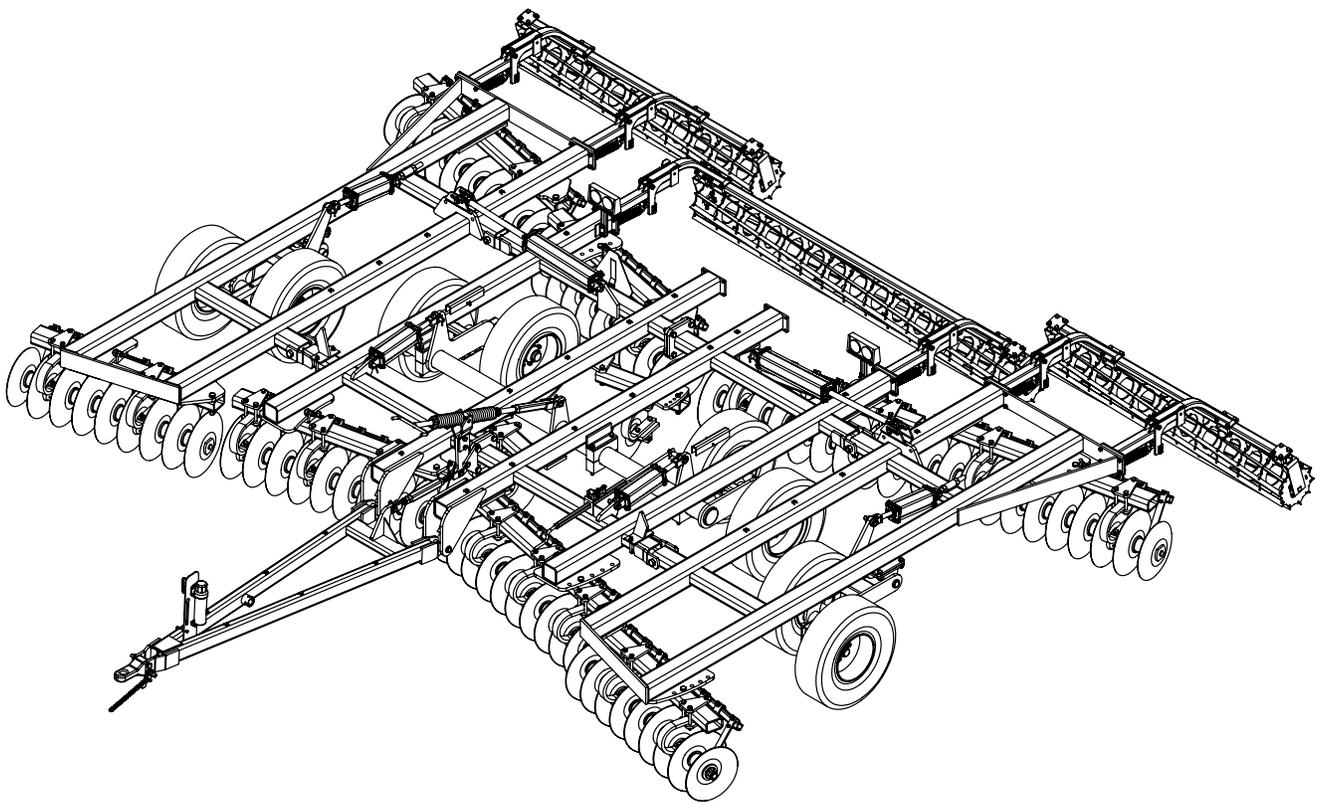


KONGSKILDE 9100

Vertical Tillage - Assembly Guide

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.

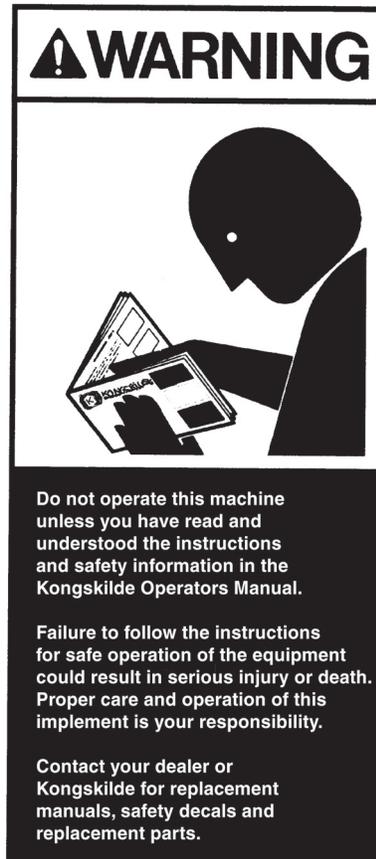
See your local Kongskilde representative for current product specifications, instructions and options.

Table of Contents

Introduction:	3
Pre Assembly Instructions.....	4
Center Frame Assembly	5
Rockshaft Assembly.....	6
Center Gang Tubes & Roller Assembly.....	7
Center Disc Assembly.....	8
Center Lift Cylinder Assembly	9
Single Point Adjustment Assembly.....	10
Self-Leveling Linkage Assembly.....	11
Center Gang Assembly	12
Wing Stop Assembly (Folding Models).....	13
Wing Frame Assembly.....	13
Wing Tandem Arm Assembly (Folding Models).....	14
Wing Fold Cylinder Assembly (Folding Models).....	15
Wing Gang Tubes & Roller Assembly (Folding Models).....	16
Wing Gang Assembly (Folding Models)	17
Hitch Assembly.....	18
Hydraulic Hose Assembly.....	19
Safety Lighting Assembly.....	22
Rear Jack Option.....	23
Gauge Wheel Option 32.5'.....	24
Harrow Bracket Extension 32.5'	24
Harrow Arm & Roller Assembly	25
Assembly Completion.....	26
Appendix A - Gang Layouts	27
Appendix B - Scraper Layouts.....	30
Appendix C - Roller Placement.....	35
Appendix D - Decal Locations	38

Introduction:

Please take the time to carefully read and review all instruction booklets provided with your new Kongskilde product.



These instruction booklets have been developed to assist you in assembling, adjusting and maintaining your new Kongskilde Product. To obtain optimal performance over the lifetime of the product read and follow these instructions carefully.

A copy of the Spare Parts List has also been provided in order to identify the components and hardware needed for each step of the assembly and to help you identify and obtain replacement parts in the future.

When the assembly of the unit is completed, please refer to the Owners Manual before attempting to adjust or use the product. The Owners Manual will provide you with further instructions on the proper Field Settings, Adjustments and Maintenance Procedures for Safe Operation of the unit.

If optional equipment or attachments have been ordered for your unit, please refer to the instruction booklets provided for proper installation and adjustment of these accessories.

Please take the time to fill out and return the Owners Registration and Warranty Form provided with the Owners Manual in order to activate the warranty coverage.

Pre Assembly Instructions:

Assembly of Kongskilde products should only be undertaken by authorized Kongskilde Dealers or an approved service provider who has the necessary tools, equipment and training for safe handling and proper assembly of the unit.

Proper handling and assembly of the components is critical in order to validate the warranty policy.

It is important to note that the frame components are heavy and somewhat awkward to handle. Proper lifting devices such as overhead cranes, boom lifts or mobile lift trucks should be used at all times when moving or handling the large frame components and must only be operated by individuals who have had the proper safety training for using such devices. Proper steel assembly stands or support jacks should also be used to support the frame components and prevent them from falling during assembly.

Recommended assembly tools include:

A full set of standard open or box end wrenches and sockets; assorted sizes of pin punches; a heavy hammer and/or sledge hammer; a pry bar; a large adjustable wrench; and pair of vise-grip or similar type pliers.

Optional tools could include an all purpose jack and a good quality air or electric drive impact tool with heavy drive sockets.

The assembly area should be large enough to allow workers and equipment to move around freely during assembly of the unit.

For example; to fully assemble a 9100 with 25' (8m) working width, a minimum area of 30' x 40' (9m x 10m) with 16' (5m) overhead clearance is required to assemble and fold the machine. If the unit is to be assembled and folded indoors, additional clearance may be needed in the assembly area.

The ceiling height and the size of the building exit door must also be considered in order to safely fold and move the unit outdoors after assembly.

The floor area should be relatively clean and level.

Proper lighting and ventilation should also be provided to allow the work to be carried out in a safe and efficient manner.

Notes:

- Item # balloons in this assembly manual correlate to parts manual details.
- Images in this manual may have parts hidden for clarity.
- This manual depicts "Left" and "Right" as if standing behind the unit facing forward.

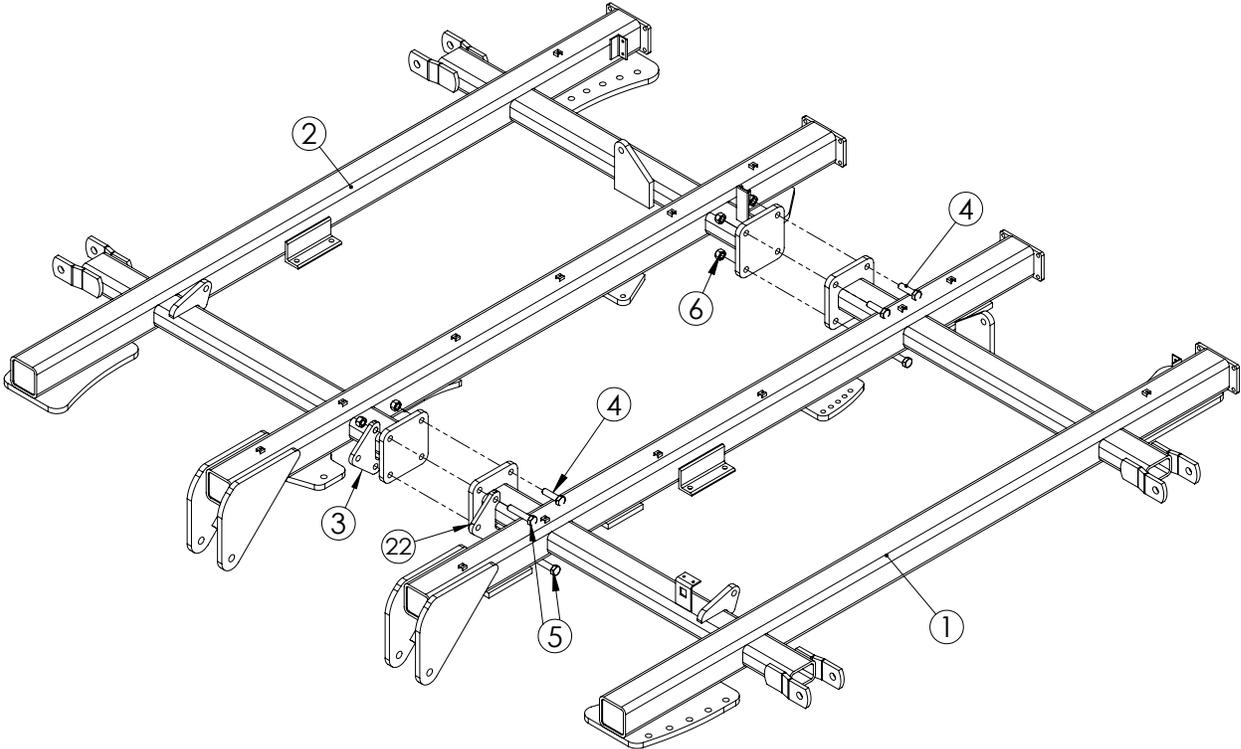
Hardware Organization

Carefully unpack and lay out all of the fasteners and hardware. (The empty shipping crate and cardboard makes an excellent temporary work bench.) Assembling the cultivator is more efficient if you take a few minutes to sort and organize the hardware by type and size instead of dumping the bag or box in a pile on the floor. Place the assembly instructions and parts list on the table for quick reference to help identify the parts for each step of the assembly.

Center Frame Assembly:

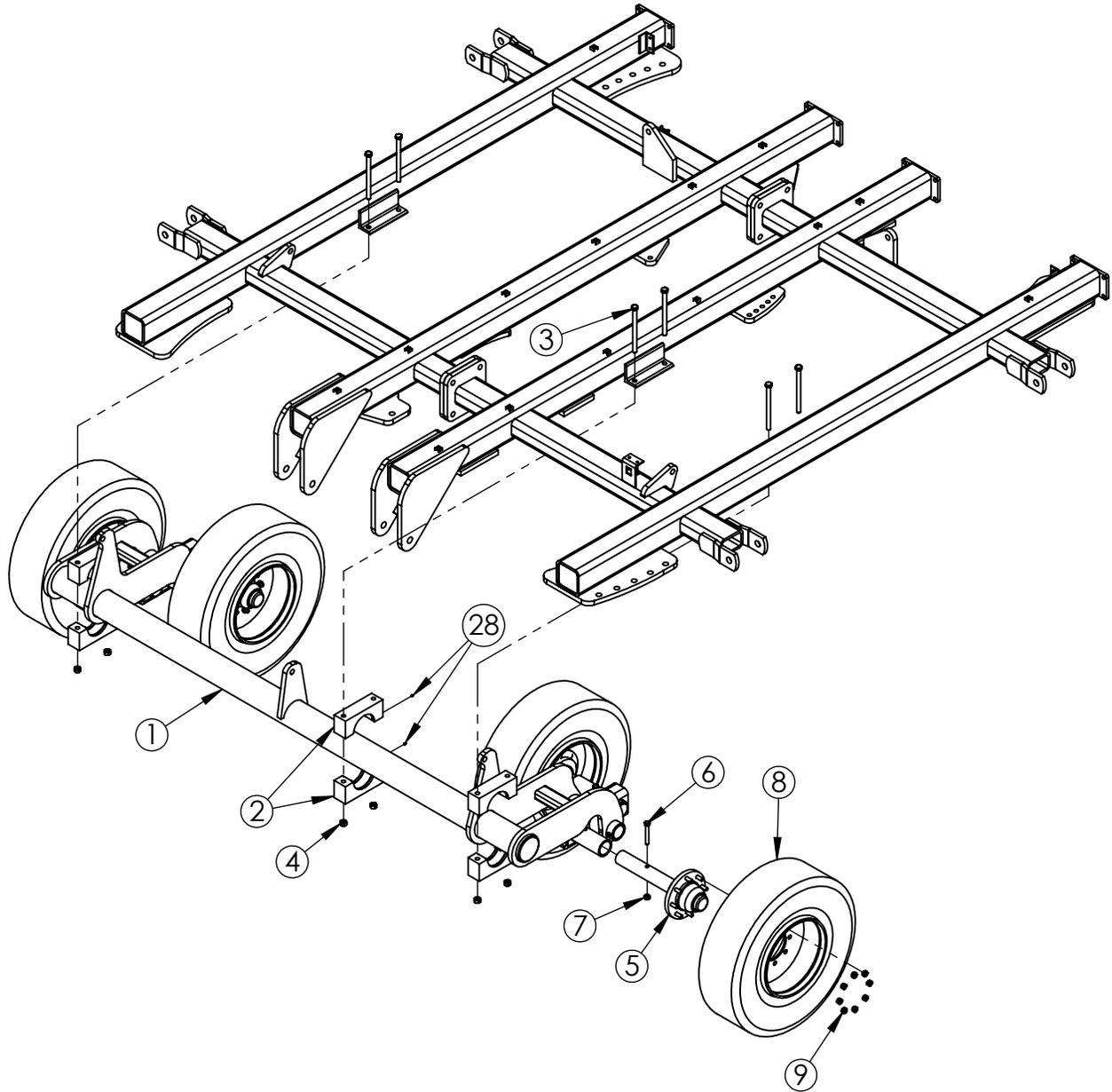
To ensure the stability of the frames and safety of the workers during assembly, place the frames on sturdy steel shop stands (32" stands recommended). Do not use construction block, tiles or supports constructed or wood or other materials that could crush under continuous load. Position the stands so they do not interfere with the mounting of frame components. Use an overhead hoist or fork lift to position the frames onto the stands for assembly.

Connect the left & right center frames using hardware specified in the "Center Frame Assembly" section of the parts manual.



Rockshaft Assembly:

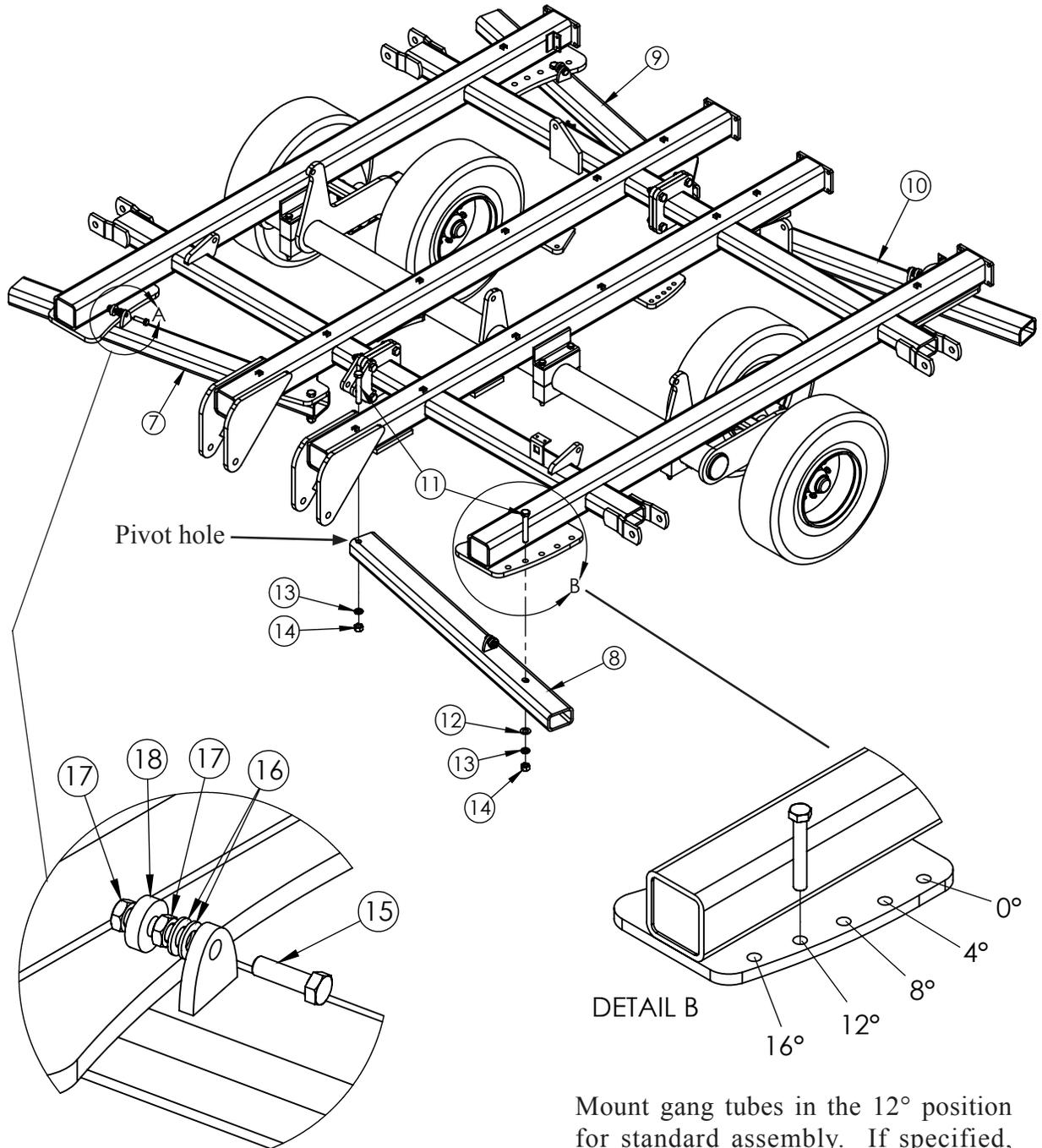
After center frame is connected, place rockshaft assembly under frame using overhead hoist. Attach rockshaft to frame using bearing blocks and hardware listed in parts manual section "Rockshaft & Single Point Assembly." Bearing blocks should be installed with grease fittings facing the rear.



Install hub and spindle assemblies to tandem axles with single bolt and nut. Next, attach wheels to hubs with lug nuts. **IMPORTANT:** Torque lug nuts to 170 ft·lbs. Re-torque lug nuts after 10 hours of field use.

Gang Tubes & Roller Assembly:

Assemble front and rear center gang tubes to frame using hardware specified in the parts manual section "Center Frame Assembly." Orient each tube with the pivot hole on forward part of the tube.



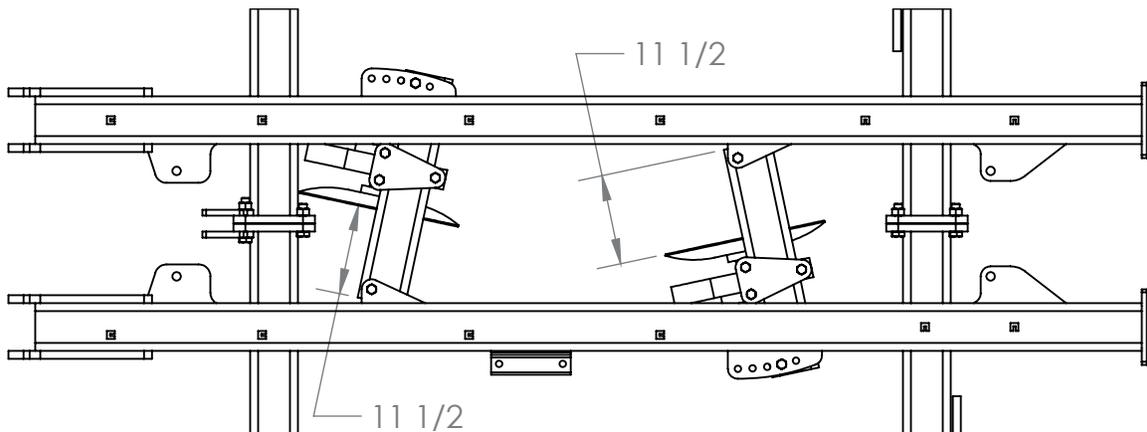
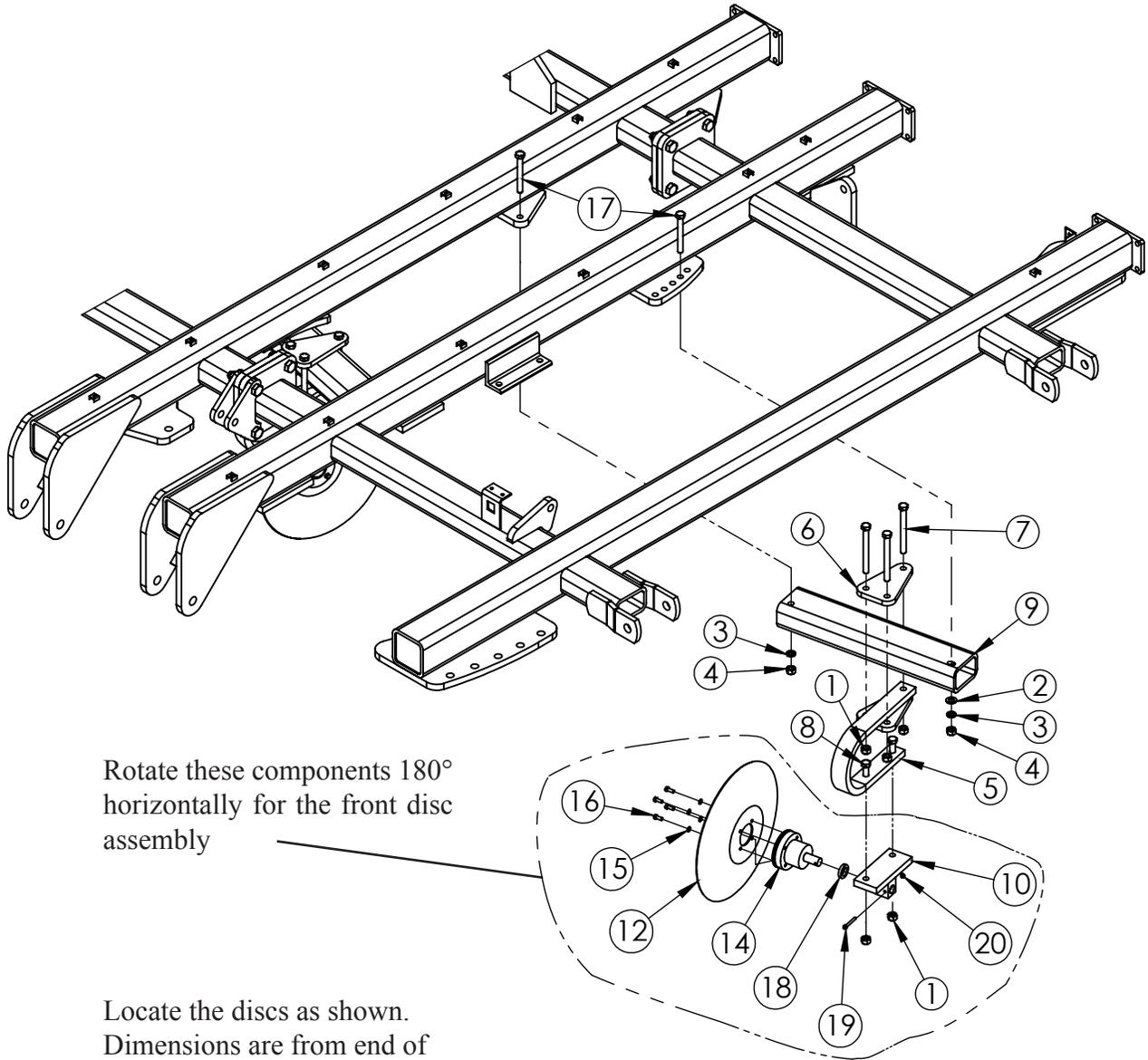
DETAIL A

After mounting gang tubes, install gang adjustment roller on each tube with hardware shown. **IMPORTANT:** Entire roller surface needs to be on/above the plate. Use washers to shim the roller accordingly. Quantities may vary.

Mount gang tubes in the 12° position for standard assembly. If specified, gang angle may be adjusted to specific customer requirements.

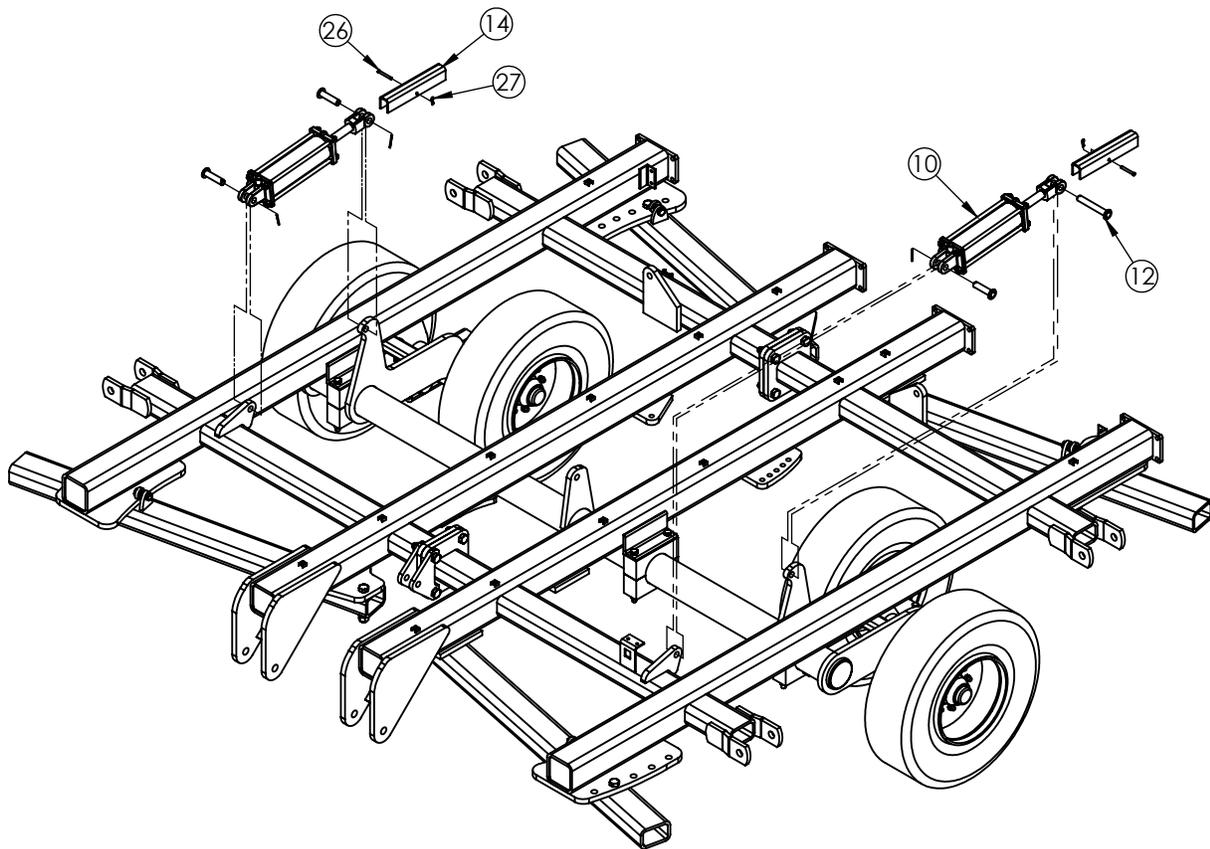
Center Disc Assembly

Assembly center disc components to frame (rear disc shown) using parts described in parts manual section "Center Disc Assembly".



Center Lift Cylinder Assembly:

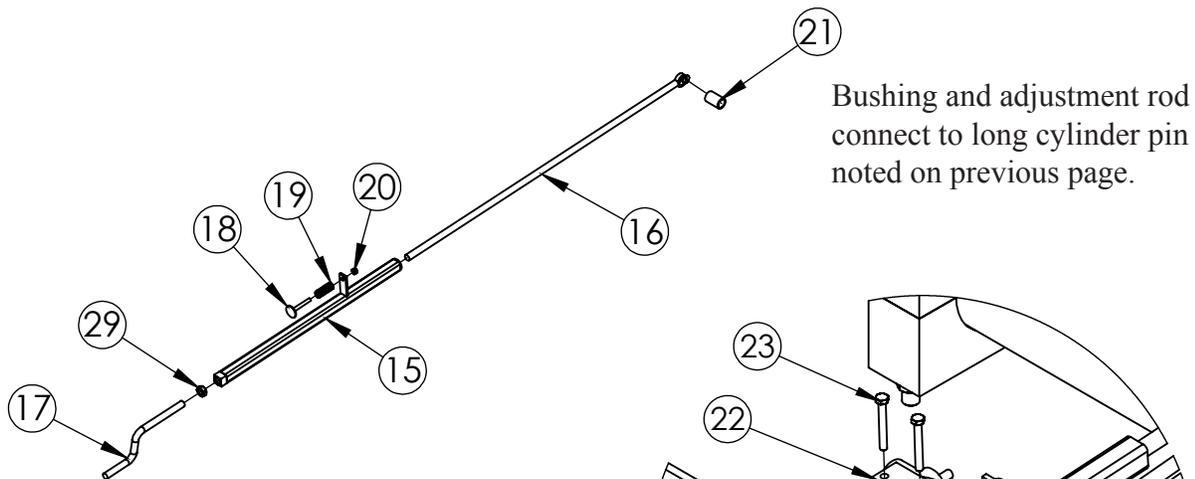
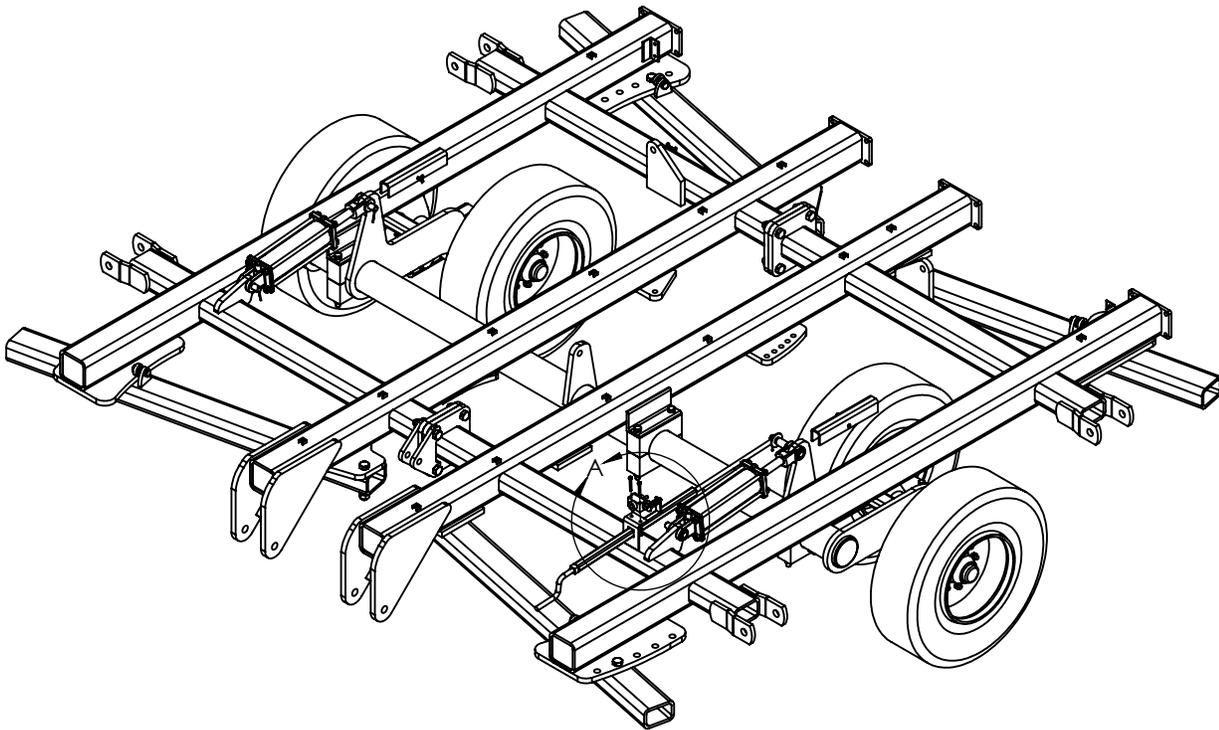
Install the two 4" x 12" lift cylinders. Remove hydraulic port plugs to allow cylinders to extend and retract for ease of assembly. Attach the base end of the cylinder to the frame lugs and then connect the clevis ends of the cylinder to the rockshaft lugs using pins which come with the cylinders expect at left cylinder clevis location. Cylinders should be installed with hydraulic ports on the top. Use parts manual section "Rockshaft & Single Point Assembly" for details of remaining components.



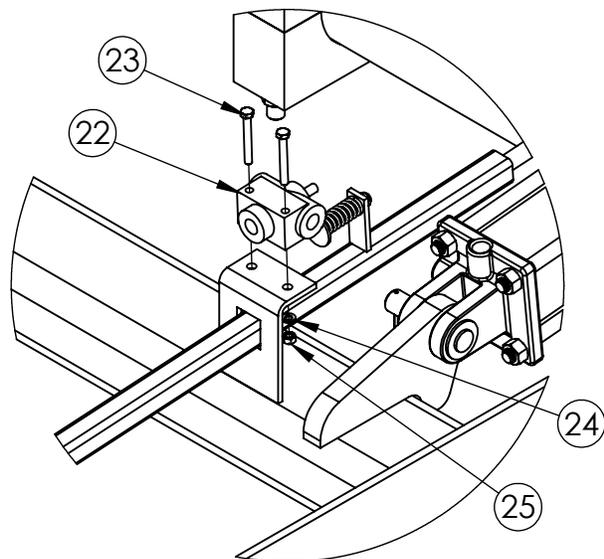
Note: Pin # 12 on the left cylinder is longer than the other cylinder pins and is used in conjunction with the single point adjustment assembly on the following page.

Single Point Adjustment Assembly:

Assemble single point adjustment mechanism and valve to frame and cylinder pin.



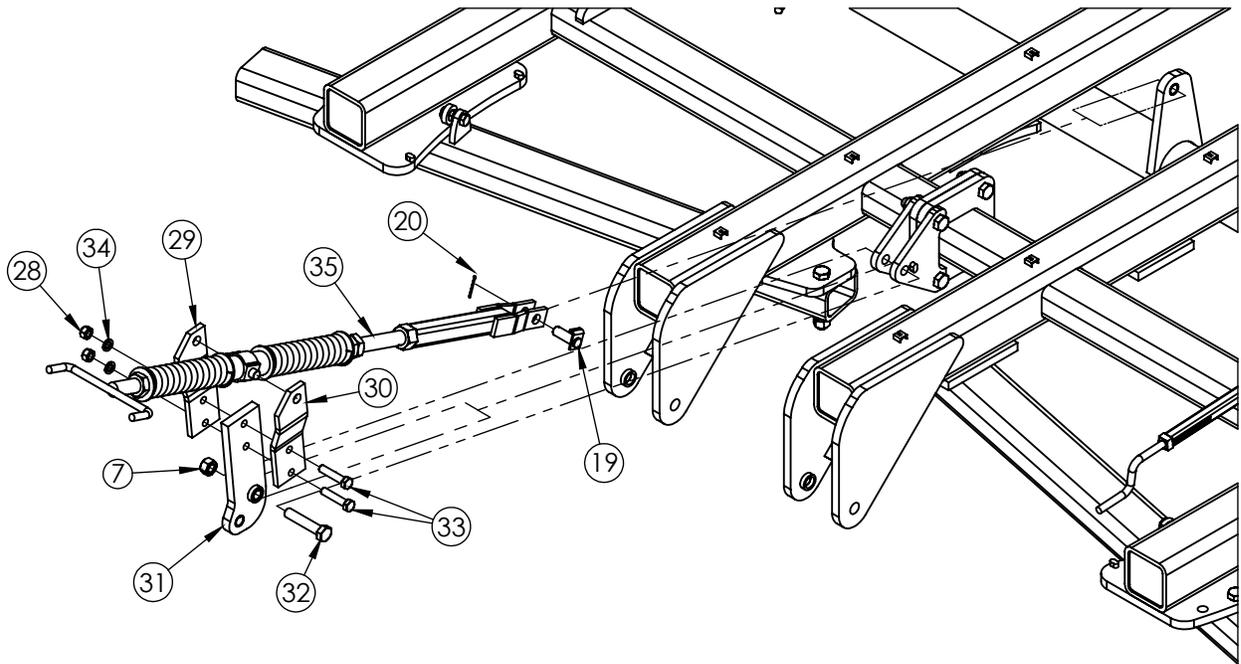
Attach valve to frame bracket using hardware detailed in parts manual section "Rockshaft & Single Point Assembly."



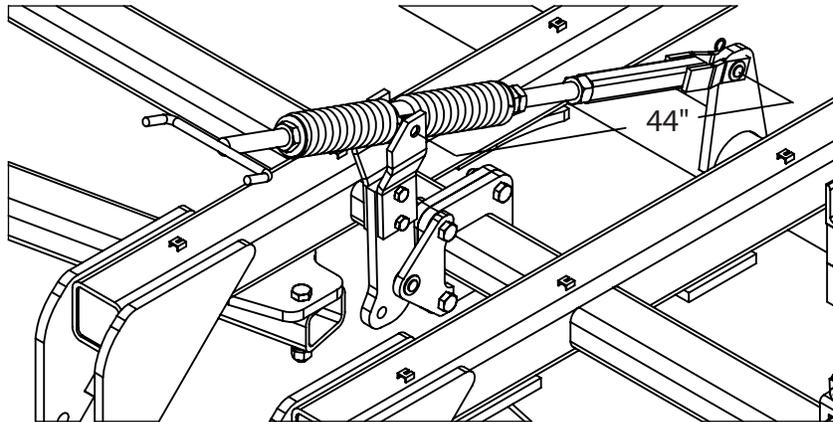
DETAIL A

Self-Leveling Linkage Assembly:

Attach self-leveling components to center frame and rockshaft lug. See parts manual section "Hitch Assembly" for part details.



Dimension from center of trunion to rear pin should initially be set to 44". See Operator's Manual for field adjustment.



Center Gang Assembly:

Install gang assemblies to gang tubes previously mounted on the frame. Image below shows the center rear left gang as an example. Other than quantity, each gang uses the same piece parts for assembly. See "Gang & Scraper Assembly" in the parts manual for part details.

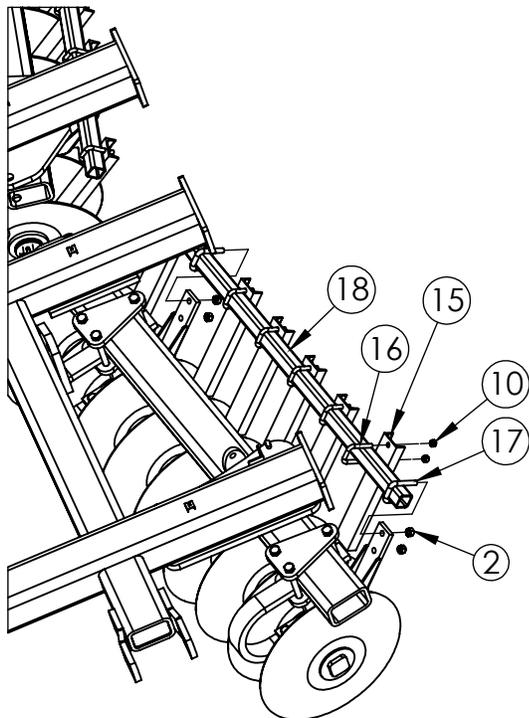
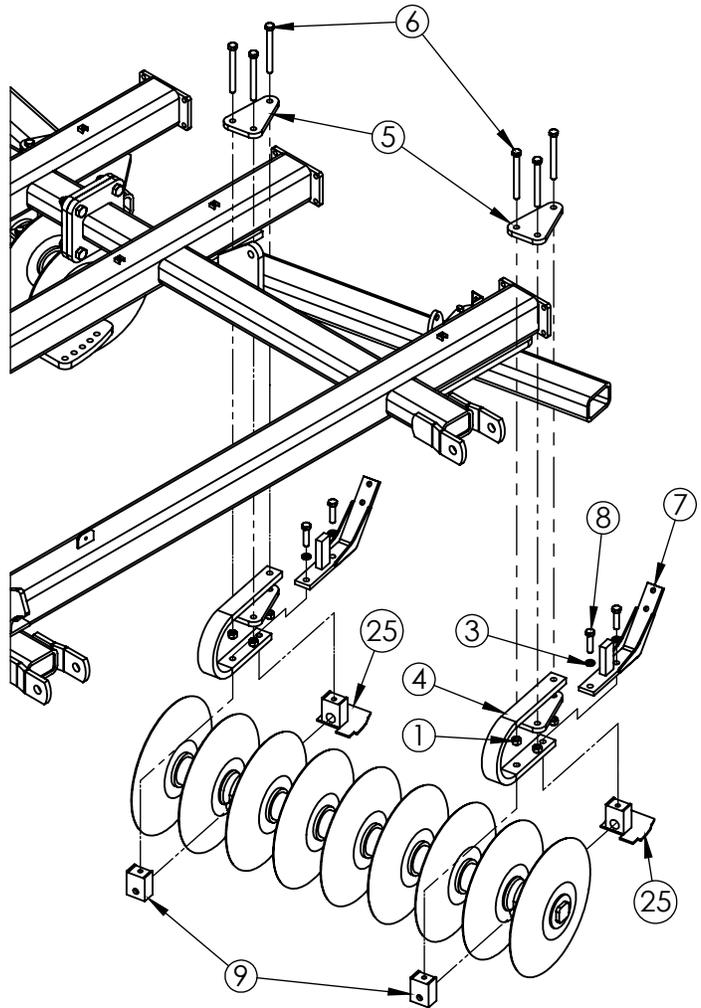
Note:

The two different gangs are each used as a left and right. When positioning the gangs rotate the gang bearing so the grease fittings are facing rearward.

IMPORTANT:

Please refer to Appendix A (pg 27 - 29) for gang layout details.

Assemble cushioning springs (4) and scraper brackets (7) to gangs before attaching gangs to gang tubes. Torque bolts (8) to 300 ft-lbs.

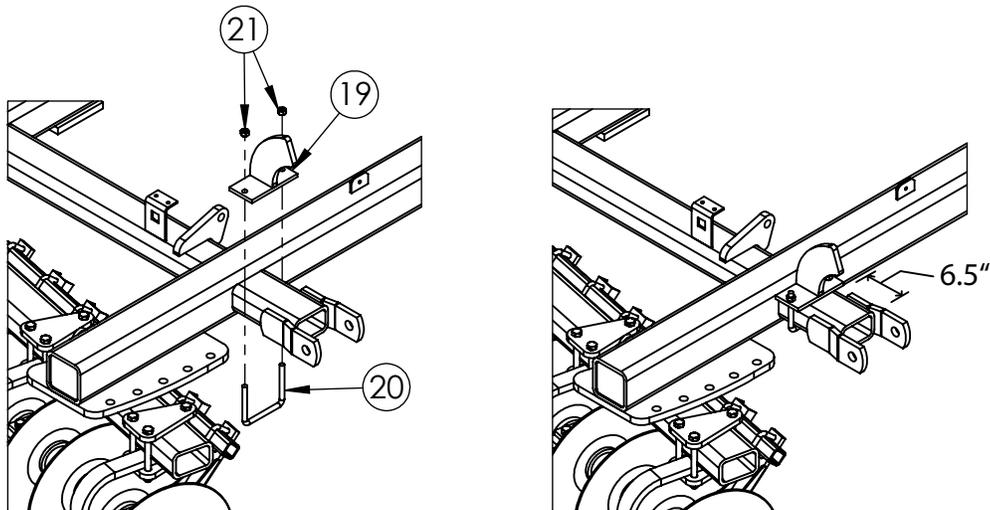


Attach scrapers after gangs have been mounted. See Appendix B (pg 30 - 34) for scraper spacing details. Scrapers can be mounted to scraper tubes before or after the tubes are mounted to the gangs.

NOTE: If assembling a 15' model, skip to Hitch Assembly on page 18.

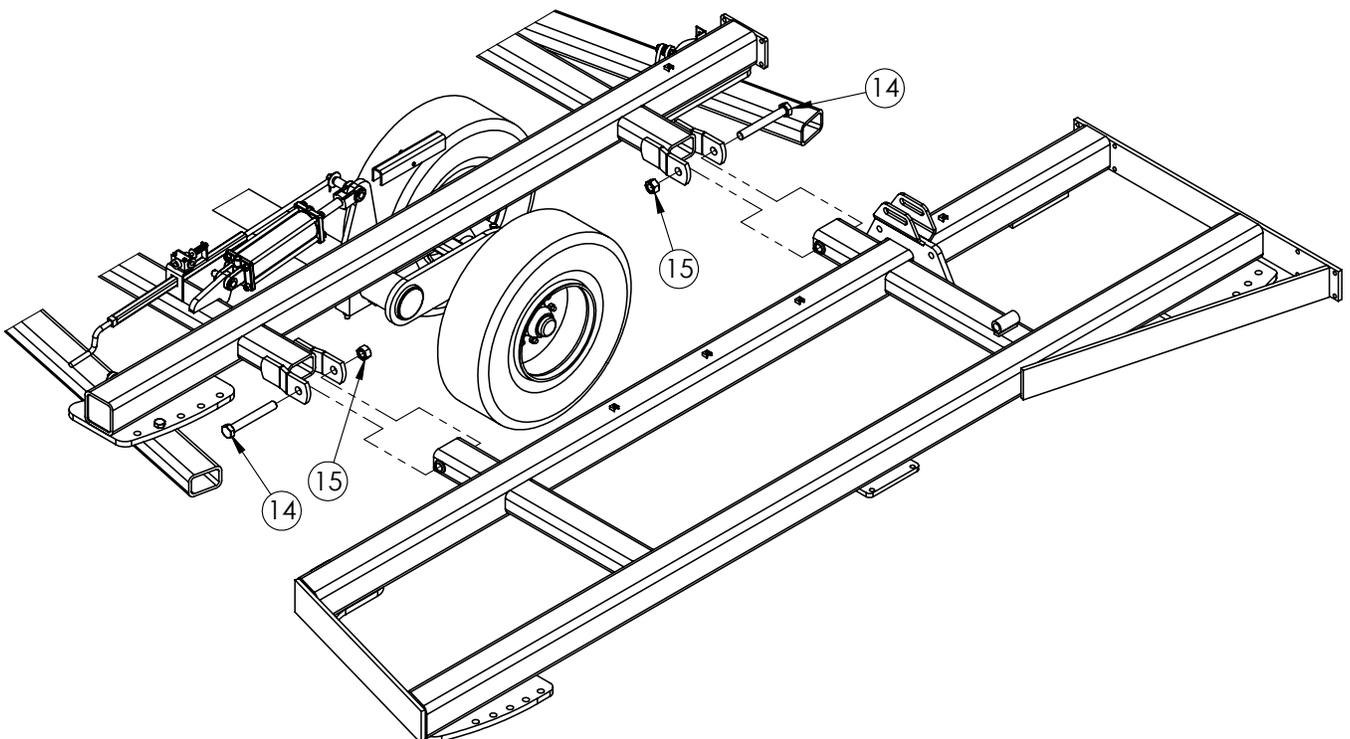
Wing Stop Assembly:

Mount wing stops around left and right front wing pivot tubes (left shown). Locate wing stops about 6.5" from end of tube. See parts manual section "Center Frame Assembly" for parts details. Note: The wing stops may need adjusted once the unit is test folded.



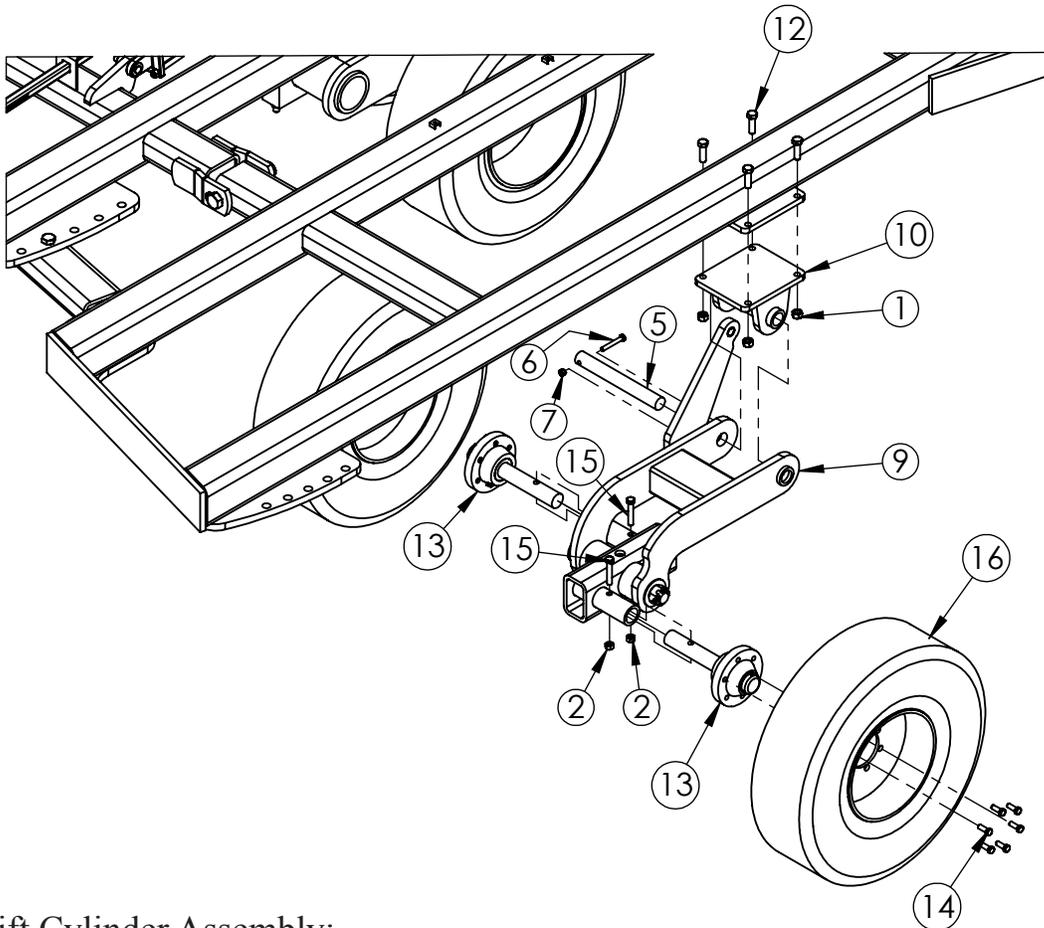
Wing Frame Assembly:

Use overhead hoist or fork lift to position wing frames onto steel shop stands for assembly. Assemble left (shown) and right wing frames to center frame using hardware described in parts manual section "Wing Frame & Fold Cylinder Assembly."



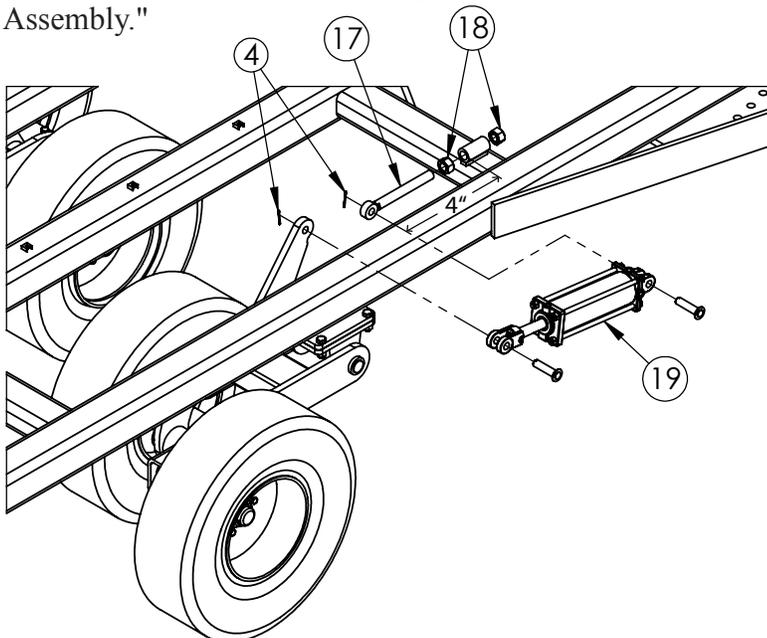
Wing Tandem Arm Assembly:

Install the wing arm pivot mount (Item 10) to the left and right wing frames. Next, connect the tandem axle arm to the pivot mount. Insert the hub & spindle assemblies into the tandem. Lastly, attach the wheels to the hubs. For part details, please see parts manual section "Wing Tandem Axle & Cylinder Assembly." **IMPORTANT:** Torque lug bolts to **125 ft·lbs**. Re-torque lug bolts after 10 hours of field use.

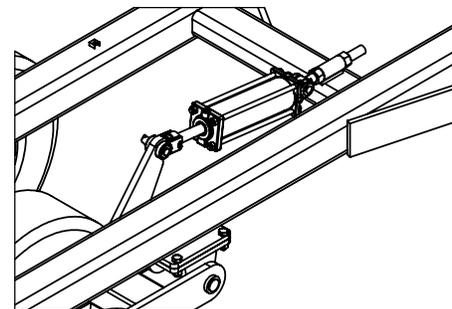


Wing Lift Cylinder Assembly:

Attach wing lift cylinders to the wing frames and wing tandem arm lugs using pins which come with cylinders, and hardware specified in parts manual section "Wing Tandem Axle & Cylinder Assembly."



Initially adjust eye bolt to 4" from the center of the hole to the front of the bushing



Wing Fold Cylinder Assembly:

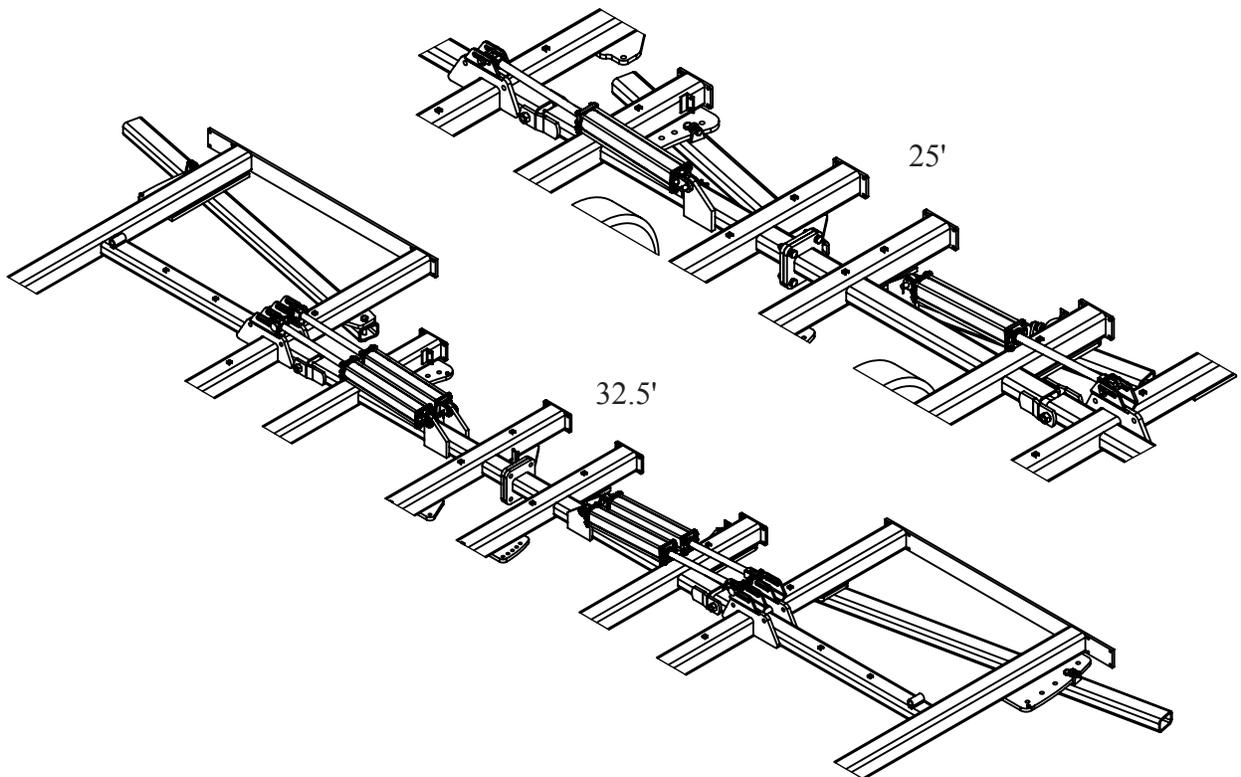
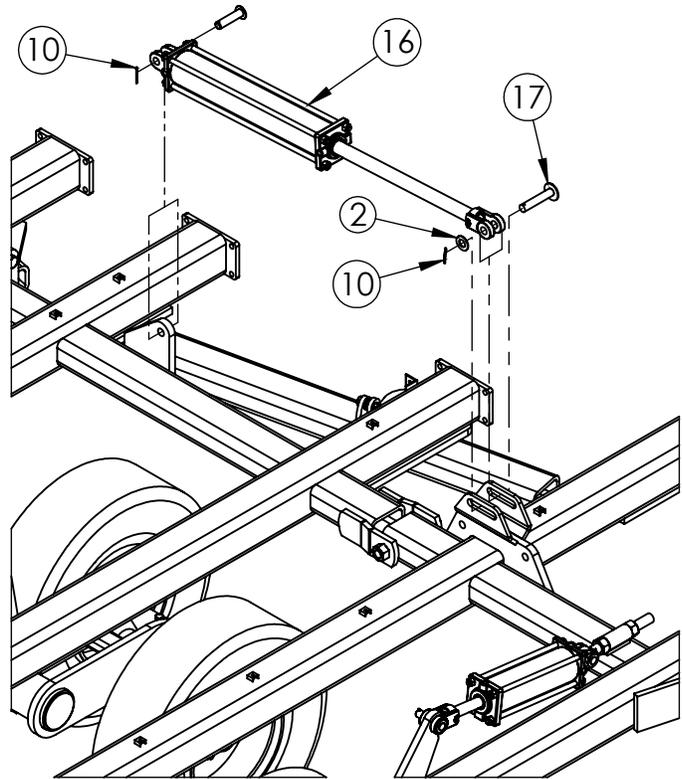
Install wing fold cylinders using hardware specified in parts manual section "Wing Frame & Fold Cylinder Assembly." Note: use pin which comes with cylinder to attach the cylinder base.

Single Fold Cylinders (25'):

Install cylinder on left side with ports facing forward. Install cylinder on right side with ports facing rearward. This will allow hydraulic hoses to lay on top of the frame.

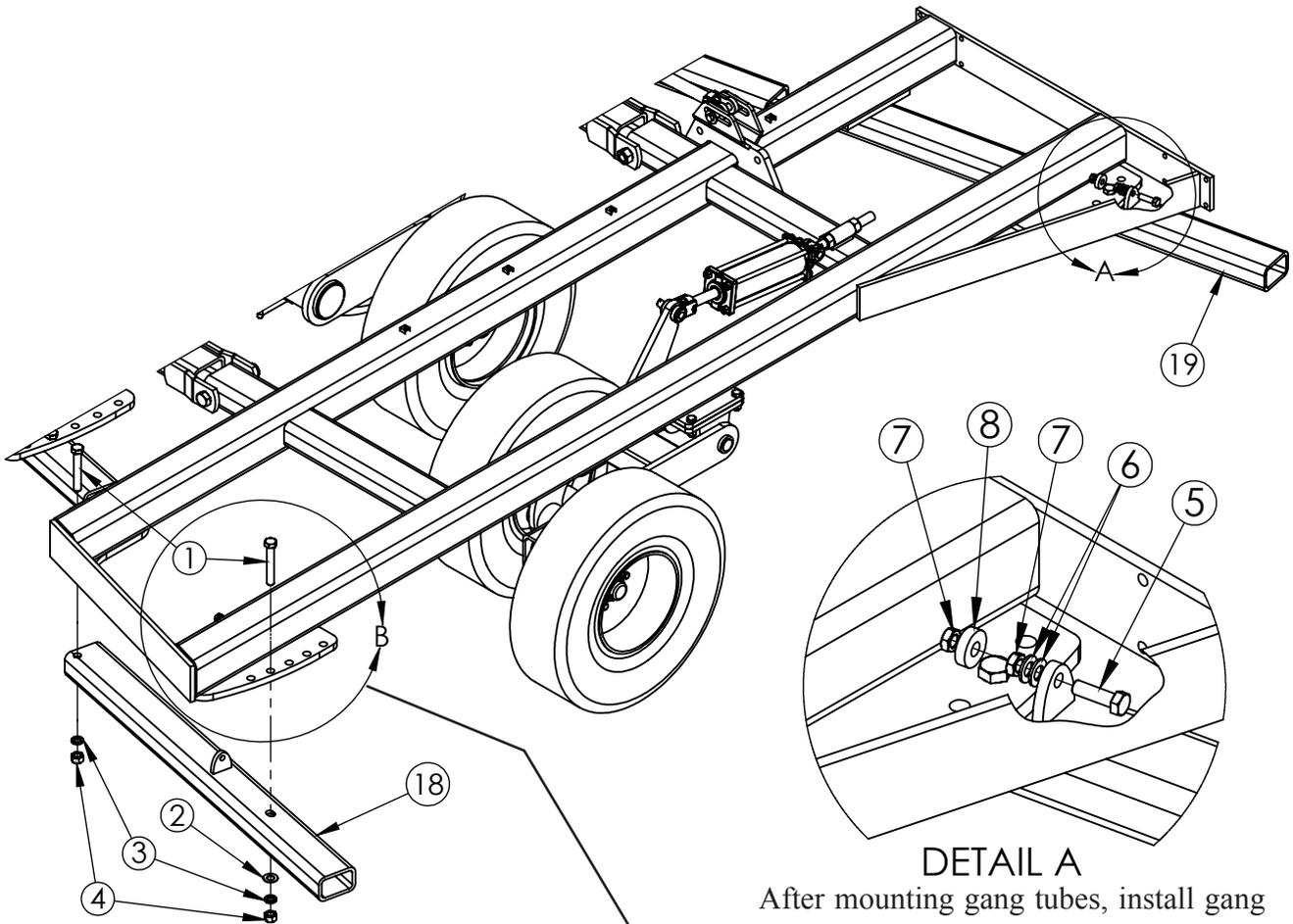
Dual Fold Cylinders (32.5'):

Install front cylinder with ports facing forward. Install back cylinder with ports facing rearward.



Wing Gang Tubes & Roller Assembly:

Install wing gang tubes using hardware specified in parts manual section "Wing Frame & Fold Cylinder Assembly." Orient each tube with the pivot hole on the forward part of the tube.



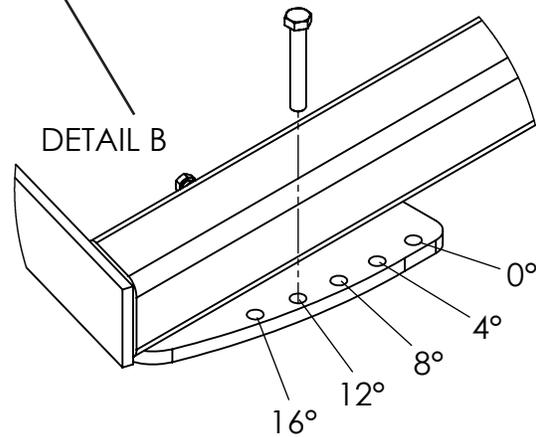
②① Right Front Wing Gang Tube (Not Shown) (25")

②② Right Rear Wing Gang Tube (Not Shown) (25")

DETAIL A

After mounting gang tubes, install gang adjustment roller on each tube with hardware shown. **IMPORTANT:** Entire roller surface needs to be on/above the plate. Use washers to shim the roller accordingly. Quantities may vary.

Mount gang tubes in the 12° position for standard assembly. If specified, gang angle may be adjusted to specific customer requirements.



Wing Gang Assembly:

Install wing gang assemblies to gang tubes previously mounted on the wing frames. Image below shows the front left wing gang as an example. Each gang uses the same piece parts for assembly. See "Gang & Scraper Assembly" in the parts manual for part details.

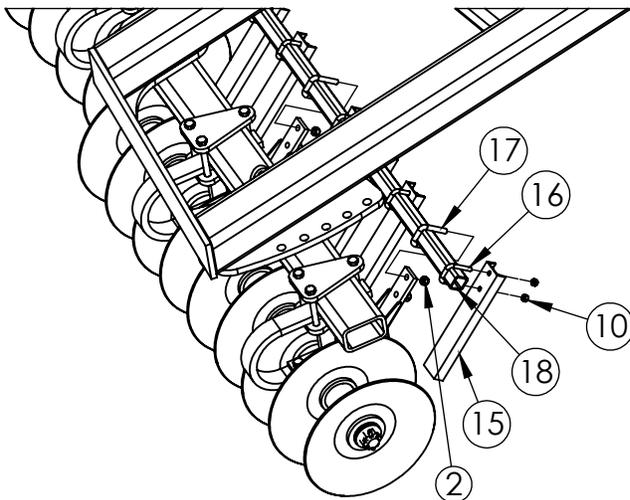
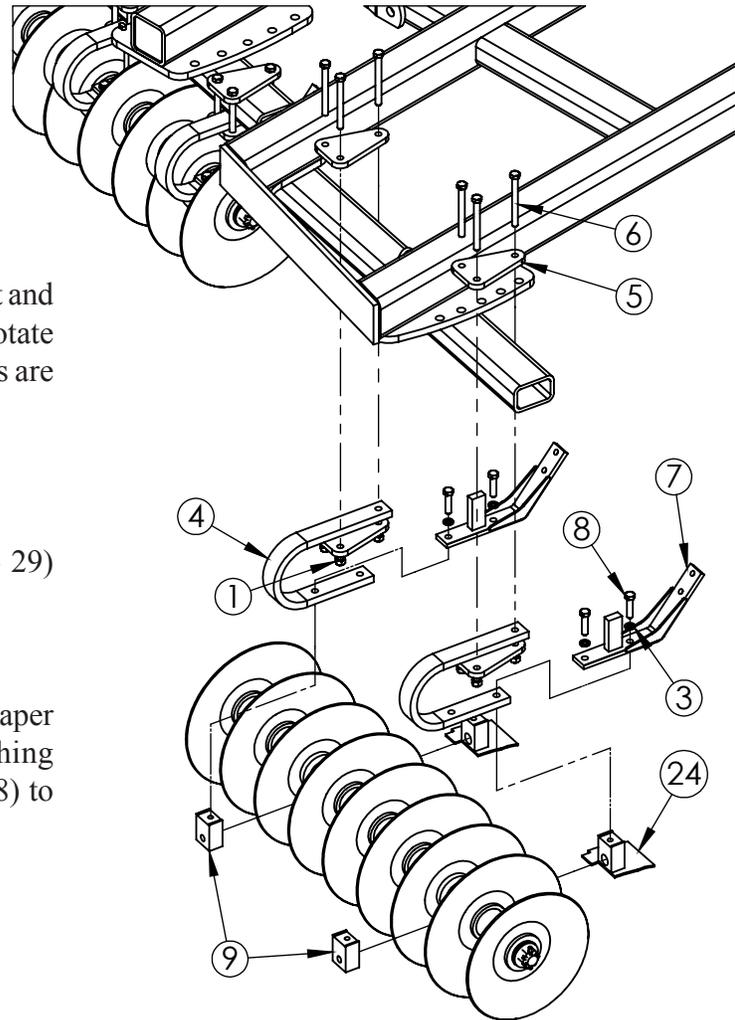
Note:

Matching gangs are each used as a left and right. When positioning the gangs rotate the gang bearing so the grease fittings are facing rearward.

IMPORTANT:

Please refer to Appendix A (pg 27 - 29) for gang layout details.

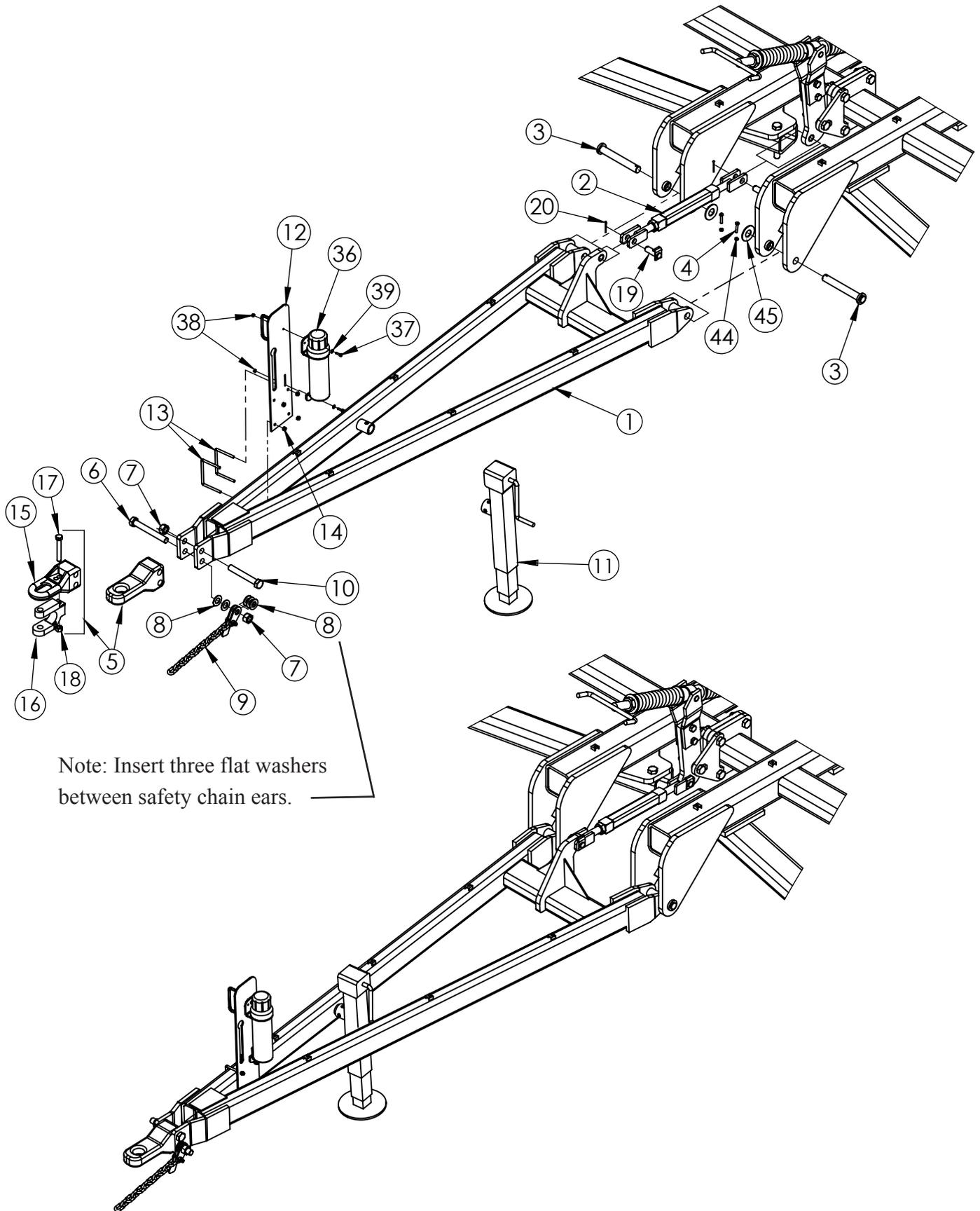
Assemble cushioning springs (4) and scraper brackets (7) to gangs before attaching gangs to gang tubes. Torque bolts (8) to 300 ft-lbs.



Attach scrapers after gangs have been mounted. See Appendix B (pg 30- 34) for scraper spacing details. Scrapers can be mounted to scraper tubes before or after the tubes are mounted to the gangs.

Hitch Assembly:

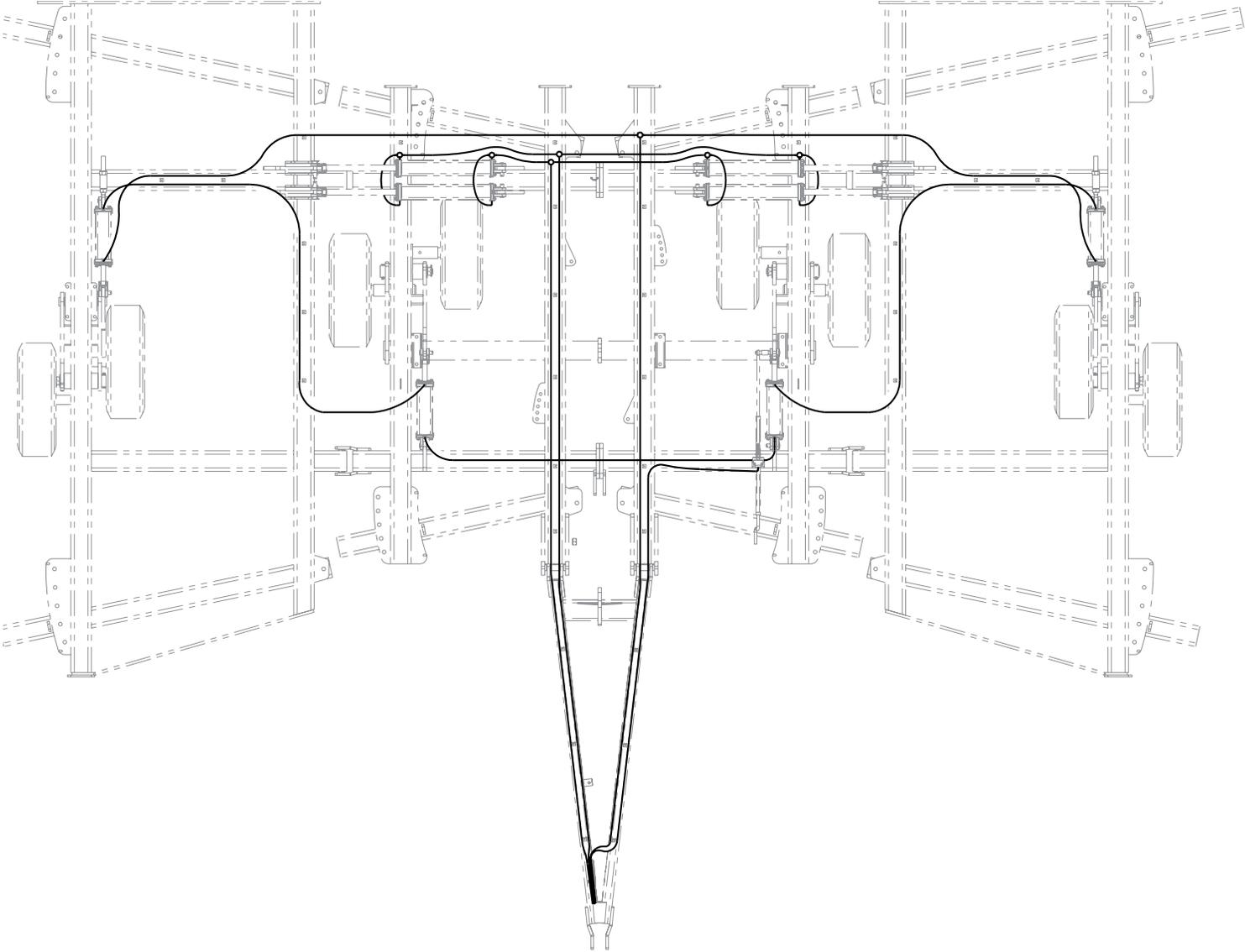
Assemble hitch components to center frame as shown. See parts manual section "Hitch Assembly" for part descriptions.



Hydraulic Hose Assembly:

Attach the hydraulic hoses and fittings to the cylinders and route hoses along the frame as shown below. See parts manual sections "Lift Hydraulics", "Fold Hydraulics", and "Leveling Hydraulics (Optional)" for hose details & schematics. Secure hoses to frame using hose clamps and hardware provided.

32.5' Model



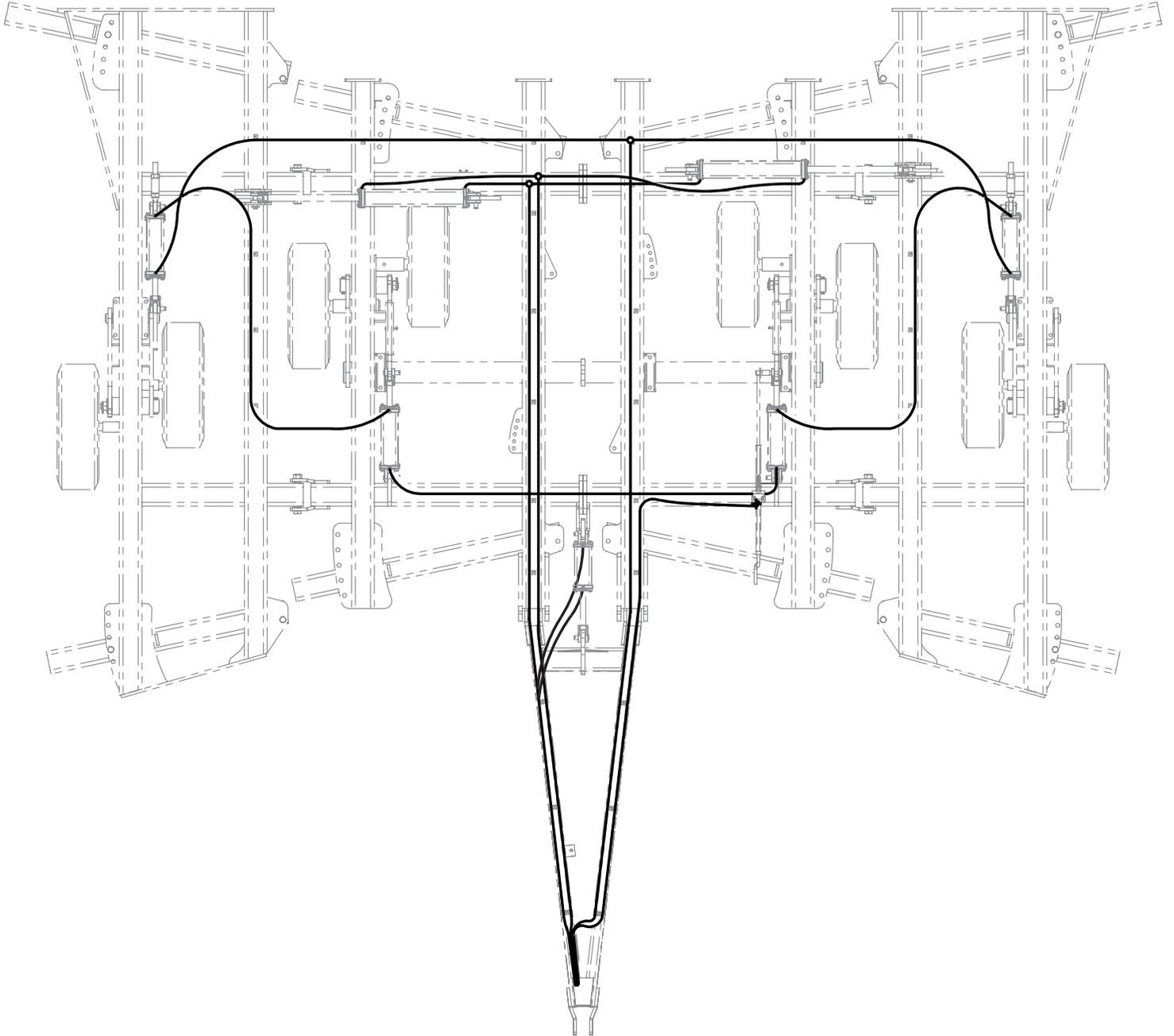
IMPORTANT

After all hydraulics are installed, double check the hose layout and hydraulic connections according to the hydraulic diagram and schematics.

Hydraulic Hose Assembly:

Attach the hydraulic hoses and fittings to the cylinders and route hoses along the frame as shown below. See parts manual sections "Lift Hydraulics", "Fold Hydraulics", and "Leveling Hydraulics (Optional)" for hose details & schematics. Secure hoses to frame using hose clamps and hardware provided.

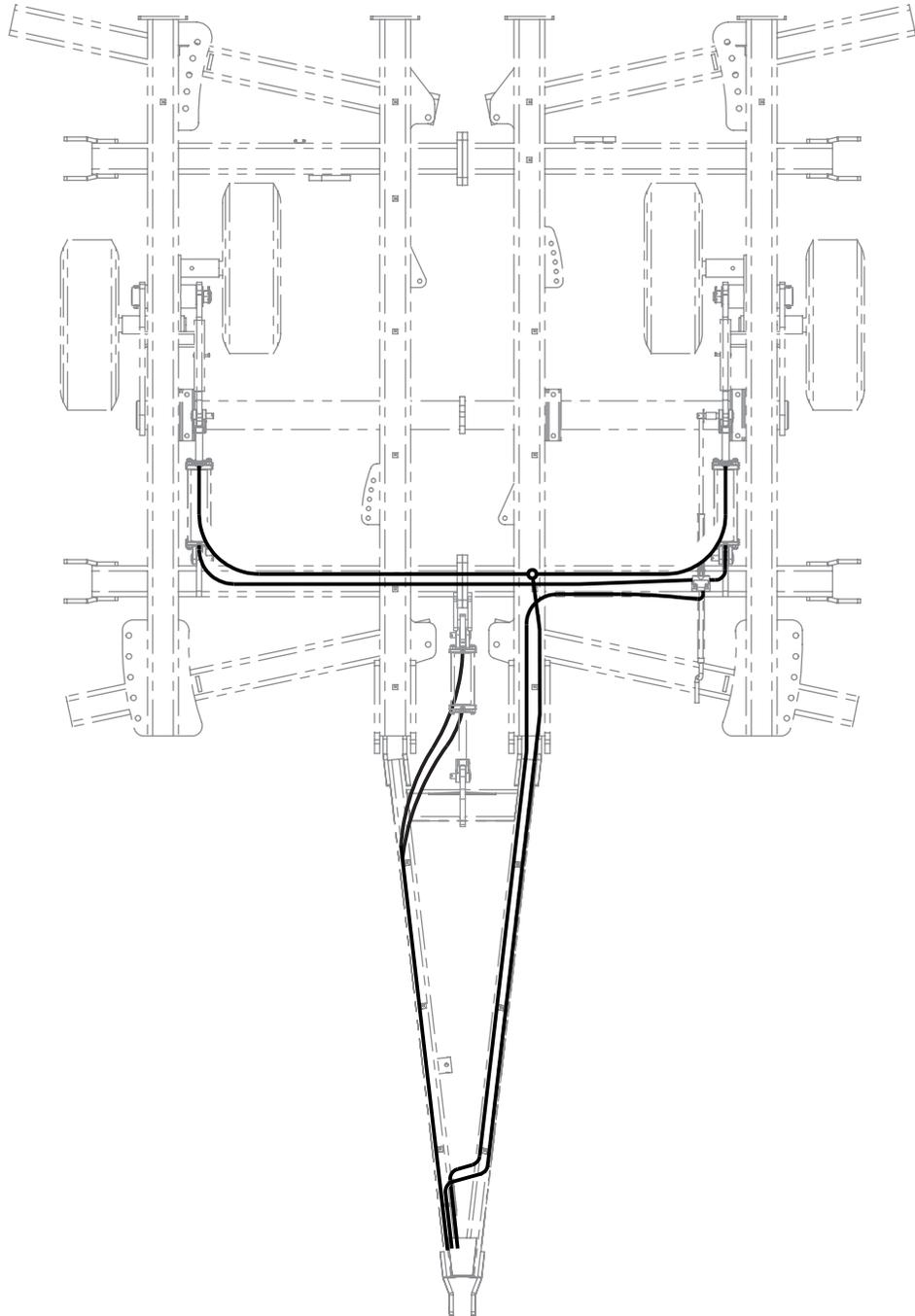
25' Model



IMPORTANT

After all hydraulics are installed, double check the hose layout and hydraulic connections according to the hydraulic diagram and schematics.

15' Model

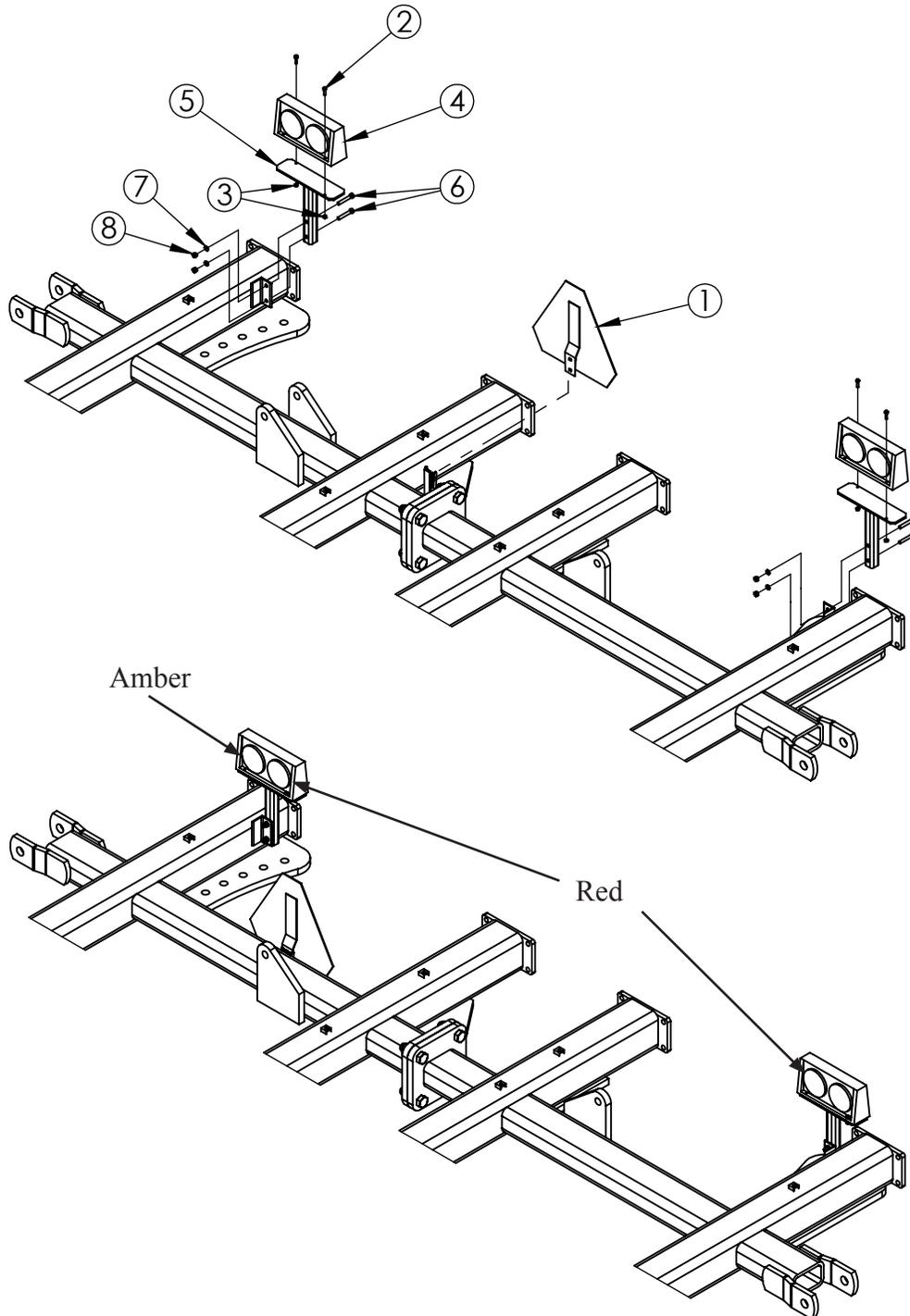


IMPORTANT

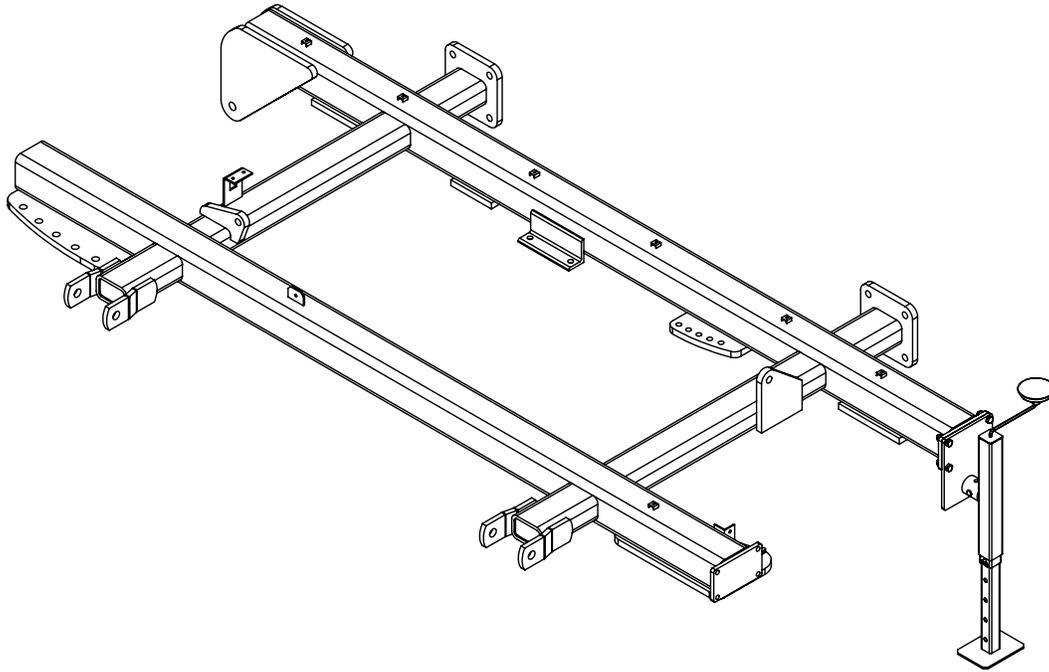
After all hydraulics are installed, double check the hose layout and hydraulic connections according to the hydraulic diagram and schematics.

Safety Lighting Assembly

Mount light stands and lights as shown below. Orient lighting so amber colors are toward the outside. See parts manual section "Lighting Assembly" for details. Attach wiring harness to lights and route along frame up to front of unit. Secure wiring with plastic tie straps. Insert SMV (Slow Moving Vehicle) emblem into holder on back of center frame.



Rear Jack Assembly - 25' and 32.5' Model



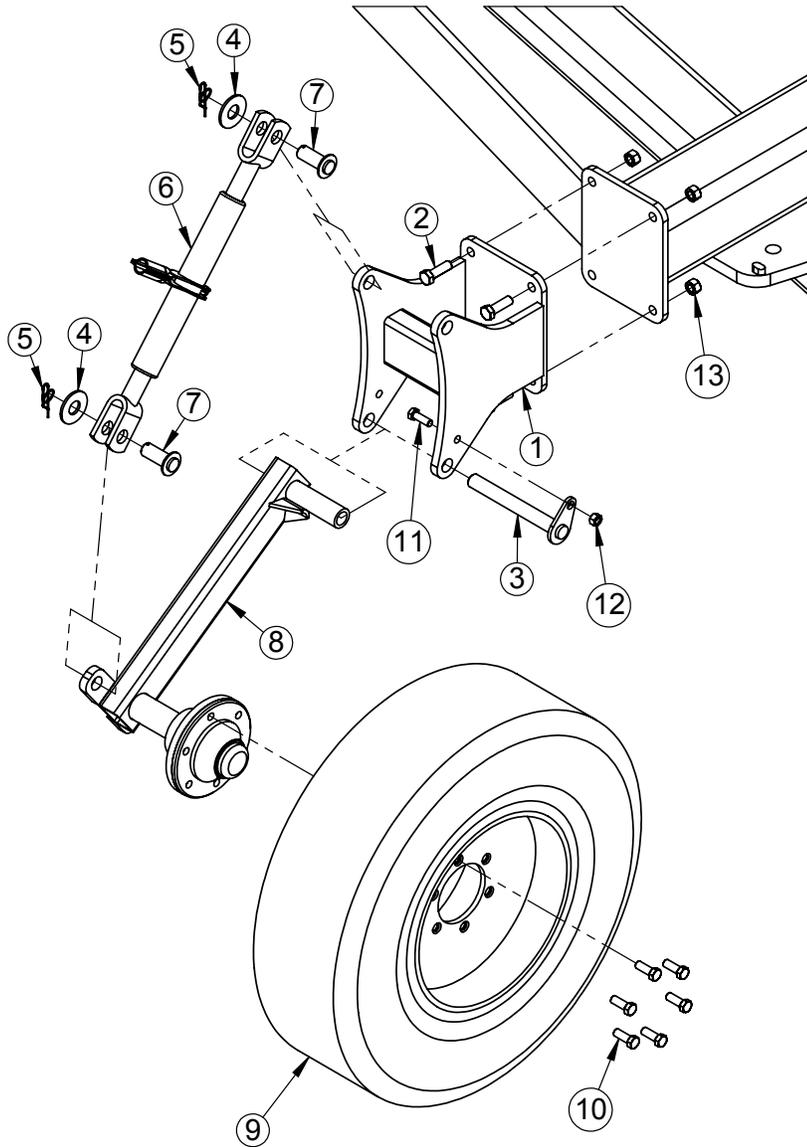
Assemble jack plate weldment to the rear of the left or right center frame weldment using parts described in the parts manual section "Rear Jack Assembly - 25' and 32.5' Model"

Jack Operation:

1. After attaching jack, place foot of jack on a solid surface before operation
2. Rotate jack handle clockwise to lower front of implement.
3. ALWAYS remove or rotate jack 90 degrees before moving implement.

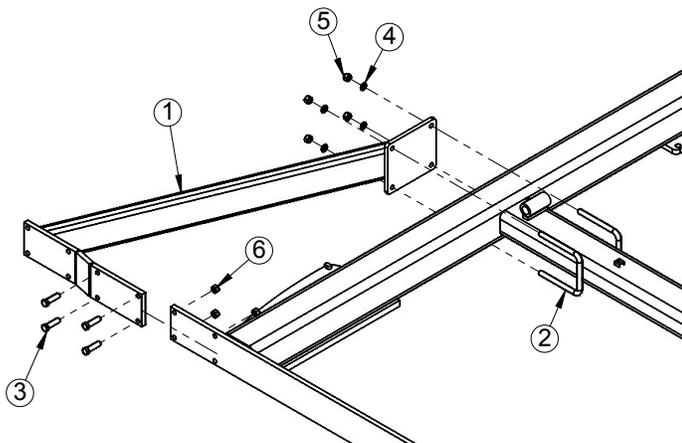
Gauge Wheel Assembly - 32.5' Only (Optional)

Install optional gauge wheels on front corner of left and right wing. Left side gauge wheel shown below. See parts manual section "Gauge Wheel Option 32.5'" for details.



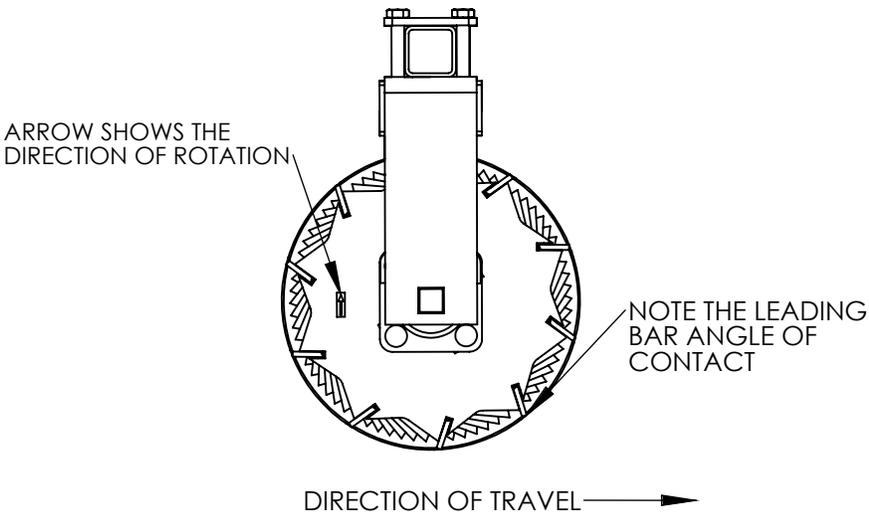
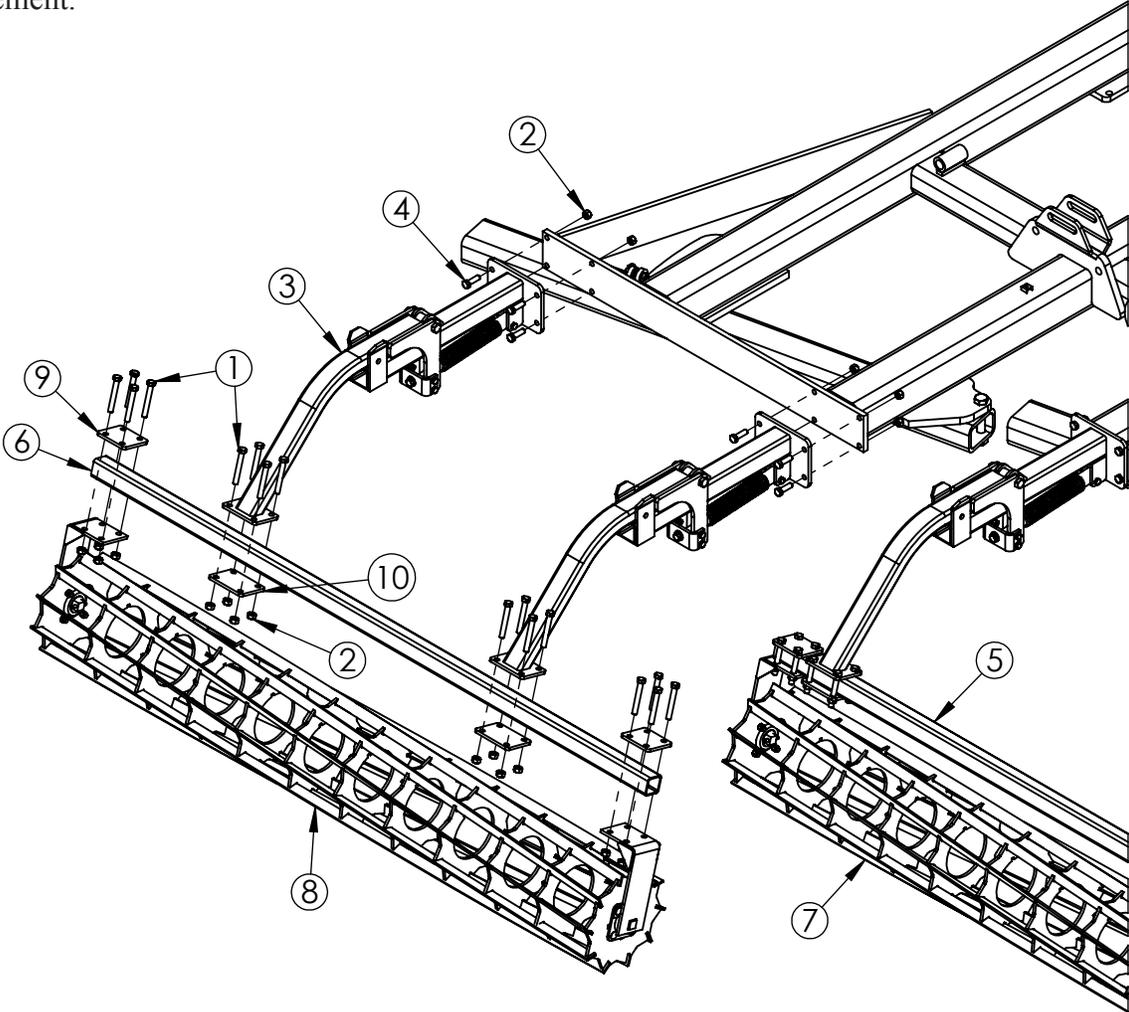
Harrow Bracket Extension - 32.5' Only

Install extension bracket on each wing frame. See parts manual section "Harrow Bracket Extension" for details.



Harrow Arm & Roller Assembly:

Connect harrow arm assemblies to back of frames using hardware specified in parts manual section "Harrow Arm & Roller Assembly." (Note: Use Extension Tubes shown in parts manual for right roller on 15' Model.) Attach roller frame tubes to harrow arms and then install the roller assemblies as shown. Verify direction of roller assembly with bottom image. See Appendix C (pg 35-37) for specific roller placement.



Assembly Completion:

After assembly is complete, charge the wheel lift cylinders by fully extending and retracting the wheel lift hydraulic cylinders several times. Hold the hydraulic lever open at the end of the stroke to purge the air from the system. Fully extended the lift cylinders and install the transport safety locks onto the center lift cylinders.



CAUTION: ALWAYS INSTALL THE TRANSPORT LOCK ONTO THE CENTER LIFT CYLINDERS WHEN THE IMPLEMENT IS PLACED IN THE RAISED POSITION FOR TRANSPORT, MAINTENANCE OR STORAGE. Secure with the pin and lock clip provided.

If unit has wings, the wing fold cylinders must be charged with oil before attempting to fold the cultivator. Disconnect the cylinder rod clevis from the fold bracket and block up the cylinder. Extend and retract the cylinders several times with the tractor or hydraulic unit, holding the lever at the end of the stroke to purge the air from the system. After fold cylinders are charged, re-connect them to the wing fold brackets.

If unit has wings, slowly fold the wings to the transport position. At this time verify that the wings are resting on the rear stop as well as the front bolt-on stop. If necessary adjust the front stop to ensure contact at both locations. Insert the wing lock safety pins.

CAUTION: ALWAYS INSTALL THE WING LOCK SAFETY PINS WHEN THE IMPLEMENT IS FOLDED FOR TRANSPORT, MAINTENANCE OR STORAGE.

CAUTION: Never transport the implement on public road ways without installing the transport safety chain and SMV sign.

See Appendix D (pg 38 - 40) for proper placement of the implement identification decals and safety warning decals.

Refer to the Owners Manual for further safety information before attempting to operate or service the unit.

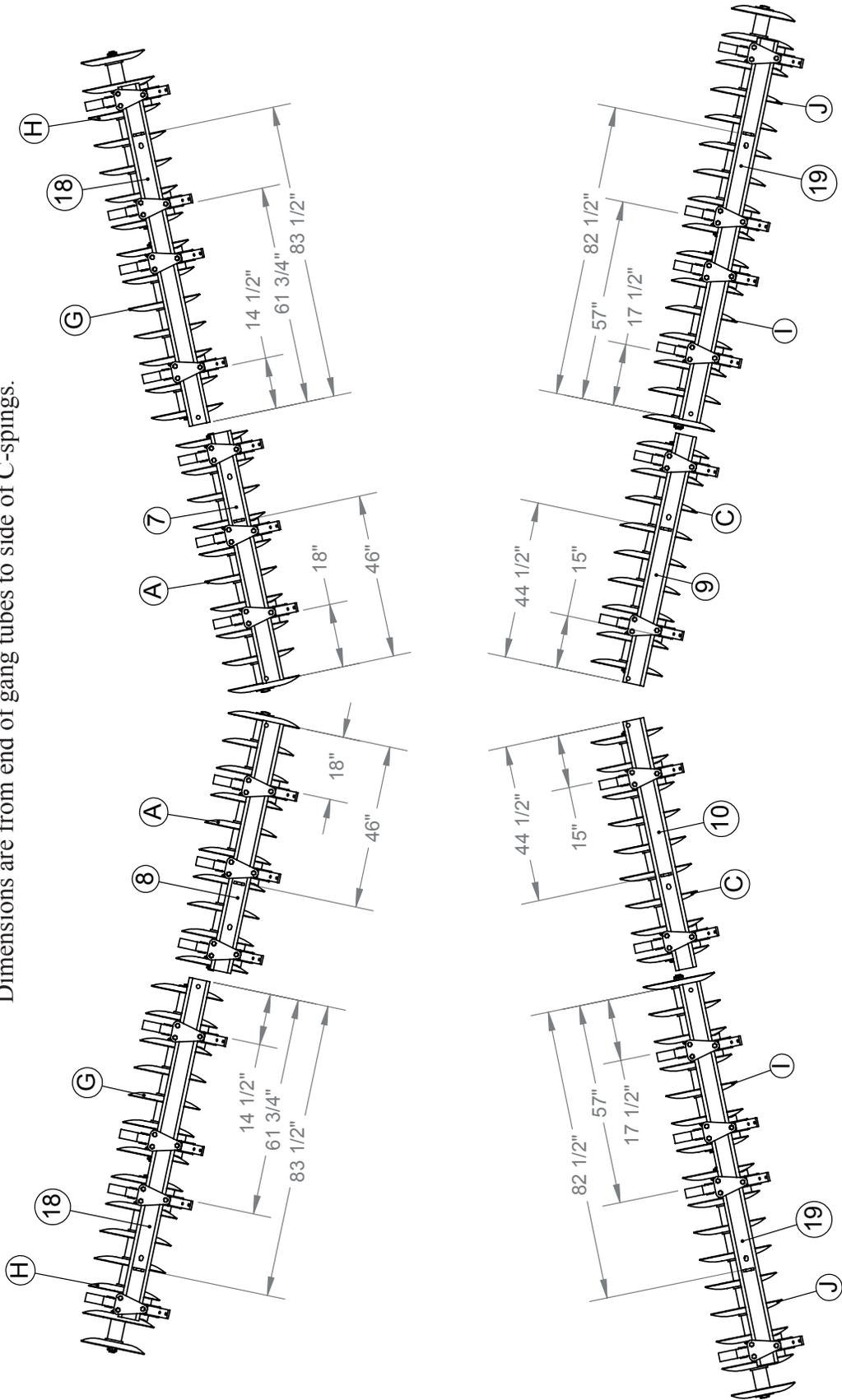
Final Inspection

When the 9100 frame is fully assembled, verify all nuts, bolts and other connections are secure. Be sure to read the Owners Manual before attempting to operate the unit. The Owners Manual provides important instructions and safety precautions that must be followed before attempting to hook up and move the unit after assembly.

Appendix A
 Gang Layout (Center Disc - 32.5' Model)

Front of Machine

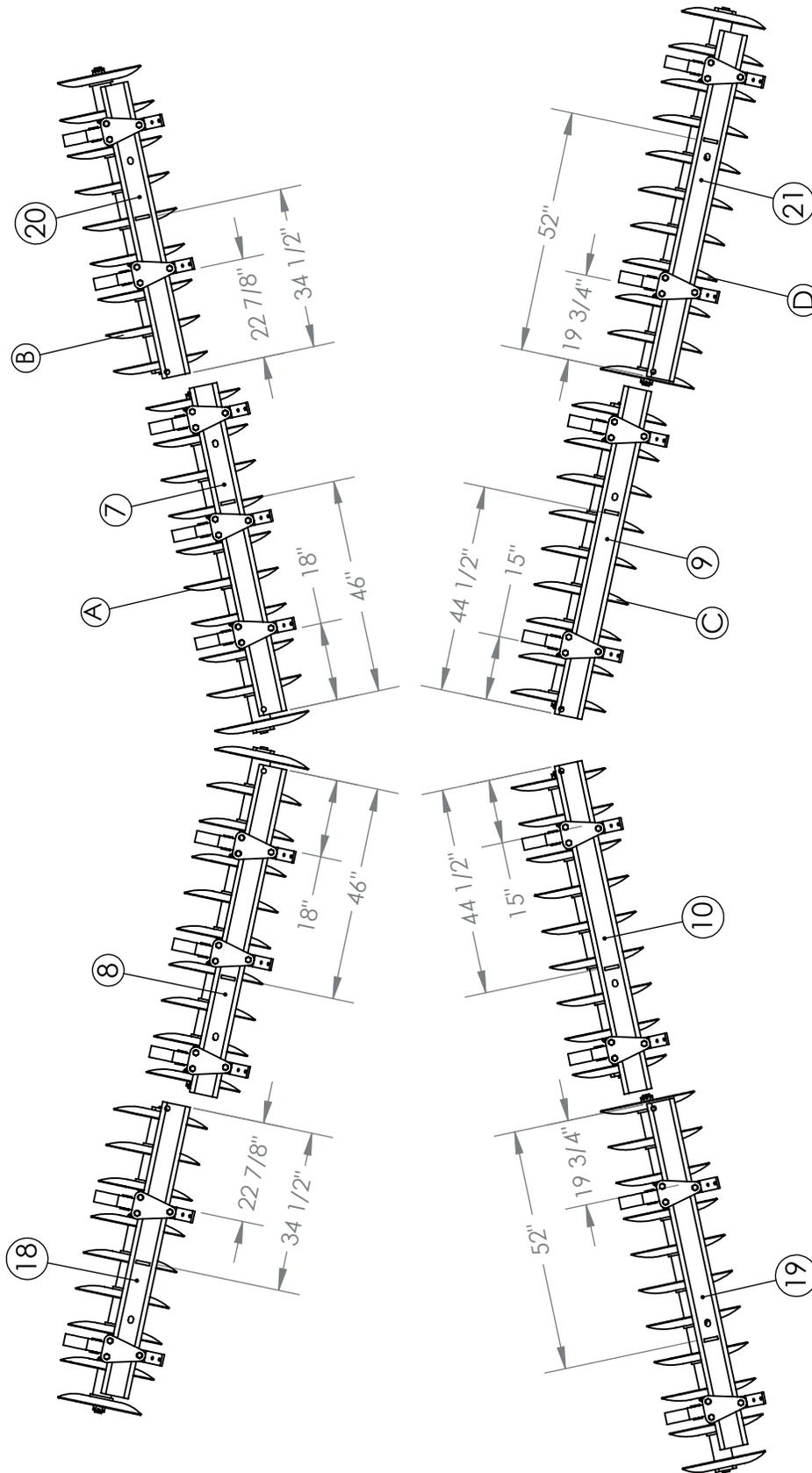
Dimensions are from end of gang tubes to side of C-spings.



Gang Layout (Center Disc - 25' Model)

Front of Machine

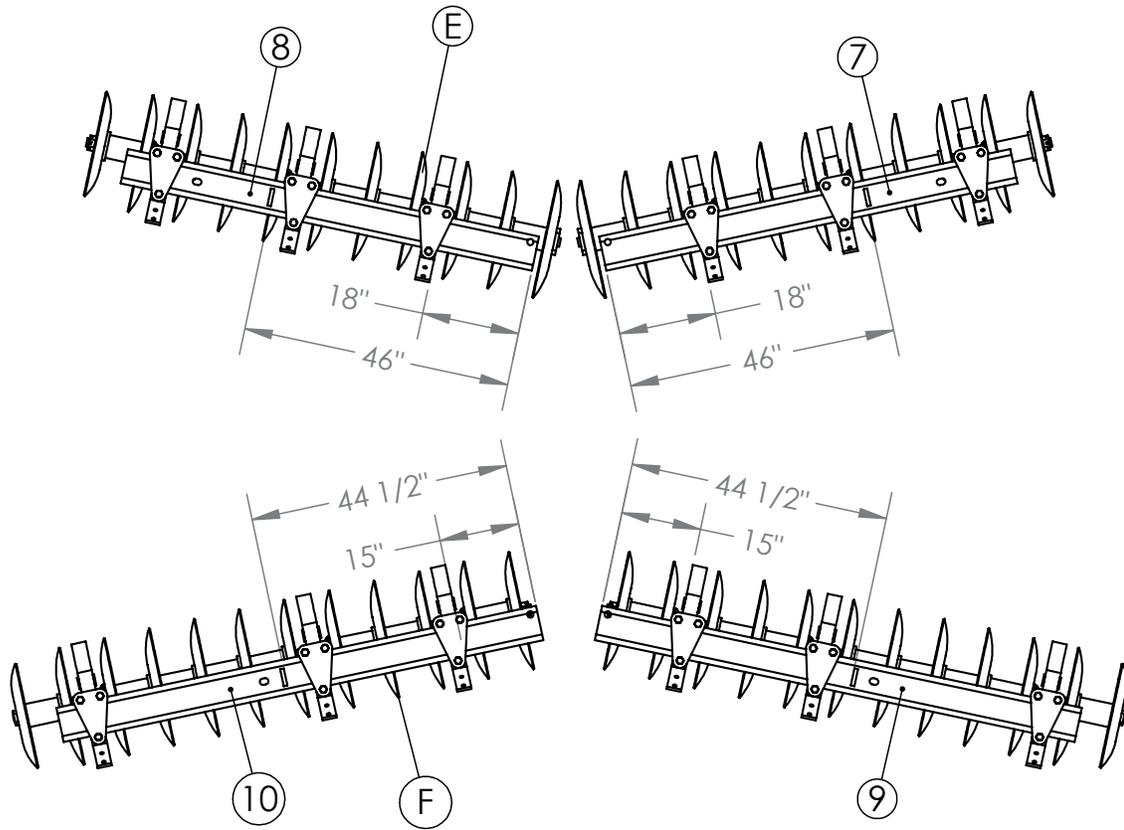
Dimensions are from end of gang tubes to side of C-springs.



Gang Layout (Center Disc Option - 15' Model)

Front of Machine

Dimensions are from end of gang tubes to side of C-spings.



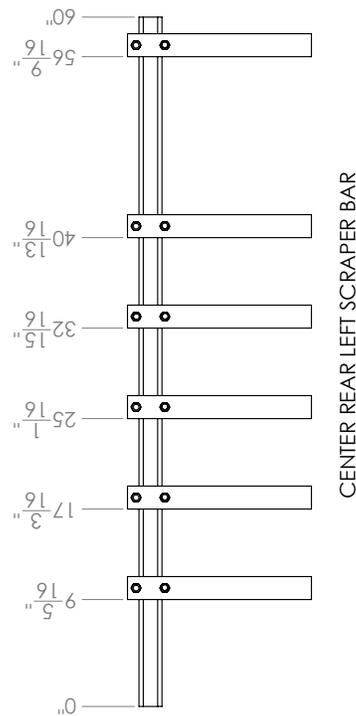
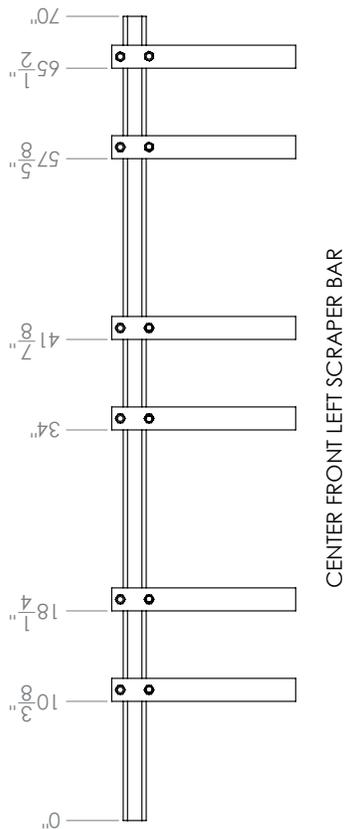
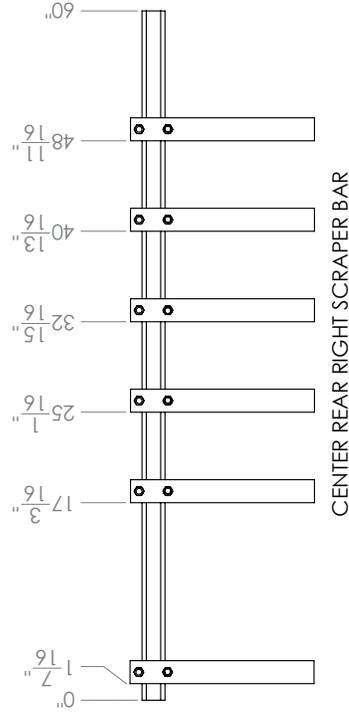
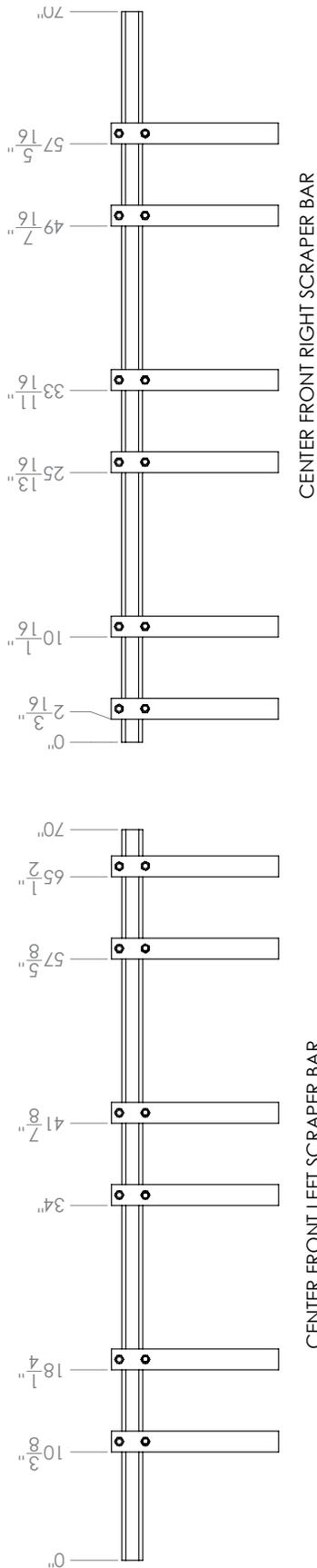
Appendix B

If preference is to pre-assemble scrapers to scraper tubes before mounting onto gangs, use the following diagrams to mark placement of each scraper.

25' and 32.5' Model

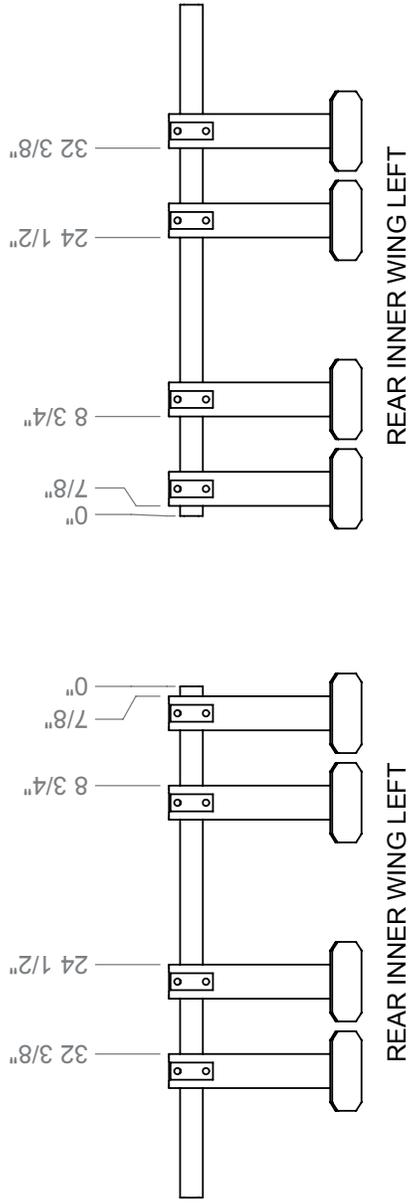
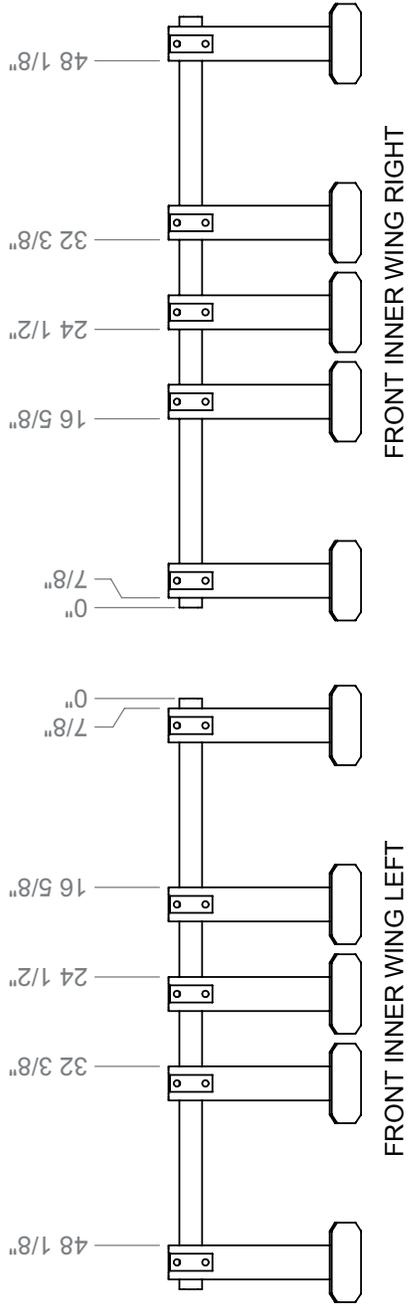
CENTER SCRAPER BAR ASSEMBLIES

ASSEMBLE THE SCRAPER BARS ON THE TUBES IN THE LOCATIONS SHOWN



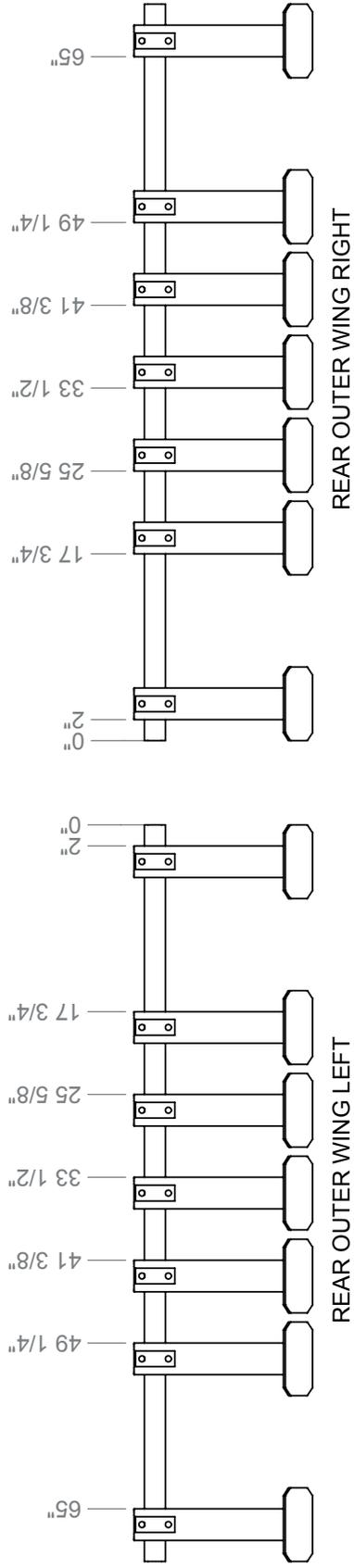
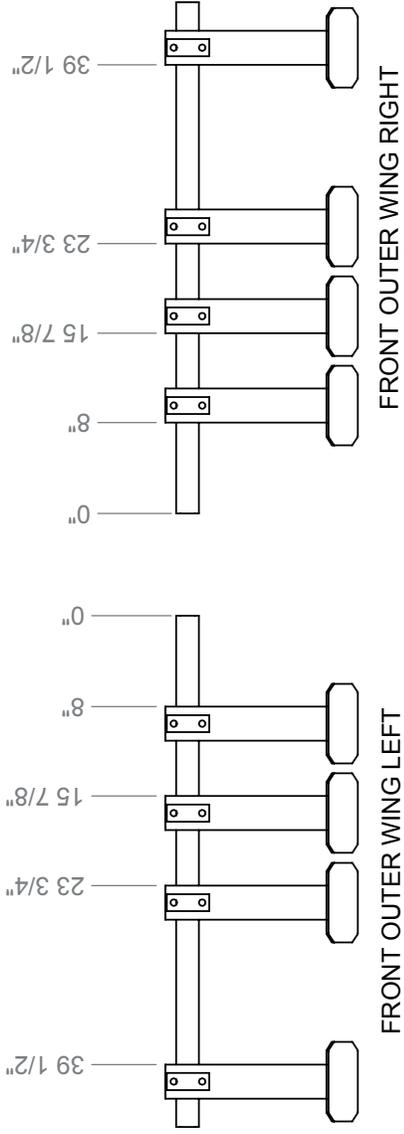
32.5' Model

INNER WING SCRAPER BAR ASSEMBLIES
-ASSEMBLE THE SCRAPER BARS ON THE TUBES
IN THE LOCATIONS SHOWN



32.5' Model

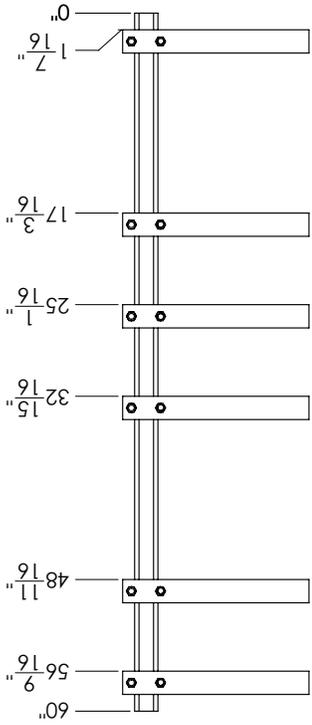
OUTER WING SCRAPER BAR ASSEMBLIES
 -ASSEMBLE THE SCRAPER BARS ON THE TUBES
 IN THE LOCATIONS SHOWN



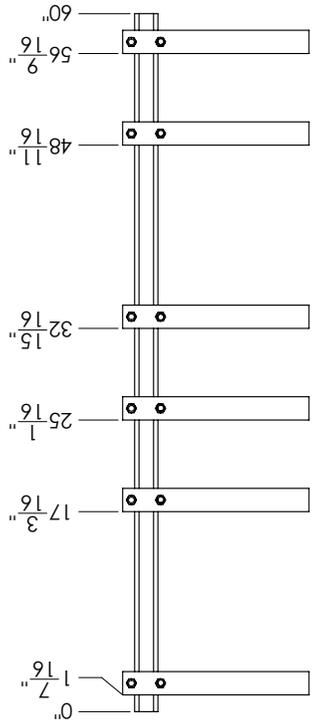
25' Model

WING SCRAPER BAR ASSEMBLIES

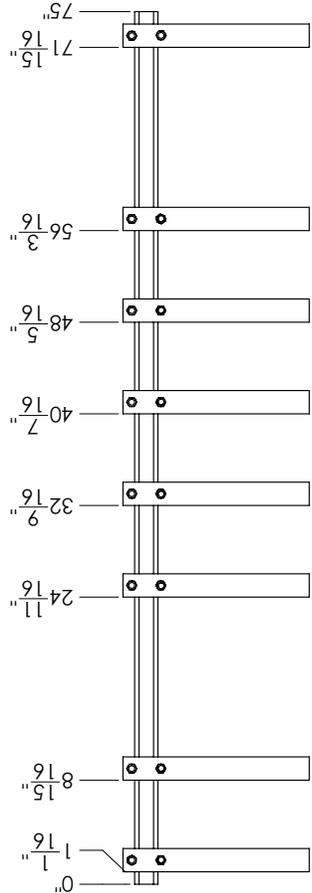
ASSEMBLE THE SCRAPER BARS ON THE TUBES
IN THE LOCATIONS SHOWN



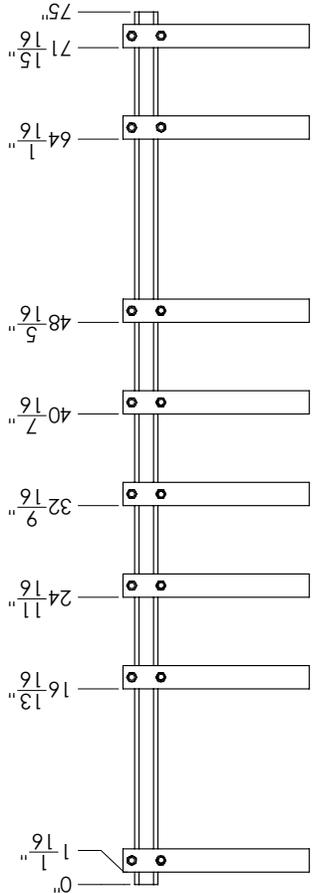
WING FRONT RIGHT SCRAPER BAR



WING FRONT LEFT SCRAPER BAR



WING REAR RIGHT SCRAPER BAR

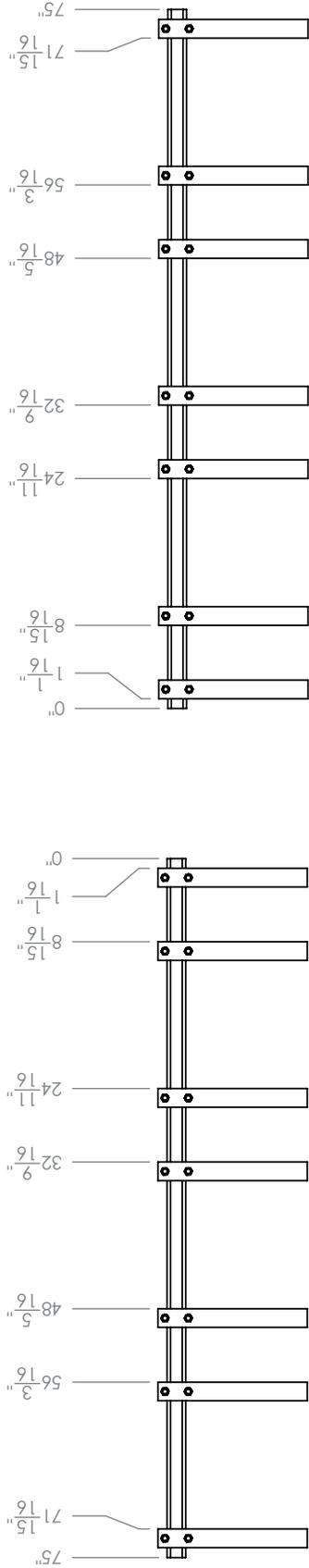


WING REAR LEFT SCRAPER BAR

15' Model

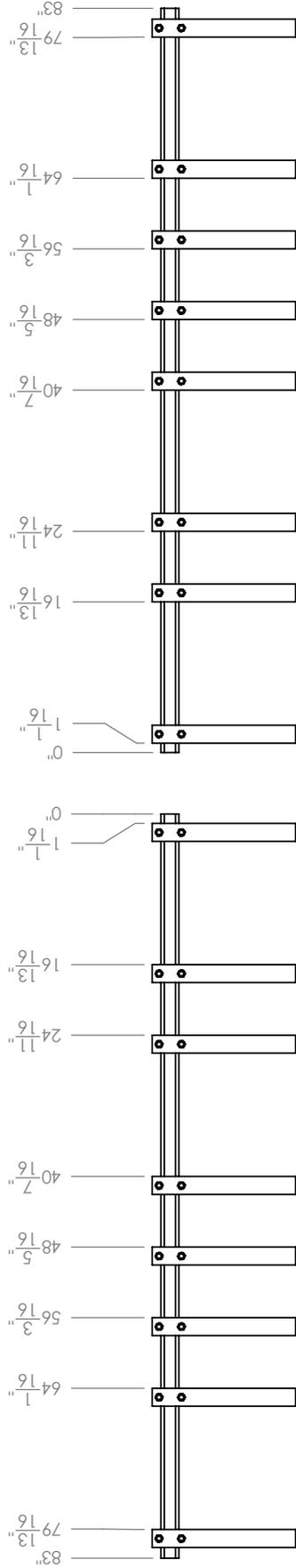
SCRAPER BAR ASSEMBLIES

ASSEMBLE THE SCRAPER BARS ON THE TUBES IN THE LOCATIONS SHOWN



FRONT LEFT SCRAPER BAR

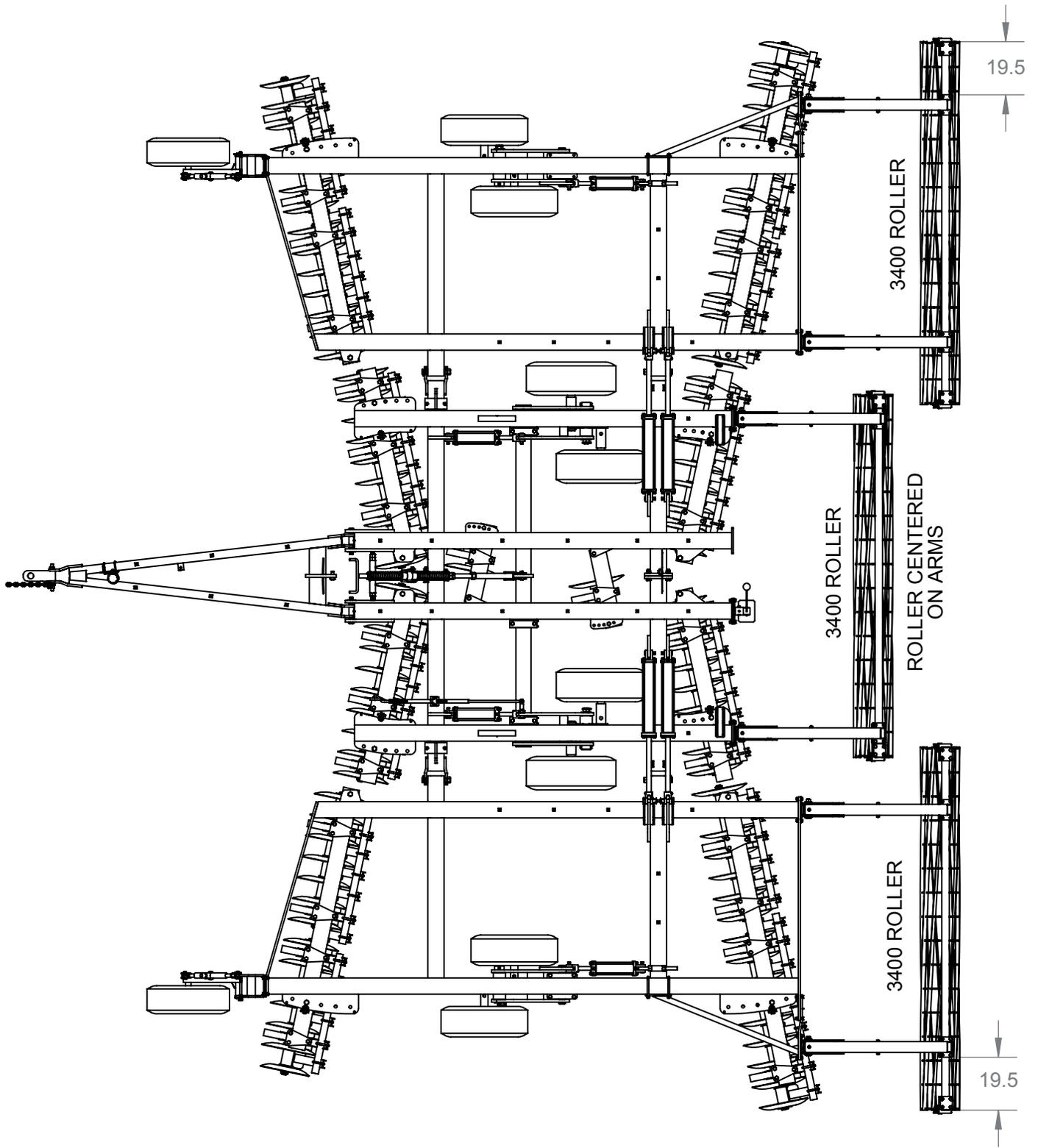
FRONT RIGHT SCRAPER BAR



REAR LEFT SCRAPER BAR

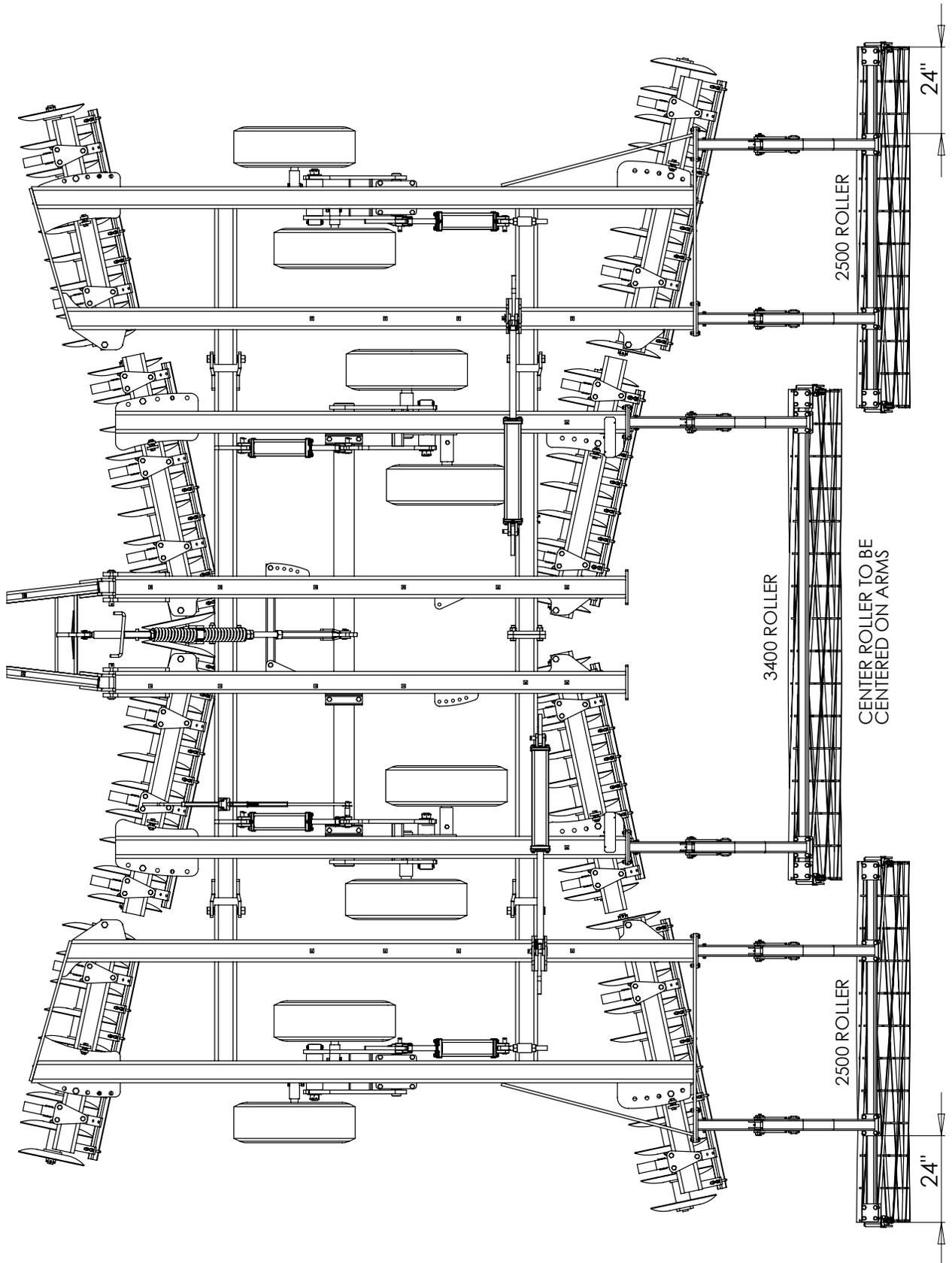
REAR RIGHT SCRAPER BAR

Appendix C
Roller Placement (32.5' Model)

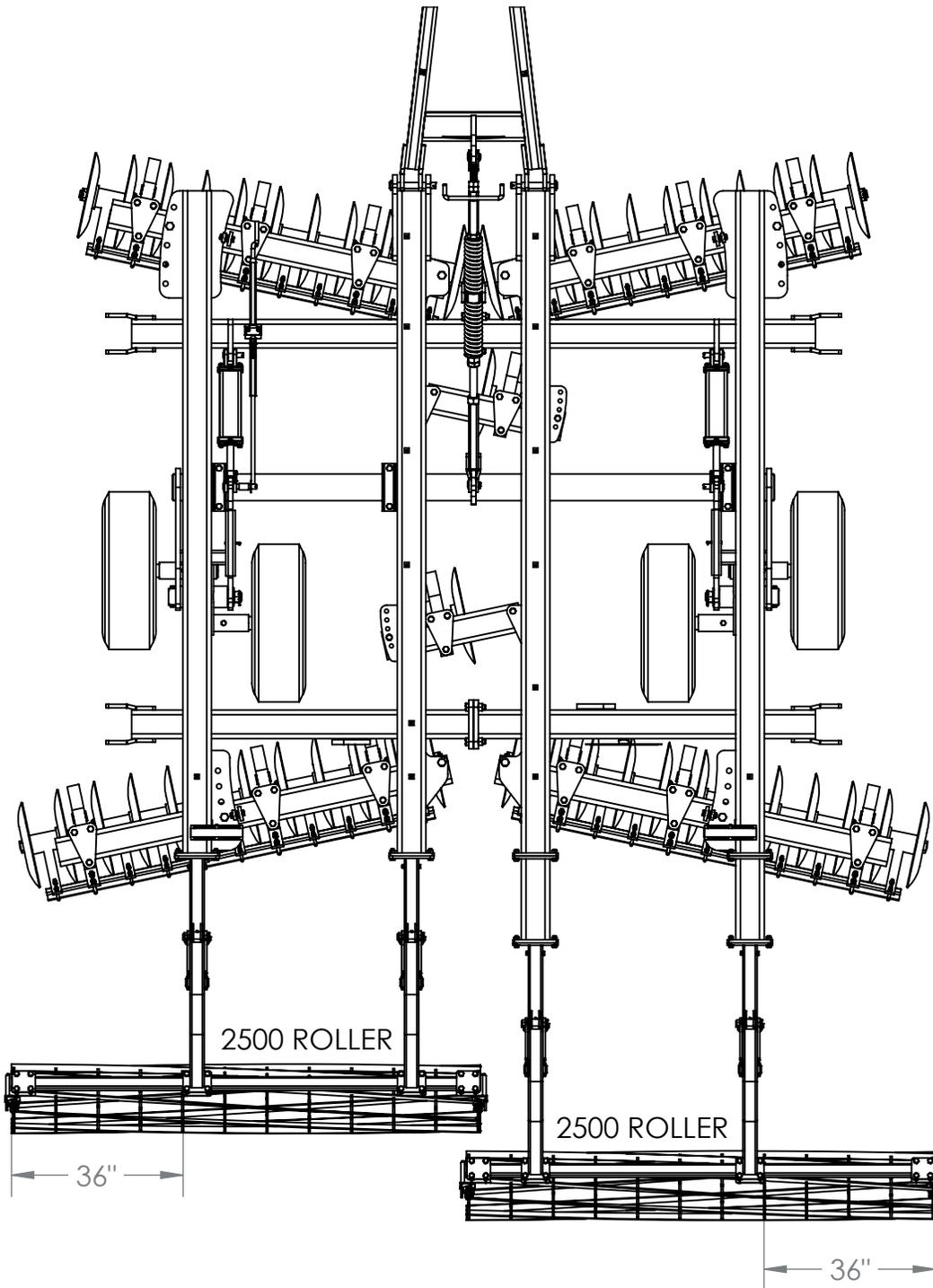


Roller Placement (25' Model)

ROLLER PLACEMENT



Roller Placement (15' Model)



Appendix D Decal Placement

Install Kongskilde 9100 decal #7600475255 on both sides of hitch frame.



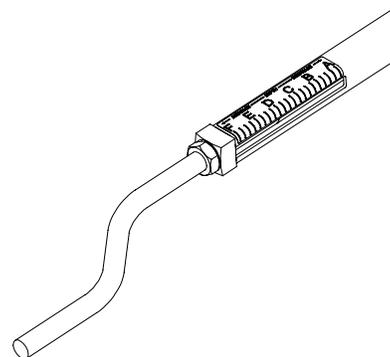
Install Kongskilde 9100 decal #7600475255 on both sides of center frame.



(Wing Models Only)
Install Kongskilde 9100 decals #7600475255 on outside of each wing frame.



Install Single Point decal #7600475256 on single point tube, centered between slot.



Install yellow safety reflectors #600475180 on the outer front edge of the center front gang tubes.



(Wing Models Only)
Install yellow safety reflectors #600475180 on the outer front edge of the front wing gang tubes.



Install red safety reflectors #600475179 on the outer rear edge of the center rear gang tubes.



(Wing Models Only)
Install red safety reflectors #600475179 on the outer rear edge of the rear wing gang tubes.



Install the three safety decals on the outside face of the left hitch mounting ear.

Towing Caution Decal #600475170

Electrocution Danger Decal #600475169

Tipping Caution Decal #600475160



Install sharp blade Danger decals #600475253 on outer front center frame tubes.



Models with wings:

Install sharp blade Danger decals #600475253 on rear outer wing frames.

Models without wings:

Install sharp blade Danger decals #600475253 on outer rear frame tubes.



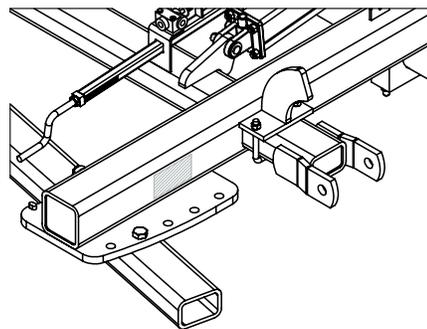
(Wing Models Only)

After wings are folded, install wing fold Danger decals #600475039 on the bottom side of each wing frame cross tube near the wing pivot.

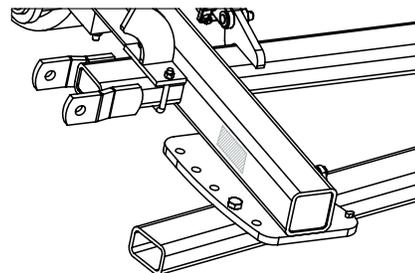
Install wing fold lock decal #600475176 on each rear main frame tube.



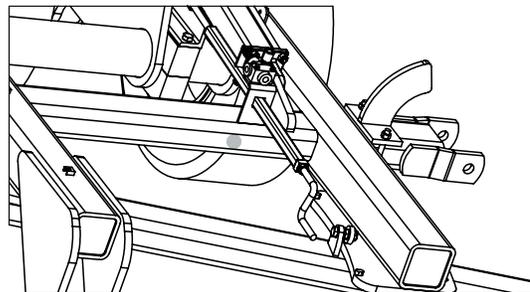
Install Right Hand Gang Angle decal #7600475264 on tube near front left center gang, front left wing gang, rear right wing gang, and rear left center gang



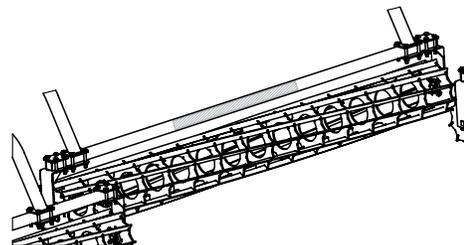
Install Left Hand Gang Angle decal #7600475263 on tube near front right center gang, front right wing gang, rear left wing gang, and rear right center gang



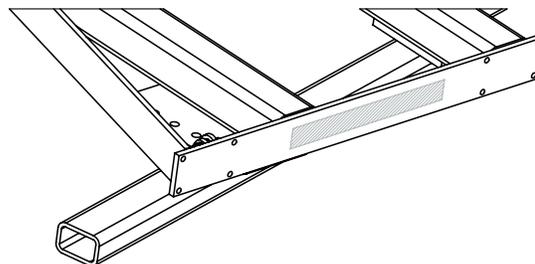
Install Increase-Decrease decal #7600475262 on center frame cross tube, below single point tube



Install Kongskilde website decal #7600475265 on the tube of the center roller frame



Install Kongskilde decal #600475237 on rear of each wing frame



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