Drott
35 Crawler
D Series

Service Manual

S406252M1

CASE CONSTRUCTION

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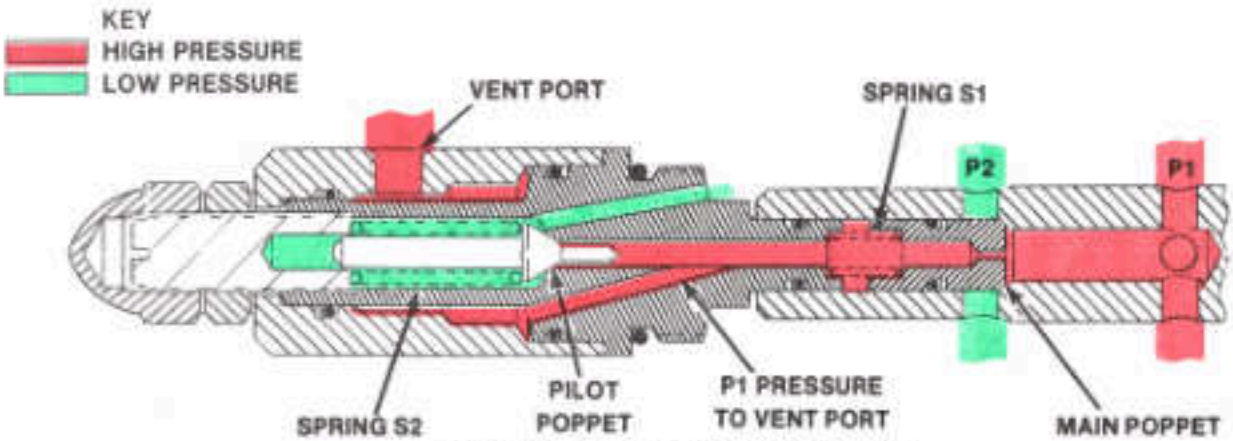


Figure 92. Cross Section of Main Relief

system, the Main Relief Valve actually consists of one MAIN poppet and two PILOT poppets (one internal, one external). When only one circuit is being used, or when pressure in the other circuit is below 1750 psi, the INTERNAL pilot poppet controls the opening of the main poppet. When both circuits are being used within the functioning range of the Power Sensing Valve, the EXTERNAL pilot poppet (in Power Sensing Valve) determines the cracking pressure of the main relief valve.

Figure 92 shows a cross-section of the main relief cartridge. The main poppet is seated by the force of main poppet spring S1 and pressure P1. The pilot poppet is seated by poppet spring S2.

Main system pressure P1 is balanced on both sides of the main poppet when the pilot poppet is seated and the vent line is closed. When main system pressure P1 is sufficient to open the pilot poppet (or the relief piston in the Power Sensing Valve), oil from the back side of the main poppet will be vented to tank. Pressure P1 acting on the front side of the main poppet will be greater than on the back side. The main poppet will then unseat and allow oil from the main system passage to enter tank passage P2.

Each pump circuit contains one Main Relief Valve. The Valve is located at the inlet to the valve bank. The purpose of the Main Relief Valve is to protect the pump and the system from high pressure surges and excessive pressure buildup. Because pressure exerted at any point in a hydraulic system is felt throughout the system, any pressure buildup would be felt all the way back to the pump. For example, when a cylinder bottomed out, the pump would

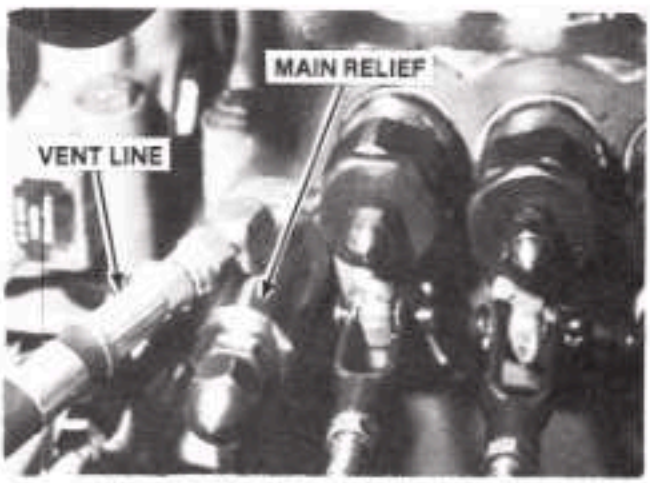


Figure 93. Main Relief Valve Location

continue to force oil into the system. Pressure would build up. Something would have to give - a hose would rupture, or the pump housing would crack etc. With a relief valve in the circuit, when pressure reaches a prescribed limit, the relief valve opens and routes the excess oil back to tank.

Circuit No. 1 is protected by the main relief valve in the inside valve bank (crowd). Circuit No. 2 is protected by the main relief valve in the outside Valve bank (hoist). These relief valves are factory set at 2650 psi (18 270 kPa).

Procedure for Checking/Adjusting Main Reliefs

1. IMPORTANT: Warm the oil to operating temperature (170° F [77° C] minimum).

2. Disconnect the vent line to the Power Sensing Valve from the Main Relief being checked.

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If leakage is more than a couple of drops, cylinder packing is defective and should be replaced.

Crowd Port Reliefs

The Crowd Port Reliefs are set to relieve at 3000 psi (20 680 kPa). Refer to page 74 for description and information on checking/setting the port reliefs.

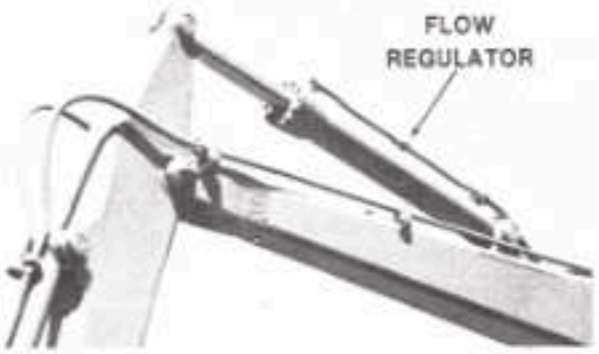


Figure 109. Flow Regulator - Crowd Circuit (E Boom Only)

7. Tool Hydraulics

General Description

The Tool Hydraulic Circuit includes the tool cylinder, two port reliefs, the tool spool in the main control valve and the hydraulic lines which connect the cylinder to the control valve.

Oil is supplied to the tool cylinder by pump section 2 through the outside valve bank. Oil from the cylinder is routed through the valve and returned to tank through two return line filters.

NOTE: Check piston packing same as Crowd cylinder.

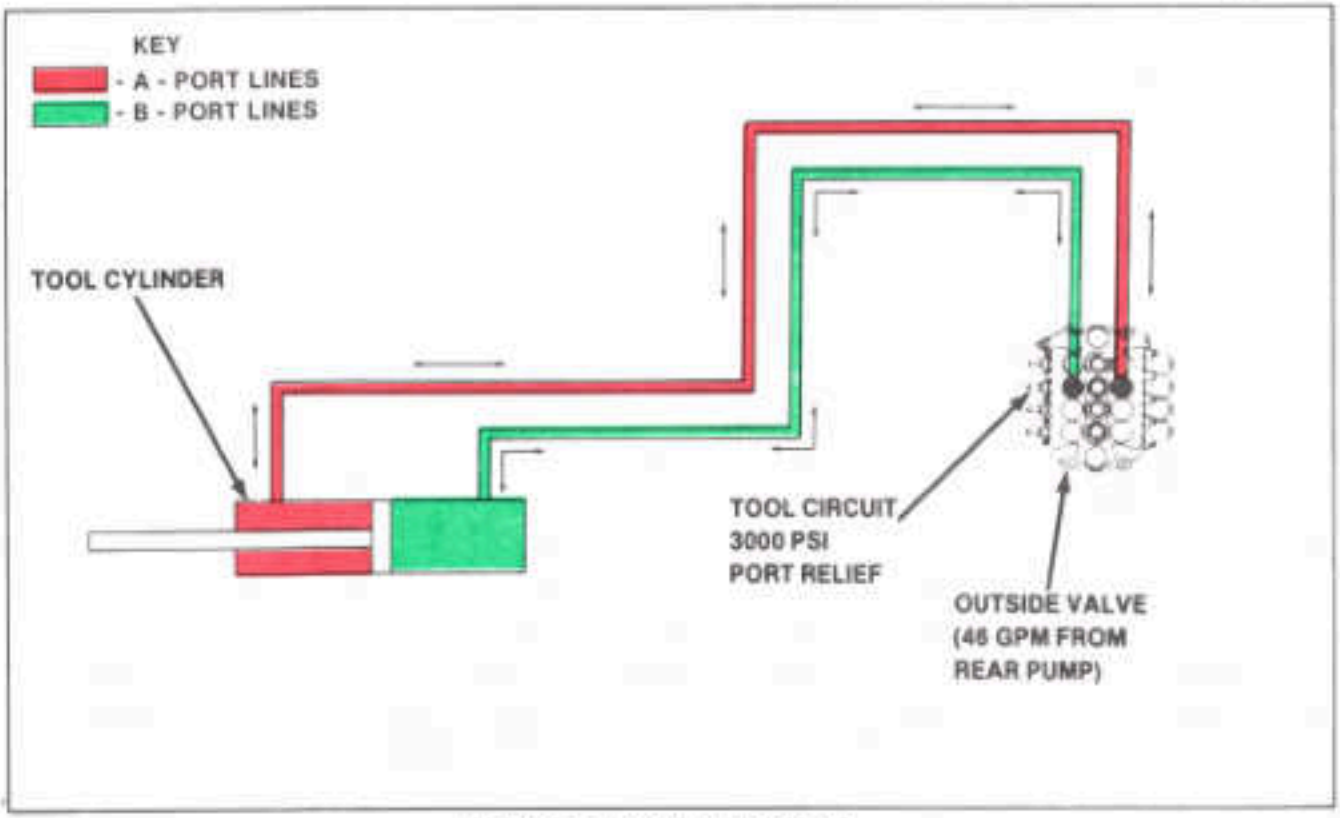


Figure 110. Tool Cylinder Circuit

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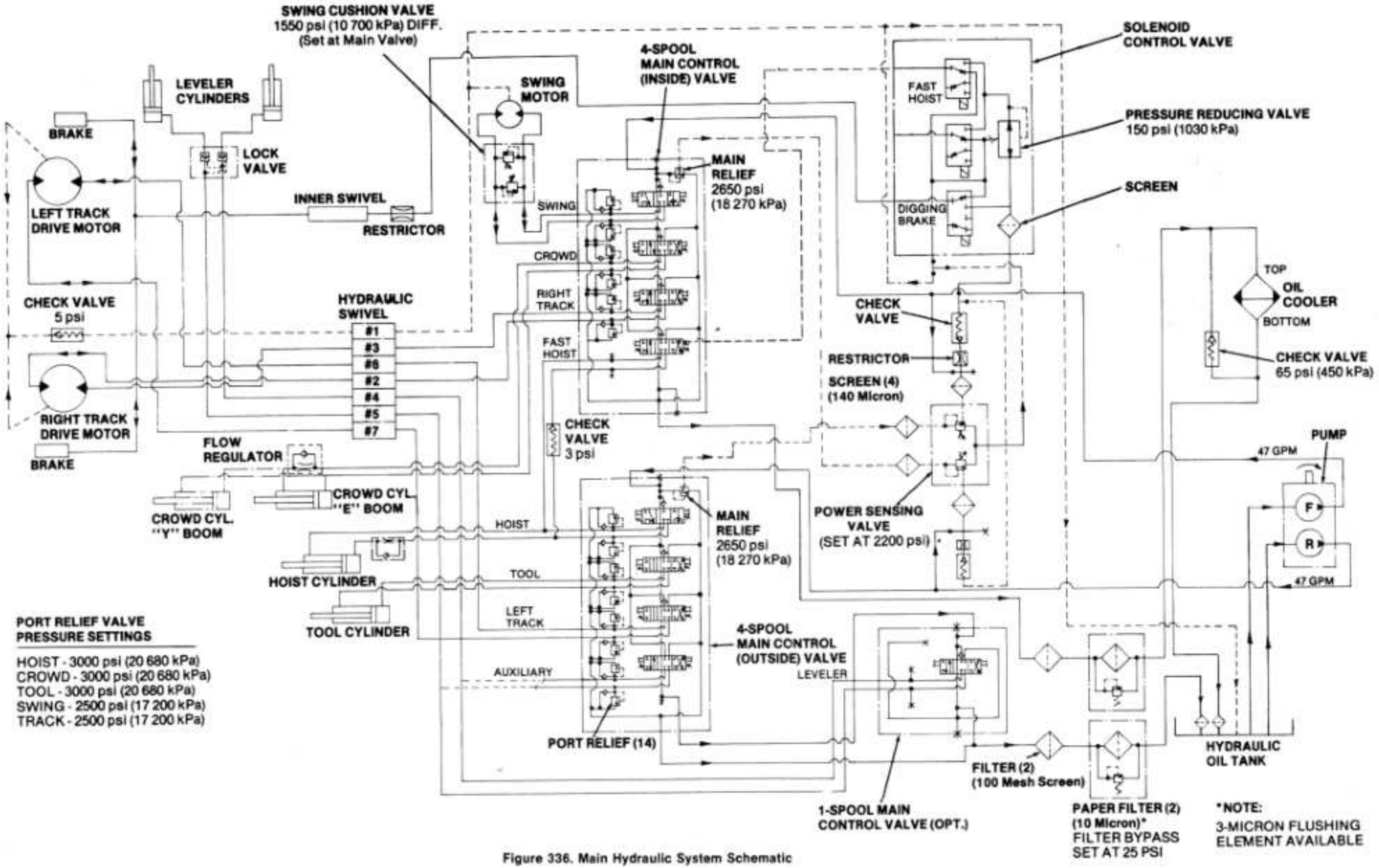


Figure 336. Main Hydraulic System Schematic

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