



MANUFACTURERS OF QUALITY AGRICULTURAL EQUIPMENT SINCE 1936

OPERATOR'S MANUAL AND SET-UP INSTRUCTIONS FOR THE

HDL-8 Series HDL-44 Series

16 Through 36 Models

Version: 12594 (02-17)
Serial Number 20648 - higher

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-8 Series
HDL-44 Series
Harrow Transport Cart

Models 16 through 22

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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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.

Lighting kits are available from your dealer.



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 transport cart and harrow sections. 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.
 3. Rotate the wing wheel tires so they are clear of the ground. When looking at the end of the wing, they should be up and towards the center of the unit.
 4. Wrap the wing cables around the harrow sections so they don't drag on the ground.
- Getting the unit ready for field use includes the following steps:
 1. Rotate the wing wheel tires back to the field position.
 2. Unlock the wings from the wing rests and swing the wings out.
 3. Rotate the harrow sections down.
- If the wing cables are not tight, adjust the bracket on the wing outward to tighten them. Follow the instructions in the section titled Attach the Wing Cables.

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 cart requires an ASAE 4” x 8” dual acting, agricultural grade hydraulic cylinder on the main frame, and 1/2” hydraulic hoses. It is not recommended that other size cylinders or hoses be substituted. The hydraulics are NOT supplied with this transport cart. Only the 1/2” hydraulic flow restrictor is provided.
- 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. Determine the desired track width. Unless the unit is going to be used for row crop work, the manufacturer recommends the 80" spacing. (The HDL-16 *must* use the 65" spacing.)
2. Bolt the axle assemblies in position. Use 1/2" x 4" bolts, lock washers, and hex nuts. Refer to Figure 1. Note the location of the spindle is below the axle assembly tube.

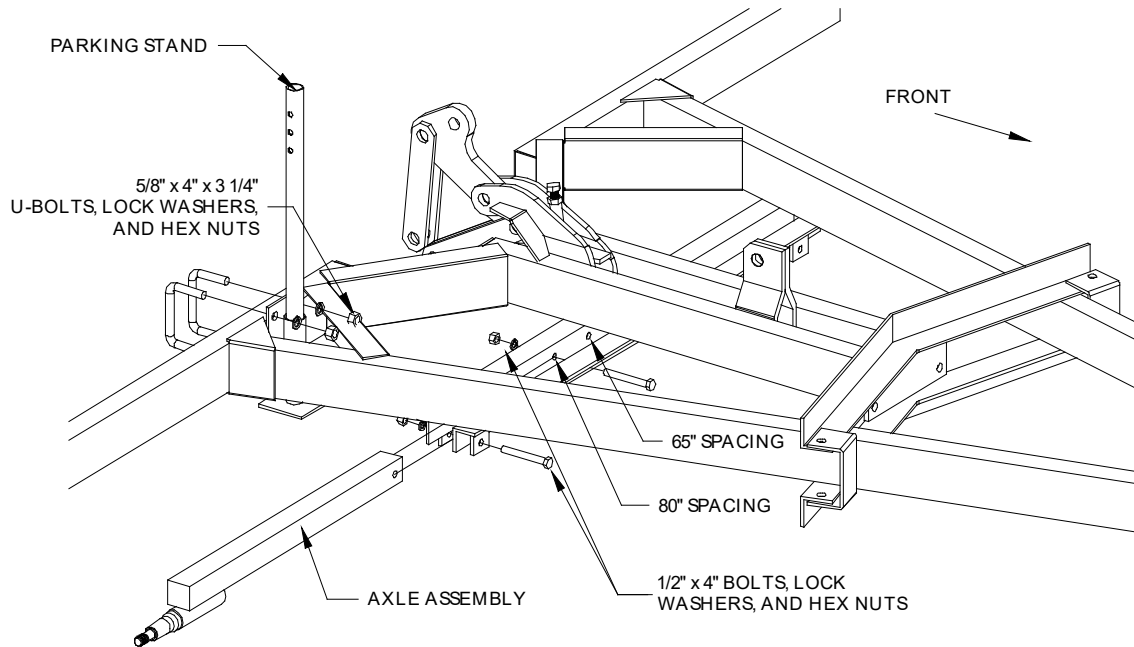


Figure 1

3. Attach the rear parking stand to the rear cross channel at the rear of the main frame with two 5/8" x 4" x 3 1/4" U-bolts, lock washers, and hex nuts. Refer to Figure 1.
4. Secure the 7.60 x 15 8 ply tires to the axle hub using the wheel bolts. See Figure 2. Refer to Hub and Tire specifications on page 31.

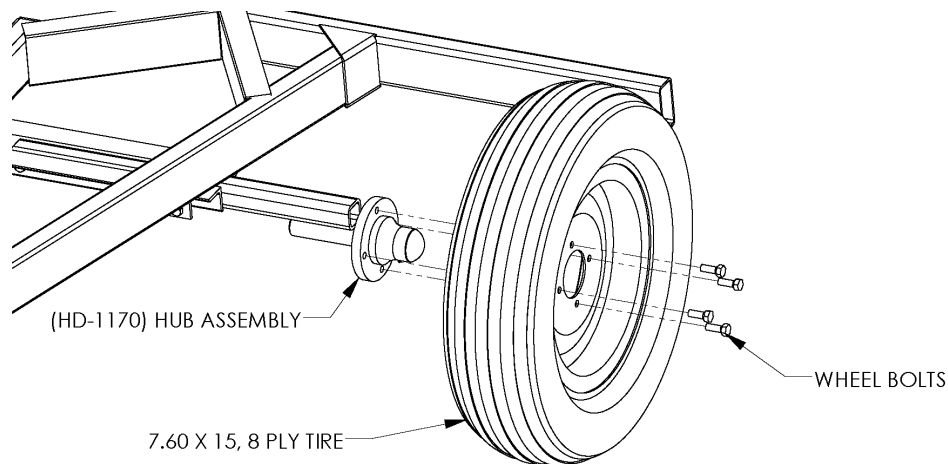


Figure 2

5. Place the hitch pole inside the main frame as shown in Figure 3 and bolt the rear of the pole to the frame with four 5/8" x 1 1/2" hex bolts, lock washers, and hex nuts. Be sure the hitch head is oriented as shown in Figure 3.
6. Place the hitch cap over the hitch pole with two 7/8" OD x 5/8" ID x 1" bushings between the plates at the front two holes. Refer to Figure 3. Fasten the hitch cap with two 5/8" x 2 1/2" bolts, lock washers, and hex nuts in the front two holes. Do *not* completely tighten the bolts yet.

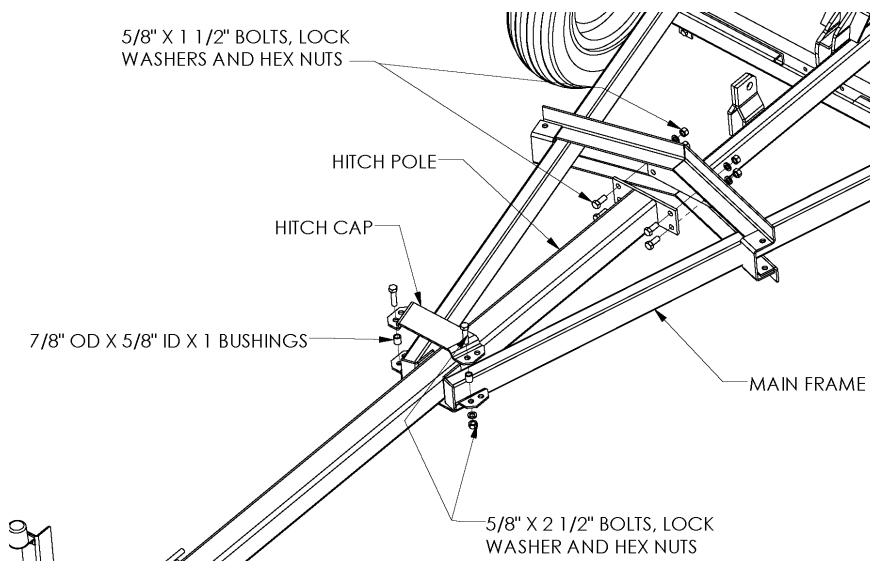


Figure 3

7. Attach the pole jack to the hitch pole. Refer to Figure 4. A round tubular stud is welded to the side of the hitch pole. A matching tubular stud on the jack fits over the first stud. The jack is held in place with the hitch pin that is attached to the jack.
8. Attach the clevis hitch to the hitch pole using a 1" x 6" clevis pin. Be sure the stop bushing on the clevis is facing down. Secure the pin in place using a 3/16" x 2" cotter pin. Use the 1/4" stop pin to hold the clevis hitch upright when hooking to the towing vehicle; store it in the hole in the hitch head.
9. Attach the Safety Chain using the 1 x 3 1/4 grade 8 bolt, safety chain bushing and washer and locking hex nut.

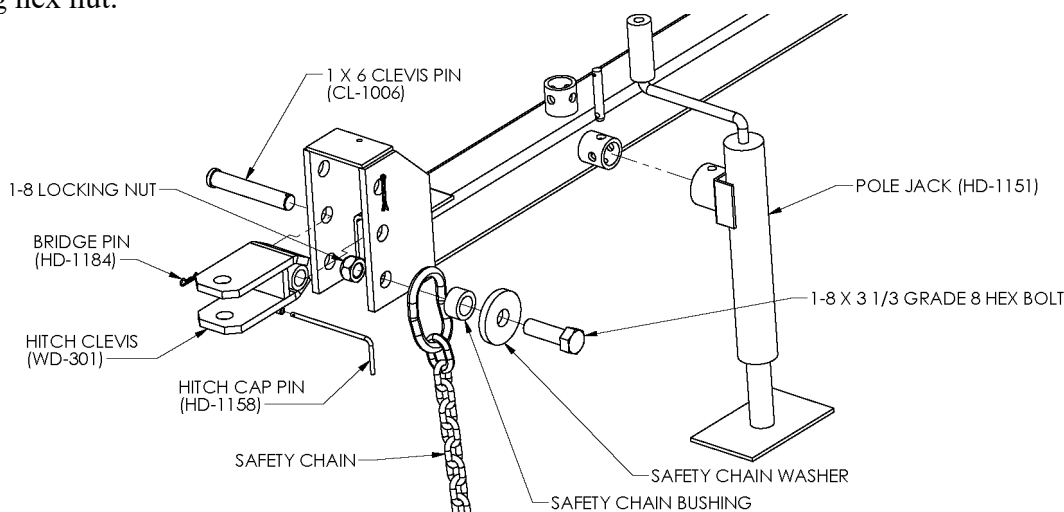


Figure 4

10. Attach the hose post to the hitch pole ahead of the jack. Refer to Figure 5. The post is fastened with a 1/2" x 4" x 5" U-bolt, lock washers, and hex nuts. See Hitch Storage Bracket parts list on page 44 for part details.

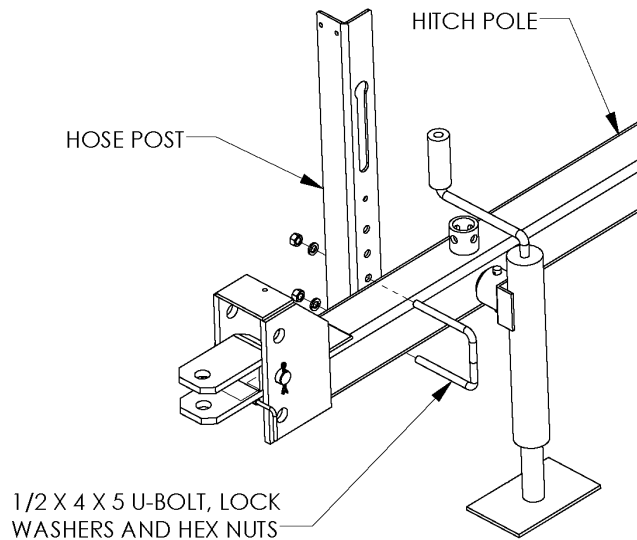


Figure 5

Attach the Center Bar Assembly

HDL-16 through HDL-30

1. Attach the Rocker Arm to the A frame assembly with the HD-1149 clevis pin and CP-3620 Cotter Pin. Attach the Rocker Arm Flats to the Rocker Arm using the HD-1149 Clevis Pins, secure with the CP-3620 Cotter Pins.

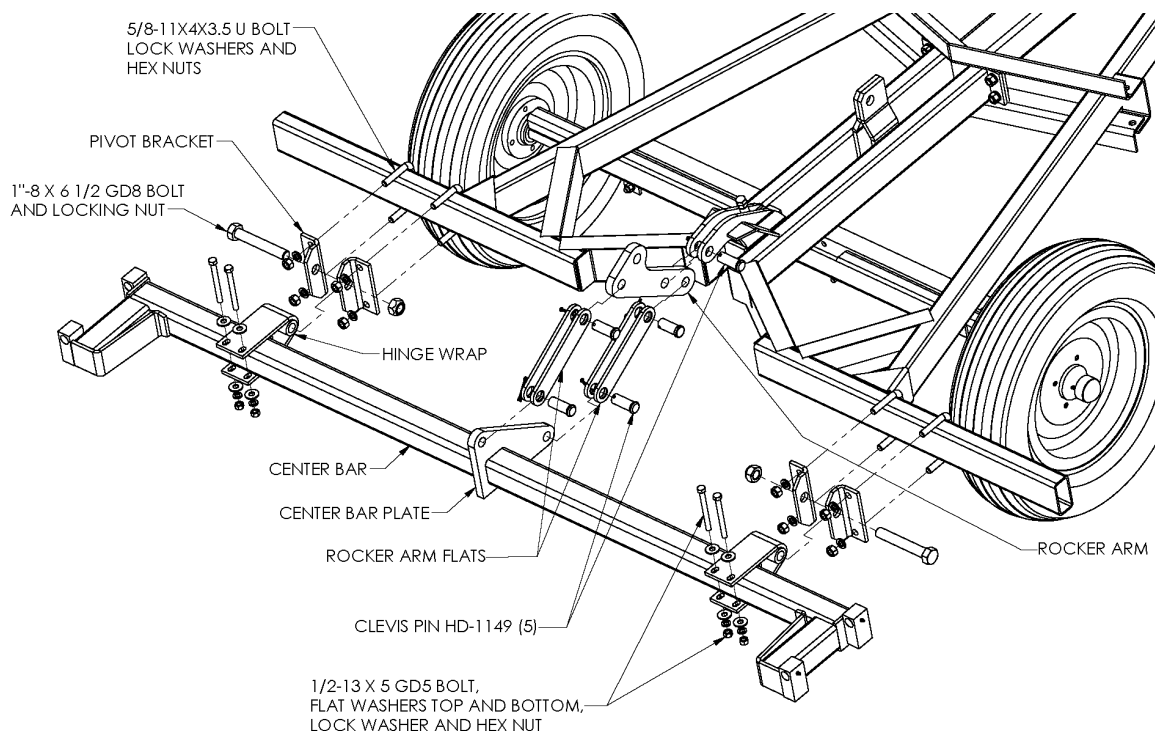


Figure 6

2. Refer to the layout diagrams in Appendix C for locations and attach the Pivot Brackets to the A frame using the 5/8-11X4X3.5 U Bolts, lock washers and hex nuts. Before tightening the Pivot Bracket fasteners, install the Hinge Wraps into the Pivot Brackets using the 1-8x6 1/2 GD 8 bolts and locking nuts
3. Insert the Center Bar into the Hinge Wraps and secure with the 1/2-13x5 grade 5 bolts, flat washers on the top and bottom, lock washers and hex nuts. Rotate the Center Bar so that the Rocker Arm Flats can be attached and secure with the HD-1149 Clevis Pins and CP-3620 Cotter Pins. Check that all components are located correctly and rotates properly then tighten all fasteners.

HDL-32 through HDL-36

1. The center bar is shipped in two pieces. Bolt the halves together using four 5/8" x 2" bolts, lock washers, and hex nuts. Refer to Figure 7. Check the alignment of the halves before completely tightening the bolts.
2. Attach the Hinge Wraps to the A Frame using the 1"-8 X 6 1/2 grade 8 bolts and locking nuts.
3. Attach the Center Bar to the A Frame and Hinge Wraps using the 1 X 6 Clevis Pin in the center and the 1/2-13 x 5 grade 5 bolts, flat washers top and bottom, lock washers and hex nuts for the Hinge Wraps.
4. Check that all components are properly attached, and the Center Bar rotates, then tighten all the fasteners.

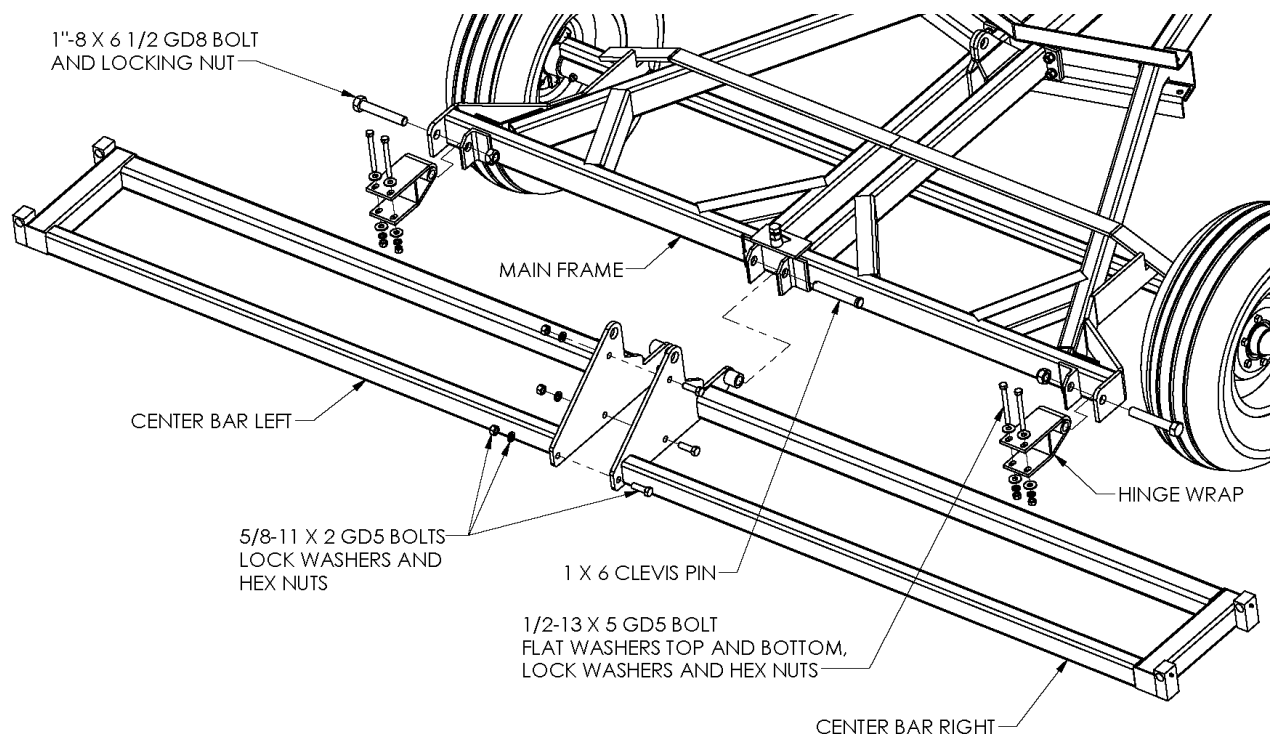


Figure 7

Install the Hydraulics

Assemble the hydraulic system as shown in Figures 8 and 8a.

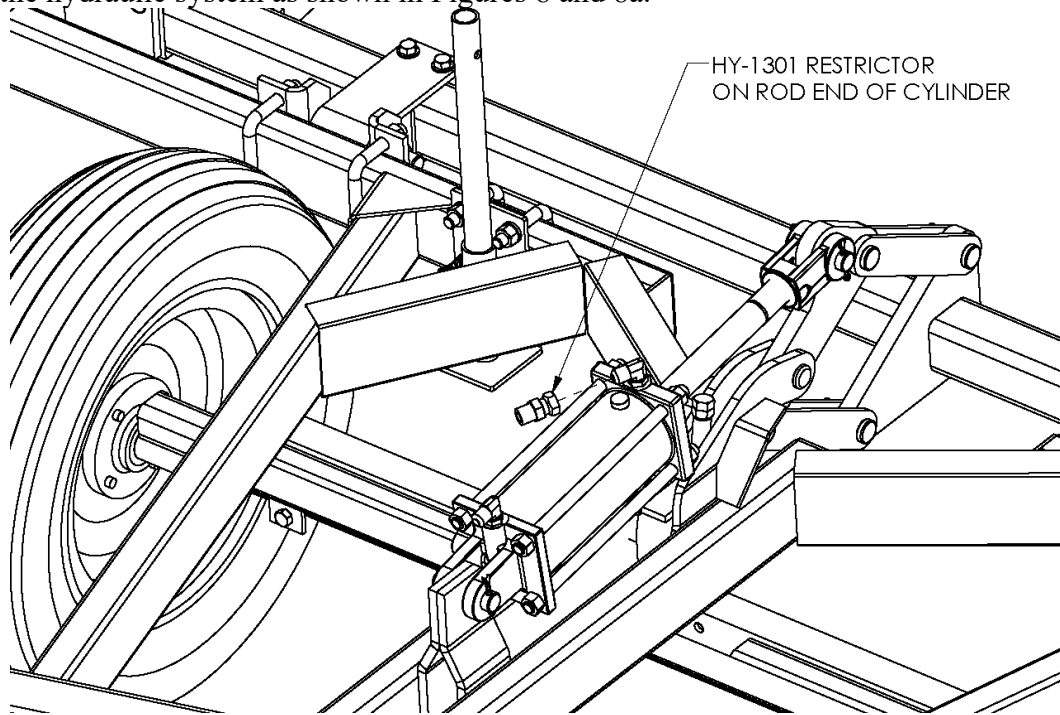


Figure 8

- For units 32 and 36 install the fitting with the flow restrictor HYF-2821 in the rod end of the cylinder as shown in Figure 9.

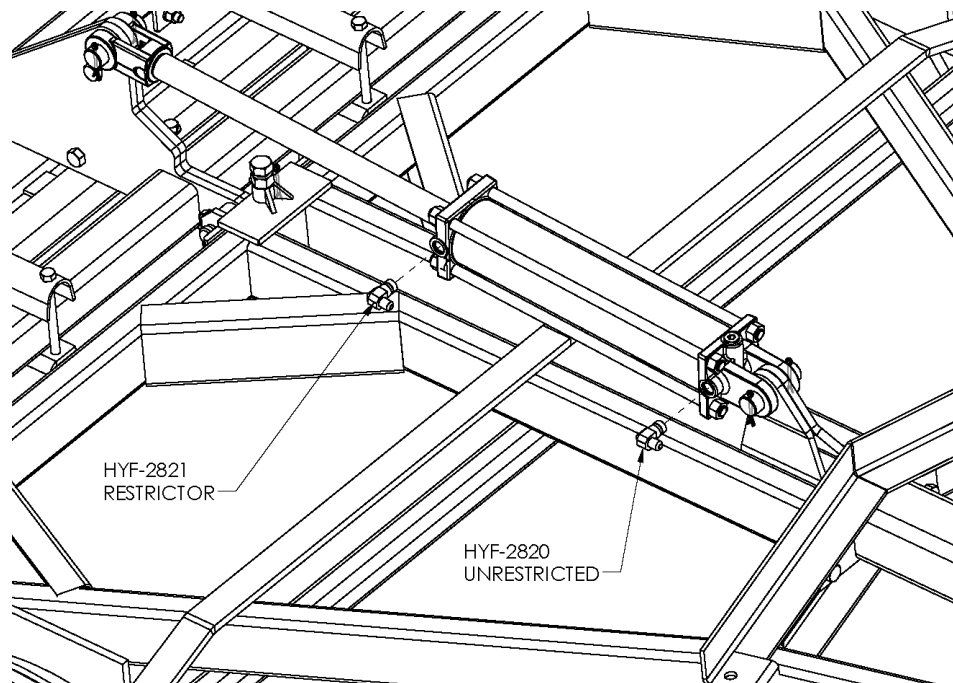


Figure 8a

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 several times to fill the cylinder and hoses with oil.

The remainder of the assembly steps (except the wing cable attachment) 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), the following diagrams show the unit in the field position.

Wing Assembly

The left and right wings can be identified by inspecting the hinges. Notice in Figure 9 that the hinge point is not centered, but rather is towards the top of the hinge and is nearly in line with the top edge of the center bar assembly. Figure 9 is a representation of the unit in the field position.

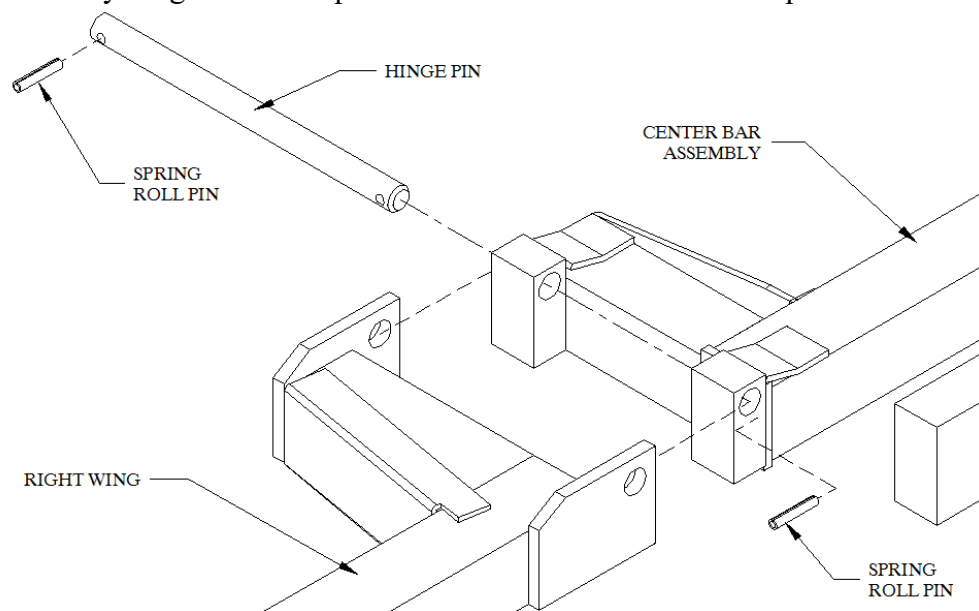


Figure 9

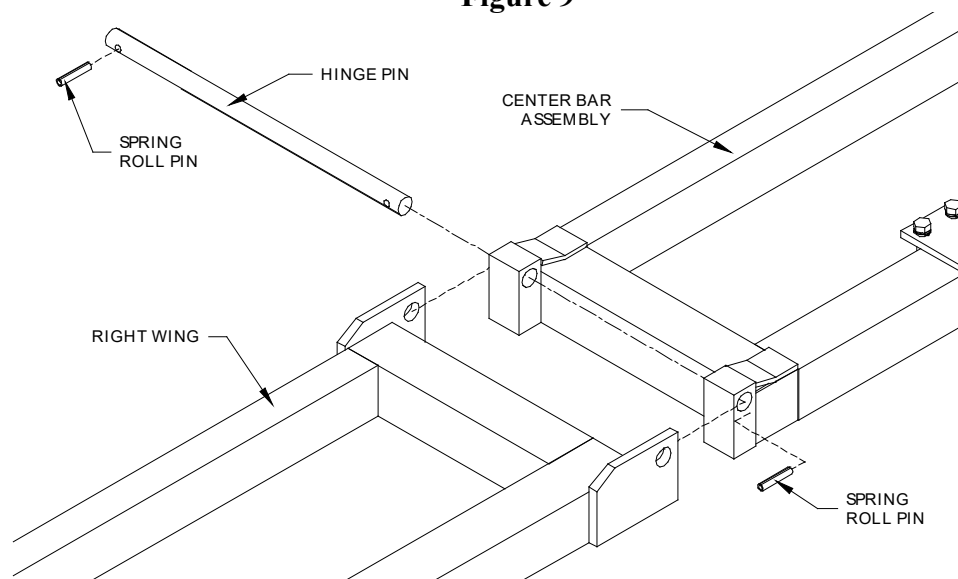


Figure 10

1. Press a 3/8" x 2" spring roll pin into one end of the hinge pin. Lightly grease the hinge pin and the hinge blocks. Align the hinge and slide the hinge pin from the back into the hinge blocks until the inserted spring roll pin rests between the two small blocks that are welded to the back surface of the wing hinge plate (not shown in the figure). Press the second spring roll pin into the other end of the hinge pin. Grease the hinge thoroughly through the grease fittings on the hinge blocks. Check the movement of the wing to assure that it moves freely. Attach the other wing assembly.
2. Mount the wing wheels on the wing wheel brackets. Refer to Figure 11.
3. Insert the wing wheel assemblies (they have been labeled 'L' for left and 'R' for right) into the ends of the wing tubes until the holes for the wing wheel lock pins align. Insert the wing wheel lock pins and lock the wing wheel assemblies into place.

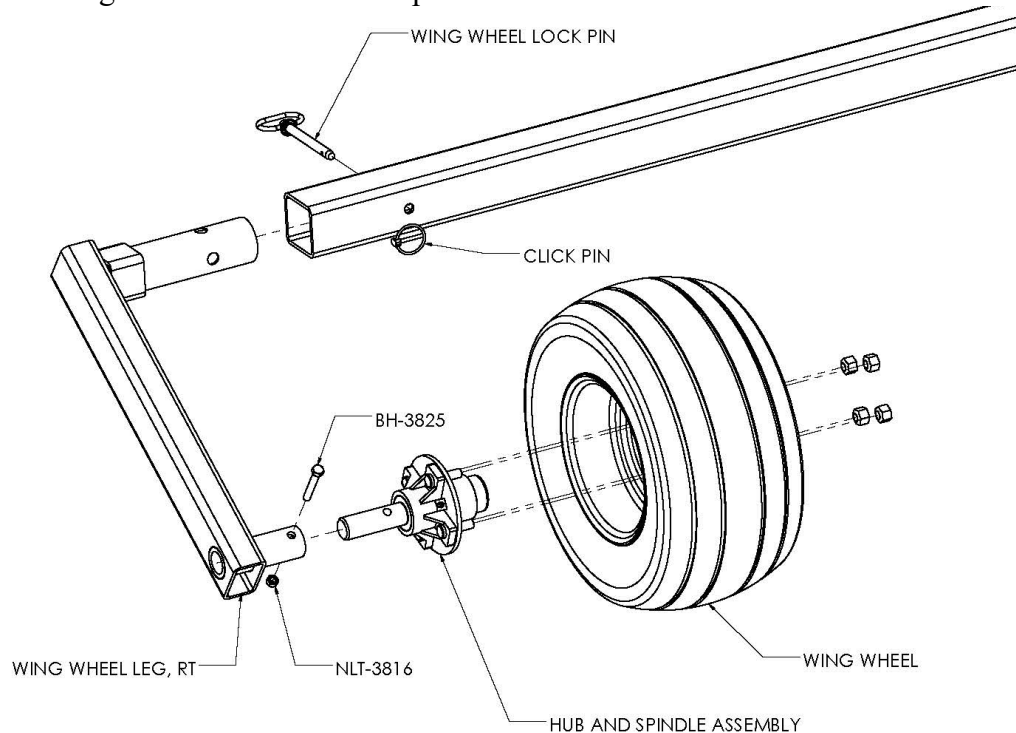


Figure 11

Assemble the Saddles and Pull Points

1. Refer to the diagrams in Appendix C. Note the dimensions for saddle locations. Place a mark on the center bar and wings at the locations of each of the saddles. These dimensions may have to be adjusted slightly when the wing cables are mounted.
- Note that there are two different types of saddles: standard (STD) saddles and special (SPC) saddles (refer to Figure 12). STD saddles are used where lift arms intersect a single wing tube. SPC saddles are used where lift arms intersect dual, or trussed, wing tubes, or the center bar assembly. Each are mounted in a slightly different way.
2. Center a STD saddle on one of the saddle location marks on one of the wings. Insert two 1/2" x 6 1/2" bolts through the saddle so as to straddle the wing tube. Slide one of the pull points onto the bolts from the back side as shown and bolt it in place with two 1/2" lock washers and hex nuts. Repeat the process for the remaining STD saddles.

Center one of the SPC saddles on one of the remaining saddle location marks. Use two 1/2" x 6 1/2" bolts, lock washers, and hex nuts to mount the saddle and pull point as with the STD saddles. Use a 1/2" x 3 1/2" bolt, lock washer, and hex nut to bolt the top of the saddle to the upper rail.

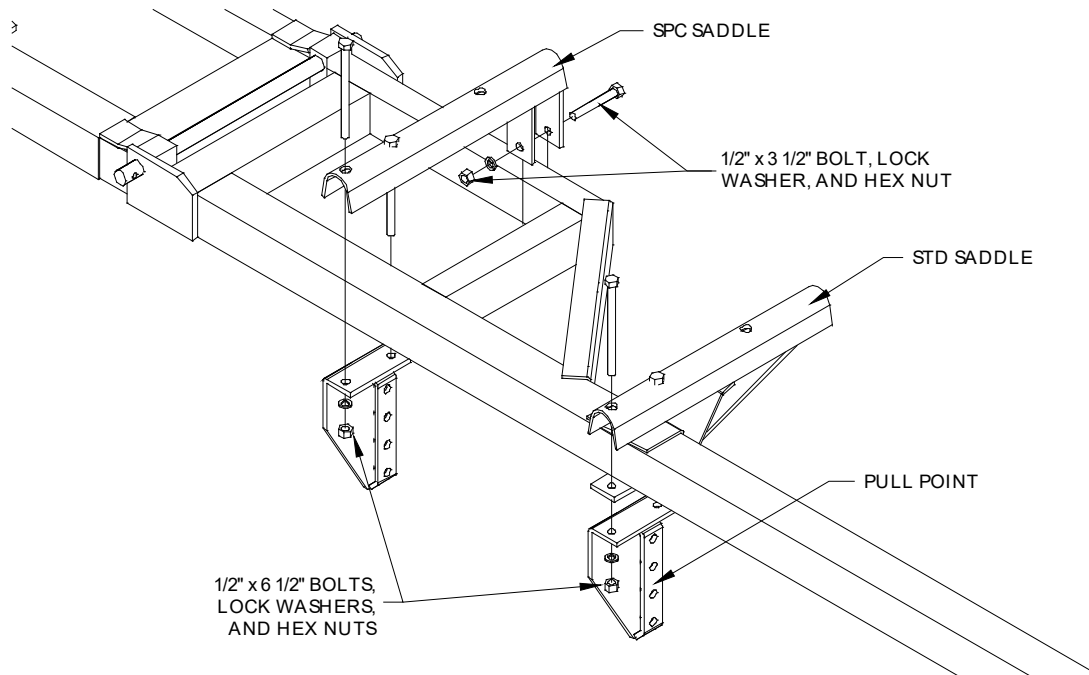


Figure 12

Attach the Wing Cables

Attach the wing cables using the two holes available between the hitch caps.

1. Insert 7/8" OD x 5/8" ID x 1" bushings into the ends of the wing cables and bolt them between the hitch caps. Refer to Figure 10. Use a 5/8" x 2 1/2" bolt, lock washer, and hex nut. Tighten all four of the 5/8" bolts on the hitch cap.

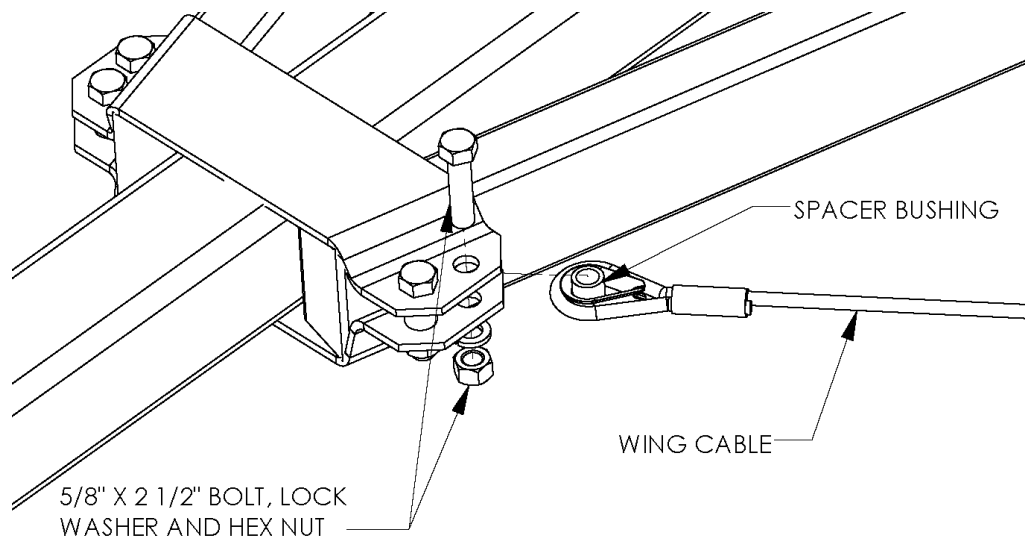


Figure 13

For the following two steps, the unit **must** be in the field position: hook the unit to a tractor, rotate the wings out and rotate the center bar and wings down.

2. Bolt the wing cable brackets to the free end of the wing cables. Refer to Figure 11. Place one of the 17/32" ID x 15/16" OD x 9/16" spacer bushings into the free ends of the wing cables, then bolt the wing cables to the wing cable brackets using 1/2" x 2" bolts, lock washers, and hex nuts.
3. Use two 1/2" x 3" x 4 1/4" U-bolts to clamp the wing cable brackets to the wings. Pull the cables tight by sliding the bracket outward until the wings line up with the center bar. Tighten the U-bolts.

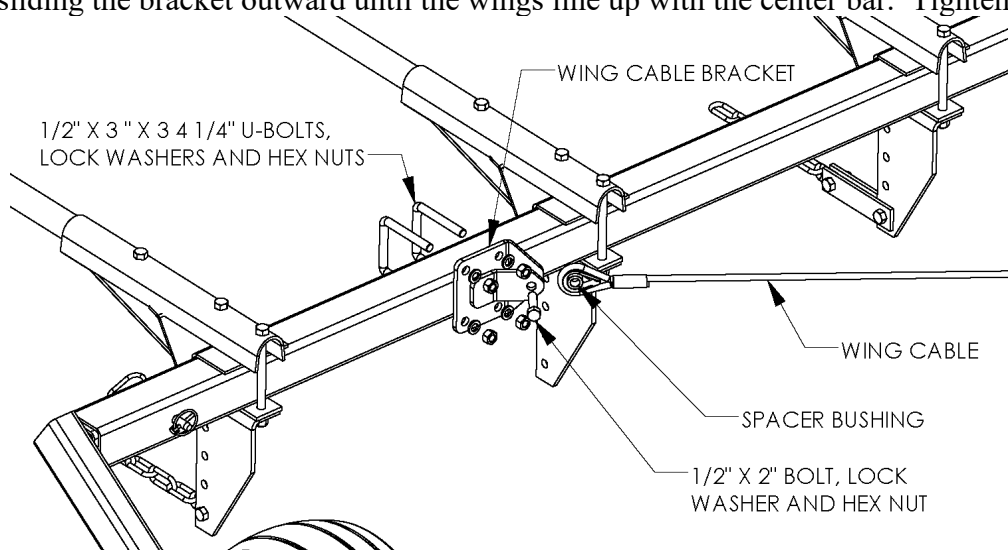


Figure 14

Install the Lift Tubes

Insert a lift tube into each of the saddles. Refer to Figure 15. The bend in the lift tube should be to the rear, facing downward. Bolt the tubes in place using 1/2" x 2 1/2" bolts and lock nuts.

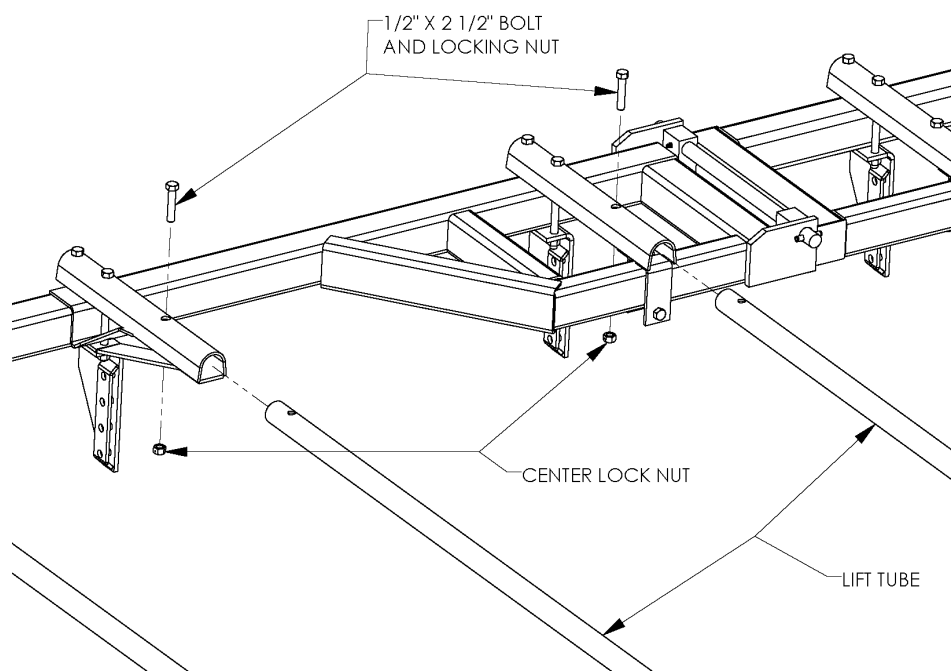


Figure 15

Harrow Configurations

McFarlane harrow sections may be attached in one of two distinct configurations: 8-bar and 4+4-bar. The 8-bar harrow configuration utilizes a single set of pull points (already installed) located adjacent to the center bar and wings. The 4+4-bar harrow configuration also utilizes a second set of pull points located at the rear end of the lift arms. Persons assembling an 8-bar harrow should **ignore** the instructions in *italics* describing the attachment of the rear pull points. Those assembling a 4+4-bar harrow should be sure to **follow** the instructions for attaching the rear pull points in *italics*.

Attach the Rear Pull Points

Note that the pull points consist of two assemblies: one right hand and one left hand.

Attach a rear pull point to the end of each lift arm. Refer to Figure 16. Secure the pull point with a 1/2" x 3" bolt, lock washer, and hex nut through the hole in the lift arm, and a 1/2" x 1 1/2" bolt, lock washer, and hex nut through the hole immediately below the lift arm.

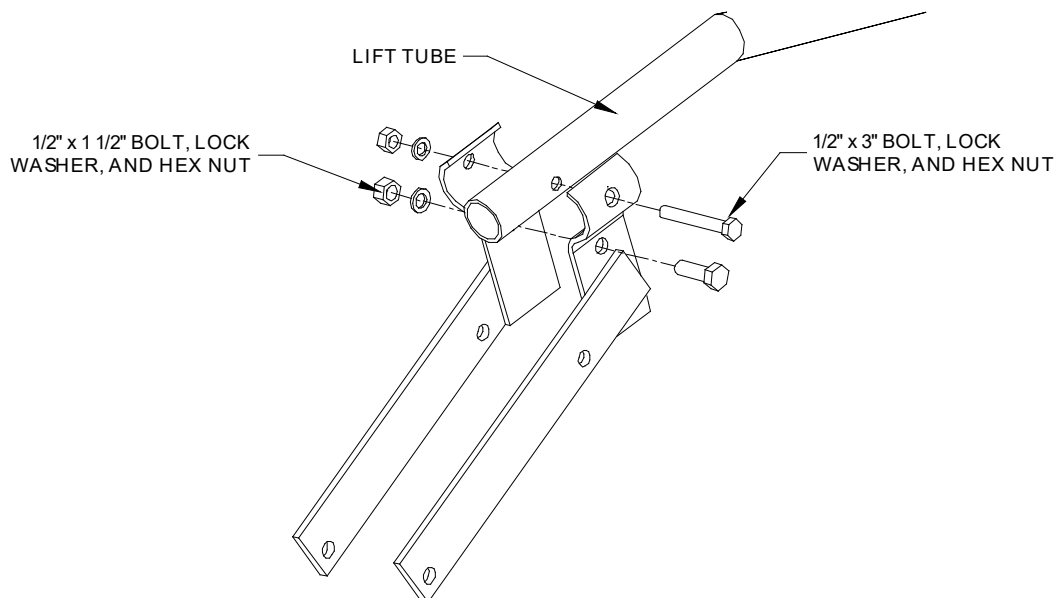


Figure 16

Attach the Pull Chains

Be sure to follow the instructions for your particular harrow configuration.

8-Bar Pull Chains

Attach an 8-link pull chain to each of the pull points. Refer to Figure 17. Use a 1/2" x 2" bolt, lock washer, and hex nut. There should be one pull chain for each of the pull points.

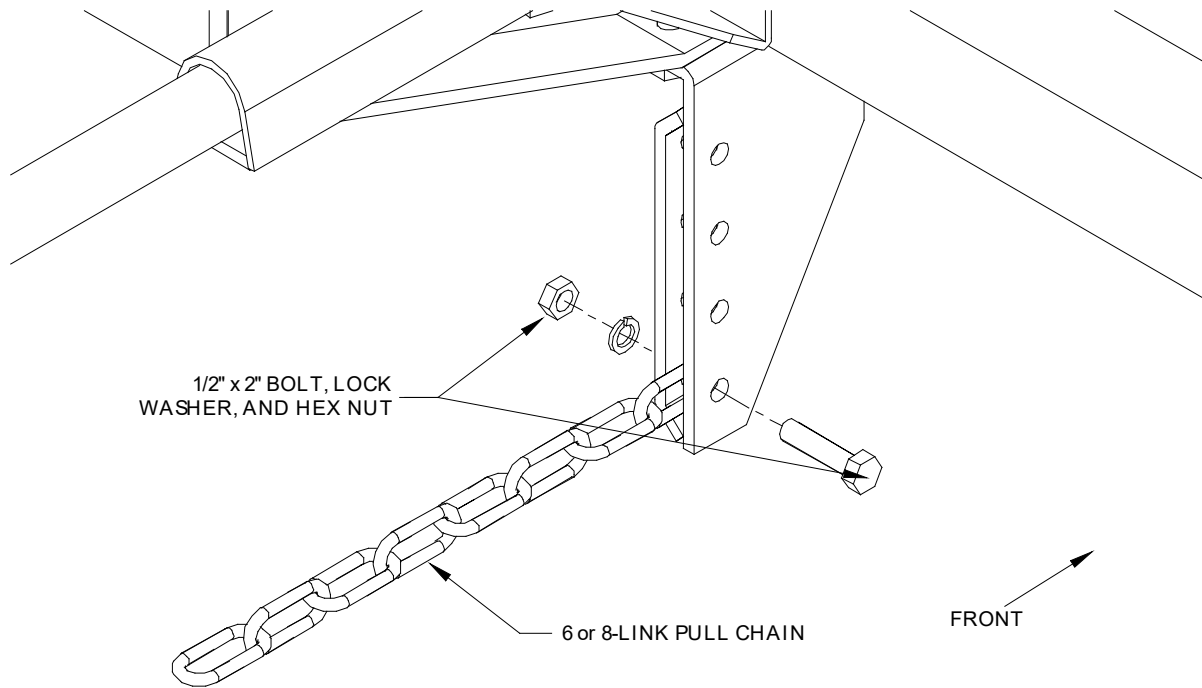


Figure 17

4+4-Bar Pull Chains

Attach a 6-link pull chain to each of the pull points. Refer to Figures 17 and 18. Use a 1/2" x 2" bolt, lock washer, and hex nut. There should be one pull chain for each of the pull points.

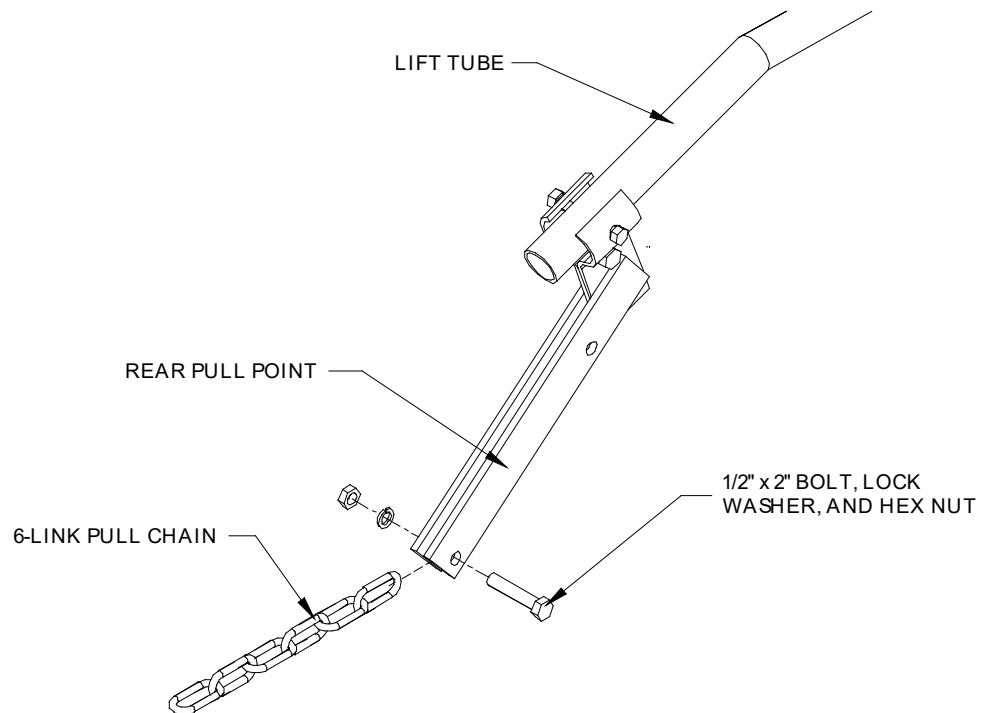


Figure 18

Attach the Stabilizer Angles

Place the proper stabilizer angle (refer the appropriate diagram in appendix C and Figure 19) across the ends of each set of lift tubes. Bolt the stabilizer angles to the lift tubes using 7/16" x 1 11/16" x 2 11/16" U-bolts, flat washers, lock washers, and hex nuts.

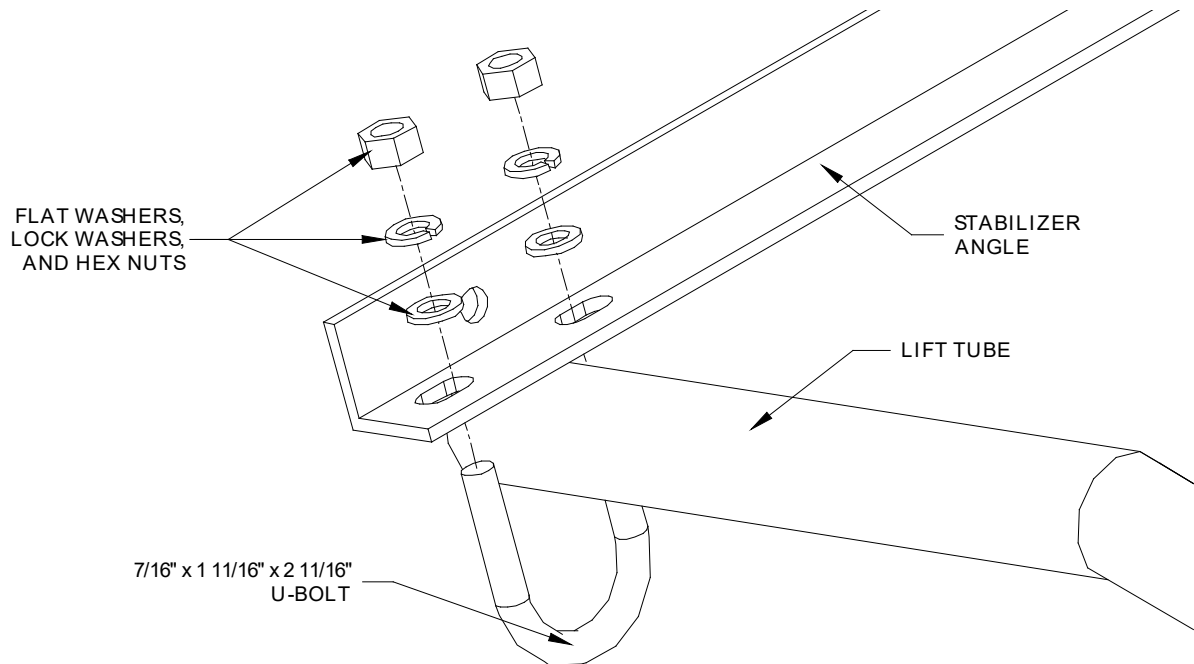


Figure 19

Attach the Lift Chains

Be sure to follow the instructions for your particular harrow configuration.

8-Bar Section Lift Chains

Attach 7-link lift chains to the stabilizer angles at the back end of each of the lift tubes. Refer to Figure 20. Use 7/16" x 1 1/4" bolts, flat washers, lock washers, and hex nuts.

4+4-Bar Section Lift Chains

Attach 6-link lift chains to the rear pull points as shown in Figure 18. Use 1/2" x 2" bolts, lock washers, and hex nuts.

There should be one lift chain for each tube.

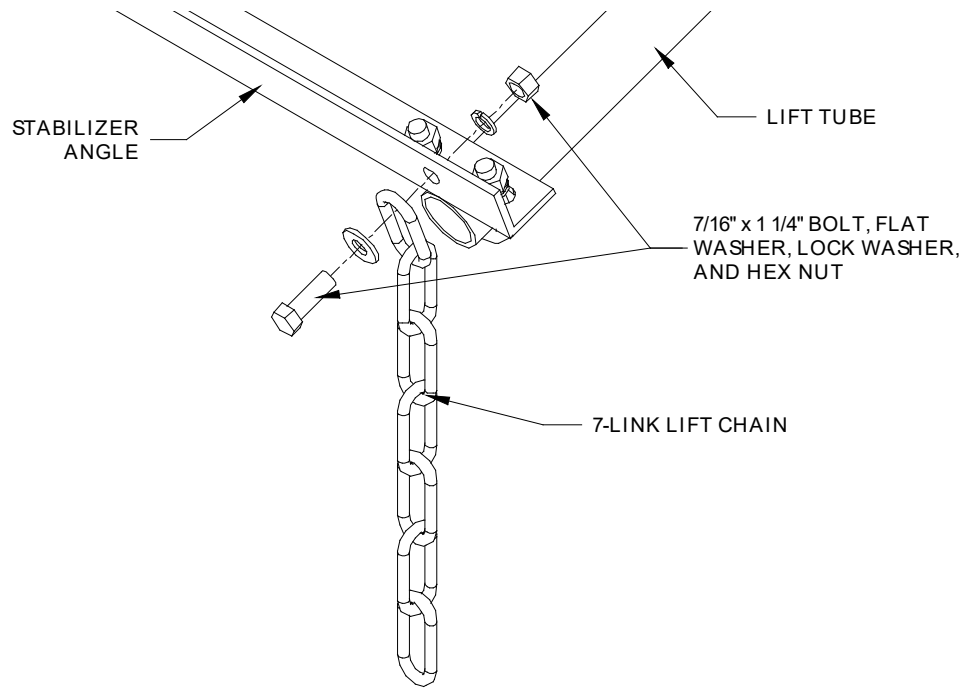


Figure 20

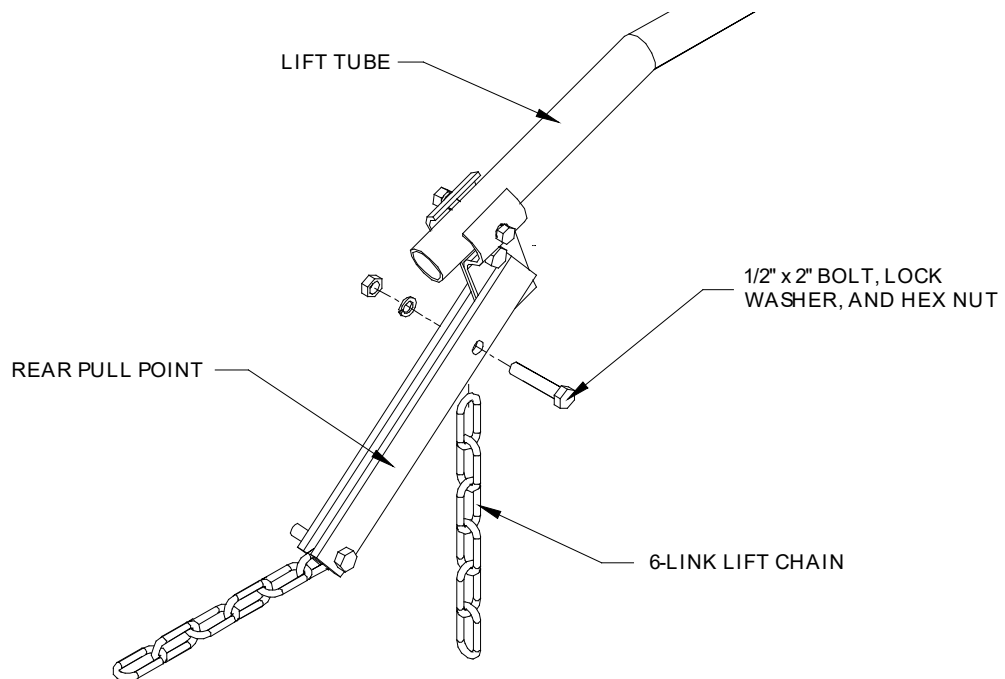


Figure 21

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 22 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.

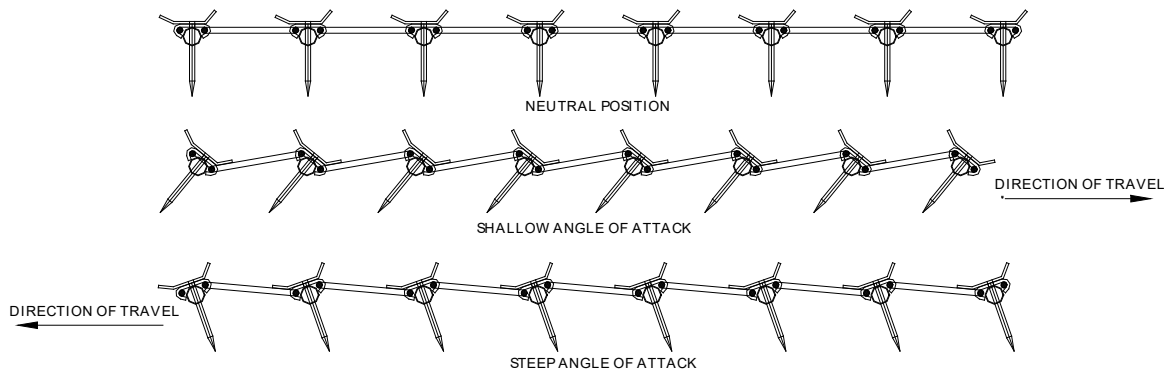


Figure 22

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.

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.

- 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. A diagram and parts listing of the FH harrow sections may be found in appendix B.

Attach the Harrow Sections

Refer to the appropriate diagram in appendix C for proper harrow placement. Be sure to follow the instructions for your particular harrow configuration.

8-Bar Harrow Sections:

1. Place the harrow sections on the ground under the lift arms where each one is to be mounted.
2. Attach the pull chains as shown in Figure 23; use a 1/2" x 1 1/2" bolt, flat washer, lock washer, and hex nut. Make sure the pull chains are not twisted, or binding may occur during transporting or when the harrow is being used in the fields.
3. Attach the lift chains as shown in Figure 24; use a 1/2" x 1 1/2" bolt, flat washer, lock washer, and hex nut. Make sure the lift chains are not twisted, or binding may occur during transporting or when the harrow is being used in the fields.

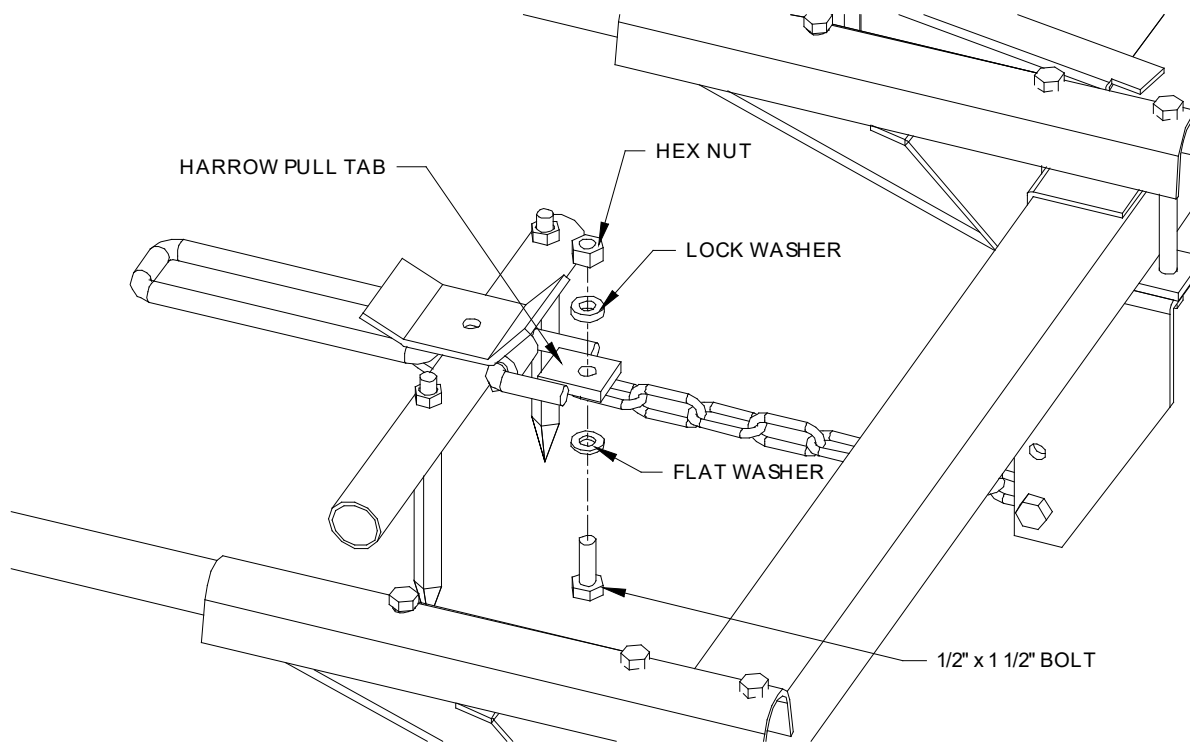


Figure 23

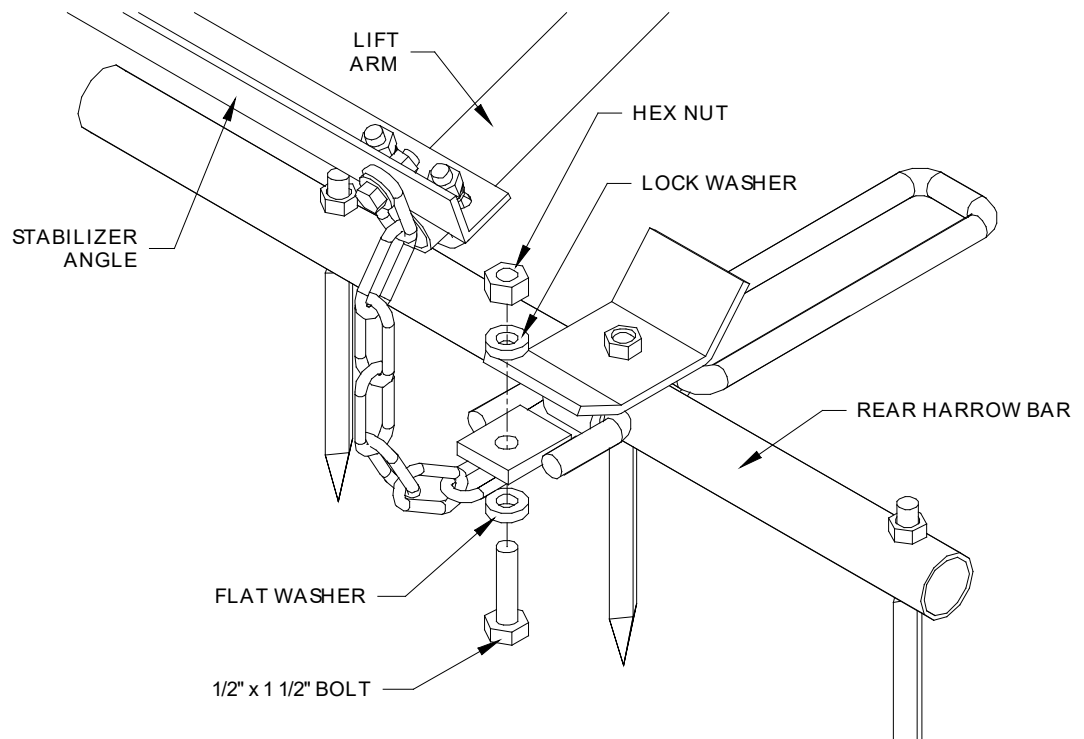


Figure 24

4+4 Bar Harrow Sections:

1. Place the harrow sections on the ground under the lift arms where each one is to be mounted.
2. Attach the pull chains as shown in Figure 17 and 25; use 1/2" x 1 1/2" bolt, flat washers, lock washers, and hex nuts. Make sure the pull chains are not twisted, or binding may occur during transporting or when the harrow is being used in the fields.

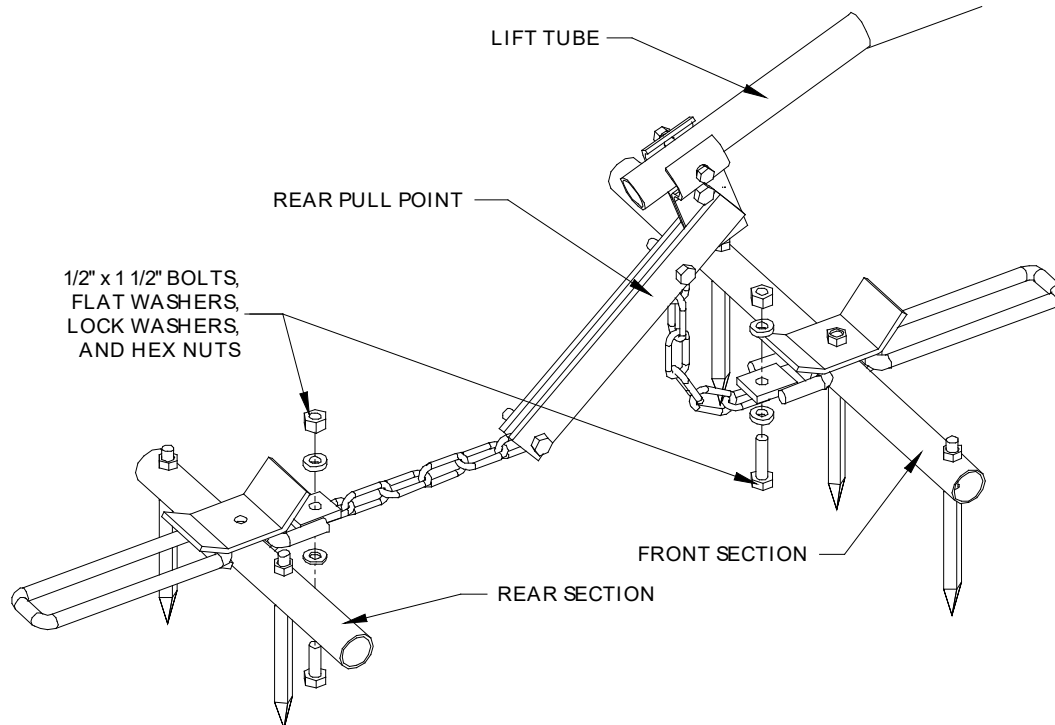


Figure 25

3. Attach the lift chains as shown in Figure 25; use 1/2" x 1 1/2" bolts, flat washers, lock washers, and hex nuts. Make sure the lift chains are not twisted, or binding may occur during transporting or when the harrow is being used in the fields.

Attach the Wing Rests

(Refer to Figure 26)

The left and right wing rests can be differentiated by noticing the small angle welded to the side of the arm. The angle should be on the front side of the arm when the arm is in position on the main frame.

1. Slide the wing rests between the cross angles on the main frame. Bolt the wing rests into place with 5/8" x 6" bolts, lock washers, and hex nuts. Do *not* tighten the bolts yet.
2. With the center bar and wings in the upright position, swing the wings forward. **Be sure the unit is attached to a tractor of adequate size before actuating the hydraulics!** Place the wings in the wing rests as shown in Figure 26. If the wing tube height does not line up with the wing rest, the stop bolt must be adjusted (this will be done later in the final adjustment).
3. It may be necessary to swing the wing rests forward or backward in order to clear the saddles on the wings. Use the wing rest lock pins and lock the wings in the wing rests. Place the bridge pins in the ends of the wing rest lock pins. Do *not* tighten the bolts yet.

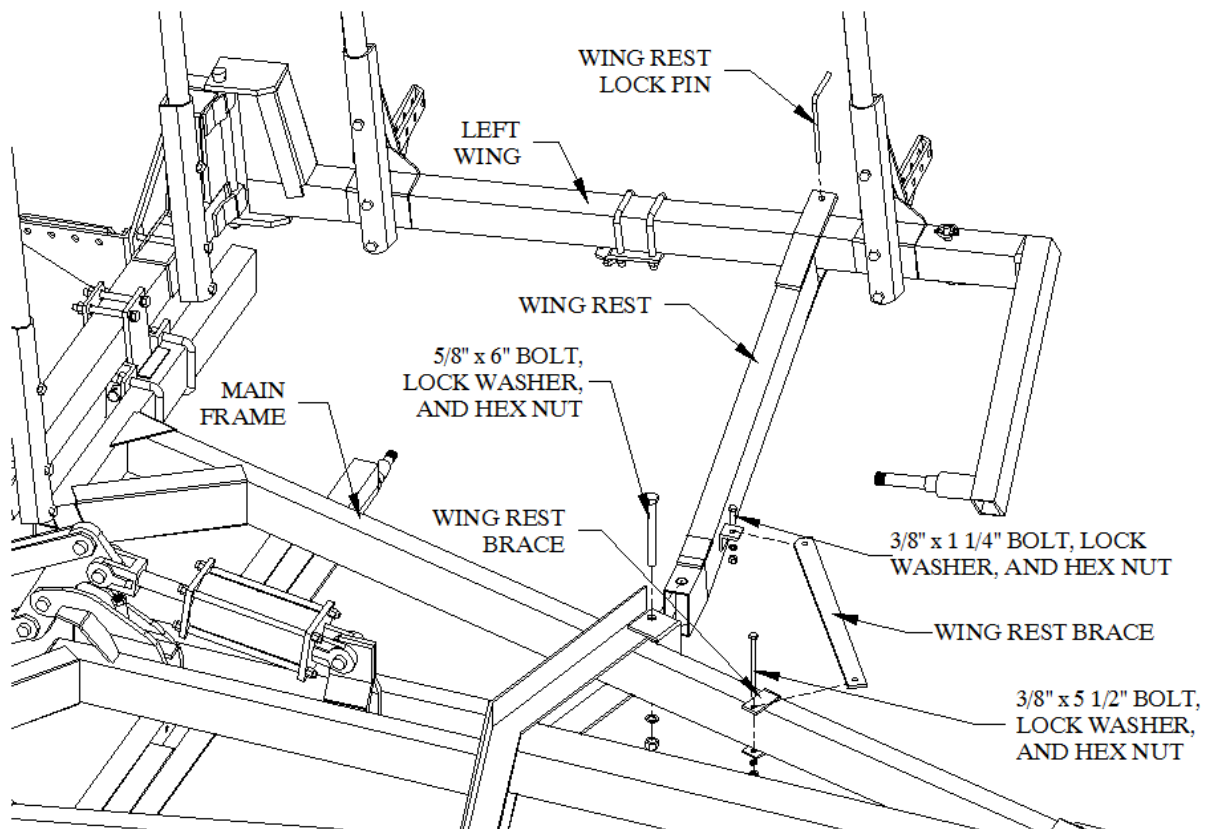


Figure 26

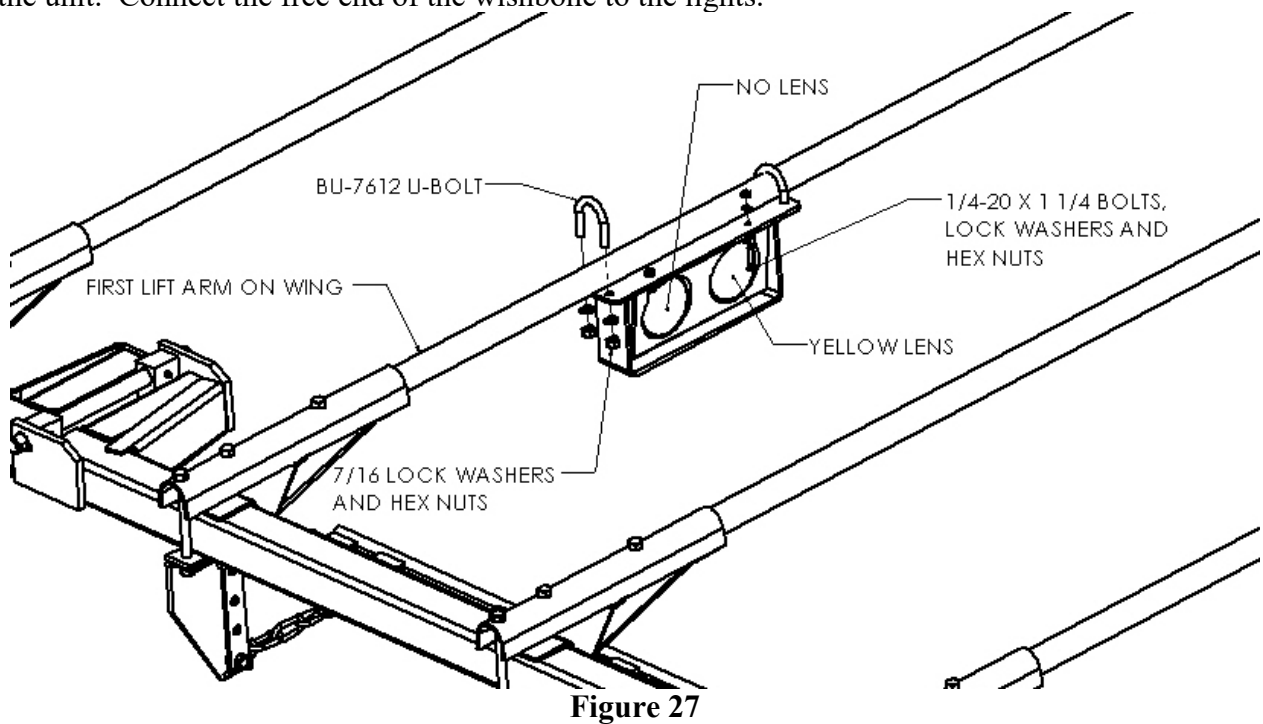
4. Bolt the wing rest braces to the small angles which are welded to the front side of the wing rests using 3/8" x 1 1/4" bolts, lock washers, and hex nuts. Do *not* tighten the bolts yet.
5. Rotate the wing rest braces back and connect them to the main frame using the wing rest brace clamps with 3/8" x 5 1/2" bolts, lock washers, and hex nuts.
6. Tighten all the bolts that hold the wing rest assemblies in place.

Install the Lighting Package

1. With the unit in field position, lay out the wire harness wishbone. The wishbone has a four pin plug in the middle of it and is split with three pin plugs on each end. The three pin plug connects to the lights. Lay the wishbone out on the tool bar, following across to the first lift arm of each wing. Do not attach to the frame yet.
2. Lay out the wire harness extension with the seven pin connector. Start by plugging it into the wire harness wishbone that is laid out on the tool bar. Work towards the hitch, following along the center bar tube to the main lift hydraulic cylinder and then along the hydraulic hoses up to the main frame. Do not attach yet. Make sure there is plenty of slack to connect to the towing vehicle. The wire harness may need to be pulled towards the hitch and the rear connection point moved to one side.
3. If the lights are not already mounted into the mounting brackets, attach them now using the 1/4 x 1 1/4 bolts, flat washers, lock washers and hex nuts.

Attach the light assemblies to the first lift arm on the wings using the 7/16 X 1 5/8 x 2 3/4

U-bolts, lock washers and hex nuts. 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 rear of the unit. The single yellow lens will be facing away from the center of the unit. Connect the free end of the wishbone to the lights.



4. Now that the lights have been mounted and the wires run, attach wire harnesses to the frame and hydraulic hoses with zip ties. 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.
5. Tighten the light assemblies to the lift arms.
6. 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.
7. 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.
8. Attach Hitch Storage Bracket (11) using U-bolt (1), lock washers (2) and nuts (3). Attach the Light Plug Storage receptacle (10) using 1/4 x 1 bolts (7), lock washers (8) and nuts (9). Attach the Hydraulic Hose Clamp (5) using 5/16 x 2 bolt (4), and locking nut (6).

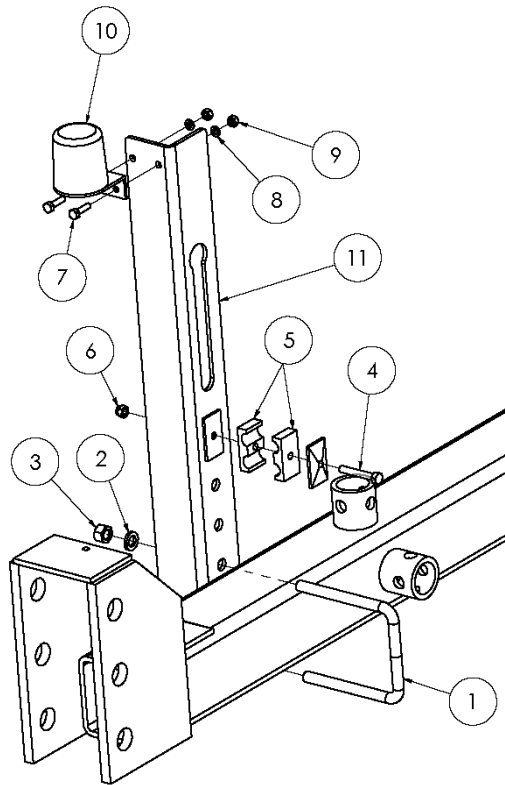


Figure 28

Attach the Slow Moving Vehicle Sign

1. Attach the SMV Mount Bracket (1) approximately in the middle of the Lift Arm using the 7/16 x 1.625 x 2.75 U-bolt (2) and locking nuts (3).
2. Attach the SMV sign (4) to the Mounting Bracket (1) using the 1/4 -20 x 1 bolts (5) and locking nuts (6).

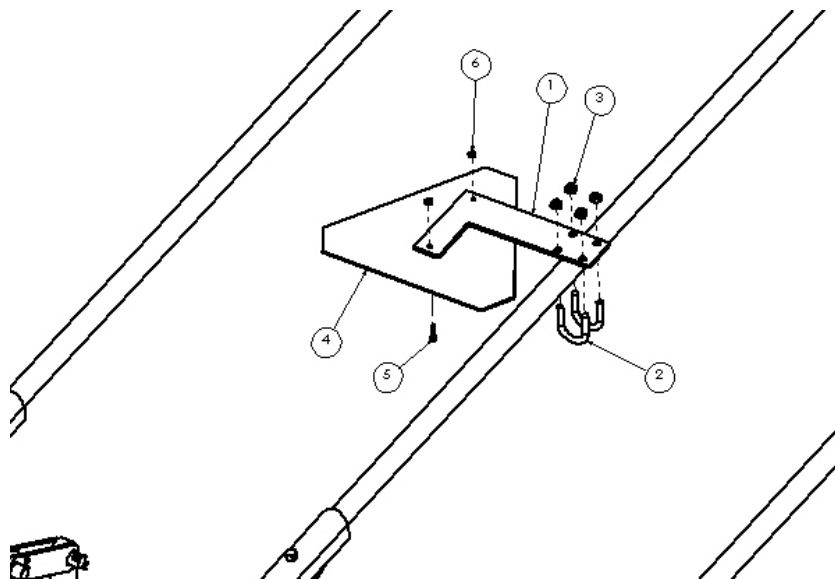


Figure 29

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 29. Rotate them either backward or forward 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 (refer to figure 8 on page 17) tight against main hinge plate when the unit is in the transport position. 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 with the wing rest lock pins.

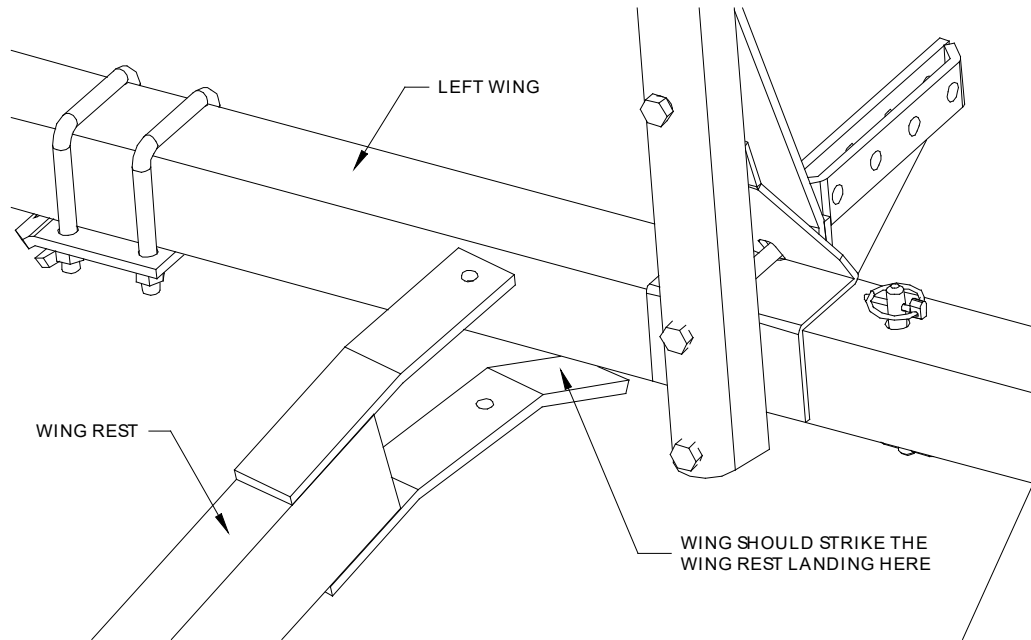


Figure 30

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
	Main hinge plate stop bolt maladjusted	Readjust hinge plate stop bolt
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

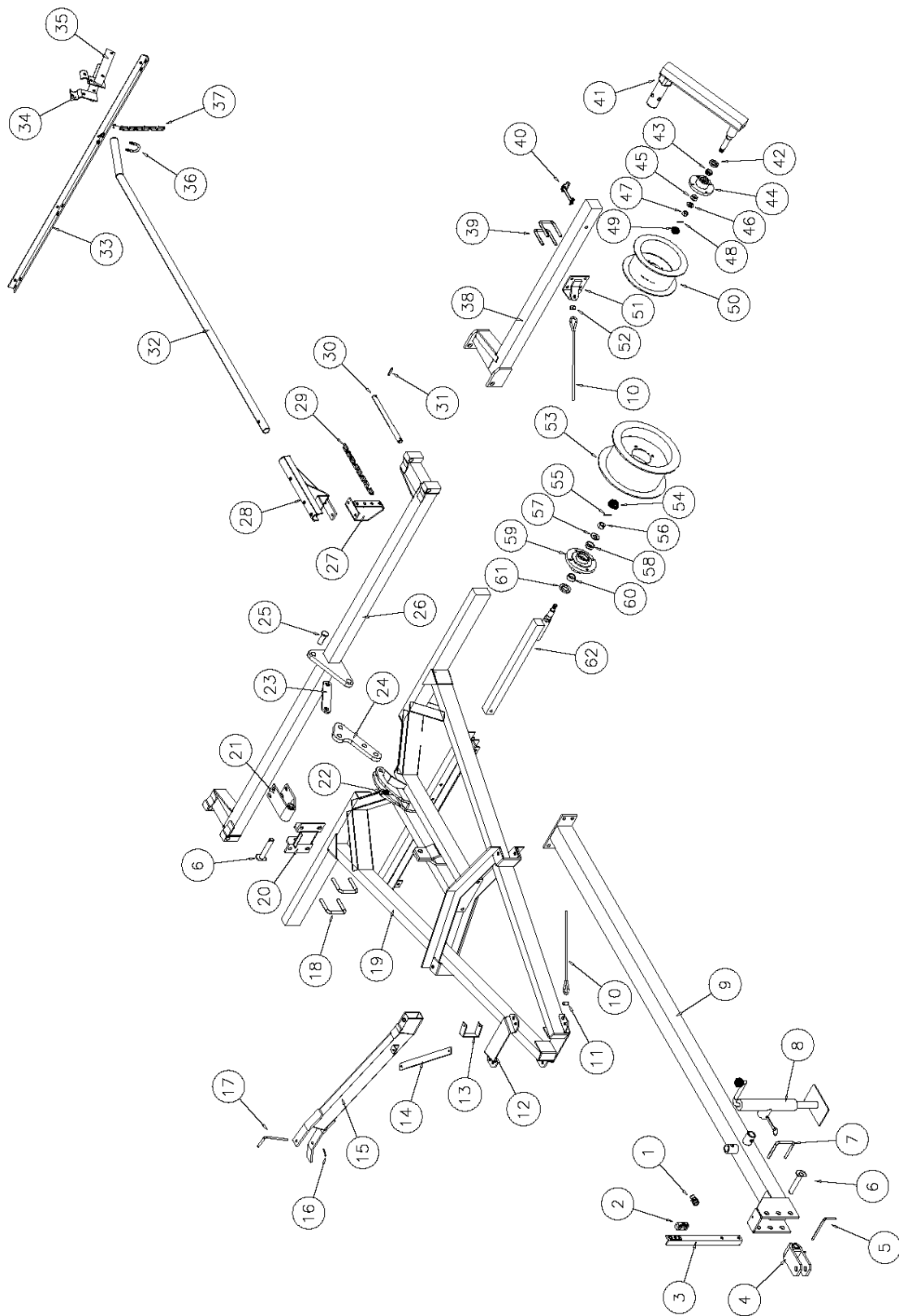
Coarse Thread Series		
Nut Size and Threads per Inch	Nut Tightening Torque (lb.ft.)	
Grade C Nuts		
	Max.	Min.
1/4 - 20	14.7	10
5/16 - 18	22.3	15.2
3/8 - 16	39	28
7/16 - 14	60	44
1/2 - 13	88	63
9/16 - 12	134	98
5/8 - 11	172	127
3/4 - 10	295	218
7/8 - 9	440	317
1 - 8	651	506

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

HUB AND TIRE SPECIFICATIONS

Tire Size	Play Rating	Tire Pressure	Lug Size	Lug Tightening Torque (lb.ft.)	
				Max.	Min.
18.5X8.5-8	4	35	1/2"	85	75
7.60-15	8	52	1/2"	85	75
11L-15	8	36	1/2"	90	80

HDL-16 THROUGH HDL-30 HARROW CART PARTS DIAGRAM



HDL-16 through HDL-30 HARROW CART PARTS LIST

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

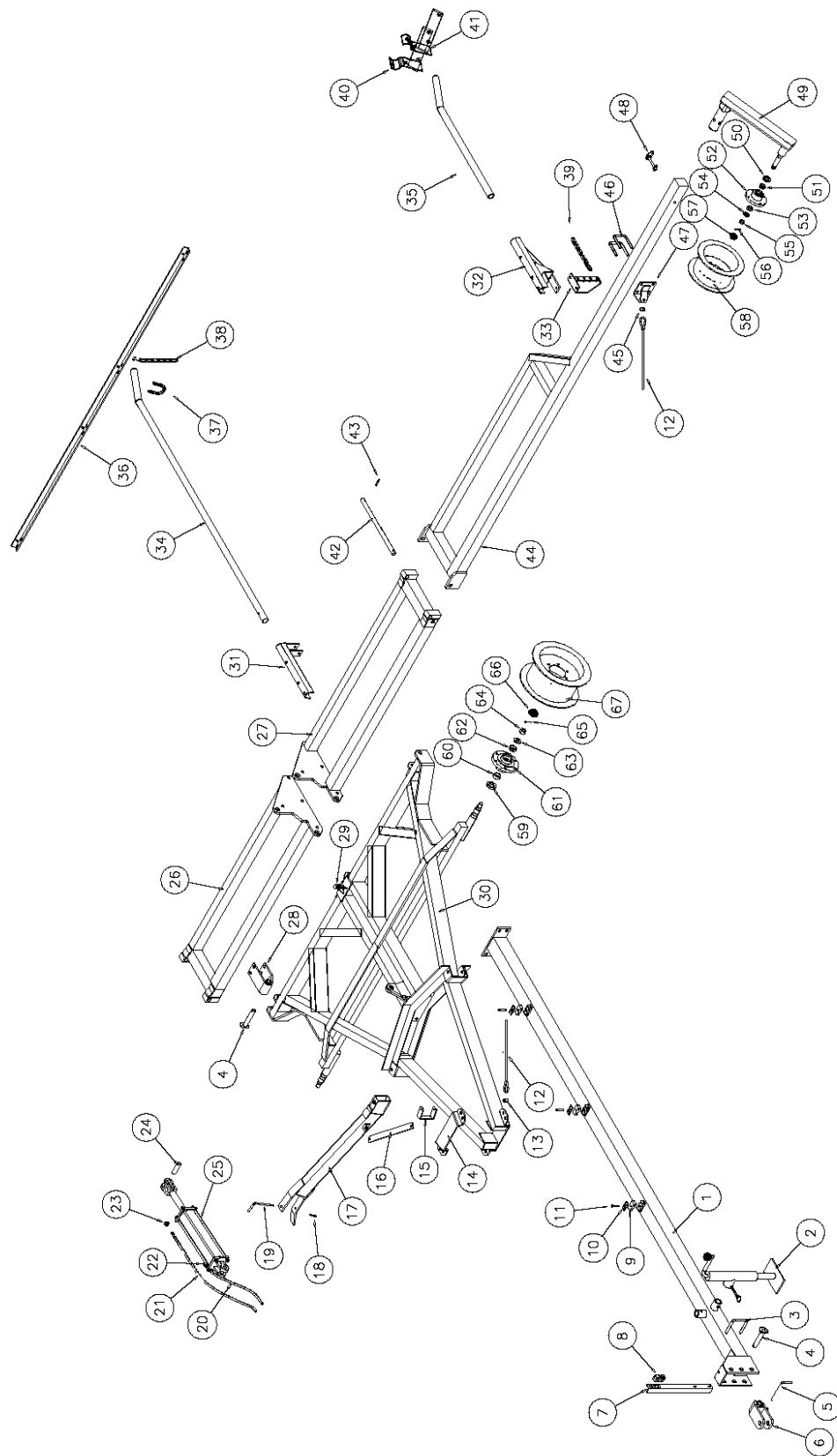
KEY	PART #	DESCRIPTION	QTY.
1	HY-1301	1/2" HYDRAULIC FLOW RESTRICTOR	1
2	HY-3008	3/8" HYDRAULIC HOSE CLIP	1
3	HD-1154	HOSE POST (20")	1
4	WD-301	CLEVIS HITCH	1
5	HD-1158	HITCH STOP PIN	1
6	HD-1157	HINGE PIN	3
7	BU-1245	U-BOLT (1/2" x 4" x 5")	1
8	HD-1151	POLE JACK (10")	1
9	HD-2010	HITCH POLE (10')	1
**	12503	SAFETY CHAIN	1
**	RT-2021	SAFETY CHAIN BUSHING	1
**	RT-3103	SAFETY CHAIN WASHER	1
10	WC-8xxx	WING CABLE	2
11	HD-1216	HITCH CAP BUSHING	4
12	HD-1217	HITCH CAP	1
13	HD-1219	WING REST BRACE CLAMP	2
14	HD-1211	WING REST BRACE	2
15	HD-1221	WING REST (right hand)	1
**	HD-1220	WING REST (left hand)	1
16	HD-1184	#3 BRIDGE PIN	2
17	HD-1153	WING REST LOCK PIN	2
18	BU-5843	U-BOLT (5/8" x 4" x 3 1/2")	4
19	HD-1100	SHD MAIN FRAME	1
20	HD-1138	CENTER BAR HINGE BRACKET	2
21	HD-1225	HINGE WRAP	2
22	HD-1223	STOP BOLT (5/8")	1
23	HD-1148	LINKAGE FLAT	4
24	HD-1147	ROCKER PLATE	1
25	HD-1149	LINKAGE FLAT PIN	5
26	***	CENTER BAR ASSEMBLY	1
27	HD-1137	PULL POINT	*
28	HD-1133	SADDLE	*
29	CH-0706	6-LINK PULL CHAIN	*
**	CH-0708	8-LINK PULL CHAIN	*
30	HD-1132	WING HINGE PIN	2
31	HD-1229	SPRING ROLL PIN (3/8" x2")	4
32	HD-1135	8-BAR LIFT TUBE	*
32	HD-1140	4-BAR LIFT TUBE	*
33	***	LIFT TUBE STABILIZER ANGLE	*
34	HD-1145	REAR PULL POINT (right hand)	*
35	HD-1146	REAR PULL POINT (left hand)	*
36	BU-7612	U-BOLT (7/16" x 1 11/16" x 2 11/16")	*
37	CH-0706	6-LINK LIFT CHAIN	*

**	CH-0707	7-LINK LIFT CHAIN	*
38	***	LEFT WING ASSEMBLY	1
**	***	RIGHT WING ASSEMBLY	1
39	BU-1234	U-BOLT (1/2" x 3" x 4 1/4")	4
40	HD-1231	WING WHEEL LOCK PIN	2
**	HD-1129	WING WHEEL LEG (left hand)	1
41	HD-1130	WING WHEEL LEG (right hand)	1
42	HD-1179	GREASE SEAL	2
43	HD-1178	INNER BEARING	2
44	HD-1180	HUB WITH RACES	2
45	HD-1178	OUTER BEARING	2
46	HD-1187	SPINDLE FLAT WASHER	2
47	HD-1185	SPINDLE HEX NUT	2
48	CP-5312	COTTER PIN (5/32" x 1 1/4")	2
49	HD-1181	DUST CAP	2
50	HD-1188	RIM & TIRE	2
51	HD-1142	WING CABLE BRACKET	2
52	HD-1144	WING CABLE BRACKET BUSHING	2
53	HD-1168	RIM (15" x 4.5" 4-hole) FOR 7.60-15 TIRE	2
54	HD-1167	DUST CAP	2
55	CP-5312	COTTER PIN (5/32" x 1 1/4")	2
56	HD-1165	SPINDLE HEX NUT	2
57	HD-1164	SPINDLE FLAT WASHER	2
58	HD-1163	OUTER BEARING	2
59	HD-1161	HUB WITH RACES	2
60	HD-1162	INNER BEARING	2
61	HD-1160	GREASE SEAL	2
62	HD-1102	SHD MAIN FRAME AXLE ASSEMBLY	2
**	CP-1420	COTTER PIN (1/4" X 2")	*
**	CP-5312	AXLE COTTER PIN (5/32" X 1-1/4")	*
**	HD-1166	SPINDLE ONLY (4-HOLE HUB)	*
**	HD-1186	SPINDLE ONLY (WING WHEEL)	*
**	DC-111	DECAL: "STAND CLEAR..."	1
**	DC-116	DECAL: "DO NOT CLIMB ON..."	1
**	DC-117	DECAL: "...USE JACK STAND"	1
**	DC-119	DECAL: "ESCAPING FLUID..."	1
**	***	BOLT BAG	1
**	***	LITERATURE PACKET	1
*		Quantity depends on harrow sections used.	
**		Unnumbered items are not pictured.	
***		Please specify model number when ordering these parts.	
xxx		length in inches (84" is 084, 112" is 112)	

Bolts, washers, nuts, and cotter pins are not shown. Refer to the setup instructions for details.

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

HDL-32 THROUGH HDL-36 HARROW CART **PARTS DIAGRAM**



HDL-32 through HDL-36 HARROW CART PARTS LIST

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

KEY	PART #	DESCRIPTION	QTY.
1	HD-2012	HITCH POLE (12') (HDL-32 only)	1
1	HD-2013	HITCH POLE (13') (HDL-34 and HDL-36 only)	1
**	12503	SAFETY CHAIN	1
**	RT-2021	SAFETY CHAIN BUSHING	1
**	RT-3103	SAFETY CHAIN WASHER	1
	HD-1151	POLE JACK (10")	1
3	BU-1245	U-BOLT (1/2" x 4" x 5")	3
4	HD-1157	HINGE PIN	4
5	HD-1158	HITCH STOP PIN	1
6	WD-301	CLEVIS HITCH	1
7	HD-1154	HOSE POST (20")	1
8	***	HYDRAULIC HOSE CLAMP	
9	HYO-1202	HYDRAULIC HOSE CLAMP BODY	4
10	HYO-1204	HYDRAULIC HOSE CLAMP COVER	4
11	HYO-1208	HYDRAULIC HOSE CLAMP BOLT	4
12	WC-8xxx	WING CABLE	2
13	HD-1216	HITCH CAP BUSHING	4
14	HD-1217	HITCH CAP	1
15	HD-1219	WING REST BRACE CLAMP	2
16	HD-1211	WING REST BRACE	2
17	HD-1221	WING REST (right hand)	1
**	HD-1220	WING REST (left hand)	1
18	HD-1184	#3 BRIDGE PIN	2
19	HD-1153	WING REST LOCK PIN	2
20	HYH-9192	3/8" x 192" HYDRAULIC HOSE (w/one 1/2" pipe end) 32' only	1
**	HYH-9204	3/8" x 204" HYDRAULIC HOSE (w/one 1/2" pipe end) 34'-36' only	1
21	HYH-9210	3/8" x 210" HYDRAULIC HOSE (w/one 1/2" pipe end) 32' only	1
**	HYH-9222	3/8" x 222" HYDRAULIC HOSE (w/one 1/2" pipe end) 34'-36' only	1
22	HYF-2820	ELBOW (3/8"m – 1/2"o-ring)	1
23	HYF-2821	ELBOW (3/8"m – 1/2"o-ring) w/restrictor	1
24	HYO-2123	1 1/4" x 3 1/2" CLEVIS PIN	2
25	HYA-33516	ASAE 3 1/2" x 16" HYDRAULIC CYLINDER (32 only)	1
25	HYA-34016	ASAE 4" x 16" HYDRAULIC CYLINDER (34 and 36 only)	1
26	HD-2259	RIGHT CENTER BAR HALF (HDL-32 and HDL-34 only)	1
26	HD-2268	RIGHT CENTER BAR HALF (HDL-36 only)	1
27	HD-2359	LEFT CENTER BAR HALF (HDL-32 and HDL-34 only)	1
27	HD-2368	LEFT CENTER BAR HALF (HDL-36 only)	1
28	HD-1225	HINGE WRAP	2
29	HD-1224	STOP BOLT	1
30	HD-1300	BHD MAIN FRAME	1
31	HD-1134	SPC SADDLE	*
32	HD-1133	STD SADDLE	*
33	HD-1137	PULL POINT	12
34	HD-1135	8-BAR LIFT TUBE	*
35	HD-1140	4-BAR LIFT TUBE	*
36	HD-3xxx	LIFT TUBE STABILIZER ANGLE	*
37	BU-7612	U-BOLT (7/16" x 1 11/16" x 2 11/16")	12
38	CH-0706	6-LINK LIFT CHAIN	*
38	CH-0707	7-LINK LIFT CHAIN	*
39	CH-0706	6-LINK PULL CHAIN	*

39	CH-0708	8-LINK PULL CHAIN	*
40	HD-1145	REAR PULL POINT (right hand)	*
41	HD-1146	REAR PULL POINT (left hand)	*
42	HD-1131	WING HINGE PIN	2
43	HD-1229	SPRING ROLL PIN (3/8" x2")	4
44	HD-2926	LEFT WING ASSEMBLY (HDL-32 only)	1
44	HD-2945	LEFT WING ASSEMBLY (HDL-34 and HDL-36 only)	1
**	HD-2826	RIGHT WING ASSEMBLY (HDL-32 only)	1
**	HD-2845	RIGHT WING ASSEMBLY (HDL-34 and HDL-36 only)	1
45	HD-1142	WING CABLE BRACKET	2
46	BU-1234	U-BOLT (1/2" x 3" x 4 1/4")	4
47	HD-1144	WING CABLE BRACKET BUSHING	2
48	HD-1231	WING WHEEL LOCK PIN	2
49	HD-1129	WING WHEEL LEG (left hand)	1
**	HD-1130	WING WHEEL LEG (right hand)	1
50	HD-1179	GREASE SEAL	2
51	HD-1178	INNER BEARING	2
52	HD-1180	HUB WITH RACES	2
53	HD-1178	OUTER BEARING	2
54	HD-1187	SPINDLE FLAT WASHER	2
55	HD-1185	SPINDLE HEX NUT	2
56	CP-5312	COTTER PIN (5/32" x 1 1/4")	2
57	HD-1181	DUST CAP	2
58	HD-1188	RIM & TIRE	2
59	HD-1368	RIM (15" x 8" 6-hole) FOR 11L-15 TIRE	2
60	HD-1367	DUST CAP (6-hole hub)	2
61	CP-1517	COTTER PIN	2
62	HD-1365	SPINDLE HEX NUT (6-hole hub)	2
63	HD-1364	SPINDLE FLAT WASHER (6-hole hub)	2
64	HD-1363	OUTER BEARING (6-hole hub)	2
65	HD-1361	HUB WITH RACES (6-hole hub)	2
66	HD-1362	INNER BEARING (6-hole hub)	2
67	HD-1360	GREASE SEAL (6-hole hub)	2
**	DC-111	DECAL: "STAND CLEAR..."	1
**	DC-116	DECAL: "DO NOT CLIMB ON..."	1
**	DC-117	DECAL: "...USE JACK STAND"	1
**	DC-119	DECAL: "ESCAPING FLUID..."	1
**	***	BOLT BAG	1
**	***	LITERATURE PACKET	1

* Quantity depends on harrow sections used.

** Unnumbered items are not pictured.

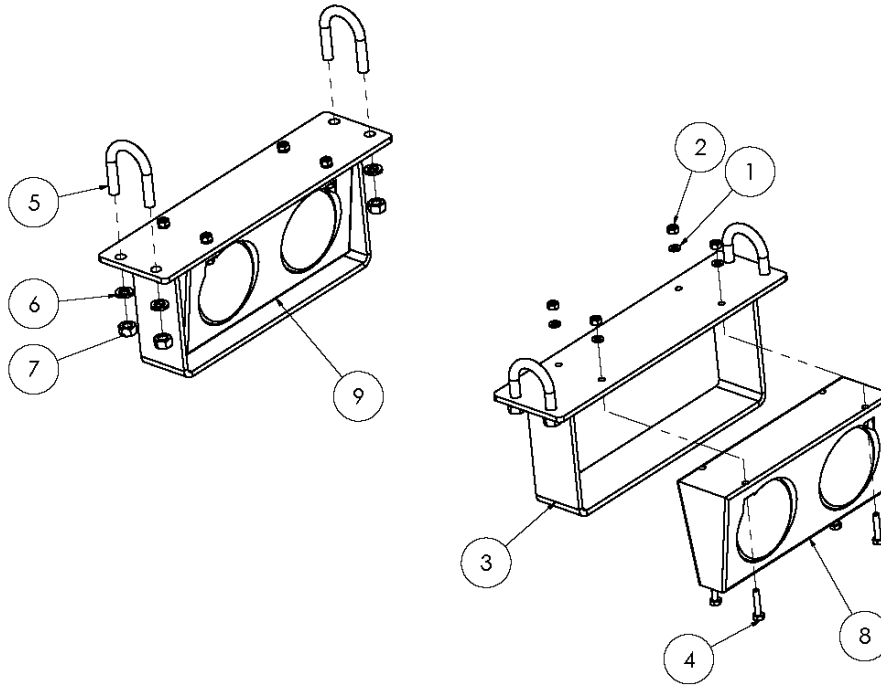
*** Please specify model number when ordering these parts.

xxx length in inches (84" is 084, 112" is 112)

Note: When ordering cylinder replacement parts, please specify cylinder make & part number.

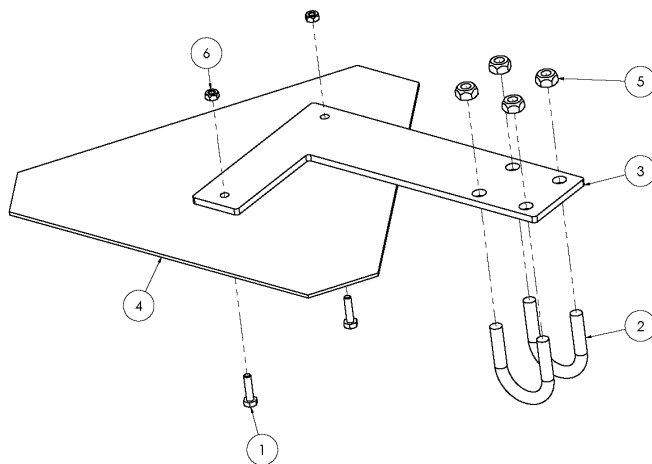
McFarlane Manufacturing reserves the right to change specifications of design at any time without obligation to modify previous products.

LIGHTS PARTS DIAGRAM



KEY	PART NO.	Description	QTY.
1	LW-0025	WASHER, LOCK, 1/4	8
2	NH-2520	NUT, HEX, 1/4	8
3	LB-1201	LIGHT BRACKET, HDL-10	2
4	BH-2513	BOLT, HEX, 1/4 X 1 1/4	8
5	BU-7612	U-BOLT, 7/16-14X1.625X2.75	4
6	LW-0044	WASHER, LOCK, 7/16	8
7	NH-4414	NUT, HEX, 7/16	8
8	LB-1101	LIGHT, DUAL, LT	1
9	LB-1102	LIGHT, DUAL, RT	1

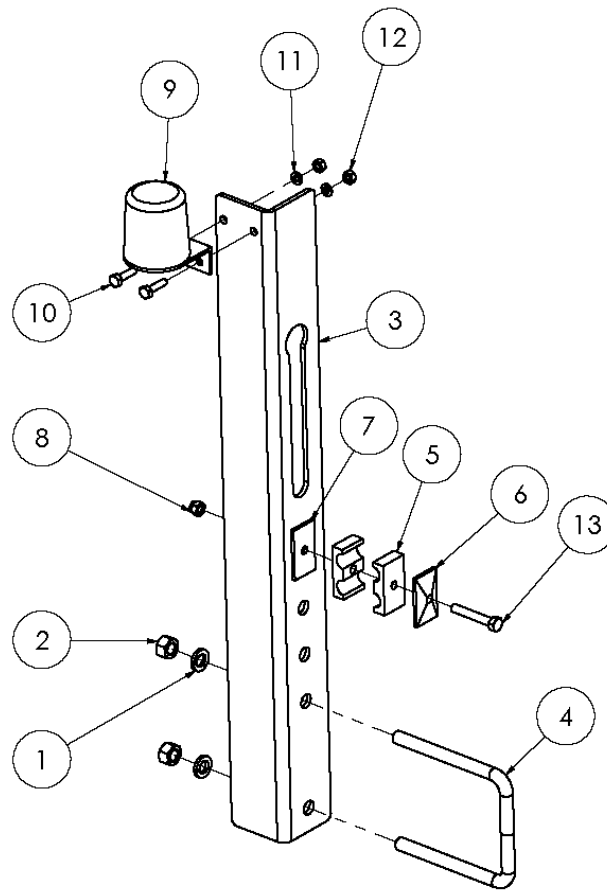
SLOW MOVING VEHICLE SIGN PARTS DIAGRAM



SLOW MOVING VEHICLE SIGN PARTS LIST

KEY	PART #	DESCRIPTION	QTY.
1	BH-2510	BOLT, HEX, 1/4 X 1	2
2	BU-7612	U-BOLT, 7/16-14 X 1 5/8 X 2 3/4	2
3	LB-1206	SMV BRACKET MOUNT 1.25	1
4	MM-1300	SMV SIGN	1
5	NLT-4414	NUT, LOCK, TOP.7/16-14	2
6	NLT-2520	NUT, TOP LOCK, 1/4-20	1

HITCH STORAGE BRACKET PARTS DIAGRAM

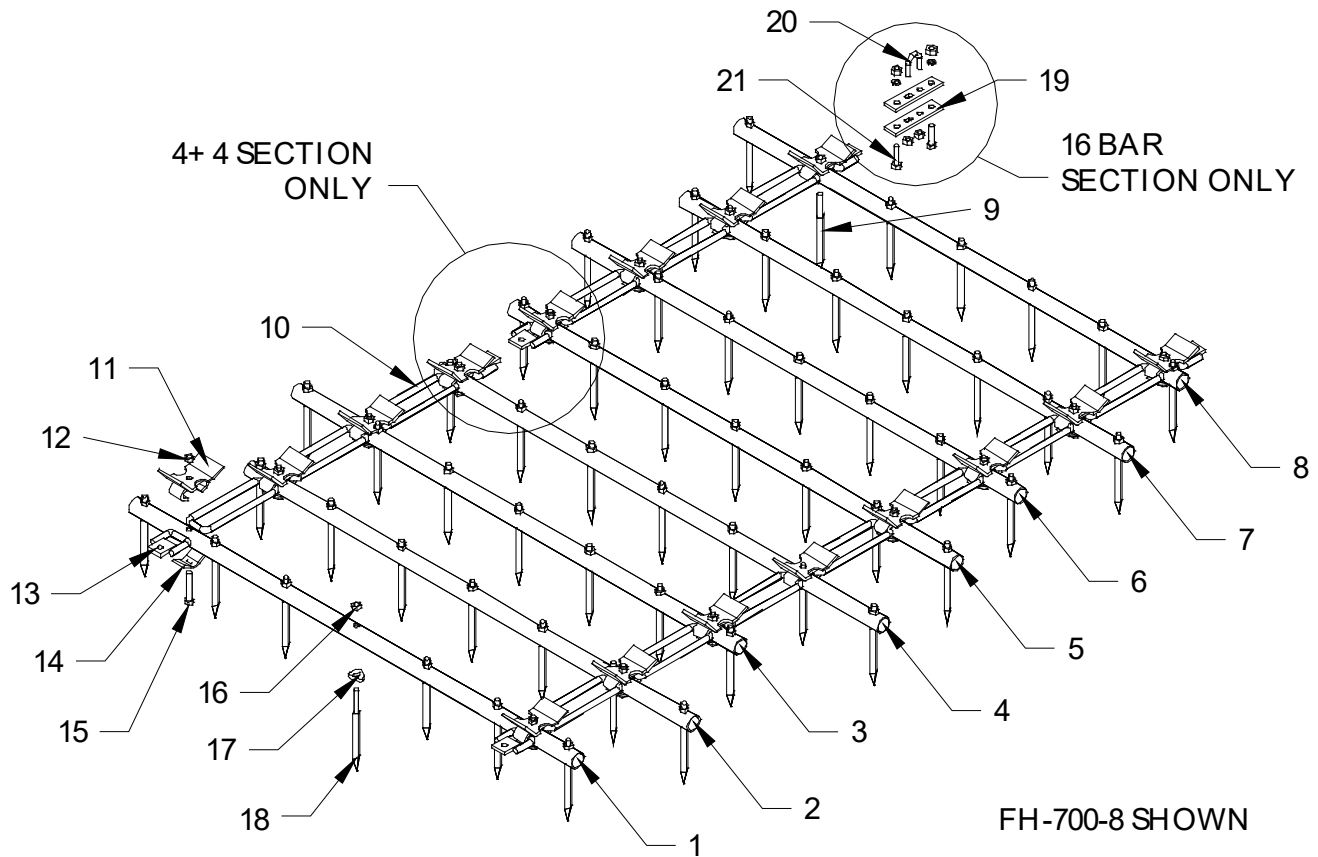


HITCH STORAGE BRACKET PARTS LIST

KEY	PART #	DESCRIPTION	QTY.
1	LW-0050	WASHER, LOCK, 1/2"	2
2	NH-5013	NUT, HEX, 1/2-13	2
3	LB-1105	HITCH STORAGE BRACKET	1
4	BU-1245	U-BOLT, 1/2 X 4 X 5	1
5	HYO-1002	HYD CLAMP SET, 3/8 (5/8OD)	2
6	HYO-1004	HYD CLAMP COVER, 3/8	1
7	HYO-1006	HYD WELD PLATE, 1/4-3/8	1
8	NY-3118	NUT, NYLON, 5/16	1
9	LB-1110	LIGHT PLUG STORAGE	1
10	BH-2510	BOLT, HEX, 1/4 X 1	2
11	LW-0025	WASHER, LOCK, 1/4	2
12	NH-2520	NUT, HEX, 1/4	2
13	BH-3120	BOLT, HEX, 5/16X2	1

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)

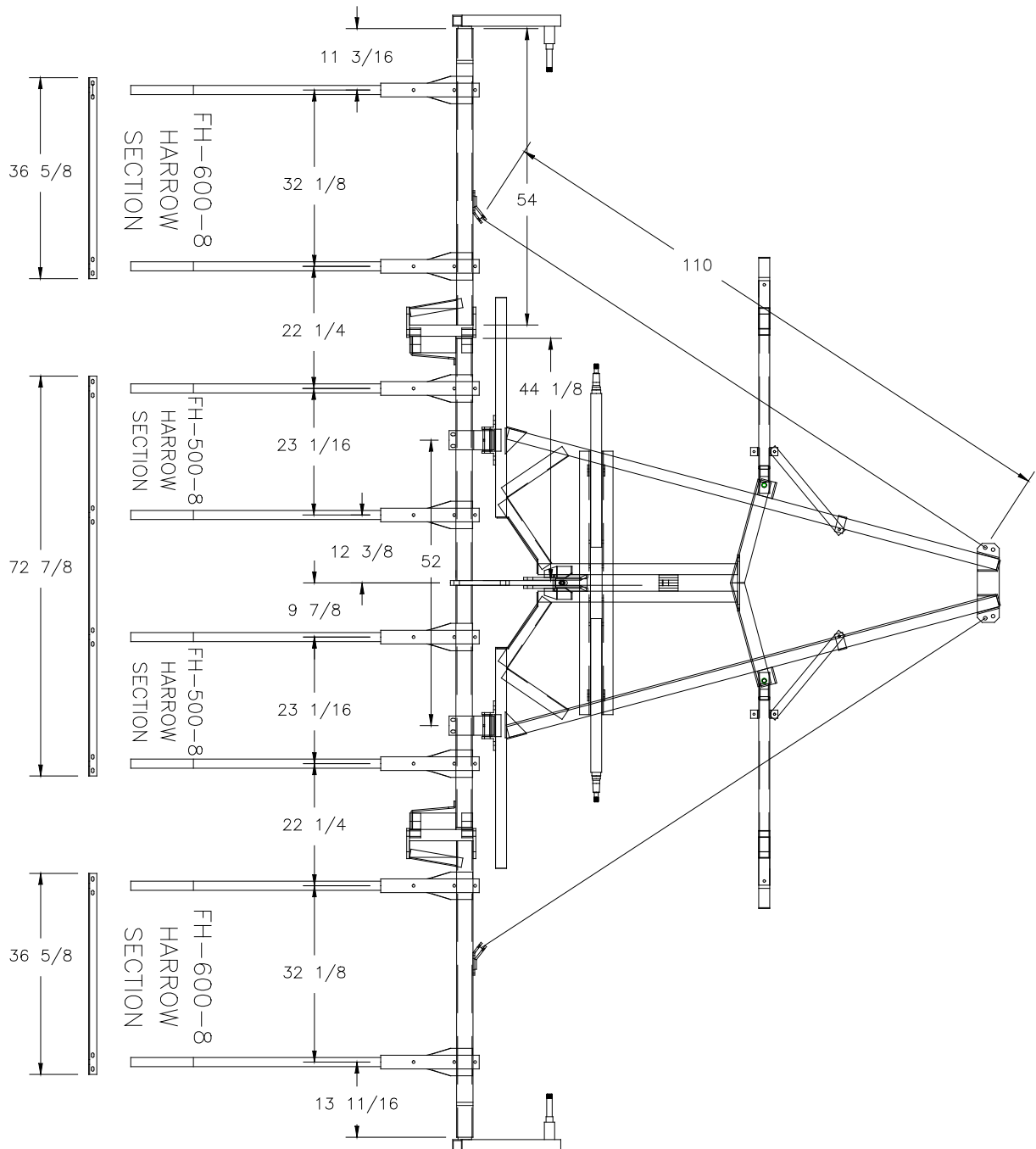
4	FH-820	#4 HARROW BAR (FH-900-8)
5	FH-803	#5 HARROW BAR (FH-500-8)
5	FH-807	#5 HARROW BAR (FH-600-8)
5	FH-811	#5 HARROW BAR (FH-700-8)
5	FH-815	#5 HARROW BAR (FH-800-8)
5	FH-819	#5 HARROW BAR (FH-900-8)
6	FH-803	#6 HARROW BAR (FH-500-8)
6	FH-807	#6 HARROW BAR (FH-600-8)
6	FH-811	#6 HARROW BAR (FH-700-8)
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	½" x 2 ¾" 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	**	½" x 3" BOLT
16	**	½" FLANGED LOCK NUT
17	E-630	SPIKE TOOTH WASHER
18	E-620	½" x 2 1/4" SHANK SPIKE TOOTH ONLY
**	E-610	½" x 2 1/4" 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	**	½" 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.

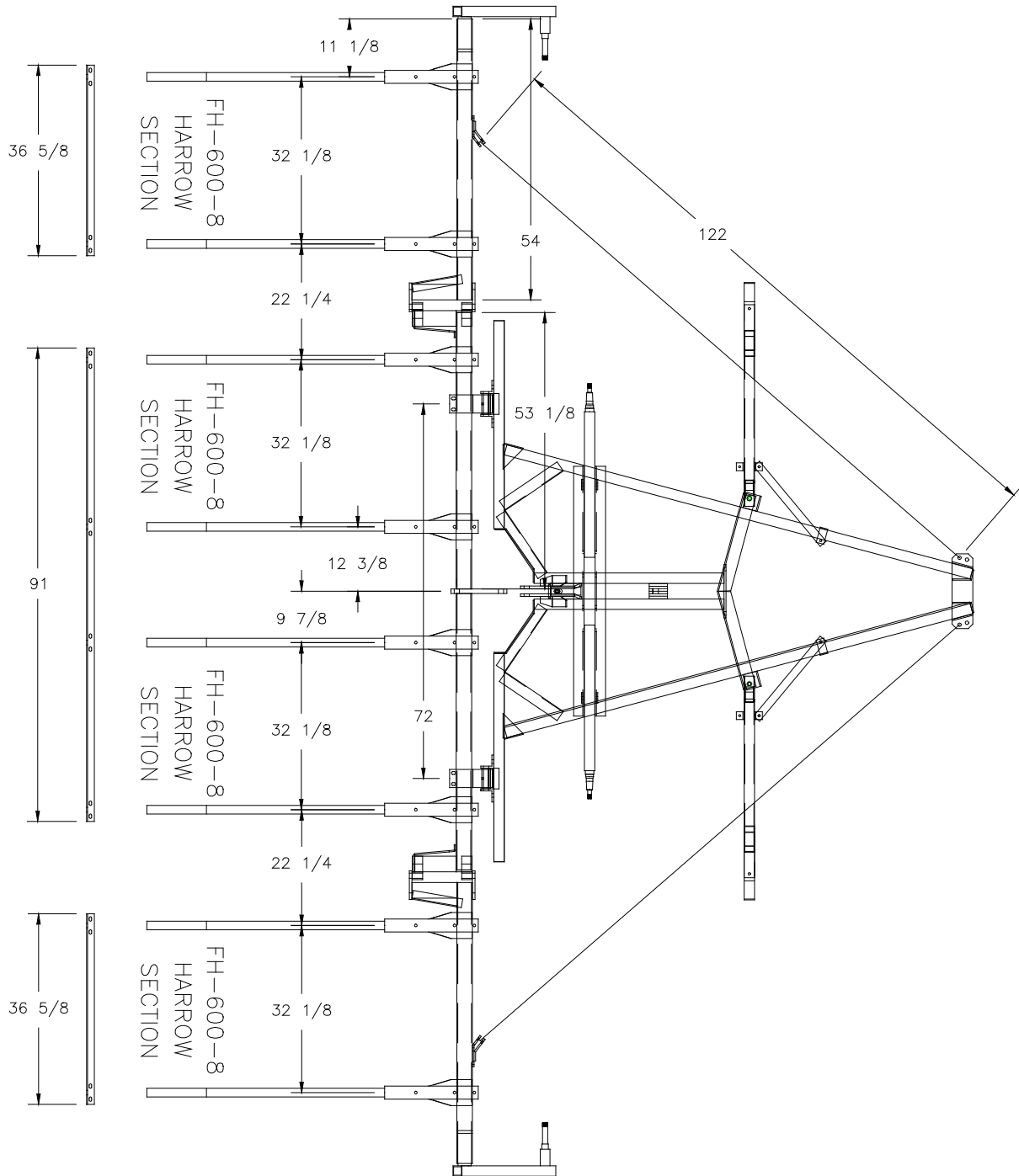
When pulling the harrow section from the #1 bar, the teeth will be in the least aggressive setting. When pulling from the #8 bar the teeth will be in the most aggressive setting.

9/24/08

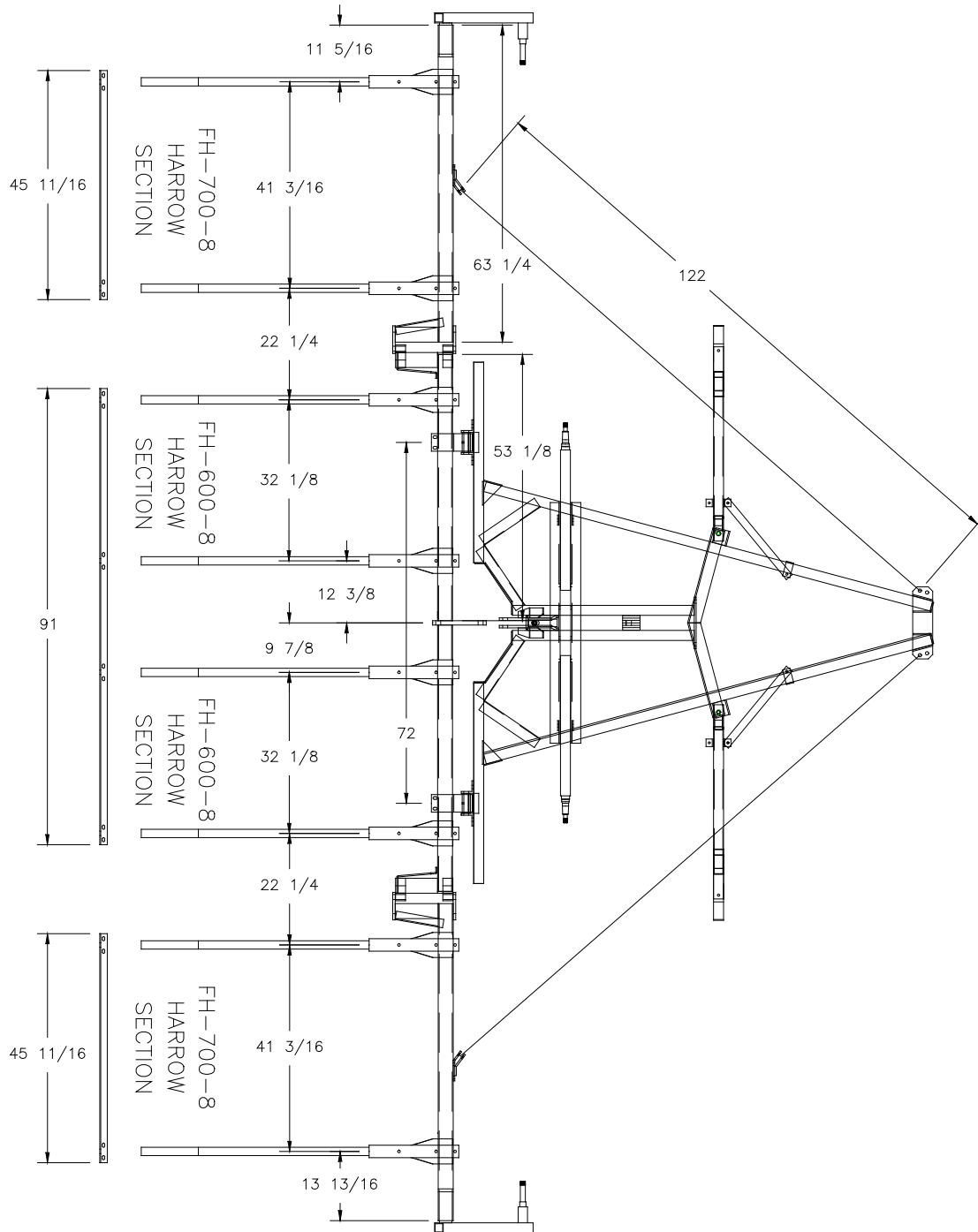
HDL-16 LAYOUT DIAGRAM



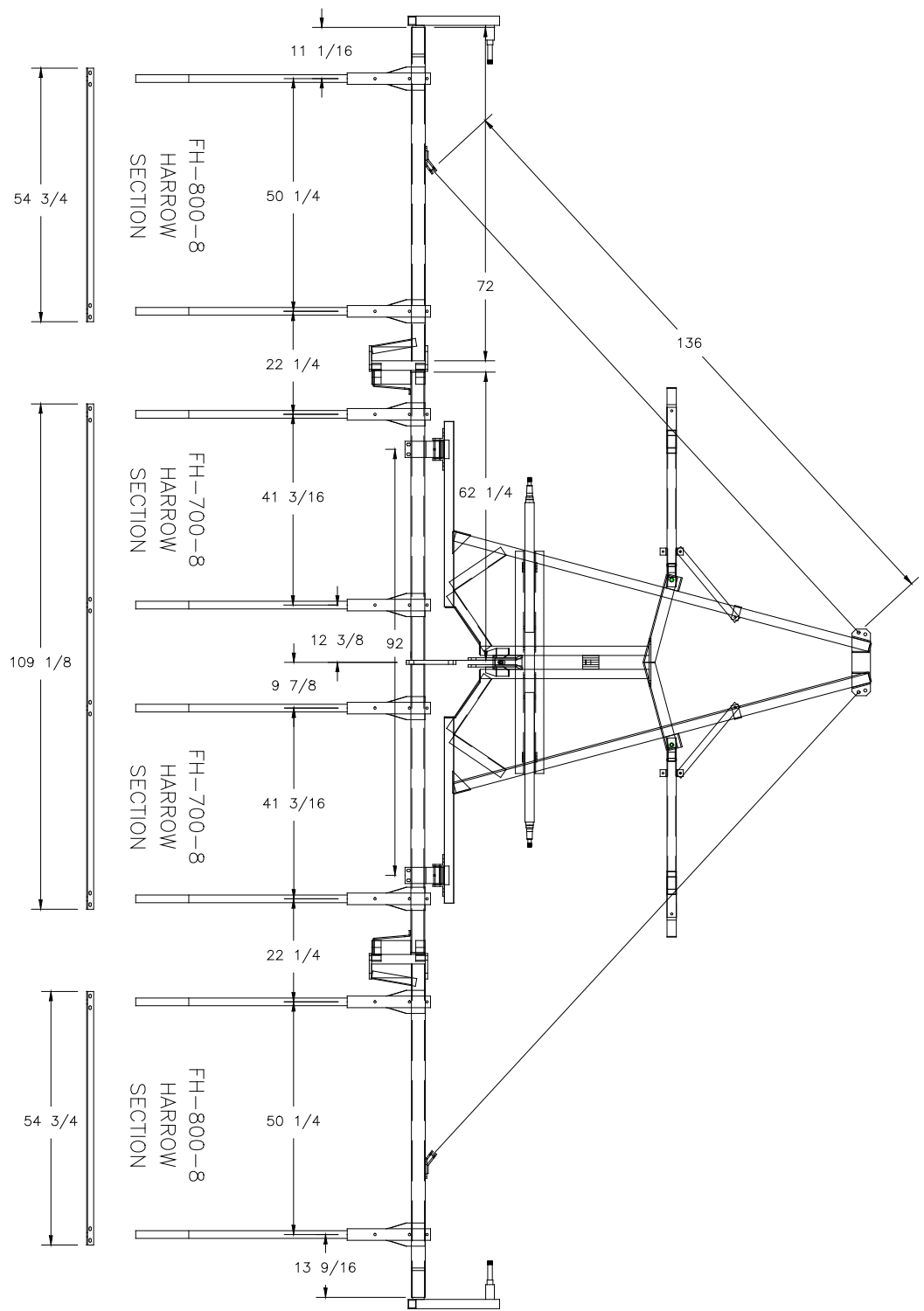
HDL-18 LAYOUT DIAGRAM



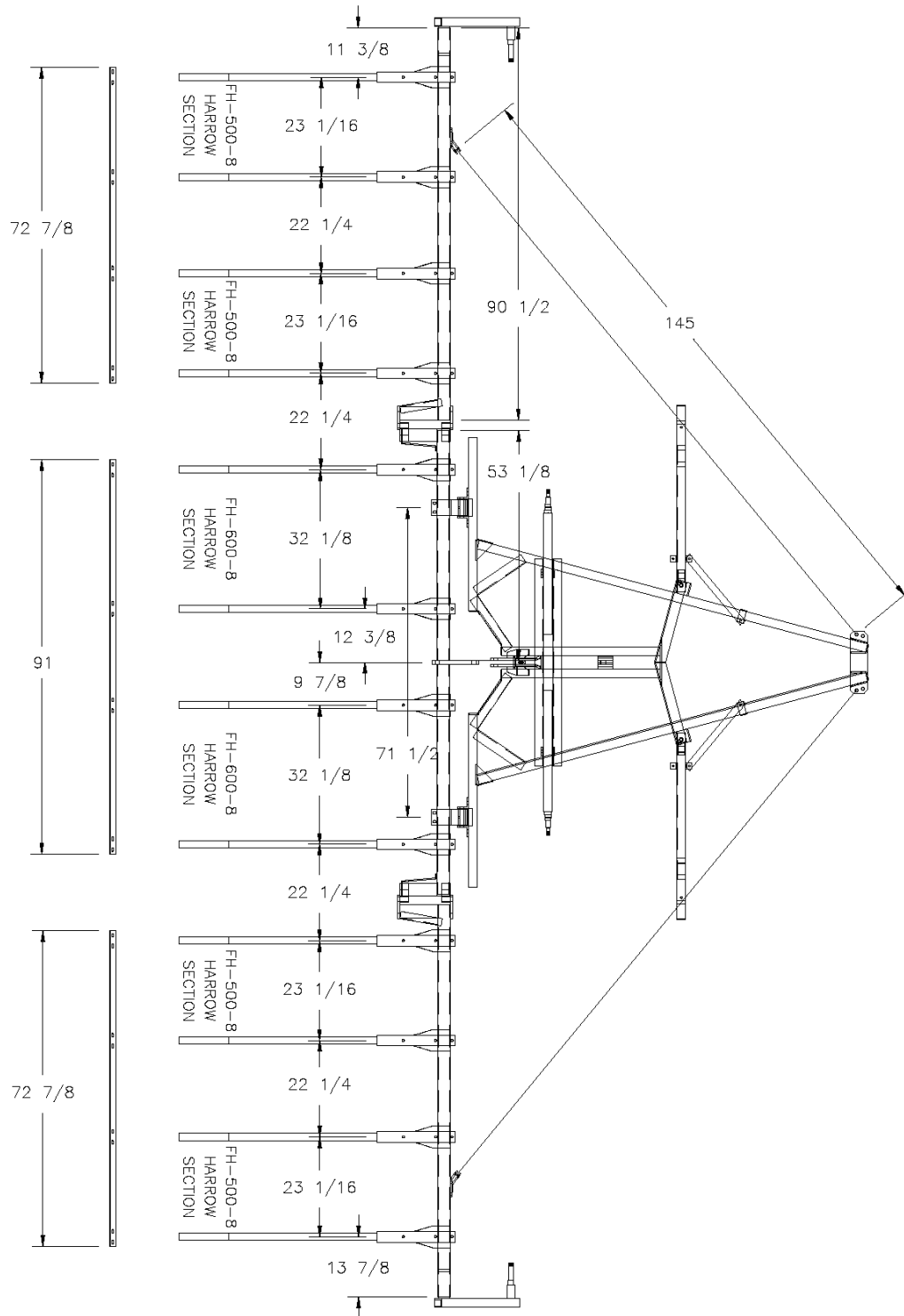
HDL-20 LAYOUT DIAGRAM



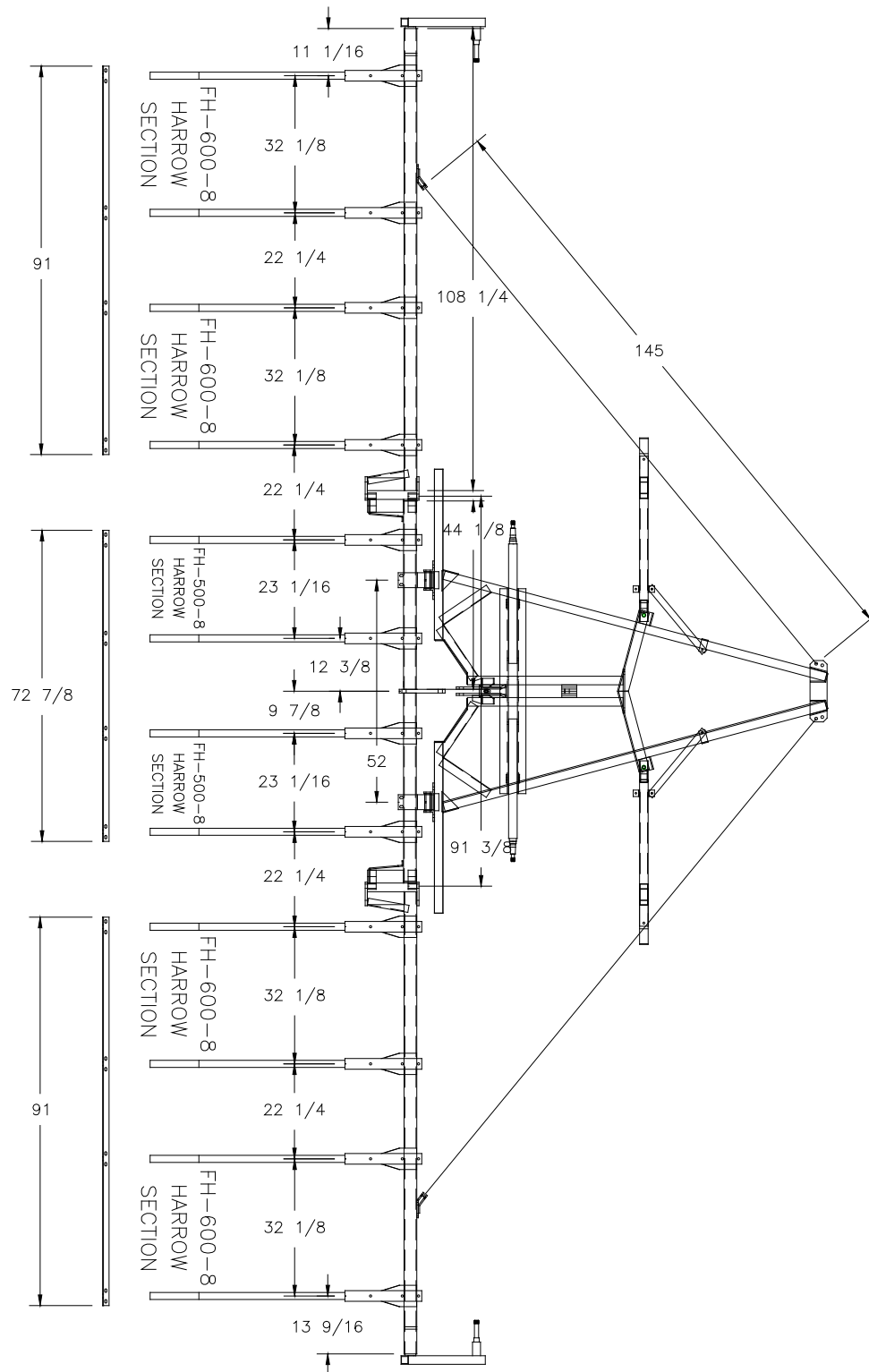
HDL-22 LAYOUT DIAGRAM



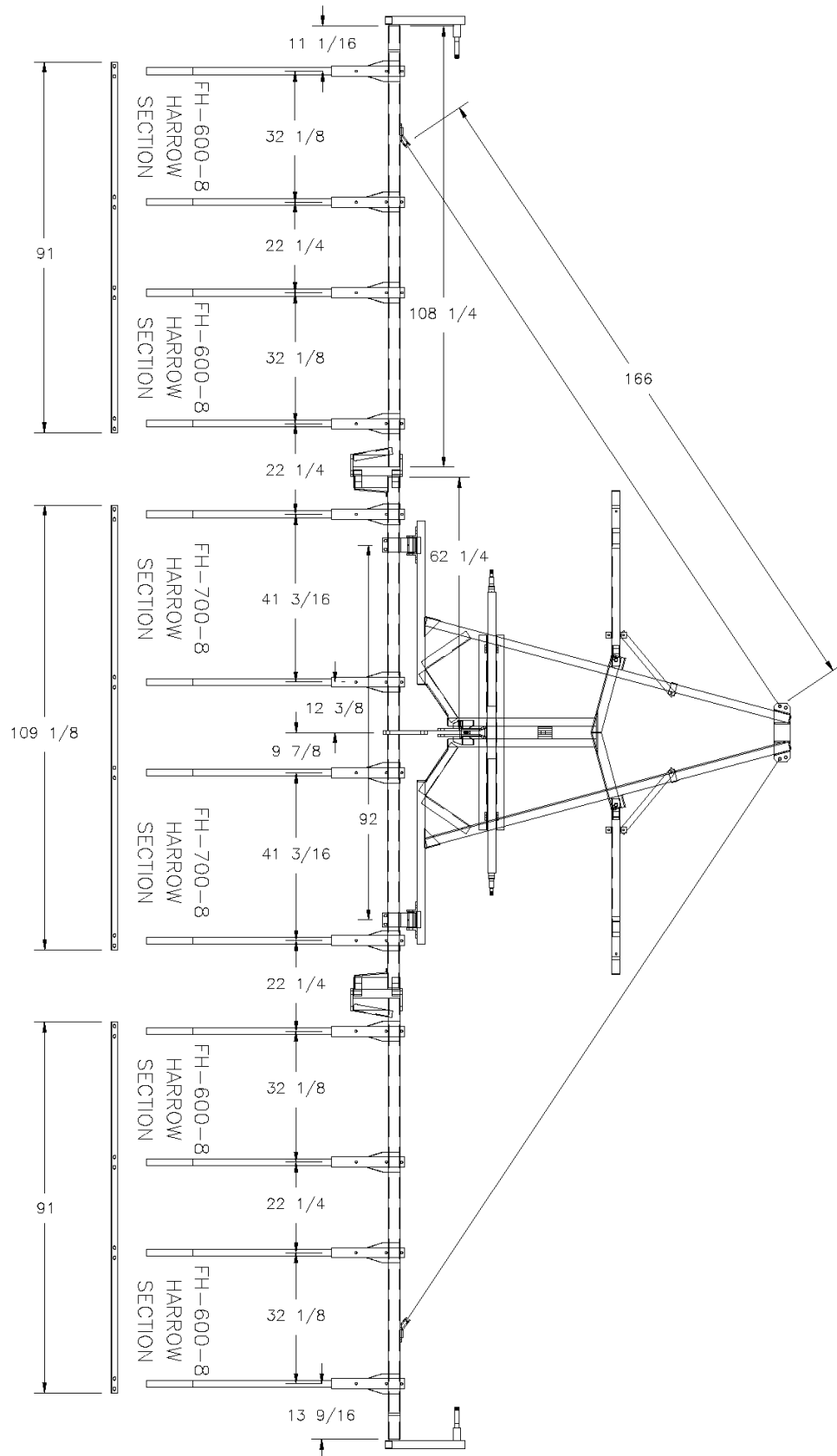
HDL-24 LAYOUT DIAGRAM



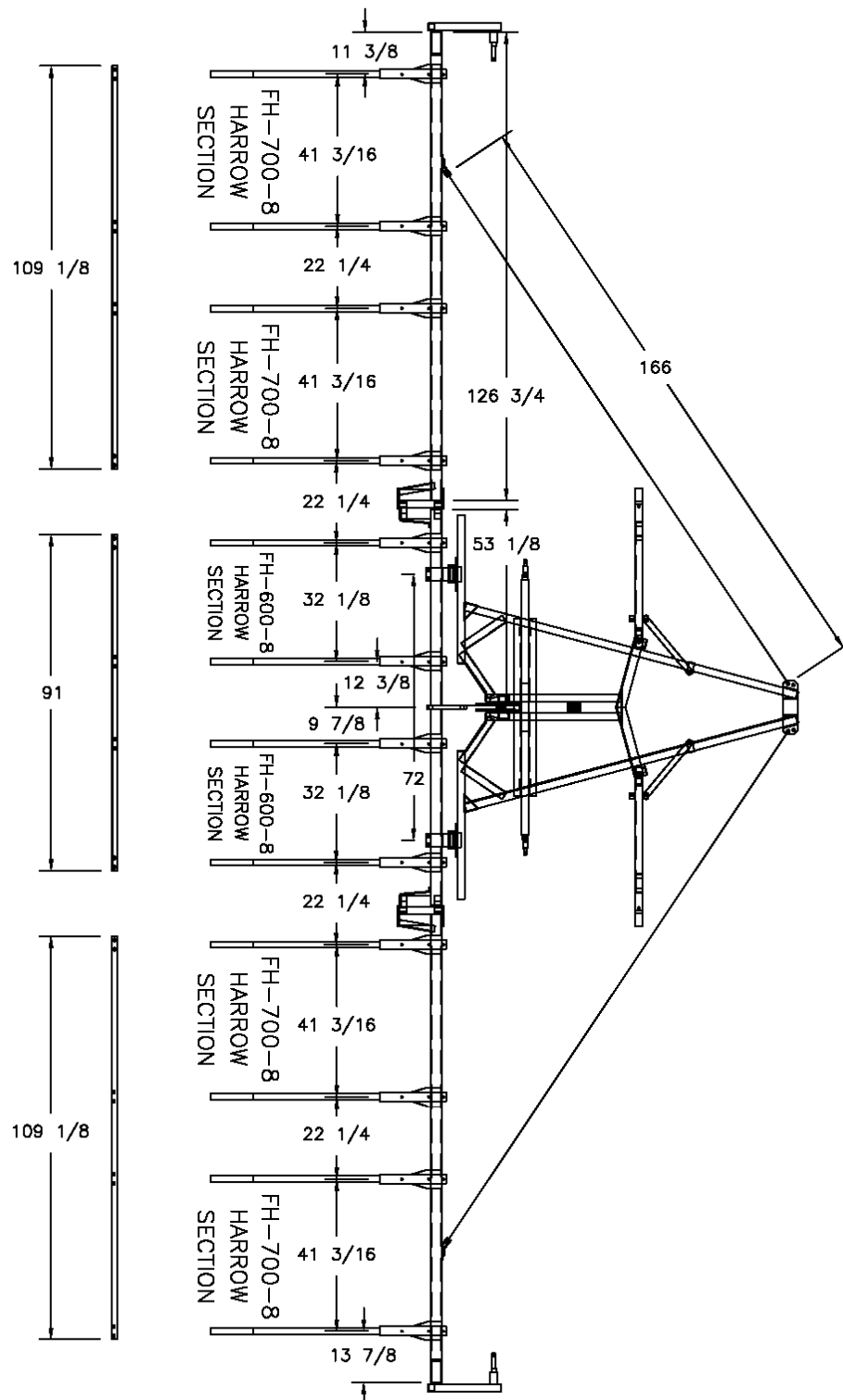
HDL-26 LAYOUT DIAGRAM



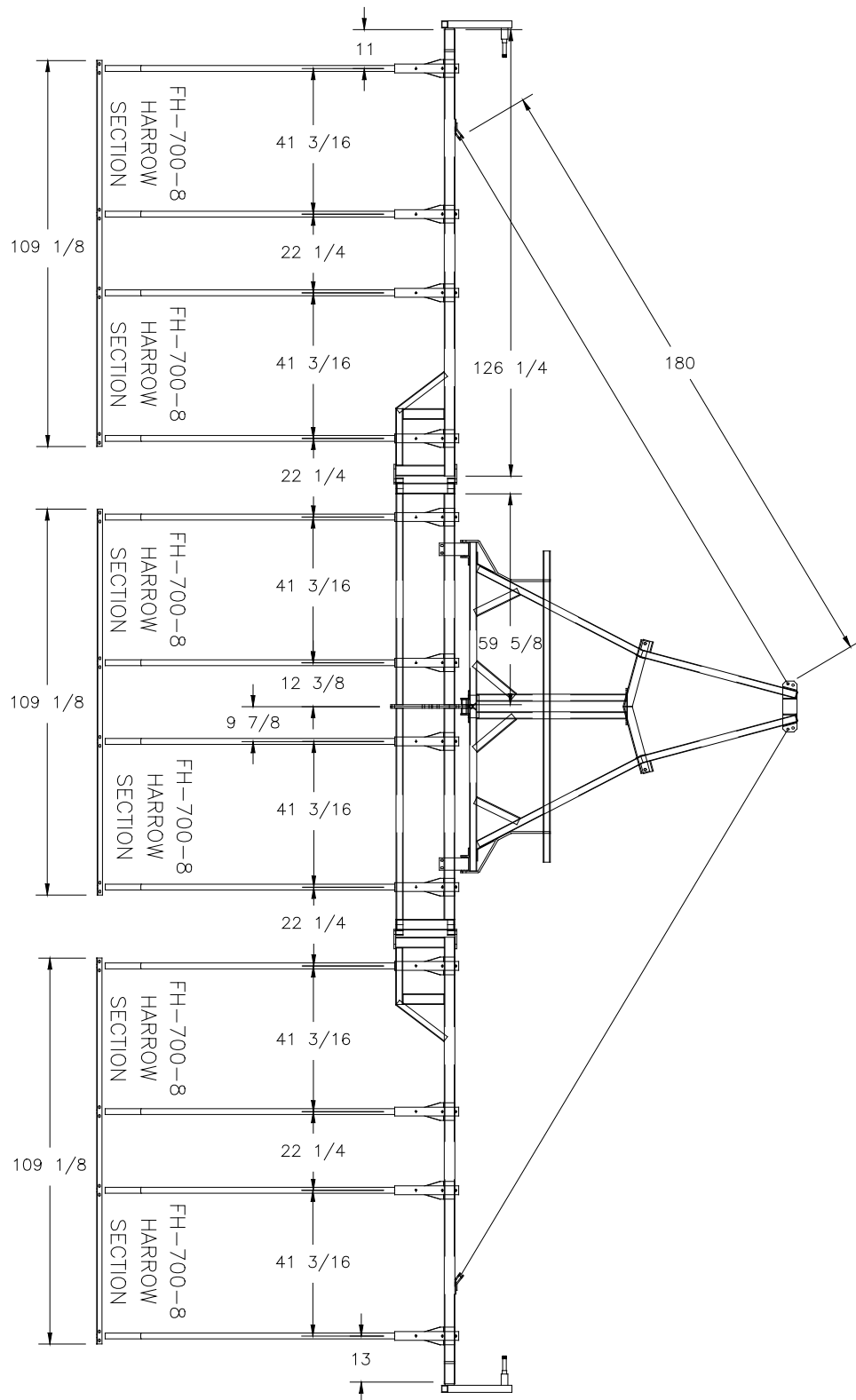
HDL-28 LAYOUT DIAGRAM



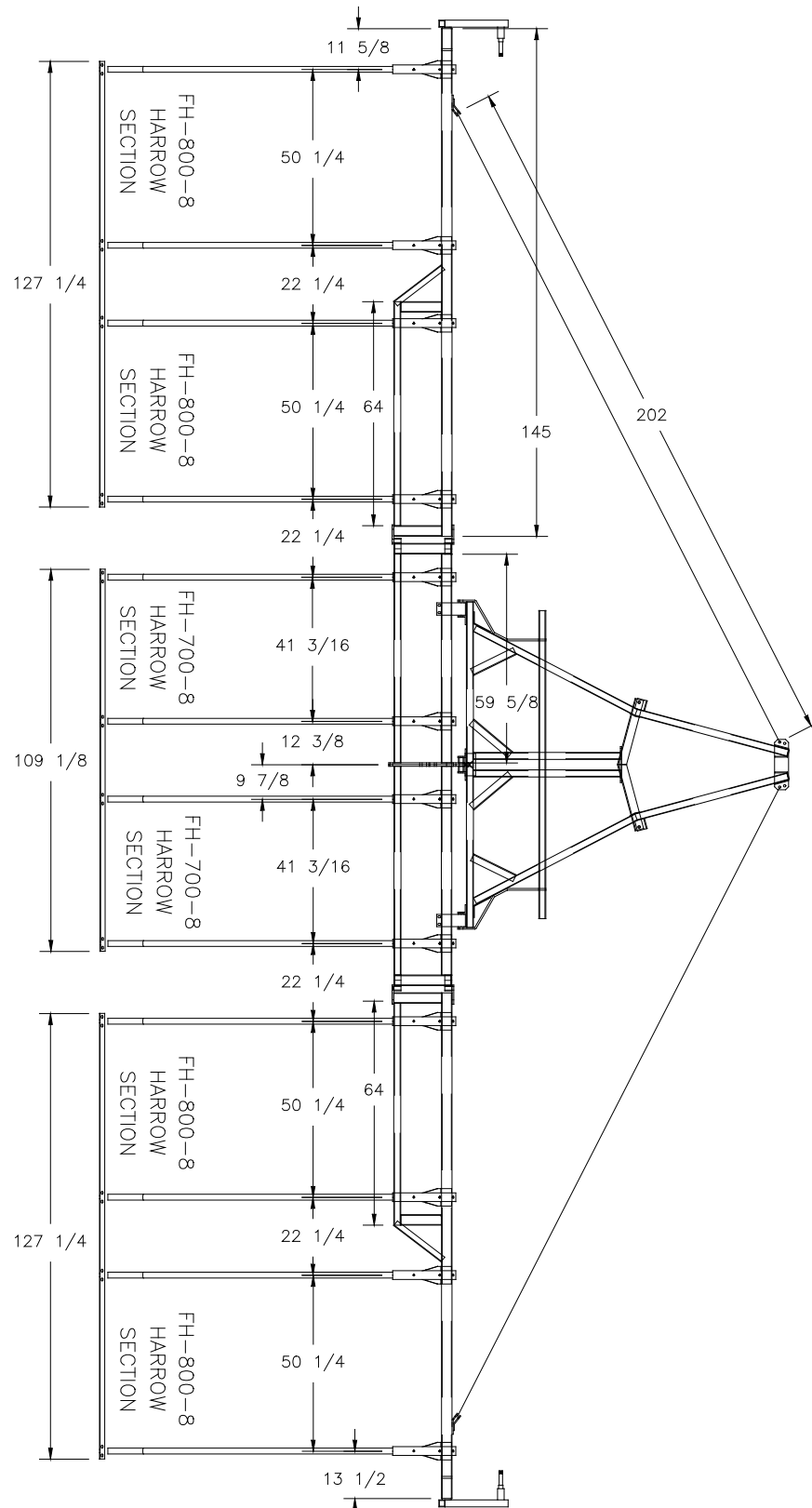
HDL-30 LAYOUT DIAGRAM



HDL-32 LAYOUT DIAGRAM



HDL-34 LAYOUT DIAGRAM



Technical drawing of a harrow assembly, showing three sections (FH-800-8 HARROW SECTION) and a detailed view of the harrow teeth.

Dimensions:

- Overall length: 127 1/4
- Section length: 50 1/4
- Section width: 22 1/4
- Section height: 64
- Section width (detailed view): 68 5/8
- Section height (detailed view): 145
- Section width (detailed view): 202
- Section height (detailed view): 12 15/16
- Section width (detailed view): 12 3/8
- Section height (detailed view): 9 7/8
- Section width (detailed view): 11 9/16

Labels:

- FH-800-8 HARROW SECTION
- FH-800-8 HARROW SECTION
- FH-800-8 HARROW SECTION
- FH-800-8 HARROW SECTION
- FH-800-8 HARROW SECTION

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

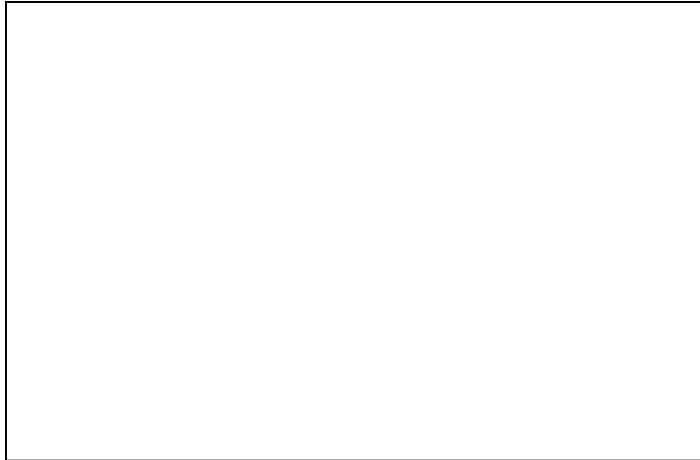
I have thoroughly instructed the buyer on the above described equipment; review included the operator's manual content, equipment care, adjustments, safe operation and applicable warranty policy.

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



McFARLANE MANUFACTURING CO. INC.
1330 DALLAS STREET, P.O. BOX 100
SAUK CITY, WISCONSIN 53583
PHONE: (608) 643-3322
TOLL FREE: (888) 627-8569
FAX: (608) 643-3976
WEB: www.mcfarlaneag.com