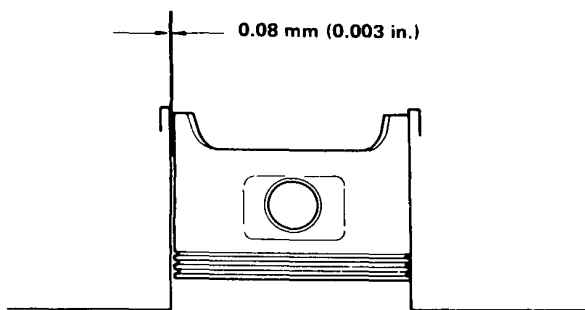


Cylinder Block

Piston-to-Block Clearance

1. Make a preliminary piston-to-block clearance check with a feeler gauge:

Service Limit: 0.08 mm (0.003 in.)



If the clearance is near or exceeds the service limit, inspect the piston and cylinder block for excessive wear.

To confirm the feeler gauge check, further measurement with a micrometer will be necessary.

2. Calculate difference between cylinder bore diameter on page 5-60 and piston diameter.

Piston-to-Cylinder Clearance:

**Standard (New): 0.016–0.039 mm
(0.0006–0.0015 in.)**

Service Limit: 0.08 mm (0.003 in.)

Pistons



Inspection

1. Check the piston for distortion or cracks.

NOTE: If cylinder is bored, an oversized piston must be used.

2. Measure piston diameter at a point 18 mm (0.71 in.) from bottom of skirt.

NOTE: There are two standard-size pistons (A and B). The letter is stamped on the top of the piston. These letters are also stamped on the block as cylinder bore sizes.

Piston A Diameter

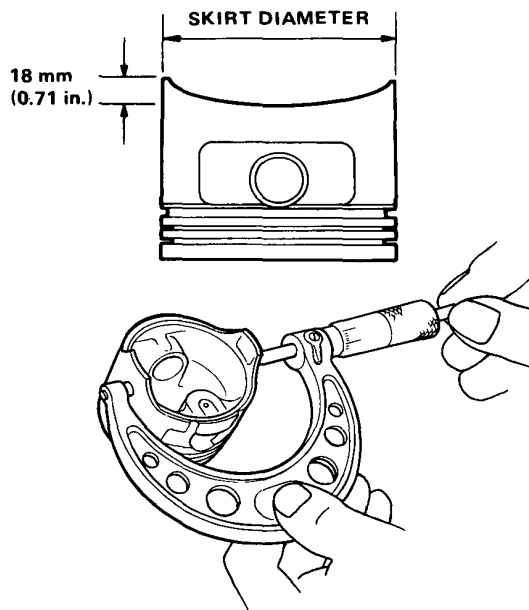
**Standard (New): 86.981–86.994 mm
(3.4244–3.4250 in.)**

Service Limit: 86.97 mm (3.4634 in.)

Piston B Diameter

**Standard (New): 86.971–86.984 mm
(3.4240–3.4246 in.)**

Service Limit: 86.96 mm (3.4236 in.)



Oversize Piston Diameter

0.25: 87.22–87.23 mm (3.4339–3.4342 in.)

0.50: 87.47–87.48 mm (3.4437–3.4441 in.)

3. Check the piston pin-to-piston clearance. Coat the piston pin with engine oil. It should then be possible to push the piston pin into the piston hole with thumb pressure.

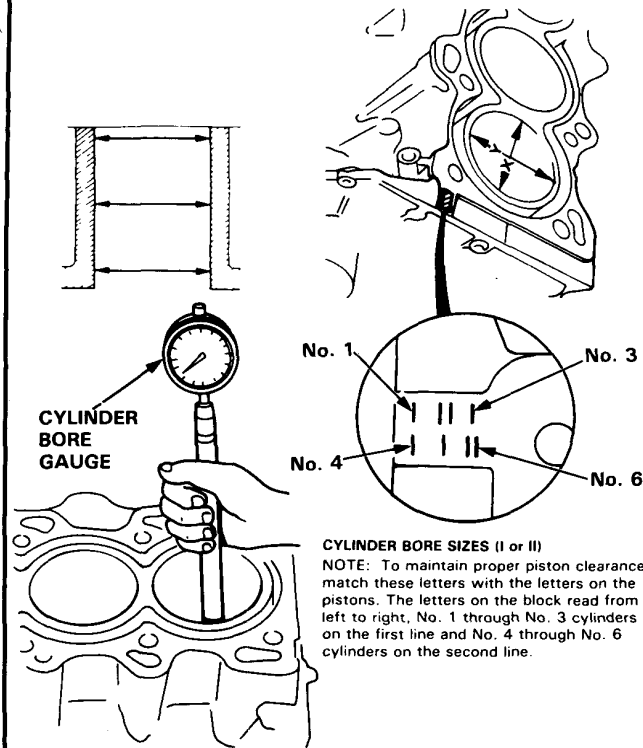
Piston Pin-to-Piston Clearance:

**Service limit: 0.012–0.024 mm
(0.0005–0.0009 in.)**

Cylinder Block

Inspection

1. Measure wear and taper in directions X and Y at three levels in each cylinder as shown.



Cylinder Bore Size

Standard (New): 87.00–87.02 mm

(3.4252–3.4260 in.)

Service Limit: 87.07 mm (3.4279 in.)

Oversize

0.25 : 87.25–87.27 mm (3.4350–3.4358 in.)

0.50 : 87.50–87.52 mm (3.4449–3.4457 in.)

Bore Taper

Limit: (Difference between first and third measurement) 0.05 mm (0.002 in.)

- If measurements in any cylinder are beyond Oversize Bore Service Limit, replace the block.
- If block is to be rebored, refer to Piston Clearance Inspection (page 5-59) after reboring.

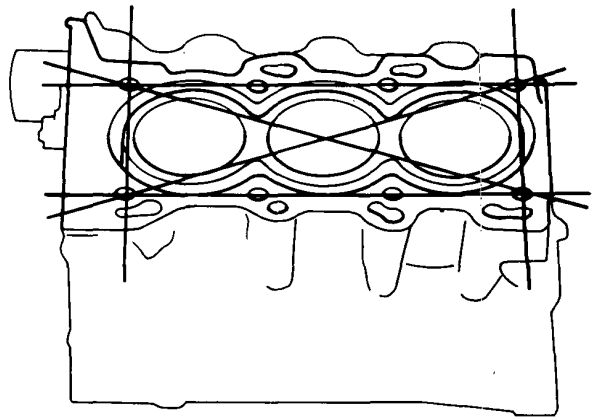
NOTE: Scored or scratched cylinder bores must be honed.

Out-of-Round

Service Limit: 0.05 mm (0.002 in.)

2. Check the top of the block for warp. Measure along the edges and across the center as shown.

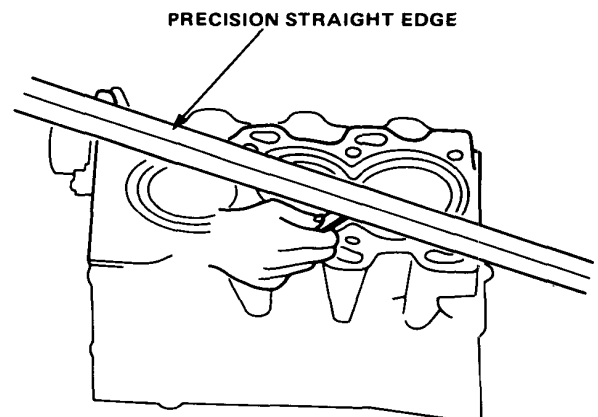
SURFACES TO BE MEASURED



Engine Block Warp:

Standard (New): 0.07 mm (0.003 in.)

Service Limit: 0.10 mm (0.004 in.)





Piston Pins

Removal

1. Assemble the Piston Pin Dis/assembly Tool as shown.

PISTON BASE HEAD
07HAF—PL20100 or
07HAF—PL20101

PISTON PIN BASE INSERT
07GAF—PH60300

PISTON BASE
07973—6570500

PISTON BASE SPRING
07973—6570600

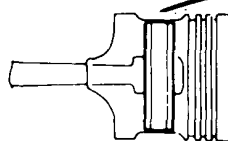
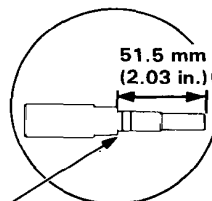
PISTON PIN DIS/ASSEMBLY TOOL SET
07973—6570002

2. Adjust the length of piston pin driver to 51.5 mm (2.03 in.) as shown.

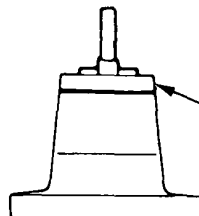
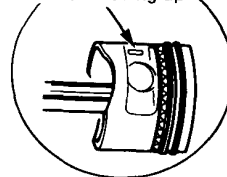


**ADJUSTABLE
PISTON PIN DRIVER**
07973—PE00302 or
07973—PE00301

PILOT COLLAR
07GAF—PH70100



Embossed mark facing up

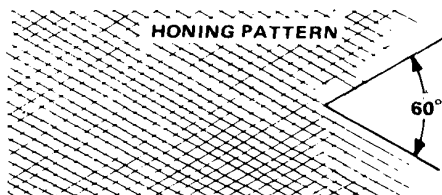


NOTE: Use hydraulic press.
When pressing pin in or out,
make sure that the recessed
portion of the piston aligns
with the lips on the collar.

3. Place the piston on the piston base and press the pin out with a hydraulic press.

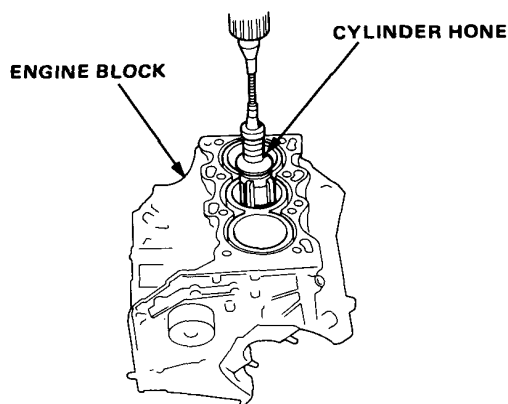
Bore Honing

1. Measure cylinder bores as shown on page 5-60. If the block is to be re-used, hone the cylinders and remeasure the bores.
2. Hone cylinder bores with honing oil and a fine (400 grit) stone in a 60 degree cross-hatch pattern.



3. When honing is complete, thoroughly clean the engine block of all metal particles. Wash the cylinder bores with hot soapy water, then dry and oil immediately to prevent rusting.
4. If Scoring or scratches are still present in cylinder bores after honing to service limit, rebore the engine block.

NOTE: Some light vertical scoring and scratching is acceptable if it is not deep enough to catch your fingernail and does not run the full length of the bore.



NOTE:

- After honing, clean the cylinder thoroughly with soapy water.
- Only scored or scratched cylinder bores must be honed.