



Contents

00 - Technical data	1
1 Safety information	1
1.1 Safety precautions when working on air conditioning systems	1
1.2 Safety measures when working on vehicles with start/stop system	2
1.3 Safety precautions when using testers and measuring instruments during a road test	2
1.4 Safety precautions when working on a high-voltage system	2
1.5 Safety precautions when working in the vicinity of high-voltage components	3
1.6 Safety precautions when working on the cooling system	3
1.7 Safety precautions when handling refrigerants	4
1.8 Safety precautions for working on vehicles with auxiliary/supplementary heater	4
1.9 Safety precautions when working on SCR system	5
2 General information	7
2.1 Type plates	7
3 Repair instructions	9
3.1 Rules for cleanliness	9
3.2 General information	9
3.3 General repair instructions	10
3.4 Contact corrosion	10
3.5 Bolts and nuts	10
3.6 Pipe/wire routing and attachment	10
3.7 Fitting radiator and condensers	11
3.8 Working on refrigerant circuit	11
3.9 Refrigerant circuit seals	12
4 Technical data	13
4.1 Refrigerant capacity	13
4.2 Refrigerant oil capacities	14
4.3 Oil distribution	15
5 Hazard classification for the high-voltage system	16
80 - Heating	17
1 Heater	17
1.1 Overview of fitting locations - heater unit	17
1.2 Assembly overview – heater unit	18
1.3 Removing and installing fresh air blower V2	20
1.4 Removing and installing fresh air blower series resistor with overheating fuse N24	20
1.5 Removing and installing dust and pollen filter	21
1.6 Removing and installing heat exchanger	22
1.7 Removing and installing coolant pipes on heat exchanger	22
1.8 Removing and installing heater unit	24
1.9 Checking ventilation	26
1.10 Removing and installing air intake unit of heater	27
2 Control motors	30
2.1 Removing and installing air recirculation flap control motor V113	30
3 Air duct	31
3.1 Assembly overview – air duct and air distribution in passenger compartment	31
3.2 Removing and installing driver side footwell vents	32
4 Operating and display unit	34
4.1 Removing and installing operating and display unit	34
85 - Ventilation	38
1 Roof blower	38
1.1 Assembly overview - roof blower	38



1.2	Removing and installing roof ventilator V3	39
2	Roof blower air duct	45
2.1	Removing and installing air duct ring	45
2.2	Removing and installing roof ventilator V3 frame	47
87 - Air conditioning system		49
1	Overview of fitting locations - air conditioning system	49
1.1	Overview of fitting locations – components not located in passenger compartment	49
1.2	Overview of fitting locations - components located in front section of passenger compartment	50
1.3	Overview of fitting locations - components located in rear section of passenger compartment	56
2	Refrigerant circuit	58
2.1	System overview - refrigerant circuit	58
2.2	Removing and installing high-pressure sender G65	60
2.3	Removing and installing expansion valve	62
2.4	Removing and installing condenser	66
2.5	Removing and installing desiccant bag or cartridge	69
2.6	Removing and installing evacuating and charging valves on low and high-pressure side ..	72
2.7	Commissioning air conditioning system after filling refrigerant circuit	74
2.8	When is it necessary to purge the refrigerant circuit with refrigerant	75
3	Air conditioner compressor	77
3.1	Assembly overview – drive unit of air conditioner compressor	77
3.2	Assembly overview - pulley	78
3.3	Removing and installing air conditioner compressor	79
3.4	Checking high-pressure safety valve on air conditioner compressor	83
3.5	Removing and installing pulley	84
3.6	Removing and installing air conditioner compressor regulating valve N280	86
4	Control motors	90
4.1	Overview of fitting locations – control motors at front	90
4.2	Removing and installing temperature flap control motor V68	93
4.3	Removing and installing defroster flap control motor V107	95
4.4	Removing and installing air recirculation flap control motor V113	96
4.5	Removing and installing left temperature flap control motor V158	98
4.6	Removing and installing right temperature flap control motor V159	99
4.7	Removing and installing air distribution flap control motor V428	100
4.8	Removing and installing fresh air/air recirculation, air flow flap control motor V425	103
4.9	Removing and installing footwell flap control motor V261	105
4.10	Removing and installing air distribution flap adjustment unit	106
5	Front heater and air conditioning unit	110
5.1	Assembly overview – heater and air conditioning unit	110
5.2	Removing and installing heater and air conditioning unit	114
5.3	Removing and installing dust and pollen filter	119
5.4	Removing and installing fresh air blower V2	120
5.5	Removing and installing fresh air blower control unit J126	126
5.6	Removing and installing heat exchanger	126
5.7	Removing and installing coolant pipes on heat exchanger	127
5.8	Removing and installing evaporator temperature sensor G308	129
5.9	Checking condensation drain	130
5.10	Removing and installing fresh air blower series resistor with overheating fuse N24	130
5.11	Removing and installing air distribution housing	131
6	Rear heater and air conditioning unit	133
6.1	Assembly overview – heater and air conditioning unit	133
6.2	Removing and installing evaporator	135
6.3	Removing and installing heater and air conditioning unit	135



6.4	Removing and installing rear fresh air blower V80	139
6.5	Removing and installing rear blower regulation sender G463	139
6.6	Removing and installing heat exchanger	140
6.7	Removing and installing control motors	141
7	Operating and display unit	146
7.1	Overview of operating and display unit	146
7.2	Removing and installing operating and display unit	151
8	Other controlling and regulating components	155
8.1	Removing and installing sunlight penetration photosensor G107	155
8.2	Working principles of air quality sensor G238	156
8.3	Removing and installing air quality sensor G238	157
8.4	Removing and installing ambient temperature sensor G17	158
8.5	Removing and installing humidity sender for air conditioning system G260	159
8.6	Removing and installing left vent temperature sender G150	159
8.7	Removing and installing right vent temperature sender G151	160
8.8	Removing and installing left footwell vent temperature sender G261	160
8.9	Removing and installing right footwell vent temperature sender G262	161