

P46.20-0252-79

Figure 2 Quantity control valve (30t) closed

c Unpressurized
f Pressurized

Oil volume regulation

The power steering pump is driven by the engine at alternating speeds. Power assistance however requires a constant oil flow. As more oil than is necessary is pumped at higher engine speeds, the surplus oil is fed back to the supply reservoir via the open quantity control valve (30t).

The quantity control valve (30t) thus ensures that the steering gear is supplied with a constant oil stream across the entire engine speed range.

• Engine **ON**, steering wheel not turned:

The pressure oil produced by the rotor cells is fed via the calibrated bore hole (9a) to the steering gear and also via the bore (9b) to the spring chamber downstream of the quantity control valve (30t).

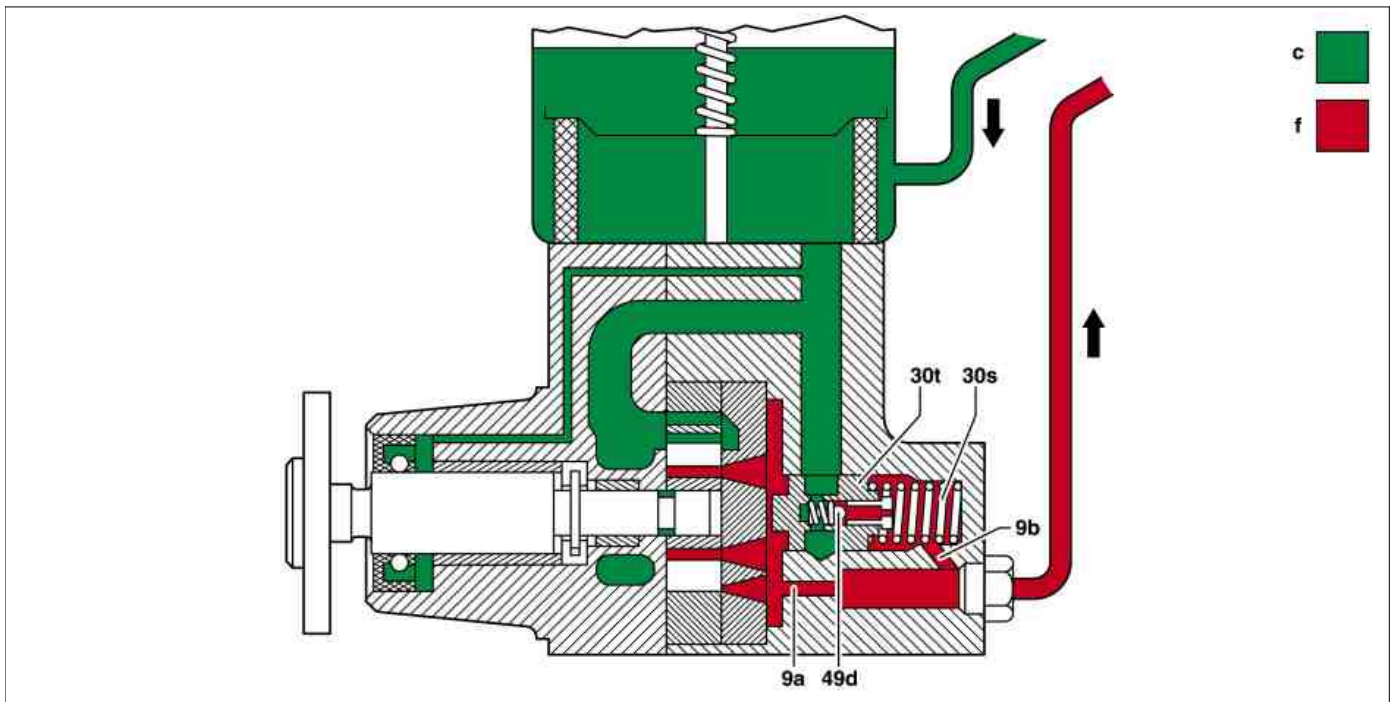
The calibrated bore holes (9a, 9b) throttle the oil stream so that the oil pressure in the spring chamber downstream of the quantity control valve (30t) is lower than on the side of the high-pressure chamber. The quantity control valve (30t) opens (Figure 1) and the surplus pressure oil flows back to the supply reservoir.

• Engine **ON**, steering wheel turned:

Because of the rising pressure downstream of the restrictor orifice (a), the pressure downstream of the quantity control valve also rises. The quantity control valve (30t) closes (Figure 2) and remains in its basic position.

• High engine speed:

If the oil quantity increases as the engine speed rises, a greater pressure difference again occurs due to the calibrated bore hole (9a). The quantity control valve (30t) is forced against the spring (30s) and the surplus oil can flow back to the supply reservoir (Figure 1).



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Quantity control valve (30t) open

Pressure limiting

A pressure limiting valve (49d) is installed in the quantity control valve (30t) to protect the steering system against overloading. It opens at a pressure between 65 and 125 bar depending on the model of power steering pump.

c Unpressurized
f Pressurized

This occurs, for example, at full steering lock, and is audible as a high-pitched whirring whistle.