



Contents

00 - Technical data	1
1 Checklist for evaluating running gear of accident vehicles	1
2 Technical data	3
2.1 Running gear	3
2.2 Steering	4
2.3 Wheels, tyres	4
40 - Front suspension	5
1 Appraisal of accident vehicles	5
2 Electrical/electronic components and locations	6
2.1 Vehicle level sender on vehicles with dynamic headlight range control ..	6
2.2 Front left vehicle level sender G78 on front axle	7
2.3 Rear left vehicle level sender G76 on rear axle of vehicles with front-wheel drive	8
2.4 Rear left vehicle level sender G76 on rear axle of vehicles with four-wheel drive	9
3 Repairing front suspension	11
3.1 Raising wheel suspension to unladen position	15
3.2 Modified wheel bearing housing/track rod ball joint	17
3.3 Modified wheel bearing housing from model year 2002	17
3.4 Modified track control link from model year 2002	17
3.5 Modified coupling rod for anti-roll bar	18
3.6 Repairing threads in longitudinal member	19
3.7 Separating upper suspension link joint at wheel bearing housing	19
3.8 Removing and installing suspension strut	22
3.9 Repairing suspension strut	24
3.10 Removing and installing spring	26
3.11 Removing and installing wheel bearing housing	30
3.12 Pressing out and pressing in front wheel bearing	33
3.13 Removing and installing front wheel bearing with wheel bearing housing installed	38
3.14 Checking the track control link	42
3.15 Removing and installing track control link	42
3.16 Renewing track control link bushes	44
3.17 Removing and installing guide link	46
3.18 Renewing guide link bushes	48
3.19 Renewing anti-roll bar bushes	50
3.20 Removing and installing mounting bracket	50
3.21 Renewing bushes for front and rear upper links	54
3.22 Removing and installing subframe	55
3.23 Renewing subframe bushes	61
4 Repairing drive shafts	65
4.1 Removing and installing drive shafts	65
4.2 Repairing drive shaft with constant velocity joint	66
4.3 Repairing drive shaft with triple roller joint	72
4.4 Dismantling and assembling triple roller joint	75
42 - Rear suspension	80
1 Appraisal of accident vehicles	80
2 Repairing rear axle (front-wheel drive vehicles)	81
2.1 Rear axle in unladen position	81
2.2 Removing and installing rear axle	82
2.3 Assembly overview - rear axle beam	86
2.4 Removing and installing shock absorber/spring	88
2.5 Assembly overview - shock absorber on vehicle with front-wheel drive	89



3	Repairing wheel bearing	91
3.1	Removing and installing wheel bearing/wheel hub unit	91
3.2	Assembly overview - wheel mounting for vehicles with front-wheel drive	91
4	Repairing rear axle (vehicles with four-wheel drive)	93
4.1	Removing and installing suspension strut on vehicles with wheel bearing housing made of steel	93
4.2	Removing and installing suspension strut on vehicles with wheel bearing housing made of aluminium	95
4.3	Repairing suspension strut, vehicles with four-wheel drive	97
4.4	Dismantling and assembling suspension strut	98
4.5	Assembly overview of rear axle with four-wheel drive	100
4.6	Removing and installing subframe	103
4.7	Aligning subframe to vehicle	106
4.8	Renewing bonded rubber bushes in subframe	107
4.9	Assembly overview of subframe/final drive	110
4.10	Pressing bonded rubber bush for cross member in and out	111
4.11	Pressing bonded rubber bush for gearbox support in and out	112
5	Repairing steel wheel bearing housing and suspension links, vehicles with four-wheel drive	115
5.1	Removing and installing wheel bearing	117
5.2	Pressing rear wheel bearing out and in with wheel bearing housing installed	120
5.3	Removing and installing steel wheel bearing housing	123
5.4	Removing and installing bonded rubber bush for steel wheel bearing housing	125
5.5	Removing and installing upper links	127
5.6	Renewing front and rear bonded rubber bushes for upper suspension link	127
5.7	Removing and installing lower suspension link	129
5.8	Repairing lower suspension link	130
5.9	Removing and installing coupling rod for anti-roll bar	133
6	Repairing aluminium wheel bearing housing and suspension on vehicles with four-wheel drive	135
6.1	Removing and installing wheel bearing	137
6.2	Removing and installing aluminium wheel bearing housing	140
6.3	Removing and installing bonded rubber bush for aluminium wheel bearing housing	142
6.4	Removing and installing coupling rod for anti-roll bar	145
7	Repairing rear drive shaft	147
7.1	Removing and installing drive shafts	147
7.2	Repairing drive shaft with constant velocity joint	148
43	Self-levelling suspension	153
44	Wheels, tyres, vehicle geometry	154
1	Appraisal of accident vehicles	154
2	Fitting wheel and tyre	155
2.1	Fitting wheels	155
3	Wheel alignment	156
3.1	General	156
3.2	Vehicle alignment specifications, vehicles with front-wheel drive	157
3.3	Wheel alignment specifications for vehicles with four-wheel drive, excluding 8-cylinder engine	159
3.4	Wheel alignment specifications for vehicles with four-wheel drive, including 8-cylinder engine	160
3.5	Test prerequisites	161
3.6	Test preparations	162
3.7	Assignment of adapters to running gear versions (for wheel alignment)	164
3.8	Toe constant "S"	164
3.9	Preparatory measures for checking/adjusting track constant "S".	165



3.10	Vehicles pulling to one side; accident vehicles	167
3.11	Averaging front axle camber	168
3.12	Checking camber at rear wheels (front-wheel drive vehicles)	169
3.13	Centralising toe setting at rear wheels (front-wheel drive vehicles)	169
3.14	Adjusting rear axle camber, vehicles with four-wheel drive	170
3.15	Adjusting rear axle toe, vehicles with four-wheel drive	170
3.16	Adjusting toe constant "S"	170
3.17	Adjusting toe at front axle	171
4	Wheels, tyres	172
4.1	Models with breakdown set	172
4.2	Tyre sealant	172
4.3	Removing a tyre	172
4.4	Fitting a new tyre	173
4.5	Tyre sealant disposal	173
5	Instructions for changing or fitting wheels	174
5.1	Fitting wheels	175
6	Protecting wheel centring seat against corrosion	176
7	Vibration due to wheels/tyres - causes and rectification	177
7.1	Causes of vibration	177
7.2	Balancing wheels	177
7.3	Conducting a road test before balancing wheels	177
7.4	Balancing wheels on stationary wheel balancing machine	178
7.5	Vibration control system VAS 6230	180
7.6	Finish balancer	180
7.7	Radial and lateral run-out of wheels and tyres	181
7.8	Checking radial and lateral run-out on wheels and tyres with tyre gauge V.A.G 1435	181
7.9	Checking radial and lateral run-out on wheel rim	182
7.10	Matching	183
7.11	Flat spots caused by storage or handling	184
48 - Steering		186
1	Appraisal of accident vehicles	186
2	Steering column	187
2.1	Removing and installing steering column	187
2.2	Checking steering column for damage	191
2.3	Removing and installing steering lock housing	191
3	Steering rack	194
3.1	Assembly overview - steering rack, LHD vehicles	194
3.2	Assembly overview - steering rack, RHD vehicles	195
3.3	Removing and installing track rods	195
3.4	Removing and installing power-steering rack on left-hand drive vehicles with 4, 5 or 6-cylinder engine	197
3.5	Removing and installing power-steering rack on left-hand drive vehicles with 8-cylinder engine	202
3.6	Removing and installing right-hand drive steering rack	207
4	Dismantling and assembling power steering rack	214
4.1	Dismantling and assembling power steering rack, vehicles with 4-cylinder engine	214
4.2	Dismantling and assembling power steering rack on vehicles with 5, 6 or 8-cylinder engine	215
4.3	Checking power steering fluid level	216
4.4	Bleeding steering system	216
4.5	Checking steering system for leaks	217
4.6	Adjusting power steering rack	217
5	Vane pump, reservoir, hydraulic lines on vehicles with 4 or 5-cylinder engine	219
5.1	Assembly overview for 4 or 5-cylinder engine	219



5.2	Checking vane pump delivery pressure on 4 or 5-cylinder engine	221
5.3	Removing and installing vane pump on 4 or 5-cylinder engine	222
6	Vane pump, reservoir, hydraulic lines on vehicles with 6-cylinder injection engine	227
6.1	Assembly overview for 6-cylinder injection engine	227
6.2	Checking vane pump delivery pressure, 6-cylinder injection engine	229
6.3	Assembly overview of vane pump for 6-cylinder injection engine	231
7	Vane pump, reservoir, hydraulic lines on vehicles with 6-cylinder injection engine with 5 valves	235
7.1	Assembly overview, 6-cylinder injection engine, 5 valves	235
7.2	Checking vane pump delivery pressure, 6-cylinder injection engine, 5 valves	237
7.3	Removing and installing power steering vane pump, 6-cylinder injection engine, 5 valves	239
7.4	Assembly overview - vane pump, 6-cylinder injection engine, 5 valves	242
8	Vane pump, reservoir, hydraulic lines on vehicles with V6 TDI engine	244
8.1	Assembly overview of V6 TDI engine	244
8.2	Checking vane pump delivery pressure, V6 TDI engine	245
8.3	Removing and installing power steering vane pump for V6 TDI engine	247
8.4	Assembly overview of vane pump for V6 TDI engine	252
9	Vane pump, reservoir, hydraulic lines on vehicles with 8-cylinder injection engine	254
9.1	Assembly overview for 8-cylinder injection engine	254
9.2	Checking vane pump delivery pressure, 8-cylinder injection engine	256
9.3	Removing and installing power steering vane pump on 8-cylinder injection engine	258