



Contents

00 - Technical data	1
1 Safety information	1
1.1 Safety measures for working on vehicles with high-voltage system	1
1.2 Safety measures for working in the vicinity of high-voltage components	2
1.3 Safety measures for using testing and measuring instruments during a road test	2
2 Repair notes	3
2.1 Contact corrosion	3
2.2 Routing and attachment of lines	3
3 Battery	4
3.1 Battery - general notes	4
3.2 Types of battery	4
27 - Starter, current supply, CCS	5
1 Battery	5
1.1 Assembly overview - battery	5
1.2 Removing and installing battery	7
1.3 Disconnecting and connecting battery	8
1.4 Removing and installing battery tray	10
1.5 Checking battery	11
1.6 Charging battery	11
1.7 Removing and installing earth wire with battery monitor control unit J367	11
1.8 Adapting battery monitor control unit J367	12
2 Cruise control system (CCS)	13
90 - Gauges, instruments	14
1 Dash panel insert	14
1.1 Removing and installing dash panel insert KX2	14
2 Horn	16
2.1 Assembly overview - horn	16
2.2 Removing and installing treble horn H2 and bass horn H7	16
92 - Windscreen wash/wipe system	18
1 Windscreen wiper system	18
1.1 Assembly overview - windscreen wiper system	18
1.2 Moving wipers to service position	19
1.3 Removing and installing wiper blade	19
1.4 Removing and installing wiper arms	20
1.5 Adjusting wiper arms	22
1.6 Removing and installing wiper motor V	23
1.7 Renewing wiper motor	24
1.8 Deactivating APP function of wiper motor	27
1.9 Removing and installing rain and light sensor	27
2 Windscreen washer system	31
2.1 Assembly overview - windscreen washer system	31
2.2 Removing and installing washer fluid reservoir	32
2.3 Removing and installing windscreen washer pump	33
2.4 Removing and installing washer jets	34
2.5 Adjusting spray jets	35
3 Rear window wiper system	36
3.1 Assembly overview - rear window wiper system	36
3.2 Removing and installing wiper blade	37
3.3 Removing and installing wiper arm	37



3.4	Adjusting wiper arm	38
3.5	Removing and installing rear window wiper motor V12	39
4	Rear window washer system	41
4.1	Assembly overview - rear window washer system	41
4.2	Removing and installing spray jet	41
4.3	Adjusting spray jet	42
5	Washer fluid lines	43
5.1	Repairing washer fluid lines	43
94	Lights, bulbs, switches - exterior	44
1	Headlights	44
1.1	Assembly overview - headlight	44
1.2	Removing and installing headlight	45
1.3	Adjusting headlights	47
1.4	Adjusting headlight installation position	47
1.5	Removing and installing front turn signal bulb M5 / M7	48
1.6	Installing repair kit for headlight housing	50
1.7	Converting headlights from driving on right to driving on left	53
1.8	Converting headlights from driving on left to driving on right	53
1.9	Removing and installing headlight range control motor V48 / V49	53
1.10	Removing and installing dipped beam bulb	54
1.11	Removing and installing LED module for daytime running light and side light L176 / L177	56
2	Daytime running light	57
2.1	Assembly overview - daytime running lights	57
2.2	Removing and installing daytime running light bulb L174 / L175	57
2.3	Removing and installing light strip for daytime running light	60
3	Fog lights	61
3.1	Assembly overview - fog lights	61
3.2	Removing and installing fog light	62
3.3	Removing and installing fog light bulb L22 / L23	63
3.4	Adjusting fog lights	64
4	Lights in exterior mirror	65
4.1	Removing and installing turn signal	65
4.2	Removing and installing turn signal repeater bulb L131 / L132	65
5	Tail lights	66
5.1	Assembly overview - tail lights in body	66
5.2	Removing and installing bulb carrier	67
5.3	Removing and installing tail light cluster	67
5.4	Removing and installing tail light bulb M2 / M4	68
5.5	Removing and installing rear fog light	69
5.6	Removing and installing rear fog light bulb L46 / L47	69
5.7	Removing and installing brake and tail light bulb M21 / M22	70
5.8	Removing and installing reversing light bulb	70
5.9	Removing and installing turn signal bulb	71
6	High-level brake light	72
6.1	Assembly overview - high-level brake light	72
6.2	Removing and installing high-level brake light	72
7	Number plate light	75
7.1	Removing and installing number plate light X4 / X5	75
7.2	Removing and installing bulb for number plate light X4 / X5	75
8	Steering column switch module	76
8.1	Assembly overview - steering column switch module	76
8.2	Removing and installing steering column switch module	77



8.3	Removing and installing steering column electronics control unit J527	79
8.4	Removing and installing base for steering column combination switch	81
8.5	Removing and installing turn signal switch E2	81
8.6	Removing and installing cruise control system switch E45	81
8.7	Removing and installing intermittent wiper switch E22	81
8.8	Removing and installing ignition/starter switch	82
8.9	Removing and installing lock cylinder	82
8.10	Removing and installing steering lock housing	84
8.11	Removing and installing ignition key withdrawal lock solenoid N376	86
9	Parking aid	87
9.1	Assembly overview – parking aid	87
9.2	Removing and installing parking aid control unit J446	87
9.3	Removing and installing rear parking aid warning buzzer H15	88
9.4	Removing and installing rear parking aid senders	89
10	Emergency braking function	91
10.1	Removing and installing City Emergency Braking System	91
96	Lights, bulbs, switches - interior	93
1	Lights	93
1.1	Removing and installing Central locking SAFELOCK function warning lamp K133	93
1.2	Renewing front interior light bulb W1	93
1.3	Removing and installing bulb for front reading light W13 / W19	95
2	Controls	97
2.1	Removing and installing rotary light switch EX1	97
2.2	Removing and installing headlight range control regulator E102	98
2.3	Removing and installing switch module in middle of dash panel	98
2.4	Removing and installing hazard warning light button E229	100
2.5	Removing and installing heated rear window button	100
2.6	Removing and installing buttons for seat heating E653 / E654	100
2.7	Removing and installing button for driver assist systems E617	100
2.8	Removing and installing mirror adjustment switch E43 / E168	101
2.9	Removing and installing operating unit for window regulator in driver door E512	101
2.10	Removing and installing front window regulator switch	102
2.11	Removing and installing driver side interior locking button for central locking system E308	103
2.12	Removing and installing centre console switch module	104
2.13	Removing and installing button for emergency braking function	105
2.14	Removing and installing sliding sunroof adjustment regulator	105
2.15	Removing and installing front interior light/reading light	106
2.16	Removing and installing front passenger side airbag deactivated warning lamp K145	109
3	Immobiliser	111
3.1	Removing and installing immobiliser control unit	111
3.2	Removing and installing immobiliser reader coil	111
4	Front camera for assist systems	112
4.1	Assembly overview - front camera for assist systems	112
4.2	Removing and installing front camera for driver assist systems R242	112
4.3	Calibrating front camera for driver assist systems R242	114
5	Cigarette lighter, socket	121
5.1	Removing and installing cigarette lighter U1	121
5.2	Removing and installing electric socket U	121
5.3	Removing and installing bulb for illuminating cigarette lighter	121
97	Wiring	122
1	Relay carriers, fuse holders, electronics boxes	122
1.1	Removing and installing electronics box (E-box)	122



1.2	Removing and installing relay and fuse holder in electronics box	124
1.3	Removing and installing relay and fuse holder behind dash panel on driver side	126
2	Control units	132
2.1	Removing and installing onboard supply control unit J519	132
2.2	Removing and installing data bus diagnostic interface J533	133
3	Connectors	134
3.1	Repairing electrical wiring harnesses and plug-in connections	134
4	Releasing and dismantling connector housings	135
5	Repairing aerial wires	136
6	Vehicle diagnosis, testing and information systems	137