

D. Grinding of Camshaft

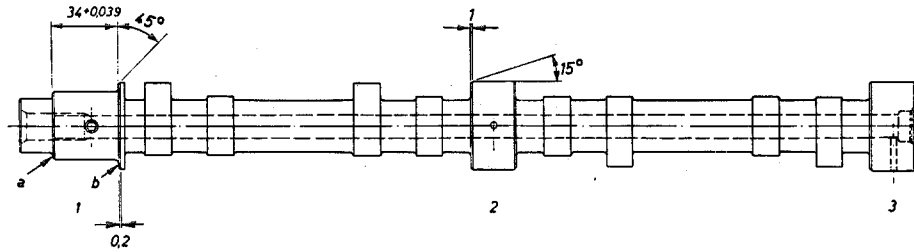


Fig. 05 — 5/7

The camshaft is carried by three bearing blocks, the bores of which are of various sizes.

The camshaft bearing journals can be re-ground twice. The appropriate bearing blocks with smaller bores are available ready for installation.

The oil for lubricating the bearing surfaces and the cams passes from No. 1 camshaft bearing block through a 4 mm bore in No. 1 camshaft bearing journal into the oil passage in the camshaft and thence to the various bearings.

Before the camshaft is re-ground, the cover for sealing the oil passage at the rear end must be removed. If the internal face is damaged at either or both ends, the internal face must be re-ground on a center grinder or lathe. The camshaft must first be carefully tested to see that it runs true. When the shaft is placed in the end bearings 1 and 3, the maximum permissible eccentricity of the center bearing, the cam base circles, and the timing gear seating is 0.025 mm.

In order that the correct radial play of the camshaft may be maintained, the bores of the camshaft bearings to be fitted must first be measured. The bearing play thus indicates the tolerances to which the journals have to be re-ground.

Bearing Play of Camshaft

in mm

Radial play	End play
0.025 — 0.045	0.050 — 0.128

When re-grinding the first bearing journal, the end thrust contact surface of the shoulder "b" must not be ground off more than 0.1 mm (Fig. 05 — 5/7). The surface "a" must be ground off the same amount as the shoulder "b" so that the dimension 34.000 to 34.039 mm is scrupulously maintained. If this is not the case, the end play of the camshaft, and consequently the discrepancy in respect of the sprocket alignment, will be too great. The lateral deflection at the surface "a" must not be more than 0.01 mm.

After grinding the camshaft bearing journals, the camshaft must be inspected for cracks and the hardness of the individual bearing surfaces must be checked.

After grinding, the oil bores must be carefully cleaned and blown out with compressed air.

The aperture at the rear end of the camshaft must then be sealed with a new cover.

	Brinell Hardness HB in kg/mm ²	Scleroscope Hardness
Bearing journals		
and cam base circle	217 — 248	36 — 40
Cam nose and lifting flank	minimum 500	minimum 64

Grinding Stage Table for Camshaft

Measurements in mm

Overhaul stages	No. 1 bearing Timing gear end	No. 2 bearing	No. 3 bearing Flywheel end
Standard size	$\frac{34.975}{34.959}$	$\frac{44.975}{44.959}$	$\frac{45.975}{45.959}$
Intermediate stage	$\frac{34.875}{34.859}$	$\frac{44.875}{44.859}$	$\frac{45.875}{45.859}$
1st Overhaul stage	$\frac{34.725}{34.709}$	$\frac{44.725}{44.709}$	$\frac{45.725}{45.709}$

Camshaft Bearing Bores

Measurements in mm

Overhaul stages	No. 1 bearing Timing gear end	No. 2 bearing	No. 3 bearing Flywheel end
Standard size	$\frac{35.000}{35.016}$	$\frac{45.000}{45.016}$	$\frac{46.000}{45.016}$
Intermediate stage	$\frac{34.900}{34.916}$	$\frac{44.900}{44.916}$	$\frac{45.900}{45.916}$
1st Overhaul stage	$\frac{34.750}{34.766}$	$\frac{44.750}{44.766}$	$\frac{45.750}{45.766}$