

Diagnosis and Testing

General Equipment

Feeler gauge

Straight edge

Items to be observed when checking the steering system

The following list of steering gear conditions and the methods of testing should be taken into account when carrying out checks to the steering system:

- If the steering gear has no faults after completing the following checks, do not install a new steering gear.
- Surface corrosion and marks on the tie-rod are acceptable.
- When checking for turning effort torque peaks in the steering gear, turn the steering wheel from steering lock stop to steering lock stop in approximately 15 seconds.
- A steady increase of turning effort torque from steering center to steering lock stop is acceptable.
- When checking for power steering fluid leaks, turn the steering wheel to the steering lock stop in approximately 10 seconds.
- Noises from the power steering, for example the power steering pump relief valve, are acceptable.

STEERING GEAR HOUSING

- Raise and support the vehicle.
REFER to: [Jacking and Lifting](#) (100-02 Jacking and Lifting, Description and Operation).
- Visually inspect the steering gear housing for cracks and damage. If the steering gear housing is cracked or damaged, install a new steering gear.
REFER to: [Steering Gear](#) (211-02 Power Steering, Removal and Installation).

TIE-RODS

- Using a straight edge and feeler gauge, check the tie-rods to see if they are straight. If the distance between the tie-rod and straight edge is greater than 0.5 mm, install a new steering gear.
REFER to: [Steering Gear](#) (211-02 Power Steering, Removal and Installation).
- Check the tightening torque of the tie-rod end to wheel knuckle nut.
REFER to: [Tie Rod End](#) (211-03 Steering Linkage, Removal and Installation).
- Check the tightening torque of the tie-rod end locking nut.
REFER to: [Tie Rod End](#) (211-03 Steering Linkage, Removal and Installation).

CHECK FOR TURNING EFFORT TORQUE PEAKS IN THE STEERING GEAR

- Lower and support the vehicle making sure that the road wheels are just clear of the floor.
- With the ignition switch in position I, slowly turn the steering wheel from steering lock stop to steering lock stop. If a turning effort torque peak or judder is felt while turning the steering wheel, detach the tie-rods from the wheel knuckles.
- Slowly turn the steering wheel from steering lock stop to steering lock stop. If a turning effort torque peak or judder is felt while turning the steering wheel, install a new steering gear.
REFER to: [Steering Gear](#) (211-02 Power Steering, Removal and Installation).

CHECK FOR POWER STEERING FLUID LEAKS

- Lower the vehicle.
- Run the engine at a fast idle and slowly turn the steering wheel to the left-hand steering lock stop. Hold the steering wheel in this position for 5 seconds with a turning effort torque of 15 Nm at the steering wheel rim.
- Turn the steering wheel away from the left-hand steering lock stop for 30 seconds.

- Run the engine at a fast idle and slowly turn the steering wheel to the right-hand steering lock stop. Hold the steering wheel in this position for 5 seconds with a turning effort torque of 15 Nm at the steering wheel rim.
- Turn the steering wheel away from the right-hand steering lock stop.
- Check for power steering fluid leaks at the steering gear housing and the power steering line connections to the steering gear. If there is a power steering fluid leak at the steering gear, install a new steering gear.

REFER to: [Steering Gear](#) (211-02 Power Steering, Removal and Installation).

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