

## 8N - Hydraulic Lift - Troubleshooting, by Zane Sherman

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### Troubleshooting the 8N Hydraulic Lift

Before doing anything to the lift it should first be inspected for any internal leakage. Good adjustment can be done with a leak in the system but for good operation and in order to take full advantage of going into the lift it should be done first before anything else is done.

Be sure that the lift is full of oil and that the oil is clear and has no water in it. Water can cause freezing and valve seizing's etc. Not good!

Be sure that the pto is engaged unless you have one of my live hydraulic devices which will allow you to use the three point hitch without the PTO in operation or the clutch engaged.

There is also the remote possibility that something in the pump drive mechanism is broken such as the scotch yokes that the pistons are attached to.

Take off the right side inspection plate that holds the dip stick for the drive train oil level and start the tractor with an implement on and look for a bad leak coming from above or the absence of movement in the center of the pump area. If nothing is moving in the center of the pump and the PTO is turning you probably have something major broken on the pump. You can let out enough oil to see the moving parts of the pump to be sure whether or not it is in fact working or not. It's hard to tell when covered by a couple of inches of oil.

I think that you are probably having a combination of problems which is common to the 8N lift. One of the worst offenders when it comes to the adjustment is the cam follower pin which is what the position control receives its input from. If it is badly worn the lift can't possibly work right until it is replaced.

The other thing is to look for a leak in the system @ the ram cylinder rings etc and the pressure relief valve. Also there could be a gasket leaking somewhere such as under the ram cylinder where it mates to the lift cover housing.

If you decide to take the lift off to work on it be sure not to remove any bolts or nuts except for the ones around the outside perimeter of the cover. If you should remove a bolt that has fine threads it will be from the inside pattern and you should put it back in the same hole it came from. You can remove them after the cover is on the work bench if it becomes necessary to remove the ram cylinder for repair.

When the lift won't come down it is a sure sign that you have dirty oil in the hydraulic reservoir or that the return spring which is under the intake valve is weak and needs to be replaced or stretched out again to increase it's tension.

### **Exhaust Control Valve Spring Damaged or Missing**

There is a more rare condition that will really put a monkey wrench into the operation of the lift on the 9N/2N AND OR 8N. This is when the retaining spring that is an integral part of the exhaust control valve breaks or becomes too weak to actuate the exhaust valve when it is moved by the control linkage. The spring is located on the exhaust valve itself and has to be intact in order to move the valve when the linkage is moved. It may be necessary to pull the pump in order to inspect and repair the exhaust control valve.

134 oil is great but it can make a small leak worse because of it being a lot less viscose.

You should first take off the right hand inspection plate under the seat on the side of the lift housing. First inspect everything by eye and with a mirror to look at the upper parts for any obviously damaged parts. Move the touch control handle and observe if the control valve is moving in and out of the pump. If the valve is stuck

you may be able to get it to working by moving it back and forth with the hand inside the housing till it is loose enough to move with the touch control only. With an implement on the lift start the engine and with the lift in the up position look inside and see if there is oil leaking from the end of the lift ram cylinder. If there is only a slight drip this is normal. If there is a fairly steady stream this may be the trouble. If the oil is coming from somewhere else try to pin point its origin. If you find no appreciable leaks on top in your view then you may have a pressure relief valve leaking. It is located just under the PTO shaft on the vertical back of the pump Sort of shaped like a spark plug and an 11/16" box end wrench fits it. You can check it for leakage by first finding it with the engine off and then with the pump running and with a load and hot put your finger over the end of the relief valve and if it is leaking enough to be a problem you will be able to feel the oil push your finger off the end of the valve slightly. You can check it by first removing it from the pump then washing it up and soaping it real good with some dishwashing detergent and water and apply air to the end that goes into the pump. If it is leaking you should replace it with a new one. The part # used to be 8N638.

There is always the remote possibility that the pump housing is cracked. This ain't good! To my knowledge a cracked housing is just about done. The cracks usually appear where it is impossible to get to weld and the housing must be replaced. Don's Just 8Ns has them I think or could tell you where to find one if needed. I have a method for testing for a crack. I tapped the outlet pressure hole to accept a 1/4" pipe thread so a grease fitting can be screwed into the outlet hole in the pump flange. Use a grease gun to pressurize the pump with the control valve pushed in to the up position and observe if the grease gun can continue to be operated slowly until the relief valve allows grease to escape out the end of the relief valve. If it can't be pumped up enough for the relief valve to open then look for grease escaping somewhere behind the relief valve and usually under the pressure chamber behind the relief valve. This is a crack if it shows grease escaping anywhere else in the housing and can't be fixed to my knowledge because of the placement of most cracks I have seen in the N pump. The housing must be replaced usually.

There could also be a gasket blown out and leaking. If it is in the upper portion of the lift you will be able to see the oil streaming down and this will give you some idea of where it is coming from. Then you can fix it when you get into the cover. Sometimes the pump gasket itself can blow out where the pressure line enters the lift housing on the bottom of the housing. When it blows inside it is just about impossible to determine what the cause is of a very weak lift until the pump is pulled from the tractor. If no other source of a leak can be found it is always possible that the pump gasket has failed internally. The only way to fix it is to remove the pump and clean both the mating surfaces of old gasket material and replace the pump after cleaning with a new gasket and hope for the best.

Hope this will give you some starting places.

**Zane** in Al.

If the lift does not lift to the top of it's travel when the touch control handle is raise all the way up then you have linkage problems. Wear and or abuse can bend and wear parts of the linkage to cause this condition.

If the lift needs to be adjusted you will need instructions and a jig to allow you to do the adjustments.

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