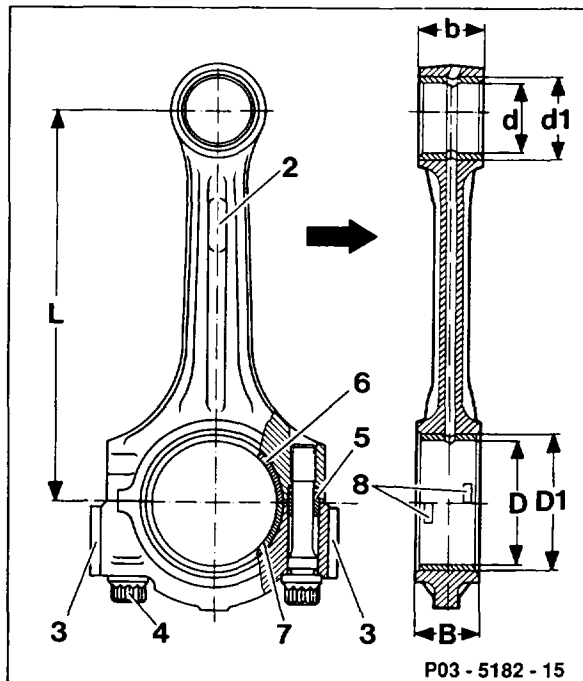


03-3130 Servicing, alining and mounting conrod in bearings

Operation no. of operation texts and work units or standard texts
and flat rates
03-6111



- | | | | |
|---|-------------------------|-------|-----------------------------|
| 2 | Marking | 6 | Top conrod bearing shell |
| 3 | Bottom balancing weight | 7 | Bottom conrod bearing shell |
| 4 | M9 x 1 conrod bolt | 8 | Bearing shell locating lugs |
| 5 | Dowel sleeve | Arrow | Direction of travel |

Data

Center of conrod bearing bore to center of conrod bush bore (L)	144.995 – 145.005
Width of conrod at conrod bearing bore (B)	21.948 – 22.000
Width of conrod at conrod bush bore (b)	21.948 – 22.000
Conrod basic bore (D1)	51.600 – 51.609 ¹⁾ 51.609 – 51.619 ²⁾
Conrod bush basic bore (d1)	24.500 – 24.521
Conrod bush ID (d)	22.007 – 22.013
Piston pin play in conrod bush	0.013 – 0.018
Roughness of conrod bush on inside	0.005

Permissible twist of conrod bore to conrod bush bore	0.15
Permissible deviation of axial parallelism of conrod bearing bore to conrod bush bore	0.07
Permissible deviation of conrod bearing bore from concentricity	0.01
Permissible difference in weight of complete conrod within an engine	4 g

1) Marking on conrod cap: 1 chisel punch

2) Marking on conrod cap: 2 chisel punches

Crankshaft machining dimensions

Crankshaft	Size	Color code	Machining dimensions 1)
Conrod bearing journal	Standard	none	47.955 – 47.965
Ø at crankshaft	Standard 1	orange	47.945 – 47.955
	Standard 2	blue	47.935 – 47.945
	1st repair size	–	47.700 – 47.715
	2nd repair size	–	47.450 – 47.465
	3rd repair size	–	47.200 – 47.215
	4th repair size	–	46.950 – 46.965
Conrod bearing journal		Standard	27.958 – 28.042
width		Repair sizes up to	28.300

1) Machine the crankshaft so as to obtain the specified bearing play with the existing bearing shells.

Test data

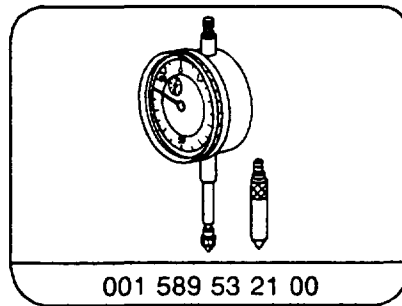
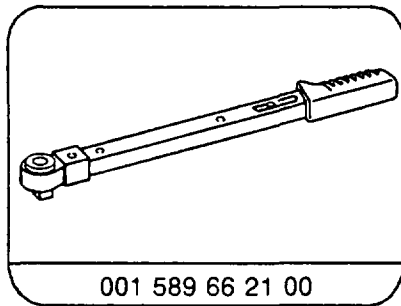
Conrod bearing play	radial	0.02 – 0.04
	axial	Piston guided

Conrod bearing shells

Color code	red	yellow	blue
Wall thickness in mm			
Standard	1.806 – 1.810	1.810 – 1.814	1.814 – 1.818
Standard 1 1)	1.811 – 1.815	1.815 – 1.819	1.819 – 1.823
Standard 2 1)	1.816 – 1.820	1.820 – 1.824	1.824 – 1.828
1st repair size	–	1.935 – 1.999	–
2nd repair size	–	2.060 – 2.064	–
3rd repair size	–	2.185 – 2.189	–
4th repair size	–	2.310 – 2.314	–

1) Standard 1 and standard 2 wall thicknesses are not supplied as replacement parts.

Special tools



Commercially available tools

Conrod tester

eg. Model BC 501
KWT
D-63128 Dietzenbach

Conrod straightener

eg. Model BC 503
KWT
D-63128 Dietzenbach

Quick calipers for internal measurements

Ø 20 – 40 mm

Ø 40 – 60 mm

Micrometer

0 – 25 mm

50 – 75 mm

Notes

Conrod and conrod cap are marked together (arrow).

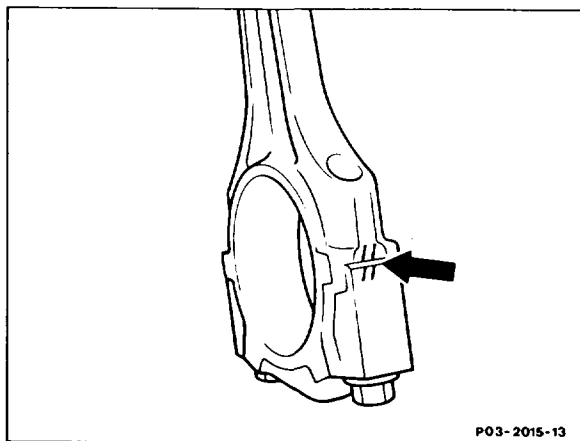
Conrods which have been overheated because of bearing damage (blue discolouration) must not be re-used.

The conrod shaft must not have any cross scores and notches.

Conrods are supplied with machined conrod bush as replacement parts.

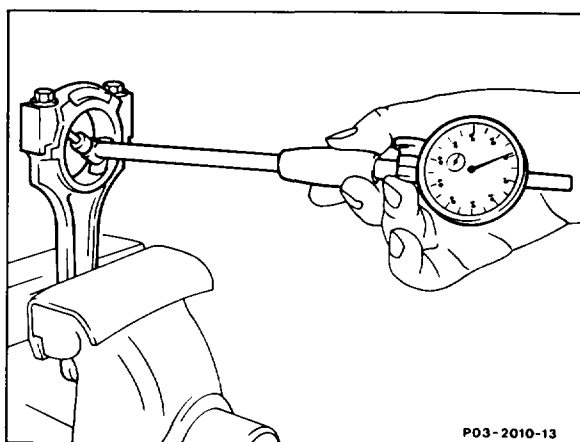
The conrod and conrod cap are fixed together with dowel sleeves.

Pay attention to difference in weight of conrods when replacing.



Repairing

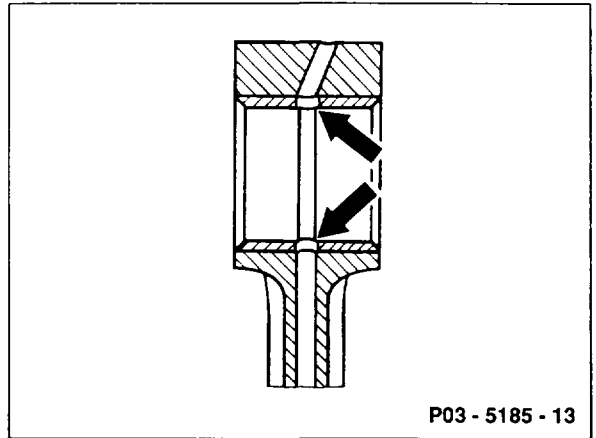
- 1 Check conrod bolts, replace if necessary (03-3100).
- 2 Install conrod cap. To do this, oil thread and bolt head contact surface and tighten to 40 Nm.
- 3 Measure conrod bearing basic bore. If the basic bore exceeds a value of 51.619 mm or is conical, dress conrod cap at its contact surface to max. 0.02 mm. Machine conrod cap together with conrod.



4 Press in new conrod bush so that the oil drillings are aligned (arrows).
Insertion pressure 2500 N.

5 Turn or ream conrod bush.

6 Dress side contact surfaces of conrod on dressing plate.

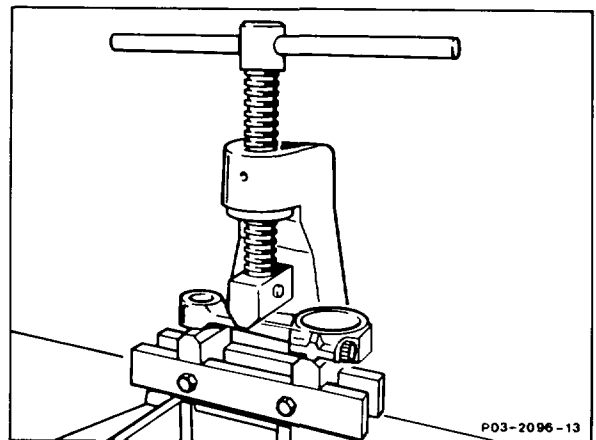


Aligning

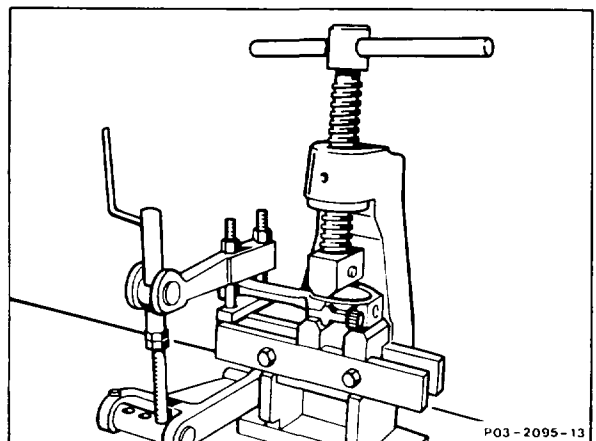
7 Check conrod with bearing shells and piston pins installed using conrod tester.

8 Align conrod with conrod straightening device.

9 Align parallelism of conrod bearing bore to conrod bush bore.

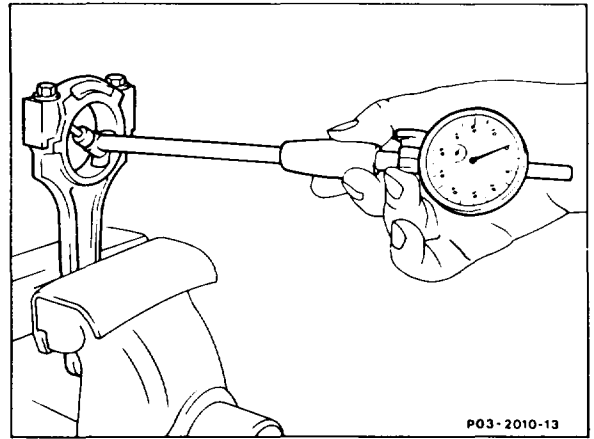


10 Align twist of conrod bearing bore to conrod bush bore.



Mounting in bearings

11 Measure conrod basic bore, note.



12 Measure conrod bearing journal \varnothing , note.

13 Calculate radial conrod bearing play.

14 Match conrod bearing shell.

15 Mount conrod on pistons (03-3160).

