



Contents

00 - Technical data	1
1 — Change history —	1
2 Identification	2
2.1 Gearbox identification	2
2.2 Prefix, Assignment, and gear ratio	2
2.3 Gearbox oil, supply capacity	3
3 Transmission assembly scheme	4
3.1 Nomenclature	4
3.2 Gear ratios	5
4 Gearbox ratio "i"	6
4.1 Gear ratio calculation "i"	6
5 General repair instructions	7
5.1 Gearbox	7
5.2 Gaskets and retainers	7
5.3 Screws, nuts	8
5.4 Roller bearings	8
5.5 Adjustment shims	9
5.6 Synchronizer rings	9
30 - Clutch	10
1 Hydraulic system	10
1.1 Hydraulic system - assembly overview	10
1.2 Clutch slave cylinder - remove and install	11
2 Clutch drive mechanism	14
2.1 Clutch drive mechanism - assembly overview	14
3 Clutch	16
3.1 Clutch - assembly overview	16
3.2 Clutch - repair	18
34 - Controls, housing	20
1 Diagnosis, measurement and information system	20
1.1 Diagnosis, measurement and information system - connect	20
2 Electronic components and installation locations	21
2.1 Electric and electronic components - overview	21
2.2 "Tiptronic" upshift switch on the steering wheel E438 and/or "Tiptronic" downshift switch on the steering wheel E439	23
2.3 Sensor 2 for gear detection G616	24
2.4 Gearbox input speed sender G182	25
2.5 Gear detection sensor G604	26
2.6 Diagnosis socket	28
2.7 Selector lever position display Y6	28
2.8 Automatic gearbox control unit J217	28
3 Selector lever	29
3.1 Selector lever - assembly overview	29
3.2 Selector lever handle - remove and install	30
3.3 Upper selector lever cover - remove and install	31
3.4 Selector lever - remove and install	32
3.5 Lower selector lever cover - remove and install	33
3.6 Selection lever boot - adjust	34
3.7 Selector lever operation - check	35
4 Gear selection mechanism - adjust	36
4.1 Gear selection mechanism - assembly overview	36



4.2	Gear selection mechanism - remove and install	38
4.3	Gear selection mechanism - components	46
4.4	Gear selection mechanism - repair	49
5	Gearbox - remove and install	62
5.1	Gearbox for vehicles with engines (CCRA, CFZA) - remove and install	62
5.2	Gearbox - transport	73
6	Gearbox - disassemble and assemble	75
6.1	Gearbox - overview	75
6.2	gearbox - assembly overview	76
6.3	Gearbox housing cover and 5th gear	76
6.4	Gearbox housing Cover and 5th gear - remove and install (gearbox installed)	78
6.5	Clutch housing	79
6.6	Input shaft, output shaft, differential, selection mechanism and selector forks	80
6.7	Input shaft, output shaft, differential, selection mechanism and selector forks - disassemble and assemble	82
7	Gearbox oil level	91
7.1	Oil level - check	91
7.2	Oil level - replenish	91
8	Gear selector mechanism oil level	93
8.1	Oil level - check	93
8.2	Oil level - replenish	94
9	Gearbox and clutch housings	95
9.1	Transmission and clutch housings - repair	95
10	Selector forks	101
10.1	Selector forks - disassemble and assemble	101
35 - Gears, shafts		106
1	Input shaft	106
1.1	Input shaft - general overview of assembly	106
1.2	Input shaft - disassemble and assemble	109
2	Output shaft	118
2.1	Output shaft - general overview of assembly	118
2.2	Output shaft - disassemble and assemble	121
39 - Final drive - differential		127
1	Drive flange	127
1.1	Left drive flange retainer (left side) - replace	127
1.2	Drive flange retainer (right side) - replace	130
2	Differential	133
2.1	Differential - general overview of assembly	133
2.2	Differential - disassemble and assemble	136
2.3	Differential - adjust	142