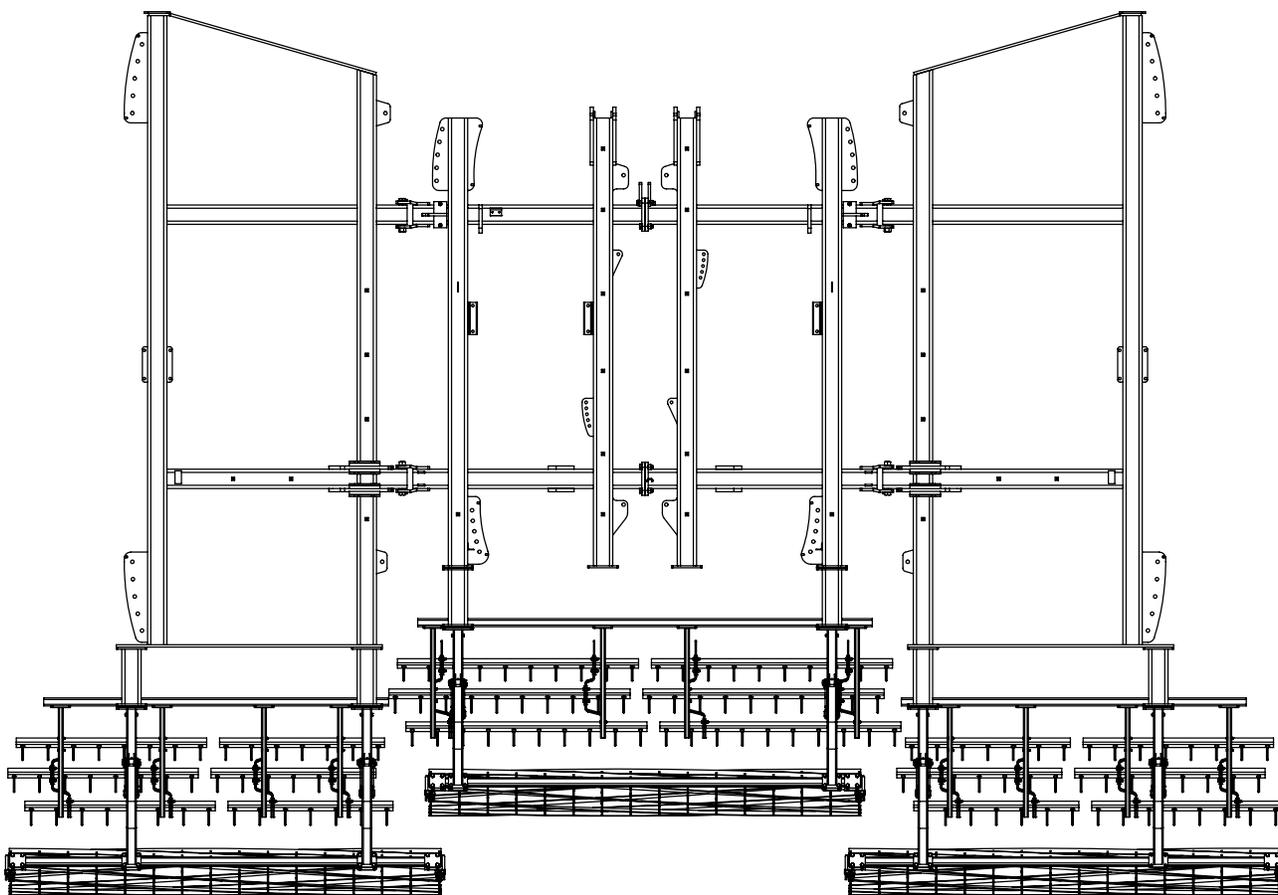


Kongskilde 9100

Vertical Tillage - Harrows

Kongskilde
9100 Series



*Model may not be exactly as shown.
Kongskilde reserves the right to make changes to product designs and specifications without notice or obligation to rework.
See your local Kongskilde representative for current product specifications and options.

Assembly Instructions
and Operating Guide

76000232 - Revision 1

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Introduction:

Please take the time to carefully read all the instruction booklets provided with your new Kongskilde product. Once you are finished reading do not throw these guides out. Keep them for later review.

The harrows have been developed as a leveling attachment for the Kongskilde 9100 Series Vertical Tillage Tool. When properly adjusted the harrow will help to prepare a level surface of various field conditions and soil types.

The harrows are comprised of a 3-bar flex drag-spike harrow.

This booklet has been developed to assist in assembling and operating the 9100 harrows.

Pre-Assembly Tips

Prior to assembling the harrows, the 9100 should be carefully unfolded and lowered so the blades are resting on a flat level area. To complete the assembly you will need the 9100 manual that was included with the purchase of the machine. If you do not have the manual please contact your dealer to get a new manual.

The 9100 harrows should be assembled in four stages:

1. Remove the harrow arms and baskets, if needed.
2. Attach the harrows extensions, supports tubes, mounting brackets and harrow arms to the frame.
3. Position and attach the harrow hangers and 3-bar flex drag-spike sections to the arms.
4. Assemble the baskets to the harrow arms.

Refer to following detailed instructions for each stage.

9115 Harrow Layout

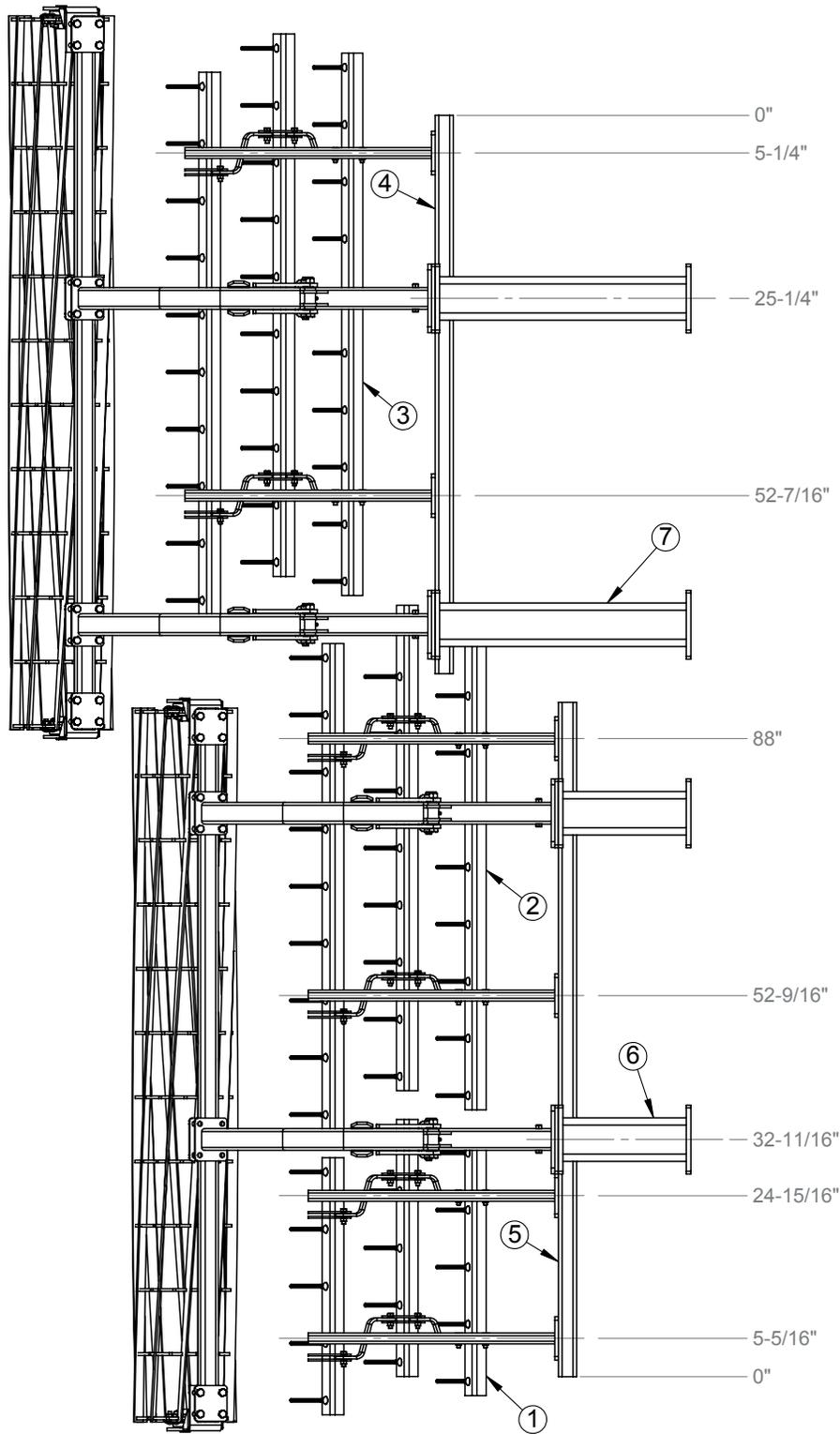


Fig.	Part no.	Qty	Description
1	760053013	1	3 Bar Drag Assembly, 900mm (5 Spike)
2	760053014	1	3 Bar Drag Assembly, 1700mm (9 Spike)
3	602060579	1	3 Bar Drag Assembly, 1900mm (10 Spike)
4	7604003324	1	9115 Left Harrow Support Tube
5	7604003317	1	9115 Right Harrow Support Tube
6	604002191	2	Harrow Extension (Short)
7	7604002203	2	Harrow Extension (Long)
		*	Dimension are taken to the center of the extentions and harrow hangers.

9125 Harrow Layout

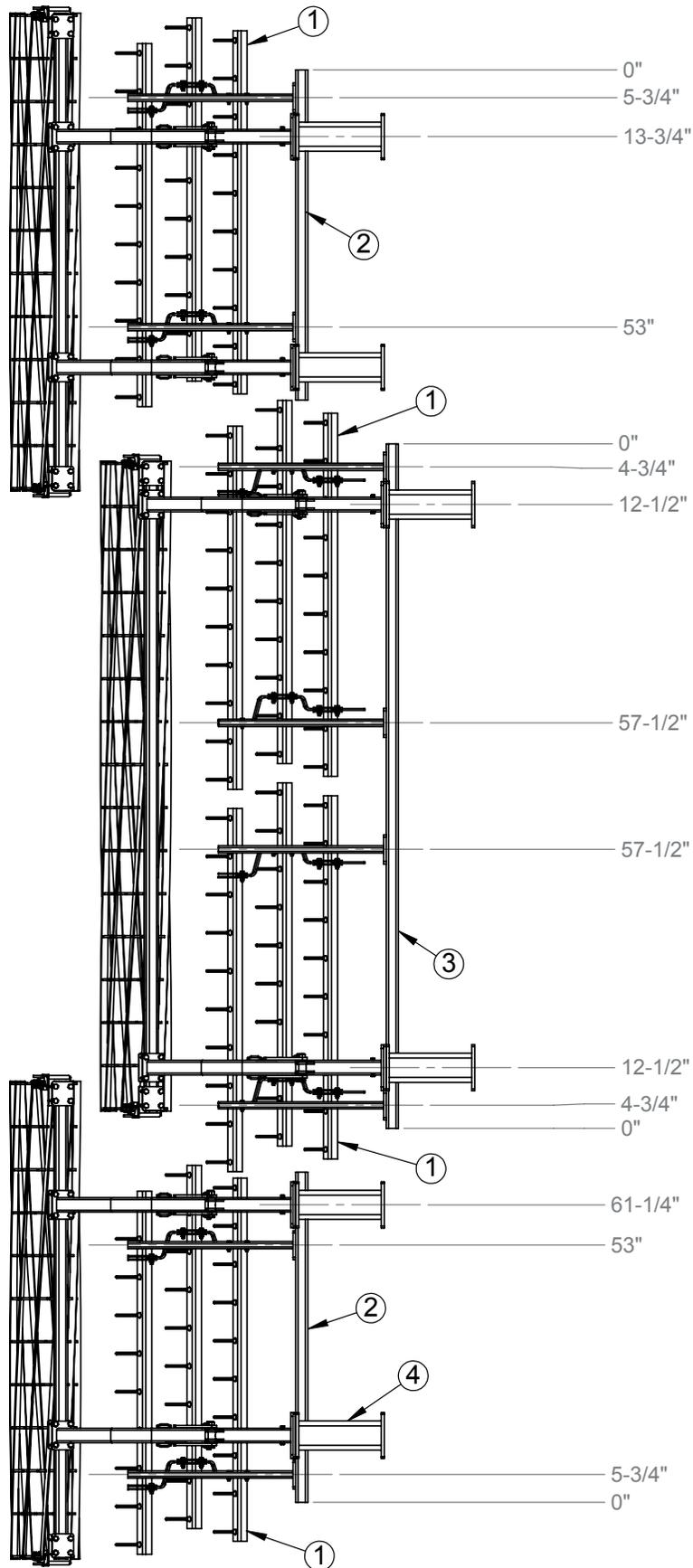


Fig.	Part no.	Qty	Description
1	602060579	4	3 Bar Drag Assembly, 1900mm (10 Spike)
2	7604003322	2	9125 Wing Harrow Support Tube
3	7604003318	1	9100 Main Frame Harrow Support Tube
4	604002191	8	Harrow Extension (Short)
		*	Dimension are taken to the center of the extentions and harrow hangers.

9132 Harrow Layout

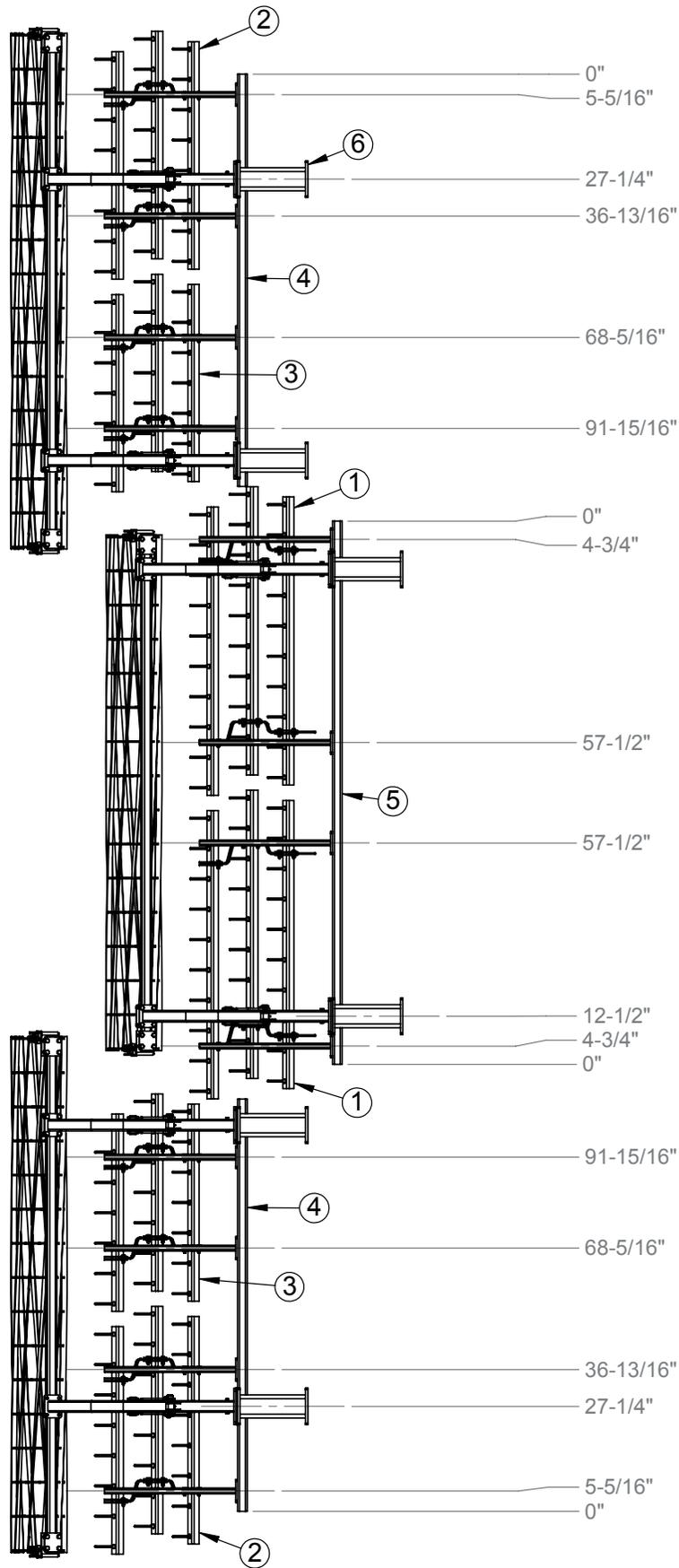


Fig.	Part no.	Qty	Description
1	602060579	2	3 Bar Drag Assembly, 1900mm (10 Spike)
2	602060578	2	3 Bar Drag Assembly, 1500mm (8 Spike)
3	602060577	2	3 Bar Drag Assembly, 1300mm (7 Spike)
4	7604003325	2	9132 Wing Harrow Support Tube
5	7604003318	1	9100 Main Frame Harrow Support Tube
6	604002191	8	Harrow Extension (Short)
		*	Dimension are taken to the center of the extentions and harrow hangers.

Hanger Support Tube Assembly

Instructions:

If the drag harrow option is being assembled to a completely assembled 9100, harrow arms and baskets **MUST** be removed before assembly of the drag harrows (refer to 9100 manual for assembly of harrow arms and baskets). After the harrow arms and baskets have been removed assemble the support tubes, mounting brackets and harrow arms, with the new hardware included, as shown in the diagram below.

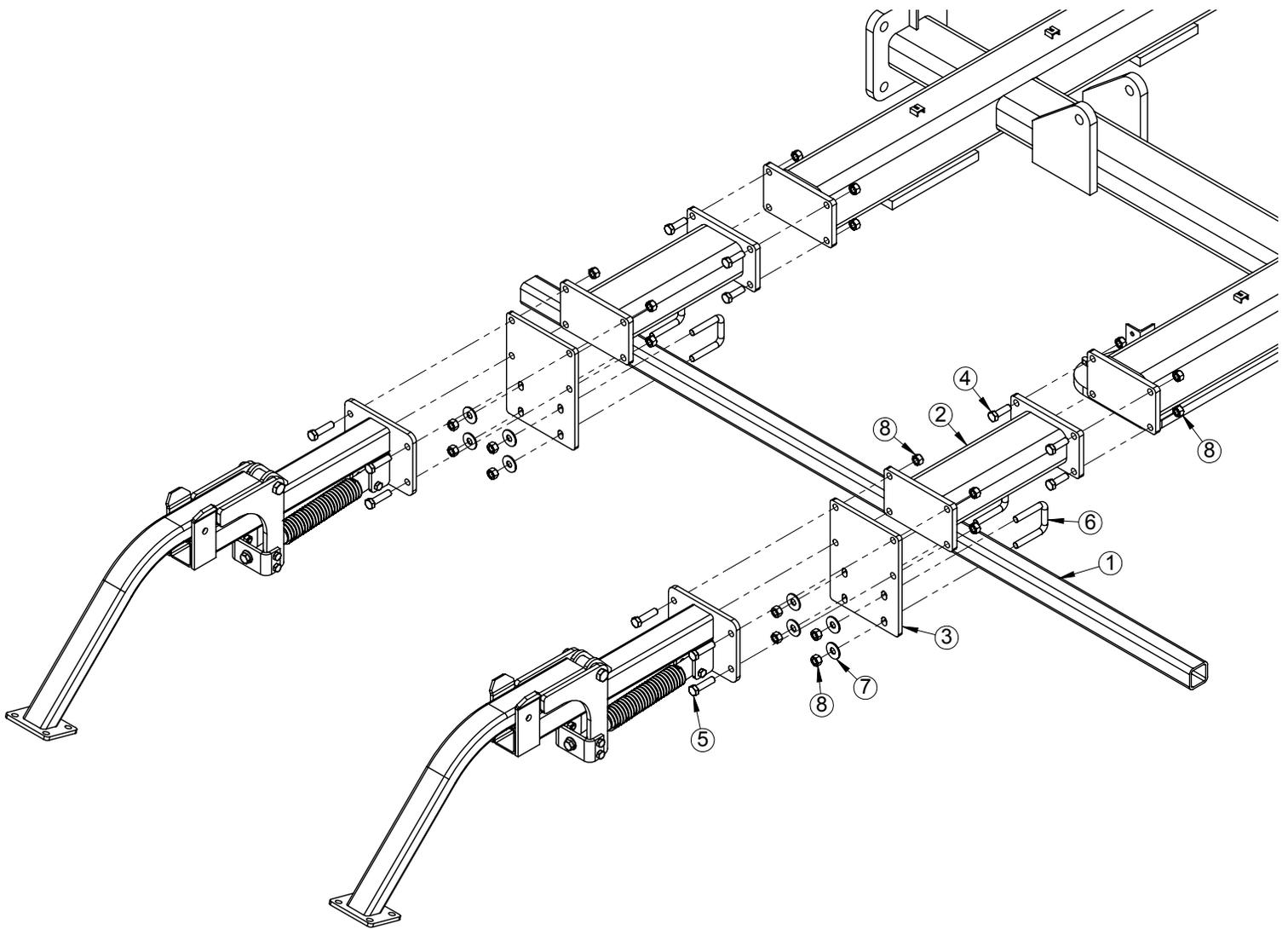
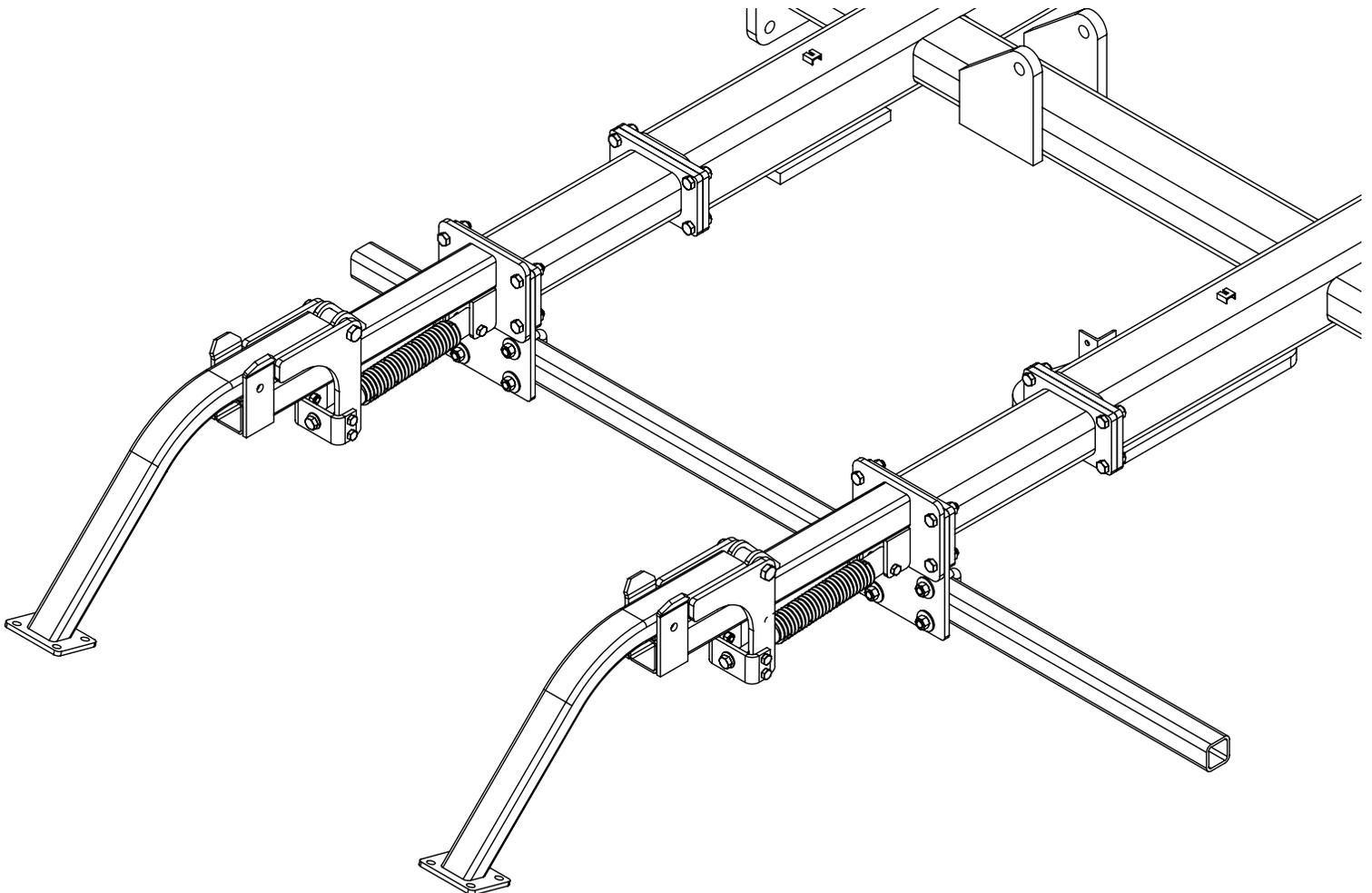


Fig.	Part no.	Qty	Description
1	7604003317	1	9115 Right Harrow Support Tube
	7604003324	-	9115 Left Harrow Support Tube
	7604003322	-	9125 Wing Harrow Support Tube
	7604003318	-	9100 Main Frame Harrow Support Tube
	7604003325	-	9132 Wing Harrow Support Tube
2	604002191	2	Harrow Extension (Short)
	7604002203	-	Harrow Extension (Long)
3	7604003319	2	9100 Hanger Support Tube Mounting Bracket
4	600356010	8	Bolt 5/8" x 2" Gr.5
5	600356008	8	Bolt 5/8" x 2-1/2" Gr.5
6	600373116	4	U-Bolt 5/8" x 2-1/2" x 3-3/4" - UNC
7	600381020	8	Flat Washer 5/8"
8	600365014	24	Stover Locknut Type C - 5/8" UNC
		*	Quantities Listed are Per 1 Harrow Section.



3-Bar Flex Drag-Spike Assembly

Instructions:

Position the harrow hangers and drag-spike assemblies behind the 9100 according to the layout section. Then attach the harrow hangers with the hardware provided. After the harrow hangers are attached to the support tubes, attach the drag assemblies with the hardware and chains provided. With the 9100 blades resting on the ground, the chains should be positioned to allow the spikes to rest on the ground so that when the 9100 is in raised position, the spikes will be even with or just below the blades. The hanger chains should be mounted to the side of the arm closest to chain mounting on drag section. To complete the assembly attach the baskets to the harrow arms (refer to 9100 manual for the assembly of the baskets).

Initial Settings

Pull Chain

-Use 7 Links

Hanger Chain

-Use 13 Links

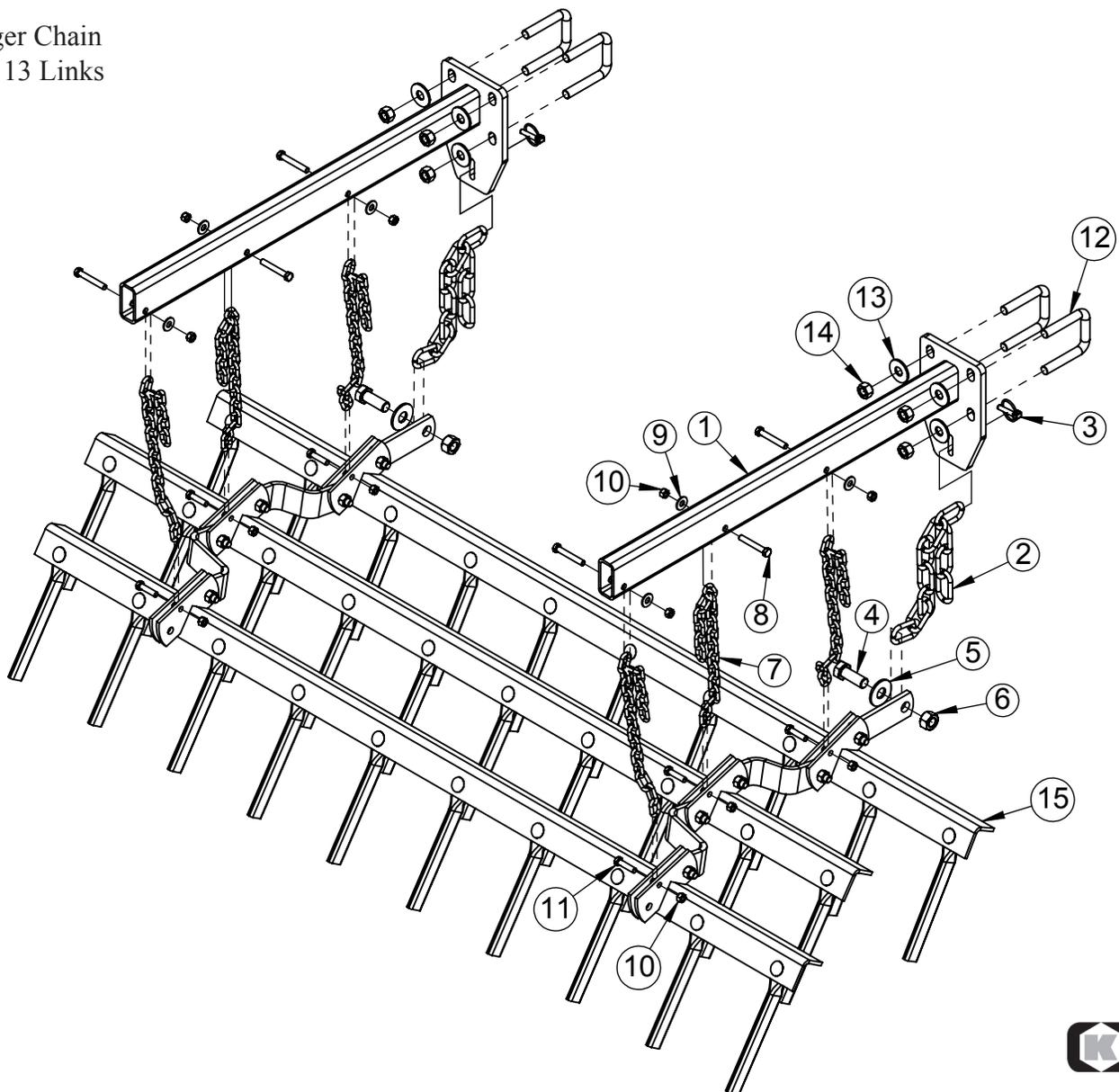
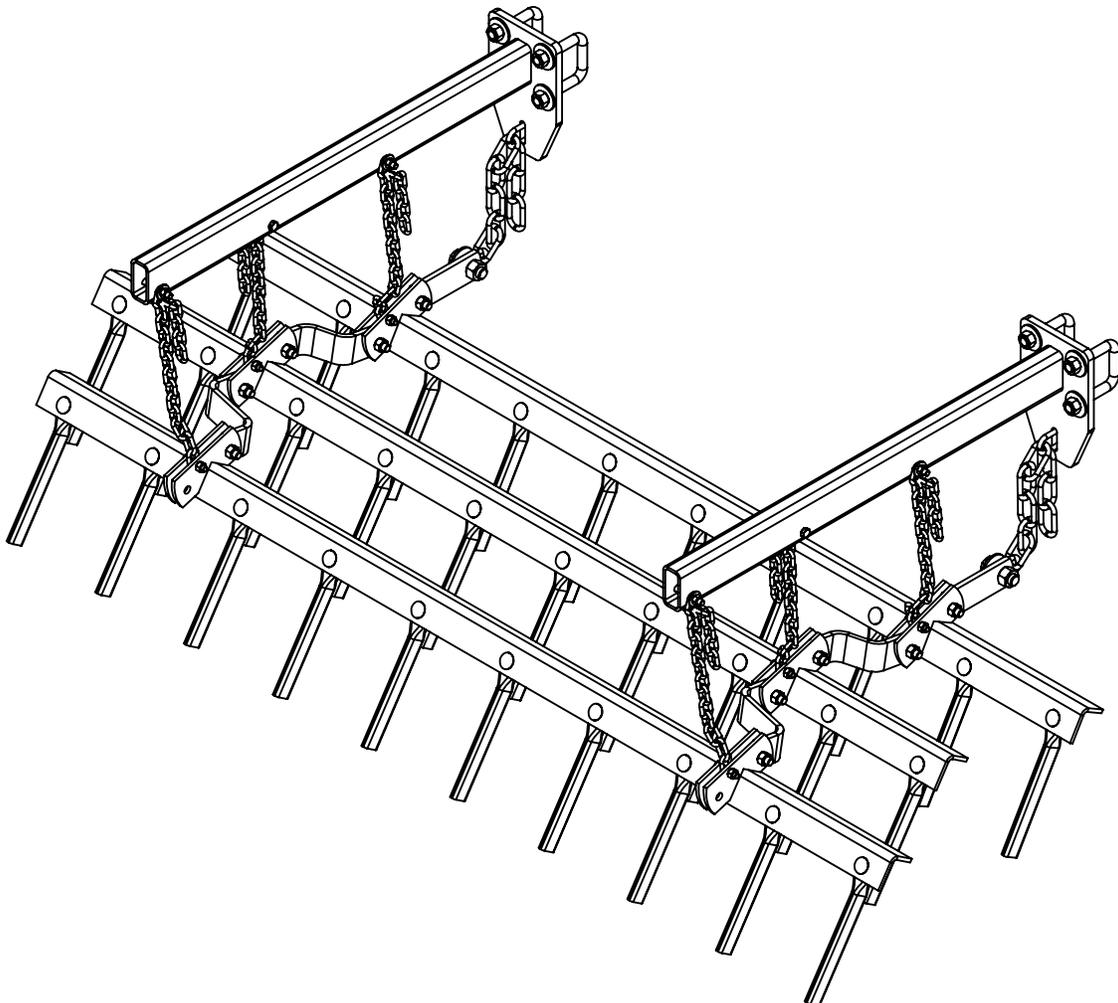


Fig.	Part no.	Qty	Description
1	7604002202	2	9100 Harrow Hanger Weldment
2	602060197	2	Draw Chain 10 Link
3	100333014	2	Lynch Pin LSF 8mm x 40
4	600356145	2	Bolt 3/4" x 2" Gr. 5
5	600381009	2	Flat Washer 3/4"
6	600366024	2	Stover Locknut Type C - 3/4" UNC
7	602060140	6	Hanger Chain
8	600356007	6	Bolt 3/8" x 2-1/2" Gr.5
9	600381006	6	Flat Washer 3/8"
10	600366028	12	Stover Locknut Type C - 3/8" - UNC.
11	600356115	6	Bolt 3/8" x 1-1/2" Gr. 5
12	600373116	2	U-Bolt 5/8" x 2-1/2" x 3-3/4" - UNC.
13	600381020	8	Flat Washer 5/8"
14	600366031	8	Stover Locknut Type C - 5/8" - UNC.
15	602060579	1	3 Bar Drag Assembly, 1900mm (10 Spike)
	760053014	-	3 Bar Drag Assembly, 1700mm (9 Spike)
	602060578	-	3 Bar Drag Assembly, 1500mm (8 Spike)
	602060577	-	3 Bar Drag Assembly, 1300mm (7 Spike)
	602060576	-	3 Bar Drag Assembly, 1100mm (6 Spike)
	760053013	-	3 Bar Drag Assembly, 900mm (5 Spike)
	602060575	-	3 Bar Drag Assembly, 700mm (4 Spike)



3-Bar Flex Drag-Spike Part Details

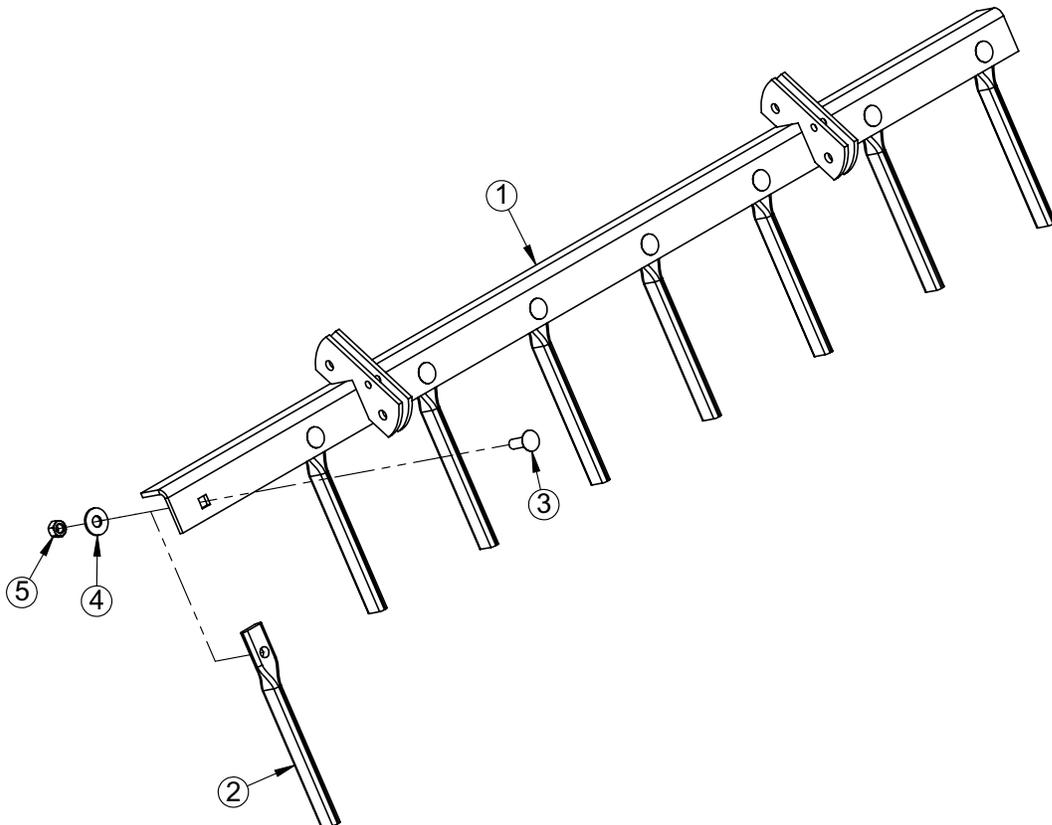
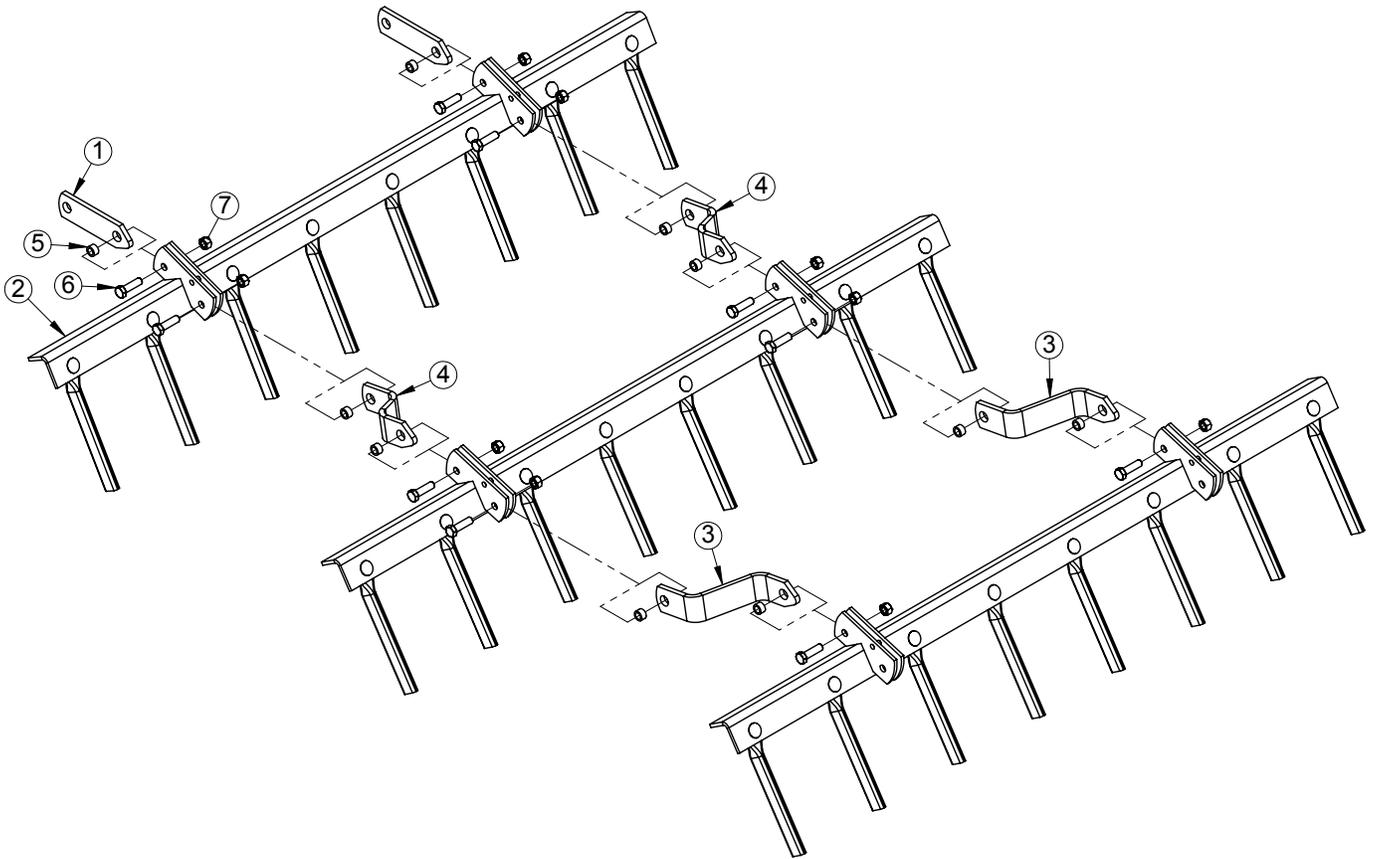
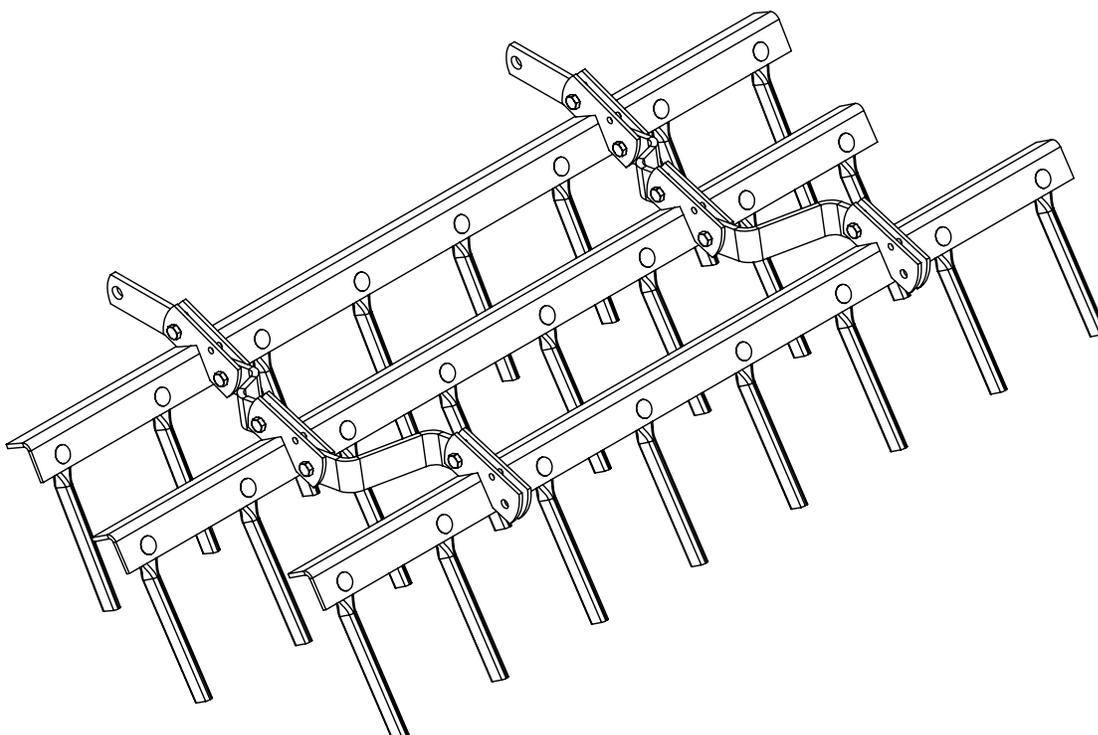
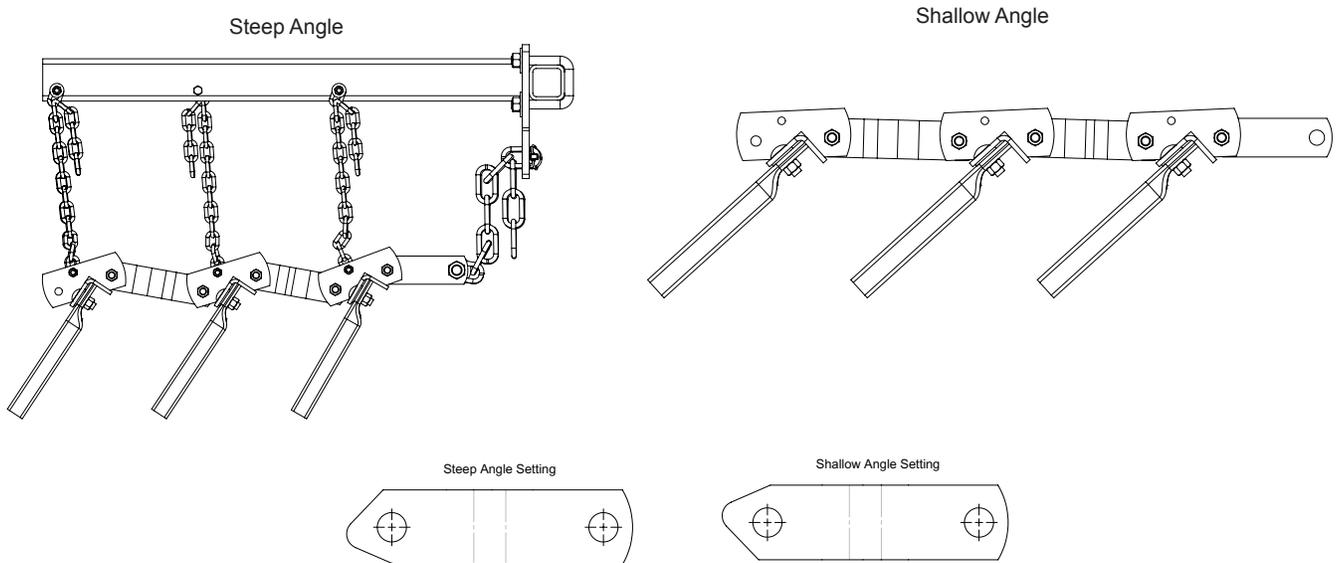


Fig.	Part no.	Qty	Description
1	602060114	2	Straight Joiner Link
2	602060137	2	1500 Harrow Bar Assembly 8 Spike
	602060134	-	700 Harrow Bar Assembly 4 Spike
	760053001	-	900 Harrow Bar Assembly 5 Spike
	602060135	-	1100 Harrow Bar Assembly 6 Spike
	602060136	-	1300 Harrow Bar Assembly 7 Spike
	760053002	-	1700 Harrow Bar Assembly 9 Spike
	602060138	-	1900 Harrow Bar Assembly 10 Spike
3	602060117	2	Left Offset Link (134mm)
4	602060118	2	Right Offset Link (67mm)
5	602060112	8	Bushing
6	600366030	8	Stover Locknut Type C - 1/2" - UNC
7	600356139	8	Bolt 1/2" x 1-3/4" Gr. 5
1	602060104	1	1500 Harrow Bar Weldment
	602060101	-	700 Harrow Bar Weldment
	760052002	-	900 Harrow Bar Weldment
	602060102	-	1100 Harrow Bar Weldment
	602060103	-	1300 Harrow Bar Weldment
	760052003	-	1700 Harrow Bar Weldment
	602060105	-	1900 Harrow Bar Weldment
2	102060100		1 Hole Spike Tine
3	600361036		Carriage Bolt 1/2" x 1-1/2"
4	600381050		Flat Washer 1/2"
5	600366030		Stover Locknut Type C - 1/2" - UNC



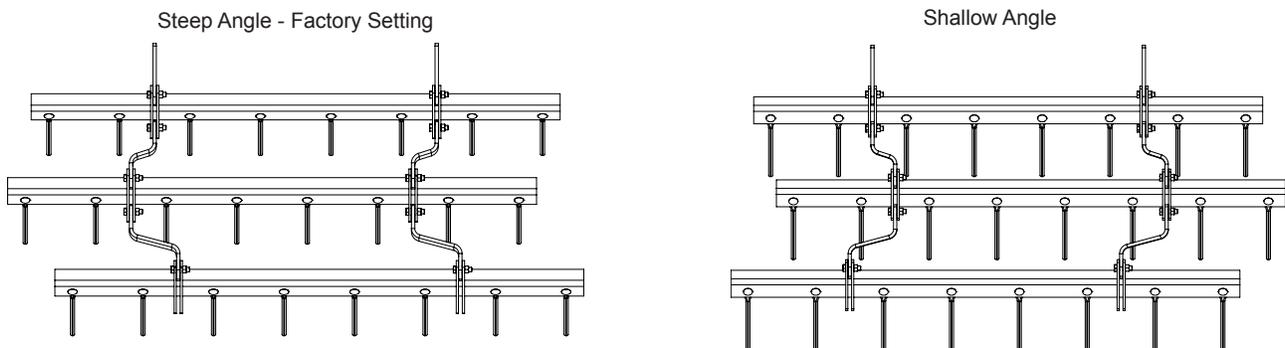
Assembly Supplement: Working Angle of 3-Bar Drag Harrow

As an added feature, the straight and offset joiner links of the 3 bar drag sections have one end with two different angle cuts. This gives you the opportunity to set the spikes bars to run at a shallow angle of about 30° for leveling in heavy residue or lighter soils, or set at a steeper angle of about 45° for breaking clods and lumps in heavier soils. The harrows come pre-assembled from the factory on the steep angle setting. However, If you want to change to the shallow angle setting you must flip the offset brackets over on all sections before starting the assembly, as all sections must be set the same way. See Diagrams & Notes below.



NOTE 1: Depending on the setting chosen, the links may be flipped over and offset in the opposite direction to the diagrams shown in the harrow layout section.

NOTE 2: All offset brackets must be assembled to work at the same angle; either shallow or steep. All spike bars must work at the same angle to allow for proper spacing between the spikes.



Assembly Completion:

When the assembly of the harrows has been completed check to make sure that the complete assembly appears evenly spaced and centred across the back of the 9100. If the harrow assembly is not centered you will have to shift the harrow sections as required. Improper centering of the harrows may cause the 9100 to pull crooked in the field.

Check to make sure that the 4" spacing between the drag harrow sections has been maintained. It is important to insure that the spacing between the spikes is maintained to ensure the soil surface is groomed evenly. It is also important that the drag sections have enough clearance between each other so they will not hit each other as they work and move up and down over the surface of the ground.

Check all nuts and bolts and secure if loose.

Take care when folding the 9100 for transport for the first time after completing the assembly. Check to make sure that the harrows do not interfere with other frame components when folding and unfolding.



DANGER! NEVER STAND OR WORK IN THE AREA BELOW THE WINGS OR UNDER AN UNSUPPORTED 9100 VERTICAL TILLAGE TOOL FRAME.

- a) ALWAYS USE WING LOCK PINS, AND WHEEL CYLINDER TRANSPORT LOCKS.
- b) USE EXTREME CAUTION WHEN WORKING AROUND HEAVY EQUIPMENT.
- c) BLOCK THE WHEELS AND MAKE SURE THAT THE UNIT IS SUPPORTED TO PREVENT IT FROM FALLING BEFORE ATTEMPTING TO MAKE ADJUSTMENTS OR WHEN PERFORMING MAINTENANCE OPERATIONS.

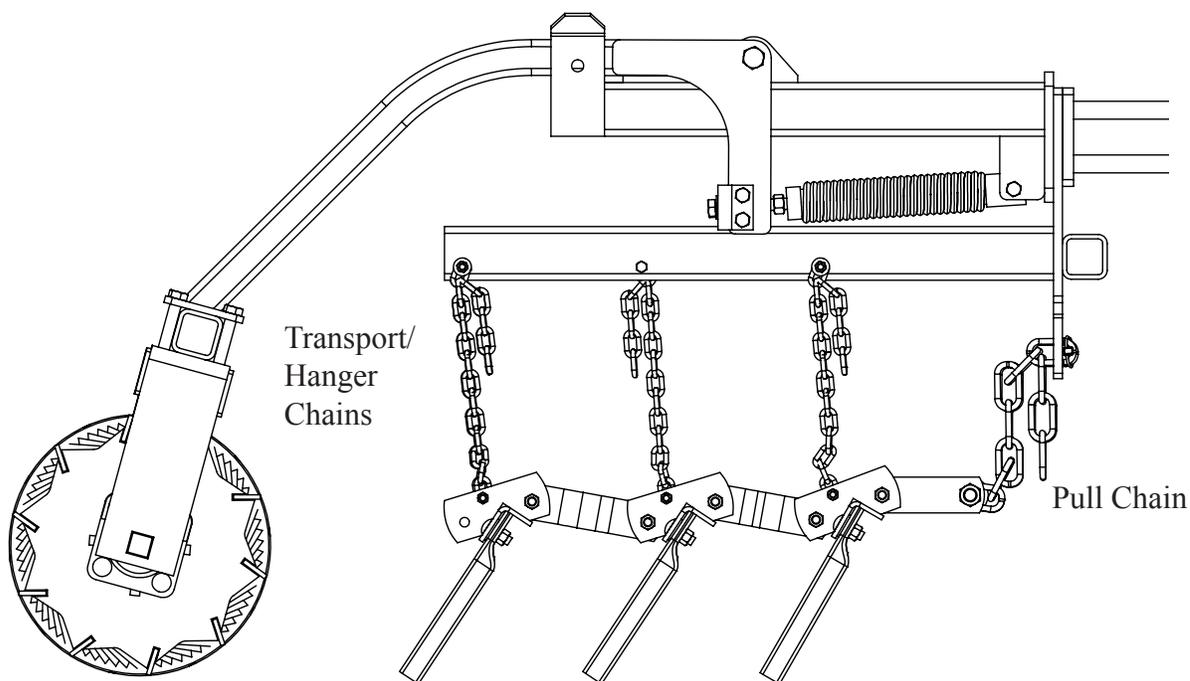
Field Adjustments and Settings:

A) The pull chains for the drag harrows may be shortened in order to raise the front bar and therefore increase the working angle of the spikes. This will make the harrow more aggressive but may reduce the ability of the harrow to clear residue in some conditions. This setting will vary depending on working conditions. (See Note D).

B) The transport chains may be shortened to reduce the working depth of the harrow. This will also change the working angle of the spikes slightly and the soil will take on a “groomed” appearance. Shortening the chains will also reduce the weight or pressure of the drag harrow on the soil surface that is needed for levelling.

Some experimentation with the settings A and B above, will be required to obtain the best results for your field conditions.

C) If the harrows are not needed for seasonal tillage they can easily be removed from the harrow hanger by removing the hanger chains and pull chains. They can then be easily re-installed when needed.



Maintenance:

- A) Periodically check all nuts and bolts and secure if loose.
- C) Periodically check and remove any foreign material that may become tangled in the harrow sections.
- D) Always check the condition of your field cultivator and leveling attachments at regular intervals and keep in good repair. Optimal performance cannot be expected of equipment in poor condition.

