



## Contents

<b>00 - Technical data</b>	<b>1</b>
<b>1 Safety information</b>	<b>1</b>
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 start/stop system	2
1.4 Safety precautions when working on cooling system	2
1.5 Safety precautions for working on vehicles with auxiliary/supplementary heater	2
1.6 Safety precautions when using testers and measuring instruments during a road test	3
<b>2 Identification</b>	<b>5</b>
2.1 Identification of heater and air conditioning unit	5
<b>3 General information</b>	<b>7</b>
3.1 Notes concerning odours in air conditioned vehicles	7
3.2 Notes for vehicles with start-stop system	7
3.3 Type plates	8
<b>4 Repair notes</b>	<b>10</b>
4.1 Working on refrigerant circuit	10
4.2 General repair instructions	10
4.3 Refrigerant circuit seals	11
4.4 Checking cooling output	11
<b>5 Technical data</b>	<b>14</b>
5.1 Refrigerant capacity	14
5.2 Refrigerant oil capacities	14
5.3 Oil distribution	14
<b>80 - Heating</b>	<b>16</b>
<b>1 Heating system</b>	<b>16</b>
<b>87 - Air conditioning system</b>	<b>17</b>
<b>1 Overview of fitting locations - air conditioning system</b>	<b>17</b>
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	19
<b>2 Refrigerant circuit</b>	<b>22</b>
2.1 System overview - refrigerant circuit	22
2.2 Assembly overview – condenser	24
2.3 Removing and installing refrigerant circuit pressure sender G805	26
2.4 Removing and installing expansion valve	28
2.5 Removing and installing condenser	32
2.6 Removing and installing desiccant bag or cartridge	35
2.7 Removing and installing damper weight for refrigerant line, low-pressure side	46
2.8 Removing and installing evacuating and charging valves on low and high-pressure side	47
2.9 Removing and installing refrigerant line with internal heat exchanger	49
2.10 Removing and installing refrigerant line from condenser to evaporator	53
2.11 Removing and installing refrigerant line from air conditioner compressor to condenser	57
2.12 Removing and installing refrigerant line from evaporator to air conditioner compressor	60
2.13 Commissioning air conditioning system after filling refrigerant circuit	63
<b>3 Air conditioner compressor</b>	<b>64</b>
3.1 Assembly overview – air conditioner compressor	64
3.2 Assembly overview - pulley	68
3.3 Removing air conditioning compressor from and installing on bracket	75
3.4 Removing and installing air conditioner compressor	77
3.5 Checking high-pressure safety valve on air conditioner compressor	83



3.6	Removing and installing pulley	84
<b>4</b>	<b>Control motors</b>	<b>93</b>
4.1	Overview of fitting locations – control motors at front	93
4.2	Removing and installing temperature flap control motor V68	95
4.3	Removing and installing defroster flap control motor V107	97
4.4	Removing and installing air recirculation flap control motor V113	99
4.5	Removing and installing left temperature flap control motor V158	101
4.6	Removing and installing right temperature flap control motor V159	103
4.7	Removing and installing fresh air/air recirculation, air flow flap control motor V425	105
4.8	Removing and installing front air distribution flap control motor V426	107
4.9	Removing and installing air distribution flap control motor V428	109
4.10	Removing and installing air distribution flap adjustment unit	111
<b>5</b>	<b>Front heater and air conditioning unit</b>	<b>115</b>
5.1	Assembly overview – heater and air conditioning unit	115
5.2	Assembly overview - add-on parts of heater and air conditioning unit and of air intake box	120
5.3	Assembly overview – evaporator housing	122
5.4	Assembly overview - flaps and partitions in air distribution housing	123
5.5	Removing and installing evaporator	126
5.6	Checking auxiliary air heater element Z35	128
5.7	Removing and installing auxiliary air heater element Z35	129
5.8	Removing and installing heater and air conditioning unit	130
5.9	Removing and installing bracket for heater and air conditioning unit	136
5.10	Dismantling and assembling heater and air conditioning unit	138
5.11	Removing and installing air distribution housing	140
5.12	Removing and installing dust and pollen filter	140
5.13	Removing and installing fresh air blower V2	143
5.14	Removing and installing fresh air blower control unit J126	144
5.15	Removing and installing heat exchanger	145
5.16	Removing and installing coolant pipes on heat exchanger	151
5.17	Removing and installing evaporator temperature sensor G308	153
5.18	Removing and installing condensation drain	154
5.19	Checking condensation drain	156
<b>6</b>	<b>Air duct</b>	<b>158</b>
6.1	Assembly overview – air duct and air distribution in passenger compartment	158
6.2	Removing and installing fresh air intake	159
6.3	Removing and installing cover for fresh air intake	161
6.4	Removing and installing air intake duct	161
6.5	Removing and installing driver side footwell vents	162
6.6	Removing and installing front passenger side footwell vents	163
6.7	Removing and installing rear footwell vent	164
6.8	Checking forced ventilation for passenger compartment	166
6.9	Removing and installing forced ventilation for passenger compartment	166
6.10	Removing and installing air duct for defroster vent	167
6.11	Removing and installing air duct for centre dash panel vent	168
<b>7</b>	<b>Operating and display unit</b>	<b>169</b>
7.1	Overview of fitting locations – operating and display unit	169
7.2	Removing and installing operating and display unit, front	173
<b>8</b>	<b>Other controlling and regulating components</b>	<b>176</b>
8.1	Removing and installing sunlight penetration photosensor G107	176
8.2	Removing and installing air quality sensor G238	177
8.3	Removing and installing ambient temperature sensor G17	178
8.4	Removing and installing humidity sender for air conditioning system G260	178
8.5	Removing and installing left vent temperature sender G150	179
8.6	Removing and installing right vent temperature sender G151	180
8.7	Removing and installing footwell vent temperature sender G192	181