Hydraulic Pump Troubleshooting Guide

This troubleshooting guide applies to the following pumps:

240241, 240962, 242750, 244440, 245331, 245332, 245469, 245856, 246196, 247026, 247027, 247028, 247422, 247423, 247851, 248943, 249945

Refer to Figure 1 for all item callouts.

PROBLEM	CORRECTIVE ACTION
Low hydraulic pressure. 1. Plugged OP-2 orifice (item 26). 2. Broken Displacement Control Valve Spring (item 28). 3. Sticking Displacement Spool (item 5). 4. Broken Compensator Spring (item 12). 5. Compensator Valve Seat (item 8) worn or loose. 6. Broken Load Sense Spring (item 55). 7. Load Sense Spool sticking (item 53).	**Disassemble & Examine Displacement Control Valve** 1. Remove Bonnet (item 6) and Spring (item 28) from End Cap. 2. Use a small magnet or tweezers to remove the spool (item 5). If spool cannot be pulled out, remove plug (item 22) and push the spool out. 3. The OP-2 orifice is inside the spool. The 0.032 orifice (26) is a cone-shaped piece that is held in the spool by a 10-24 plug (26A) with a 0.070 hole drilled through it. 4. Check that the OP-2 orifice is clear by passing a piece of fine tag wire through the spool. Also check that the four cross drillings in the spool are clear. Blowing air through the spool is not a reliable way of checking that the OP-2 orifice is clear. 5. The spool should move freely in its bore. A 3/32 Allen wrench inserted into the spool will work well for this. 6. Do not disassemble the spool except to make repairs. The orifice plug is locked to the threads with a Nylock patch. Removal of this plug increases the chance that it will back out in the future. 7. If possible, inspect the valve bore. Pieces of contamination can become stuck in the end of the bore and prevent the spool from travelling its full stroke. 8. Reassemble the valve and torque the bonnet to 50 ft-lbs.
Hydraulic pressure too high. 1. OP-2 orifice (item 26) backed out. 2. Sticking Displacement Control Spool (item 5). 3. OP-4 orifice (item 33) plugged. 4. OP-6 orifice (item 19) backed out.	**Disassemble & Examine Compensator Valve** 1. Remove Bonnet (item 9), Spring (item 12) and Poppet (item 7). 2. Poppet should be cone-shaped and with a sharp point. There should be a light ring near the tip where the Poppet seats. Broken, worn or damaged poppets should be replaced. 3. Seat (item 8) can be removed using a thin-walled 7/16 socket. A 12-point socket also usually fits, but most 6-point sockets are too wide. 4. Check fit of Poppet and seat. Also check O-ring for damage. Replace as needed. OP-4 is 0.040 hole drilled into valve seat. Check that it isn't plugged. 5. Install seat and tighten to 200 in-lbs. 6. Insert shim (27), Spring (12) and Poppet (7) into Bonnet. 7. Carefully install Bonnet into cavity. Do not cock Poppet. Torque Bonnet to 80 ft-lbs.

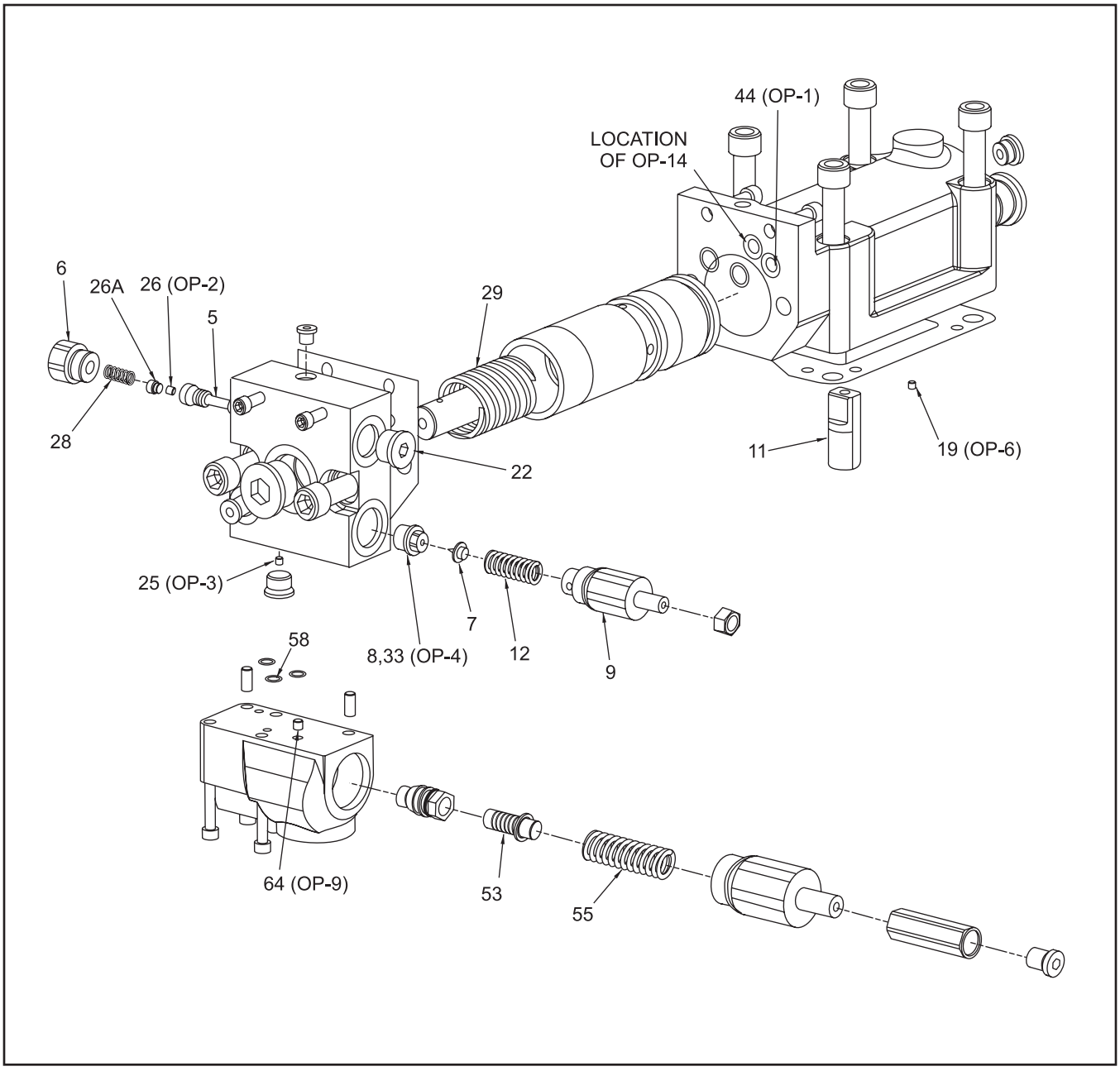

Figure 1: Pump Control

PROBLEM	CORRECTIVE ACTION
Pump control erratic, noisy or won't unload to stand-by pressure 1. OP-3 orifice (item 25) backed out. 2. OP-6 orifice (item 19) plugged. 3. OP-9 orifice (item 64) plugged.	**Disassemble & Examine Load Sense Valve** 1. Remove OP-9 orifice (item 64). If plugged, clean using fine tag wire or torch tip cleaning tool. 2. Remove the Load Sense Valve Bonnet. 3. Remove spring. 4. The Load Sense Seat (54) can be removed with a 5/8 socket. 5. Remove the Load Sense seat and Plunger (item 53). 6. The Plunger should move easily in its bore. Inspect the O-ring and replace if damaged. 7. Insert Plunger into the seat and tighten into the Load Sense Block. 8. Place the spring into the Bonnet and tighten Bonnet into cavity. 9. Tighten Bonnet to 145 ft-lbs.
Pump appears to be stuck on or off stroke 1. Control Piston (item 2) stuck in bore. 2. Control Pin (item 11) broken. 3. Bias Control Spring (item 29) broken. 4. OP-1 orifice (item 44) plugged. 5. OP-6 (item 19) plugged.	