



Contents

| | |
|---|-----------|
| 00 - Technical data | 1 |
| 1 General information on air conditioning | 1 |
| 1.1 Basics of air conditioning | 1 |
| 1.2 Vapour pressure table for R134a refrigerant gas | 3 |
| 1.3 R134a refrigerant gas | 4 |
| 1.4 Properties of R134a refrigerant gas | 5 |
| 1.5 Refrigeration system oil | 7 |
| 1.6 Comfort | 8 |
| 1.7 Environmental aspects | 8 |
| 1.8 Air conditioning effects | 8 |
| 1.9 Safety at work | 9 |
| 2 General remarks on the refrigerant gas loop | 14 |
| 2.1 Refrigerant gas loop components | 14 |
| 2.2 Refrigerant gas loop components | 22 |
| 2.3 Quick coupling connections in the refrigerant gas loop | 23 |
| 2.4 Switches and sensors for the refrigerant gas loop and their connections | 24 |
| 2.5 Electrical components not assembled in the refrigerant gas loop | 29 |
| 2.6 Pressures and temperatures in the refrigerant gas loop | 31 |
| 2.7 Refrigerant circuit with expansion valve | 31 |
| 2.8 Refrigerant circuit with butterfly (restrictor) and collection tank | 33 |
| 2.9 Checking and measuring work with a pressure gauge | 35 |
| 2.10 Notes on doing repair work on the refrigerant gas loop | 36 |
| 3 Legislation and standards | 37 |
| 3.1 Legislation and standards | 37 |
| 3.2 Regulations on recycling and disposal | 40 |
| 3.3 Disposal of cooling agent and cooling machine oils | 40 |
| 4 Using the climate control recovery, recycling, refilling, and cleaning equipment | 41 |
| 4.1 Important notes for using the Climate control recovery, recycling and refill set or EQ 7098 VAS 6008 | 41 |
| 4.2 Connect the Climate control recovery, recycling and refill set or EQ 7098 VAS 6008 | 42 |
| 4.3 Empty the refrigerant gas loop with the Climate control recovery, recycling and refill set or EQ 7098 VAS 6008 | 43 |
| 4.4 Fill the refrigerant gas loop with the Climate control recovery, recycling and refill set or EQ 7098 VAS 6008 | 44 |
| 4.5 Introduce refrigerant gas into the tank of the Climate control recovery, recycling and refill set or EQ 7098 VAS 6008 | 45 |
| 4.6 Emptying the tank of the Climate control recovery, recycling and refill set or EQ 7098 VAS 6008 | 46 |
| 5 Checking pressure values in the refrigerant gas loop | 47 |
| 5.1 Checking pressure values | 48 |
| 5.2 Verification for vehicles with butterfly (throttle) and collection tank (air conditioning compressor with internal adjustment device) | 50 |
| 5.3 Verification for vehicles with expansion valve and liquid loop / dryer (air conditioning compressor with internal adjustment device) | 53 |
| 5.4 Verification for vehicles with expansion valve, liquid tank / dryer and Adjustment valve for the air conditioning compressor N280 (with air conditioning compressor with external adjustment device) | 57 |
| 5.5 Verification for vehicles with butterfly (throttle), collection tank and regulating valve for the air conditioning compressor N280 (with air conditioning compressor with external adjustment device) | 66 |
| 6 Detecting leaks in the refrigerant gas loop | 72 |
| 6.1 Detecting leaks in the refrigerant gas loop with the R134a air conditioning leak detector or EQ 7051 VAG 1796 | 73 |
| 6.2 Detecting leaks in the refrigerant gas loop by pressurizing the system | 73 |



| | | |
|-----------|---|-----------|
| 6.3 | Detection of leaks in the refrigerant gas loop with the air conditioning recovery, recycling, recharging and cleaning set | 74 |
| 7 | Cleaning the refrigerant gas loop | 77 |
| 7.1 | Venting the refrigerant gas loop | 77 |
| 7.2 | Washing the refrigerant gas loop with R134a refrigerant gas (clean) | 79 |
| 8 | Problems | 85 |
| 8.1 | Possible problems in the refrigerant circuit | 85 |
| 9 | Replacing components | 87 |
| 9.1 | Leaking or damaged components (except the compressor, collection tank and liquid tank) .. | 87 |
| 9.2 | Replace the air conditioning compressor | 88 |
| 9.3 | Replace the liquid/collection tank and the butterfly (restrictor) | 89 |
| 10 | Test equipment and tools | 91 |
| 10.1 | List of test equipment, tools, and material | 91 |
| 10.2 | Test equipment, tools, and material | 91 |