

HYDRAULIC SYSTEM OPERATION

HYDRAULIC SYSTEM COMPONENTS

Hydraulic Pump

Hydraulic gear pump provides hydraulic oil for all hydraulic functions. Pump has an internal load sense and relief valve.

Location

FIG. 1: Hydraulic Gear Pump (1).

Specifications	
Control Flow	15.9 liters/min (4.2 gal/min)
Relief Setting	150 bar (2175 psi)

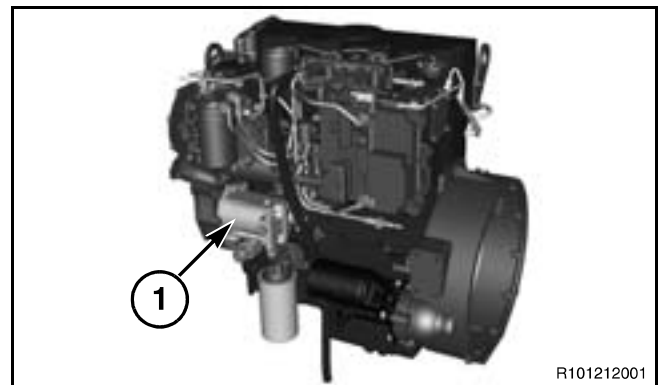


FIG. 1

FIG. 2: Port Identification

1. Relief Valve
2. Inlet
3. Pressure (C-Port)
4. T-Port
5. Return (R-Port)

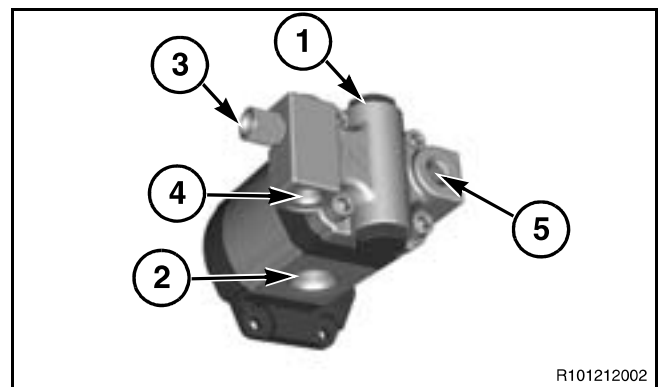


FIG. 2

FIG. 3: Gear Pump Schematic

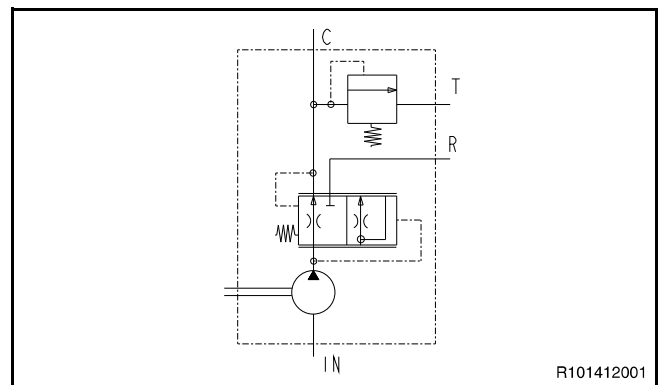


FIG. 3

Hydraulic System Operation

Description

Fluid flow to system is controlled by a spool valve in rear cover of hydraulic pump. As pump speed increases flow increases until specified controlled flow is reached. Any further increase will result in spool valve moving to allow excess flow to spill past spool notches and to tank port.

FIG. 4: Movement of spool is initiated by higher flow and increase in pressure induced force which is transmitted to spool end (via drilling). This pressure moves spool against spring force plus service pressure (via drilling). Force difference at each end of spool is determined by flow through control orifice (1) and spool stays in a balanced position.

System is protected by pilot operated relief valve in flow control cover. Relief valve operating pressure is determined by spring load on poppet (2). This load is in turn determined by spring and number of shims used. If steering cylinder reaches end of stroke, pilot flow reduces pressure at spool to move across opening spool notches allowing excess flow to go to tank port while maintaining system pressure at service port.

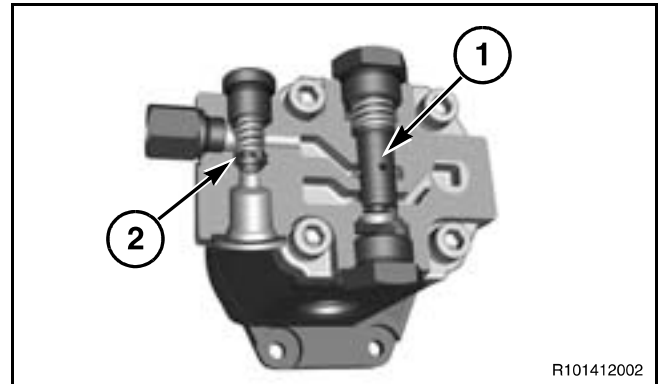


FIG. 4

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