

DR Planter Toolbar
24 Row 22" Spacing

Part No. 572104

Foreword

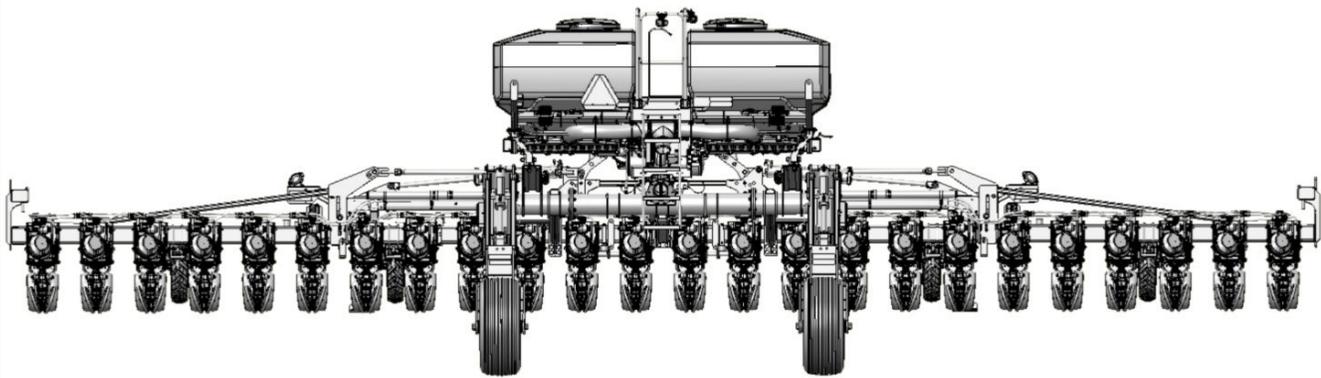


This symbol identifies important safety messages. When you see it, read the message that follows and be alert to the possibility of personal injury.

Remember, safety instructions stated in this manual are for your protection. Read them carefully and follow them closely when working around or using this machine.

Read and study this manual completely before attempting to operate this implement. Take this manual to the field for handy reference when operating, adjusting, or servicing your machine.

When referenced, “Right-Hand” (RH) and “Left-Hand” (LH) side of the machine are determined by standing behind the machine and facing in the direction of travel.



Pre-Operation Checklist

- Wheel bolts tightened (recheck after initial use)
- Tire pressures checked
- Hardware tightened
- Machine lubricated
- Safety and operating procedures reviewed
- Field adjustment information reviewed
- Warranty information reviewed
- Hydraulic hoses properly routed/fittings tight

Product Information

IMPORTANT

The information, specifications, and illustrations in the manual are based on information available at the time it was written. Due to continuing improvements in the design and manufacture of Unverferth products, all specifications and information contained herein are subject to change without notice.

Please fill out and retain this portion for your records. All products manufactured by Unverferth Mfg. Co., Inc. are warranted to be free from material and workmanship defects for one full year from time of consumer delivery. Your local dealer will gladly assist you with any warranty questions.

The serial number plate is located as shown below.

Product _____

Serial Number _____

Date of Purchase _____

Dealer _____

City _____ State _____ Zip _____

Please supply this information when you have questions or when ordering repair or replacement parts. Your dealer needs this information to give you prompt, efficient service.

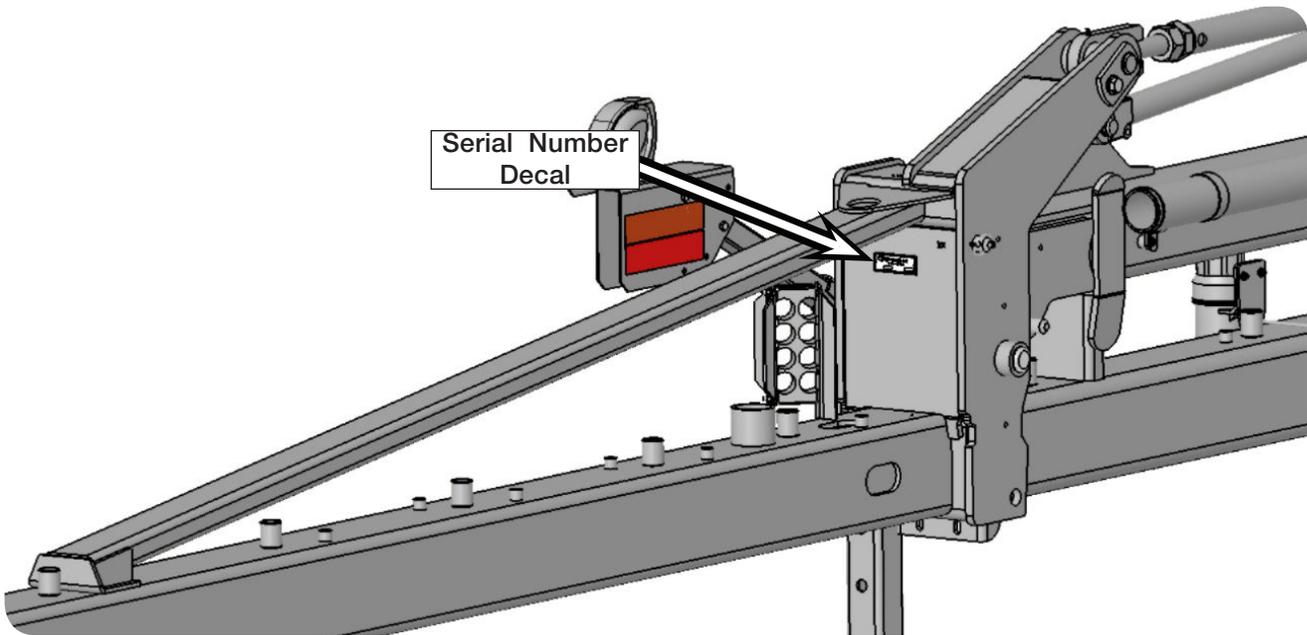


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General Hazard Information

No accident-prevention program can be successful without the wholehearted cooperation of the person who is directly responsible for the operation of the equipment.

A large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it is on the highway, in the field, or in the industrial plant, can be safer than the person who is at the controls. If accidents are to be prevented--and they can be prevented--it will be done by the operators who accept the full measure of their responsibility.

It is true that the designer, the manufacturer, and the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator.

It is said that, "the best kind of a safety device is a careful operator." We, at Unverferth Mfg. Co., Inc. ask that you be that kind of operator.



REMEMBER:
THINK SAFETY
A CAREFUL OPERATOR IS THE
BEST INSURANCE AGAINST AN
ACCIDENT!

SIGNAL WORDS

 **DANGER**

INDICATES AN EXTREMELY HAZARDOUS SITUATION OR ACTION THAT WILL RESULT IN SERIOUS INJURY OR DEATH.

 **WARNING**

INDICATES A HAZARDOUS SITUATION OR ACTION THAT COULD RESULT IN SERIOUS INJURY OR DEATH.

 **CAUTION**

INDICATES AN UNSAFE SITUATION OR ACTION THAT MAY RESULT IN PERSONAL INJURY.

IMPORTANT

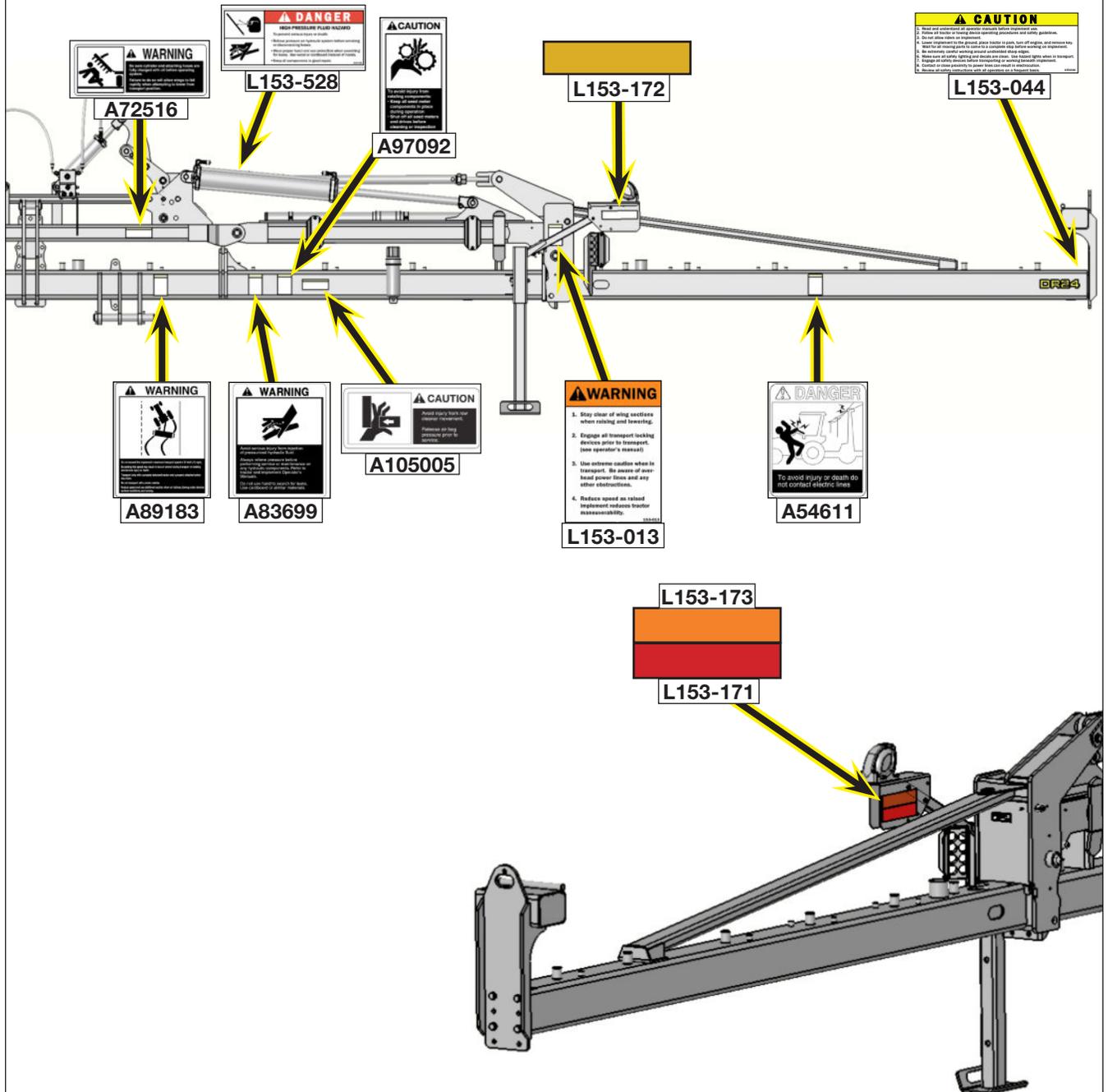
Is used for instruction on operating, adjusting, or servicing a machine.

Safety Decals

WARNING

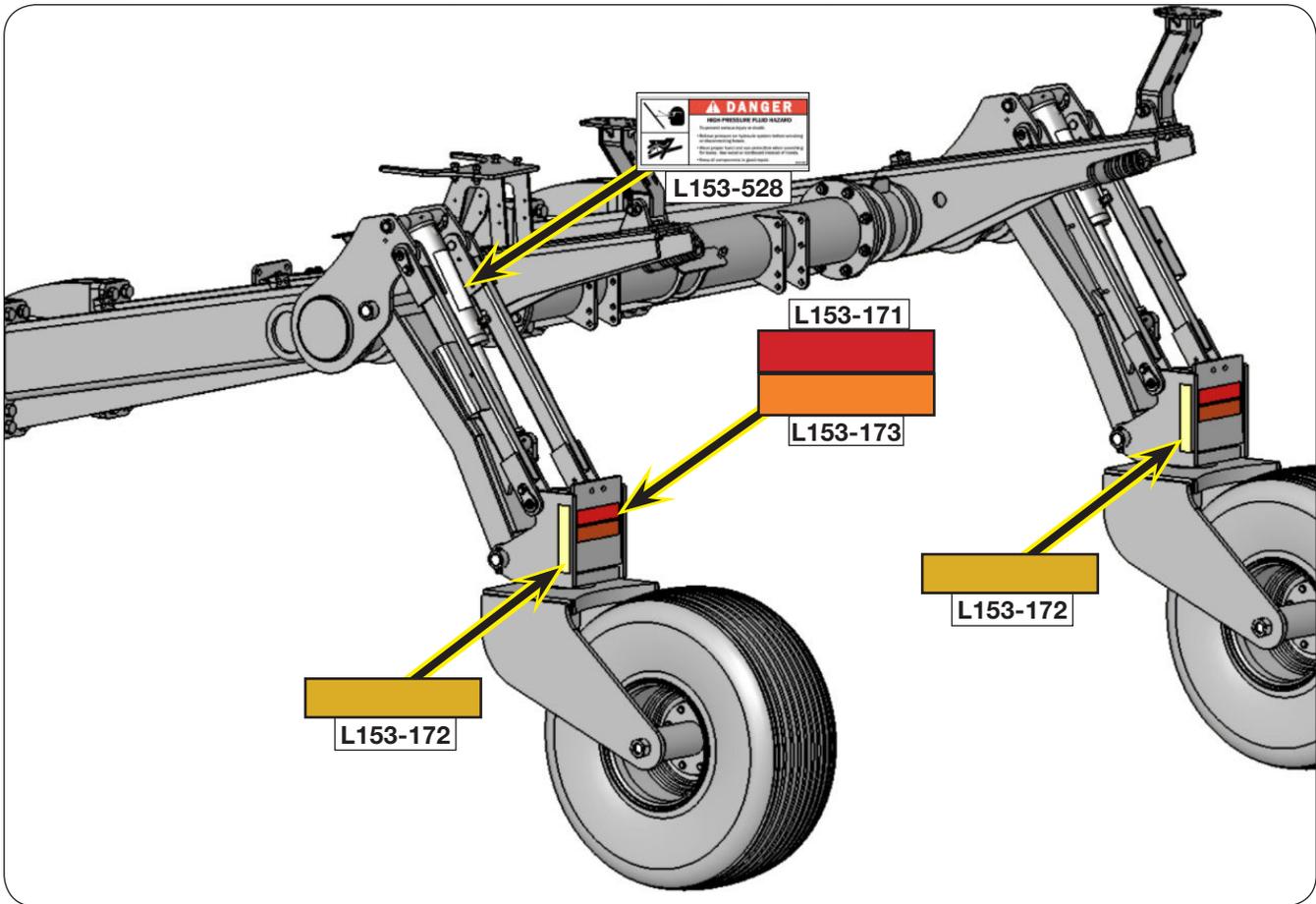
- REPLACE LOST, DAMAGED, PAINTED, OR UNREADABLE DECALS IMMEDIATELY. IF PARTS THAT HAVE DECALS ARE REPLACED, ALSO MAKE SURE TO INSTALL NEW DECALS. THESE DECALS INFORM AND REMIND THE OPERATOR WITH OPERATIONAL INFORMATION AND SAFETY MESSAGES.

NOTE: Part numbers without “L” prefix are John Deere provided parts.



Safety Decals (Continued)

NOTE: Part numbers without “L” prefix are John Deere provided parts.



Following Safety Instructions

- Read and understand this operator's manual before operating.



- All machinery should be operated only by trained and authorized personnel.

- To prevent machine damage, use only attachments and service parts approved by the manufacturer.

- Always shut tractor engine off and remove key before servicing.



- Avoid personal attire such as loose fitting clothing, shoestrings, drawstrings, pants cuffs, long hair, etc., that may become entangled in moving parts.

- Do not allow anyone to ride on the implement. Make sure everyone is clear before operating machine or towing vehicle.



- Never attempt to operate implement unless you are in driver's seat.



Before Servicing or Operating

- Avoid working under an implement; however, if it becomes absolutely unavoidable, make sure the implement is safely blocked.



- Ensure that all applicable safety decals are installed and legible.

- When working around the implement, be careful not to be cut by sharp edges.

- Do not stand between towing vehicle and implement during hitching.

- Add sufficient ballast to tractor to maintain steering and braking control at all times. Do not exceed tractor's lift capacity or ballast capacity

- Always make certain everyone and everything is clear of the machine before beginning operation.

During Operation

- Regulate speed to working conditions. Maintain complete control at all times.
- Never service or lubricate equipment when in operation.
- Use extreme care when operating close to ditches, fences, or on hillsides.
- Keep away from overhead power lines. Electrical shock can cause serious injury or death.
- Do not leave towing vehicle unattended with engine running.

Before Transporting

- Check for proper function of all available transport lights. Make sure that all reflectors are clean and in place on machine. Make sure that the SMV emblem and SIS decal are visible to approaching traffic.

During Transport

- Comply with all laws governing highway safety when moving machinery.
- Use transport lights as required by all laws to adequately warn operators of other vehicles.
- Use good judgment when transporting equipment on highways. Regulate speed to road conditions and maintain complete control.
- Maximum transport speed of this implement should never exceed 20 mph as indicated on the machine. Maximum transport speed of any combination of implements must not exceed the lowest specified speed of the implements in combination. Do not exceed 10 MPH during off highway travel.
- Before transporting the planter, the machine must be folded and fully raised with the transport locks in place around the machine lift hydraulic cylinder rods.
- It is probable that this implement is taller, wider and longer than the towing vehicle. Become aware of and avoid all obstacles and hazards in the travel path of the equipment, such as power lines, ditches, etc.
- Slow down before making sharp turns to avoid tipping. Drive slowly over rough ground and side slopes.

Pressurized Oil

- Relieve the hydraulic system of all pressure before adjusting or servicing. See hydraulic power unit manual for procedure to relieve pressure.
- High-pressure fluids can penetrate the skin and cause serious injury or death. Leaks of high-pressure fluids may not be visible. Use cardboard or wood to detect leaks in the hydraulic system. Seek medical treatment immediately if injured by high-pressure fluids. 
- Hydraulic system must be purged of air before operating to prevent serious injury or death.
- Do not bend or strike high-pressure lines. Do not install bent or damaged tubes or hoses.
- Repair all oil leaks. Leaks can cause fires, personal injury, and environmental damage.
- Route hoses and lines carefully to prevent premature failure due to kinking and rubbing against other parts. Make sure that all clamps, guards and shields are installed correctly.
- Check hydraulic hoses and tubes carefully. Replace components as necessary if any of the following conditions are found:
 - End fittings damaged, displaced, or leaking.
 - Outer covering chafed/cut or wire reinforcing exposed.
 - Outer covering ballooning locally.
 - Evidence of kinking or crushing of the flexible part of a hose.

Preparing for Emergencies

- Keep a first aid kit and properly rated fire extinguisher nearby.



- Keep emergency numbers for fire, rescue, and poison control personnel near the phone.



Wearing Protective Equipment

- Wear clothing and personal protective equipment appropriate for the job.



- Wear steel-toed shoes when operating.



- Wear hearing protection when exposed to loud noises.



- Do not wear additional hearing impairing devices such as radio headphones, etc



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General Set Up Information

This section contains all of the instructions required for the complete assembly of the toolbar.

For your safety, and the safety of others, use proper tools and equipment and always use safe working procedures. Refer to these instructions before starting any work on your machine.

For ease of assembly, install all hardware loosely until assembly is complete and then tighten according to “Torque Chart” in MAINTENANCE section unless otherwise specified.

WARNING

- **KNOW AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW "SAFETY" SECTION IN YOUR MANUAL IF NECESSARY.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 16,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **MOVING PARTS CAN CRUSH AND CUT. KEEP AWAY FROM MOVING PARTS.**

Basic Set Up

Due to shipping requirements and various dealer-installed options, some initial implement set up will be required after it arrives from the factory. Use the following procedures as needed for initial implement set up.

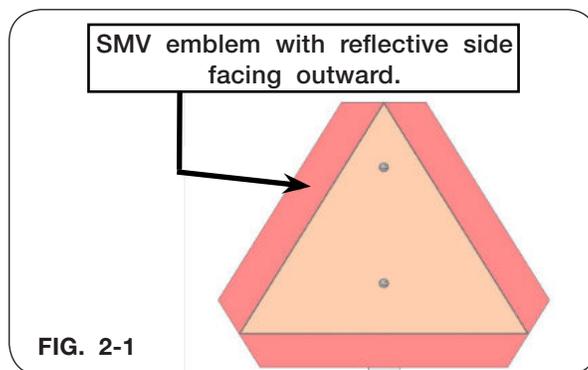
Hydraulic System

Check all hoses and cylinders for signs of leakage. Hoses should not be kinked, twisted or rubbing against sharp edges. Re-route or repair hoses as necessary. Refer to SAFETY section for additional information on safe repair and inspection of hydraulic components.

SMV Emblem

Before the implement is used the reflective surface of the SMV must face rearward. This may require removal of film protecting the reflective surface or removing and reinstallation of the SMV.

When reinstalling the SMV make sure that it is mounted with the wide part of the SMV at the bottom. (Fig. 2-1)



Row Unit Set Up

Refer to the applicable John Deere operator manual for row unit set up information.

Purging Hydraulic System

WARNING

- RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.

IMPORTANT

- *Flex frame configuration, wings will go below center when BOTH pistons are fully extended on each cylinder. IF Machine is not raised into transport OR system is not properly operated (hyd. valve shifts to pressure reducing mode), damage could occur.*

Purge air from system as follows:

- A. Disconnect the rod end of all cylinders in a circuit and block up cylinders so the rod can completely extend and retract without contacting any other component.
- B. Pressurize the system and maintain system at full pressure for at least 5 seconds after cylinder rods stop moving. Check that all cylinders have fully extended or retracted.
- C. Check oil reservoir in hydraulic power source and re-fill as needed.
- D. Pressurize system again to reverse the motion of step B. Maintain pressure on system for at least 5 seconds after cylinder rods stop moving. Check that cylinders have fully extended or retracted.
- E. Check for hydraulic leaks using cardboard or wood. Tighten connections according to directions in Torque Specifications in MAINTENANCE section.
- F. Repeat steps B, C, D, and E 3-4 times.
- G. De-pressurize hydraulic system and connect cylinder rod clevises to their mating lugs.

HYDRAULIC SYSTEM CHECKS ON ALL UNITS -- CHECK THE FOLLOWING:

ROUTING OF ALL HYDRAULIC HOSES: Hoses should not be kinked, twisted, or rubbing against sharp edges.

FITTINGS AND CONNECTIONS: Check for leaks. Refer to "Torque Chart" in MAINTENANCE section.

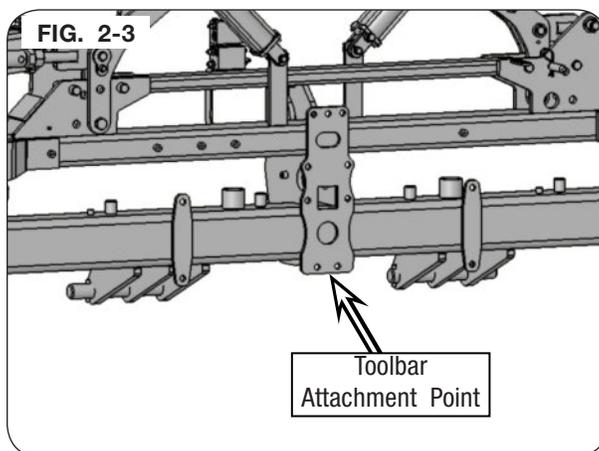
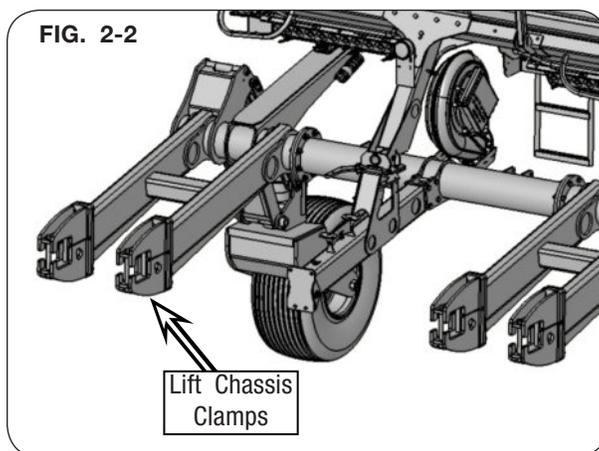
HOSES: Be sure hoses have room to "FLEX" (for folding) in hinge areas. Hoses must be secured with cable ties.

Lift Assist Wheel Installation

WARNING

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RAISING, OR LOWERING.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

1. Park the unit on a firm level surface, leave the unit attached to the tractor, then raise the unit, and lower the support stands.
2. Lower the unit until it is supported by the stands, then set the tractor's parking brake and remove the key.
3. Using a suitable lifting device rated for a minimum of 7,500 lbs, lift the chassis assembly and shipping frame for assembly to the toolbar.
4. Attach the clamps and front plate of the lift chassis assembly to the mount and toolbar using the hardware provided. (Fig. 2-2 and 2-3)



Lift Assist Wheel Installation

5. Install wheels and tighten the axle bolts to the torque value listed below. (Fig. 2-4)
6. Using a safe lifting device rated for a minimum of 2,000 lbs, remove the shipping frame from the chassis cross bar. (Fig. 2-5)
7. Connect all hydraulic and electric connections.

FIG. 2-4

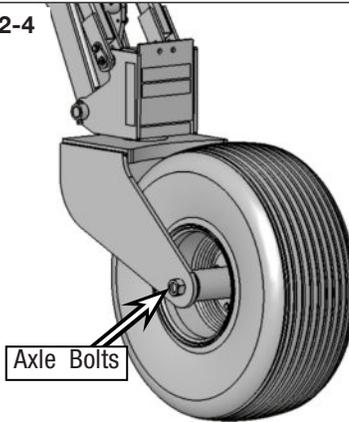
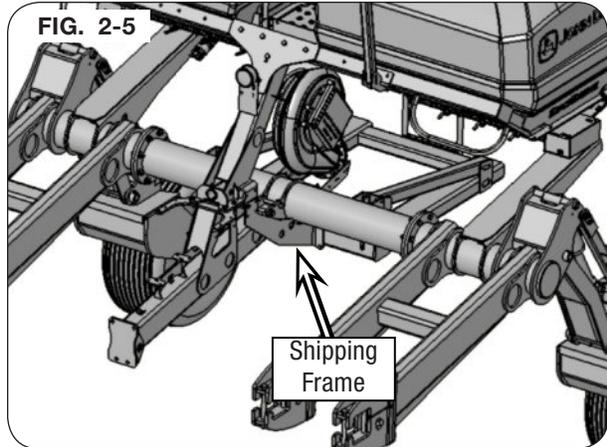


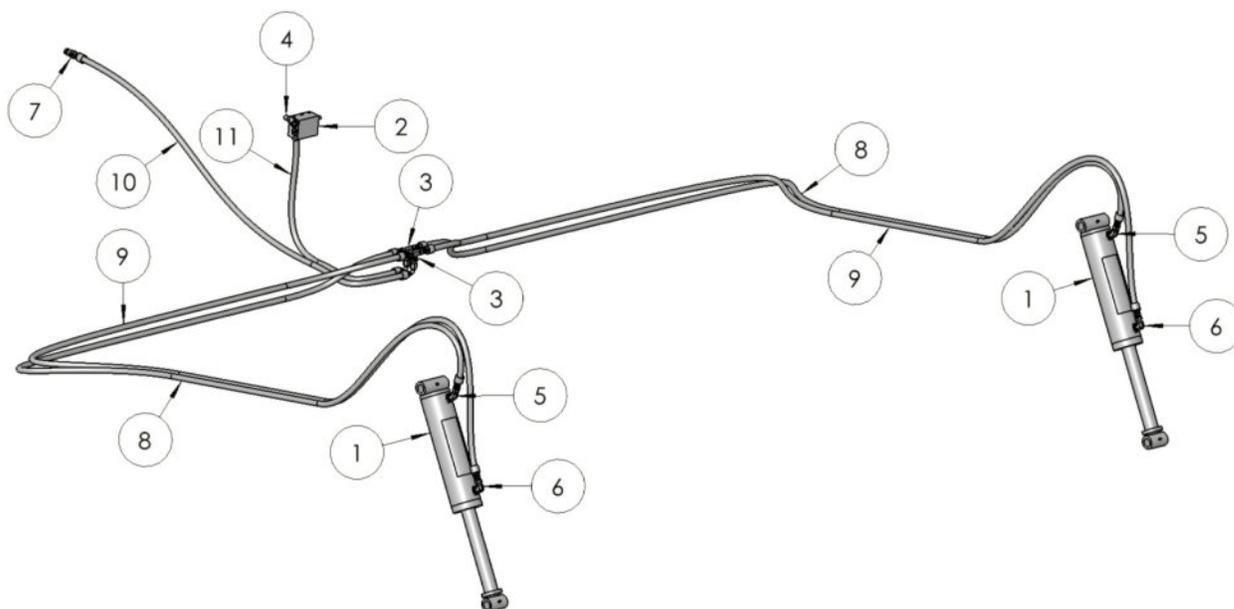
FIG. 2-5



Lift Assist Wheel Installation

8. Connect the lift wheel hydraulic hoses using the diagram below. (Fig. 2-6)

FIG. 2-6



Item	Description
1	Lift Cylinder (4" x 12")
2	Toolbar Manifold
3	Tee Fitting (3/4" MJ x 3/4" MJ x 3/4" MJ)
4	Tee Fitting (3-4" MJ x 3/4" MJ x 3/4" FJ)
5	Elbow (7/8" MORB x 3/4" MJ 45 Degree)
6	Elbow (7/8" MORB x 3/4" MJ 90 Degree)
7	ISO Tip
8	Cylinder Hose - Base (1/2" Hose x 3/4" FJX x 3/4" FJX)
9	Cylinder Hose - Rod (1/2" Hose x 3/4" FJX x 3/4" FJX)
10	Supply Hose - Return (3/8" Hose x 3/4" MORB x 3/4" FJX)
11	Supply Hose - Pressure (3/8" Hose x 3/4" MORB x 3/4" MORB)

Lift Assist Wheel Installation

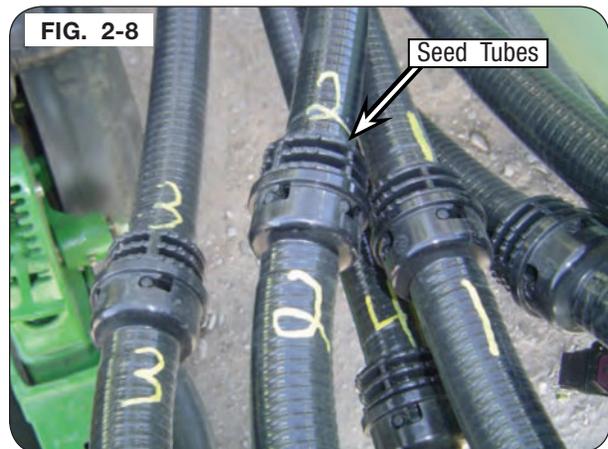
NOTE: Ensure there is enough slack in the hydraulic hoses to allow for raising and lowering of the lift wheels. (Fig. 2-7 indicates appearance with wheels in lowered position)

FIG. 2-7



9. Connect the seed tubes from the CCS assembly to the like numbered seed tubes on the toolbar. (Fig. 2-8)

FIG. 2-8



Gauge Wheel Installation

WARNING

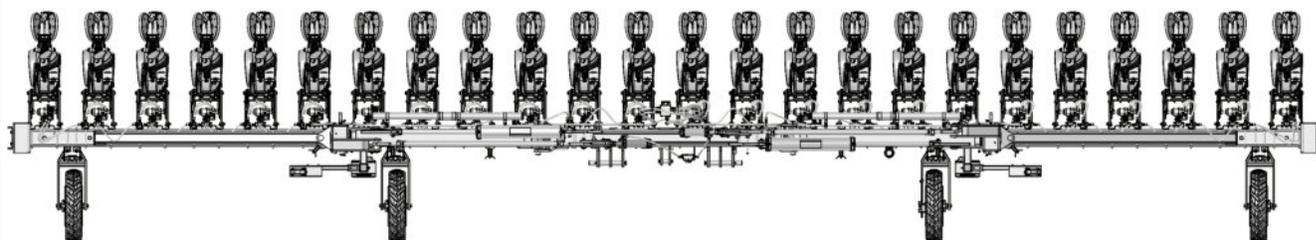
- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RAISING, OR LOWERING.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

1. Park the unit on a firm level surface, leave the unit attached to the tractor, then raise the unit, and lower the support stands.
2. Lower the unit until it is supported by the stands, then set the tractor's parking brake and remove the key.

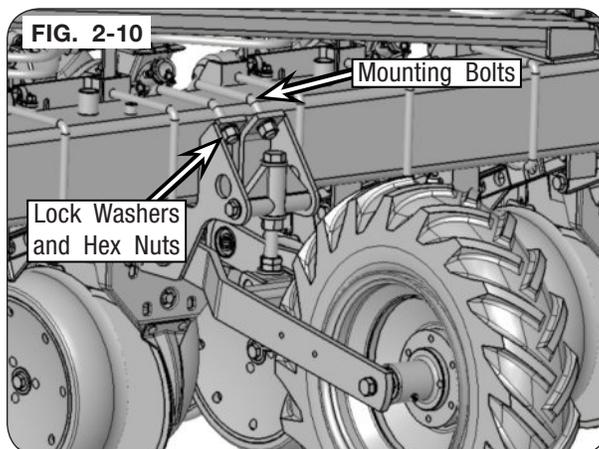


NOTE: The gauge wheels must be installed centered between row units 1-2, 7-8, 17-18, and 23-24. (Fig. 2-9)

FIG. 2-9



3. Using a safe lifting device rated for a minimum of 1,000 lbs. move the gauge wheel into position on the toolbar.
4. Install the gauge wheel using the mounting bolts, lock washers, and hex nuts. (Fig. 2-10)
5. Torque the hex nuts to the value listed in the maintenance section.
6. Repeat steps 3 through 5 for the remaining gauge wheels.



NOTE: Refer to the applicable John Deere operator manual for gauge wheel adjustment information.

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General Operation Information

WARNING

- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW “SAFETY” SECTION IN THIS MANUAL IF NECESSARY.**

Read this operation section thoroughly. Acquaint yourself with the adjustments required to obtain efficient and trouble-free operations.

Preparing Tractor

WARNING

- **TRANSPORTING THE IMPLEMENT SIGNIFICANTLY CHANGES THE WEIGHT AND BALANCE OF YOUR TRACTOR. MAKE SURE THE TRACTOR IS PROPERLY BALLASTED.**
- **DO NOT EXCEED THE TRACTOR’S LIFT CAPACITY OR BALLAST RECOMMENDATIONS.**

Read this operation section thoroughly. Acquaint yourself with the adjustments required to Before operating implement, refer to tractor operator’s manual for information concerning safe methods of operation, hitch adjustment, tire inflation, wheel adjustments, and tractor weights.

Check tractor brakes and transport lights. Make sure they are in proper working order.

Preparing Implement

Perform the service checks as outlined below. Repair or replace any damaged or worn parts before operating.

• **Bolts And Nuts**

Before going to the field, check all hardware for tightness. Recheck all bolts for tightness, after the unit has been operated for several hours.

• **Pins**

Before going to the field, check that all pins are in place and are in good condition. Replace any worn, damaged, or missing pins.

Check that locking hardware for pins are in place and tight.

• **Lubrication**

Lubricate unit as outlined in MAINTENANCE section.

Hitching to Tractor

WARNING

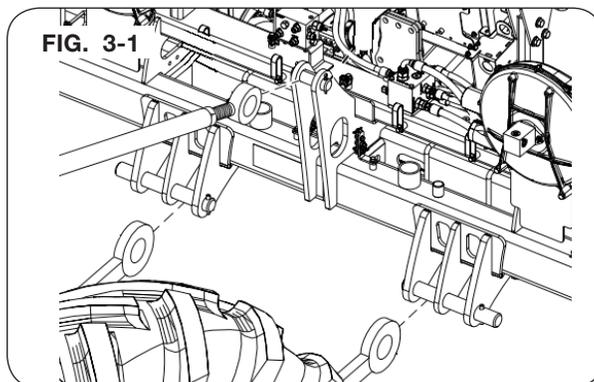
- **CRUSHING CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT STAND BETWEEN TOWING VEHICLE AND IMPLEMENT WHEN HITCHING. ALWAYS ENGAGE PARKING BRAKE AND STOP ENGINE BEFORE INSERTING HITCH PINS OR SECURING LATCHES.**

3 Point Hitch Tractor Connection

1. Back up tractor to the implement hitch. Place the tractor in park. Injury or death can result from being trapped between the tractor and implement.
2. Set tractor's three-point hitch lateral float pins. Refer to the tractor OM.
4. Connect the tractor's lower three-point hitch points to the pins on the implement. (Fig. 3-1)



NOTE: The top link of the hitch should not be used when the lift assist wheels are installed on the planter.



Hitching to Tractor (Continued)

Quick Hitch Tractor Connection

1. Back up tractor to the implement hitch and place the tractor in park. Injury or death can result from being trapped between the tractor and implement.
2. Release the lower locks on the quick hitch. (Fig. 3-22)

NOTE: The top link of the hitch should not be used when the lift assist wheels are installed on the planter.

3. Remove the top hitch pin from the toolbar.
4. Lower the tractor's 3-point until the center link hook and quick-hitch hooks are lower than the implement hitch pins.
5. Slowly back the tractor towards the toolbar until the quick-hitch hooks are aligned with the implement hitch pins.
6. Raise the rockshaft until the center link hook and quick-hitch hooks engage with the implement hitch pins. (Fig. 3-23)
7. Engage the lower locks of the quick hitch.

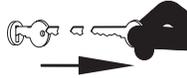


FIG. 3-2

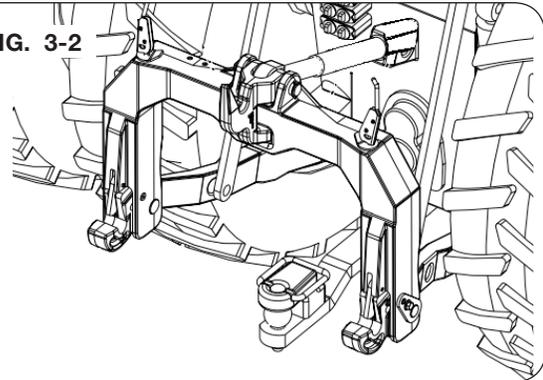
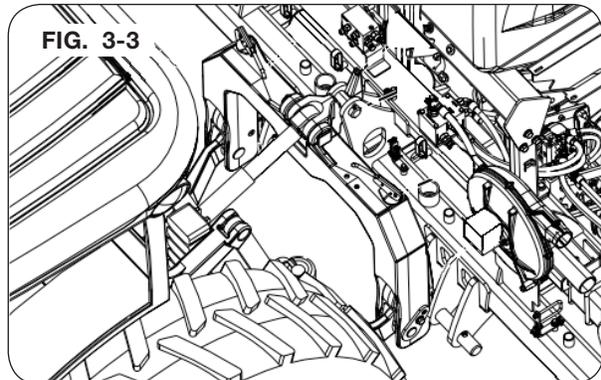


FIG. 3-3



Lowering the Toolbar

1. Adjust the lift assist system cycle time to be compatible with the tractor 3-point lift cycle time.
2. Lower the unit into the working position by first lowering the 3-point hitch.
3. Lower the lift assist system to match the planter toolbar.

Raising the Toolbar

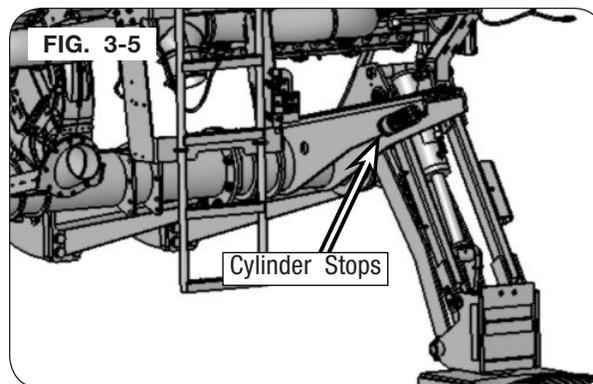
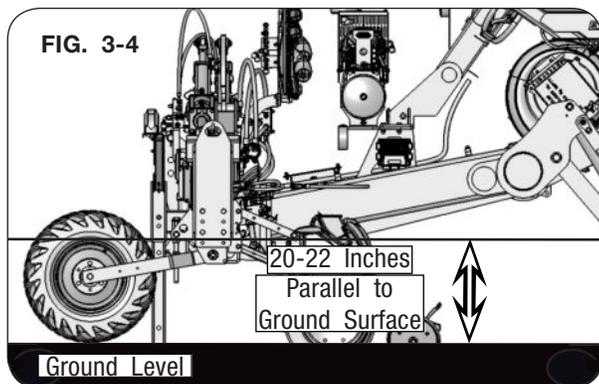
1. Adjust the lift assist system cycle time to be compatible with the tractor 3-point lift cycle time.
2. Raise the unit into the transport position by first raising the raising the the lift assist system.

NOTE: Raising or lowering the implement can be achieved by programming your tractor to control both hydraulic circuits with one SCV or by controlling both SCVs simultaneously.

NOTE: It is not recommended to plumb the lift assist hydraulic circuit into the tractor 3 point circuit. This will result in timing issues between the planter toolbar and lift assist wheels.

Toolbar Height

- The proper operating height for the toolbar is 20-22" off of the ground surface. (Fig. 3-4)
- The toolbar must be oriented parallel to the ground surface. (Fig. 3-4)
- Use the tractor's 3-point down stop and the lift assist cylinder stops to stop the toolbar at the point in which it is level with the ground surface. (Fig. 3-5)



Toolbar Wing Leveling

- When weights are added to the toolbar wings, the additional weight may cause the wings to no longer be level with the center section. Check the the levelness of the wings over the life of the toolbar to ensure proper performance.

NOTE: Before adjusting the the wings, inspect the implement for damaged or broken parts and remove any built up dirt or grease.

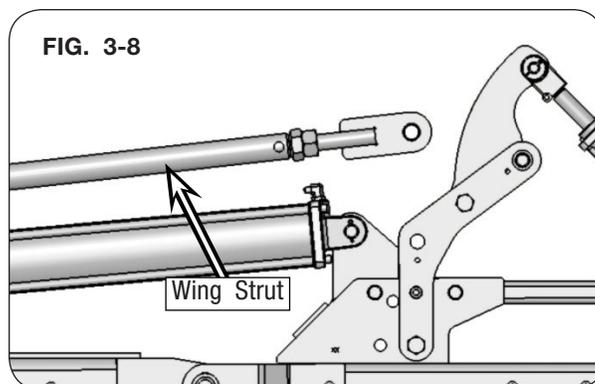
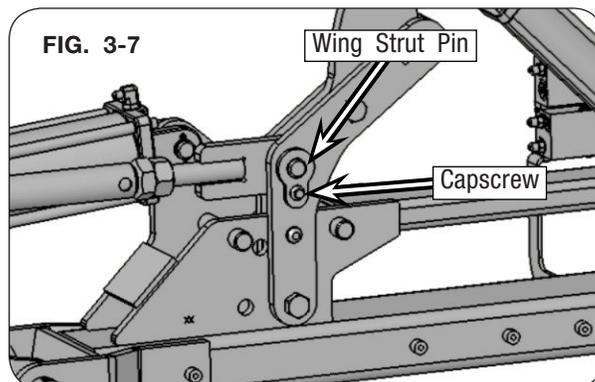
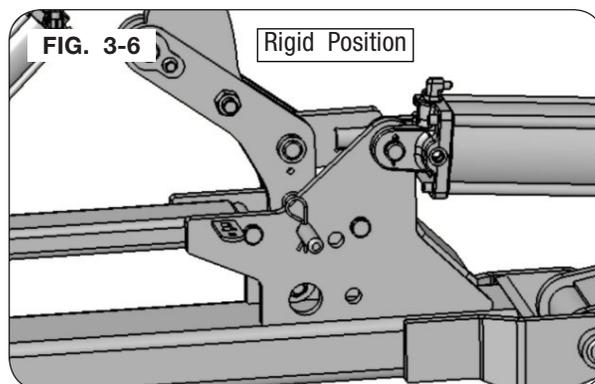
1. Install the wing latch pin into the rigid position. (Fig. 3-6)
2. Park the unit on a firm level surface in the raised position, and check the levelness of the toolbar center section. This will be the reference point for leveling the wings.

NOTE: For greatest accuracy the toolbar wings should have all attachments and weight installed while leveling.

3. Place a level or angle finder on the top of the wing and note the levelness. Compare this to the reference taken from the toolbar center section.

NOTE: The wing must be within 0 to 2 degrees above level in reference to the toolbar center section. If adjustment is required follow steps 4 through 9

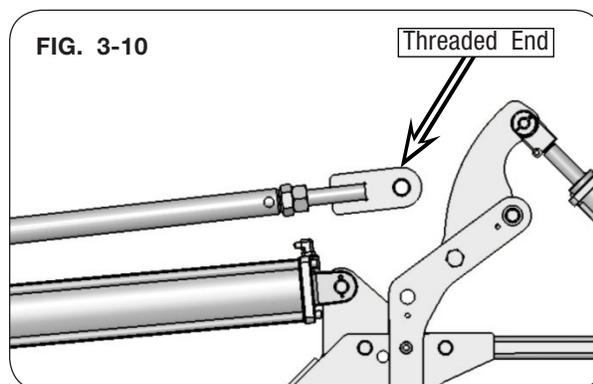
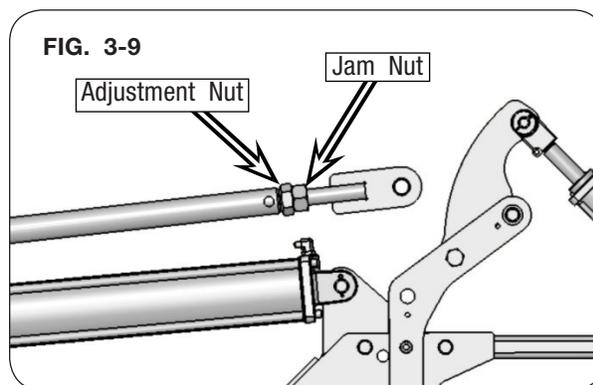
4. Support the wing with a minimum 5 ton rated stand, then lower the implement onto the bar stands and wing support stand.
5. Remove the wing strut pin and capscrew, then remove the wing strut from the gullwing link. (Fig. 3-7 and 3-8)



Toolbar Wing Leveling

6. Loosen the jam nut and adjustment nut on the wing strut. (Fig. 3-9)
7. Screw the threaded end of the wing strut clockwise to raise the wing, or counter clockwise the lower the wing. Each full turn of the strut end will result in approximately 0.5 degrees of change to the angle of the wing. (Fig. 3-10)
8. Re-install the wing strut into the gullwing link, then re-install the wing strut pin and capscrew. (Fig. 3-8 and 3-7)
9. Raise the implement and check the levelness of the toolbar wing in reference to the toolbar center section.
10. If the toolbar wing level is within specification, tighten the adjustment nut and jam nut (Fig. 3-9).

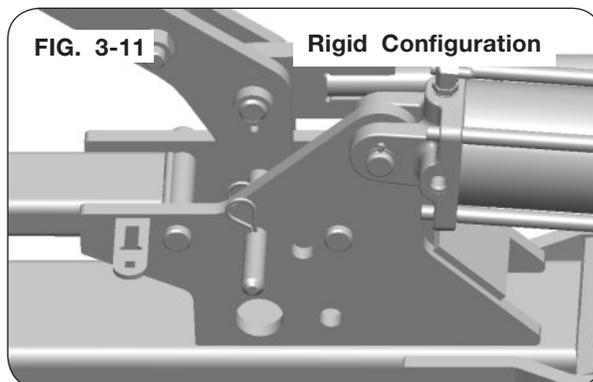
NOTE: If the toolbar wing level is still out of specification, repeat steps 4 through 9.



Wing Angle and Rigid Configurations

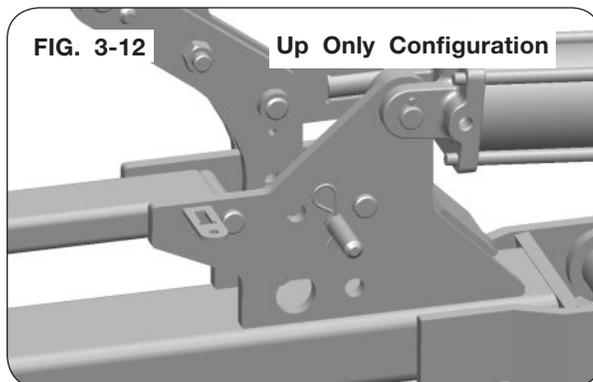
Rigid Configuration

1. Leave the unit attached to the tractor, raise the unit, then lower the support stands.
2. Lower the unit until it is supported by the stands, then set the tractor's parking brake.
3. Completely unfold the toolbar.
4. Remove the hair pins from the wing latch pin, then remove the wing latch pin from its current location. (Fig. 3-11)
5. Move the wing latch pin to the rigid position, then re-install the hair pins. (Fig. 3-11)



8 Degree Up Only Configuration

1. Leave the unit attached to the tractor, raise the unit, then lower the support stands.
2. Lower the unit until it is supported by the stands, then set the tractor's parking brake.
3. Completely unfold the toolbar.
4. Remove the hair pins from the wing latch pin, then remove the wing latch pin from its current location. (Fig. 3-12)
5. Move the wing latch pin to the up only position, then re-install the hair pins. (Fig. 3-12)



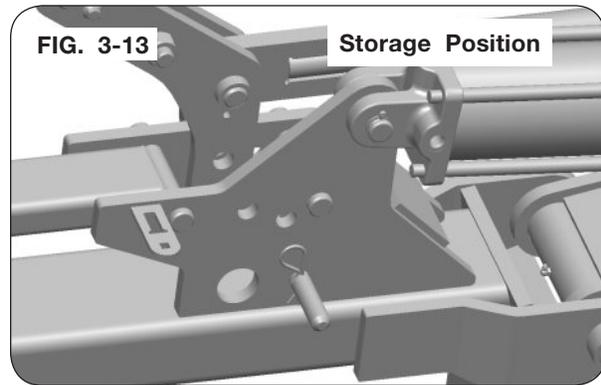
NOTE: This will allow the toolbar wing to have 8 degrees of upward movement, but no downward movement.

Wing Angle and Rigid Configurations

Wing Latch Pin Storage Position

1. Leave the unit attached to the tractor, raise the unit, then lower the support stands.
2. Lower the unit until it is supported by the stands, then set the tractor's parking brake.
3. Completely unfold the toolbar.
4. Remove the hair pins from the wing latch pin, then remove the wing latch pin from its current location. (Fig. 3-13)
5. Move the wing latch pin to the storage position, then re-install the hair pins. (Fig. 3-13)

NOTE: This will allow the toolbar wing to move 8 degrees both up and down.



Notes

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Daily Service

Beginning of Day

NOTE: Before initial use, ensure all lubrication points have been greased.

Check all hardware for tightness. This is especially important during the first days of operation. See “Torque Chart” in this section.

IMPORTANT

- *Inspect mast pins for any wear or damage. Replace any worn or damaged pins.*

Perform any daily lubrication outlined in “Lubrication” in this section.

Check stabilizer tire air pressure and inflate to correct pressure, if necessary.

IMPORTANT

- *To assure level row units, all tires must be inflated to the same pressure.*

End of Day

Clean off dirt and residue which may have accumulated on implement during operation.

Check implement for damage which could have occurred during operation, and repair.

Annual Service

Beginning of Season

WARNING

- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW “SAFETY” SECTION IN THIS MANUAL IF NECESSARY.**

Check all bolts, U-bolts, and wheel bolts for tightness. Refer to “Torque Chart” in this section.

Lubricate implement (see “Lubrication” in this section).

Check air pressure in tires and inflate to correct pressure if necessary (see “Daily Service” in this section).

End of Season

Your implement is an important investment. Spend a little time to protect it from destructive rust and corrosion. You will be repaid in longer service life and better performance.

Perform the following before placing the implement in storage:

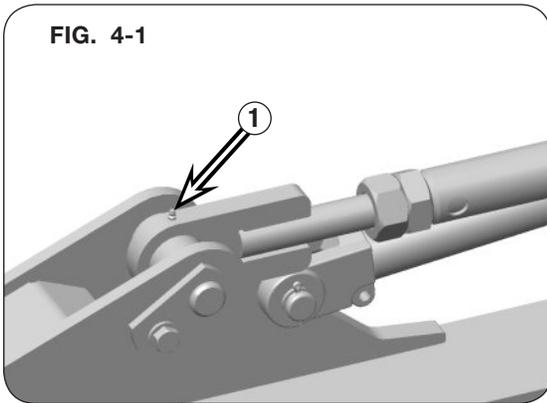
1. Remove dirt and residue which could cause rusting.
2. Repaint any chipped or scraped areas.
3. Lubricate implement (see “Lubrication” in this section).
4. Coat all earth moving surfaces with grease or suitable rust preventatives.
5. Inspect for damaged parts. Replace before next season.
6. Store implement inside, away from livestock.
7. Use support stands to keep implement tires and points up off bare ground.
8. Replace all worn, torn or faded decals and reflectors.

Lubrication

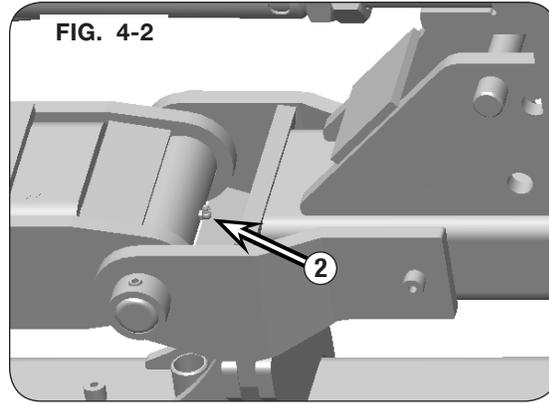
Grease all zerks using a high-quality, multi-purpose grease. Follow the recommended hourly service intervals illustrated below.

Lubrication Service Intervals			
Item		# of Grease Points	Interval (Hours)
1	Outer End of Strut Arms	2	50
2	Inner Ends of Swing Truss	2	50
3	Outer Ends of Swing Truss	2	50
4	LAW Lower Lift Arms	4	50
5	LAW Lift Cylinders	4	50
6	LAW Upper Lift Arms	4	50
7	Gauge Wheel Hub	4	50

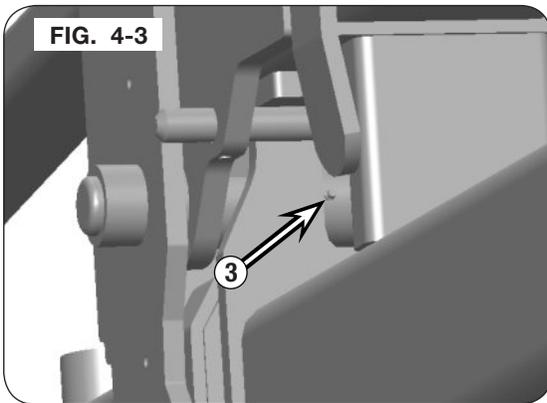
Outer End of Strut Arms



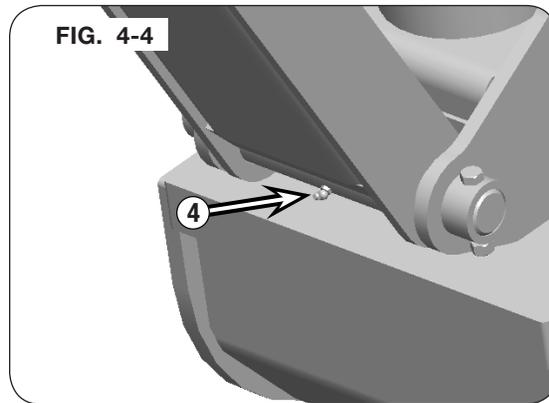
Inner Swing Truss



Outer Swing Truss



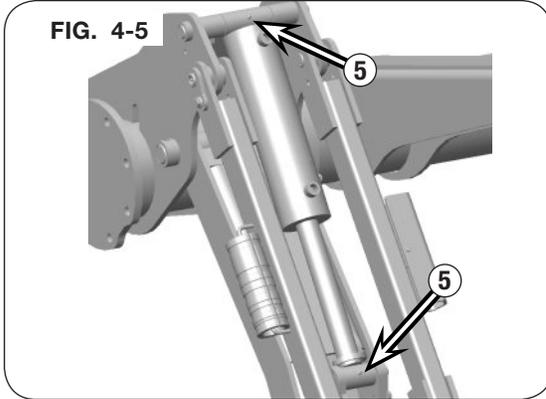
LAW Lower Lift Arms



Lubrication

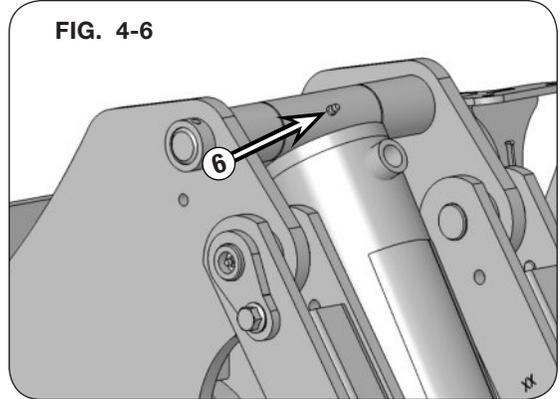
LAW Lift Cylinders

FIG. 4-5



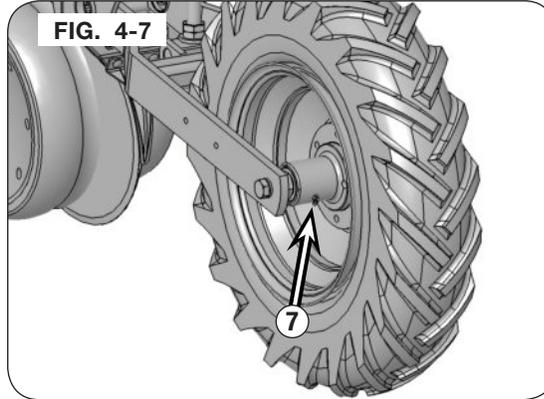
LAW Lower Lift Arms

FIG. 4-6



Gauge Wheel Hub

FIG. 4-7

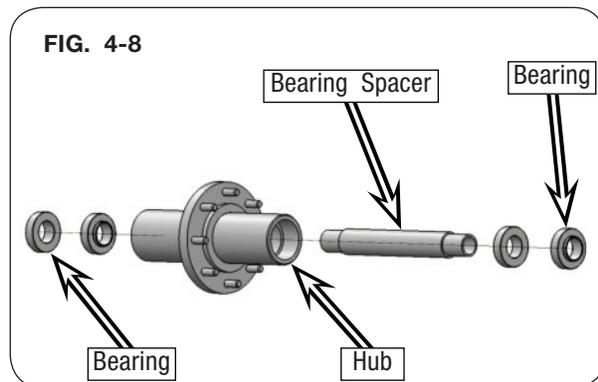
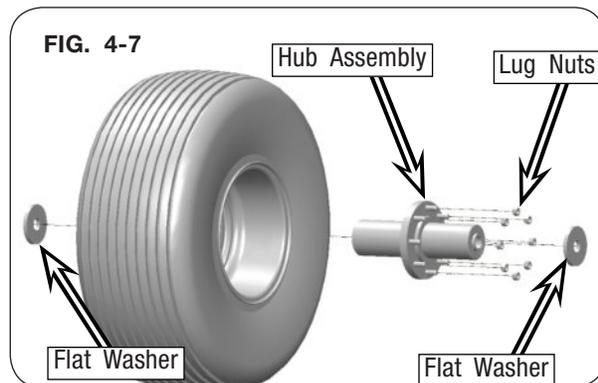
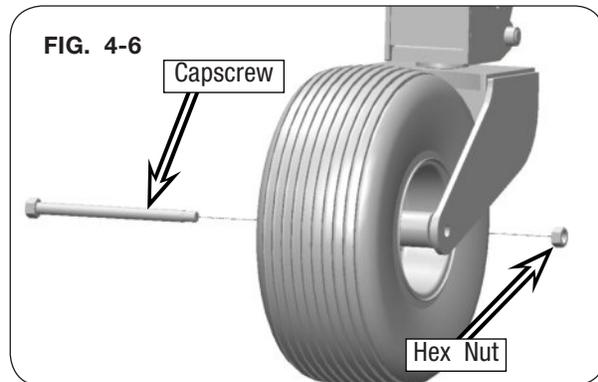


Lift Assist Wheel Hub Disassembly and Assembly

⚠ WARNING

- KEEP HANDS CLEAR OF PINCH POINT AREAS.
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.

1. Leave the unit attached to the tractor, raise the unit, then lower the support stands.
2. Lower the unit until it is supported by the stands, then set the tractors parking brake.
3. Remove the hex nut and capscrew from the lift assist wheel assembly. (Fig. 4-6)
4. Using a safe lifting device rated for a minimum of 200 lbs. remove the wheel and hub from the lift assist frame.
5. Remove the flat washer and lug nuts, then remove the hub assembly from the lift assist wheel. (Fig. 4-7)
6. Remove the bearings and bearing spacer from the hub assembly. (Fig. 4-8)
7. Inspect parts for wear or damage and replace if necessary.
8. Install the bearing spacer and bearings into the hub. (Fig. 4-8)
9. Install the hub and lug nuts into the lift assist tire. (Fig. 4-7)
10. Using a safe lifting device rated for a minimum of 200 lbs. install the lift assist tire and hub assembly into the lift assist frame along with the flat washers. (Fig. 4-7 and 4-6)
11. Torque all hardware to the specification listed in the maintenance section.



Toolbar Hydraulic Cylinder Removal and Installation

WARNING

- KEEP HANDS CLEAR OF PINCH POINT AREAS.
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.

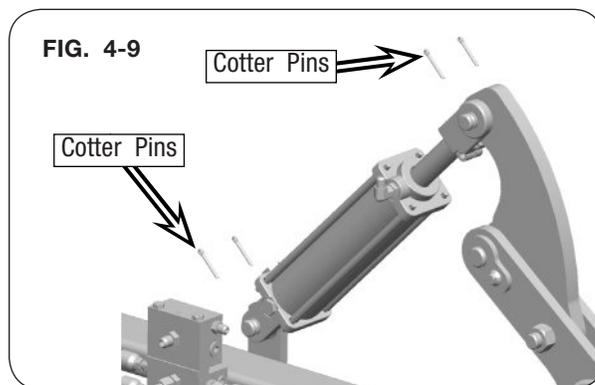
1. Park the unit on a firm level surface, leave the unit attached to the tractor, then raise the unit, and lower the support stands.
2. Lower the unit until it is supported by the stands, then set the tractor's parking brake and remove the key. 

3. Relieve hydraulic pressure from the system. See Tractor Operator Manual. Disconnect and store hydraulic hoses.

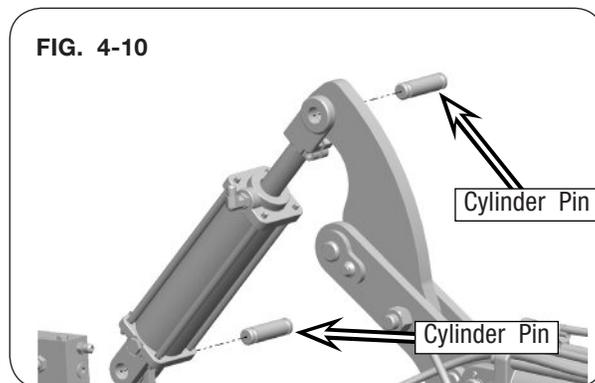
4. Remove the hydraulic hoses from the toolbar hydraulic cylinders.

5. Secure the hydraulic cylinder with a safe lifting device rated for a minimum of 150 lbs.

6. Remove the cotter pins from the cylinder pins. (Fig. 4-9)



7. Remove the cylinder pins from the hydraulic cylinder, then remove the hydraulic cylinder from the toolbar. (Fig. 4-10)



8. Inspect parts for wear or damage and replace if necessary.

9. Using a safe lifting device rated for a minimum of 150 lbs. install the hydraulic cylinder and cylinder pins onto the toolbar. (Fig. 4-10)

10. Install the cotter pins into the cylinder pins. (Fig. 4-9)

11. Re-connect the hydraulic hoses, then purge the hydraulic system and test for proper function. See "Purging Hydraulic System" in the Set Up section.

NOTE: This procedure can be used for both sizes of hydraulic cylinder on the toolbar.

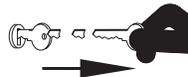
Lift Assist Tail and Yoke Disassembly and Assembly

⚠ WARNING

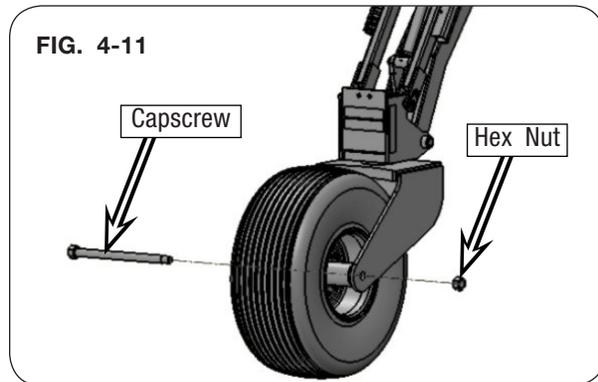
- KEEP HANDS CLEAR OF PINCH POINT AREAS.
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.

1. Park the unit on a firm level surface, leave the unit attached to the tractor, then raise the unit, and lower the support stands.

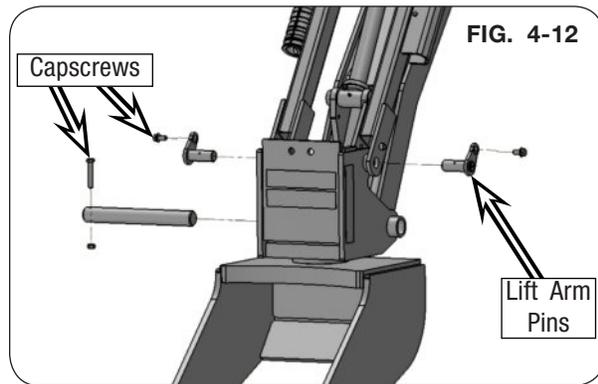
2. Lower the unit until it is supported by the stands, then set the tractor's parking brake and remove the key.



3. Remove the hex nut and capscrew, then using a safe lifting device rated for a minimum of 250 lbs. remove the wheel and tire from the assembly. (Fig. 4-11)

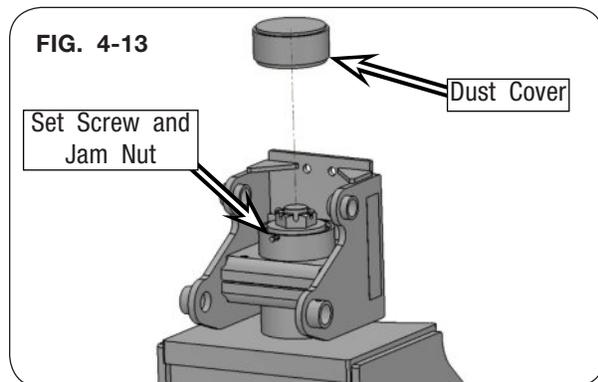


4. Support the yoke assembly with a safe lifting device rated for a minimum of 500 lbs. then remove the capscrews, hex nuts, and pins from the lift arms. (Fig. 4-12)



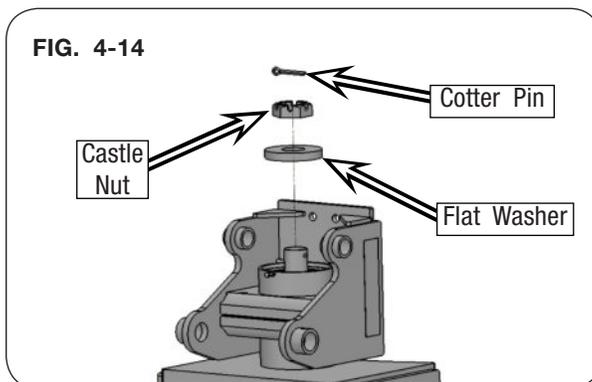
5. Remove the yoke assembly from the lift frame using a safe lifting device rated for a minimum of 500 lbs.

6. Loosen the jam nut and set screw, then remove the dust cover. (Fig. 4-13)

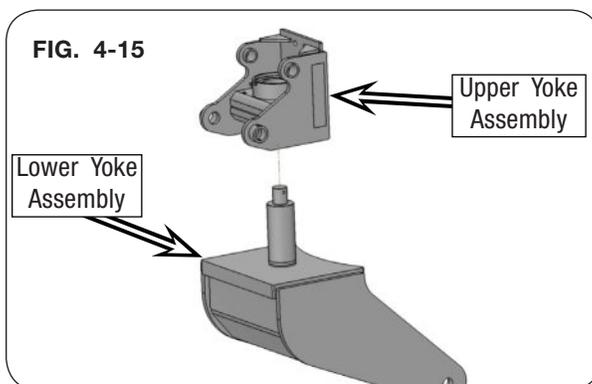


Lift Assist Tail and Yoke Disassembly and Assembly

7. Remove the cotter pin, castle nut, and flat washer from the top of the yoke assembly. (Fig. 4-14)



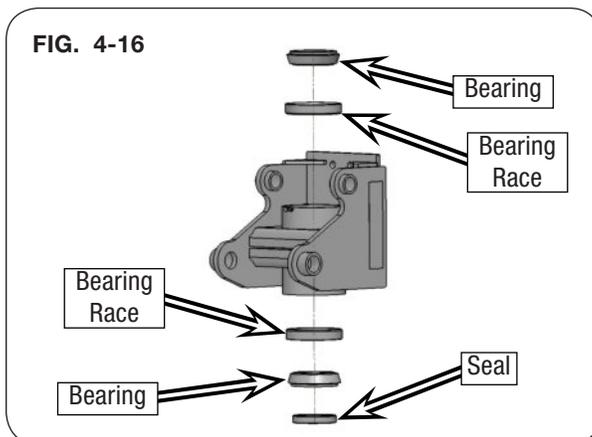
8. Using a safe lifting device rated for a minimum of 250 lbs. separate the upper side of the yoke assembly from the bottom. (Fig. 4-15)



9. Remove the bearings, races, and seal from the upper yoke assembly. (Fig. 4-16)
10. Inspect parts for wear or damage and replace if necessary.

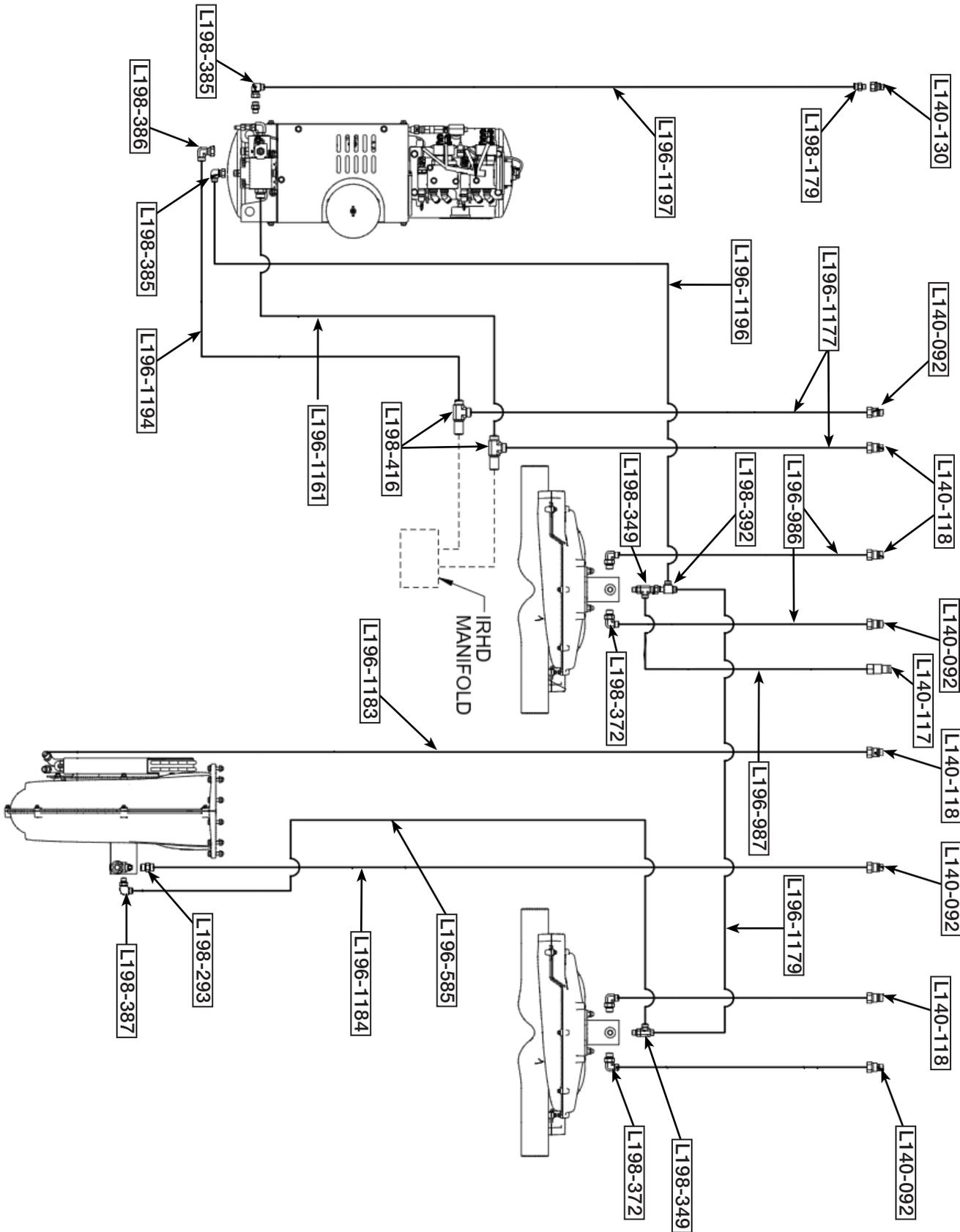
NOTE: Apply grease to all bearings before installing.

11. Install the races, bearings, and seal into the upper yoke assembly. (Fig. 4-16)
12. Install the upper side of the yoke assembly onto the lower yoke assembly. (Fig. 4-15)

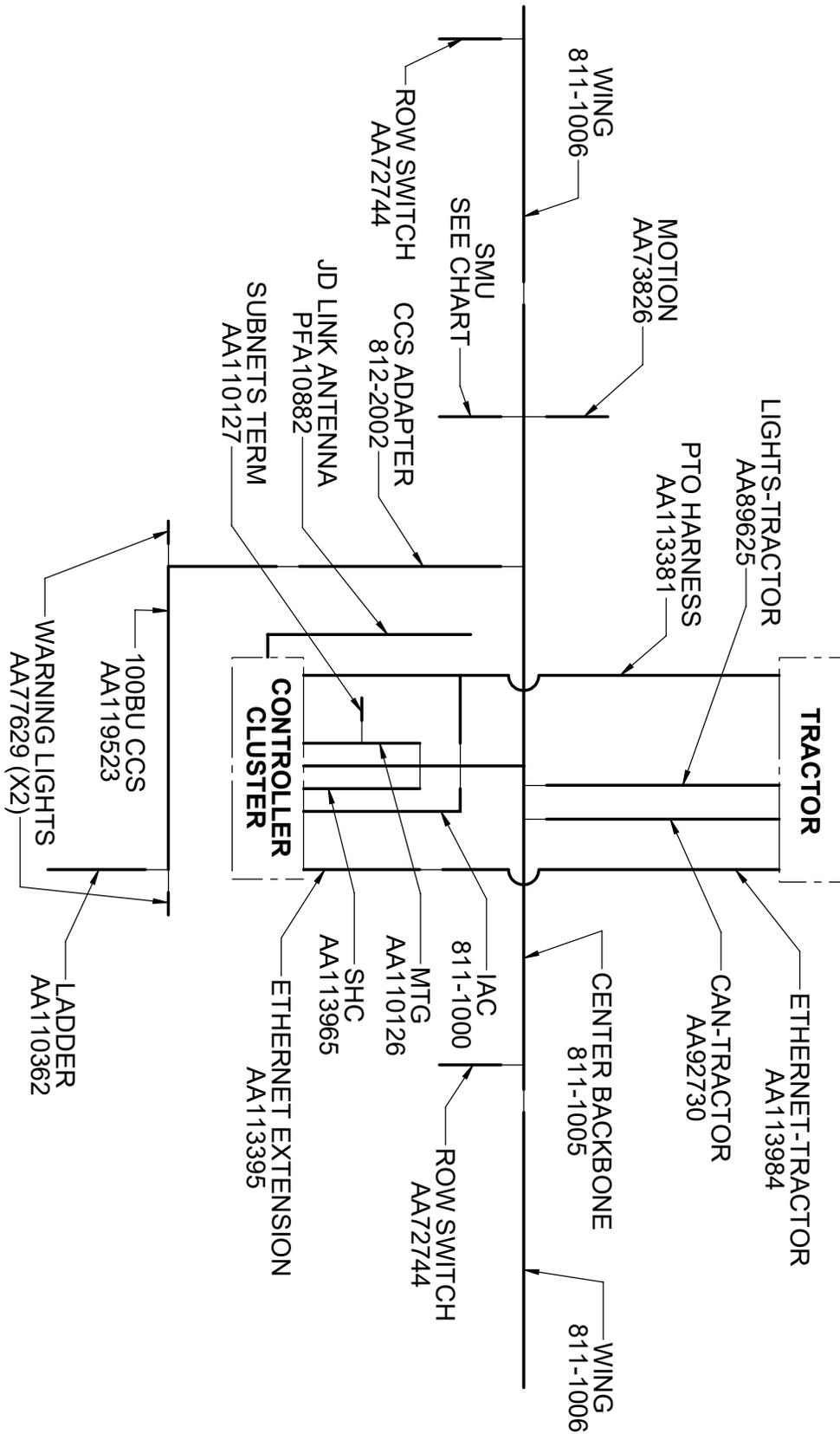


13. Install the flat washer and castle nut onto the assembly. Tighten the castle nut to 45 ft-lbs. and check that the yoke assembly turns freely, then tighten the castle nut to the next flat and install the cotter pin. (Fig. 4-14)
14. Install the dust cover onto the assembly, then tighten the set screw and jam nut. (Fig. 4-13)
15. Using a safe lifting device rated for a minimum of 500 lbs. install the yoke assembly onto the lift arms using the pins, capscrews, and hex nuts. (Fig. 4-12)
16. Install the wheel and tire along with the capscrew and hex nut. (Fig. 4-12)

Hydraulic Layout - Planter Hydraulics



Electrical Layout



Parts with an "AA" prefix will be provided by John Deere

Storage

Do the following before placing the implement in storage:

1. Remove dirt and trash which could cause rusting.
2. Repaint any chipped or scraped areas.
3. Coat all earth moving surfaces with grease or suitable rust preventative.
4. Inspect for damage or worn parts, replace before next season.
5. Store implement inside, away from livestock.
6. Block up implement to keep tires and ground tools off ground.
7. Replace all worn, torn or faded decals and reflectors.

Troubleshooting

Problem	Possible Cause	Corrective Action
Toolbar Will Not Fold or Unfold	Toolbar wing lock pins installed	Ensure the toolbar wing lock pins are in the storage position
	Hydraulic pressure too low	Refer to your tractors operators maual
	Hydraulic cylinder seals bad	See “Toolbar Hydraulic Cylinder Removal and Installation” in this section, then inspect hydraulic cylinders for bad seals
	Hydraulic cylinder restrictors plugged	See “Toolbar Hydraulic Cylinder Removal and Installation” in this section, then inspect hydraulic cylinders for plugged restrictor
Toolbar Does Not Operate at the Proper Height	Support stand not completely raised	Ensure that the support stands are fully raised and their pin is installed
	Tractor 3 point hitch not adjusted correctly	See Tractor Operator Manual for 3 point adjustments

Complete Torque Chart

Capscrews - Grade 5

NOTE:

- Grade 5 capscrews can be identified by three radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
1/4-20	8-10	11-13
1/4-28	9-11	12-15
5/16-18	15-17	20-23
5/16-24	17-19	23-26
3/8-16	25-28	34-38
3/8-24	28-31	38-42
7/16-14	40-45	54-61
7/16-20	45-50	61-68
1/2-13	62-68	84-92
1/2-20	68-75	92-102
9/16-12	90-98	122-133
9/16-18	100-110	134-148
5/8-11	120-135	162-183
5/8-18	124-137	168-186
3/4-10	200-220	270-300
3/4-16	210-230	285-310
7/8-9	330-350	425-475
7/8-14	360-380	460-515
1-8	500-525	675-710
1-14	540-560	730-760
1 1/8-7	600-635	815-860
1 1/8-12	665-700	920-950
1 1/4-7	850-895	1150-1215
1 1/4-12	940-990	1275-1340
1 3/8-6	1125-1175	1525-1590
1 3/8-12	1280-1335	1735-1810
1 1/2-6	1500-1560	2035-2115
1 1/2-12	1685-1755	2285-2380

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart (continued)

Capscrews - Grade 8

NOTE:

- Grade 8 capscrews can be identified by six radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
5/16-18	20-22	27-30
5/16-24	21-23	28-31
3/8-16	35-39	47-53
3/8-24	36-41	49-55
7/16-14	54-58	73-78
7/16-20	55-60	75-80
1/2-13	82-88	110-120
1/2-20	94-99	125-135
9/16-12	127-134	170-180
9/16-18	147-155	199-210
5/8-11	160-170	215-230
5/8-18	165-175	225-235
3/4-10	280-295	380-400
3/4-16	330-365	445-495
7/8-9	410-430	555-580
7/8-14	420-440	570-595
1-8	630-650	850-880
1-14	680-700	920-950
1 1/8-7	900-930	1220-1260
1 1/8-12	930-950	1260-1290
1 1/4-7	1250-1300	1695-1760
1 1/4-12	1280-1320	1735-1790

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart (continued)

Metric Capscrews - Class 10.9

NOTE:

- For wheel torque requirements, refer to Wheels and Tires.
- Capscrews have a yellow or clear appearance.



SIZE	FOOT POUNDS	NEWTON METERS
M5 X 0.8	6.5	8.8
M6 X 1	11.1	15.0
M7 X 1	18.6	25.2
M8 X 1.25	26.9	36.5
M10 X 1.5	53.3	72.2
M12 X 1.75	92.9	126
M14 X 2	148	200
M16 X 2	231	313
M18 X 2.5	317	430
M20 X 2.5	450	610
M22 x 1.5	475	644
M22 X 2.5	612	830
M24 X 3	778	1055
M27 X 3	1138	1543
M30 X 3.5	1546	2095
M33 X 3.5	2103	2851
M36 X 4	2701	3662
M39 X 4	3495	4739
M42 X 4.5	4324	5862

IMPORTANT

- *Follow these torque recommendations except when specified in text.*

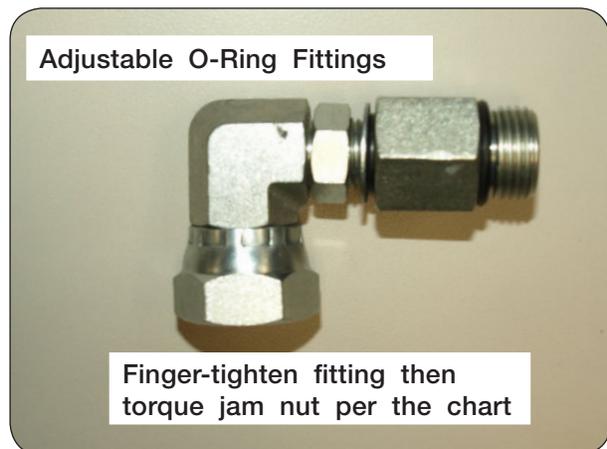
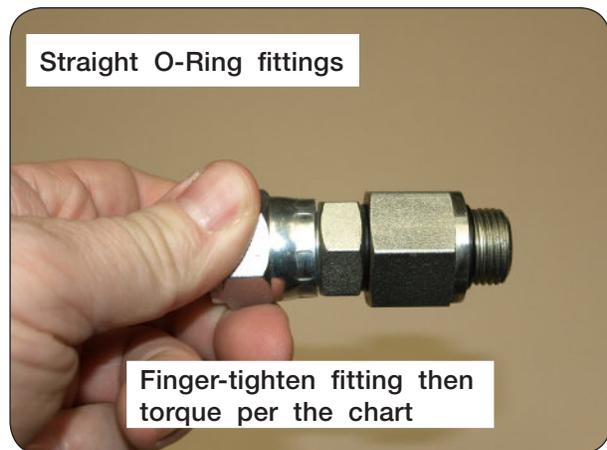
Hydraulic Fittings - Torque and Installation

Tightening O-Ring Fittings

1. Inspect components for damage or contamination. Do not connect any other type of fitting to an O-ring fitting.
2. For adjustable fittings, insure the jam nut and washer are fully backed up.
3. Lubricate the O-ring and threads on the fitting.
4. Turn the fitting into the port until it is finger tight.
5. For adjustable fittings, set in the desired position.
6. Using a wrench, torque the fitting to the value in the below table. For adjustable fittings the jam nut will be tightened.

Note: Never use a power tool to install a fitting.

Dash Size	Thread Size	Straight Stud Torque (Ft-Lbs)	Adjustable Stud Torque (Ft-Lbs)
-5	1/2-20	14-19	10-14
-6	9/16-18	18-24	12-16
-8	3/4-16	27-43	20-30
-10	7/8-14	36-48	30-36
-12	1-1/16-12	65-75	44-54
-14	1-3/16-12	75-99	53-70
-16	1-5/16-12	85-123	59-80
-20	1-5/8"-12	115-161	75-100
-24	1-7/8"-12	125-170	105-125

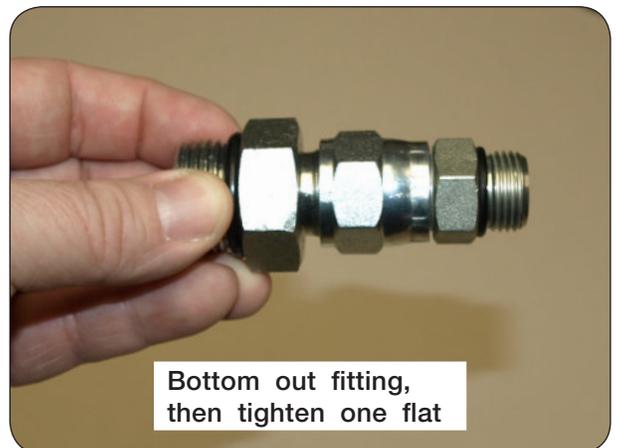


Hydraulic Fittings - Torque and Installation

Tightening JIC Fittings

1. Inspect all components for damage or contamination. Do not connect any other type of fitting to a JIC fitting.
2. Lubricate the threads.
3. Turn the fitting into the port until it bottoms out.
4. Use one wrench on the fixed hex on the hose to prevent twisting and a second on the swivel. Tighten the fitting another 60 degrees (or one flat)

Note: Never use a power tool to install a fitting



Hydraulic Fittings - Torque and Installation

Tightening O-Ring Face Seal Fittings

1. Confirm face seal o-ring is properly installed and inspect components for damage or contamination. Do not connect any other type of fitting to an o-ring face seal fitting.
2. Lubricate the threads and the o-ring.
3. Align mating face seal flange against o-ring. Finger tighten the face seal flange nut.
4. Torque the flange nut to the value in the below table.

Dash Size	Face Seal Thread Size	Torque (Ft-Lbs)
-4	9/16-20	10-12
-6	11/16-16	18-20
-8	13/16-16	32-35
-10	1-14	45-50
-12	1-3/16-12	65-70
-16	1-7/16-12	92-100
-20	1-7/8-12	125-140
-24	2-12	150-165

Notes

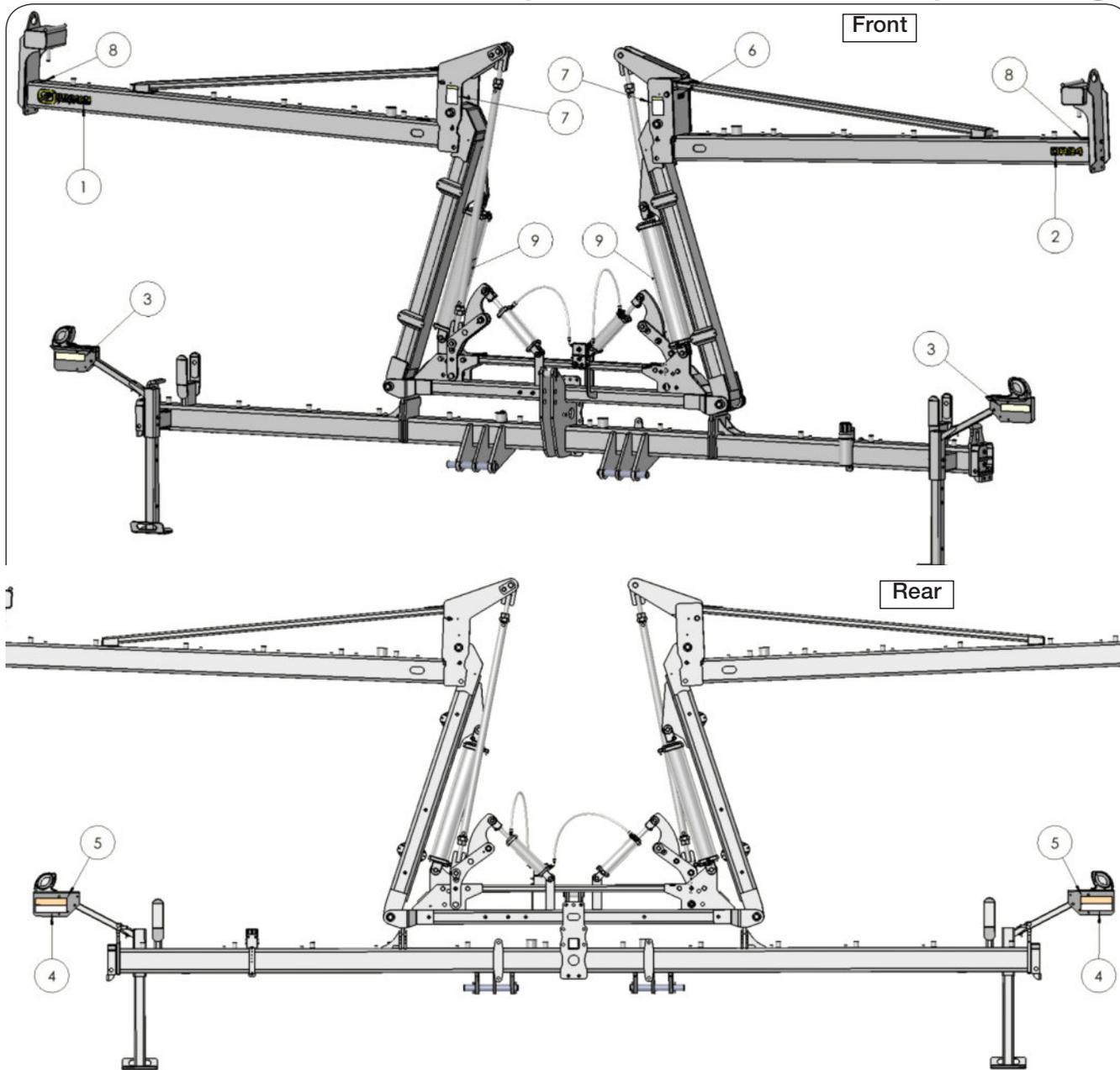
SECTION V

Parts

Toolbar Decals	5-2
Lift Assist Frame Decals	5-3
Toolbar Center Components	5-4
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Toolbar Decals

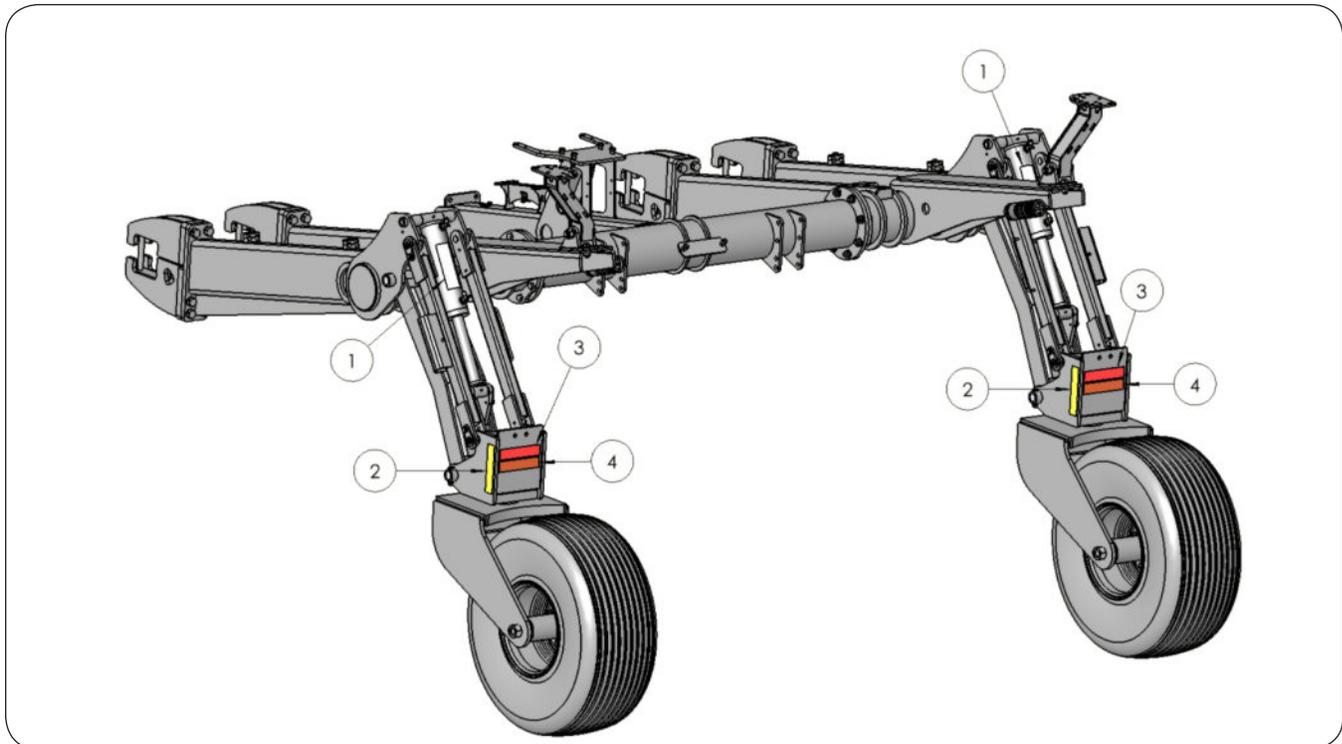
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L153-477	Orthman by Unverferth Decal	1	
2	L153-467	Model Decal, DR24	1	
3	L153-172	Yellow Reflective Decal	2	
4	L153-173	Red Reflective Decal	2	
5	L153-171	Orange Reflective Decal	2	
6	L153-011	Serial Number Tag	1	
7	L153-013	Wing Hinge Warning Decal	2	
8	L153-044	Operation Checklist Decal	2	
9	L153-528	Hydraulic Pressure Warning Decal	2	

Lift Assist Frame Decals

Please visit www.unverferth.com/parts/ for the most current parts listing.

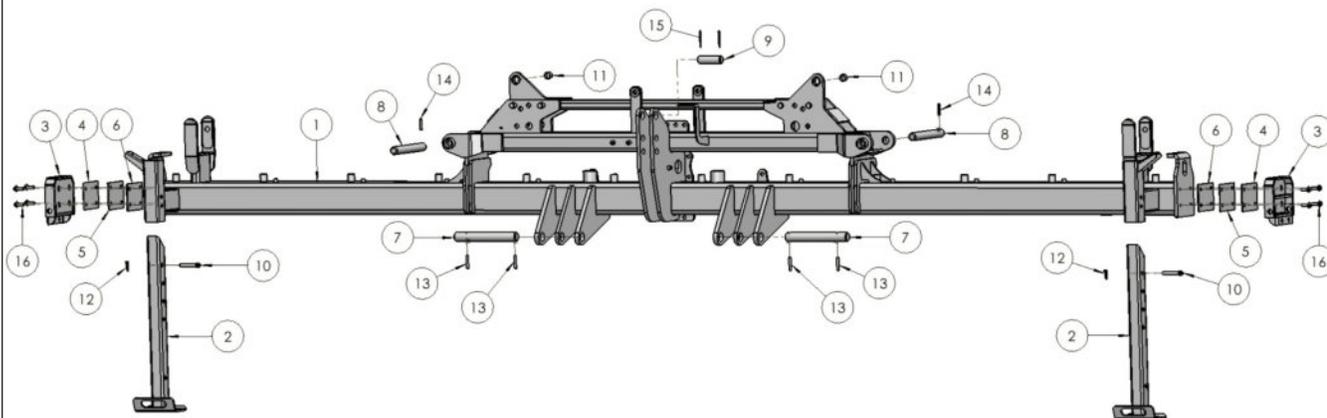


ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L153-528	Hydraulic Pressure Warning Decal	2	
2	L153-172	Yellow Reflective Decal	4	
3	L153-173	Red Reflective Decal	2	
4	L153-171	Orange Reflective Decal	2	

24R 22 DR Panter — Parts

Toolbar Center Components

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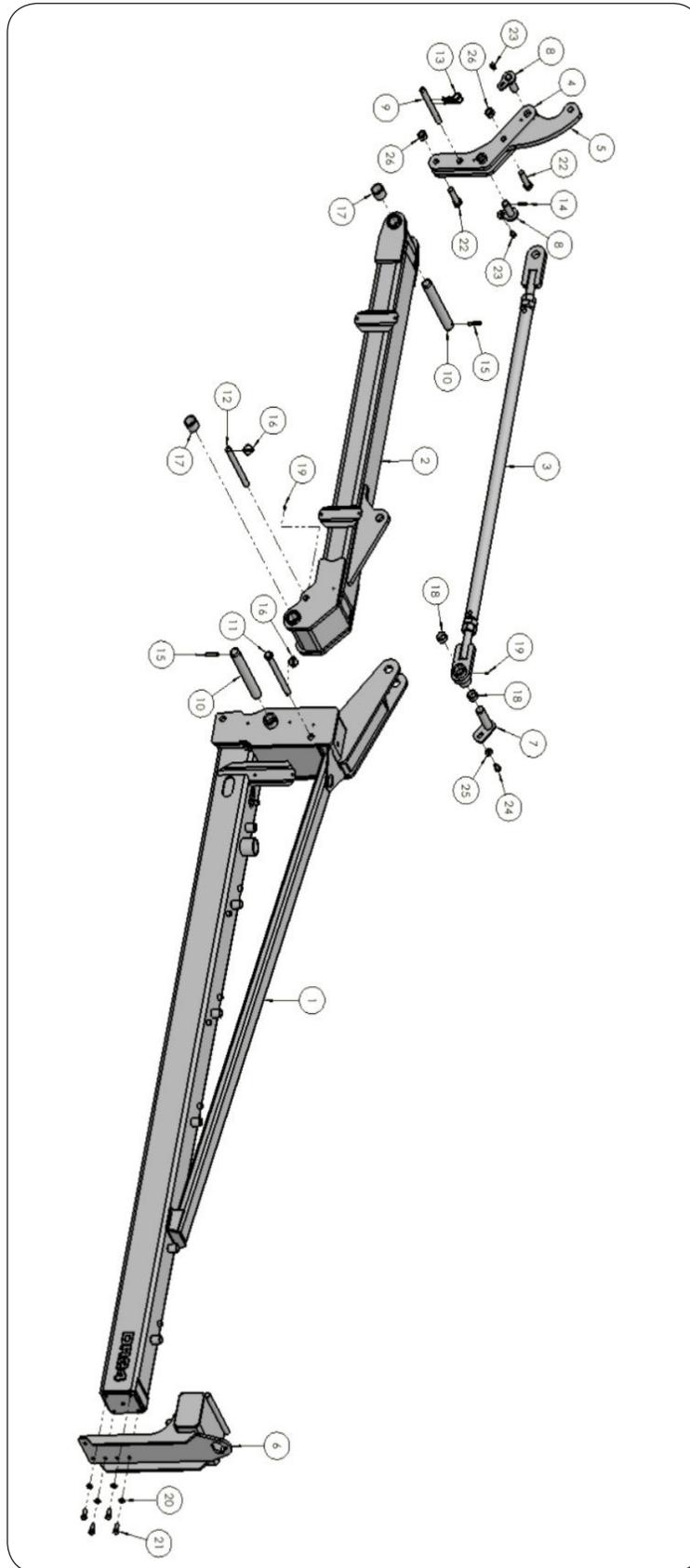
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L808-008	Toolbar Center Section	1	
2	L805-009	Bar Stand Assembly	2	
3	L336-860	Toolbar Wing Guide	2	
4	L301-895	Wing Guide Shim, 7 Gauge	2	
5	L301-894	Wing Guide Shim, 16 Gauge	2	
6	L301-896	Wing Guide Shim, 1/4"	2	
7	L321-513	Lower Hitch Pin	2	
8	L301-794	Toolbar Wing Hinge Pin	2	
9	L321-514	Upper Hitch Pin	1	
10	L303-846	Bar Stand Pin	2	
11	L134-044	Bushing, 1 1/2" OD x 1 1/4" ID x 1"	2	
12	L104-065	Lynch Pin	2	
13	L104-091	Roll Pin, 1/2" x 3"	4	
14	L104-080	Roll Pin, 1/2" x 2 1/2"	2	
15	L104-184	Cotter Pin, 1/4" x 3"	2	
16	L100-450	Flanged Capscrew, M16 x 2 x 45 Grade 10.9	8	

Notes

Please visit www.unverferth.com/parts/ for the most current parts listing.

Toolbar Wing Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



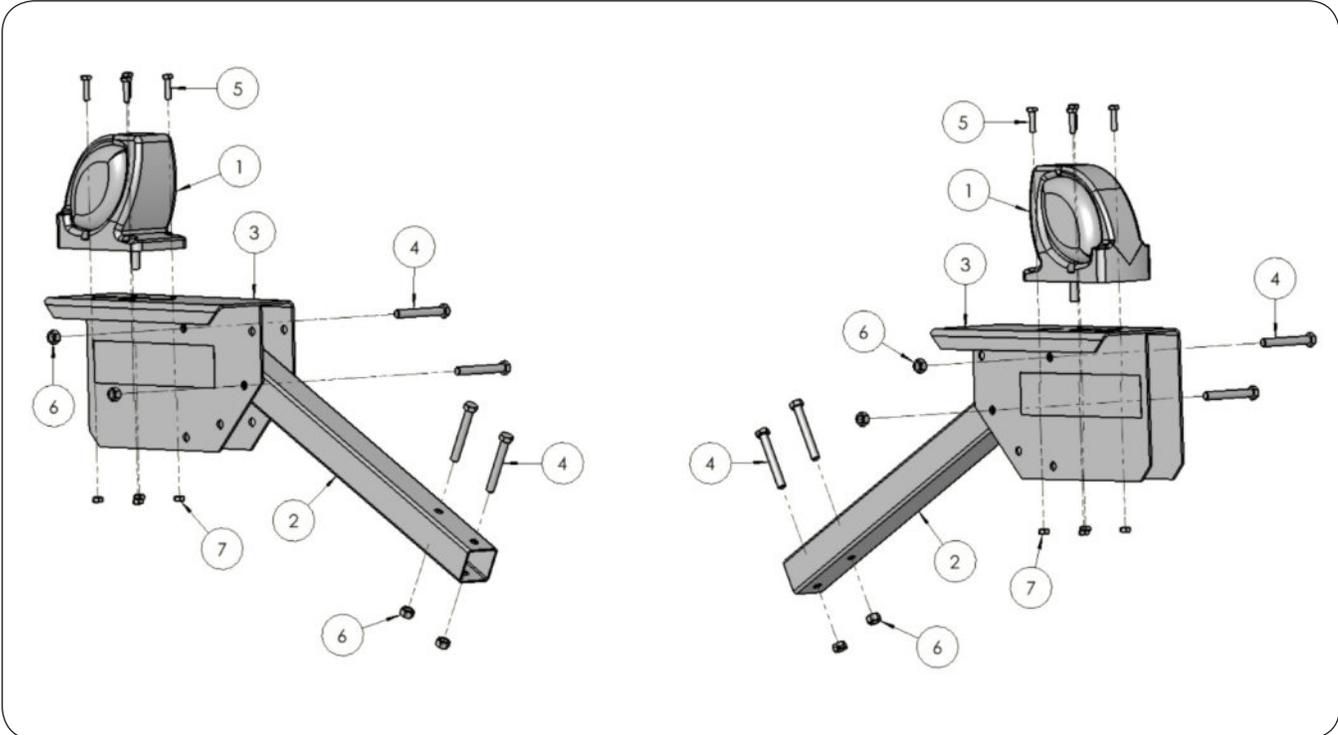
Toolbar Wing Components

Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L804-014	LH Wing Weldment, 24R22	1	
	L804-013	RH Wing Weldment, 24R22		
2	L806-007	RH Swing Truss, 24R22 and 24R20	2	
	L806-008	LH Swing Truss, 24R22 and 24R20		
3	L806-103	Wing Strut, 24R22 and 24R20	2	
4	L805-012	Gull Wing Plate	2	
5	L367-650	Float Link Plate	2	
6	L366-241	Toolbar Weight Bracket	2	
7	L301-783	Outer Wing Strut Pin	1	
8	L301-786	Inner Wing Strut Pin	1	
9	L301-859	Wing Angle Adjustment Pin	2	
10	L301-794	Wing Hinge Pin	2	
11	L301-789	Wing Lock Pin	2	
12	L336-158	Swing Truss Lock Pin	2	
13	L104-070	Cotter Pin, 1/8" x 3 9/16"	4	
14	L104-008	Roll Pin, 5/16" Dia. x 1 3/4"	2	
15	L104-080	Roll Pin, 1/2" Dia. x 1 1/2"	4	
16	L104-065	Lynch Pin, 5/16" x 1 11/16"	4	
17	L134-005	Bushing, 2 1/8" OD x 1 3/4" ID x 2"	4	
18	L134-017	Bushing, 1 3/4" OD x 1 1/2" ID x 1"	4	
19	L110-001	Grease Zerk	4	
20	L108-021	Lock Washer, 5/8"	8	
21	L100-370	Capscrew, M16 x 2 x 35mm Grade 8.8	8	
22	L100-381	Capscrew, M24 x 3 x 100mm Grade 10.9	4	
23	L100-441	Capscrew, M12 x 1.75 x 25mm Grade 8.8	2	
24	L100-356	Capscrew, M16 x 2 x 30mm Grade 8.8	2	
25	L108-112	Flat Washer, 17mm	2	
26	L102-193	Lock Nut, M24 x 3 Grade 2	2	

Light and Light Mount Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



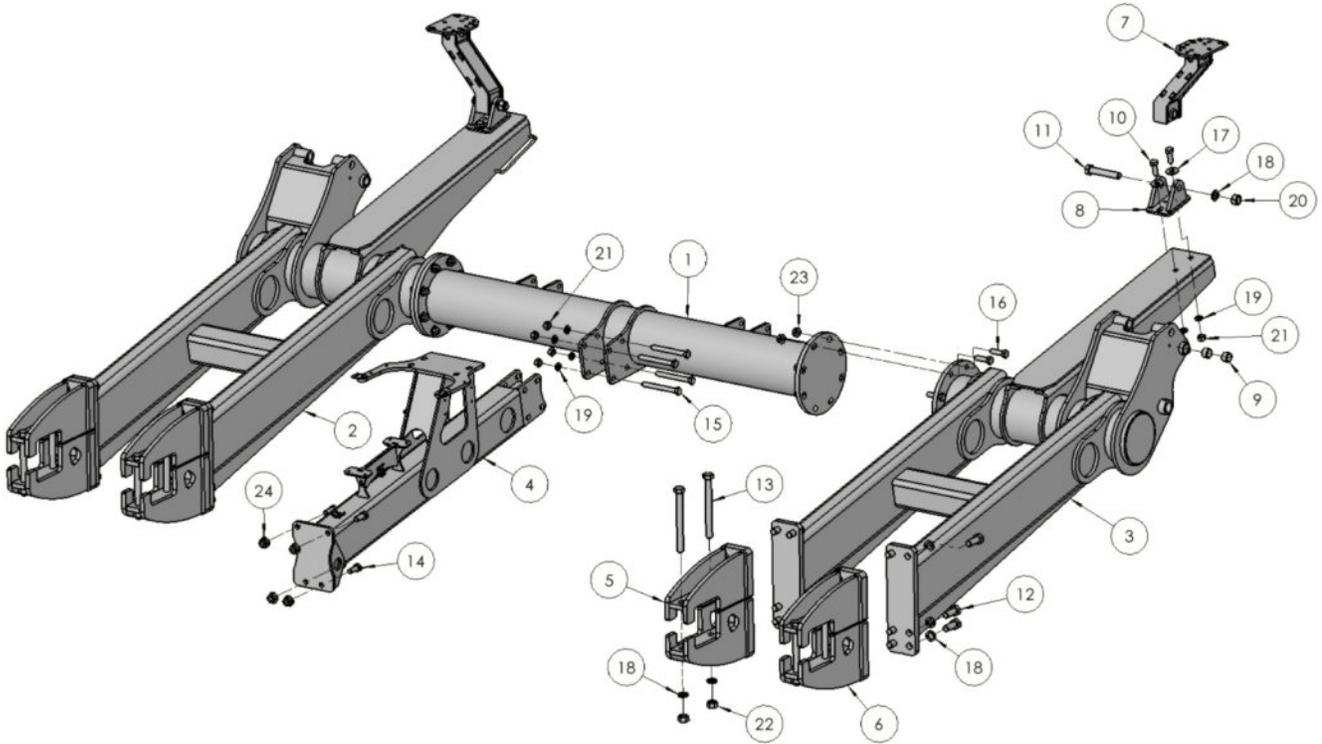
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L152-953	Amber Safety Light	2	
2	L366-586	Light Mount Arm	2	
3	L301-567	Light Mount	2	
4	L100-113	Capscrew, 3/8"-16UNC x 2 3/4" Grade 5	8	
5	L100-249	Capscrew, 1/4"-20UNC x 1" Grade 5	8	
6	L102-056	Lock Nut, 3/8"-16UNC Grade 2	8	
7	L102-023	Lock Nut, 1/4"-20UNC Grade 2	8	

Notes

Please visit www.unverferth.com/parts/ for the most current parts listing.

Lift Assist Frame Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



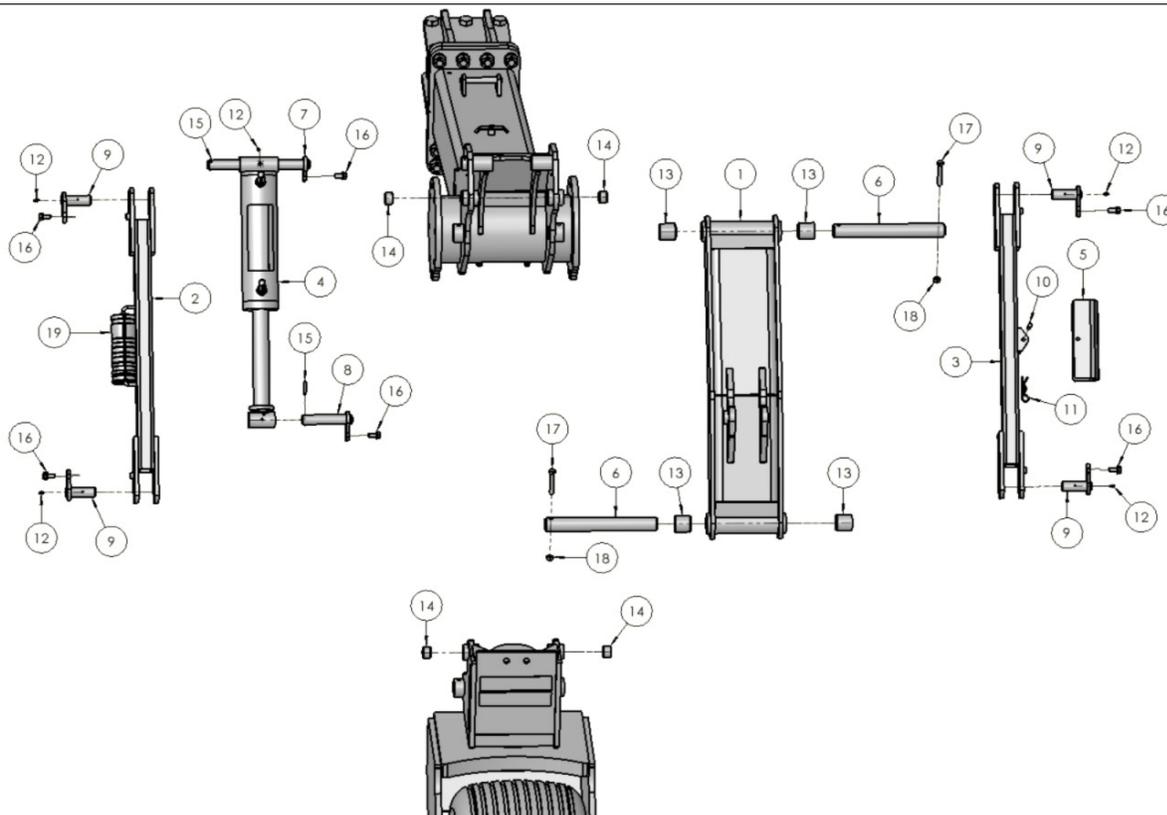
Lift Assist Frame Components

Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L367-647	Lift Assist Frame Cross Tube Weldment	1	
2	L367-694	Lift Assist Frame Arm Weldment RH	1	
3	L367-695	Lift Assist Frame Arm Weldment LH	1	
4	L812-511	Lift Assist Frame Cradle Weldment	1	
5	L367-747	Lift Assist Frame Clamp, Upper Half	2	
6	L367-748	Lift Assist Frame Clamp, Lower Half	2	
7	L812-525	Rear Cradle Leg Weldment	2	
8	L366-144	CCS Tank Mount Ear Weldment	2	
9	L134-044	Bushing, 1 1/2" OD x 1 1/4" ID x 1"	4	
10	L100-156	Capscrew, 3/4"-10UNC x 2" Grade 5	4	
11	L100-188	Capscrew, 1"-8UNC x 5 1/2" Grade 5	2	
12	L100-284	Capscrew, 1"-8UNC x 2 1/2" Grade 8	24	
13	L100-199	Capscrew, 1"-8UNC x 10" Grade 8	8	
14	L100-230	Capscrew, M20 x 50mm x 2.5 Grade 8.8	4	
15	L100-169	Capscrew, 3/4"-10UNC x 6 1/2"	4	
16	L100-075	Capscrew, 3/4"-10UNC x 2 1/2" Grade 8	16	
17	L108-011	Flat Washer, 3/4"	4	
18	L108-025	Lock Washer, 1"	34	
19	L108-022	Lock Washer, 3/4"	8	
20	L102-011	Hex Nut, 1"-8UNC Grade 2	2	
21	L102-009	Hex Nut, 3/4"-10UNC Grade 5	4	
22	L102-111	Hex Nut, 1"-8UNC Grade 5	8	
23	L102-121	Flanged Lock Nut, 3/4"-10UNC Grade 5	16	
24	L102-323	Flanged Lock Nut, M20 x 2.5	4	

Lift Assist Frame Linkage Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



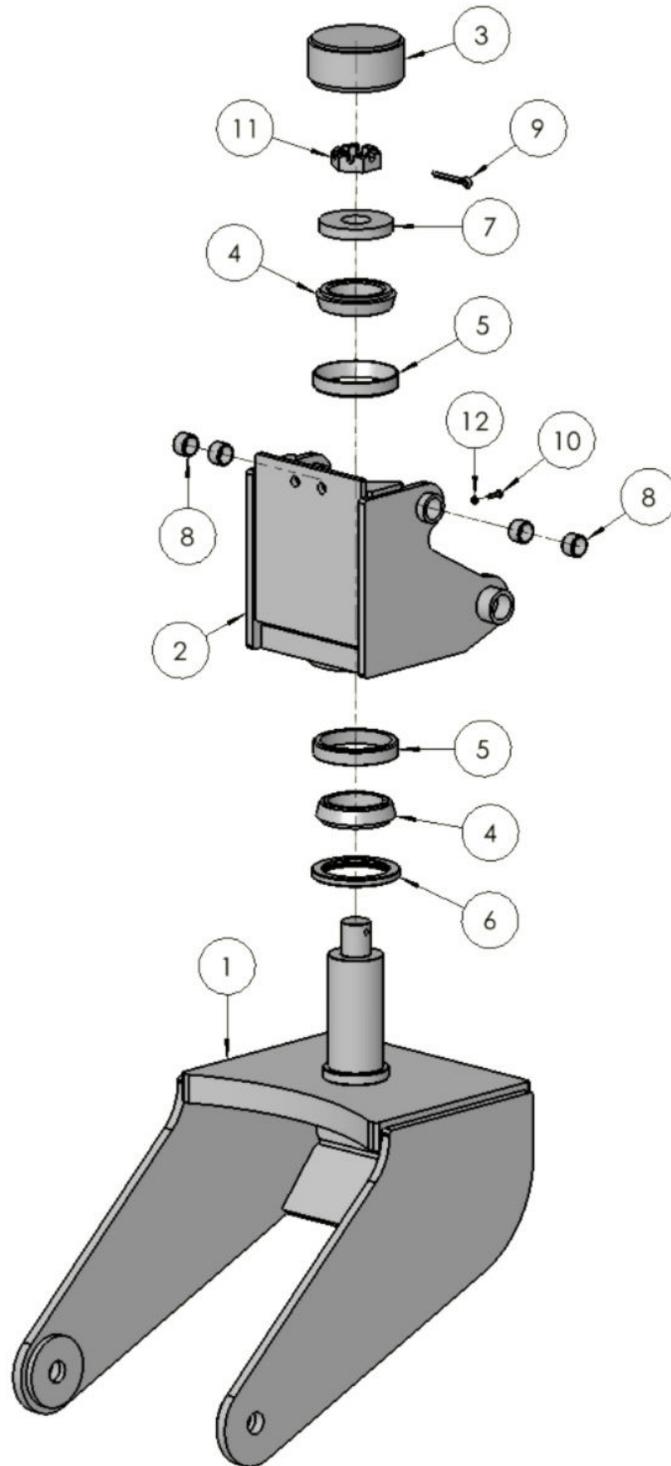
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L366-781	Lower Lift Arm Weldment	1	
2	L366-787	Outer Lift Linkage Weldment	1	
3	L366-786	Inner Lift Linkage Weldment	1	
4	L194-419	Hydraulic Cylinder, 4"x12" 3000 PSI	1	
5	L366-045	Hydraulic Cylinder Safety Stop	1	
6	L309-157	Lower Lift Arm Linkage Pin	2	
7	L366-113	Upper Hydraulic Cylinder Pin	1	
8	L366-114	Lower Hydraulic Cylinder Pin	1	
9	L366-759	Lift Linkage Pin	4	
10	L104-210	Safety Stop Clevis Pin	1	
11	L104-094	Hairpin Cotter 5/32" x 5 5/16"	1	
12	L110-001	Grease Zerk	3	
13	L134-005	Bushing, 2 1/8" OD x 1 3/4" ID x 2"	4	
14	L134-044	Bushing, 1 1/2" OD x 1 1/4" ID x 1"	4	
15	L104-008	Roll Pin, 5/16" x 1 3/4"	2	
16	L100-305	Capscrew, 1/2"-13UNC x 1" Grade 8	6	
17	L100-122	Capscrew, 1/2"-13UNC x 3" Grade 5	2	
18	L102-028	Lock Nut, 1/2"-13UNC	2	
19	L194-368	Cylinder Stop Package	1	

Notes

Please visit www.unverferth.com/parts/ for the most current parts listing.

Lift Assist Tail and Yoke Components

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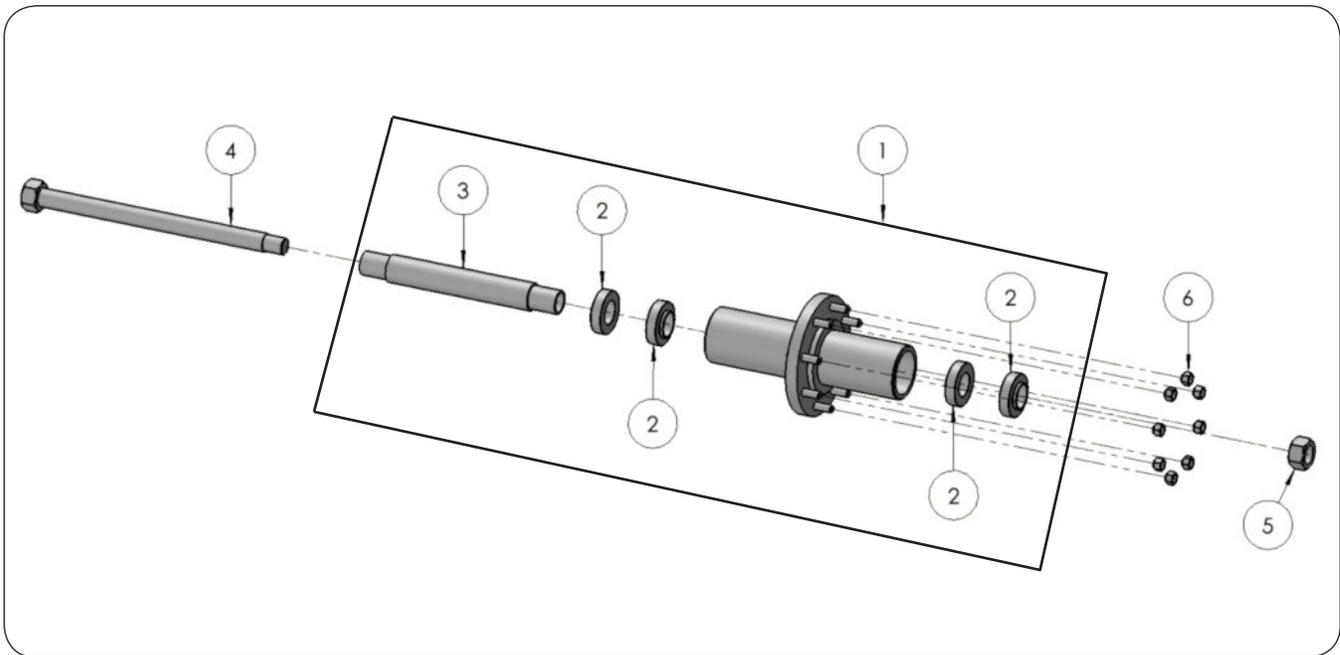
Lift Assist Wheel Tail and Yoke Components

Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L366-789	Yoke Weldment	1	
2	L341-242	Tail Weldment	1	Inlcudes Items 5 and 7
3	L341-246	Dust Cover	1	
4	L120-115	Bearing, 2" Bore	2	
5	L120-114	Bearing Race	2	
6	L150-022	Lower Bearing Seal	1	
7	L309-356	Flat Washer, 2 11/16" OD x 1 1/2" x 1/4"	1	
8	L134-044	Bushing, 1 1/2" OD x 1 1/4" ID x 1"	4	
9	L104-025	Cotter Pin, 3/8" x 2 1/2"	1	
10	L100-249	Capscrew, 1/4"-20UNC x 1" Grade 5	1	
11	L102-088	Castle Nut, 2"-12UNF Grade 2	1	
12	L102-002	Hex Nut, 1/4"-20 Grade 5	1	

Lift Assist Wheel Hub Components

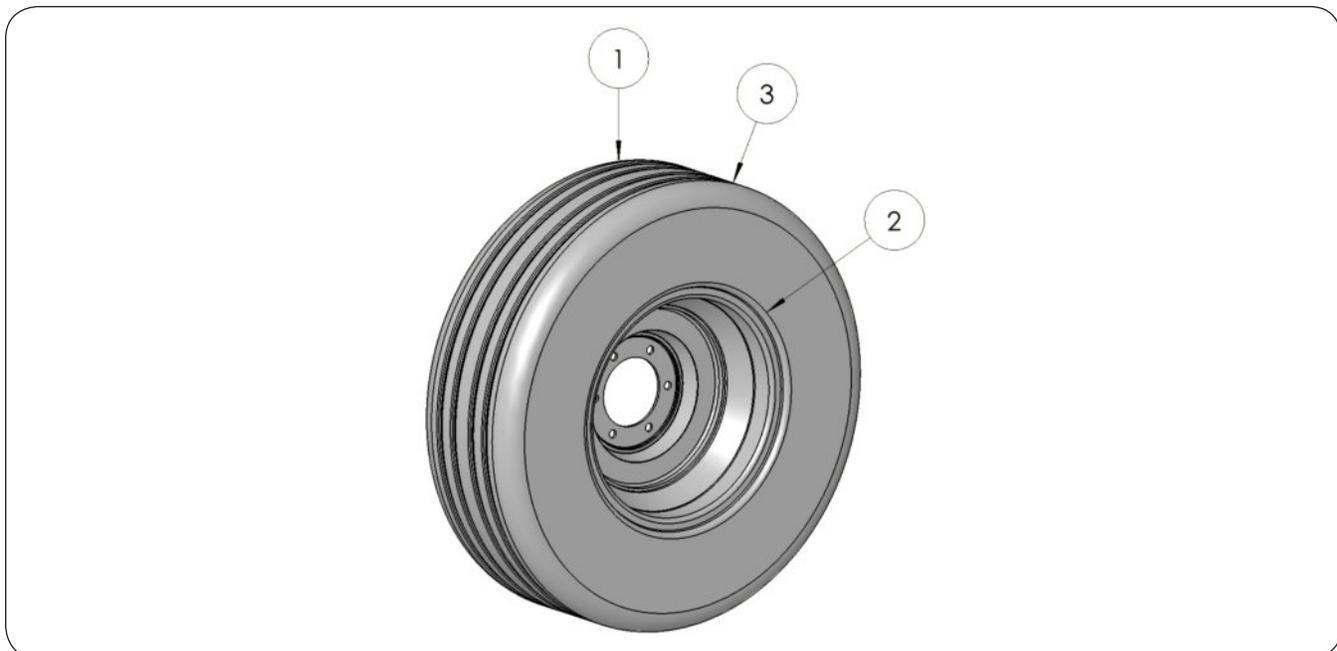
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L366-796	Hub Assembly	1	Includes Items 2 and 3
2	L120-036	Bearing, 1 1/4" Bore	4	
3	L303-631	Bearing Spacer, 1 1/2" OD x 1" ID x 10 1/8"	1	
4	L391-269	Capscrew, 1"-8UNC x 13" Grade 5	1	
5	L102-111	Hex Nut, 1"-8UNC Grade 5	1	
6	L102-039	Wheel Nut, 1/2"-20UNF	8	

Wheel and Tire

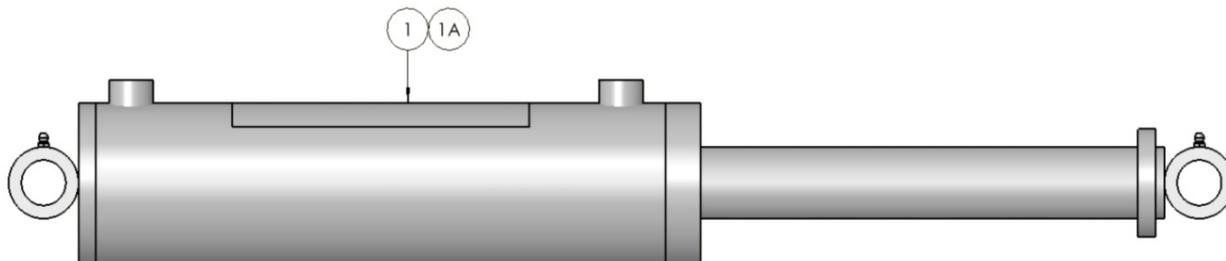
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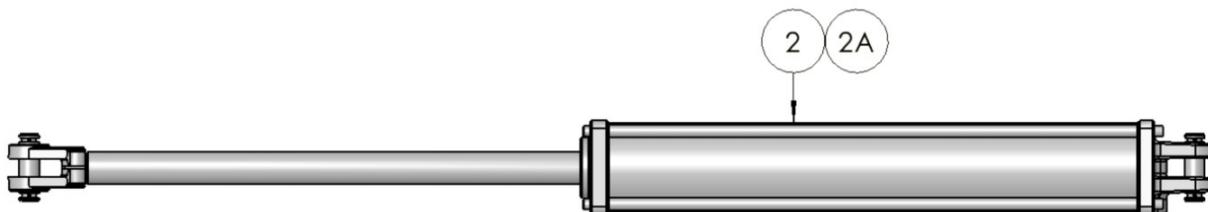
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L190-089	Wheel and Tire Assembly	1	
2	L190-068	Wheel Only	1	
3	L192-041	Tire Only	1	

Hydraulic Cylinders

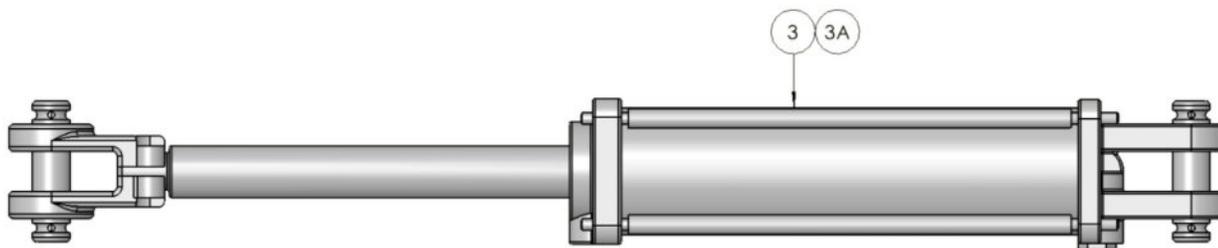
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L194-419	Hydraulic Cylinder, 4" x 12" 3000 PSI	2	LAW Lift Cylinder
1A	L194-450	Seal Kit	-	



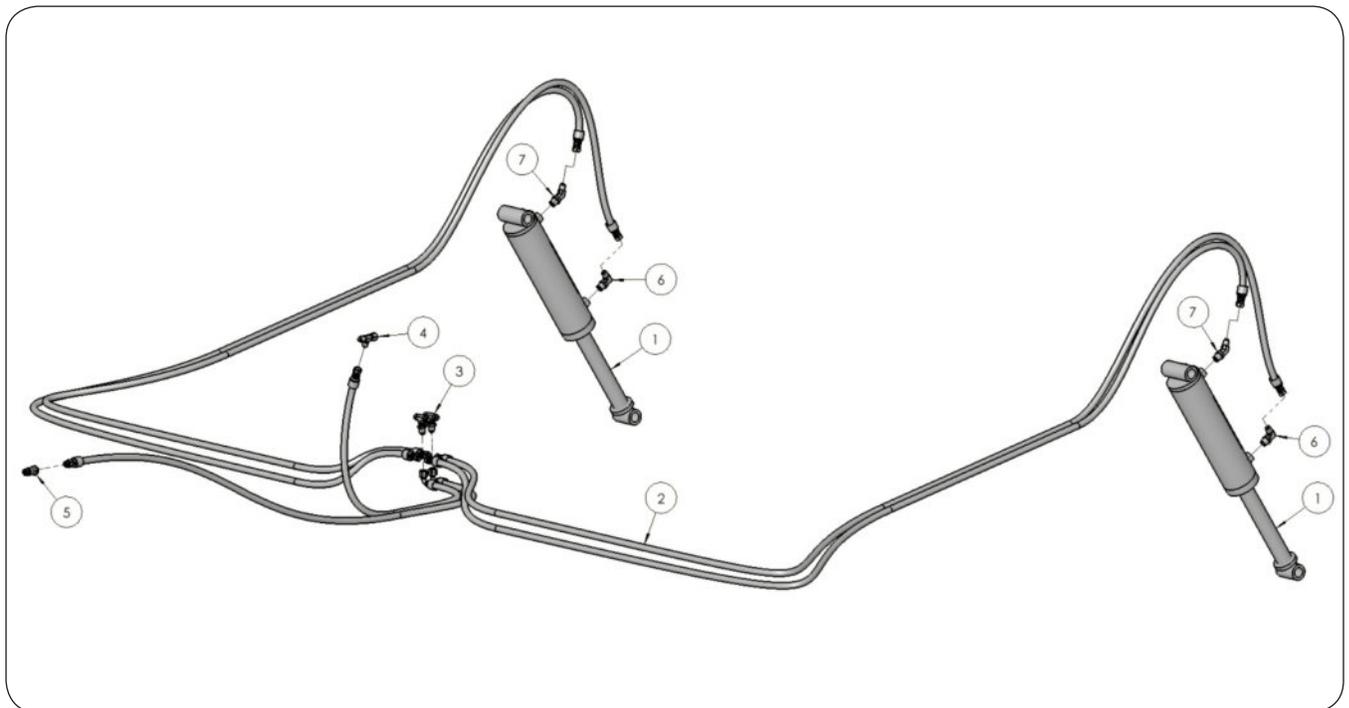
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
2	L194-266	Hydraulic Cylinder, 5"x30" 3000 PSI	2	Wing Fold Cylinder
2A				



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
3	L194-000	Hydraulic Cylinder, 3"x10" 3000 PSI	2	Gullwing Cylinder
3A				

Lift Assist Hydraulic Components

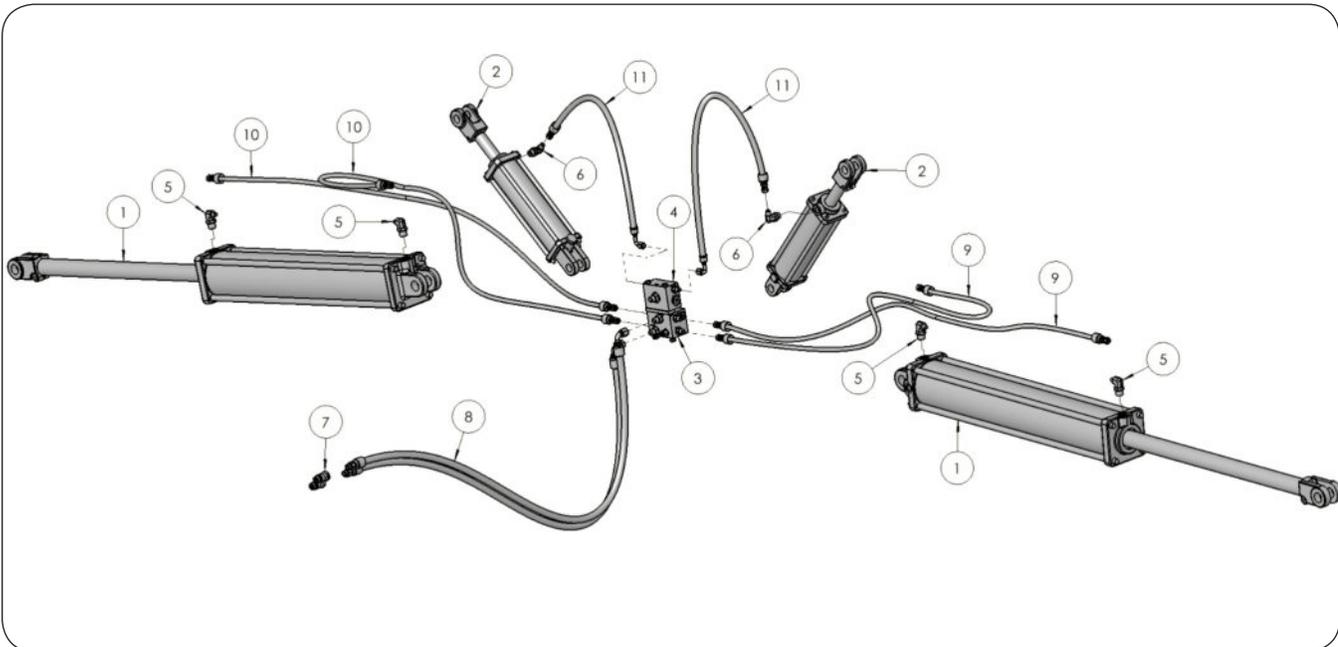
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L194-419	Hydraulic Cylinder, 4"x12" 3000 PSI	2	
2	L812-1011	Lift Assist Hydraulic Hose Kit	1	
3	L198-335	T-Fitting, 3/4"-16 MJ x 3/4"-16 MJ x 3/4"-16 MJBH	2	
4	L198-311	T-Fitting, 3/4"-16 MJ x 3/4"-16 MJ x 3/4"-16 FJ	1	
5	L140-092	ISO Fitting, 3/4"-16 F Boss	1	
6	L198-246	Elbow Fitting, 7/8"-14 MB x 3/4"-16 MJ 90 Degree	2	
7	L198-309	Elbow Fitting, 7/8"-14 MB x 3/4"-16 MJ 45 Degree	2	

Toolbar Hydraulic Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L194-266	Hydraulic Cylinder, 5" x 30" 3000 PSI	2	
2	L194-000	Hydraulic Cylinder, 3" x 10" 3000 PSI	2	
3	L805-005	Toolbar Wing Hydraulic Manifold	1	
4	L805-021	Gullwing Hydraulic Manifold	1	
5	L198-080	Elbow Fitting, 7/8"-14 MB x 9/16"-18 MJ 90 Degree	4	
6	L198-064	Elbow Fitting, 3/4"-16 MB x 9/16"-18 MJ 90 Degree	2	
7	L140-092	ISO Tip 3/4"-16 F Boss	2	
8	L196-1218	Hydraulic Hose, 1/2" x 62" - 3/4"-16 O-Ring MB x 3/4"-16 JIC Female	2	
9	L196-013	Hydraulic Hose, 3/8" x 67" - 9/16"-18 JIC Female Swivel	2	
10	L196-403	Hydraulic Hose, 3/8" x 89" - 9/16"-18 JIC Female Swivel	2	
11	L196-1173	Hydraulic Hose, 3/8" 6-6 FJX x 6-6 FJX 90 Degree	2	



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