ORTHMAN by Unverferth

Soil Moving

Scrapers
Commercial Models CS & CSX
Planing Model PS

Part No. 125-160

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.

Product Information

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 is located as shown below.

Product _____

Serial Number _____

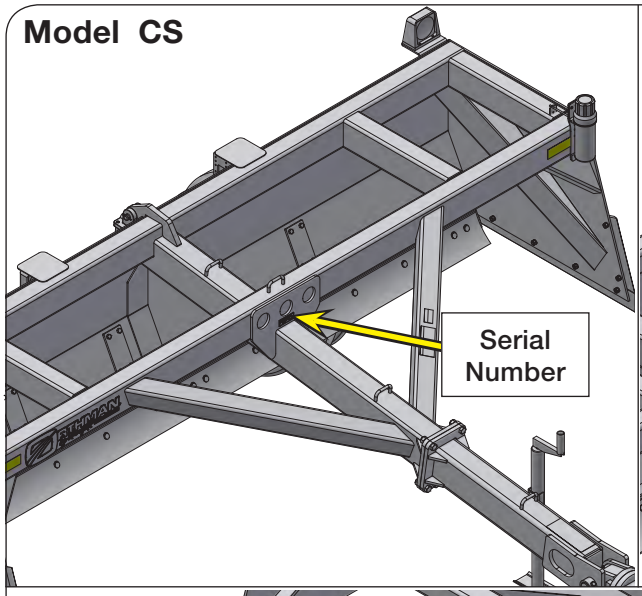
Date of Purchase _____

Dealer _____

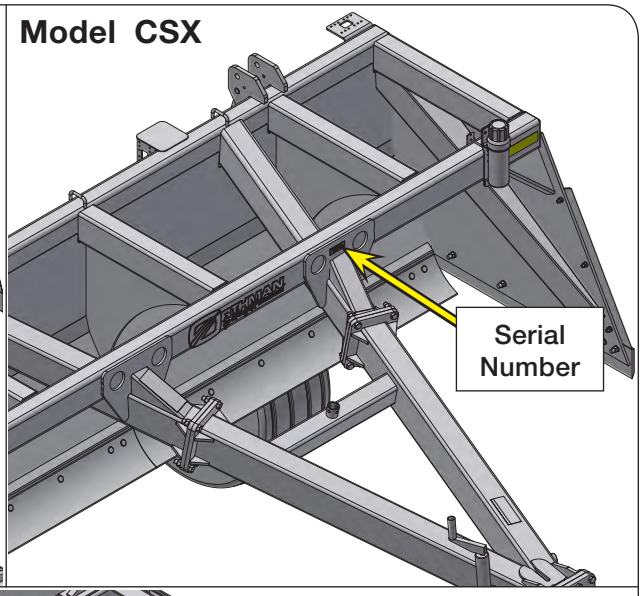
City _____ State _____ Zip _____

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.

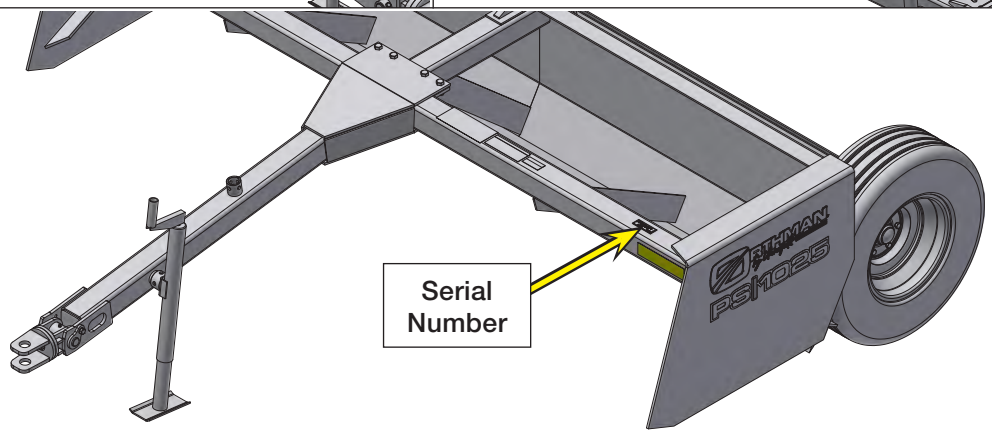
Model CS



Model CSX



Model PS



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SECTION I
Safety

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

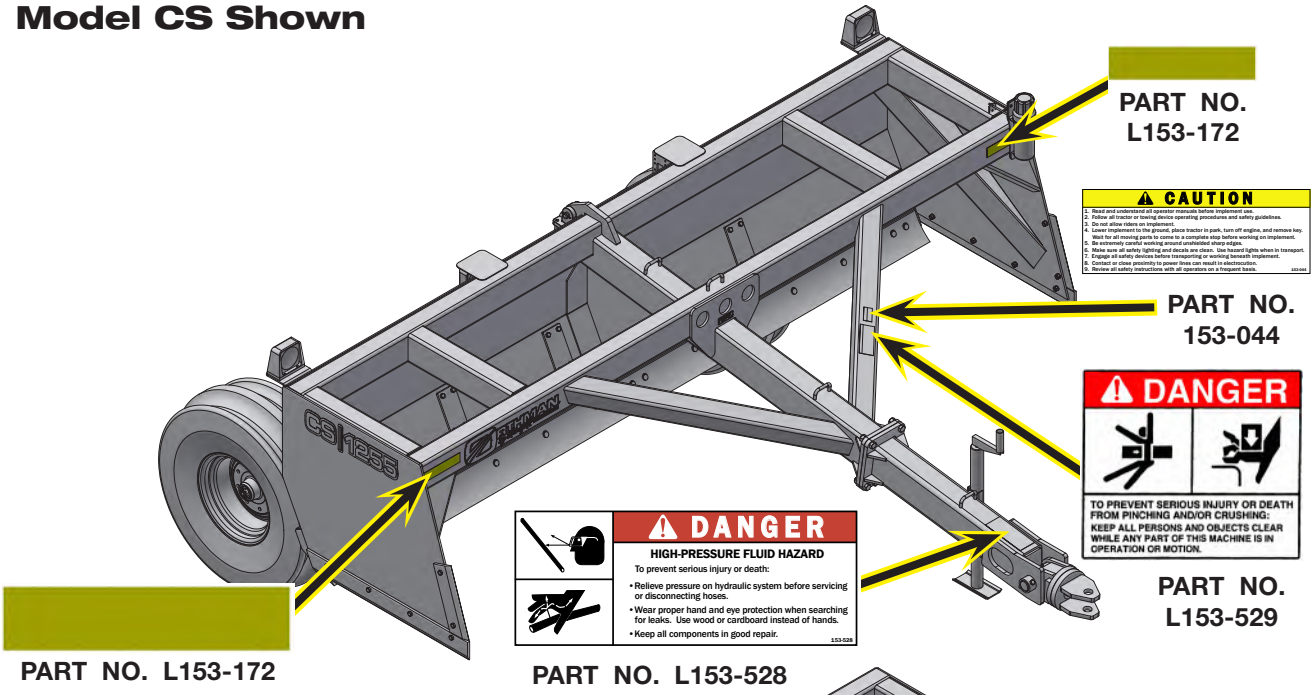
Is used for instruction on operating, adjusting, or servicing a machine.

Safety Decals

WARNING

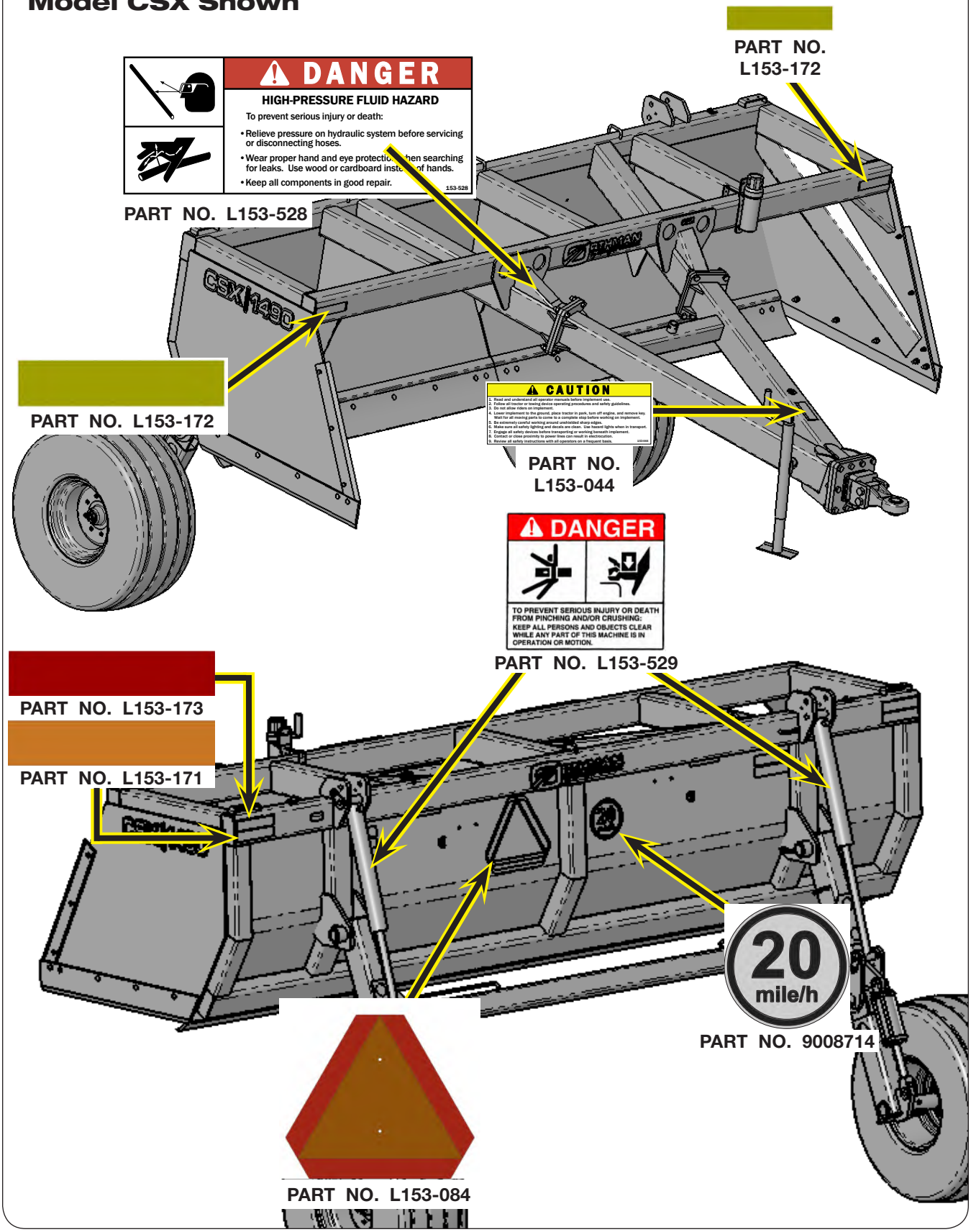
- REPLACE LOST, DAMAGED, PAINTED, OR UNREADABLE DECALS IMMEDIATELY. IF PARTS THAT HAVE DECALS ARE REPLACED, ALSO MAKE SURE TO INSTALL NEW DECALS. THESE DECALS INFORM AND REMIND THE OPERATOR WITH OPERATIONAL INFORMATION AND SAFETY MESSAGES.

Model CS Shown



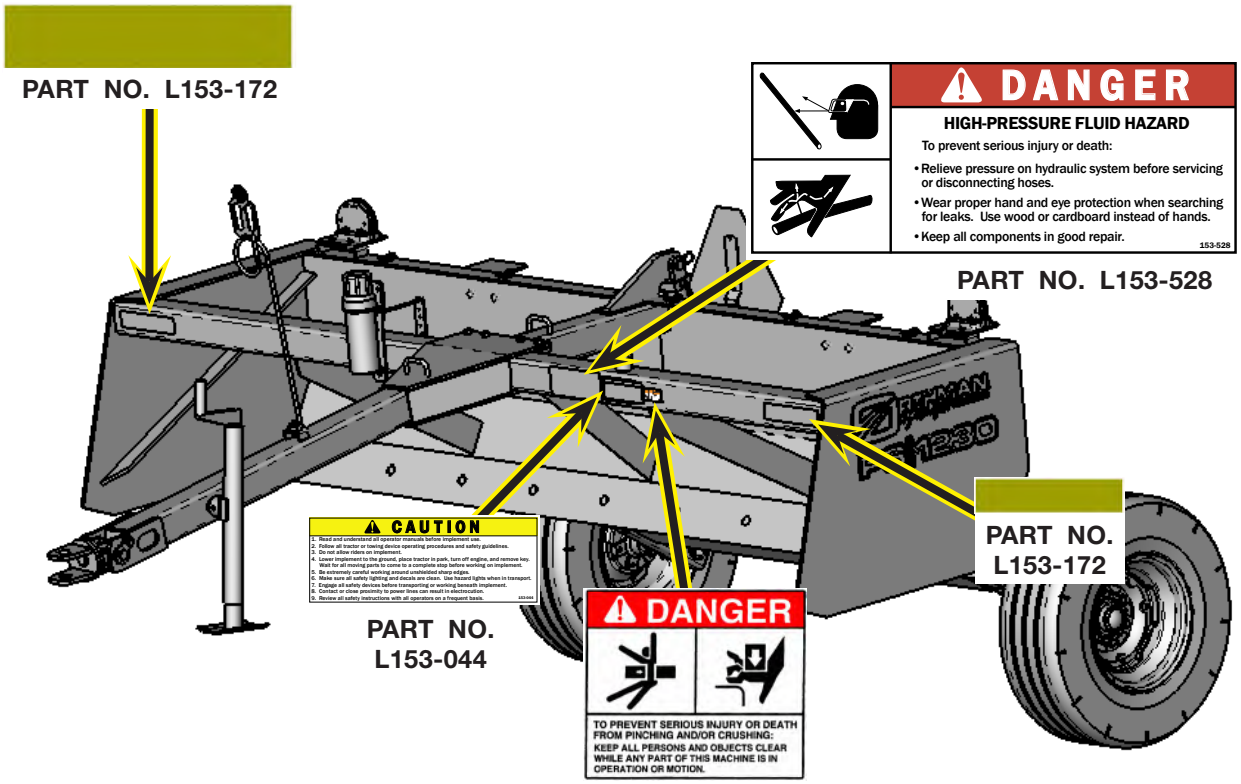
Safety Decals (continued)

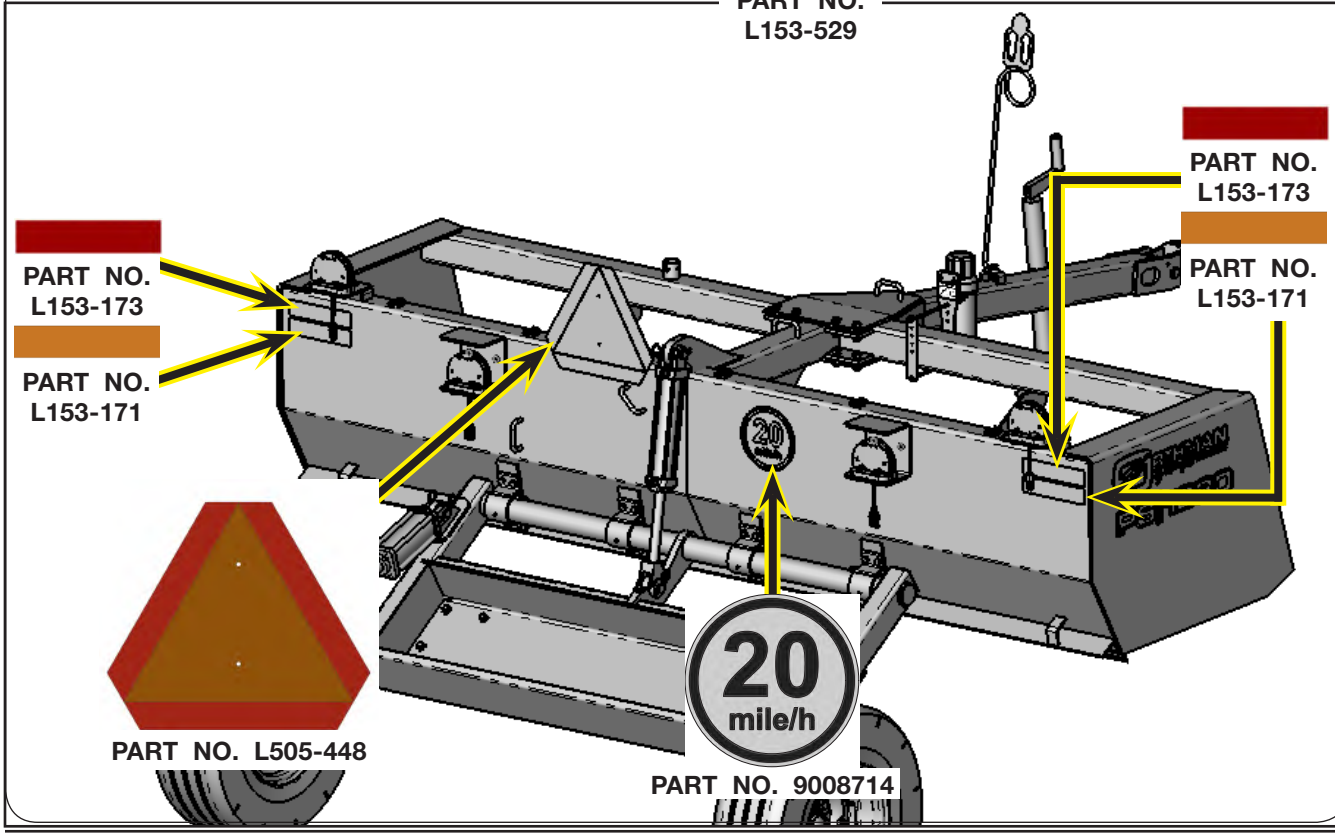
Model CSX Shown



Safety Decals (continued)

Model PS Shown





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.
- Secure drawbar pin with safety lock and lock tractor drawbar in fixed position.
- Explosive separation of a tire and rim can cause serious injury or death. Only properly trained personnel should attempt to service a tire and wheel assembly.
- Do not stand between towing vehicle and implement during hitching.
- 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.
- Do not leave towing vehicle unattended with engine running.

Before Transporting

- Install transport locks 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.
- 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

Notes

SECTION II
Set Up

General Set Up Information

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

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.

IMPORTANT

- *The procedures for assembling this unit were intended for two or more people.*

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 5,000 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.

Wheel/Tire Set Up

Tire Pressure

Tire pressure must be verified before first use and adjusted as necessary. Refer to MAINTENANCE section of this manual for information on tire pressure.

Wheel Nuts

⚠ CAUTION

- **IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. WHEEL NUTS/BOLTS MUST BE CHECKED REGULARLY. SEE TORQUE PAGE IN THE "MAINTENANCE" SECTION FOR PROPER WHEEL NUT/BOLT SPECIFICATIONS. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

SMV Emblem & SIS Decal

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.

If applicable, ensure the SIS decals (one on the front and one on the rear of the implement) are clean and visible.

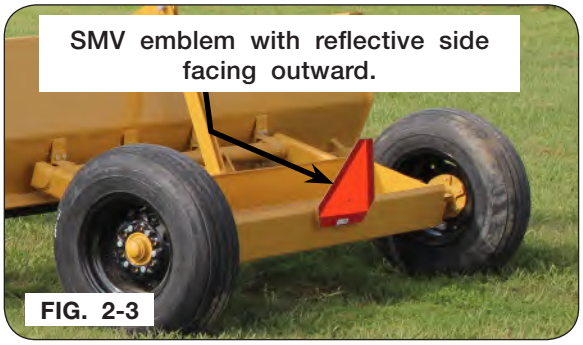


FIG. 2-3

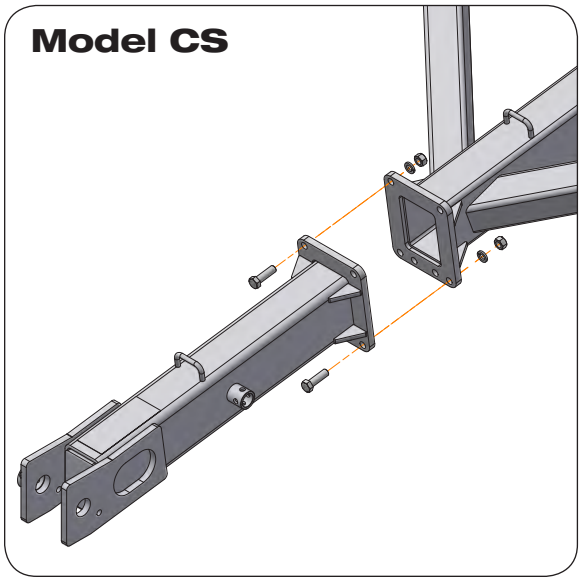
FIG. 2-4

Tongue Assembly

1. Using a safe lifting device and support stands rated at a minimum of 5,000 lbs., support the main frame.

2. Using a safe lifting device rated at a minimum of 1,500 lbs., secure tongue assembly to main frame.

Model CS
Use six 3/4”-10UNC x 2 1/2” grade 5 capscrews (100-075), 3/4” lock washers (L108-022), and 3/4”-10UNC hex nuts (L102-009).

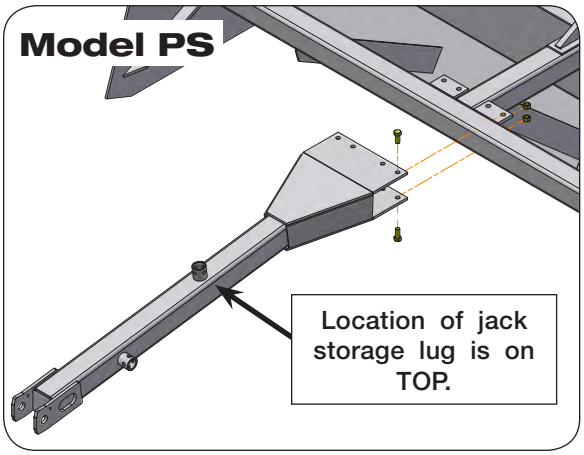


Model CSX
Use twelve 3/4”-10UNC x 3” grade 5 capscrews (100-344), 3/4” lock washers (L108-022), and 3/4”-10UNC hex nuts (L102-009).

Tongue Assembly (continued)

2. (continued)

Model PS
Use eight 5/8”-11UNC x 1 1/2” grade 8 capscrews (L100-196) and 5/8”-11UNC lock nuts (L102-029).



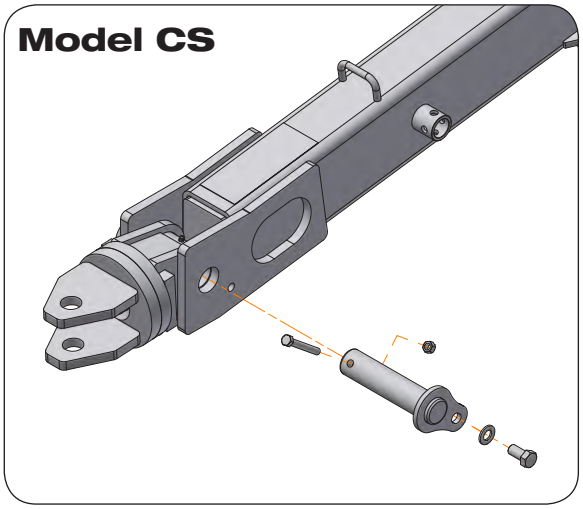
3. Torque hardware accordingly. Refer to “Torque Chart” in MAINTENANCE section.

Hitch Assembly

1. Using a safe lifting device and support stands rated at a minimum of 1,500 lbs., support the tongue.

2. Secure hitch assembly to tongue.

Model CS
Use pin weldment (L506-370), 3/4” SAE flat washer (L108-003), 3/4”-10UNC x 1 1/2” grade 5 capscrew (L100-206), 1/2”-13UNC x 3 3/4” grade 8 capscrew (L100-319), and 1/2”-13UNC lock nut (L102-224).



Hitch Assembly (continued)

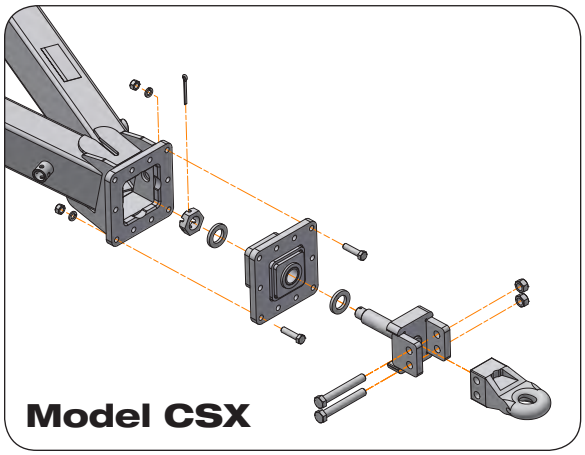
2. (continued)

Model CSX
Slide washer (L505-418) onto hitch adapter weldment (L505-419).

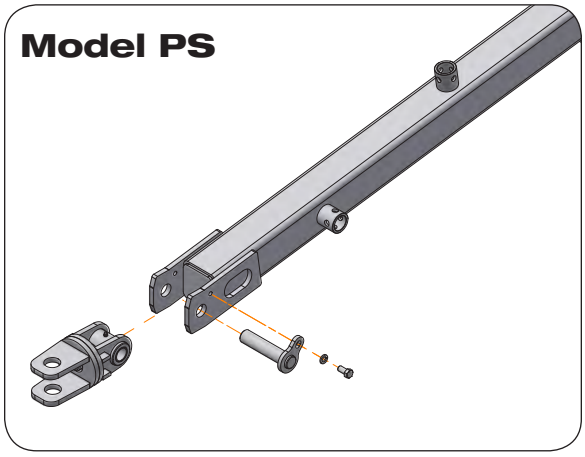
Insert hitch adapter weldment (L505-419) into hitch plate weldment (L505-413) and secure with washer (L505-418), 1 1/2”-12UNF slotted hex nut (L102-088) and 1/4” Dia. x 2 1/2” cotter pin (L104-022). Ensure hitch is snug, but can turn freely.

Secure hitch plate weldment (L505-413) to the tongue with ten 3/4”-10UNC x 3” grade 8 capscrews (L100-344), 3/4” lock washers (L108-022), and 3/4”-10UNC hex nuts (L102-009).

Attach hitch to hitch adapter weldment (L505-419) with two 1”-8UNC x 7 1/2” grade 8 capscrews (L100-405) and 1”-8UNC lock nut (L102-214).



Model PS
Secure hitch to tongue with pin weldment (L506-916), 1/2”-13UNC x 1” grade 5 capscrew (L100-114), and 1/2” lock washer (L108-020).



3. Torque hardware accordingly. Refer to “Torque Chart” in MAINTENANCE section.

Jack Stand Assembly

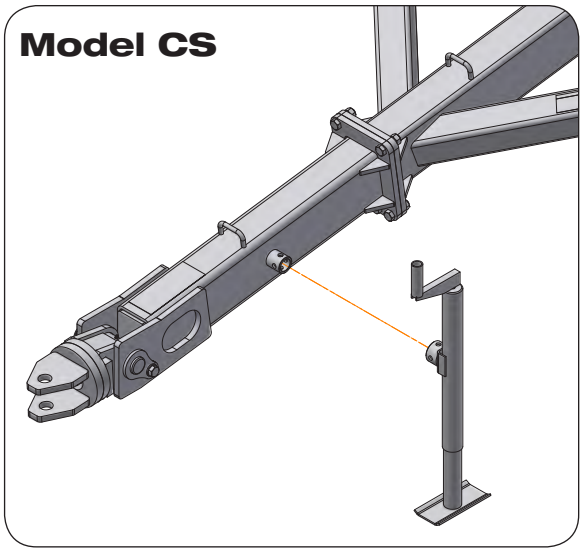
1. Using a safe lifting device and support stands rated at a minimum of 1,500 lbs., support the tongue.

2. Secure jack stand assembly to tongue.

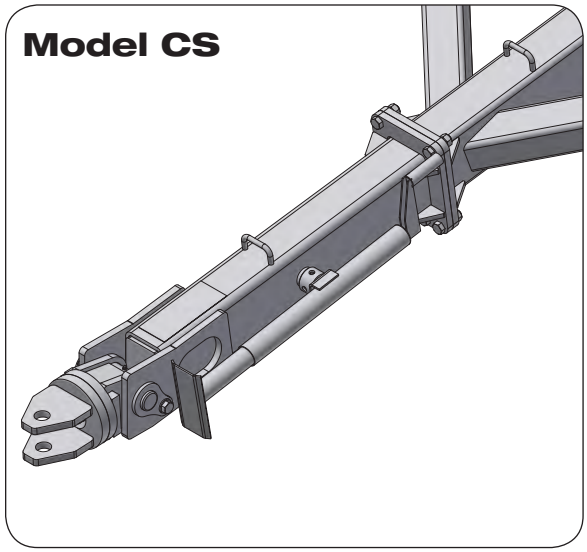
Parked Position

Transport Position

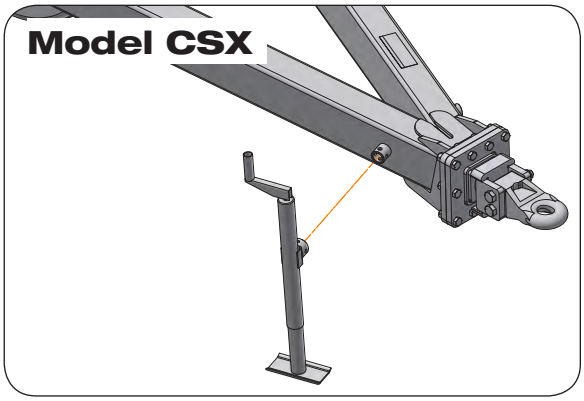
Model CS



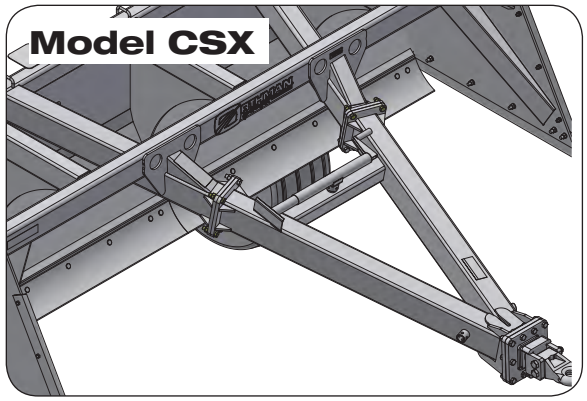
Model CS



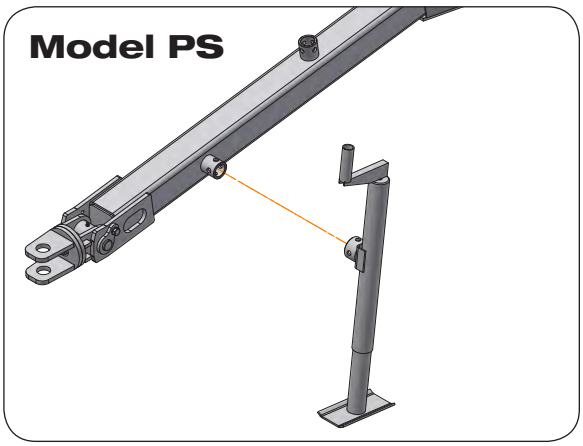
Model CSX



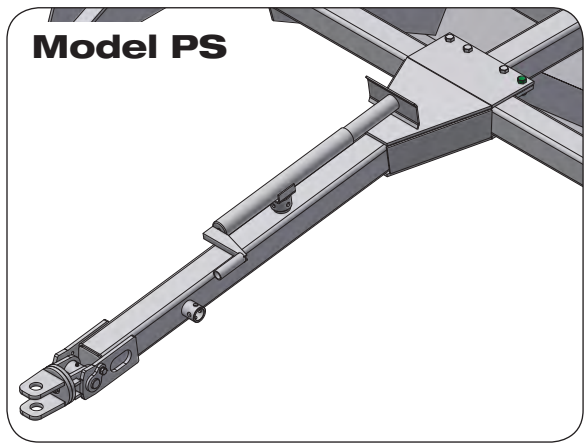
Model CSX



Model PS



Model PS

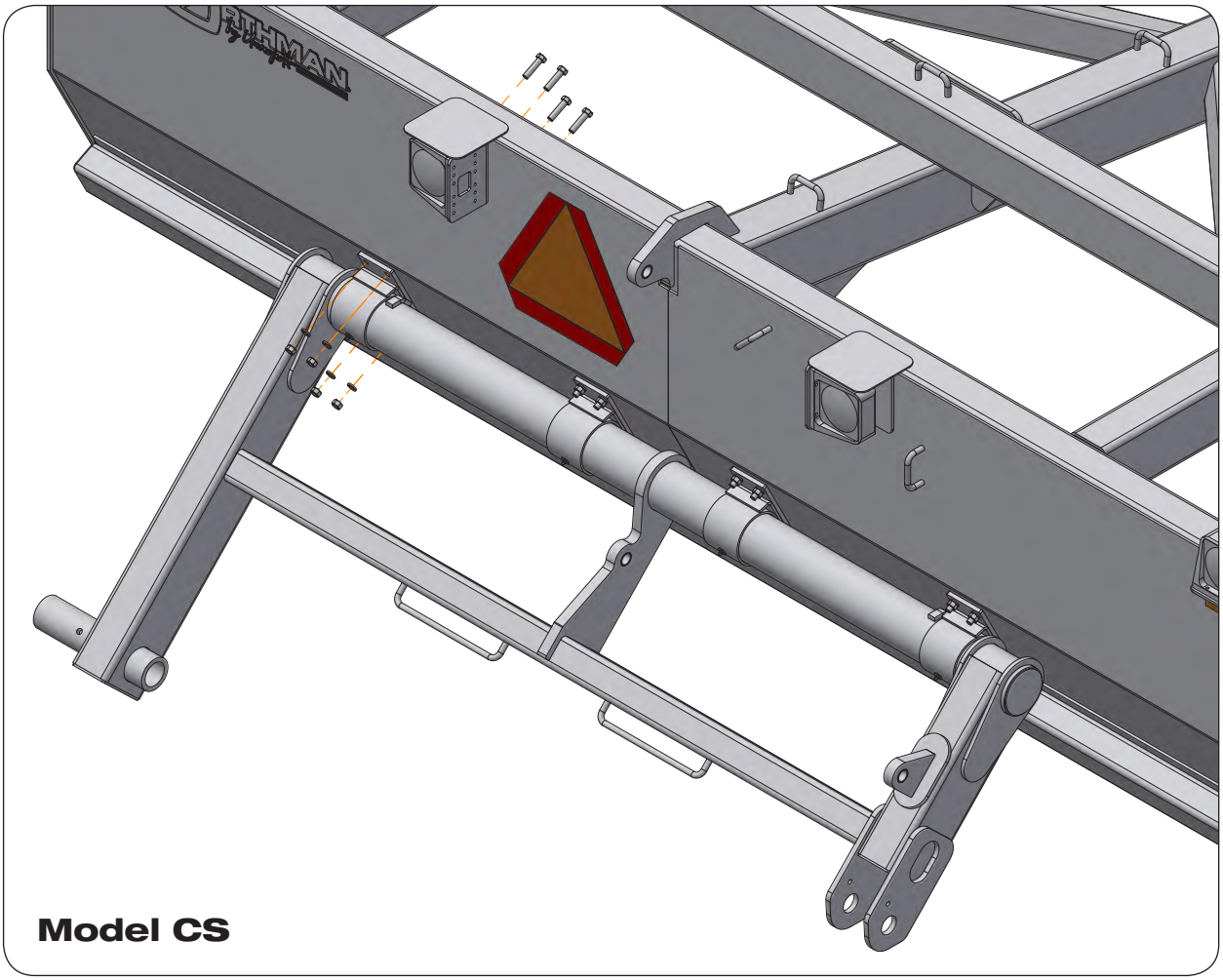


Axle Assembly

1. Using a safe lifting device and support stands rated at a minimum of 5,000 lbs., support the main frame.

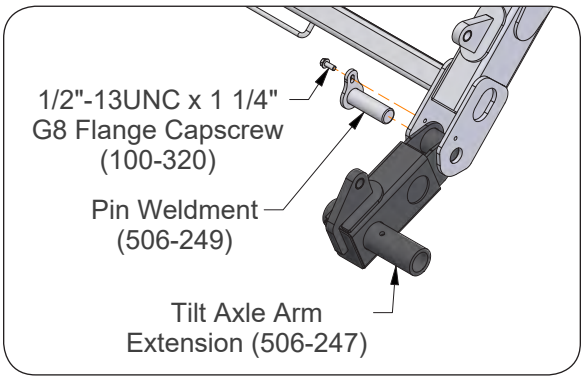
2. Using a safe lifting device rated at a minimum of 1,500 lbs., secure axle assembly to main frame.

   Model CS - Axle Assembly
   Use sixteen 1/2”-13UNC x 2” grade 5 capscrews (L100-118), 1/2” lock washers (L108-020), and 1/2”-13UNC hex nuts (L102-007).



Model CS

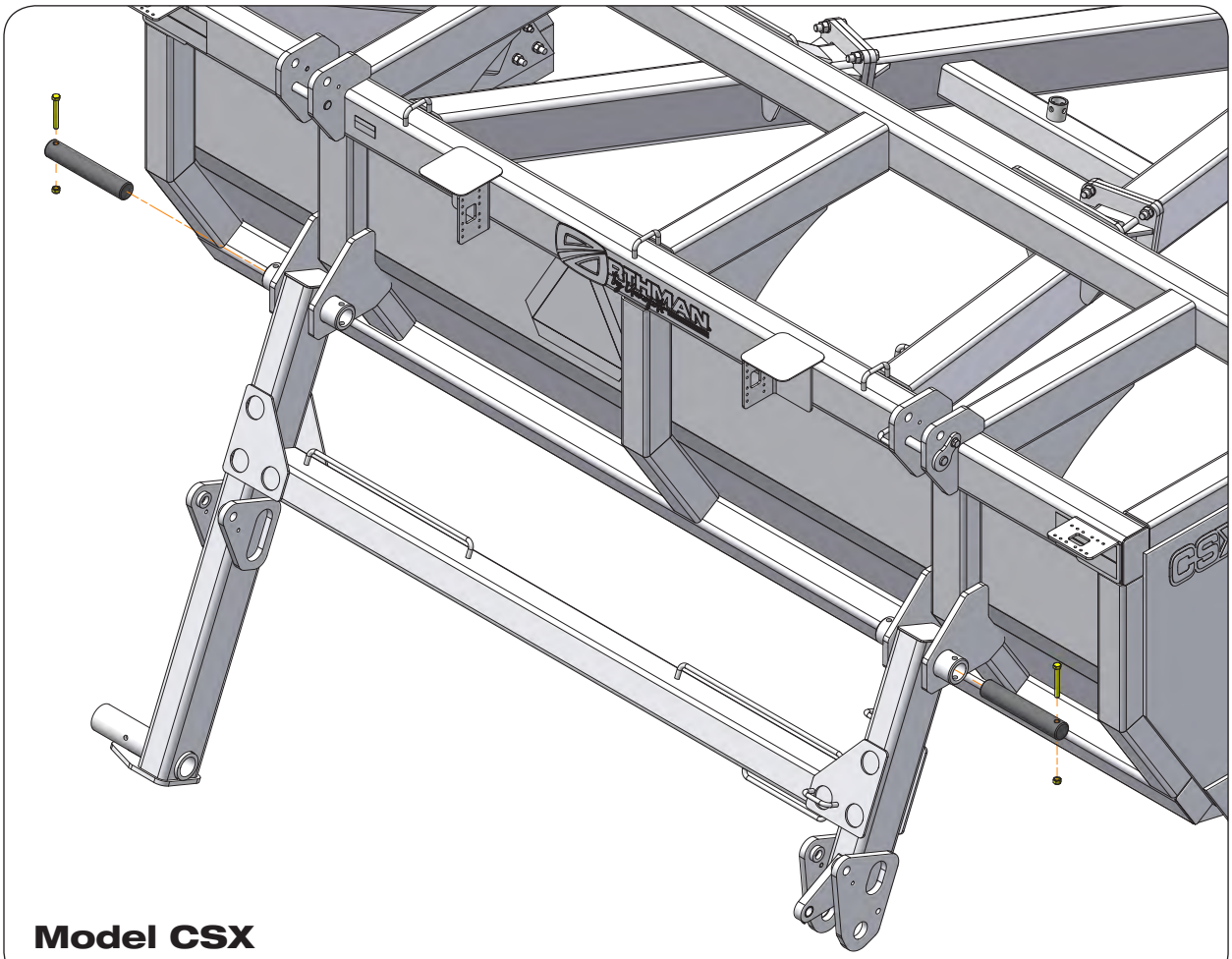
Model CS - Tilt Axle Arm Extension Assembly
Use pin weldment (L506-249), and 1/2”-13UNC x 1 1/4” Grade 8 flange capscrew (L100-320).



Axle Assembly (continued)

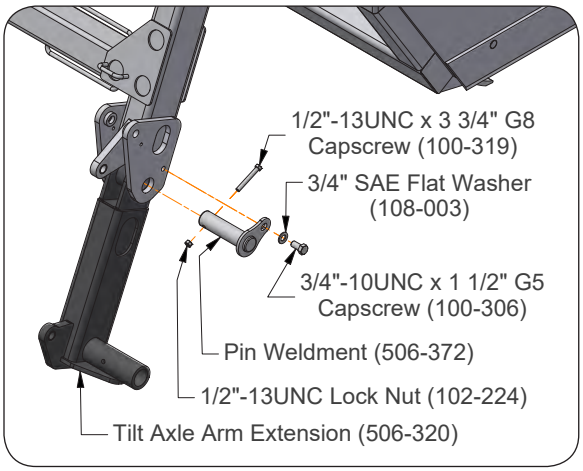
2. (continued)

Model CSX - Axle Assembly
Use two pins (L506-366), 1/2”-13UNC x 3 3/4” grade 8 capscrews (L100-319) and 1/2”-13UNC lock nuts (L102-224).



Model CSX

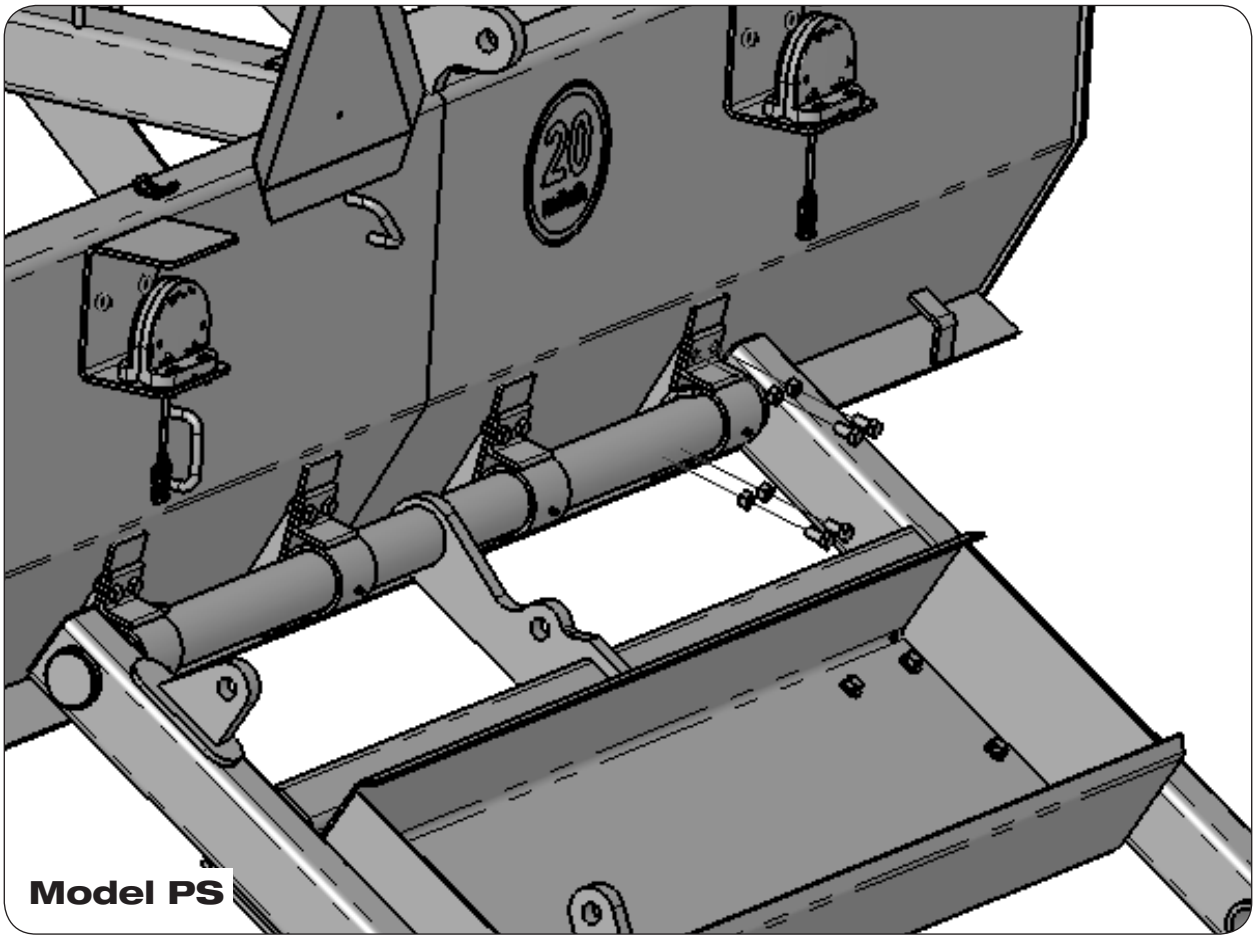
Model CSX - Tilt Axle Arm Extension Assembly
Use pin weldment (L506-372), 3/4” SAE flat washer (L108-003), 3/4”-10UNC x 1 1/2” capscrew (L100-206), 1/2”-13UNC x 3 3/4” grade 8 capscrew (L100-319), and 1/2”-13UNC lock nut (L102-224).

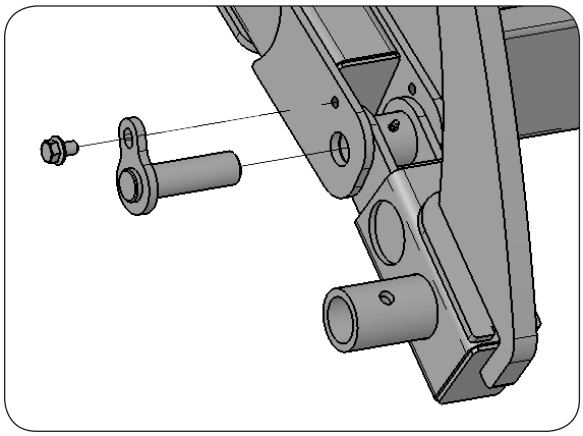


Axle Assembly (continued)

2. (continued)

   Model PS
   Use sixteen 1/2”-13UNC x 1” grade 5 capscrews (L100-114) and 1/2”-13UNC lock nuts (L102-224).





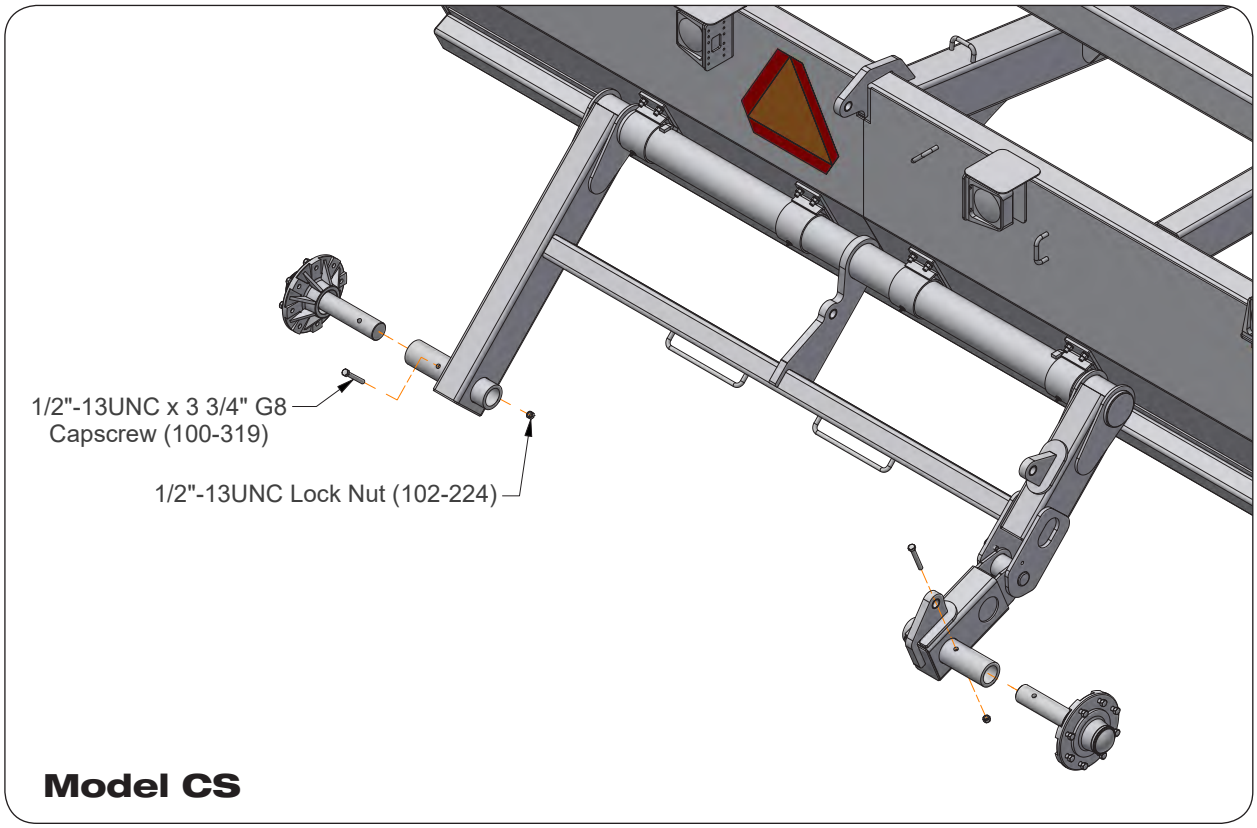
3. Torque hardware accordingly. Refer to “Torque Chart” in MAINTENANCE section.

Spindle & Hub Assembly

1. Using a safe lifting device and support stands rated at a minimum of 5,000 lbs., support the main frame.

2. Secure spindle and hub to axle assembly.

   Model CS
   Insert the spindle and hub 8-bolt assemblies to the left-hand and right-hand side of the axle. Secure with 1/2”-13UNC x 3 3/4” grade 8 capscrews (L100-319) and 1/2”-13UNC lock nuts (L102-224).

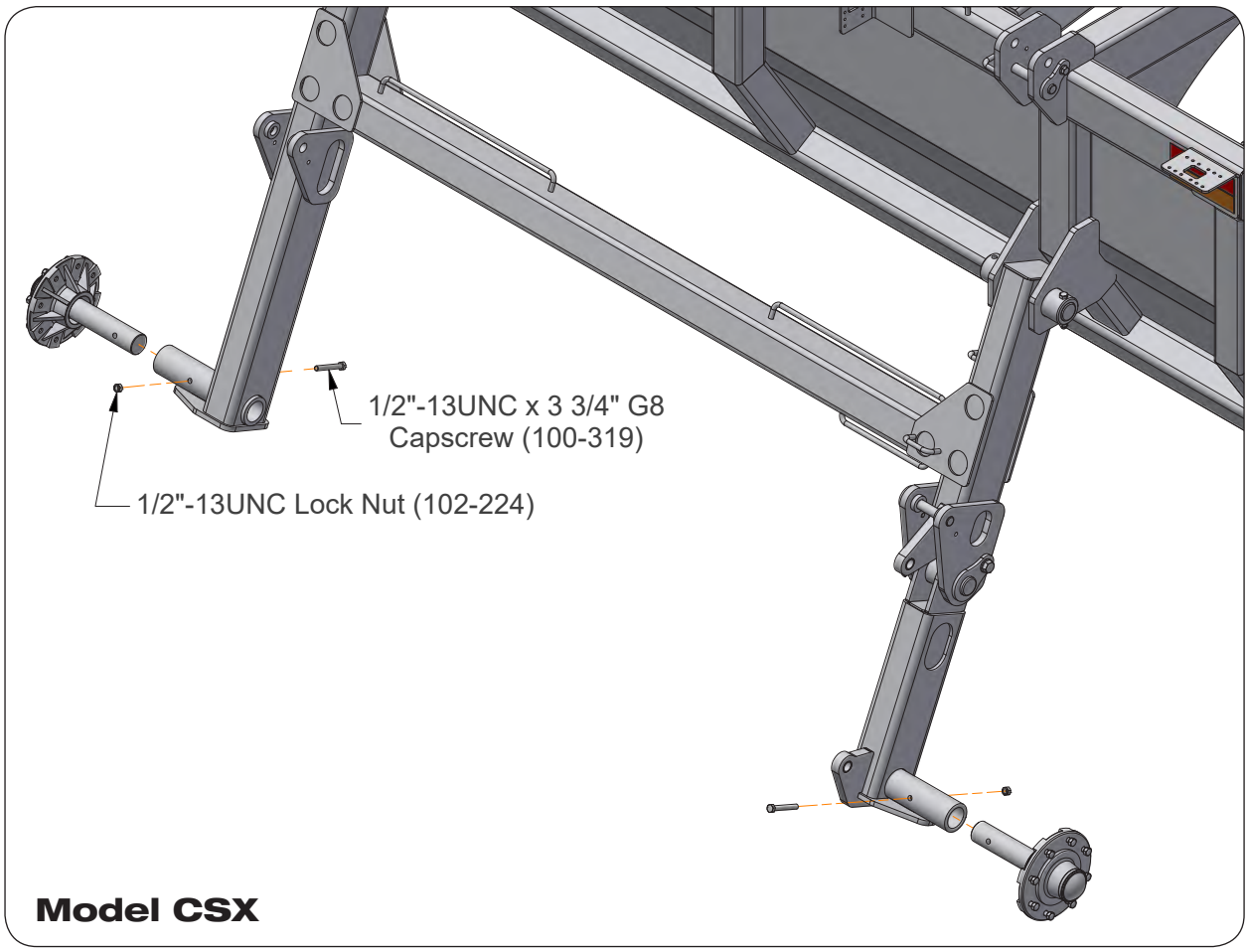


Model CS

Spindle & Hub Assembly (continued)

2. (continued)

Model CSX
Insert the spindle and hub 8-bolt assemblies to the left-hand and right-hand side of the axle. Secure with 1/2”-13UNC x 3 3/4” grade 8 capscrews (L100-319) and 1/2”-13UNC lock nuts (L102-224).

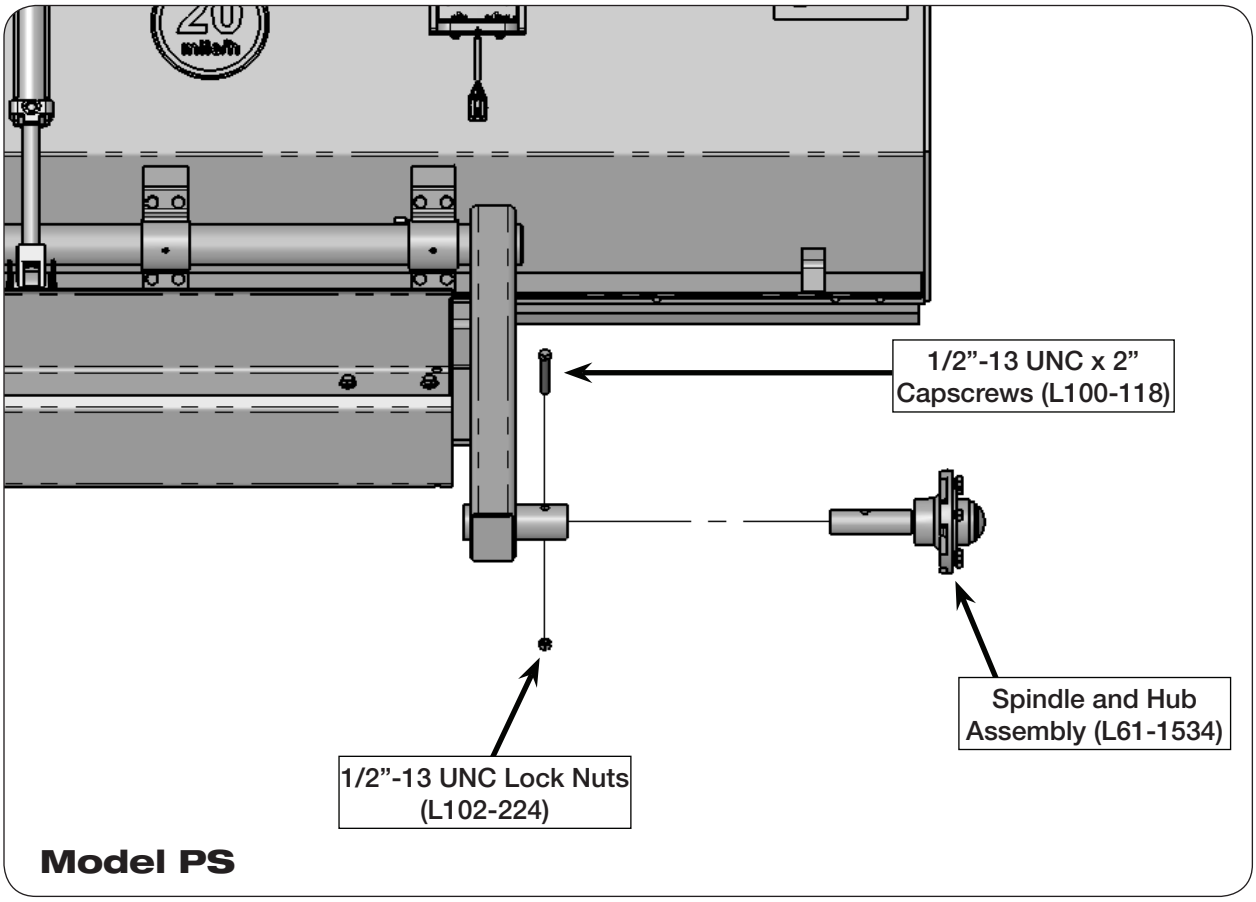


Model CSX

Spindle & Hub Assembly (continued)

2. (continued)

Model PS
Attach the spindle and hub 6-bolt assemblies to the left-hand and right-hand side of the axle with eight 1/2”-13UNC x 2” grade 5 capscrews (L100-118) and 1/2”-13UNC lock nuts (L102-224).



Model PS

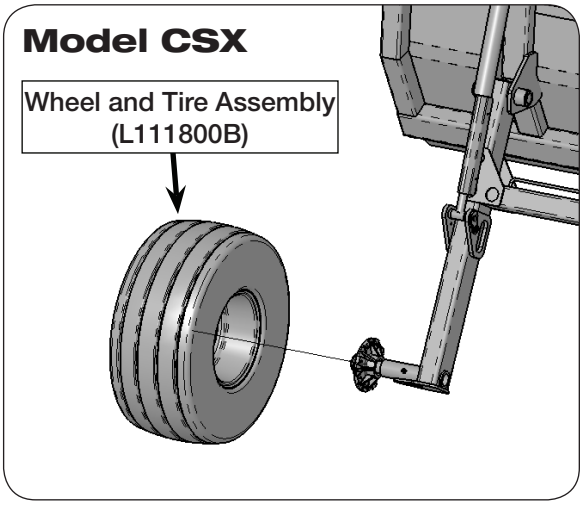
3. Torque hardware accordingly. Refer to “Torque Chart” in MAINTENANCE section.

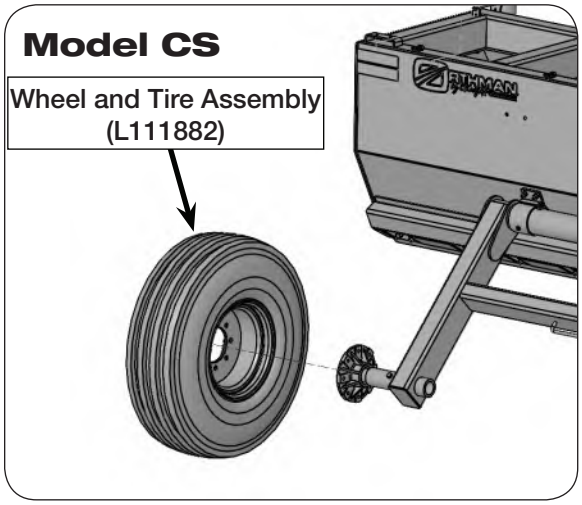
Wheel & Tire Assembly

1. Using a safe lifting device and support stands rated at a minimum of 5,000 lbs., support the main frame.

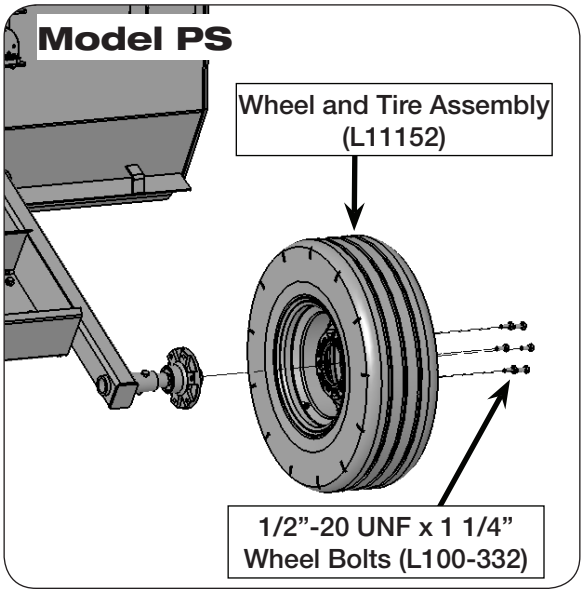
2. Using a safe lifting device rated for at least 100 lbs., attach wheel and tire assemblies to left and right hand side of the axle assembly.

   Model CS and CSX
   Use sixteen 9/16”-18UNF x 1 1/8” wheel bolts (L100-387)





   Model PS
   Use twelve 1/2”-20UNF x 1 1/4” wheel bolts (L100-332).



3. Torque hardware accordingly. Refer to “Wheel Nut Torque” in MAINTENANCE section.

Hydraulic Assembly

⚠ WARNING

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

IMPORTANT

- *Do not use any tape or thread sealant as all fittings have mechanical or o-ring seals. This prevents contamination from tape or thread sealants from entering the tractor's hydraulic system.*

NOTE: It is recommended to run the electrical harness with the hydraulic hoses when installing them.

NOTE: Refer to the PARTS section for fitting type, hose size, and length required.

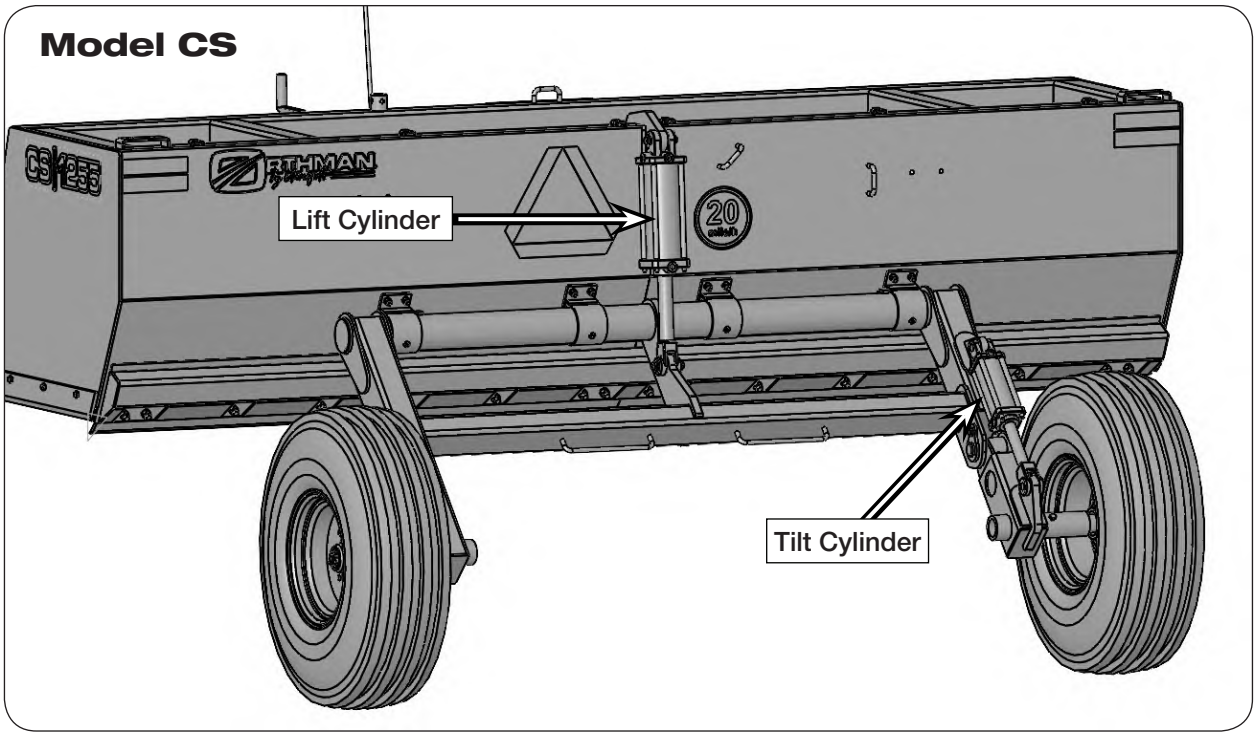
NOTE: Refer to Purging A Hydraulic System in this section for purging instructions and warnings after assembly of the hydraulic components is completed.

Hydraulic Assembly (continued)

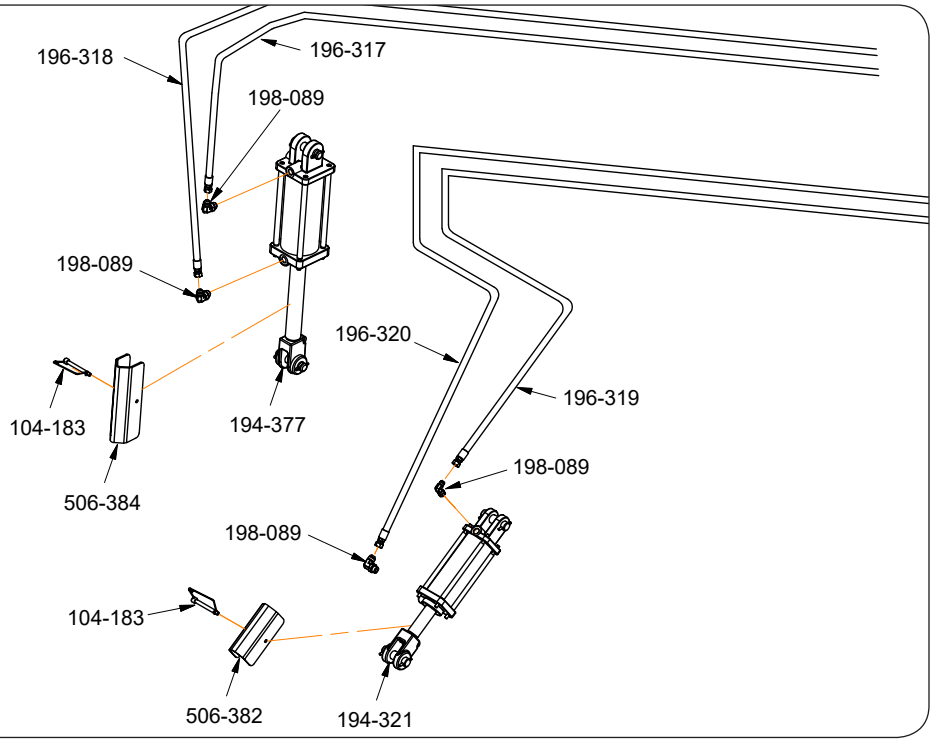
1. Using a safe lifting device and support stands rated at a minimum of 5,000 lbs., support the main frame.

2. **MODEL CS**
   Attach the lift cylinder and tilt axle arm cylinder. Route hoses from cylinders to front of scraper as shown below.

Model CS



Model CS Layout

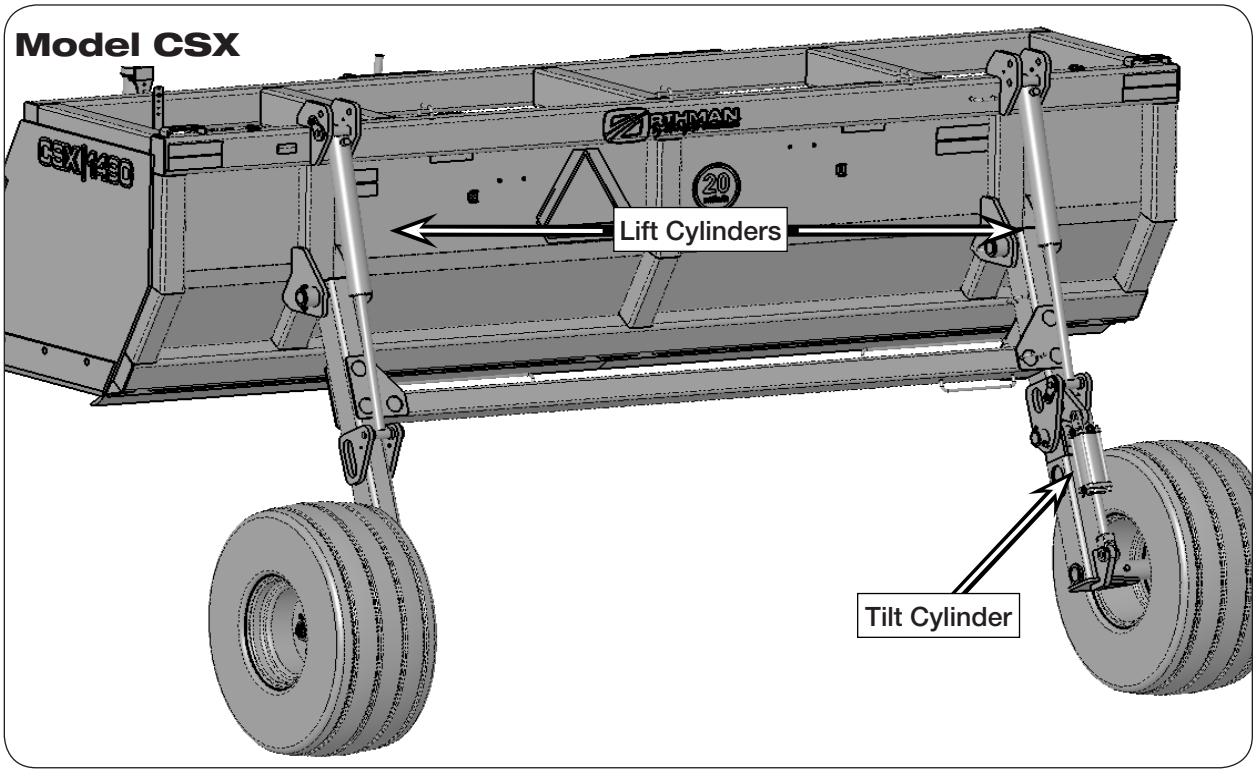


Hydraulic Assembly (continued)

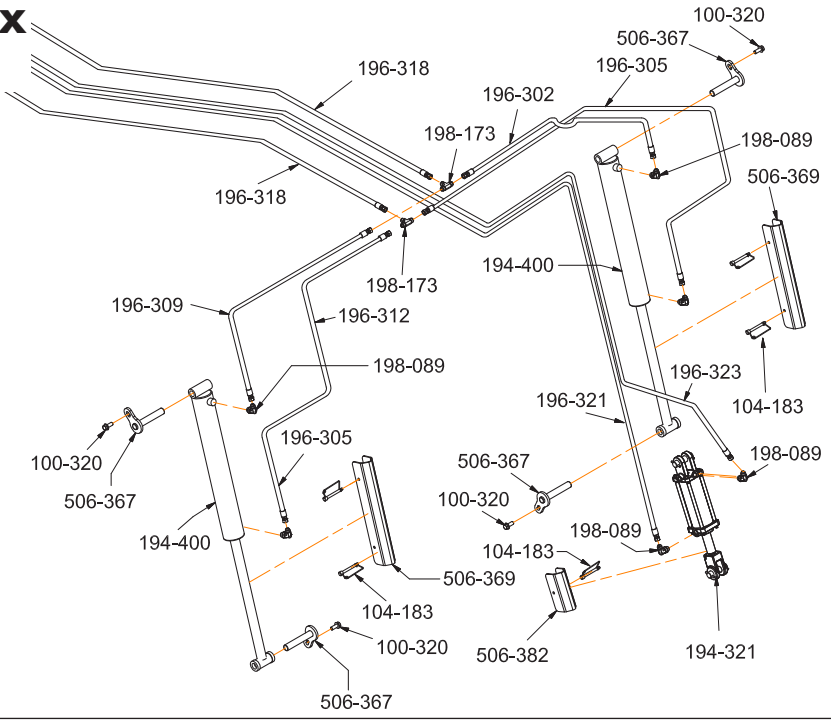
2. (continued)

Model CSX
Attach the lift cylinder and tilt axle arm cylinder. Route hoses from cylinders to front of scraper as shown below.

Model CSX



Model CSX Layout

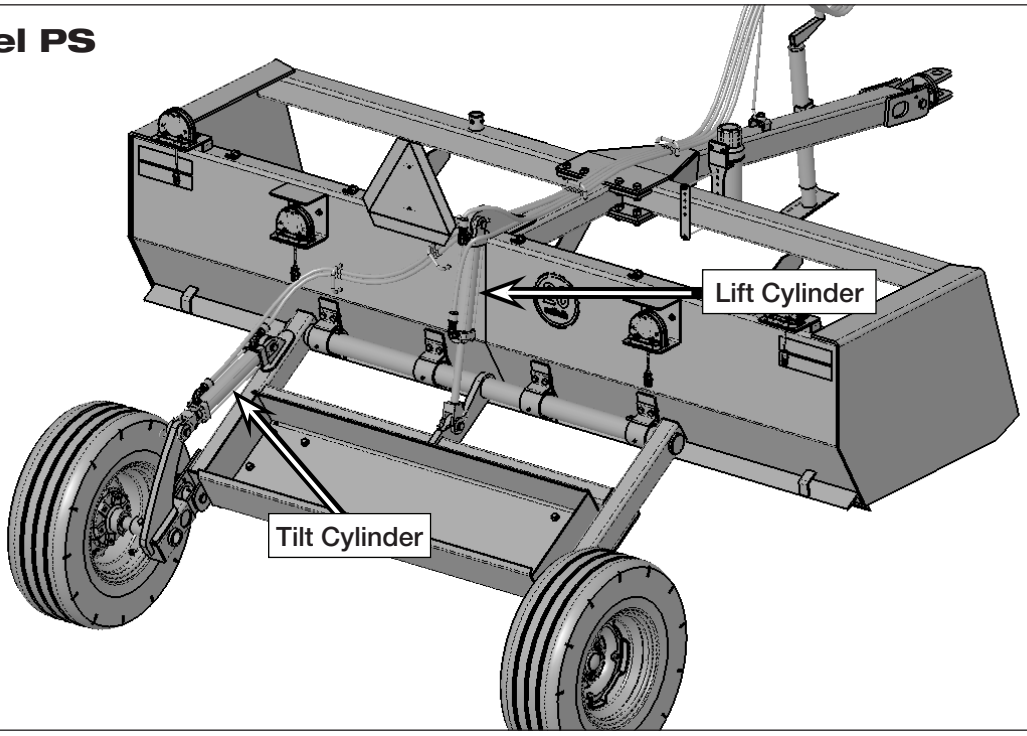


Hydraulic Assembly (continued)

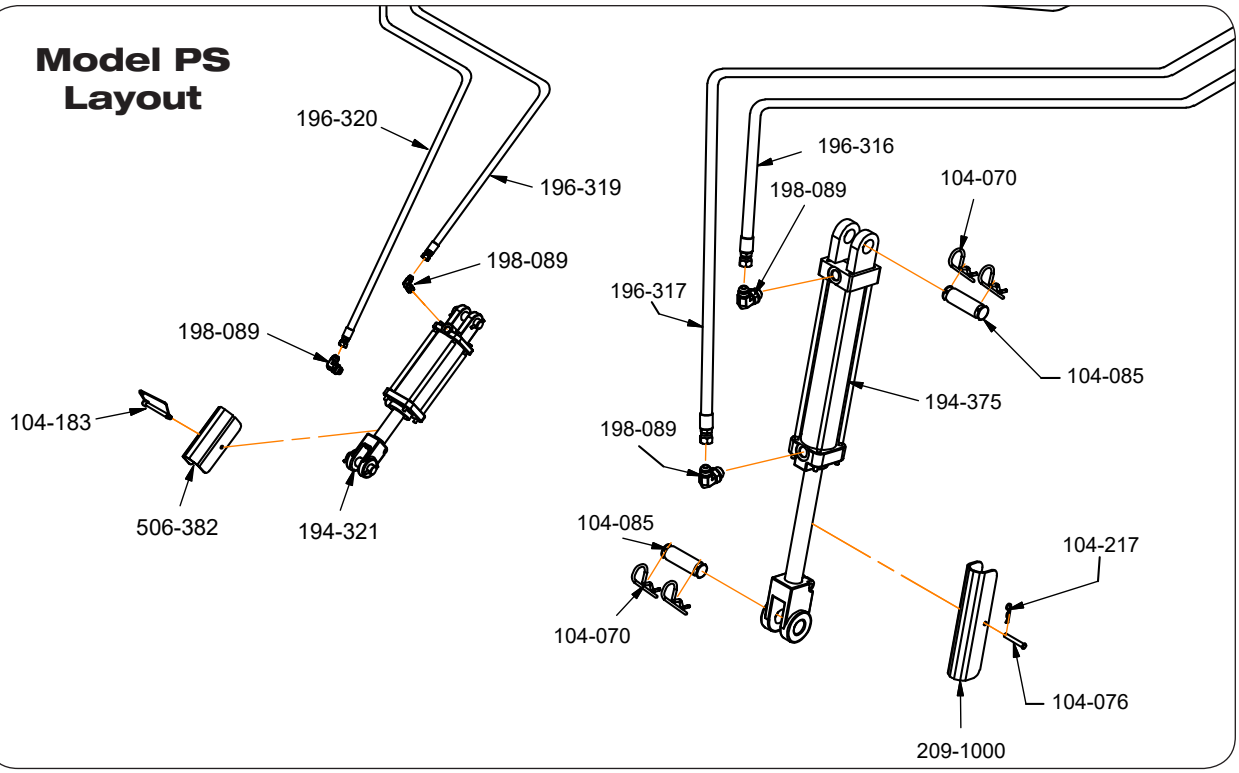
2. (continued)

Model PS
Attach the lift cylinder. Route hoses from cylinders to front of scraper as shown below.

Model PS



Model PS Layout



Hydraulic Assembly (continued)

Purging A Hydraulic System

⚠ WARNING

- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **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. Purge air from system as follows:

   A. Clear all personnel and objects from the area, including where the machine will have full range of motion during the hydraulic movement.

   B. Pressurize the system and maintain the system at full pressure for at least 5 seconds after the cylinder rods stop moving. Check that all cylinders have fully extended or retracted.

   C. Check oil reservoir in the hydraulic power source and refill as needed.

   D. Pressurize the system again to reverse the motion of step B. Maintain pressure on the system for at least 5 seconds after the cylinder rods stop moving. Check that all cylinders have fully extended or retracted.

   E. Check for hydraulic oil leaks using cardboard or wood. Tighten connections according to directions in the Torque Specifications in the MAINTENANCE section.

   F. Repeat steps in B, C, D, and E 10-12 times.

Transport Lighting & Markings

Compliance with all lighting and marking laws is the responsibility of the operator at the time of travel.

See federal regulation 49 CFR 562; available at www.govinfo.gov for US federal law requirements.

See your Unverferth dealer for additional brackets, reflectors, or lights to meet your requirements.

Route wiring harness along the tongue to the tractor.

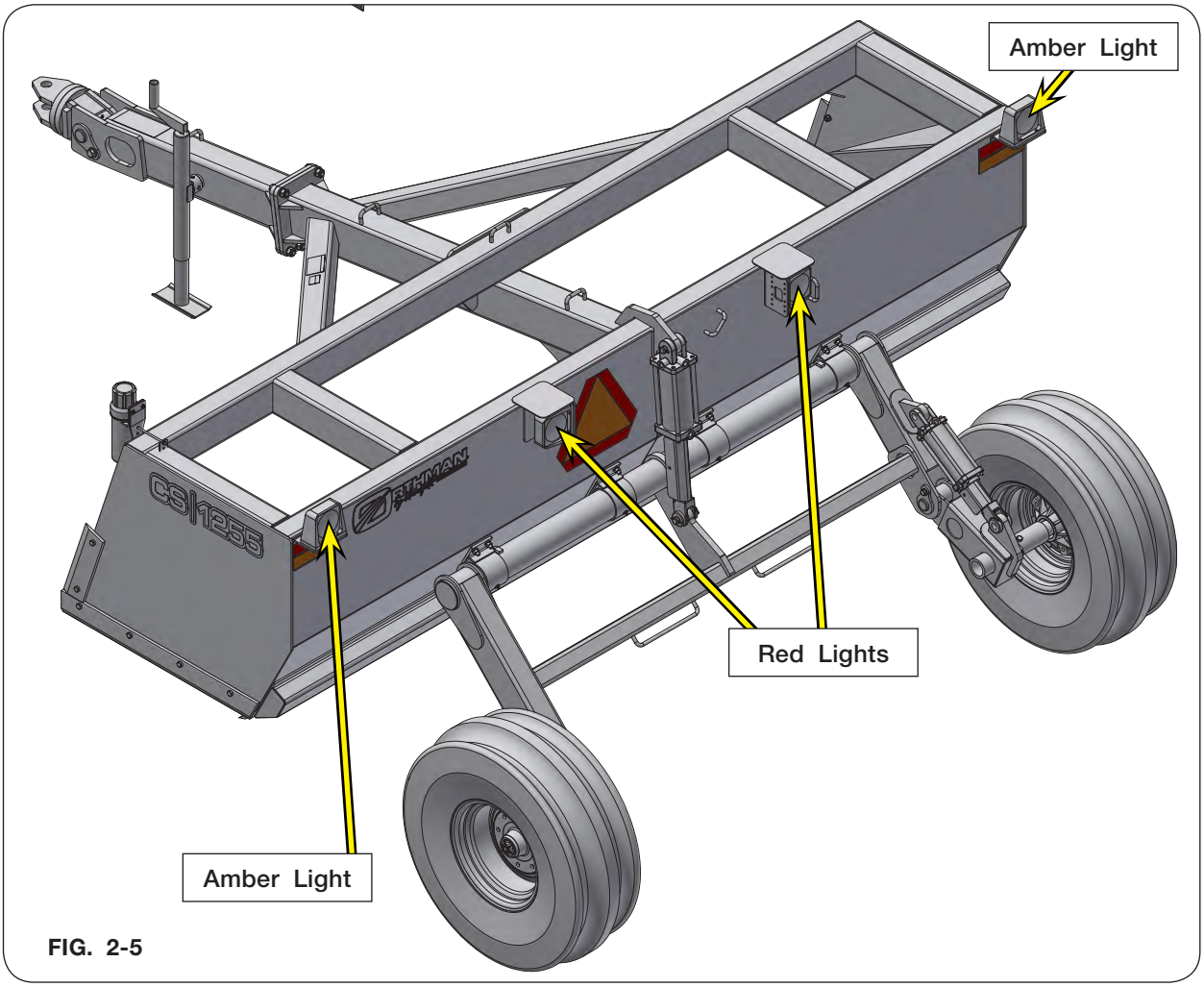


FIG. 2-5

Notes

SECTION III
Operation

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

Follow these recommendations if the implement will be connected directly to a tractor.

Before operating implement refer to tractor operator's manual for information concerning safe methods of operation, hydraulics, hitch adjustment, tire inflation, wheel adjustments, and tractor weights.

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

Check tractor hydraulic oil reservoir and add oil if needed.

Be sure tractor drawbar has sufficient capacity to operate the implement.

Secure the tractor 3-Point linkage so that it does not swing into the tractor tires or onto the hoses.

Preparing Scraper

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.

⚠ CAUTION

- **IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. WHEEL NUTS/BOLTS MUST BE CHECKED REGULARLY. SEE TORQUE PAGE IN THE "MAINTENANCE" SECTION FOR PROPER WHEEL NUT/BOLT SPECIFICATIONS. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty. Tire manufacturers' phone numbers and web sites are listed in the "MAINTENANCE" Section of this manual for your convenience.

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.

Hydraulics

Check routing of all hydraulic hoses. Hoses should not be kinked, twisted, or rubbing against sharp edges. Hoses should be secure with tie straps.

Check hoses and fittings for hydraulic leaks. Tighten or replace as required.

Lubrication

Lubricate unit as outlined in MAINTENANCE section.

Tire Pressure

Check tire pressure, see "MAINTENANCE" section for recommended air pressure. Be sure tire pressure is equal in all tires.

Attaching Scraper to Tractor

Field Adjustments

1. Before field use, raise or lower tractor drawbar so that the frame of the scraper is level when lowered into the scraping position.

2. When loading the scraper, it is best to maintain a ground speed of 3-6 mph and take a small even cut. A deep cut will usually result in loss of ground speed as loading is completed and thus an uneven work site.

3. To unload and plane over a large area:
   Gradually lift the scraper to desired finish depth and continue forward movement to spread the material over a large area

4. To unload in a pile:
   Slow ground speed and totally lift the scraper to dump the material in a pile.

5. If the scraper is equipped with tilt, it may be used to precisely shape the work site. This is especially useful in crowning roadways or forming waterways.

Adjustable Tilt Axle

If applicable, the adjustable tilt axle allows the scraper to be lowered on either side to cut deeper.

Swivel Hitch

Allows the scraper to twist at the hitch point. A swivel hitch is required when using the adjustable tilt axle.

Capacity

Model Number	CS 1255	CS 1465	CSX 1050	CSX 1270	CSX 1490	PS 820	PS 1025	PS 1230
Capacity (heaped)	5.5 cu yd	6.5 cu yd	5 cu yd	7 cu yd	9 cu yd	2 cu yd	2.5 cu yd	3 cu yd

Horsepower Requirements

Model Number	CS 1255	CS 1465	CSX 1050	CSX 1270	CSX 1490	PS 820	PS 1025	PS 1230
Horsepower Requirements	150-200 HP	175-225 HP	150-225 HP	175-250 HP	200-275 HP	40-80 HP	100-125 HP	125-150 HP

Hydraulic Hook-Up

⚠ WARNING

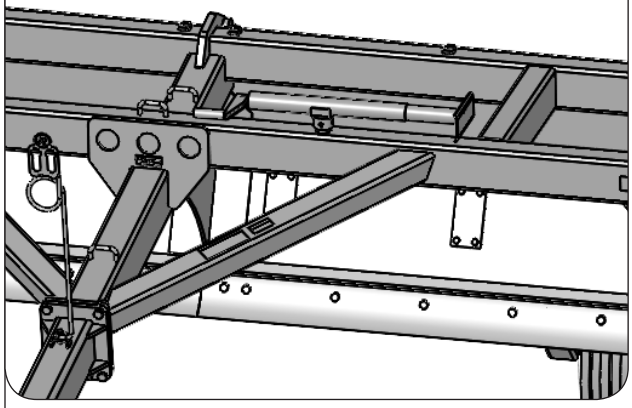
- **ALWAYS RELIEVE HYDRAULIC SYSTEM PRESSURE BEFORE DISCONNECTING HOSES FROM TRACTOR OR SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HYDRAULIC CYLINDERS MUST BE PURGED BEFORE HYDRAULIC SYSTEMS MAY BE USED. FAILURE TO DO THIS COULD RESULT IN SERIOUS INJURY.**

NOTE: Refer to SET UP section for purging process.

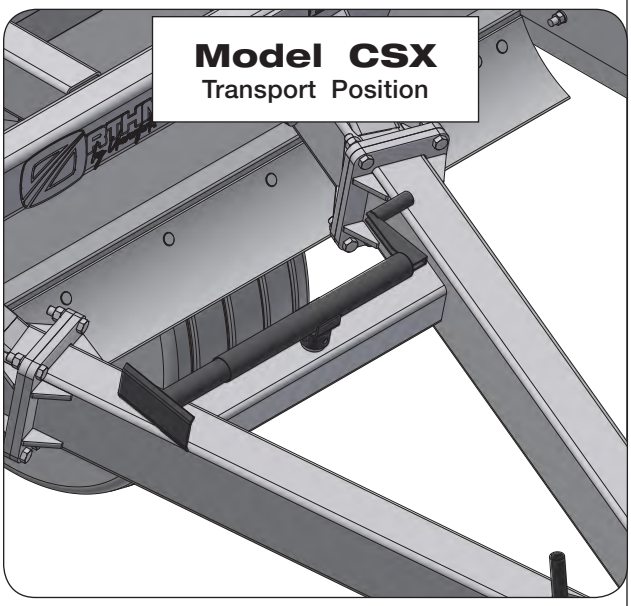
Transporting

Before unit is transported, be sure the jack stand is in the "Transport Position".

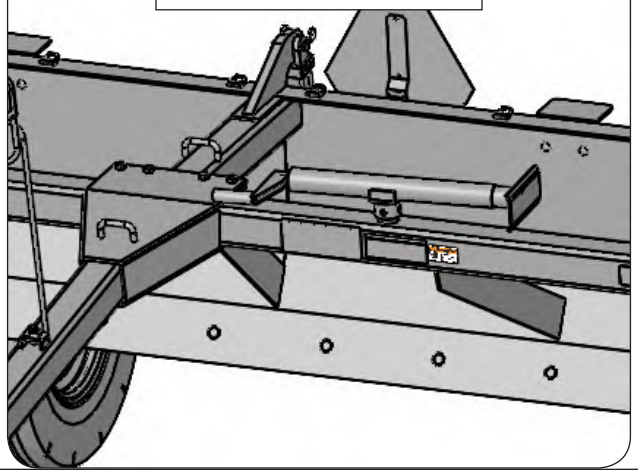
Model CS
Transport Position



Model CSX
Transport Position



Model PS
Transport Position



Transporting (continued)

CAUTION

- **INSTALL HYDRAULIC CYLINDER TRANSPORT LOCKS BEFORE TRANSPORTING.**

Comply with all laws governing highway safety and regulations when moving machinery on public roads.

Be sure SMV Emblem is in place and clearly visible on the rear of the implement. See SMV Emblem in SET UP section.

Install the transprot locks and tilt locks if equipped.

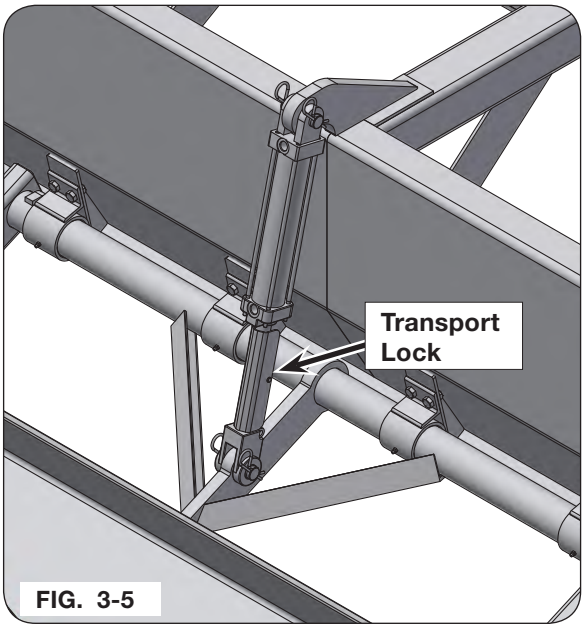


FIG. 3-5

CAUTION

• USE APPROVED ACCESSORY LIGHTS AND REFLECTORS WHEN TRANSPORTING AT NIGHTS, DURING PERIODS OF POOR VISIBILITY, AND AS REQUIRED BY ALL LAWS.

Compliance with all lighting and marking laws is the responsibility of the operator at the time of travel.

See federal regulation 49 CFR 562; available at www.govinfo.gov for US federal law requirements.

See your Unverferth dealer for additional brackets, reflectors, or lights to meet your requirements.

Notes

SECTION IV
Maintenance

Storage

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.

Do the following before placing the implement in storage:

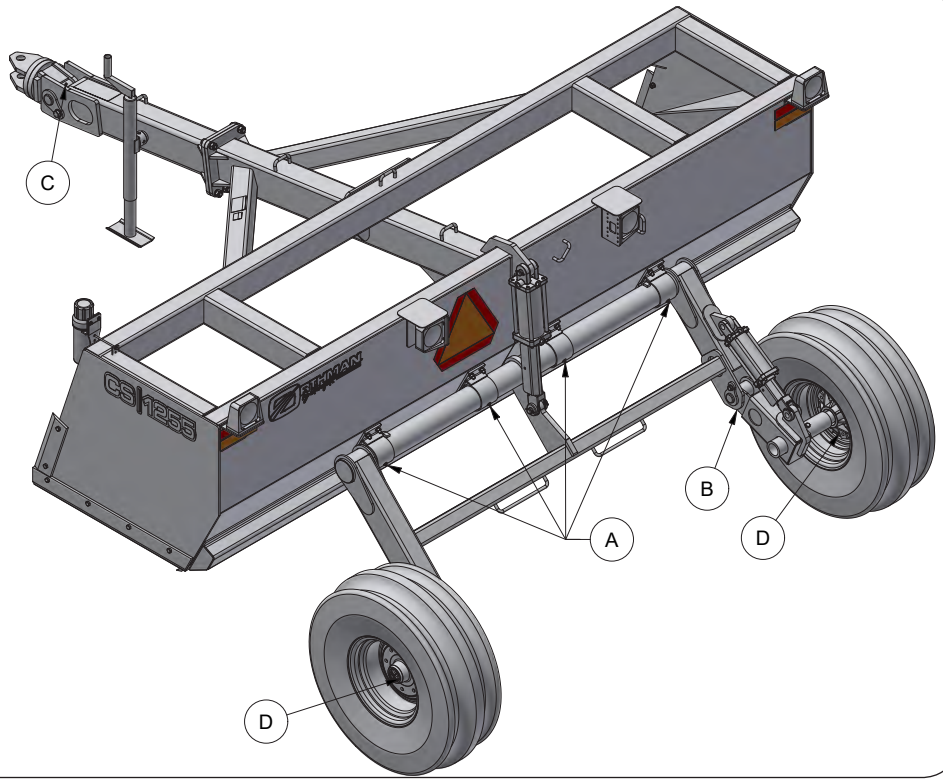
1. Remove dirt and trash which could cause rusting.
2. Repaint any chipped or scraped areas.
3. Coat all earth moving surfaces with grease or suitable rust preventative.
4. Inspect for damage or worn parts, replace before next season.
5. Store implement inside, away from livestock.
6. Block up implement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

Lubrication

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

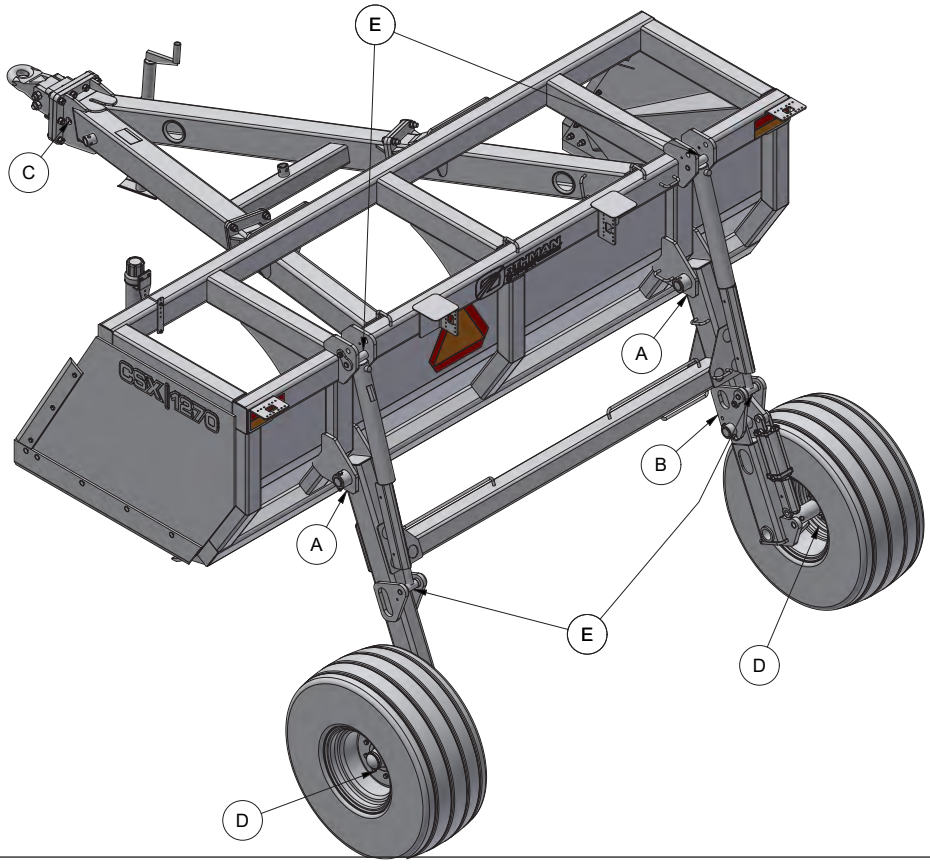
ITEM	DESCRIPTION	POINT	QTY.	HOURS
A	Axle Pivot Arm	4	2 Shots	Weekly
B	Tilt Axle Arm	1	1 Shot	Weekly
C	Hitch	1	2 Shots	Weekly
D	Wheel Hubs	2	Repack	Once Every Season
E	Cylinder Ends	4	1 Shot	Daily

Model CS

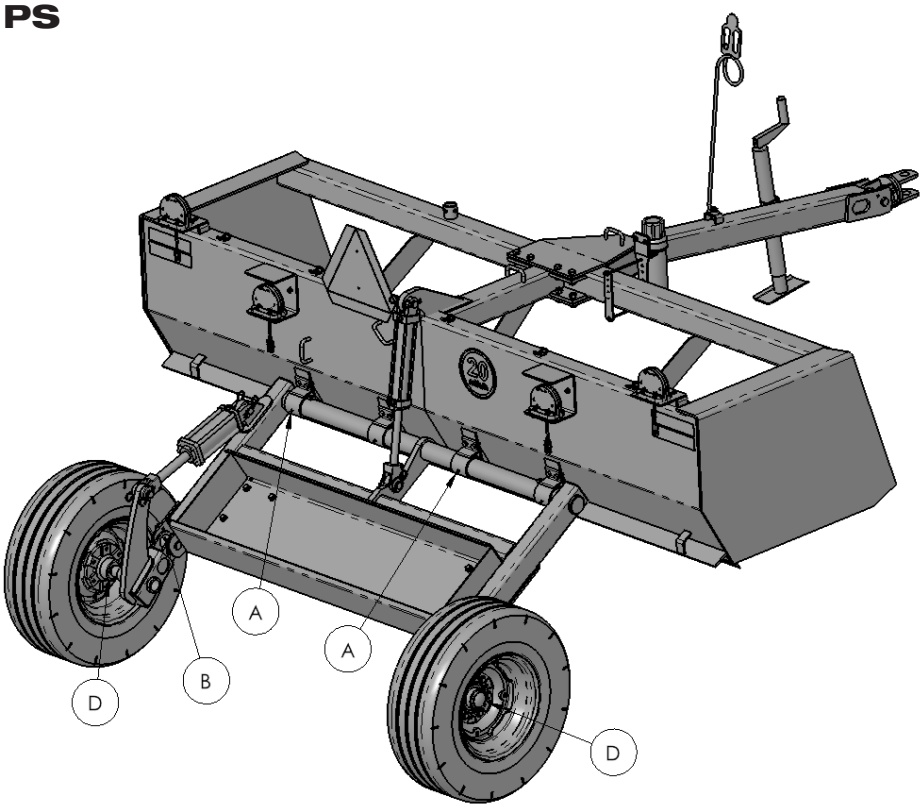


Lubrication (continued)

Model CSX



Model PS



CS and CSX Model 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. Park the implement on a firm, level surface and un-hitch from the tractor.
2. Use safe lifting and load holding devices rated for a minimum of 5,000 lbs. to support the weight of the implement.
3. Remove the wheel and tire from the unit, then remove the spindle capscrew and lock nut. (Fig. 4-1)
4. Remove the hub and spindle assembly from the unit.
5. Remove the hub cap, cotter pin, castle nut and washer from the hub. (Fig. 4-2)

FIG. 4-1

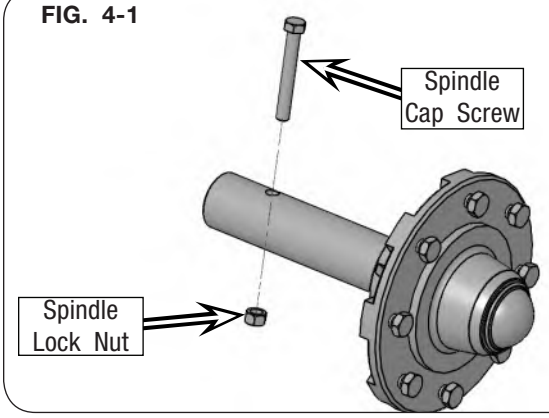
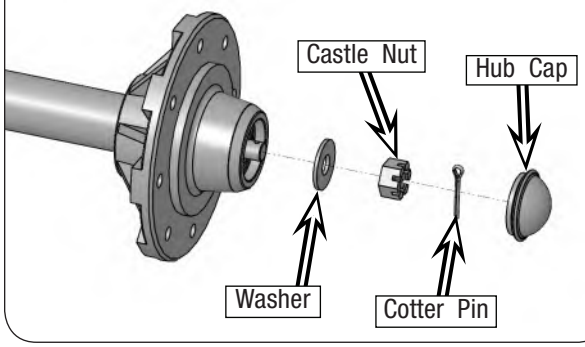


FIG. 4-2



CS and CSX Model Hub Disassembly and Assembly

6. Remove the hub from the spindle, then remove the inner seal, both bearing cones, and bearing cups from the hub. (Fig. 4-3 and 4-4)

7. Inspect parts for wear or damage and replace if neccesary.

8. Pack the bearings with an approved grease then install both bearing cups, bearing cones and the inner seal into the hub, then install the hub onto the spindle. (Fig. 4-3 and 4-4)

9. Install the washer, castle nut, cotter pin and hub cap onto the hub and spindle assembly. (Fig. 4-2)

10. Install the spindle and hub assembly onto the unit, then install the wheel and tire assembly. (Fig. 4-1)

11. Torque all hardware to the specification listed in the maintenance section.

FIG. 4-3

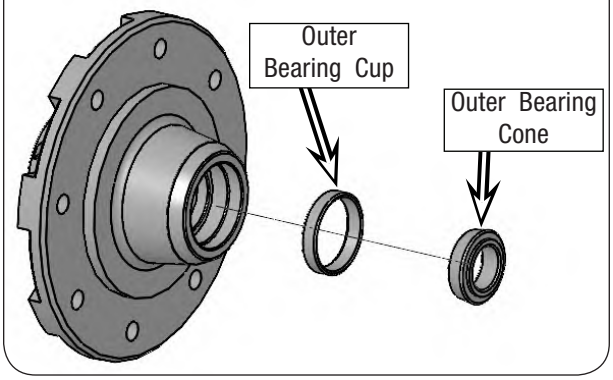
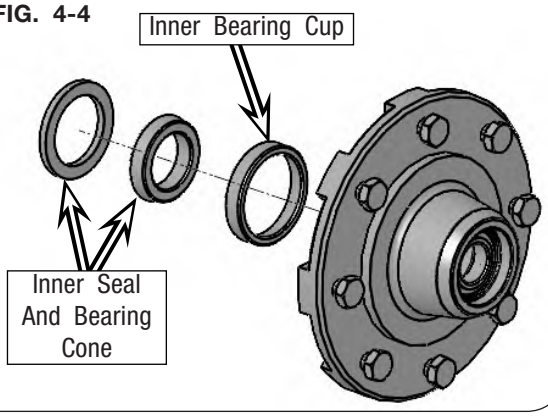


FIG. 4-4



PS Model 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. Park the implement on a firm, level surface and un-hitch from the tractor.
2. Use safe lifting and load holding devices rated for a minimum of 2,000 lbs. to support the weight of the implement.
3. Remove the wheel and tire from the unit, then remove the spindle capscrews and lock nuts. (Fig. 4-5)
4. Remove the hub and spindle assembly from the unit.
5. Remove the hub cap, cotter pin, castle nut and outer washer from the hub. (Fig. 4-6)

FIG. 4-5

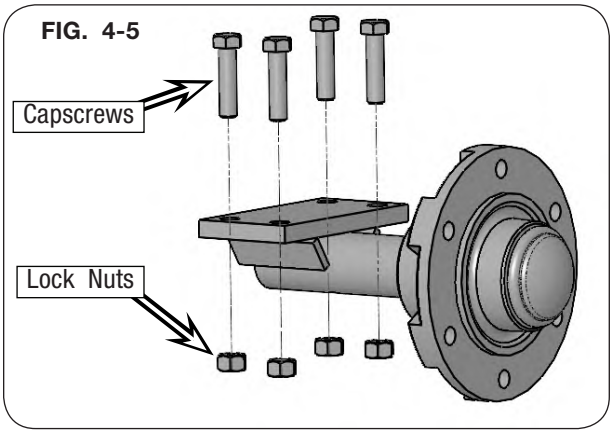
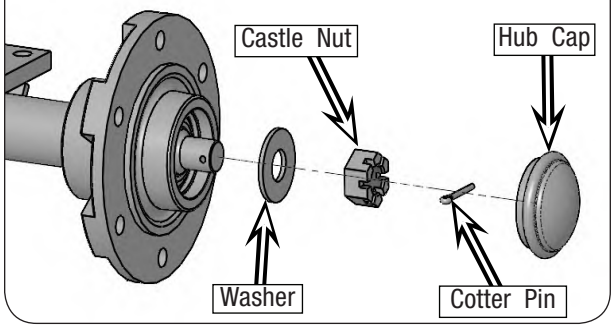


FIG. 4-6



PS Model Hub Disassembly and Assembly

6. Remove the hub from the spindle, then remove the inner seal, both bearing cones, and bearing cups from the hub. (Fig. 4-7 and 4-8)

7. Inspect parts for wear or damage and replace if neccesary.

8. Install both bearing cups, bearing cones and the inner seal into the hub, then install the hub onto the spindle. (Fig. 4-7 and 4-8)

9. Install the washer, castle nut, cotter pin, and hub cap onto the hub and spindle assembly. (Fig. 4-6)

10. Install the spindle and hub assembly onto the unit, then install the wheel and tire assembly. (Fig. 4-5)

11. Torque all hardware to the specification listed in the maintenance section.

FIG. 4-7

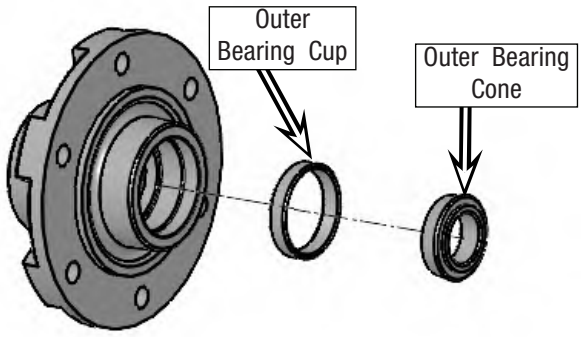
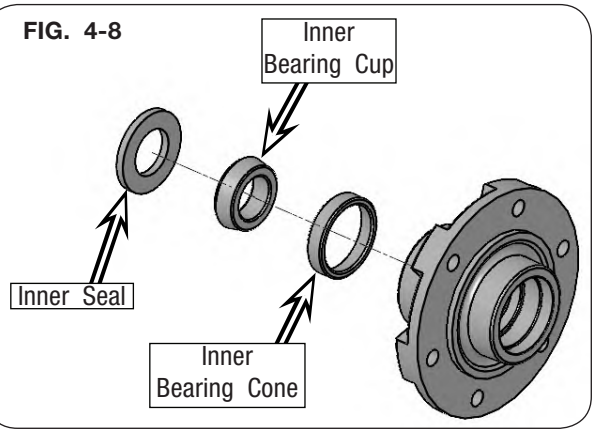


FIG. 4-8



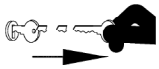
Hydraulic Cylinder Removal and Installation

⚠ 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.**
- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE "RELIEVING HYDRAULIC PRESSURE" IN "MAINTENANCE" SECTION OF THIS MANUAL.**

For CS Model Scrapers

1. Park the tractor and implement on a firm level surface, then lower the implement until all load is taken off of the hydraulic cylinders.
2. Block the tires and remove the key from the tractor.



3. Remove the hydraulic hoses from the upper and lower hydraulic cylinders and cover the ends of the hoses and fittings to protect from debris.
4. Remove the cotter pins and cylinder pins from the upper and lower hydraulic cylinders. (Fig. 4-9)
5. Remove the upper and lower hydraulic cylinders, then inspect parts for wear or damage and replace if neccesary. (Fig. 4-10)
6. Install the upper and lower hydraulic cylinders along with the cylinder pins and cotter pins. (Fig. 4-9 and 4-10)
7. Install the hydraulic hoses onto the upper and lower hydraulic cylinders, then purge the hydraulic system and test for proper function.
8. Torque all hardware and fittings to the specification listed in the maintenance section.

FIG. 4-9

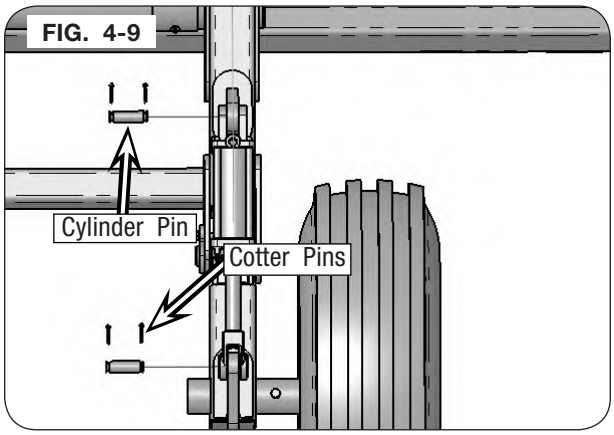
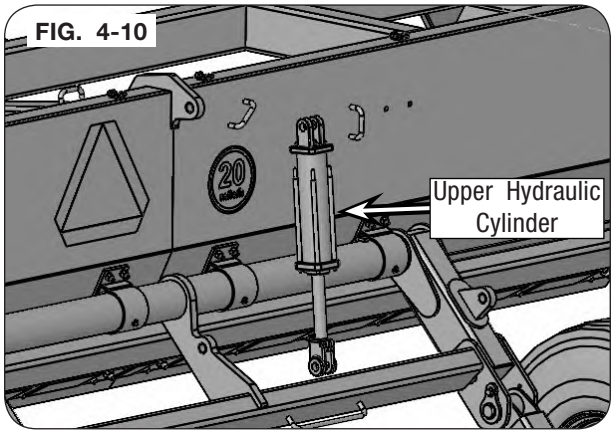


FIG. 4-10



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.**
- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE "RELIEVING HYDRAULIC PRESSURE" IN "MAINTENANCE" SECTION OF THIS MANUAL.**

For CSX Model Scrapers

1. Park the tractor and implement on a firm level surface, then lower the implement until all load is taken off of the hydraulic cylinders.
2. Block the tires and remove the key from the tractor.

3. Remove the hydraulic hoses from the upper and lower hydraulic cylinders and cover the ends of the hoses and fittings to protect from debris.
4. Remove the capscrews and cylinder pins from the upper hydraulic cylinders, then remove the upper hydraulic cylinder. (Fig. 4-11)
5. Remove the cotter pins and cylinder pins from the lower hydraulic cylinder, then remove the lower hydraulic cylinder. (Fig. 4-12)
6. Inspect parts for wear or damage and replace if neccesary.
7. Install the lower hydraulic cylinder, cylinder pins and cotter pins. (Fig. 4-12)
8. Install the upper hydraulic cylinders, cylinder pins and capscrews. (Fig. 4-11)
9. Install the hydraulic hoses onto the upper and lower hydraulic cylinders, then purge the hydraulic system and test for proper function.
10. Torque all hardware and fittings to the specification listed in the maintenance section.

FIG. 4-11

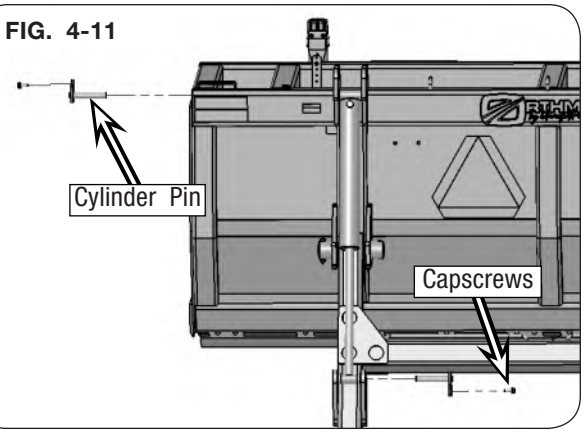
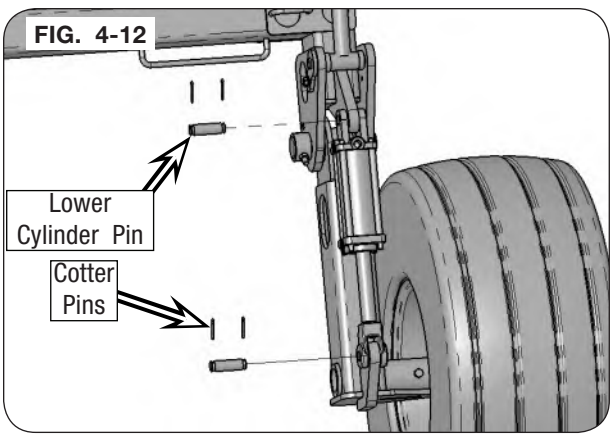


FIG. 4-12



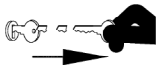
Hydraulic Cylinder Removal and Installation

⚠ 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.**
- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE "RELIEVING HYDRAULIC PRESSURE" IN "MAINTENANCE" SECTION OF THIS MANUAL.**

For PS Model Scrapers

1. Park the tractor and implement on a firm level surface, then lower the implement until all load is taken off of the hydraulic cylinders.
2. Block the tires and remove the key from the tractor.



3. Remove the hydraulic hoses from the hydraulic cylinder and cover the ends of the hoses and fittings to protect from debris.
4. Remove the cotter pins and cylinder pins from the hydraulic cylinder. (Fig. 4-13)
5. Remove the hydraulic cylinder and inspect parts for wear or damage and replace if neccesary. (Fig. 4-14)
6. Install the hydraulic cylinder, cylinder pin and cotter pins. (Fig. 4-13 and 4-14)
7. Install the hydraulic hoses onto the hydraulic cylinder, then purge the hydraulic system and test for proper function.
8. Torque all hardware to the specification listed in the maintenance section.

FIG. 4-13

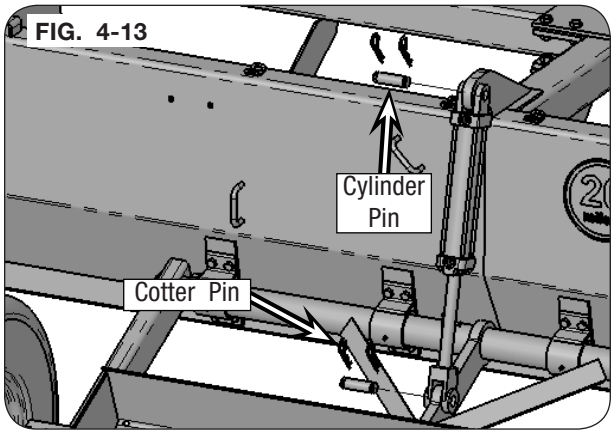
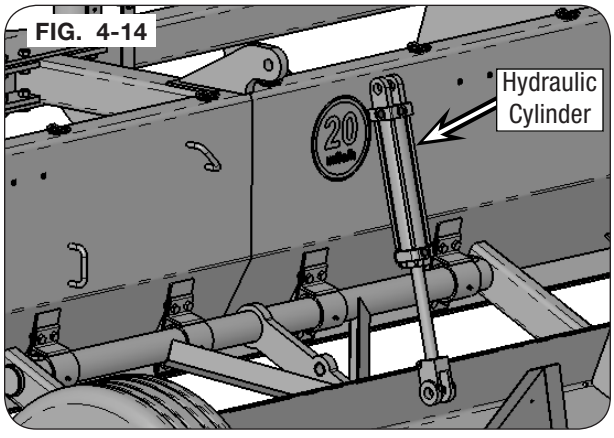


FIG. 4-14



Cutting Blade 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.**

For CS and CSX Model Scrapers

1. Park the implement on a firm, level surface and un-hitch from the tractor.
2. Install transport locks and use a safe lifting and load holding devices rated for a minimum of 5,000 lbs. to support the weight of the implement.
3. Remove the hex nuts and lock washers from the back side fo the center cutting baldes. (Fig. 4-15)
4. Use a safe lifting and load holding device rated for a minimum of 250 lbs. to support the center cutting blades, remove the plow bolts from the blade, then remove the blade from the implement. (Fig. 4-16 and 4-17)

FIG. 4-15

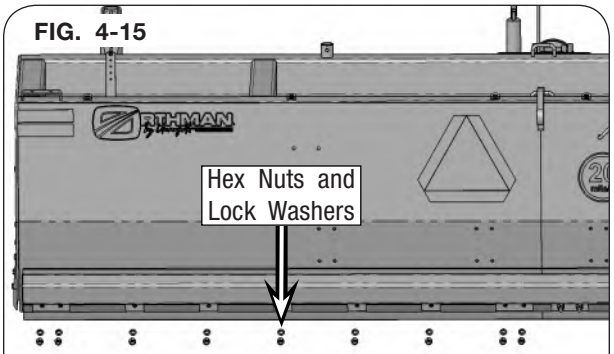


FIG. 4-17

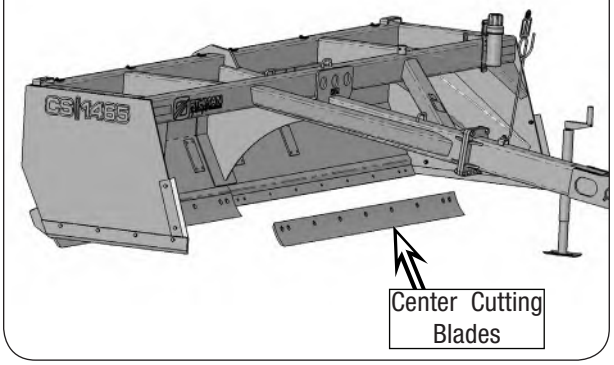
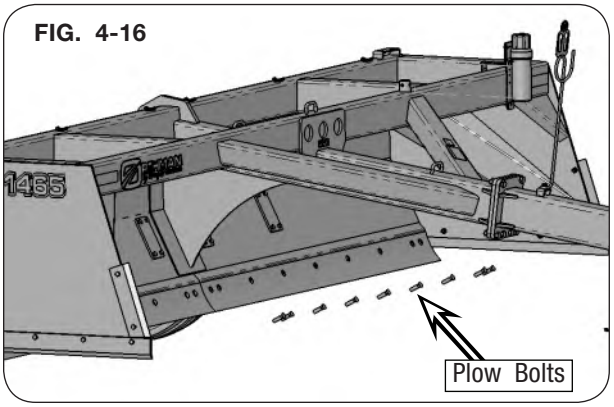


FIG. 4-16



Cutting Blade Removal and Installation

5. Use a safe lifting and load holding device rated for a minimum of 100 lbs. to support the side cutting blades, then remove the capscrews, hex nuts and lock washers. (Fig. 4-18)

6. Remove the side cutting blades. Inspect parts for wear or damage and replace if neccesary. (Fig. 4-19)

7. Install the side cutting blades with the capscrews, hex nuts and lock washers. (Fig. 4-18 and 4-19)

8. Install the center cutting blades with the capscrews, hex nuts, and lock washers. (Fig. 4-17 through 4-15)

9. Torque all hardware to the specification listed in the maintenance section.

FIG. 4-18

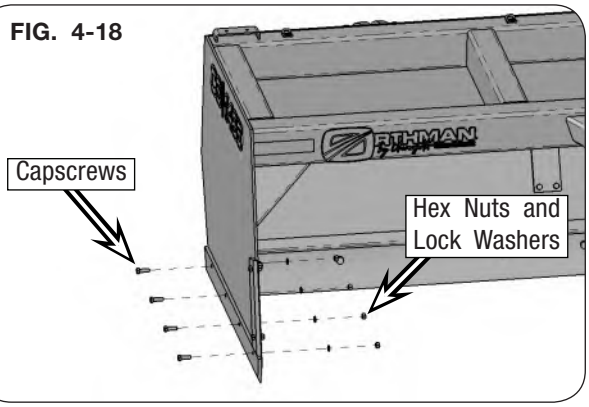
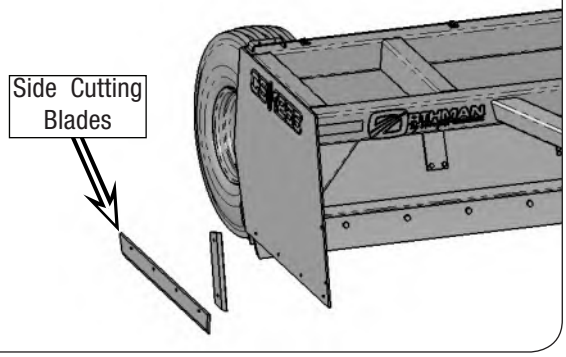


FIG. 4-19



Cutting Blade 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.**

For PS Model Scrapers

1. Park the implement on a firm, level surface and un-hitch from the tractor.
2. Install all transport locks and use safe lifting and load holding devices rated for a minimum of 5,000 lbs. to support the weight of the implement.
3. Use a safe lifting and load holding device rated for a minimum of 500 lbs. to support the cutting blade, then remove the hex nuts, lock washers and plow bolts from the cutting blade. (Fig. 4-20)
4. Remove the cutting blade from the implement. Inspect parts for wear or damage and replace if neccesary. (Fig. 4-21)
5. Install the cutting blade onto the implement using the plow bolts, lock washers and hex nuts. (Fig. 4-21 and 4-20)
6. Torque all hardware to the specification listed in the maintenance section.

FIG. 4-19

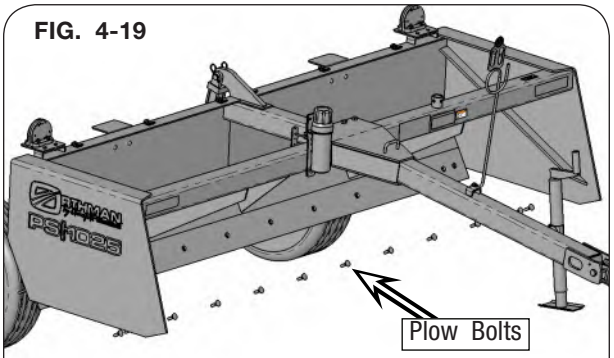
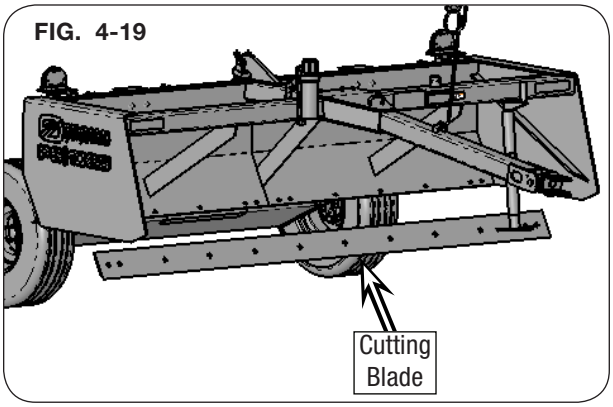


FIG. 4-19



Wheels and Tires

Wheel Nut Torque

⚠ CAUTION

- **IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. TORQUE WHEEL NUTS/BOLTS TO VALUES IN TABLE. CHECK TORQUE BEFORE INITIAL USE, AFTER ONE HOUR OF USE, AND EACH HOUR UNTIL WHEEL NUTS/BOLTS MAINTAIN TORQUE VALUE. CHECK TORQUE EVERY 10 HOURS OF USE THEREAFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

Failure to check torque before first use may damage wheel nut/bolt seats. Once seats are damaged, it will become impossible to keep nuts/bolts tight. Tighten nuts/bolts to the applicable torque value shown below. Start all nuts/bolts by hand to prevent cross threading. Torque nuts/ bolts in the recommended sequence as shown in Diagram 1 & 2.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
1/2-20 (UNF)	75 Ft.-Lbs.
9/16-18 (UNF)	110 Ft.-Lbs.

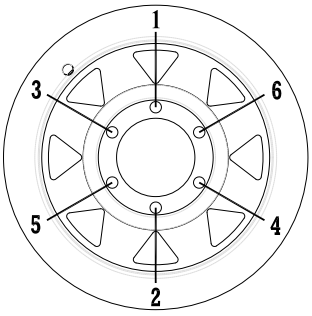


Diagram 1 - 6 Bolt

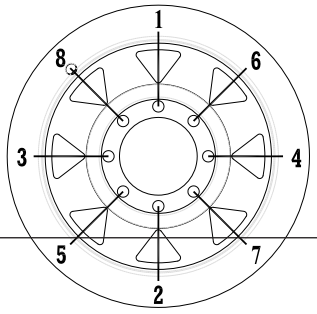


Diagram 2 - 8 Bolt

Tire Pressure

- The following is to be used as a general guide for tire inflation and figures can vary depending on specific brand of tire used. **It is important that tires are inspected after unit is loaded.** Start with minimum pressure indicated. The tire should stand up with no side-wall buckling or distress as tire rolls. Record the pressure needed to support the full load and maintain this pressure to achieve proper tire life. **Do not exceed maximum recommended tire pressure.**

MODELS	TIRE SIZE	PSI
CS		40
CSX	TL16.5LB16.1	36
PS	TLIF240/80R15	46

Wheels and Tires

Tire Warranty

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty. Following are phone numbers and Websites for your convenience:

Firestone	www.firestoneag.com Phone 800-847-3364
Continental/Mitas	www.mitas-tires.com Phone 704-542-3422 Fax 704-542-3474
Titan or Goodyear	www.titan-intl.com Phone 800-USA-BEAR Fax 515-265-9301
Carlisle/Ironman	www.carlisletire.com Phone 800-260-7959 Fax 800-352-0075
Carlisle	www.carlisletire.com Phone 800-260-7959 Fax 800-352-0075
Greenball	www.greenball.com Phone nearest location: California 800-937-5204 Georgia 800-283-4569 Florida 800-935-0200 Indiana 800-426-4068 Tennessee 800-946-9412 Ohio 800-840-7295 Pennsylvania 800-869-6787

Troubleshooting

Problem	Possible Cause	Corrective Action
Cylinder Will Not Hold In A Preset Position	Seals leaking internally	Remove and replace seal kit
Machine Cuts Unevenly	Cutting blade needs adjustment	Swap cutting blades side to side, or replace as necessary
	Improperly inflated tires	Check air pressure in tires. Refer to the tire pressure chart.
Machine Will Not Operate Properly With Tractor Hydraulics	Hoses are not plugged into the tractor properly	Refer to the SET UP section and tractor operator manual
Grease Zerk Will Not Take Grease	Grease zerk is plugged	Remove and replace grease zerk
	The pin is frozen	Remove and replace the pin

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 1/4-28	8-10 9-11	11-13 12-15
5/16-18 5/16-24	15-17 17-19	20-23 23-26
3/8-16 3/8-24	25-28 28-31	34-38 38-42
7/16-14 7/16-20	40-45 45-50	54-61 61-68
1/2-13 1/2-20	62-68 68-75	84-92 92-102
9/16-12 9/16-18	90-98 100-110	122-133 134-148
5/8-11 5/8-18	120-135 124-137	162-183 168-186
3/4-10 3/4-16	200-220 210-230	270-300 285-310
7/8-9 7/8-14	330-350 360-380	425-475 460-515
1-8 1-14	500-525 540-560	675-710 730-760
1 1/8-7 1 1/8-12	600-635 665-700	815-860 920-950
1 1/4-7 1 1/4-12	850-895 940-990	1150-1215 1275-1340
1 3/8-6 1 3/8-12	1125-1175 1280-1335	1525-1590 1735-1810
1 1/2-6 1 1/2-12	1500-1560 1685-1755	2035-2115 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 5/16-24	20-22 21-23	27-30 28-31
3/8-16 3/8-24	35-39 36-41	47-53 49-55
7/16-14 7/16-20	54-58 55-60	73-78 75-80
1/2-13 1/2-20	82-88 94-99	110-120 125-135
9/16-12 9/16-18	127-134 147-155	170-180 199-210
5/8-11 5/8-18	160-170 165-175	215-230 225-235
3/4-10 3/4-16	280-295 330-365	380-400 445-495
7/8-9 7/8-14	410-430 420-440	555-580 570-595
1-8 1-14	630-650 680-700	850-880 920-950
1 1/8-7 1 1/8-12	900-930 930-950	1220-1260 1260-1290
1 1/4-7 1 1/4-12	1250-1300 1280-1320	1695-1760 1735-1790

IMPORTANT

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

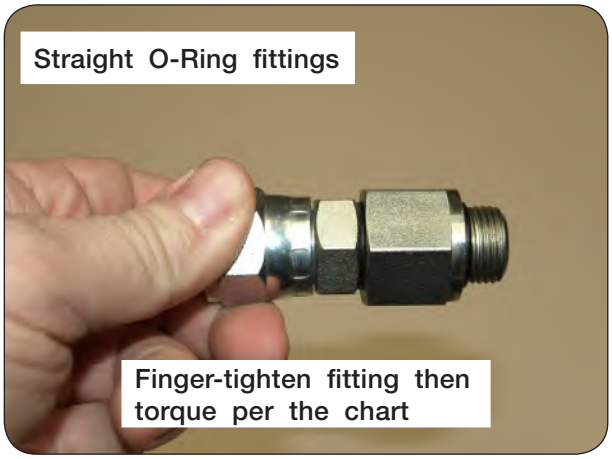
Hydraulic Fittings – Torque and Installation

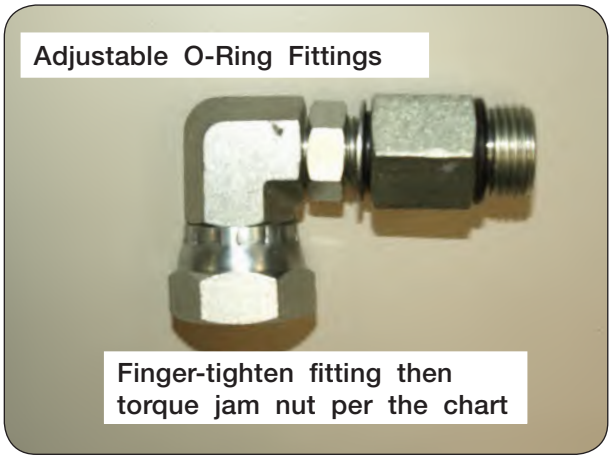
Tightening O-Ring Fittings

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.

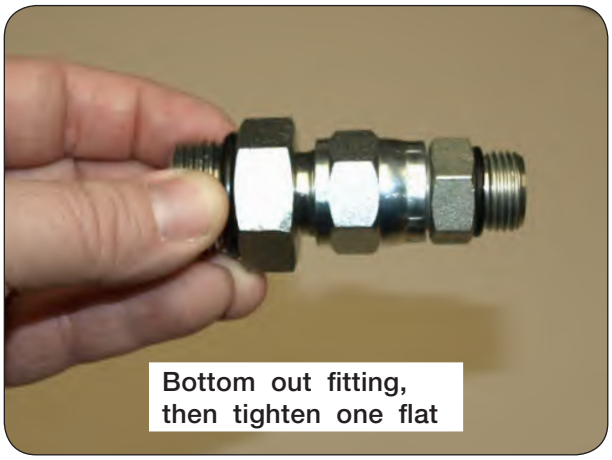
2. Lubricate the threads.

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

JIC fittings



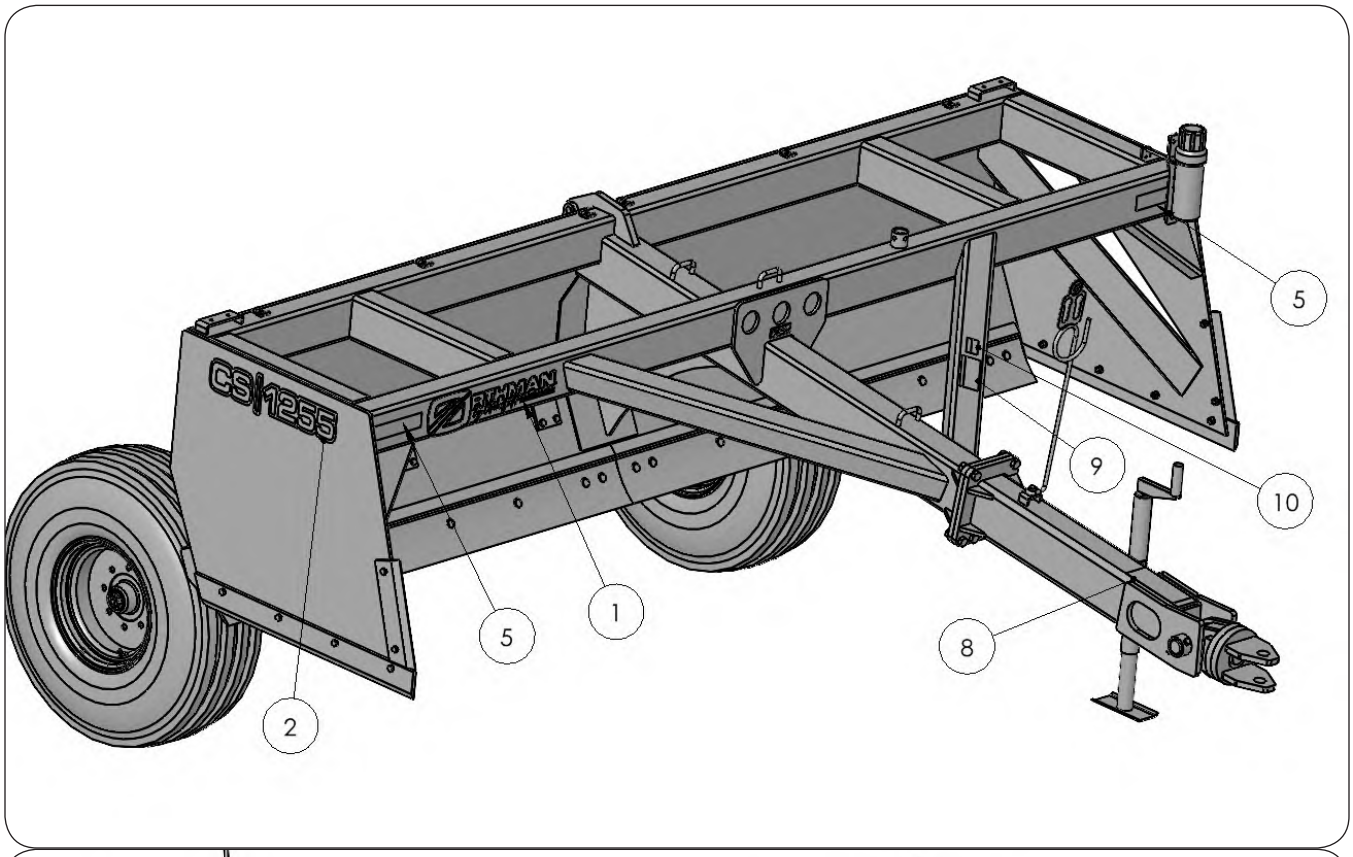
Bottom out fitting, then tighten one flat

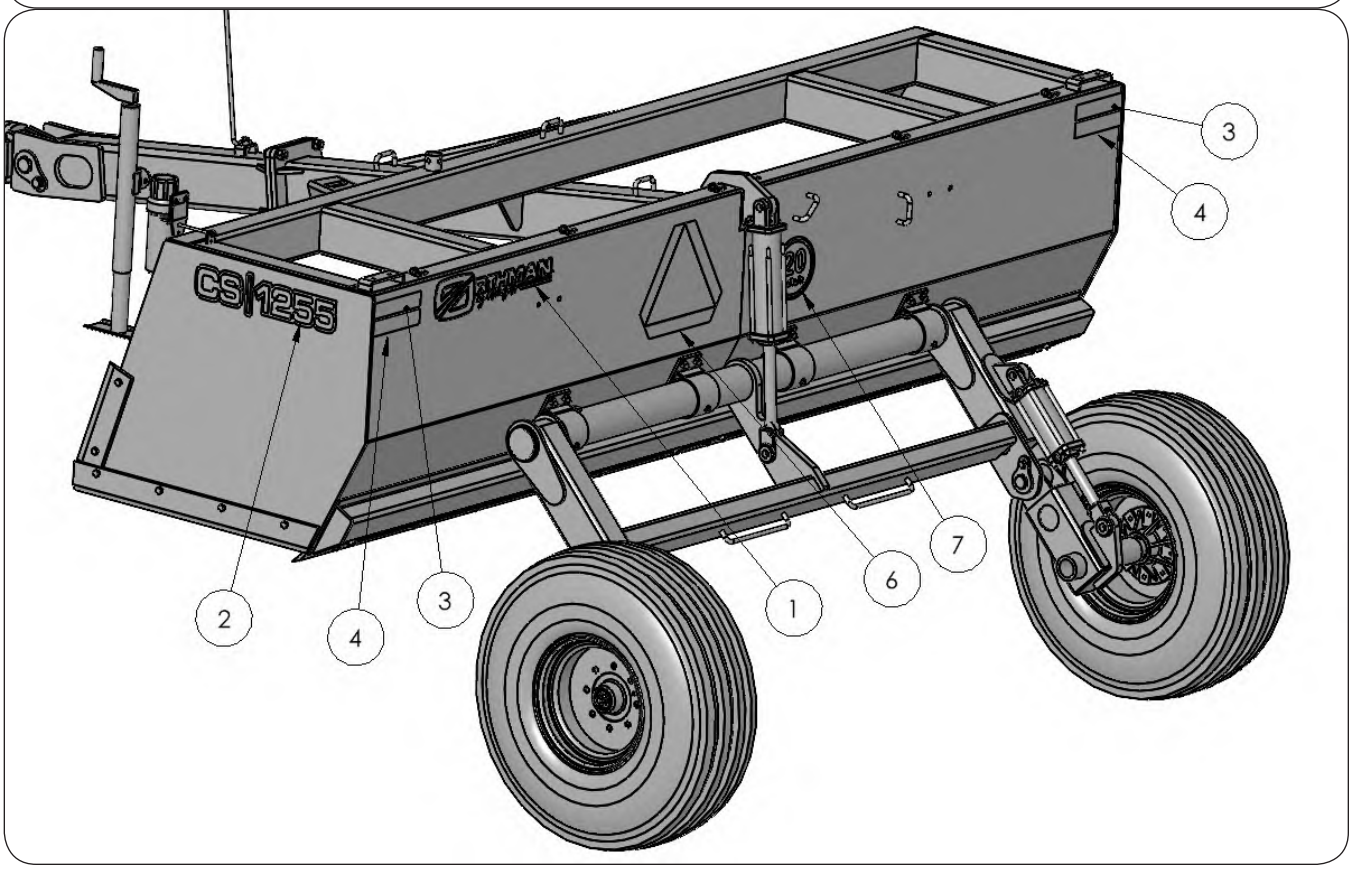
Notes

SECTION V
Parts

Decals - Model CS

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





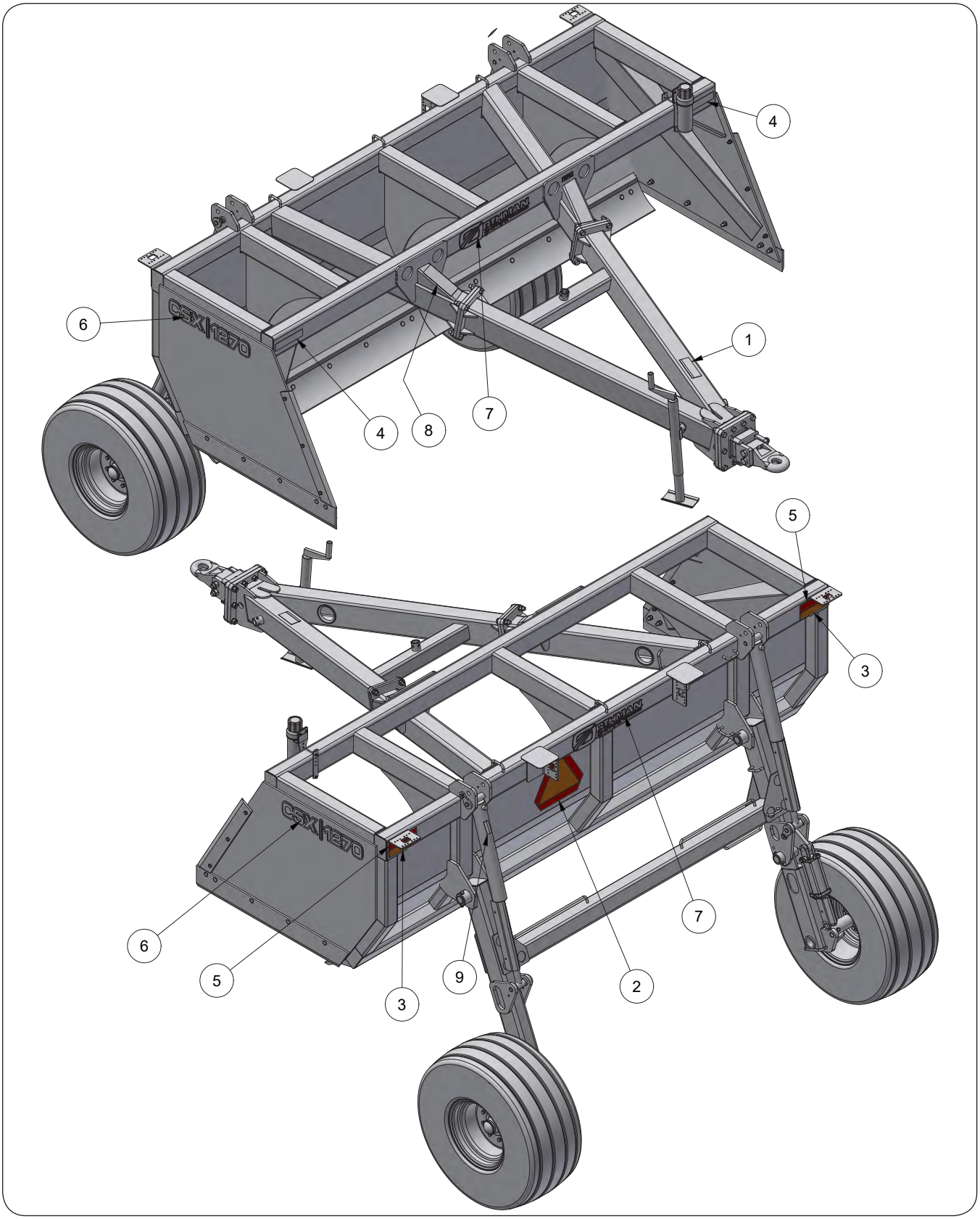
Decals - Model CS

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L153-460	Decal, Orthman by Unverferth	2	
2	L153-448	Decal, Model CS 1255	2	
	L153-449	Decal, Model CS 1465	2	
3	L153-173	Reflector, Red		
4	L153-171	Decal, Floreescent Orange	2	
5	L153-172	Reflector, Yellow	2	
6	L153-084	SMV Emblem	1	
7	9008714	SIS Decal	1	
8	L153-528	Decal, WARNING (Hydralic Pressure)	1	
9	L153-044	Decal, IMPORTANT (Read & Understand)	1	
10	L153-529	Decal, DANGER (Crush)	1	

Decals - Model CSX

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



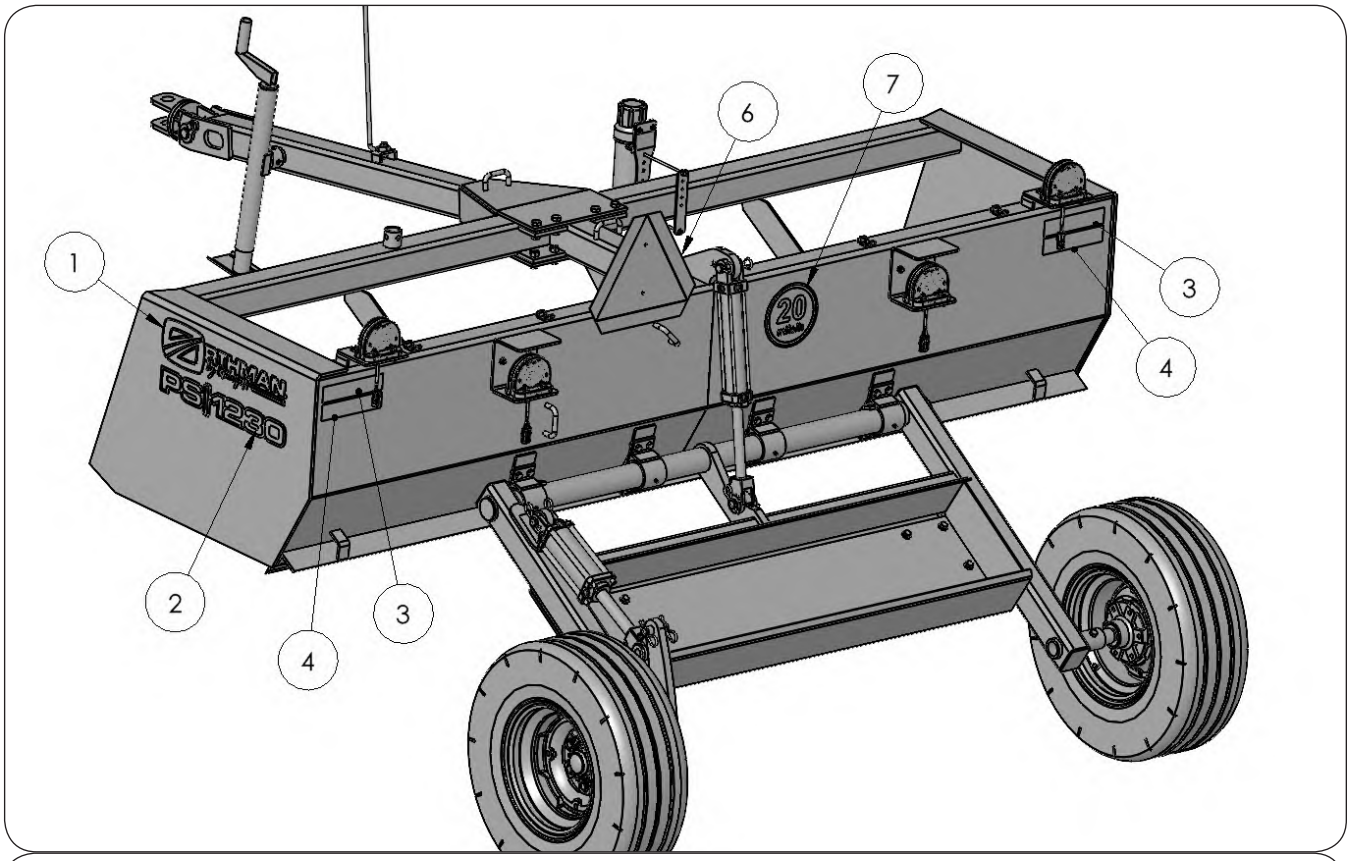
Decals - Model CSX

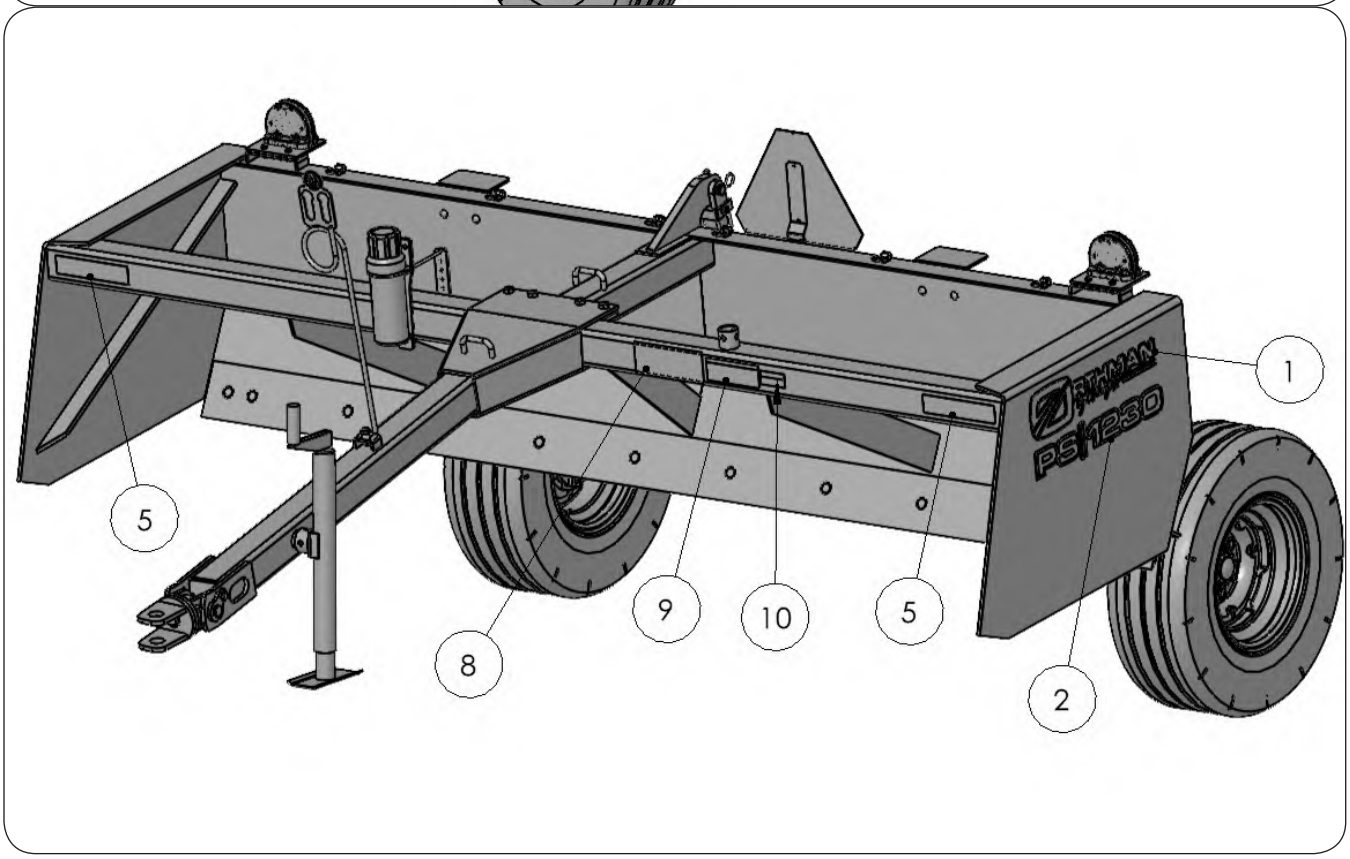
Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L153-044	Decal, IMPORTANT (Read & Understand)	1	
2	L153-084	SMV Emblem	1	
3	L153-171	Decal, Fluorescent Orange	2	
4	L153-172	Reflector, AMBER	2	
5	L153-173	Reflector, RED	2	
6	L153-450	Decal, Model CSX 1050	2	NOT SHOWN
	L153-451	Decal, Model CSX 1270		
	L153-452	Decal, Model CSX 1490		NOT SHOWN
7	L153-460	Decal, Orthman by Unverferth	2	
8	L153-528	Decal, WARNING (Hydraulic Pressure)	1	
9	L153-529	Decal, DANGER (Crush)	1	

Decals - Model PS

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





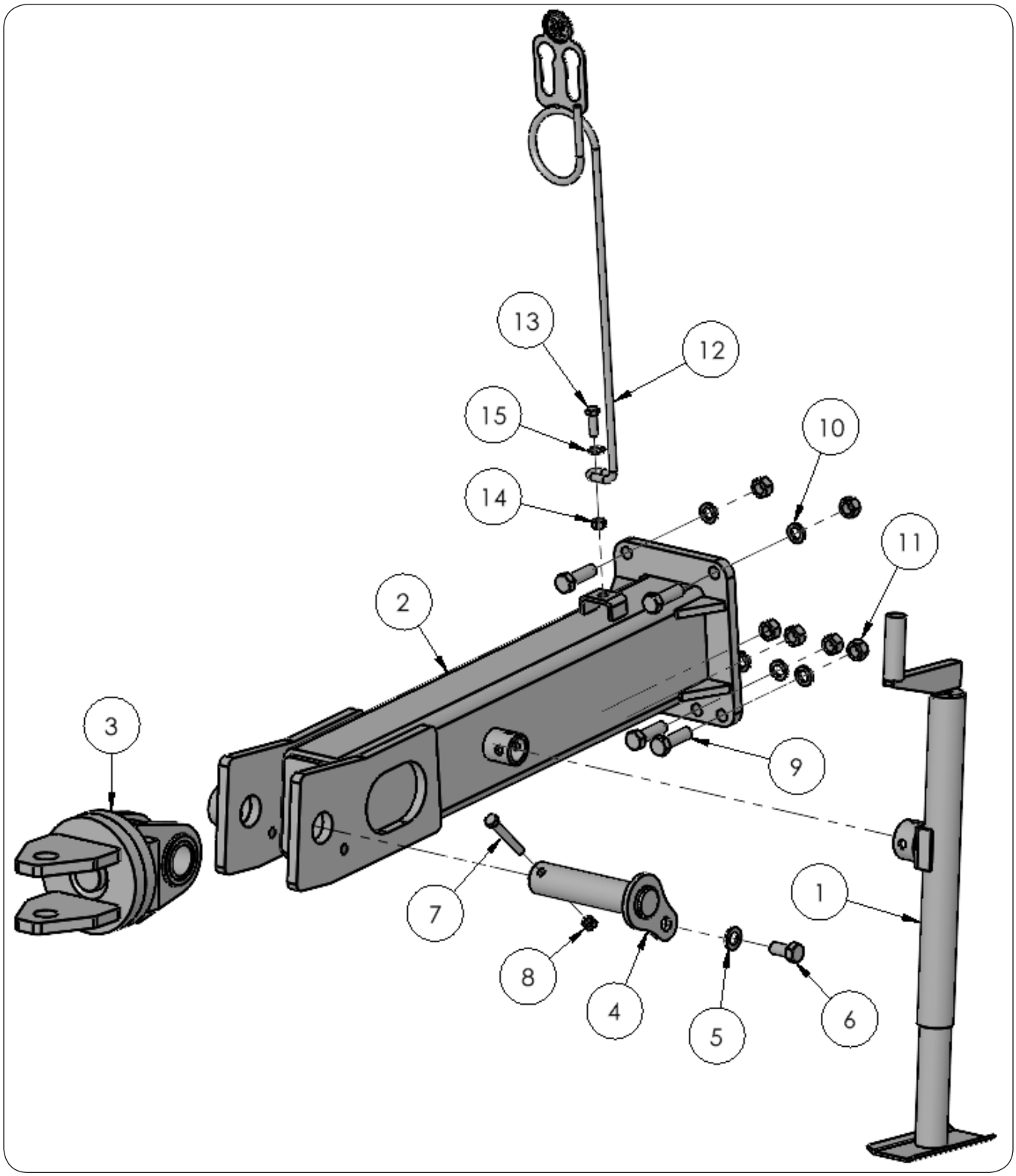
Decals - Model PS

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L153-460	Decal, Orthman by Unverferth	2	
2	L153-453	Decal, Model PS 820		
	L153-446	Decal, Model PS 1025	2	
	L153-447	Decal, Model PS 1230		
3	L153-173	Reflector, Red	2	
4	L153-171	Deacl, Florescent Orange	2	
5	L153-172	Reflector, Amber	2	
6	L505-448	SMv and Mounting Bracket	1	
7	9008714	SIS Decal	1	
8	L153-528	Deal, WARNING (Hydraulic Pressure)	1	
9	L153-044	Decal, IMPORTANT (Read and Understand)	1	
10	L153-529	Decal, DANGER (Crush)	1	

Tongue, Hitch, & Jack Stand Components - Model CS

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



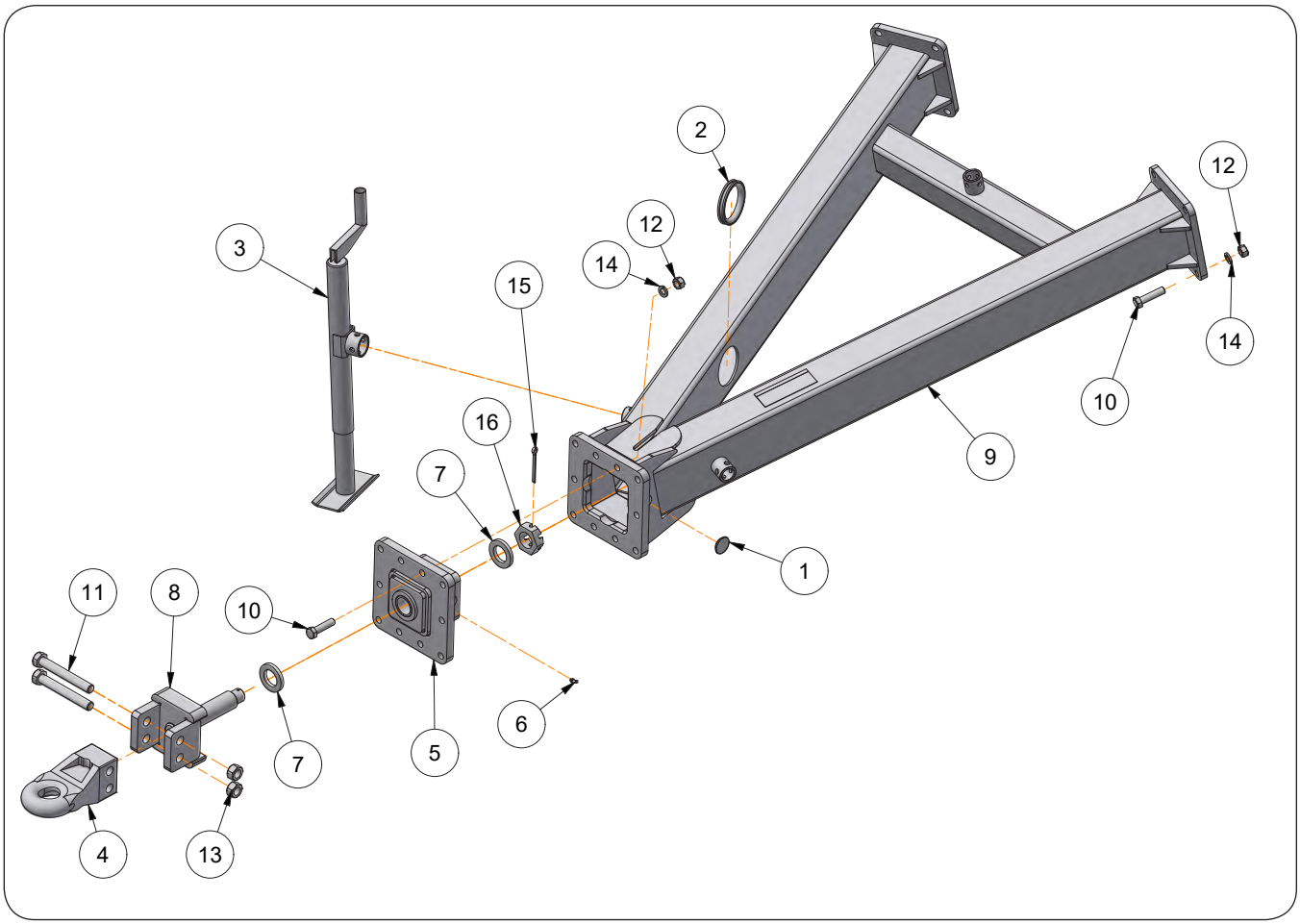
Tongue, Hitch, & Jack Stand Components - Model CS

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L152-398	Jack Stand w/Handle & Mounting Hardware	1	
2	L506-297	Tongue Weldment	1	
3	L506-410	Swivel Hitch	1	
4	L506-370	Pin Weldment,	1	
5	L108-003	Flat Washer, 3/4" SAE	1	
6	L100-206	Capscrew, 3/4"-10UNC x 1 1/2" G5	1	
7	L100-319	Capscrew, 1/2"-13UNC x 3 3/4" G8	1	
8	L102-224	Lock Nut, 1/2"-13UNC G5	1	
9	L100-075	Capscrew, 3/4"-10UNC x 2 1/2" G8	6	
10	L108-022	Lock Washer, 3/4"	6	
11	L102-009	Hex Nut, 3/4"-10UNC G5	6	
12	79337	Hose Holder	1	
13	L100-116	Capscrew, 1/2”-13UNC x 1 1/2” Grade 5	1	
14	L108-001	Hex Nut, 1/2”-13UNC	1	
15	L102-007	Falt Washer, 1/2” SAE	1	

Tongue, Hitch, & Jack Stand Components - Model CSX

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



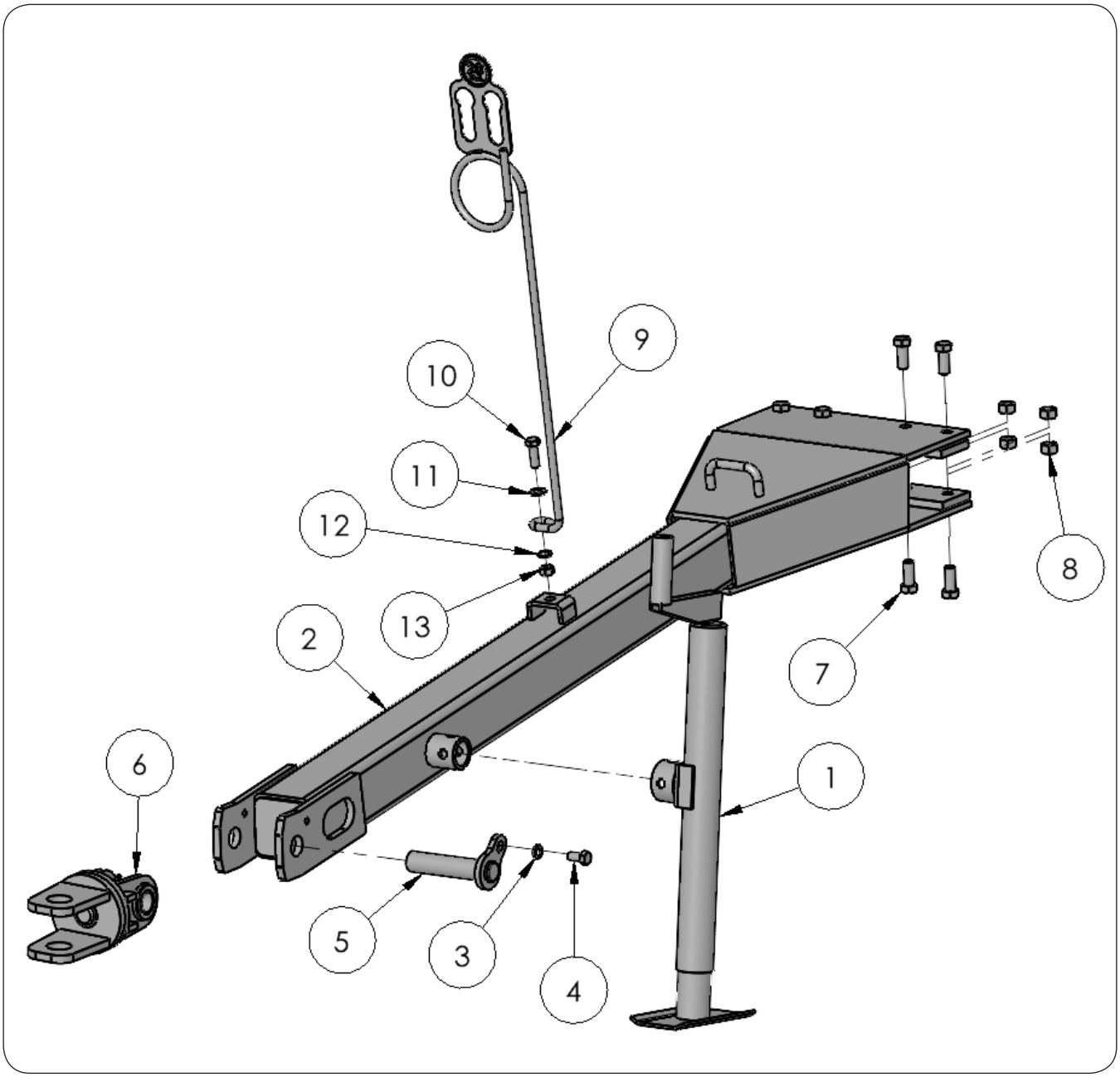
Tongue, Hitch, & Jack Stand Components - Model CSX

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L150-090	Plug	1	
2	L152-184	Grommet	2	
3	L152-398	Jack Stand w/Handle & Mounting Hardware	1	
4	L152-877	Hitch	1	
5	L505-413	Hitch Plate Weldment w/Grease Zerk	1	
6	L110-002	Grease Zerk	1	
7	L505-418	Washer	2	
8	L505-419	Hitch Adapter Weldment	1	
9	L506-389	Tongue Weldment	1	
10	L100-344	Capscrew, 3/4"-10UNC x 3" G8	22	
11	L100-405	Capscrew, 1"-8UNC x 7 1/2" G8	2	
12	L102-009	Hex Nut, 3/4"-10UNC G5	22	
13	L102-214	Lock Nut/Nylon, 1"-8UNC G8	2	
14	L108-022	Lock Washer, 3/4"	22	
15	L104-038	Cotter Pin, 3/8" Dia. x 3 1/2"	1	
16	L102-088	Slotted Hex Nut, 2"-12UNF G2	1	

Tongue, Hitch, & Jack Stand Components - Model PS

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



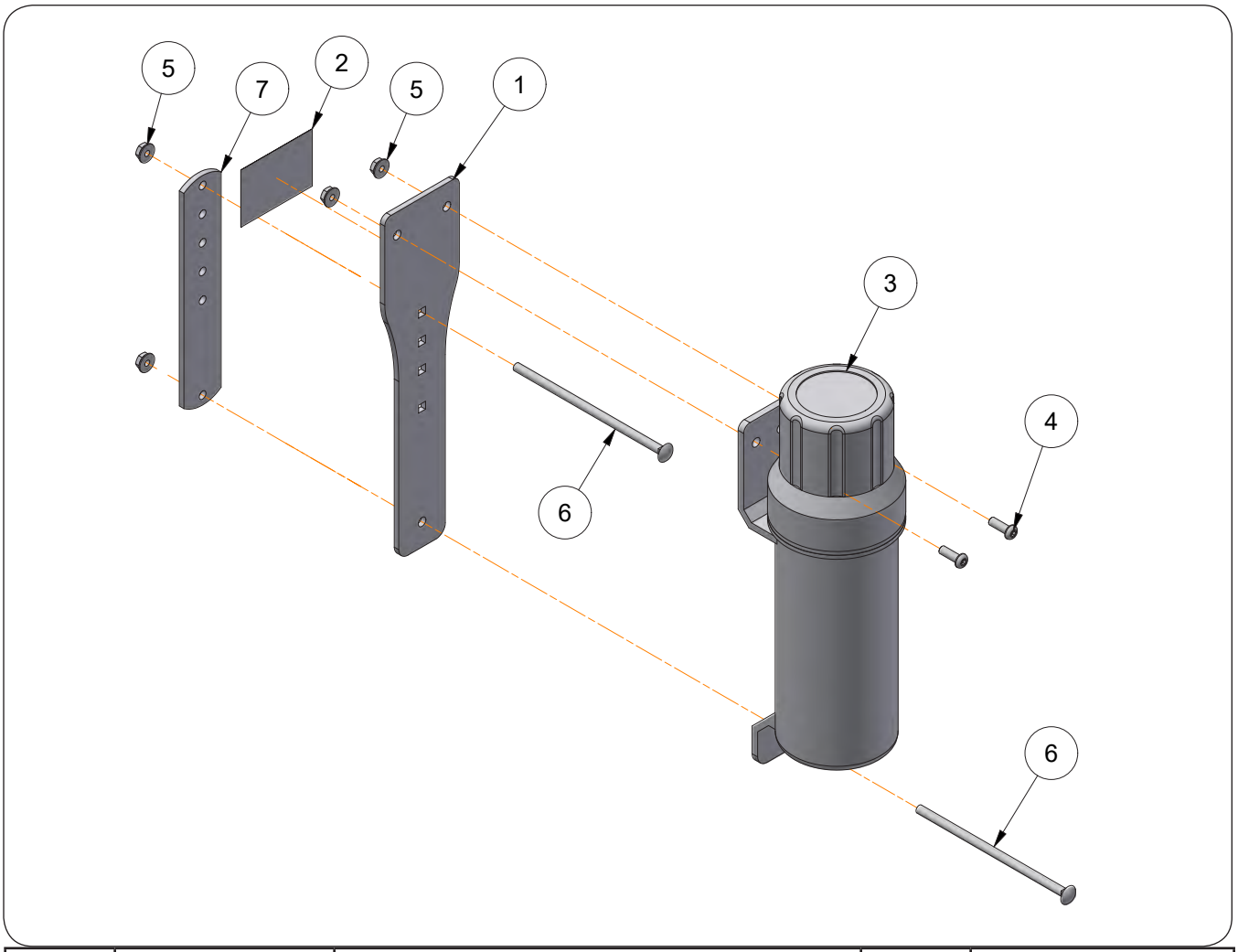
Tongue, Hitch, & Jack Stand Components - Model PS

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L152-398	Jack Stand w/Handle & Mounting Hardware	1	
2	L506-779	Tongue Weldment	1	
3	L108-020	Lock Washer, 1/2"	1	
4	L100-114	Capscrew, 1/2"-13UNC x 1" G5	1	
5	L506-916	Pin Weldment,	1	
6	L506-906	Swivel Hitch	1	
7	L100-196	Capscrew, 5/8"-11UNC x 1 1/2" G8	8	
8	L102-029	Lock Nut, 5/8"-11UNC G2	8	
9	79337	Hose Holder	1	
10	L100-116	Capscrew, 1/2”-13UNC x 1 1/2” Grade 5	1	
11	L108-001	Flat Washer, 1/2” SAE	1	
12	L108-020	Lock Washer, 1/2”	1	
13	L102-007	Hex Nut, 1/2”-13UNC Grade 5	1	

Manual Tube Holder Components

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



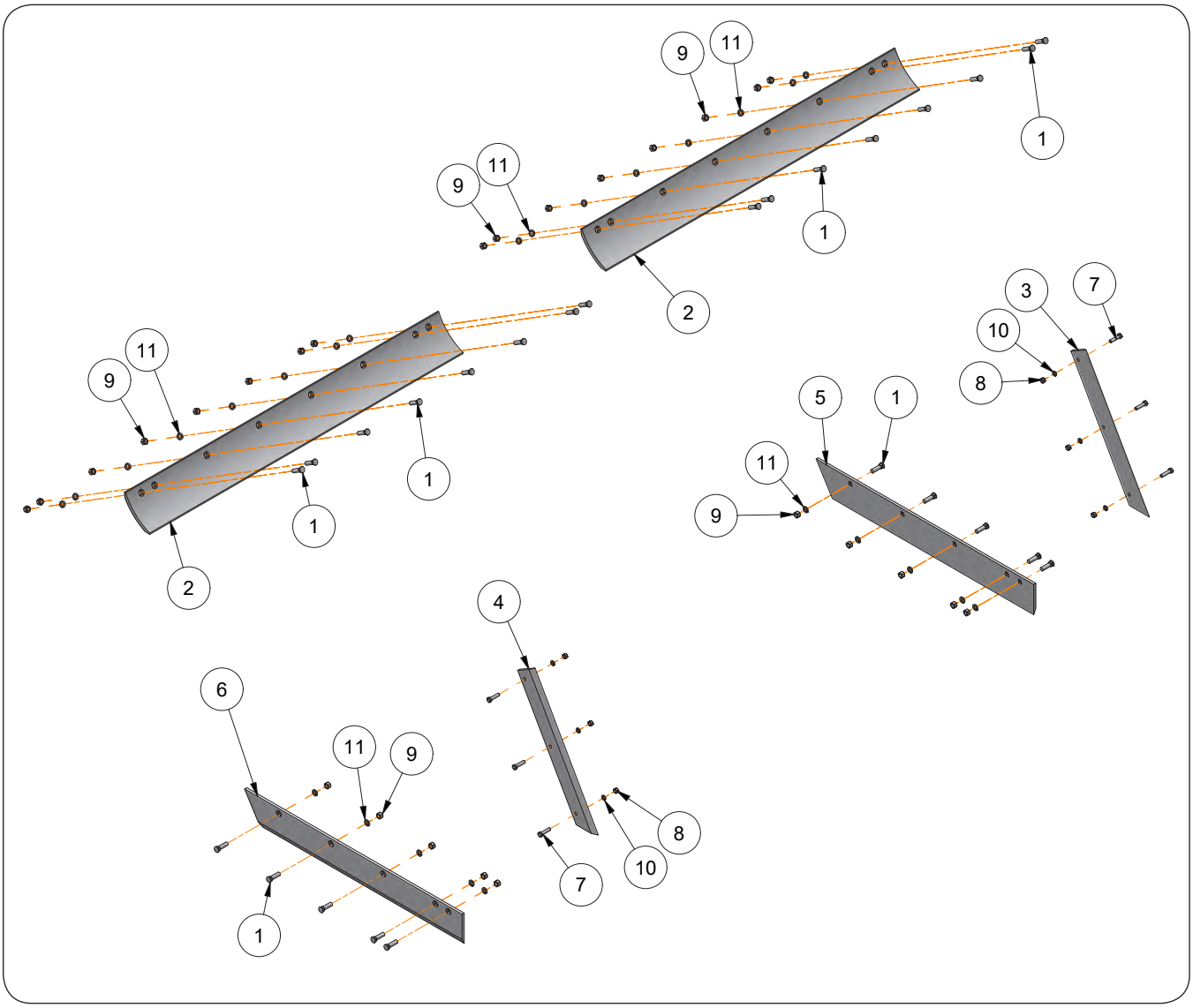
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L385-655	Manual Tube Holder Mounting Plate	1	
2	L153-256	Decal	1	
3	L152-995	Manual Tube Holder	1	
4	L100-491	Capscrew, 1/4”-20UNC x 3/4”	2	
5	L102-227	Flange Nut, 1/4”-20UNC G5	4	
6	L100-582	Carriage Bolt, 1/4”-20UNC x 6” G2	2	Model CS 1255
	L100-581	Carriage Bolt, 1/4”-20UNC x 5” G2		Model CSX 1270
7	L333-499	Plate	1	

Notes

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

Blades - Model CSX

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



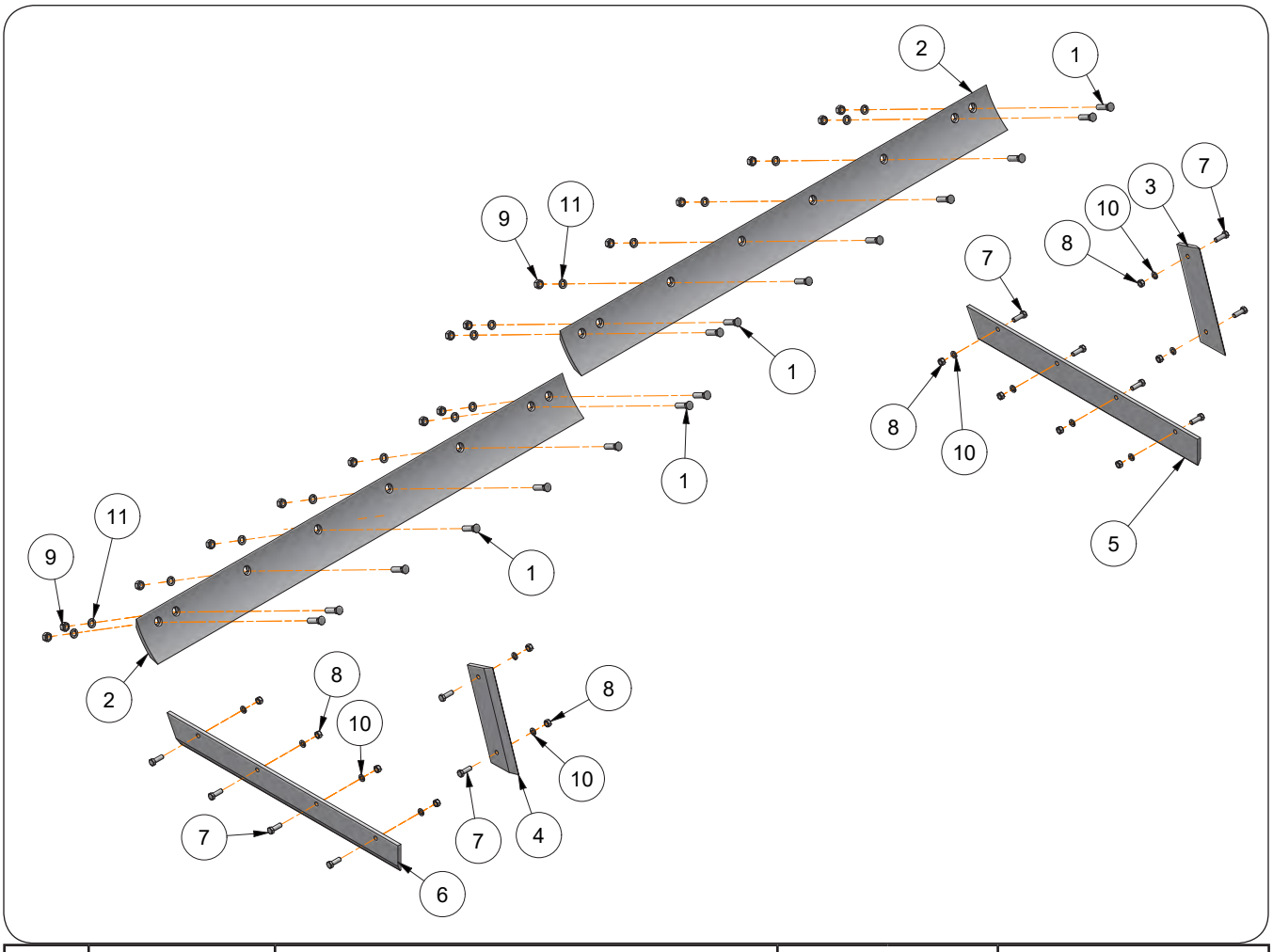
Blades - Model CSX

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

ITEM	PART NO.	DESCRIPTION	QTY			NOTES
			Model CSX 1050	Model CSX 1270	Model CSX 1490	
1	L100-409	Plow Bolt, 5/8"-11UNC x 2" G5	26	26	28	
2	L152-895	Blade, 5/8" x 8" x 7' (84")	-	-	2	
	L152-894	Blade, 5/8" x 8" x 6' (72")		2	-	
	L152-893	Blade, 5/8" x 8" x 5' (60")	2	-	-	
3	L505-890	Blade/Upper Side Left-Hand, 1/2" x 4" x 29 1/2"	1	1	1	
4	L505-891	Blade/Upper Side Right-Hand, 1/2" x 4" x 29 1/2"	1	1	1	
5	L505-892	Blade/Lower Side Left-Hand, 1/2" x 6" x 49"	1	1	1	
6	L505-893	Blade/Lower Side Right-Hand, 1/2" x 6" x 49"	1	1	1	
7	L100-118	Capscrew, 1/2"-13UNC x 2" G5	6	6	6	
8	L102-007	Hex Nut, 1/2"-13UNC G5	6	6	6	
9	L102-008	Hex Nut, 5/8"-11UNC G5	26	26	28	
10	L108-020	Lock Washer, 1/2"	6	6	6	
11	L108-021	Lock Washer, 5/8"	26	26	28	

Blades - Model CS

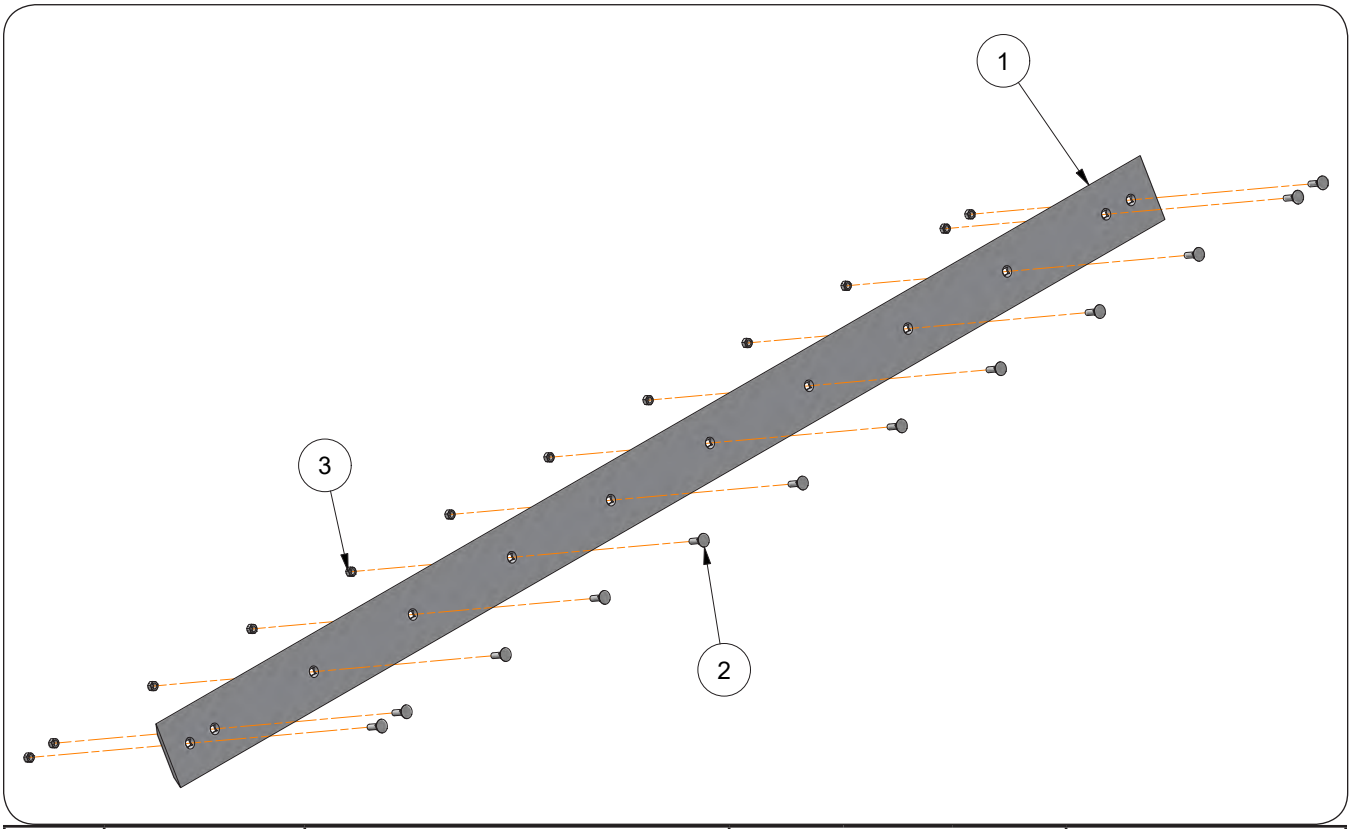
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY		NOTES
			Model CS 1255	Model PS 1465	
1	L100-409	Plow Bolt, 5/8"-11UNC x 2" G5	16	16	
2	L152-890	Blade, 1/2" x 6" x 6' (72")	2	-	
	L152-891	Blade, 1/2" x 6" x 7' (84")	-	2	
3	L505-894	Blade/Upper Side Left-Hand, 1/2" x 4" x 14"	1	1	
4	L505-895	Blade/Upper Side Right-Hand, 1/2" x 4" x 14"	1	1	
5	L505-896	Blade/Lower Side Left-Hand, 1/2" x 4" x 36"	1	1	
6	L505-897	Blade/Lower Side Right-Hand, 1/2" x 4" x 36"	1	1	
7	L100-116	Capscrew, 1/2"-13UNC x 1 1/2" G5	12	12	
8	L102-007	Hex Nut, 1/2"-13UNC G5	12	12	
9	L102-008	Hex Nut, 5/8"-11UNC G5	16	16	
10	L108-020	Lock Washer, 1/2"	12	12	
11	L108-021	Lock Washer, 5/8"	16	16	

Blades - Model PS

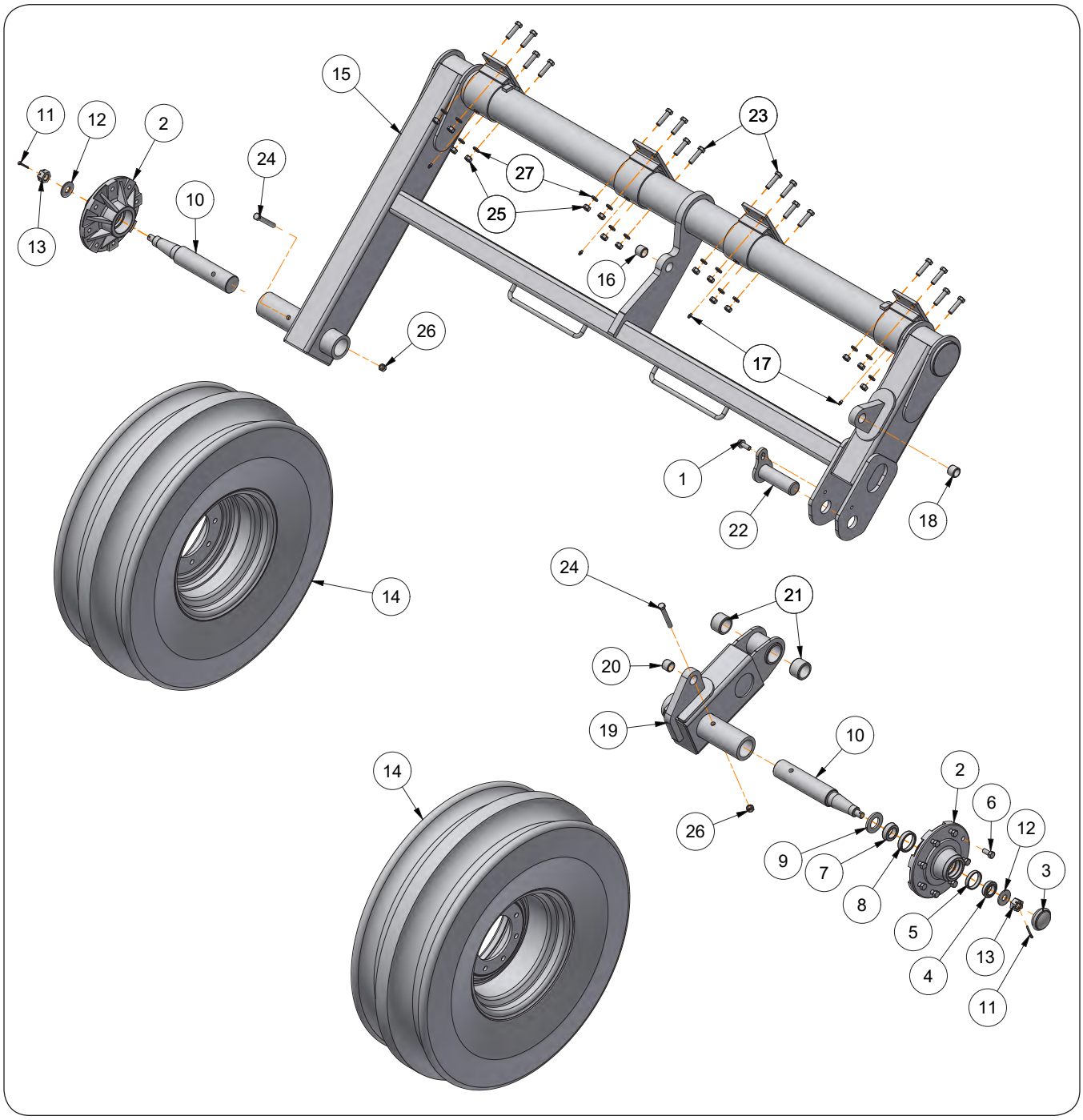
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY			NOTES
			Model PS 820	Model PS 1025	Model PS 1230	
1	L200-1217	Blade, 3/8" x 6" x 95 1/4"	1	-	-	
	L200-1218	Blade, 3/8" x 6" x 119 1/4"	-	1	-	
	L200-1219	Blade, 3/8" x 6" x 143 1/2"	-	-	1	
2	L100-407	Plow Bolt, 1/2"-13UNC x 1 3/4"	10	12	14	
3	L102-224	Lock Nut, 1/2"-13UNC G5	10	12	14	

Axle, Hub, Wheel & Tire Components - Model CS

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



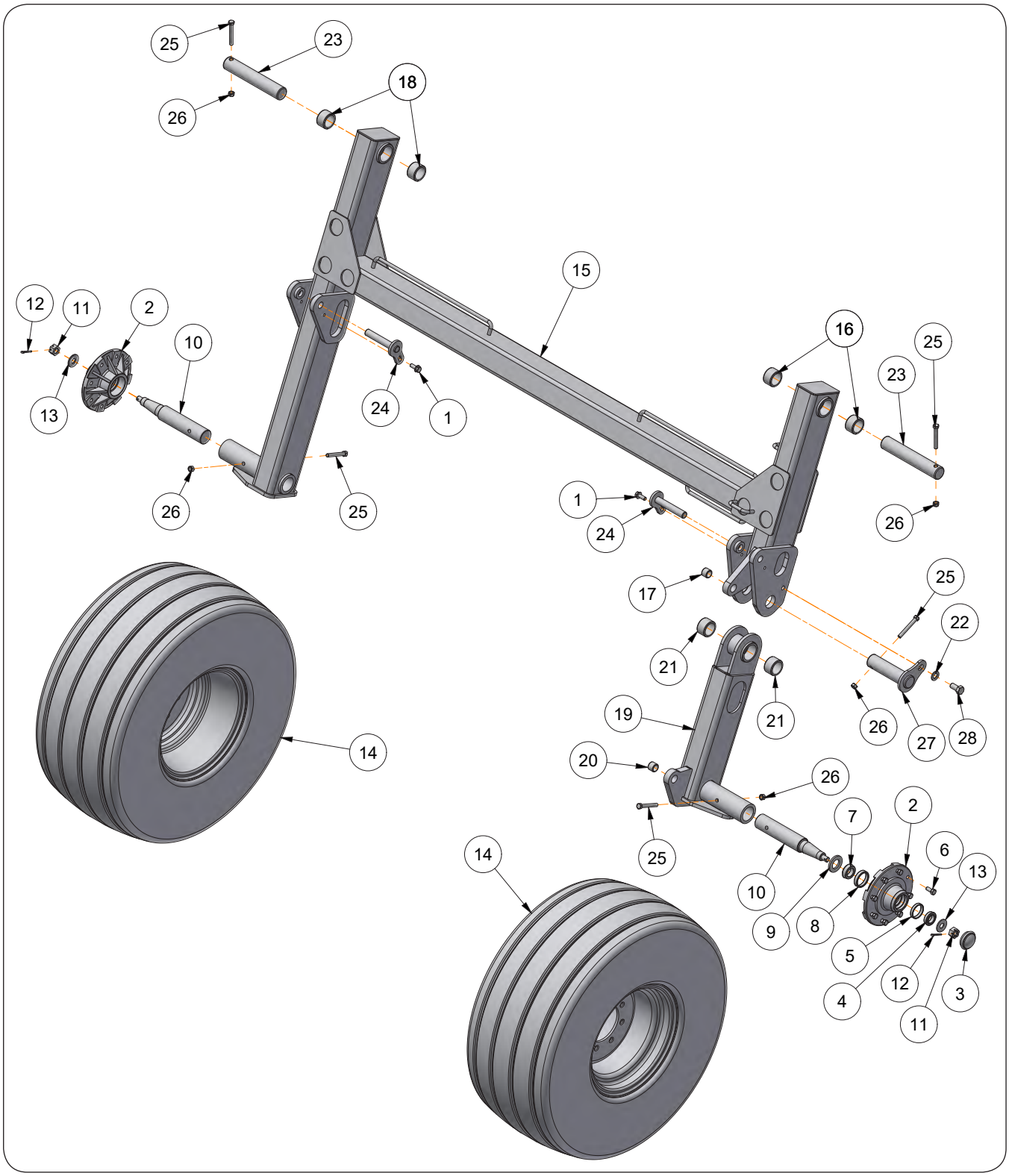
Axle, Hub, Wheel & Tire Components - Model CS

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

ITEM	PART NO.	DESCRIPTION	QTY		NOTES
			Model CS 1255	Model CS 1465	
1	L100-320	Flange Capscrew, 1/2"-13UNC x 1 1/4" G8	1	1	
2	L170-058	Hub 8-Bolt	2	2	
3	L150-107	Hub Cap	1	1	
4	L120-018	Bearing Cone, 1.25” Bore	1	1	
5	L120-015	Bearing Cup	1	1	
6	L100-387	Wheel Bolt, 9/16”-18UNF x 1 1/8”	16	16	
7	L120-130	Bearing Cup	1	1	
8	L120-122	Bearing Cone	1	1	
9	L150-103	Seal	1	1	
10	L188-009	Spindle	2	2	Includes Items 4, 5, & 6
11	L104-129	Cotter Pin, 5/32" Dia. x 1 3/4"	2	2	
12	L108-183	Washer, 2" x 13/16" x .148"	2	2	
13	L102-036	Castle Nut, 7/8-14UNF G2	2	2	
14	L190-076	Wheel & Tire Assembly	2	2	
15	L506-210	Axle Frame Weldment	1	1	Includes Items 16, 17, 18
16	L134-034	Split Bushing, 1.25” x 1” x 1”	3	3	
17	L110-001	Grease Zerk	4	4	
18	L134-034	Split Bushing, 1.25” x 1” x 1”	3	3	
19	L506-247	Axle Arm Extension Weldment	1	1	Includes Items 20 & 21
20	L134-034	Split Bushing, 1.25” x 1” x 1”	3	3	
21	L134-068	Bushing	2	2	
22	L506-249	Pin Weldment	1	1	
23	L100-118	Capscrew, 1/2"-13UNC x 2" G5	16	16	
24	L100-319	Capscrew, 1/2"-13UNC x 3 3/4" G8	2	2	
25	L102-007	Hex Nut, 1/2"-13UNC G5	16	16	
26	L102-224	Lock Nut, 1/2"-13UNC G5	2	2	
27	L108-020	Lock Washer, 1/2"	16	16	

Axle, Hub, Wheel & Tire Components - Model CSX

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



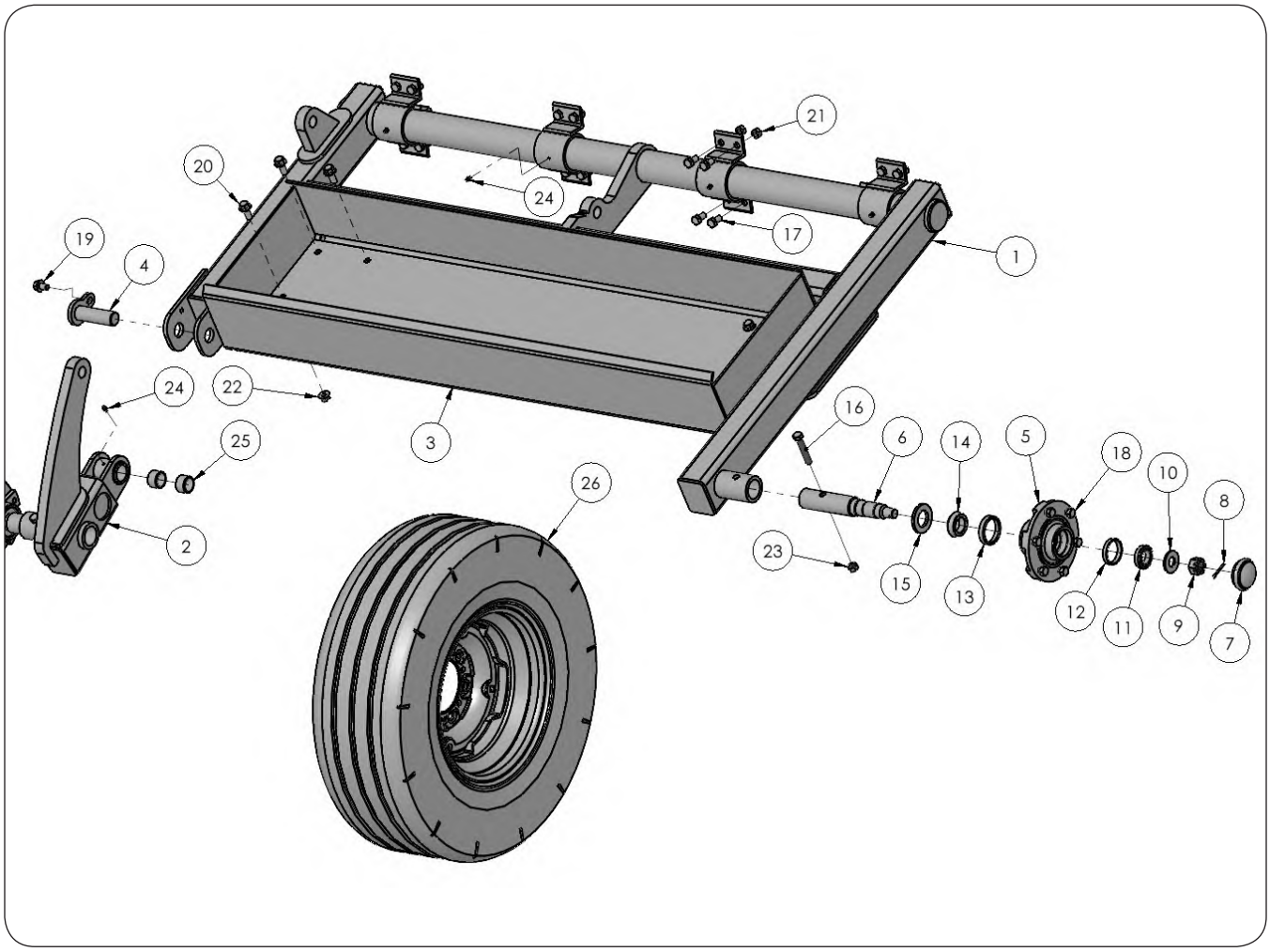
Axle, Hub, Wheel & Tire Components - Model CSX

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

ITEM	PART NO.	DESCRIPTION	QTY			NOTES
			Model CSX 1050	Model CSX 1270	Model CSX 1490	
1	L100-320	Flange Capscrew, 1/2"-13UNC x 1 1/4" G8	2	2	2	
2	L170-058	Hub 8-Bolt	2	2	2	
3	L150-107	Hub Cap	1	1	1	
4	L120-018	Bearing Cone, 1.25" Bore	1	1	1	
5	L120-015	Bearing Cup	1	1	1	
6	L100-387	Wheel Bolt, 9/16"-18UNF x 1 1/8"	16	16	16	
7	L120-130	Bearing Cup	1	1	1	
8	L120-122	Bearing Cone	1	1	1	
9	L150-103	Seal	1	1	1	
10	L188-009	Spindle	2	2	2	
11	L102-036	Castle Nut, 7/8-14UNF G2	2	2	2	
12	L104-129	Cotter Pin, 5/32" Dia. x 1 3/4"	2	2	2	
13	L108-183	Washer, 2" x 13/16" x .148"	2	2	2	
14	L111882	Wheel & Tire Assembly, 14 x 16.1 / TL16.5LB16.1	2	2	2	
15	L506-314	Axle Frame Weldment	1	-	-	Includes Items 16, 17 & 18
	L506-310	Axle Frame Weldment	-	1	-	
	L506-316	Axle Frame Weldment	-	-	1	
16	L134-097	Split Bushing, 2.5" x 2" x 1.5"	2	2	2	
17	L134-034	Split Bushing, 1.25" x 1" x 1"	1	1	1	
18	L134-097	Split Bushing, 2.5" x 2" x 1.5"	2	2	2	
19	L506-320	Tilt Axle Arm Extension Weldment	1	1	1	Includes Items 20, & 21
20	L134-034	Split Bushing, 1.25" x 1" x 1"	1	1	1	
21	L134-097	Split Bushing, 2.5" x 2" x 1.5"	2	2	2	
22	L108-003	Flat Washer, 3/4" SAE	1	1	1	
23	L506-366	Pin	2	2	2	
24	L506-367	Pin Weldment	2	2	2	
25	L100-319	Capscrew, 1/2"-13UNC x 3 3/4" G8	5	5	5	
26	L102-224	Lock Nut, 1/2"-13UNC G5	5	5	5	
27	L506-372	Pin Weldment	1	1	1	
28	L100-206	Capscrew, 3/4"-10UNC x 1 1/2" G5	1	1	1	

Axle, Hub, Wheel & Tire Components - Model PS

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



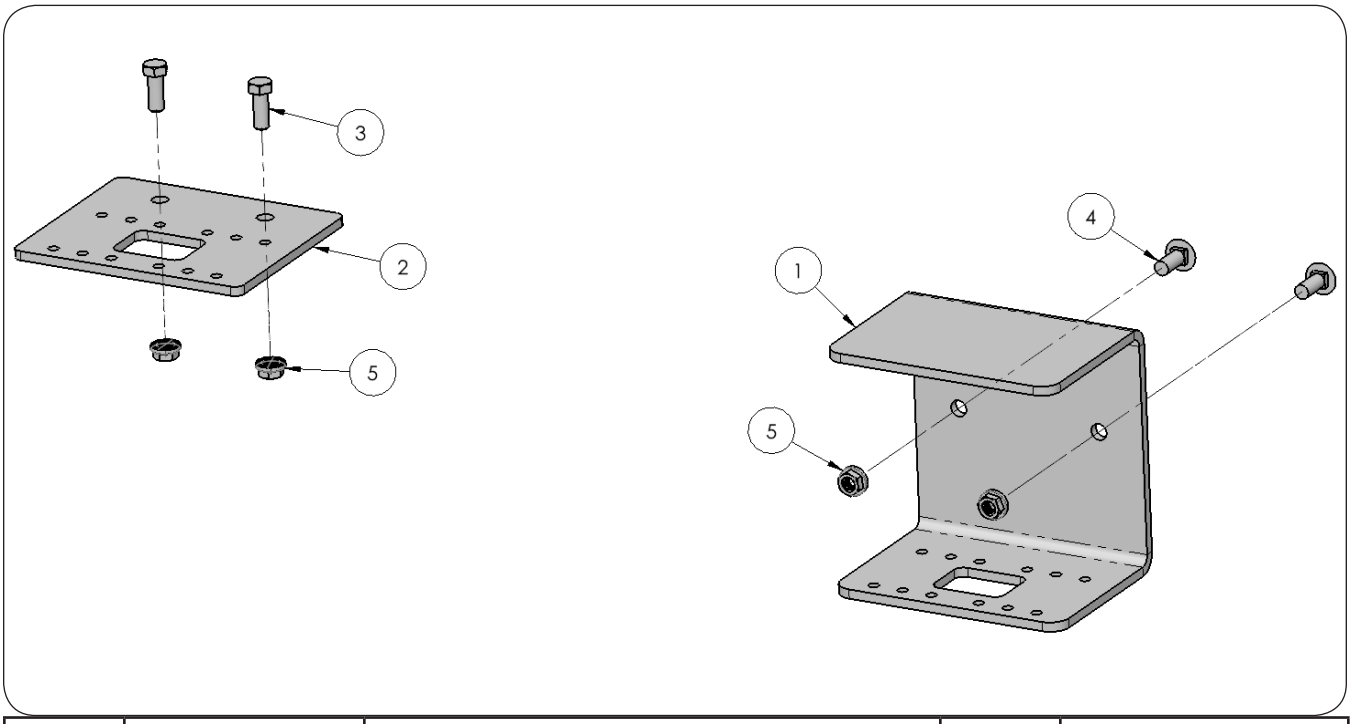
Axle, Hub, Wheel & Tire Components - Model PS

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

ITEM	PART NO.	DESCRIPTION	QTY			NOTES
			Model PS 820	Model PS 1025	Model PS 1230	
1	L506-1000	Main Frame Assembly	1	1	-	For Tilt Axle Models
	L506-1025		-	-	1	For Tilt Axle Models
	L506-1045		1	1	-	For Fixed Axle Models
	L506-1040		-	-	1	For Fixed Axle Models
2	L506-1010	Tlit Arm Assembly	1	1	1	
3	L506-1019	Weight Box	1	1	-	
	L506-1028		-	-	1	
4	L506-899	Pin Weldment	1	1	1	
5	L107-023	Hub Assembly	2	2	2	
6	L340-064	Spindle	2	2	2	
7	L150-007	Hub Cap	2	2	2	
8	L104-024	Cotter Pin, 5/32" Dia. x 1 1/4"	2	2	2	
9	L102-036	Castle Nut, 7/8"-14UNF Grade 2	2	2	2	
10	L108-031	Flat Washer, 7/8" x 2" x 9 Ga.	2	2	2	
11	L120-018	Bearing Cone, 1.25" Bore	2	2	2	
12	L120-015	Bearing Cup, 1.25"	2	2	2	
13	L120-017	Bearing Cone, 1.38" Bore	2	2	2	
14	L120-044	Bearing Cup, 1.38"	2	2	2	
15	L150-006	Seal	2	2	2	
16	L100-122	Capscrew, 1/2"-13UNC x 3" Grade 5	2	2	2	
17	L100-114	Capscrew, 1/2"-13UNC x 1" Grade 5	16	16	16	
18	L100-332	Wheel Bolt, 1/2"-20UNF x 1 1/4"	12	12	12	
19	L100-698	Flange Screw, 1/2"-13UNC x 3/4" Grade 5	1	1	1	
20	L100-697	Flange Screw, 1/2"-13UNC x 1 1/4" Grade 5	6	6	6	
21	L102-224	Lock Nut, 1/2"-13UNC Grade 5	16	16	16	
22	L102-109	Flange Nut, 1/2"-13UNC Grade 5	6	6	6	
23	L102-028	Lock Nut, 1/2"-13UNC Grade 2	2	2	2	
24	L110-001	Grease Zerk	4	4	4	
25	L134-044	Bushing	2	2	2	
26	L111552	Whell and Tire Assembly, 8 x 15 / TLIF240/80R15	2	2	2	

Light Mount Components

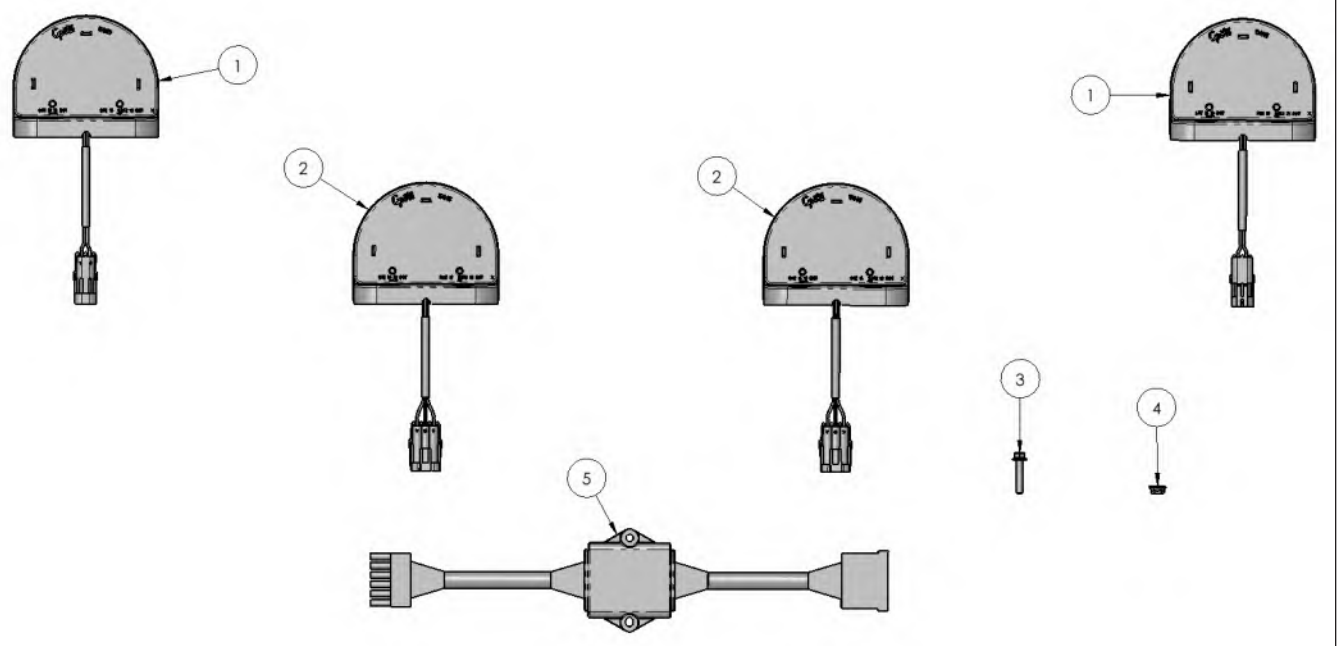
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L506-1064	Inner Light Mount	2	
2	L506-1063	Outer Light Mount	2	
3	L100-107	Capscrew, 3/8”-16UNC x 1” Grade 5	4	
4	L100-084	Carriage Bolt, 3/8”-16UNC x 1” Grade 5	4	
5	L102-611	Flang Nut, 3/8”-16UNC	4	

Light Kit Components

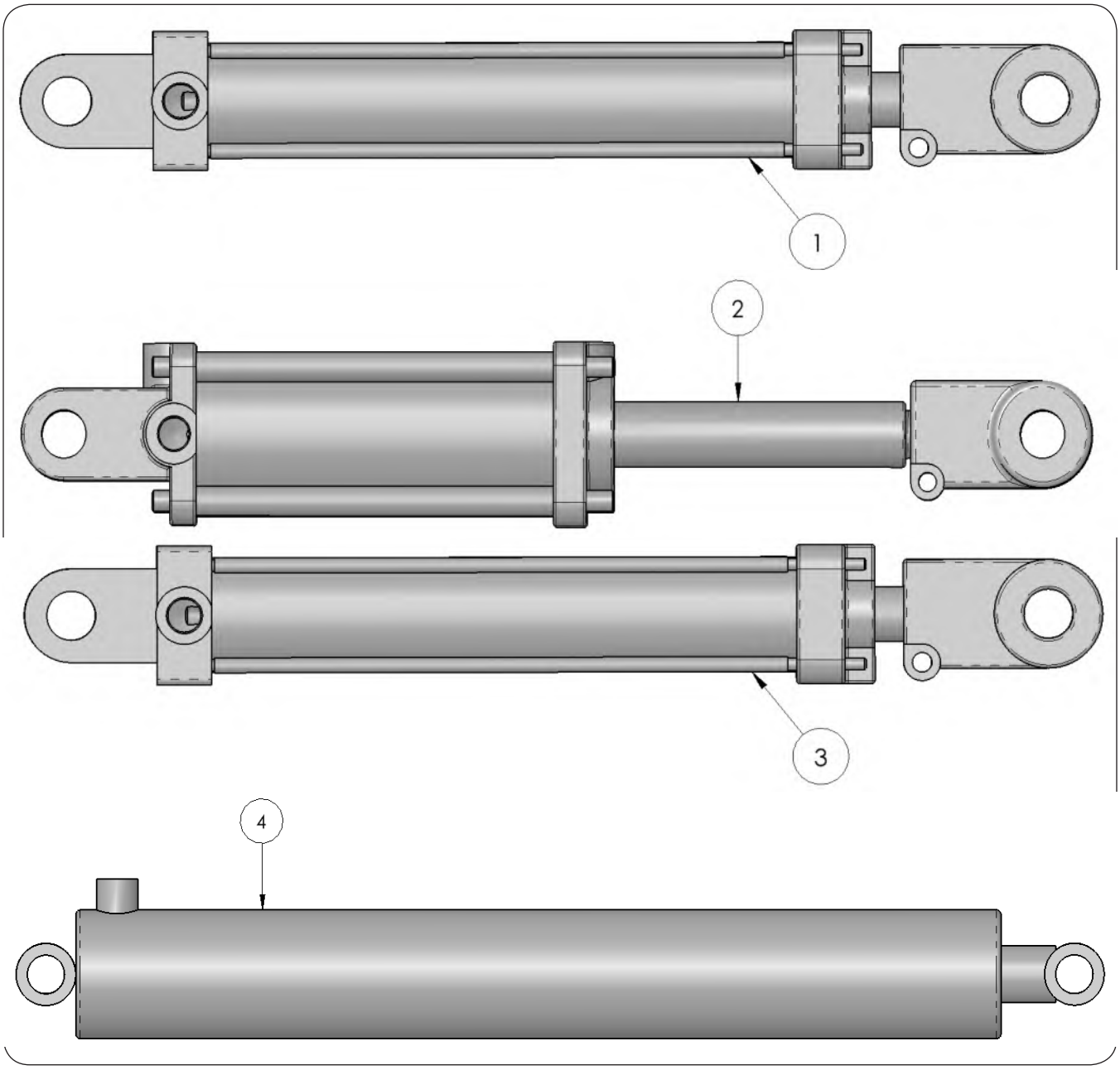
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L154-1000	Amber Light	2	
2	L154-1001	Red Light	2	
3	L100-755	Flange Screw, 1/4"-20UNC x 1 1/4" Grade 5	16	
4	L102-227	Flange Nut, 1/4"-20UNC	16	
5	L105-1007	Flasher Module	1	
6	L154-1005	7' Light Plug	1	Not Shown
7	L154-1020	13' Light Extension	2	Not Shown
8	L154-1010	Rear Light Harness	1	Not Shown

Hydraulic Cylinders

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



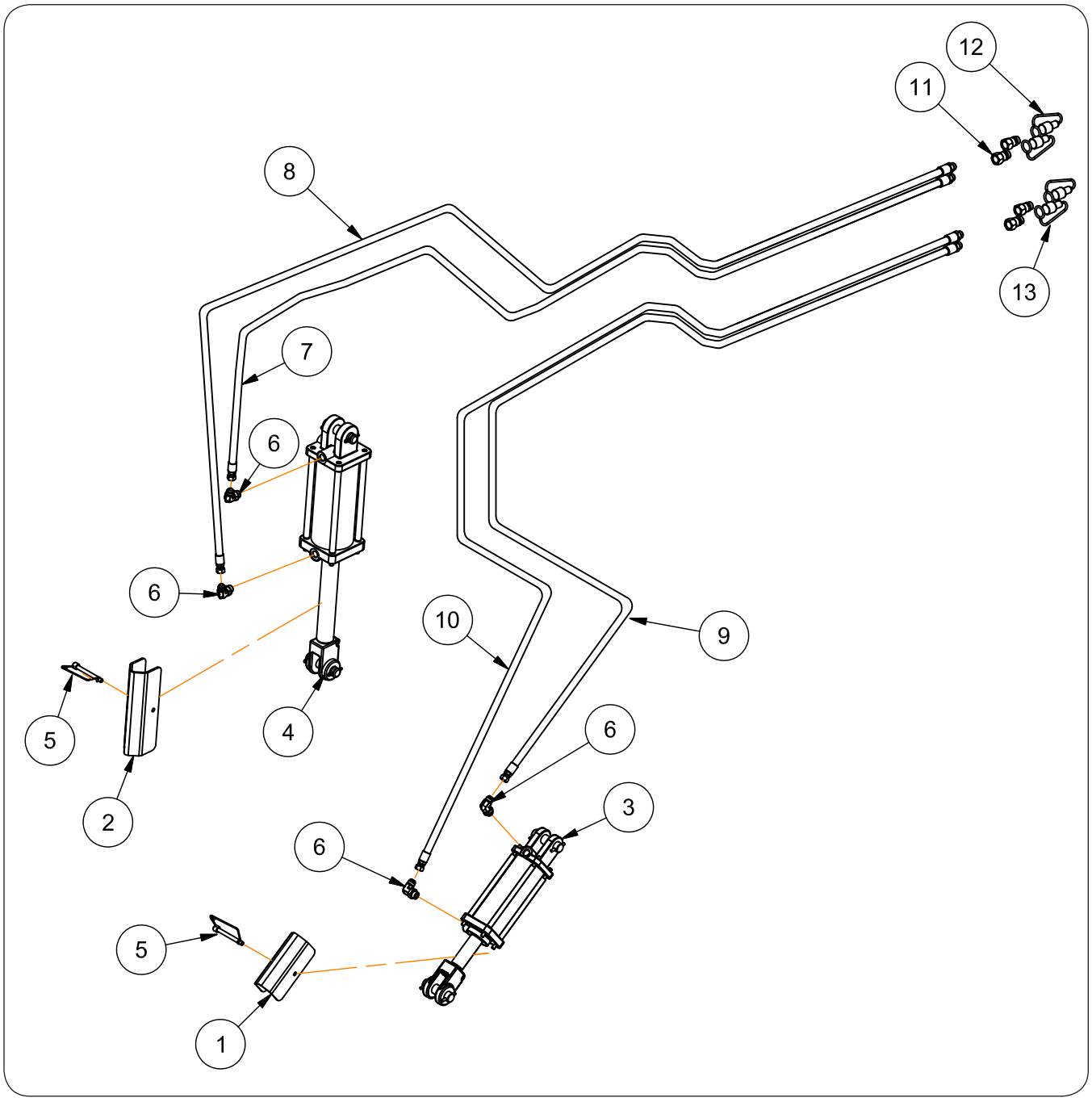
Hydraulic Cylinders

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L194-375	Hydraulic Cylinder, 2" x 8"	1	For PS Models Only
2	L194-321	Lower Hydraulic Cylinder, 3" x 6"	1	For CS and CSX Models
	L194-309	Seal Kit	1	
3	L194-376	Upper Hydraulic Cylinder, 4 1/2" x 24"	1	For CS Models Only
	L194-506	Seal Kit	1	
4	L194-400	Upper Hydraulic Cylinder, 3" x 20"	1	For CSX Models Only
	L194-448	Seal Kit	1	

Hydraulic Components - Model CS

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



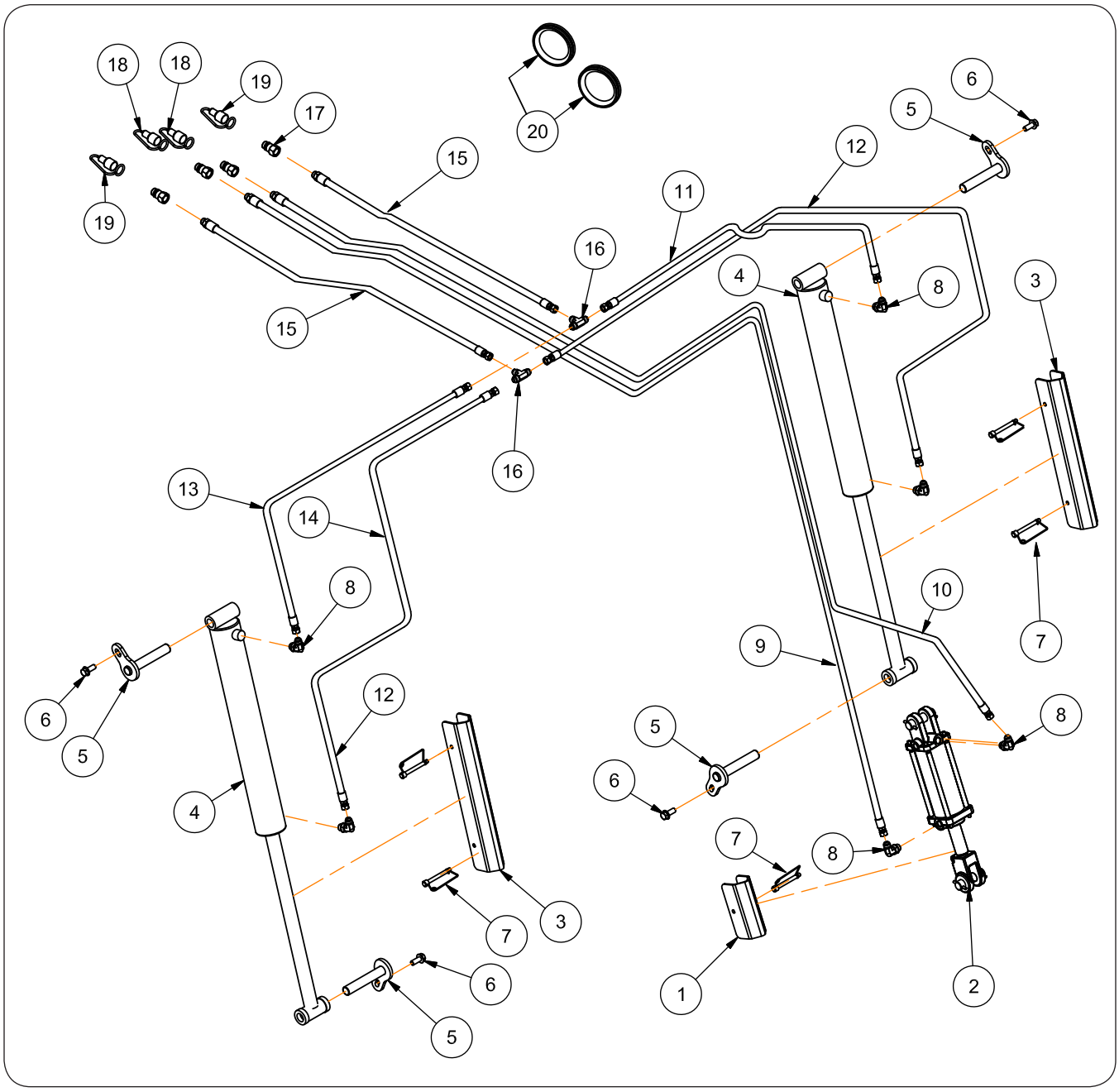
Hydraulic Components - Model CS

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L506-382	Cylinder Transport Stop, 6.5”	1	
2	L506-384	Cylinder Transport Stop, 10.5”	1	
3	L194-321	Hydraulic Cylinder/Tilt Axle, 3” x 8”	1	
4	L194-377	Hydraulic Cylinder/Lift, 4” x 8”	1	
5	L104-183	Snap Pin, 3/8” Dia. x 3” x 3 7/8”	2	
6	L198-089	90° Elbow, 3/4-16 JIC Male x 3/4-16 O-Ring Male	4	
7	L196-317	Hydraulic Hose, 1/2” x 168” 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
8	L196-318	Hydraulic Hose, 1/2” x 180” 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
9	L196-319	Hydraulic Hose, 1/2” x 228” 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
10	L196-320	Hydraulic Hose, 1/2” x 240” 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
11	L140-092	ISO Tip #8010-15	4	
12	L152-710	Dust Cap, ISO Tip ORANGE	2	
13	L152-714	Dust Cap, ISO Tip RED	2	

Hydraulic Components - Model CSX

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



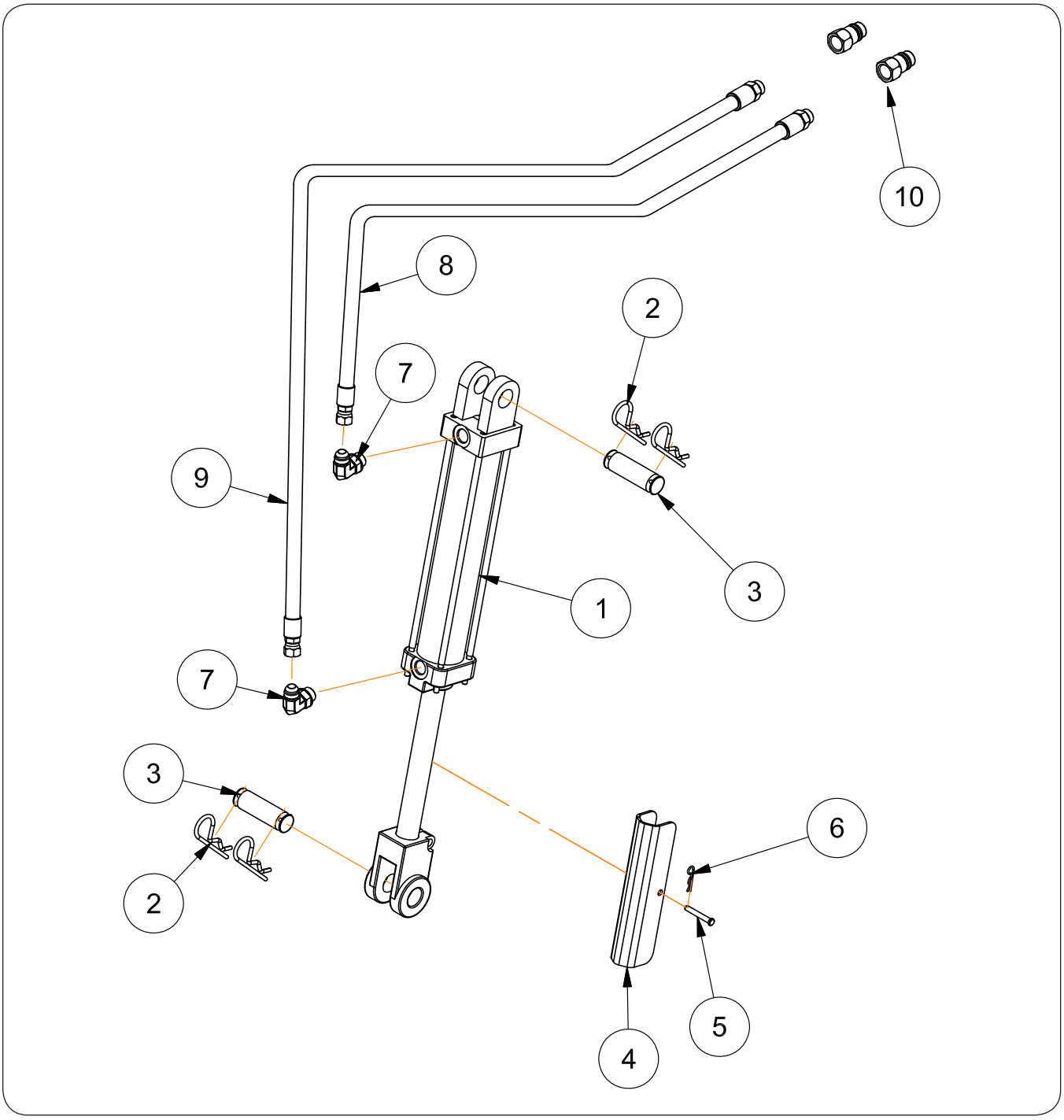
Hydraulic Components - Model CSX

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L506-382	Cylinder Transport Lock	1	
2	L194-321	Hydraulic Cylinder/Tilt Axle, 3" x 8"	1	
3	L506-369	Cylinder Transport Lock	2	
4	L194-400	Hydraulic Cylinder/Lift, 3" x 20"	2	
5	L506-367	Pin Weldment	4	
6	L100-320	Capscrew, 1/2"-13UNC x 1 1/4" G8	4	
7	L104-183	Snap Pin, 3/8" Dia. x 3" x 3 7/8"	5	
8	L198-089	90° Elbow, 3/4-16 JIC Male x 3/4-16 O-Ring Male	6	
9	L196-321	Hydraulic Hose, 3/8" x 252" 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
10	L196-323	Hydraulic Hose, 3/8" x 264" 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
11	L196-302	Hydraulic Hose, 1/2" x 28" 3/4-16 JIC Female x 3/4-16 JIC Female	1	
12	L196-305	Hydraulic Hose, 1/2" x 48" 3/4-16 JIC Female x 3/4-16 JIC Female	1	
13	L196-309	Hydraulic Hose, 1/2" x 80" 3/4-16 JIC Female x 3/4-16 JIC Female	1	
14	L196-312	Hydraulic Hose, 1/2" x 96" 3/4-16 JIC Female x 3/4-16 JIC Female	1	
15	L196-318	Hydraulic Hose, 1/2" x 180" 3/4-16 JIC Female x 3/4-16 O-Ring Male	2	
16	L198-173	Tee, 3/4-16 JIC Male x 3/4-16 JIC Male x 3/4-16 JIC Male	2	
17	L140-092	ISO Tip #8010-15	4	
18	L152-714	Dust Cap, ISO Tip RED	2	
19	L152-710	Dust Cap, ISO Tip ORANGE	2	
20	L152-184	Grommet	2	

Hydraulic Components - Model PS

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



Hydraulic Components - Model PS

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	L194-375	Hydraulic Cylinder, 3" x 8"	1	
2	L104-070	Hairpin Cotter, .178" Dia. x 3 9/16"	4	
3	L104-085	Pin, 1" Dia. x 3 5/8"	2	
4	L209-1000	Cylinder Transport Lock	1	
5	L104-076	Clevis Pin, 1/4" Dia. x 1 3/4"	1	
6	L104-217	Hairpin Cotter, .073" Dia.	1	
7	L198-089	90° Elbow, 3/4-16 JIC Male x 3/4-16 O-Ring Male	2	
8	L196-316	Hydraulic Hose, 1/2" x 146" 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
9	L196-317	Hydraulic Hose, 1/2" x 168" 3/4-16 JIC Female x 3/4-16 O-Ring Male	1	
10	L140-092	ISO Tip #8010-15	2	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