

Contents

00 - Technical data	1
1 Safety briefing/employee qualification	1
1.1 Qualification	1
2 Safety information	2
2.1 Safety information	2
2.2 Work that requires high-voltage system to be de-energised	4
2.3 Safety precautions when working on the high-voltage system	4
2.4 Safety precautions when working in the vicinity of high-voltage components	5
2.5 Safety precautions when working on the cooling system	6
2.6 Safety precautions when using testers and measuring instruments during a road test	6
3 Repair instructions	7
3.1 Important notes	7
3.2 General notes	7
3.3 Information on handling fine dust, aluminium dust and steel dust	8
3.4 Routing and attachment of pipes, hoses and wiring	9
3.5 Contact corrosion	9
3.6 Bonding surfaces for self-adhesive components	9
3.7 Secure threaded connections	9
3.8 Identification plates	9
3.9 Impact wrenches	9
3.10 Moulded foam inserts	10
3.11 Bonded joints	12
3.12 Repairing thread for seat belt anchorage	13
3.13 Matching the surface contour	14
3.14 Surface treatment	14
3.15 Dent removal	14
4 Vehicle identification data	16
4.1 Vehicle identification number	16
4.2 Type plate	16
4.3 Vehicle data sticker	17
5 Extraction systems for steel/aluminium body repair station ("multi-material-mix" workplace)	19
6 Ultra-high strength steels (hot-formed)	21
7 Modern high-strength and ultra-high strength steels	28
8 Aluminium panels	32
9 Panel gaps	34
10 Processing body structure adhesive D 180 004 M2	37
10.1 Preparing bonding surfaces	38
11 Body dimensions	52
12 Tools	66
13 Straightening jig	69
13.1 Portal gauge	69
50 - Body - front	72
1 Safety information	72
2 Intermediate piece - Renewal	73
2.1 Tools	73
2.2 Procedure	74
3 Upper wheel housing longitudinal member - Renewal	80
3.1 Tools	80
3.2 Procedure	81



4	Renewing suspension turret	86
4.1	Tools	86
4.2	Procedure	87
5	Front longitudinal member - Partial renewal	93
5.1	Tools	93
5.2	Procedure	94
6	Renewing front longitudinal member	98
6.1	Tools	98
6.2	Procedure	99
7	Impact damper mounting - Renewal	105
7.1	Tools	105
7.2	Procedure	106
51 - Body - centre		108
1	Safety information	108
2	Permitted separating cuts on complete side frame	109
3	Roof - Renewal (vehicle with standard roof)	110
3.1	Tools	110
3.2	Procedure	111
4	Roof - Renewal (vehicle with large sunroof)	128
4.1	Tools	128
4.2	Procedure	129
5	Renewing front roof cross member	143
5.1	Tools	143
5.2	Procedure	144
6	Roof cross member (rear) - Renewal	147
6.1	Tools	147
6.2	Procedure	148
7	Outer A-pillar - Renewal	153
7.1	Tools	153
7.2	Procedure	154
8	A-pillar reinforcement - Renewal	159
8.1	Tools	159
8.2	Procedure	160
9	Outer B-pillar - Renewal	164
9.1	Tools	164
9.2	Procedure	165
10	Inner B-pillar - Renewal	170
10.1	Tools	170
10.2	Procedure	171
11	Outer side member - Renewal	181
11.1	Tools	181
11.2	Procedure	182
12	Outer side member reinforcement - Renewal	186
12.1	Tools	186
12.2	Procedure	187
13	Inner side member reinforcement - Partial renewal	192
13.1	Tools	192
13.2	Procedure	193
53 - Body - rear		202
1	Safety information	202
2	Permitted separating cuts on complete side frame	203

3	Renewing rear cross member	204
3.1	Tools	204
3.2	Procedure	205
4	Rear cross panel - Renewal	209
4.1	Tools	209
4.2	Procedure	210
5	Inner cross panel - Renewal	213
5.1	Tools	213
5.2	Procedure	214
6	Lower corner panel - Renewal	217
6.1	Notes for vehicles with hybrid drive	217
6.2	Tools	217
6.3	Procedure	218
7	Rear longitudinal member - Partial renewal	221
7.1	Tools	221
7.2	Procedure	222
8	Side panel - Partial renewal	226
8.1	Tools	226
8.2	Procedure	227
9	Inner side panel - Partial renewal	235
9.1	Procedure	235
10	C-pillar reinforcement - Renewal	240
10.1	Tools	240
10.2	Procedure	241
11	D-pillar reinforcement - Renewal	244
11.1	Tools	244
11.2	Procedure	245
12	Rear wheel housing - Renewal	248
12.1	Tools	248
12.2	Procedure	249
13	Inner rear wheel housing - Renewal	254
13.1	Procedure	254
14	Spare wheel well - Renewal	258
14.1	Tools	258
14.2	Procedure	259