



Spring Tine Harrow Installation Instructions

Used with:

- 1205NT

General Information

These instructions explain how to install a spring tine harrow on the model 1205NT drill.

These instructions apply to an installation of:

Kit	Kit Description
116-162A	12'EWNT COIL TINE HARROW

One kit equips one drill.

Compatibility

This kit is compatible with all vintages and row spacings of model 1205NT drills. It is not compatible with model 1200, 1210 or 1220 3-point drills.

Parts and Tools Required

- A towing vehicle compatible with the drill hitch.
- A hydraulic source for lowering the drill.
- A hoist with 150 pound (68 kg) capacity, or three workers.
- Basic hand tools, including a protractor.

Related Documents

Have the Operator Manual at hand for drill movements.

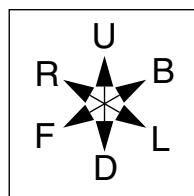
150-131M 1205NT Operator Manual

Have the current Parts Manual at hand for parts ID.

150-131P 1205NT Parts Manual

Notations and Conventions

“Left” and “Right” are facing in the direction of machine travel. An orientation rose in the line art illustrations shows the directions of Left, Right, Front, Back, Up, Down.



Call-Outs

- ① to ⑨ Single-digit callouts identify components in the currently referenced Figure or Figures.
- ⑪ The two-digit callout 11 references an existing part (see page 6).
- ⑳ to ㉓ Two-digit callouts in the range 21 to 43 reference new parts (see list on page 6).

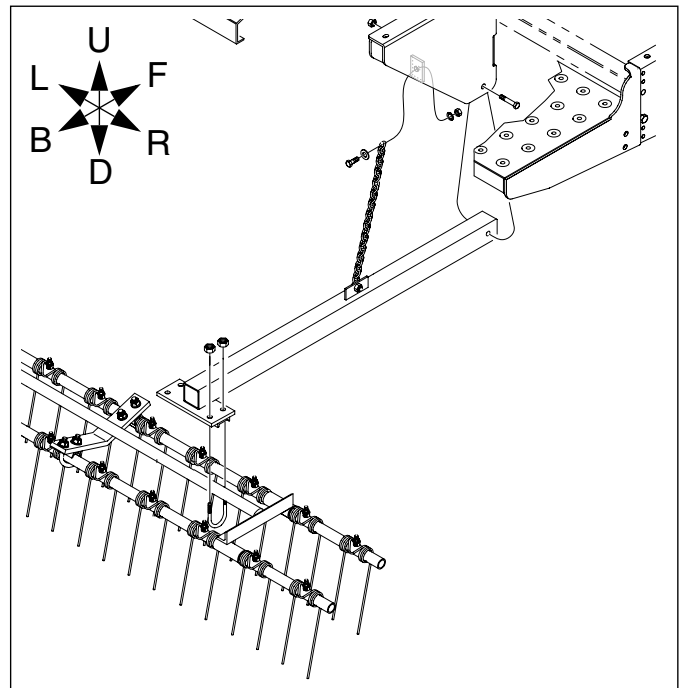


Figure 1
Harrow Kit

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Before You Start

Inventory

1. Make sure all parts are present.

Comprehension

2. Review these instructions. Make sure the installers understand where each part or assembly is installed, and what tools are required for the task.

Pre-Assembly Preparation

Work Location

3. Move the drill to a location with:
 - adequate illumination; and,
 - clear surface beneath for recovery of any falling or dropped parts - if the surface is not clear, have a tarp or drop cloth available.
4. Lower drill.
5. Set all hydraulic remote circuits to Float (to ensure that pressure is relieved). Shut off tractor or hydraulic source.

Spot Harrow Frame

Refer to Figure 2

6. Select one new:
 - ②1 116-154K 12'EWNT COIL TINE HARROW ASY

Set the assembly behind the drill. Locate the assembly so the ends of the tine tubes are centered on the path made by the openers.

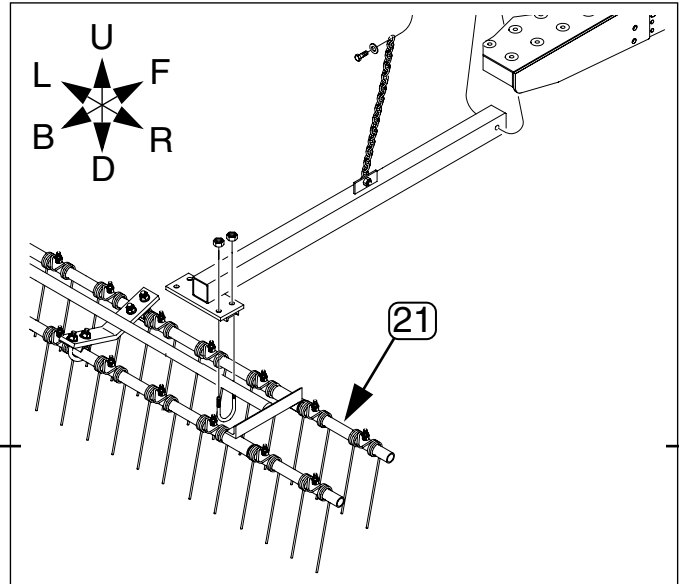


Figure 2
Spot Harrow Frame

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Install Arms

Start with the right side of the drill.

Refer to Figure 3

7. Select one new:
 - ③5 116-129H HANGER ARM WELDMENT - 3PT
 and one set new:
 - ③8 802-099C HHCS 1/2-13X3 1/4 GR5
 - ④0 803-147C NUT HEX NYLOCK 1/2-13

With the frame clamp plate ① facing down, install the arm ③5 on the harrow attachment weldment ①1. Secure with bolt ③8 and lock nut ④0. Tighten nut so that the bolt is free to turn and the arm free to pivot.

8. Repeat step 7 for the left side of the drill.

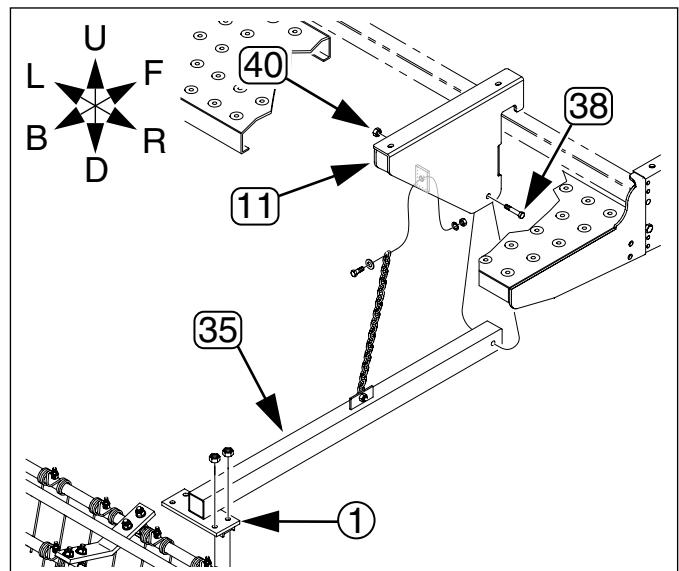


Figure 3
Install Arm

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Attach Harrows

Start with the right side of the drill.

Refer to Figure 4

9. Select two new:
 (43) 806-046C U-BOLT 1/2-13 X 1 3/8X2 3/4 LG
 and four new:
 (40) 803-147C NUT HEX NYLOCK 1/2-13

Loosely secure the frame clamp plate (1) to the frame weldment (27) using the U-bolts (43) and lock nuts (40). The angle is adjust at a later step.

10. Repeat step 9 for the left side of the drill.

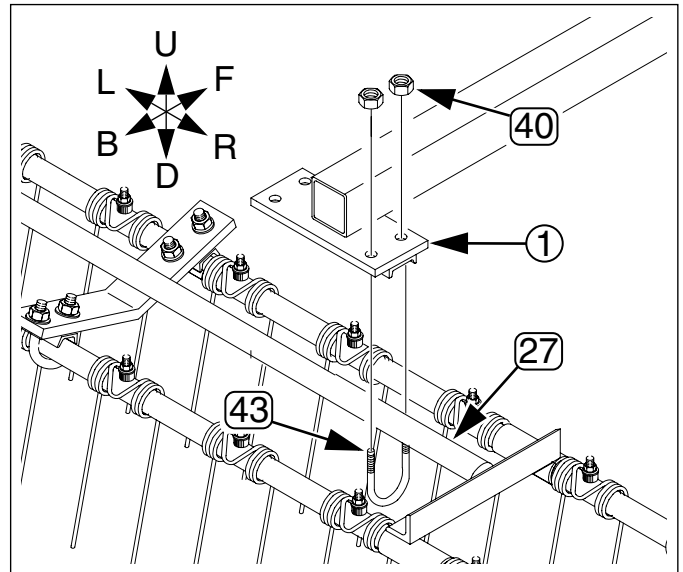


Figure 4
Attach Harrow

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Attach Chains

Refer to Figure 5

11. Select one new:
 (36) 116-180D 3PT HANGER ARM CHAIN
 and two sets new:
 (37) 802-022C HHCS 3/8-16X1 1/2 GR5
 (41) 804-011C WASHER FLAT 3/8 USS PLT
 (42) 804-013C WASHER LOCK SPRING 3/8 PLT
 (39) 803-014C NUT HEX 3/8-16 PLT

Using a bolt (37), flat washer (41), lock washer (42) and nut (39), secure one end of the chain (36) to the chain attachment bracket (2) inside the harrow attachment weldment.

If not factory pre-assembled, secure the other end of the chain to the chain attachment plate (3) on the arm.

12. Repeat step 11 for the left side of the drill.

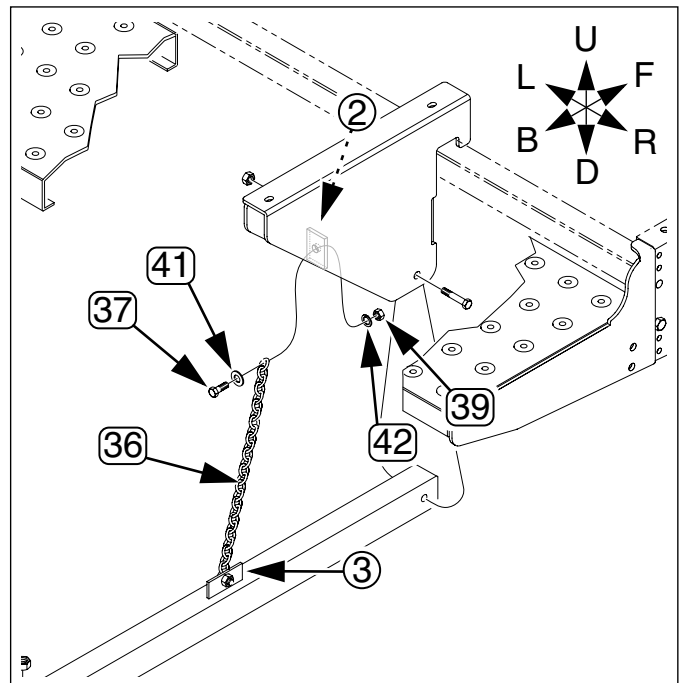


Figure 5
Attach Chain

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Adjust Angles

Note: Figure 6 depicts one harrow setting that has proven successful in no-till and minimum-till conditions. Your field conditions may differ due to soil type, moisture levels and residue. Some further adjustment of the tine assemble and individual tubes may be necessary.

Adjust Frame Angle

Ideally, make these adjustments in field conditions, with the openers lowered and into the ground.

Refer to Figure 6

13. Check that the tine angles ④ and ⑤ are approximately as shown.
14. Loosen the four trailing nuts ④⑩ that secure the arms ③⑤ to the frame weldment ②⑦. Adjust the frame angle ⑥ so that the rear tine tube is: 1 to 1.5 inches (25-38mm) lower than the front tube. Secure the nuts.

Adjust Tine Angle

15. Adjust the rear tine angle ⑤ to 45°. Loosen the rear nut ③⑩ at each of three U-bolts that secure the tine tube to a center brace weldment. Adjust the gang angle and re-secure the nuts.
16. Adjust the front tine angle ④ to 35°. Loosen the rear nut ③⑩ at each of three U-bolts that secure the tine tube to a center brace weldment. Adjust the gang angle and re-secure the nuts.

If the tines required more than a few degrees of adjustment, recheck the frame angle. If the frame angle requires adjustment (step 14), also repeat step 15 and step 16.

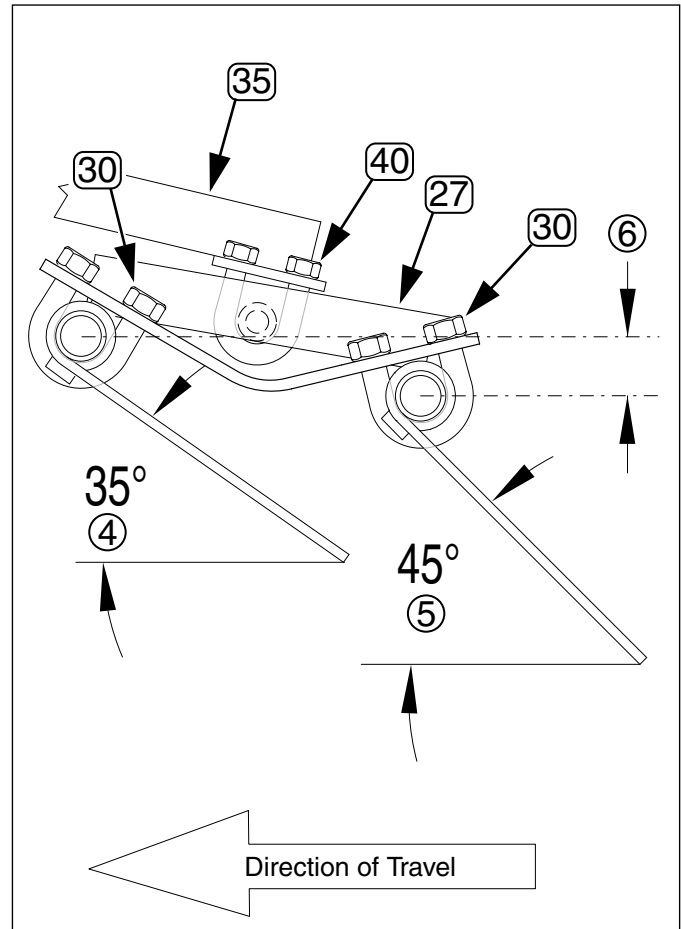


Figure 6
Assembly and Tine Angles

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Close-Out

17. Raise the drill to transport height. Verify that the chains lift the harrow to adequate ground clearance. If more clearance is desired, move the upper bolts a few links further down the chains.

Harrow Operation

The harrows engage/disengage automatically as the drill is lowered and raised in field operations, and require no change to normal operations.







Harrow Maintenance

Check frame angle, tine angle and bolt torque periodically.

Replace spring tines when worn.

Appendix

Torque Chart

Bolt Size	Bolt Head Identification						Bolt Size	Bolt Head Identification					
													
	Grade 2		Grade 5		Grade 8			Class 5.8		Class 8.8		Class 10.9	
in-tpi ^a	N-m ^b	ft-lb ^d	N-m	ft-lb	N-m	ft-lb	mm x pitch ^c	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb
1/4-20	7.4	5.6	11	8	16	12	M 5 X 0.8	4	3	6	5	9	7
1/4-28	8.5	6	13	10	18	14	M 6 X 1	7	5	11	8	15	11
5/16-18	15	11	24	17	33	25	M 8 X 1.25	17	12	26	19	36	27
5/16-24	17	13	26	19	37	27	M 8 X 1	18	13	28	21	39	29
3/8-16	27	20	42	31	59	44	M10 X 1.5	33	24	52	39	72	53
3/8-24	31	22	47	35	67	49	M10 X 0.75	39	29	61	45	85	62
7/16-14	43	32	67	49	95	70	M12 X 1.75	58	42	91	67	125	93
7/16-20	49	36	75	55	105	78	M12 X 1.5	60	44	95	70	130	97
1/2-13	66	49	105	76	145	105	M12 X 1	90	66	105	77	145	105
1/2-20	75	55	115	85	165	120	M14 X 2	92	68	145	105	200	150
9/16-12	95	70	150	110	210	155	M14 X 1.5	99	73	155	115	215	160
9/16-18	105	79	165	120	235	170	M16 X 2	145	105	225	165	315	230
5/8-11	130	97	205	150	285	210	M16 X 1.5	155	115	240	180	335	245
5/8-18	150	110	230	170	325	240	M18 X 2.5	195	145	310	230	405	300
3/4-10	235	170	360	265	510	375	M18 X 1.5	220	165	350	260	485	355
3/4-16	260	190	405	295	570	420	M20 X 2.5	280	205	440	325	610	450
7/8-9	225	165	585	430	820	605	M20 X 1.5	310	230	650	480	900	665
7/8-14	250	185	640	475	905	670	M24 X 3	480	355	760	560	1050	780
1-8	340	250	875	645	1230	910	M24 X 2	525	390	830	610	1150	845
1-12	370	275	955	705	1350	995	M30 X 3.5	960	705	1510	1120	2100	1550
1 1/8-7	480	355	1080	795	1750	1290	M30 X 2	1060	785	1680	1240	2320	1710
1 1/8-12	540	395	1210	890	1960	1440	M36 X 3.5	1730	1270	2650	1950	3660	2700
1 1/4-7	680	500	1520	1120	2460	1820	M36 X 2	1880	1380	2960	2190	4100	3220
1 1/4-12	750	555	1680	1240	2730	2010							
1 3/8-6	890	655	1990	1470	3230	2380							
1 3/8-12	1010	745	2270	1670	3680	2710							
1 1/2-6	1180	870	2640	1950	4290	3160							
1 1/2-12	1330	980	2970	2190	4820	3560							

a. in-tpi = nominal thread diameter in inches-threads per inch

b. N·m = newton-meters

c. mm x pitch = nominal thread diameter in mm x thread pitch

d. ft-lb = foot pounds

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

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Part Lists

New Parts

116-162A Kit Contents

The part call-out numbers in this list match all Figures in these installation instructions. Part descriptions match those in your updated Parts Manual.

Call-out	Part Number	Description
	116-162A	12'EWNT COIL TINE HARROW
21	116-154K	12'EWNT COIL TINE HARROW ASY
22	116-155K	12'HARROW ARM ASY
23	116-156M	MANUAL 12'EWNT HARROW
24	813-009C	10 FT HARROW PALLET
	116-154K	12'EWNT COIL TINE HARROW ASY
25	113-271D	SHEAR BUSHING 5/8X.357
26	116-062H	CENTER BRACE WELDMENT
27	116-064H	20'FRAME WELDMENT
28	116-189D	HARROW TINE BAR
29	802-138C	HHCS 5/16-18X2 1/4 GR5
30	803-084C	NUT HEX NYLOCK 5/16-18 PLT
31	803-147C	NUT HEX NYLOCK 1/2-13
32	804-010C	WASHER FLAT 5/16 USS PLT
33	806-046C	U-BOLT 1/2-13 X 1 3/8X2 3/4 LG
34	807-079C	HARROW DBL TORSION SPRG 11 IN
	116-155K	12'HARROW ARM ASY
35	116-129H	HANGER ARM WELDMENT - 3PT
36	116-180D	3PT HANGER ARM CHAIN
37	802-022C	HHCS 3/8-16X1 1/2 GR5
38	802-099C	HHCS 1/2-13X3 1/4 GR5
39	803-014C	NUT HEX 3/8-16 PLT
40	803-147C	NUT HEX NYLOCK 1/2-13
41	804-011C	WASHER FLAT 3/8 USS PLT
42	804-013C	WASHER LOCK SPRING 3/8 PLT
43	806-046C	U-BOLT 1/2-13 X 1 3/8X2 3/4 LG

Quantities are units ("ea").

Existing Parts

The part call-out numbers in this list match all Figures in these installation instructions. Part descriptions match those in your updated Parts Manual.

Call out	Part Number	Part Description
11	151-027H	HARROW ATTACHMENT WELDMENT

Note: This part is factory pre-installed on all model 1205NT drills.

Abbreviations

3PT	3 Point
ASY	Assembly
DBL	Double
EWNT	End-Wheel No-Till
FT	Foot/Feet
GR5	Grade 5
HEX	Hexagonal

HHCS	Hex Head Cap Screw
IN	Inch/Inches
LG	Long
PLT	Plated
SPRG	Spring
USS	United States (heavy duty) Standard
X	by

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