

System Description

Fluid Flow Diagram

The reservoir supplies power steering fluid to the pump; the pump pressurizes the fluid and delivers it through a high pressure hose to the valve body unit on the gearbox.

The 4-way valve (in the valve body unit) controls the direction of the turn by shifting fluid to the left or right side of the piston on the rack (in the power cylinder).

The gain control valve in the valve body unit controls the amount of the assist by regulating the stroke of the 4-way valve. The operation of the gain control valve is affected by the fluid pressure, which is regulated by the pressure control valve, sensor orifice and power steering speed sensor.

Constant pressure is generated by the pressure control valve. This pressure is used as a reference pressure for the response to the car speed. By introducing this pressure to the power steering speed sensor through the sensor orifice, the pressure downstream of the orifice is changed according to the speed of car. This pressure is then used to operate the gain control valve. Two orifices are provided around the circumference of the gain control valve. These orifices provide the stepless reduction of the pressure from the pump according to the changes in the car speed. The reduced pressure is then sent to the reaction chambers. Therefore the assist varies by regulating the fluid pressure in the valve body unit according to the speed of car.

Fluid returning from the power cylinder flows back through the 4-way valve and out to the reservoir.

