



Contents

| | |
|--|-----------|
| 00 - Technical data | 1 |
| 1 Safety instructions | 1 |
| 1.1 General safety instructions | 1 |
| 1.2 Safety precautions when working on vehicles with start-stop system | 2 |
| 1.3 Notes on tow starting and towing | 2 |
| 1.4 Safety precautions during test drives in which testing and measuring equipment is used | 2 |
| 2 Identification | 4 |
| 2.1 Gearbox identification | 4 |
| 3 Repair instructions | 6 |
| 3.1 Rules of cleanliness | 6 |
| 3.2 General repair instructions | 6 |
| 3.3 Contact corrosion | 10 |
| 3.4 Seals and sealing rings | 10 |
| 3.5 Screws, nuts | 11 |
| 4 Technical data | 12 |
| 4.1 Filling capacity | 12 |
| 4.2 Allocation gearbox - engine | 12 |
| 4.3 Calculation of gear ratios | 12 |
| 5 Transmission System - Overview | 13 |
| 6 Electrical components | 15 |
| 6.1 Fitting location summary - electrical components | 15 |
| 30 - Clutch | 17 |
| 1 Clutch operation | 17 |
| 1.1 Summary of components - clutch actuator | 17 |
| 1.2 Assembly overview - clutch release mechanism | 17 |
| 1.3 Check ball pin for wear and renew if necessary. | 19 |
| 1.4 Removing and installing clutch actuator VX64 | 20 |
| 1.5 Repairing the clutch release mechanism | 25 |
| 2 Clutch | 28 |
| 2.1 Assembly overview - clutch | 28 |
| 2.2 Removing and installing clutch | 28 |
| 34 - Controls, housing | 35 |
| 1 Shift mechanism | 35 |
| 1.1 Overview - shift mechanism | 35 |
| 1.2 Summary of components - gearshift knob and cover | 35 |
| 1.3 Assembly overview of shift mechanism | 36 |
| 1.4 Summary of components - gear actuator | 38 |
| 1.5 Removing and installing gearshift knob | 39 |
| 1.6 Installing and removing the transmission cover | 41 |
| 1.7 Remove and install guide for shift lever, adjust | 42 |
| 1.8 Removing and installing selector mechanism | 43 |
| 1.9 Removing and installing gear actuator VX65 | 46 |
| 2 Removing and installing the gearbox | 56 |
| 2.1 Tightening torques for gearbox | 56 |
| 2.2 Removing the gearbox | 56 |
| 2.3 Installing the gearbox | 67 |
| 3 Assembly bracket | 72 |
| 3.1 Unit mounting - summary of components | 72 |
| 4 Transporting the gearbox | 73 |



| | | |
|--|--|------------|
| 5 | Disassembling and assembling the gearbox | 75 |
| 5.1 | Schematic overview - Gearbox | 75 |
| 5.2 | Summary of components - Gearbox | 75 |
| 5.3 | Summary of components - input shaft, output shafts, differential gear and shift rods | 76 |
| 5.4 | Disassembling and assembling the gearbox | 78 |
| 6 | Gearbox housing, clutch housing | 86 |
| 6.1 | Summary of components - Clutch housing | 86 |
| 6.2 | Summary of components - Gearbox housing and clutch housing | 86 |
| 6.3 | Repairing gearbox housing | 88 |
| 7 | Attachment at engine and gearbox mount | 90 |
| 8 | Gear oil | 92 |
| 8.1 | Checking gear oil level | 92 |
| 8.2 | Draining and filling gearbox oil | 92 |
| 35 - Gears, shafts | | 95 |
| 1 | Drive shaft | 95 |
| 1.1 | Summary of components - Drive shaft | 95 |
| 1.2 | Disassembling and assembling the drive shaft | 97 |
| 1.3 | Setting drive shaft | 106 |
| 1.4 | Replacing input shaft sealing ring | 111 |
| 2 | Output shaft | 113 |
| 2.1 | Summary of components - Output shaft | 113 |
| 2.2 | Disassembling and assembling the output shaft | 116 |
| 2.3 | Setting output shaft | 131 |
| 3 | Reverse shaft | 136 |
| 3.1 | Removing and installing reverse gear shaft | 136 |
| 39 - Final drive - differential | | 137 |
| 1 | Sealing rings | 137 |
| 1.1 | Installation overview - sealing rings | 137 |
| 1.2 | Replacing left sealing ring | 137 |
| 1.3 | Replacing right sealing ring | 140 |
| 2 | Differential | 141 |
| 2.1 | Summary of components - Differential | 141 |
| 2.2 | Disassembling and assembling differential gear | 143 |
| 2.3 | Adjusting the differential | 152 |
| 3 | Setting overview | 157 |
| 4 | Gearbox control system | 158 |
| 4.1 | Installation overview - gearbox control system | 158 |
| 4.2 | Removing and installing the control unit for electronic transmission J514 | 158 |
| 4.3 | Removing and installing the gearbox input r.p.m. sender G182 | 159 |