

03-1800 Removing and installing crankshaft

Preceding work:

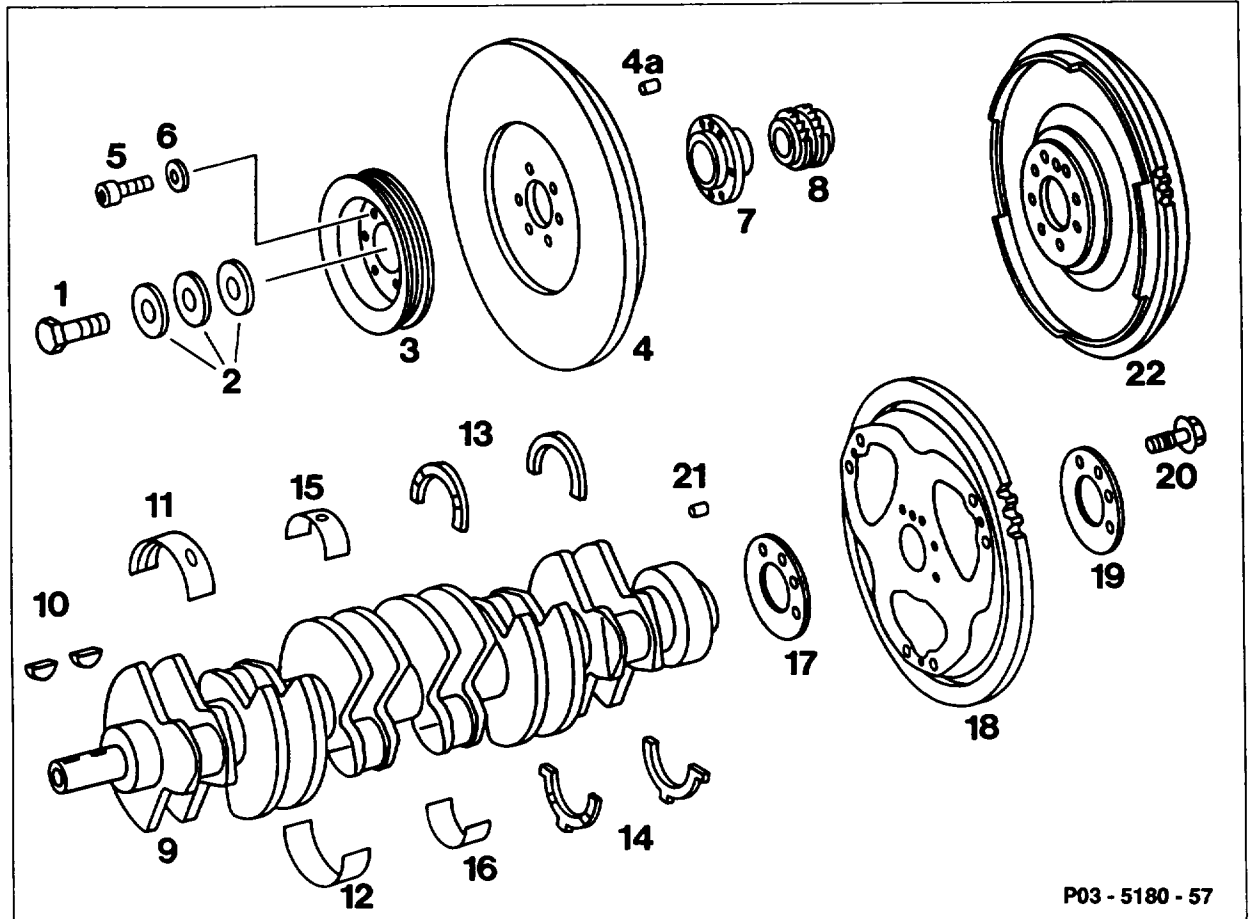
Engine removed (01-0300).

Oil pump removed (18-2100).

End cover removed (01-2220).

Tensioning rail removed (05-3300).

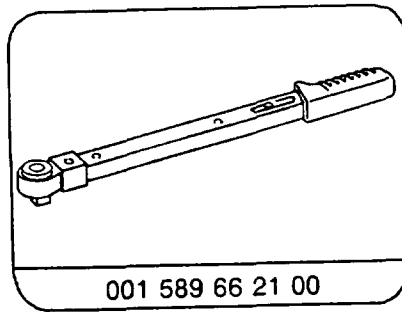
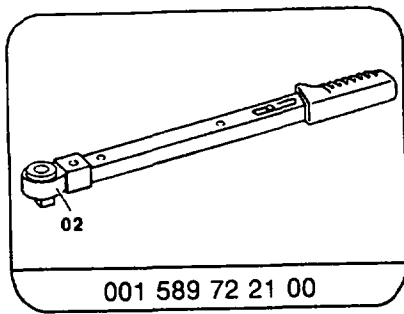
Guide rail removed (05-3350).



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1	M18 × 1.5 × 45 mm bolt	14	Thrust washers, bearing cap 5
2	Dished washers (3 ea.)	15	Conrod bearing shell in conrod
3	Belt pulley	16	Conrod bearing shell in conrod bearing cap
4	Vibration damper	17	2.6 mm thick washer (glued on, automatic transmission)
4a	Straight pin	18	Driven plate with ring gear (riveted, automatic transmission)
5	M8 × 18 screw	19	3.5 mm thick washer (automatic transmission)
6	8.4 washer	20	Stretch bolt for driven plates or flywheel M10 × 1 × 22 (8 ea.)
7	Hub		M10 × 1 × 57 (8 ea., two-mass flywheel)
8	Crankshaft gear	21	Locating pin
9	Crankshaft	22	Flywheel (manual transmission)
10	Woodruff key		
11	Crankshaft bearing shell in crankcase		
12	Crankshaft bearing shell in bearing cap		
13	Crankcase thrust washers, bearing point 5		

Special tools



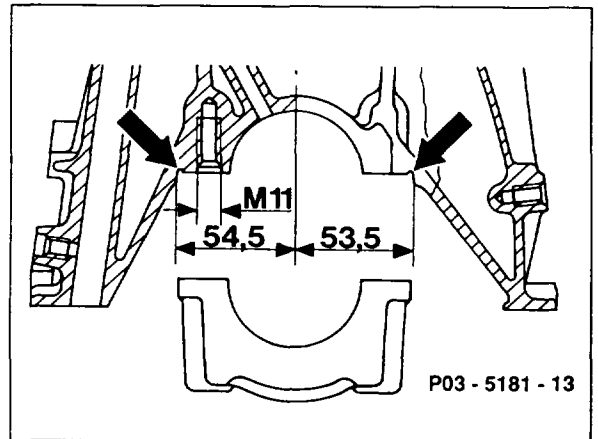
Note

The 7 crankshaft bearing caps are fitted into the side of the crankcase (arrows).
The fit is off-centered so that the bearing caps can only be installed in one position.

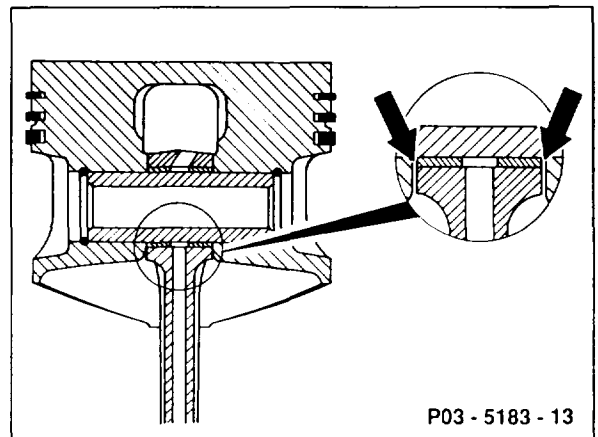
The crankshaft bearing caps are machined together with the crankcase.

If bearing damage has occurred, the conrods must be removed and any chips which exist remove from the conrod bores and from the crankshaft and crankcase oil galleries.

Replace oil filter, oil cooler and oil pump, clean oil nozzle return flow lock in cylinder head.



The forged conrods are guided axially in the pistons (piston-guided conrod) (arrows).



Test data

Crankshaft bearing play	radial	0.035 – 0.045
	axial	0.10 – 0.20
Conrod bearing play	radial	0.02 – 0.04

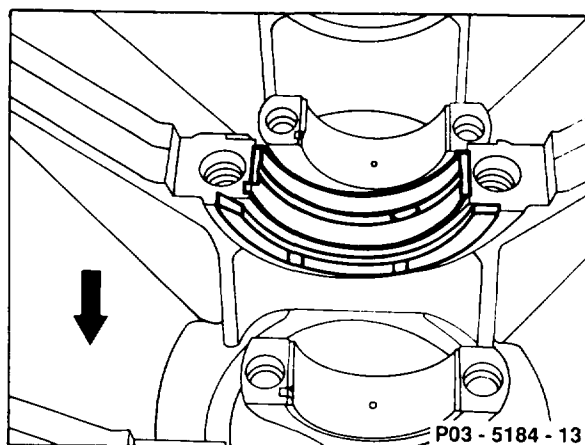
Removal, installation

- 1 Engine 103.984: remove oil deflector plate.
- 2 Unscrew conrod bearing caps, remove.
- 3 Unscrew crankshaft bearing caps, remove.
- 4 Remove crankshaft, install.

- 5 Install crankshaft bearing caps.

Note

The crankshaft bearing shells in the crankcase have an oil groove and an oil feed drilling.



- 6 Install axial bearing in crankshaft bearing point 5.

Note

The thrust washers in the bearing cap each have two retaining lugs as an anti-twist lock.

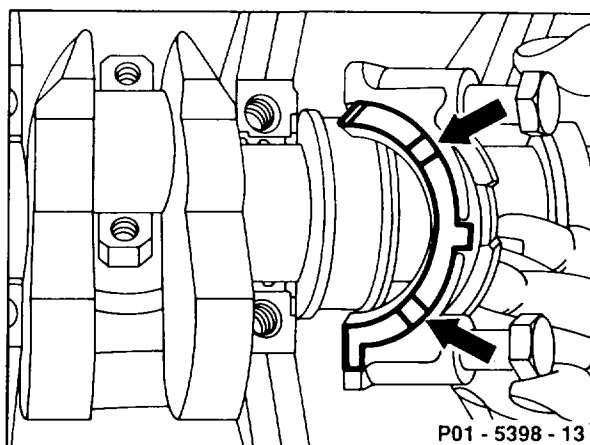
The oil grooves (arrows) in the thrust washers must face toward the crankshaft thrust sides.

- 7 Oil bolt thread and bolt head contact surface.

- 8 Tighten bolts from inside to outside.

Initial torque 55 Nm.

Angle of rotation torque 90 – 100°.



9 Coat conrod bearing shells with engine oil and install bearing caps.



Pay attention to identification (arrow).
Install the bearing shells with oil drilling in the conrod otherwise the conrod bush will not be lubricated.

10 Tighten conrod bolts (03-3100).

11 Rotate crankshaft, check clearance.

