

Camshaft and Camshaft Bearings

The camshaft is supported in four bearing brackets screwed to the cylinder head. With the exception of the 2nd and 3rd bracket, the bores of the various brackets are of a different size (see Table 21).

The camshaft bearing journals can be reground twice (see Table 20). The brackets, which are supplied ready for installation, must be exchanged correspondingly (see Table 21).

The lubricating oil for the bearings and cams flows from the first camshaft bracket through a hole of 6 mm (0.24") in the first camshaft bearing journal into an oil passage in the camshaft, from where it reaches the various bearings. In the camshaft oil passage an oil distributing pipe is provided to improve distribution of the oil. The oil outlets for the bearings and cams have a diameter of 3 mm (0.12") and 1.3 mm (0.05"), resp.

Grinding of Camshaft

Types 220 and 220 a

**Operation
No.**

M 28

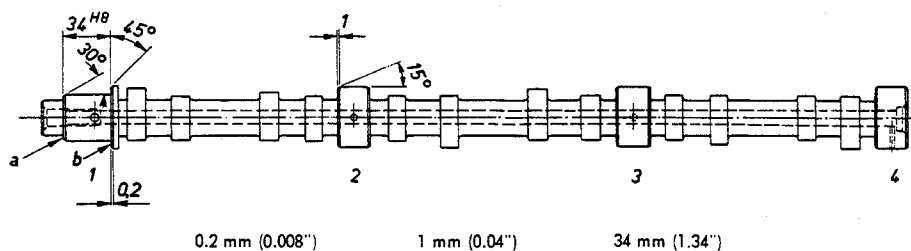


Fig. M 28/00

Before regrounding the camshaft, remove cover plate (2) sealing off the oil passage and pull out oil distributing tube accommodated in the camshaft (see Fig. M 28/01). If one or both centering holes are damaged, which is likely to be the case, regrind them on a center grinding machine or a lathe. Before this is done, check camshaft for concentricity. With shaft supported in end bearings 1 and 4, the max. out of true of center bearings 2 and 3 as well as steering wheel seat must not exceed 0.025 mm (0.001").

To achieve correct side play of the camshaft, measure bore of camshaft bearings to be installed and determine to which tolerance the journals are to be reground, making provision for the side play given in the table.

Camshaft Plays

in mm (in.)

Table 19

Side play	End play
0.025 – 0.057 (0.00098 – 0.0022)	0.050 – 0.128 (0.002 – 0.00504)

When regrounding the 1st bearing journal, be careful not to remove more than 0.1 mm (0.004") from the butting face of collar "b". Grind down surface "a" by the same amount as collar "b", so that dimension 34 H 8 (34.000 to 34.039 mm = 1.33858 to 1.34011") will be maintained. If this is not done, excessive camshaft end play and hence sprocket misalignment will result.

After the camshaft has been ground, check it for cracks. Clean oil holes carefully and blow through.

Insert oil distributing pipe into camshaft oil passage and close opening at rear end of camshaft with a new cover plate.

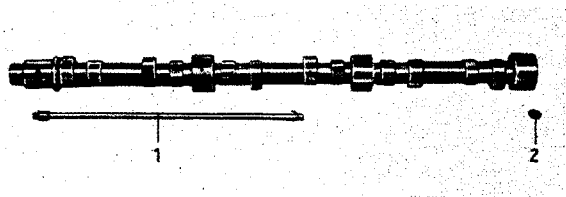


Fig. M 28/01

1 Oil distributor pipe 2 Cover plate

Note: The camshafts (with modified valve settings) used in the engines of Type 220a differ from those installed in the engines of Type 220.

To distinguish the camshafts for Type 220a, the number 14 is stamped into the rear end of the camshaft (Fig. M 28/02). Camshafts not marked this way are intended for engines of Type 220. The other numbers are of no importance for installing the camshaft.

To-day a high-compression cylinder head ($\epsilon = 7.6$) and the camshaft of Type 220a are standard on Convertible A of Type 220.

In the case of a repair Convertibles A will always be provided with a high-compression cylinder

head, even if before a low-compression cylinder head had been installed. It is not required to exchange the camshaft.

Camshaft Grinding Sizes

Dimensions in mm (in.)

Table 20

Size	1st bearing turning side	2nd and 3rd bearing	4th bearing flywheel side
Standard size	$\frac{34.975}{34.959}$ $\frac{(1.37697)}{(1.37634)}$	$\frac{44.975}{44.959}$ $\frac{(1.77067)}{(1.77004)}$	$\frac{45.975}{45.959}$ $\frac{(1.81004)}{(1.80941)}$
Intermediate size	$\frac{34.875}{34.859}$ $\frac{(1.37303)}{(1.37240)}$	$\frac{44.875}{44.859}$ $\frac{(1.76673)}{(1.76610)}$	$\frac{45.875}{45.859}$ $\frac{(1.80610)}{(1.80547)}$
1st under-size	$\frac{34.725}{34.709}$ $\frac{(1.36712)}{(1.36649)}$	$\frac{44.725}{44.709}$ $\frac{(1.76082)}{(1.76019)}$	$\frac{45.725}{45.709}$ $\frac{(1.80019)}{(1.79956)}$

Camshaft Bearing Bores

Dimensions in mm (in.)

Table 21

Size	1st bearing turning side	2nd and 3rd bearing	4th bearing flywheel side
Standard size	$\frac{35.000}{35.016}$ $\frac{(1.37795)}{(1.37858)}$	$\frac{45.000}{45.016}$ $\frac{(1.77165)}{(1.77228)}$	$\frac{46.000}{46.016}$ $\frac{(1.81102)}{(1.81165)}$
Intermediate size	$\frac{34.900}{34.916}$ $\frac{(1.41338)}{(1.41401)}$	$\frac{44.900}{44.916}$ $\frac{(1.80708)}{(1.80771)}$	$\frac{45.900}{45.916}$ $\frac{(1.84645)}{(1.84708)}$
1st under-size	$\frac{34.750}{34.766}$ $\frac{(1.40748)}{(1.40811)}$	$\frac{44.750}{44.766}$ $\frac{(1.80118)}{(1.80181)}$	$\frac{45.750}{45.766}$ $\frac{(1.84055)}{(1.84118)}$

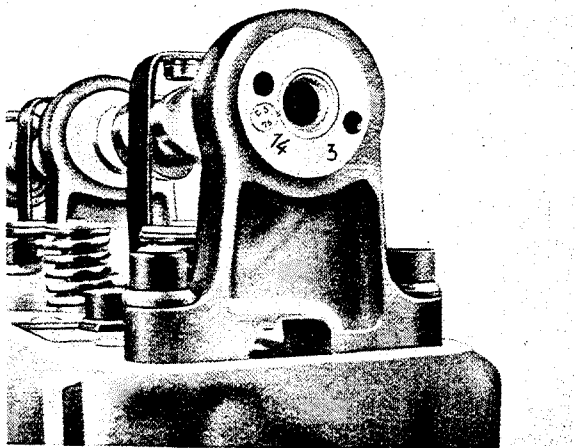


Fig. M 28/02