



Contents

| | |
|--|-----------|
| 00 - Technical data | 1 |
| 1 Notes on safety | 1 |
| 1.1 Safety precautions when working on air conditioning systems | 1 |
| 1.2 Safety measures for when working on vehicles with a start-stop system | 1 |
| 1.3 Safety precautions when working on the cooling system | 1 |
| 2 General notes | 3 |
| 2.1 Notes concerning odours in air conditioned vehicles | 3 |
| 2.2 Notes for vehicles with a start-stop system | 3 |
| 3 Repair notes | 4 |
| 3.1 Working on refrigerant circuit | 4 |
| 3.2 Refrigerant circuit seals | 4 |
| 4 Technical data | 5 |
| 4.1 Capacities for refrigerant R134a | 5 |
| 4.2 Refrigerant oil | 5 |
| 4.3 Oil distribution | 5 |
| 80 - Heating | 6 |
| 1 Overview of fitting locations - heating | 6 |
| 1.1 Overview of fitting locations - components located in front section of passenger compartment | 6 |
| 2 Heater unit | 8 |
| 2.1 Removing and installing heater unit | 8 |
| 2.2 Dismantling and assembling heater unit | 11 |
| 2.3 Removing and installing heat exchanger | 12 |
| 2.4 Removing and installing auxiliary air heater element Z35 | 12 |
| 2.5 Removing and installing fresh air blower V2 | 12 |
| 2.6 Removing and installing fresh air blower series resistor with overheating fuse N24 | 12 |
| 2.7 Removing and installing dust and pollen filter | 12 |
| 3 Control motors | 13 |
| 3.1 Removing and installing flexible shaft for air distribution | 13 |
| 3.2 Removing and installing Bowden cable for temperature flap | 14 |
| 3.3 Removing and installing fresh air and air recirculation flap control motor V154 | 14 |
| 3.4 Removing and installing air distribution flap actuator | 14 |
| 3.5 Removing and installing temperature flap actuator | 15 |
| 4 Air duct | 16 |
| 4.1 Removing and installing fresh air intake | 16 |
| 4.2 Checking exhaust ventilation for passenger compartment | 16 |
| 4.3 Removing and installing centre vent | 16 |
| 4.4 Removing and installing vent on driver or front passenger side | 16 |
| 4.5 Removing and installing rear footwell air duct | 16 |
| 4.6 Removing and installing front passenger side footwell vents | 16 |
| 4.7 Removing and installing driver side footwell vents | 16 |
| 5 Operating and display unit | 17 |
| 5.1 Removing and installing operating and display unit | 17 |
| 5.2 Removing and installing connectors on operating and display unit | 17 |
| 87 - Air conditioning system | 19 |
| 1 Overview of fitting locations - air conditioning system | 19 |
| 1.1 Overview of fitting locations - components located in front section of passenger compartment | 19 |
| 1.2 Overview of fitting locations - components located in front section of passenger compartment | 25 |



| | | |
|----------|--|------------|
| 2 | Refrigerant circuit | 30 |
| 2.1 | System overview - refrigerant circuit | 30 |
| 2.2 | Removing and installing high-pressure sender G65 | 31 |
| 2.3 | Removing and installing expansion valve | 32 |
| 2.4 | Removing and installing condenser | 35 |
| 2.5 | Removing and installing desiccant bag or cartridge | 38 |
| 2.6 | Removing and installing receiver | 40 |
| 2.7 | Removing and installing evacuating and charging valves on low and high-pressure side | 41 |
| 3 | Air conditioner compressor | 44 |
| 3.1 | Assembly overview - drive unit of air conditioner compressor | 44 |
| 3.2 | Assembly overview - belt pulley | 46 |
| 3.3 | Removing and installing ancillary bracket for air conditioner compressor | 48 |
| 3.4 | Removing and installing air conditioner compressor | 56 |
| 3.5 | Removing air conditioner compressor from and installing on bracket | 60 |
| 3.6 | Checking excess pressure relief valve on air conditioner compressor | 62 |
| 3.7 | Removing and installing belt pulley | 63 |
| 4 | Control motors | 65 |
| 4.1 | Removing and installing temperature flap control motor V68 | 65 |
| 4.2 | Removing and installing air flow flap control motor V71 | 67 |
| 4.3 | Removing and installing central flap control motor V70 | 70 |
| 4.4 | Removing and installing defroster flap control motor V107 | 71 |
| 4.5 | Removing and installing air recirculation flap control motor V113 | 71 |
| 4.6 | Removing and installing fresh air and air recirculation flap control motor V154 | 73 |
| 4.7 | Removing and installing left temperature flap control motor V158 | 75 |
| 4.8 | Removing and installing right temperature flap control motor V159 | 77 |
| 4.9 | Removing and installing fresh air/recirculated air, air flow flap control motor V425 | 77 |
| 4.10 | Removing and installing front air distribution flap control motor V426 | 78 |
| 4.11 | Removing and installing air distribution flap control motor V428 | 78 |
| 5 | Front heater and air conditioning unit | 80 |
| 5.1 | Assembly overview - evaporator housing | 80 |
| 5.2 | Removing and installing heater and air conditioning unit | 81 |
| 5.3 | Dismantling and assembling heater and air conditioning unit | 86 |
| 5.4 | Removing and installing evaporator | 91 |
| 5.5 | Removing and installing heat exchanger | 92 |
| 5.6 | Removing and installing auxiliary air heater element Z35 | 95 |
| 5.7 | Removing and installing fresh air blower V2 | 96 |
| 5.8 | Removing and installing fresh air blower series resistor with overheating fuse N24 | 97 |
| 5.9 | Removing and installing dust and pollen filter | 98 |
| 5.10 | Checking condensation drainage | 98 |
| 5.11 | Removing and installing evaporator output temperature sender G263 / evaporator temperature sensor G308 | 99 |
| 5.12 | Removing and installing glove box cooling | 99 |
| 6 | Air duct | 100 |
| 6.1 | Removing and installing fresh air intake | 100 |
| 6.2 | Checking exhaust ventilation for passenger compartment | 100 |
| 6.3 | Removing and installing centre vent | 101 |
| 6.4 | Removing and installing vent on driver or front passenger side | 101 |
| 6.5 | Removing and installing rear footwell air duct | 102 |
| 6.6 | Removing and installing front passenger side footwell vents | 102 |
| 6.7 | Removing and installing driver side footwell vents | 103 |
| 7 | Operating and display unit | 104 |
| 7.1 | Overview of operating and display unit | 104 |
| 7.2 | Removing and installing operating and display unit | 117 |
| 7.3 | Connectors on operating and display unit | 119 |



| | | |
|----------|---|------------|
| 7.4 | Removing and installing flexible shaft | 121 |
| 8 | Other controlling and regulating components | 123 |
| 8.1 | Removing and installing sunlight penetration photosensor G107 / sunlight penetration photosensor 2 G134 | 123 |
| 8.2 | Function of air quality sensor G238 | 123 |
| 8.3 | Removing and installing air quality sensor G238 | 125 |
| 8.4 | Removing and installing ambient temperature sensor G17 | 126 |
| 8.5 | Removing and installing fresh air intake duct temperature sensor G89 | 127 |
| 8.6 | Removing and installing left vent temperature sender G150 / right vent temperature sender G151 | 127 |
| 8.7 | Removing and installing centre vent temperature sender G191 | 127 |
| 8.8 | Removing and installing footwell vent temperature sender G192 | 128 |
| 8.9 | Removing and installing left footwell vent temperature sender G261 | 128 |
| 8.10 | Removing and installing right footwell vent temperature sender G262 | 129 |