

Contents

00 - Technical data	1
1 Safety information	1
1.1 Safety precautions when working on air conditioners	1
1.2 Safety precautions when handling refrigerants	1
1.3 Safety precautions when working on vehicles with high-voltage system	2
1.4 Safety precautions when working in the vicinity of high-voltage components	2
1.5 Safety precautions when working on vehicles with start/stop system	3
1.6 Safety precautions when using testers and measuring instruments during a road test	3
1.7 Safety precautions when working on the cooling system	4
1.8 Safety precautions when working on vehicles with auxiliary/supplementary heater	4
2 General notes	5
2.1 Type plates	5
2.2 Notes on odours in vehicles with air conditioner	7
2.3 Seat heating	8
2.4 Seat ventilation	14
2.5 Heated rear window	19
2.6 Operating unit	20
2.7 Notes on control motors	27
2.8 Auxiliary air conditioner - vehicles with high-voltage system only	32
3 Repair instructions	34
3.1 Rules for cleanliness	34
3.2 General notes	34
3.3 Contact corrosion	35
3.4 Routing and attachment of pipes, hoses and wiring	35
3.5 Installing radiators and condensers	35
3.6 Checking cooling output	36
3.7 Working on refrigerant circuit	79
3.8 Notes on general repairs	81
3.9 Paintwork repairs on vehicles with air conditioning system	90
3.10 Refrigerant circuit seals	91
3.11 Notes on high-voltage components and potential equalisation lines	91
3.12 Use of impact wrenches	91
3.13 Identification plates	92
4 Technical data	93
4.1 Refrigerant capacities	93
4.2 Approved refrigerant oils and refrigerant oil capacities	95
4.3 Oil distribution	100
80 - Heating	101
1 Overview of fitting locations - heater	101
87 - Air conditioning system	102
1 Overview of fitting locations - air conditioner	102
1.1 Overview of fitting locations - components not located in passenger compartment	102
1.2 Overview of fitting locations - components in front passenger compartment	116
1.3 Overview of fitting locations - components in rear passenger compartment	121
2 Refrigerant circuit	125
2.1 System overview - refrigerant circuit	125
2.2 Assembly overview - condenser	141
2.3 Overview of fitting locations - refrigerant lines to rear, vehicles with high-voltage system	147
2.4 Assembly overview - refrigerant lines	150
2.5 Removing and installing refrigerant pressure sender (G395/G65)	158



2.6	Checking cut-in signal for air conditioner compressor regulating valve N280	162
2.7	Disconnecting and attaching refrigerant lines	167
2.8	Removing and installing refrigerant lines with internal heat exchanger	184
2.9	Removing and installing internal heat exchanger	188
2.10	Removing and installing expansion valve	191
2.11	Removing and installing heat exchanger for high-voltage battery	202
2.12	Removing and installing condenser	209
2.13	Detaching and attaching refrigerant lines at condenser	214
2.14	Removing and installing receiver	224
2.15	Removing and installing desiccant bag/desiccant cartridge	232
2.16	Differences in service connections depending on refrigerant (R134a or R1234yf)	235
2.17	Removing and installing valve from service connection (low and high-pressure sides)	238
2.18	Starting up air conditioner after charging refrigerant circuit	240
3	Air conditioner compressor	245
3.1	Assembly overview - drive unit for air conditioner compressor	245
3.2	Assembly overview - pulley	260
3.3	Detaching and attaching air conditioner compressor at bracket	268
3.4	Detaching and attaching refrigerant lines at air conditioner compressor	281
3.5	Removing and installing air conditioner compressor	301
3.6	Removing and installing air conditioning system magnetic clutch N25	332
3.7	Removing and installing pulley	336
3.8	Unfastening and securing air conditioner compressor drive shaft	343
3.9	Removing and installing air conditioner compressor drive shaft	346
3.10	Removing and installing drive plate with overload protection	347
3.11	Checking and adjusting concentricity of drive plate with overload protection	347
3.12	Removing and installing drive plate at air conditioner compressor	348
3.13	Removing and installing drive plate with roller bearing	350
4	Control motors	353
4.1	Assembly overview - front control motors	353
4.2	Assembly overview - rear control motors	367
4.3	Removing and installing air flow flap control motor V71	368
4.4	Removing and installing defroster flap control motor V107	371
4.5	Removing and installing left footwell flap control motor V108	374
4.6	Removing and installing right footwell flap control motor V109	378
4.7	Removing and installing left centre vent control motor V110	381
4.8	Removing and installing right centre vent control motor V111	385
4.9	Removing and installing air recirculation flap control motor V113	388
4.10	Removing and installing rear temperature flap control motor V137	390
4.11	Removing and installing left temperature flap control motor V158	392
4.12	Removing and installing right temperature flap control motor V159	395
4.13	Removing and installing indirect ventilation flap control motor V213	396
4.14	Removing and installing rear left air quantity flap control motor V239	398
4.15	Removing and installing rear right air quantity flap control motor V240	400
4.16	Removing and installing left side vent control motor V299	401
4.17	Removing and installing right side vent control motor V300	403
4.18	Removing and installing rear left temperature flap control motor V313	405
4.19	Removing and installing rear right temperature flap control motor V314	406
4.20	Removing and installing rear left chest vent control motor V315	408
4.21	Removing and installing rear right chest vent control motor V316	410
4.22	Removing and installing air recirculation flap 1 control motor for hybrid battery V479	412
4.23	Removing and installing air recirculation flap 2 control motor for hybrid battery V480	415
4.24	Removing and installing brackets for control motors	419
5	Front heater and air conditioning unit	426
5.1	Assembly overview - attachments for heater and air conditioning unit and air intake box	426
5.2	Assembly overview - flaps and partitions in air distribution housing	427

5.3	Assembly overview - heater and air conditioning unit	429
5.4	Assembly overview - air intake box of heater and air conditioning unit	431
5.5	Assembly overview - evaporator housing	434
5.6	Removing and installing evaporator	439
5.7	Cleaning evaporator	455
5.8	Checking auxiliary air heater element Z35	464
5.9	Removing and installing auxiliary air heater element Z35	468
5.10	Checking heating output of actuation of temperature flaps of air conditioner	470
5.11	Removing and installing heater and air conditioning unit	501
5.12	Dismantling and assembling heater and air conditioning unit	508
5.13	Removing and installing dust and pollen filter	516
5.14	Removing and installing fresh air blower V2	518
5.15	Removing and installing heat exchanger	520
5.16	Removing and installing condensation drain	529
5.17	Checking condensation drain	531
6	Air duct system	534
6.1	Assembly overview - routing of air flow and air distribution in passenger compartment	534
6.2	Air intake and air outlet openings	538
6.3	Removing and installing footwell vent (driver side)	542
6.4	Removing and installing footwell vent (front passenger side)	542
6.5	Removing and installing rear footwell vent	543
6.6	Removing and installing air duct for defroster vent	543
6.7	Removing and installing air duct for centre dash panel vent	544
6.8	Removing and installing air ducts	545
6.9	Checking forced ventilation vents in passenger compartment	552
6.10	Removing and installing forced ventilation vents in passenger compartment	555
6.11	Removing and installing fresh air intake	557
6.12	Checking plenum chamber water drain	560
6.13	Cleaning plenum chamber water drain	561
7	Coolant circuit	563
7.1	Overview of fitting locations - engine coolant circuit	563
7.2	Removing and installing coolant circulation pump V50	572
7.3	Integration of air conditioner into coolant circuit of high-voltage system - Audi A6 e-tron only	576
7.4	Removing and installing coolant shut-off valve N82	580
7.5	Removing and installing heater coolant shut-off valve N279	583
7.6	Removing and installing bracket for V50 and N82/N279	587
7.7	Removing and installing bracket with V618 and N634 - Audi A6 e-tron only	588
7.8	Assembly overview - bracket for V618 and N634, Audi A6 e-tron only	591
7.9	Removing and installing thermal management coolant pump 2 V618 - Audi A6 e-tron only	593
7.10	Removing and installing coolant changeover valve 3 N634 - Audi A6 e-tron only	595
7.11	Removing and installing high-voltage heater (PTC) Z115, with J848 - Audi A6 e-tron only	596
7.12	Removing and installing coolant temperature sender 2 for thermal management G903 - Audi A6 e-tron only	607
7.13	Removing and installing coolant temperature sender 7 for thermal management G908 - Audi A6 e-tron only	609
7.14	Bleeding coolant circuit	611
8	Operating and display unit	612
8.1	Overview of fitting locations - operating and display unit	612
8.2	Overview - operating and display unit	614
8.3	Removing and installing operating and display unit	620
9	Components for cooling high-voltage system - Audi A6 e-tron	623
9.1	Overview of fitting locations - components for cooling high-voltage system, Audi A6 e-tron	623
9.2	Removing and installing coolant temperature sender 1 for thermal management G902	625
9.3	Removing and installing coolant pump for high-voltage battery V590	629
10	Components for cooling high-voltage battery - Audi A6 hybrid	632



10.1	Overview of fitting locations - components not located in passenger compartment	632
10.2	Overview of fitting locations - components in rear passenger compartment	635
10.3	Assembly overview - battery cooling module	636
10.4	Assembly overview - routing of air flow and air distribution	639
10.5	Air intake and air outlet openings	641
10.6	Removing and installing refrigerant shut-off valve (N516/V424)	642
10.7	Removing and installing air ducts - Audi A6 hybrid	650
10.8	Moving battery cooling module into service position - Audi A6 hybrid	660
10.9	Removing and installing battery cooling module - Audi A6 hybrid	663
10.10	Removing and installing battery fan 1 V457 - Audi A6 hybrid	666
10.11	Removing and installing temperature sensors for evaporator - Audi A6 hybrid	668
10.12	Checking condensation drain for battery cooling module - Audi A6 hybrid	673
10.13	Removing and installing condensation drain for battery cooling module - Audi A6 hybrid	675
11	Further control components	679
11.1	Removing and installing sunlight penetration photosensor G107	679
11.2	Operation of air quality sensor G238	680
11.3	Removing and installing air quality sensor G238	690
11.4	Removing and installing ambient temperature sensor G17	692
11.5	Removing and installing left vent temperature sender G150	693
11.6	Removing and installing right vent temperature sender G151	694
11.7	Removing and installing left footwell vent temperature sender G261	694
11.8	Removing and installing right footwell vent temperature sender G262	695
11.9	Removing and installing vent temperature sender for rear footwell G637/G638	695
11.10	Removing and installing rear chest vent temperature sender G635/G636	697
11.11	Removing and installing control unit for air ionisation system J897	698
11.12	Removing and installing evaporator output temperature sender G263	699
11.13	Removing and installing thermal management control unit J1024 - Audi A6 e-tron	700
11.14	Fuse for electrical air conditioner compressor V470	702