

SMART OPENER CYLINDER LEAK DOWN AND BYPASS TUTORIAL

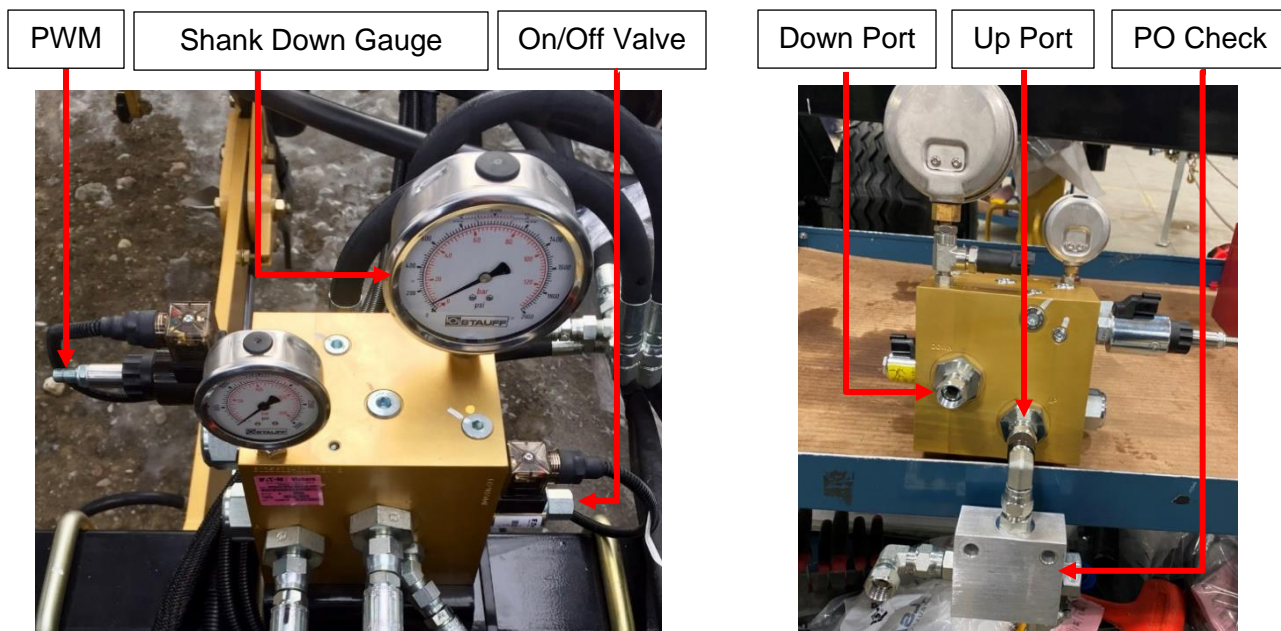
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OPENER CYLINDER TEST PROCEDURE

1. Start by unfolding the drill and floating all hydraulic circuits on the tractor.
2. Next, unhook the ISO connection from the tractor IBBC.
3. Locate the PWM on the Smart Openers Block. Loosen the jam nut on the stem and turn the valve all the way in using an Allen Wrench.
4. Lift the openers all the way up and unhook the opener hoses from the tractor.
5. Start a timer to see how long it takes for pressure to build on the large shank down gauge and for the openers to start dropping. If it builds pressure within 10 minutes, we want to know what the pressure change is and how long it took to get there. This is a sign of an opener cylinder internal seal leaking.

NOTE: If the opener down pressure build, proceed to the cylinder bypass procedure.

6. If opener pressure does not build on the shank down gauge, and the openers stay pressured in the up position, reconnect the tractor.
7. When reconnecting the tractor, ensure the tractor remote is in the neutral position. If the opener up pressure drops, or there is a problem maintaining opener down pressure, this is a sign of a tractor SCV or the female coupler bypassing.
8. To further confirm the tractor diagnosis, swap the opener hoses to a different SCV and repeat steps 4, 5, and 6 above.
9. If the tractor SCV and female couplers are confirmed to hold pressure, and the openers continue to drop, inspect or replace the on/off valve.



CYLINDER BYPASS PROCEDURE

1. This procedure uses heat as an indication of bypass. **A best practice is to use an infrared thermometer.**
2. Shut off all active hydraulics.
3. Ensure the ISO connection is unhooked from the tractor IBBC.
4. Set the tractor remote which is raising and lowering the openers to constant flow on your tractor.
5. Set that same remote's flow control to maximum.
6. Lock the remote which is raising and lowering the openers with a continuous, constant flow to the raising position.
7. After at least 20 minutes of the tractor running and remote lifting your openers in the up position with continuous, constant flow, go to the front of the drill and locate the two raise and lower lines on the rear of the Smart Openers block. Early models are divided into 6 sections from the main frame out (Figure 1). On newer models, the hose routing has changed to run lines across the front of the drill to each frame section (Figure 2).
8. Starting from the Smart Openers block, utilize your infrared thermometer at the fittings to trace the main raise and lower lines to the section that produces the most heat.
On earlier models, this will take you to the first six openers on each side of the main hydraulic hose running down the middle of the main frame.
On newer models, trace the lines running down the front of the drill from the Smart Openers block, into the middle of each frame section. This will take you to the first six opener cylinders on each side of the main hydraulic hose running from front to rear.
9. From the main hydraulic hose, find which cylinder is hotter than the rest in the middle, then work your way out going cylinder to cylinder until you get to the last hot cylinder. That cylinder will be the bypass.
10. Replace and test again to ensure that you do not have multiple bypasses.

