



Haynes
shows you how

BMW 3-Series 320i & 320xi (12-14), 325i, 325xi, 330i & 330xi (06) & 328i & 328xi (07-14) Haynes Online Manual

12 Balance shafts, oil pump and drive chain - removal and installation

Note:

No separate parts are available for the balance shafts or oil pump. If defective, the complete pump must be replaced.

Balance shafts and oil pump

Removal

1 Remove the oil pan (see [Section 11](#)).

2 Install special tool No. 2 219 548 (or equivalent) into the timing hole to secure the crankshaft (see [Section 3](#)).

3 Remove the oil pump pick-up pipe bolt and remove the pipe.

4 Locate the plastic cap on the counterbalance shaft housing, next to the oil pump pick-up pipe, mounting bolt then remove the plastic cap on the top of the counterbalance shaft housing.

5 Install special tool No. 2 212 825 (or equivalent) into the hole the plastic cap was covering and lock the tool in place with a bolt. This will prevent the balance shaft from rotating out of time.

6 Install special tool No. 2 318 117 (or equivalent) to lock the balance shaft/oil pump sprocket in place.

7 Press the timing chain tensioner back until special tool No. 11 4 120 (or equivalent) can be inserted, then lock the tensioner in place.

8 Loosen the three timing chain module Torx screws a few turns then remove the oil pump drive shaft T60 Torx bolt securing the balance shaft/oil pump sprocket, but leave the sprocket engaged in the timing chain. Discard the bolt; a new one must be used on installation.

9 Remove the three chain module Torx screws and move the timing chain module and balance shaft/oil pump sprocket forward.

10 Remove the balance shaft and oil pump retaining bolts then lift them the assembly out.

Note:

Make a drawing or take a photo to indicate the location of the various-length bolts. Discard the bolts - new ones must be installed.

11 Remove the balance shaft spacer bushings and check for damage; the balance shaft must be adjusted to fit correctly to the engine with the spacer bushings. Replace any that are damaged.

12 Remove the oil pump-to- balance shaft bolts and separate the oil pump from the balance shaft housing.

Installation

13 Installation is the reverse of removal, noting the following points:

- A. Replace all aluminum bolts.
- B. Tighten all fasteners to their specified torque where given.
- C. Verify the valve timing (see [Section 3](#)).

Oil pump drive chain

Removal

14 Remove the oil pump drive shaft bolt (see Steps 1 through 8).

15 On automatic transmission models, install special tool No. 11 8 660 (or equivalent) at the bottom of the transmission to lock the flywheel and prevent the crankshaft from turning. On manual transmission models install special tool No. 11 9 260 (or equivalent) to prevent the crankshaft from turning.

16 Remove the center bolt for the crankshaft hub. Discard the bolt; a new one must be used on installation.

Caution:

It will require 442 ft-lbs (600 Nm) of force to break the center bolt loose; a 3/4-inch breaker bar and socket or air impact tool will have to be used.

17 The crankshaft hub must now be released. Insert two vibration damper bolts and pull the hub off the crankshaft.

18 Remove the chain module three Torx screws and remove the timing chain module with the sprocket.

Installation

19 Check the camshaft gear flats for wear and the grip discs on the oil pump drive gear. The grip discs are welded on - if the discs are damaged, the oil pump drive gear must be replaced.

20 Press the timing chain tensioner back until special tool No. 11 4 120 (or equivalent) can be inserted and lock the tensioner in place.

21 On manual transmission models, install a grip disc to the crankshaft hub.

22 Install the oil pump drive module in first, then the camshaft drive module, if removed.

23 Insert the crankshaft hub through bolt modules.

24 Align the flats of the oil pump drive gear with the flats on the shaft, then install the module mounting bolts and tighten the bolts to the torque listed in [this Chapter's Specifications](#) .

25 Install special tool No. 2 318 117 (or equivalent) to lock the balance shaft/oil pump sprocket in place.

26 Install the new oil pump drive shaft T60 Torx bolt and tighten the bolt to the torque listed in [this Chapter's Specifications](#) .

27 Install the new center bolt for the crankshaft hub. Secure the engine from rotating (see Step 15), then tighten the bolt to the torque listed in [this Chapter's Specifications](#) .

28 Installation is the reverse of removal, noting the following points:

- A. Replace all aluminum bolts.
- B. Tighten all fasteners to their specified torque values where given.
- C. Verify the valve timing (see [Section 3](#)).