



Issue 53 -- Emergency Lowering of Loads Part 2

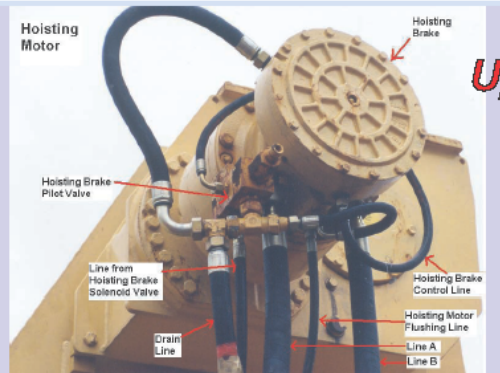
In the last installment the procedure for lowering the setting on a counterbalance valve to lower a load was covered. In this installment let's look at a hydraulic motor driven winch or slewing circuit.

In hydraulic motor driven winch or slewing circuit the counterbalance valve (if used) does not hold the load, but provides runaway control. It will not work to hold the load due to leakage in the hydraulic motor and therefore a spring-on, hydraulic-release brake is used. In the event of a hydraulic power failure with a load in the air then the brake must be released carefully in order to lower the load. This can be accomplished by using a hand pump. It is extremely important to have a way to adjust flow to the brake to limit pressure. The hand pump must be equipped with a by-pass valve (allows pump flow to go back to the reservoir) and it should never be closed during this procedure. By doing this, pressure can only be maintained to release the brake if the hand pump lever is continually operated so it is easy to stop the load by not pumping the hand pump.

If another crane/winch can be used to support the load during this operation then this is a safety against the possibility of a runaway load. Also, if possible determine the brake release pressure from the manufacturer's information.

With the brake release line disconnected from the circuit, connect the hand pump to the brake release line.

Make sure you cap the open line. Never troubleshoot or test with open ports or lines. With the bypass valve in the hand pump open start pumping the hand pump. Slowly close the bypass valve while pumping and observe the load.



When the load starts to move the brake has been released, stop pumping to make sure the load stops. Start pumping again and close the bypass valve a little bit more so the load moves a reasonable amount, 3-4 inches, for one stroke of the hand pump. Again, do not be in a hurry and again, never close the bypass valve or this may result in a runaway load.

A similar procedure can be used for slewing or rotation brakes, but it is very important to have control of the load with chain falls, a winch or some other means so that a runaway load can not occur.

In some applications it may also be possible to connect to the external pilot of a counterbalance valve and release it in a controlled fashion similar to a spring-on, hydraulic release brake. This may be preferable to lowering the setting since the valve adjustment is not disturbed.

Hopefully it is obvious that emergency load lowering should only be undertaken by trained personnel. Once the procedure is fully understood it is however an accepted way to put the load/machine into a zero energy, safe state.

Pat Jones, P.Eng.

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