



**Haynes**  
shows you how

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

## 6 Timing chain covers - removal and installation

### Upper cover

#### 1992 models

**Note:**

A new gasket will be required on installation.

#### Removal

1 Remove the valve cover (see [Section 4](#) ).

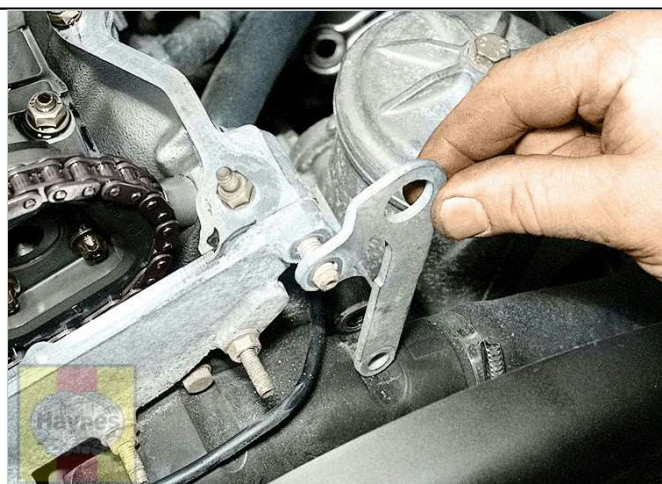
2 Release the securing clips, and remove the wiring ducting from the front of the upper timing chain cover (see illustrations) .

#### 6.2a Release the securing clips . . .

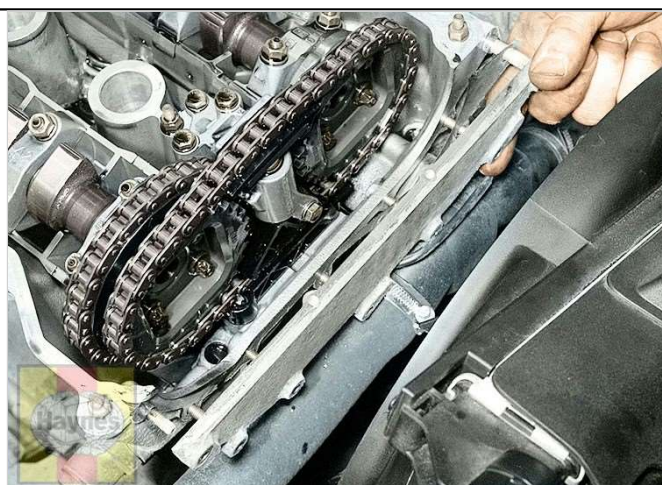


**6.2b . . . and remove the wiring ducting**

3 Unbolt the engine lifting bracket from the front left-hand corner of the cylinder head (see illustration) .

**6.3 Unbolt the engine lifting bracket**

4 Unscrew the securing nuts and remove the upper timing chain cover from the front of the cylinder head (see illustration) . Recover the gasket.

**6.4 Removing the upper timing chain cover****Installation**

5 Installation is a reversal of removal, bearing in mind the following points.

- A. Make sure that the dowel sleeves are in position on the top cover securing studs.
- B. Use a new cover gasket.
- C. Install the valve cover (see [Section 4](#) ).

## 1993 and later models

6 On 1993 and later models, the upper timing chain cover is integral with the VANOS adjustment unit. Removal and installation of the VANOS adjustment unit is described in [Section 9](#) .

## Lower cover

### Note:

New lower timing cover gaskets and a new crankshaft front oil seal will be required on installation. RTV sealant will be required to coat the cylinder head/cylinder block joint - see text.

## Removal

7 Drain the cooling system (see [Chapter 3](#) ).

8 Remove the oil pan (see [Section 12](#) ).

9 Remove the valve cover (see [Section 4](#) ).

10 Disconnect the two coolant hoses from the thermostat housing, and disconnect the coolant hose from the rear of the timing chain cover, behind the oil filter assembly.

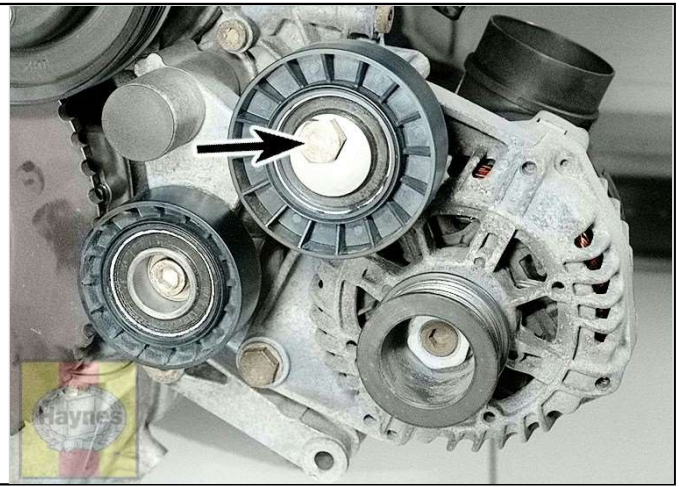
11 Unbolt the thermostat housing from the front of the engine, and recover the gasket. Lift out the thermostat.

12 Unscrew the securing bolt, and withdraw the crankshaft position sensor from the front of the engine. Move the sensor to one side, clear of the working area.

13 Remove the drivebelt tensioner as follows (see illustrations) .



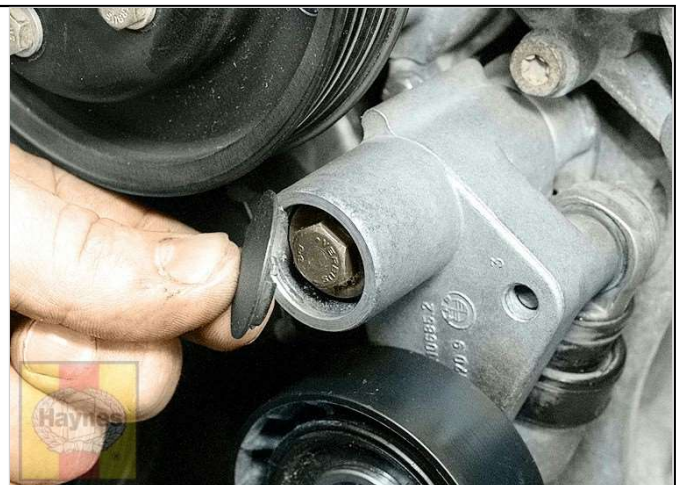
**6.13a Pull the cover from the idler pulley (arrow) . . .**



**6.13b . . . then unscrew the bolt and remove the pulley**



**6.13c Pull the cover from the upper securing bolt**



### 6.13d Removing the drivebelt tensioner



A. Pull the cover from the idler pulley, then unscrew the pulley securing bolt, and remove the pulley.

B. Pull the cover from the upper securing bolt, then unscrew the three securing bolts, and remove the tensioner assembly, complete with the hydraulic tensioner strut. Note that the tensioner strut is filled with oil, and must therefore be stored upright to avoid the oil draining.

14 The coolant pump pulley must now be removed. Counterhold the pulley by wrapping an old drivebelt around it and clamping tightly, then unscrew the securing bolts and withdraw the pulley.

15 Remove the crankshaft damper/pulley and pulley hub (see [Section 5](#)).

16 Working at the top of the timing chain cover, drive out the two cover dowels. Drive out the dowels towards the rear of the engine, using a pin-punch (less than 3/16-inch diameter) (see illustration) .

### 6.16 Driving a locating dowel from the lower timing chain cover



17 On models with VANOS, it is now necessary to remove the VANOS adjustment unit (see [Section 9](#)), for access to the lower timing chain cover-to- cylinder head bolts.

18 Unscrew the three lower timing chain cover-to- cylinder head bolts, and lift the bolts from the cylinder head. Note that one of the bolts also secures the secondary timing chain guide (see illustration) .



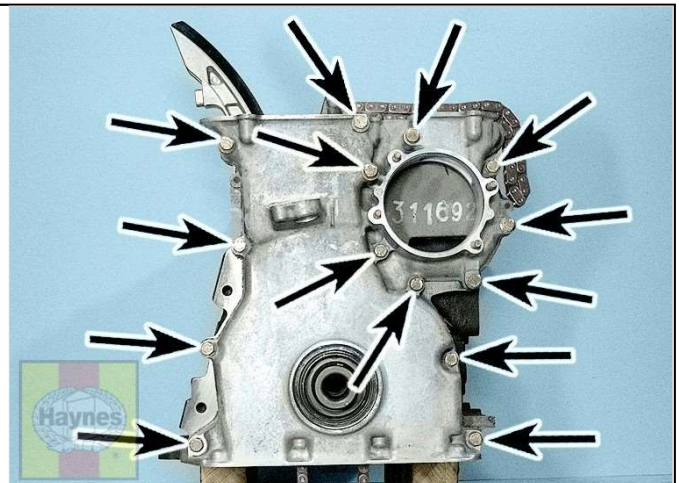
**6.18 Remove the lower timing chain cover-to-cylinder head bolts. Note that this bolt secures the secondary timing chain guide - viewed with secondary timing chain removed for clarity**



**19 Unscrew the lower timing chain cover-to- cylinder block bolts, then withdraw the cover from the front of the engine (see illustrations) . Recover the gaskets.**

**6.19a Unscrew the securing bolts (arrows)**

...



**6.19b . . . and remove the lower timing chain cover - viewed with cylinder head removed**



## Installation

**20 Commence installation by levering out the oil seal from the timing chain cover.**

21 Thoroughly clean the mating faces of the cover, cylinder block and cylinder head.

22 Fit a new oil seal to the timing chain cover, using a large socket or tube, or a block of wood to drive the seal into position (see illustration) .

**6.22 Fitting a new oil seal to the lower timing chain cover**

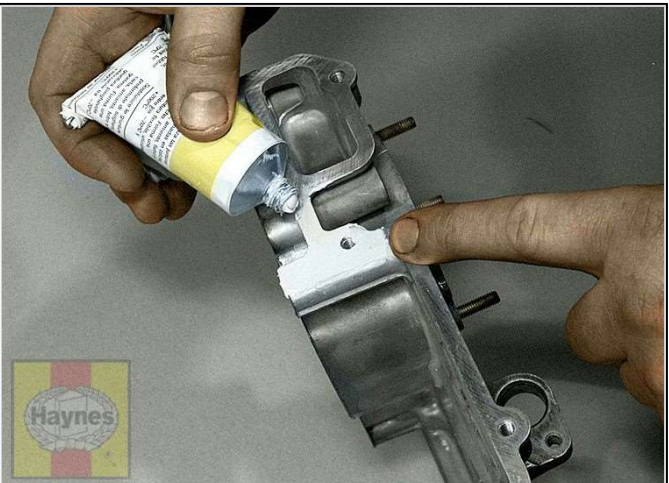


23 Drive the cover dowels into position in the top of the cover so that they protrude from the rear ( cylinder block mating) face of the cover by approximately 1/8-inch.

24 Position new gaskets on the cover, and hold them in position using a little grease.

25 Apply a little RTV sealant to the cylinder head/cylinder block joint at the two points where the timing chain cover contacts the cylinder head gasket (see illustration) .

**6.25 Apply a little RTV sealant to the area where the cylinder head gasket contacts the lower timing chain cover**



26 Offer the cover into position, ensuring that the gaskets stay in place. Make sure that the dowels engage with the cylinder block, and fit the cover securing bolts. Tighten the bolts finger-tight only at this stage.

27 Drive in the cover dowels until they are flush with the outer face of the cover.

28 Progressively tighten the cover securing bolts to the specified torque (do not forget the three cover-to-cylinder head bolts).

29 Where applicable, install the VANOS adjustment unit (see [Section 9](#) ).

30 Install the crankshaft damper/pulley hub and damper/pulley (see [Section 5](#) ).

31 The remainder of the installation procedure is a reversal of removal, bearing in mind the following points.

A. Ensure that the drivebelt hydraulic tensioner strut is fitted correctly. The “TOP/OBEN” arrow must point upwards.

B. Install the drivebelt with reference to [Chapter 1](#) .

C. Install the thermostat and housing with reference to [Chapter 3](#) .

D. Install the valve cover (see [Section 4](#) ).

E. Install the oil pan (see [Section 12](#) ).

F. On completion, refill the cooling system and check the coolant level, (see [Chapter 1](#) and “Weekly Checks” respectively).