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shows you how

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

## 20 Steering column intermediate shaft - removal and installation

### Removal

1 Chock the rear wheels, firmly apply the parking brake, then jack up the front of the vehicle and support on axle stands. Set the front wheels in the straight-ahead position.

#### Models with a one-piece intermediate shaft

2 Using paint or a suitable marker pen, make alignment marks between the intermediate shaft universal joint and the steering column, the shaft and flexible coupling and the flexible coupling and the steering gear pinion.

3 Loosen and remove the nuts and clamp bolts, then slide the two halves of the shaft together and remove the shaft assembly from the vehicle (see illustration) .

**20.3 Steering column-to-intermediate shaft clamp bolt (arrow)**



4 Inspect the intermediate shaft universal joint for signs of roughness in its bearings and ease of movement. Also examine the shaft rubber coupling for signs of damage or deterioration, and check that the rubber is securely bonded to the flanges. If the universal joint or rubber coupling are suspect, the complete intermediate shaft should be replaced.

#### Models with a two-piece intermediate shaft

5 Using paint or a suitable marker pen, make alignment marks between the intermediate shaft universal joint and the steering column, and the flexible coupling and steering gear pinion.

6 Loosen and remove all three intermediate shaft clamp bolts and nuts.

7 Slide the shaft downwards and disengage its upper end from the steering column. Release its lower end from the rubber coupling.

8 Remove the rubber coupling from the steering gear.

9 Inspect the intermediate shaft universal joint for signs of roughness in its bearings and ease of movement. If the universal joint is worn, replace the intermediate shaft. Examine the rubber coupling for signs of damage or deterioration, and check that the rubber is securely bonded to the flanges. If the rubber coupling is suspect, it should be replaced.

## Installation

### Note:

New intermediate shaft clamp bolt nuts will be required on installation.

### Models with a one-piece intermediate shaft

10 Check that the front wheels are still in the straight-ahead position, and that the steering wheel is correctly positioned.

11 Align the marks made on removal, and engage the intermediate shaft joint with the steering column and the coupling with the steering gear.

12 Insert the clamp bolts, then install the new nuts and tighten them to the specified torque. Lower the vehicle to the ground.

### Models with a two-piece intermediate shaft

13 Check that the front wheels are still in the straight-ahead position and the steering wheel is correctly positioned.

14 Align the marks made prior to removal and engage the rubber coupling with the steering gear pinion.

15 Insert the intermediate shaft into the coupling, then engage the shaft joint with the steering gear, aligning the marks made on removal.

16 Ensure all the alignment marks are correctly positioned then insert the clamp bolts.

17 Install a new nut to each clamp bolt, tightening them to the specified torque, and lower the vehicle to the

ground.