Nutri-Pro Pull-Type 3-Section Anhydrous Shank

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Models Affected: NP1330AA

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 (Pull-Type):
1) Note: Before folding the applicator, ensure that the tractor is pointed into the wing and all NH3 flow has stopped.
2) Close the weight-transfer shut-off valve.
3) Fully extend the lift cylinders. Install the transport locks on the lift-assist and center section cylinders.
4) Retract the fold cylinders to begin folding the wings.
5) Once both wings have rested up against the transport nest, stop hydraulic flow and put the hydraulic circuit in Neutral during transport.

Unfolding The Applicator (Pull-Type):
1) Point the applicator into the wing and close the weight-transfer shut-off valve.
2) Extend the fold cylinders to begin unfolding the applicator and set the hydraulic level to float when the wing gauge wheels contact the ground.
3) Once unfolded, extend the lift-assist cylinders to fully raise the applicator off the ground.
4) Remove and store the center section and lift-assist transport locks. If the transport locks were installed on the wing lift cylinders, remove them and re-engage the hydraulic depth stop.
5) Open the weight-transfer shut-off valve.
6) Now the applicator is ready for field operation.

Weight Transfer Adjustment (Older Style):
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(s).
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.
**Adjusting Weight Transfer:** Adjust the weight transfer system to achieve consistent coulter depth along with keeping the wings level with the center section. If insufficient weight is transferred, outside (wing) coulters may run higher than the center section and if too much weight is transferred, the center section may run too high. Adjust the weight transfer per the following:

1) Unfold the applicator and lower it to the ground. Once on the ground, set the Fold/Field control box to Field.
2) Pull forward until the coulters are in the ground.
3) Set the tractor to half throttle and extend the fold/lift circuit to unfold. Lock the lever for continuous flow.
4) Adjust the tractor flow control valve so that the bypass gauge needle (9) is in the green zone (1000 to 1500 psi).
5) Release the locking disc (10) and adjust the knob (11) until an initial 1800 psi is read on the gauge (12). Re-tighten the locking disc (10).
6) Check that the bypass gauge (9) is still within the green zone. Adjust the tractor remote if any adjustments are needed. Re-check the reading on the pressure-reducing gauge (12).

**Adjusting Hydraulic Depth Stop:** Pull-type applicators are equipped with a hydraulic depth stop located on the left gauge wheel. This will allow the operator to fix the desired depth per the following:

1) Mark the desired depth on a knife with a grease pen or chalk near the left outside row but not behind the gauge wheel.
2) Lower the applicator until the knives or tines just touch the ground and hold that height by setting the lift circuit to Neutral.
3) Adjust the knob (13) on the depth stop until the plunger just touches the stop clevis.
4) Raise the applicator all the way up and then fully lower the applicator.
5) Pull forward roughly 10 feet and stop.
6) Measure the depth at which the knives or tines are running. If the desired depth is achieved, no further adjustment is necessary.
7) If the desired depth still isn’t achieved, raise the applicator out of the ground and adjust the depth stop either up to increase the depth or down to reduce the depth. Adjust until the desired depth is achieved. **Note: Always adjust the depth stop in small increments.**
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 (14) and slide the shaft (15) 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.**

Spring Knife Release Depth: Pull-type applicators have an adjustable hydraulic down-stop controlling the tool bar height which in return controls the knife depth. The knife is designed to operate at a depth of 4 to 6 inches. Operating at or below 8 inches is not recommended as a structure failures can occur.

Reference Information:

Overall height of the tool bar base to knife shoe is (16) 30.25 inches (76.8 cm).

Liquid NH3 is released from the tube at (17) 3/4 inch (19 mm) above the shoe base. For a precise release depth, subtract this amount from the total knife depth.
**Sealer Adjustment:** The sealers are designed to close the trenches behind the knives or tines and manage residue. The sealer wheels and discs are free to move downward from their normal operating position to provide consistent action.

There are four to six sealer adjustments available, depending on the sealer type.

**Down Stop:** The maximum range of motion is available with the pin (18) in the factory setting (lower hole). Moving the pin to the upper hole increases sealer ground clearance during lift.

To change the pin position, lower the applicator until the sealer wheels or disc are in contact with the ground and the arms are lifted above both down-stop holes. Remove the cotter pin, relocate the stop pin and re-insert the cotter pin.

**Down Pressure:** Additional sealer down-force is available by moving the spring adjustment weldments (24) to the rear. Change per the following:

a) Lower the applicator until the sealer wheels or disc are in contact with the ground, and the arms are lifted above both down-stop-holes (18). Remove the down stop pin.

b) Raise the applicator until the springs are fully compressed and loose at the adjustment weldments (24).

c) Remove the spring adjustment pin (19) and slide the weldments (24) to the new position. Re-pin and cotter along with placing the spring ends on the weldments pins.

d) Lower the applicator to raise the arm above the down-stop holes and re-insert the down-stop pin and it’s cotter.

**Wheel/Disc Mount Tilt:** This adjustment is to compensate for large changes in sealer height, which can cause undesired changes in sealer arm angle.

To adjust, raise and lock-up the applicator. Remove the upper height adjustment pin (21) and swing the mount to the new position (20) and re-pin.

**Sealer Height:** Sealer height should only be adjusted when changing the knife depth. It is recommended to keep the vertical tube near vertical and the arm level at the new knife depth.

To adjust, remove both adjustment pins and slide the tube up or down. Once the desired height is achieved, re-insert the pin.

**Sealer Disc/Wheel Spacing:** Spacing and angle have the most effect on trench closing and berm control. Adjusting one may require adjustments to the other.

To change the spacing, remove both bolts (22) and reposition the sealer. Re-install the bolts when the desired spacing is achieved.

**Sealer Disc/Wheel Angle:** Angle and spacing have the most effect on trench closing and berm control. Adjusting one may require adjustments to the other. **Note:** Wheel arms have 3 holes. Disc arms have 5. Factory setting is the center hole in both cases.

To change the angle, remove the outer bolt (23) and loosen the inner bolt (22). Reposition the disc or wheel arm and re-install (23) along with tightening bolt (22). The factory setting is with the inner pivot bolt in the 3rd hole from sealer center.
**Rear Eye Bolt Adjustment:** Side to side levelness at the rear of the applicator is controlled by the eye bolts located on the lift-assist cylinder bases. On pull-types the rear height is controlled by the cylinders, slaved to the hydraulic depth stop valve. Check to see that both eye bolts are set to the same distance.

1) The factory setting is 3.5 inches from the end of the eye bolt to the top face of the lug tube.

2) To adjust the eye bolt, loosen the hose guide nut and jam nut.

3) Rotate the adjustment nut to until the eye bolt is at the desired length.

4) Check that the hose guide is on top and tighten the jam nut along with the hose guide nut.

**Pull-Type Wing Leveling:** On pull-type applicators, wing levelness is controlled by the gauge wheel lift cylinders and the top eye bolt. If wings get out of level, re-phase the cylinders across the applicator. If the wings are still not level, check that the eye bolt length is still set at the factory setting.

1) The factory setting is 3.5 inches from the end of the eye bolt to the top face of the gauge wheel lug tube.

2) To adjust the eye bolt, loosen the hose guide nut and jam nut.

3) Rotate the adjustment nut to until the eye bolt is at the desired length.

4) Check that the hose guide is on top and tighten the jam nut along with the hose guide nut.