



## 5 Crankshaft vibration damper/pulley and pulley hub - removal and installation

### Removal

**Note:**

If the pulley hub is removed, a new securing bolt will be required on installation, and a torque wrench capable of providing 303 ft-lbs of torque will be required.

1 To improve access, unscrew the securing bolts and/or nuts, and remove the alternator air ducting from the front of the vehicle.

2 Again to improve access, remove the viscous cooling fan and fan shroud assembly (see [Chapter 3](#) ).

3 Remove the drivebelt (see [Chapter 1](#) ).

4 Unscrew the securing bolts, and remove the vibration damper/pulley from the hub (see illustration) . If necessary, counterhold the hub using a socket or wrench on the hub securing bolt.

#### 5.4 Removing the vibration damper/pulley from the crankshaft

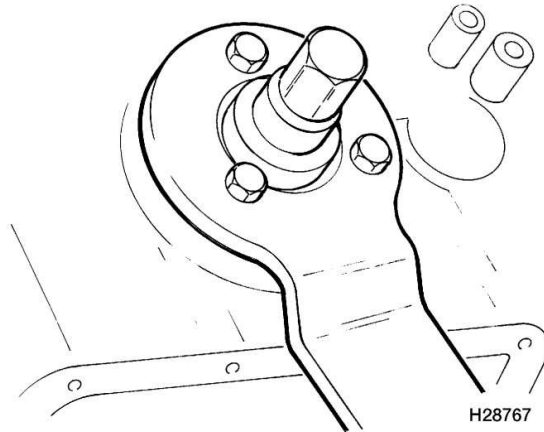


5 To remove the hub, the securing bolt must be unscrewed. **Warning:** *The crankshaft pulley hub securing bolt is very tight. A tool will be required to counterhold the hub as the bolt is unscrewed. Do not attempt the job using*

*inferior or poorly improvised tools, as injury or damage may result.*

6 Make up a tool to hold the pulley hub. A suitable tool can be fabricated using two lengths of steel bar, joined by a large pivot bolt. Bolt the holding tool to the pulley hub using the pulley-to-hub bolts (see illustration) .

**5.6 BMW special tool used to hold crankshaft pulley hub**



7 Using a socket and a long breaker bar, loosen the pulley hub bolt. Note that the bolt is very tight.

8 Unscrew the pulley hub bolt, and remove the washer (see illustration) . Discard the bolt, a new one must be used on installation.

**5.8 Unscrew the pulley hub bolts and remove the washer . . .**



9 Withdraw the hub from the end of the crankshaft (see illustration) . If the hub is tight, use a puller to draw it off.

### 5.9 . . . then withdraw the hub



10 Recover the Woodruff key from the end of the crankshaft if it is loose.

## Installation

11 If the pulley hub has been removed, it is advisable to take the opportunity to replace the oil seal in the lower timing chain cover, with reference to [Section 6](#) .

12 If the pulley hub has been removed, proceed as follows, otherwise proceed to paragraph 16.

13 Where applicable, install the Woodruff key to the end of the crankshaft, then align the groove in the pulley hub with the key, and slide the hub onto the end of the crankshaft.

14 Install the washer, noting that the shoulder on the washer must face the hub, and fit a new hub securing bolt.

15 Bolt the holding tool to the pulley hub, as during removal, then tighten the hub bolt to the specified torque. Take care to avoid injury and/or damage.

16 Where applicable, unbolt the holding tool, and install the vibration damper/pulley, ensuring that the locating dowel on the hub engages with the corresponding hole in the damper/pulley.

17 Install the damper/pulley securing bolts, and tighten to the specified torque. Again, counterhold the pulley if necessary when tightening the bolts.

18 Install the drivebelt (see [Chapter 1](#) ).

19 Install the viscous cooling fan and shroud (see [Chapter 3](#) ).

20 Install the alternator air ducting.