

Contents

01 - Self-diagnosis	1
1 Self-diagnosis of Motronic system	1
1.1 Self-diagnosis of Motronic system	1
1.2 Technical data for 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
2.2 Fault table	5
3 Final control diagnosis	14
3.1 Final control diagnosis	14
4 Basic setting	17
4.1 Basic setting	17
5 Coding control unit	19
5.1 Coding control unit	19
5.2 Coding table	20
6 Reading measured value block	20
6.1 Reading measured value block	20
24 - Mixture preparation, Injection	22
1 Servicing Motronic injection system	22
1.1 Servicing Motronic injection system	22
1.2 Safety precautions	22
1.3 Rules for cleanliness	22
1.4 Technical data	23
1.5 Fitting locations overview	24
1.6 Dismantling and assembling air cleaner	35
1.7 Wiring and component check with test box V.A.G 1598/31	36
1.8 Renewing engine control unit	38
1.9 Testing idling speed	39
1.10 Checking system pressure, fuel pressure regulator and holding pressure	41
1.11 Testing injectors	44
1.12 Dismantling and assembling fuel rail with injectors	49
1.13 Removing and installing injectors	52
1.14 Checking injection quantity, leak-tightness and spray pattern of injectors	54
1.15 Testing fuel pump relay -J17 and activation	56
1.16 Testing air mass meter -G70	60
1.17 Checking intake air system for leaks (unmetered air)	64
2 Testing lambda control	66
2.1 Testing lambda control	66
2.2 Function of lambda control (before catalytic converter)	66
2.3 Testing lambda probe and lambda control (before catalytic converter)	67
2.4 Testing lambda probe and lambda control (after catalytic converter) - not applicable to engines with code letters AJQ	73
2.5 Testing lambda probe heating -Z19 and -Z29 at lambda probes (before and after catalytic converter)	78
2.6 Removing and installing lambda probe	82
3 Testing secondary air system - not applicable to engines with code letters AJQ	84
3.1 Testing secondary air system - not applicable to engines with code letters AJQ	84
3.2 Testing secondary air inlet valve -N112	87
3.3 Testing secondary air pump relay -J299 and activation	90
4 Testing fuel tank breather	96



4.1	Testing fuel tank breather	96
4.2	Testing solenoid valve 1 for activated charcoal filter -N80	96
5	Testing electronic engine power control (electronic throttle)	100
5.1	Testing electronic engine power control (electronic throttle)	100
5.2	Operation of electronic throttle system	100
5.3	Notes on EPC warning lamp (fault warning lamp for electronic throttle) in dash panel insert	101
5.4	Testing electronic throttle warning lamp -K132	102
5.5	Testing throttle valve control part -J338	103
5.6	Performing adaption of throttle valve control part	104
5.7	Testing angle senders for throttle valve drive	106
5.8	Testing accelerator position senders	110
5.9	"Learning" kickdown function	114
6	Testing auxiliary signals	116
6.1	Testing auxiliary signals	116
6.2	Checking engine speed signal	117
6.3	Testing fuel consumption signal for on-board computer	117
6.4	Testing speed signal	117
6.5	Testing air conditioner compressor shut-off	118
6.6	Testing brake light switch and brake pedal switch	119
6.7	Testing clutch pedal switch -F36	122
6.8	Testing power steering pressure switch-F88	124
6.9	Testing crash signal wiring	126
6.10	Testing data exchange between engine control unit, gearbox control unit, ABS/EDL control unit and airbag control unit or dash panel insert	127
7	Vacuum system layout	131
7.1	Vacuum system layout	131
28	- Ignition system	135
1	Testing ignition system	135
1.1	Testing ignition system	135
1.2	General notes on ignition system	135
1.3	Safety precautions	135
1.4	Technical data	135
1.5	Testing ignition coils with output stages	136
1.6	Testing Motronic current supply relay -J271 - Vehicles model year 2000 >	141
1.7	Testing intake air temperature sender -G42	146
1.8	Testing engine speed sender -G28	149
1.9	Testing coolant temperature sender -G62	152
1.10	Testing voltage supply for control unit	156
1.11	Testing knock sensor control limit	158
1.12	Testing knock sensors	159
1.13	Testing Hall sender -G163	162