

Legend	
(1)	Press Ram
(2)	Piston
(3)	Connecting Rod
(4)	Piston Pin

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Fig. 151: Removing Piston Pin
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Piston (10)

12. Connecting rod (11)

INSPECTION AND REPAIR**Pistons**

Carefully clean away all the carbon adhering to the piston head and the piston ring grooves.

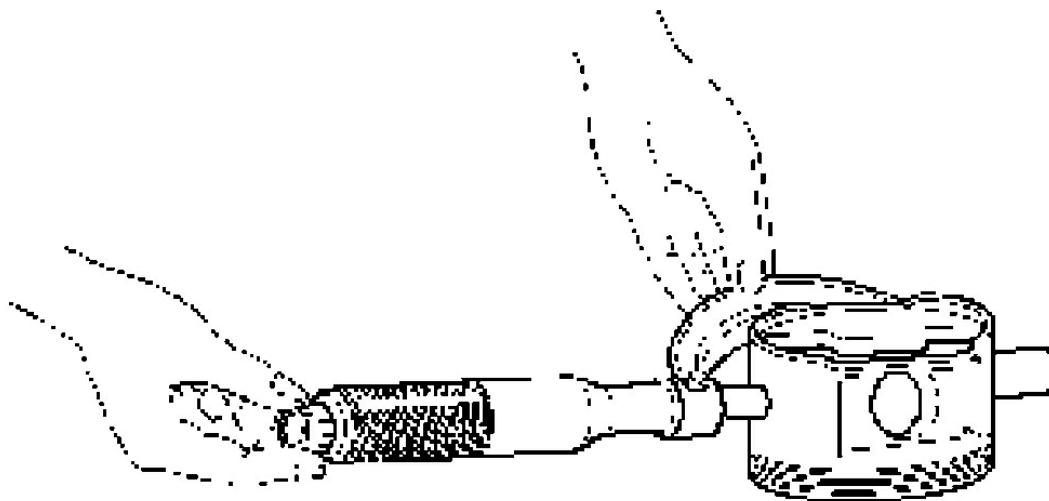
NOTE: Never use a wire brush to clean the pistons. Damage will result. Visually check each piston for cracking, scoring, and other signs of excessive wear. If any of the above conditions are found, the piston must be replaced.

Piston Diameter

1. Measure the piston outside diameter with micrometer at the piston grading position and a right angle to the piston pin.

Piston grading position (from piston head)

Piston grading position: 43.0 mm (1.6929 in)



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Fig. 152: Measuring Piston Outside Diameter With Micrometer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

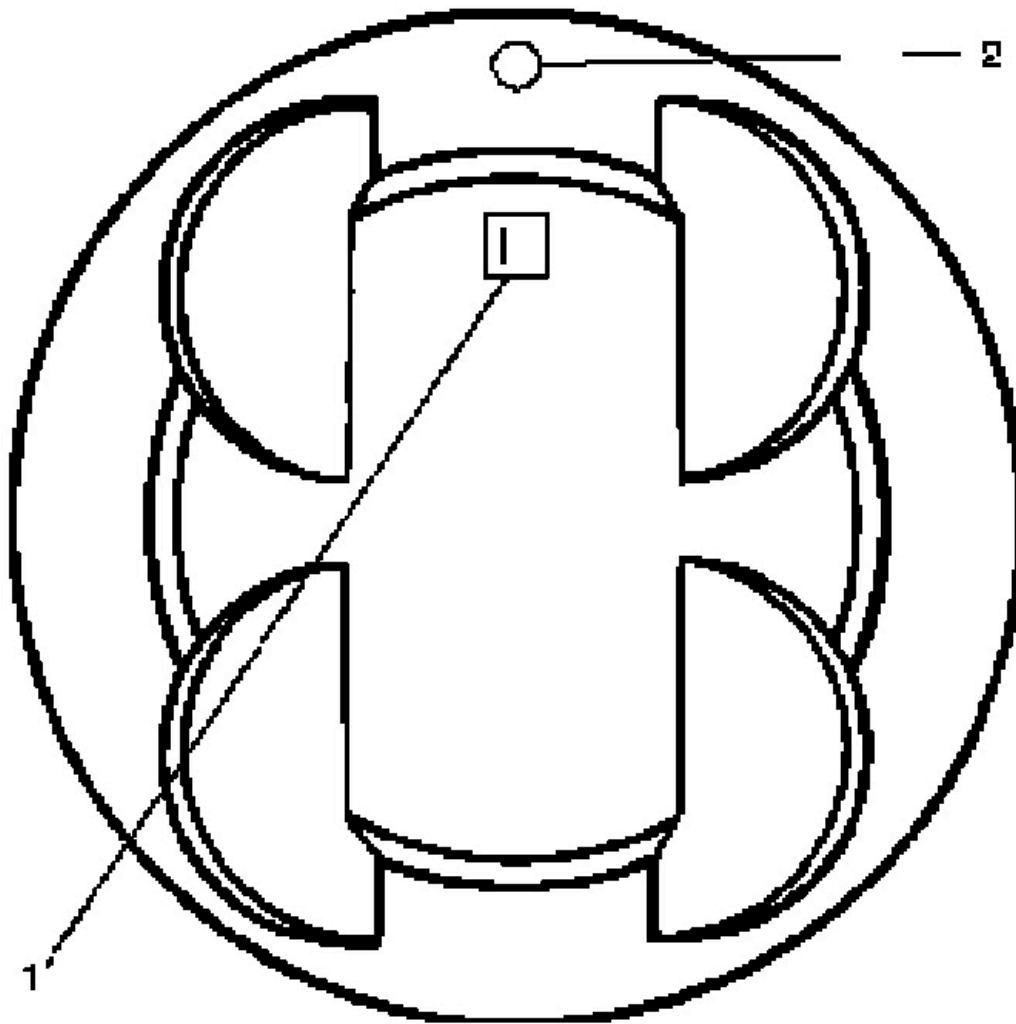
The size mark (1) for piston outside diameter is represented as shown in Figure.

Outside Diameter

Size Mark A: 93.360 mm-93.370 mm (3.6756 in-3.6760 in)

Size Mark B: 93.371 mm-93.380 mm (3.6760 in-3.6764 in)

Size Mark C: 93.381 mm-93.390 mm (3.6764 in-3.6768 in)

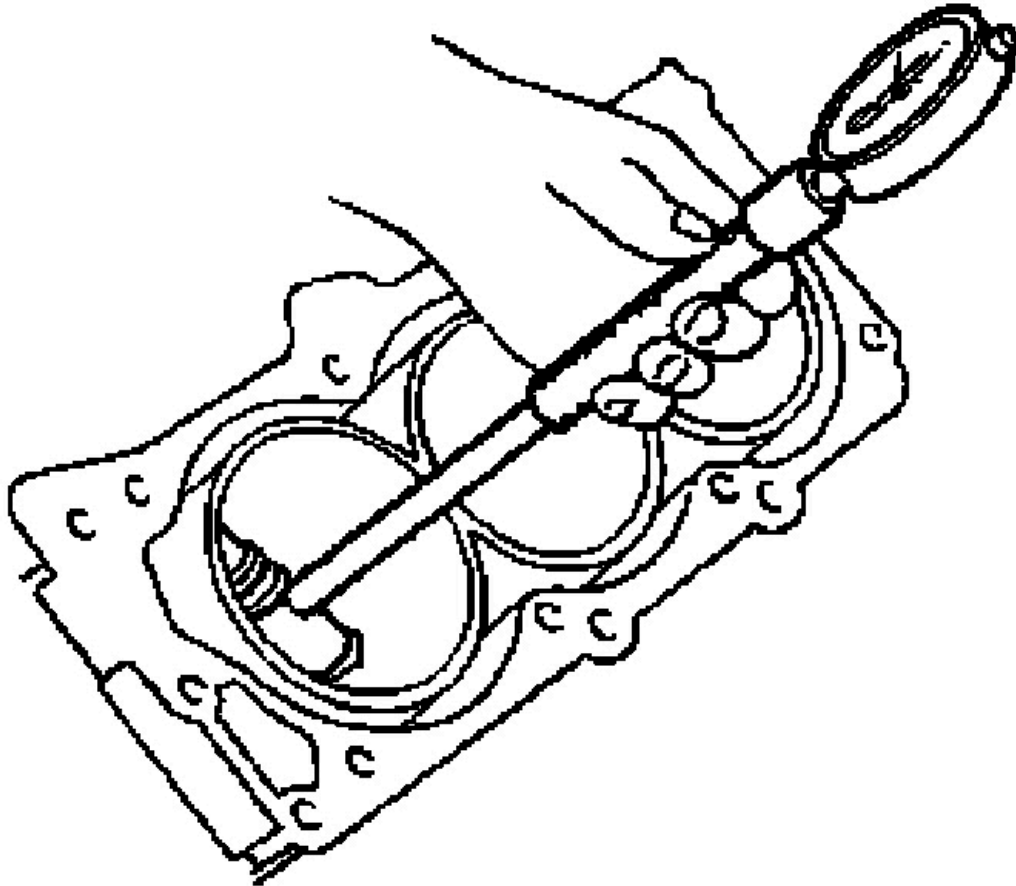


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Fig. 153: Identifying Size Mark

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Measure the cylinder bore inside diameter (refer to **CYLINDER BLOCK**).



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Fig. 154: Measuring Cylinder Bore Inside Diameter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Piston Rings

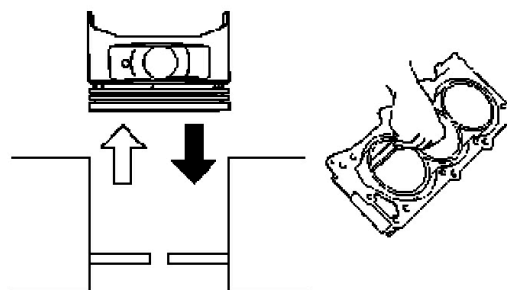
Any worn or damaged part discovered during engine overhaul must be replaced with a new one.

1. Ring end gap measurement

- Insert the piston ring into the bore.
- Push the ring by the piston, at a right angle to the wall, into the point at which the cylinder bore diameter is the smallest.

- Measure the ring end gap.

Compression Ring	
1st ring	
Standard:	0.300 mm-0.400 mm
	(0.0118 in- 0.0157 in)
Limit:	1.0 mm (0.0394 in)
2nd ring	
Standard:	0.450 mm-0.600 mm
	(0.0177 in-0.0236 in)
Limit:	1.2 mm (0.0472 in)
Oil ring	
Standard:	0.150 mm-0.450 mm
	(0.0059 in-0.0177 in)
Limit:	1.05 mm (0.0413 in)



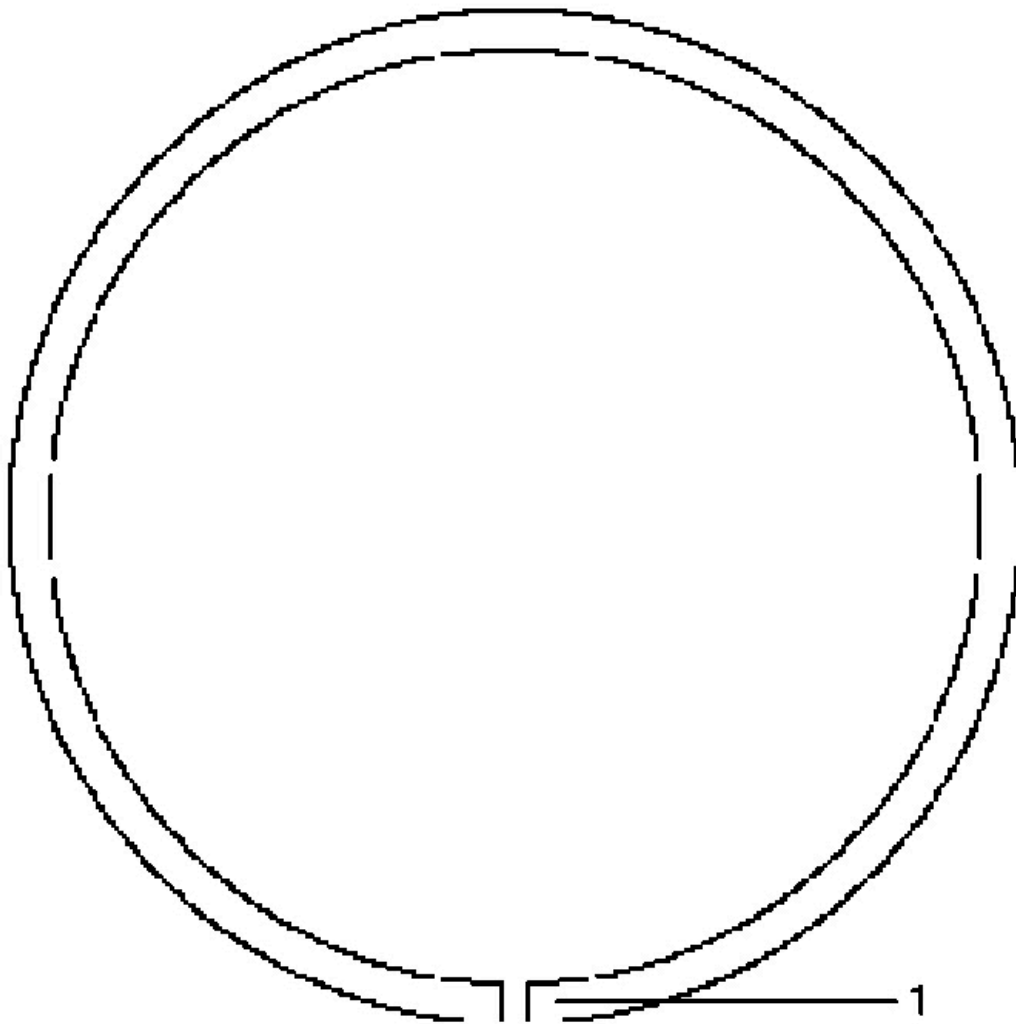
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Fig. 155: Measuring Ring End Gap
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

- Positioning mark (1) is painted as shown in the illustration.

Marked T: No.1 Compression ring

Marked T2: No.2 Compression ring



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Fig. 156: Identifying Positioning Mark

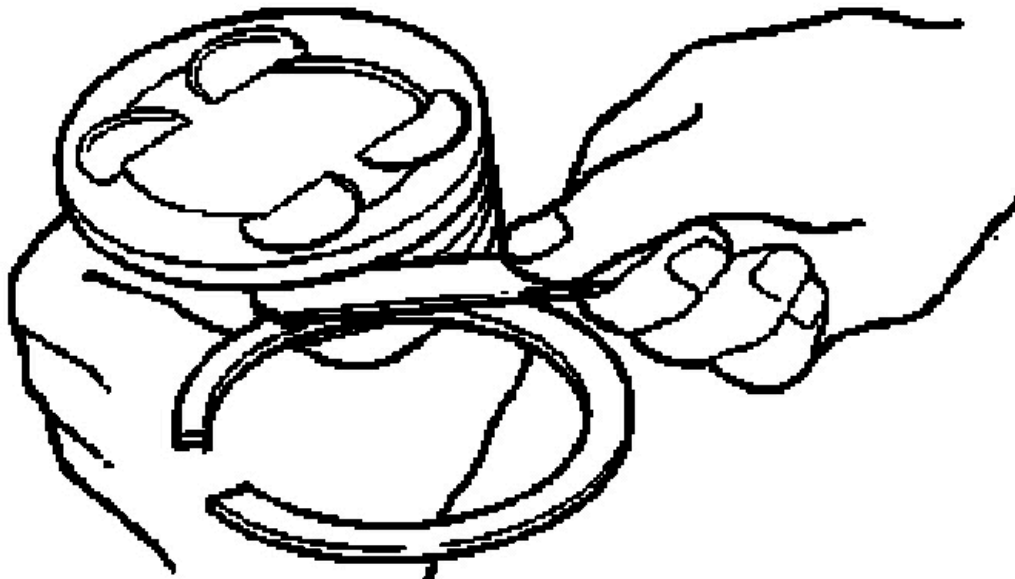
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the clearance between the piston ring groove and the piston ring with a feeler gauge. If the piston ring groove / piston ring clearance exceeds the specified limit, the piston must be replaced.

Compression Ring Clearance

Standard: 0.025 mm-0.065 mm (0.0006 in.-0.0015 in)

Limit: 0.1mm (0.0059 in)



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Fig. 157: Measuring Clearance Between Piston Ring Groove
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Piston Pin

NOTE: Do not reuse the old piston pin.

1. Use a micrometer to measure the new piston pin outside diameter in both directions at three different positions.
2. Measure the inside diameter of the connecting rod small end. If the fitting interference between the small end and pin does not conform to the specified value, the connecting rod must be replaced.

Standard: 0.023 mm-0.038 mm (0.0009 in-0.0015 in)

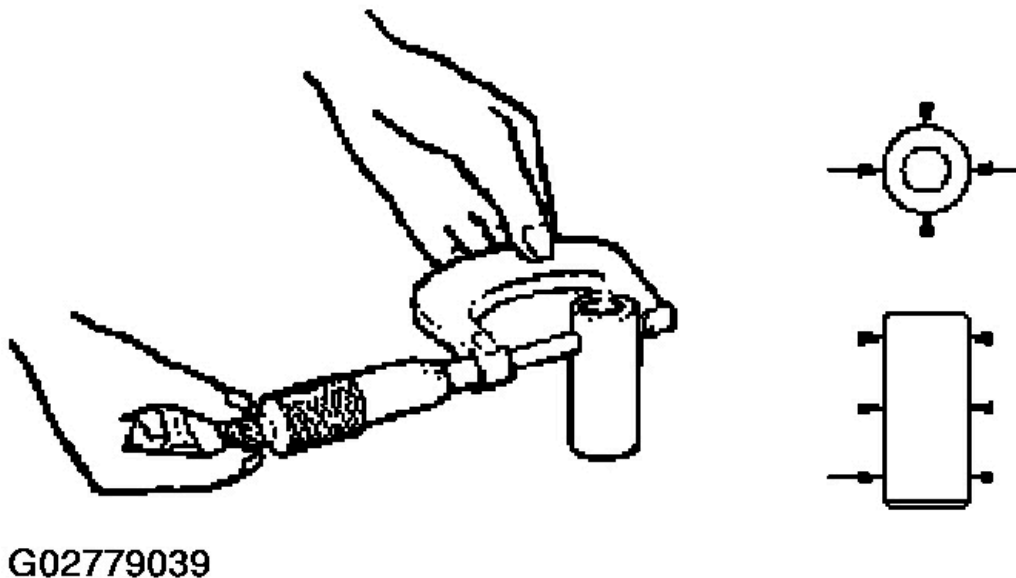


Fig. 158: Measuring Inside Diameter Of Connecting Rod Smaller End
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Insert the new pin into the piston and rotate it. If the pin rotates smoothly with no backlash, the clearance is normal. If there is backlash or roughness, measure the clearance. If the clearance exceeds the specified limit, the piston must be replaced.

Clearance

Standard: 0.010 mm-0.017 mm (0.0004 in.-0.0007 in)

Limit: 0.040 mm (0.0016 in)

Connecting Rods

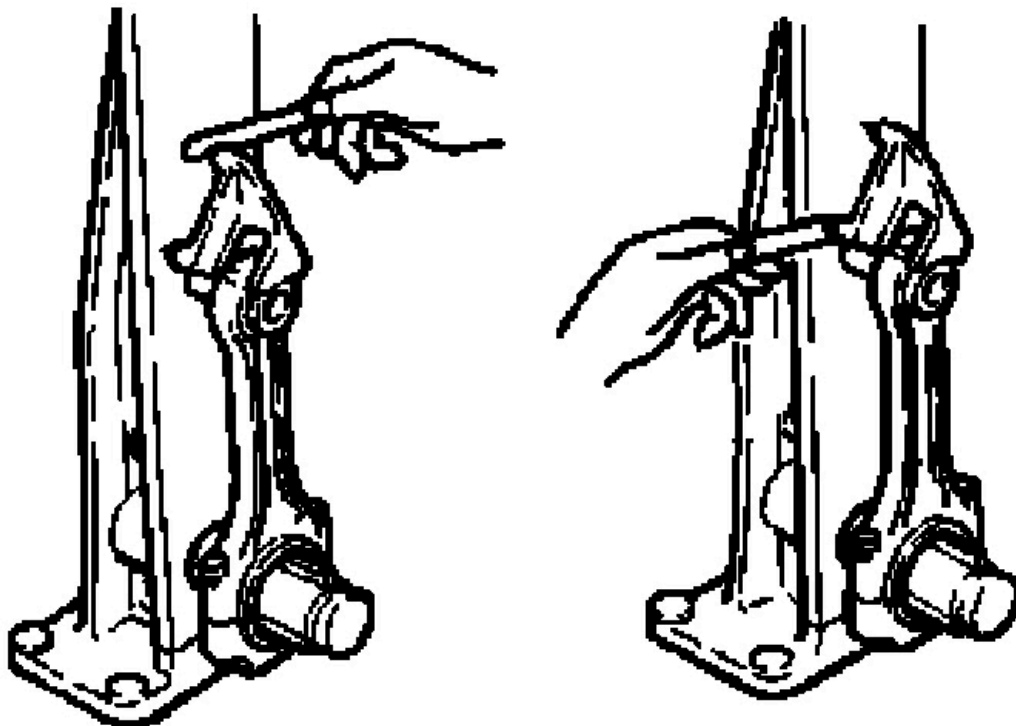
1. Check the connecting rod alignment. If either the bend or the twist exceeds the specified limit, the connecting rod must be replaced.

Bend per 100 mm (3.937 in)

Limit: 0.15 (0.0059)

Twist per 100 mm (3.937 in)

Limit: 0.20 (0.0078)



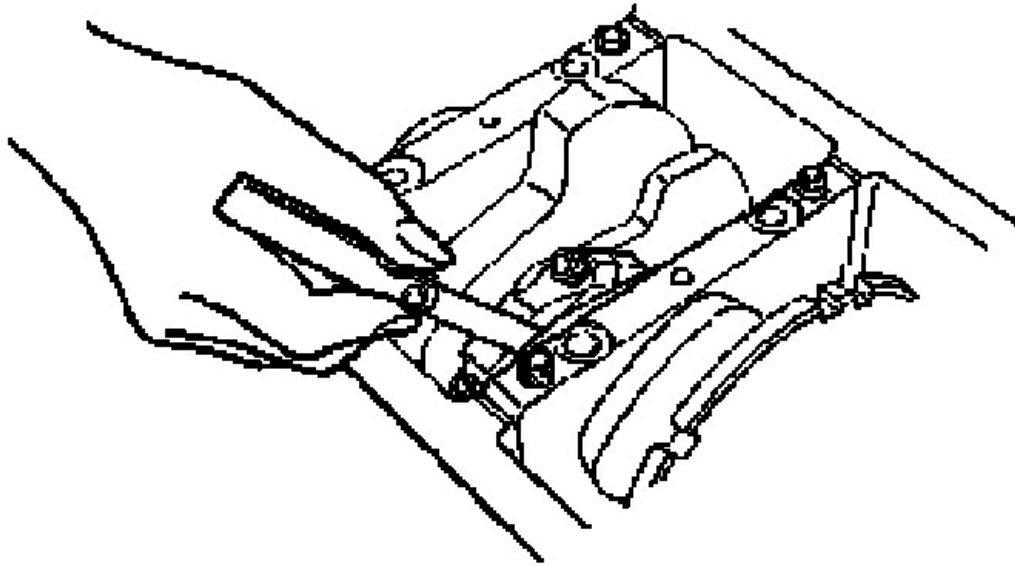
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Fig. 159: Checking Connecting Rod Alignment
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the connecting rod thrust clearance. Use a feeler gauge to measure the thrust clearance at the large end of the connecting rod. If the clearance exceeds the specified limit, the connecting rod must be replaced.

Standard: 0.16 mm-0.35 mm (0.0063 in.-0.0138 in)

Limit: 0.40 mm (0.0157 in)

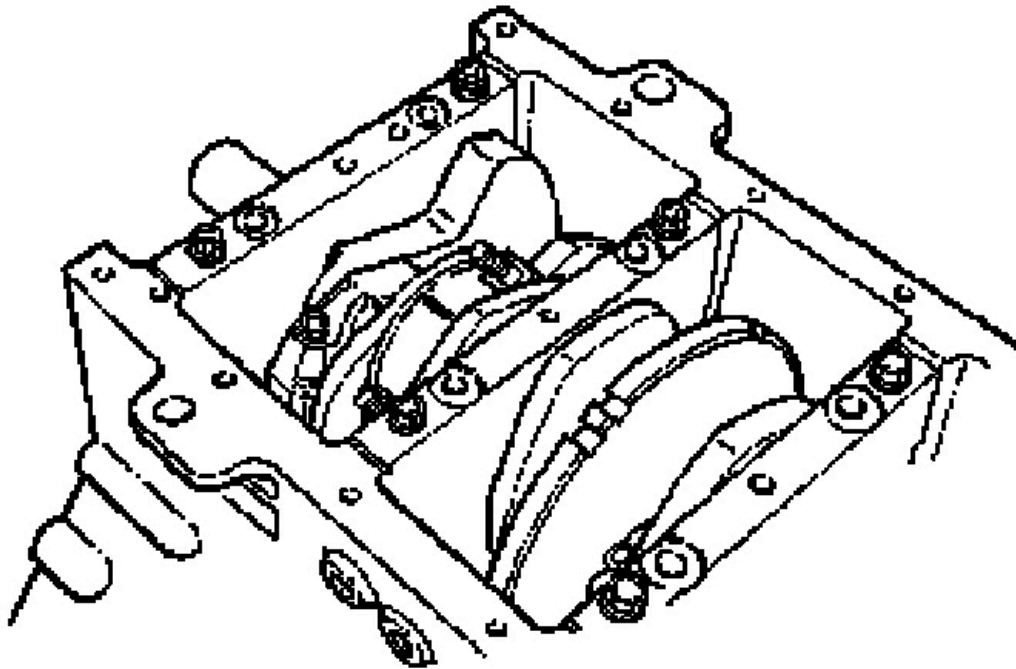


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Fig. 160: Measuring Connecting Rod Thrust Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Measure the oil clearance between the connecting rod and the crankshaft.
 1. Remove the connecting rod cap nuts and the rod caps (12).

Arrange the removed rod caps in the cylinder number order.
 2. Clean the rod bearings and the crankshaft pins.
 3. Carefully check the rod bearings. If even one bearing is found to be damaged or badly worn, the entire bearing assembly must be replaced as a set. Reinstall the bearings in their original positions. Apply plastigage to the crank pin.



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Fig. 161: Checking Rod Bearings

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Reinstall the rod caps (12) to their original positions.

Tighten the rod cap nuts.

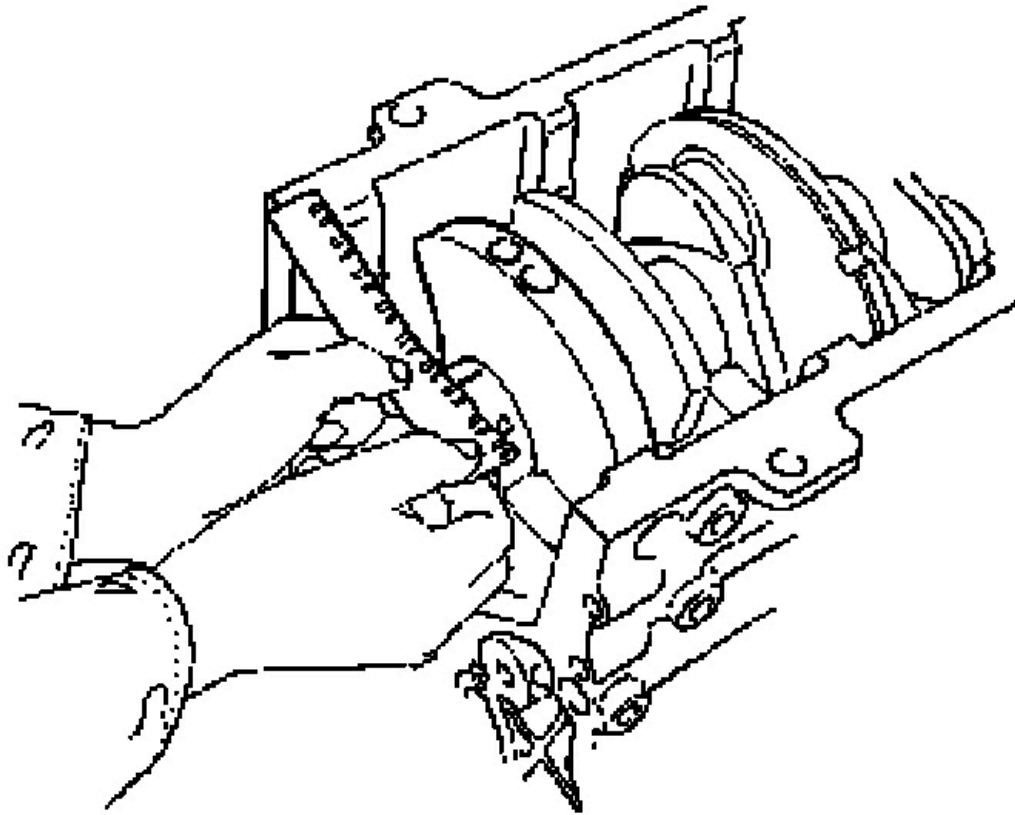
Torque: 54 N.m (40 lb ft)

NOTE: Do not allow the crankshaft to rotate.

5. Remove the rod caps.
6. Measure the width of the plastigage and determine the oil clearance. If the oil clearance exceeds the limit, replace the rod bearing as a set.

Standard: 0.019 mm-0.043 mm (0.0007 in-0.0017 in)

Limit: 0.08 mm (0.0031 in)



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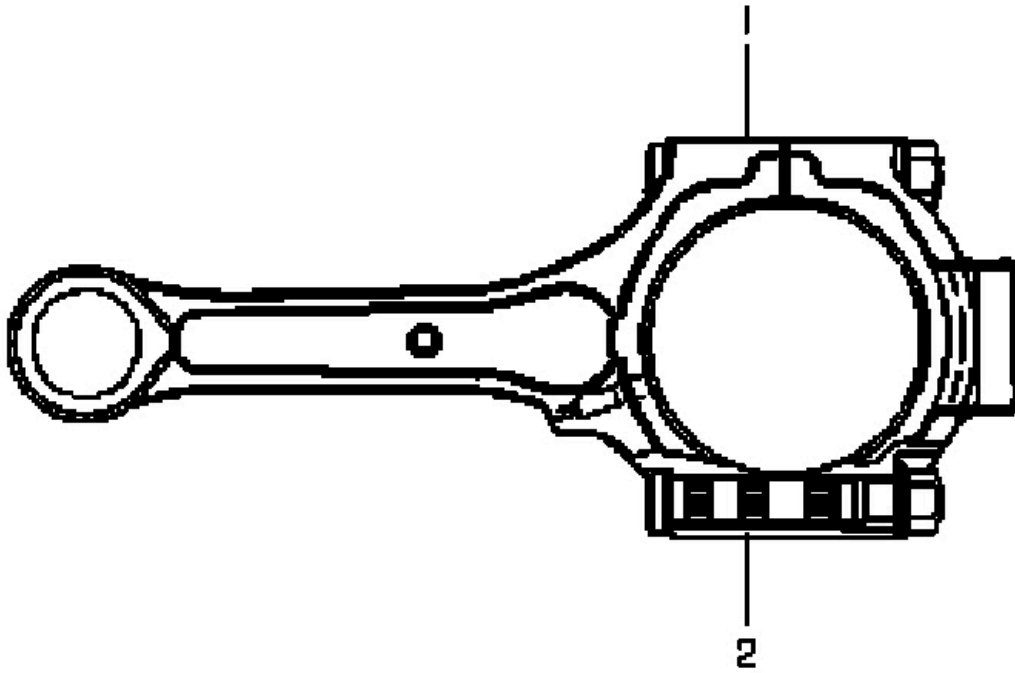
Fig. 162: Measuring Width Of Plastigage
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Clean the plastigage from the bearings and the crankshaft pins.

Con-rod Bearing Selection

Select and install the new connecting rod bearings, paying close attention to the connecting rod big end diameter size mark(1).

NOTE: Take care not to confuse the alignment mark (2) and the size mark (1) during the installation procedure.



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Fig. 163: Identifying Alignment Mark & Size Mark (1 Of 2)
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