

03-3160 Removing and installing pistons

Preceding work:
Removing engine (01-0300).
Removing cylinder head (01-4150).
Removing oil sump (01-3100).

Operation no. of operation texts and work units or standard texts
and flat rates 03-7021



Cylinder identification and piston identifications must agree (see arrows).

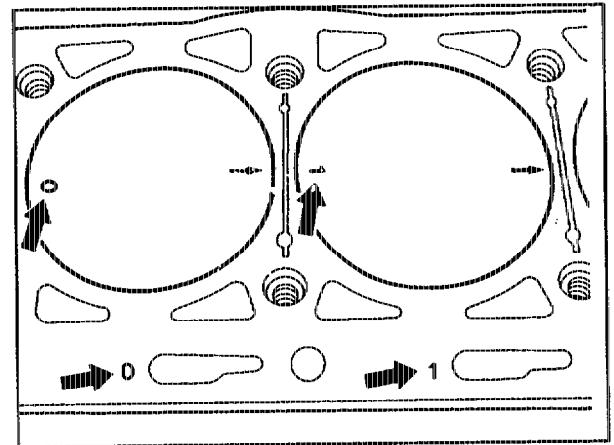
Notes

The group classification has been converted from numerals to letters and reduced to three stages.

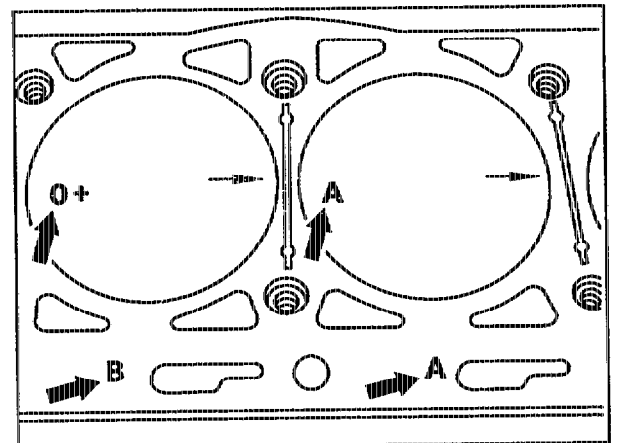
The pistons with numerals may be installed in a crankcase with a letter grouping, but not vice versa (see Pistons, matching and dimensions 03-3165).

When performing repairs, all the cylinder bores should be honed to the dimensions of the existing pistons plus piston play, see "Measuring, honing and silicone-lapping cylinder bores" (01-1120).

The piston pins are matched to the pistons and must not be mixed up.



P03-2024-13



P03.10-0214-13

Note

The group number of the pistons (e.g. + 1) must agree with the group number of the cylinder bores (standard production).

This ensures that the specified piston play is maintained.

When performing repairs, all the cylinder bores should be honed to the dimensions of the existing pistons plus piston play (see table).

The piston pins are matched to the pistons and must not be mixed up.

Removing

- 1 Unbolt conrod bearing caps and lift out conrod together with pistons.

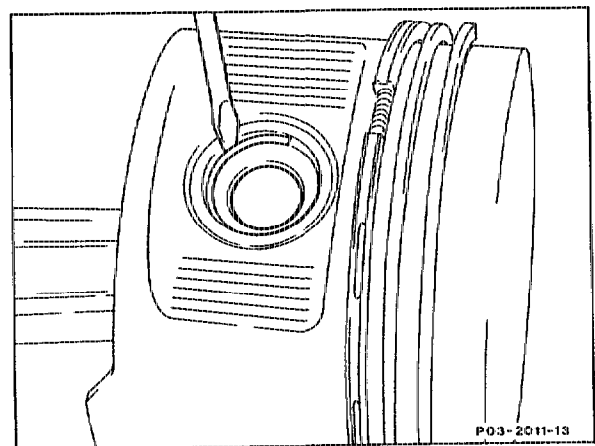
Note

Conrod and conrod bearing caps are marked together.



Do not damage cylinder contact surfaces with conrod.

- 2 Inspect conrod bolts (03-3100).
- 3 Use screwdriver to remove piston pin retainer and press out piston pin.
- 4 Service conrod and align, if necessary (03-3130).



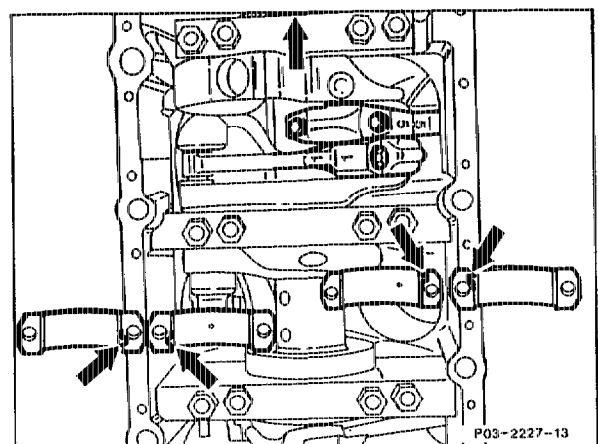
Installing

- 5 If pistons are worn, inspect gap and axial clearance of piston rings (03-3170). Check that piston rings move freely. Pay attention to installation pos.: "Top" faces up. Distribute ring gaps evenly around circumference.

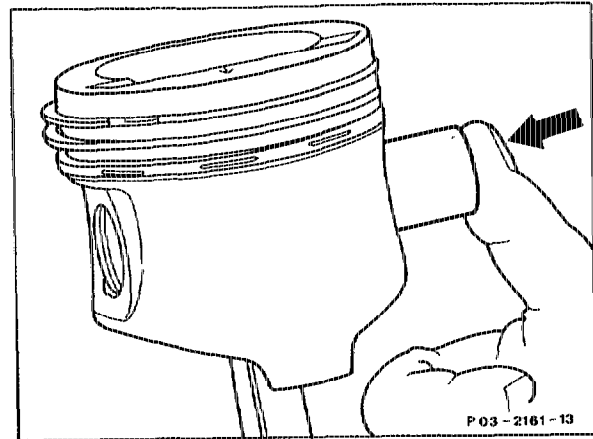
- 6 Oil piston pin and conrod bushes.
- 7 Install piston so that the arrow faces in direction of travel and the locking slots in the conrod (arrows) as well as the drawing of the conrod are facing to the outside of the engine.

Note

The conrods are asymmetrical, the wide thrust collars point toward the crankshaft webs.

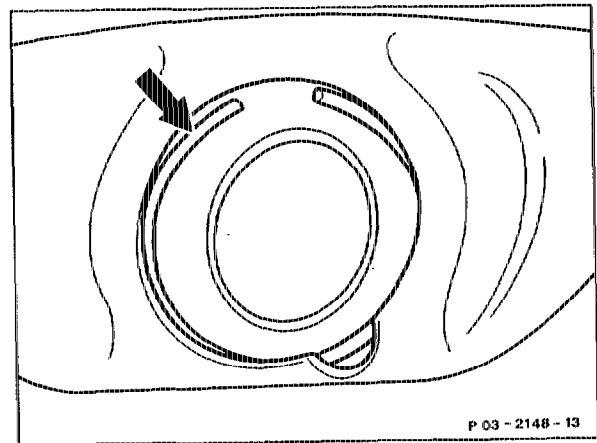


8 Press in piston pin by hand.



9 Insert piston pin retainer into the groove.

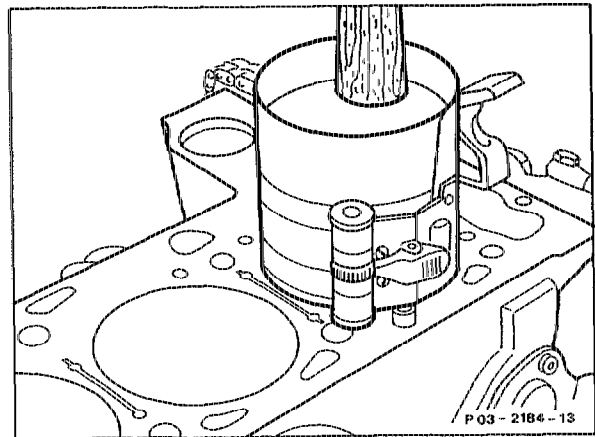
10 Oil cleaned cylinder bores, conrod bearing journals, conrod bearing shells and pistons.



11 Fit on tensioning strap for piston rings and insert piston into the cylinder bore with arrow facing direction of travel.



Do not damage cylinder contact surface with conrod.

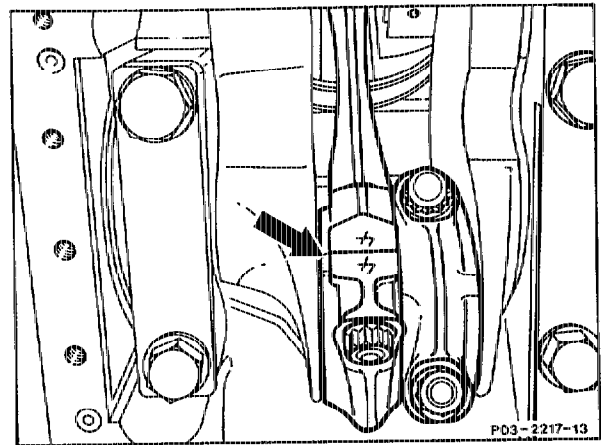


12 Fit conrod bearing cap onto the conrod with the identification (arrow) facing each other. Moisten conrod nuts and thread and contact surface of conrod bolts with engine oil and tighten.

Tightening torque (see 03-3100).



Pay attention to installation position of conrod bearings. Install conrod bearing shell with oil drilling in the conrod otherwise lubrication of the piston pin is not assured.



Pay attention to tightening torques of the conrod bearings (see Inspecting, replacing and tightening conrod bolts 03-3100).

13 Rotate crankshaft and check whether it rotates freely.

Special tool

