

D. Grinding of Camshaft

For models 180 a, 180 b, 180 c, 190 b, 190 SL, 220 a, 219, 220 S and 220 SE regrinding of the camshaft is similar to model 190. Four-cylinder engines have a camshaft with three bearing surfaces, 6-cylinder engines have four.

When regrinding the 1st bearing journal only a max. of 0.1 mm may be ground off the end thrust surface of shoulder "b" (Fig. 05-5/5). The same amount as ground off at shoulder "b" should be ground off at surface "a", so that the dimension 34 H 8 (34.000 to 34.039 mm) is definitely maintained. Otherwise the end play of the camshaft and with it the deviation from the sprocket wheel alignment is too large. Lateral deflection at surface "a" should not exceed 0.01 mm.

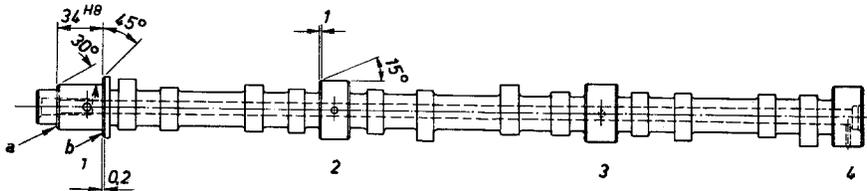


Fig. 05-5/5

Camshaft of a 6-cylinder engine

Prior to regrinding the camshaft of model 220 a, 219, 220 S and 220 SE the cover (2) which seals the oil passage, should be removed and the oil transfer tube (1) should be pulled out of the camshaft (Fig. 05-5/6).

Following the grinding of the camshaft the oil holes should be cleaned well and blown-out. Then, if previously removed, the oil transfer tube is returned into the oil passage and the aperture at the rear end of the camshaft is closed with a new sealing cover.

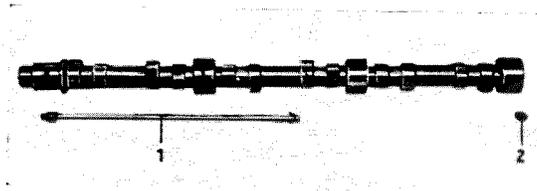


Fig. 05-5/6

1 Oil transfer tube 2 Sealing cover

Bearing Play of Camshaft

Models 180 a, 180 b, 180 c, 190, 190 b, 190 SL, 220 a, 219, 220 S and 220 SE

Radial play	End play
0.025-0.045	0.050-0.128

Grinding Dimensions of Camshaft and Camshaft Bearing Measurements

Model	Overhaul Stage	1 st Bearing		2 nd Bearing		3 rd Bearing	
		Shaft	Bearing	Shaft	Bearing	Shaft	Bearing
180 a 180 b 190 SL	Standard size	<u>34.975</u>	<u>35.000</u>	<u>44.975</u>	<u>45.000</u>	<u>45.975</u>	<u>46.000</u>
		34.959	35.016	44.959	45.016	45.959	46.016
	Intermediate Stage	<u>34.875</u>	<u>34.900</u>	<u>44.875</u>	<u>44.900</u>	<u>45.875</u>	<u>45.900</u>
		34.859	34.916	44.859	44.916	45.859	45.916
	1 st Overhaul Stage	<u>34.725</u>	<u>34.750</u>	<u>44.725</u>	<u>44.750</u>	<u>45.725</u>	<u>45.750</u>
		34.709	34.766	44.709	44.766	45.709	45.766
220 a 219 220 S 220 SE	Standard size	1 st Bearing		2 nd and 3 rd Bearing		4 th Bearing	
		<u>34.975</u>	<u>35.000</u>	<u>44.975</u>	<u>45.000</u>	<u>45.975</u>	<u>46.000</u>
		34.959	35.016	44.959	45.016	45.959	46.016
	Intermediate Stage	<u>34.875</u>	<u>34.900</u>	<u>44.875</u>	<u>44.900</u>	<u>45.875</u>	<u>45.900</u>
		34.859	34.916	44.859	44.916	45.859	45.916
	1 st Overhaul Stage	<u>34.725</u>	<u>34.750</u>	<u>44.725</u>	<u>44.750</u>	<u>45.725</u>	<u>45.750</u>
34.709		34.766	44.709	44.766	45.709	45.766	

For Model 180 c, 190 c and 190 SL with further modified valve timing the 2nd and 3rd camshaft bearing have the same diameter (refer to following table). The 1st bearing has the same dia. as above.

180 c, 190 c 190 SL	Standard Size	Intermediate Stage	1 st Overhaul Stage
Diameter of shaft	<u>48.975</u>	<u>48.875</u>	<u>48.725</u>
	48.959	48.859	48.709
of bearing	<u>49.000</u>	<u>48.900</u>	<u>48.750</u>
	49.016	48.916	48.766

The Brinell hardness HB or scleroscope hardness of bearing journals, cam base circle, cam nose and lifting flank are for models 180 a, 180 b, 180 c, 190 b, 190 SL, 220 a, 219, 220 S and 220 SE the same as for models 190.

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

E. Re-Bedding of Camshaft

New camshaft bearing should be installed only with cylinder head in position, screwed-down with the prescribed tightening torque. The work can also be done easily with the engine mounted in vehicle. Procedure for models 180 a, 180 b, 180 c, 190 b, 190 SL, 220 a, 219, 220 S and 220 SE is the same as for model 190.

F. Testing of Chain Tensioner

Testing of the chain tensioner for models 180 a, 180 b, 180 c, 190 b, 190 SL, 220 a, 219, 220 S and 220 SE is the same as for model 190. Figs. 05-5/7 to 05-5/8 show the 1st, 2nd, 3rd and 4th version; the table below shows which version was installed for the individual models.