



**Haynes**  
shows you how

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

## 25 Tie-rod end - removal and installation

### Removal

- 1 Apply the parking brake, then jack up the front of the vehicle and support it on axle stands. Remove the appropriate front wheel.
- 2 Make a mark on the tie-rod and measure the distance from the mark to the center of the balljoint. Note this measurement down, as it will be needed to ensure the wheel alignment remains correctly set when the balljoint is installed.
- 3 Hold the tie-rod and unscrew the balljoint locknut.
- 4 Loosen and remove the nut securing the tie-rod end to the steering knuckle, and release the balljoint tapered shank using a universal balljoint separator.
- 5 Counting the exact number of turns necessary to do so, unscrew the balljoint from the tie-rod end.
- 6 Carefully clean the balljoint and the threads. Replace the balljoint if its movement is sloppy or too stiff, if excessively worn, or if damaged in any way; carefully check the stud taper and threads. If the balljoint boot is damaged, the complete balljoint assembly must be replaced; it is not possible to obtain the boot separately.

### Installation

**Note:**

A new balljoint retaining nut will be required on installation.

- 7 If necessary, transfer the locknut and collar to the new tie-rod end.
- 8 Screw the balljoint onto the tie-rod by the number of turns noted on removal. This should position the balljoint at the relevant distance from the tie-rod mark that was noted prior to removal. Tighten the locknut securely.
- 9 Install the balljoint shank to the steering knuckle, then install a new retaining nut and tighten it to the specified torque.

**10 Install the wheel, then lower the vehicle to the ground and tighten the wheel bolts to the specified torque.**

**11 Have the front end alignment checked and, if necessary, adjusted.**

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