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

6 Timing chain - removal and installation

Caution:

The timing system is complex. Severe engine damage will occur if you make any mistakes. Do not attempt this procedure unless you are highly experienced with this type of repair. If you are at all unsure of your abilities, consult an expert. Double-check all your work and be sure everything is correct before you attempt to start the engine.

Removal

- 1 Remove the spark plugs (see [Chapter 1](#)).
- 2 Remove the valve cover (see [Section 4](#)).
- 3 Remove the crankshaft vibration damper (see [Section 5](#)).
- 4 Remove the crankshaft front oil seal (see [Section 13](#)).
- 5 Remove the drivebelt (see [Chapter 1](#)).
- 6 Remove the oil pan (see [Section 11](#)).
- 7 Secure the engine at TDC for No 1 cylinder (see [Section 3](#)).
- 8 Press the timing chain tensioner back using the timing chain guide the insert Special tool No. 11 4 120 (or equivalent) to lock the tensioner for the oil pump drive chain.
- 9 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.
- 10 Remove the center bolt from the crankshaft. 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-drive breaker bar and socket or air impact tool will have to be used.

11 Remove the intake and exhaust camshaft VANOS adjusting units (see [Section 7](#)).

12 Remove the turbocharger wastegate vacuum unit bolts and move the unit back, slightly, to access the camshaft timing chain tensioner bolt head. Unscrew and remove the timing chain tensioner from the right-hand front corner of the cylinder head.

Note:

A new sealing ring must be installed .

Note:

If the chain tensioner is going to be reused, its oil chamber must be drained. To drain the tensioner, place chain tensioner on a level surface and slowly compress the tensioner two times.

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

Caution:

The crankshaft hub traps the crankshaft timing chain sprocket and oil pump drive gear against the crankshaft shoulder. Once the hub bolt is loosened, the sprockets are free to rotate. Ensure the flywheel/driveplate and camshaft locking tools are in place.

14 Unscrew the large Allen-head plugs, one from the top right-hand corner and the two at the lower front section of the crankcase.

15 Remove the Torx screws for the timing chain module guides now accessible through the plug apertures.

16 Remove the timing chain module-to- cylinder head bolts and lift up the timing chain module, complete with chain and crankshaft sprocket. Note the orientation of the crankshaft sprocket (collar towards the crankshaft).

17 If required, disengage the chain from the sprocket and pull it upwards from the module.

Installation

18 Ensure No 1 piston is still at TDC, with the crankshaft and camshafts locked in position (see [Section 3](#)).

19 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.

20 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.

21 Engage the chain with the crankshaft sprocket.

Note:

The collar on the sprocket must point towards the crankshaft side. Pull the chain upwards in the module to firmly trap the sprocket.

22 Lower the timing chain and module in place and feed the crankshaft pulley hub through the center of the sprocket.

23 Insert the *new* crankshaft pulley hub retaining bolt. On automatic transmission models, install BMW special tool No. 11 8 660 (or equivalent) at the bottom of the transmission to lock the flywheel, or on manual transmission models install special tool No. 11 9 260 (or equivalent) to prevent the crankshaft from turning.

24 Tighten the hub center bolt to the torque listed in [this Chapter's Specifications](#) .

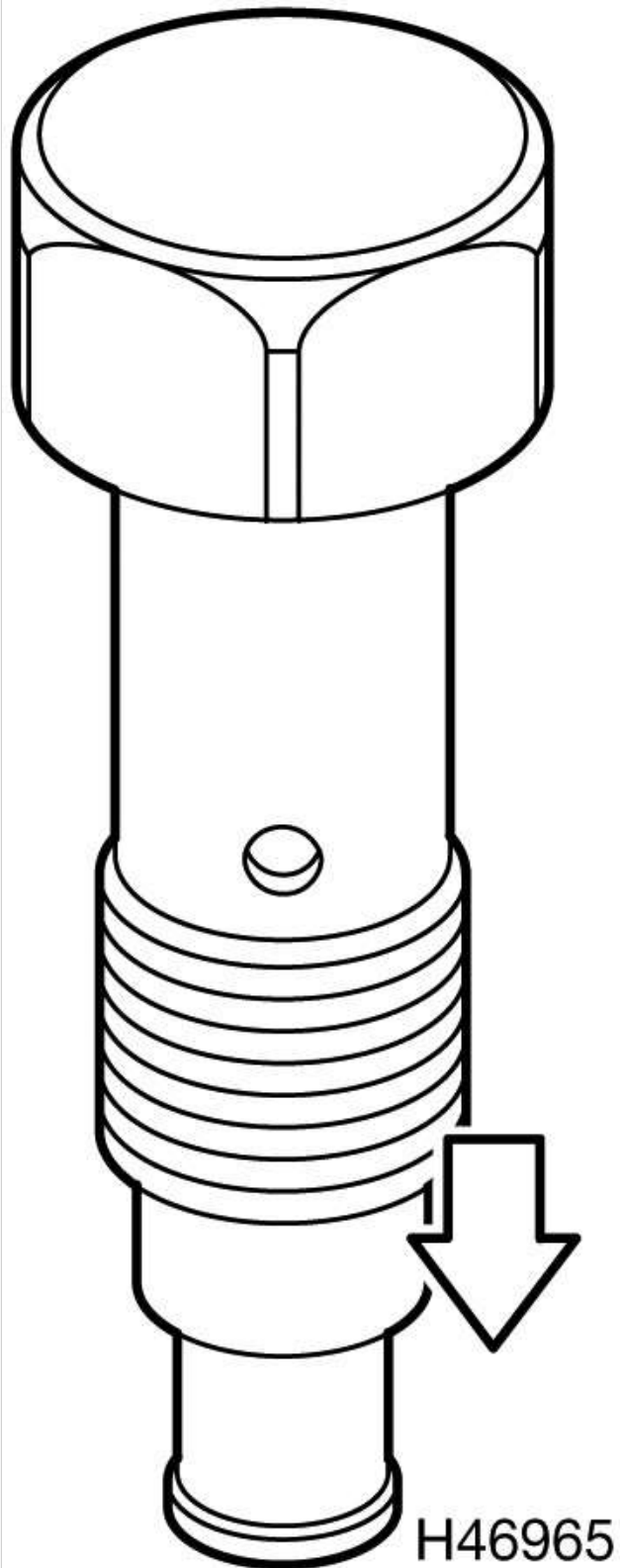
25 Install a new oil seal (see [Section 13](#)).

26 Install the mounting bolts securing the timing chain guides, then install the cover plugs

27 Install the VANOS adjusters to the ends of the camshafts (see [Section 7](#)).

28 Holding it upright (see illustration) , compress the tensioner a couple of times to empty any stored oil. Install and tighten the chain tensioner with a new sealing washer.

6.28 Hold the tensioner upright and compress the piston a few times to evacuate the oil



29 Remove the flywheel/driveplate and camshaft locking tools, then rotate the crankshaft two complete revolutions clockwise. Check that the flywheel/driveplate and camshaft locking tools can still be inserted. If not, repeat the VANOS adjusting units procedure.

30 The remainder of installation is the reverse of removal, noting the following points:

- A. Replace all gaskets and seals.**
- B. Replace all aluminum bolts.**
- C. Tighten all fasteners to their specified torque values where given.**
- D. Install the drivebelt (see [Chapter 1](#)).**

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