

Fig. 406: Main Bearing Identification

Courtesy of CHRYSLER GROUP, LLC

The main bearings are serviced in-vehicle. They must be replaced one-at-a-time in order to properly support the crankshaft. The upper and lower main bearing shells are NOT interchangeable. The upper and lower main bearings are "select fit" to achieve proper oil clearances. Refer to ENGINE/ENGINE BLOCK/BEARING(S), CRANKSHAFT, MAIN, **STANDARD PROCEDURE**.

1. Disconnect and isolate the negative battery cable.

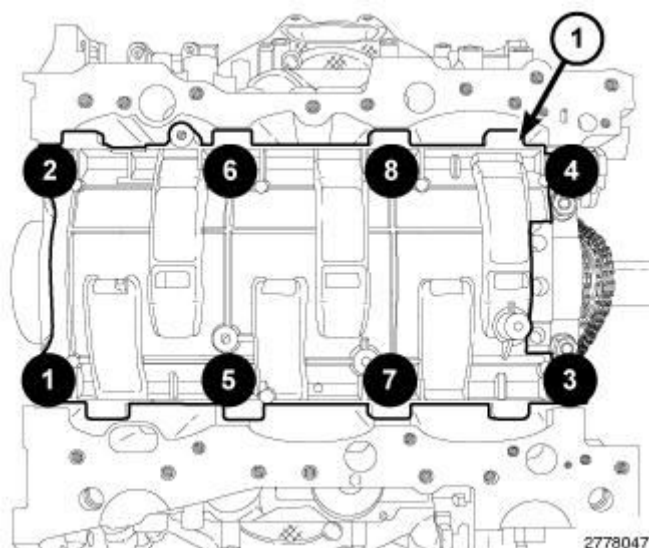


Fig. 407: Main Bearing Cap Bolts From Windage Tray Removal Sequence

Courtesy of CHRYSLER GROUP, LLC

2. Remove the oil pan, oil pump pick-up and engine oil pump. Refer to **PUMP, ENGINE OIL,**

REMOVAL.

- Remove the eight main bearing cap bolts from the windage tray in the sequence shown in illustration and remove the windage tray (1).

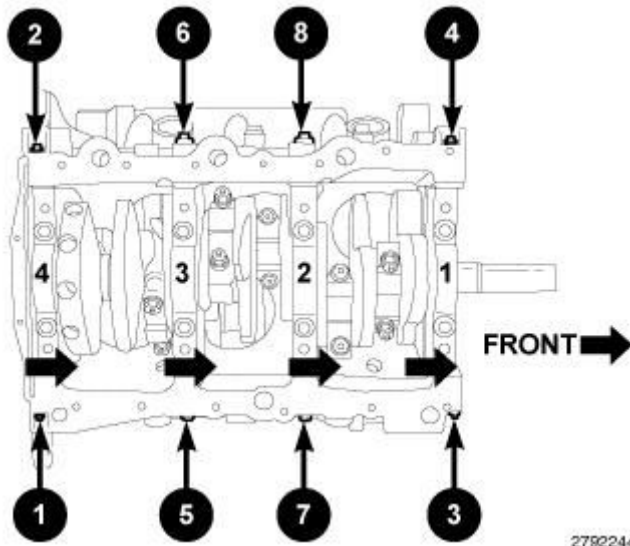


Fig. 408: Main Bearing Tie Bolts Removal Sequence
 Courtesy of CHRYSLER GROUP, LLC

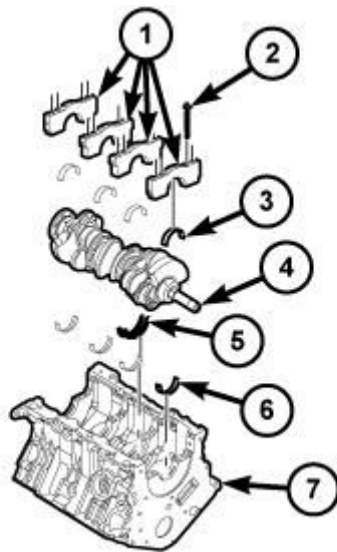
NOTE: Typical V6 engine configuration shown in illustration.

- Remove the eight main bearing tie bolts in the sequence shown in illustration.

CAUTION: DO NOT use a number stamp or a punch to mark main bearing caps, as damage to main bearings could occur.

NOTE: Main bearing caps are not interchangeable and are marked to insure correct assembly.

- Mark the main bearing cap positions using a permanent ink marker or a scribe tool.



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Fig. 409: Main Bearing Caps, Bolts, Crankshaft & Engine Block
 Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical V6 engine configuration shown in illustration.

CAUTION: Replace only one main bearing at a time while all other main bearing caps remain properly tightened. If all main bearing caps are removed, the weight of the unsupported crankshaft will damage the crankshaft oil seals.

NOTE: Replace the main bearings in the following order; 2, 3, 1, 4.

6. Remove the two cap bolts (2) and remove the main bearing cap (1).
7. When removing the No. 2 bearing cap, also remove the thrust washers (5).
8. Slide the upper main bearing half (6) out from between the crankshaft and the engine block.
9. If required, select fit new main bearings to the engine block. Refer to ENGINE/ENGINE BLOCK/BEARING(S), CRANKSHAFT, MAIN, **STANDARD PROCEDURE** .
10. Lubricate the upper main bearing half (6) with clean engine oil and slide the bearing into position.

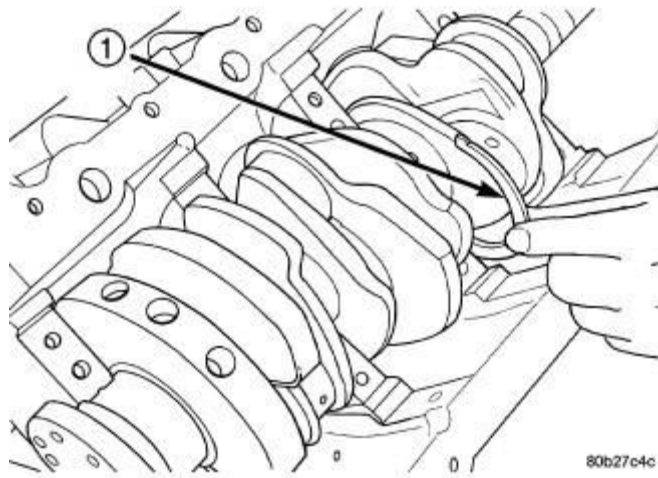


Fig. 410: Thrust Washer Installation
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical V6 engine configuration shown in illustration.

11. When installing thrust washers (1) at the No. 2 main bearing location, use the following procedure:
 - a. Move the crankshaft forward to the limit of travel. Lubricate and install the front thrust washer (1) by rolling the washer onto the machined shelf between the No. 2 upper main bulk head and crankshaft thrust surface.
 - b. Move the crankshaft rearward to the limit of travel. Lubricate and install the rear thrust washer by rolling the washer onto the machined shelf between the No. 2 upper main bulk head and crankshaft thrust surface.

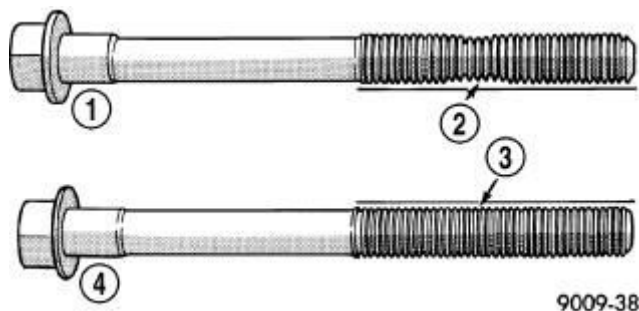
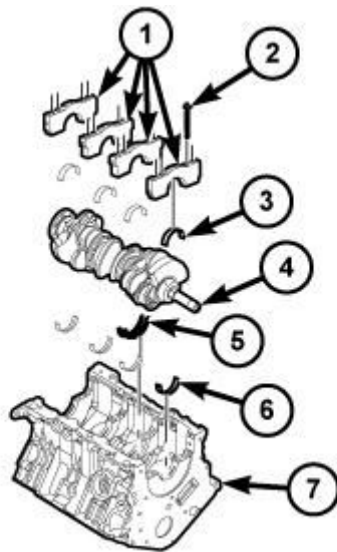


Fig. 411: Checking Cylinder Head Bolts For Stretching (Necking)
Courtesy of CHRYSLER GROUP, LLC

CAUTION: The main bearing cap bolts are tightened using a torque plus angle procedure. The bolts must be examined **BEFORE** reuse. If the threads are necked down the bolts must be replaced.

12. Check the main bearing cap bolts for necking by holding a scale or straight edge against the threads. If all the threads do not contact the scale (2) the bolt must be replaced.

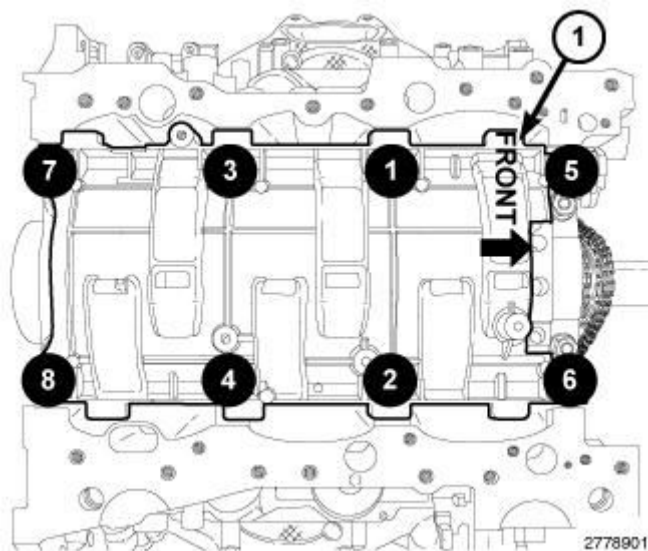


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Fig. 412: Main Bearing Caps, Bolts, Crankshaft & Engine Block
 Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical V6 engine configuration shown in illustration.

13. Lubricate and install the lower bearing half (3) onto the main cap (1).
14. Install the main bearing cap (1) with two inner main bearing cap bolts (2) tightened to 20 N.m (15 ft. lbs.) plus 90°.
15. Repeat the previous steps for main bearings 3, 1 and 4.
16. Measure crankshaft end play. Refer to **CRANKSHAFT, STANDARD PROCEDURE.**

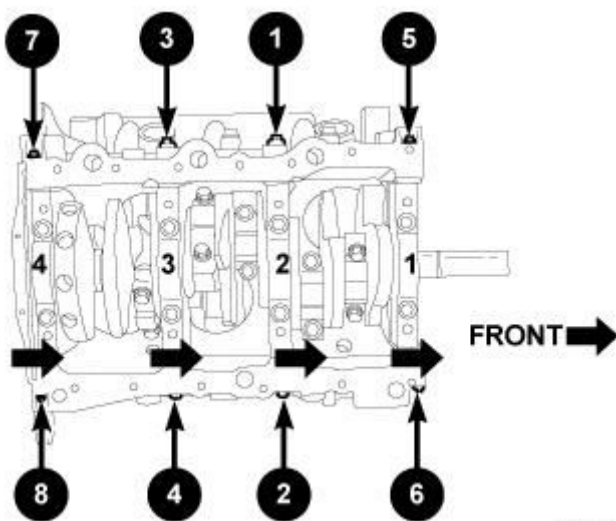


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Fig. 413: Windage Tray With Main Bearing Cap Bolts Installation Sequence
 Courtesy of CHRYSLER GROUP, LLC

17. Install the windage tray with eight main bearing cap bolts. Tighten the bolts in the sequence shown in

illustration to 21 N.m (16 ft. lbs.) plus 90°.



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Fig. 414: Main Bearing Tie Bolts Installation Sequence
Courtesy of CHRYSLER GROUP, LLC

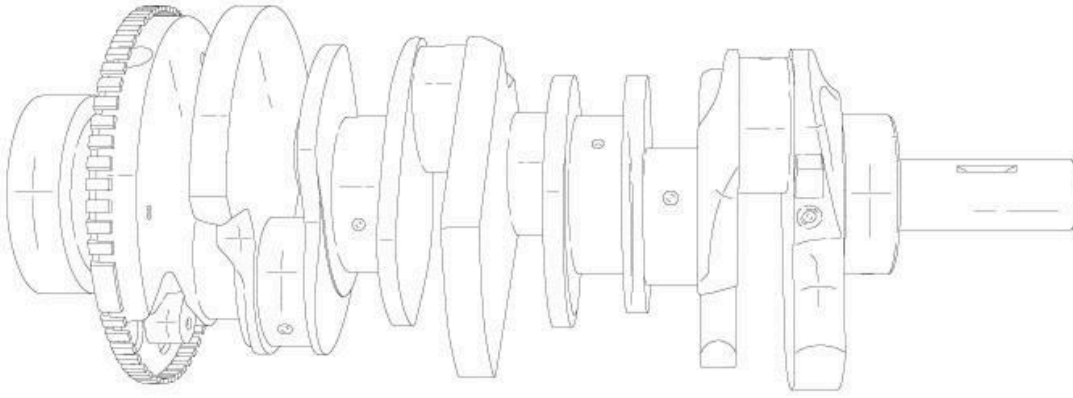
NOTE: Typical V6 engine configuration shown in illustration.

18. Install the eight main bearing tie bolts. Tighten the bolts in the sequence shown in illustration to 28 N.m (21 ft. lbs.).
19. Install the engine oil pump, oil pump pick-up and oil pan. Refer to **PUMP, ENGINE OIL, INSTALLATION**.
20. Install the spark plugs and ignition coils. Refer to **SPARK PLUG, INSTALLATION**.
21. If removed, install the oil filter and fill the engine crankcase with the proper oil to the correct level. Refer to **ENGINE/LUBRICATION/OIL STANDARD PROCEDURE**.
22. Connect the negative battery cable and tighten nut to 5 N.m (45 in. lbs.).
23. Operate the engine until it reaches normal operating temperature.

CRANKSHAFT

DESCRIPTION

DESCRIPTION



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Fig. 415: Crankshaft**Courtesy of CHRYSLER GROUP, LLC**

The crankshaft is a cast design and is constructed using ductile iron. The crankshaft is a three throw split pin design with counterweights for balancing purposes. The main journals are cross drilled for rod bearing lubrication. The crankshaft is supported by four select fit main bearings with number 2 serving as the thrust washer location. The rear counterweight has provisions for crankshaft position sensor target wheel mounting. Both the front and rear seals are a single piece design and are mounted to the timing cover and cylinder block.

STANDARD PROCEDURE**STANDARD PROCEDURE - END PLAY**

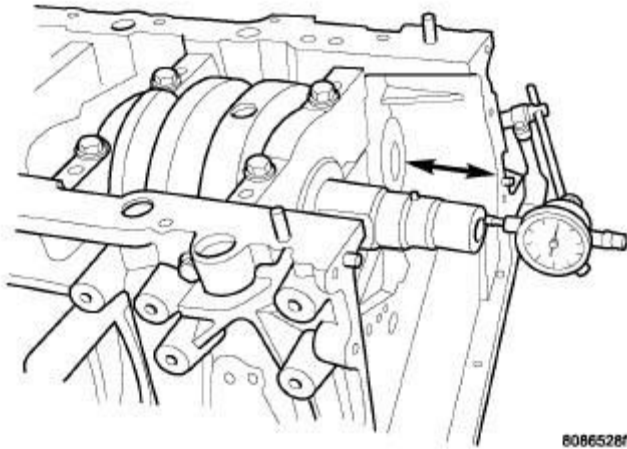


Fig. 416: Checking Crankshaft End Play
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical V6 engine shown in illustration.

1. Mount Dial Indicator Set (special tool #C-3339A, Set, Dial Indicator) to a stationary point at the front of the engine. Locate the probe perpendicular against the nose of the crankshaft.
2. Move the crankshaft all the way to the rear of its travel.
3. Zero the dial indicator.
4. Move the crankshaft forward to the limit of travel and read the dial indicator. Compare the measured end play to the specification. Refer to **ENGINE SPECIFICATIONS**.

NOTE: Crankshaft thrust washers are not selectable and are only available in a single thickness.

REMOVAL

REMOVAL