



Haynes
shows you how

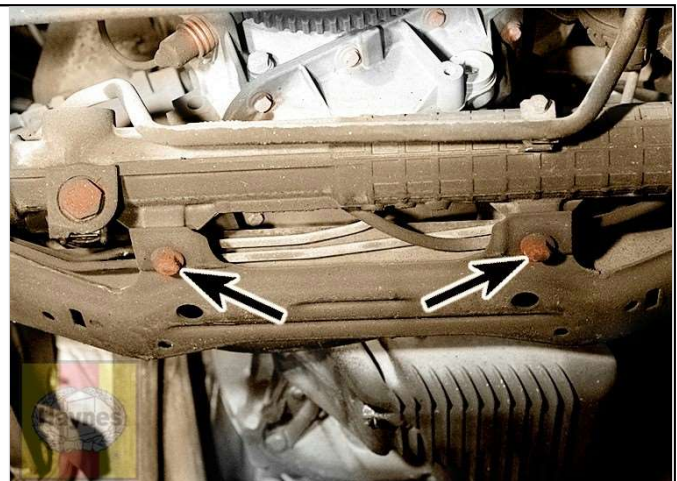
BMW 3-Series (92-98) & Z3 (96-98) Haynes Online Manual

21 Steering gear assembly - removal, overhaul 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. Remove both front wheels.
- 2 Loosen and remove the nuts securing the steering gear tie-rod ends to the steering knuckles, and release the balljoint tapered shanks using a universal balljoint separator.
- 3 Using paint or a suitable marker pen, make alignment marks between the intermediate shaft flexible coupling and the steering gear pinion.
- 4 On models with power-assisted steering, using brake hose clamps, clamp both the supply and return hoses near the power steering fluid reservoir. This will minimize fluid loss. Mark the fittings to ensure they are correctly positioned on reassembly, then loosen and remove the feed and return pipe fitting bolts and recover the sealing washers. Be prepared for fluid spillage, and position a suitable container beneath the pipes while unscrewing the bolts. Plug the pipe ends and steering gear orifices, to prevent fluid leakage and to keep dirt out of the hydraulic system.
- 5 Loosen and remove the steering gear mounting bolts and nuts, and remove the steering gear from underneath the vehicle (see illustration) .

21.5 Steering gear mounting bolts (arrows)



Overhaul

6 Examine the steering gear assembly for signs of wear or damage, and check that the rack moves freely throughout the full length of its travel, with no signs of roughness or excessive free play between the steering gear pinion and rack. It is not possible to overhaul the steering gear assembly components; if it is faulty, the assembly must be replaced. The only components which can be replaced individually are the steering gear boots, the tie-rod ends and the tie-rods. These procedures are covered later in this Chapter.

Installation

Note:

New tie-rod end nuts, steering gear mounting nuts, and an intermediate shaft clamp bolt nut, will be required on installation. New sealing washers for the fluid pipe fitting bolt will also be needed.

7 Install up the steering gear, and insert the mounting bolts. Install new nuts to the bolts, and tighten them to the specified torque.

8 On power-assisted steering models, position a new sealing washer on each side of the pipe hose fittings and install the fitting bolts. Tighten the fitting bolts to the specified torque.

9 Align the marks made on removal, and connect the intermediate shaft coupling to the steering gear. Insert the clamp bolt then install the new nut and tighten it to the specified torque.

10 Locate the tie-rod ends in the steering knuckles, then install the new nuts and tighten them to the specified torque.

11 Install the wheels, then lower the vehicle to the ground and tighten the wheel bolts to the specified torque.

12 On models with power steering, bleed the hydraulic system (see [Section 23](#)).