



**Haynes**  
shows you how

BMW 3-Series (92-98) & Z3 (96-98) Haynes Online Manual

## 8 Timing chain sprockets and tensioners - removal and installation

### Camshaft sprockets

1 Removal, inspection and installation of the sprockets is described as part of the secondary timing chain removal and installation procedure in [Section 7](#) .

### Crankshaft sprocket

#### Removal

2 The sprocket is combined with the oil pump drive sprocket. On some engines, the sprocket may be a press-fit on the end of the crankshaft.

3 Remove the primary timing chain (see [Section 7](#) ).

4 Slide the sprocket from the front of the crankshaft. If the sprocket is a press-fit, use a three-legged puller to pull the sprocket from the crankshaft. Protect the threaded bore in the front of the crankshaft by installing the pulley hub bolt, or by using a metal spacer between the puller and the end of the crankshaft. Note which way round the sprocket faces to ensure correct installation.

5 Once the sprocket has been removed, recover the Woodruff key from the slot in the crankshaft if it is loose.

#### Inspection

6 Inspection is described along with the timing chain inspection procedure in [Section 7](#) .

#### Installation

7 Where applicable, install the Woodruff key to the slot in the crankshaft.

8 Slide the sprocket into position on the crankshaft. Ensure that the sprocket is fitted the correct way round as noted before removal. If a press-fit sprocket is to be installed, before installing, the sprocket must be heated to a temperature of 300-degrees F. Do not exceed this temperature, as damage to the sprocket may result.

9 Once the sprocket has been heated to the specified temperature, align the slot in the sprocket with the Woodruff key, then tap the sprocket into position using a socket or metal tube. **Warning:** *When the sprocket is heated, take precautions against burns - the metal will stay hot for some time.*

10 Install the primary timing chain (see [Section 7](#)).

## Secondary chain tensioner

### Removal

11 Remove the secondary timing chain (see [Section 7](#)).

12 Remove the tool locking the secondary timing chain tensioner in position, then withdraw the plunger, spring and plunger housing (see illustrations) .

**8.12a Withdraw the secondary chain tensioner plunger . . .**



**8.12b . . . spring . . .**



### 8.12c . . . and plunger housing



13 Unscrew the securing bolts and withdraw the chain tensioner housing from the cylinder head (see illustration) .

### 8.13 Withdrawing the secondary timing chain tensioner housing



## Inspection

14 Inspect the tensioner, and replace if necessary. Check the plunger and the plunger housing for wear and damage. Inspect the chain contact face of the plunger slipper for wear, and check the condition of the spring. Replace any components which are worn or damaged.

15 When installing the plunger to the tensioner, note that the cut-out in the plunger should be positioned on the right-hand side of the engine when the assembly is refitted.

## Installation

16 Install the chain tensioner and tighten the securing bolts to the specified torque.

17 Install the tool to lock the tensioner in position.

18 Install the secondary timing chain (see [Section 7](#) ).

## Primary chain tensioner

19 Removal and installation is described as part of the primary timing chain removal procedure in [Section 7](#) .

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