Knowledge Base

Article Type: Instructions

Trouble-shooting Hydraulics on the 24CSA Splitter

Description:

Instructions on "How to" trouble-shoot the hydraulics on the 24CSA Splitter.

WARNING

Never work on, clean or service this unit, control panel or any machine or open or remove any protective cover, guard, grate, door, or maintenance panel until the power or energy sources has been turned off, locked out / tagged out, and all moving parts have come to a complete stop and or blocked to prevent movement. Machinery is dangerous – avoid personal injury and or death by following manufacture, Local, and OHSA safety procedures. Contact Colu mbia Machine for safety decals, guards, horns and beacons.

24CSA SPLITTER HYDRAULIC INFORMATION & VALVE CENTERING INSTRUCTIONS

Hydraulic Oil:

Oil reservoir capacity is approximately 16 gallons. (60 Liters metric) fill to the reservoir capacity.

Do not start the pump until the tank has been filled with oil and the oil seal on the pump shaft has been lubricated by hand.

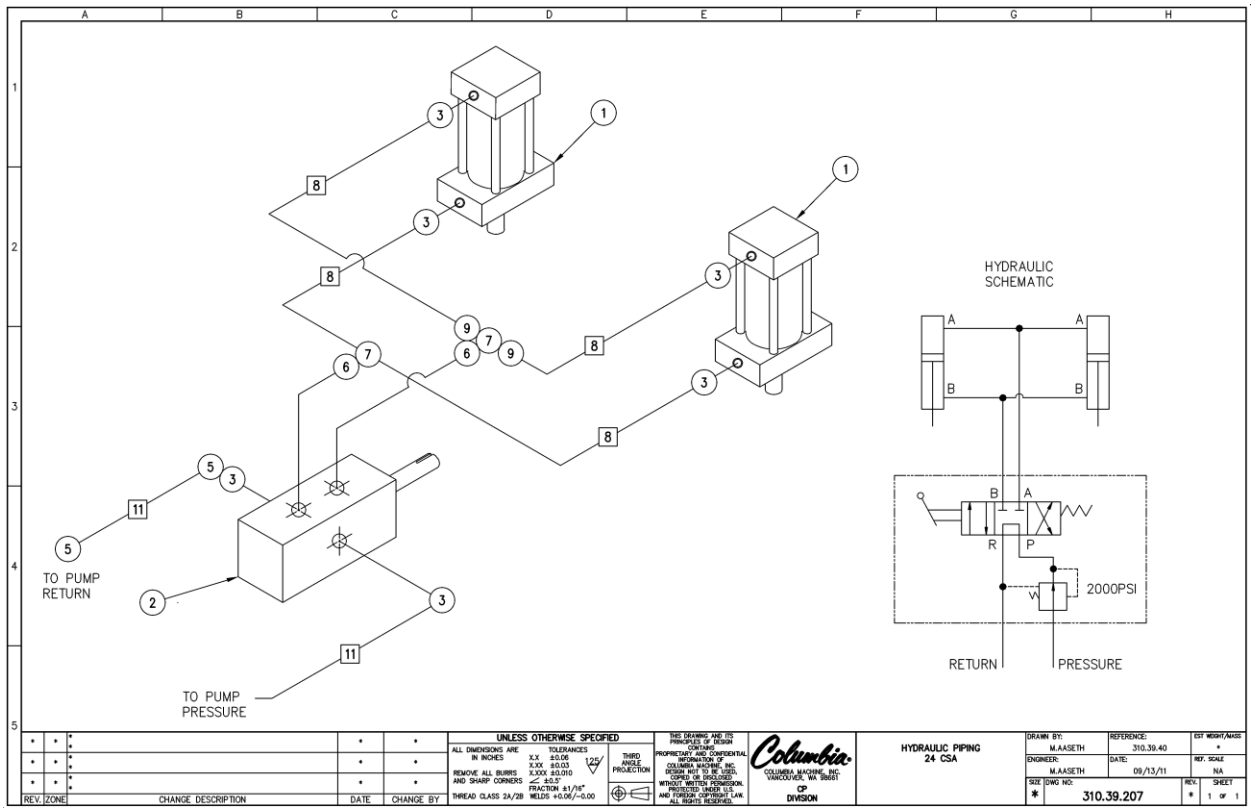
Check for proper pump rotation: A rotation arrow on the pump is located directly over the shaft on the pump housing over the shaft. If rotation is wrong, shut power off immediately and have a qualified electrician reverse the two motor wiring connections.

Oil Pressure:

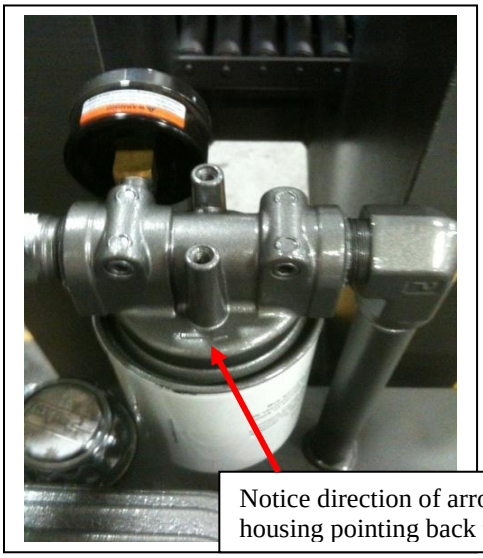
The pump is a fixed volume pump. Pressure is controlled by a relief valve, preset at 2000 P.S.I., incorporated in the control valve.

The control valve has an open center spool. When shifted to the center position, oil is allowed to freely flow from the pump to the tank at near zero (0) pressure. When the valve is shifted to actuate the cylinder to split a block, the cylinders will travel at very low pressure until the blade contacts the block to be split. The pressure will then go up as high as is required to split the block (maximum 2000 P.S.I.)

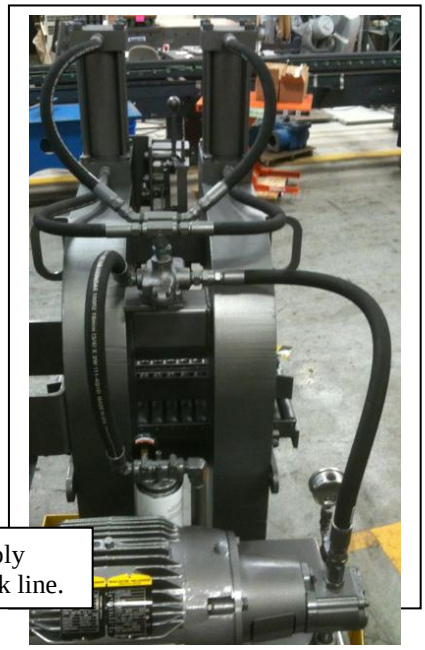
See hydraulic piping schematic for proper hydraulic flow and connections. Print 310.39.207 (show next page).

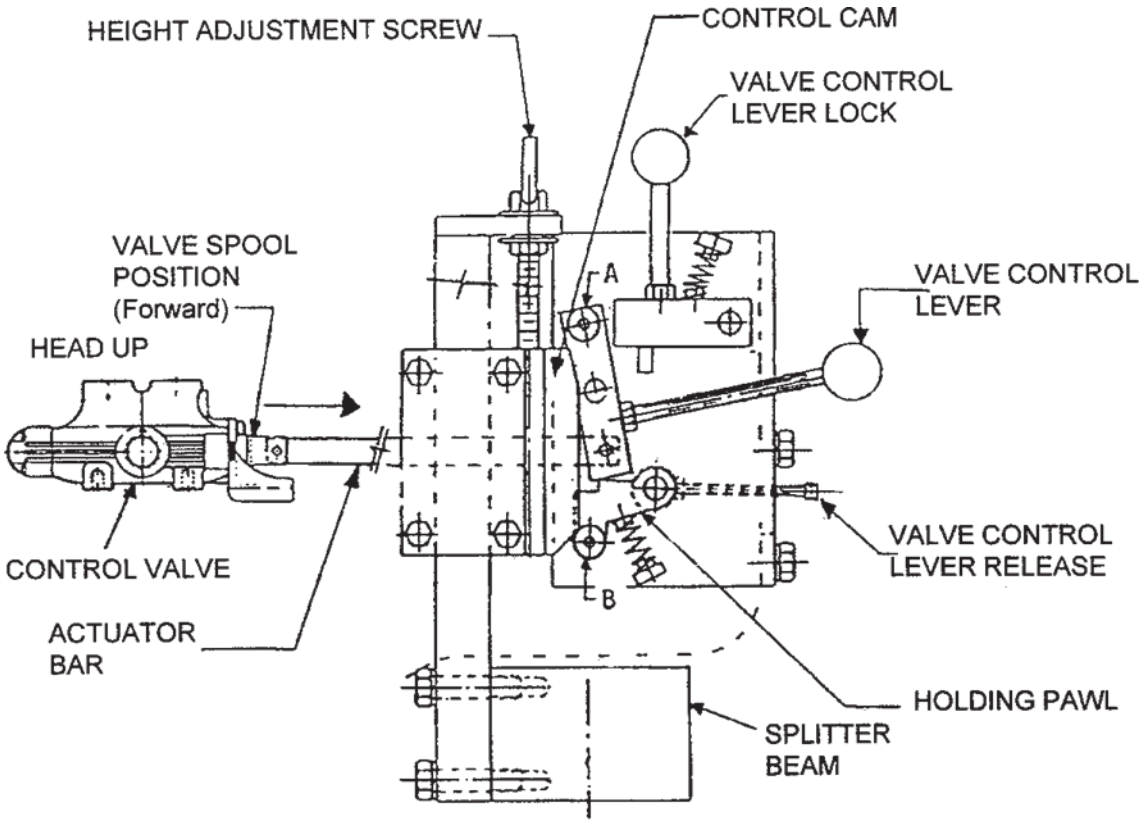


Pictures show proper hose connections to filter assembly in and out. This must be set correctly as hooking the filter assembly up with the flow in the wrong direction will block the oil flow causing the filter to blow out.



Notice direction of arrow on filter assembly housing pointing back to the return to tank line.





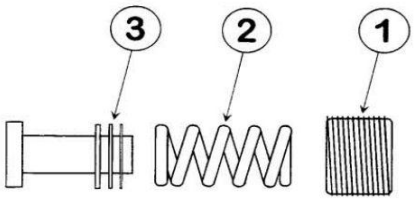
With valve control lever in home position and height adjustment screw set the control valve should be set in the neutral position with no oil pressure on gauge (0) pressure. If you have pressure showing on the gauge loosen the (4) bolts holding the control valve in position and move the control valve either forwards or back until you see the pressure on the gauge drop to zero (0) pressure. Lock the bolts down and check to insure the valve has not moved. This should complete the centering of the control valve.

Relief Adjusting & Spool Seal Replacement Procedures

Relief Valve Adjustment Procedures

Relief valves are factory set at 1500 PSI (103 bar) unless otherwise specified. Relief valves are not externally adjustable. However, they may be reset to different pressures by the use of shims. In attempting to reset relief valve pressure, the use of a pressure gauge is essential.

Do not attempt to adjust/shim these reliefs unless you have the capability to test the reliefs for proper pressure setting. Without the capability to test you may exceed the maximum pressure rating of the product or draw the relief spring solid, which in turn means there is no relief (NR).



Follow these procedures to change the relief setting:

CAUTION

Do not attempt to adjust the pressure setting by tightening the .375 inch NPTF plug (No.1). This is a tapered plug, and any attempt to tighten beyond its normal depth may crack or break the valve housing.

1. Remove .375 inch NPTF plug (No.1) from the housing.
2. Remove the Centering Spring (No.2).
3. Add or remove shims (No.3) as necessary to increase to decrease pressure setting. A .010 (0,25 mm) shim will increase or decrease the relief setting by approximately 120 PSI (8,0 bar).
4. Replace spring and plug.
5. Always test relief to new setting.

Warning

Maximum pressure rating for Model 300 and 400 control valves is 2500 PSI (172 bar) for SAE Porting and 2000 PSI (138 bar) for NPT Porting.

Spool Seal Replacement Procedures

1. Remove the 4 cap screws (No.6) and bonnet (No.7) and set aside.
2. Remove all remaining spool positioner parts from the rear of the valve housing.
3. Remove handle (No. 26).
4. Remove 2 cap screws (No.25) in handle bracket (No.24). Remove bracket.
5. With the bracket removed, temporarily return handle into spool clevis and install spool clevis pin. Pull spool (No.2) out of the housing (No.1).
6. Observe position of 'U' cup seals (No.13) for proper replacement. Carefully remove worn seal rings to prevent any damage to valve housing.
7. Lightly oil spool and insert into the housing from the front (relief end) without the new seal rings. Push the spool into the housing until the front seal ring groove is completely exposed.
8. Lube one of the new seal rings and carefully insert into groove 'A'. Once in place, be sure to carefully squeeze lips of ring into housing at the same time turning and pushing lightly on spool.
9. Pull spool back toward the handle and until the rear (bonnet end) seal groove is exposed.

CAUTION

Do not pull the spool more than is necessary to expose seal ring groove 'B'. If the spool is pulled too far, the seal ring will drop into the spool recess and could be damaged when centering the spool.

10. Carefully insert new seal ring into groove 'B'. After ring is in place, be sure to carefully squeeze lips of ring into housing at the same time turning and pushing lightly on spool.
11. Replace collar, spring, washer and round head machine screw. Tighten machine screw to 10 Ft. Lbs. (13,6 Nm). After tightening, make sure washer is free to slide on spool against spring.
12. Replace handle bracket and handle.
13. Replace bonnet and 4 cap screws. If spool action appears to bind, loosen four cap screws and retighten. Bonnet MUST be properly centered over spool end.

In the event that the control valve is not operating correctly you may have a damaged spool collar or centering spring. Warning, do not substitute parts as this can cause over pressurizing the control valve and system.

For Parts and Service contact Columbia Machine Inc. 1-800-628-4065.