



Contents

01 - Self-diagnosis	1
1 Self-diagnosis	1
1.1 Self-diagnosis	1
1.2 Features of self-diagnosis	1
1.3 Technical data of self-diagnosis	1
1.4 Connecting fault reader V.A.G 1551 and selecting engine control unit	2
1.5 Connecting vehicle diagnosis, testing and information system VAS 5051 and selecting engine control unit	4
1.6 Interrogating fault memory	6
1.7 Erasing fault memory	7
2 Fault table	9
2.1 Fault table	9
3 Final control diagnosis	24
3.1 Final control diagnosis	24
3.2 Performing final control diagnosis	24
4 Measured value blocks	29
4.1 Measured value blocks	29
4.2 Safety precautions	29
4.3 Reading measured value block	29
4.4 Evaluating measured value blocks	30
4.5 Display group 009	37
23 - Mixture preparation, Injection	47
1 Servicing Diesel direct injection system	47
1.1 Servicing Diesel direct injection system	47
1.2 Safety precautions	47
1.3 Rules for cleanliness	48
1.4 Fitting locations overview	48
1.5 Servicing injection pump	60
1.6 Dismantling and assembling parts of intake manifold	67
1.7 Removing and installing air intake connecting piece	75
1.8 Removing and installing injection pump	76
1.9 Dynamically checking and adjusting commencement of injection	81
1.10 Removing and installing injectors	84
1.11 Checking injectors	86
1.12 Renewing injection timing device cover O-ring	87
2 Checking components and functions	87
2.1 Checking components and functions	87
2.2 Checking Diesel direct injection system voltage supply	87
2.3 Checking engine speed sender	88
2.4 Checking intake manifold pressure sender and elevation sender	90
2.5 Checking coolant temperature sender	92
2.6 Checking intake manifold temperature sender	95
2.7 Checking fuel temperature sender	99
2.8 Checking modulating piston movement sender and quantity adjuster	101
2.9 Checking needle lift sender	105
2.10 Checking injection timing regulation range	107
2.11 Checking air mass meter	109
2.12 Checking intake manifold flap change-over	112
2.13 Checking intake manifold flap change-over valve	114
2.14 Checking intake manifold flap motor	117
3 Checking additional signals	119
3.1 Checking additional signals	119



3.2	Checking speed signal	119
3.3	Checking signals from brake light switch and brake pedal switch	121
3.4	Checking signal from clutch pedal switch	124
3.5	Checking signals from/to air conditioning system	126
3.6	Checking engine speed signal	129
4	Replacing, coding and matching engine control unit	130
4.1	Replacing, coding and matching engine control unit	130
4.2	Replacing engine control unit	130
4.3	Coding engine control unit	131
4.4	Matching engine control unit to electronic immobilizer	132
28	Glow plug system	134
1	Checking glow plug system	134
1.1	Checking glow plug system	134
1.2	Checking glow plugs	135