



Contents

00 - Technical data	1
1	1
2 Brake test	9
2.1 General	9
2.2 Test for vehicles with front-wheel drive.	9
2.3 Test for vehicles with four-wheel drive	9
45 - Anti-lock brake system	11
1 General notes for anti-lock brake system (ABS)	11
2 Notes for repair work on anti-locking brake system	12
3 Electrical/electronic components and fitting locations	13
3.1 ABS/EDL/TCS Bosch 5.3	13
3.2 ABS/EDL/TCS/ESP Bosch 5.3 up to model year 2000	15
3.3 ABS/EDL/TCS/ESP Bosch 5.3 as of model year 2001	17
3.4 ABS/EDL/TCS/ESP Bosch 5.7 as of model year 2002	19
4 Fault display via warning lamps	22
4.1 ABS/EDL/TCS Bosch 5.3	22
4.2 ABS/EDL/TCS/ESP	26
5 Assembly overview - hydraulic unit, brake servo/brake master cylinder	30
5.1 Bosch ABS 5.3 up to model year 1999	30
5.2 Bosch ABS 5.3 as of model year 2000	36
5.3 ABS/EDL/TCS/ESP Bosch 5.3 up to model year 1999	43
5.4 ABS/EDL/TCS/ESP Bosch 5.3 as of model year 2000	48
5.5 ABS/EDL/TCS/ESP Bosch 5.7 as of model year 2002	53
6 Removing and installing parts of ABS system on front and rear axle	59
6.1 Removing and installing parts of ABS system on front axle	59
6.2 Removing and installing parts of ABS system on rear axle (vehicles with front-wheel drive)	60
6.3 Removing and installing parts of ABS system on rear axle (vehicles with four-wheel drive)	64
7 Removing and installing parts of ESP system	68
7.1 Removing and installing ABS control unit J104 (Bosch 5.3)	68
7.2 Removing and installing yaw rate sender G202	69
7.3 Removing and installing lateral acceleration sender G200	70
7.4 Removing and installing lateral acceleration sender G200 and yaw rate sender G202	71
7.5 Removing and installing steering angle sender G85	71
46 - Brakes - mechanism	73
1 Repairing front brakes	73
1.1 Repairing front brakes, brake caliper C54	73
1.2 Removing and installing brake pads, brake caliper C54	75
1.3 Repairing front brakes, brake caliper FN3	77
1.4 Removing and installing brake pads, brake caliper FN3	80
1.5 Repairing front brakes, brake caliper HP-2	83
1.6 Removing and installing brake pads, brake caliper HP-2	86
1.7 Repairing front brakes, brake caliper 2FN	88
1.8 Removing and installing brake pads, brake caliper 2FN	91
2 Repairing rear brakes (disc brakes)	95
2.1 Removing and installing brake pads	97
3 Repairing handbrake	100
3.1 Assembly overview - handbrake lever	100
3.2 Removing and installing handbrake lever	100



3.3	Removing and installing handbrake cables (front-wheel drive)	101
3.4	Removing and installing handbrake cables (four-wheel drive)	104
3.5	Adjusting handbrake	106
4	Assembly overview - brake pedal	108
4.1	Brake pedal in LHD vehicles	108
4.2	Removing and installing brake pedal (LHD vehicles)	109
4.3	Brake pedal in LHD vehicles	110
4.4	Removing and installing brake pedal (RHD vehicles)	111
4.5	Removing, installing and adjusting brake light switch F and brake pedal switch F47	113
4.6	Adjusting brake light switch F and brake pedal switch F47 as of model year 2003	114
47 - Brakes - hydraulics	116	
1	Repairing front brake calipers	116
1.1	Repairing brake calipers C54	116
1.2	Removing and installing piston for brake caliper C54	117
1.3	Repairing brake caliper HP2	119
1.4	Removing and installing piston HP2 brake caliper	119
1.5	Repairing brake caliper 2FN	121
1.6	Removing and installing piston for brake caliper 2FN	122
2	Repairing front brake calipers, brake caliper FN3	126
2.1	Removing and installing front brake caliper piston	126
3	Repairing rear brake caliper	129
3.1	Removing and installing piston for rear brake caliper	130
3.2	Pressure leak test	132
4	Bleeding brake system	134
4.1	Bleeding brake system with brake filling and bleeding unit VAS 5234 or brake filling and bleeding unit V.A.G 1869	134
4.2	Bleeding brake system without brake filling and bleeding unit	136
4.3	Changing brake fluid (every 2 years)	136
5	Assembly overview - brake servo/brake master cylinder	137
5.1	Vehicles up to model year 1999	137
5.2	Vehicles as of model year 2000	139
5.3	Vehicles as of model year 2002	141
5.4	Vacuum pump for brake servo (diesel vehicles) overview	142
6	Vacuum pump for brakes V192	144
6.1	Assembly overview	144
6.2	Removing and installing vacuum pump for brakes V192	144
6.3	Testing brake vacuum pump V192	145
6.4	Removing and installing brake servo pressure sensor G294	147
7	Removing and installing brake master cylinder	148
7.1	Vehicles up to model year 1999	148
7.2	Vehicles as of model year 2000	149
8	Removing and installing brake servo	151
8.1	Vehicles up to model year 1999	151
8.2	Vehicles as of model year 2000	153
9	Removing and installing brake master cylinder with brake servo as of model year 2002 ..	156
9.1	Removing	156
9.2	Installing	158