

SECTION 211-02: Power Steering
DESCRIPTION AND OPERATION

2014 F-150 Workshop Manual
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Power Steering

Hydraulic Power Assist Steering (HPAS)

The hydraulic power steering system consists of the following components:

- Power steering pump
- Power steering fluid reservoir
- Power steering pressure and return lines/hoses
- Power steering fluid cooler
- Steering gear
- Inner tie rod
- Outer tie rod

The power steering system uses a vane-type pump to move the fluid from the reservoir to the steering gear and through the rest of the steering hydraulic system. The power steering pump is mounted to the engine and driven by the engine accessory drive belt. Power steering fluid flows into the pump from the reservoir. The power steering fluid is then trapped between the pump vanes and moved to the high-pressure side of the pump creating a flow of fluid. The restriction of this flow by the steering gear creates the pressure that provides the steering assist. A combined pressure relief/flow valve is built into the pump to control the maximum pressure and flow provided to the steering system. This action prevents damage to the system and provides the correct level of assist during all engine speeds. While under pressure, the power steering fluid flows through the high-pressure power steering line to the steering gear. The fluid exits the gear and flows through the return line, cooler and finally to the reservoir. The reservoir slows the fluid, allows air to escape and filters the fluid before returning it to the pump.

Electronic Power Assist Steering (EPAS)

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

- Steering gear
- Outer tie rod
- Inner tie rod

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.

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