

Steering System

Electronic Power Assist Steering (EPAS) System

The EPAS system provides power steering assist to the driver by replacing the conventional hydraulic valve system with an electric motor coupled to the steering gear. The EPAS system includes a steering feel selection function that enables the driver to select a steering feel option that suits their driving requirements. The steering feel selection is made through the vehicles message center.

The 3 steering feel options are:

- Standard
- Sport
- Comfort

Refer to the owners literature, Message Center, Steering Feel, for further information.

The Electronic Power Assist Steering (EPAS) system consists of the following components:

- Power Steering Control Module (PSCM) — The PSCM controls the functions of the EPAS system and communicates with other modules that are on the High Speed Controller Area Network (HS-CAN) bus. The PSCM is attached to the EPAS gear assembly and is not available separately for service.
- Motor — The EPAS gear uses a 12-volt reversible motor to control the steering effort. The motor is connected to the steering rack by a toothed belt and a pulley/bearing assembly. The motor is used by the PSCM to move the rack inside the gear housing. Motor position is used to determine steering wheel angle/position instead of using a separate sensor. The motor is attached to the RH side of the EPAS gear assembly and is not available separately for service.
- EPAS gear assembly — The vehicle has 3 EPAS steering gear options available: 75 mm (2.952 in) travel, 68 mm (2.677 in) travel and a 63 mm (2.48 in) travel option. The steering gear installed to the vehicle is dependant on the wheel and tire configuration the vehicle was built with.
- Steering shaft torque sensor — The steering shaft torque sensor is used by the PSCM to determine how much force is being used to turn the steering wheel. The sensor sends out 2 signals, one for left and one for right. When the steering wheel is turned to the left, the left signal increases while the right signal decreases, likewise when the steering wheel is turned to the right, the right signal increases while the left signal decreases. This allows the PSCM to determine if the driver intends to go left or right in order to spin the motor in the appropriate direction. The sensor is mounted inside the EPAS gear assembly and is not available separately for service.
- Inner tie rod — One inner tie rod is located at each end of the EPAS gear assembly and is available separately for service. There are 3 different inner tie rods available, each matched to one of the steering gear options available for the vehicle. Care must be taken to make sure the correct tie rod for the steering gear installed to the vehicle is used when installing a new inner tie rod. For additional information, refer to [Section 211-02](#).
- Outer tie rod — One outer tie rod is located at each end of the EPAS gear assembly and is available separately for service. For additional information, refer to [Section 211-02](#).
- EPAS gear bellows boot — One bellows boot is located on each side of the EPAS gear assembly. Each boot is held in place with 2 boot clamps. The boots and clamps are available for service, refer to [Section 211-02](#).
- EPAS gear isolator — One rubber isolator is located on the right rear attaching point of the EPAS gear assembly. The isolator aids in the reduction of NVH concerns and is not available separately for service.

The EPAS system utilizes a rack-and-pinion type steering gear. Power assist is provided by a motor that is connected to the steering rack by a belt and a pulley and bearing assembly. The steering gear and motor/module are serviced as an assembly. A new steering gear includes inner tie rods, however, the inner and outer tie rods can also be serviced separately. For additional information on tie rod end service, refer to [Section 211-02](#).

