

Contents

| | | |
|-----------|--|-----------|
| 00 | Technical data | 1 |
| 1 | Safety briefing/employee qualification | 1 |
| 1.1 | Qualification | 1 |
| 2 | Safety precautions | 2 |
| 2.1 | Safety precautions | 2 |
| 2.2 | Safety precautions when working on the high-voltage system | 4 |
| 2.3 | Safety precautions when working in the vicinity of high-voltage components | 5 |
| 2.4 | Safety precautions when working on the cooling system | 5 |
| 2.5 | Safety precautions when using testers and measuring instruments during a road test | 6 |
| 2.6 | Work that requires high-voltage system to be de-energised | 6 |
| 3 | Repair instructions | 7 |
| 3.1 | Information on handling fine dust, aluminium dust and steel dust | 7 |
| 3.2 | Important notes | 8 |
| 3.3 | Routing and attachment of pipes, hoses and wiring | 8 |
| 3.4 | Contact corrosion | 8 |
| 3.5 | Bonding surfaces for adhesive strips | 9 |
| 3.6 | Self-locking bolts | 9 |
| 3.7 | Identification plates | 9 |
| 3.8 | Impact wrenches | 9 |
| 3.9 | Contact corrosion | 10 |
| 3.10 | Matching the surface contour | 10 |
| 3.11 | Surface treatment | 10 |
| 3.12 | Helicoil plus Twininsert | 11 |
| 3.13 | Aluminium sheet panels and cast aluminium profiles | 20 |
| 3.14 | Galvanised body panels, high-strength and extra-high-strength steel | 23 |
| 3.15 | Moulded foam inserts | 25 |
| 3.16 | Bonded joints | 27 |
| 4 | Repairing joints with flow-drill screws | 29 |
| 4.1 | Socket for flow-drill screws (alternative) | 29 |
| 4.2 | If replacement upper panel is supplied with pre-drilled holes | 29 |
| 4.3 | If replacement upper panel is not supplied with pre-drilled holes | 30 |
| 4.4 | Upper and lower panels - Renewal | 30 |
| 4.5 | Repair set for flow-drill screws -VAS 6631- | 31 |
| 5 | Vehicle identification data | 32 |
| 5.1 | Vehicle identification number | 32 |
| 5.2 | Type plate | 32 |
| 5.3 | Vehicle data sticker | 32 |
| 6 | Extraction systems for steel/aluminium body repair station ("multi-material-mix" workplace) | 33 |
| 7 | Processing body structure adhesive D 180 004 M2 | 35 |
| 7.1 | Preparing bonding surfaces | 36 |
| 8 | Using edge milling unit -VAS 882 005- | 50 |
| 8.1 | General information | 50 |
| 8.2 | Assembling unit/changing milling tool | 53 |
| 8.3 | Separating flanged edges | 63 |
| 8.4 | Separating panels at corners and along surfaces | 69 |
| 8.5 | Separating outer edges | 72 |
| 8.6 | Roof - Renewal | 75 |
| 8.7 | Separating laser weld seams using round head milling unit | 77 |
| 8.8 | Aluminium panels | 79 |
| 9 | Overview of attachment pairings | 82 |



| | | |
|---------------------------|---|------------|
| 10 | Overview of rivets and tools | 83 |
| 10.1 | Overview of rivets used for repair measures | 87 |
| 10.2 | Renewing studs | 89 |
| 10.3 | Thread repair for M6 pop rivet nut | 90 |
| 10.4 | Repairing thread for seat belt anchorage | 90 |
| 11 | Body dimensions | 92 |
| 11.1 | Body - front | 92 |
| 11.2 | Floor group, front | 94 |
| 11.3 | Floor group, rear | 95 |
| 11.4 | Body - rear | 96 |
| 12 | Tools | 98 |
| 12.1 | Straightening jig | 103 |
| 50 - Body - front | | 104 |
| 1 | Safety precautions | 104 |
| 2 | Impact damper mounting - Renewal | 105 |
| 2.1 | Tools | 105 |
| 2.2 | Procedure | 106 |
| 3 | Upper wheel housing longitudinal member - Renewal | 110 |
| 3.1 | Tools | 110 |
| 3.2 | Procedure | 111 |
| 4 | Front longitudinal member - Partial renewal | 115 |
| 4.1 | Tools | 115 |
| 4.2 | Procedure | 116 |
| 5 | Front longitudinal member with suspension turret - Renewal | 121 |
| 5.1 | Tools | 121 |
| 5.2 | Procedure | 122 |
| 6 | Repairing threads for attachment of subframe | 137 |
| 6.1 | Tools | 137 |
| 51 - Body - centre | | 145 |
| 1 | Safety precautions | 145 |
| 2 | Permitted separating cuts on complete side frame | 146 |
| 3 | Roof - Renewal | 147 |
| 3.1 | Tools | 147 |
| 3.2 | Procedure | 153 |
| 4 | Roof - Renewal (vehicles with panoramic sunroof) | 168 |
| 4.1 | Tools | 168 |
| 4.2 | Procedure | 169 |
| 5 | Roof side member - Renewal | 182 |
| 5.1 | Tools | 182 |
| 5.2 | Procedure | 183 |
| 6 | Roof cross member (front) - Renewal | 190 |
| 6.1 | Tools | 190 |
| 6.2 | Procedure | 191 |
| 7 | Roof cross member (rear) - Renewal | 194 |
| 7.1 | Tools | 194 |
| 7.2 | Procedure | 195 |
| 8 | Outer A-pillar - Renewal | 200 |
| 8.1 | Tools | 200 |
| 8.2 | Procedure | 201 |
| 9 | Upper inner A-pillar - Partial renewal | 206 |
| 9.1 | Tools | 206 |

| | | |
|-------------------------------|---|------------|
| 9.2 | Procedure | 207 |
| 10 | Lower inner A-pillar - Renewal | 216 |
| 10.1 | Tools | 216 |
| 10.2 | Procedure | 217 |
| 11 | Outer B-pillar - Renewal | 223 |
| 11.1 | Tools | 223 |
| 11.2 | Procedure | 224 |
| 12 | Inner B-pillar - Renewal | 229 |
| 12.1 | Tools | 229 |
| 12.2 | Procedure | 230 |
| 13 | Outer side member - Renewal | 240 |
| 13.1 | Tools | 240 |
| 13.2 | Procedure | 241 |
| 14 | Inner side member - Renewal | 246 |
| 14.1 | Tools | 246 |
| 14.2 | Procedure | 247 |
| 53 - Body - rear | | 251 |
| 1 | Safety precautions | 251 |
| 2 | Permitted separating cuts on complete side frame | 252 |
| 3 | Rear cross panel - Renewal | 253 |
| 3.1 | Tools | 253 |
| 3.2 | Procedure | 254 |
| 4 | Rear cross panel reinforcement - Renewal | 258 |
| 4.1 | Tools | 258 |
| 4.2 | Procedure | 259 |
| 5 | Rear longitudinal member - Partial renewal | 264 |
| 5.1 | Tools | 265 |
| 5.2 | Procedure | 265 |
| 6 | Side panel - Renewal | 270 |
| 6.1 | Tools | 270 |
| 6.2 | Procedure | 271 |
| 7 | C-pillar reinforcement - Renewal | 279 |
| 7.1 | Tools | 279 |
| 7.2 | Procedure | 280 |
| 8 | D-pillar reinforcement - Renewal | 284 |
| 8.1 | Tools | 284 |
| 8.2 | Procedure | 285 |
| 9 | Inner D-pillar - Renewal | 292 |
| 9.1 | Tools | 292 |
| 9.2 | Procedure | 293 |
| 10 | Outer wheel housing - Partial renewal | 297 |
| 10.1 | Tools | 298 |
| 10.2 | Procedure | 298 |
| 11 | Outer wheel housing - Renewal | 303 |
| 11.1 | Tools | 303 |
| 11.2 | Procedure | 304 |
| 12 | Inner wheel housing - Renewal | 308 |
| 12.1 | Tools | 308 |
| 12.2 | Procedure | 309 |
| 13 | Luggage compartment floor - Renewal | 313 |
| 13.1 | Tools | 314 |
| 13.2 | Procedure | 314 |