

Contents

91 - Radio, telephone, navigation	1
1 Radio system	1
1.1 General	1
1.2 Block diagram of radio systems (up to MY 97)	2
1.3 Block diagram of radio systems (as of MY 98)	8
1.4 Pre-fitted components for radio installation	18
1.5 Connectors on back of "chorus" radio	19
1.6 Connectors on back of "concert" radio	19
1.7 Connectors on back of "symphony" radio	21
1.8 Connector at CD changer	21
1.9 Connector at BOSE amplifier	22
1.10 Overall layout of radio systems	22
1.11 Overall layout of "symphony" and (as of MY 02) "concert" radio system	24
1.12 Removing and installing "chorus" and "concert" radios	25
1.13 Removing and installing "symphony" radio	25
1.14 Removing and installing loudspeakers	26
1.15 Removing and installing CD changer (up to MY 98)	27
1.16 Removing and installing CD changer (as of MY 99)	29
1.17 Removing and installing BOSE amplifier (up to MY 98)	30
1.18 Removing and installing BOSE amplifier (as of MY 99)	30
1.19 Removing and installing bass loudspeaker	31
1.20 Removing and installing tailgate aerial amplifiers	32
1.21 Removing and installing aerial selection control unit J515 (up to MY 00)	33
1.22 Removing and installing aerial selection control unit J515 (as of MY 01)	34
1.23 Removing and installing roof aerial	34
2 Servicing telephone system	37
2.1 General	37
2.2 General description	37
2.3 Permanently installed telephone	37
2.4 Mobile phone and, as of MY 02, pre-fitted components for mobile phone installation	39
2.5 Pre-fitted components for telephone installation (up to MY 01)	39
2.6 Pre-fitted components for mobile phone installation (up to MY 01)	40
2.7 Connector at mobile telephone operating electronics control unit J412	41
2.8 Connector at telephone transmitter and receiver unit R36 (Nokia)	41
2.9 Connectors at mobile telephone aerial amplifier R86	42
2.10 Removing and installing handset with holder	42
2.11 Removing and installing handset cradle with holder	43
2.12 Removing and installing telephone transmitter and receiver unit R36 (up to MY 99)	44
2.13 Removing and installing telephone transmitter and receiver unit R36 (Nokia) (up to MY 00)	44
2.14 Removing and installing mobile telephone aerial amplifier R86	45
2.15 Removing and installing mobile telephone operating electronics control unit J412	45
2.16 Removing and installing hands-free microphone (up to MY 99)	46
2.17 Removing and installing hands-free microphone (as of MY 00)	46
2.18 Removing and installing hands-free loudspeaker (up to MY 98)	47
2.19 Removing and installing hands-free loudspeaker (as of MY 99)	48
3 Navigation system I (up to week 28/99)	49
3.1 General	49
3.2 General description	49
3.3 Block diagram	50
3.4 Connectors at navigation system with CD drive control unit J401	51
3.5 Connectors at operating electronics control unit, navigation J402	52
3.6 Exploded view of navigation system I	53

3.7	Service information on navigation system I	55
3.8	Information required from customer in the event of complaints	55
3.9	Action to be taken following service work or tyre change	57
3.10	Calling up technical service software	58
3.11	Automatic checking of current parameters	60
3.12	Wheel calibration after changing tyre or replacing control unit	61
3.13	Wiring test procedure	67
3.14	Test drive (basic calibration) procedure	72
3.15	System test procedure	77
3.16	Starting navigation	86
3.17	Entering location	88
3.18	Interrogating software version	90
3.19	Notes on replacing navigation system components	90
3.20	Removing and installing navigation system with CD drive control unit J401	90
3.21	Removing and installing navigation system operating unit E199	91
3.22	Removing and installing operating electronics control unit, navigation J402	92
3.23	Removing and installing magnetic field sender (compass) G197	92
4	Navigation system II-D (navigation system Plus RNS 4.1) (as of week 36/00)	94
4.1	General	94
4.2	General description	94
4.3	Fault message display	94
4.4	Block diagram of navigation system II-D	96
4.5	Block diagram of navigation system II-D with BOSE sound system	98
4.6	Connectors at operating electronics control unit, navigation J402	99
4.7	Connectors at navigation interface R94	101
4.8	Connectors at aerial selection control unit J515	102
4.9	Connectors at TV tuner J415 (up to MY 01)	103
4.10	Connectors at TV tuner J415 (as of MY 01)	104
4.11	Overall layout of navigation system II-D	106
4.12	Removing and installing operating electronics control unit, navigation J402	108
4.13	Removing and installing TV tuner J415	109
4.14	Removing and installing TV aerial amplifiers	109
4.15	Removing and installing navigation interface R94	109
5	Navigation system III (as of week 29/99)	111
5.1	General	111
5.2	General description	111
5.3	Block diagram of navigation system III	111
5.4	Connectors at navigation system with CD drive control unit J401	112
5.5	Overall layout of navigation system III	113
5.6	Removing and installing function selection switch II	114
5.7	Removing and installing navigation system with CD drive control unit	115
6	Navigation system IV (BNS 4.0) as of week 04/01	116
6.1	General	116
6.2	General description	116
6.3	Design of navigation system BNS 4.0	116
6.4	Connectors and contact assignments	116
6.5	Overall layout of BNS 4.0	116
7	Multi-function steering wheel	117
7.1	General	117
7.2	General description	117
7.3	Block diagram of multi-function steering wheel (up to MY 01)	117
7.4	Block diagram of multi-function steering wheel (as of MY 02)	119
7.5	Assignment of buttons on multi-function steering wheels	120
7.6	Removing and installing multi-function buttons	124
7.7	Removing and installing Tiptronic buttons	125

7.8	Removing and installing multi-function steering wheel control unit J453 (up to MY 01)	125
7.9	Removing and installing multi-function steering wheel control unit J453 (as of MY 02)	126
8	Telematics system	127
8.1	General	127
8.2	General description	127
8.3	Block diagram of telematics system	127
8.4	Connectors at telephone/telematics control unit J526	128
8.5	Overall layout of telematics system	131
8.6	Removing and installing telephone/telematics control unit J526	132
8.7	Activating/deactivating service mode	133
8.8	Telematics SIM card replacement	134
8.9	Removing and installing emergency battery for telematics	134
8.10	Initialising telephone/telematics control unit J526	135
8.11	Removing and installing aerial filter R87 for GPS aerial	136
8.12	Removing and installing emergency call button E276 and breakdown help button E275	137
8.13	Removing and installing hands-free microphone	137
8.14	Removing and installing additional loudspeaker for telematics R91 (emergency loudspeaker)	138
8.15	Removing and installing additional aerial for telematics R90 (emergency aerial)	138