



## Contents

<b>00 - Technical data</b>	<b>1</b>
<b>1 Gearbox identification</b>	<b>1</b>
1.1 Location on gearbox	1
1.2 Code letters and date of manufacture of gearbox arrow 1	1
<b>2 Code letters, engine allocation, ratios, equipment</b>	<b>2</b>
<b>3 Identifying rear final drive</b>	<b>3</b>
<b>4 Code letters, engine allocation, ratios, equipment</b>	<b>4</b>
<b>5 Capacities</b>	<b>5</b>
5.1 Planetary gear	5
5.2 Front final drive	5
5.3 Rear final drive	5
<b>6 Overview - power transmission</b>	<b>6</b>
<b>7 Notes on four-wheel drive automatic gearbox 099</b>	<b>7</b>
7.1 Notes on four-wheel drive automatic gearbox 099	7
7.2 Notes on performance tests, brake tests and towing	8
<b>8 Repair instructions</b>	<b>9</b>
8.1 Repair instructions	9
<b>32 - Torque converter</b>	<b>11</b>
<b>1 Torque converter</b>	<b>11</b>
1.1 Identification of torque converter	11
1.2 Allocation of torque converter	11
1.3 Removing and installing torque converter oil seal	14
1.4 Draining torque converter	14
<b>37 - Controls, housing</b>	<b>16</b>
<b>1 Repairing selector mechanism</b>	<b>16</b>
1.1 Checking selector mechanism	16
1.2 Checking and adjusting selector lever cable	16
1.3 Dismantling and assembling selector mechanism	17
1.4 Removing and installing selector lever cable	19
1.5 Dismantling and assembling selector lever	23
1.6 Adjusting starter inhibitor switch in right-hand drive vehicles	24
<b>2 Routing diagram of pipe and hose lines for freewheel lock</b>	<b>25</b>
2.1 For vehicles up to chassis number 7MZVV004352	25
2.2 For vehicles from chassis number 7MZVV004353 onwards	26
2.3 Removing and installing control element for freewheel lock	26
<b>3 Checking gearbox</b>	<b>28</b>
3.1 Checking shift points	28
3.2 Checking stall speed	28
3.3 Measuring main pressure	28
3.4 Fault finding table for "4-speed automatic gearbox"	28
<b>4 Removing and installing gearbox</b>	<b>29</b>
4.1 Removing and installing gearbox together with bevel box	29
4.2 Removing and installing bevel box	37
4.3 Removing and installing starter bush	38
<b>5 Checking ATF level and topping up</b>	<b>41</b>
5.1 Checking ATF level	41
5.2 Topping up ATF	43
5.3 Renewing ATF	43
<b>6 Gearbox with selector elements</b>	<b>45</b>



<b>7</b>	<b>Dismantling and assembling gearbox</b> .....	<b>48</b>
7.1	Removing and installing ATF cooler and ATF filler pipe .....	48
7.2	Dismantling and assembling planetary gearbox -Overview- .....	48
7.3	I - Removing and installing ATF pump to supporting tube .....	49
7.4	II - Removing and installing reverse clutch -K2- to large sun gear .....	51
7.5	III - Removing and installing freewheel and reverse gear brake -B1- .....	52
7.6	IV - Planet carrier and gearbox housing with input gear and cover .....	53
7.7	Dismantling and assembling planetary gearbox .....	54
7.8	Overview of all planetary gearbox adjustments .....	67
7.9	Adjusting planet carrier .....	68
7.10	Adjusting reverse gear brake -B1- .....	72
7.11	Adjusting clutch play between -K1- and -K2- .....	76
7.12	Adjusting 2nd and 4th gear brake -B2- .....	79
<b>38</b>	<b>Gears, control</b> .....	<b>88</b>
1	Dismantling and assembling ATF pump .....	88
2	Dismantling and assembling freewheel with -B1- piston .....	90
3	Dismantling and assembling 1st to 3rd gear clutch -K1- .....	92
4	Dismantling and assembling reverse gear clutch -K2- .....	95
5	Dismantling and assembling 3rd and 4th gear clutch -K3- with turbine shaft .....	98
6	Removing and installing valve body .....	101
7	Dismantling and assembling parking lock .....	106
<b>39</b>	<b>Final drive - rear differential</b> .....	<b>110</b>
1	Removing and installing propshaft .....	110
1.1	Measuring and adjusting distance between propshaft and steering box .....	112
2	Repairing propshaft .....	113
3	Checking function of viscous coupling .....	119
4	Removing and installing viscous coupling .....	120
4.1	Removing viscous coupling .....	120
4.2	Installing viscous coupling .....	121
5	Renewing viscous coupling oil seal in rear final drive (final drive installed) .....	123
6	Renewing flange shaft or drive flange oil seals (final drive installed) .....	124
6.1	Renewing oil seal for right flange shaft .....	124
6.2	Renewing left drive flange oil seal .....	125
7	Checking oil in rear final drive .....	127
8	Checking function of freewheel .....	128
9	Checking function of freewheel lock .....	129
10	Removing and installing rear final drive .....	130
10.1	Removing rear final drive .....	130
10.2	Installing rear final drive .....	131
11	Dismantling and assembling rear final drive .....	133
11.1	Removing and installing viscous coupling and pinion housing .....	134
11.2	Removing and installing differential and freewheel lock .....	135
11.3	Removing and installing bevel gear with stub shaft and differential lock control .....	137
11.4	Dismantling and assembling procedure .....	138
11.5	Modifying gearbox support VW 353 .....	144
12	Dismantling and assembling differential and freewheel .....	145
12.1	Assembly overview .....	145
12.2	Dismantling and assembling differential (procedure) .....	146
12.3	Removing and installing freewheel (procedure) .....	149
12.4	Dismantling and assembling freewheel (procedure) .....	150



<b>13</b>	<b>Repairing shaft bevel gear bearing</b>	<b>152</b>
13.1	Assembly overview	152
13.2	Dismantling and assembling procedure	153
<b>14</b>	<b>Repairing bearing for bevel gear with stub shaft</b>	<b>158</b>
14.1	Assembly overview	158
14.2	Dismantling and assembling procedure	159
<b>15</b>	<b>Adjusting shaft bevel gear and bevel gear with stub shaft (final drive gear set)</b>	<b>166</b>
15.1	General notes	166
15.2	Adjustment and marking of final drive gear sets	166
15.3	Position of shims	167
15.4	Adjustment overview - rear final drive	167
15.5	Determining fitting position of shaft bevel gear (actual values)	168
15.6	Recommended sequence for new adjustment of final drive gear set	168
15.7	Adjusting shaft bevel gear	169
15.8	Adjusting bevel gear	173
<b>39</b>	<b>Final drive - front differential</b>	<b>178</b>
<b>1</b>	<b>Checking oil in front final drive</b>	<b>178</b>
<b>2</b>	<b>Removing and installing front left flange shaft oil seal</b>	<b>179</b>
<b>3</b>	<b>Removing and installing oil seals for front right flange shaft and front right bevel gear with stub shaft</b>	<b>182</b>
<b>4</b>	<b>Renewing bevel box output flange oil seal (bevel box removed)</b>	<b>185</b>
<b>5</b>	<b>Dismantling and assembling final drive</b>	<b>187</b>
5.1	Repair overview of final drive	187
5.2	Unbolting and bolting on front bevel box	188
5.3	Removing and installing differential	190
5.4	Removing and installing input gear	193
5.5	Removing and installing drive shaft	197
5.6	Dismantling and assembling differential	206
<b>6</b>	<b>Adjusting front final drive</b>	<b>214</b>
6.1	Overview	214
6.2	Adjusting work when renewing individual components of the front final drive	218
6.3	Adjusting drive shaft	219
6.4	Adjusting input gear	221
6.5	Adjusting differential	222