

# Installation Instructions



NTA 2000D  
NTA 2000

## Harrow Option



*When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!*

### General Information

These instructions explain how to install the optional spring-tine harrow. Mounted behind the drill, the harrow evenly distributes crop residue in no-till conditions.

These instructions apply to:

- 148-611A      NTA 2000D Harrow Option-Domestic
- 116-241A      NTA 2000 Harrow Option-Export

### Manual Update

Refer to the drill operator's manual for detailed information on safely operating, adjusting, troubleshooting and maintaining the spring-tine harrow. Refer to the parts manual for part identification.

- NTA 2000D Operator's Manual . . . . . 148-632M
- NTA 2000D Parts Manual. . . . . 148-632P
- NTA 2000 Operator's Manual . . . . . 148-528M
- NTA 2000 Parts Manual . . . . . 148-528P

### Before You Start

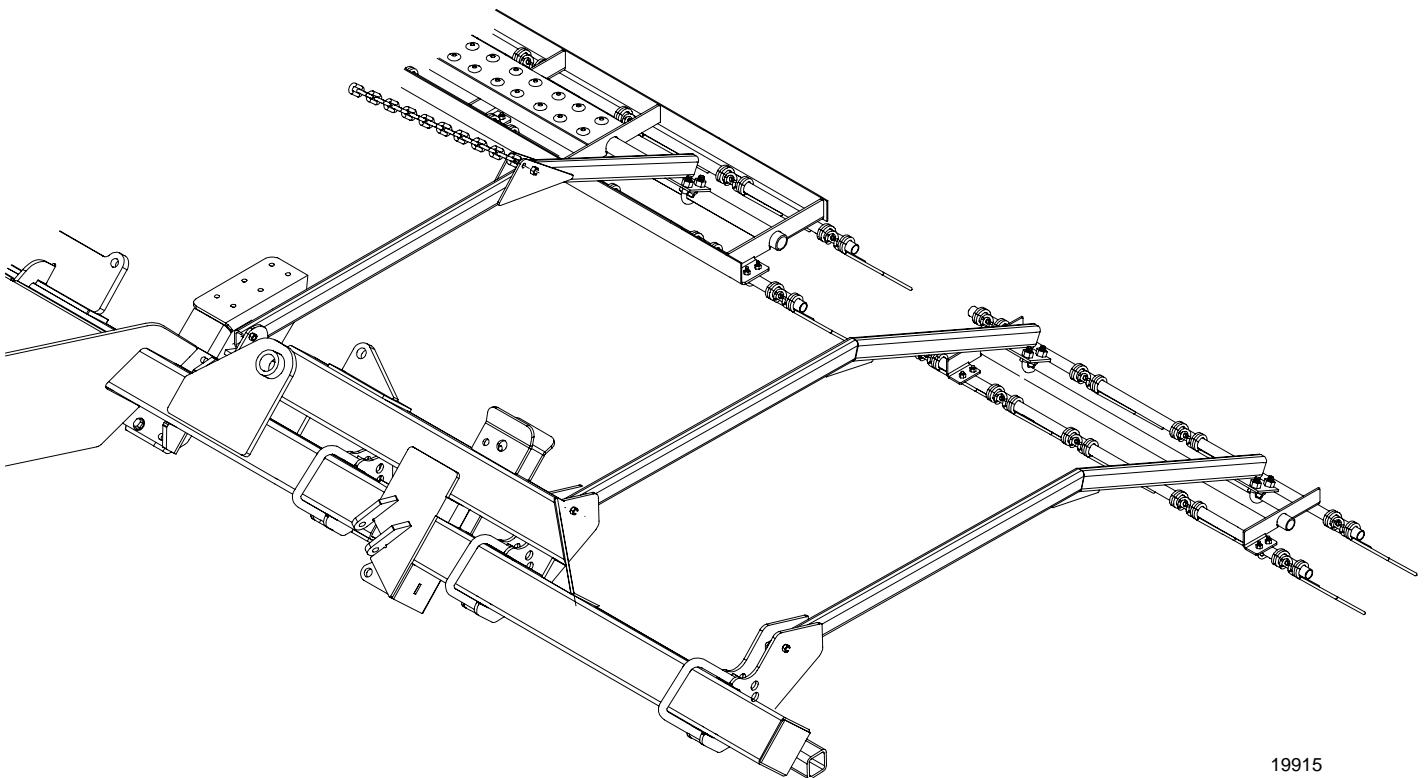
Page 5 is a detailed listing of parts included in the spring-tine harrow package. Use this list to inventory parts received.

### Tools Required

Basic hand tools.

### Definitions

To determine right and left hand side as used in this manual, face the direction the machine will travel while in use unless otherwise stated.



19915

## Assembly Instructions

### CAUTION!

Before working around the drill make sure it is properly hitched to the tractor and that the tractor is turned off and the transmission is in the park position. Make sure the drill is on level ground and the coulters and opener wing frames are in their unfolded position. Make sure the drill is lowered. For proper hitching and unfolding instructions refer to the operators manual for this drill.

Note: These instructions explain how to install the harrow option for package 148-611A. The instructions will be the same for package 116-241A, except the U-bolt sizes, tines and tine tubes will be different.

#### Refer to Figure 1

1. Install one of the center pull arms (1) to the left side of the drill center pivot frame weldment with a 1/2" x 3 1/4" bolt (3) and 1/2" lock nut (4). Tighten bolt and repeat step to install the pull arm on the right side. (Do not over tighten bolt, thus restricting arm movement).
2. Install two of the wing pull arms (2) to the left wing tool bar using 1/2" x 3 1/4" bolts (3) and 1/2" lock nuts (4). Tighten bolts and repeat step to install pull arms on the right wing tool bar.
3. Attach one of the chain slot plates (5) to the square tubing on the left hand side of the lower platform (see insert drawing) using 1/2" x 3" U-bolts (6) and 1/2" nuts (7). Slide plate as far back on the square tube as possible and tighten U-bolts. Repeat step for right hand plate.
4. Assemble one 7/16" flat washer (10) then one 1/2" hardened flat washer (11) on one of the 7/16" x 1 1/2" bolts (9). Insert bolt with washers into an end link in

chain (8). Coming in through the top install the bolt into the hole in the chain slot plate (5). Position the chain so the second link fits into the slot at the top of the plate with the rest of the chain hanging down. Secure bolt with 7/16" lock nut (12). Repeat step to install chain on right hand plate.

5. Fasten the loose end of the left chain (8) to the left center pull arm (1) using a 7/16" x 2 3/4" bolt (13) and 7/16" nut (14). Insert the bolt through the fifth link on the chain. Repeat step for right hand chain.

Note: Use this link as a starting point only. You may have to use another link to adjust for proper height when drill is in the raised position. Refer to page 3 for proper adjustment.

6. Prop or hold up both center pull arms (1). Slide the harrow center frame assembly (15) under the arms until the center tube lines up with the mounting brackets on the ends of the arms. (Be sure the front of the assembly is facing the front of the drill.) Align the assembly so it is centered evenly between both center pull arms. Hold in place with 1/2" x 2 1/16" U-bolts (16) and 1/2" lock nuts (17). Do not tighten at this time.
7. Prop or hold up the left hand wing pull arms (2). Slide the harrow wing frame assembly (18) under the arms until the center tube lines up with the mounting brackets on the ends of the arms. (Be sure the front of the assembly is facing the front of the drill.) Align the assembly so it is centered evenly between both center pull arms. Hold in place with 1/2" x 2 1/16" U-bolts (16) and 1/2" lock nuts (17). Do not tighten at this time. Repeat steps to install right hand assembly.

Note: Before tightening U-bolts on the harrow frame assemblies refer to page 3 or 4 for proper adjustments.

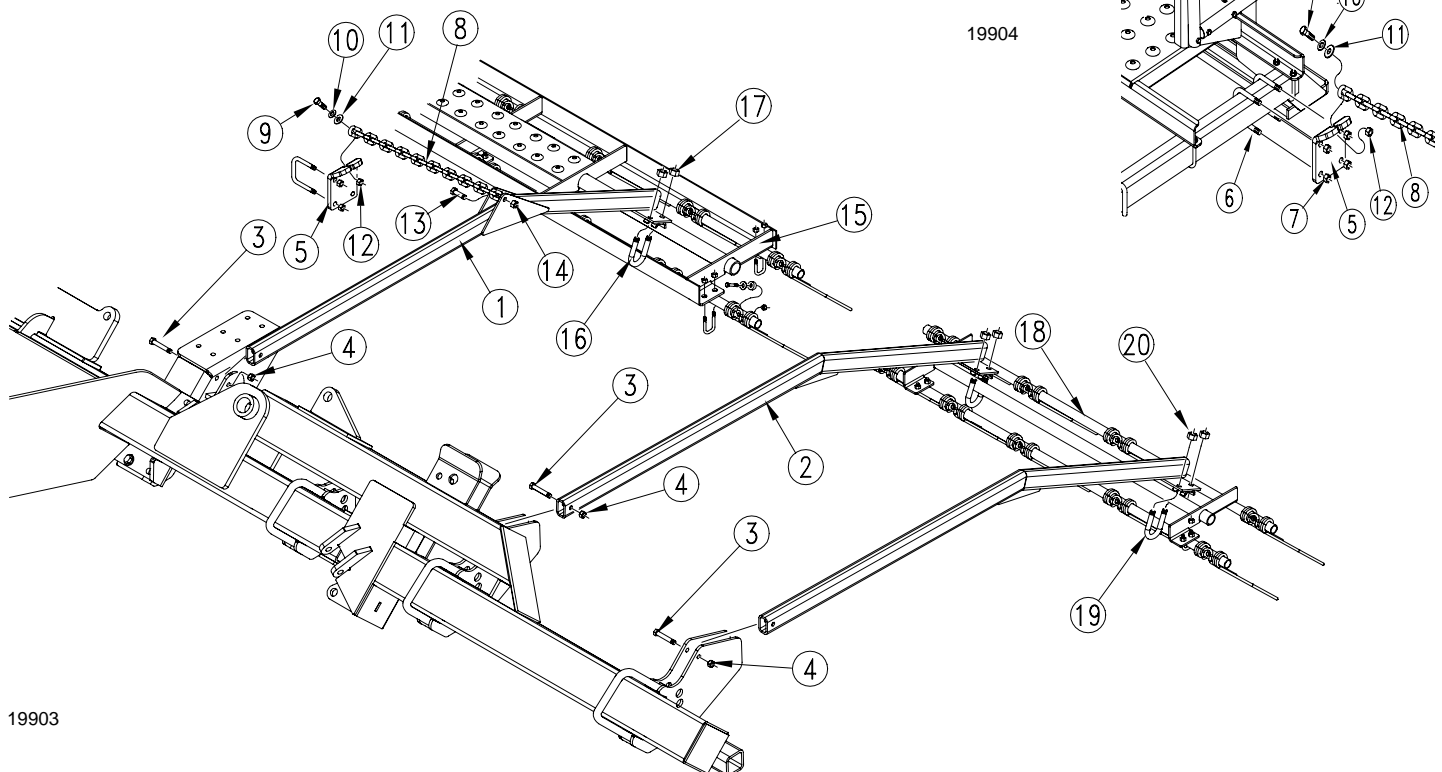


Figure 1  
Attaching Harrow to Drill

## Harrow Adjustments

### For Harrow package 148-611A

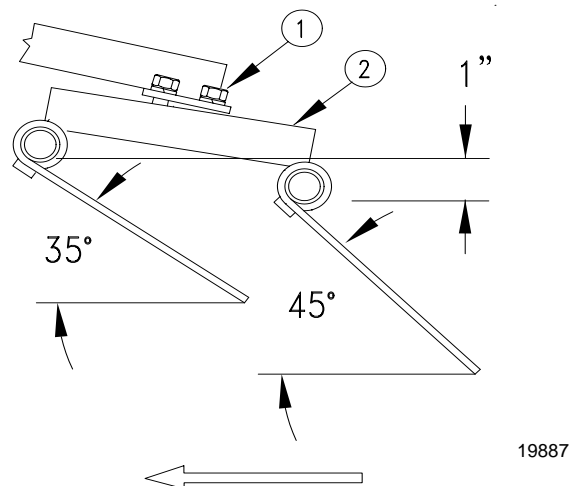
#### Refer to Figure 2

The illustration shows a successful harrow position for no-till conditions. Because of different soil moisture, trash levels and trash types, you may need to reposition the tube frame or tines. Initially position the frame and tines as shown, then readjust as necessary.

1. To adjust the frames, loosen the hex nuts (1) on the U-bolts and rotate the frame tube (2) as necessary. Tighten nuts.

#### Refer to Figure 3

2. To adjust the tines, loosen the 1/2" hex nuts (3) on the 1/2" U-bolts that attach the tine tubes to the harrow frames.
3. Rotate tine tubes (4) so the tines are against the stop bushings and are angled back as necessary. Retighten hex nuts on U-bolts.



**Figure 2**  
Frame Adjustment

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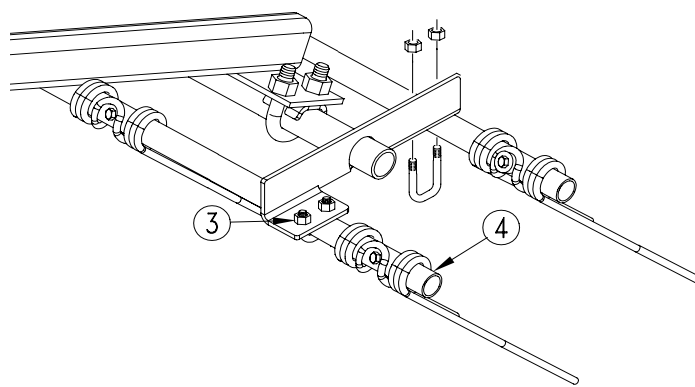
## CAUTION!

Before working around the drill make sure it is properly hitched to the tractor and that the tractor is turned off and the transmission is in the park position. Make sure the drill is on level ground and the coupler and opener wing frames are in their unfolded position. For proper hitching and unfolding instructions refer to the operators manual for this drill.

#### Refer to Figure 4

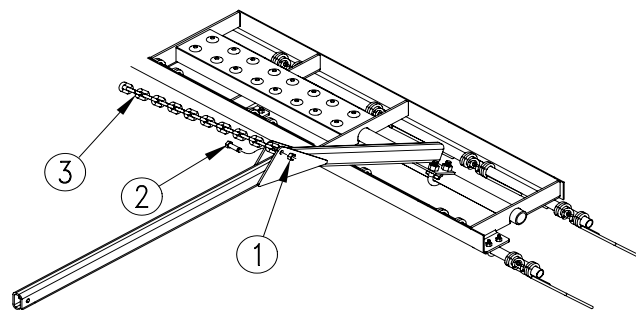
Note: The light bar brackets on the drill must be adjusted so the lights are just behind the wing opener press wheels and just ahead of the wing harrow when the drill is folded. Use extreme caution when folding the drill for the first time after the harrows are installed. Slide the light bar brackets forward or backward as necessary so the wing opener press wheels and wing harrows do not contact the lights.

1. To adjust the transport height of the center harrow section, raise the drill and install the transport lock channels on the transport cylinders and the tongue cylinder.
2. Remove the 7/16" lock nuts (1) and 7/16" x 2 3/4" bolts (2) from the center pull arms and the chain links on chain (3).
3. The center section must rest low enough in the transport position to allow the wing sections to fold over the top of the center section without contacting it. This position is slightly lower than the maximum down position of the wing sections.
4. Select a chain link to adjust the transport height of the center section. Carefully fold the drill to make sure the wing harrow sections do not contact the center section. Make adjustments as necessary to get the maximum center section transport height without wing section contact.
5. Make sure both chains are adjusted to the same length so the section raises and lowers evenly.
6. Reinstall bolts and tighten nuts.



**Figure 3**  
Tine Adjustment

19886



**Figure 4**  
Chain Adjustment

19913

## Harrow Adjustment

### For Harrow package 116-241A

#### Refer to Figure 5

The illustration shows a successful harrow position for no-till conditions. Because of different soil moisture, trash levels and trash types, you may need to reposition the tube frame or tines. Initially position the frame and tines as shown, then readjust as necessary.

1. To adjust the frames, loosen the hex nuts (1) on the U-bolts and rotate the frame tube (2) as necessary. Tighten nuts.

#### Refer to Figure 6

2. To adjust the tines, loosen the 1/2" hex nuts (3) on the 1/2" U-bolts that attach the tine tubes to the harrow frames.
3. Rotate tine tubes (4) so the tines are against the stop bushings and are angled back as necessary. Retighten hex nuts on U-bolts.

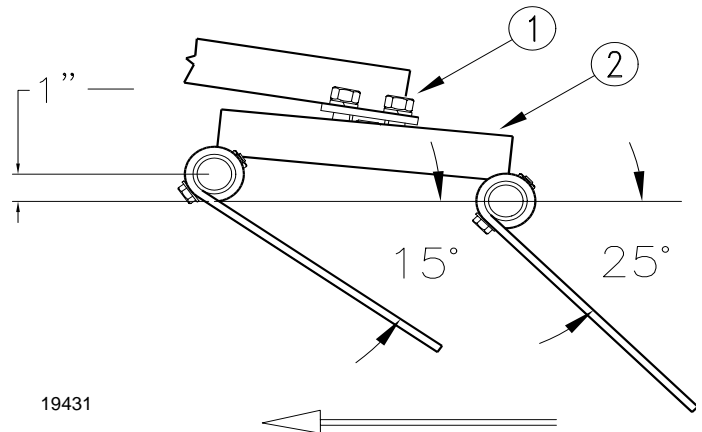


Figure 5  
Tine Angle For No-Till Drilling

## CAUTION!

Before working around the drill make sure it is properly hitched to the tractor and that the tractor is turned off and the transmission is in the park position. Make sure the drill is on level ground and the coulter and opener wing frames are in their unfolded position. For proper hitching and unfolding instructions refer to the operators manual for this drill.

#### Refer to Figure 7

Note: The light bar brackets on the drill must be adjusted so the lights are just behind the wing opener press wheels and just ahead of the wing harrow when the drill is folded. Use extreme caution when folding the drill for the first time after the harrows are installed. Slide the light bar brackets forward or backward as necessary so the wing opener press wheels and wing harrows do not contact the lights.

1. To adjust the transport height of the center harrow section, raise the drill and install the transport lock channels on the transport cylinders and the tongue cylinder.
2. Remove the 7/16" lock nuts (1) and 7/16" x 2 3/4" bolts (2) from the center pull arms and the chain links on chain (3).
3. The center section must rest low enough in the transport position to allow the wing sections to fold over the top of the center section without contacting it. This position is slightly lower than the maximum down position of the wing sections.
4. Select a chain link to adjust the transport height of the center section. Carefully fold the drill to make sure the wing harrow sections do not contact the center section. Make adjustments as necessary to get the maximum center section transport height without wing section contact.
5. Make sure both chains are adjusted to the same length so the section raises and lowers evenly.
6. Reinstall bolts and tighten nuts.

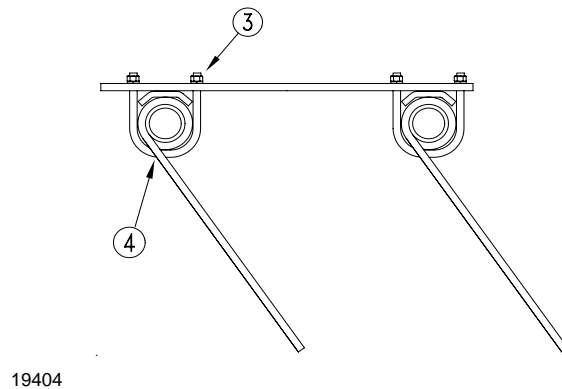


Figure 6  
Harrow Adjustment

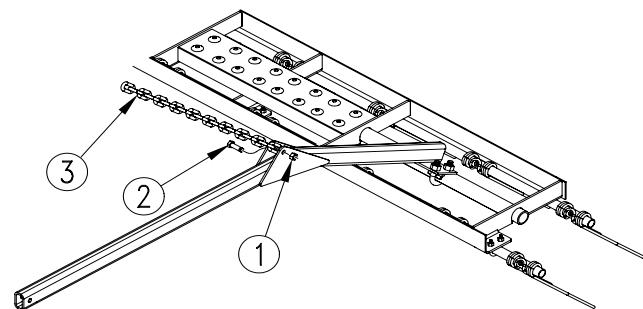


Figure 7  
Chain Adjustment

**Listing of Parts****148-611A NTA 2000 HARROW BUNDLE-DOMESTICS**

Your Kit Includes:

Qty.	Part No.	Part Description
1	148-612M	MANUAL NTA2000 HARROW INST
1	148-641K	NTA2000D HARROW ASY-DOMEST
1	148-642K	NTA2000D HARROW MNT-DOMEST

**116-241A NTA 2000 HARROW BUNDLE-EXPORT**

Your Kit Includes:

Qty.	Part No.	Part Description
2	116-191D	3-PT SUPPORT CHAIN LONG
1	148-514H	NTA1300 HARROW CTR FRM WLMT
2	148-554H	NTA2000 HARROW WING FRAME WLMT
2	148-555H	NTA2000 HARROW CTR PULL ARM
4	148-558H	NTA2000 HARROW WING PULL ARM
4	148-638H	NTA2000 HARROW STOP WELDMENT
24	148-888D	NTA1300 HARROW SPACER
2	148-972D	NTA1300 HARROW CTR TINE TUBE
4	248-054D	NTA2000 HARROW WING TINE TUBE
2	248-079D	NTA2000 HARROW CHAIN SLOT PLT
2	802-029C	HHCS 7/16-14X1 1/2 GR5
4	802-082C	HHCS 1/2-13X1 3/4 GR5
6	802-099C	HHCS 1/2-13X3 1/4 GR5
24	802-226C	HHCS 1/2-13X2 3/4 GR5
2	802-315C	HHCS 7/16-14X2 3/4 GR5
94	803-147C	NUT HEX NYLOCK 1/2-13
4	803-273C	HUT HEX NYLOCK 7/16-14 PLT
2	804-041C	WASHER FLAT 7/16 SAE PLT
6	804-094C	WASHER FLAT 1/2 HARD ASTM F 436
4	806-144C	U-BOLT 1/2-13 X 3 1/32 X 3
26	806-164C	U-BOLT 1/2-13 X 1 11/16 X 2 1/16
24	807-196C	HEAVY COIL TINE