



Contents

00 - Technical data	1
1 Evaluating accident vehicles	1
1.1 Check list for evaluating running gear on accident vehicles	1
2 General information	3
2.1 Tyre types	3
3 Repair instructions	4
3.1 Raising suspension to unladen position (vehicles with coil springs)	4
3.2 General information	11
3.3 General repair instructions	12
3.4 Steering rack	12
3.5 Gaskets and seals	13
3.6 Nuts and bolts	13
3.7 Electrical components	13
3.8 Repairing damaged threads in longitudinal member (subframe to body)	13
40 - Front suspension	14
1 Front axle	14
1.1 Overview - front axle	14
2 Subframe	15
2.1 Assembly overview - subframe	15
2.2 Fixing position of subframe	18
2.3 Lowering subframe	20
2.4 Removing and installing subframe without steering rack	24
2.5 Removing and installing subframe with steering rack	28
2.6 Repairing subframe	33
2.7 Removing and installing anti-roll bar	41
3 Suspension strut, upper suspension link	47
3.1 Assembly overview - suspension strut, upper suspension link	47
3.2 Removing and installing suspension strut	51
3.3 Repairing suspension strut	65
4 Lower suspension link, swivel joint	68
4.1 Checking swivel joint	68
4.2 Removing and installing swivel joint	68
4.3 Removing and installing lower suspension link	72
4.4 Renewing bonded rubber bush for lower suspension link	80
4.5 Renewing mounting bracket with suspension link bush	82
5 Wheel bearing	85
5.1 Assembly overview - wheel bearing	85
5.2 Removing and installing wheel bearing unit	87
5.3 Removing and installing wheel bearing housing	89
6 Drive shaft	95
6.1 Overview - drive shaft	95
6.2 Heat shields for drive shafts	96
6.3 Assembly overview - drive shaft	97
6.4 Loosening and tightening drive shaft threaded connection on wheel hub	106
6.5 Removing and installing drive shaft	110
6.6 Dismantling and assembling drive shaft	127
6.7 Checking outer constant velocity joint	151
6.8 Checking inner constant velocity joint	152
42 - Rear suspension	154
1 Rear axle	154



1.1	Overview - rear axle	154
1.2	Removing and installing rear axle	158
2	Subframe	167
2.1	Assembly overview - subframe	167
2.2	Repairing subframe	169
3	Suspension link, track rod	195
3.1	Assembly overview - transverse link	195
3.2	Removing and installing upper transverse link	200
3.3	Removing and installing lower transverse link	203
3.4	Removing and installing track rod	207
4	Wheel bearing housing, wheel bearing unit, trailing arm	215
4.1	Assembly overview - wheel bearing housing, wheel bearing unit	215
4.2	Removing and installing wheel bearing housing	220
4.3	Renewing bonded rubber bush for wheel bearing housing	227
4.4	Removing and installing wheel bearing unit	233
4.5	Removing and installing trailing arm with mounting bracket	238
4.6	Repairing trailing arm	245
5	Suspension strut, shock absorber, spring	250
5.1	Assembly overview - suspension strut, shock absorber, spring	250
5.2	Removing and installing spring	255
5.3	Removing and installing shock absorbers	258
5.4	Repairing shock absorber	267
6	Anti-roll bar	275
6.1	Assembly overview - anti-roll bar	275
6.2	Removing and installing anti-roll bar	276
7	Drive shaft	281
7.1	Assembly overview - drive shaft	281
7.2	Loosening and tightening drive shaft threaded connection on wheel hub	283
7.3	Removing and installing drive shaft	286
7.4	Dismantling and assembling drive shaft	290
7.5	Checking outer constant velocity joint	294
7.6	Checking inner constant velocity joint	295
43	Self-levelling suspension	297
1	Electronically controlled damping system	297
1.1	Assembly overview - electronically controlled damping system	297
1.2	Removing and installing electronically controlled damping control unit	302
1.3	Re-adapting reference position (default position)	303
1.4	Removing and installing front body acceleration senders	303
1.5	Removing and installing rear body acceleration sender	307
2	Vehicle level sender	310
2.1	Assembly overview - front vehicle level senders	310
2.2	Removing and installing front vehicle level senders	313
2.3	Assembly overview - rear vehicle level senders	316
2.4	Removing and installing rear vehicle level senders	321
44	Wheels, tyres, vehicle geometry	324
1	Wheels, tyres	324
1.1	Specified torques for wheel bolts	324
1.2	Tyres with run-flat properties	324
1.3	Wheel change	326
1.4	Models with breakdown set	330
1.5	Tyre sealant	330
1.6	Pressing tyre off wheel rim	330
1.7	Removing tyre from wheel	331



1.8	Tyre sealant disposal	332
1.9	Mounting tyre	332
2	Tyre Pressure Monitoring System	334
2.1	Components overview - tyre pressure monitoring system	334
2.2	System description - Tyre Pressure Monitoring System	335
2.3	Removing and installing tyre pressure monitor control unit	339
2.4	Assembly overview - tyre pressure sensor	340
2.5	Removing and installing tyre pressure sensor	344
2.6	Changing tyres on vehicles with tyre pressure monitoring system	350
2.7	Removing and installing metal valve body	354
3	Wheel alignment	356
3.1	Notes for wheel alignment	356
3.2	Necessity of wheel alignment	356
3.3	Conditions for testing	357
3.4	Test preparations	358
3.5	Specifications for wheel alignment	359
3.6	Overview - wheel alignment procedure	360
3.7	Adjusting camber at front wheels	361
3.8	Adjusting camber on rear axle	363
3.9	Adjusting toe at rear axle	364
3.10	Adjusting front axle toe	365
3.11	Steering angle sender - basic setting	366
3.12	Vehicle data sticker	366
4	Adaptive Cruise Control (ACC)	367
4.1	Calibrating ACC	367
5	Lane departure warning	373
5.1	Calibrating lane departure warning	373
6	Vibration due to wheels/tyres - causes and rectification	380
6.1	Causes of rough running	380
6.2	Conducting a road test before balancing wheels	380
6.3	Balancing wheel	381
6.4	Vibration control system	385
6.5	Checking radial and lateral runout of wheels and tyres	385
6.6	Checking radial and lateral run-out on wheel rim	386
6.7	Matching wheels and tyres	387
6.8	Determining flat spots on tyres	388
48 - Steering		390
1	Steering wheel	390
1.1	Removing and installing steering wheel	390
2	Steering column	393
2.1	Assembly overview - steering column	393
2.2	Removing and installing steering column	394
2.3	Handling and transporting steering column	403
2.4	Checking steering column for damage	404
2.5	Removing and installing ESL control unit	405
3	Steering rack	407
3.1	Assembly overview - steering rack	407
3.2	Removing and installing steering rack	410
3.3	Repairing steering rack	428
3.4	Removing and installing track rod	433
3.5	Removing and installing track rod ball joint	436
3.6	Removing and installing bellows	437

