

PARTS & SERVICE NEWS

REF NO.

AH00515B

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(C)

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This PARTS & SERVICE NEWS supersedes the previous issue No. AH00515a which should be discarded.

SUBJECT: Final drive: Wear and tear measurements
Mounting procedures

PURPOSE: Avoiding consequential damages as a result of too high abrasion

APPLICATION: H 185S; H 285; H 285S; PC4000; H 485; H485S;
H 685S/SX; H 655S; PC8000

FAILURE CODE: 3000CA

DESCRIPTION:**1. Wear and tear measurements****1.1 Radial wear determination**

- a) Preparation
- b) Measuring procedure Method A
- c) Measuring procedure Method B
- d) Determination of wear depending on the Bushing version Old or New

1.2. Axial play determination of the hollow shaft

- a) Measuring procedure
- b) Reducing the axial play by re-machining

2. Mounting procedures**2.1 Mounting of drive shaft**

- a) Gap between drive shaft and cover plate
- b) Measuring procedure
- c) How to establish the recommended gap

2.2 Exchange bushings

- a) Freeze shrinking bush
- b) Flange Assy. with freeze in bush

3. Final works**1. Wear and tear measurements**

The wear- and tear-measurements on the bearing bushings in mounted condition inform quickly and exactly about the axial and parallel abrasion, without quickly a time and cost-intensive disassembly of the final drive.

It is recommended to perform the measurements **every 5000 working hours** to avoid consequential damages as a result of a too high abrasion amount.

The wear- and tear-measurements are described and illustrated on the following pages.

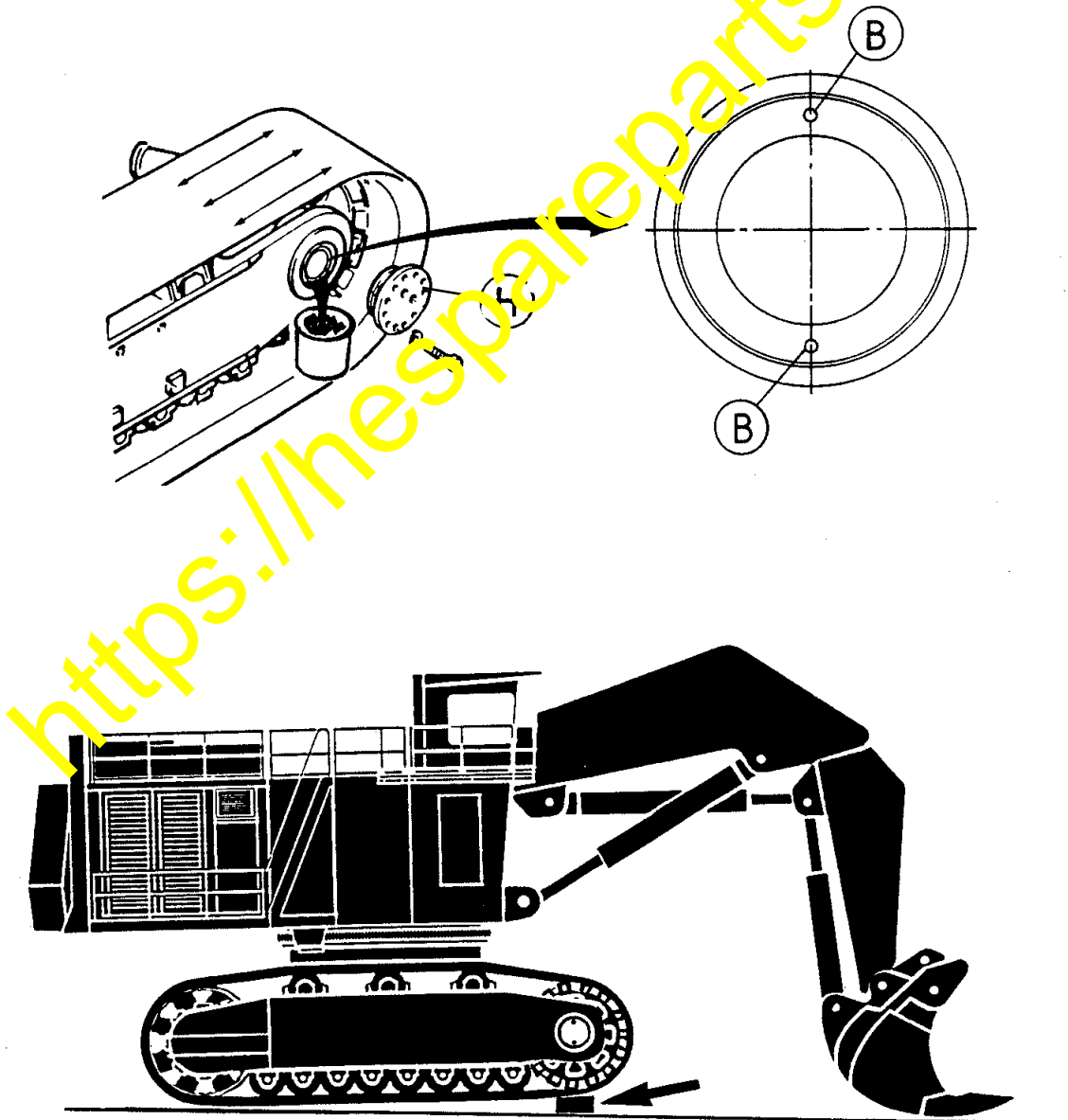
1. Wear and tear measurements

1.1. Radial wear determination

a) Preparation

For the measurements proceed according to the following sequence:

- Place suitable oil pan for outflowing oil and remove cover (H).
- Operate travel gear that the bores (B) in the hollow shaft are placed in vertical position (see illustration).
- Turn the superstructure to the illustrated position.
- Hoist the sprocket side by using the attachment, until a wooden plank can be placed under the track (middle of sprocket).
- Lift attachment until the bucket no longer touches the ground.

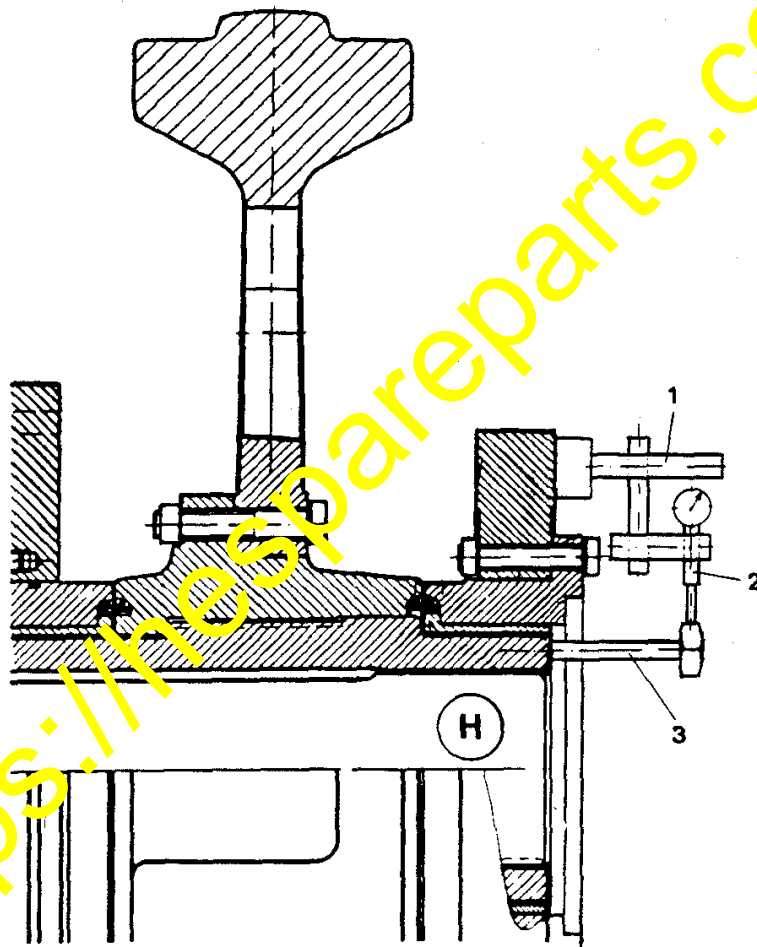


b) Measuring procedure Method A

- Place dial gauge bracket with magnet (1), dial gauge (2) and bolt (3) as shown in illustration below.
- Set dial gauge (2) to "0" when attachment is lifted. Wooden plank must lie under the sprocket.
- Hoist the sprocket side by using the attachment until the wooden plank is free.
- Take reading of dial gauge.

c) Measuring procedure Method B

- Check by using a feeler gauge between hollow shaft and bearing bush



d) Determination of wear depending on the Bushing version Old or New

Because of technical development the bushings (P/N 429 649 40 for H 485; H485S; H 685S/SX; H 655S; PC8000) and (P/N 429 652 40 for PC4000) are made of a new material and have spiral grooves instead of radial grooves of the former version.

Type	Bearing assy.* (outside)		Bearing assy.* (inside)		Bushings *	
	old	new	old	new	old	new
H 485; H485S; H 685S/SX; H 655S; PC8000	31335540	91159540	31335640	92298040	42964940	92298440
H 285; H 285S; PC4000	36103640	92253840	36103740	92253940	42965240	92253740

* Refer to the respective Parts Catalogue of the machines.

Old bushing version



- The radial play after new machine assembly amounts to 0.35 mm to 0.45 mm *.
- If the maximum permissible parallel play comes up to 2 mm, the bushings have to be changed *.

* – H 485; H485S; H 685S/SX; H 655S; PC8000 only up to S/N 12041.

– PC4000 only up to S/N 08155.

New bushing version



- For machines with the new bushings (P/N 922 984 40) the radial play after installation amounts to 0.74 mm to 0.85 mm. If the maximum permissible parallel play comes up to 2.0 mm, the bushings have to be changed.

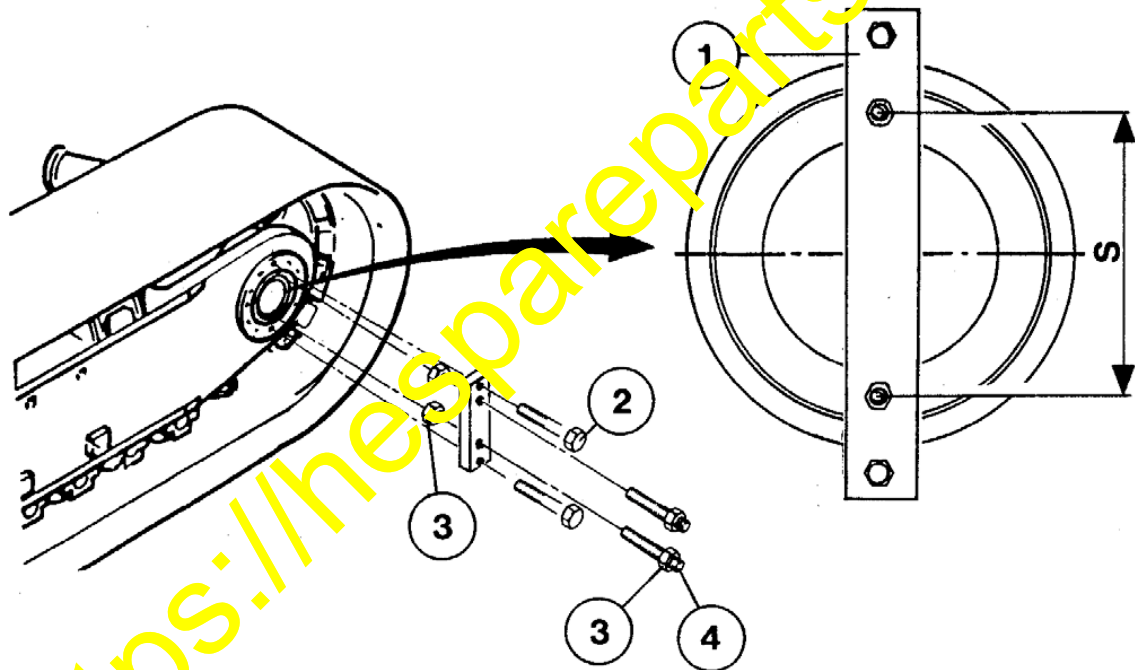
- For machines with the new bushings (P/N 922 537 40) the radial play after installation amounts to 0.56 mm to 0.66 mm.

If the maximum permissible parallel play comes up to 2.0 mm, the bushings have to be changed.

1.2. Axial play determination of the hollow shaft

a) Measuring procedure

- Make bracket (1) as shown in the illustration. The bores dia. have drilled respectively to the thread diameter (see table).
- Screw threaded rods (4) into the hollow shaft.
- Mount nuts (3), bracket (1) and bolts (2) as shown in the illustration.
- Hoist the sprocket side by using the attachment until the sprocket no longer touches the ground.
- Slide hollow shaft in by using nuts (3) until it comes against the final stop.
- Place dial gauge with bracket, set dial gauge to "0".
- Slide hollow shaft out by nuts (3) until it comes against the final stop.
- Take reading of dial gauge.
- When the maximum values (see table) are reached, the play can be reduced to the new machine value by remachining according to page 5.

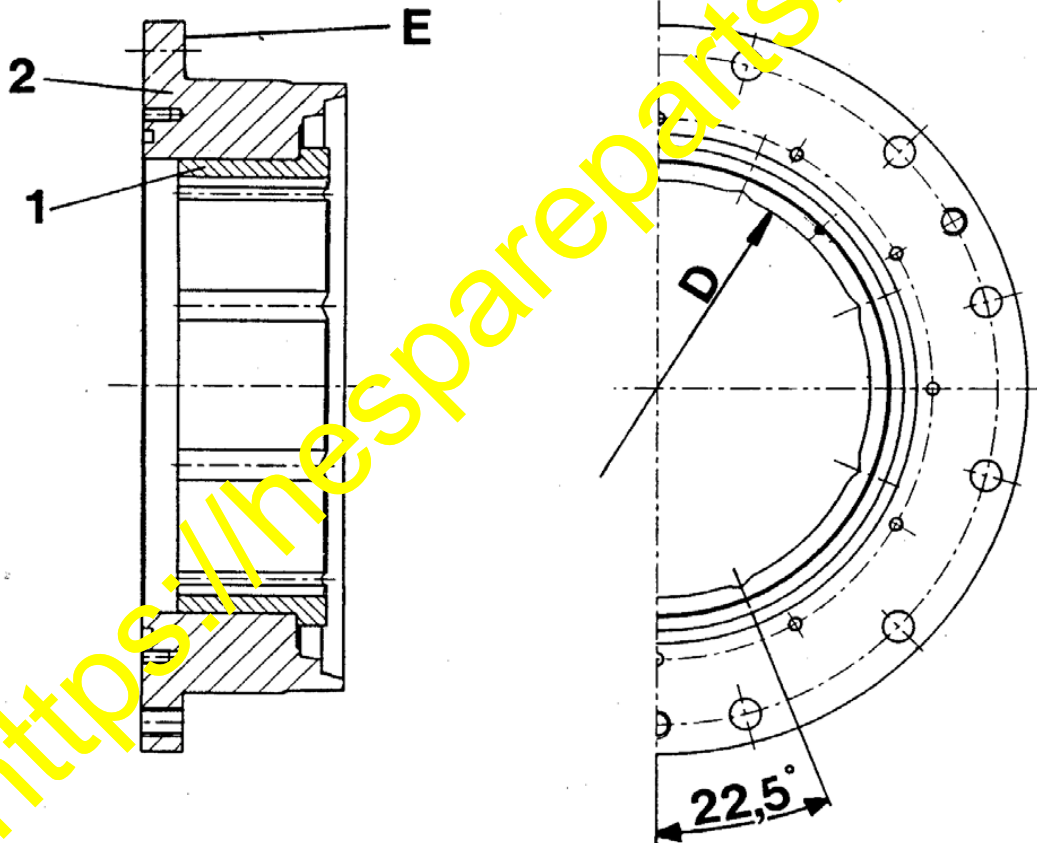


Type	Mounting bolt (2)	Threaded shaft (mm)	Gauge (S) (mm)	Axial play new (mm)	Max. permissible axial play (mm)
H 185 / S	M 12	M 16	316	0.2 – 0.9	2.75
H 285 / S	M 16	M 20	360	0.2 – 0.9	2.75
PC4000	M 16	M 20	360	0.2 – 0.9	2.75
H 485 / S	M 16	M 20	460	0.2 – 0.9	2.75
H 685S / SX	M 16	M 20	460	0.2 – 0.9	2.75
H 655S/PC8000	M 16	M 20	460	0.2 – 0.9	2.75

b) Reducing the axial play by remachining

When the axial play comes up to the maximum value according to the table on page 4, flange (2) can be remachined in area (E), to bring the axial play to the new machine condition.

- Underpin sprocket, suspend to a crane.
- Remove bolts (S) (see page 06), remove flange (2) by means of puller bolts.
- Remachine flange (2) in area (E), until the axial play (new value) is reached.
- For the mounting, proceed in inverse sequence of the removal.



2. Mounting procedures

2.1 Mounting of drive shaft

a) Gap between drive shaft and cover plate

- Install drive shaft (12)



- The drive shaft has a multi-spline shaft at both ends.
- The correct mounting position is when the longer tothing faces the gear.

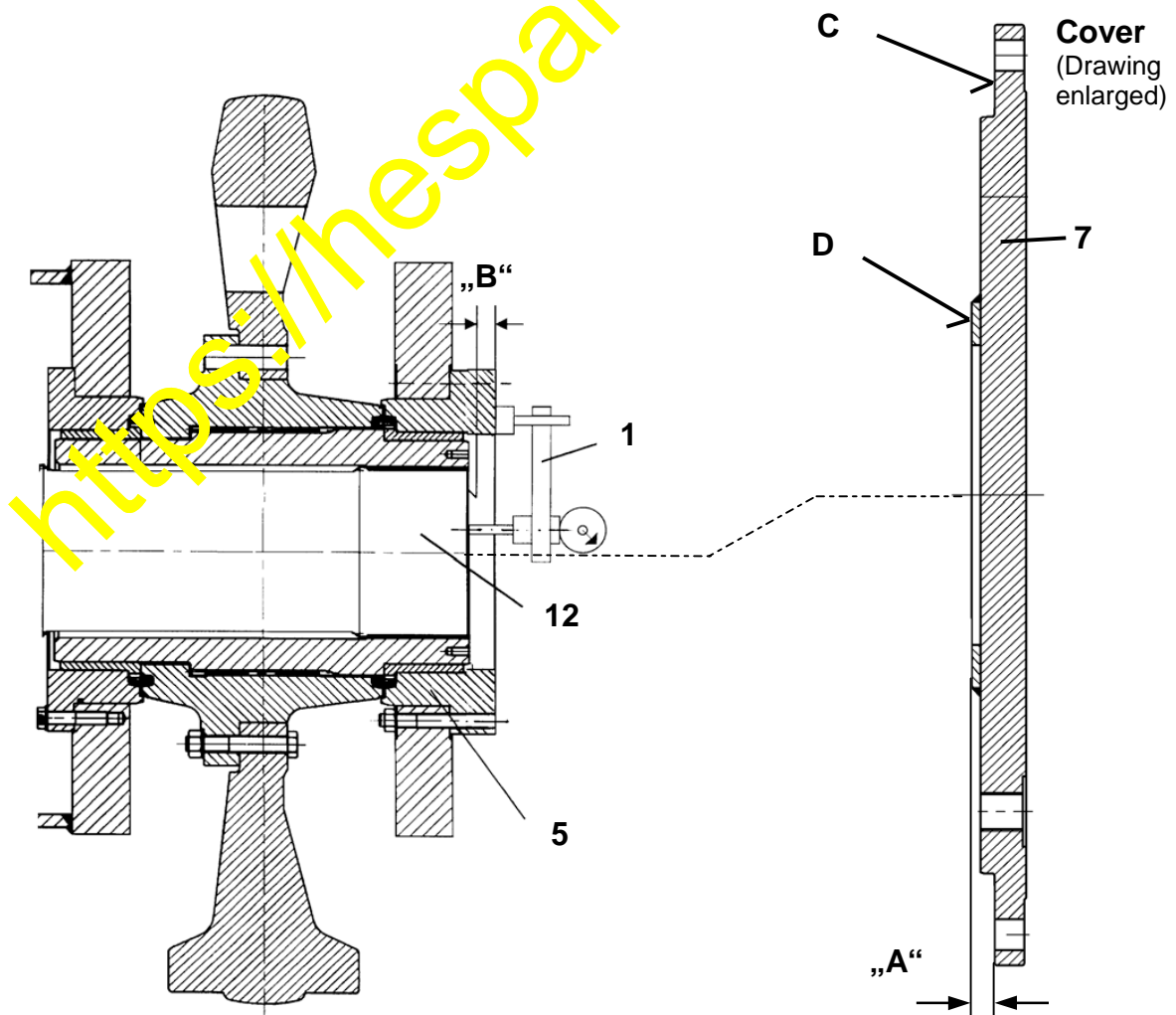
b) Measuring procedure

- Check if the drive shaft rests completely against the stop in the gear by means of a hit with a mounting bar and a metallic click is audible.
- Measure dimension "A" at the cover plate (7).
- Measure dimension "B" according to the illustration by mean of measuring device (1).
- Calculate the existing play with formula: **"B" minus "A" = 2 mm.**

c) How to establish the recommended gap

Play too much, machine cover plate at surface "C".

Play too low, machine cover plate at surface "D".



2.2 Exchange bushings



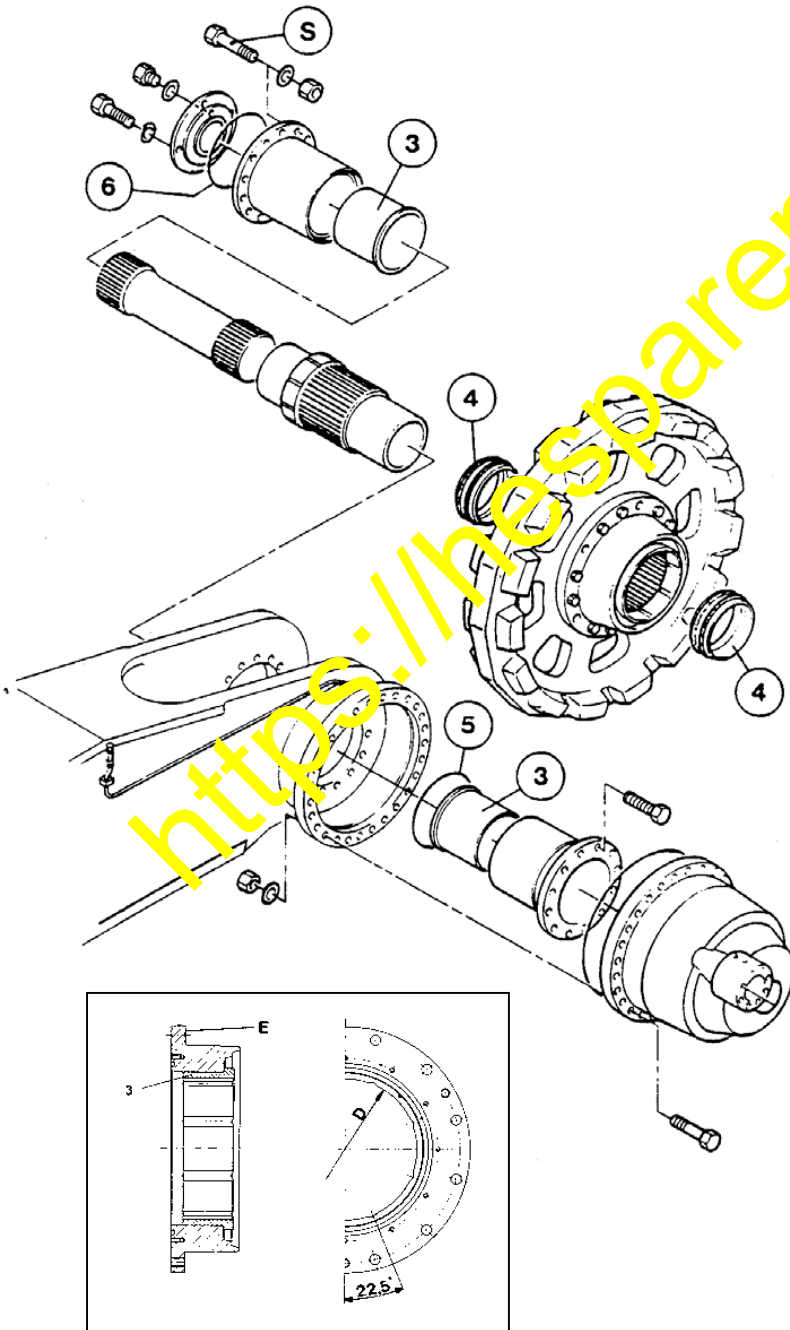
- The removal of the travel gear is described in Service News AH00514, the mounting of the dual-cone seals (4) is described in Service Bulletin 21 – 558.

Exchange bushings are available in the following types:

a) Freeze shrinking bush

Exchange bush (3) has to be fixed by freeze-shrinking according to Service Bulletin 21 – 62a. Afterwards, it has to be remachined to the final dimension according to table below. Parts (3; 4; 5 and 6) have to be ordered for the conversion. For the part no. refer to the respective Part Catalogue of the machines.

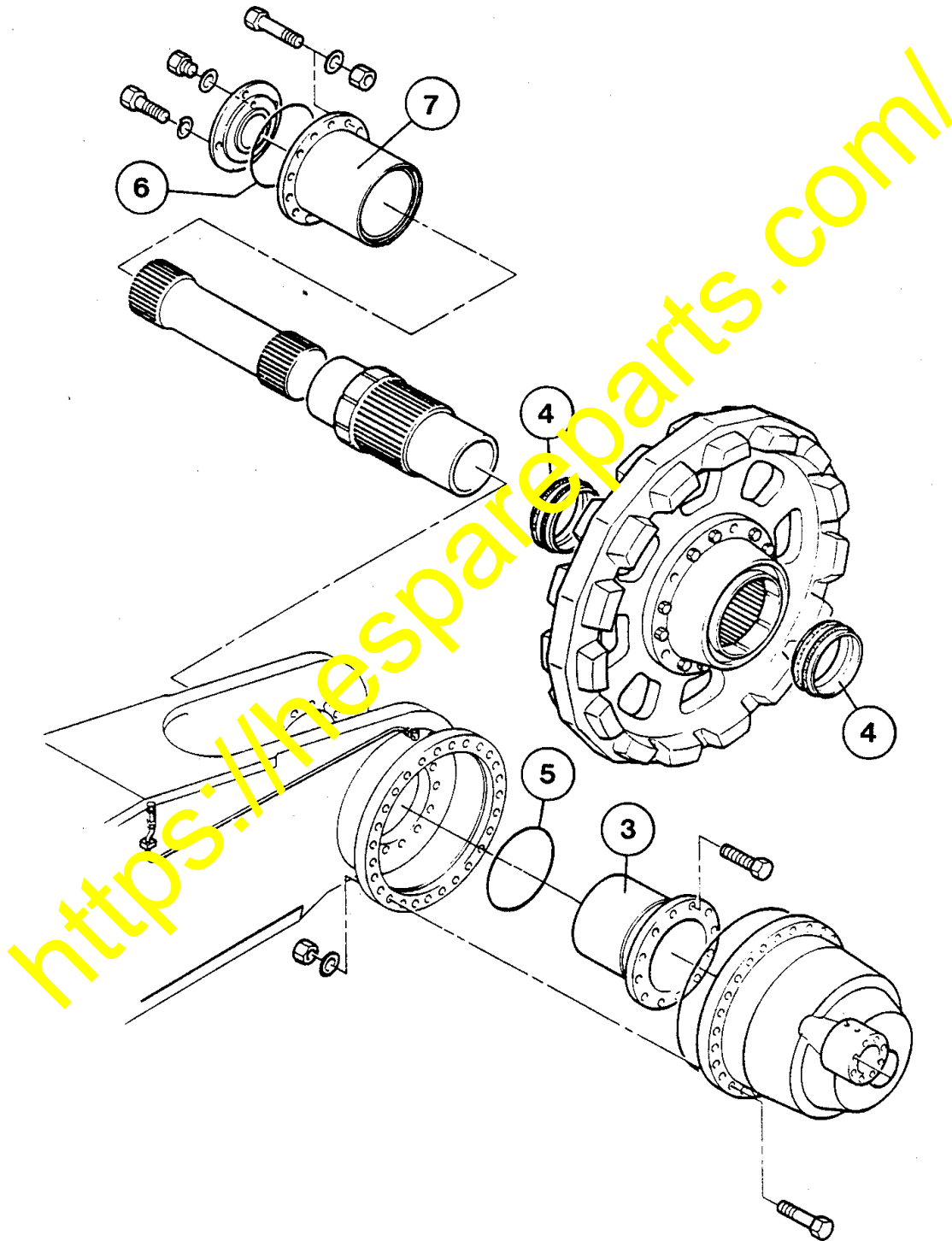
Type	D _{new} (mm)
H 185 / S	355.35 ^{+0.07}
H 235 / S	400.56 ^{+0.06}
PC4000	400.56 ^{+0.06}
H 485 / S	520.74 ^{+0.07}
H 685S / SX	520.74 ^{+0.07}
H655S/PC8000	520.74 ^{+0.07}



b) Flange Assy. with freezed in bush

If the remachining of the flange under consideration of the tolerances and diameters is not possible, it is recommended to order the flanges with freezed-in and machined bushings , to shorten the standstill of the machine.

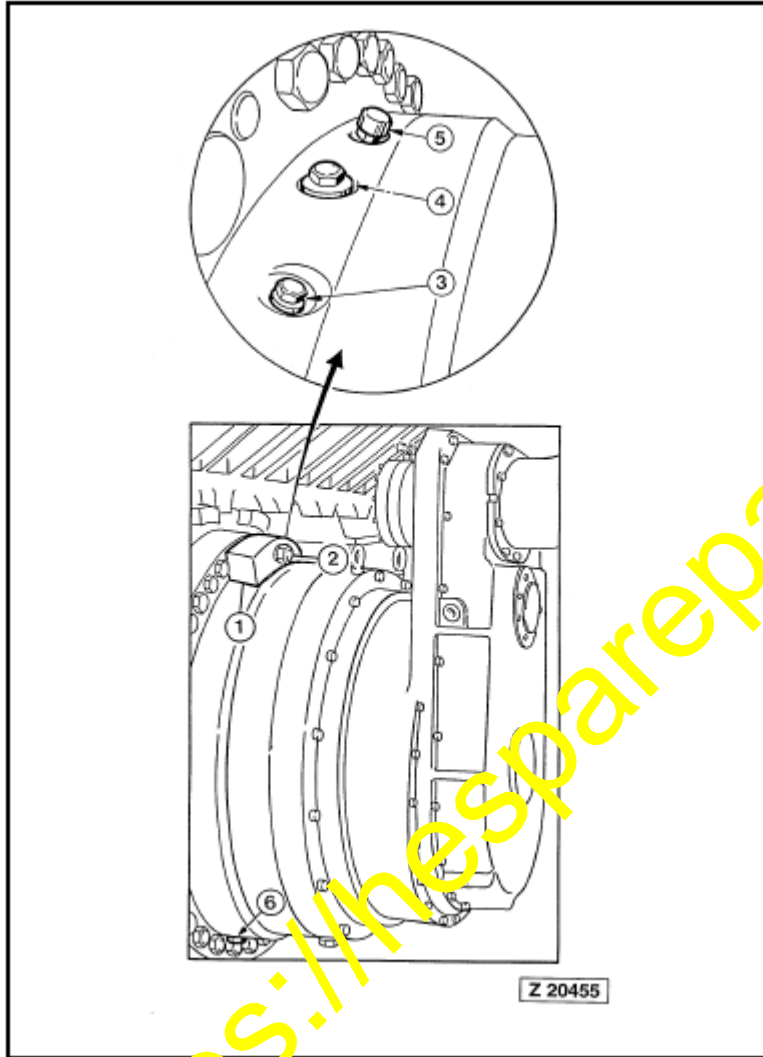
For conversion, the parts shown below (3; 4; 5; 6 and 7) have to be ordered according to the respective Parts Catalogue of the machines.



3. Final works

(For detailed informations refer to the respective Maintenance Manual of the machines.)

1. Fill in new oil up to the "MAX" marking on **oil level gauge (3)**.
2. After short operating period check oil level and gear for leaks.



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