



Contents

00 - Technical data	1
1 Safety information	1
1.1 Safety precautions when working on air conditioning systems	1
1.2 Safety precautions when handling refrigerants	1
1.3 Safety measures when working on vehicles with a start/stop system	2
1.4 Safety precautions when working on the cooling system	2
2 General information	3
2.1 Notes concerning odours in air conditioned vehicles	3
2.2 Notes for vehicles with start-stop system	3
2.3 Type plates	4
3 Repair instructions	5
3.1 Working on refrigerant circuit	5
3.2 General repair instructions	5
3.3 Refrigerant circuit seals	5
3.4 Checking cooling output	6
3.5 Notes on control motors	7
4 Technical data	13
4.1 Refrigerant capacity	13
4.2 Refrigerant oil capacities	13
4.3 Oil distribution	14
80 - Heating	16
1 Heating	16
87 - Air conditioning system	17
1 Overview of fitting locations - air conditioning system	17
1.1 Overview of fitting locations - components not located in passenger compartment	17
1.2 Overview of fitting locations - components located in front section of passenger compartment	20
1.3 Overview of fitting locations - components located in rear section of passenger compartment	24
2 Refrigerant circuit	25
2.1 System overview - refrigerant circuit	25
2.2 Assembly overview - condenser	27
2.3 Removing and installing high-pressure sender G65	28
2.4 Removing and installing expansion valve	30
2.5 Removing and installing condenser	34
2.6 Removing and installing desiccant bag or cartridge	36
2.7 Removing and installing evacuating and charging valves on low and high-pressure side	40
2.8 Removing and installing refrigerant line between condenser and expansion valve	43
2.9 Removing and installing refrigerant line between condenser and air conditioner compressor	45
2.10 Removing and installing refrigerant line between air conditioner compressor and expansion valve	48
2.11 Removing and installing refrigerant line to second heater unit, high-pressure section	50
2.12 Removing and installing refrigerant line to second heater unit, low-pressure section	52
2.13 Removing and installing refrigerant line from second heater unit	54
3 Air conditioner compressor	58
3.1 Assembly overview - drive unit of air conditioner compressor	58
3.2 Assembly overview - pulley	61
3.3 Removing air conditioning compressor from and installing on bracket	62
3.4 Removing and installing air conditioner compressor	63



3.5	Checking high-pressure safety valve on air conditioner compressor	69
3.6	Removing and installing pulley	70
4	Control motors	72
4.1	Overview of fitting locations - front control motors	72
4.2	Removing and installing temperature flap control motor V68	74
4.3	Removing and installing defroster flap control motor V107	76
4.4	Removing and installing air recirculation flap control motor V113	78
4.5	Removing and installing rear temperature flap control motor V137	79
4.6	Removing and installing left temperature flap control motor V158	80
4.7	Removing and installing right temperature flap control motor V159	82
4.8	Removing and installing fresh air/air recirculation, air flow flap control motor V425	83
4.9	Removing and installing front air distribution flap control motor V426	84
4.10	Removing and installing rear air distribution flap control motor V427 with potentiometer for rear air distribution flap control motor G643	85
4.11	Removing and installing air distribution flap control motor V428	86
5	Front heater and air conditioning unit	87
5.1	Assembly overview - heater and air conditioning unit	87
5.2	Removing and installing auxiliary air heater element Z35	91
5.3	Removing and installing heater and air conditioning unit	92
5.4	Dismantling and assembling heater and air conditioning unit	97
5.5	Assembly overview - evaporator housing	99
5.6	Removing and installing evaporator	100
5.7	Removing and installing dust and pollen filter	101
5.8	Removing and installing fresh air blower V2	102
5.9	Removing and installing heat exchanger	103
5.10	Removing and installing evaporator temperature sensor G308	107
5.11	Removing and installing condensation drain	108
5.12	Checking condensation drain	108
5.13	Removing and installing fresh air blower series resistor with overheating fuse N24	109
5.14	Removing and installing glove box cooling	110
6	Rear heater and air conditioning unit	111
6.1	Assembly overview - heater and air conditioning unit	111
6.2	Removing and installing heater and air conditioning unit	114
6.3	Dismantling and assembling heater and air conditioning unit	118
6.4	Removing and installing rear fresh air blower V80	120
6.5	Removing and installing rear fresh air blower control unit J391	120
6.6	Removing and installing heat exchanger	122
7	Air duct	125
7.1	Assembly overview - air duct and air distribution in passenger compartment	125
7.2	Removing and installing air ducts	126
7.3	Removing and installing forced ventilation for passenger compartment	131
7.4	Checking forced ventilation for passenger compartment	132
7.5	Removing and installing fresh air intake	132
7.6	Removing and installing driver side footwell vents	133
7.7	Removing and installing front passenger side footwell vents	134
7.8	Removing and installing long rear vent	135
7.9	Removing and installing short rear vent	135
7.10	Removing and installing footwell vents for 3rd row of seats	136
8	Coolant circuit	138
8.1	Checking 2nd heat exchanger switch-off valve N317	138
8.2	Removing and installing 2nd heat exchanger switch-off valve N317	139
9	Operating and display unit	140
9.1	Overview of operating and display unit	140
9.2	Removing and installing operating and display unit	145
10	Other controlling and regulating components	148



10.1	Removing and installing sunlight penetration photosensor G107	148
10.2	Principle of operation of air quality sensor G238	149
10.3	Removing and installing air quality sensor G238	150
10.4	Removing and installing ambient temperature sensor G17	151
10.5	Removing and installing left vent temperature sender G150	151
10.6	Removing and installing right vent temperature sender G151	152
10.7	Removing and installing left footwell vent temperature sender G261	152
10.8	Removing and installing right footwell vent temperature sender G262	153
10.9	Removing and installing rear vent temperature sender G174	153