

Contents

01 - Self-diagnosis, Electrical check	1
1 Air conditioner self-diagnosis	1
1.1 Air conditioner self-diagnosis	1
1.2 Function	1
1.3 Technical data of self-diagnosis	2
1.4 Self-diagnosis test prerequisites	3
1.5 Safety precautions	3
2 Connecting vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551 and selecting function	3
2.1 Connecting vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551 and selecting function	3
2.2 Encoding table	5
3 Interrogating fault memory	7
3.1 Interrogating fault memory	7
4 Fault table	8
4.1 Fault table	8
5 Final control diagnosis	14
5.1 Final control diagnosis	14
6 Basic setting	20
6.1 Basic setting	20
7 Erasing fault memory, ending output	21
7.1 Erasing fault memory, ending output	21
8 Encoding operating and display unit	22
8.1 Encoding operating and display unit	22
8.2 Encoding table	23
9 Reading measured value block	24
9.1 Reading measured value block	24
10 AC electrical check	36
10.1 AC electrical check	36
10.2 Electrical check on operating and display unit -E87	36
11 Perform electrical check at radiator fan control unit -J293	48
11.1 Perform electrical check at radiator fan control unit -J293	48
11.2 Electrical check on control unit -J293 (version for pressure switch -F129)	49
11.3 Electrical check on control unit -J293 (version for High-pressure sender -G65)	53
11.4 Checking signal from high-pressure sender -G65	60
80 - Heating	62
1 Tools	62
1.1 Tools	62
1.2 Special tools, testers, measuring instruments and auxiliary items required	62
2 Servicing heating	63
2.1 Servicing heating	63
2.2 Dash panel vents and air ducts	63
2.3 Removing defective dash panel vent	67
2.4 Making an auxiliary tool for dismantling the defective dash panel vents	67
2.5 Removing and installing undamaged dash panel vents	67
2.6 Removing and installing windscreen defroster vent	69
2.7 Removing and installing air duct to defroster vent	70
2.8 Checking vent frame	70
2.9 Heating, heater control and air ducts	71
2.10 Removing and installing heater control	74
2.11 Detaching and fitting Bowden cables from/on heater control	74



2.12	Connection diagram for Bowden cables to the heater control	75
2.13	Replacing the bulb for heater control	75
2.14	Connection diagram for Bowden cables on the heater control	76
2.15	Removing, installing and adjusting Bowden cables from/on the heater control	77
2.16	Removing and installing series resistor -N24 for fresh air blower	78
2.17	Removing and installing fresh air blower -V2	79
2.18	Removing and installing positioning motor for fresh/recirculated air flap -V154	80
2.19	Checking the function of the positioning motor for fresh/recirculated air flap -V154 and switch -E159	81
2.20	Removing and installing footwell vent	83
2.21	Removing and installing dust and pollen filter	84
3	Removing and installing heater	84
3.1	Removing and installing heater	84
3.2	Removing and installing heating system heat exchanger	89
87	Air conditioning	91
1	Tools	91
1.1	Tools	91
1.2	Special tools, testers, measuring instruments and auxiliary items required	91
2	Safety precautions when working on vehicles with air conditioners and when handling refrigerant	91
2.1	Safety precautions when working on vehicles with air conditioners and when handling refrigerant	91
3	Notes on general repairs	94
3.1	Notes on general repairs	94
4	Repairing refrigerant circuit	95
4.1	Repairing refrigerant circuit	95
4.2	Air conditioner pressure switch -F129	100
4.3	Removing and installing high-pressure sender -G65	102
4.4	O-ring seals for refrigerant circuit	102
4.5	Detaching and re-attaching compressor from/to bracket (4-cyl. petrol engine)	103
4.6	Detaching and reattaching compressor from/to bracket, removing and installing AC compressor bracket (6-cyl. engine)	104
5	Repairing the air conditioner magnetic clutch -N25	108
5.1	Repairing the air conditioner magnetic clutch -N25	108
5.2	Sanden compressor	109
5.3	"Zexel" compressor	115
6	Components for control and regulation of air conditioner (in engine compartment and at rear of vehicle)	119
6.1	Components for control and regulation of air conditioner (in engine compartment and at rear of vehicle)	119
6.2	Removing and installing radiator fan control unit -J293	130
6.3	Checking condensation drain, removing and installing valve	130
6.4	Removing and installing heat insulation for the expansion valve	131
7	Components for air conditioner control and regulation (in the passenger compartment)	132
7.1	Components for air conditioner control and regulation (in the passenger compartment)	132
7.2	Removing and installing operating and display unit -E87	140
7.3	Removing and installing dash panel temperature sensor blower -V42	142
7.4	Removing and installing blower control unit -J126	142
7.5	Removing and installing footwell vent temperature sender -G192	143
7.6	Removing and installing fresh air blower -V2	143
7.7	Removing and installing sunlight penetration photo sensor -G107	145
7.8	Removing and installing footwell vent	146
7.9	Removing and installing footwell/defroster flap positioning motor -V85	147
7.10	Removing and installing temperature flap positioning motor Remove and install -V68	148
7.11	Removing and installing central flap positioning motor -V70	148
7.12	Removing and installing fresh air intake temperature sensor -G89	149

7.13	Removing and installing air flow flap positioning motor -V71	149
8	Checking air conditioner refrigeration capacity	150
8.1	Checking air conditioner refrigeration capacity	150
9	Repairing refrigerant circuit	154
9.1	Repairing refrigerant circuit	154
9.2	Removing and installing fluid reservoir	165
9.3	Removing and installing condenser	165
9.4	Detaching and re-attaching refrigerant lines from/to expansion valve	167
9.5	Removing and installing expansion valve	168
9.6	Detaching and re-attaching refrigerant lines from/to compressor	168
9.7	Removing and installing compressor	169
9.8	Filling quantities	169
10	Removing and installing air conditioner (complete)	170
10.1	Removing and installing air conditioner (complete)	170
10.2	Removing and installing the air conditioner heat exchanger	175
11	Dismantling and assembling air conditioner (version "1")	177
11.1	Dismantling and assembling air conditioner (version "1")	177
11.2	Removing and installing air conditioner attachment parts	177
11.3	Removing and installing air conditioner electrical components	181
11.4	Dismantling and assembling air conditioner	185
12	Dismantling and assembling air conditioner (version 2)	191
12.1	Dismantling and assembling air conditioner (version 2)	191
12.2	Removing and installing air conditioner attachment parts	191
12.3	Removing and installing air conditioner electrical components	196
12.4	Dismantling and assembling air conditioner	200