Contents

01 - Self-diagnosis 1
1 Multi Point Injection self-diagnosis 1
1.1 Multi Point Injection self-diagnosis 1
1.2 List of control units 1
1.3 Technical data of self-diagnosis 2
1.4 Safety precautions 2
1.5 Connecting vehicle diagnostic, testing and information system VAS 5051/ fault reader V.A.G 1551 and selecting functions 2
2 Interrogating and erasing fault memory 5
2.1 Interrogating and erasing fault memory 5
2.2 Fault table 7
2.3 Fault codes 01119 - 17509 7
2.4 Fault codes 17514 - 18020 18
3 Final control diagnosis 28
3.1 Final control diagnosis 28
4 Basic setting 30
4.1 Basic setting 30
5 Encoding control unit 33
5.1 Encoding control unit 33
5.2 Encoding table for control unit no. 8A0 906 266 C 34
5.3 Encoding table for control unit no. 8A0 906 266 E, H, J 34
6 Reading measured value block 34
6.1 Reading measured value block 34
6.2 List of display groups 35
6.3 Reading measured value block: Display groups 000 to 010 38
6.4 Reading measured value block: Display groups 011 to 099 53
7 Adaption 60
7.1 Adaption 60
7.2 CO setting on vehicles with no Lambda probes 60
8 Checking wiring of diagnostic connectors 63
8.1 Checking wiring of diagnostic connectors 63
8.2 Checking power supply for "black" diagnostic connector 64
8.3 Checking wiring between "white" diagnostic connector and engine control unit 64

24 - Mixture preparation, Injection 68
1 Servicing Multi Point Injection system 68
1.1 Servicing Multi Point Injection system 68
1.2 Safety precautions 68
1.3 Rules for cleanliness 68
1.4 Technical data 69
1.5 Exploded view of fitting locations 70
1.6 Removing and installing throttle valve unit and intake-manifold changeover system components 74
1.7 Wiring and component check using test box V.A.G 1598 A 77
1.8 Replacing engine control unit 78
1.9 Checking idling speed and CO content 81
1.10 Checking system pressure, fuel pressure regulator and holding pressure 83
1.11 Checking injectors 86
1.12 Dismantling and assembling fuel rail with injectors 91
1.13 Removing and installing injectors 92
1.14 Checking injection quantity, freedom from leaks and spray pattern of injectors 94
1.15 Checking fuel pump relay -J17 and actuation 96
1.16 Checking idling-speed stabilisation valve -N71 101

1.17 Checking air-mass meter -G70 105
1.18 Checking intake system for leaks (unmetered air) 109
2 Checking intake manifold changeover 110
2.1 Checking intake manifold changeover 110
2.2 Checking operation 110
2.3 Checking vacuum system for leaks 111
2.4 Checking intake-manifold changeover valve -N156 113
3 Checking Lambda control 117
3.1 Checking Lambda control 117
3.2 Engine running problems following cold start 118
3.3 Checking operation of Lambda probes 119
3.4 Checking Lambda probe heating 121
3.5 Checking Lambda probe and signal wire 124
3.6 Removing and installing Lambda probe 125
4 Checking fuel tank breather system 126
4.1 Checking fuel tank breather system 126
4.2 Checking activated charcoal filter solenoid valve -N80 127
5 Checking throttle valve potentiometer -G69 132
5.1 Checking throttle valve potentiometer -G69 132
5.2 Checking idling switch -F60 136
6 Checking exhaust gas recirculation system 140
6.1 Checking exhaust gas recirculation system 140
6.2 Checking exhaust-gas recirculation valve -N18 140
6.3 Checking mechanical EGR valve 144
6.4 Checking exhaust gas recirculation temperature sensor -G98 146
7 Checking additional signals 149
7.1 Checking additional signals 149
7.2 Checking heated rear window signal 149
7.3 Checking air-conditioner compressor shutoff 151
7.4 Checking engine-speed signal 153
7.5 Checking vehicle-speed signal 154
7.6 Checking consumption signal for on-board computer 156
7.7 Checking output signal for throttle valve position 156
7.8 Checking gear signal 158
7.9 Checking upshift/ downshift signal 160
7.10 Checking ignition timing retardation on changing gear 161
8 Vacuum diagram 164
8.1 Vacuum diagram 164
8.2 Vehicles with manual gearbox 164
8.3 Vehicles with automatic gearbox 167

28 - Ignition system 170
1 Checking ignition system 170
1.1 Checking ignition system 170
1.2 Safety precautions 170
1.3 Technical data 170
1.4 Removing and installing ignition system components 171
1.5 Checking ignition coil-N, ignition coil 2 -N128 and ignition coil 3 -N158 174
1.6 Checking final output stage -N122 177
1.7 Checking firing point sender -G4 180
1.8 Checking engine speed sender -G28 182
1.9 Checking coolant temperature sender -G62 187
1.10 Checking control unit power supply 190
1.11 Checking knock sensors 193
1.12 Checking Hall sender -G40 196