



Contents

01 - Self-diagnosis	1
1 General to self-diagnosis	1
1.1 General to 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 electronics control unit	2
1.5 Connecting Vehicle Diagnosis, Testing and Information system VAS 5051 and selecting engine electronics control unit	4
2 Fault memory	7
2.1 Fault memory	7
2.2 Interrogating and erasing fault memory	7
3 Fault table, fault codes 00263...00524	9
3.1 Fault table, fault codes 00263...00524	9
4 Fault table, fault codes 00525...17978	13
4.1 Fault table, fault codes 00525...17978	13
5 Final control diagnosis	19
5.1 Final control diagnosis	19
5.2 Performing final control diagnosis	19
6 Measured value blocks	24
6.1 Measured value blocks	24
6.2 Safety precautions	24
6.3 Read measured value block	24
6.4 Evaluating measured value blocks	25
24 - Mixture preparation, Injection	34
1 Servicing injection system	34
1.1 Servicing injection system	34
1.2 Fitting locations overview	34
1.3 General notes on injection	36
1.4 Removing and installing parts of the injection system	38
1.5 Dismantling and assembling intake manifold	47
1.6 Dismantling and assembling fuel rail with injectors	49
1.7 Dismantling and assembling air cleaner	52
1.8 Safety precautions	55
1.9 Rules for cleanliness	56
1.10 Technical data	57
2 Checking components	57
2.1 Checking components	57
2.2 Checking Lambda probe heating	57
2.3 Checking throttle valve control part	59
2.4 Checking intake manifold pressure sender	67
2.5 Checking intake air temperature sender	70
2.6 Checking coolant temperature sender	73
2.7 Checking engine speed sender	75
2.8 Checking injectors	77
2.9 Checking fuel pressure regulator and holding pressure	84
2.10 Checking intake air system for leaks (unmetered air)	87
2.11 Checking intake air preheating	88
2.12 Wire routing engine wiring loom	89
3 Checking functions	91
3.1 Checking functions	91
3.2 Checking Lambda probe and Lambda control	91
3.3 Checking engine operating mode	94



4	Engine control unit	95
4.1	Engine control unit	95
4.2	Checking control unit voltage supply	95
4.3	Replacing engine control unit	97
4.4	Matching engine control unit to throttle valve control part	98
4.5	Matching engine control unit to electronic immobilizer	100
5	Checking additional signals	101
5.1	Checking additional signals	101
5.2	Checking speed signal	101
5.3	Checking signal from/to air conditioning system	102
5.4	Checking driving range signal	104
5.5	Checking rpm signal	105
5.6	Checking gearbox intervention signal when a gear is shifted	106
28	- Ignition system	109
1	Servicing ignition system	109
1.1	Servicing ignition system	109
1.2	General notes on ignition system	109
1.3	Removing and installing parts of the ignition system	110
1.4	Safety precautions	112
1.5	Test data, spark plugs	113
1.6	Checking Hall sender	114
1.7	Checking ignition transformer	115
1.8	Checking knock sensor	119