

## Replacing Tie-Rod Ends

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Steering and brakes are two vehicular systems that are often best left to professional mechanics to diagnose and repair. However, certain routine-maintenance procedures in these areas don't require any special knowledge or skill.

Tie-rod ends are steering-system components that can often be easily replaced by the average-skilled car owner. The only non-standard tool necessary for the job is a puller: either a special tie-rod-end puller or a two-jaw unit. (The

necessary puller can often be borrowed or rented from your local auto-parts store.)

### Installation Tips

- Refer to a service manual for fastener torque specifications and for any procedures that are unique to your vehicle.
- Unlock the steering wheel before jacking up the vehicle. This allows the steering linkage to be moved for the best possible access to the ends' fasteners by grabbing one of the axle hubs (especially on front-wheel-drive cars such as the one shown here).
- Secure the vehicle on jackstands before removing the wheels.
- Buy name-brand tie-rod ends. Saving a few dollars on cheaply made parts isn't worth the risk.
- Mark the tie-rod ends' positions on their threaded adjusters before removing the old ends. This way, the new ends can be screwed in to approximately the same position as the old ones to get wheel alignment in the ballpark.
- Have the vehicle professionally aligned afterward, especially if the steering wheel isn't centered or the vehicle pulls one direction when attempting to drive straight.

### Signs of Failure

- Front-end shimmy, shake or vibration.
- Abnormal front-end noise.
- Hard steering.
- Steering wheel doesn't return to center properly.
- Vehicle wanders.
- Steering feels unstable, loose or has excessive play.



**Step 1** Always buy name-brand tie-rod ends. Also beware that each side is threaded differently, so the part numbers should be different. Ask the parts person to label left and right.



**Step 2** With the vehicle raised, secured, and its front wheels removed, begin the tie-rod-end job by loosening the pinch bolt on the end itself or on the adjuster sleeve (depending on end style).



**Step 3** Remove the cotter pin and castellated nut from the old end.



**Step 4** Use a 2-jaw or tie-rod puller (shown) to disconnect the end.



**Step 5** Before unscrewing the old ends, mark their positions so the new ones can be installed in roughly the same positions. Install the grease fittings into the new ends, if applicable.



**Step 6** Install the new rubber boots on the replacement tie-rod ends and then reverse the disassembly procedure. Always use the new hardware and cotter pins that come with the replacement ends and torque all fasteners to factory spec.



**Step 7** Lube the new ends until the grease seeps from behind the boots. Then wipe off any excess external grease.

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