1 General notes

1.1 Safety notes

General

Operation, maintenance and repair of the transmission are always subject to the relevant local safety regulations and accident prevention regulations.

These regulations can, for example, concern handling of hazardous materials, provision and wearing of personal protective gear or motor vehicle regulations.

Anyone operating the transmission or any persons involved in installation, repair or maintenance have to familiarize themselves with the warning notes and precautions described in this document.

Any person involved in operation, installation, repair or maintenance of the transmission must exercise utmost diligence in making sure that his or her own personal safety or the safety of other persons is not in danger.

State of the art

This transmission is designed and constructed according to the state of the art in technology and acknowledged safety regulations. Nevertheless, operation, installation, repair and maintenance of the transmission can involve the risk of injury and death of persons or damage the transmission and other material assets if:

- the transmission is put to different use than prescribed,
- the transmission is operated, serviced or repaired by unqualified staff,
- the transmission is modified or reconstructed improperly and/or
- the safety notes are not observed.

Proper use

The proper use of the DIWA transmission is its application as an automatic drive for busses.

Disassembling the intermediate gear

	**NOTE** It is also possible to replace the gear wheel as a whole.

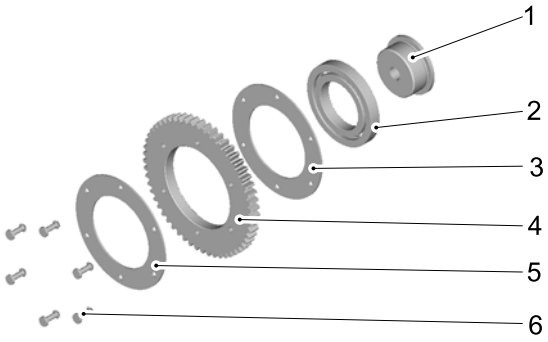


Fig. 152

- ❑ The rivets (6) must be destroyed for disassembling the gear wheel.
- ➔ Dismount the rivets (6).
- ➔ Remove the washers (3) and (5).
- ➔ Press the supporting ring (1) out of the gear wheel.
- ➔ Press the grooved ball bearing (2) out of the gear wheel.

1.2 Signs

	**DANGER** **DANGER** indicates imminent danger for life and health of people. The non-compliance with this note results in serious damage to your health as well as life-threatening injuries.

	**WARNING** **WARNING** indicates possible danger for life and health of people. The non-compliance with this note might result in serious damage to your health as well as life-threatening injuries.

	**CAUTION** **CAUTION** indicates a potentially dangerous situation. The non-compliance with this note might result in minor injuries or property damage.

	**NOTE** **Note** indicates information on the proper handling of the gearbox. It does not indicate dangerous situations.

3.4 Measuring tools

Measuring cover

Order number H64.215710

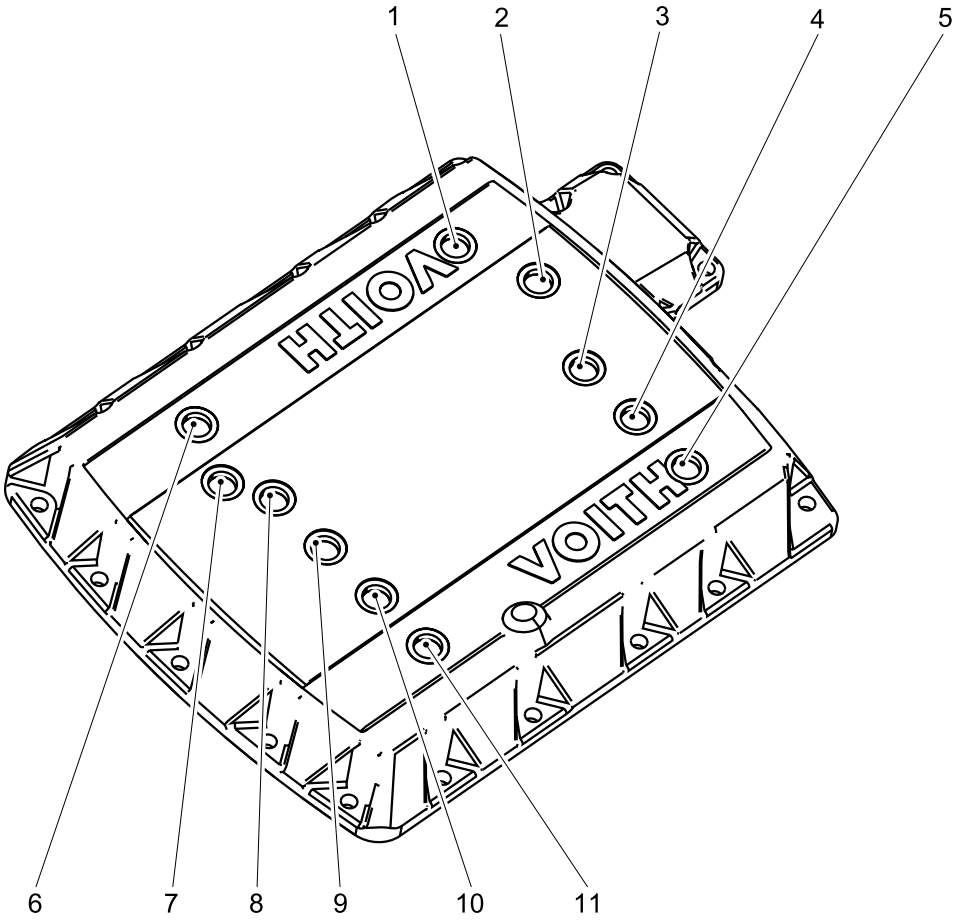


Fig. 22 Measuring cover

1	WR	7	Operating pressure
2	Converter pressure	8	DK
3	TB	9	EK
4	RG	10	PB
5	RK	11	WP
6	SK		

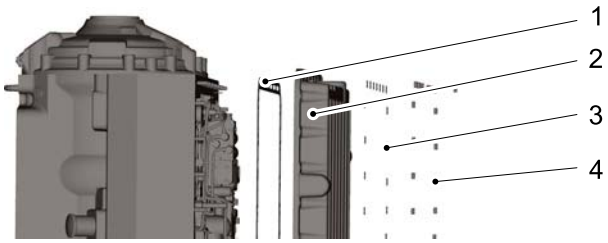
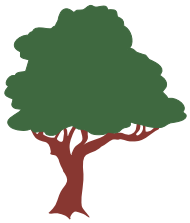


Fig. 39

➔ Loosen and remove the 28 hex. head nuts (4).

➔ Remove the 28 washers (3).



ENVIRONMENT

Environmental hazard due to oil.

Oil may continue to flow when removing the oil pan.

The oil must not enter the environment and must be disposed of in accordance with the local regulations.

➔ Remove the oil pan (2).

➔ Remove the gasket (1).

6.12 Dismounting the pump brake

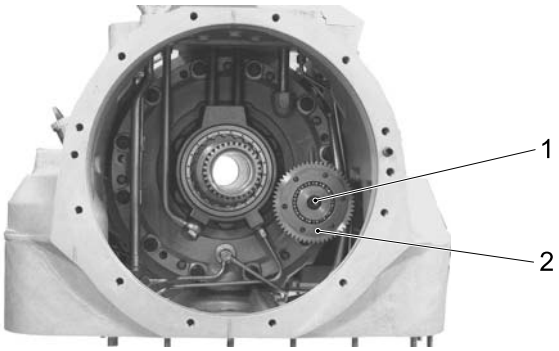


Fig. 57

➔ Loosen and remove the cheese-head screw M10 (1).

➔ Dismount the gear wheel (2).

➔ Dismount all pipes.

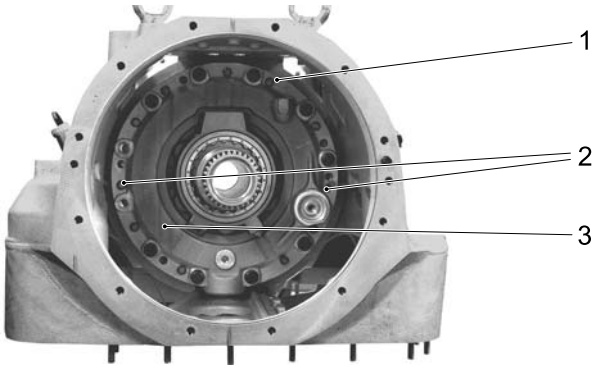


Fig. 58

➔ Loosen and remove the eleven hex. head screws M10 (1).

➔ Press off the pump brake (3) with the special tool [⇨ Page 17] (two forcing screws M10) and take it out.

❑ Positions for screwing in the forcing screws (2).

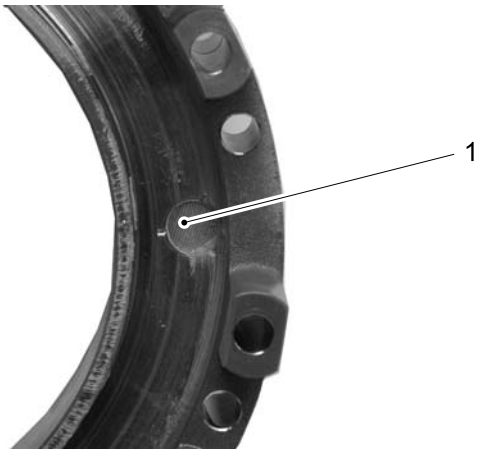


Fig. 73

➔ Check the cylindrical sieves (1) on the EK/DK side for soiling.

➔ Replace the cylindrical sieves if necessary.

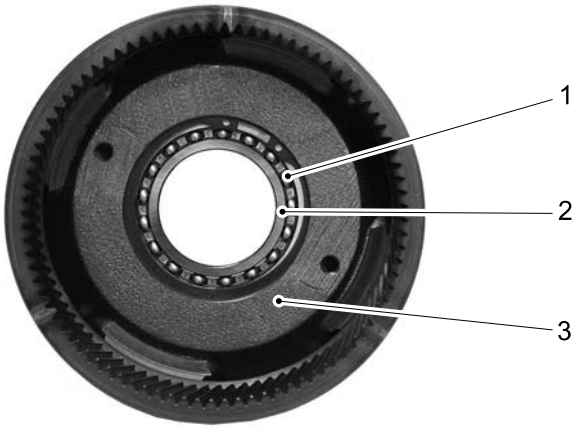


Fig. 74

➔ Dismount the locking ring (1).

➔ Dismount the grooved ball bearing (2) from the supporting washer (3).

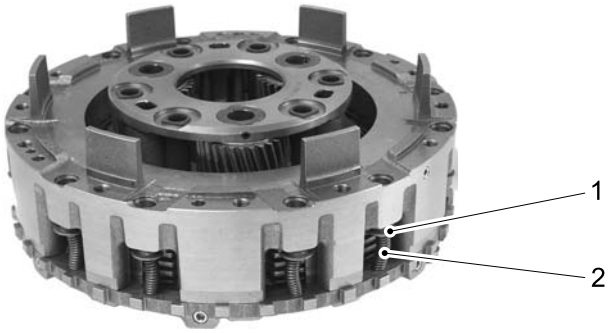


Fig. 85

➔ Mount the 12 spring sleeves (1) and 12 springs (2).

➔ Screw the disk carrier together with the SK piston carrier with 12 hex. head screws M10x30-8.8 with B10.5 washers underneath.

❑ Tightening torque 46 Nm



CAUTION

Risk of injury due to springs under tension.

➔ Wear personal protection gear.



NOTE

➔ Make sure that the disks run smoothly.

➔ Make sure that the SK piston fits correctly.

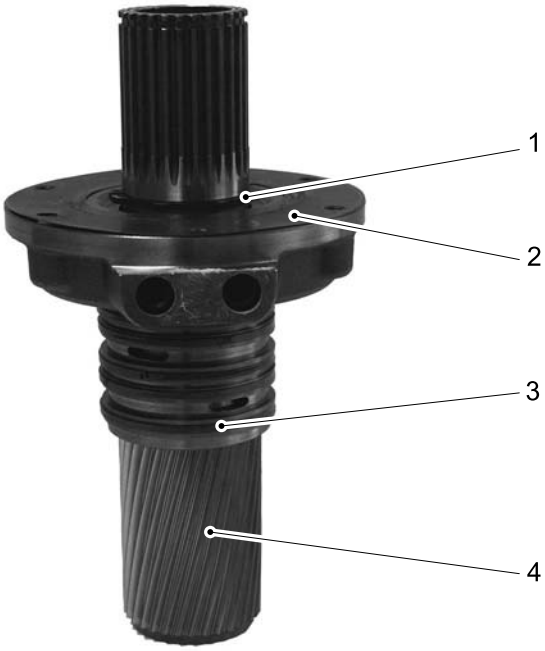


Fig. 103

➔ Remove the locking ring (1).

➔ Lift off the piston ring carrier (2) from the pump shaft (4).

➔ Remove the square section rings (3).

	**NOTE** To remove the square section rings, press one end inwards and unhook.

➔ Dismount the cylindrical roller bearing.

	**NOTE** Two bores are provided for dismounting the cylindrical roller bearing.

➔ Clean all parts carefully, check them for wear and replace them if necessary.

7.8 Mounting the stator - turbine wheel

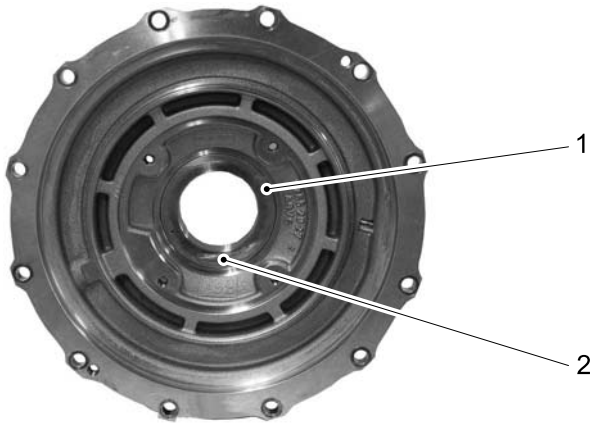


Fig. 115

➔ Check that stator bushing (2) and roll pin (1) sit tightly.

❑ The inside diameter of the stator bushing must not exceed 68.200 mm.

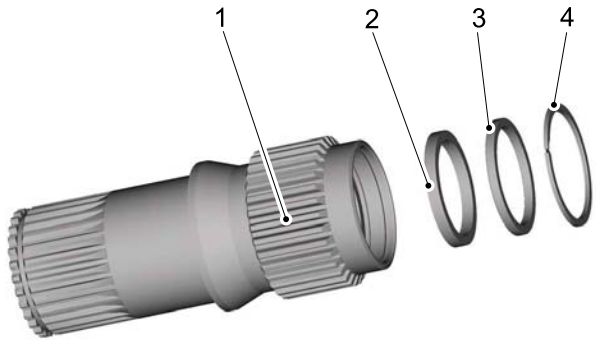


Fig. 116

➔ Mount the new seal bushing (2) into the turbine shaft (1).

➔ Mount the ring (3).

➔ Mount the double ring (4).



Fig. 131

➔ Screw the sun gear with mounted external crown on the planet carrier using six hex. head screws M8x16 - 8.8 (1) with spring washers placed underneath.

❑ Tightening torque 23 Nm.

7.14 Mounting and dismounting the operating pressure valve

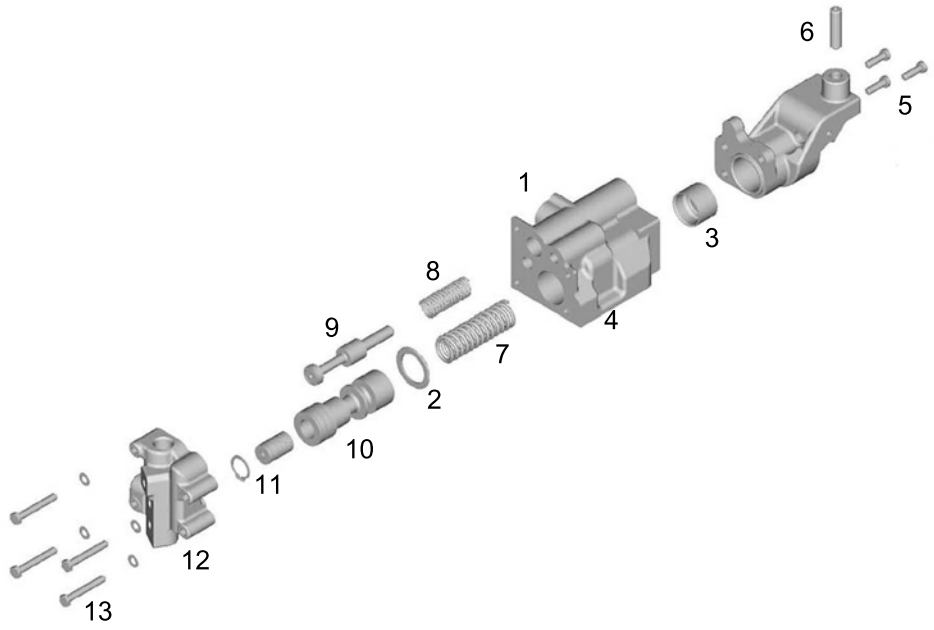


Fig. 145

	**NOTE** Do not dismount the threaded pin and thread insert (6) for setting the operating pressure.

	**CAUTION** **Risk of injury** The console (4) and the cover (12) are under spring tension.

➔ Loosen and remove the four hex. head screws (13).
➔ Remove the cover (12).
➔ Dismount the piston with the locking ring (11).
➔ Dismount the piston (10).
➔ Dismount the piston actuator (9).
➔ Dismount the pressure spring 2.0x15.5x76.5 (8).

➔ Mount the piston (7) with the pressure spring (6).
➔ Mount the 3 pistons (5), 3 control pins (4) and 3 pressure springs (3).
➔ Screw the cover (2) tight using the five hex. head screws (1) M6x12-8.8.
❑ Tightening torque 9 Nm.
➔ Screw in the screw plugs WP M10x1 (12) with sealing rings (11).
❑ Tightening torque 15 Nm.

	NOTE
	Mounting the pistons If the pistons are mounted incorrectly, transmission malfunctions may occur during operation. ➔ Make sure that the pistons are mounted in the correct position and run smoothly.

Output-end control block

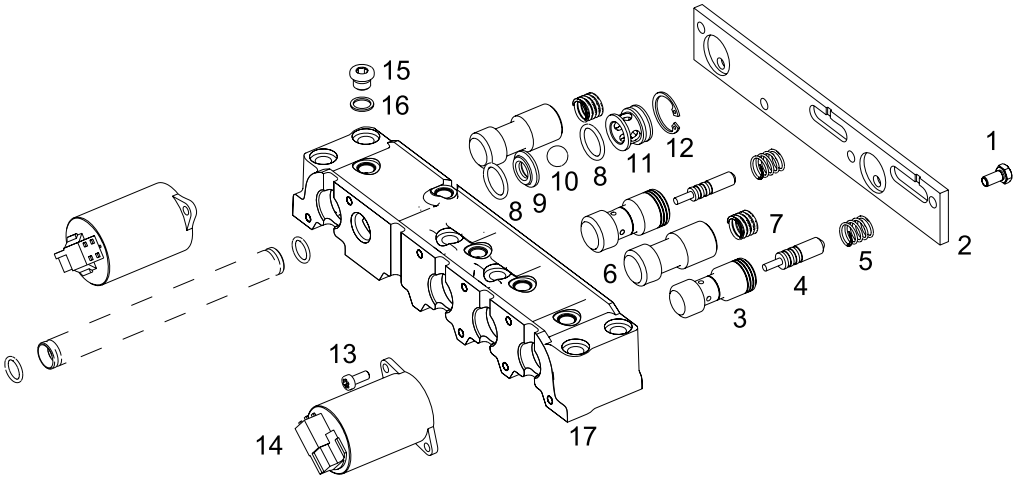


Fig. 158 Output-end control block

Dismounting the output-end control block

➔ Loosen the 5 hex. head screws (1) and dismount the cover (2).
➔ Loosen all screw plugs M10 (15) and remove them with the washers (16).
❑ Otherwise the pistons cannot be dismounted.
➔ Dismount the pistons (3), control pins (4) and pressure springs (5) from the housing (17).
➔ Dismount the pistons (6) and pressure springs (7) from the housing (17).

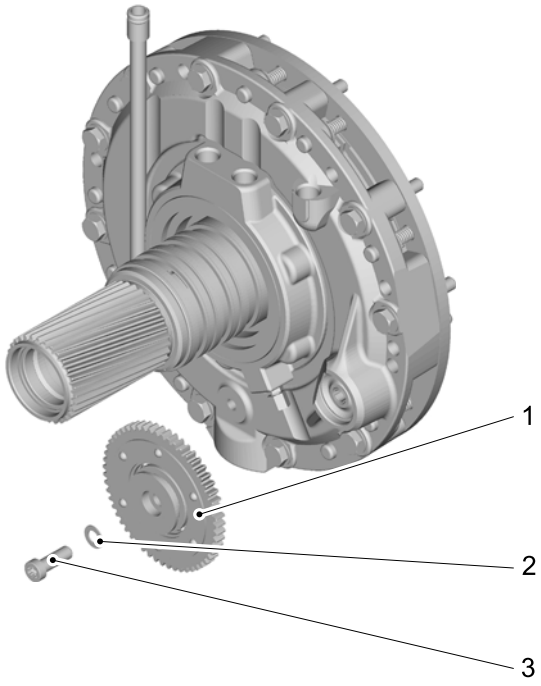


Fig. 169

➔ Screw the gear wheel (1) tight using the cheese-head screw M10x30–10.9 (3) with the spring washer B10x18 (2) underneath.

❑ Tightening torque 67 Nm.

Tightening torques for screw plugs and hollow screws with CU sealing rings

Dimensions	Sealing ring	Tightening torque [Nm] Steel/Al		Assembly		Name
		Nm	lb-ft	oiled	dry	
M10x1.5	10x13.5	13	10		x	Banjo bolt
M10x1	10x13.5	15	11		x	Screw plug
M12x1.5	12x15.5	20	15		x	Screw plug
M14x1.5	14x18	38	28		x	Screw plug
M18x1.5	18x22	45	33		x	Screw plug
M26x1.5*	26x34	100	74	x		Screw plug
M30x1.5*	30x36	115	85	x		Screw plug
M32x1.5*	32x38	130	96	x		Screw plug
M38x1.5*	38x44	150	111	x		Screw plug
M42x1.5*	42x49	190	141	x		Screw plug
M48x1.5*	48x55	260	192	x		Screw plug



NOTE

Sealing ring and screw of dimensions marked with * have to be oiled slightly.

All other sealing rings and screws have to be dry for mounting.