	Draining coolant	111
3.11	Filling cooling system	113
<b>4</b>	<b>Coolant pump/coolant regulation</b>	<b>116</b>
4.1	Assembly overview - electric coolant pump	116
4.2	Assembly overview - coolant valves	116
4.3	Assembly overview – coolant temperature sender	117
4.4	Removing and installing coolant pump for high-voltage battery [V590], rear-wheel drive	119
4.5	Removing and installing coolant pump for high-voltage battery [V590], all-wheel drive	121
4.6	Removing and installing coolant pump for low-temperature circuit [V468]	123
4.7	Removing and installing mixing valve for high-voltage battery pre-heating, rear-wheel drive	124
4.8	Removing and installing mixing valve for high-voltage battery pre-heating, all-wheel drive	126
4.9	Removing and installing mixing valve 2 for high-voltage battery [V696] pre-heating, heat pump	128
4.10	Removing and installing temperature sensor [G18]	130
4.11	Removing and installing temperature sensor [G18]	132
4.12	Removing and installing coolant temperature sender 1 for high-voltage battery G898	133
4.13	Removing and installing coolant temperature sender 2 for high-voltage battery G899	135
<b>5</b>	<b>Radiator, radiator fan</b>	<b>138</b>
5.1	Assembly overview - radiator/radiator fan	138
5.2	Assembly overview – radiator cowl and radiator fan	138
5.3	Removing and installing radiator module	139
5.4	Dismantling and assembling radiator module	141
5.5	Removing and installing radiator cowl with radiator fan	145
5.6	Removing and installing radiator fan [VX57]	147
5.7	Removing and installing the radiator roller blind V711	147
<b>93</b>	<b>Electric drive systems</b>	<b>149</b>
<b>1</b>	<b>Safety information and repair notes</b>	<b>149</b>
1.1	Safety information	149
1.2	Repair instructions	149
<b>2</b>	<b>High-voltage components, charging unit for high-voltage battery and voltage converter</b>	<b>150</b>
2.1	Overview of fitting locations – high-voltage components, all-wheel drive	150
2.2	Overview of fitting locations – high-voltage components, rear-wheel drive	152
<b>3</b>	<b>High-voltage components, charging unit for high-voltage batteries with integrated voltage converter</b>	<b>155</b>
3.1	Overview of fitting locations – high-voltage components, all-wheel drive	155
3.2	Overview of fitting locations – high-voltage components, rear-wheel drive	157
<b>4</b>	<b>Warning stickers</b>	<b>160</b>
4.1	Checking warning stickers	160
<b>5</b>	<b>High-voltage battery unit, edge of the battery housing top without wax</b>	<b>166</b>
5.1	Summary of components: built-in high-voltage battery, 55, 62 kWh	166
5.2	Assembly overview – high-voltage battery, installed, 82 kWh	167
5.3	Inspecting and classifying high-voltage battery 1 AX2	169

5.4	Diagnosis of high-voltage battery 1 [AX2]	170
5.5	Checking high-voltage battery for leaks	171
5.6	Leakage test of high-voltage battery 1 [AX2]	171
5.7	Removing and installing the high-voltage battery 1 -AX2, 55, 62 kWh	172
5.8	Removing and installing high-voltage battery 1 [AX2], 82 kWh	183
5.9	Raising high-voltage battery 1 [AX2]	194
5.10	Opening high-voltage battery 1 AX2	196
5.11	Close the high-voltage battery 1 -AX2, 55, 62 kWh	198
5.12	Sealing high-voltage battery 1 [AX2], 82 kWh	201
5.13	Voltage and insulation measurement, 55, 62 kWh	204
5.14	Voltage and insulation measurement, 82 kWh	206
5.15	Interrupting the circuit, 55 kWh	208
5.16	Opening electrical circuit, 62 kWh	211
5.17	Opening electrical circuit, 82 kWh	214
5.18	Removing and installing battery regulation control unit J840	217
5.19	Charging and discharging battery modules	221
5.20	Checking whether upper part of battery housing can be reused	222
5.21	Renewing lower part of battery housing	224
5.22	Renewing high-voltage battery 1 [AX2]	228
<b>6</b>	<b>Components of the high-voltage battery, edge of the top part of the battery housing without wax</b>	<b>230</b>
6.1	Installation location overview: battery modules, 55 kWh	230
6.2	Overview of fitting locations – battery modules, 62 kWh	231
6.3	Overview of fitting locations – battery modules, 82 kWh	233
6.4	Overview of fitting locations - battery connectors	235
6.5	Summary of components: removed high-voltage battery, 55, 62 kWh	235
6.6	Assembly overview – high-voltage battery, removed, 82 kWh	238
6.7	Assembly overview - battery modules	240
6.8	Summary of components: switching unit for high-voltage battery, 55, 62 kWh	241
6.9	Assembly overview – switching unit for high-voltage battery, 82 kWh	242
6.10	Summary of components: high-voltage battery, connection support; 55, 62 kWh	243
6.11	Assembly overview – high-voltage battery, connecting element, 82 kWh	245
6.12	Removing battery module	246
6.13	Installing battery module	250
6.14	Removing and installing battery modules control unit	255
6.15	Removing and installing connection support, 55 kWh	257
6.16	Removing and installing connecting element, 62 kWh	259
6.17	Removing and installing connecting element, 82 kWh	261
6.18	Removing and installing switching unit for high-voltage battery, negative terminal SX7	263
6.19	Removing and installing switching unit for high-voltage battery, positive terminal SX8	263
<b>7</b>	<b>High-voltage battery unit, edge of the battery housing top with wax</b>	<b>264</b>
7.1	Summary of components: built-in high-voltage battery, 55, 62 kWh	264
7.2	Assembly overview – high-voltage battery, installed, 82 kWh	265
7.3	Inspecting and classifying high-voltage battery 1 AX2	267
7.4	Diagnosis of high-voltage battery 1 [AX2]	268
7.5	Checking high-voltage battery for leaks	269
7.6	Leakage test of high-voltage battery 1 [AX2]	269
7.7	Removing and installing the high-voltage battery 1 -AX2, 55, 62 kWh	270
7.8	Removing and installing high-voltage battery 1 [AX2], 82 kWh	281
7.9	Raising high-voltage battery 1 [AX2]	292
7.10	Opening high-voltage battery 1 AX2	294
7.11	Close the high-voltage battery 1 -AX2, 55, 62 kWh	296
7.12	Sealing high-voltage battery 1 [AX2], 82 kWh	299
7.13	Voltage and insulation measurement, 55, 62 kWh	301
7.14	Voltage and insulation measurement, 82 kWh	303
7.15	Interrupting the circuit, 55 kWh	306



7.16	Opening electrical circuit, 62 kWh	309
7.17	Opening electrical circuit, 82 kWh	311
7.18	Removing and installing battery regulation control unit J840	314
7.19	Charging and discharging battery modules	318
7.20	Checking whether upper part of battery housing can be reused	319
7.21	Renewing lower part of battery housing	321
7.22	Renewing high-voltage battery 1 [AX2]	325
<b>8</b>	<b>Components of the high-voltage battery, edge of the top part of the battery housing with wax</b>	<b>327</b>
8.1	Installation location overview: battery modules, 55 kWh	327
8.2	Overview of fitting locations – battery modules, 62 kWh	328
8.3	Overview of fitting locations – battery modules, 82 kWh	330
8.4	Overview of fitting locations - battery connectors	332
8.5	Summary of components: removed high-voltage battery, 55, 62 kWh	332
8.6	Assembly overview – high-voltage battery, removed, 82 kWh	335
8.7	Assembly overview - battery modules	337
8.8	Summary of components: switching unit for high-voltage battery, 55, 62 kWh	338
8.9	Assembly overview – switching unit for high-voltage battery, 82 kWh	339
8.10	Summary of components: high-voltage battery, connection support; 55, 62 kWh	340
8.11	Assembly overview – high-voltage battery, connecting element, 82 kWh	342
8.12	Removing battery module	343
8.13	Installing battery module	347
8.14	Removing and installing battery modules control unit	352
8.15	Removing and installing connection support, 55 kWh	354
8.16	Removing and installing connecting element, 62 kWh	356
8.17	Removing and installing connecting element, 82 kWh	358
8.18	Removing and installing switching unit for high-voltage battery, negative terminal SX7	360
8.19	Removing and installing switching unit for high-voltage battery, positive terminal SX8	360
<b>9</b>	<b>Power and control electronics for electric drive, EQ310, EQ151</b>	<b>361</b>
9.1	Assembly overview - power and control electronics for electric drive (front)	361
9.2	Removing and installing front power and control electronics for electric drive	361
9.3	Assembly overview – power and control electronics for electric drive, rear	366
9.4	Removing and installing power and control electronics for electric drive at rear	366
<b>10</b>	<b>Electric drive motor, EQ310, EQ151</b>	<b>378</b>
10.1	Calibrate the three-phase drive -VX54	378
10.2	Leakage test of electric drive motor, rear	378
10.3	Assembly overview – electric drive motor, rear	386
10.4	Assembly overview – electric drive motor, front	388
10.5	Removing and installing drive motor rotor position sender 1 [G713]	391
10.6	Removing and installing drive motor rotor position sender, front	393
<b>11</b>	<b>Electric drive motor, EQ550</b>	<b>396</b>
11.1	Removing and installing oil temperature sender -G8-	396
<b>12</b>	<b>Motor control unit</b>	<b>398</b>
12.1	Assembly overview – motor control unit	398
12.2	Removing and installing motor control unit [J623]	398
12.3	Removing and installing bracket for motor control unit [J623]	399
<b>13</b>	<b>Disconnected high-voltage system</b>	<b>401</b>
13.1	De-energising high-voltage system	401
<b>14</b>	<b>Re-energise high-voltage system</b>	<b>402</b>
14.1	Re-energising high-voltage system	402
<b>15</b>	<b>Potential equalisation lines</b>	<b>403</b>
15.1	Overview of fitting locations – potential equalisation lines, all-wheel drive	403
15.2	Overview of fitting locations – potential equalisation lines, rear-wheel drive	404
<b>16</b>	<b>Charging socket, with charging cable</b>	<b>405</b>

16.1	Assembly overview – charging socket	405
16.2	Removing and installing high-voltage battery charging socket 1 [UX4]	406
16.3	Removing and installing actuator for high-voltage charging socket lock 1 [F498]	409
<b>17</b>	<b>Charging socket, with separate charging cable</b>	<b>412</b>
17.1	Assembly overview - charging socket	412
17.2	Removing and installing high-voltage battery charging socket 1 [UX4]	412
17.3	Removing and installing actuator for high-voltage charging socket lock 1 [F498]	415
<b>18</b>	<b>Charging unit for high-voltage battery</b>	<b>417</b>
18.1	Assembly overview – charging unit for high-voltage battery, rear-wheel drive	417
18.2	Assembly overview – charging unit for high-voltage battery, all-wheel drive	418
18.3	Removing and installing charging unit 1 for high-voltage battery [AX4], rear-wheel drive	420
18.4	Removing and installing charging unit 1 for high-voltage battery [AX4], all-wheel drive	423
<b>19</b>	<b>Charging unit for high-voltage batteries with integrated voltage converter</b>	<b>428</b>
19.1	Assembly overview - charging unit for high-voltage battery	428
19.2	Removing and installing charging unit 1 for high-voltage battery AX4	429
<b>20</b>	<b>Vehicle noise/engine sound</b>	<b>434</b>
20.1	Overview of fitting locations – driving sound/motor sound	434
20.2	Removing and installing engine sound generator module 1 [RX21]	434
20.3	Removing and installing module 2 for engine sound generator -RX22	435
<b>21</b>	<b>Accelerator pedal</b>	<b>437</b>
21.1	Assembly overview - accelerator module	437
21.2	Removing and installing accelerator pedal module [GX2]	438
<b>22</b>	<b>Voltage converter</b>	<b>439</b>
22.1	Assembly overview – voltage converter, rear-wheel drive	439
22.2	Assembly overview – voltage converter, all-wheel drive	439
22.3	Removing and installing voltage converter, rear-wheel drive	440
22.4	Removing and installing voltage converter, all-wheel drive	443
<b>23</b>	<b>High-voltage cables, all-wheel drive</b>	<b>446</b>
23.1	Overview of fitting locations - high-voltage wiring	446
23.2	Assembly overview – passage	447
23.3	Removing and installing high-voltage wiring harness for power and control electronics for electric drive	447
23.4	Removing and installing high-voltage wiring harness for high-voltage heater	451
23.5	Removing and installing high-voltage wiring harness for voltage converter, high-voltage heater, air conditioner compressor	453
23.6	Unplugging high-voltage connectors	457
<b>24</b>	<b>High-voltage cables, rear-wheel drive</b>	<b>459</b>
24.1	Overview of fitting locations - high-voltage wiring	459
24.2	Assembly overview – passage	461
24.3	Removing and installing high-voltage wiring harness for power and control electronics for electric drive	462
24.4	Removing and installing high-voltage wiring harness for high-voltage heater	464
24.5	Removing and installing high-voltage wiring harness for voltage converter, high-voltage heater, air conditioner compressor	466
24.6	Unplugging high-voltage connectors	471