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CCS LIFT CHASSIS

OPERATOR'S MANUAL

STILL THE STRONGEST

125-010-02

Farm Safety

Contrary to the popular image of fresh air and peaceful surroundings, a farm is not a hazard-free work setting. Every year, thousands of farm workers are injured and hundreds more die in farming accidents. According to the National Safety Council, agriculture is the most hazardous industry in the nation.

How You Can Improve Farm Safety

You can start by increasing your awareness of farming hazards and making a conscious effort to prepare for emergency situations including fires, vehicle accidents, electrical shocks from equipment and wires, and chemical exposures. Be especially alert to hazards that may affect children and the elderly. Minimize hazards by carefully selecting the products you buy to ensure that you provide good tools and equipment. Always use seat belts when operating tractors, and establish and maintain good housekeeping practices. Here are some other steps you can take to reduce illnesses and injuries on the farm:

- Read and follow instructions in equipment operator's manuals and on product labels.
- Inspect equipment routinely for problems that may cause accidents.
- Discuss safety hazards and emergency procedures with your workers.
- Install approved rollover protective structures, protective enclosures, or protective frames on tractors.
- Make sure that guards on farm equipment are replaced after maintenance.
- Review and follow instructions in material safety data sheets (MSDSs) and on labels that come with chemical products and communicate information on these hazards to your workers.

Health and Safety Hazards on Farms

Farm workers including farm families and migrant workers are exposed to hazards such as the following:

Danger	Potential Effect or Injury	Prevention
Chemicals/Pesticides	Skin and respiratory injury or death	MSDS and proper Personal Protective Equipment. Review Manufacturers data sheets
Cold	Illness, Frostbite or death	Dress properly for the day.
Dust	Respiratory injury or explosive combinations	Be aware of your surroundings and activity
Electricity	Shock, burns, fire, death	Use a qualified professional for wiring dangerous electrical devices. Never overload a circuit. Replace damaged electrical devices or cords. Electrical tape will not insulate you from injury.
Grain bins, Silos	Entrapment, Suffocation, Explosion from formation of dangerous gases and poisoning.	Make sure the bin is properly ventilated and maintained. Never walk the grain.
Hand tools	Injury including cuts abrasions, electrocution, strains, sprains and death	Make sure you hand tools are in good condition. Never leave a damaged tooling accessible for someone else to use.
Highway traffic	Collisions resulting in injury or death	Follow regulations, stay alert. Avoid alcohol and use of communication devices while driving
Lifting and lifting devices	Back injury, sprains, strains. Falling material resulting in being struck or crushed by heavy material	Use proper lifting technique. Get help when the load is too heavy. Inspect chains, straps or cables routinely to make sure they are in good condition.
Livestock handling	Serious injury or death resulting from being pinned struck or trampled.	Always make sure you have adequate room and an escape route
Machinery/Equipment	Cuts, abrasions, amputations, death.	Thoroughly read and understand your Owners Equipment Manual. Never operate the equipment without guards in place. Make sure the equipment can not be energized or otherwise put into operation while you are working on it.
Manure pits	Explosion from formation of dangerous gases. Suffocation. Poisoning	Proper maintenance.
Mud	Sprains, strains, entrapment and suffocation. Eye injury and skin irritation.	Proper Personal Protective Equipment. In some conditions a "Spotter" may be needed.
Noise	Hearing damage	Personal Protective Equipment.
Ponds	Drowning	Wear a life preserver and make sure help is readily available.
Slips/Trips/Falls	Sprains, strains, back and neck injury, bone breaks or death	Keep work area free from clutter and organized. If working on anything elevated make sure you have appropriate guarding and/or fall protection such as a harness and lanyard.
Sun/Heat	Sun burn, Heat Stroke, shock, death	Use common sense on excessively hot days, use sun screen, wear a hat and stay hydrated.
Toxic gases	Skin and respiratory injury or death. Explosion.	MSDS and proper Personal Protective Equipment. Review Manufacturers data sheets
Tractors	Cuts, abrasions, amputations, death.	Thoroughly read and understand your Owners Equipment Manual. Never operate the equipment without guards in place. Anti-roll over devices.
Wells	Electrocution, amputation, death	Avoid contact with water while working on an electrical device. Always be sure the equipment can/will not be energized during repair or maintenance. Make sure all guarding is in place.
Severe Weather	Electrocution, "struck by" injuries, death	Move to a safe place. Lightening, hail and tornadoes are unpredictable.

Orthman Manufacturing, Inc. does not limit the potential effects or injuries nor prevention measures to those listed above. They are provided solely as a guideline to making your farm life safer. Always consult your Owner/Operators Manual for specific tool and equipment safety requirements.

High Risk Factors on Farms

The following factors may increase risk of injury or illness for farm workers:

• **Age** – Injury rates are highest among children age 15 and under and adults over 65.

• **Equipment and Machinery** – Most farm accidents and fatalities involve machinery. Proper machine guarding and doing equipment maintenance according to manufacturers' recommendations can help prevent accidents.

• **Protective Equipment** – Using protective equipment, such as seat belts on tractors, and personal protective equipment (such as safety gloves, coveralls, boots, hats, aprons, goggles, face shields) could significantly reduce farming injuries.

• Take precautions to prevent entrapment and suffocation caused by unstable surfaces of grain storage bins, silos, or hoppers. Never "walk the grain."

• Be aware that methane gas, carbon dioxide, ammonia, and hydrogen sulfide can form in unventilated grain silos and manure pits and can suffocate or poison workers or explode.

• Take advantage of safety equipment, such as bypass starter covers, power take-off master shields, and slow-moving vehicle emblems.

• **Medical Care** – Hospitals and emergency medical care are typically not readily accessible in rural areas near farms.

The Benefits of Improved Safety and Health Practices

Orthman Manufacturing Provides this document in the hope that everyone that has a job to do, does it SAFELY. Our goal and yours should be to end each day in the best possible health. Better safety and health practices reduce fatalities, injuries, and illnesses as well as associated costs such as workers' compensation insurance premiums, lost production, and medical expenses. A safer and more healthful workplace improves morale and productivity.

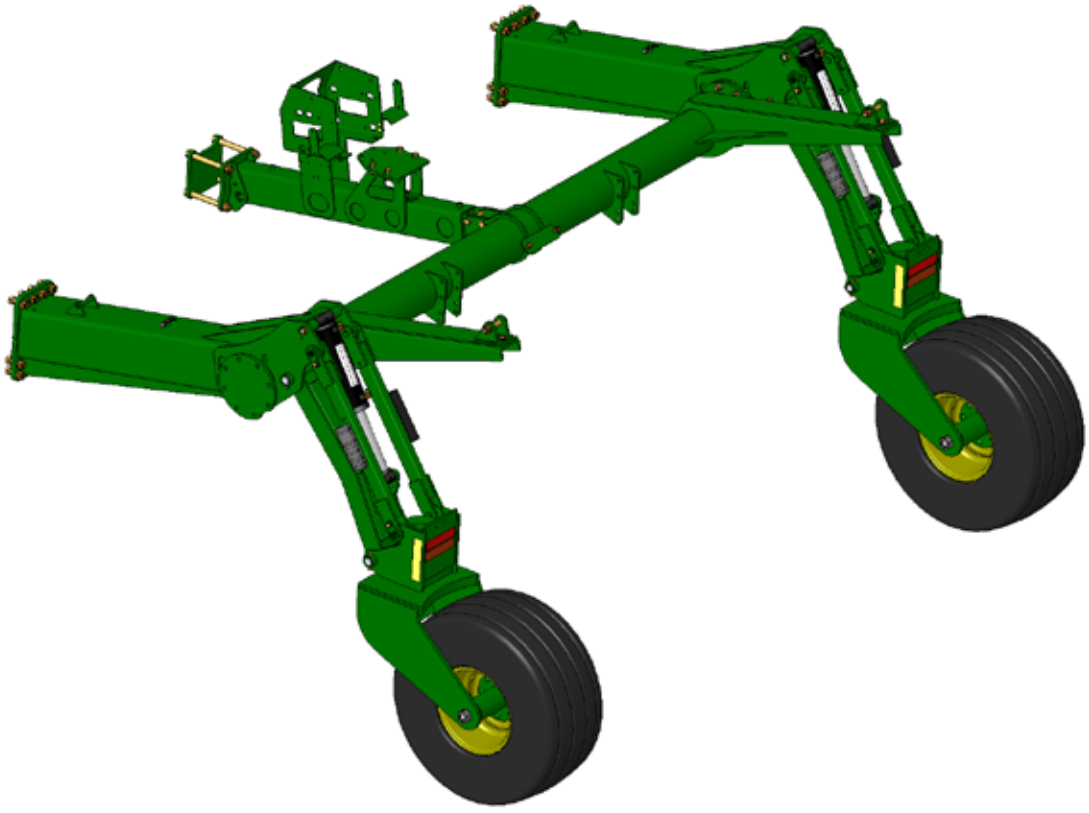
CCS LIFT CHASSIS

The Orthman CCS Lift Chassis makes possible the combination of John Deere CCS seed delivery technology with proven Orthman toolbars. The Lift Chassis frame makes a rugged platform for the CCS seed tank and the lift wheels provide the additional lift capacity needed to carry 70-100 bushels of seed.

The CCS Lift Chassis is a component of your factory-assembled custom integral planter and will arrive from your dealership assembled, setup, and ready to go to the field. This manual includes information on the Lift Chassis only. For information on the Orthman toolbar or John Deere planter equipment refer to the respective manuals, also included with this package.

This manual is considered to be an integral component of the CCS Lift Chassis and is designed to educate the owner and operators regarding safety, setup, field settings, component identification, and maintenance. The owner and operators are responsible for reading and understanding the entire content of this manual before attempting to use or service the Lift Chassis. This manual is designed to keep the operator safe and knowledgeable as well as prolong the life of the implement. This manual should accompany the planter if it is ever sold.

We would like to thank you for placing your confidence in Orthman Mfg., Inc. Your CCS Lift Chassis is manufactured to meet the highest standards and is built with precision and strength to increase your agricultural operation's dependability and profitability.



WARRANTY

Orthman Mfg., Inc. warrants the whole goods products it manufactures to be free from defects in material or workmanship for a period of one (1) year from the date of sale of the product(s) to the original user. Products not manufactured, but supplied by Orthman Mfg., Inc. on Orthman products, are subject to, conform with, and are limited to the warranty of our suppliers.

Orthman Mfg., Inc. warrants the parts it manufactures to be free from defects in material or workmanship for a period of ninety (90) days from the date of delivery of the product(s) to the original user. Products not manufactured, but supplied by Orthman Mfg., Inc. on Orthman products, are subject to, conform with, and are limited to the warranty of our suppliers.

Warranty of Orthman whole goods and/or parts applies only to material and workmanship. Misuse, misapplication, neglect, alteration, accident, normal wear, or acts of God affecting Orthman products are not eligible for warranty.

Warranty of serial numbered goods will only be considered if the product has a completed Warranty Registration on file at Orthman. This Warranty Registration must be completed and returned to Orthman within thirty (30) days of the sale of the product(s) to the original user. *No serial numbered goods or related parts and/or labor will be warranted without a Warranty Registration on file.* Warranty issues falling within the first thirty days of a product's use will be handled at the discretion of Orthman. Warranty of parts will not require a Warranty Registration, but proof of date of delivery of the product to the original customer must be provided.

WARRANTY CLAIMS: A warranty claim and request to return defective product(s) must be presented to the Orthman Service Department by the selling dealer describing the defect in material or workmanship of an Orthman product(s) within ten (10) days of its discovery. This claim may be made via phone, e-mail, fax, or written request. Claims for warranty of serial numbered goods must include the Orthman product serial number and model number. Claims for warranty of partswill not require a product serial number or model number, but must be identified by an Orthman part number. Claims for warranty of whole goods or parts must also include proof of date of sale of the product to the original customer by an Orthman dealer.

The Orthman Service Department will proceed in making a preliminary decision as to the eligibility of the claim for warranty consideration. After the Orthman Service Department deems it necessary to proceed with warranty consideration, a Return Goods Authorization (RGA) will be completed by the Orthman Service Department in conjunction with the selling dealer. Upon completion of the RGA, the defective product(s) must be returned to Orthman to ensure warranty consideration. Defective product(s) must be returned to Orthman by either the selling dealer or the customer. Customer delivery of defective product(s) must be approved by Orthman and the selling dealer prior to delivery. The defective product(s) in question must be sent, freight prepaid, within sixty (60) days of the discovery of the product(s) failure and initial warranty claim. Replacement product(s) may be sent to the selling dealer, directly to the customer, or picked up at the Orthman facility. Replacement product(s), sent directly to the customer or picked up must be approved by Orthman and the selling dealer. At the discretion of the Orthman Service Department, replacement product(s) may be sent prior to, or after, the Orthman Service Department receives the defective product(s).

Any variation in the above procedure is at the sole discretion of the Orthman Service Department.
No products will be accepted at Orthman without all proper paperwork completed including Warranty Registration and RGA(s).
Parts returned to Orthman without proper authorization will be returned to the sender at the sender's expense.

Orthman agrees to handle all warranty claims in a timely manner and will inform dealers of any revisions or modifications to the Orthman Warranty Policy. Eligible warranty claims will be processed by Orthman within sixty (60) days of receiving failed product(s) or a valid service or repair labor claim. Eligible warranty claims regarding returned product(s) or service and/or repair labor will be paid through a credit memo issued to the appropriate dealer's account as determined by the Orthman Service Department.

If a warranty claim is found to be ineligible for warranty coverage, the Orthman Service Department will be responsible to inform the dealer in order to determine the course of action to be taken. Orthman reserves the right to make changes in specification and design without notice and without incurring any obligations to owners of products previously sold.

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Lexington, Nebraska

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SAFETY ALERT SYMBOL

The **SAFETY ALERT SYMBOL** warns of potential hazards to personal safety and that extra precautions must be taken. When you see this symbol, carefully read the message(s) that follow. Follow all recommended precautions and safe operating practices in this manual.

Hazard control and accident prevention are dependent upon the safety awareness and proper training of personnel involved in the operation of this implement.

BE AWARE OF SIGNAL WORDS

SIGNAL WORDS designate a degree or level of **HAZARD** seriousness. These signal words include:

RED

DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. Danger is limited to extreme situations, typically for machine components which for functional purposes, cannot be guarded.

ORANGE

WARNING indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. Warning includes hazards that are exposed when safety guards are removed. Warning may also be used to alert against unsafe practices.

YELLOW

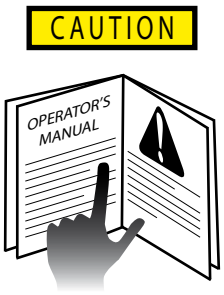
CAUTION indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. Caution may also be used to alert against unsafe practices.

SHUTDOWN AND STORAGE

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT.
Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.

FOR YOUR PROTECTION



READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT. Read and understand all operator manuals for the machinery used in conjunction with the lift assist wheels.

- Carefully **READ ALL SAFETY DECALS** in this manual as well as on the implement. Keep implement clean so decals are easily visible. Keep all safety decals in good, clean, and legible condition. Immediately replace damaged and/or missing decals. Replacement decals are available from your Orthman dealer.

- Learn to operate the implement and all components properly. Do not let others operate implement without proper instruction. Unauthorized implement modifications may impair function and safety. If you do not understand any content in this manual or need assistance, contact your Orthman dealer.

EQUIPMENT SAFETY GUIDELINES

Operator safety is the primary concern when designing an Orthman implement. Orthman integrates as many safety features into the implement as possible. You can avoid many hazards and possible accidents by observing precautions in this safety section.

- Insist that yourself and personnel working with and around you follow all safety precautions. Be cautious when working with or around implement to avoid injury.

⚠ SAFE TRANSPORT

- Engage transport locking devices and cylinder stops prior to transport. Plan your route to avoid traffic. Yield to traffic in all situations.

- Maximum transport speed is 15 mph (24 kph). Various conditions will require reduced speed. Travel at speeds that allow for adequate control of stopping and steering.

AVOID ELECTROCUTION. Be aware of overhead power lines. Contact or close proximity to power lines can result in injury or death. Use extreme care when operating implement near power lines.

- Know implement transport height and gross weight. Avoid overhead obstructions not allowing your transport height. Do not use bridges rated below implement gross weight.

- Make sure a slow moving vehicle (SMV) placard is mounted to the implement and is easily visible to other motorists.

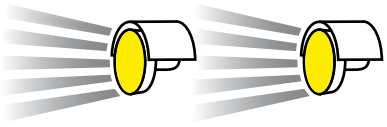
- Make allowances for implement size when transporting. Sudden braking can cause a towed load to swerve and/or rollover. Never use independent braking with implement in tow as loss of control and/or rollover can result. Reduce speed if towed implement is not equipped with brakes.

- Do not coast. Always keep tractor or towing device in gear to provide engine braking when traveling downhill.

- Comply with state and local laws governing implement transport.

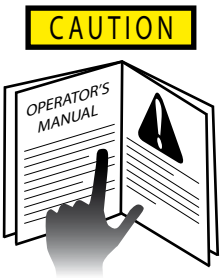
⚠ WARNING AND SAFETY LIGHTS

Oversized implements and slow moving vehicles create a hazard when transported on public roads.



- Make sure all warning, safety lights, and turning signals are working and clean. Use safety lighting when using public roads day and night. Replace missing or damaged lights immediately. Comply with state and local laws governing implement safety lighting.

⚠ SAFE OPERATION



READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT. Implement is to be operated by qualified personnel only. Never let children operate implement. A complete understanding of safety precautions, operation, and maintenance is mandatory before implement use.

AVOID ELECTROCUTION. Be aware of overhead power lines. Contact or close proximity to power lines can result in injury or death. Use extreme care when operating implement near power lines.

- Know implement transport height and gross weight. Avoid overhead obstructions not allowing your transport height. Do not use bridges rated below your gross weight.

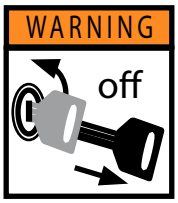
AVOID ROLLOVER. Do not fold or unfold implement and avoid sharp turns when on a hillside, as shift of weight could cause rollover. Operate implement at a safe distance from terrain irregularities and other obstructions that could cause rollover.

AVOID CRUSHING. Make sure all personnel are clear of implement at all times implement is in motion. Be aware of obstructions above, below, and around implement when in operation or transport. Injury or death can result from being struck by the implement.

⚠ NO RIDERS

NEVER ALLOW RIDERS ON TRACTOR OR IMPLEMENT. Riders hinder operator visibility and can be thrown from the implement and/or be struck by foreign objects resulting in injury or death.

⚠ *PRACTICE SAFE MAINTENANCE*



Proper maintenance is your responsibility. Maintenance neglect and/or poor maintenance practices can result in injury or death. Always use the proper tools to maintain implement.

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT. Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.

AVOID ENTANGLEMENT. Never lubricate or service implement in motion. Keep away from power driven parts when in motion. Disengage power sources prior to maintaining implement. Injury or death can result from contact with power driven parts when in motion.

AVOID CRUSHING. Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.

Escaping pressurized hydraulic fluid can penetrate skin, resulting in injury or death. Relieve hydraulic system pressure before connecting or disconnecting tractor. Use cardboard or wood, **NOT BODY PARTS**, to check for suspected hydraulic leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately for proper treatment.

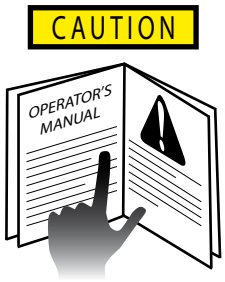
PRACTICE SAFE MAINTENANCE

- Never operate a combustion engine in an enclosed area. Make sure there is adequate ventilation. Exhaust fumes can cause asphyxiation.
- Service tires safely. Tire and rim separation can result in serious injury or death. Do not over inflate tires. Only mount or dismount tires if you possess the proper equipment, otherwise contact a trained professional. Always maintain correct tire pressure. Inspect tires and wheels daily. Do not operate tires with inadequate pressure, cuts, visible damage, or missing hardware.
- Be extremely careful working around unshielded sharp edges. Injury may result from contact with sharp edges.
- Keep all parts in good condition and properly installed. Replace damaged or missing parts immediately.
- Remove tools and unused parts prior to implement operation.

PREPARE FOR EMERGENCIES

- Be prepared for a fire. Keep a readily accessible fire extinguisher at all times.
- Keep a readily accessible stocked first aid kit and emergency phone numbers for your doctor, hospital, ambulance, and fire department.
- Wear protective clothing and equipment. Wear clothing appropriate for the situation. Protect your eyes, ears, hands, and feet with the use of protective goggles, ear plugs, gloves, boots, etc.

SAFETY NEVER HURTS



READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT.

- Understand all implement functions.
- Never stand between tractor and implement when connecting or disconnecting implement.
- Be aware of all surroundings before moving implement.
- Operate implement from operator's seat only.
- Never mount or dismount a moving tractor.
- Never leave engine running when implement is unattended.
- Keep away from power driven parts when in motion.
- Make sure all personnel are clear before lowering implement to the ground.

DANGER

WARNING

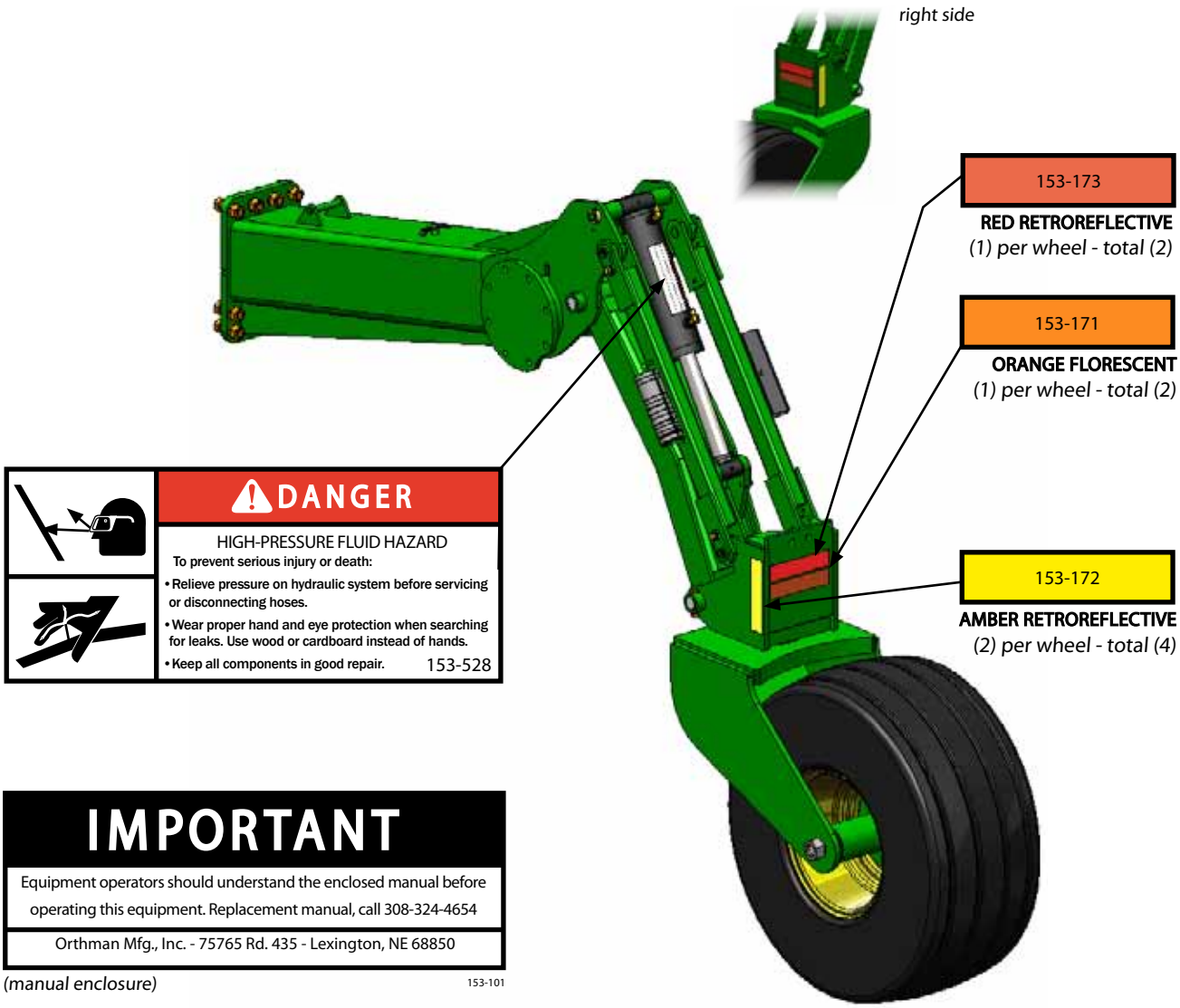
CAUTION

SAFETY DECALS

Safety decals promote awareness and knowledge concerning safe operation and maintenance of the implement.

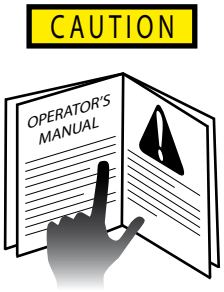
Carefully **READ ALL SAFETY DECALS** in this manual as well as on the implement. Keep implement clean so decals are easily visible. Keep all decals in good and legible condition. Immediately replace damaged and/or missing decals. Replacement decals are available from your Orthman dealer.

To install decals: Thoroughly clean area where decal is to be placed and attach decal void of bubbles. Refer to this safety information section for proper decal placement.



(manual enclosure)

COMPONENT IDENTIFICATION



The component identification section is designed to familiarize the operator with the major components of the CCS Lift Chassis. For more detailed information and part numbers see the parts breakdowns at the back of this manual.

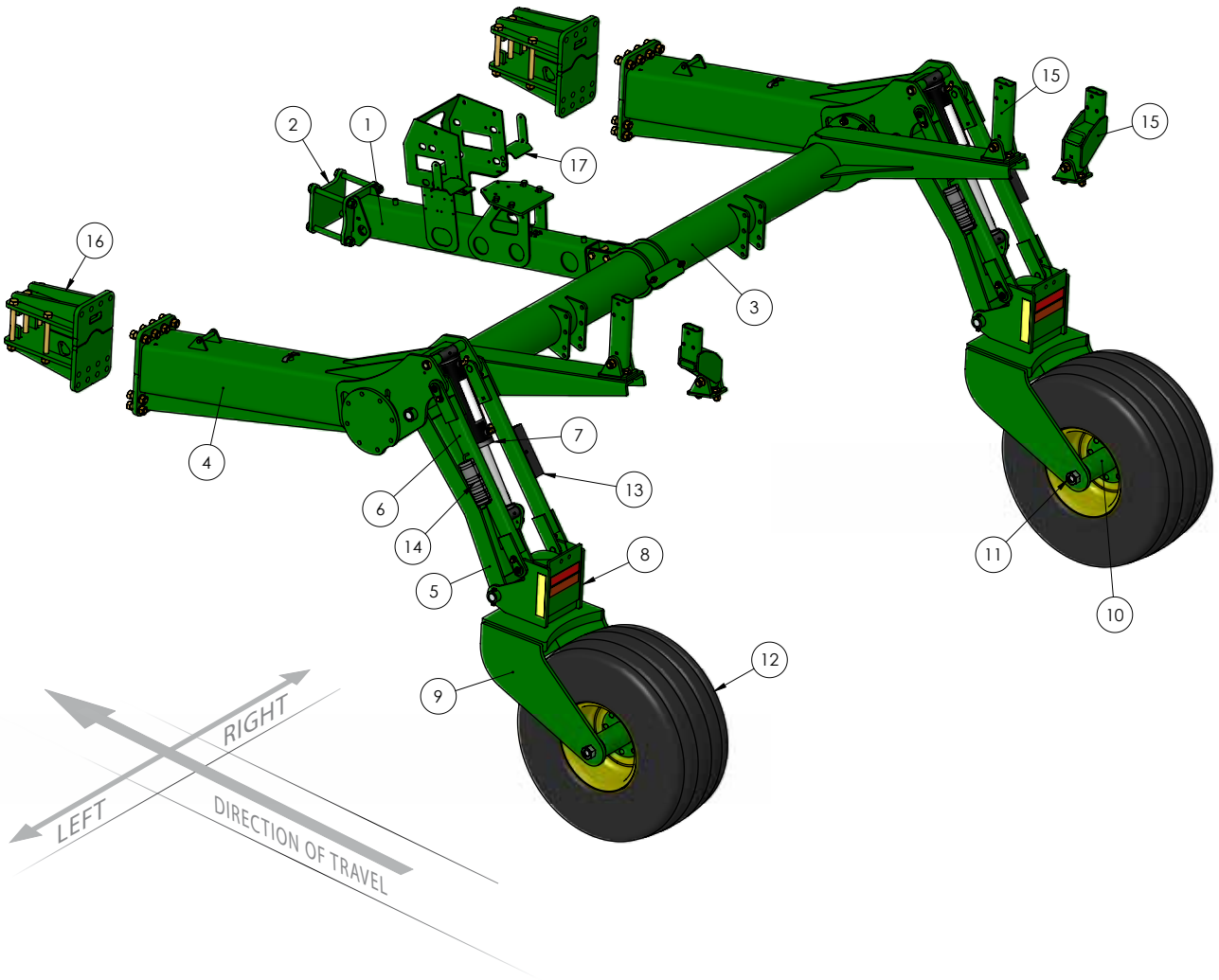
This manual covers only the CCS Lift Chassis. For information on toolbar components and settings consult the toolbar operator's manual that accompanies this planter.

The first Lift Chassis in this section is the "standard - 36", 38" and 40" row spacings shown with two styles of CCS cradle mount tube (pg. 3-2). The style of cradle mount tube on your Lift Chassis is dependent on specific row spacing of your planter. Your particular Lift Chassis may or may not have bolt-on toolbar mounts depending on the model and size of your toolbar.

The second Lift Chassis in this section is designed for 30" row spacings (pg. 3-3).

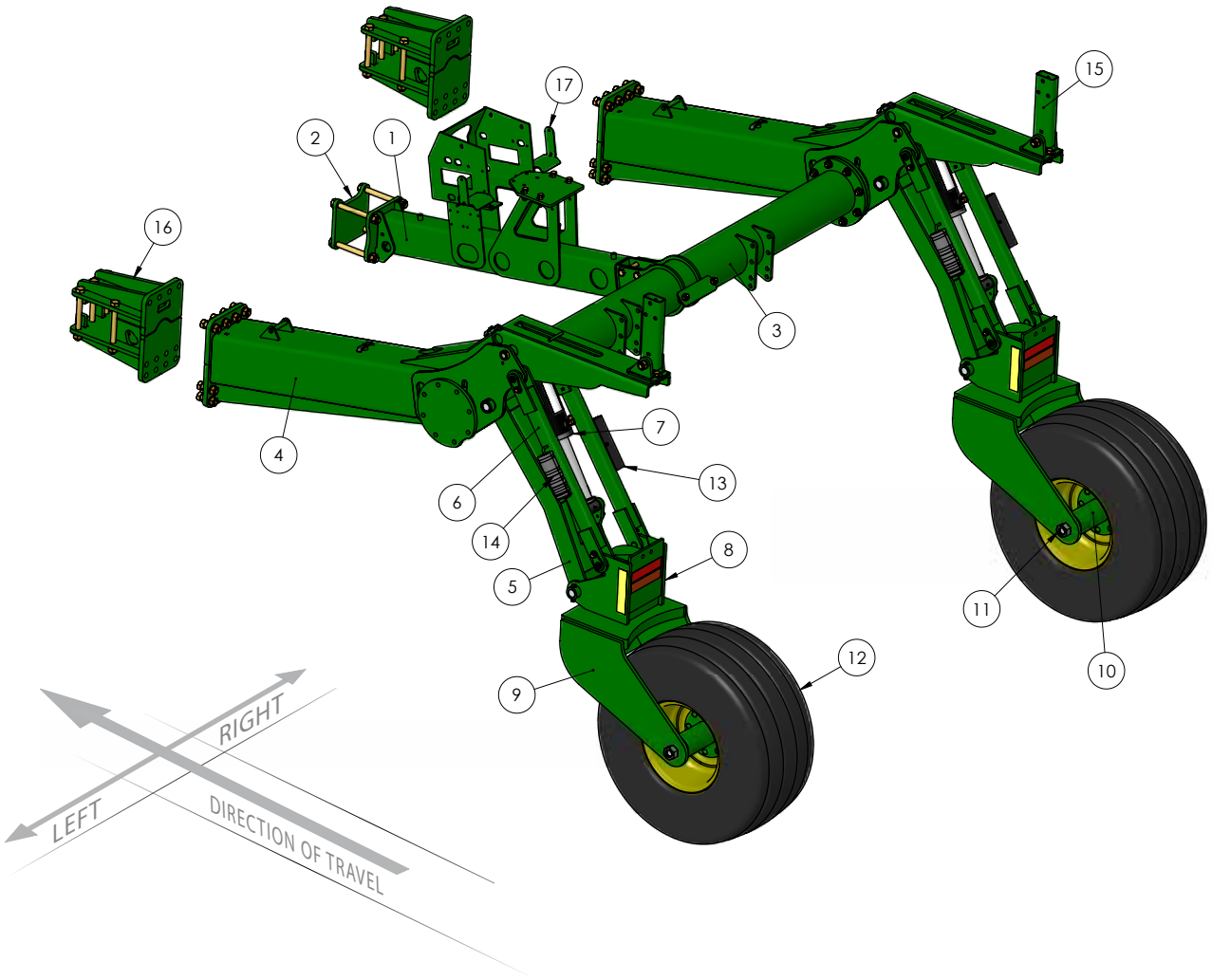
The third Lift Chassis in this section is designed for narrow row machines with row spacings of 20" and 22" (pg. 3-4).

COMPONENT IDENTIFICATION 36, 38 AND 40" ROW SPACINGS



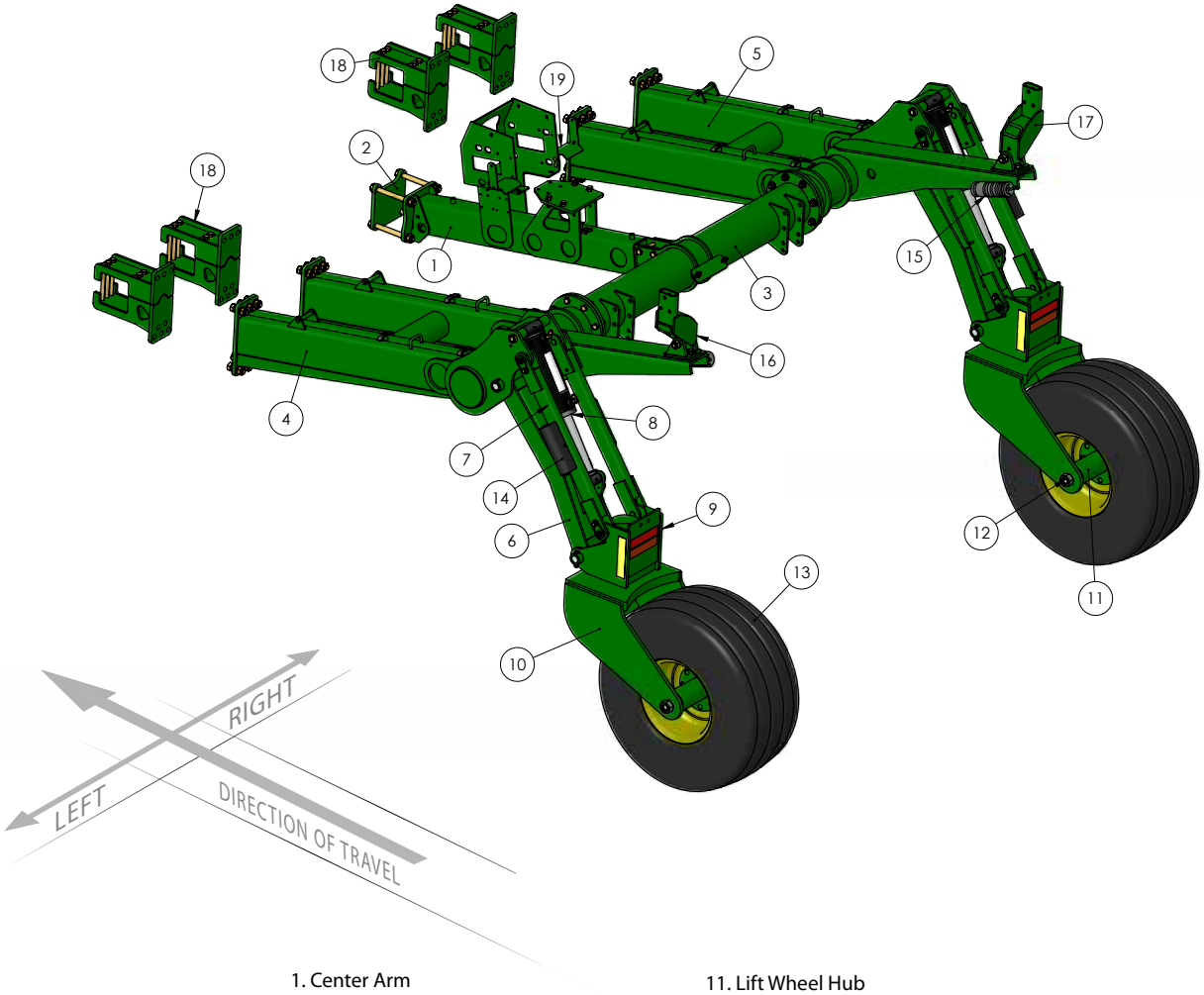
1. Center Arm
2. Center Arm Front Plate
3. Cross Tube
4. Lift Wheel Arm
5. Lift Arm
6. Top Links (2)
7. Lift Wheel Cylinder
8. Tail and Bearing Housing
9. Yoke
10. Lift Wheel Hub
11. Axle Bolt
12. Wheel and Tire Assembly
13. Transport Cylinder Lock
14. Clamp-on Cylinder Stops (pack of 4)
15. CCS Cradle Mount Tube (two styles shown)
16. Mount Clamp (if equipped)
17. CCS Seed Hose Retainer Bracket

COMPONENT IDENTIFICATION 30" ROW SPACINGS



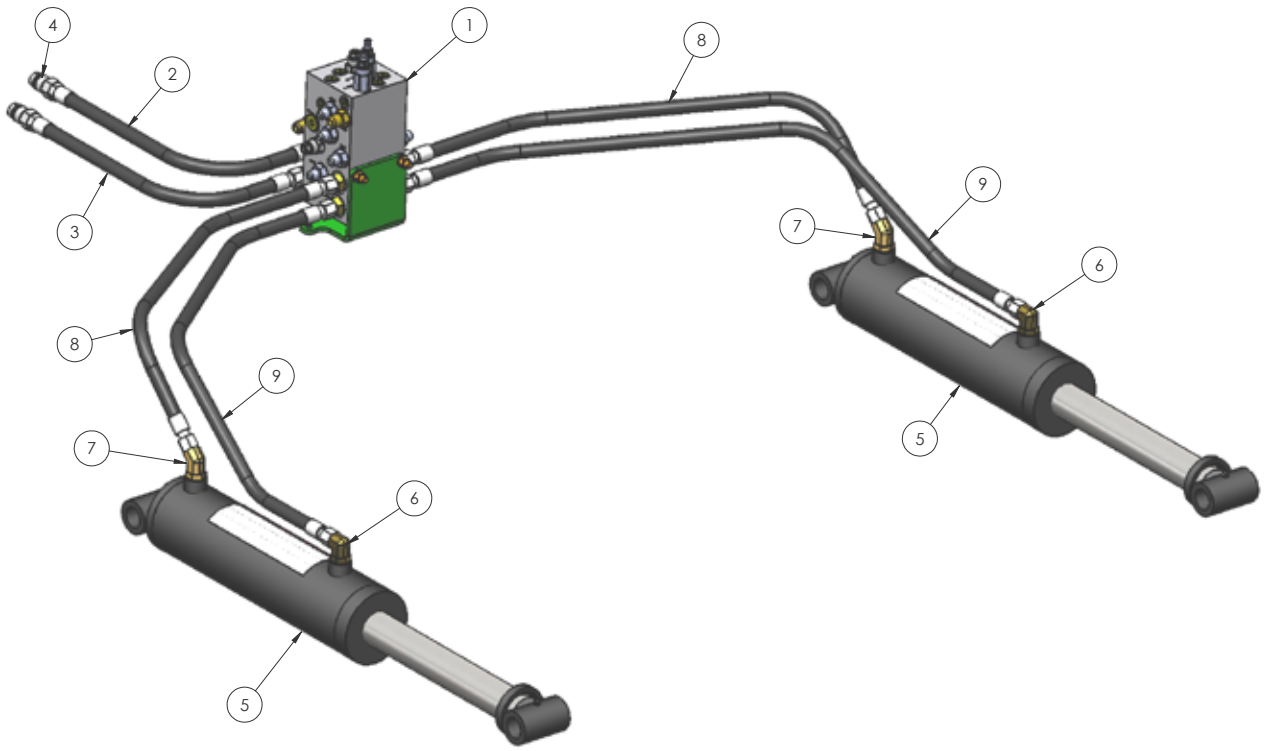
1. Center Arm
2. Center Arm Front Plate
3. Cross Tube
4. Lift Wheel Arm
5. Lift Arm
6. Top Links (2)
7. Lift Wheel Cylinder
8. Tail and Bearing Housing
9. Yoke
10. Lift Wheel Hub
11. Axle Bolt
12. Wheel and Tire Assembly
13. Transport Cylinder Lock
14. Clamp-on Cylinder Stops (pack of 4)
15. CCS Cradle Mount Tube
16. Mount Clamp (if equipped)
17. CCS Seed Hose Retainer Bracket

COMPONENT IDENTIFICATION 20 AND 22" ROW SPACINGS



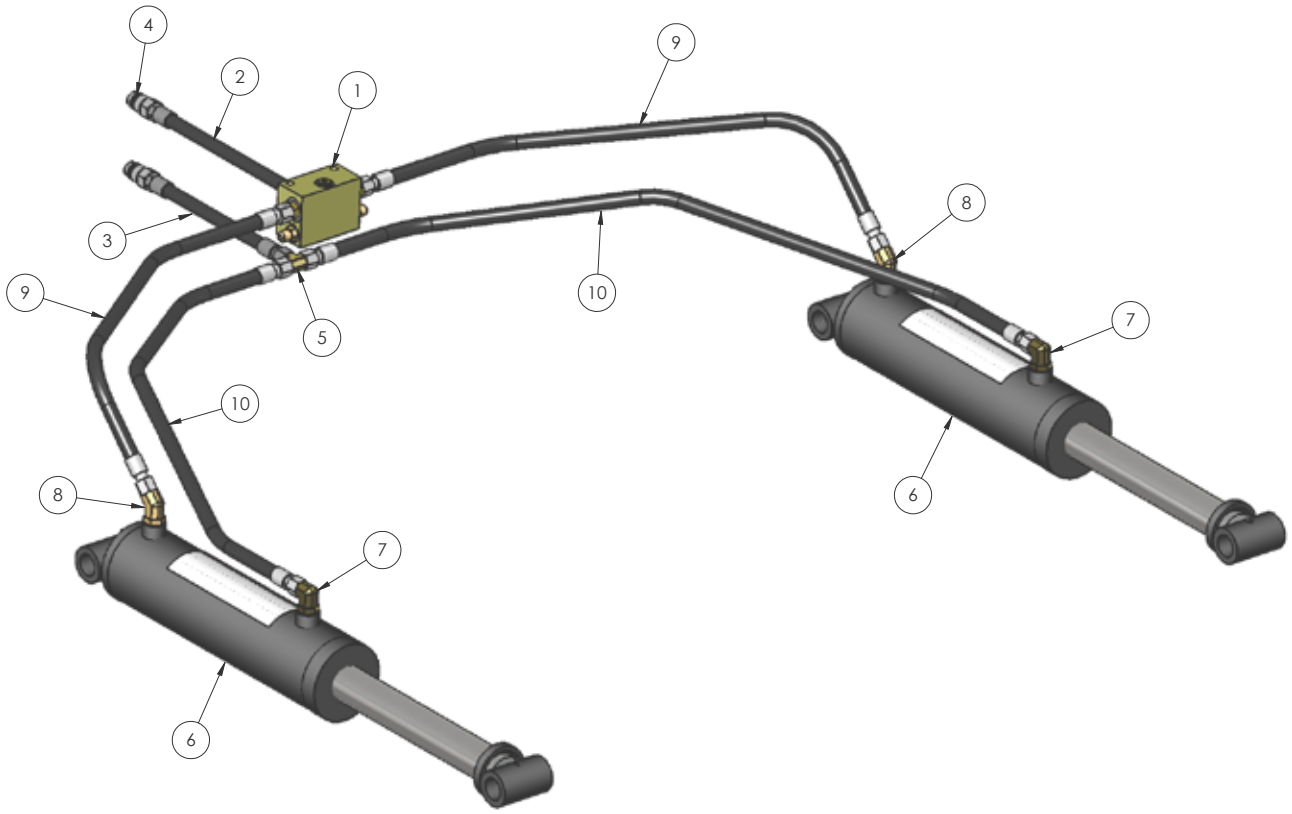
1. Center Arm
2. Center Arm Front Plate
3. Cross Tube
4. Lift Wheel Arm (left)
5. Lift Wheel Arm (right)
6. Lift Arm
7. Top Links (2)
8. Lift Wheel Cylinder
9. Tail and Bearing Housing
10. Yoke
11. Lift Wheel Hub
12. Axle Bolt
13. Wheel and Tire Assembly
14. Transport Cylinder Lock
15. Clamp-on Cylinder Stops (pack of 4)
16. CCS Cradle Mount Tube (left)
17. CCS Cradle Mount Tube (right)
18. Mount Clamp (if equipped)
19. CCS Seed Hose Retainer Bracket
20. Wheel Scraper

HYDRAULIC COMPONENT IDENTIFICATION - 925 TOOLBARS



1. Toolbar Manifold
2. Supply Hose - Pressure (1/2 Hose 3/4 MORB x 3/4 FJX)
3. Supply Hose - Return (1/2 Hose 3/4 MORB x 3/4 FJX)
4. ISO Tip (2)
5. Lift Cylinder (4 x 12 Welded Cylinder)
6. Elbow (7/8 MORB x 3/4 MJ 90 DEG)
7. Elbow (7/8 MORB x 3/4 MJ 45 DEG)
8. Cylinder Hose - Base (1/2 Hose 3/4 FJX x 3/4 FJX)
9. Cylinder Hose - Rod (1/2 Hose 3/4 FJX x 3/4 FJX)

HYDRAULIC COMPONENT IDENTIFICATION - 905, 910 AND 915 TOOLBARS



1. Lift Chassis Manifold
2. Supply Hose - Pressure (3/8 Hose 3/4 MORB x 3/4 MORB)
3. Supply Hose - Return (3/8 Hose 3/4 MORB x 3/4 FJX)
4. ISO Tip (2)
5. Tee (3/4 MJ x 3/4 MJ x 3/4 MJ)
6. Lift Cylinder (4 x 12 Welded Cylinder)
7. Elbow (7/8 MORB x 3/4 MJ 90 DEG)
8. Elbow (7/8 MORB x 3/4 MJ 45 DEG)
9. Cylinder Hose - Base (1/2 Hose 3/4 FJX x 3/4 FJX)
10. Cylinder Hose - Rod (1/2 Hose 3/4 FJX x 3/4 FJX)

OPERATION

Your custom integral planter should arrive from the dealership with the Lift Chassis fully assembled and setup.

PREPARATION

Before going to the field it is important to check all safety and reflective decals and verify proper function of planter warning lights.

CCS Lift Chassis tires should be inflated to a minimum 48 psi. and a maximum 60 psi.

TRACTOR CONNECTION

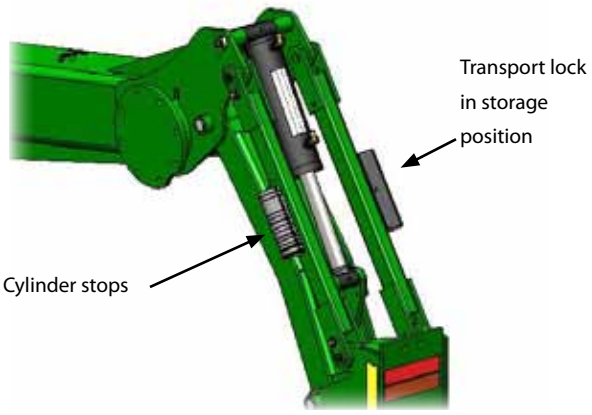
IMPORTANT! It is required to remove the tractor quick-coupler, or quick hitch, and attach the planter to the tractor three-point draft links. If the planter is connected with the quick-coupler the tractor lift capacity will be reduced and the quick-coupler's hitch pin retention mechanism may be damaged.

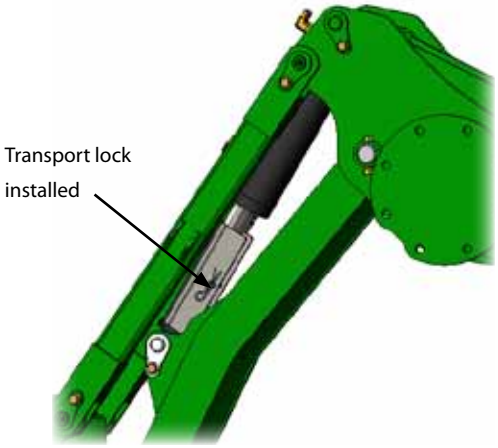
IMPORTANT! When attaching the planter to the tractor, be sure to only utilize lower hitch points. **DO NOT USE** the third link on implement or tractor hitch. Using the third link will not allow the Lift Chassis to operate properly and will most likely cause damage to hitch components. Once implement is properly attached, remove tractor hitch third link or place it in the storage position to provide maximum clearance.

The CCS Lift Chassis is designed to use one tractor SCV for operation of the lift cylinders. Consult tractor or planter operator's manual under "attach machine" section in order to plumb your hydraulic system to simultaneously activate tractor hitch and Chassis lift cylinders.

TRANSPORT

The custom integral planter should be transported with the Lift Chassis raised. The transport locks should be removed from their storage position, placed over the lift cylinder rod, and pinned securely. The maximum recommended transport speed is 15 mph (24 kph).



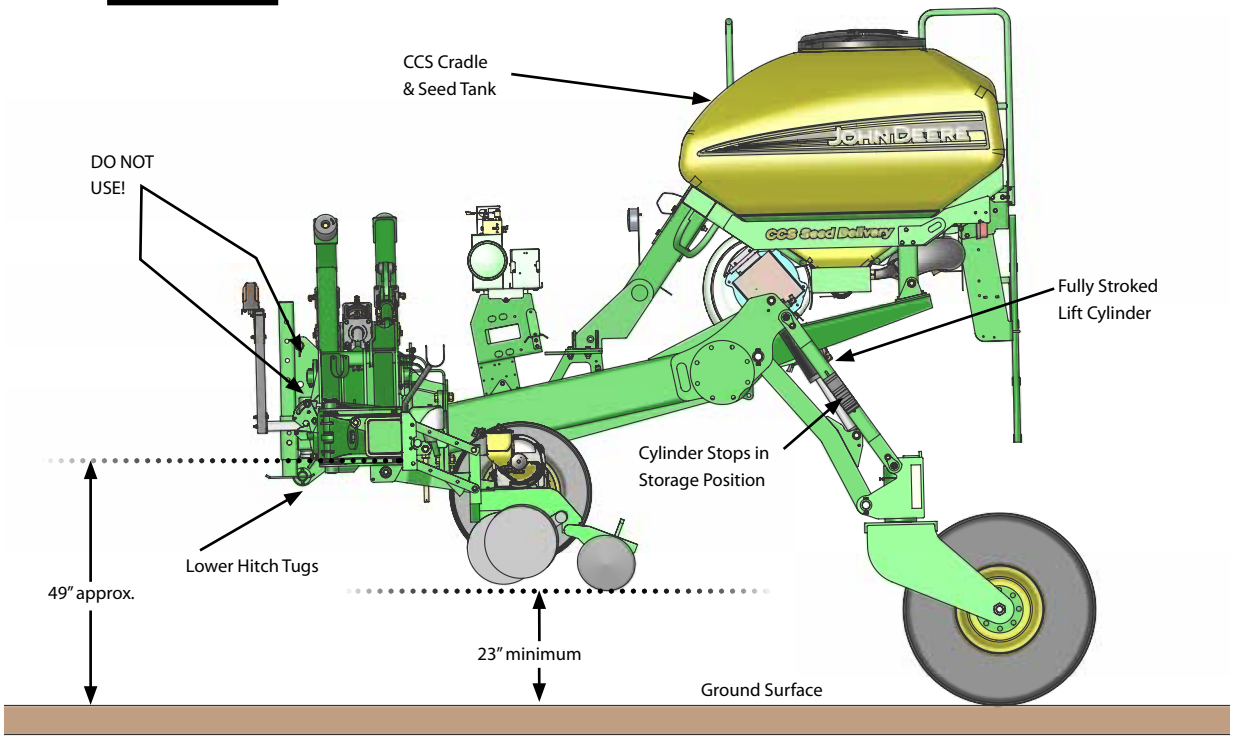


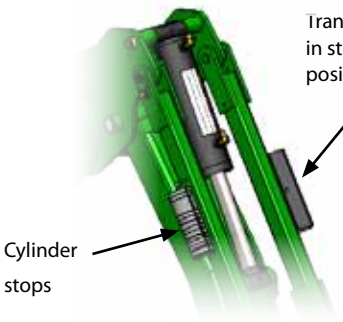
RAISED POSITION

AVOID CRUSHING. *Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.*

IMPORTANT! It is required to remove the tractor quick-coupler and attach the planter to the draft links.

IMPORTANT! When attaching the planter to the tractor, be sure to only utilize lower hitch points. DO NOT USE the third link on implement or tractor hitch.





Once hydraulic tips are connected to the tractor to operator preferences, lift tractor hitch and Chassis. The dimensions illustrated are approximate. Be sure your implement reflects similar dimensions when in the raised position.

When the implement is in the raised position clamp-on cylinder stops can be removed from their storage position and attached to the lift cylinders to regulate implement height when lowered.

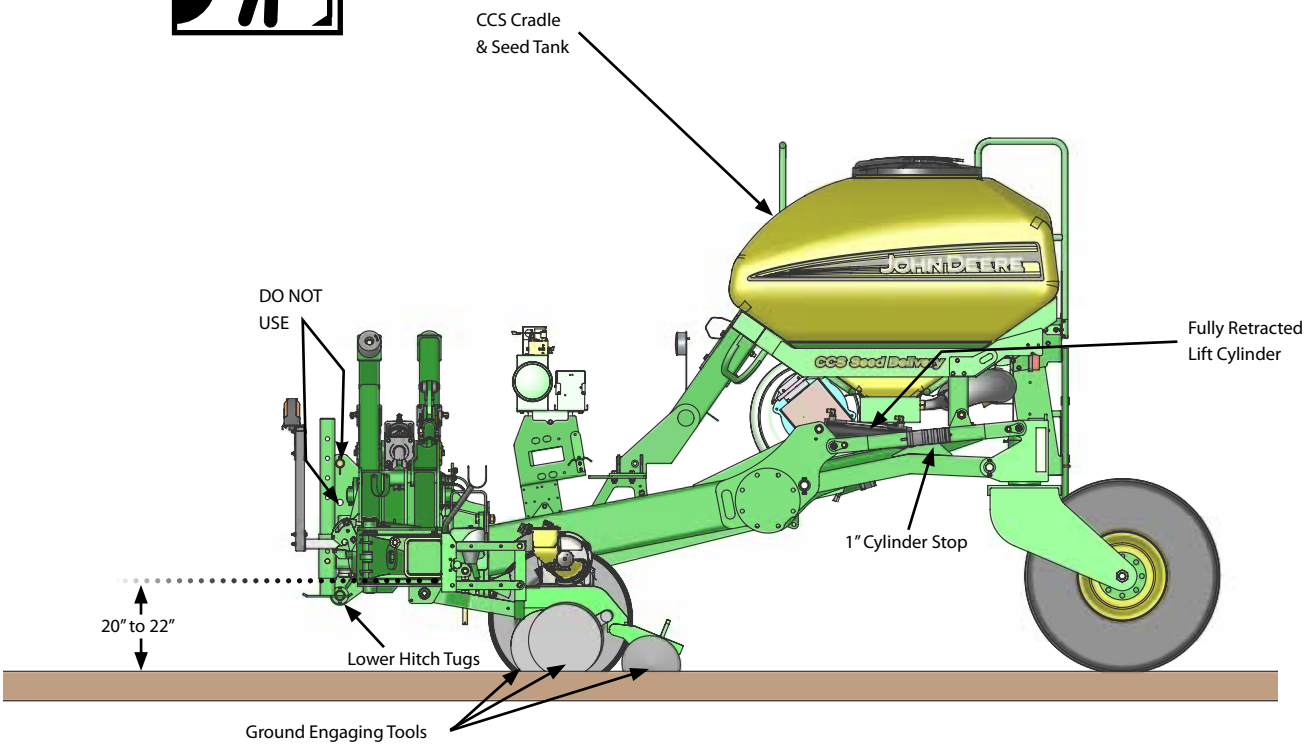
continued >>

FIELD POSITION

AVOID CRUSHING. *Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.*

IMPORTANT! It is required to remove the tractor quick-coupler and attach the planter to the draft links.

IMPORTANT! When attaching the planter to the tractor, be sure to only utilize lower hitch points. **DO NOT USE** the third link on implement or tractor hitch.



When planting the row unit parallel arms must be parallel to the ground or angled slightly upward toward the toolbar. The tractor hitch and toolbar gauge wheels regulate the toolbar height and the Lift Chassis affects the levelness of the planter. When planting, the Lift Chassis cylinders must be powered down or placed in float to retract on to the cylinder stops and ensure proper operation of the Lift Chassis.

To set planter operating height drive the machine onto level ground and lower the machine to planting position. Set the toolbar height to 20-22 inches above the ground with the hitch depth stop. Adjust the hitch lift links if necessary.

continued >>

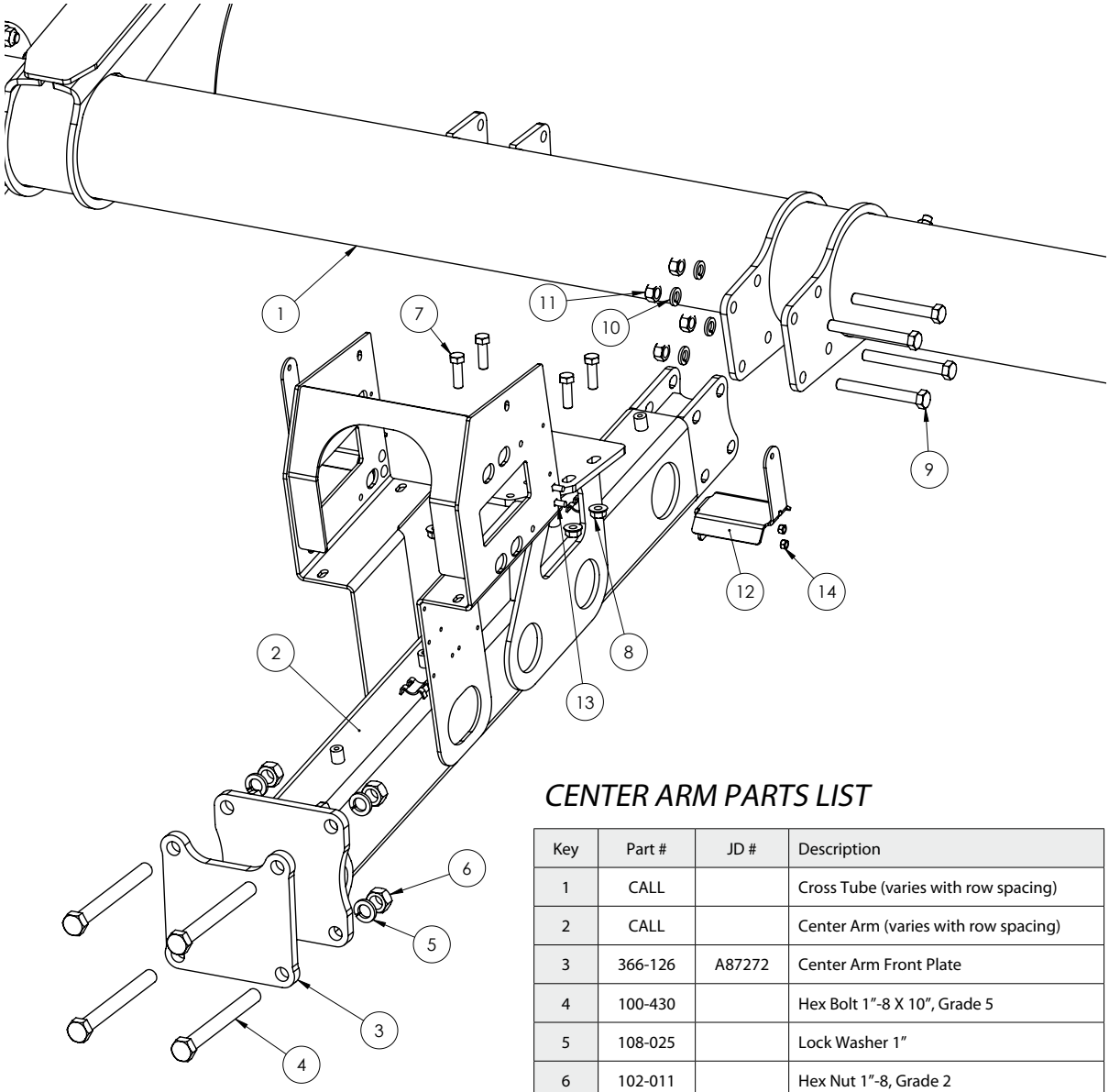
(continued from previous page)

Level the planter by extending the lift cylinders and installing the appropriate clamp-on stops. Verify that the planting units are parallel with the ground when in the planting position. Adjust the toolbar gauge wheels to have firm contact with the ground. See the planter manual for details on adjusting the gauge wheels.

A planter operating on level ground at 20 inches above the planting surface is shown (pg. 4-3). For this setup the 1" cylinder stop is required for each lift cylinder. If planting on beds or ridges more stops may be necessary to adequately level the planter.

Depending on your particular planter and field conditions it may be necessary, through a process of trial and error, to manipulate tractor hitch settings, Lift Chassis cylinder stops, and toolbar gauge wheels to achieve optimum planter operating height. If such adjustments do not provide correct operating height contact the Orthman service department for assistance.

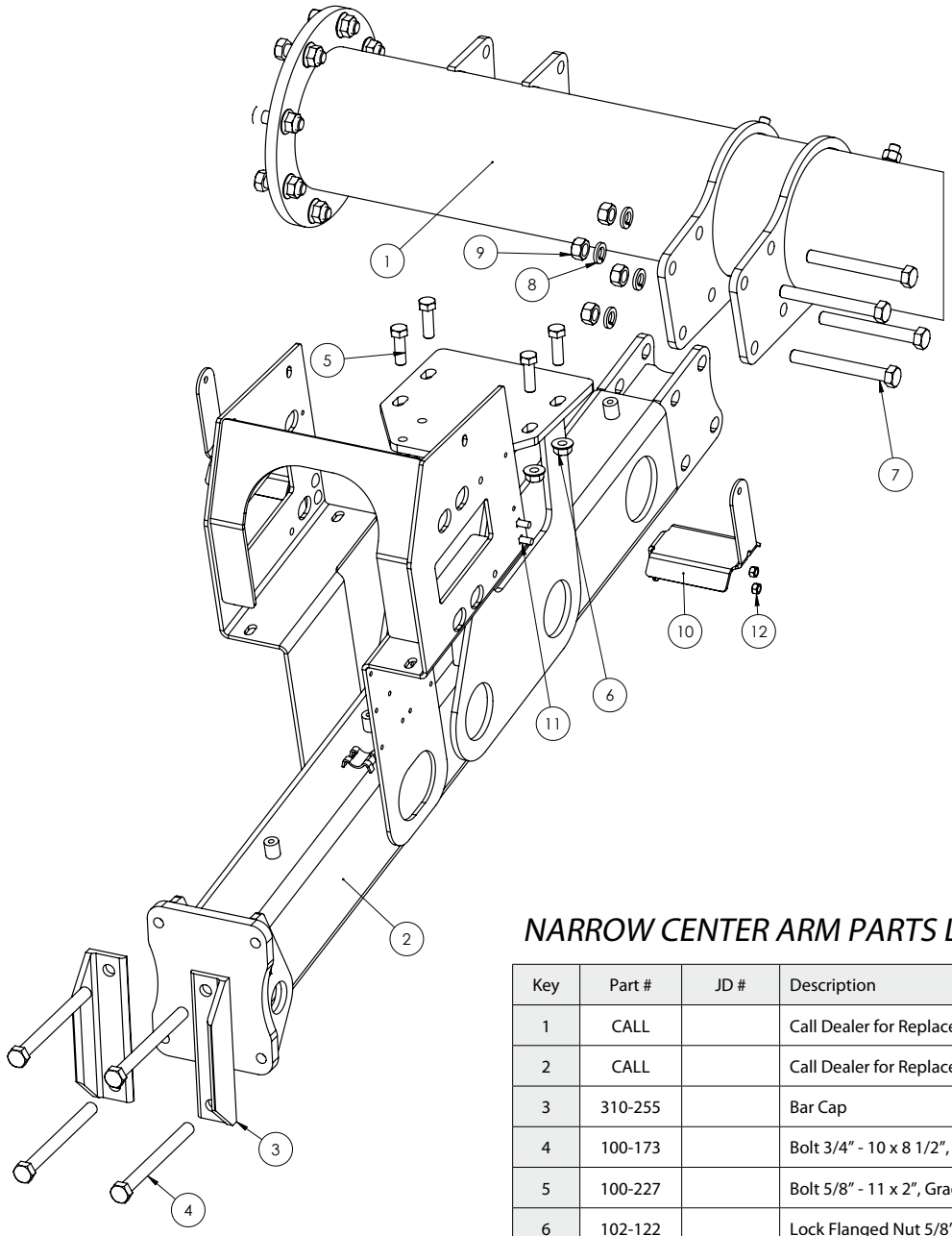
CENTER ARM



CENTER ARM PARTS LIST

Key	Part #	JD #	Description
1	CALL		Cross Tube (varies with row spacing)
2	CALL		Center Arm (varies with row spacing)
3	366-126	A87272	Center Arm Front Plate
4	100-430		Hex Bolt 1"-8 X 10", Grade 5
5	108-025		Lock Washer 1"
6	102-011		Hex Nut 1"-8, Grade 2
7	100-227		Hex Bolt 5/8"-11 X 2", Grade 5
8	102-122		Flange Lock Nut 5/8"-11, Grade 5
9	100-169		Hex Bolt 3/4"-10 X 6 1/2", Grade 5
10	108-022		Lock Washer 3/4"
11	102-009		Hex Nut 3/4"-10, Grade 5
12	366-069		Seed Hose Retainer
13	100-004		Carriage Bolt 3/8" - 16 x 1", Grade 5
14	102-005		Hex Nut 3/8" - 16, Grade 2

NARROW CENTER ARM

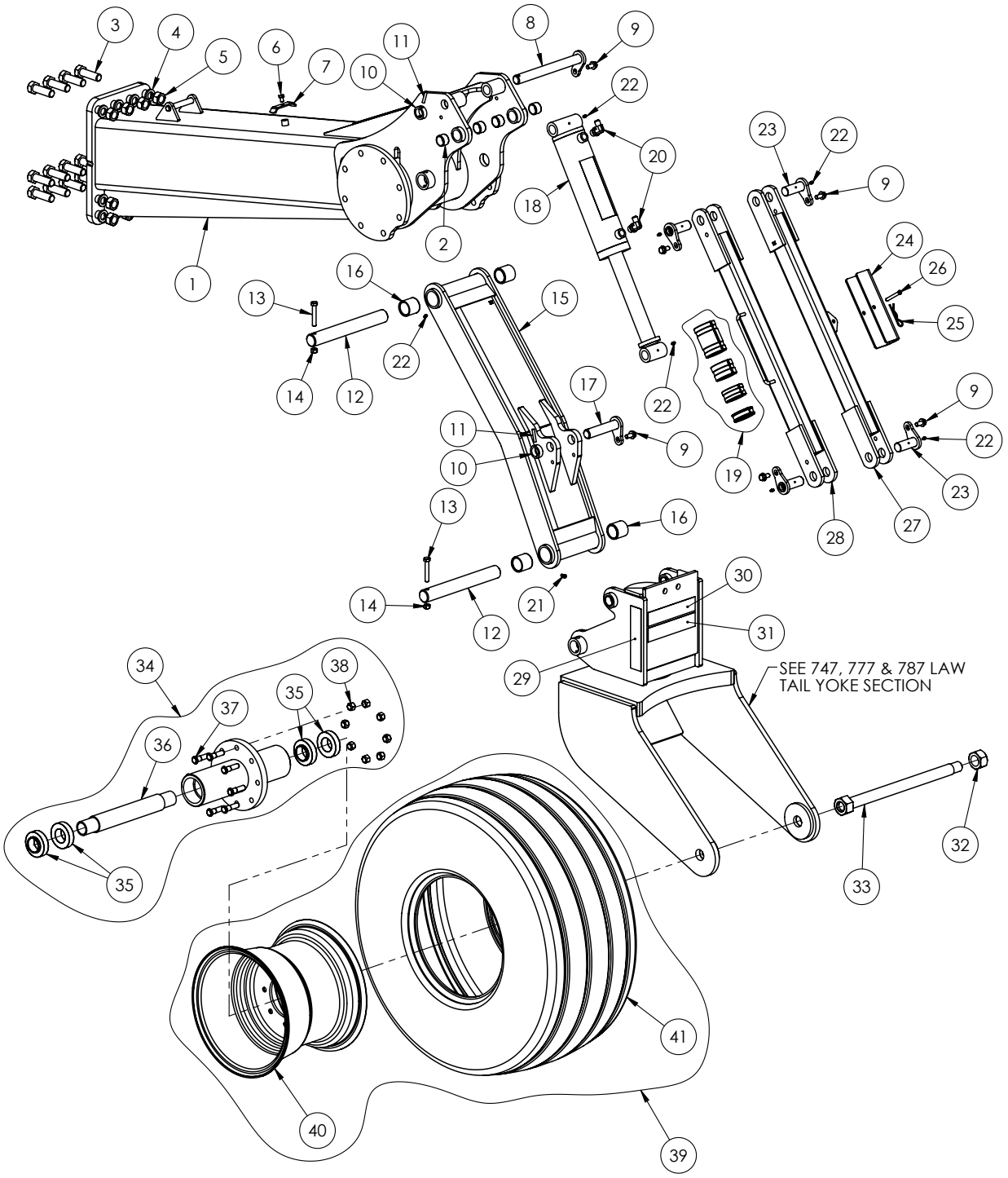


NARROW CENTER ARM PARTS LIST

Key	Part #	JD #	Description
1	CALL		Call Dealer for Replacement
2	CALL		Call Dealer for Replacement
3	310-255		Bar Cap
4	100-173		Bolt 3/4" - 10 x 8 1/2", Grade 5
5	100-227		Bolt 5/8" - 11 x 2", Grade 5
6	102-122		Lock Flanged Nut 5/8" - 11, Grade 5
7	100-169		Bolt 3/4" - 10 x 6 1/2", Grade 5
8	108-022		Lock Washer 3/4"
9	102-009		Hex Nut 3/4" - 10, Grade 5
10	366-069		Bracket Seed Hose Retainer
11	100-004		Carriage Bolt 3/8" - 16 x 1", Grade 5
12	102-005		Hex Nut 3/8" - 16, Grade 2

STANDARD CCS LIFTING UNIT 36, 38 AND 40" ROW SPACINGS

Parts list on next page.

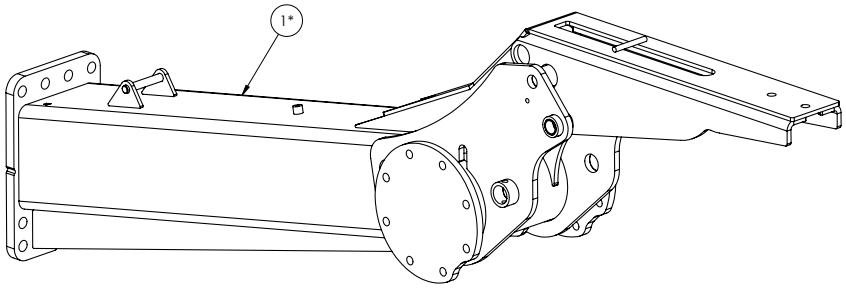


STANDARD CCS LIFTING UNIT PARTS LIST

Digram on previous page.

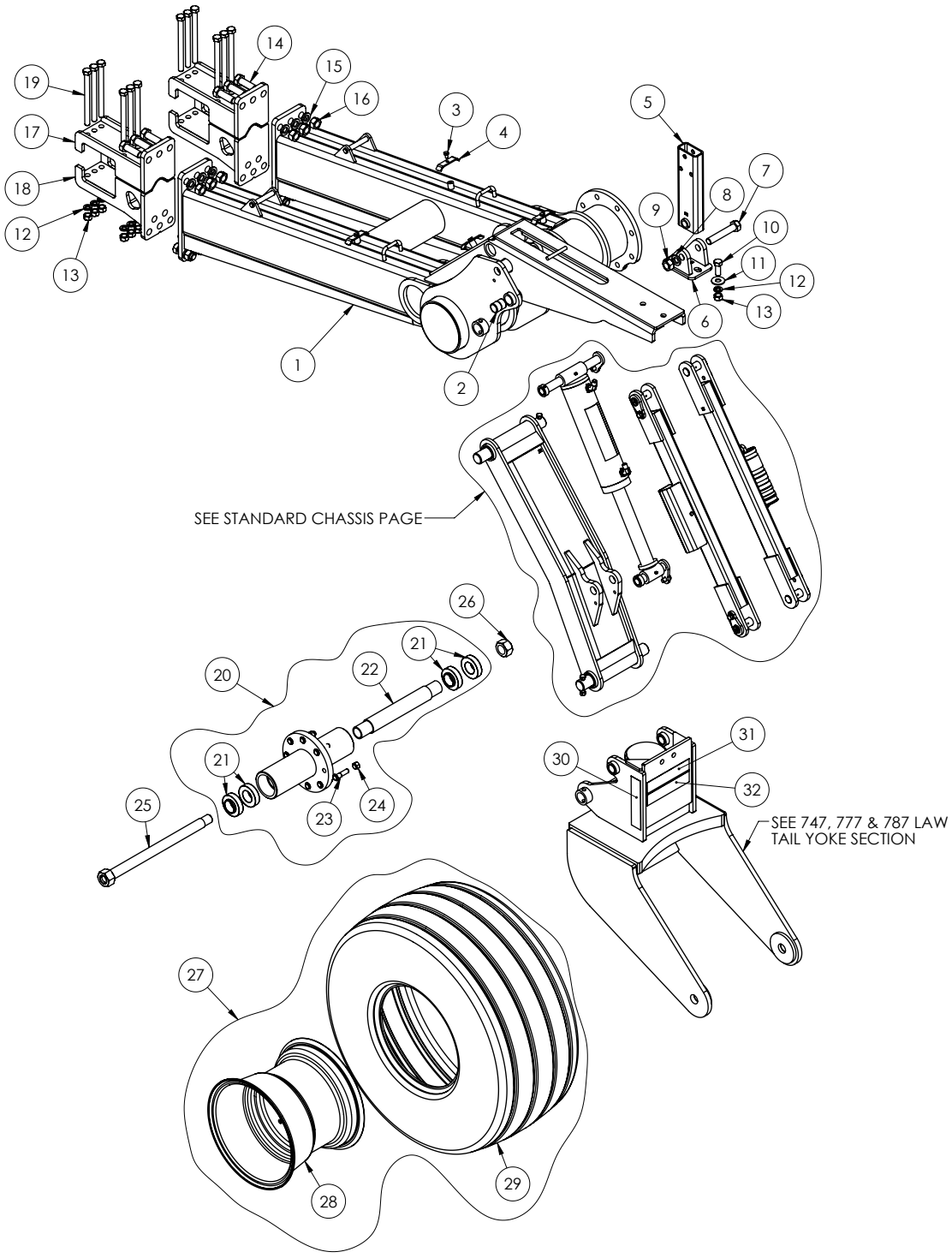
Key	Part #	JD #	Description
1	366-778		CCS Lift Chassis Arm (Includes #2)
2	134-044		Split Bushing 1.50" X 1.25" X 1.00"
3	100-195		Hex Bolt 1"-8 X 3 1/4", Grade 8
4	108-025		Lock Washer 1"
5	102-111		Hex Nut 1"-8, Grade 5
6	100-358		Hex Bolt M10 X 16, Grade 5
7	301-352	A53172	Hose Clamp
8	366-113	AA70558	Cylinder Base End Pin
9	100-305		Flange Bolt 1/2"-13 X 1", Grade 8
10	301-793	A66033	Pin Collar
11	104-008		Spiral Roll Pin 5/16 X 1 3/4
12	309-157	A87458	Lift Arm Pivot Pin
13	100-122		Hex Bolt 1/2"-13 X 3", Grade 5
14	102-028		Lock Nut 1/2"-13, Grade 2
15	366-781	AA70552	Lift Arm (Includes #16)
16	134-005		Bushing 2.125" X 1.75" X 2"
17	366-114	AA70557	Cylinder Rod End Pin
18	194-419	AA70559	Cylinder 4" X 12" Welded
19	194-368		Cylinder Stop Package
20	198-246		Elbow 7/8"-14MB X 3/4"-16MJ, 90°
21	110-002		Grease Fitting 45°
1*	366-806		30" Lift Chassis Arm

Key	Part #	JD #	Description
22	110-001		Grease Fitting 1/4"-28, Straight
23	309-155	AA70556	Pin
24	366-045	A88305	Safety Stop
25	104-094		Hair Pin 5/32"
26	104-210		Clevis Pin 3/8" X 3"
27	366-786	AA70553	Top Link With Safety Stop Storage
28	366-787	AA74010	Top Link With Cyl. Stop Storage
29	153-172		Decal, Amber Retroreflective
30	153-173		Decal, Red Retroreflective
31	153-171		Decal, Orange Fluorescent
32	102-117		Hex Nut 1 1/2"-6, RH, Grade 2
33	366-775	AA70627	Axle Bolt
34	366-796	AA70560	Hub Assembly (Includes #35-38)
35	120-058		Bearing
36	366-798		Bearing Spacer
37	100-555		Stud Bolt 5/8"-18 X 2.5"
38	102-093		Wheel Nut 5/8"-18, Grade 2
39	190-127		Wheel And Tire
40	190-129		Wheel 16.1" X 14lb
41	192-128		Tire 16.5L-16.1SL, 14PLY



20" NARROW ROW CCS LIFTING UNIT

Parts list on next page.



20" NARROW ROW LIFTING UNIT PARTS LIST

Digram on previous page.

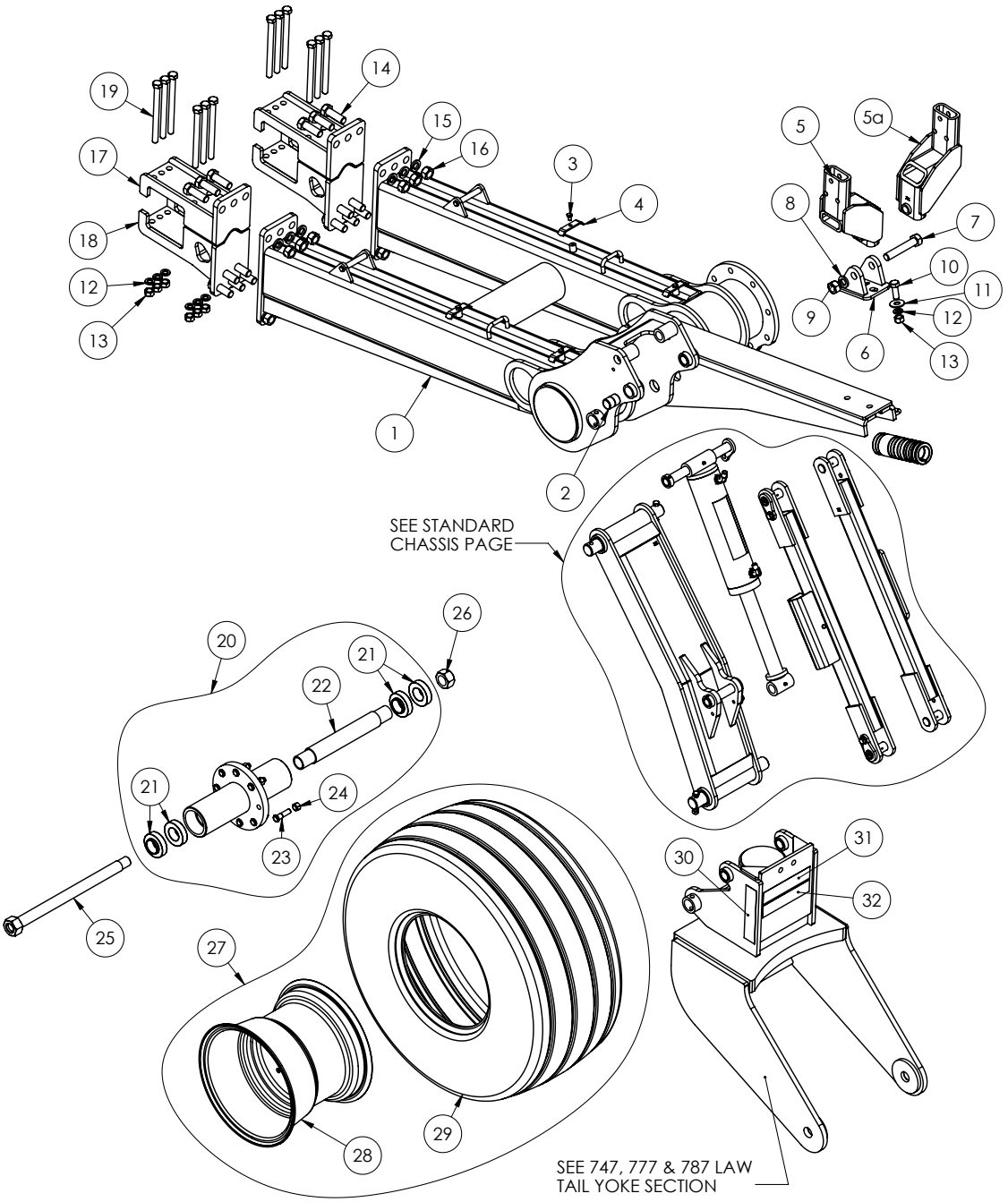
Key	Part #	Description
1	366-484	CCS LAW - 20" CCS Frame LH, Includes 134-044 split bushing
1a	366-482	CCS LAW - 20" CCS Frame RH, Includes 134-044 split bushing
2	134-044	Split Bushing 1.50" x 1.25" x 1.00"
3	100-358	Hex Bolt M10 x 16, Grade 5
4	301-352	Hose Clamp
5	366-141	Riser CCS Tank Mount
6	366-144	Pivot CCS Tank Mount Riser
7	100-188	Hex Bolt 1" - 8 x 5 1/2", Grade 5
8	108-025	Lock Washer 1"
9	102-011	Hex Nut 1" - 8, Grade 2
10	100-156	Hex Bolt 3/4" - 10 x 2", Grade 5
11	108-011	Flat Washer 3/4"
12	108-022	Lock Washer 3/4"
13	102-009	Hex Nut 3/4" - 10, Grade 5
14	100-192	Hex Bolt 1" - 8 x 3", Grade 8
15	108-025	Lock Washer 1"

Key	Part #	Description
16	102-111	Hex Nut 1" - 8, Grade 5
17	303-695	Bolt on Clamp, Top
18	303-698	Bolt on Clamp, Bottom
19	100-175	Hex Bolt 3/4" - 10 x 9 1/2", Grade 5
20	366-832	Hub Assembly (includes bearing, spacer, bolts and nuts)
21	120-058	Bearing
22	366-833	Bearing Spacer
23	100-555	Stud Bolt 5/8" x 18 x 2.5"
24	102-093	Wheel Nut 5/8" - 18, Grade 2
25	366-825	Axle Bolt
26	102-117	Hex Nut 1 1/2" - 6, RH, Grade 2
27	190-127	*Rim and Tire (see note below)
28	190-129	Wheel 16.1" x 14LB
29	190-128	Tire 16.5L - 16.1SL, 14PLY
30	153-172	Decal, Amber Retroflective
31	153-173	Decal, Red Retroflective
32	153-171	Decal, Orange Fluorescent

* 16.5L - 16.1SL, 14PLY W/190-129 RIM & 190-128 TIRE

22" NARROW ROW CCS LIFTING UNIT

Parts list on next page.



22" NARROW ROW CCS LIFTING UNIT

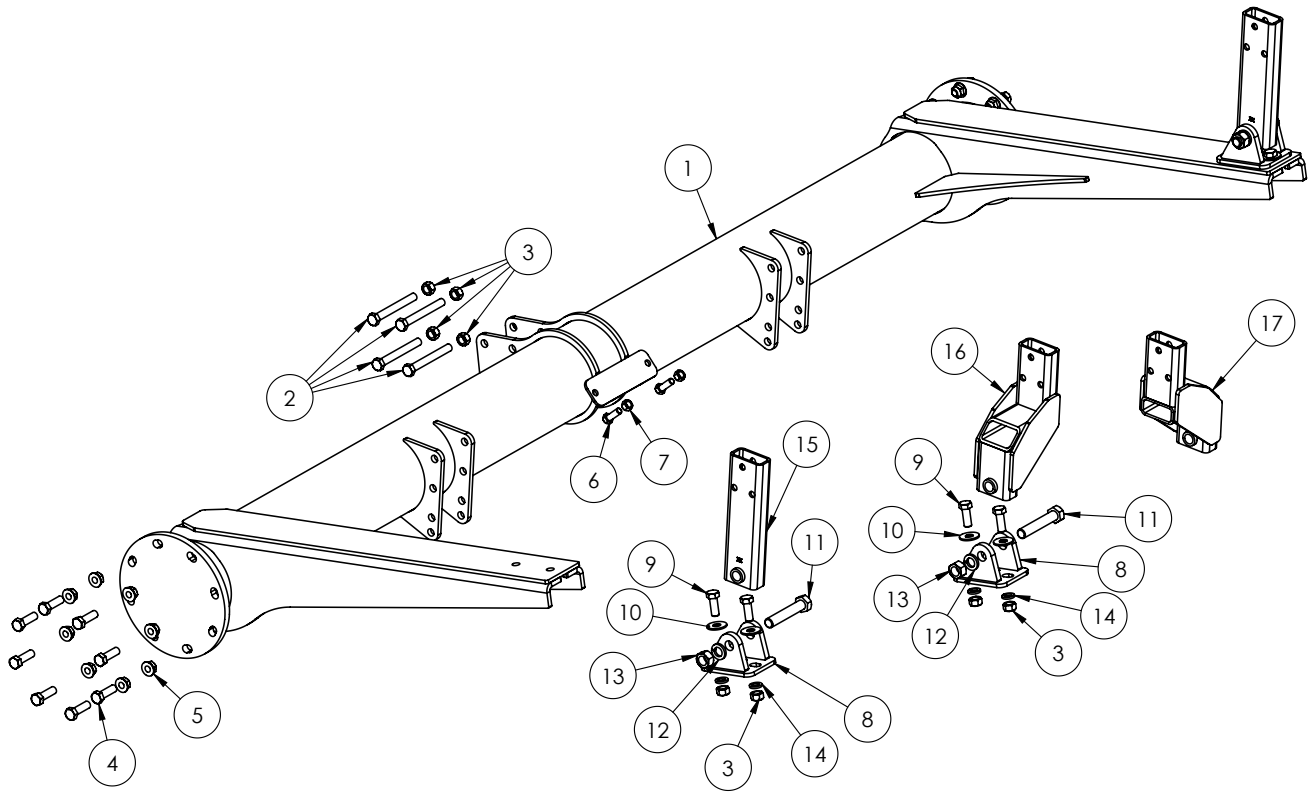
Diagram on previous page.

Key	Part #	Description
1	366-818	22" Row Lift Chassis Arm RH (includes #2)
1a	366-817	22" Row Lift Chassis Arm LH (includes #2)
2	134-044	Split Bushing - 1.5" x 1.25" x 1"
3	100-358	Bolt - M10 x 16, Grade 5
4	301-352	Hose Clamp - Hydraulic Hose Clamp
5	366-294	Riser - CCS Tank Mount LH
5a	366-286	Riser - CCS Tank Mount RH
6	366-144	Pivot - CCS Tank Mount Riser
7	100-188	Bolt - 1" - 8 x 5 1/2", Grade 5
8	108-025	Lock Washer - 1"
9	102-011	Hex Nut - 1" - 8, Grade 2
10	100-156	3/4" - 10 x 2", Grade 5
11	108-011	Flat Washer - 3/4"
12	108-022	Lock Washer - 3/4"
13	102-009	Hex Nut - 1" - 8, Grade 5
14	100-192	Bolt - 1" - 8 x 3, Grade 8
15	108-025	Lock Washer - 1"
16	102-111	Hex Nut - 1" - 8, Grade 5
17	303-695	Clamp - Bolt on Clamp, Top
18	303-698	Clamp - Bolt on Clamp, Bottom
19	100-175	Bolt - 3/4" - 10 x 9 1/2", Grade 5
20	366-832	Hub Assembly - Includes #23-26
21	120-058	Ball Bearing - 1.9375" x 3.543"

Key	Part #	Description
22	366-833	Spacer - Double Bearing
23	100-555	Stud Bolt - 5/8" - 18 x 2.5"
24	102-093	Wheel Nut - 5/8' - 18, Grade 2
25	366-825	Bolt - Manufactured 1 1/2" dia. x 17 1/8" Overall Length
26	102-117	Hex Nut - 1 1/2" - 6, RH, Grade 2
27	190-127	*Wheel and Tire (see note below)
28	190-129	Wheel, 16.1" x 14LB
29	190-128	Tire, 16.5L - 16.1SL, 14PLY
30	153-172	Decal - Amber Retroflective
31	153-173	Decal - Red Retroflective
32	153-171	Decal - Orange Florescent

* 16.5L - 16.1SL, 14PLY W/190-129 RIM & 190-128 TIRE

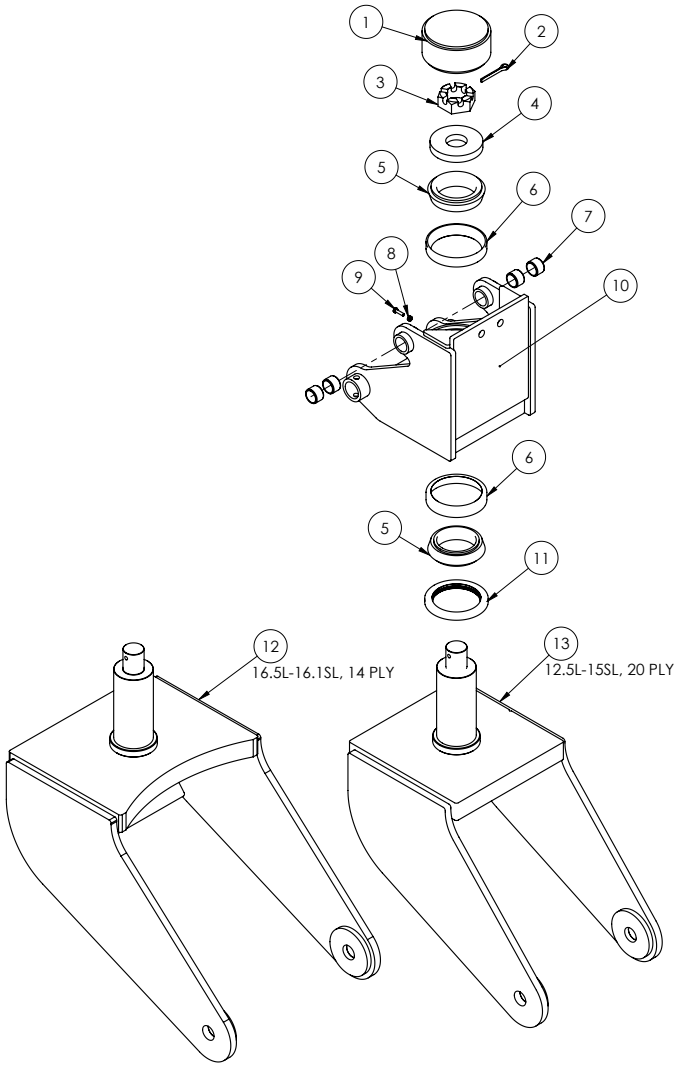
CROSS TUBE



CROSS TUBE PARTS LIST

Key	Part #	JD #	Description	Key	Part #	JD #	Description
1	Call		Cross Tube - Varies with Row Spacing	10	108-011		Flat Washer 3/4"
2	100-169		Hex Bolt 3/4"-10 X 6 1/2", Grade 5	11	100-188		Hex Bolt 1"-8 X 5 1/2", Grade 5
3	102-009		Hex Nut 3/4"-10, Grade 5	12	108-025		Lock Washer 1"
4	100-075		Hex Bolt 3/4"-10 X 2 1/2", Grade 8	13	102-011		Hex Bolt 1"-8, Grade 2
5	102-121		Lock Nut 3/4"-10, Grade 5	14	108-022		Lock Washer 3/4"
6	100-132		Hex Bolt 5/8"-11 X 1 3/4", Grade 5	15	366-141	AA70551	CCS Tank Mount
7	102-008		Hex Nut 5/8"-11, Grade 5	16	366-286		CCS Offest Tank Mount RH
8	366-144	AA70550	Tank Mount Riser	17	366-294		CCS Offset Tank Mount LH
9	100-156		Hex Bolt 3/4"-10 X 2"				

TAIL YOKE

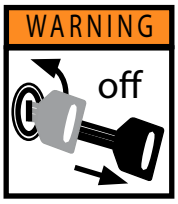


TAIL YOKE SECTION PARTS LIST

Key	Part #	JD #	Description	Key	Part #	JD #	Description
1	341-246	AA70561	Cover	8	102-002		Hex Nut - 1/4"
2	104-025		Cotter Pin - 3/8" x 2 1/2"	9	100-249		Bolt - 1/4" x 1", Grade 5
3	102-088		Castle Nut - 2" Slotted	10	341-242		Head - Includes: 120-114 race
4	309-356		Washer	11	150-022		4.5"ID x 6"OD
5	120-115		Bearing - 3.75" ID Cone Bearing	12	366-789		Yoke - 165.L - 16.1SL, 14 PLY
6	120-114		Race	13	341-235		Yoke - 12.5L - 15SL, 20 PLY
7	134-044		Bushing - 1.5"OD x .75"ID				

⚠ *PRACTICE SAFE MAINTENANCE*

Proper maintenance is your responsibility. Maintenance neglect and/or poor maintenance practices can result in injury or death. Always use the proper tools to maintain implement.



AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT. Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.

AVOID ENTANGLEMENT. Never lubricate or service implement in motion. Keep away from power driven parts when in motion. Disengage power sources prior to maintaining implement. Injury or death can result from contact with power driven parts when in motion.

AVOID CRUSHING. Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.

Escaping pressurized hydraulic fluid can penetrate skin, resulting in injury or death. Relieve hydraulic system pressure before connecting or disconnecting tractor. Use cardboard or wood, **NOT BODY PARTS**, to check for suspected hydraulic leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately for proper treatment.

⚠ *PRACTICE SAFE MAINTENANCE*

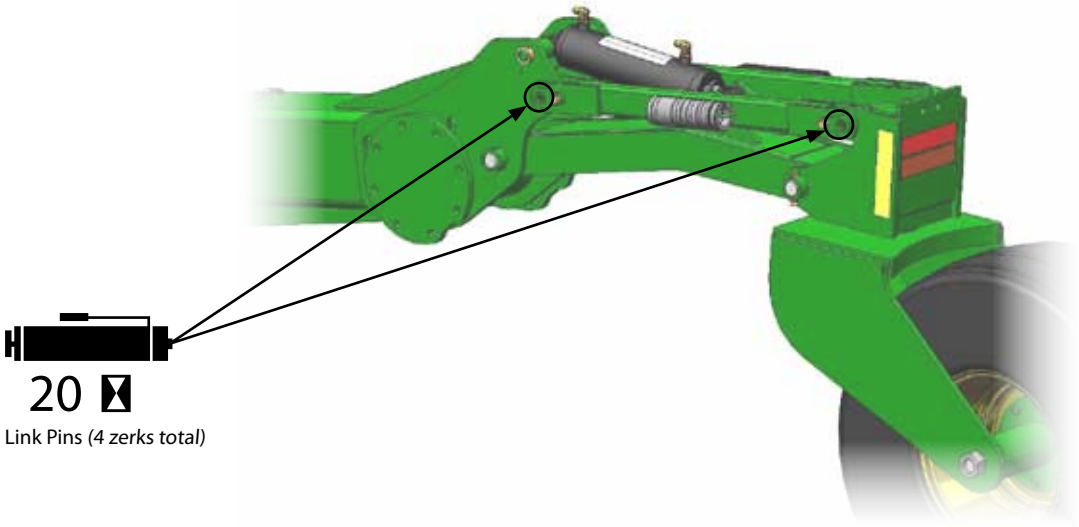
- Never operate a combustion engine in an enclosed area. Make sure there is adequate ventilation. Exhaust fumes can cause asphyxiation.

- Service tires safely. Tire and rim separation can result in serious injury or death. Do not over inflate tires. Only mount or dismount tires if you possess the proper equipment, otherwise contact a trained professional. Always maintain correct tire pressure. Inspect tires and wheels daily. Do not operate tires with inadequate pressure, cuts, visible damage, or missing hardware.

- Be extremely careful working around unshielded sharp edges. Injury may result from contact with sharp edges.
- Keep all parts in good condition and properly installed. Replace damaged or missing parts immediately.
- Remove tools and unused parts prior to implement operation.

LUBRICATION

- Grease - use a high quality multi-purpose grease.
- Follow recommended hourly service intervals illustrated below.



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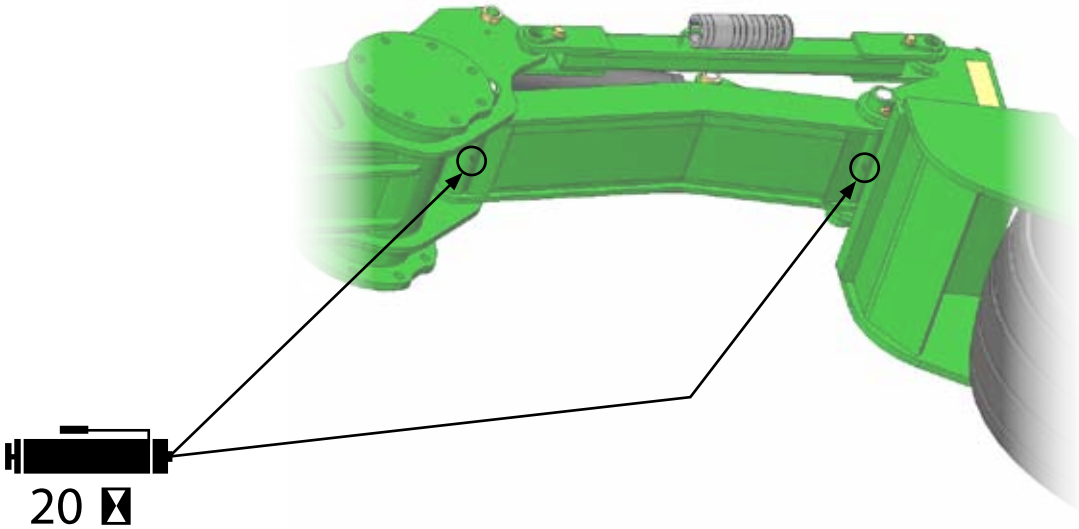
Top Link Pins *(4 zerks total)*



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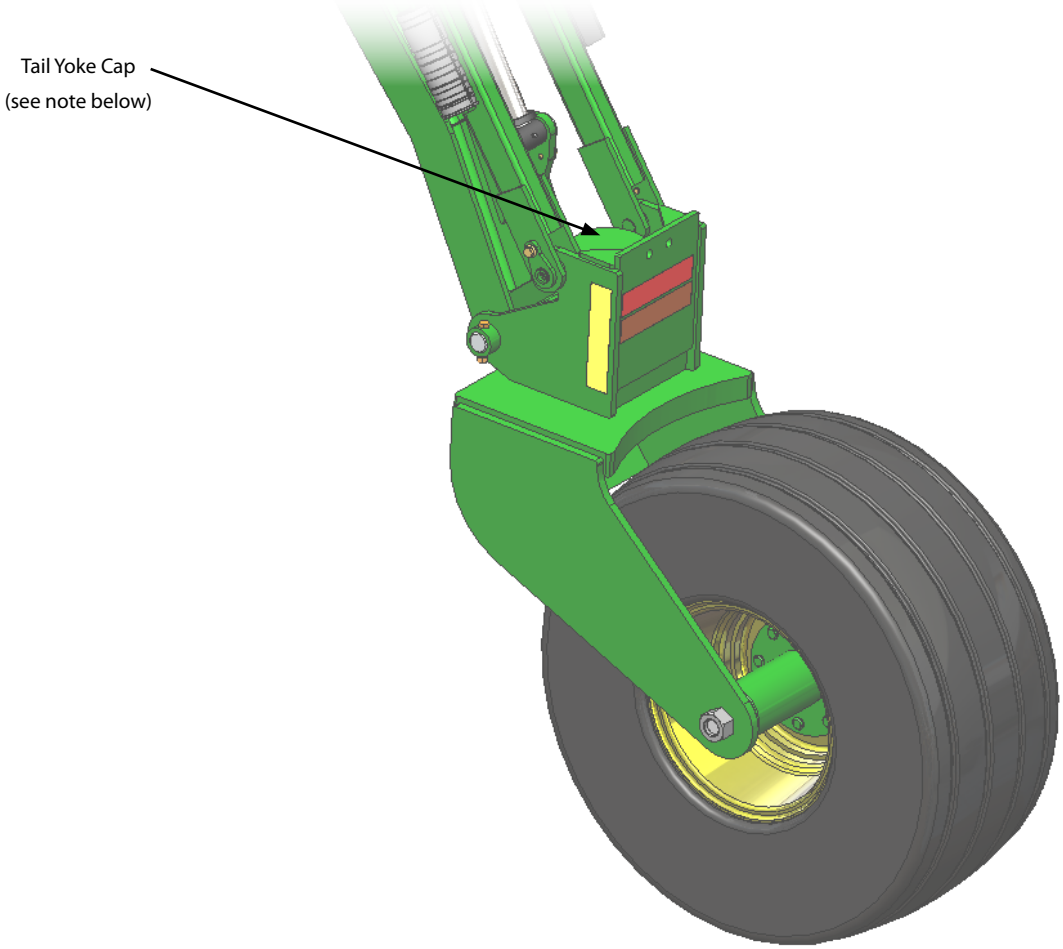
Lower Weld Assembly Arm

(2 zerks total)

LUBRICATION

- Grease - use a high quality multi-purpose grease.
- Follow recommended hourly service intervals illustrated below.



NOTE: It is recommended to remove the tail yoke section cap annually in order to inspect inner upper and lower cone bearings. Pack both bearings if necessary. Complete disassembly of the yoke tail section will allow for the bearings to properly be lubricated. Refer to (pg. 5 - 9) for exploded parts illustration of the tail yoke section.

TORQUE SPECIFICATIONS

RECOMMENDED DRY BOLT TORQUE

SAE GRADE 5

Bolt Size	ft. - lb.
3/8	32
7/16	52
1/2	80
9/16	115
5/8	160
3/4	280
7/8	455
1	680
1 1/8	850
1 1/4	1200

SAE GRADE 8

Bolt Size	ft. - lb.
3/8	36
7/16	59
1/2	88
9/16	130
5/8	175
3/4	315
7/8	510
1	760
1 1/8	1075
1 1/4	1500

⚠ IMPLEMENT INSPECTION

When replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore implement to original specifications. Replace broken or worn parts immediately. Contact your Orthman dealer for replacement parts.

- During break-in (40 hours) frequently (10 hours) check hardware for proper torque (pg. 6 - 5).
- Before each use, check hardware for wear and proper torque. (pg. 6 - 5) Replace damaged or missing hardware with hardware of an identical grade to restore implement to original specifications.
- Do not allow debris to build up on any surface of the implement.
- Replace all shields and guards. Be sure all tools, parts, and service equipment are removed prior to operating implement.

⚠ IMPLEMENT STORAGE

- Clean and touch up paint seasonally to avoid corrosion and rust. Contact your Orthman dealer for touch up paint.
- Inspect all safety and Orthman decals and replace if missing or damaged. Contact your Orthman dealer for replacement decals. (pg. 2 - 7)

- Grease all zerks regardless of hourly interval prior to storage. (pg. 6 - 3)
- Check all hardware according to torque specifications prior to storage. (pg. 6 - 5)
- Replace all worn or damaged parts prior to storage.

- Store inside if possible. Storing implement inside will prolong the life of the machine components.

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS TO SUPPORT THE IMPLEMENT. Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.