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BMW 3-Series 320i & 320xi (12-14), 325i, 325xi, 330i & 330xi (06) & 328i & 328xi (07-14) Haynes Online Manual

20 Steering gear - removal, inspection and installation

Warning:

These models are equipped with a Supplemental Restraint System (SRS), more commonly known as airbags. Always disable the airbag system before working in the vicinity of any airbag system component to avoid the possibility of accidental deployment of the airbag(s), which could cause personal injury (see Chapter 12).

Warning:

Do not use a memory saving device to preserve the PCM or radio memory when working on or near airbag system components.

Removal

- 1 Block the rear wheels, firmly apply the parking brake, then raise the front of the vehicle and support it securely on jackstands. Remove both front wheels, then remove the fasteners and the engine under-shield.
- 2 Set the steering in the straight-ahead position and engage the steering lock. On models with electric power steering, disconnect the negative battery cable (see [Chapter 5](#)).
- 3 Remove the nuts securing the outer tie-rod ends to the steering knuckles. Unscrew them until the edge of the nuts are flush with the ends of the balljoint shanks. Release the balljoints by gently tapping the ends of the shanks with a soft-faced hammer (see illustrations) . There is no need to use a universal balljoint separator.

20.3a Counterhold the tie-rod end shank with a Torx bit



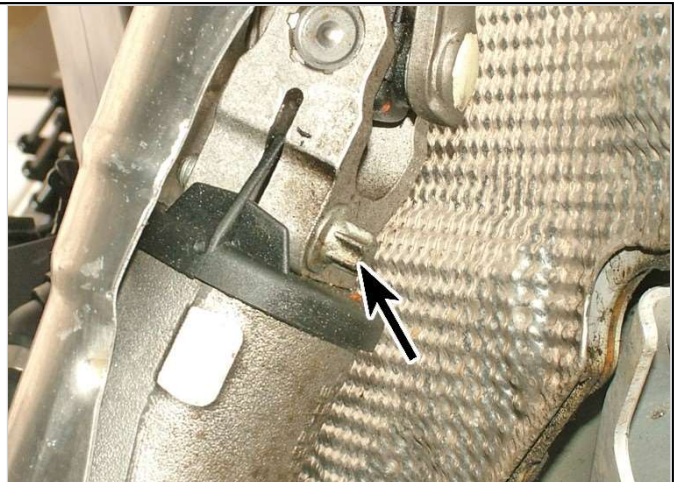
20.3b Remove the nut and tap the tie-rod end from the steering knuckle



4 Using paint or a marking pen, make alignment marks between the intermediate shaft coupling and the steering gear pinion. **Note:** *On some models, an alignment mark is already provided on the pinion flange, which aligns with a mark cast into the pinion housing .*

5 Loosen and remove the coupling pinch-bolt (see illustration) .

20.5 Steering gear pinion coupling pinch-bolt



Conventional power steering

6 Using brake hose clamps, clamp both the supply and return hoses near the power steering fluid reservoir to minimize fluid loss. Mark the unions to ensure they are correctly positioned on reassembly. Loosen and remove the feed and return pipe union bolts from the steering gear pinion housing, and remove the sealing washers - remove the heat shield if necessary. Be prepared for fluid spillage, and position a suitable container beneath the pipes while unscrewing the bolts (see illustration) . Plug the pipe ends and steering gear orifices to prevent fluid leakage and to keep dirt out of the hydraulic system.

20.6 Remove the bolts and detach the pipes from the steering gear

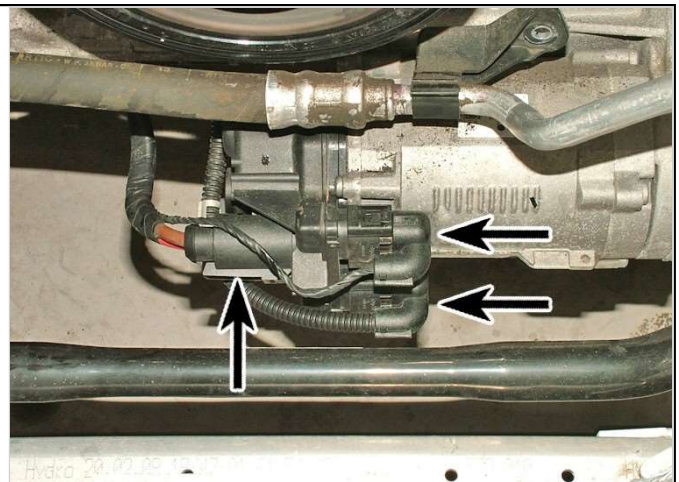


7 Release the power steering pipes from the retaining clips on the steering gear.

Electric power steering

8 Release the steering gear wiring harness from the cable ties, then disconnect the wiring plug from the motor (see illustration) .

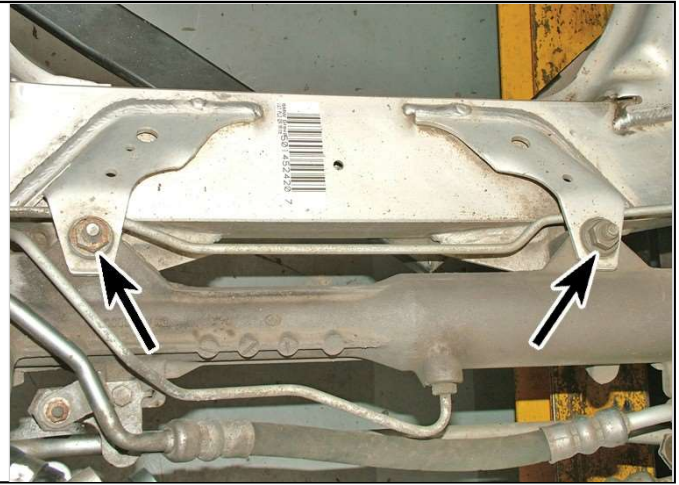
20.8 Disconnect the electrical connectors from the electric power steering gear



All types

9 Loosen and remove the steering gear mounting bolts, and remove the steering gear from underneath the vehicle (see illustration) . Discard the nuts and bolts; new ones must be installed.

20.9 Steering gear mounting bolts



Inspection

10 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 freeplay between the steering gear pinion and rack. It is not possible to overhaul the steering gear assembly housing components; if it is faulty, the assembly must be replaced. The only components which can be replaced individually are the steering gear boots (see [Section 24](#)), the outer tie-rod ends (see [Section 25](#)) or the tie-rod shafts.

Installation

11 Position the steering gear and insert the mounting bolts. Use new nuts and bolts, and tighten them to the specified torque.

12 On models with conventional power steering, position a new sealing washer on each side of the pipe hose unions and install the union bolts. Tighten the union bolts to the specified torque.

13 On models with electric power steering, reconnect the motor electrical connector and secure the harness in its original position using cable ties.

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

15 Insert the outer tie-rod ends into the steering knuckles. Install new nuts and tighten them to the specified torque.

16 Install the wheels and the engine under-shield, then lower the vehicle to the ground and tighten the wheel bolts to the specified torque.

Conventional power steering

17 Bleed the hydraulic system (see [Section 22](#)).

18 The front wheel alignment should be checked at the earliest opportunity. On models with active steering, have the steering angle sensor calibration checked using BMW diagnostic equipment. Entrust this task to a dealer or other qualified shop.

Electric power steering

19 If a new steering gear has been installed, it must be programmed/calibrated using BMW diagnostic equipment. Entrust this task to a dealer or other qualified shop.

20 We recommend that the front wheel alignment be checked at the earliest opportunity. On models with active steering, have the steering angle sensor calibration checked using BMW diagnostic equipment. Entrust this task to a dealer or other qualified shop.

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