

Contents

01 - Self-diagnosis	1
1 Self-diagnosis of Motronic system	1
1.1 Self-diagnosis of Motronic system	1
1.2 Technical data of self-diagnosis	1
1.3 Safety precautions	1
1.4 Connecting vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551 and selecting functions	1
2 Interrogating and erasing fault memory	4
2.1 Interrogating and erasing fault memory	4
3 Fault table (16485 to 17704)	6
3.1 Fault table (16485 to 17704)	6
3.2 Fault table	6
4 Fault table (17733 to 19718)	14
4.1 Fault table (17733 to 19718)	14
5 Final control diagnosis	21
5.1 Final control diagnosis	21
6 Basic setting	24
6.1 Basic setting	24
7 Encoding control unit	26
7.1 Encoding control unit	26
7.2 Encoding table	27
8 Reading measured value block	27
8.1 Reading measured value block	27
9 Readiness code	28
9.1 Readiness code	28
9.2 Reading out readiness code	28
9.3 Producing the readiness code	30
24 - Mixture preparation, Injection	44
1 Servicing Motronic injection system	44
1.1 Servicing Motronic injection system	44
1.2 Safety precautions	44
1.3 Rules for cleanliness	44
1.4 Technical data	45
1.5 Fitting locations overview	46
1.6 Dismantling and assembling air cleaner	55
1.7 Removing and installing intake manifold changeover system components	56
1.8 Wiring and component check with test box V.A.G 1598/31	57
1.9 Procedure following interruption of voltage supply	60
1.10 Replacing engine control unit	60
1.11 Exhaust warning lamp -K83 in dash panel insert	65
1.12 Checking exhaust warning lamp -K83	66
1.13 Checking idling speed	66
1.14 Checking fuel pressure regulator and holding pressure	69
1.15 Checking injectors	72
1.16 Dismantling and assembling fuel rail with injectors	76
1.17 Removing and installing injectors	78
1.18 Testing injection quantity, absence of leaks and spray pattern of injectors	79
1.19 Checking fuel pump relay -J17 and actuation	81
1.20 Checking air mass meter -G70	86
1.21 Checking intake air system for leaks (unmetered air)	90
2 Checking intake manifold changeover function	91



2.1	Checking intake manifold changeover function	91
2.2	Checking function	91
2.3	Checking vacuum system for leaks	92
2.4	Checking intake manifold changeover valve -N156	94
3	Checking lambda control	97
3.1	Checking lambda control	97
3.2	Function of lambda control	97
3.3	Checking lambda probe and lambda control upstream of catalytic converter	98
3.4	Checking lambda probe ageing of lambda probe upstream of catalytic converter	104
3.5	Checking lambda probe and lambda control downstream of catalytic converter	107
3.6	Checking lambda probe heating for lambda probes upstream or downstream of catalytic converter	116
3.7	Removing and installing lambda probe	121
4	Checking fuel tank breather	122
4.1	Checking fuel tank breather	122
4.2	Checking activated charcoal filter solenoid valve 1 -N80	122
5	Checking electronic engine output control (electronic throttle)	126
5.1	Checking electronic engine output control (electronic throttle)	126
5.2	Function of the electronic throttle system	126
5.3	Fault lamp for electronic throttle in dash panel insert	127
5.4	Checking electronic throttle control fault lamp -K132	128
5.5	Checking throttle valve control part -J338	128
5.6	Performing adaption of throttle valve control part	128
5.7	Checking angle sender for throttle valve actuator	131
5.8	Checking accelerator position sender	134
5.9	Adapting kick down function	137
5.10	Checking brake light switch and brake pedal switch	139
5.11	Checking clutch pedal switch -F36	141
6	Checking auxiliary signals	144
6.1	Checking auxiliary signals	144
6.2	Checking engine speed signal	145
6.3	Checking vehicle speed signal	145
6.4	Checking air conditioner compressor shut-off	146
6.5	Checking wiring for crash signal	147
6.6	Checking consumption signal for on-board computer	148
6.7	Checking fuel level signal wiring	148
6.8	Checking signal for rough-road recognition.	148
6.9	Checking the data exchange between engine control unit and other CAN-control units	148
28	- Ignition system	152
1	Checking ignition system	152
1.1	Checking ignition system	152
1.2	General notes on ignition system	152
1.3	Safety precautions	152
1.4	Technical data for ignition system	152
1.5	Removing and installing ignition system components	153
1.6	Checking ignition coils	156
1.7	Checking intake air temperature sender -G42	160
1.8	Checking engine speed sender -G28	163
1.9	Checking coolant temperature sender -G62	165
1.10	Checking control unit power supply	169
1.11	Checking knock control stop	170
1.12	Checking knock sensors	174
1.13	Checking Hall sender	177
1.14	Checking misfire detection	181