

## CRANKSHAFT MAIN BEARING REPLACEMENT

### MAIN BEARING CLEARANCE INSPECTION

1. Remove the main bearing caps and the bearing halves (see **CRANKSHAFT AND PISTON REMOVAL**).
2. Clean each main journal and bearing half with a clean shop towel.
3. Place one strip of plastigage across each main journal.

**NOTE:** If the engine is still in the vehicle when you bolt the main cap down to check the clearance, the weight of the crankshaft and the drive plate will flatten the plastigage further than just the torque on the cap bolt and give you an incorrect reading. For an accurate reading, support the crank with a jack under the counterweights, and check only one bearing at a time.

4. Reinstall the bearings and the main bearing caps, then torque the bearing cap bolts to 74 N.m (7.5 kgf.m, 55 lbf.ft), and the bearing cap side bolts to 49 N.m (5.0 kgf.m, 36 lbf.ft) in the proper sequence (see step 22).

**NOTE:**

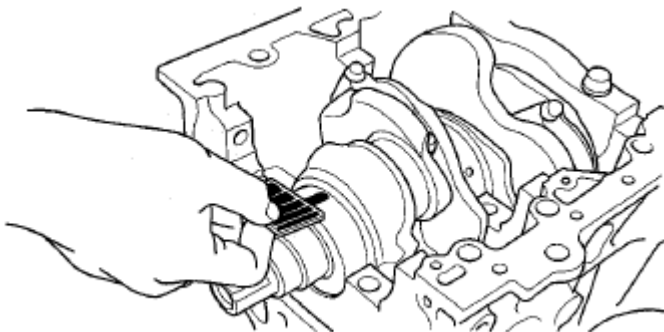
- Apply new engine oil to the bolt threads and flanges.
- Do not rotate the crankshaft during inspection.

5. Remove the main bearing cap and the bearing half, and measure the widest part of the plastigage.

#### Main Bearing-to-Journal Oil Clearance

**Standard (New): 0.019-0.045 mm (0.00075-0.00177 in)**

**Service Limit: 0.050 mm (0.00197 in)**



**Fig. 7: Checking Main Bearing-To-Journal Oil Clearance**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. If the plastigage measures too wide or too narrow, remove the crankshaft, and remove the upper half of

the bearing. Install a new, complete bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.

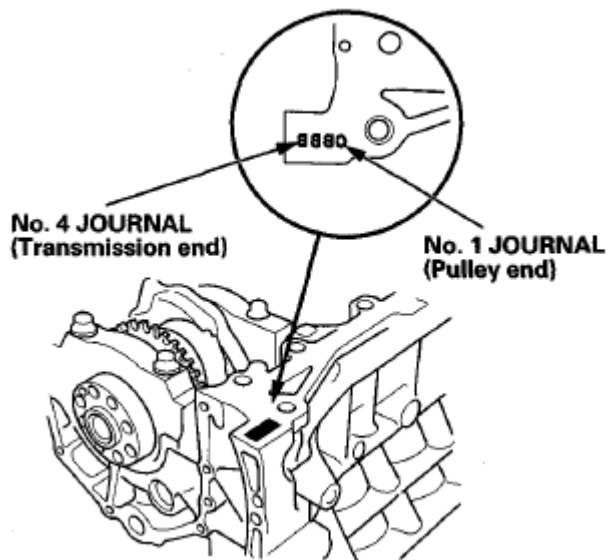
7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check the clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over (see **CRANKSHAFT AND PISTON REMOVAL** ).

## MAIN BEARING SELECTION

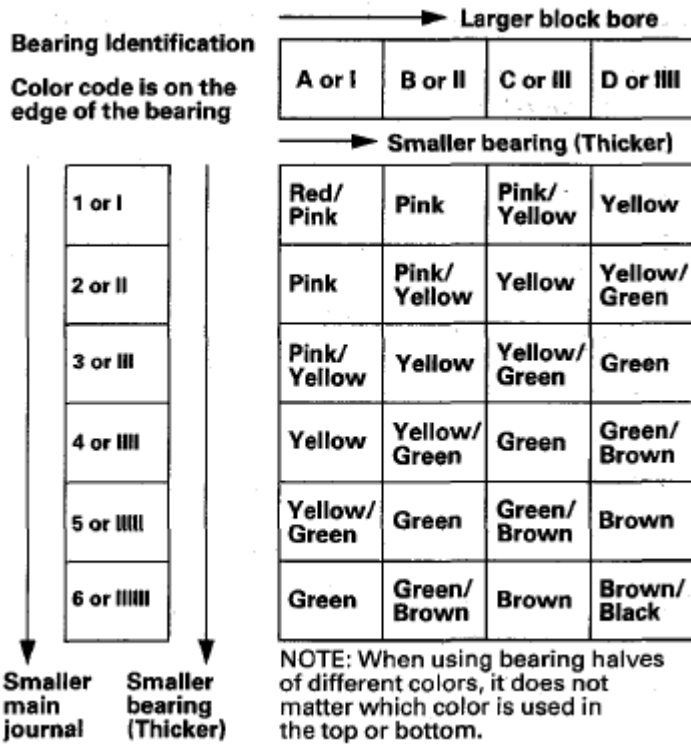
### Block Bore Code Locations

Letters or bars have been stamped on the end of the engine block as a code for the size of each of the four main journal bores.

Use them, and the numbers or bars stamped on the crankshaft (codes for main journal size), to choose the correct bearings. If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.

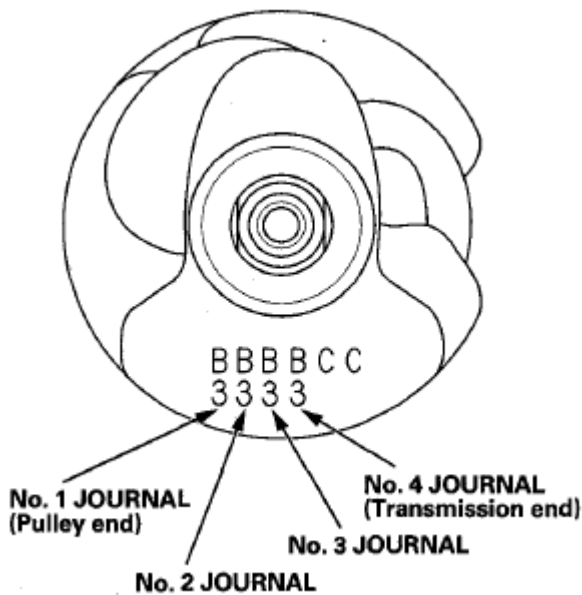


**Fig. 8: Identifying Block Bore Code Locations**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



**Fig. 9: Bearing Color Code Chart**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

**Main Journal Code Locations (Numbers or Bars)**



**Fig. 10: Identifying Main Journal Code Locations (Numbers And Bars)**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## CONNECTING ROD BEARING REPLACEMENT

### CONNECTING ROD BEARING CLEARANCE INSPECTION

1. Remove the connecting rod cap and the bearing half (see **CRANKSHAFT AND PISTON REMOVAL**).
2. Clean the connecting rod journal and the bearing half with a clean shop towel.
3. Place a strip of plastigage across the connecting rod journal.
4. Reinstall the bearing half and the connecting rod cap, and torque the connecting rod bolt to 20 N.m (2.0 kgf.m, 15 lbf.ft) + 90°.

**NOTE:**

- Apply new engine oil to the bolt threads and flanges.
- Do not rotate the crankshaft during inspection.

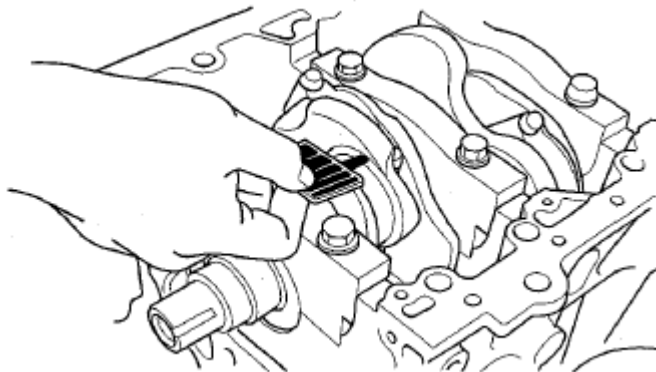
5. Remove the connecting rod cap and the bearing half and measure the widest part of the plastigage.

#### Connecting Rod Bearing-to-Journal Oil

##### Clearance

**Standard (New): 0.020-0.044 mm (0.00079-0.00173 in)**

**Service Limit: 0.050 mm (0.00197 in)**



**Fig. 11: Checking Main Bearing-To-Journal Oil Clearance**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. If the plastigage measures too wide or too narrow, remove the upper half of the bearing. Install a new, complete bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check the clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over (see

**CRANKSHAFT AND PISTON REMOVAL** ).**CONNECTING ROD BEARING SELECTION**

Each connecting rod falls into one of four tolerance ranges (from 0 to 0.024 mm (0.00095 in), in 0.006 mm (0.00024 in) increments) depending on the size of its big end bore.

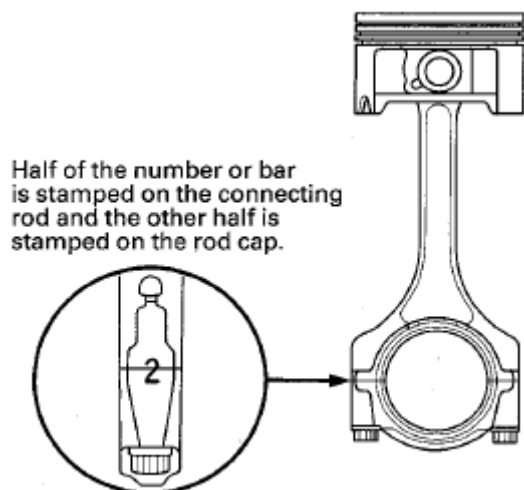
It is then stamped with a number or bar (1, 2, 3, or 4/I, II, III, or IIII) indicating the range. You may find any combination of 1, 2, 3, or 4/I, II, III, or IIII in any engine.

**Big End Bore Size****60.0 mm (2.362 in)**

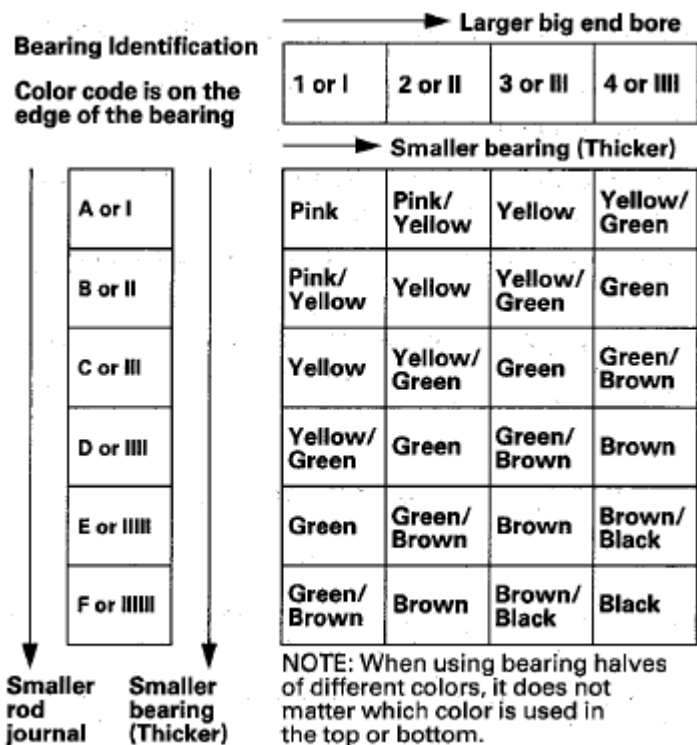
Inspect the connecting rod for cracks and heat damage.

**Big End Bore Code Locations**

Numbers or bars have been stamped on the side of each connecting rod as a code for the size of the big end. Use them, and the letters or bars stamped on the crank (codes for rod journal size), to choose the correct bearings. If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.

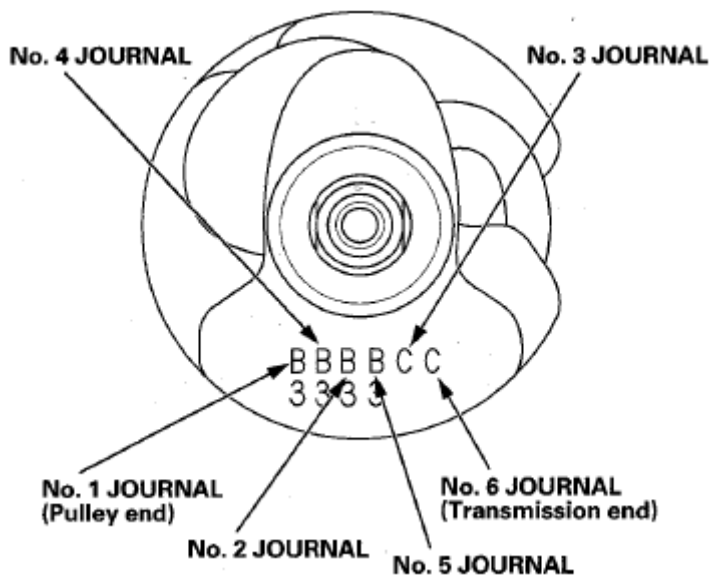


**Fig. 12: Identifying Big End Bore Code Locations**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



**Fig. 13: Bearing Color Code Chart**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

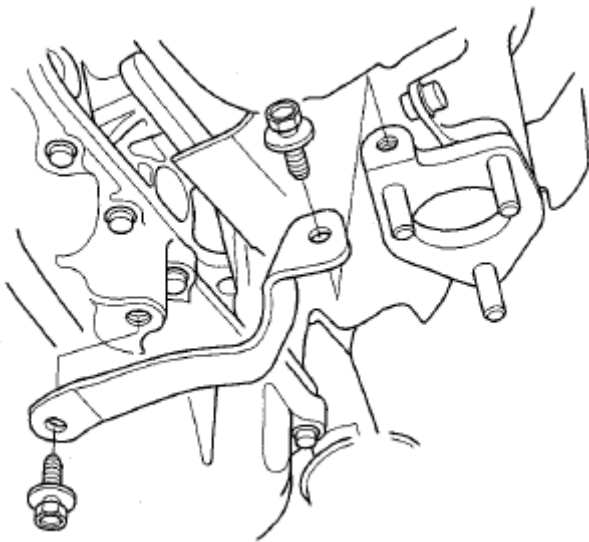
**Connecting Rod Journal Code Locations (Letters or Bars)**



**Fig. 14: Identifying Connecting Rod Journal Code Locations (Letters And Bars)**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## OIL PAN REMOVAL

1. If the engine is already out of the vehicle, go to step 7.
2. Raise the vehicle on the lift.
3. Drain the engine oil (see **ENGINE OIL REPLACEMENT** ).
4. Remove the splash shield (see **FRONT SPLASH SHIELD REPLACEMENT** ) and the engine undercover (see **ENGINE UNDERCOVER REPLACEMENT** ).
5. Remove the front subframe stiffener (see step 33 under **ENGINE REMOVAL** ).
6. Remove exhaust pipe A (see step 34 under **ENGINE REMOVAL** ).
7. Remove the rear warm up TWC bracket.



**Fig. 15: Identifying Rear Warm Up TWC Bracket And Bolts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the CKP sensor cover (A) and the bolt (B), then disconnect the CKP sensor connector (C).

