



OPERATOR'S MANUAL
AND
PARTS LISTING
FOR THE

HDL-1100 Series

version: 11-16 (12366)
starting at serial number 20484

TO THE OWNER AND OPERATORS

Before assembling or operating this unit, READ THIS MANUAL THOROUGHLY. To obtain the best performance of the unit, familiarize yourself with each component and adjustment. Store this manual where it can be readily available for future reference. In the event that the harrow or any part of the unit should be sold, be sure that the new owner receives a copy of this manual for their reference.

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INTRODUCTION

Thank you for purchasing your new McFarlane transport cart and harrow sections. We know that you will get many years of dependable service from this modernly designed unit.

You may have had a particular application in mind when you purchased this unit. There are actually many uses for the McFarlane harrow including incorporation of herbicides and pesticides, leveling and smoothing tilled soil, and covering of broadcast seeds. Contact your dealer if you would like more information or have questions concerning these or other applications.

LIMITED WARRANTY

FULL ONE - YEAR WARRANTY OF HDL-1100 Series

If within one year from the date of purchase, this transport cart and/or its accompanying harrow sections fail due to defect in material or workmanship, McFarlane Mfg. Co., Inc. will repair it, free of charge.

Warranty service is available by simply contacting the nearest McFarlane dealership throughout the United States or Canada.

This warranty applies only while this product is used in the United States or Canada.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

McFarlane Mfg. Co., Inc., Sauk City, Wisconsin 53583

SAFETY

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



THIS SYMBOL MEANS

- **ATTENTION!**
- **BECOME ALERT!**
- **YOUR SAFETY IS INVOLVED!**

SIGNAL WORDS:

Note the use of the signal words DANGER, WARNING, and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

CONTACT INFORMATION

If you have questions not answered in this manual, require additional copies, or the manual is damaged, please contact your local dealer or:

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Sauk City, WI 53583

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SAFETY FIRST!



Equipment Safety Guidelines

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions. To avoid personal injury, study the following precautions and insist that those working with you, or for you, follow them.

Replace any CAUTION, WARNING, DANGER, or instruction safety decal that is not readable or missing.

Do not attempt to operate this equipment under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.**

To prevent injury, use a tractor equipped with a Roll Over Protective System (ROPS). Do not paint over, remove, or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.

Never exceed the limits of the transport cart or the harrows. If their ability to do a job, or to do so safely, is in question - **DO NOT TRY IT.**



Lighting and Marking

It is the responsibility of the customer to know the lighting and marking requirements of the local highway authorities and to install and maintain the equipment to provide compliance with the regulations. Add extra lights when transporting at night or during periods of limited visibility.



Safety Sign Care

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replacement parts that display a safety sign should display the same sign.
- Safety signs are available from your Distributor, Dealer Parts Department, or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.



Tire Safety

- Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.
- Do not attempt to mount tires unless you have the proper equipment and experience to do the job.
- Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
- Always order and install tires and wheels with appropriate capacity to meet or exceed the weight of the unit. Be sure to inflate tires to tire manufacturer's specifications
- Tires that are provided by the manufacturer are designed for speeds LESS THAN 20mph. Do Not exceed or tire failure will occur.



Remember:

Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer.



Before Operation:

- Carefully study and understand this manual.
- Do not wear loose fitting clothing which may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- It is recommended that suitable protective hearing and (eye protection) sight protectors be worn.
- Keep wheel lug nuts or bolts tightened.
- Assure that the tires are inflated evenly.
- Give the unit a visual inspection for any loose bolts, worn parts, or cracked welds, and make necessary repairs. Follow the maintenance safety instructions included in this manual.
- Before using the hydraulics on the cart, be sure all fittings and connections are tight.
- Be sure that there are no tools lying on the unit.
- Make sure that the area is clear of children, animals, and other obstacles before using.
- Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new equipment. Practice operation of your new unit. Completely familiarize yourself and other operators with its operation before using.

- Securely attach to towing unit. Use a high strength, appropriately sized hitch pin with a mechanical retainer and attach safety chain.
- Do not allow anyone to stand between the tongue or hitch and the towing vehicle when backing up to the equipment.



During Operation:

- **SAFETY CHAIN** - If equipment is going to be transported on a public highway, a safety chain should be obtained and installed. Always follow state and local regulations regarding a safety chain when towing farm equipment on a public highway. Be sure to check with local law enforcement agencies for your own particular regulations. Only a safety chain (not an elastic or nylon/plastic tow strap) should be used to retain the connection between the towing and towed machines in the event of separation of the primary attaching system.
- Install the safety chain by crossing the chains under the tongue and secure to the draw bar cage or hitch or bumper frame.
- Beware of bystanders, **particularly children!** Always look around to make sure that it is safe to start the engine of the towing vehicle or move the unit. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting.
- **NO PASSENGERS ALLOWED** - Do not carry passengers anywhere on, or in, the tractor or equipment, except as required for operation.
- Keep hands and clothing clear of moving parts.
- Do not clean, lubricate, or adjust your equipment while it is moving.
- When altering operation, even periodically, set the tractor or towing vehicle brakes, shut off the engine, and **remove the ignition key.**
- Do not operate the hydraulic cylinders without the flow restrictors installed; the free falling harrow sections may cause serious injury.
- Pick the smoothest and flattest possible route when transporting across fields. Avoid the edges of ditches or gullies and steep hillsides.
- Periodically clear the equipment of brush, twigs, or other materials to prevent buildup of dry combustible materials.
- Maneuver the tractor or towing vehicle at safe speeds.
- Avoid overhead wires or other obstacles. Contact with overhead lines could cause serious injury or death.
- Allow for unit length when making turns.
- Do not walk or work under raised wings unless securely positioned in wing rests.
- Keep all bystanders, pets, and livestock clear of the work area, particularly when raising or lowering harrow sections.
- Operate the towing vehicle from the operator's seat only.
- As a precaution, always recheck the hardware on equipment periodically. Correct all problems. Follow the maintenance safety procedures.



Following Operation:

- When disconnecting, stop the tractor or towing vehicle, set the brakes, secure the wings in the wing rests, relieve hydraulic fluid pressure, shut off the engine and **remove the ignition keys**. Make sure all jack and support stands are in place before removing hitch pins.
- Store the unit in an area away from human activity on a hard level surface.
- Do not park equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.
- Do not permit children to play on or around the stored unit.



Highway and Transport Operations:

- Make sure all transport lock provisions are in place and jack/parking stands are in their storage position before transporting the unit.
- Adopt safe driving practices:
 - Keep the brake pedals latched together at all times. **NEVER USE INDEPENDENT BRAKING WITH MACHINE IN TOW AS LOSS OF CONTROL AND/OR UPSET OF UNIT MAY RESULT.**
 - Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.
 - Reduce speed prior to turns to avoid the risk of overturning.
 - Avoid sudden uphill turns on steep slopes.
 - Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill. Do not coast.
 - Do not drink and drive!
- Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
- Use approved accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport. Various safety lights and devices are available from your dealer.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- When driving the tractor and equipment on the road or highway under 20 mph at night or driving during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
- Remember, tires supplied by the manufacturer are designed to operate LESS THAN 20mph. Do Not exceed or tire failure will occur.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Plan your route to avoid heavy traffic.

- Be observant of bridge loading ratings. Do not cross bridges rated lower than the gross weight at which you are operating.
- Watch for obstructions overhead and to the side while transporting.
- Always operate equipment in a position to provide maximum visibility at all times. Make allowances for increased length and weight of the equipment when making turns, stopping, etc.



Performing Maintenance:

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Before working on this machine, stop the tractor or towing vehicle, set the brakes, lower into field position, relieve the hydraulic fluid pressure, shut off the engine and **remove the ignition keys**.
- **Always** use safety support and block the wheels. When performing maintenance, never use a jack to support the machine. Assist the jack with blocks or other adequate support.
- Use extreme caution when making adjustments.
- When disconnecting hydraulic lines, shut off hydraulic supply and relieve all pressure.
- Never use hands to locate a hydraulic leak on attachments. Use a piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate the skin.
- Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. **If injured by escaping hydraulic fluid, see a doctor at once. Gangrene can result. Without immediate medical treatment, serious infection and reactions can occur.**
- When installing, replacing, or repairing hydraulic system cylinders or parts, make sure that the entire system is charged and free of air before resuming operations. Failure to bleed the system of all air can result in improper machine operation, causing severe injury.
- After servicing, be sure all tools, parts, and service equipment are removed.
- Never replace hex bolts with less than grade five bolts unless otherwise specified.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for damages as a result of the use of unapproved parts and/or accessories.
- If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.

MAINTENANCE AND SERVICE SCHEDULE

- Prior to each use, check for loose bolts and replace lost or worn parts.
- Grease hinge pins before each use when necessary.
Note: Clean grease fittings and replace those that are broken or missing.
- Inspect and repack wheel bearings at the beginning of each year.
- Remove dirt and debris from the harrow sections before storage.
- Parts diagrams and listings for service and repair references may be found in appendix B.

OPERATING SUGGESTIONS

There are some important points to remember in order to obtain the best possible results from your McFarlane harrow.

- To maximize the harrow's performance, it should be towed at speeds ranging from six to nine (6 - 9) mph. This keeps the field debris moving through the harrow sections and avoids clogging. The best results will be obtained after the paint has been scoured from the teeth.
- Choose the angle of attack of the harrow teeth based on field conditions. For more information see the section titled Angle of Attack.
- Getting the unit ready for transport includes the following steps:
 1. Rotate the harrow sections up.
 2. Swing the wings forward and lock them into the wing rests.
- Getting the unit ready for field use includes the following steps:
 1. Unlock the wings from the wing rests and swing the wings out.
 2. Rotate the harrow sections down.
- Field Operation - while turning on the headlands (field ends) slow down and rotate the toolbar up so the harrow sections begin to lift off the ground. Once traveling straight forward again, lower the sections to the ground.

ASSEMBLY SUGGESTIONS

- You will find the machine is easier to assemble if the set-up instructions are followed in the order given in the manual.
- Before beginning, sort the various bolt bags, hardware bags and hydraulic bags according to what part of the unit that is being setup. Refer to the end of the parts listing in appendix B. Only open the bag or bags that are required as the setup instructions are followed.
- Whenever the terms “left” and “right” are used, it should be understood to mean when standing behind and facing the unit. This is also known as the “driver’s left” and the “driver’s right.”
- The term “field position” refers to the position the harrows are in when the unit is being used in the field - that is, with the wings out and the harrow sections down.
- The term “transport position” refers to the position the harrows would be in when the unit is being transported from place to place - that is, with the harrows up and the wings folded and secured in the wing rests.
- When assembling this unit, make sure that the parts are securely held before proceeding to the next step.
- Bolt torque specifications are given in appendix A.
- The hydraulic cylinder and hose requirements are listed in the parts listing in appendix B. It is not recommended that other size cylinders or hoses be substituted. Hoses are marked with the part number near the ends.
- A dual acting hydraulics supply is required. The unit is designed for the standard ASAE pressure of 1500 psi.
- Tire requirements are also listed in the parts listing in appendix B.
- Layout diagrams for each unit may be found in appendix C. Mark the page with the diagram that refers to your unit, it will be referred to periodically throughout the manual.

STEP - BY - STEP ASSEMBLY INSTRUCTIONS

Main Frame Assembly

1. Bolt the Axle Brackets to the main frame. You will have either the Standard Walking Axle or the optional Tandem Axle assemblies. Both are shown in Figure 1. Use 5/8" x 2 1/4" bolts, lock washers, and hex nuts. Note the orientation of the walking axle when installing this option and be sure to include the Walking Axle Stop Tube Assemblies as shown.
2. Attach the hub with spindle to the Axle Bracket using 1/2" x 3 1/2" grade 8 bolts and lock nuts.
3. Mount the wheels to the main frame Axle Brackets. Be sure the valve stem is pointing away from the Axle Bracket.
4. Attach the jack to the Main Frame.

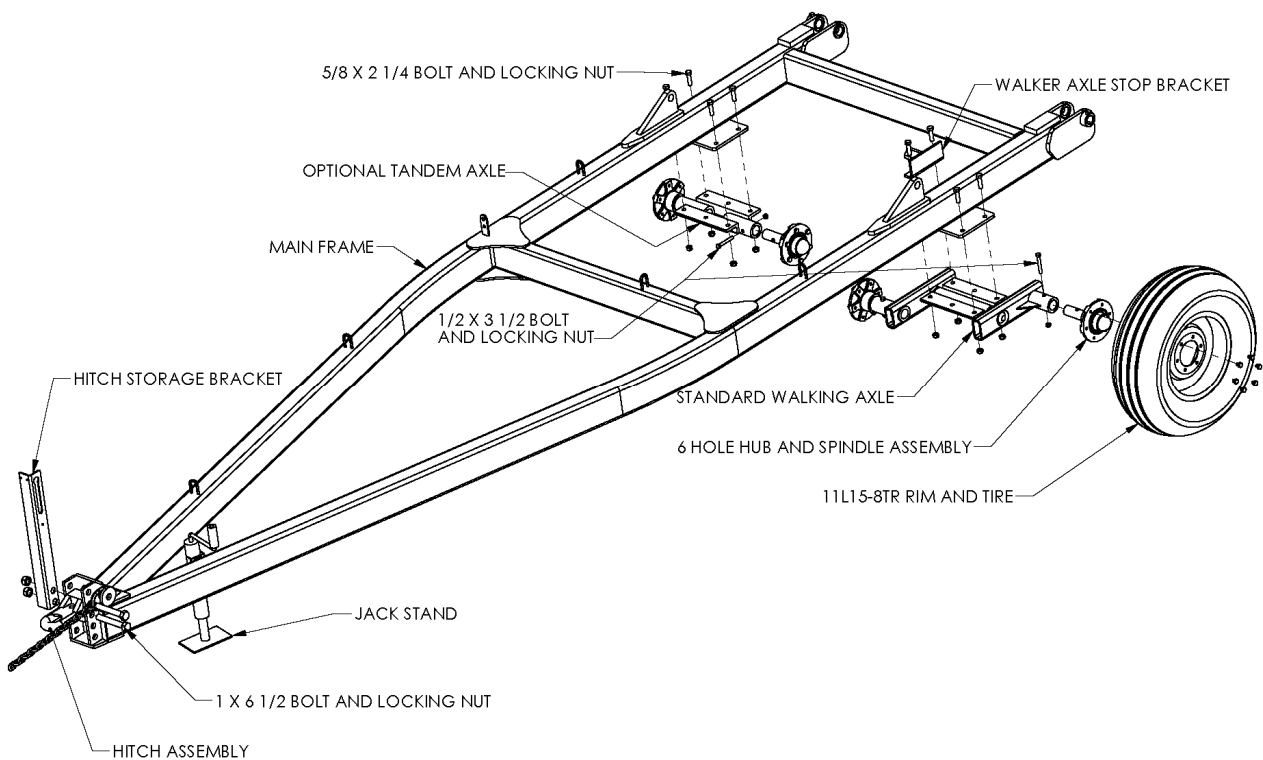


Figure 1

5. Assemble either a clevis hitch (Figure 2) or a pintle hitch (Figure 3) as required by the tractor or towing vehicle. Note the opposite orientation of the base hitch for each hitch type. Attach the hitch assembly to the A-frame with two 1" x 6 1/2" bolts and locking nuts.

Note: Parts have been provided to assemble a clevis hitch or a pintle hitch. Not all the included parts will be needed to assemble either type of hitch. Be sure to store the extra parts in a safe place; they will be needed if one requires the use of the other hitch type.

Note: For clarity purposes, the rest of the diagrams will be shown without the main axles and rims.

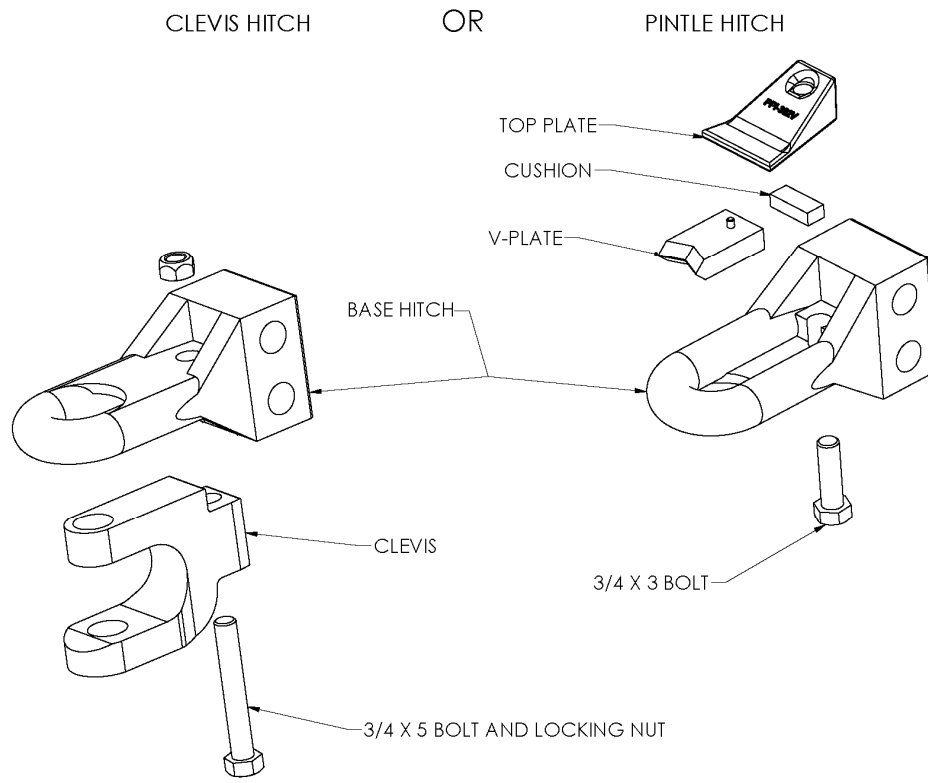


Figure 2

Figure 3

ATTACH SAFETY CHAIN

1. Attach the Safety Chain as shown in Figure 4.

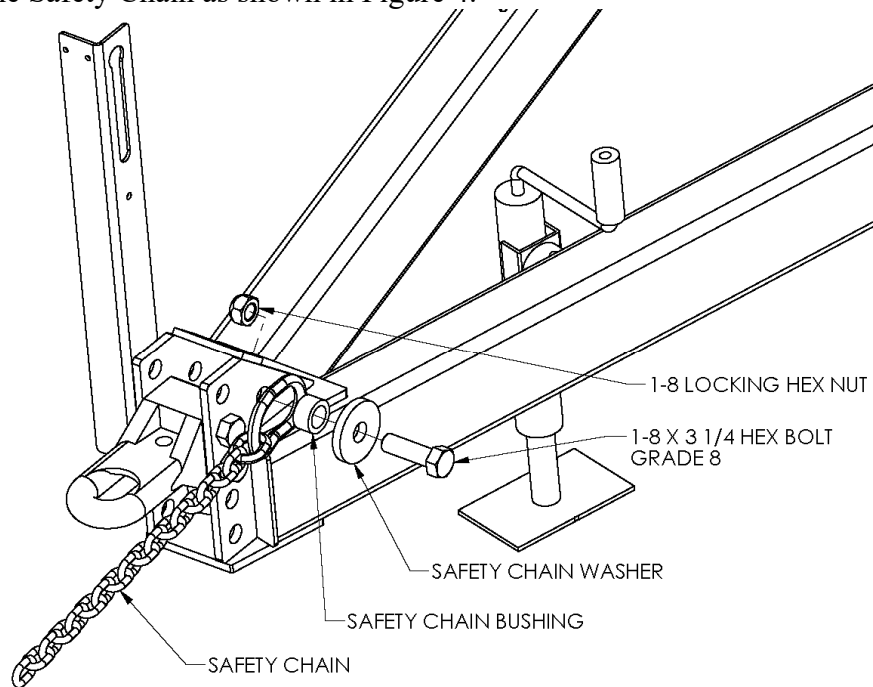


Figure 4

Attach the Hitch Weights to the Main Frame
HDL-1124 only

1. Attach the Hitch Weights to the Main Frame as shown in Figure 5. Dimension from front of side tube to front of weight mount plate should be approximately 41. The weights must be far enough back so that the jack can turn 90 degrees and pin into the field position.

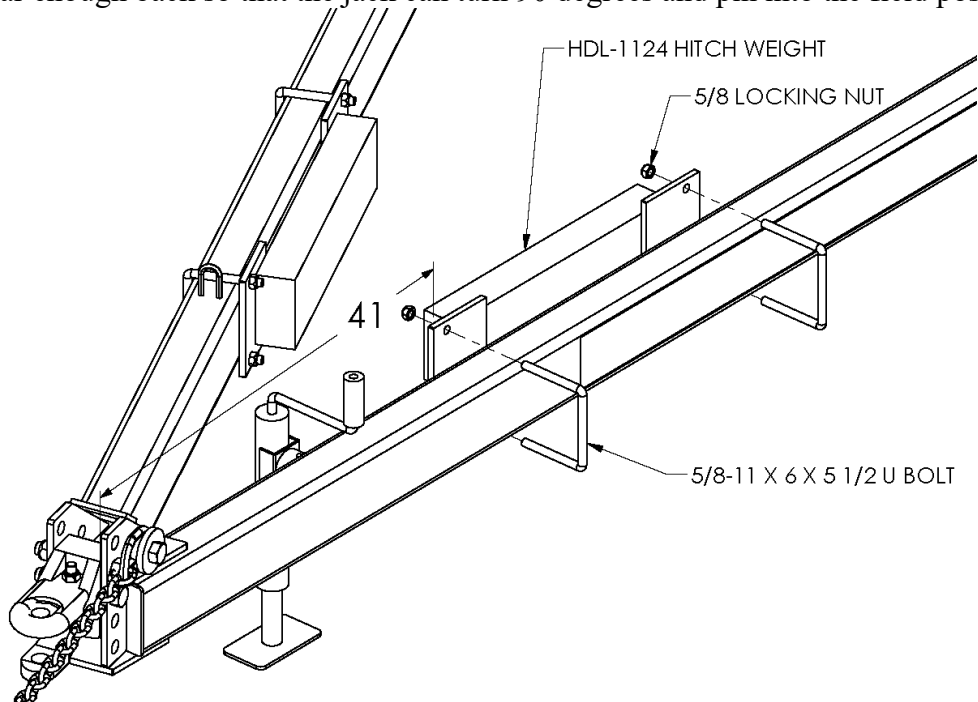


Figure 5

Attach the Wing Rests

Attach the wing rests (12474) for HDL-1124 – 38, or (12477) for HDL-1140 – 60, to the square frame. Refer to Figure 6. Use four (BU-5865) 5/8" x 6" x 5 1/2" U-Bolts for HDL-1124 – 1138, four (BU-5887) 5/8" x 8" x 7 1/2" for HDL-1140 – 1150 and four (11969) 5/8" x 8" x 9 1/2" U-Bolts for HDL-1152 – 1160. Secure with flat washers, and lock nuts. Do not tighten yet.

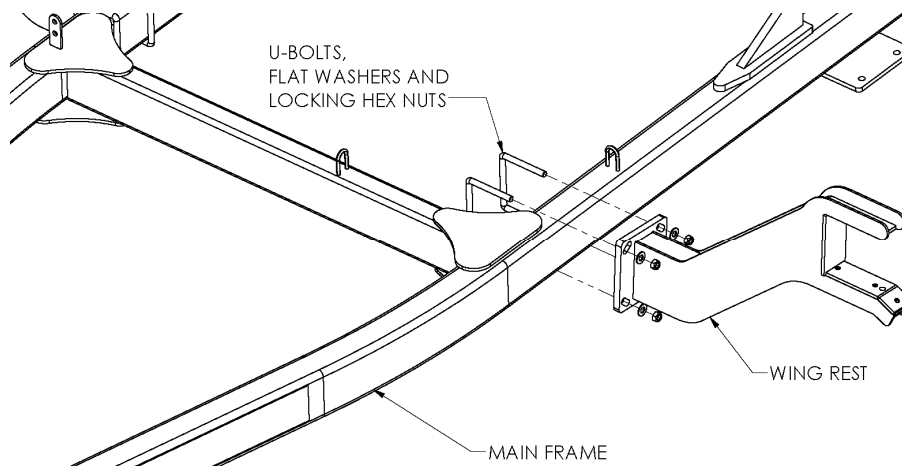


Figure 6

Attach the Center Bar to the Main Frame

Attach the center bar to the square frame. Refer to Figure 7. Use the (SPR-2712) 1 1/2" x 8 5/16" hinge pins for HDL-1124 - 1138, (RT-2107) 1 1/2" x 9 5/8" for HDL-1140 – 1150 and (RD-5061) 1 1/2" x 12 1/4" for HDL-1150 – 1160, using 1/2" x 3 1/2" grade 8 bolts, and locking hex nuts.

1. Attach the ASAE 16" stroke cylinders to the cylinder posts on the square frame. Note the locations of the ports and the direction of travel.

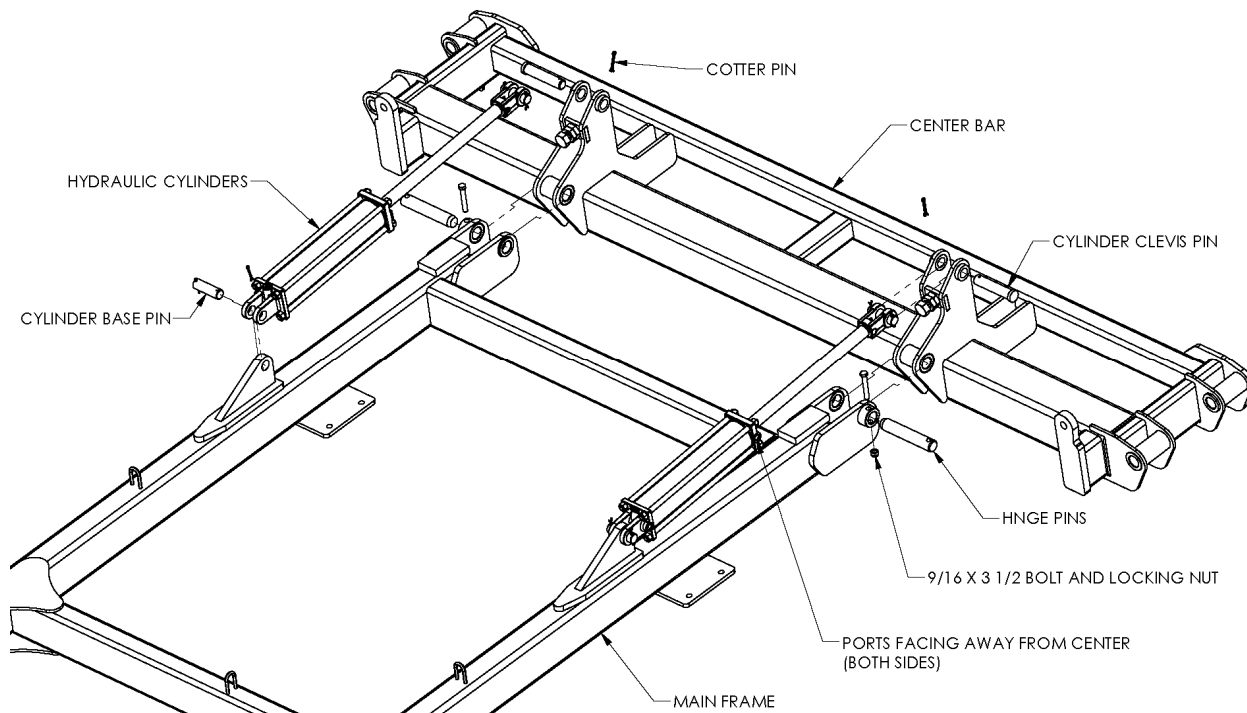


Figure 7

Attach the Wings to the Center Bar

Attach the wings to the center bar using two (RT-2107) 1 1/2" x 9 5/8" hinge pins and the 1/2" x 3 1/2" grade 8 bolts and locking hex nuts. Note the location of the wing cylinder posts (figure 7) and the orientation of the wing axle mount plate (Figure 8).

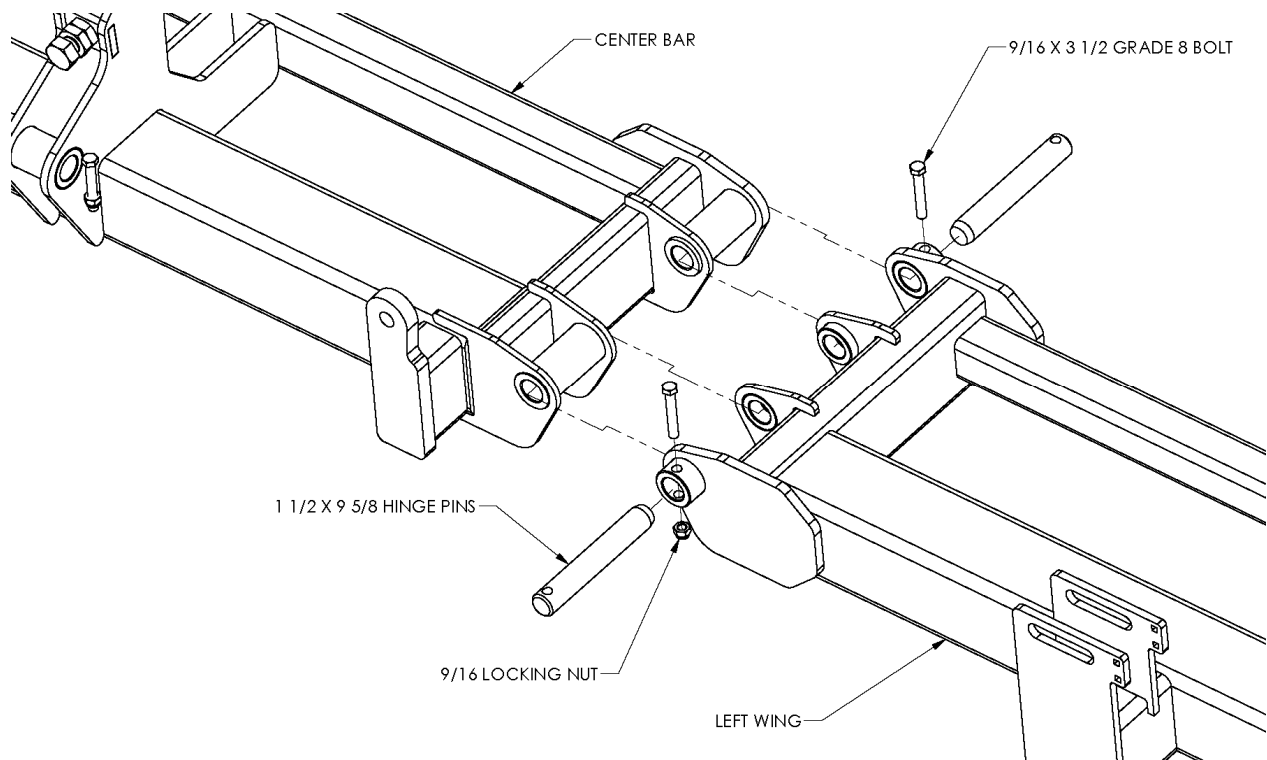


Figure 8

Attach the Wing Wheels

Attach the hub/spindle to the Axle Bracket using 1/2" x 3 1/2" grade 8 bolts and lock nuts. Mount the wheels to the wing frames. Be sure the valve stem is pointing towards the outside. Refer to Figure 9.

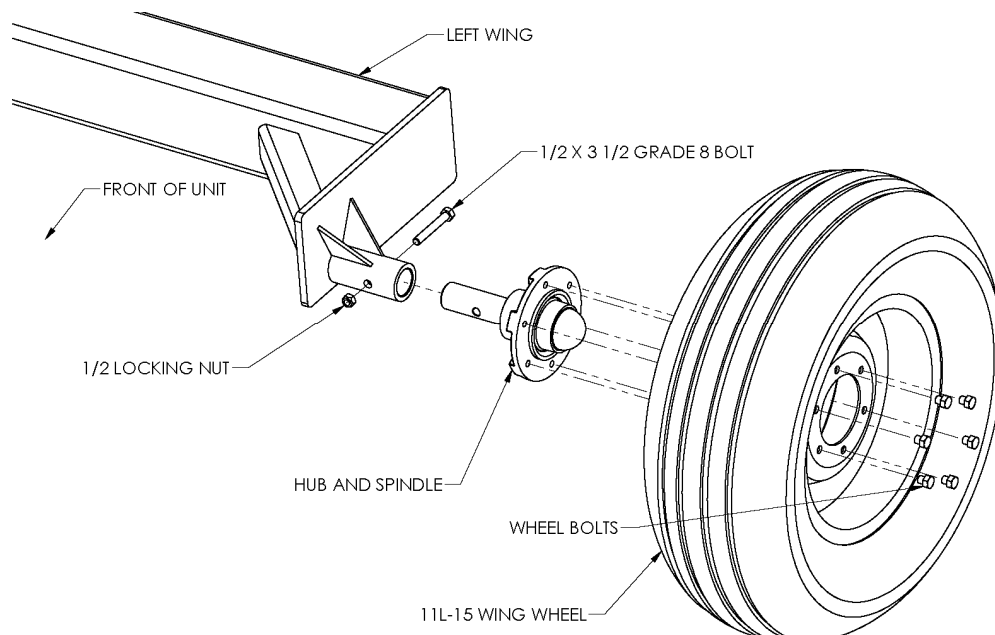


Figure 9

The remainder of the assembly steps can be done in either the transport or field position. Because most people will assemble the unit in the field position (and it is recommended that you do), for clarity, the following diagrams show the unit in the field position.

Attach the Wing Cylinders

1. Attach the Guide Brackets to the wing cylinder posts. Carriage bolts must face outward. Use the 1 1/2" x 8 5/16" hinge pins, 1/2" x 3 1/2" grade 8 bolts, and locking hex nuts. Refer to Figure 10.
2. Assemble the Spring Link (11959) through the compression spring (10682) and through the hole in the bracket guide. Align the rod end clevis of the cylinder with the Spring Link and the slot in the wing cylinder posts and secure with clevis pin (CL-1005).
3. Move entire assembly so that the cylinder base can be pinned to the cylinder post on the Center Bar.

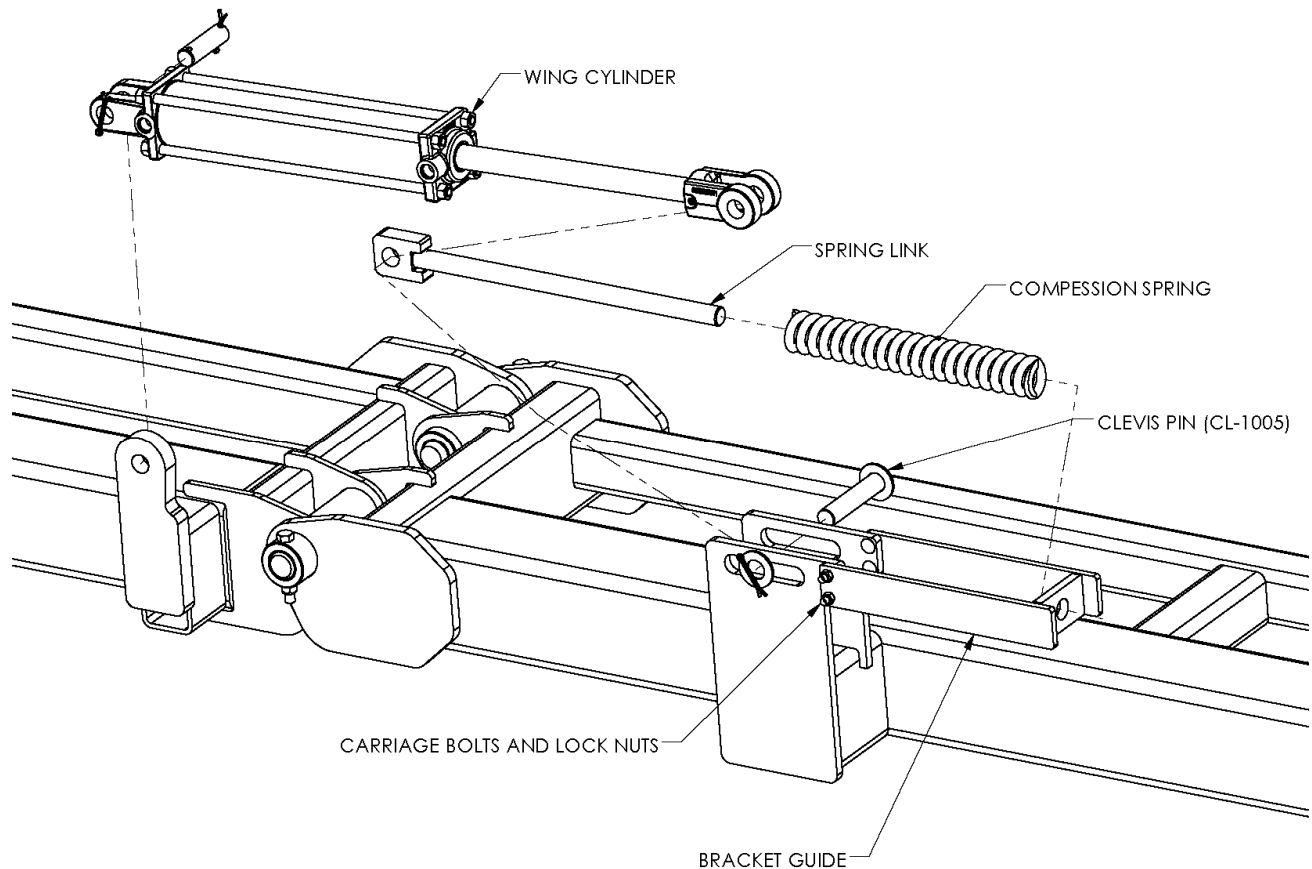


Figure 10

Install the Main Frame Hydraulics **HDL-1124 through 1150**

Refer to Figure 11 and the hydraulic system diagram in appendix B for more details.

1. Insert the tees (HYF-1809) with center O-ring fitting into the ports on the main frame cylinders. Do *not* over tighten.
2. Attach the two similar male tees (HYF-1888) to the hydraulic tee bracket on the right side of the Main Frame using the tee nuts.
3. Attach the two hoses from the right side tee to the front tee of the main lift cylinders. Be sure to run the hoses through the loops welded to the frame.

4. Attach the two hoses from the right side tee to the rear tee of the main lift cylinders. Be sure to run the hoses through the loops welded to the frame.
5. Attach the two hoses from the right side tee to the hitch. Be sure to install the restrictor on the tee with hoses going to the base end of the main cylinders. Secure these hoses to the Hitch Storage Bracket with the Hydraulic Clamps. Refer to the parts diagram in appendix B for details. Be sure to run the hoses through the loops welded to the frame.

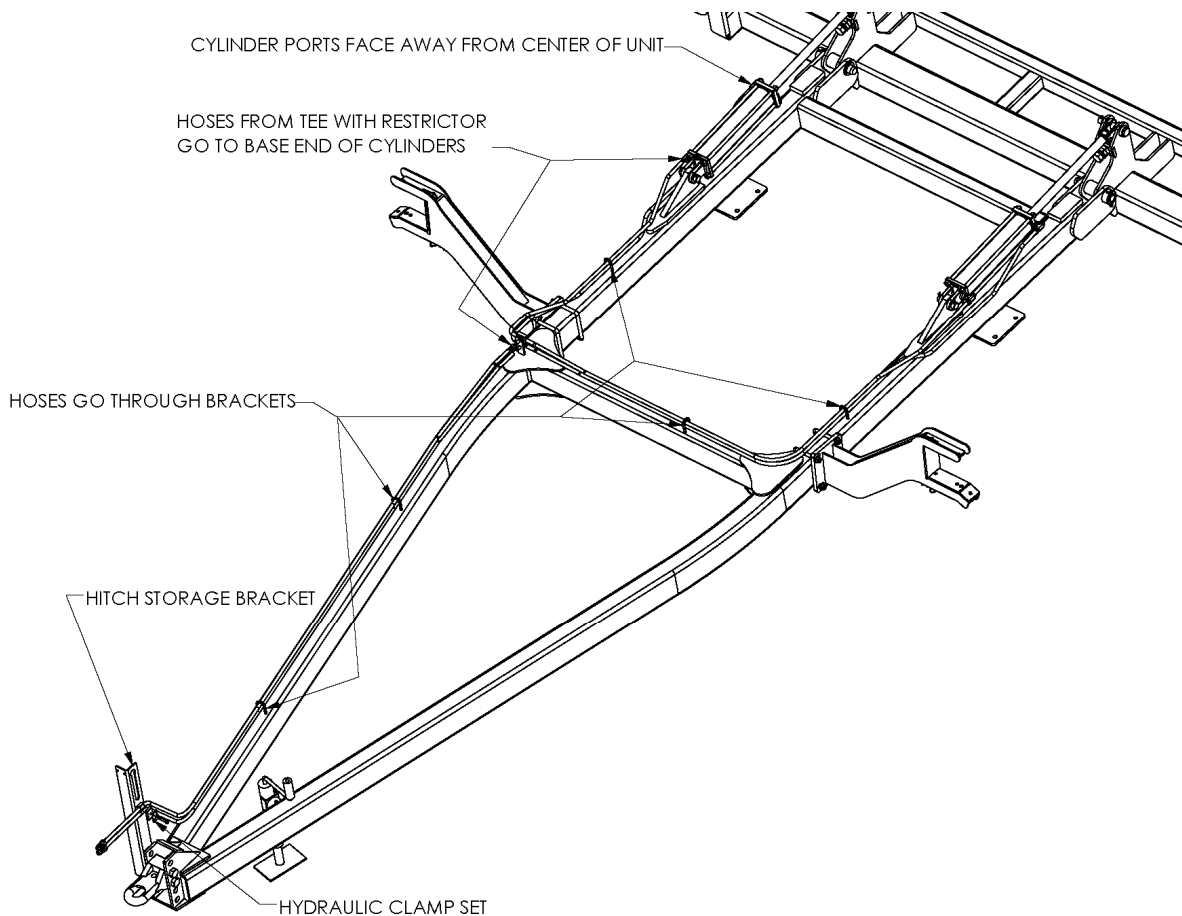


Figure 11

Install the Wing Hydraulics

Refer to Figure 12 and the hydraulic system diagram in appendix B for more details.

Complete the following assembly instructions for both left and right side of the unit.

1. Insert a 9/16”M – 3/4Morb, RST (HYF-2821) elbow into each of the ports on the 14” stroke cylinders. Note the locations of the ports on the cylinders - ports face forward. Refer to the parts diagram on page 42 for details. Do *not* over tighten.
2. Attach an (HYH-8057) hose between the base end tee of the main frame cylinders and the base end elbow of the wing cylinder.
3. Attach an (HYH-8057) hose between the rod end tee of the main frame cylinders and the rod end elbow of the wing cylinder.

Before further assembly, the hydraulic system must be filled with oil. Attach the unit to a tractor and connect the hydraulic lines. Using hydraulic controls rotate the center bar and wings several times to fill the cylinders and hoses with oil.

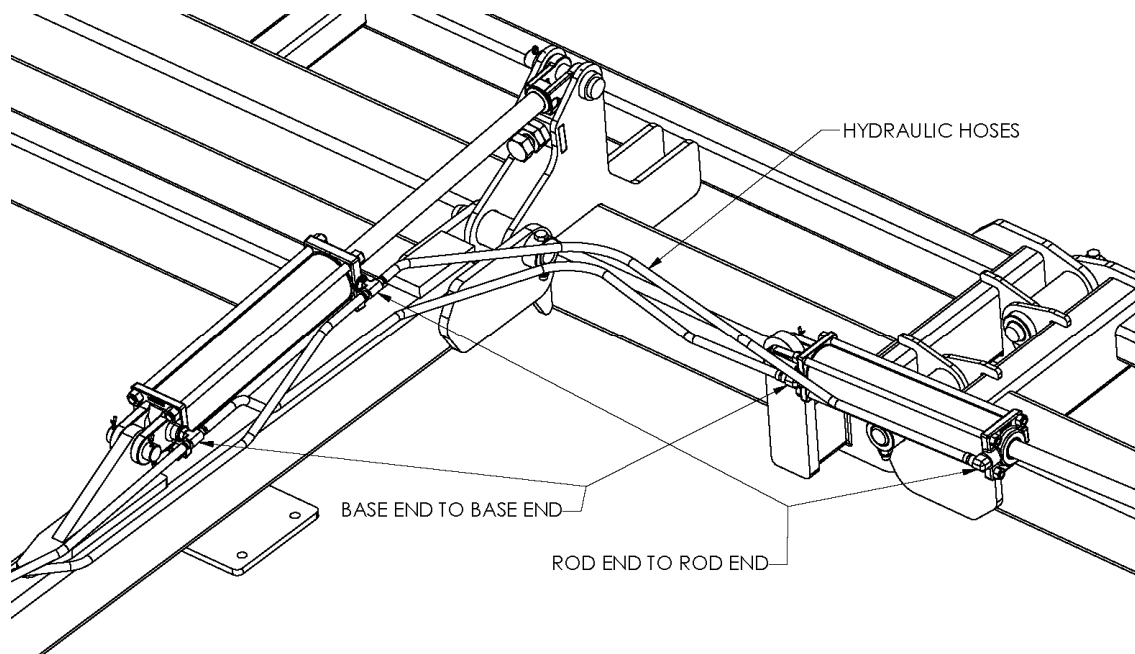


Figure 12

Install the Main Frame Hydraulics **HDL-1152 through 1160**

Please note that the HDL-1152 through 1160 have two separate hydraulic circuits, one for the Main Frame and one for the Wings.

Refer to Figure 13 and the hydraulic system diagram in appendix B for more details.

1. Attach the four male tee's (HYF-1888) to the hydraulic tee brackets on the right side of the Main Frame using the tee nuts. (two for main frame circuit two for wing circuit)
2. Attach two hoses from one of the tee's to the base end of the main lift cylinders. Be sure to run the hoses through the loops welded to the frame.
3. Attach two hoses from the other tee on the same bracket to the rod end of the main lift cylinders. Be sure to run the hoses through the loops welded to the frame.
4. Attach two hoses from one of the other bracket tee's to the base end of the wing cylinders. Be sure to run the hoses through the loops welded to the frame.
5. Attach two hoses from the other tee on the same bracket to the rod end of the wing cylinders. Be sure to run the hoses through the loops welded to the frame.
6. Attach the two hoses from the main lift cylinder circuit tee's to the hitch. Be sure to install the restrictor on the tee with hoses going to the base end of the cylinders.

7. Secure these hoses to the Hitch Storage Bracket with the Hydraulic Clamps. Refer to the parts diagram in appendix B for details. Be sure to run the hoses through the loops welded to the frame.

Install the Wing Hydraulics

Refer to Figure 13 and the hydraulic system diagram in appendix B for more details.

1. Attach two hoses from one of the other bracket tee's to the base end of the wing cylinders. Be sure to run the hoses through the loops welded to the frame.
2. Attach two hoses from the other tee on the same bracket to the rod end of the wing cylinders. Be sure to run the hoses through the loops welded to the frame.
3. Attach the two hoses from the wing cylinder circuit tee's to the hitch. Be sure to install the restrictor on the tee with hoses going to the base end of the cylinders.
4. Secure these hoses to the Hitch Storage Bracket with the Hydraulic Clamps. Refer to the parts diagram in appendix B for details. Be sure to run the hoses through the loops welded to the frame.

Before further assembly, the hydraulic system must be filled with oil. Attach the unit to a tractor and connect the hydraulic lines. Using hydraulic controls rotate the center bar and wings several times to fill the cylinders and hoses with oil.

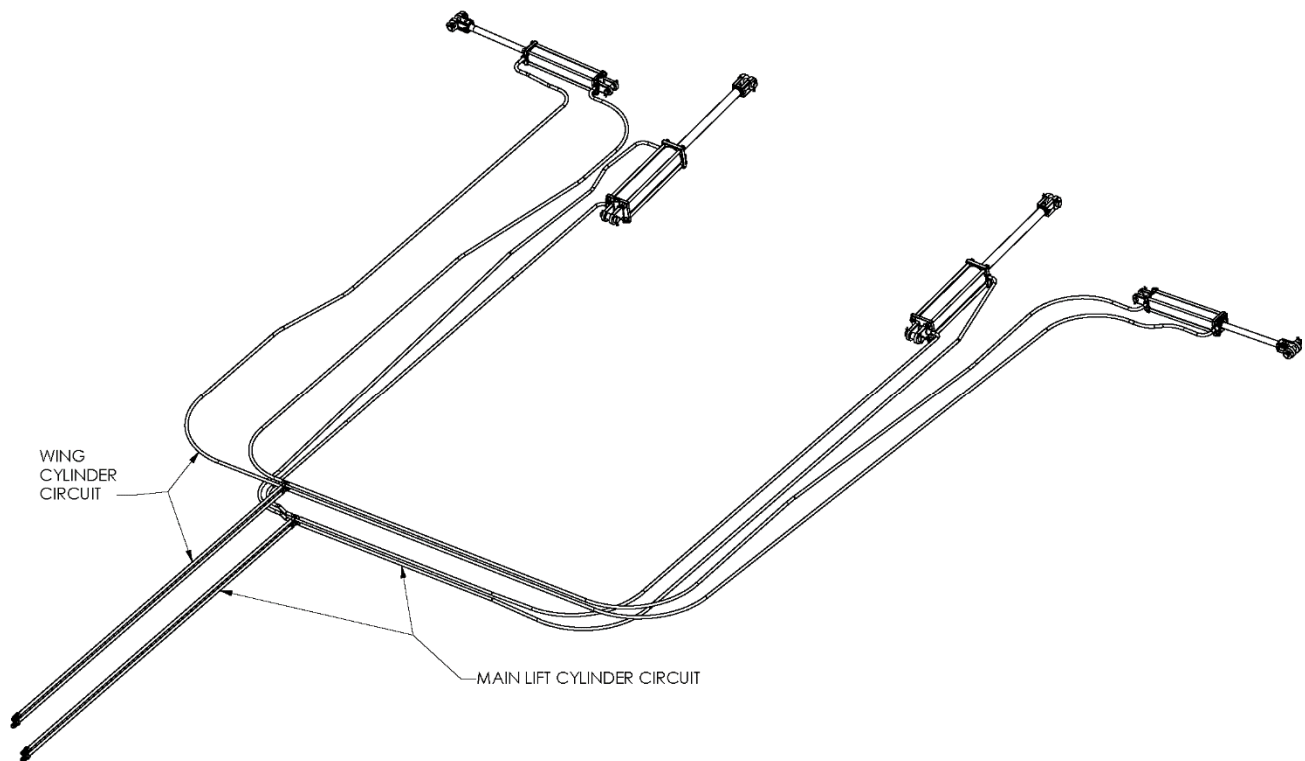


Figure 13

Harrow Configurations

McFarlane harrow sections may be attached in any one of several distinct configurations: 8-bar, 4+4-bar, 12-bar, 6+6-bar, 16-bar, and 8+8-bar. The 8, 12, and 16-bar harrow configurations utilize a single set of pull points located adjacent to the center bar and wings.

The 4+4, 6+6, and 8+8-bar harrow configurations (also known as dual sections) also utilize a second set of pull points located at the rear end of the lift arms. Persons assembling an 8, 12, or 16-bar harrow should **ignore** the instructions in *italics* describing the attachment of the rear pull points. Those assembling a dual section harrow should be sure to **follow** the instructions for attaching the rear pull points in *italics*.

Mount the Lift Arms

1. Refer to the appropriate layout diagram in appendix C. Note the dimensions for the lift arm locations. Place a mark on the center bar and wings at the locations for each of the lift arms. Be sure the dimensions are for your unit.
2. Center a lift arm on each of these marks and secure using two 1/2" x 9 1/2" bolts, lock washers, and hex nuts for each lift arm. Refer to Figure 14.
3. Bolt an 8 or 10-link pull chain in between each of the lift arm pull points. (10-link for 8-bar harrow sections; 8-link for all other configurations.) Use 1/2" x 2" bolts, lock washers, and hex nuts. Refer to Figure 14.
4. Bolt an 8-link lift chain between the chain tabs at the rear end of each lift arm. Refer to Figure 15. This chain will go down and connect to the last bar of a 4 or 8-bar harrow section or to the connector link for 16-bar sections.

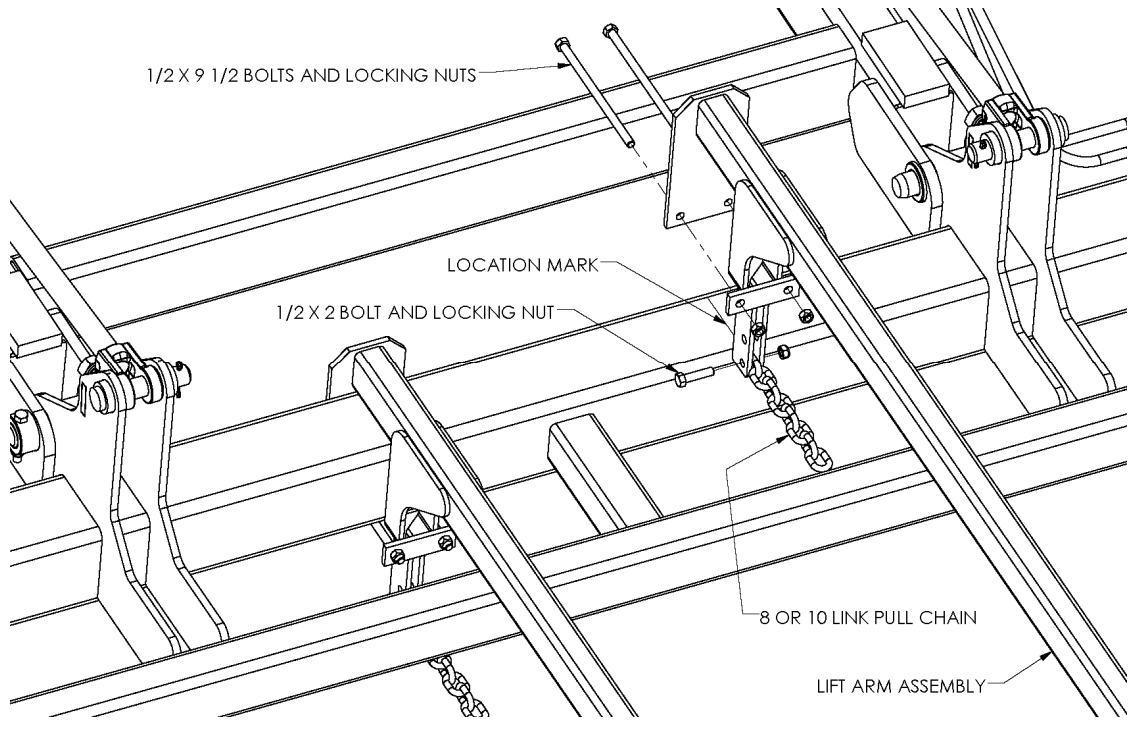


Figure 14

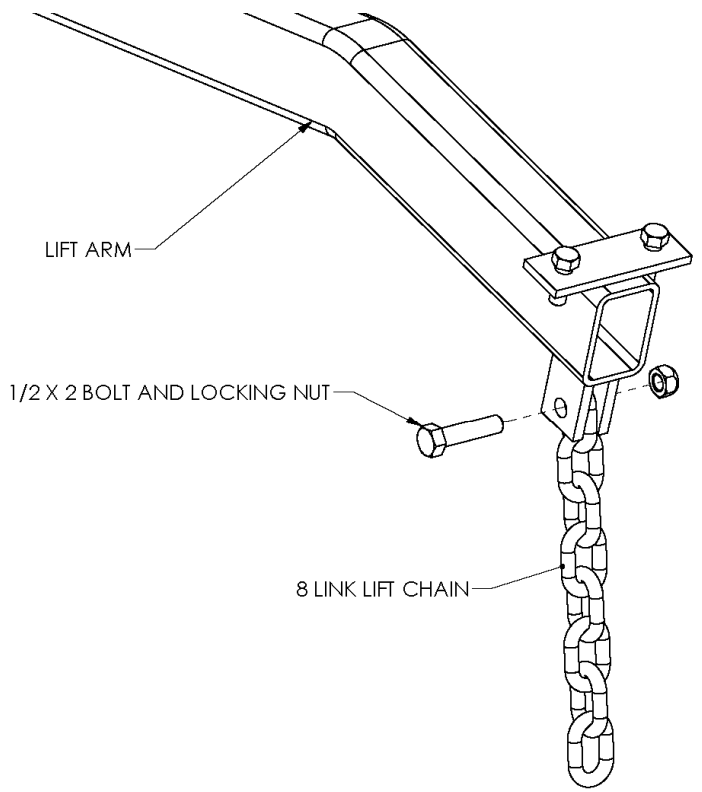


Figure 15

Attach the Rear Pull Points

1. Attach a rear pull point assembly to the rear end of each lift arm. Use four $1/2'' \times 3''$ bolt and lock nuts. Refer to Figure 16.
2. Bolt an 8-link pull chain to the end of the rear pull point assembly with a $1/2'' \times 2''$ bolt, lock washer, and hex nut. Refer to Figure 16.

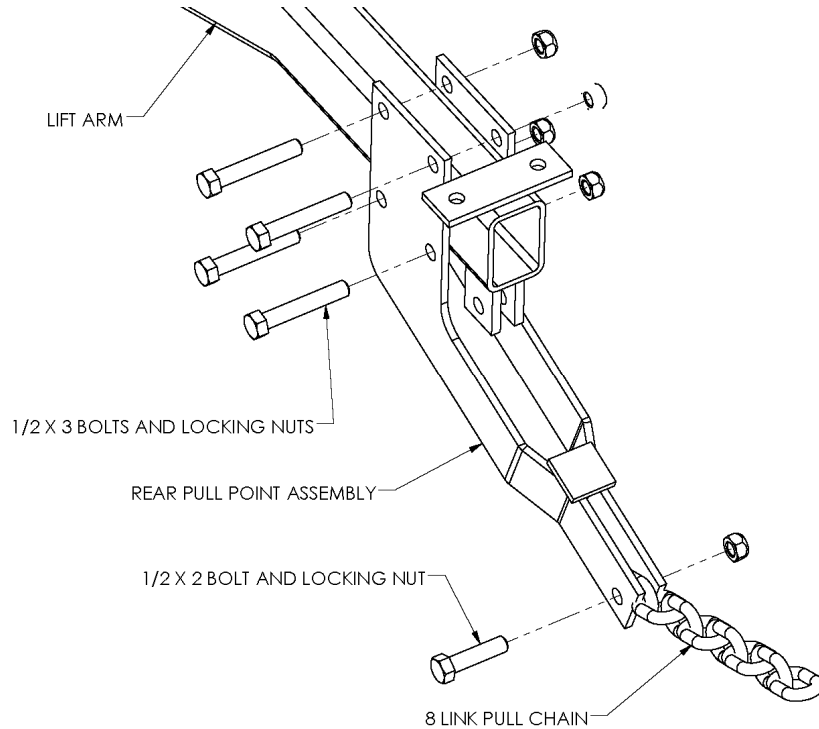


Figure 16

Attach the Stabilizer Angles

Refer to the layout diagrams in appendix C for the locations and lengths of stabilizer angles. Bolt them to the bolt plates near the rear end of the lift arms. Use $7/16'' \times 1 1/4''$ bolts and locking nuts.

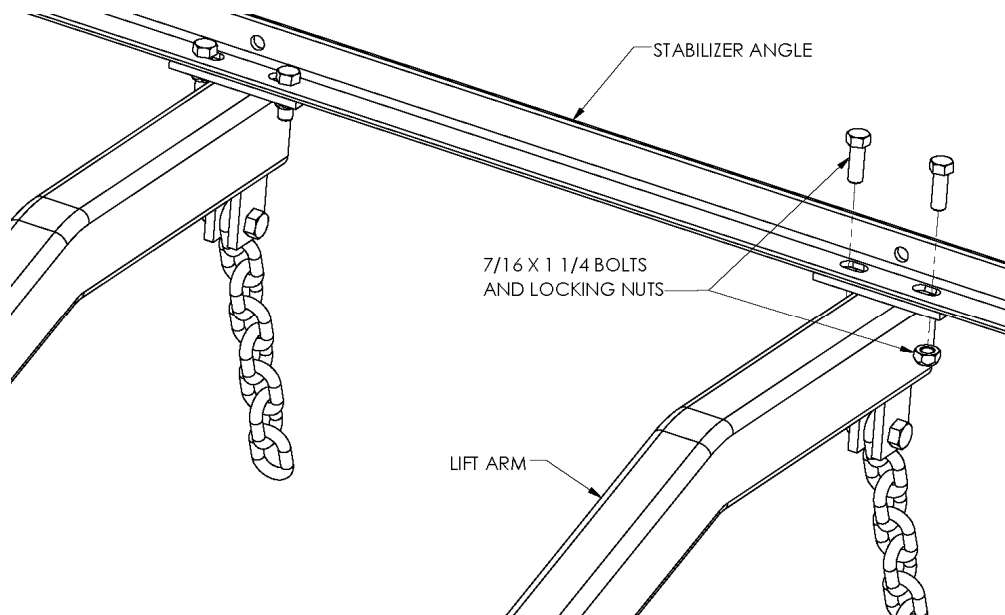


Figure 17

Angle of Attack

Before actually placing the harrows, you may want to determine the 'angle of attack' desired for your particular application. Refer to Figure 18 to help clarify what is meant by 'angle of attack.' McFarlane flexible harrow sections have a built-in system which allows the harrow owner a choice between a steep or shallow angle of attack. To change the angle of attack, simply reverse the harrow section and pull it from the other end.

Each angle has its advantages and disadvantages. The steeper the angle of attack, the more aggressive the harrowing action. However, the steeper the angle, the greater the tendency there is for the sections to clog with field debris.

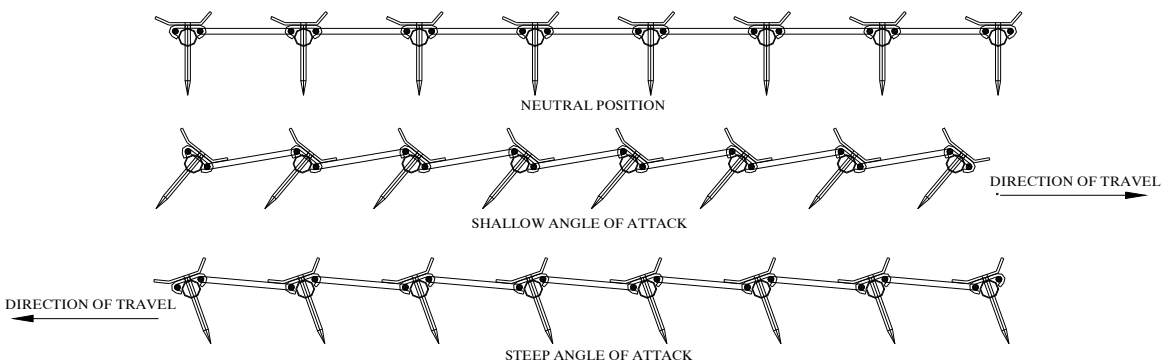


Figure 18

Harrow Identification

The number of teeth on a bar is the same as the first digit of the harrow identification number. The last number is the number of bars per section. An FH-600-8 would have six teeth per bar and 8 bars; an FH-800-8 would have eight teeth per bar and 8 bars.

Attach the Harrow Sections

Now that you have determined the desired angle of attack and identified the harrow sections, position the harrow sections on the ground under each pair of lift arms. Refer to the layout diagrams in appendix C to determine the placement of the harrow sections.

Connect an 8-Bar Section

1. Bolt the pull chains to the front tabs on the harrow sections. Refer to Figure 19. Use 1/2" x 1 1/2" bolts, flat washers, and locking nuts. The chains should be bolted to the bottom of the pull tabs. Make sure that the chains are not twisted.
2. Bolt the lift chains to the bottom of the rear lift tabs of the harrow sections. Refer to Figure 20. Use 1/2" x 1 1/2" bolts, flat washers, and locking nuts. Make sure the chains are not twisted.

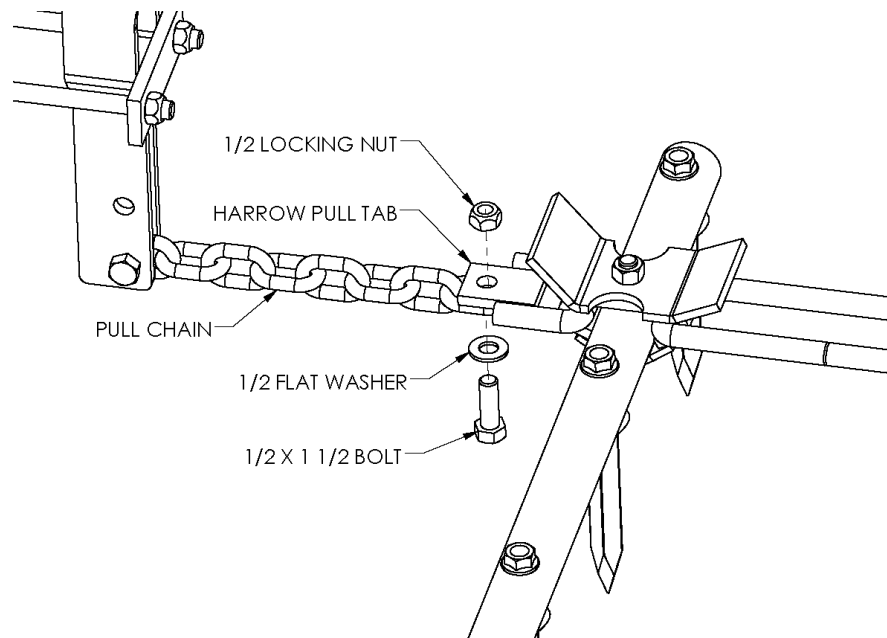


Figure 19

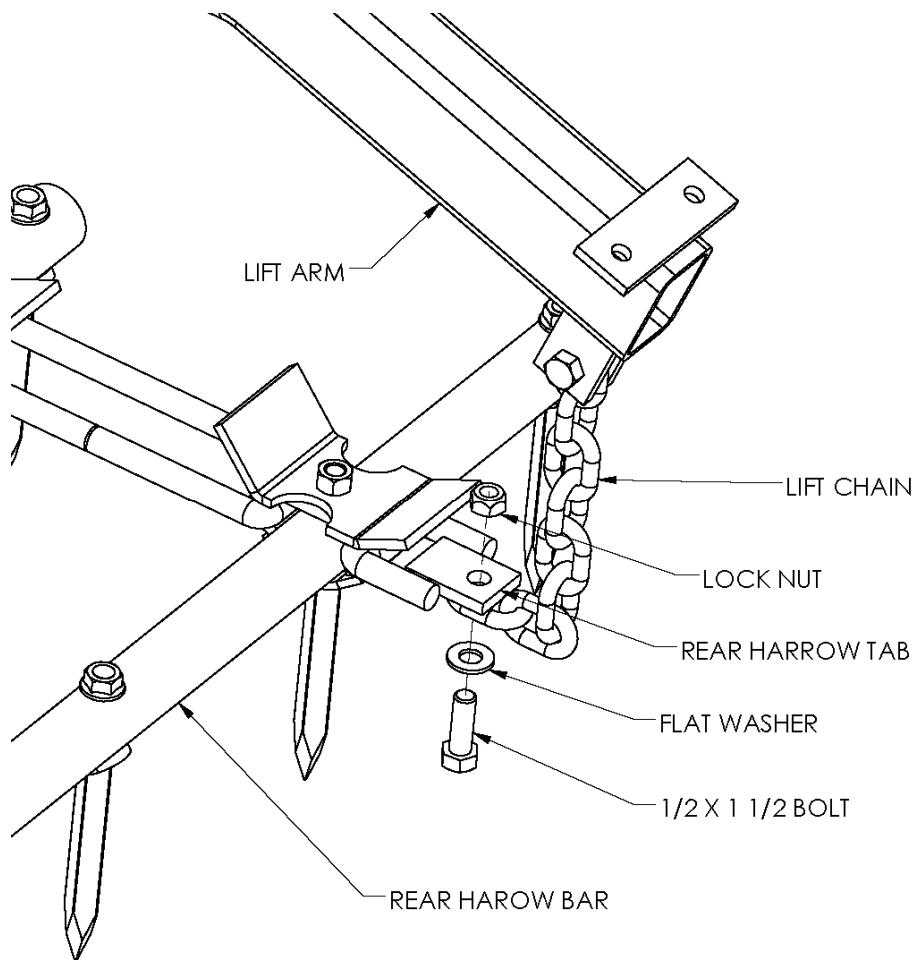


Figure 20

Connect a 12 or 16-Bar Section

1. Bolt the pull chains to the front tabs on the front harrow sections. Refer to Figure 19. Use 1/2" x 1 1/2" bolts, flat washers, and locking nuts. The chains should be bolted to the bottom of the pull tabs.
2. Bolt the front and rear harrow sections together using two 5/16" x 1 1/2" x 6" dual section connector links at each pull tab. Refer to Figure 21. Use two 1/2" x 2" bolts and locking hex nuts. Do *not* tighten yet.
3. Bolt the lift chains to the dual section connector links. Use one 7/16" V-bolt and two lock nuts on each link. Tighten all dual section connector link bolts.
4. Make sure that the harrow sections match each other, the angle of attack is correct, and the chains are not twisted.

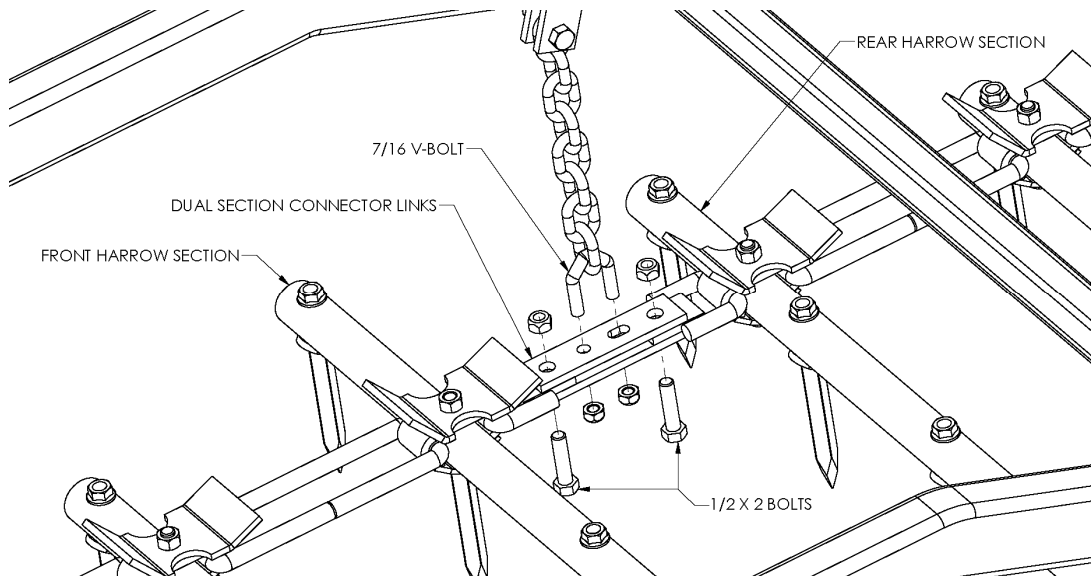


Figure 21

Connect 4+4, 6+6 or 8+8 Sections

1. Bolt the pull chains to the front tabs on the harrow sections. Refer to Figures 20 - 22. Use 1/2" x 1 1/2" bolts, and locking hex nuts. The chains should be bolted to the bottom of the pull tabs.
2. Bolt the lift chains to the bottom of the rear lift tabs of the front harrow sections. Refer to Figure 21. Use 1/2" x 1 1/2" bolts, flat washers, and locking hex nuts.
3. Make sure that the harrow sections match each other, the angle of attack is correct, and the chains are not twisted.

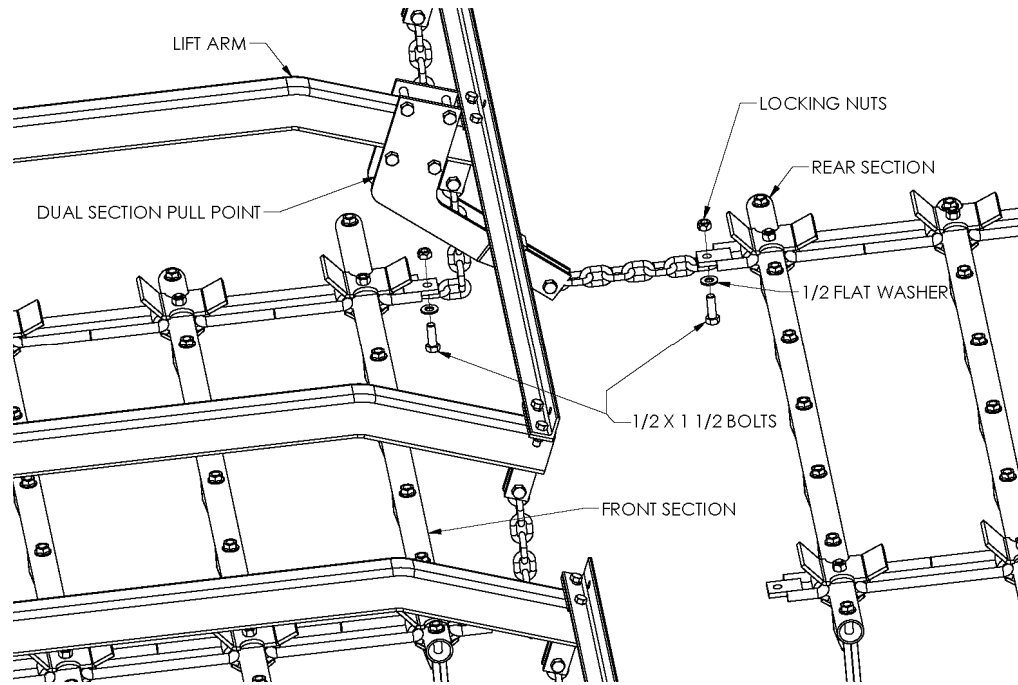


Figure 22

Attach the Lighting

See Figures 23, 24 and 25.

1. To attach the lighting package, have the unit in the field position.
2. Lay out the wire harness wishbone across the rear tube of the main frame. Route each side along the hydraulic hoses leading to the wing fold cylinders. Do not attach to the frame yet.
3. Attach the light harness extension that plugs into the tractor. Route the harness along the hydraulic hoses that lead towards the front of the unit. Do not attach yet. Make sure there is plenty of slack to connect to the towing vehicle.
4. Attach the lights to the mount brackets using the 1/4 x 1 1/4 bolts, lock washers and hex nuts.
5. For HDL-1124 through 1150, attach the Light Assemblies to the first lift arm on the wings using the 3/8 x 2 - 3 3/4 U-Bolts, lock washers and hex nuts. Note that the light bracket extends beyond the lift arm away from the center of the unit. Do not tighten yet. You may have to adjust the location later. The lights must be attached so that the red and yellow lens will be facing towards the center of the unit with the yellow light towards the outside of the unit. Connect the wishbone to the lights.

For HDL-1152 to 1160 4+4 models, the light assemblies are different, see Figure 25.

6. Now that the lights have been mounted and the wires run, attach wire harnesses to the frame and hydraulic hoses with zip ties. For HDL-1140 through 1160 models, a 5' harness extension is required on the left side of the unit. Be sure to leave slack at the hinge points to prevent the wire harness from becoming entangled. Also, securely attach the wire harness to the lift arm and next to the light assembly.

7. Tighten the light assemblies to the lift arms.
8. Bolt the light plug storage receptacle to the hitch storage bracket using the 1/4 x 1 bolts.
9. Check to make sure that all the plugs are properly and securely connected and the wire harnesses will not become entangled during operation or when the unit is folded into transport position.
10. Attach the unit to a tractor and plug in the lights. Check to make sure that they are working properly and that the wires do not pull or get caught when folding the unit into the transport position. With the unit in transport position, the red and yellow lights should be visible from the rear. The red light should be closest to the ground.

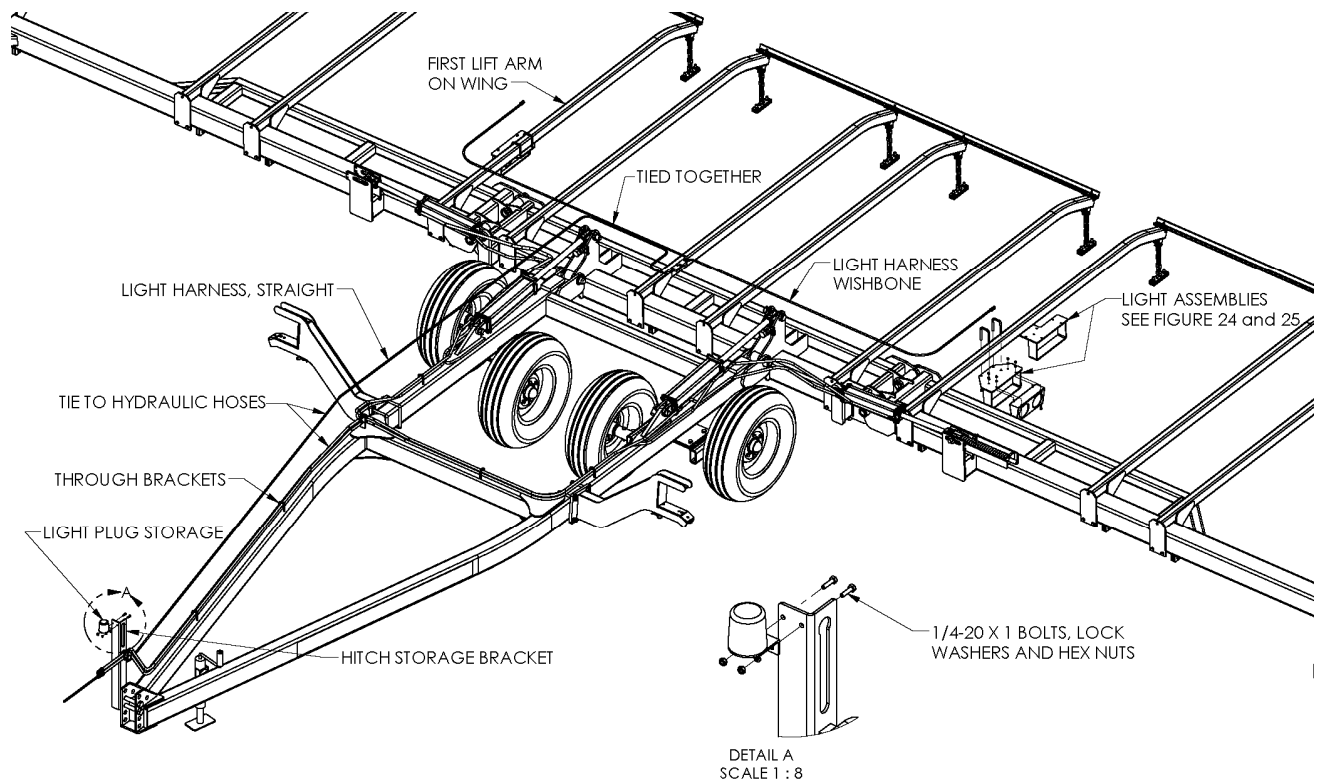


Figure 23

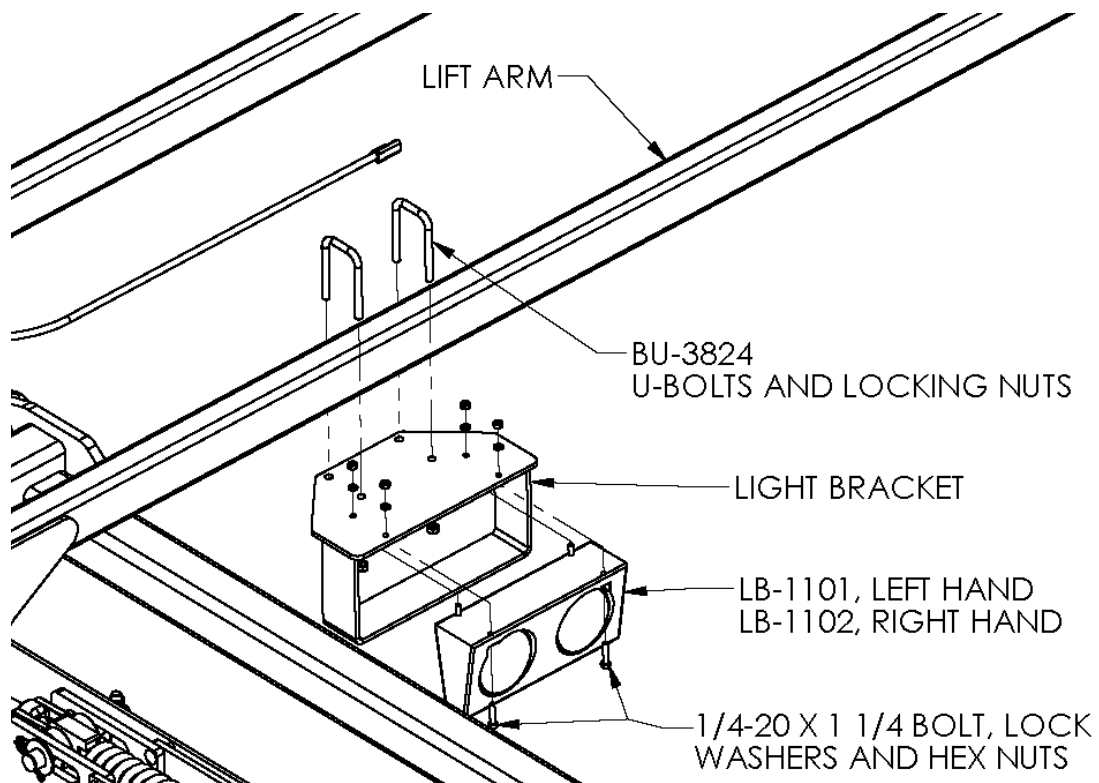


Figure 24

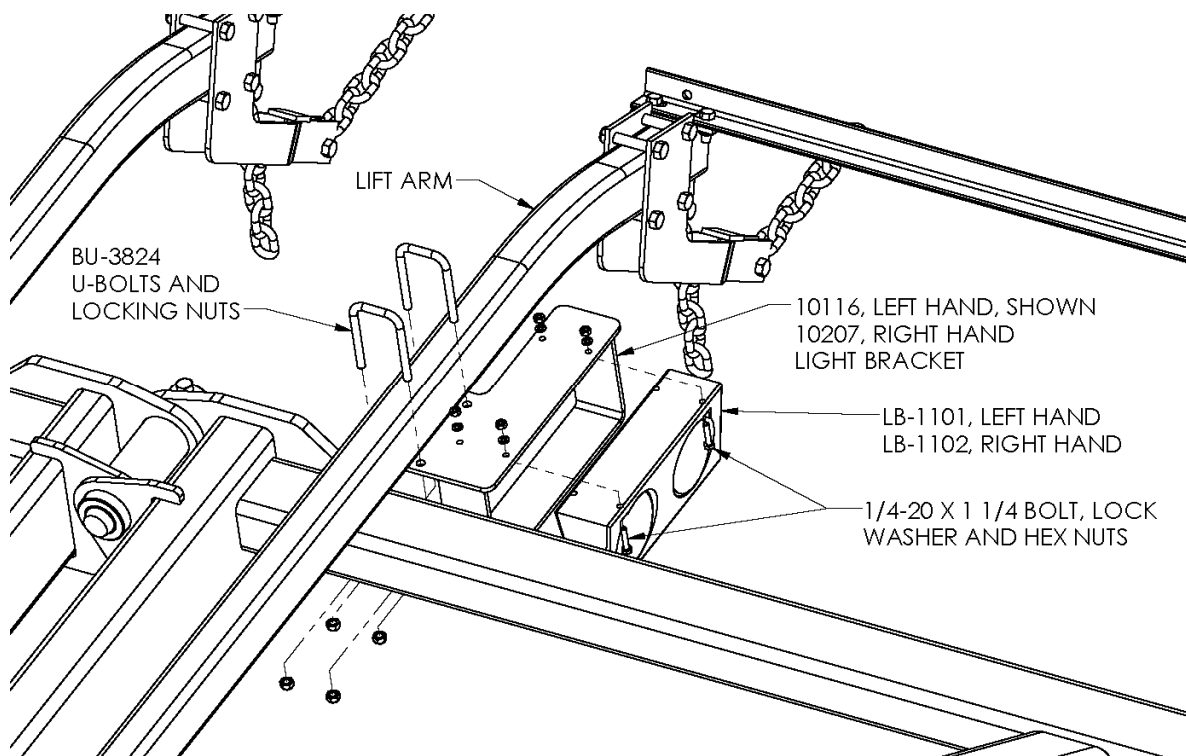


Figure 25

Attach the SMV Sign

1. Attach the SMV mount plate to the first lift arm to the right of center using the 3/8 x 2 x 3.75 U-bolts and locking nuts.
2. Secure the SMV sign to the mounting plate using the 1/4-20 x 1 hex bolts, lock washers and hex nuts.

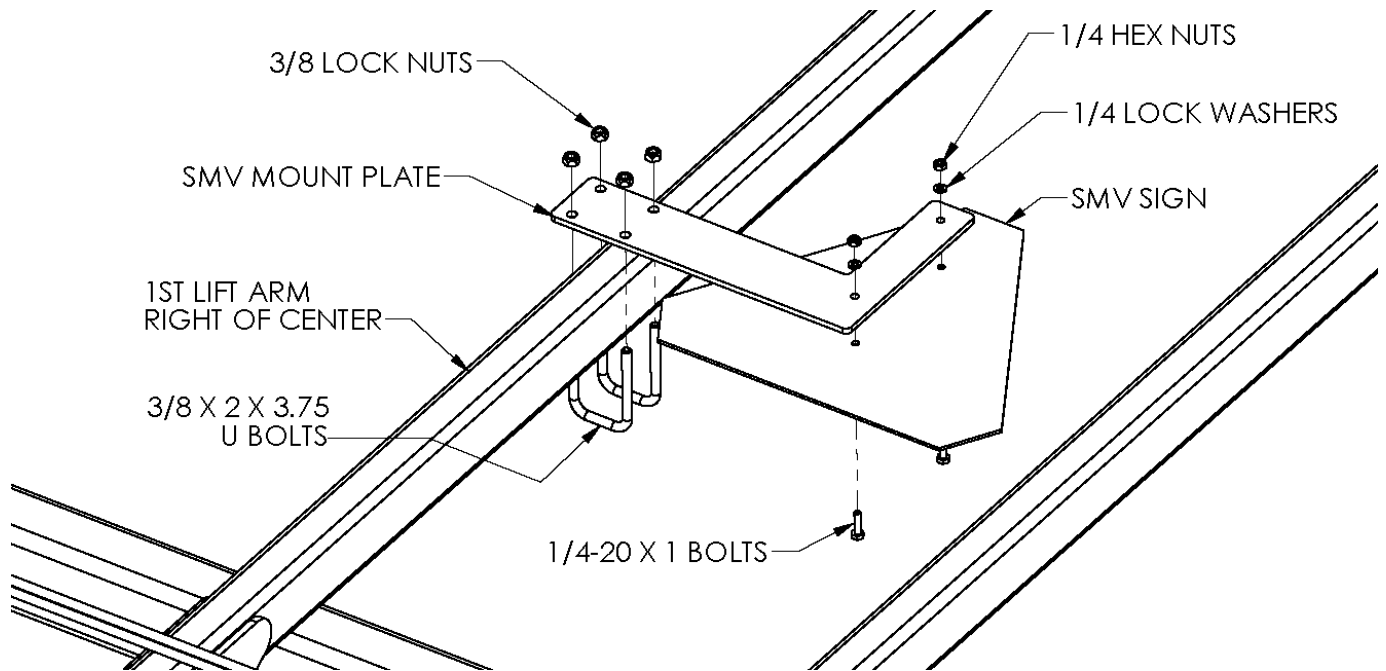


Figure 26

Adjust the Wing Rests

Adjust the position of the wing rests so that they provide support to the wings while in the transport position. Refer to Figure 27. Move them either backward or forward on the square frame until the wings rest solidly on the wing rest plate. If necessary, adjust the clevis on the main frame cylinder in/out to move the wings up/down. Adjust the stop bolt tight against main hinge plate when the unit is in the transport position and secure with the jam nut.

Both Stop Bolts need to be adjusted so that they hit the Main Hinge Plate simultaneously to avoid twisting the Center Bar.

Main hinge plate stop bolt **MUST** be adjusted **AFTER** cylinder has been adjusted. When adjusted properly, tighten all bolts. Be sure to pin the wings into the wing rests for security during transport. For transport, secure the wings in the wing rests with the wing rest pin and bridge pin.

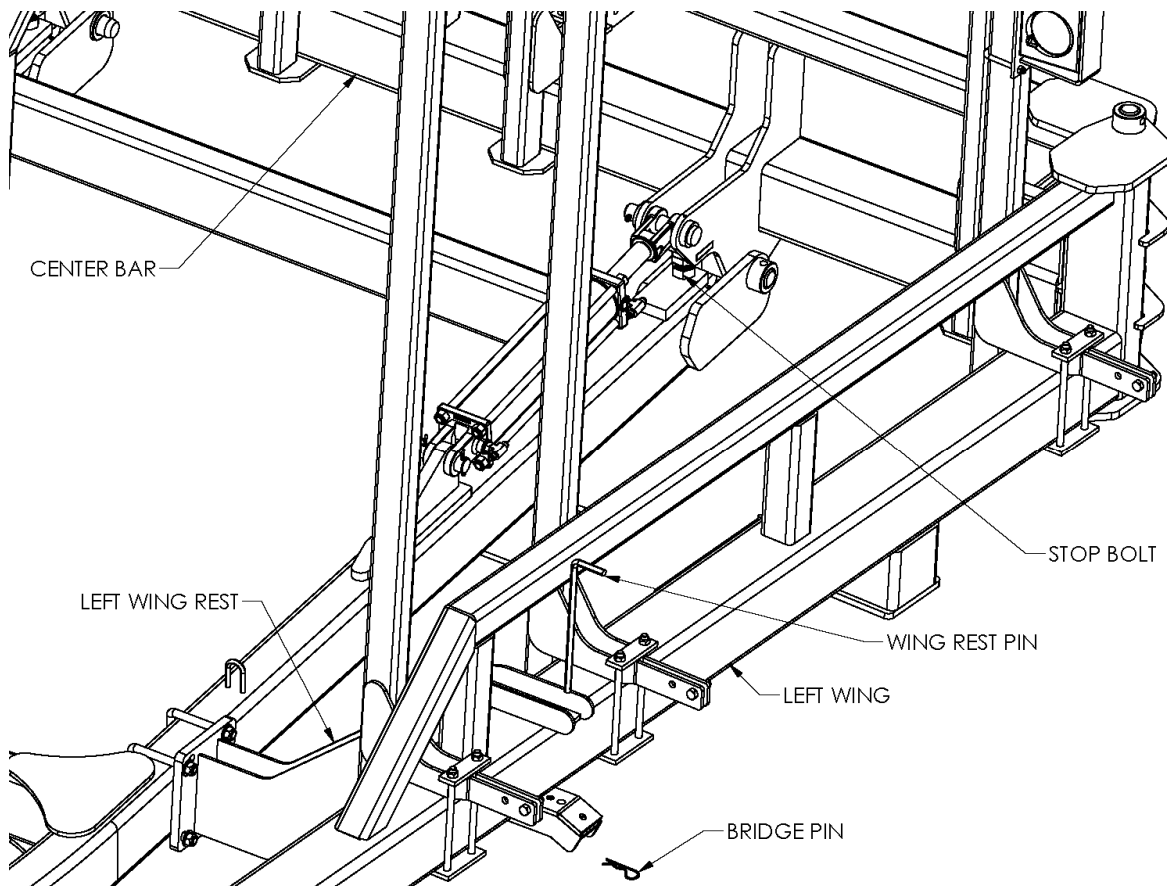


Figure 27

Apply the Reflective Decals

1. Apply the red/orange fluorescent (DC-305) and the red retroreflective (DC-303) decals to the Center Bar as shown in Figure 28.

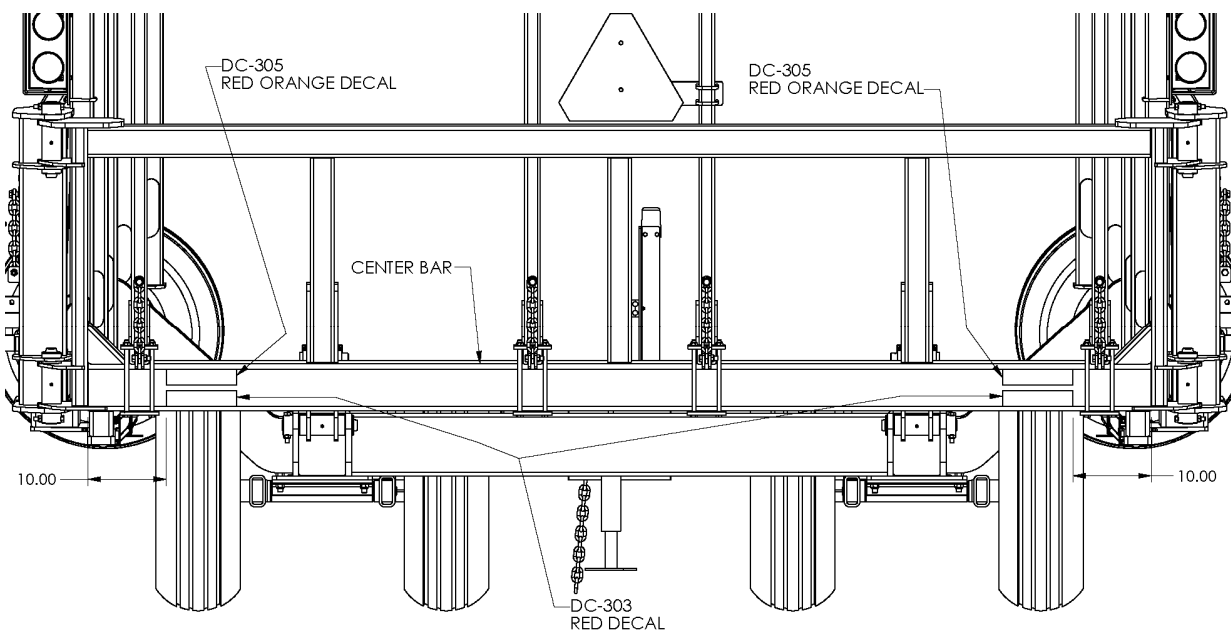


Figure 28

2. Apply the amber retroreflective (DC-304) decals to both wings as shown in Figure 29.

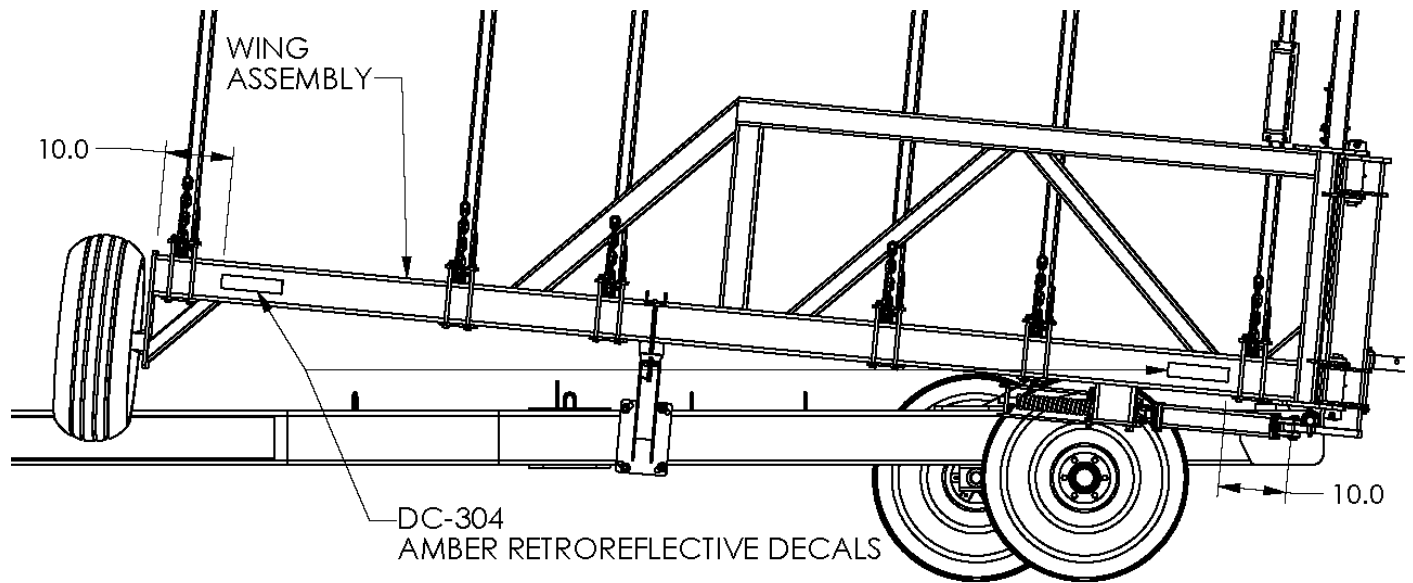


Figure 29

3. Apply the amber retroreflective (DC-304) decals to both of the forward most lift arms, so that they are visible from the front as shown in Figure 30.

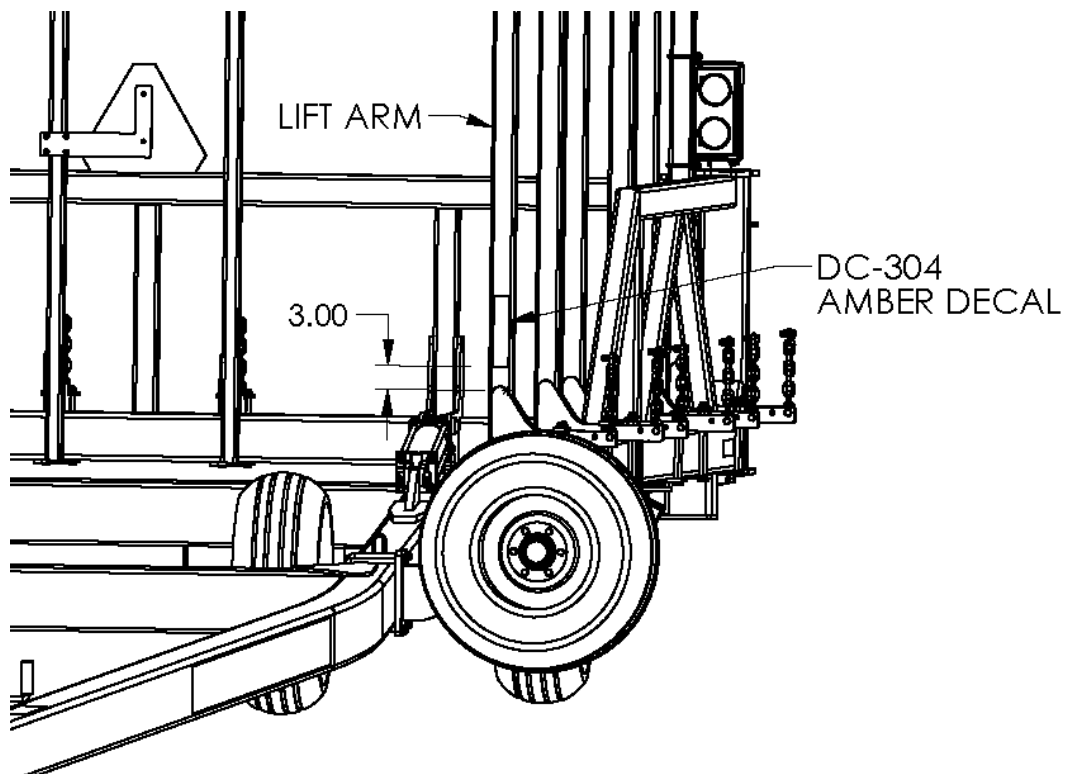


Figure 30

Final Adjustments

1. Unfold the unit into the field position.
2. Pull the completed unit ahead a few feet to check that everything is properly assembled and that nothing is binding or misaligned.
3. Check to make sure that all bolts and fasteners are tight.
4. With the unit in the transport position, attach the red and amber reflectors at the widest visible points. The red reflectors should be visible from the rear of the unit, and the amber reflectors should be visible from the front of the unit.
5. Do not detach the unit from the tractor unless the jack stand is down and the wings are secured in the wing rests.
6. After the first few hours of operation, check all fasteners and tighten if necessary. Include wheel lugs.

This completes the assembly of your harrow and transport cart. Before using the unit, double check that all components have been assembled properly. If there are any questions regarding any of the assembly steps, contact your local dealer for an explanation. Do not operate this or any equipment unless you are sure that all components operate as they were designed to operate.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Hydraulics actuate too rapidly	Hydraulic restrictors not installed	Install hydraulic restrictors
Wings will not slide into wing rests	Wing rests improperly positioned	Reposition wing rests, see “Adjust the Wing Rests”
	Main hinge plate stop bolt maladjusted	Readjust hinge plate stop bolt, see “Adjust the Wing Rests”
Excessive clogging during operations	Angle of attack too steep	Pull harrow sections from the other end
	Ground speed too low	Increase ground speed to 6 - 9 mph

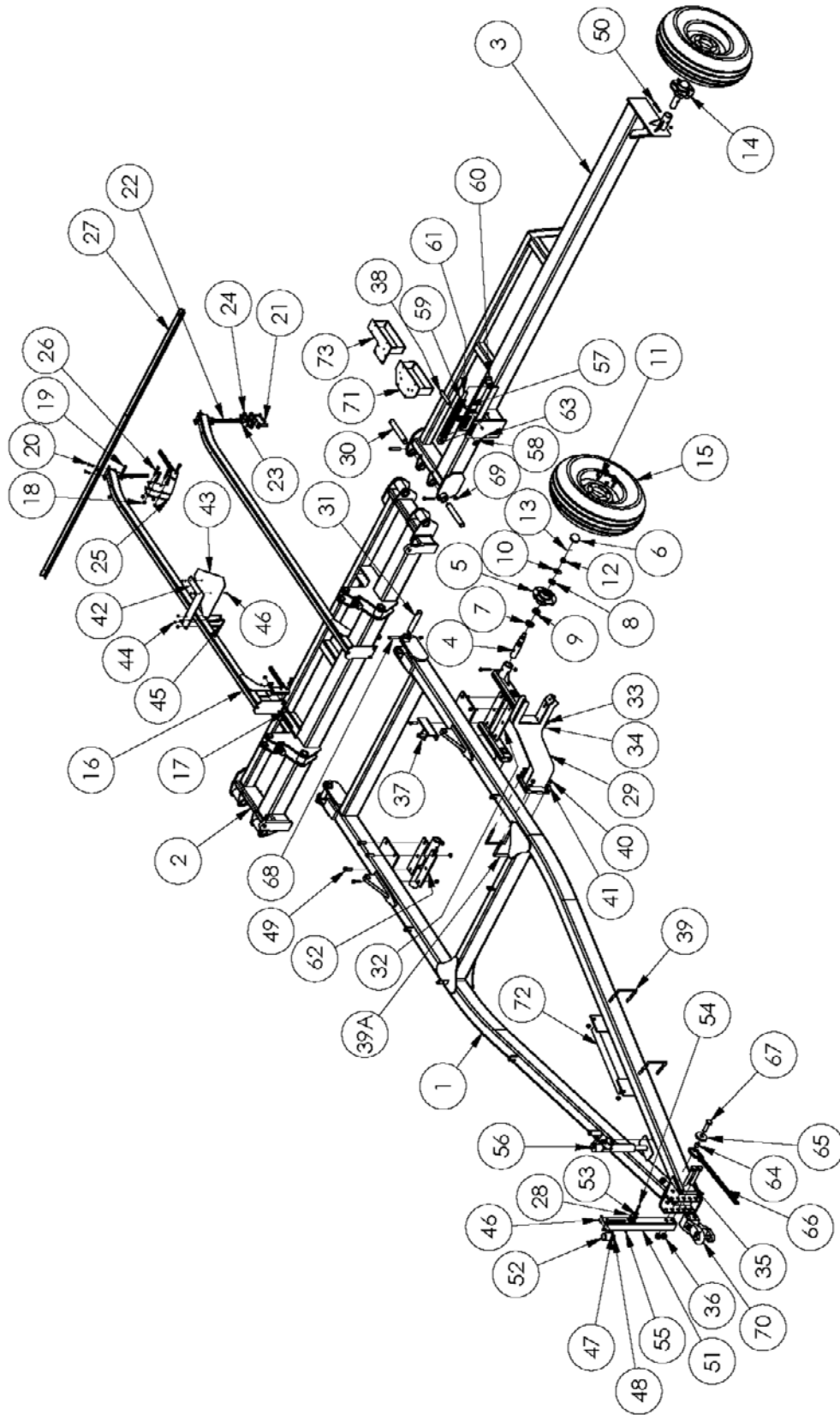
BOLT TORQUE SPECIFICATIONS

Coarse Thread Series			Fine Thread Series		
Nut Size and Threads per Inch	Nut Tightening Torque (lb.ft.)		Nut Size and Threads per Inch	Nut Tightening Torque (lb.ft.)	
Grade C Nuts			Grade C Nuts		
	Max.	Min.		Max.	Min.
1/4 - 20	14.7	10	1/4 - 28	14.7	10
5/16 - 18	22.3	15.2	5/16 - 24	23.4	18.4
3/8 - 16	39	28	3/8 - 24	41	30
7/16 - 14	60	44	7/16 - 20	60	44
1/2 - 13	88	63	1/2 - 20	98	70
9/16 - 12	134	98	9/16 - 18	134	98
5/8 - 11	172	127	5/8 - 18	176	127
3/4 - 10	295	218	3/4 - 16	295	218
7/8 - 9	440	317	7/8 - 14	440	317
1 - 8	651	506	1 - 14	703	610

TIRE & LUG TORQUE SPECIFICATIONS

Tire Size	Ply Rating	Tire Pressure	Lug Size	Lug Tightening Torque (lb.ft.)	
				Max.	Min.
11L-15	8 ply	36 psi	½ x 1	85	75

HDL-1124 through HDL-1160 HARROW CART PARTS DIAGRAM



**HDL-1124 through HDL-1160 HARROW CART
PARTS LIST**

Always order by Part Number - *Not* by Key Number

KEY	PART #	DESCRIPTION
1	11654	FRAME, MAIN (HDL-1124 – 1138)
	11726	FRAME, MAIN (HDL-1140 – 1150)
	11337	FRAME, MAIN (HDL-1152 – 1160)
2	11660	FRAME, TOOLBAR, CENTER, 10'
	11729	FRAME, TOOLBAR, CENTER, 12'
	11247	FRAME, TOOLBAR, CENTER, 12'
3	12510	TOOLBAR, WING, LT, 78 (HDL-1124)
	12511	TOOLBAR, WING, RT, 78 (HDL-1124)
	12512	TOOLBAR, WING, LT, 87 (HDL-1126)
	12513	TOOLBAR, WING, RT, 87 (HDL-1126)
	12514	TOOLBAR, WING, LT, 96 (HDL-1128)
	12515	TOOLBAR, WING, RT, 96 (HDL-1128)
	12407	TOOLBAR, WING, LT, 105 (HDL-1130)
	12408	TOOLBAR, WING, RT, 105 (HDL-1130)
	12418	TOOLBAR, WING, LT, 115 (HDL-1132)
	12419	TOOLBAR, WING, RT, 115 (HDL-1132)
	12398	TOOLBAR, WING, LT, 133 (HDL-1134)
	12399	TOOLBAR, WING, RT, 133 (HDL-1134)
	12367	TOOLBAR, WING, LT, 142 (HDL-1136)
	12368	TOOLBAR, WING, RT, 142 (HDL-1136)
	11670	TOOLBAR, WING, LT, 151 (HDL-1138)
	11671	TOOLBAR, WING, RT, 151 (HDL-1138)
	12385	TOOLBAR, WING, LT, 160 (HDL-1140)
	12386	TOOLBAR, WING, RT, 160 (HDL-1140)
	12411	TOOLBAR, WING, LT, 169 (HDL-1142)
	12412	TOOLBAR, WING, RT, 169 (HDL-1142)
	12415	TOOLBAR, WING, LT, 179 (HDL-1144)
	12416	TOOLBAR, WING, RT, 179 (HDL-1144)
	12409	TOOLBAR, WING, LT, 188 (HDL-1146)
	12410	TOOLBAR, WING, RT, 188 (HDL-1146)
	12413	TOOLBAR, WING, LT, 206 (HDL-1148)
	12414	TOOLBAR, WING, RT, 206 (HDL-1148)
	11723	TOOLBAR, WING, LT, 215 (HDL-1150)
	11724	TOOLBAR, WING, RT, 215 (HDL-1150)
	13796	TOOLBAR, WING, LT, 224 (HDL-1152)
	13797	TOOLBAR, WING, RT, 224 (HDL-1152)
	13791	TOOLBAR, WING, LT, 242 (HDL-1154)
	13792	TOOLBAR, WING, RT, 242 (HDL-1154)
	13788	TOOLBAR, WING, LT, 251 (HDL-1156)
13789	TOOLBAR, WING, RT, 251 (HDL-1156)	
13603	TOOLBAR, WING, LT, 260 (HDL-1158)	
13604	TOOLBAR, WING, RT, 260 (HDL-1158)	
11259	TOOLBAR, WING, LT, 278 (HDL-1160)	
11260	TOOLBAR, WING, RT, 278 (HDL-1160)	

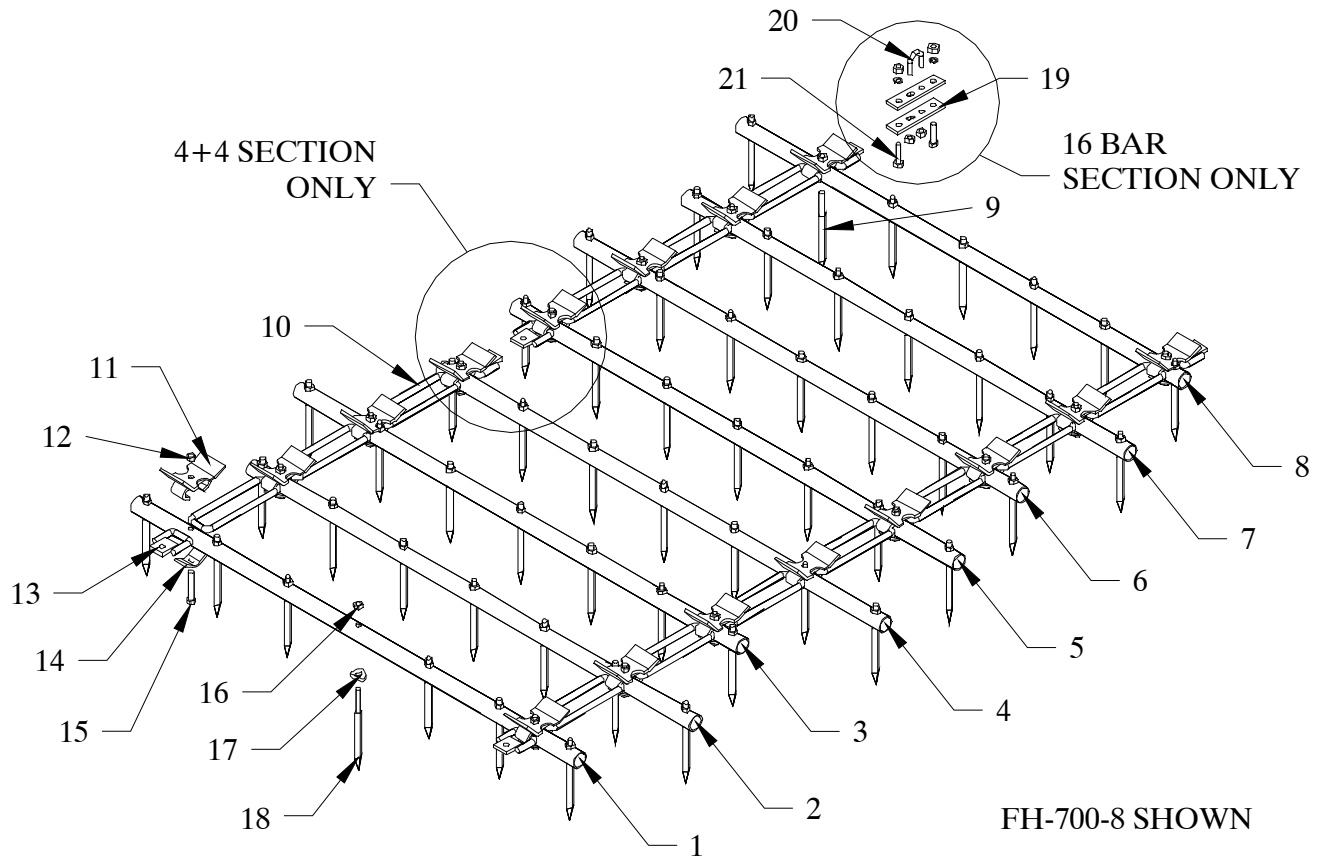
4	WDL-2505	SPINDLE
5	HD-1361	HUB WITH RACES, 6-HOLE HUB
6	HD-1367	DUST CAP, 6-HOLE HUB
7	HD-1360	GREASE SEAL, 6-HOLE HUB
8	HD-1363	OUTER BEARING, 6/8-HOLE HUB
9	HD-1362	INNER BEARING, 6-HOLE HUB
10	HD-1364	SPINDLE FLAT WASHER, 6-HOLE HUB
11	WB-5010	WHEEL BOLT, 1/2 X 1
12	HD-1365	SPINDLE HEX NUT, 6-HOLE HUB
13	CP-1517	PIN, COTTER, .150 x 1 3/4
14	WDL-2507	HUB w/SPINDLE, 1-3/4X9-1/2, 6-HOLE
15	11L-15 8TR	TIRE AND RIM, 8 PLY
16	11274	LIFT ARM,6" TOOLBAR,110"(8 BAR SECTIONS)
	12466	LIFT ARM,6" TOOLBAR,65"(4+4 SECTIONS)
	12467	LIFT ARM,6" TOOLBAR,87"(6+6 SECTIONS)
17	BH-5095	BOLT, HEX,1/2-13X9.5, GD5
18	NLT-5013	NUT, TOP LOCK, 1/2
19	BH-5020	BOLT, HEX,1/2-13X2, GD5
20	BH-4413	BOLT, HEX,7/16-14X1.25, GD5
21	NLT-4414	NUT, LOCK, TOP,7/16-14
22	CH-0808	CHAIN, 3/8 x 8-LINK
23	BV-7611	V-BOLT, 7/16-14
24	HDL-5100	DUAL CONNECTOR, FLAT ONLY
25	HDL-3300	DUAL SECTION PULL PT
26	BHY-5030	BOLT, HEX, 1/2-13X3, GD8
27	HD-3036	BRACE ANGLE, FH - 36 5/8"
	HD-3054	BRACE ANGLE, FH - 54 3/4"
	HD-3100	BRACE ANGLE, FH, LT-100"
	HD-3101	BRACE ANGLE, FH, RT-100"
	HD-3109	BRACE ANGLE, FH - 109 1/8"
	HD-3118	BRACE ANGLE, FH, LT-118 3/16"
	HD-3119	BRACE ANGLE, FH, RT-118 3/16"
	HD-3127	BRACE ANGLE, FH - 127 1/4"
	HD-3136	BRACE ANGLE, FH, LT-136 5/16"
	HD-3137	BRACE ANGLE, FH, RT-136 5/16"
	HD-3145	BRACE ANGLE, FH - 145 3/8"
28	HYO-1002	HYD CLAMP SET, 3/8 (5/8OD)
29	12474	ASM, BRACKET, WING REST, 6" (HDL-1124-38)
	12477	ASM, BRACKET, WINT REST, 8" (HDL-1140-60)
30	RT-2107	PIN, STRAIGHT
31	SPR-2712	PIN, STRAIGHT 1 1/2" X 8 5/16" (HDL-1124 – 1138)
	RT-2107	PIN, STRAIGHT 1 1/2" X 9 5/8" (HDL-1140 – 1150)
	RD-5061	PIN, STRAIGHT 1 1/2" X 12 1/4" (HDL-1152 – 1160)
32	WDL-2506	WALKER AXLE
33	11312	PIN
34	PB-0009	PIN, BRIDGE, #9

35	BHY-1065	BOLT, HEX, 1-8X6.5, GD8
36	NLT-1008	NUT, TOP LOCK, 1
37	WDL-2501	WALKER AXLE STOP BRACKET
38	CL-1005	PIN, CLEVIS,1X5
39	BU-5865	U-BOLT, 5/8-11X6X5.5 (HDL-1124 ONLY)
39A	BU-5865	U-BOLT,5/8-11X6X5.5 (HDL-1124-38)
	BU-5887	U-BOLT,5/8-11X8X7.5 (HDL-1140-50)
	11969	U-BOLT,5/8-11X8X9.5 9hdl-1152-60)
40	NLT-6311	NUT, TOP LOCK 5/8-11 METAL TYPE
41	FW-0063	WASHER, FLAT,5/8, TYPE A WIDE
42	LB-1207	SMV MOUNT BRACKET, 2"
43	MM-1300	SMV SIGN
44	NLT-3816	NUT, TOP LOCK 3/8-16
45	BU-3824	U-BOLT,3/8-16X2X3.75
46	BH-2510	BOLT, HEX,1/4-20X1, GD5
47	LW-0025	WASHER, LOCK, 1/4
48	NLT-2520	NUT, TOP LOCK 1/4-20
49	BH-6323	BOLT, HEX,5/8-11X2.25, GD5
50	BHY-5035	BOLT, HEX,1/2-13X3.5, GD8
51	11948	BRACKET, HITCH STORAGE
52	LB-1110	LIGHT PLUG STORAGE
53	HYO-1004	HYD CLAMP, COVER,1/4-3/8 HOSE
54	BH-3120	BOLT, HEX,5/16-18X2, GD5
55	NY-3118	NUT, NYLON, 5/16
56	HD-1151	JACK, RND-10", TOP, 2000#
57	11965	BOLT, CARRIAGE,3/8X1.5, GD5
58	FW-0100	WASHER, FLAT, 1
59	10682	SPRING, COMPRESSION
60	11955	BRACKET, GUIDE
61	11959	LINK, SPRING
62	WDL-2500	DUAL AXLE
63	CP-3620	PIN, COTTER, 3/16x2
64	RT-2021	BUSHING, 1 7/8"ODx1 1/4"IDx1"
65	RT-3103	SAFETY CHAIN WASHER
66	12504	SAFETY CHAIN, 10,000 lbs
67	BHY-1033	BOLT, HEX, 1-8X3.25, GD8
68	BHY-5635	BOLT, HEX, 9/16-12X3.5, GD8
69	NLT-5612	NUT, TOP LOCK, 9/16
70	PPI-300	HITCH, PINTLE, COMBINATION, CAT 3
71	12533	BRACKET, DUAL LIGHT
72	12641	HDL-1124 WEIGHT (HDL-1124 ONLY)
73	10116	BRACKET, DUAL LIGHT, LEFT (HDL-1160-44)
	10207	BRACKET, DUAL LIGHT, RIGHT (HDL-1160-44)

McFarlane Manufacturing reserves the right to change specifications of design at any time without obligation to modify previous products.

FH 8-BAR HARROW SECTIONS PARTS DIAGRAM & LISTING

INCLUDES FH-500-8, FH-600-8, FH-700-8, FH-800-8, AND FH-900-8



ITEM #	PART #	DESCRIPTION
1	FH-801	#1 HARROW BAR (FH-500-8)
1	FH-805	#1 HARROW BAR (FH-600-8)
1	FH-809	#1 HARROW BAR (FH-700-8)
1	FH-813	#1 HARROW BAR (FH-800-8)
1	FH-817	#1 HARROW BAR (FH-900-8)
2	FH-802	#2 HARROW BAR (FH-500-8)
2	FH-806	#2 HARROW BAR (FH-600-8)
2	FH-810	#2 HARROW BAR (FH-700-8)
2	FH-814	#2 HARROW BAR (FH-800-8)
2	FH-818	#2 HARROW BAR (FH-900-8)
3	FH-802	#3 HARROW BAR (FH-500-8)
3	FH-806	#3 HARROW BAR (FH-600-8)
3	FH-810	#3 HARROW BAR (FH-700-8)
3	FH-814	#3 HARROW BAR (FH-800-8)
3	FH-818	#3 HARROW BAR (FH-900-8)
4	FH-804	#4 HARROW BAR (FH-500-8)
4	FH-808	#4 HARROW BAR (FH-600-8)
4	FH-812	#4 HARROW BAR (FH-700-8)
4	FH-816	#4 HARROW BAR (FH-800-8)

4	FH-820	#4 HARROW BAR (FH-900-8)
5	FH-803	#5 HARROW BAR (FH-500-8)
5	FH-807	#5 HARROW BAR (FH-600-8)
5	FH-811	#5 HARROW BAR (FH-700-8)
5	FH-815	#5 HARROW BAR (FH-800-8)
5	FH-819	#5 HARROW BAR (FH-900-8)
6	FH-803	#6 HARROW BAR (FH-500-8)
6	FH-807	#6 HARROW BAR (FH-600-8)
6	FH-811	#6 HARROW BAR (FH-700-8)
6	FH-815	#6 HARROW BAR (FH-800-8)
6	FH-819	#6 HARROW BAR (FH-900-8)
7	FH-801	#7 HARROW BAR (FH-500-8)
7	FH-805	#7 HARROW BAR (FH-600-8)
7	FH-809	#7 HARROW BAR (FH-700-8)
7	FH-813	#7 HARROW BAR (FH-800-8)
7	FH-817	#7 HARROW BAR (FH-900-8)
8	FH-804	#8 HARROW BAR (FH-500-8)
8	FH-808	#8 HARROW BAR (FH-600-8)
8	FH-812	#8 HARROW BAR (FH-700-8)
8	FH-816	#8 HARROW BAR (FH-800-8)
8	FH-820	#8 HARROW BAR (FH-900-8)
9	E-611	1/2" x 3" SHANK SPIKE TOOTH ONLY
10	FH-125	CONNECTOR LINK (REGULAR)
11	FH-127	NOTCHED LINK CAP
12	**	1/2" LOCK NUT
13	FH-122	PULL FLAT
14	FH-019	CAP CLIP
15	**	1/2" x 3" BOLT
16	**	1/2" FLANGED LOCK NUT
17	E-630	SPIKE TOOTH WASHER
18	E-620	1/2" x 2 1/2" SHANK SPIKE TOOTH ONLY
**	E-610	1/2" x 2 1/2" SHANK SPIKE TOOTH w/WASHER
19	HDL-5100	DUAL SECTION CONNECTOR FLAT (16 BAR ONLY)
20	BV-7611	7/16" V-BOLT (16 BAR ONLY)
21	**	1/2" x 2" BOLT, LOCK WASHER AND NUT (16 BAR ONLY)
**	HDL-5101	DUAL SECTION CONNECTOR ASSEMBLY (16 BAR ONLY)

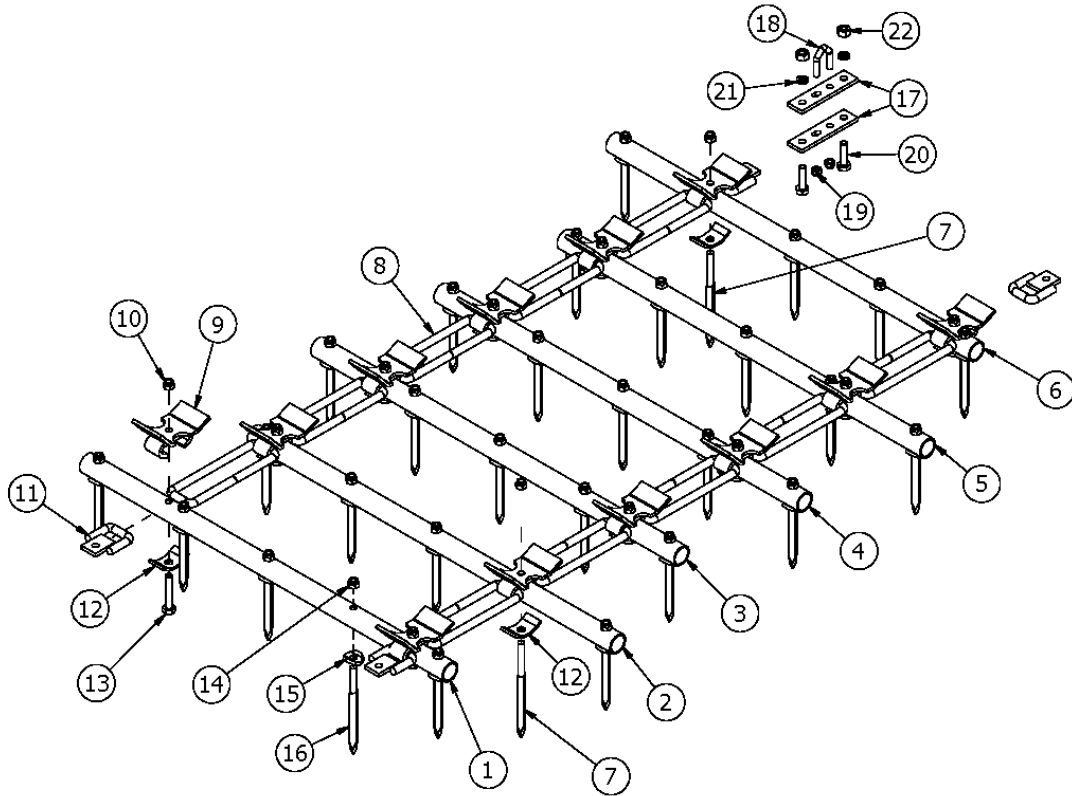
The #1 bar is the bar with an equal amount of tube to the right and left of the pull flats. The #8 bar is the bar that is staggered off to one side.

When pulling the harrow section from the #1 bar, the teeth will be in the least aggressive setting. When pulling from the #8 bar the teeth will be in the most aggressive setting.

9/24/08

FH 6-BAR HARROW SECTIONS PARTS DIAGRAM & LISTING

INCLUDES FH-500-6, FH-600-6, FH-700-6, FH-800-6, AND FH-900-6



ITEM #	PART #	DESCRIPTION
1	FH-830	#1 HARROW BAR (FH-500-6)
1	FH-832	#1 HARROW BAR (FH-600-6)
1	FH-834	#1 HARROW BAR (FH-700-6)
1	FH-836	#1 HARROW BAR (FH-800-6)
1	FH-838	#1 HARROW BAR (FH-900-6)
2	FH-804	#2 HARROW BAR (FH-500-6)
2	FH-808	#2 HARROW BAR (FH-600-6)
2	FH-812	#2 HARROW BAR (FH-700-6)
2	FH-816	#2 HARROW BAR (FH-800-6)
2	FH-820	#2 HARROW BAR (FH-900-6)
3	FH-831	#3 HARROW BAR (FH-500-6)
3	FH-833	#3 HARROW BAR (FH-600-6)
3	FH-835	#3 HARROW BAR (FH-700-6)
3	FH-837	#3 HARROW BAR (FH-800-6)
3	FH-839	#3 HARROW BAR (FH-900-6)
4	FH-831	#4 HARROW BAR (FH-500-6)
4	FH-833	#4 HARROW BAR (FH-600-6)
4	FH-835	#4 HARROW BAR (FH-700-6)
4	FH-837	#4 HARROW BAR (FH-800-6)
4	FH-839	#4 HARROW BAR (FH-900-6)
5	FH-830	#5 HARROW BAR (FH-500-6)
5	FH-832	#5 HARROW BAR (FH-600-6)

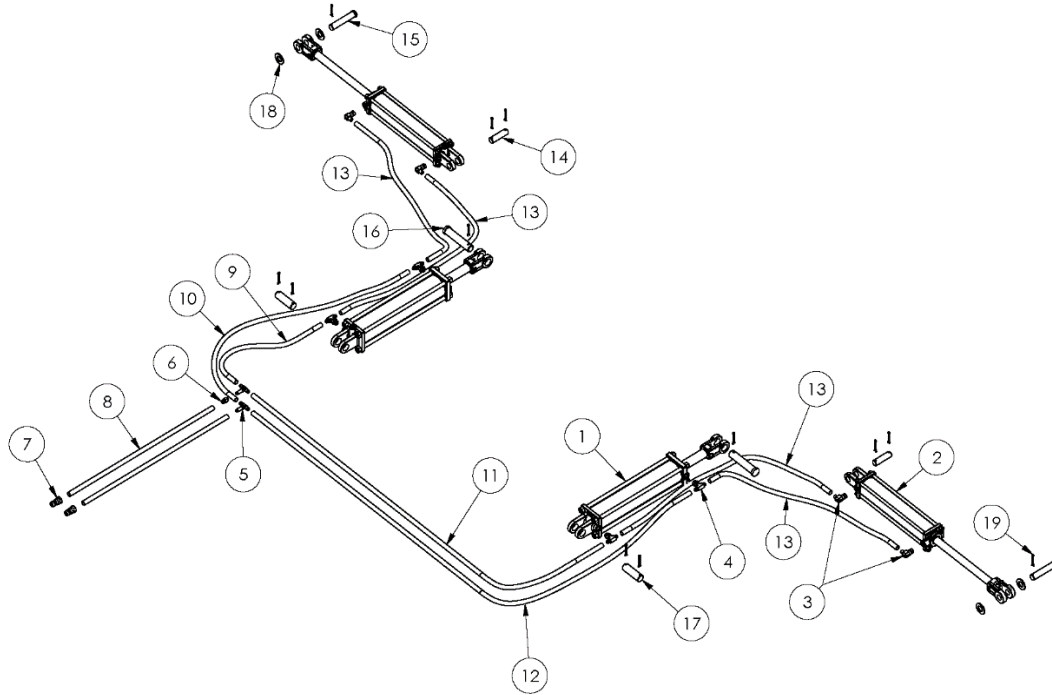
5	FH-834	#5 HARROW BAR (FH-700-6)
5	FH-836	#5 HARROW BAR (FH-800-6)
5	FH-838	#5 HARROW BAR (FH-900-6)
6	FH-804	#6 HARROW BAR (FH-500-6)
6	FH-808	#6 HARROW BAR (FH-600-6)
6	FH-812	#6 HARROW BAR (FH-700-6)
6	FH-816	#6 HARROW BAR (FH-800-6)
6	FH-820	#6 HARROW BAR (FH-900-6)
7	E-611	1/2" x 3" SHANK SPIKE TOOTH ONLY
8	FH-125	CONNECTOR LINK (REGULAR)
9	FH-127	NOTCHED LINK CAP
10	NL-5013	1/2" LOCK NUT
11	FH-122	PULL FLAT
12	FH-019	CAP CLIP
13	BHP-5030	1/2" x 3" BOLT
14	NLF-5013	1/2" FLANGED LOCK NUT
15	E-630	SPIKE TOOTH WASHER
16	E-620	1/2" x 2 1/2" SHANK SPIKE TOOTH ONLY
**	E-610	1/2" x 2 1/2" SHANK SPIKE TOOTH w/WASHER
17	HDL-5100	DUAL SECTION CONNECTOR FLAT (16 BAR ONLY)
18	BV-7611	7/16" V-BOLT (16 BAR ONLY)
19	NLT-3816	3/8" TOP LOCK NUT
20	BH-5020	1/2" X 2" BOLT
21	LW-0050	1/2" LOCK WASHER
22	NH-5013	1/2" HEX NUT

The #1 bar is the bar with an equal amount of tube to the right and left of the pull flats. The #6 bar is the bar that is staggered off to one side.

When pulling the harrow section from the #1 bar, the teeth will be in the least aggressive setting. When pulling from the #6 bar the teeth will be in the most aggressive setting.

7/11/13

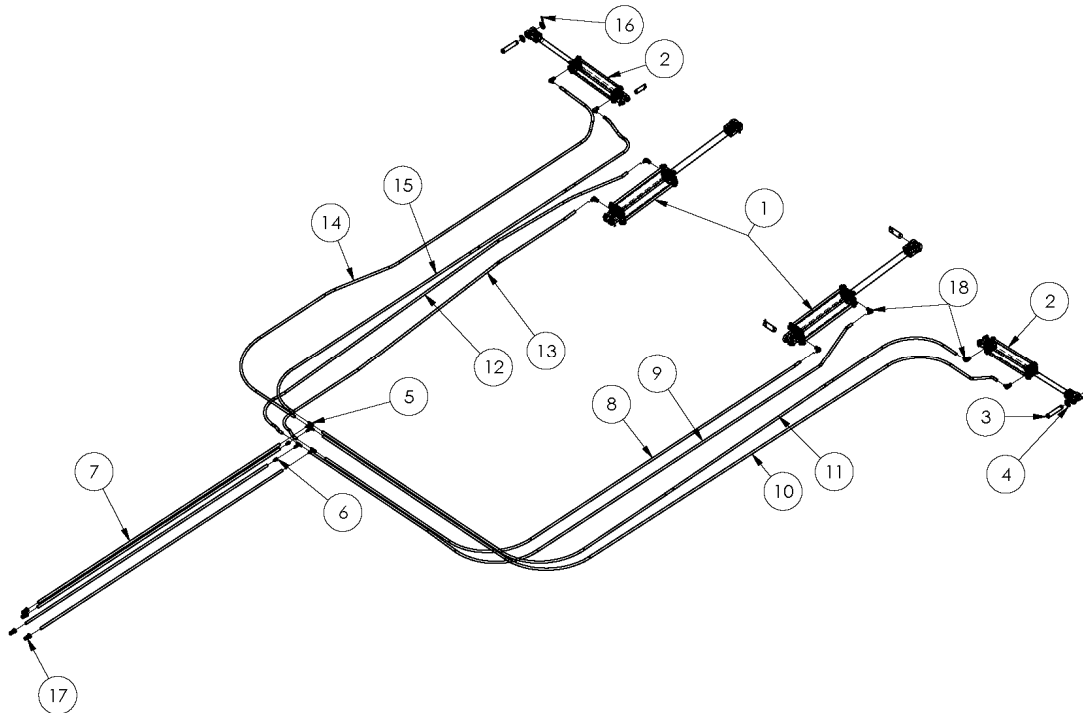
HDL-1124 through 1150 HARROW CART HYDRAULICS DIAGRAM & PARTS LIST



KEY	PART #	DESCRIPTION	QTY.
1	HYA-33516	HYD CYLINDER,3-1/2 x 16 ASAE (HDL-1124-1138)	2
1	HYA-34016	HYD CYLINDER,4 x 16 ASAE (HDL-1140-1160)	2
2	HYC-33014	HYD CYLINDER,3 x 14	2
3	HYF-2821	HYD ELBOW,9/16M-3/4Morb, RST	4
4	HYF-1809	HYD TEE, 3/8M - 1/2Morb - 3/8M	4
5	HYF-1888	TEE (3/8"m - 1/2"o - 3/8"m)	2
6	11391	HYD RESTRICTOR,9/16F-9/16M,1/16	1
7	HYF-4002	HYD DISCONNECT, MALE	4
8	12375	HYD HOSE,3/8(9/16F-1/2PIPE), DISC,192 (HDL-1124-1138)	2
8	12376	HYD HOSE,3/8(9/16F-1/2PIPE), DISC,246 (HDL-1140-1150)	2
9	12372	HYD HOSE,3/8(9/16F-9/16F 90°),50 (HDL-1124-1138)	1
9	12211	HYD HOSE,3/8(9/16F-9/16F 90°),73 (HDL-1140-1150)	1
10	12373	HYD HOSE,3/8(9/16F-9/16F 90°),70 (HDL-1124-1138)	1
10	12212	HYD HOSE,3/8(9/16F-9/16F 90°),93 (HDL-1140-1150)	1
11	12374	HYD HOSE,3/8(9/16F),106 (HDL-1124-1138)	1
11	12213	HYD HOSE,3/8(9/16F),144 (HDL-1140-1150)	1
12	HYH-8126	HYD HOSE,3/8(9/16F),126 (HDL-1124-1138)	1
12	12214	HYD HOSE,3/8(9/16F),164 (HDL-1140-1150)	1
13	HYH-8057	HYD HOSE,3/8(9/16F),57 (HDL-1124-1138)	4
13	HYH-8060	HYD HOSE,3/8(9/16F),60 (HDL-1140-1150)	4
14	HYO-2103	PIN, CYLINDER CLEVIS,1X3.5	2
15	CL-1005	PIN, CLEVIS,1X5	2
16	11968	PIN, CLEVIS,1-1/4X6	2
17	HYO-2123	PIN, CYLINDER CLEVIS,1-1/4X4	2
18	FW-0100	WASHER, FLAT,1	4
19	CP-3620	PIN, COTTER,3/16x2	12

Note: When ordering cylinder replacement parts, please specify cylinder make & part number.
McFarlane Manufacturing reserves the right to change specifications of design at any time without obligation to modify previous products.

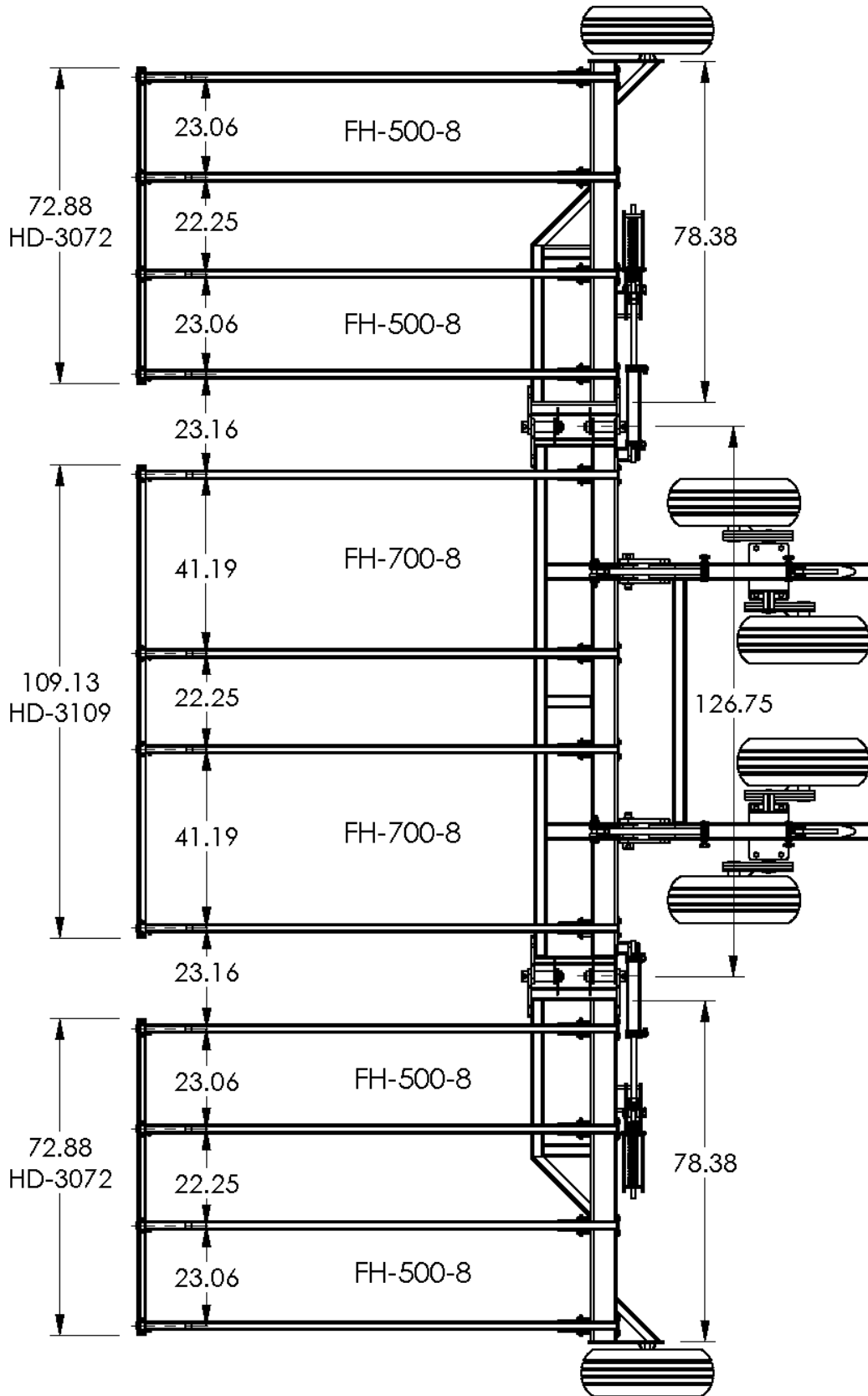
HDL-1152 through 1160 HARROW CART HYDRAULICS DIAGRAM & PARTS LIST



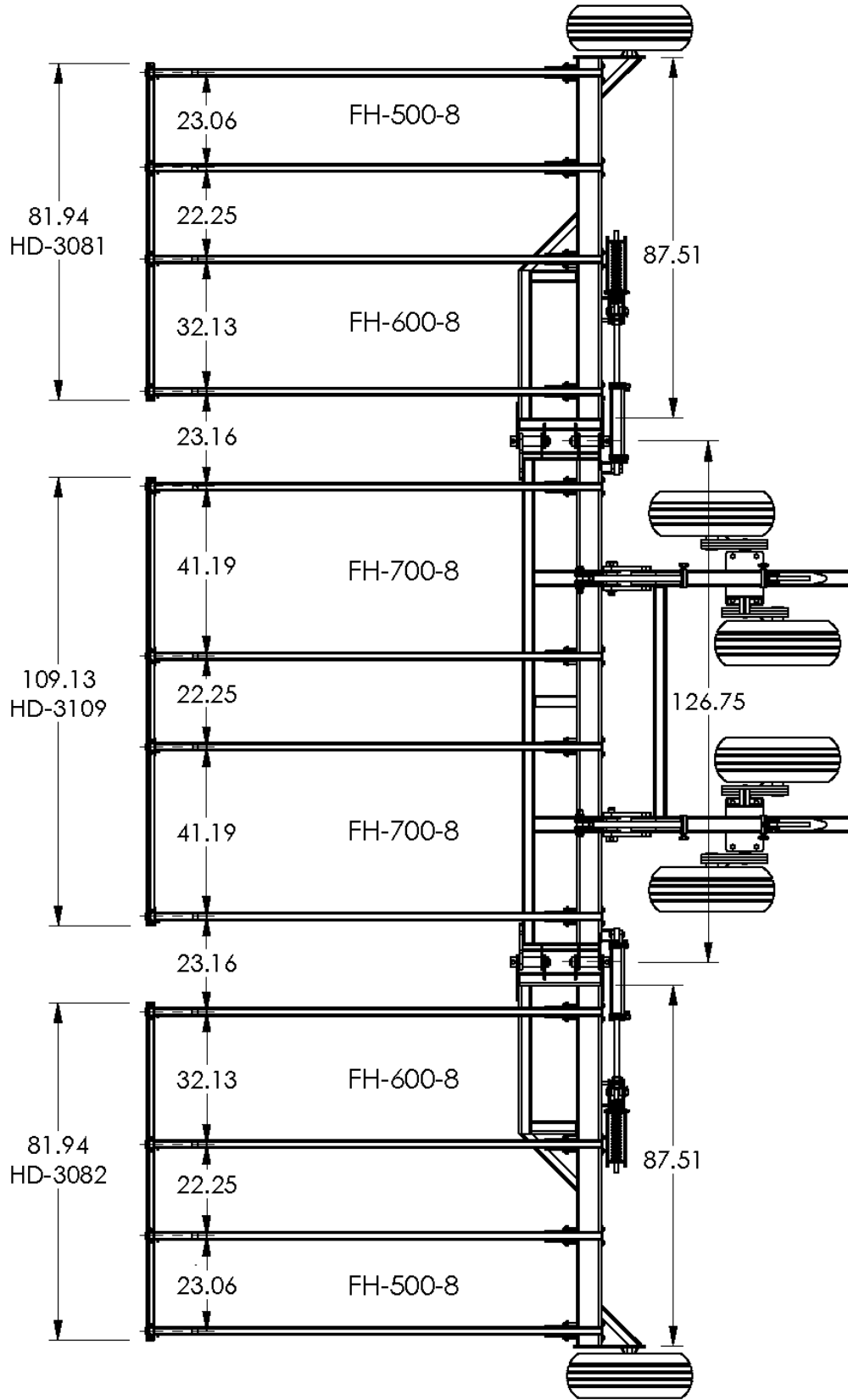
KEY	PART #	Description	QTY.
1	HYA-34016	HYD CYLINDER,4x16 ASAE	2
2	HYC-33014	HYD CYLINDER,3 x 14	2
3	CL-1005	CL-1005 CLEVIS PIN	2
4	FW-0100	WASHER, FLAT, 1	4
5	HYF-1888	HYD TEE, bulk, 3/8M - 3/8M - 3/8M	4
6	11391	HYD RESTRICTOR,9/16F-9/16M,1/16	2
7	12376	HYD HOSE,3/8(9/16F-1/2PIPE), DISC,246	4
8	HYH-8180	HYD HOSE,3/8(9/16F),180	1
9	12911	HYD HOSE,3/8(9/16F),180	1
10	12915	HYD HOSE,3/8(9/16F),250	1
11	12914	HYD HOSE,3/8(9/16F),232	1
12	12910	HYD HOSE,3/8(9/16F-9/16F 90°),136	1
13	12909	HYD HOSE,3/8(9/16F-9/16F 90°),116	1
14	12913	HYD HOSE,3/8(9/16F-9/16F 90°),188	1
15	12912	HYD HOSE,3/8(9/16F-9/16F 90°),168	1
16	CP-1420	PIN, COTTER, 1/4 X 2	2
17	HYF-4002	HYD DISCONNECT, MALE	4
18	HYF-2821	HYD ELBOW,9/16M-3/4Morb, RST	4

Note: When ordering cylinder replacement parts, please specify cylinder make & part number.
McFarlane Manufacturing reserves the right to change specifications of design at any time without obligation to modify previous products.

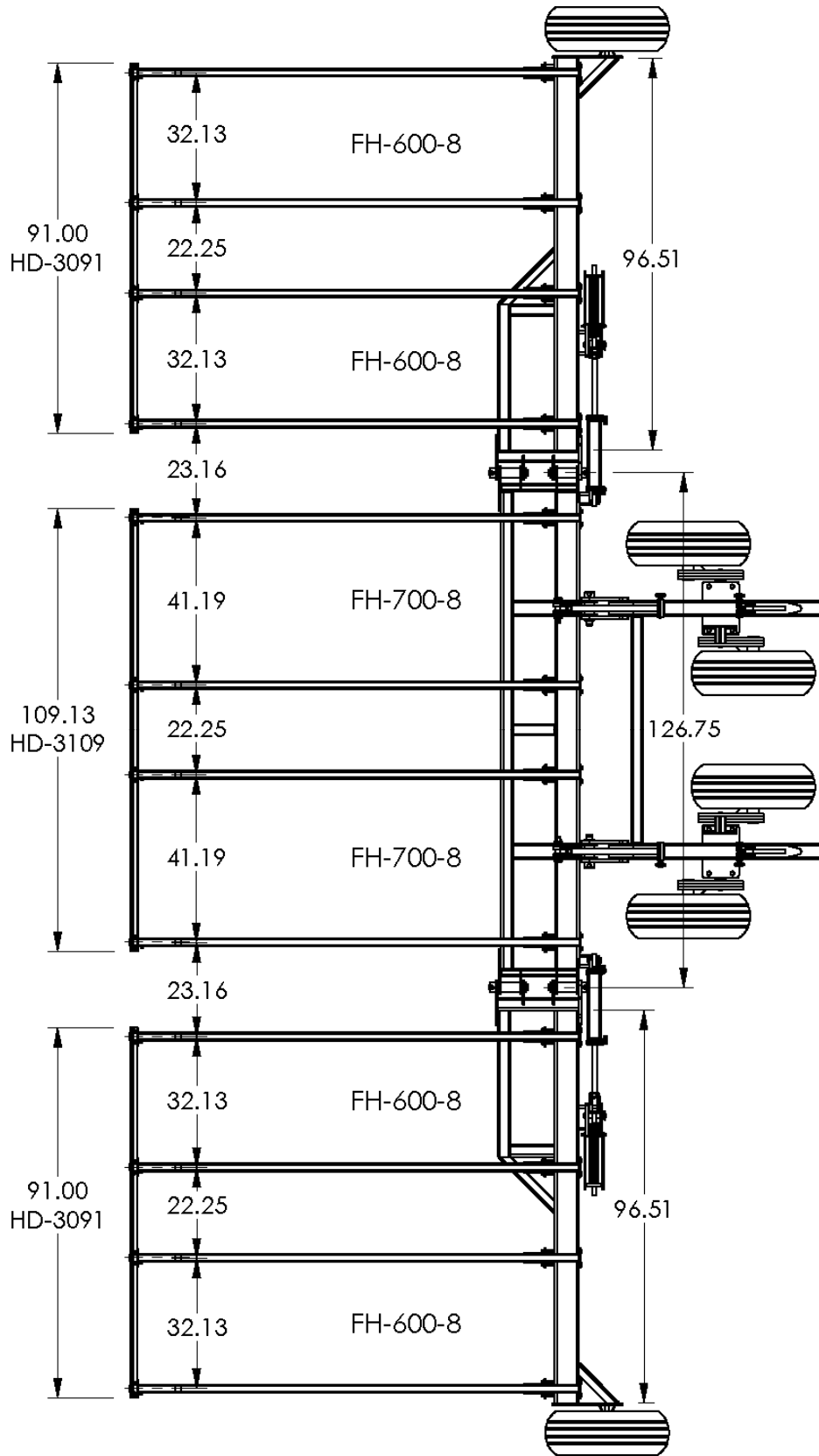
HDL-1124 LAYOUT DIAGRAM



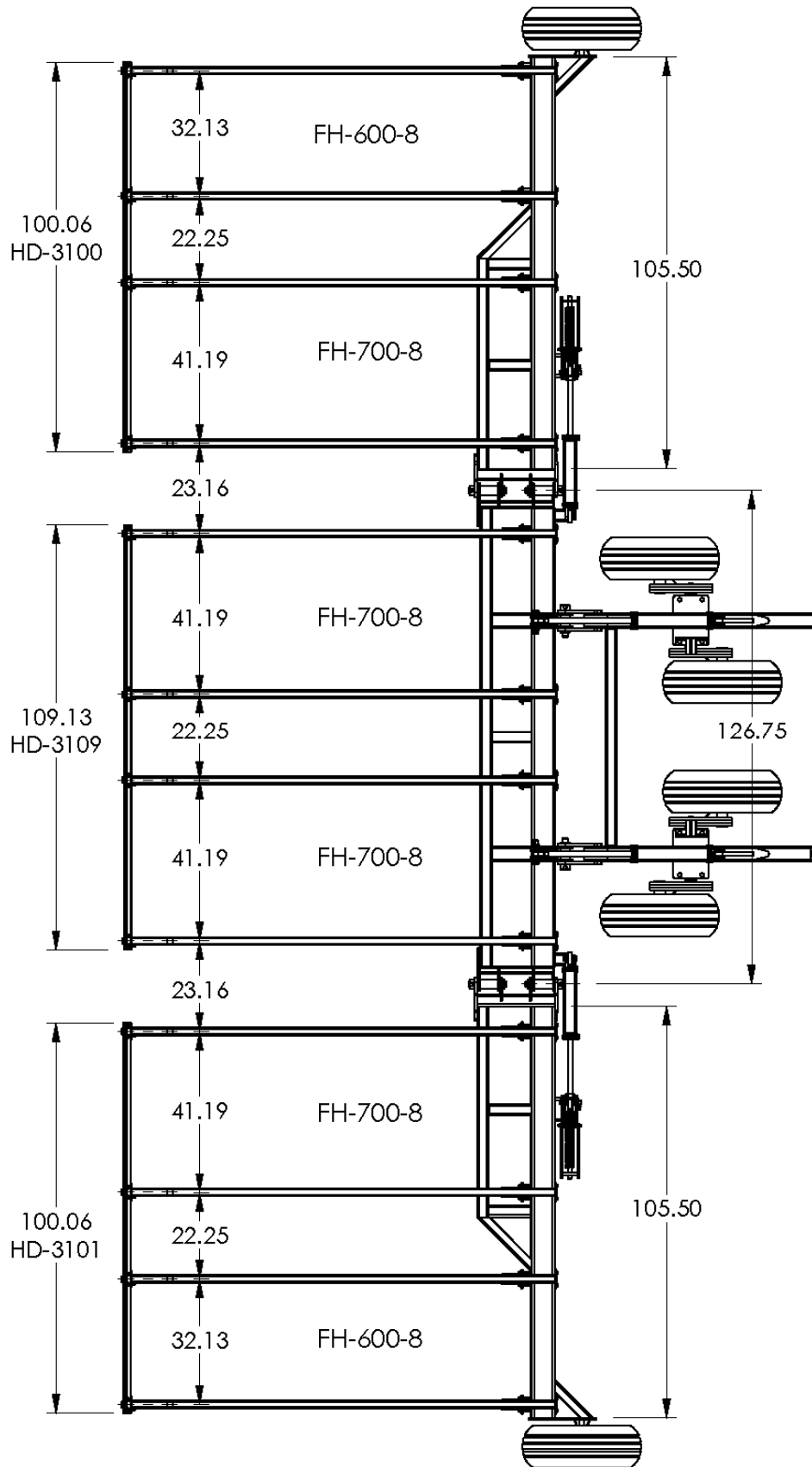
HDL-1126 LAYOUT DIAGRAM



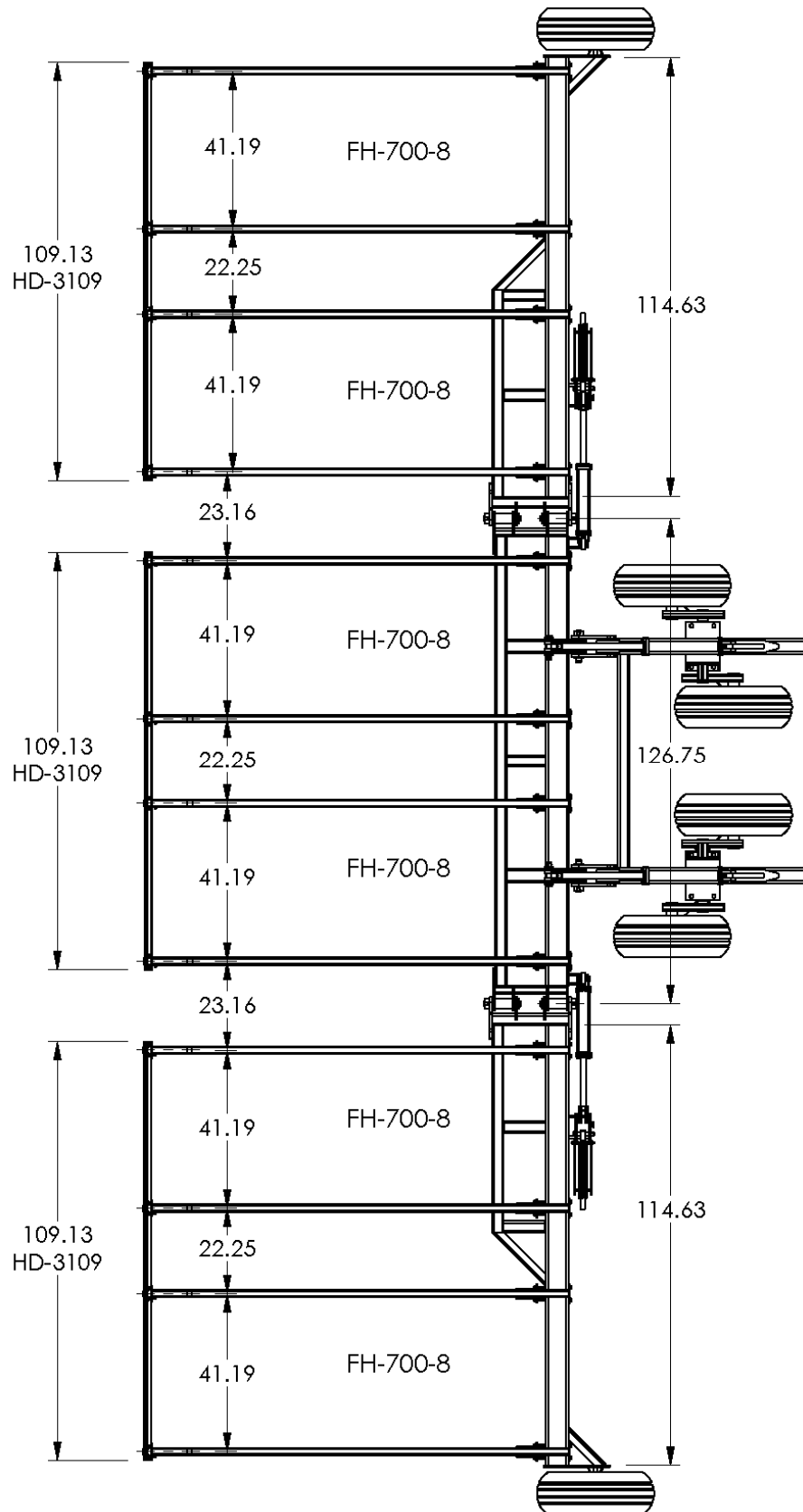
HDL-1128 LAYOUT DIAGRAM



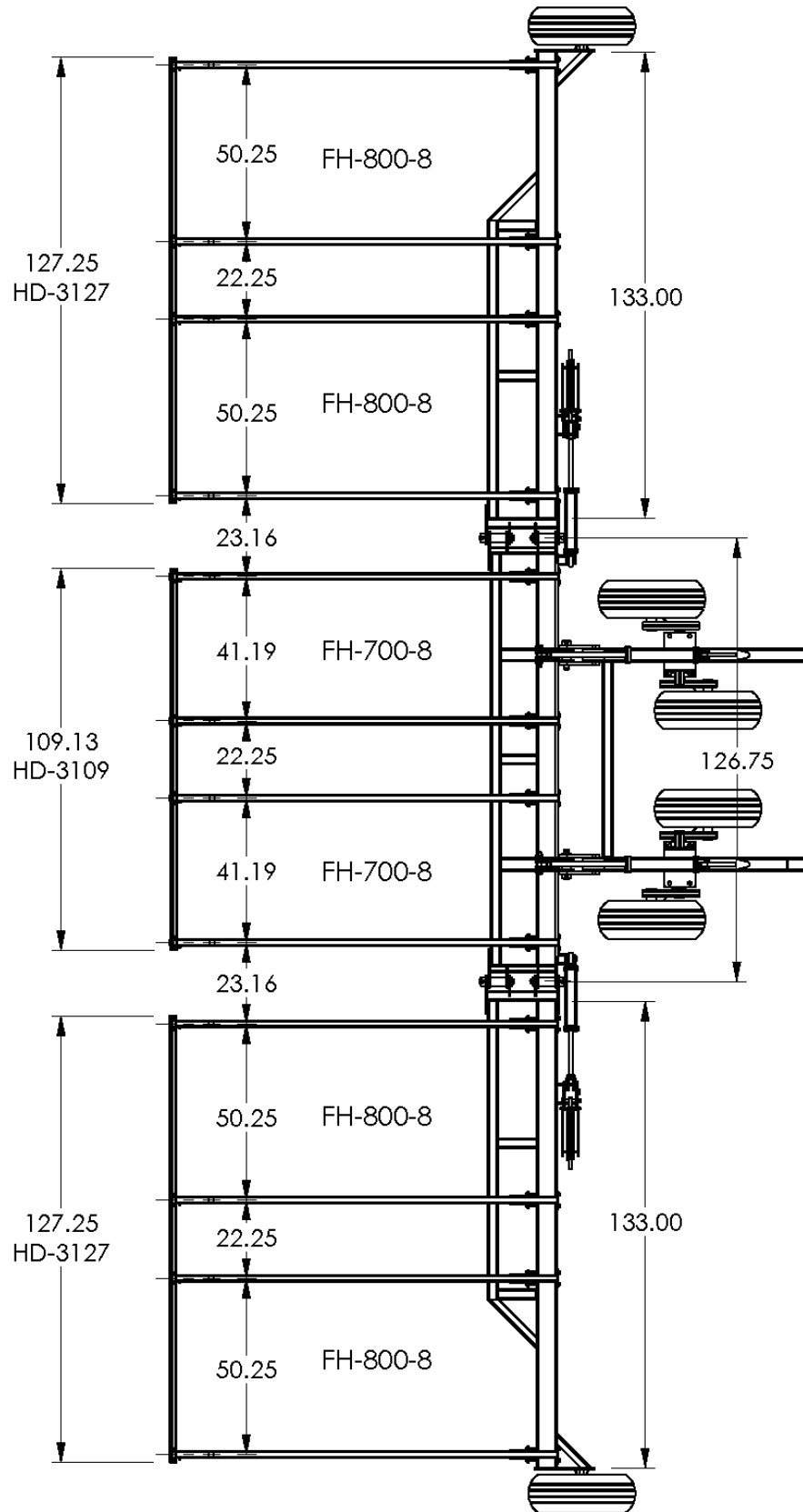
HDL-1130 LAYOUT DIAGRAM



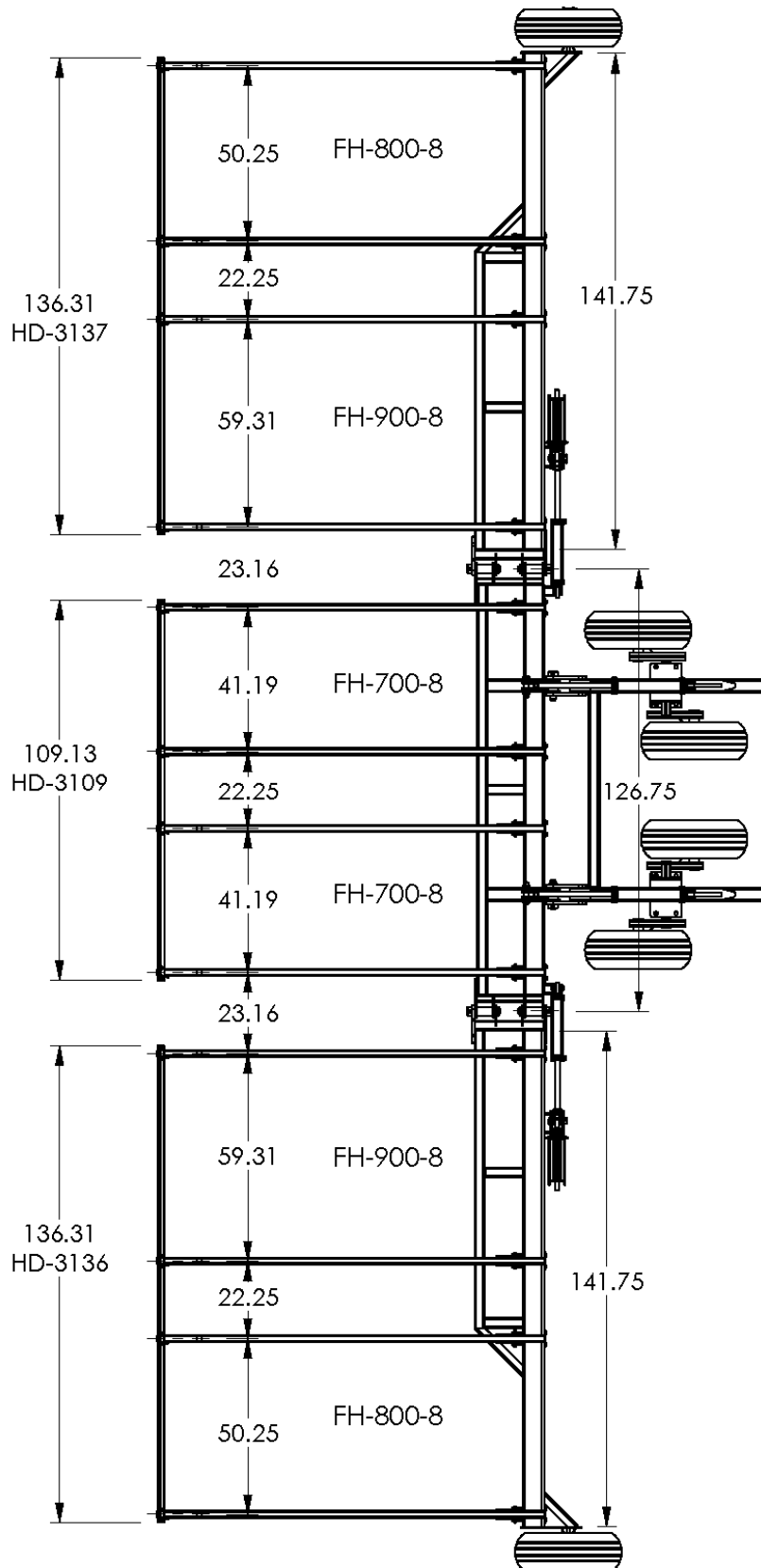
HDL-1132 LAYOUT DIAGRAM



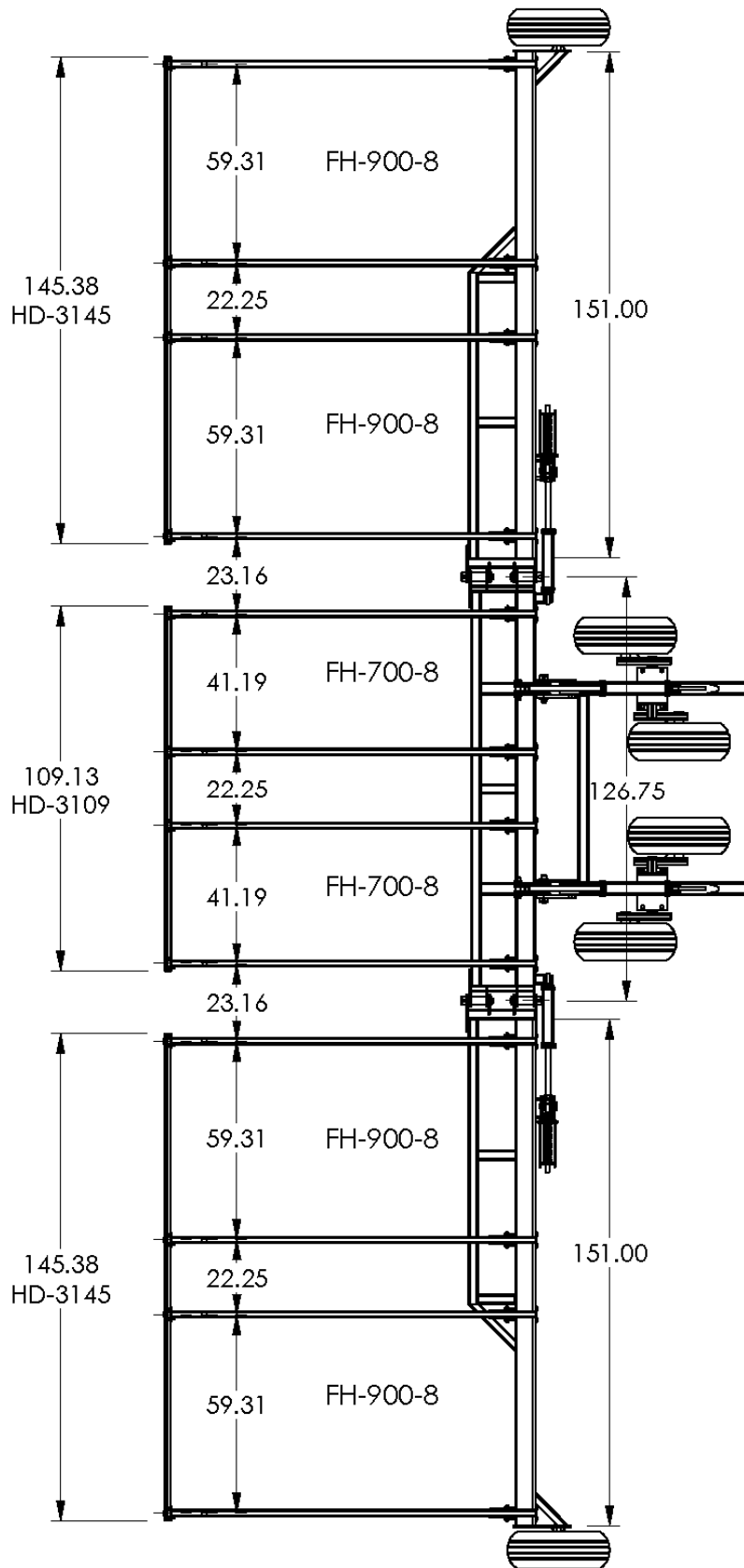
HDL-1134 LAYOUT DIAGRAM



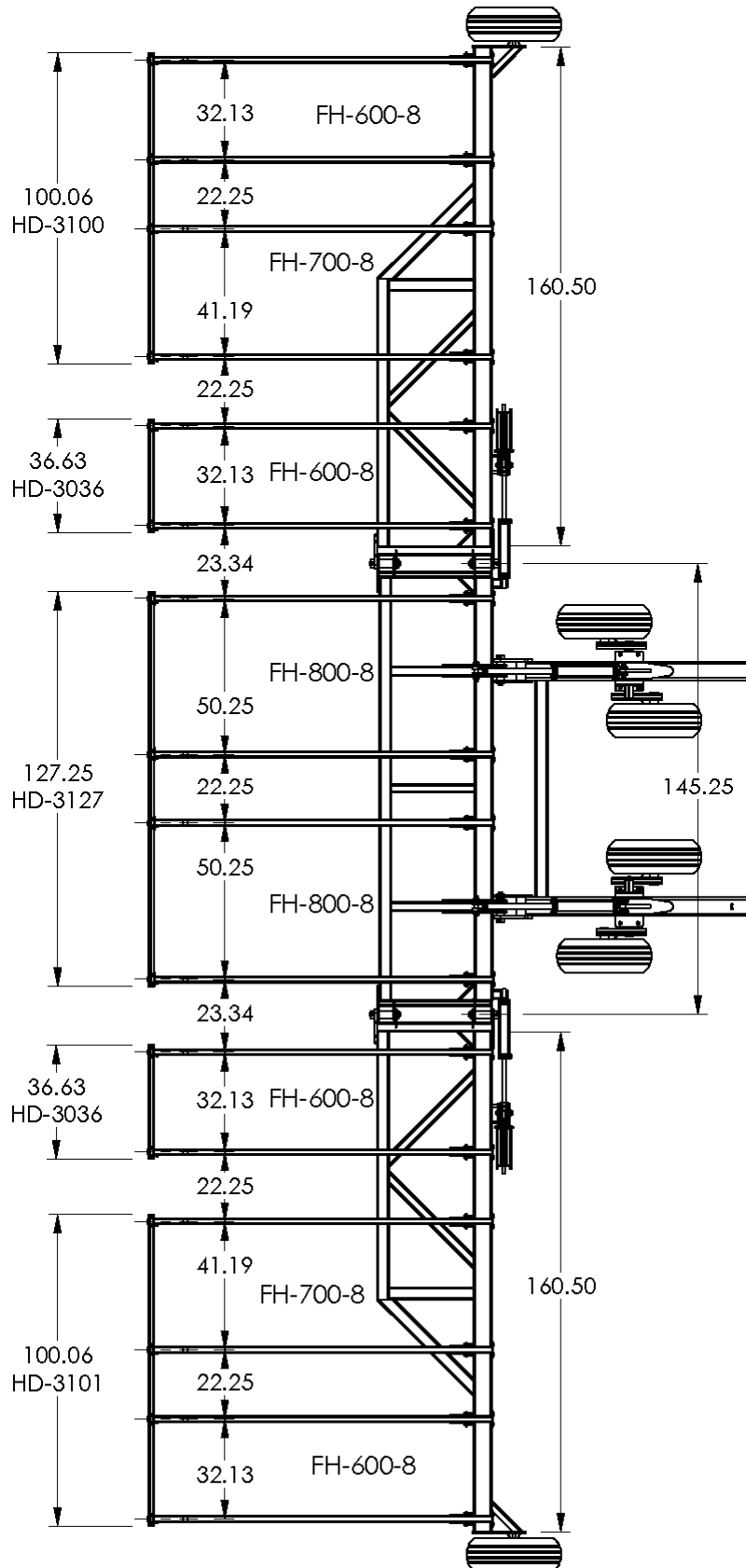
HDL-1136 LAYOUT DIAGRAM



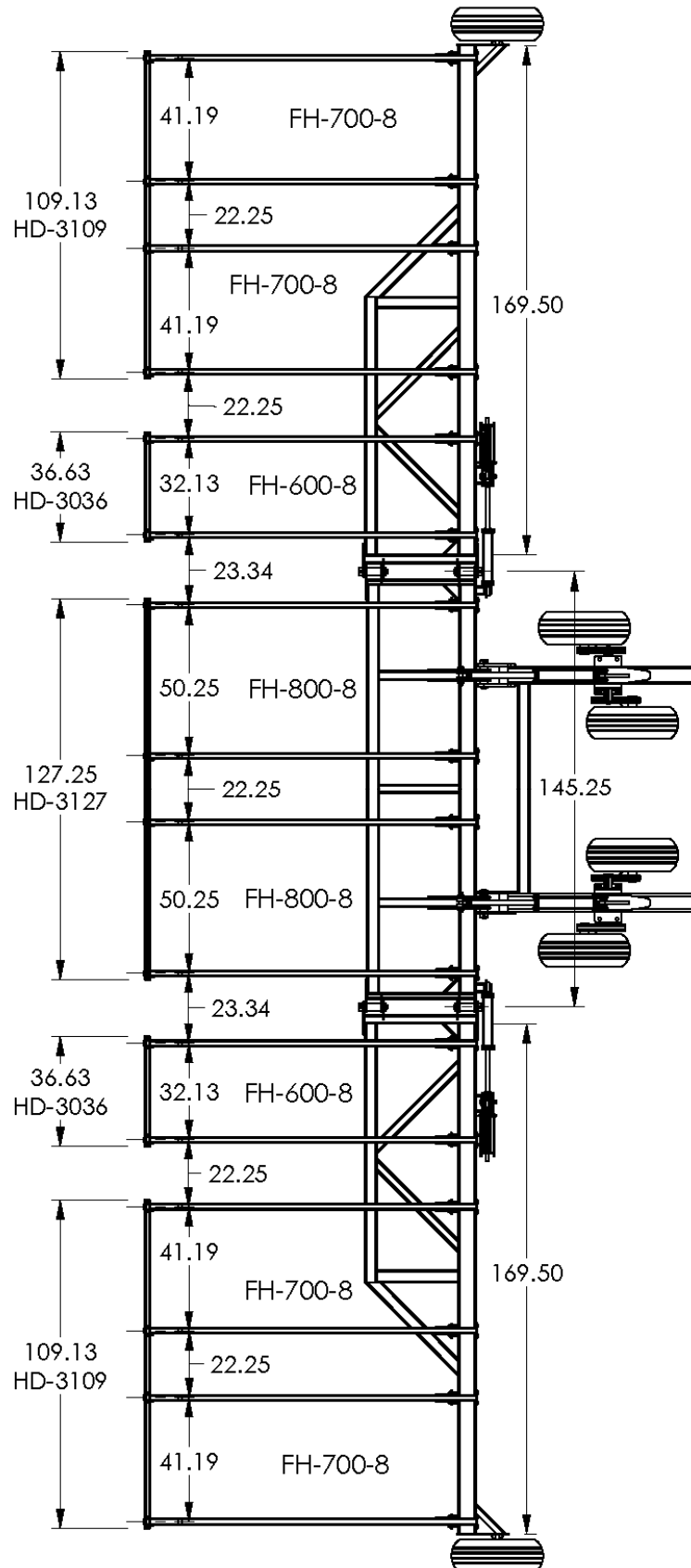
HDL-1138 LAYOUT DIAGRAM



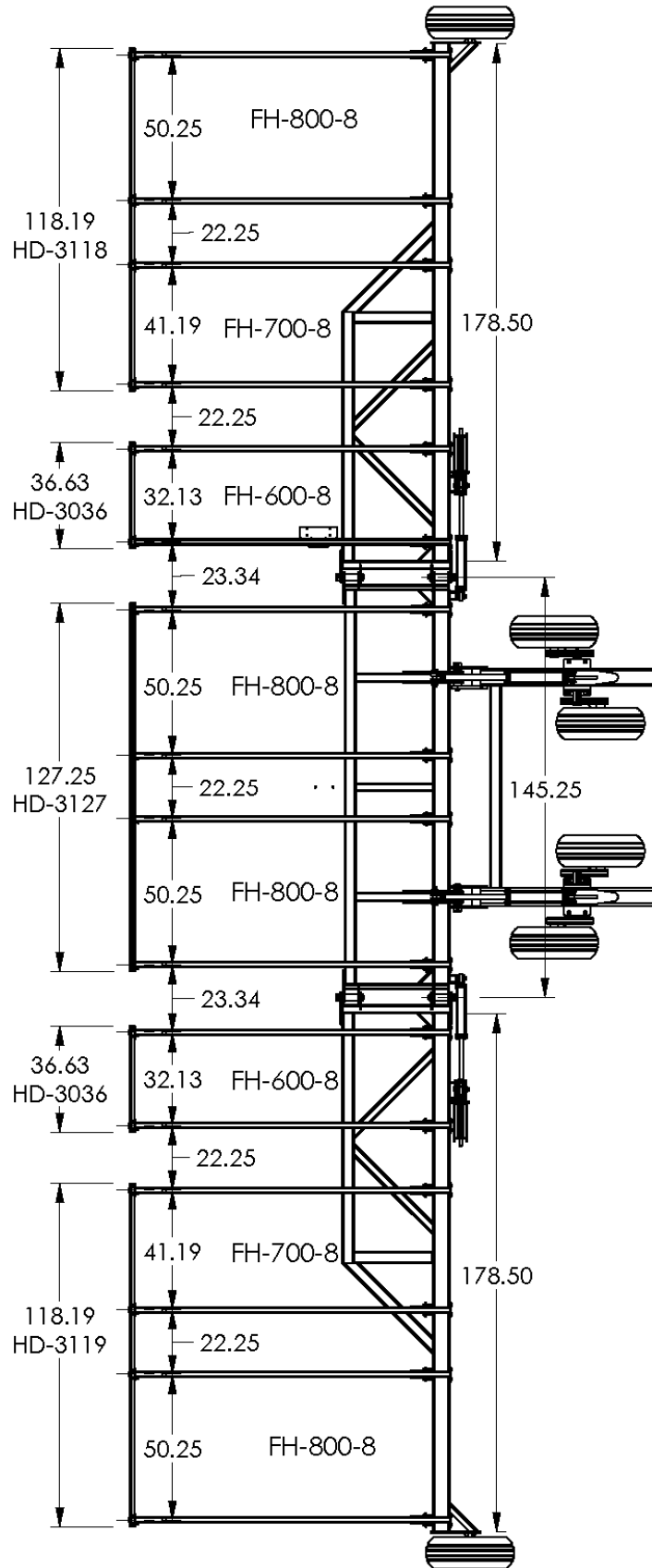
HDL-1140 LAYOUT DIAGRAM



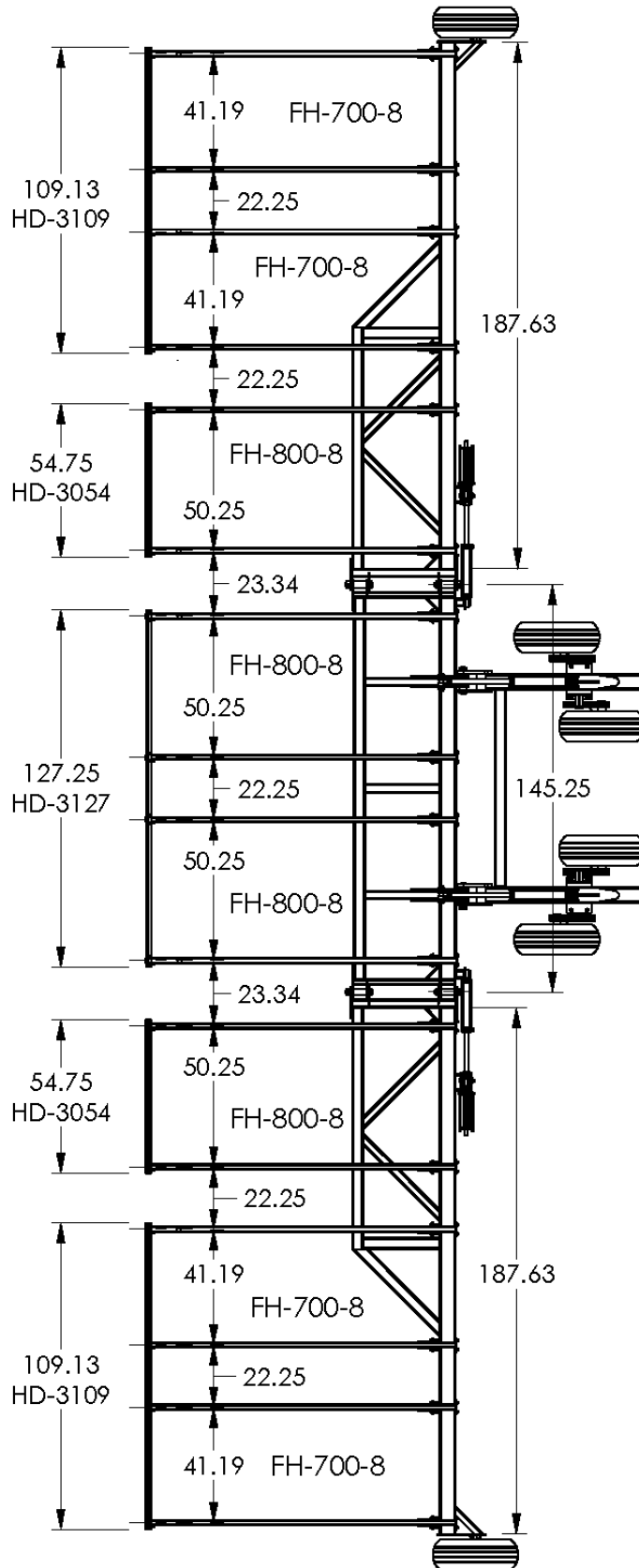
HDL-1142 LAYOUT DIAGRAM



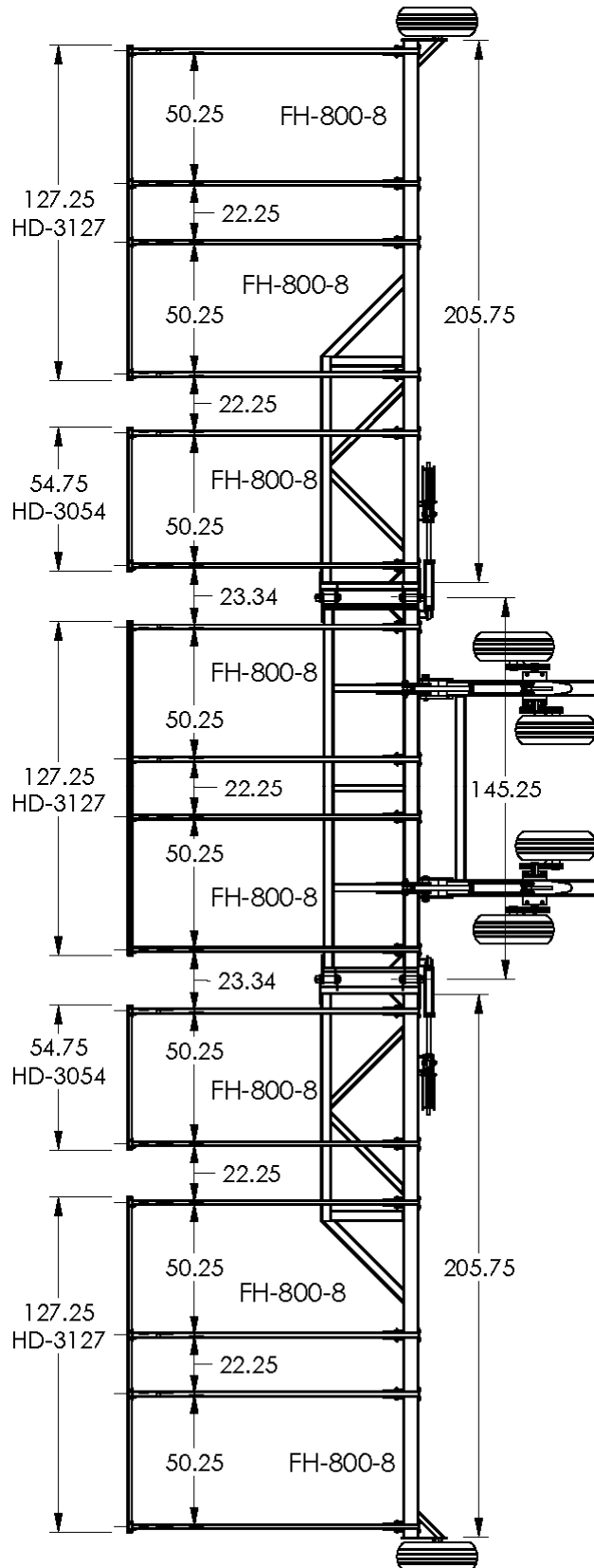
HDL-1144 LAYOUT DIAGRAM



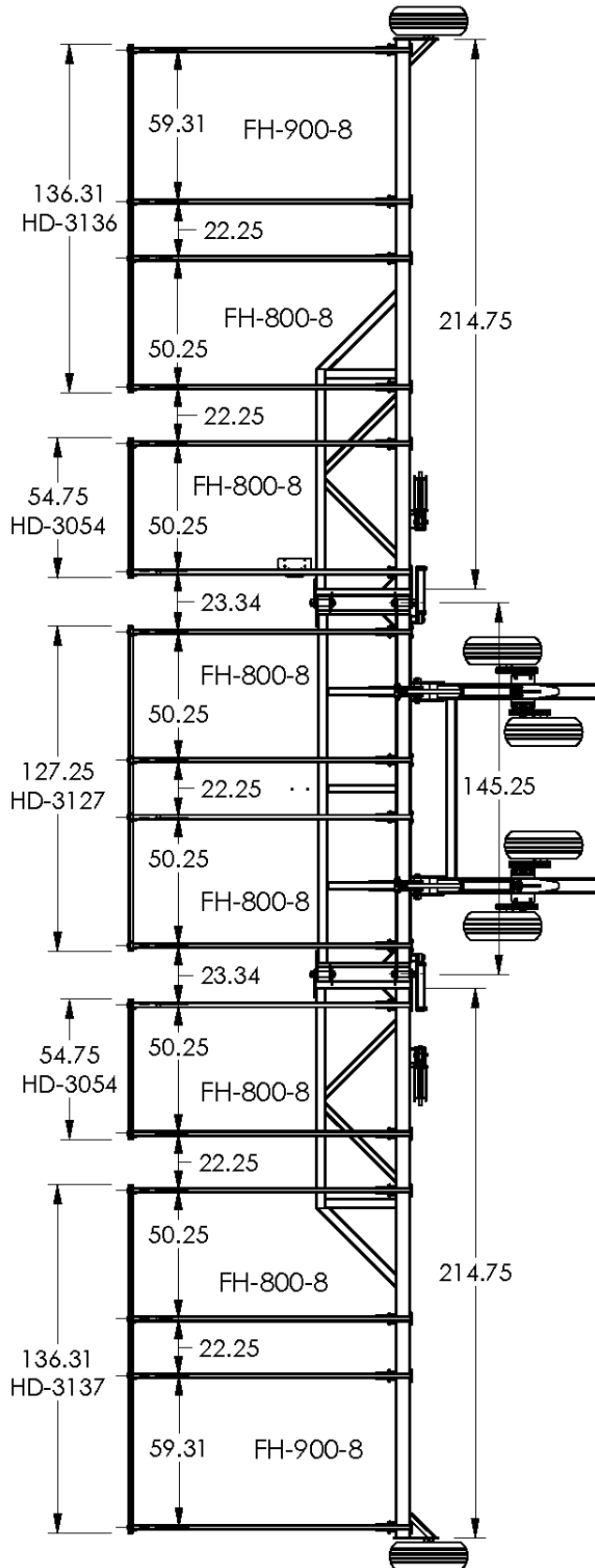
HDL-1146 LAYOUT DIAGRAM



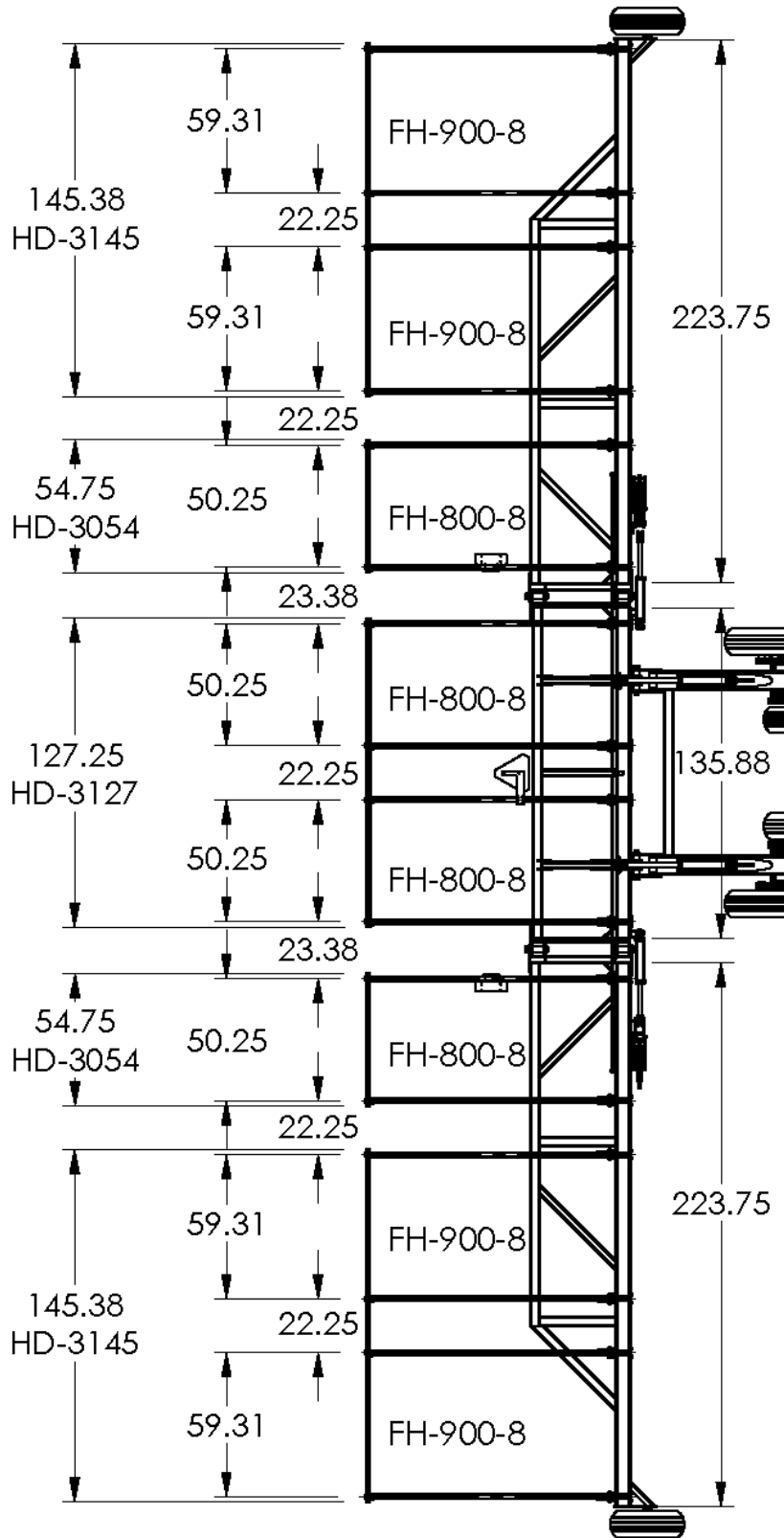
HDL-1148 LAYOUT DIAGRAM



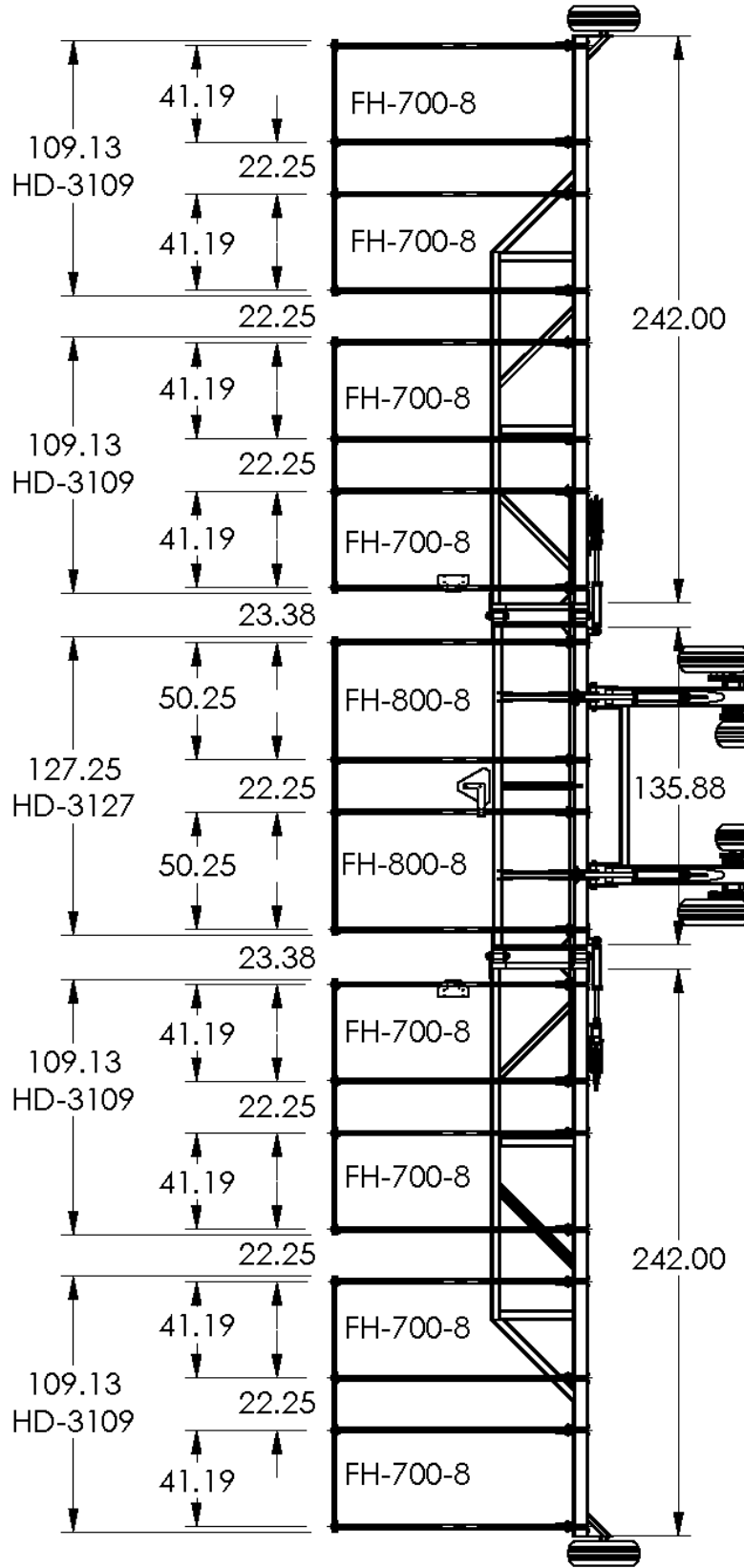
HDL-1150 LAYOUT DIAGRAM



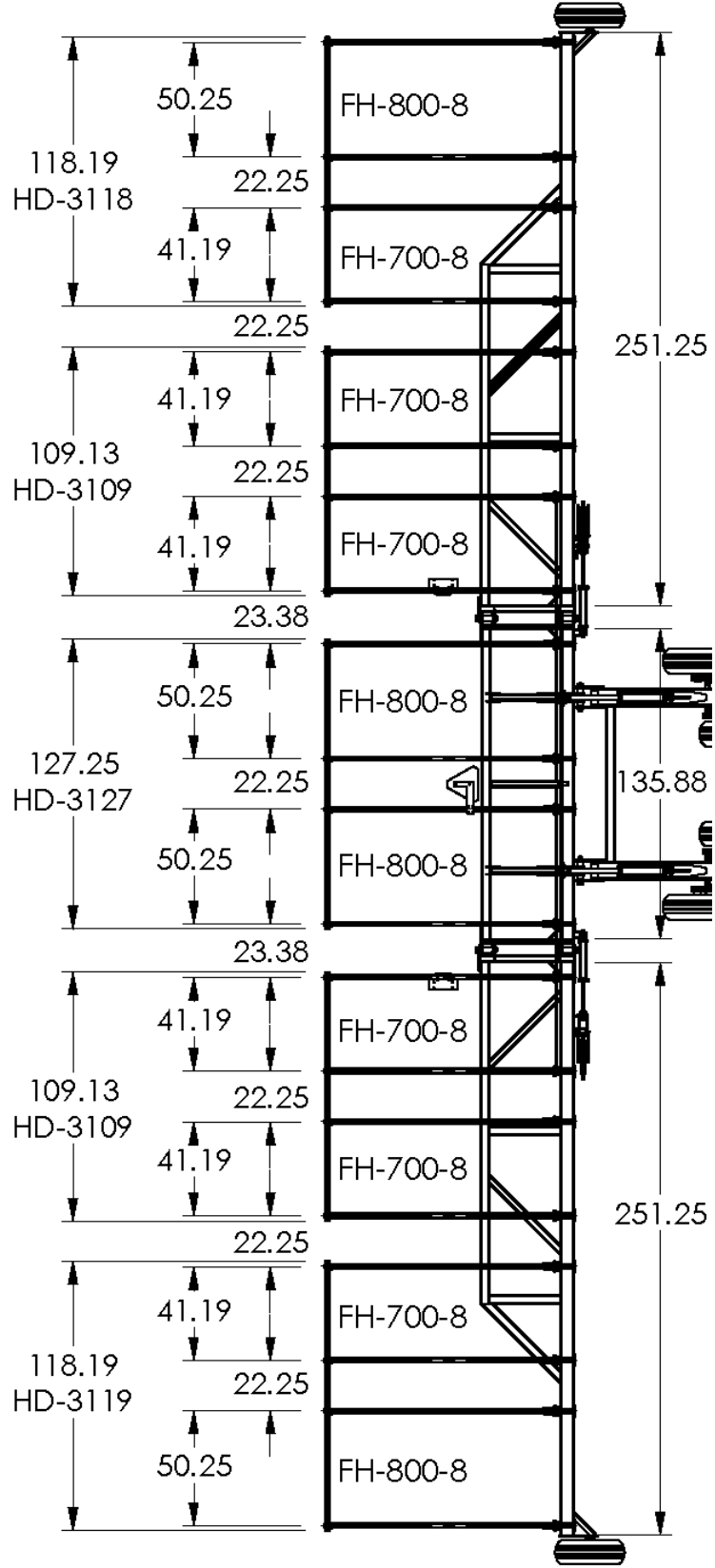
HDL-1152 LAYOUT DIAGRAM



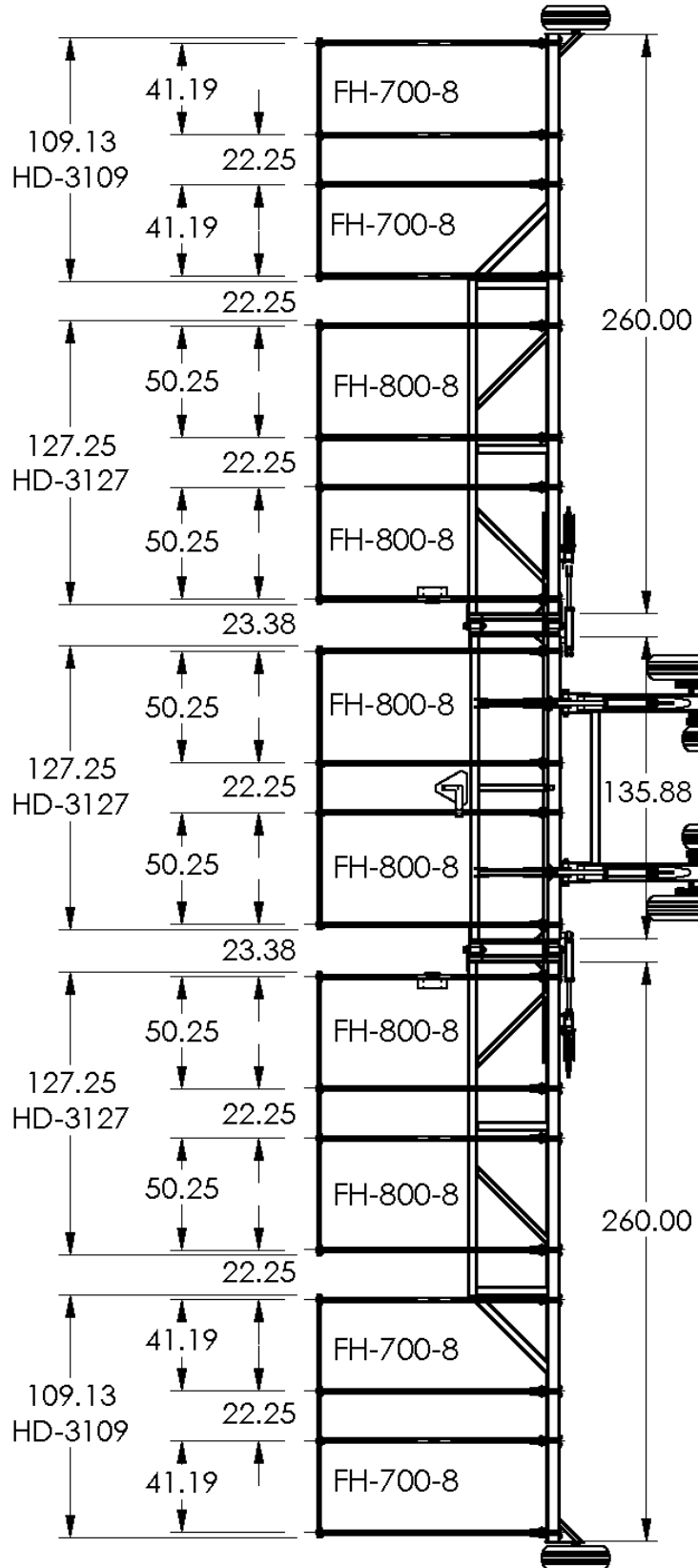
HDL-1154 LAYOUT DIAGRAM



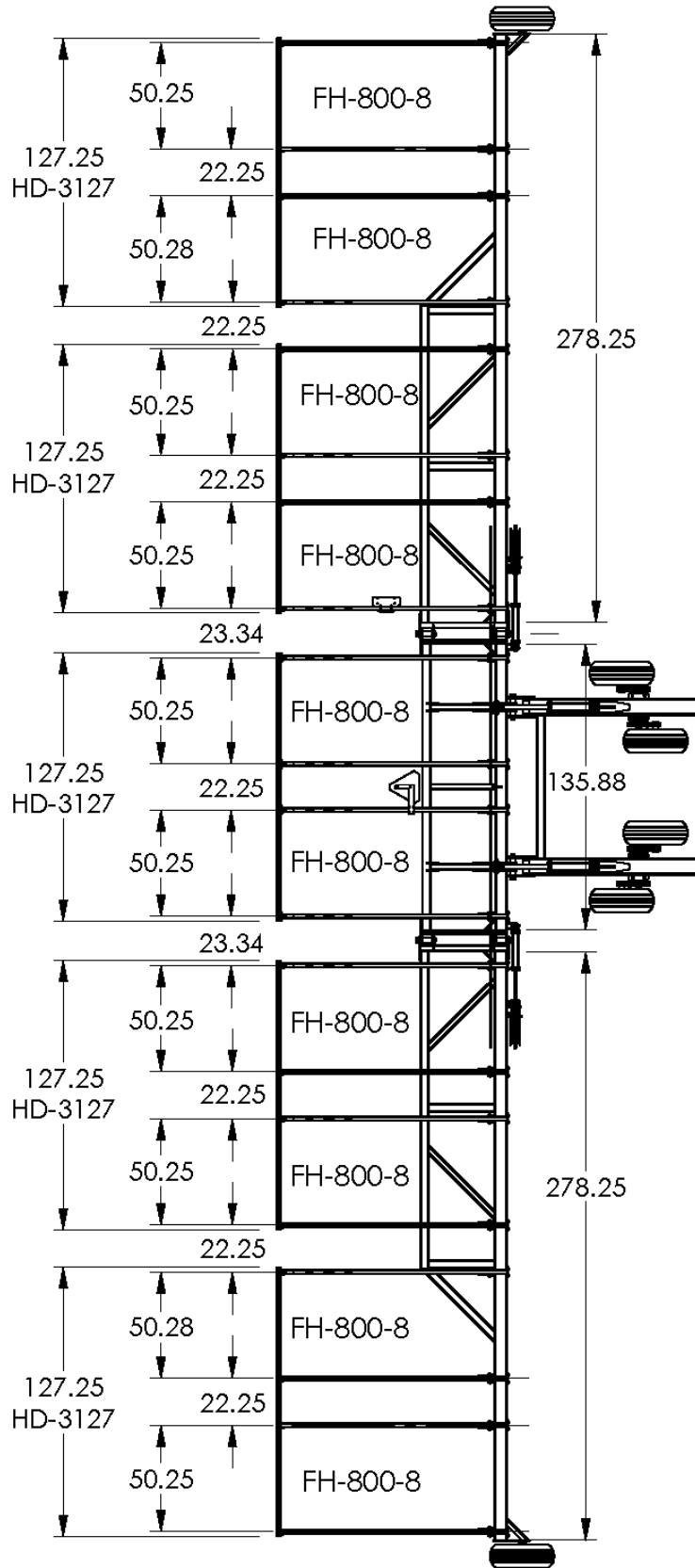
HDL-1156 LAYOUT DIAGRAM



HDL-1158 LAYOUT DIAGRAM



HDL-1160 LAYOUT DIAGRAM



WARRANTY REGISTRATION FORM

This form must be filled out by the dealer and owner and sent to: McFarlane Mfg. Co., Inc., 1330 Dallas Street, P.O. Box 100, Sauk City, WI 53583.

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and customer at the time of delivery.

Customer Name _____ Dealer Name _____

Address _____ Address _____

City, state, code _____ City, state, code _____

Phone number (____) _____

Model _____ Serial Number _____ Delivery Date _____

DEALER INSPECTION REPORT

_____ Wheel bolts tight
_____ Fasteners tight
_____ Hydraulic hoses free
_____ Hydraulic fittings tight
_____ Arms free
_____ Check tire pressures
_____ Lubricate machine

SAFETY

_____ All decals installed
_____ Review operating and safety instructions

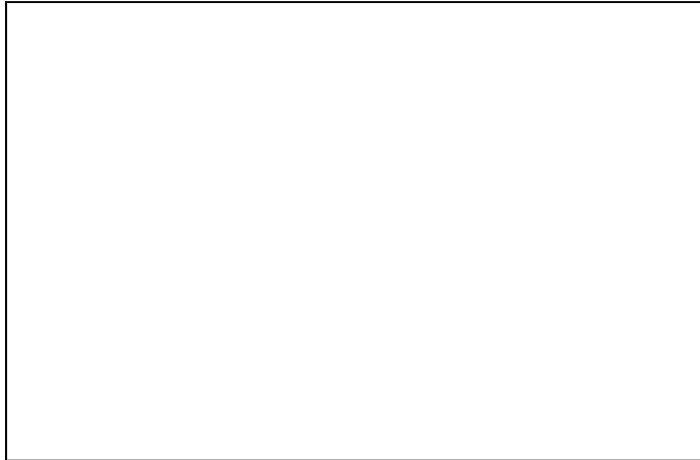
I have thoroughly instructed the buyer on the above described equipment; review included the operator's manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's signature _____

The above equipment and operator's manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation, and applicable warranty policy.

Date _____ Owner's signature _____

Dealer Contact Information



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