

Dimensions and Tolerances of Bearings

in mm

Function	Designation	Internal diameter	External diameter	Radial play	End play
Annular grooved bearing for rear axle shaft	180 981 00 25 Special purpose bearing 6208 C 4 DIN 625	$\frac{39.988}{40.000}$	$\frac{80.000}{79.987}$	0.032—0.050	approx. 0.32—0.50
Angular contact bearing* with split inner race for drive pinion	000 981 04 27 000 981 07 27 (optional)	$\frac{34.988}{35.000}$	$\frac{80.000}{79.987}$	—	approx. 0.01—0.035
Cylindrical roller bearing for drive pinion	000 981 16 01	$\frac{39.988}{40.000}$	$\frac{80.000}{79.987}$	0.018—0.031	—
Taper roller bearing for differential	30208 DIN 720	$\frac{39.988}{40.000}$	$\frac{80.000}{79.987}$	adjustable	adjustable

* A number of rear axles were fitted with angular contact bearing 3307 DIN 628 with one-piece inner race.

Note: When new, the annular grooved bearing of the rear axle shaft has up to 0.50 mm end play, as indicated above.

When a bearing of this type is being examined for serviceability, the above fact must be taken into account to avoid any unnecessary replacement. In order to ensure that the bearing lies properly against the shoulder of the rear axle shaft, only bearings which have an edge-to-edge dimension of $2 + 0.7$ mm must be used (Fig. 35 — 5/1). For this reason, only Special Bearings, Part No. 180 981 00 25, must be used.

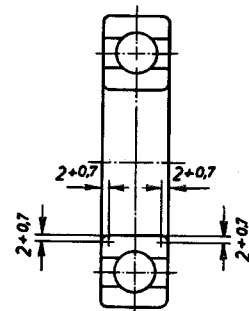


Fig. 35 — 5/1

C. Rear Axle Shafts

in mm

Rear axle shaft diameter for seal retainer	Seal retainer, internal diameter	Oversize	Rear axle shaft diameter		
			At sealing surface 1	At sealing surface 2	At seat of annular grooved bearing
$\frac{34.059}{34.043}$	$\frac{34.000}{34.025}$	+ 0.018 to + 0.059	$\frac{50.000}{49.840}$	$\frac{37.700}{37.540}$	$\frac{40.013}{40.002}$

1. Check the center bore of the rear axle shaft and, if necessary, grind on a center grinder (Fig. 35 — 5/2).

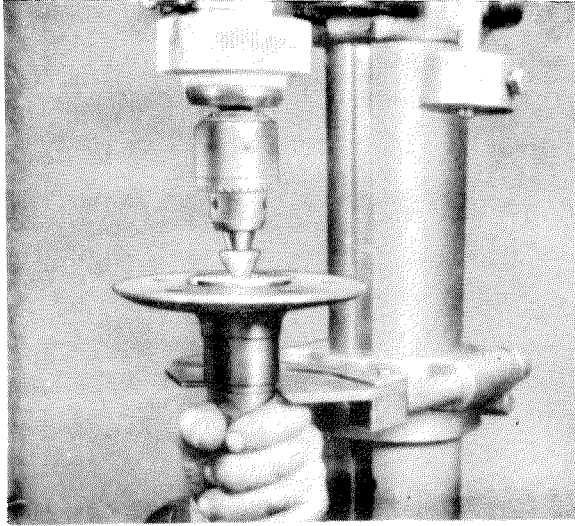


Fig. 35 — 5/2

2. Check the shaft for true run (Fig. 35 — 4/3) and, if necessary, straighten the shaft and re-turn the flange. In order to re-turn the flange, press out the wheel studs. Be careful not to damage the brake drum recess (diameter 66.954 to 67.000 mm) when doing this (Fig. 35 — 5/3).

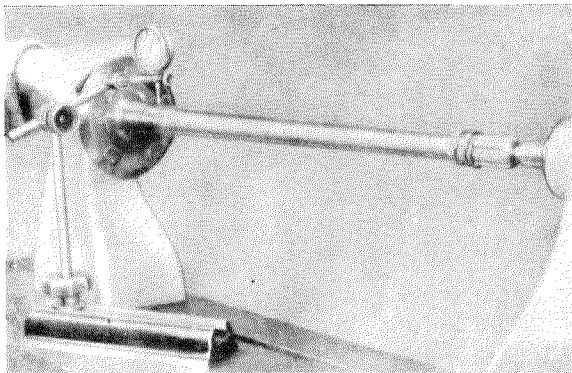


Fig. 35 — 5/3

Note: The permissible run-out at the individual points must not be exceeded (Fig. 35 — 5/4).

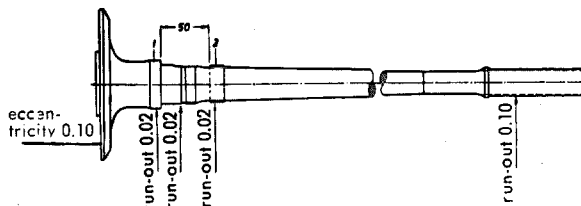


Fig. 35 — 5/4

- 1 Sealing surface for seal in retainer
- 2 Seal retainer, at the same time, sealing surface for seal in axle tube

3. Check the sealing surfaces (1) and (2). If they are worn, the diameter (measured from the dimension when new, see Table), may be reduced by 0.5 mm.

Note: The shrinking-on of a ring at the sealing surfaces should only be undertaken in an absolute emergency.

4. After reconditioning, turn a new thread-pattern on the sealing surfaces — a right-hand thread-pattern on the left rear axle shaft and a left-hand thread-pattern on the right rear axle shaft.

Caution! Under no circumstances must there be any confusion of the thread-patterns.

5. The thread-pattern is made by means of a piece of wood which has the shape of a flat file and is faced with emery cloth No. 80.

Hold the wood at an angle of approx. 45° to the shaft and file in the direction of the arrow — always toward the splined end. Lift the file (wood) for the return stroke (Fig. 35 — 5/5 and Fig. 35 — 5/6).

Left rear axle shaft with right-hand thread-pattern

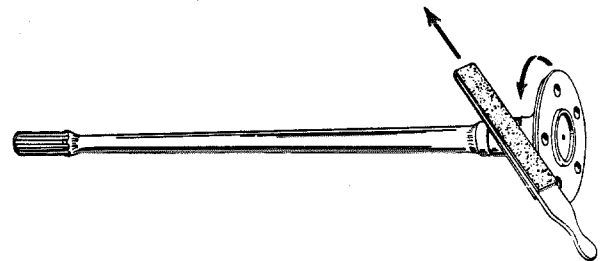


Fig. 35 — 5/5

Flange of rear axle shaft pointing to tailstock

Right rear axle shaft with left-hand thread pattern

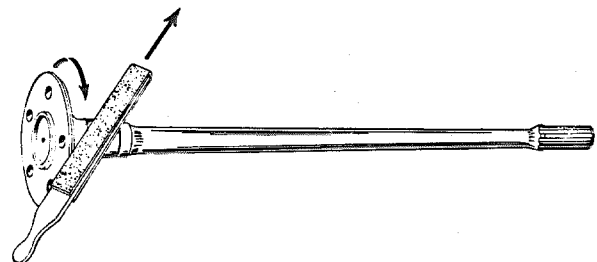


Fig. 35 — 5/6

Flange of rear axle shaft pointing to headstock

Note: The shaft must be rotated toward the lathe-operator in both cases. In order to

make the thread pattern more pronounced, a soft rubber pad of approx. 3 mm thickness is placed between the wood and the emery cloth. The lathe should be run at a speed of approx. 150 r. p. m.

Before turning the thread pattern, the shaft must be thoroughly cleaned of all traces of oil. The thread pattern must be made with smart, vigorous movements (approx. 80 file-strokes per minute). The surface-finish, or depth, of the thread pattern is 0.003 to 0.006 mm.

The grooves must run parallel and must not be interrupted by any transverse lines.

6. Check the seat of the annular grooved bearing on the rear axle shaft. If the diameter is smaller than the specified diameter (see Table on Page 35 — 5/2), the rear axle shaft must be replaced.

Note: The annular grooved bearing should be mounted on the rear axle shaft with an oversize of 0.01—0.015 mm.

7. If the wheel studs were pressed out, press new wheel studs in and stake.

Caution: The wheel studs must make an absolutely tight fit.

D. Axle Tubes

1. Thoroughly clean the axle tube at the flange for fixing the brake anchor plate and also the ball bearing seat.
2. Fix the axle tube in a vise and use a suitable internal micrometer to measure the diameter of the annular grooved bearing seat for the rear axle shaft.

The diameter must be 79.985—80.004 mm.

3. Check the depth of the annular grooved bearing seat in the axle tube, using a depth gage or a micrometer depth gage.

The dimension should be 20.00 ± 0.1 mm.

When the outer race of the annular grooved bearing is installed, there must be no axial play between the bearing seat in the axle tube and the seal retainer.

In order to check, place the seal (3) and the annular grooved bearing (2) on the seal retainer and use a depth gage or a micrometer depth gage to measure the distance between the outer race of the annular grooved bearing and the separating surface of the seal retainer (Fig. 35 — 5/7).

If this distance is smaller than the dimension obtained above, the seal retainer must be re-turned at the separating surface (4). If the distance is greater, the seal retainer must be re-turned at the shoulder (5) for the annular grooved bearing.

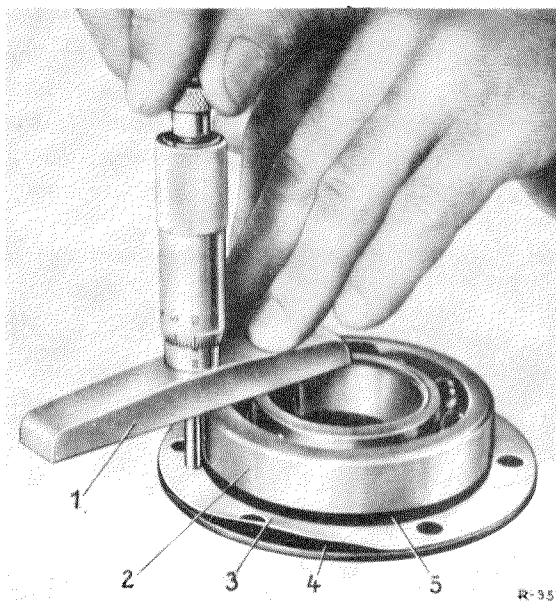


Fig. 35 — 5/7

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|---------------------------|--|
| 1 Micrometer depth gage | 4 Separating surface of seal retainer |
| 2 Annular grooved bearing | 5 Shoulder for annular grooved bearing |
| 3 Seal | |

4. Check the parallelism of the axis of the axle tube and the center line of the supporting tube. To do this, insert the measuring spindle (2) of Axle Tube Checking Device 180 589 09 21 for Single-jointed Swing Axle in the bearing bore of the axle tube. The gage arm (1) of the checking device must slide onto the measuring spindle (2) and the supporting tube (4) without forcing (Fig. 35 — 5/8).