



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 a start/stop system	1
1.3 Safety precautions when using testers and measuring instruments during a road test	2
1.4 Safety precautions when working on the cooling system	2
1.5 Safety precautions when handling refrigerants	2
1.6 Safety precautions when working on vehicles with auxiliary/supplementary heater	3
1.7 Safety precautions when working on SCR system	4
2 General information	6
2.1 Type plates	6
2.2 Notes concerning odours in air conditioned vehicles	6
3 Repair instructions	8
3.1 Rules for cleanliness	8
3.2 General information	8
3.3 General repair instructions	8
3.4 Contact corrosion	9
3.5 Bolts and nuts	9
3.6 Routing and attachment of lines	9
3.7 Installation of radiators and condensers	9
3.8 Checking cooling output	9
3.9 Working on refrigerant circuit	12
3.10 Refrigerant circuit seals	13
4 Technical data	14
4.1 Refrigerant capacity	14
4.2 Refrigerant oil capacities	14
4.3 Oil distribution	15
80 - Heating	16
1 Overview of fitting locations - heating	16
1.1 Overview of fitting locations - components located in front section of passenger compartment	16
2 Heater	18
2.1 Assembly overview – heater unit	18
2.2 Removing and installing heat exchanger	19
2.3 Removing and installing flexible shafts	23
3 Control motors	25
3.1 Overview of fitting locations - front control motors	25
4 Air duct	26
5 Operating and display unit	27
5.1 Removing and installing operating and display unit	27
6 Other controlling and regulating components	29
87 - Air conditioning system	30
1 Overview of fitting locations - air conditioning system	30
1.1 Overview of fitting locations - components not located in passenger compartment	30
1.2 Overview of fitting locations - components located in front section of passenger compartment	31
2 Refrigerant circuit	35
2.1 System overview - refrigerant circuit	35
2.2 Assembly overview - condenser	36
2.3 Removing and installing high-pressure sender G65	37



2.4	Disconnecting refrigerant lines from and connecting to service connections	39
2.5	Removing and installing expansion valve	40
2.6	Removing and installing condenser	44
2.7	Removing and installing desiccant bag or cartridge	47
2.8	Removing and installing evacuating and charging valves on low and high-pressure side	51
2.9	Commissioning of air conditioning system after filling refrigerant circuit	54
2.10	When is it necessary to purge the refrigerant circuit with refrigerant	54
3	Air conditioner compressor	56
3.1	Assembly overview - drive unit of air conditioner compressor	56
3.2	Removing and installing air conditioner compressor	57
3.3	Checking high-pressure safety valve on air conditioner compressor	61
4	Control motors	63
4.1	Overview of fitting locations - front control motors	63
4.2	Removing and installing temperature flap control motor V68	65
4.3	Removing and installing air distribution flap control motor V428	67
4.4	Removing and installing defroster flap control motor V107	67
4.5	Removing and installing air recirculation flap control motor V113	68
4.6	Removing and installing left temperature flap control motor V158	70
4.7	Removing and installing right temperature flap control motor V159	71
4.8	Removing and installing fresh air/air recirculation, air flow flap control motor V425	72
4.9	Removing and installing front air distribution flap control motor V426	72
5	Front heater and air conditioning unit	74
5.1	Assembly overview - heater and air conditioning unit	74
5.2	Assembly overview - evaporator housing	79
5.3	Removing and installing evaporator	79
5.4	Checking auxiliary air heater element Z35	80
5.5	Removing and installing auxiliary air heater element Z35	81
5.6	Removing and installing heater and air conditioning unit	82
5.7	Dismantling and assembling heater and air conditioning unit	87
5.8	Removing and installing air distribution housing	89
5.9	Removing and installing dust and pollen filter	89
5.10	Removing and installing fresh air blower V2	90
5.11	Removing and installing fresh air blower control unit J126	91
5.12	Removing and installing heat exchanger	91
5.13	Removing and installing coolant pipes on heat exchanger	91
5.14	Removing and installing evaporator temperature sensor G308	92
5.15	Removing and installing condensation drain	93
5.16	Checking condensation drain	93
5.17	Removing and installing baffle plate	94
5.18	Removing and installing fresh air blower series resistor with overheating fuse N24	94
6	Air duct	95
6.1	Assembly overview - air duct and air distribution in passenger compartment	95
6.2	Removing and installing driver side footwell vents	96
6.3	Removing and installing front passenger side footwell vents	97
6.4	Removing and installing rear footwell vent	98
6.5	Installing plug in air duct to centre vent	98
6.6	Removing and installing air ducts	99
6.7	Checking forced ventilation for passenger compartment	100
6.8	Removing and installing fresh air intake	100
6.9	Removing and installing air intake duct	101
6.10	Removing and installing air duct for defroster vent	102
6.11	Removing and installing air duct for centre dash panel vent	102
7	Operating and display unit	103
7.1	Overview of operating and display unit	103



7.2	Removing and installing operating and display unit	104
8	Other controlling and regulating components	105
8.1	Removing and installing sunlight penetration photosensor G107	105
8.2	Principle of operation of air quality sensor G238	106
8.3	Removing and installing air quality sensor G238	107
8.4	Removing and installing ambient temperature sensor G17	108
8.5	Removing and installing humidity sender for air conditioning system G260	108
8.6	Removing and installing left vent temperature sender G150	108
8.7	Removing and installing right vent temperature sender G151	109
8.8	Removing and installing centre vent temperature sender G191	109
8.9	Removing and installing footwell vent temperature sender G192	110
8.10	Removing and installing left footwell vent temperature sender G261	110
8.11	Removing and installing right footwell vent temperature sender G262	110