Nutri-Pro Lift-Assist 3-Section Liquid Coulter

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Models Affected: NP2330LL

General Information

Proper servicing and adjustment is key to the long life of all farm equipment. With careful and systematic inspection of equipment, costly maintenance, time and repair can be avoided. The following information will assist with recommended servicing and adjustments:
**Folding The Applicator:** The following instructions presume that the implement is unfolded and lowered in the field ready position.

1) Set the lift/fold hydraulic circuit to float and raise the 2-point hitch.

2) Use the hydraulic lever to raise the lift-assist cylinders. In doing so, the wings will begin to fold until they are stopped by the wing locks. After the wings hit the locks, the lift-assist will then begin to raise.

3) Once fully raised, set the lift/fold hydraulic circuit to Neutral to hold that position.

4) Remove the depth spacers from the lift-assist cylinders and install the transport locks.

5) Lower the lift-assist cylinders (which causes unfolding) until the wings are level and set the fold hydraulic circuit to Neutral.

6) Swing the wing locks up and out of their engaged position and into their reset position.

7) Secure the wing locks during transport by lowering them into the transport lock holder and sliding the pin through wing lock handles. Secure them with a cotter pin.

8) Raise the lift-assist circuit once more to fully fold the applicator. Once the wings have fully folded, the lift-assist cylinders will raise the rear of the applicator.

**Unfolding The Applicator:** The following instructions presume that the implement has just completed transport and is fully raised with the transport locks still in position. Unfold the applicator per the following:

1) Open the lift-assist shut-off valve and lower the lift-assist circuit while leaving the 2-point hitch in it’s current position. **Note:** The lift-assist cylinders will stop lowering when they come in contact with the transport locks. At which time the wings will begin to unfold.

2) After the wings pass vertical, the wing locking channels will swing into contact with the cylinder rods.

3) Continue unfolding the wings until they are approximately level.

4) Raise the lift-assist circuit just enough to take the implement weight off of the transport locks. **Note:** Before the lift-assist cylinders begin to rise, the wings will fold up against the wing locks.

5) With the applicator fully raised off of the transport locks, remove the locks and install the depth spacers onto the cylinder rods.

6) Lower the 2-point hitch along with the lift-assist cylinders. The wings will continue to unfold and the lift cylinders will lower onto the depth spacers.
Weight Transfer Adjustment:

1) With the applicator unfolded, pull forward to lower the coulters into the ground.

2) Put the tractor in Park and close the lift-assist shut-off valve(3).

3) Release the bypass valve locking disc (4) and turn the bypass valve knob (5) fully clockwise to shut off all oil flow. After all oil flow has stopped, tighten the locking disc.

4) Set the tractor to half throttle and adjust the tractor flow control valve so that the wings fold/unfold at a reasonable speed. **Note:** On 2-point applicators, the fold and unfold are followed by the lift and lower operations.

5) Lock the hydraulic lever for continuous pressure for the unfold circuit.

6) At the pressure reducing valve (1), release the locking disc (6) and adjust the knob (7) for an initial value of 800 psi on the gauge (8). Once that value is achieved, tighten the locking disc.

7) At the bypass valve (2), release the locking disc (4) and adjust the knob counter-clockwise until the pressure reading just begins to fall from 800 psi. Turn the knob back clockwise a 1/4 turn and re-tighten the locking disc.

8) Observe the applicator during operation and re-adjust the down pressure as necessary. **Note:** The bypass valve needs to be closed prior to any adjustments to increase the weight transfer.

Tool Bar Height Adjustment: When setting the tool bar height for the center section of the applicator, use the tractor's hitch and lift-assist spacers to assure consistent depth.

The height of the wings is controlled by independent gauge wheels on each wing end. Once set, the weight-transfer system assures that the wings are constantly level.

To adjust the tool bar height:

1) Move the applicator to a smooth level surface and unfold.

2) Once unfolded, raise the applicator so that the wing coulters are off the ground and the wings are slightly above level.

3) At each gauge wheel, use the crank (9) to remove tension from the pin (10) that holds the gauge wheel in place. Remove the pin when tension is removed.

4) Use the crank to extend the wheels far enough to keep the wing coulters off the ground. **Note:** Turn the crank clockwise to lower the wheel, while turning the crank counterclockwise will raise the wheel.

5) Unfold the wings until the gauge wheels are on the ground and then set the fold/lift circuit to Float.

6) Using the 2-point hitch, lower the applicator until the center section coulters are just at ground level.

7) Check the frame level from front-to-back and adjust spacers as necessary on the lift-assist cylinders.

8) Once level, adjust the gauge wheel to bring the wing coulters to the same height as the center section (just above the ground).

9) Measure the length (11) of the exposed gauge wheel tube and crank the wheel to the desired coulter depth. Capture this setting by re-inserting and securing the pin (10).
10) With the pin inserted, crank the wheel up until the tube solidly contacts the pin. This will transfer wheel loads to the pin rather than the crank itself.

11) At the center section, measure the tool bar height above the ground. Operating height is the frame height minus the desired coulter depth.

12) Pull forward while lowering the 2-point hitch to the desired operating depth. Set a stop on the 2-point hydraulic circuit to capture this height.

13) Adjust the weight-transfer to ensure that the wings stay level at this coulter height.

Frame Mounted Coulter Adjustment: Coulters are factory installed and are configured for in-row operation at knife or tine shoe depth. They can be set for fixed or limited castering. Coulter depth can be adjusted per the following:

1) Loosen the U-bolt nuts (12) and slide the shaft (13) up or down. Check the coulter-to-knife/tine alignment and re-tighten the nuts.

2) Adjust the coulters to have a running depth at the bottom of the knife or tine shoe. Roughly 3/4 inch below the application depth.

3) For fields that have frequent sharp turns, coulters can be adjusted to pivot at the pivot casting.

4) Loosen the jam nuts along with loosening the set screws just enough to allow the casting to swivel and re-tighten the jam nut.

Note: Do not remove the center stop screw.

Vantage I Coulter Height & Castering: During operation, the coulter height controls the application height and may need to be adjusted for rows behind wheel tracks. Coulters may also be set for rigid row alignment or limited castering.

1) The factory setting for coulter height (14) is 7.5 inches from the bottom of the frame to the top of the coulter mount casting. With a tool bar height of 25 inches (15) above the ground, the disc blade will have a depth of 4 inches (16).

2) For fields where frequent sharp turns are unavoidable, coulter plowing can be reduced by allowing the coulters to caster at the pivot casting.

To adjust, loosen the jam nuts (17) and set screws just enough to allow the casting to swivel. Re-tighten the jam nuts but do not remove the center stop screw.

3) As blades wear, keep the release height (18) constant by raising the applicator weldments on the coulter arm.

Simply loosen the bolts (19) and slide the weldments up as needed. Once the desired position is achieved, tighten the bolts. Note: If the application height is still too low after this adjustment, the coulter blades may be worn and in need of replacement.

It is recommended to replace the coulter blade when the initial diameter has been reduced by 1 to 2 inches.
**Terra-Tine Adjustments (Option):** All adjustments are to be made with the applicator in the fully raised position.

1) When the coulter blade is out of the soil, adjust the lock collar height to set the height of the tine fingers flush with the bottom of the coulter blade.

2) Side-to-side alignment can be done by rotating the shank mount around the vertical shaft and re-tightening the square head set screw.

3) Factory setting for a Terra-Tine is a distance of 5.4 inches from the bottom of the frame to the top of the Terra-Tine mount.

Height may be adjusted at the mount set screw, or at the frame clamp. Changing the arm angle (20) also changes the tine height.

4) The arm angles are factory set on the lowest down-force setting available (20).

**Terra-Tine Down Force:** A series of three holes in the spring adjuster (21) and pivot mount plate (22) provide five combinations for different levels of spring tension. The following table shows the down-forces available:

<table>
<thead>
<tr>
<th>Position</th>
<th>Newtons</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>12</td>
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</tr>
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</table>

**Fertilizer Operation:** The liquid fertilizer system is designed to operate ideally between 15 and 40 psi. Several system elements affect system pressure and need initial setup, periodic maintenance, and adjustment.

**Ground Drive Operations:** When the applicator is lowered to the ground and in motion, the pump begins to operate and fertilizer is applied based on the drive Range sprocket and pump adjuster dial setting.

The following presumes that fertilizer has been loaded into the tanks and the tank is configured and ready for use:

**Priming the Ground Drive System:**

1) On suitable ground, raise the applicator off the ground.

2) With the optional variable rate system, use the SELF TEST feature of the SCS-450 console to simulate a field speed.

3) Wearing gloves, manually rotate the ground drive wheel until material appears at the applicator tubes.

**Ground Drive Field Operation:**

4) Begin field operations and monitor the fertilizer pressure gauge or the PSI display on the optional console.

5) Monitor the fertilizer tank levels while planting to confirm expected consumption rate and to avoid running the pump dry.

6) If residual fertilizer is not recovered at the end of planting, apply it to the last field planted. **Note:** Once finished, always clean out the fertilizer system to avoid corrosion or possible freeze damage.
**Hydraulic Drive Operations:** The output of the pump is under pressure whenever the hydraulic motor circuit is activated. The rate is regulated by a flow control valve and monitored by a flow meter. Both are connected to a Raven SCS 450 console or any other compatible Raven console.

**Hydraulic Drive Start-Up:**

1) Set the console MASTER switch to OFF.

2) Set the console POWER switch ON.

3) Select the FLOW CONTROL RATE1 or RATE2 as desired and verify the rate setting.

4) Set console BOOMS switch 1 ON.

5) Set the flow rate for the hydraulic remote.

6) Activate the circuit by moving the hydraulic level to the Retract position. The pump will then be activated but with the MASTER switch OFF, there will be no material flow.

7) Set the MASTER switch to ON and check for material flow at the tines. Prime the second hydraulic pump as required.

8) Begin field operations and monitor the fertilizer pressure gauge or PSI display on the optional console.

**Hydraulic Drive Field Operations:**

9) Monitor the fertilizer tank levels while planting to confirm expected consumption rate and to avoid running the pump dry.

10) If residual fertilizer is not recovered at the end of planting, apply it to the last field planted. **Note:** Once finished, always clean out the fertilizer system to avoid corrosion or possible freeze damage.