Nutri-Pro Lift-Assist 5-Section Anhydrous Coulter

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Models Affected: NP2540

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:
Unfolding (At Field): The following presumes that the applicator has just completed transport, is raised, and the transport locks are still installed.

1) Remove the wing locking pins.
2) Set the FOLD/FIELD switch to FOLD/UNFOLD and extend the fold/lift circuit to unfold the wings.
3) Retract the fold/lift circuit slightly to raise the lift-assist off the transport locks.
4) Set all circuits to Neutral and shut off the tractor.
5) Once the tractor is shut off, remove the lift-assist transport locks and install the depth spacers.
6) If the wing gauge wheels were extended, crank them to field operating height.
7) Lower the hitch until it reaches field ready height also.

Fold Switch Adjustment (Rectangle Proximity Sensors):
During unfold (Fold/Field switch in FOLD), the inner wing sections are intended to stop 0-5 degrees above wings-level relative to the center section. The stopping point is controlled by the vertical proximity sensors LFOSW (1) and RFOSW (2) at each center/wing hinge.

1) Verify that the misalignment is not caused by air in the hydraulic system. Note: Do not use the proximity adjustment to compensate for hydraulic problems.
2) Adjust switches per the dimensions in the illustrations to the right.
3) Set the FOLD/FIELD switch to FOLD and extend the fold/lift circuit to unfold the applicator until the inner wings stop.
4) To adjust the sensor gap, loosen the bolts securing the sensor to the bracket. To adjust the sensor position, loosen the bolts securing the bracket to the frame.
5) Secure the mounting bolts and preform and fold/unfold test to verify the sensor is in the right position.

Fold Switch Adjustment (Round Proximity Switches):
During unfold (Fold/Field switch in FOLD), the inner wing sections are intended to stop 0-5 degrees above wings-level relative to the center section. The stopping point is controlled by a proximity sensor at each center/wing hinge. If a wing does not stop in this range, adjust the proximity sensor.

1) Verify that the misalignment is not caused by air in the hydraulic system. Note: Do not use the proximity adjustment to compensate for hydraulic problems.
2) Set the FOLD/FIELD sensor to FOLD and extend the fold/lift circuit to unfold the applicator until the inner wings stop. Set the circuit to neutral and shut off the tractor.
Folding: These following presumes that the applicator is unfolded and lowered in the field ready position.

1) Verify that the wing locking pins are not in the wing rest cradles. They should be stored away in the storage tubes.

2) Set the Fold switch to FOLD/UNFOLD and raise the hitch.

3) With the hitch fully raised, retract the fold/lift circuit to simultaneously raise and fold the applicator. Observe the fold sequence as lift and fold do not start and end at the same time.

Note: If an abnormal fold is detected, set the fold/lift circuit to Retract. Once the wings are level, set the circuit to Neutral and trouble shoot the problem.

4) To adjust the gap, loosen the front adjusting nut at the sensing end of the fold proximity sensor and adjust the rear adjusting nut until the red LED illuminates.

To lower the angle at which the wing stops, raise the fold proximity sensor in the sensor mount. Make sure the red LED is still illuminated and tighten the nuts.

To raise the angle at which the wing stops, lower the fold proximity sensor in the sensor mount. Make sure the red LED is still illuminated and tighten the nuts.

5) Fold and unfold the applicator several times to check adjustment.

Fold Stop Adjustment (Rectangle Proximity Sensors):
During field fold (Fold/Field switch in FIELD) the inner wings are intended to stop 5-10 degrees above wings-level relative to the center section. The stopping point is controlled by the proximity sensors LFISW (3) and RFISW (4) at each center/wing hinge.

1) Verify that the misalignment is not caused by air in the hydraulic system. Note: Do not use the proximity adjustment to compensate for hydraulic problems.
2) Adjust the switches per the dimensions in the illustrations to the right.

3) Set the FOLD/FIELD switch to FOLD and extend the fold/lift circuit to unfold the applicator until the inner wings stop.

4) Set the FOLD/FIELD switch to FIELD and retract the fold/lift circuit until the wings stop at "gullwing" (5-10 degrees above wings-level).

5) To adjust the sensor gap, loosen the bolts securing the sensor to the bracket. To adjust the sensors position, loosen the bolts securing the bracket to the frame.

6) Secure the mounting bolts and perform and fold/unfold test to verify that the sensor is in the right position.

Note: See Technical Information Document (PAUS200G-0002A) for troubleshooting electric/hydraulic fold system.

**Fold Stop Adjustment (Round Proximity Switches):** During field fold (FOLD/FIELD sensor to FIELD), the inner wing sections are intended to stop 0-5 degrees above wings-level relative to the center section. The stopping point is controlled by an angled proximity sensor at each center/wing hinge. If a wing does not stop in this range, adjust the proximity sensor.

1) Verify that the misalignment is not caused by air in the hydraulic system. Note: Do not use the proximity adjustment to compensate for hydraulic problems.

2) Set the FOLD/FIELD sensor to FOLD and extend the fold/lift circuit to unfold until the inner wings stop.

3) Set the FOLD/FIELD sensor to FIELD and retract the fold/lift circuit until the wings stop at "gull wing". Set the circuit to neutral and shut off the tractor.

4) Turn the tractor key sensor to ON so that there is electrical current to the fold proximity sensors. There is a red and green LED in each of the fold proximity sensors.

   If no LED is illuminated at any of the fold proximity sensors, check the power source for the tractor.

   If neither LED is illuminated at a fold proximity sensor, check the electrical circuit for that fold proximity sensor.

   A proximity sensor will illuminate green when power is on. If a sensor is activated, it will illuminate red if correctly positioned. If not properly positioned, the sensor will continue to stay green until the gap between the proximity sensor and the actuator is adjusted properly.

5) To adjust the gap, loosen the front adjusting nut at the sensing end of the fold proximity sensor. Adjust the rear adjusting nut until the red LED illuminates.

   To lower the angle at which the wing stops, raise the fold proximity sensor in the sensor mount. Make sure the red LED is still illuminated and tighten the nuts.

   To raise the angle at which the wing stops, lower the fold proximity sensor in sensor mount. Make sure the red LED is still illuminated and tighten the nuts.

6) Fold and unfold the applicator several times.
**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 (5) is in the green zone (1000 to 1500 psi).

5) Release the locking disc (6) and adjust the knob (7) until an initial 1800 psi is read on the gauge (8). Re-tighten the locking disc (6).

6) Check that the bypass gauge (5) is still within the green zone. Adjust the tractor remote if any adjustments are needed. Re-check the reading on the pressure-reducing gauge (8).

**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) Unfold and raise the applicator so that the wing coulters are off the ground and the wings are slightly above level.

2) 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.

3) 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.

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

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

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

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

8) 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). With the pin inserted, crank the wheel up until the tube solidly contacts the pin.

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

10) 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.

11) 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.

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**Anhydrous Coulter Sealer Adjustments:** The spider wheels have three adjustments that may need to be altered from the factory setting based on soil conditions, crop residue and application speed.

1) Down pressure: T-handles (14) set the arm spring tension and have three adjustments (17).

2) Spacing: The arm weldments have 8 bolt holes (15) allowing 2 set back positions and 2 spacing positions.

3) Angle: The sealer mount plates (18) have 4 holes: 2 in-line (18), and 2 extra holes (19) that provide angle adjustment.

Note: These adjustments are to be made with the applicator raised.

**Sealer Down Pressure Adjustment:** The following trip down pressures are available. These values are per sealer arm and are with the coulters in the ground and arms slightly raised.

Note: With the applicator raised, position (a) has minimal spring tension.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Handle Slot</th>
<th>Down-Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Rear/Lowest</td>
<td>12 pounds</td>
</tr>
<tr>
<td>B</td>
<td>Mid/Medium</td>
<td>17 pounds</td>
</tr>
<tr>
<td>C</td>
<td>Forward/Max</td>
<td>28 pounds</td>
</tr>
</tbody>
</table>

**Sealer Spacing or Setback Adjustment:** For in-line (parallel) sealer wheel running, use the center holes (17) in the mount plates (15). In-line operation is recommended for high-residue fields.

**Sealer Angle Adjustment:** 10 degrees of leading toe-out (20 degrees total) is available by using the inner center hole of the mount plate and the leading offset hole (18). No setback adjustment is available when using toe-out. Toe-out is not recommended for high-residue fields.
Anhydrous Tine Recommendations:
Option1: Great Plains Manufacturing recommends using a single (417-396H) or dual (417-397H) Anhydrous Tine when applying NH3 into stalks.

Anhydrous Tine Recommendations:
Option2: Great Plains Manufacturing recommends using a single (417-487H) or dual (417-292H) Anhydrous Tine when applying NH3 into stubble or grass.

Recommended Anhydrous Tine Adjustment:
When using a high speed anhydrous coulter in buried residue, Great Plains Manufacturing recommends adjusting the anhydrous tine as close to the high speed coulter as possible without hitting it, along with adjusting the anhydrous tine all the way up to allow for proper trash flow.