

SERVICE PROCEDURES

8.1.1. High Pressure Water Signal Abnormal Fluctuation

Orifice Large/Worn/Damaged	Check to see that the orifices do not exceed the capacity of the pump. Check to see that the orifices are in good working order and that the orifice is not missing.
Check Piping Leaks	Check system components for leaks including the dump valve condition.
Check Valve Leakage	Inspect the high pressure outlet check valves. Inspect the low pressure inlet check valves.
Check Seal Leakage	Inspect the plunger, sealing head seals.
Hydraulic Control Malfunction	Check the hydraulic valves operation. Verify that the 4-way reversing valve is shifting properly. Verify that the proximity switch is properly installed.

8.1.2. Hot Surfaces on the High Pressure Cylinder Components

H. P. Discharge Check Leaking	Inspect the check valve seat, poppet, spring and guide condition.
Low Pressure Inlet	Inspect the check valve inlet poppet and seat.
Plunger	Check the plunger seal for leaks and check the plunger for wear. Replace if necessary.
Damaged High Pressure Cylinder	Check the cylinder inside diameter for damage. Replace if any damage is found.

8.1.3. Oil and Water Leaks from the High Pressure Weep Holes

Oil Leak at H. P. Intensifier	Check the hydraulic cylinder O-ring for leakage. Check the proximity switch area for oil leakage. Remove, inspect, replace or clean hydraulic seal.
Water Leak at the H. P. Plunger Seal	Replace the seal assembly. Check the plunger and follower if the leak is greater than 1 drop in 10 strokes. Check for scratches, circumferential or longitudinal grooves, or material build up on inside diameter of the High pressure cylinder. Replace immediately if any damage is found.
Water Leaks at the Sealing Head Seal	Check the seal assembly. Check for scratches on the inside diameter of the High Pressure cylinder. Replace immediately if any damage is found.

CONDITION & POSSIBLE CAUSES

CORRECTIVE ACTION

8.1.4. Oil pressure is satisfactory, but water flow is insufficient

Worn high-pressure water seals, accompanied	Replace the high-pressure water seals. Avoid operating the
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by water leakage	intensifier at a stroke rate higher than specified
Worn check valves	Rework or replace the check valves as required
Excessive water requirement	Reduce the number of nozzles in use or reduce the orifice size. Refer to the water flow rate chart.
Defective auto bleed down valve	Rework or replace the valve.

8.1.5. Oil pressure is satisfactory, but water pressure is low

Low Hydraulic Pressure Setting	If in LO pressure mode, turn the pressure switch to HI mode.
Restricted or No Cutting Water Supply	Check the cutting water supply flow and pressure.
Water Filter Clogged	Check the pressure differential at the filter gauges, and replace the elements if the difference exceeds 1 bar [15 psi] while the pump is operating.
Trapped Air	Bleed the air from the cutting water plumbing.
Leak in the high-pressure water lines	Inspect fittings for leakage and torque to specified torque values. Bleed down the high-pressure water system before servicing its components.
Worn hydraulic oil piston seal	Replace seals. H2O Jet recommends replacing all hydraulic oil seals at the same time.
Excessive demand for H.P. water	Reduce demand to rated output.
Worn check valves	Rework check valves.
Leaky high-pressure water seals	Replace seals.
Faulty high-pressure bleed-down	Rework or replace.

8.1.6. High Pressure Check Valves Leak

<p>If there are no visible high pressure water leaks, but there are higher temperatures on the high pressure cylinder or check valve, this is an indication of a high pressure or low pressure check valve leak. Use corrective action listed at right.</p>	<ul style="list-style-type: none"> • Inspect the condition of the HP Check Valve and Seat. • Inspect the condition of the Inlet Check Valve and Seat. • Inspect the Check Valve Sealing Head for scratches or mechanical damage. <p>Lap surfaces or replace if necessary.</p>
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CONDITION & POSSIBLE CAUSES


CORRECTIVE ACTION

8.1.7. Normal Temperature, but the Check Valve has a Problem

Because the high pressure check valves are interconnected, use the following procedures to determine which of the four inlet check valves or four discharge check valves is causing the problem:

Check the inlet high pressure valve	1. Follow the steps outlined in the "High Pressure Check Valves Leak" procedure.
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	<ol style="list-style-type: none"> 2. A bad inlet check valve will be indicated by a piston moving after the proximity switch cables are reconnected.
<p>Check the discharge high pressure check valve after completing the inlet check</p> 	<ol style="list-style-type: none"> 1. Re-install all the high pressure plumbing and proximity switch cables. 2. Start the pump and then close the intensifier valve block assemblies. 3. Stop the pump and watch the high pressure gauge. 4. If the pressure drops, one of the four discharge check valves is leaking. 5. Determine which valve is leaking by inspection. Look for erosion or uneven wear on the poppet or seat.

8.1.8. Oil contains metallic particles

<p>Excessive wear of the hydraulic oil cylinder</p>	<ol style="list-style-type: none"> 1. Immediately stop the intensifier pumps if one or more of the listed conditions is present. 2. Disassemble the intensifier; inspect the components, and rebuild, replacing all worn parts. Inspect hoses. 3. Drain, thoroughly clean, and refill the hydraulic oil reservoir. (See the "Contaminated Hydraulic Oil System" service procedure 5.5 of your pump manual.) 4. Replace the screen filter in the reservoir tank. 5. Replace the oil filter. 6. Reinstall the intensifier and recommission the equipment.
<p>The following are signs of excessive wear of the hydraulic oil cylinder; uneven stroking, sluggish shifting, lower stroking rate, unusually high hydraulic oil pump noise during shifting, a sudden drop in the intensifier's ability to meet the demand for high-pressure water, and severe pressure fluctuation in the output water.</p>	
<p>Excessive wear of the hydraulic oil pump</p>	<ol style="list-style-type: none"> 1. Immediately stop the intensifier pumps if one or more of the listed symptoms is present. 2. Replace the hydraulic oil pump after draining and thoroughly cleaning the hydraulic oil system. Refill the hydraulic oil reservoir. 3. Recommission the intensifier pump after replacing the hydraulic oil filter. Close the reservoir gate valve; remove the gravity feed oil supply line. Inspect for metal shavings; note the size and type.

Intensifier Troubleshooting Guide

