



Contents

00 - Technical data	1
1 General notes	1
1.1 Notes concerning odours in air conditioned vehicles	1
1.2 Notes for vehicles with a start-stop system	1
1.3 Notes on repair work to vehicles with air conditioning and on handling refrigerant	2
1.4 Procedure for checking and adjusting components	2
1.5 Identification plates	2
2 Notes on safety	4
2.1 Safety precautions when handling refrigerants	4
2.2 Safety measures for when working on vehicles with a start-stop system	5
3 Repair notes	6
3.1 Repair work on refrigerant circuit which may be performed only in appropriate workshops by specially trained mechanics	6
4 Technical data	8
4.1 Capacities for refrigerant R134a	8
4.2 Refrigerant machine oil	8
4.3 Oil distribution	9
80 - Heating	10
1 Overview of fitting locations - heating	10
1.1 Overview of fitting locations - components not located in passenger compartment	10
1.2 Overview of fitting locations - components located in front section of passenger compartment	12
2 Heater unit	15
2.1 Assembly overview – heater unit	15
2.2 Removing and installing fresh air blower V2	17
2.3 Removing and installing fresh air blower series resistor with overheating fuse N24	17
2.4 Removing and installing dust and pollen filter	17
2.5 Removing and installing heat exchanger	17
2.6 Removing and installing heater unit	17
2.7 Dismantling and assembling heater unit	17
2.8 Checking auxiliary air heater element Z35	19
2.9 Removing and installing auxiliary air heater element Z35	19
2.10 Removing and installing flexible shafts	19
3 Control motors	20
3.1 Overview of fitting locations - front control motors	20
3.2 Removing and installing air distribution flap actuator	21
3.3 Removing and installing temperature flap actuator	23
3.4 Removing and installing fresh air and air recirculation flap control motor V154	26
4 Air duct	27
4.1 Assembly overview - air duct and air distribution in passenger compartment	27
4.2 Removing and installing centre vent at front	27
4.3 Removing and installing right or left vent	27
4.4 Removing and installing driver side footwell vents	27
4.5 Removing and installing front passenger side footwell vents	27
4.6 Removing and installing rear air duct	27
4.7 Checking exhaust ventilation for passenger compartment	27
4.8 Removing and installing exhaust ventilation for passenger compartment	28
4.9 Removing and installing fresh air intake	28
4.10 Removing and installing air duct for defroster vent	28
4.11 Removing and installing air duct for centre vent	28
5 Operating and display unit	29



5.1	Exploded view of fitting locations - operating and display unit	29
5.2	Removing and installing operating and display unit	30
5.3	Pin assignment for multi-pin connectors on back of operating and display unit, heated and fresh air	31
6	Other controlling and regulating components	32
6.1	Removing and installing ambient temperature sensor G17	32
87 - Air conditioning system		33
1	Overview of fitting locations - air conditioning system	33
1.1	Overview of fitting locations - components not located in passenger compartment	33
1.2	Overview of fitting locations - components located in front section of passenger compartment	37
2	Refrigerant circuit	47
2.1	System overview - refrigerant circuit	47
2.2	Assembly overview - condenser	49
2.3	Removing and installing evacuating and charging valves on low and high-pressure side ..	51
2.4	Removing and installing high-pressure sender G65	53
2.5	Removing and installing condenser	55
2.6	Removing and installing desiccant bag or cartridge	56
2.7	Removing and installing expansion valve	59
3	Air conditioner compressor	62
3.1	Assembly overview - drive unit of air conditioner compressor	62
3.2	Assembly overview - belt pulley	63
3.3	Removing air conditioner compressor from and installing on bracket	63
3.4	Removing and installing air conditioner compressor	65
3.5	Removing and installing belt pulley	69
3.6	Checking excess pressure relief valve on air conditioner compressor	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	76
4.3	Removing and installing defroster flap control motor V107/temperature flap control motor V68	79
4.4	Removing and installing fresh air and air recirculation flap control motor V154	84
4.5	Removing and installing fresh air/recirculated air, air flow flap control motor V425	86
4.6	Removing and installing air distribution flap control motor V428	89
4.7	Locally manufacturing an adapter cable to activate control motors	92
5	Front heater and air conditioning unit	93
5.1	Assembly overview - heater and air conditioning unit	93
5.2	Removing and installing heater and air conditioning unit	102
5.3	Dismantling and assembling heater and air conditioning unit	106
5.4	Removing and installing fresh air blower V2	108
5.5	Removing and installing fresh air blower series resistor with overheating fuse N24	111
5.6	Removing and installing dust and pollen filter	113
5.7	Dismantling and assembling evaporator housing	115
5.8	Checking auxiliary air heater element Z35	117
5.9	Removing and installing auxiliary air heater element Z35	121
5.10	Checking condensation drainage	122
5.11	Removing and installing fresh air blower control unit J126	122
5.12	Removing and installing heat exchanger	124
5.13	Removing and installing evaporator temperature sensor G308	127
5.14	Removing and installing flexible shaft	129
6	Air duct	130
6.1	Assembly overview - air duct and air distribution in passenger compartment	130
6.2	Removing and installing centre vent at front	131
6.3	Removing and installing right or left vent	132



6.4	Removing and installing driver side footwell vents	132
6.5	Removing and installing front passenger side footwell vents	133
6.6	Removing and installing rear footwell vent	134
6.7	Removing and installing exhaust ventilation for passenger compartment	135
6.8	Checking exhaust ventilation for passenger compartment	136
6.9	Removing and installing fresh air intake	137
6.10	Removing and installing air duct for defroster vent	139
6.11	Removing and installing air duct for centre vent	140
7	Operating and display unit	141
7.1	Exploded view of fitting locations - operating and display unit	141
7.2	Removing and installing operating and display unit	144
7.3	Multi-pin connector pin assignment on back of operating and display unit	147
8	Other controlling and regulating components	148
8.1	Removing and installing sunlight penetration photosensor G107	148
8.2	Removing and installing centre vent temperature sender G191	149
8.3	Removing and installing footwell vent temperature sender G192	150
8.4	Removing and installing radiator fan control unit J293	150
8.5	Removing and installing ambient temperature sensor G17	152