Seedbed Tillage

CROSS-FOLD ROLLING HARROW®
Models 1245/1245D

Soil Conditioner
Cross-Folding 32-40 Ft. Models

Beginning with Serial No. A61410100

Part No. 74919

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

When ordering parts or when requesting further information or assistance, always give the following information:

- Machine name
- Serial number

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.

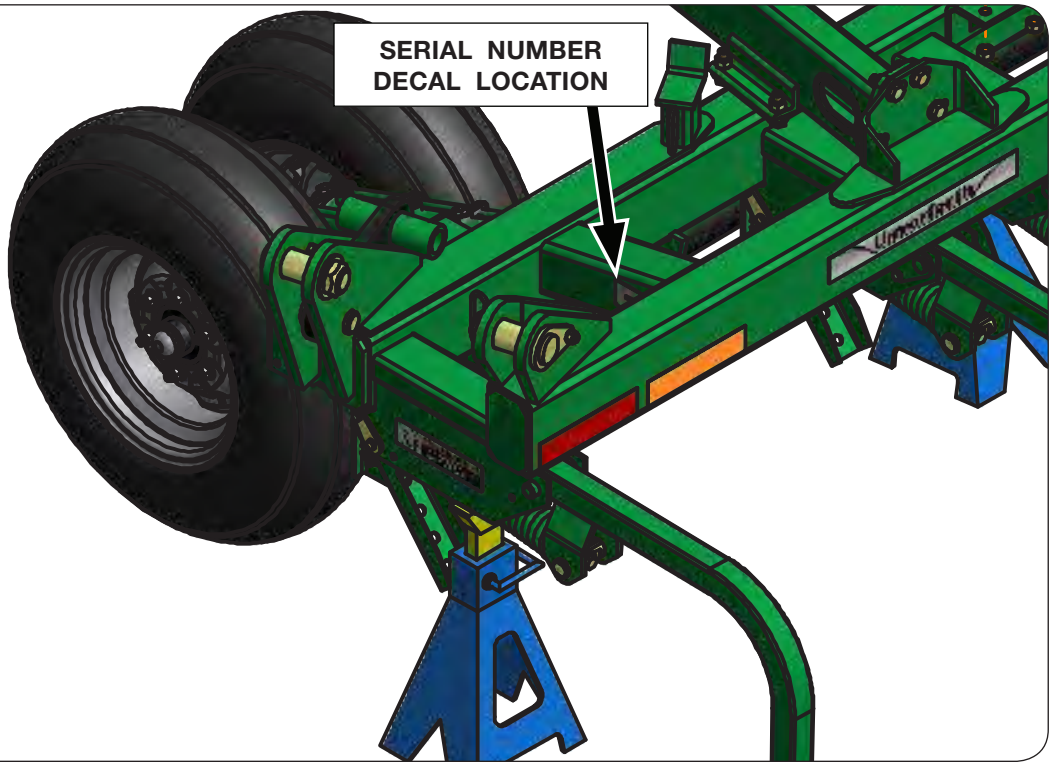
Please fill out and retain this portion for your records. The serial number plate is located on the inside of the main frame on the left-hand side of the machine (FIG. 1).

Purchase Date _____ Model _____Serial No._____

Dealer _____ City _____

Dealer Contact _____ Phone _____

FIG. 1



IMPORTANT

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

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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 be 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

PART NO. 901891

PART NO. 97575

PART NO. 95136

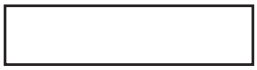
PART NO. 97961

PART NO. 95445

PART NO. 95605

PART NO. 94094

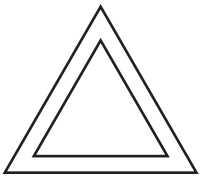
PART NO. 98229



Part #9003127
Amber Reflector

Part #9003125
Fluorescent Reflector

Part #9003126
Red Reflector



PART NO. 9829
SMV Emblem

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

- 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.
- 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.

Before Operating

- Do not stand between towing vehicle and implement during hitching.
- Always make certain everyone and everything is clear of the machine before beginning operation.
- Verify that all safety shields are in place and properly secured.
- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.

During Operation

- Regulate speed to field conditions. Maintain complete control at all times.
- Never service or lubricate equipment when in operation.
- Keep away from overhead power lines. Electrical shock can cause serious injury or death.

- Use extreme care when operating close to ditches, fences, or on hillsides.
- Do not leave towing vehicle unattended with engine running.

Before Transporting

- Secure transport chains to towing vehicle before transporting. DO NOT transport without chains.
- 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.
- This implement may not be equipped with brakes. Ensure that the towing vehicle has adequate weight and braking capacity to tow this unit.

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.
- It is probable that this implement is taller, wider, and longer than the towing vehicle. Become aware of and avoid all obstacles and hazards in the travel path of the equipment, such as power lines, ditches, etc.

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. 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 Setup Information

This section contains all of the instructions required for the complete assembly of the entire Rolling Harrow implement.

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

For ease of assembly, install all hardware loosely until assembly is complete and then tighten according to "Torque Chart" unless otherwise specified.

⚠ WARNING

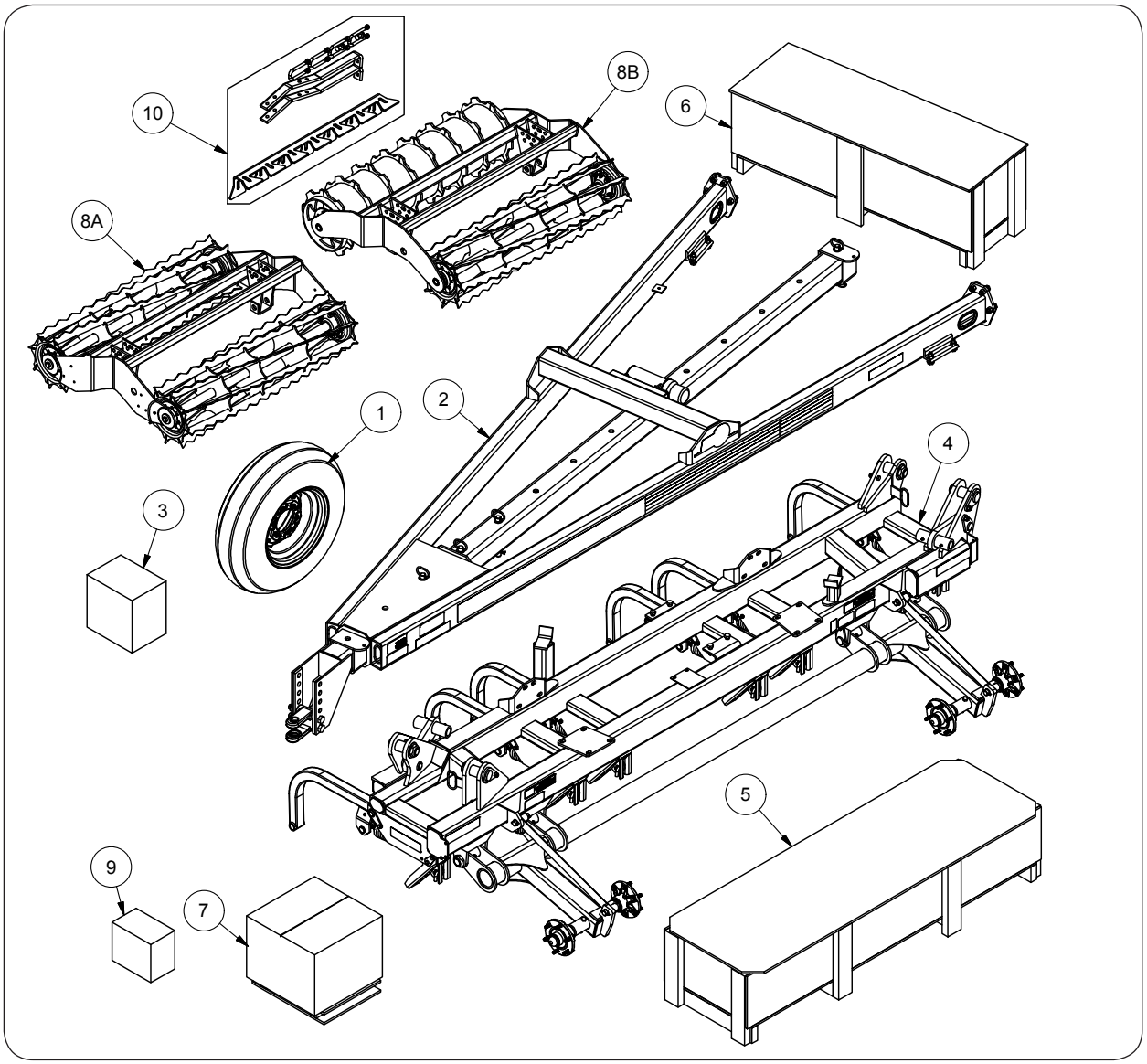
- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW THE SAFETY SECTION IN THIS MANUAL, IF NECESSARY.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **MOVING PARTS CAN CRUSH AND CUT. KEEP AWAY FROM MOVING PARTS.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **TO PREVENT MACHINE FROM TIPPING BACKWARDS, UNIT MUST BE HOOKED TO TRACTOR.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 3,000 LBS. SPECIFIC LOAD RATING FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

IMPORTANT

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

Depending on the model you ordered, you should have received the following bundles:

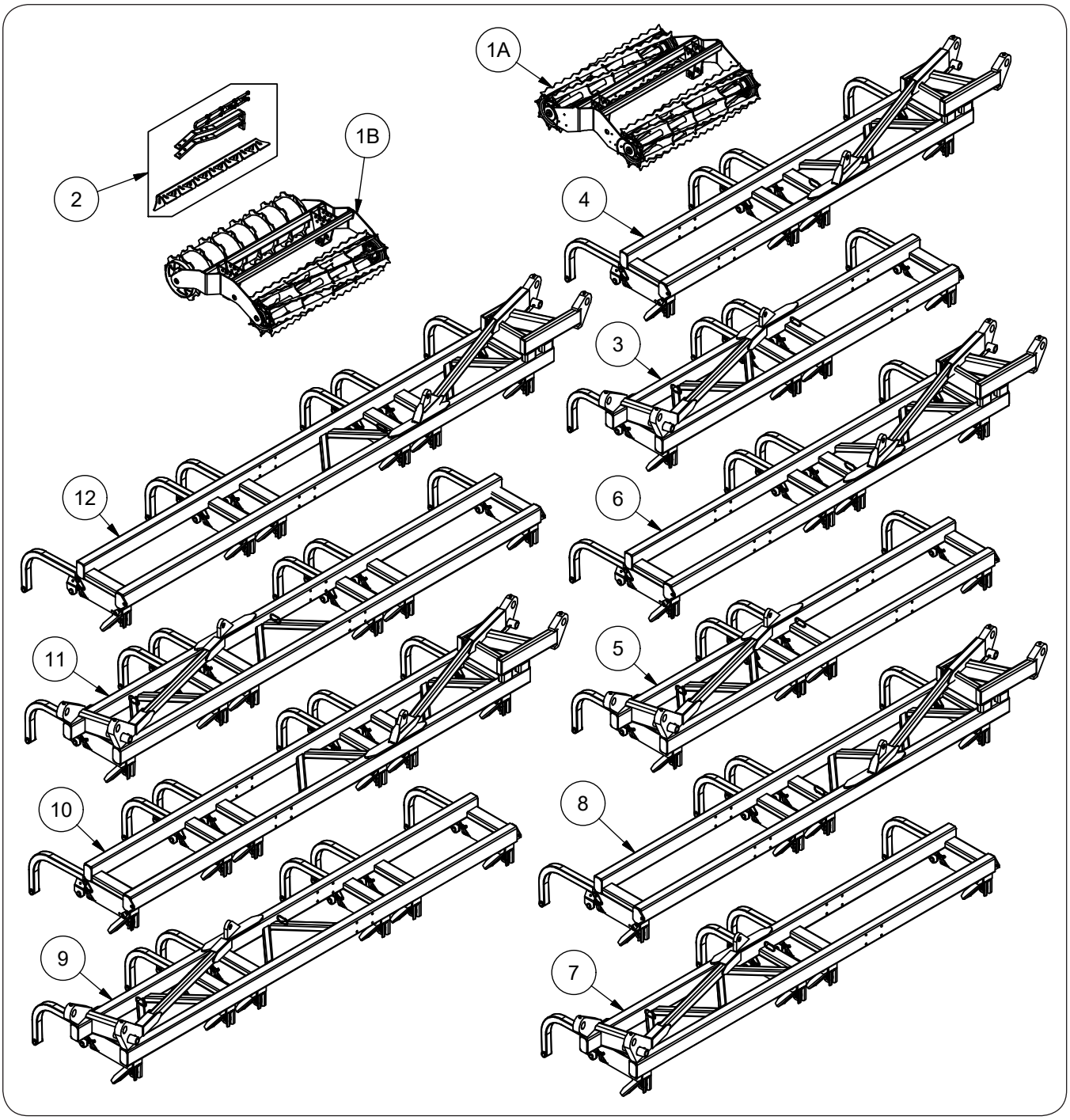
Rolling Harrow - 12' Base Shipping Bundles



ITEM	PART NO.	DESCRIPTION	QTY
1	60911	Mounted Tire & Wheel W815-6-08 TL9.5LB15 8Ply	6
2	73025G	Cross Fold Hitch Assembly (Green)	1
	73025R	Cross Fold Hitch Assembly (Red)	
3	73146B	Lights/Transport Marking Package	1
4	73258G	Main Frame Assembly (Green)	1
	73258R	Main Frame Assembly (Red)	
5	73314G	Jack Mount & Stand Bundle (Green)	1
	73314R	Jack Mount & Stand Bundle (Red)	
6	73330B	Hydraulic & Parts Box/Crate	1
7	73633B	Weight Transfer Box	1
8A	74603B	Basket & Frame 4' (Double) Assembly (For Model 1245)	3
8B	76031B	Roller Basket & Frame 4' (Double) Assembly (For Model 1245D)	
9	74515B	Split Function Valve Kit	1
10	76540B	Drum Scraper Kit 4' (For Model 1245D)	3

NOTE: Refer to PARTS section for complete parts breakdown.

Rolling Harrow - 12’ Base 10’-14’ Wing Shipping Bundles



Rolling Harrow - 12' Base 10'-14' Wing Shipping Bundles

ITEM	PART NO.	DESCRIPTION	WING QTY.				
			10' WINGS	11' WINGS	12' WINGS	13' WINGS	14' WINGS
1A	74603B	Basket & Frame 4' (Double) Assembly	-	-	-	4	2
	74581B	Basket & Frame 5' (Double) Assembly	4	2	-	2	4
	74604B	Basket & Frame 6' (Double) Assembly	-	2	4	-	-
1B	76031B	Roller Basket & Frame 4' (Double) Assembly					
	76008B	Roller Basket & Frame 5' (Double) Assembly					
	76032B	Roller Basket & Frame 6' (Double) Assembly					
2	76540B	Drum Scraper Kit 4'					
	76541B	Drum Scraper Kit 5'					
	76542B	Drum Scraper Kit 6'					
3	76972G	Wing 10' LH Asy =Green=	1	-	-	-	-
	76972R	Wing 10' LH Asy =Red=					
4	76973G	Wing 10' RH Asy =Green=	1	-	-	-	-
	76973R	Wing 10' RH Asy =Red=					
5	76974G	Wing 11' LH Asy =Green=	-	1	-	-	-
	76974R	Wing 11' LH Asy =Red=					
6	76975G	Wing 11' RH Asy =Green=	-	1	-	-	-
	76975R	Wing 11' RH Asy =Red=					
7	76976G	Wing 12' LH Asy =Green=	-	-	1	-	-
	76976R	Wing 12' LH Asy =Red=					
8	76977G	Wing 12' RH Asy =Green=	-	-	1	-	-
	76977R	Wing 12' RH Asy =Red=					
9	76978G	Wing 13' LH Asy =Green=	-	-	-	1	-
	76978R	Wing 13' LH Asy =Red=					
10	76979G	Wing 13' RH Asy =Green=	-	-	-	1	-
	76979R	Wing 13' RH Asy =Red=					
11	76980G	Wing 14' LH Asy =Green=	-	-	-	-	1
	76980R	Wing 14' LH Asy =Red=					
12	76981G	Wing 14' RH Asy =Green=	-	-	-	-	1
	76981R	Wing 14' RH Asy =Red=					

NOTE: Refer to PARTS section for complete parts breakdown.

Optional Shipping Bundles & Accessories

PART NO.	DESCRIPTION	NOTES
73131B	Straight Spiked-Tooth Leveler Bar	For Base & 10' Wing Set
73132B	Straight Spiked-Tooth Leveler Bar	For Base & 11' Wing Set
73133B	Straight Spiked-Tooth Leveler Bar	For Base & 12' Wing Set
73134B	Straight Spiked-Tooth Leveler Bar	For Base & 13' Wing Set
73135B	Straight Spiked-Tooth Leveler Bar	For Base & 14' Wing Set
76847B	Diagonal Round-Tooth Leveler Bar	For Base & 10' Wing Set
76850B	Diagonal Round-Tooth Leveler Bar	For Base & 11' Wing Set
76853B	Diagonal Round-Tooth Leveler Bar	For Base & 12' Wing Set
76855B	Diagonal Round-Tooth Leveler Bar	For Base & 13' Wing Set
76857B	Diagonal Round-Tooth Leveler Bar	For Base & 14' Wing Set
73141B	Coil-Tine Leveler Bar	For Base & 10' Wing Set
73142B	Coil-Tine Leveler Bar	For Base & 11' Wing Set
73143B	Coil-Tine Leveler Bar	For Base & 12' Wing Set
73144B	Coil-Tine Leveler Bar	For Base & 13' Wing Set
73145B	Coil-Tine Leveler Bar	For Base & 14' Wing Set
91523 9093	Basket Angle Adjustment Pin & Klik Pin (2 each per basket)	
74964	Reinforcing Disc (Weld-In)	For Aggressive & Passive Rollers
74704FS	Dual Hydraulic Kit	
73903B	Soil Deflector Bracket Kit	
73539G	Hydraulic Adjustable Offset Tongue =Green=	In-Lieu of Standard Tongue
73539R	Hydraulic Adjustable Offset Tongue =Red=	
73393	Electric Over Hydraulic Control Switch	For Offset Tongue
91240	Lock/Check Valve	Connecting Rolling Harrow to lead machine that uses rephase hydraulics
89360B	Tire Scraper Kit	For All Sizes
79238G	Gooseneck Hitch Assembly w/Decals =Green=	
79238R	Gooseneck Hitch Assembly w/Decals =Red=	

Main Frame/Tire & Wheel

1. Using safe lifting devices rated at 1500 lbs. minimum, lift main frame assembly (73258G or 73258R) onto stands also rated at 1500 lbs. minimum.

2. Raise the front of machine until shipping strap and pins can be removed from the main frame assembly and rockshaft (FIG. 2-1).

NOTE: Remove and discard all shipping stands from main frame (one on each axle leg and two on bent arms).

3. Open the parts box/crate (73330B) and locate the two 3 1/4" x 10 hydraulic cylinders (902759), pins 1" Dia. x 4" (85631), and spiral pins 1/4" Dia. x 1 7/8" (91144-165). Check that retracted cylinder length is 22 1/4" (FIG. 2-2). Adjust both cylinders to this dimension as necessary.

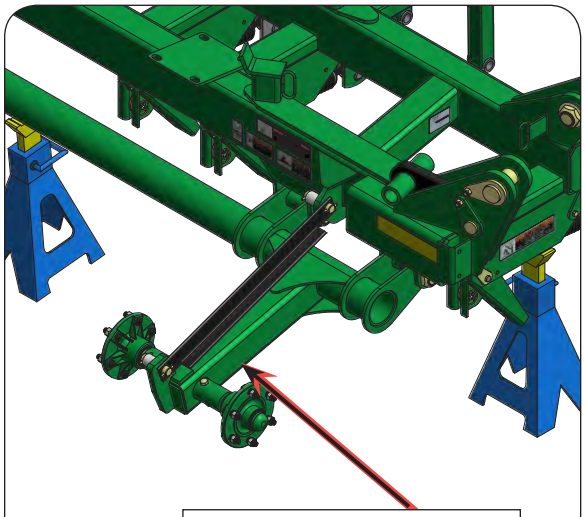


FIG. 2-1

NOTE: This unit uses series cylinders for the lift system. Be certain to use the 3 1/4" bore cylinders on the main frame and 3" bore cylinders on the wings.

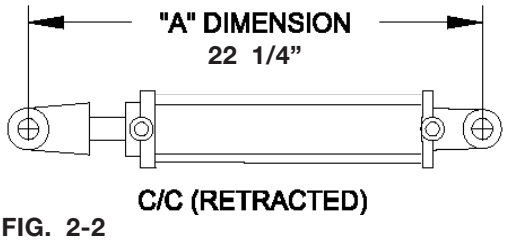


FIG. 2-2

Main Frame/Tire & Wheel (continued)

⚠ 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.**

4. Install lift cylinders onto main frame assembly with the ports facing up. Secure base end of cylinders to the main frame assembly using the 1” Dia. x 4” pins (85631) and 1/4” Dia. x 1 7/8” spiral pins (91144-165) as shown in FIG. 2-3 and FIG. 2-4.

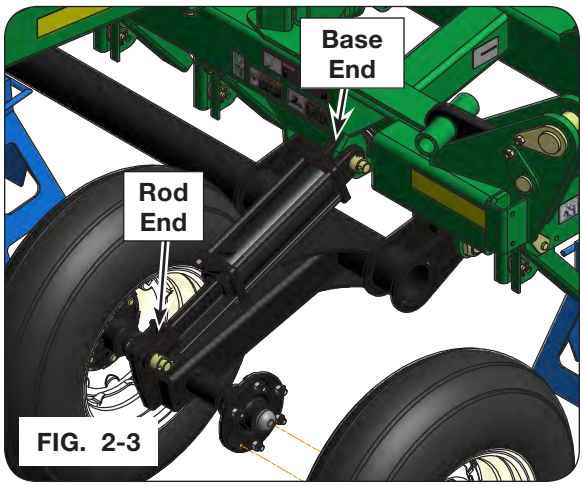


FIG. 2-3

5. Install the four mounted tire and wheel assemblies (60911) to the main frame assembly as shown in FIG. 3-4. Torque wheel nuts according to specifications in “MAINTENANCE” Section.

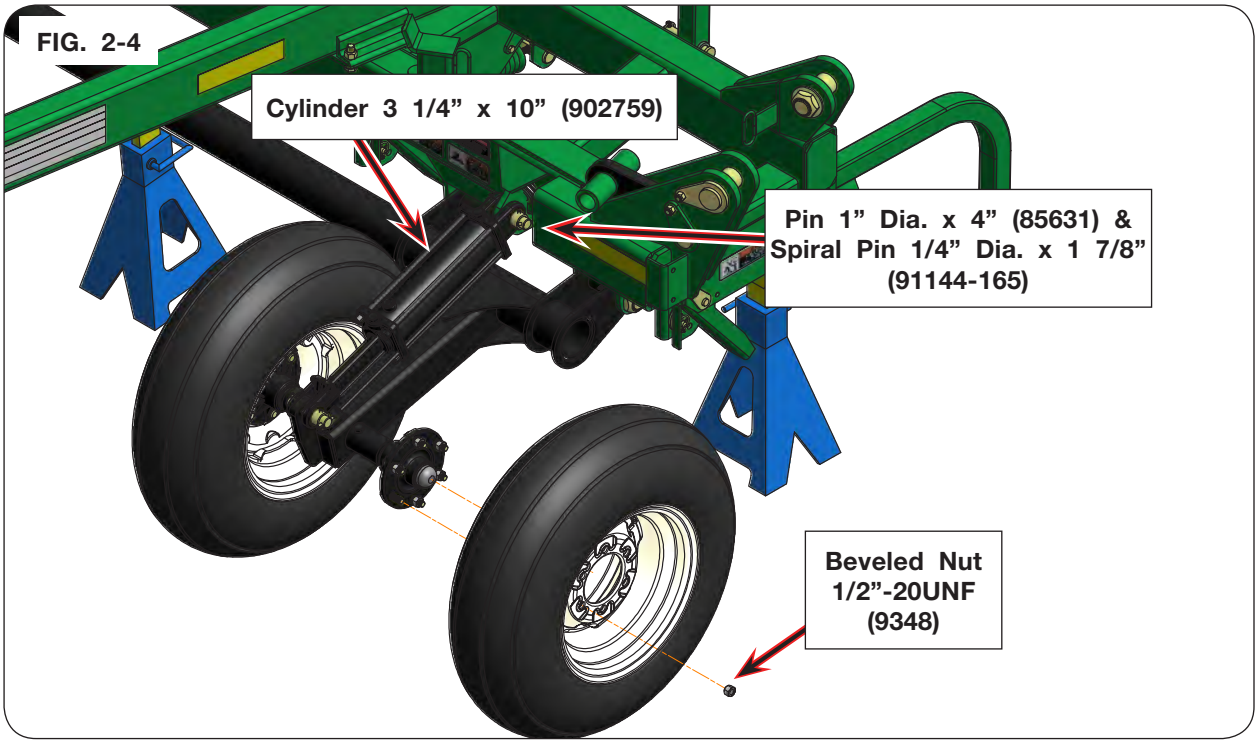


FIG. 2-4

Hitch

If necessary, install optional leveler bar kits now. See optional leveler bar assembly in this section.

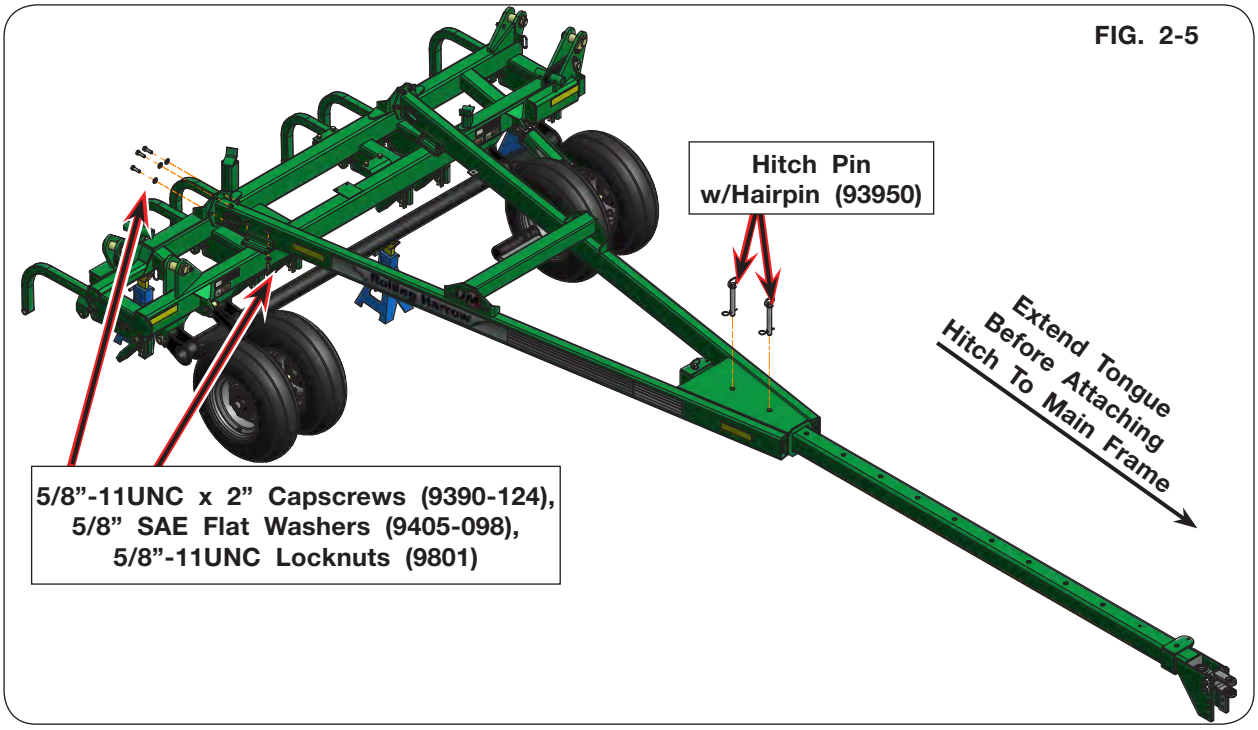
If no leveler bars will be installed on this machine, the mounting arms should be placed in the lock-up position to prevent dragging or accumulating of debris. See Adjustments Section for procedure to lock up the arms.

If using an Gooseneck Hitch Assembly (79238G or 79238R) instead of the standard hitch assembly, refer to "Gooseneck Hitch Assembly (Optional)" in this section.

1. Remove the center pins - hitch pin 1" Dia. x 8" with hairpin (93950) as shown in FIG. 2-5. Slide the extendible tongue out and reinsert the center pins.

2. Remove and save the hardware from the rear of the cross fold hitch assembly (73025G/73025R for standard hitch assembly, or 73546G/73546R for offset hitch assembly). Using hoist or lifting devices rated at 1000 lbs. minimum, lift cross fold hitch assembly and attach it to the main frame assembly as shown in FIG. 2-5 using the hardware previously removed from the cross fold hitch assembly.

FIG. 2-5



Jack

1. With the hoist or lifting devices still attached to the cross fold hitch assembly, attach the jack mounting arm (75906G or 75906R) to the rear of the main frame with the existing hardware as shown in FIG. 2-6.

2. In the parts box/crate (73330B) locate the jack (901061), hitch pin 3/4" Dia. x 6" (95958) and inside the hardware bag locate one 3/4"-10UNC x 6" capscrew (9390-157), 5/8"-11UNC x 3 1/4" capscrew (9390-129), one 5/8"-11UNC locknut (9801), and one 3/4"-10UNC locknut (9802).

3. Attach the jack stand (75907B) to the jack mounting arm with a 3/4"-10UNC x 6" capscrew (9390-157), 3/4"-10UNC locknut (9802) and hitch pin 3/4" Dia. x 6" (95958) as shown in FIG. 2-6.

4. Secure the jack (901061) to the jack stand (75907B) by placing the 5/8"-11UNC x 3 1/4" capscrew (9390-129) and 5/8"-11UNC locknut (9801) in the vertical holes (FIG. 2-6).

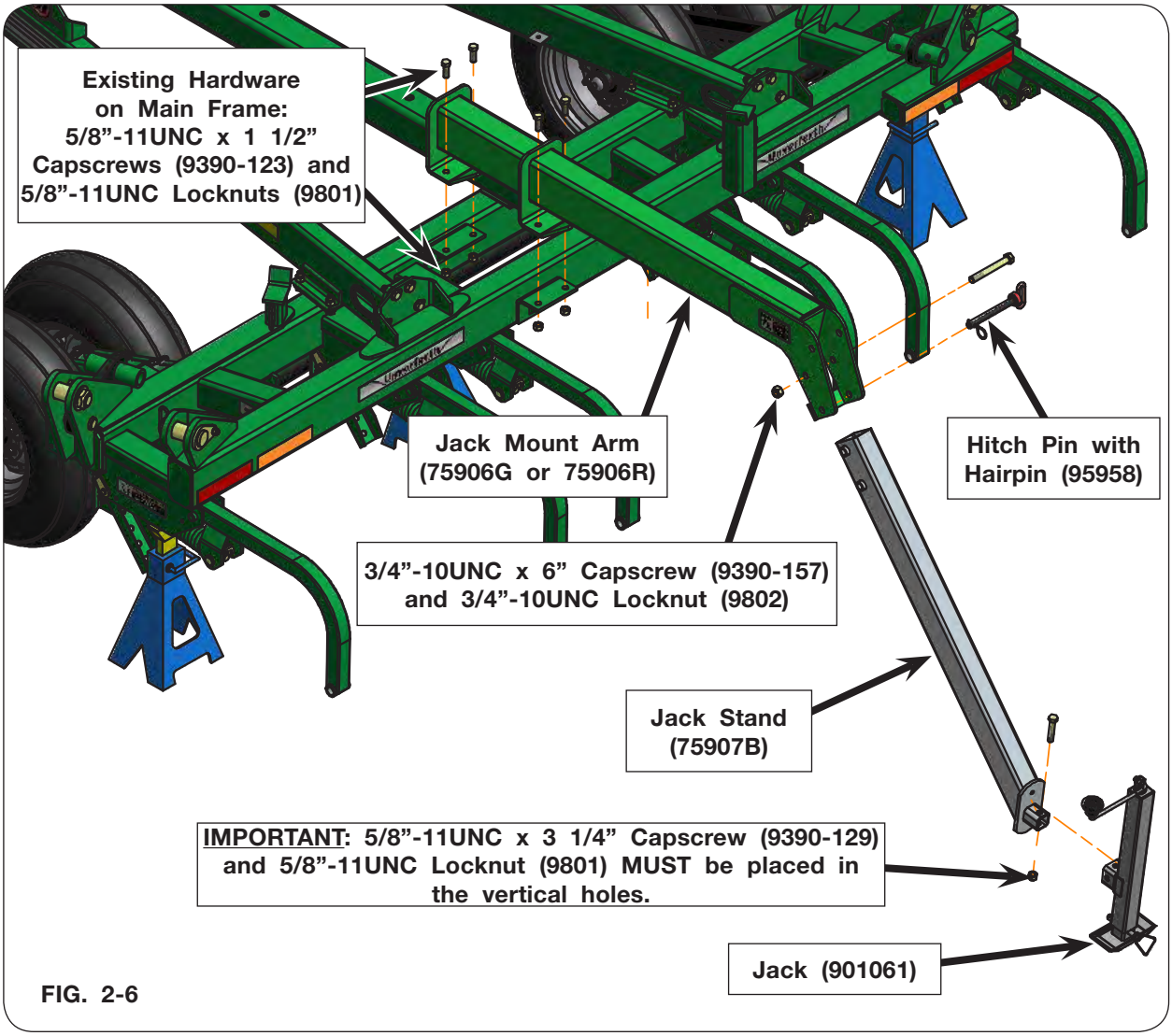


FIG. 2-6

Jack (continued)

NOTE: See FIG. 2-7 for "Parked Position" and FIG. 2-8 for "Working Position".

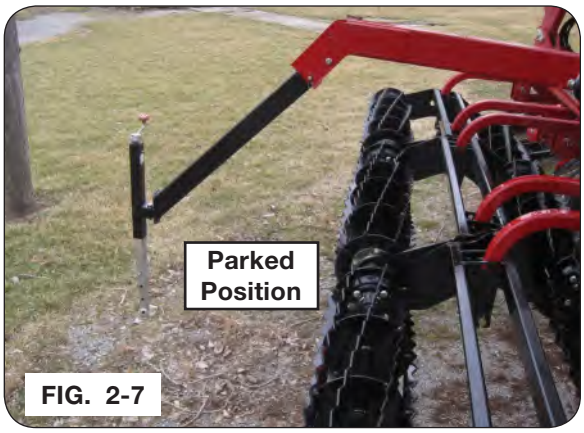


FIG. 2-7

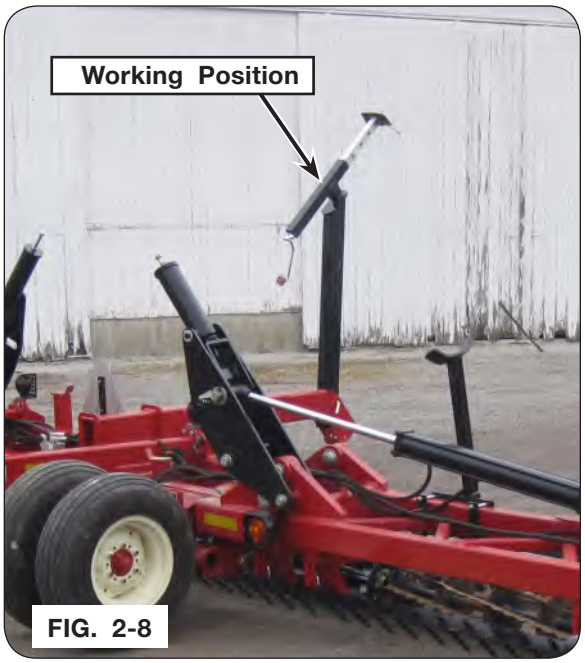
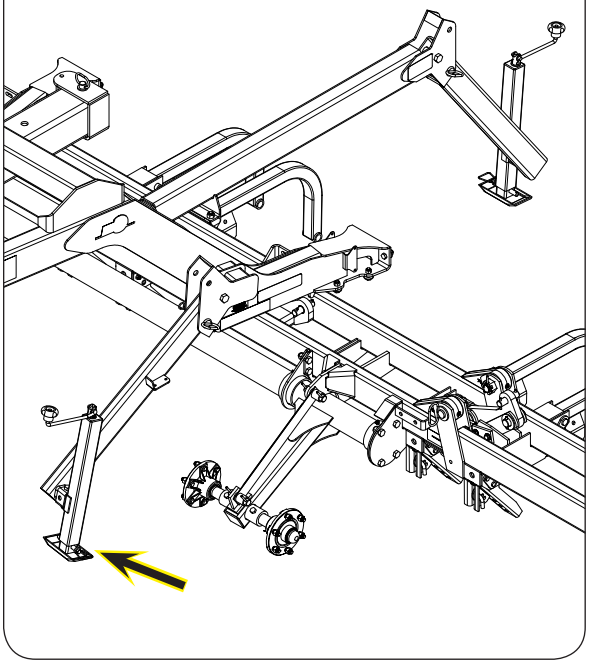


FIG. 2-8

If the gooseneck hitch assembly is being used, gradually release the safe lifting device retaining the hitch. If the rear jack assembly raises off the ground, then a second jack needs to be purchased (kit #77813B). Assemble the second jack to the front of the gooseneck hitch assembly (FIG. 2-9).

FIG. 2-9



Transport Chain

1. Attach the transport chain (94098) with a rating of 10,100 lbs. to the front, left-hand side of the tongue/hitch using large flat washer (85723), 7/8”-9UNC x 3 1/2” capscrew (9390-170), and 7/8”-9UNC locknut (91141) as shown in FIG. 2-10. Parts are located in the parts box/ crate (73330B).

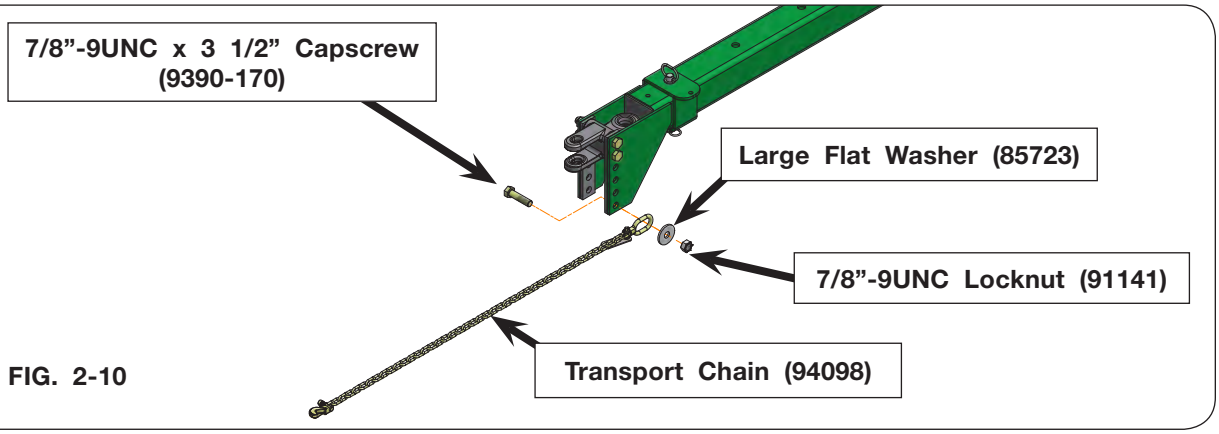


FIG. 2-10

⚠ CAUTION

- **ALWAYS USE TRANSPORT CHAIN WHEN TRANSPORTING IMPLEMENTS. FAILURE TO USE CHAINS COULD CAUSE PERSONAL INJURY OR DAMAGE IF IMPLEMENTS BECOME DISENGAGED.**

Hose Holders

1. Attach the small hose holder (902979B) using 1/2”-13UNC x 1 3/4” capscrew (9390-102), 1/2” flat washer (9405-088), and 1/2”-13UNC locknut (9800) as shown in FIG. 2-11.

2. Attach the large hose holder (9661) to the hitch with 1/2”-13UNC x 6 1/2” capscrew (9390-116), 1/2” flat washer (9405-088), and 1/2”-13UNC locknut (9800) as shown in FIG. 2-11.

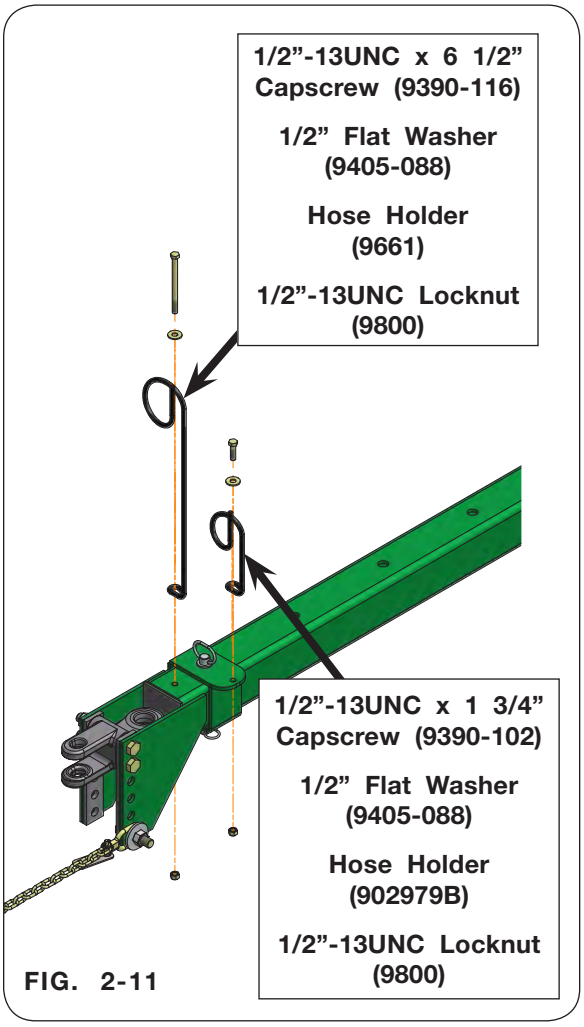


FIG. 2-11

Wings

1. Using safe lifting devices rated at 1000 lbs. minimum, lift the right-hand wing assembly and attach it to the main frame assembly using the hardware in the wing hinge area as shown in FIG. 2-12.

2. Using safe lifting devices rated at 1000 lbs. minimum, lift the left-hand wing assembly and attach it to the main frame assembly using the hardware in the wing hinge area (not shown, use FIG. 2-12 for reference).

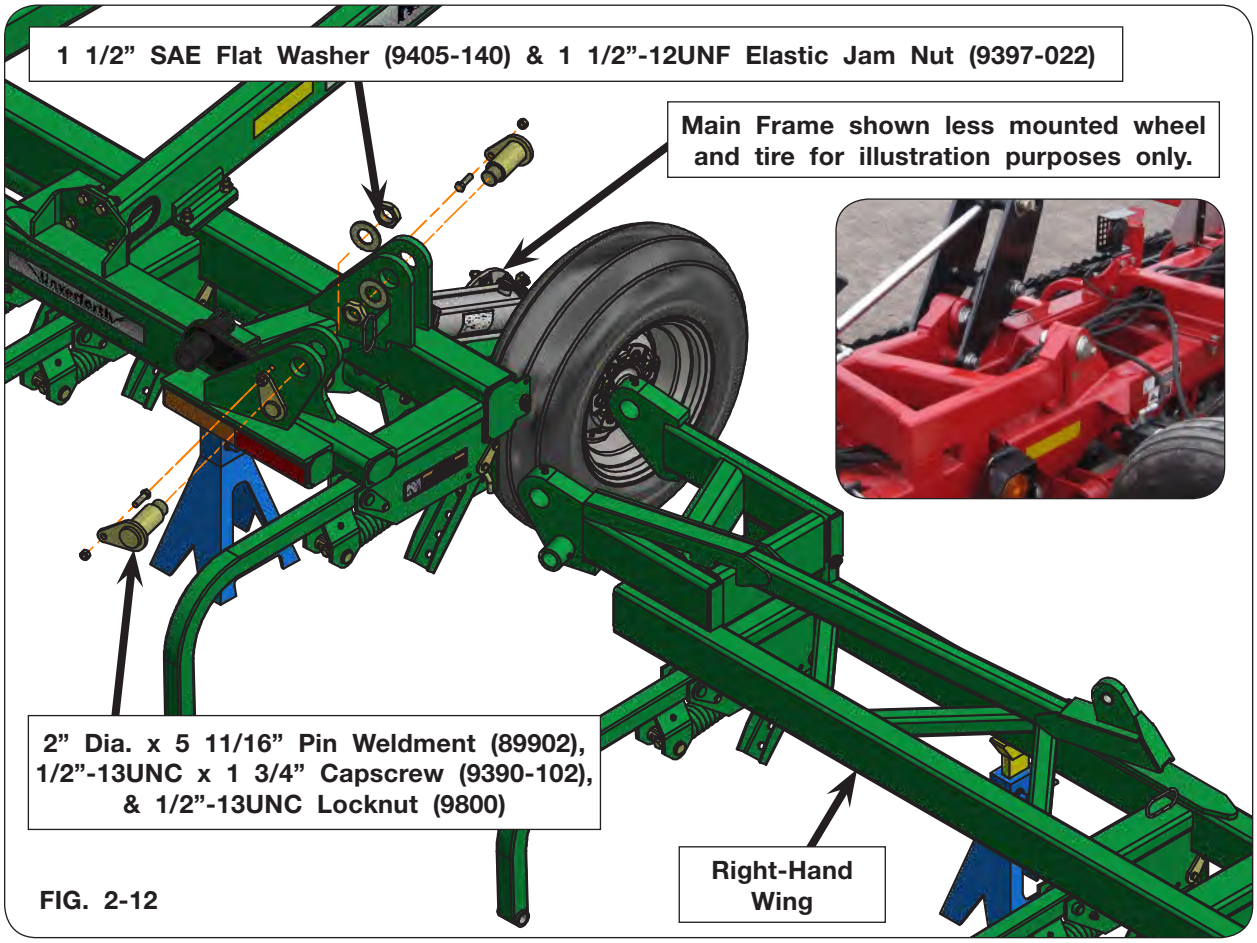


FIG. 2-12

Wings (continued)

3. Open the parts box/crate (73330B) and locate the 4” x 30” hydraulic cylinders (73576B).

4. Fasten the base end of the 4” x 30” cylinder (73576B) with a base end port facing down to the right-hand wing assembly with pin 1” Dia. x 4” (85631) and spiral pins 1/4” Dia. x 1 7/8” (91144-165) as shown in FIG. 2-13. Hardware can be located in the parts box/crate (73330B).

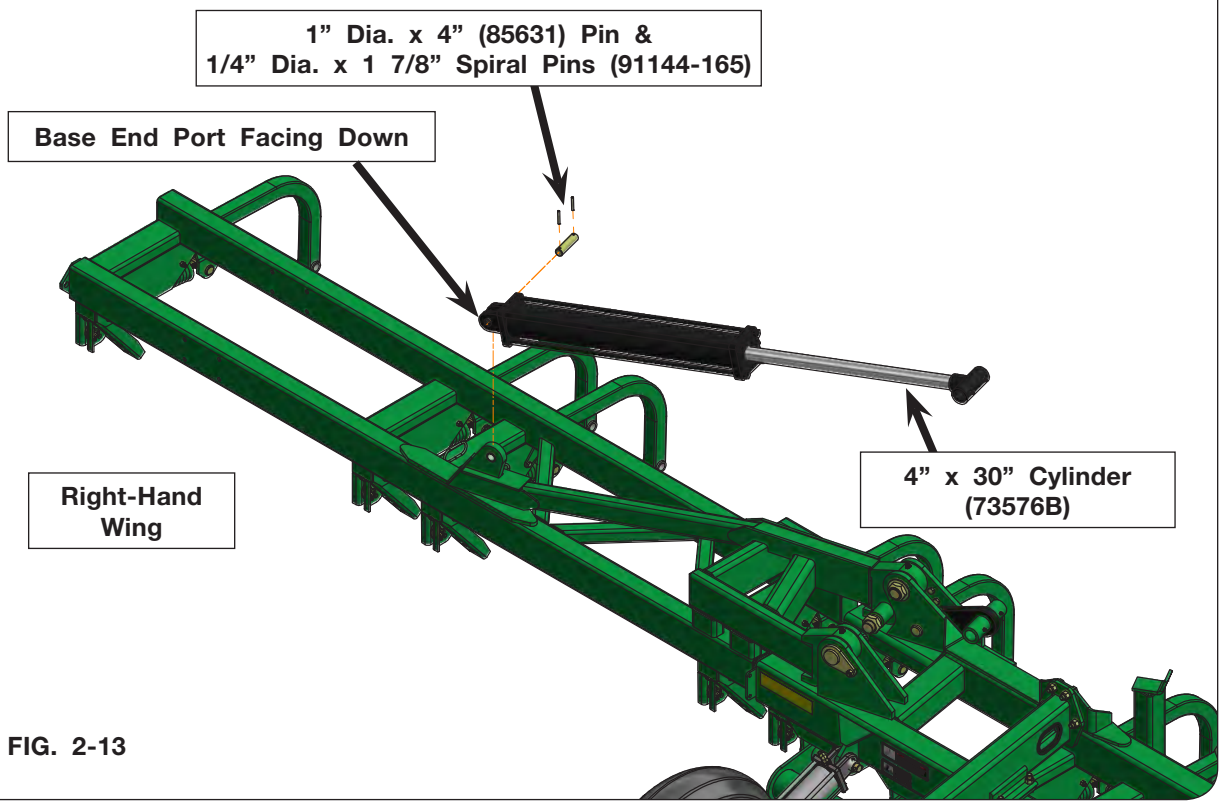


FIG. 2-13

5. Fasten the base end of the 4” x 30” cylinder (73576B) with a base end port facing down to the left-hand wing assembly with 1” Dia. x 4” pin (85631) and 1/4” Dia. 1 7/8” spiral pins (91144-165) using FIG. 2-13 for reference. Hardware can be located in the parts box/crate (73330B).

Wings (continued)

6. Assemble the spring can weldment (73566B), rod weldment (73570B), compression spring (9004371), yoke weldment (73562B), 3/4"-10UNC x 6" capscrew (91175), and hex nut (9394-016) as shown in FIG. 2-15.

NOTE: Assemble 3/4"-10UNC x 6" capscrew (91175) and hex nut (9394-016) hand tight only. Do not add spring pressure to mechanism until all linkage and cylinders are installed.

7. Place the spring can assembly between the two linkage plates and secure using 1" SAE flat washers (9405-116) and spiral pins 1/4" Dia. x 1 7/8" (91144-165) as shown in FIG. 2-14 and FIG. 2-15.

8. Attach the two linkage plates and spring can assembly to the unit with pins (89263), 1/2"-13UNC x 1 3/4" capscrews (9390-102), 1/2"-13UNC locknuts (9800), and 1 1/2"-12UNF elastic jam nuts (9397-022) as shown in FIG. 2-14 and FIG. 2-15.

FIG. 2-14

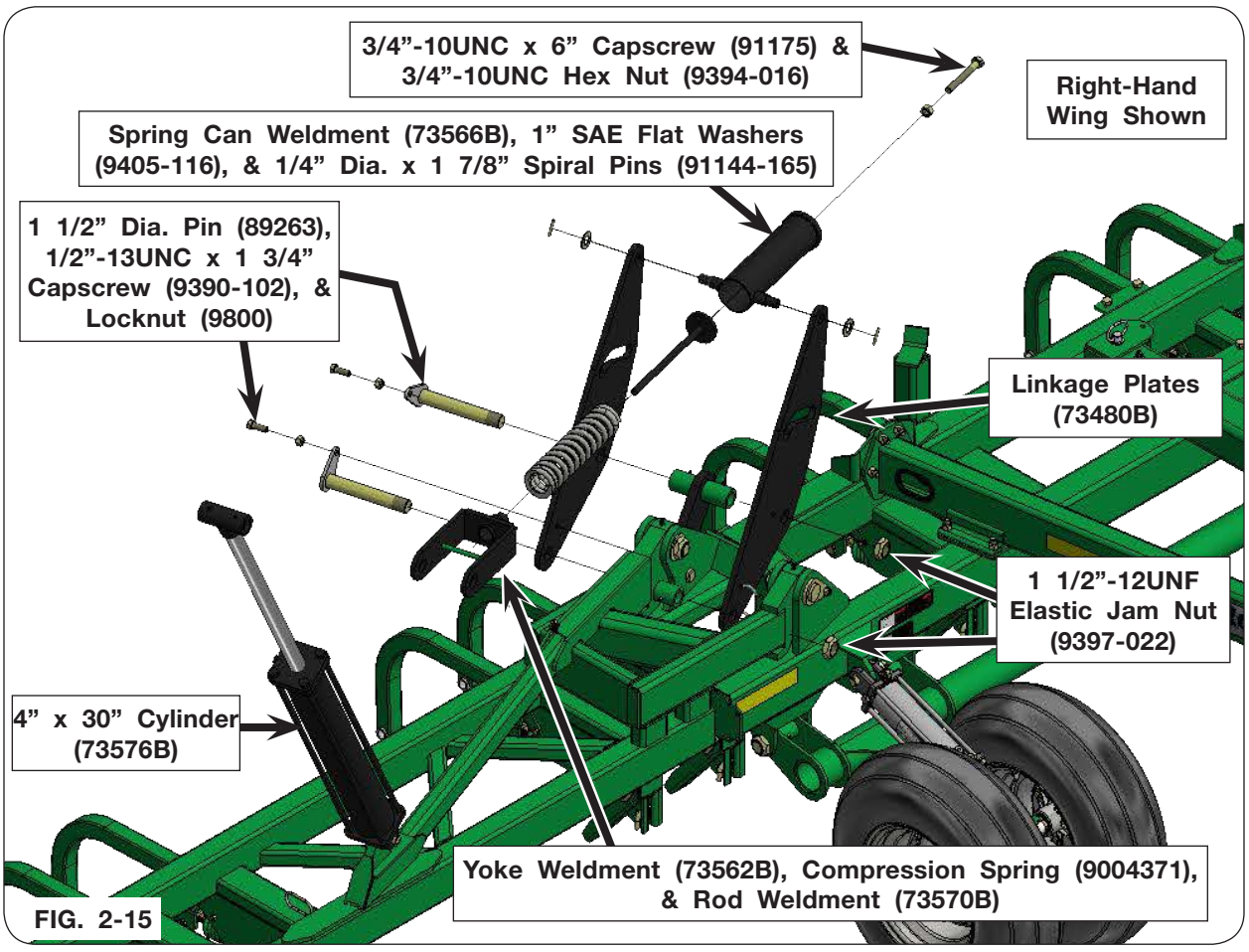


FIG. 2-15

Wing Lift Wheel Assembly

⚠ 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.**

1. Attach the right-hand wing lift wheel assembly to the right-hand side of the unit using the hardware provided (FIG. 2-16).

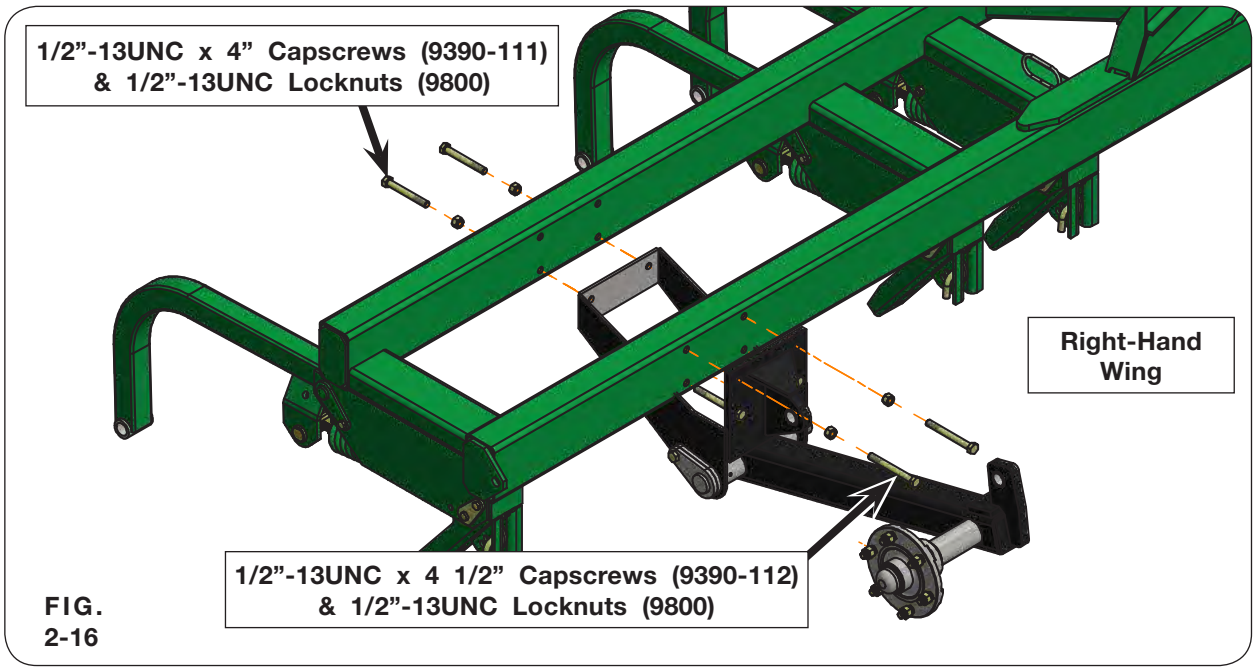


FIG. 2-16

2. Attach the left-hand wing lift wheel assembly to the left-hand side of the unit using the hardware provided (FIG. 2-16).

3. Open the parts box/crate (73330B) and locate the 3" x 10" hydraulic cylinders (902760). Check that retracted cylinder length is 22 1/4". Adjust both cylinders to this dimension as necessary (FIG. 2-17).

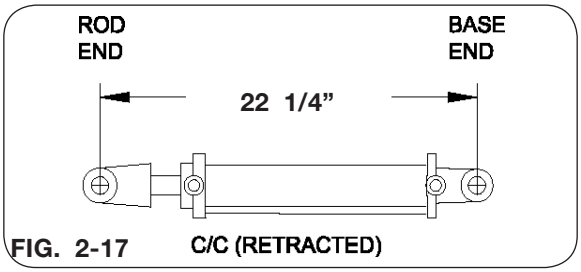


FIG. 2-17

Wing Lift Wheel Assembly (continued)

4. Fasten the base end of the 3” x 10” cylinder (902760) with the ports facing up to the right-hand wing assembly with 1” Dia. x 4” pin (85631) and 1/4” Dia. x 1 7/8” spiral pins (91144-165) as shown in FIG. 2-18. Hardware can be located in the parts box/crate (73330B).

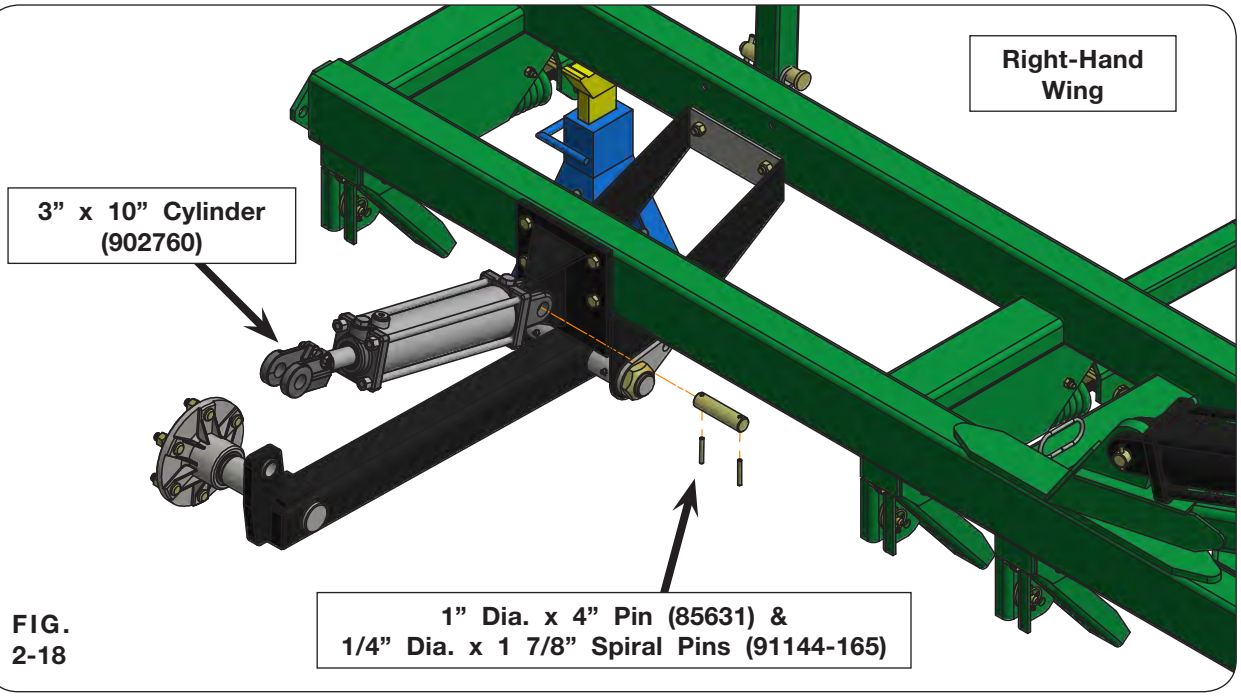


FIG. 2-18

5. Fasten the base end of the 3” x 10” cylinder (902760) with the ports facing up to the left-hand wing assembly with 1” Dia. x 4” pin (85631) and 1/4” Dia. x 1 7/8” spiral pins (91144-165) using FIG. 2-18 for reference. Hardware can be located in the parts box/crate (73330B).

SMV Emblem

1. Obtain 4 1/2” x 8” plate (88587B), 2” x 18 3/4” strap (88259B), SMV emblem (9829) two 1/4”-20UNC x 5” capscrews (9390-019), two 1/4”-20UNC x 3/4” capscrews (9390-003), and four 1/4”-20UNC locknuts (9936) from parts box (73330B).

2. Attach the SMV emblem (9829), to the strap (88259B) with two 1/4”-20UNC x 3/4” capscrews (9390-003) and 1/4”-20UNC locknuts (9936) (FIG. 2-19). Secure the SMV to the main frame assembly with clamp plate (88587B), two 1/4”-20UNC x 5” capscrews (9390-019) and 1/4”-20UNC locknuts (9936). SMV should be centered on main frame.

FIG. 2-19

Transport Cylinder Stops

The transport cylinder stops (73130B) can be attached to the hitch frame as shown in FIG. 2-20 with clevis pins (92955) and hairpin cotters (9514).

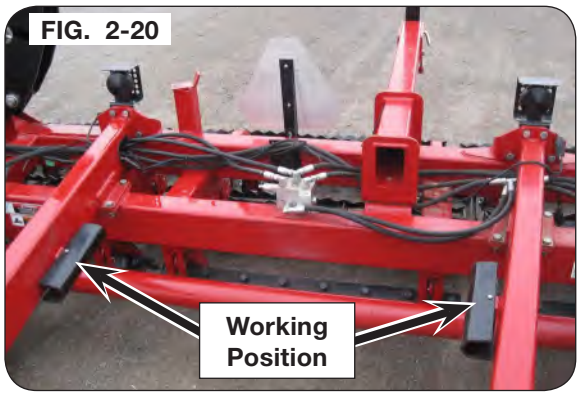


FIG. 2-20

Before transporting unit, attach the transport cylinder stops (73130B) to the main frame cylinders (FIG. 2-21).

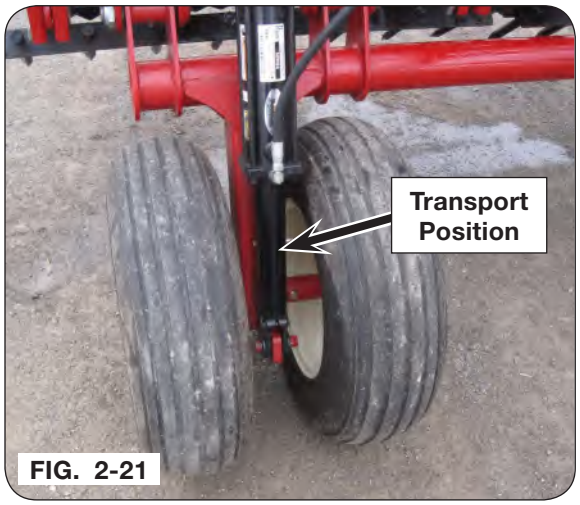


FIG. 2-21

Hydraulic Assembly

1. Install hydraulic components to the machine.

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: If the A-Frame Gooseneck Hitch assembly is being used, install the 2 hose extensions provided to the hoses that lead to the tractor. Tabs are located to the inside of the left-hand tube to secure the hydraulic hoses. If dual hydraulics are being used, additional hose extensions need to be purchased. See "A-Frame Gooseneck Hitch" components in the PARTS section for hoses required.

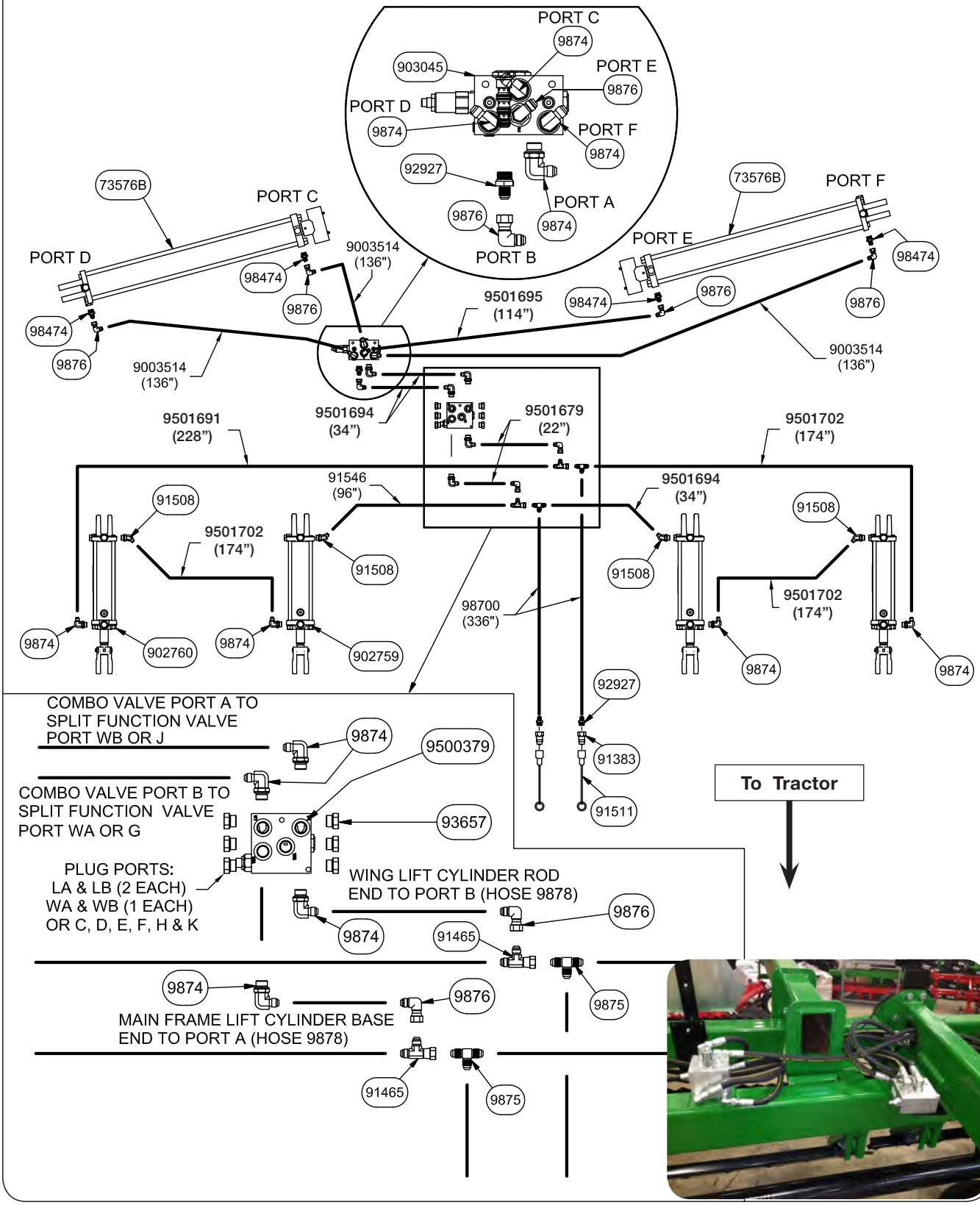
NOTE: Refer to the "HOSE ROUTING DIAGRAMS" for routing and positioning of the hydraulic components onto the frame.

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)

Hose Routing Diagram 1
Single Hydraulics With Combination Valve #903045



Hydraulic Assembly (continued)

2. Install velcro hose wrap (75884). With the wings unfolded and all hydraulic hoses assembled install hose wrap (75884) to each hinge area. Wrap all hoses passing through the hose retaining ring and center wrap on the ring. Use cable ties (94037) to fasten the hose wrap on the ends and 3"-4" on each side of the ring.

Purging A Hydraulic System

⚠ WARNING

- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

4. Purge air from system as follows:

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

5. With the wings unfolded and all hydraulic hoses assembled install hose wrap (75884) to each hinge area. Wrap all hoses passing through the hose retaining ring and center wrap on the ring. Use cable ties (94037) to fasten the hose wrap on the ends and 3"-4" on each side of the ring.

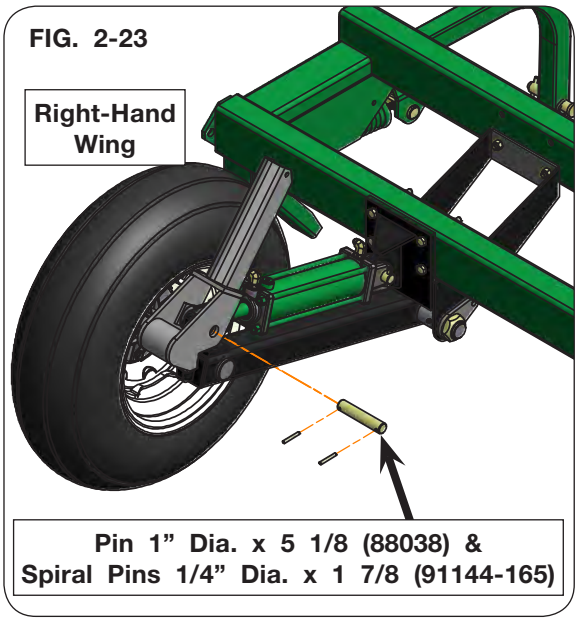
FIG. 2-22

1" Dia. x 4" Pin (85631) &
1/4" Dia. x 1 7/8" Spiral Pins (91144-165)

Hydraulic Assembly (continued)

6. Fasten the rod end of the right-hand and left-hand wing lift wheel assembly cylinders and gravity latches (73118B) with 1” Dia. x 5 1/8” pins (88038) and 1/4” Dia. spiral pins (91144-165) as shown in FIG. 2-23.

FIG. 2-23



7. Insert the rod end of the 4” x 30” cylinders on right-hand and left-hand side of the unit between the yoke weldment (73562B) and linkage plates (73480B). Secure using 1 1/2” Dia. x 10 3/4” pin (73084), 1 1/2” SAE flat washers (9405-140), and 1/2” Dia. x 3” spiral pins (91144-239).

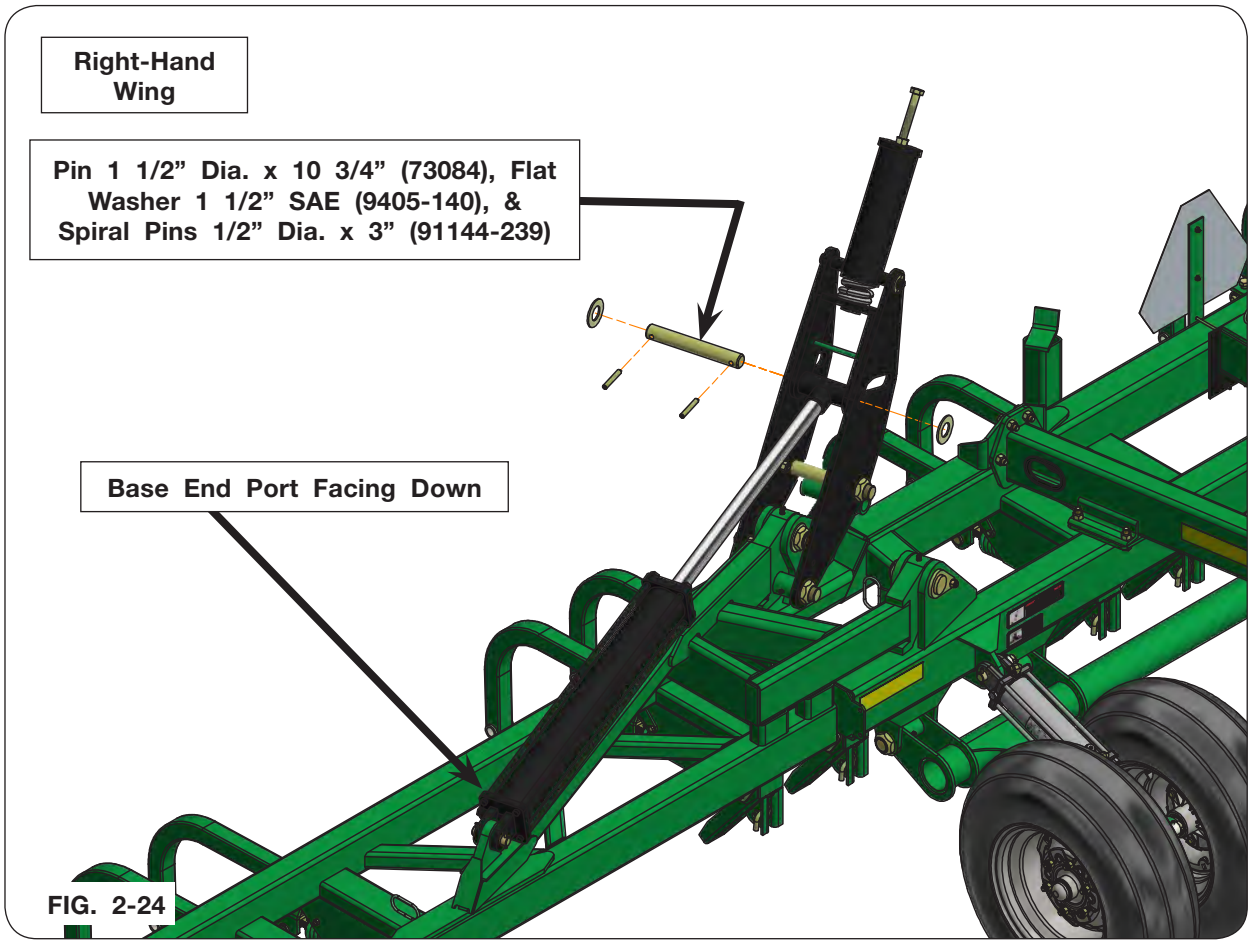


FIG. 2-24

Weight Transfer System Initial Settings

1. Tighten left-hand wing adjustment bolt until there is 2 1/8 inches from the top of the spring can to the under side of the adjustment bolt (FIG. 2-24A). Tighten the jam nut against the spring can.

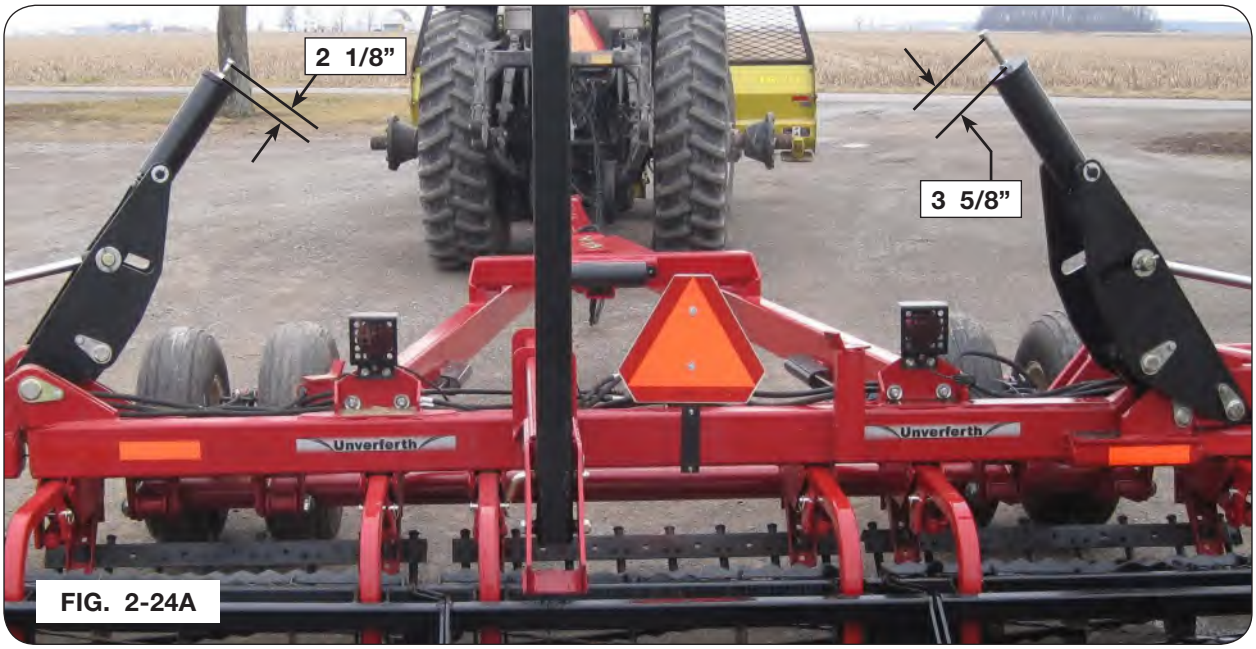


FIG. 2-24A

2. Tighten the right-hand wing adjustment bolt until there are 3 5/8 inches from the top of the spring can to the under side of the adjustment bolt (FIG. 2-24A). Tighten the jam nut against the spring can.

3. Refer to OPERATION section for proper in-field adjustments of the weight transfer system.

Wing Stands

1. Loosely mount the wing stand (89941B) to the front of the right-hand wing with stand plates (89944B), 1/2”-13UNC x 5” capscrews (9390-113), and 1/2”-13UNC locknuts (9800) as shown in FIG. 2-25 and 2-26.

FIG. 2-25

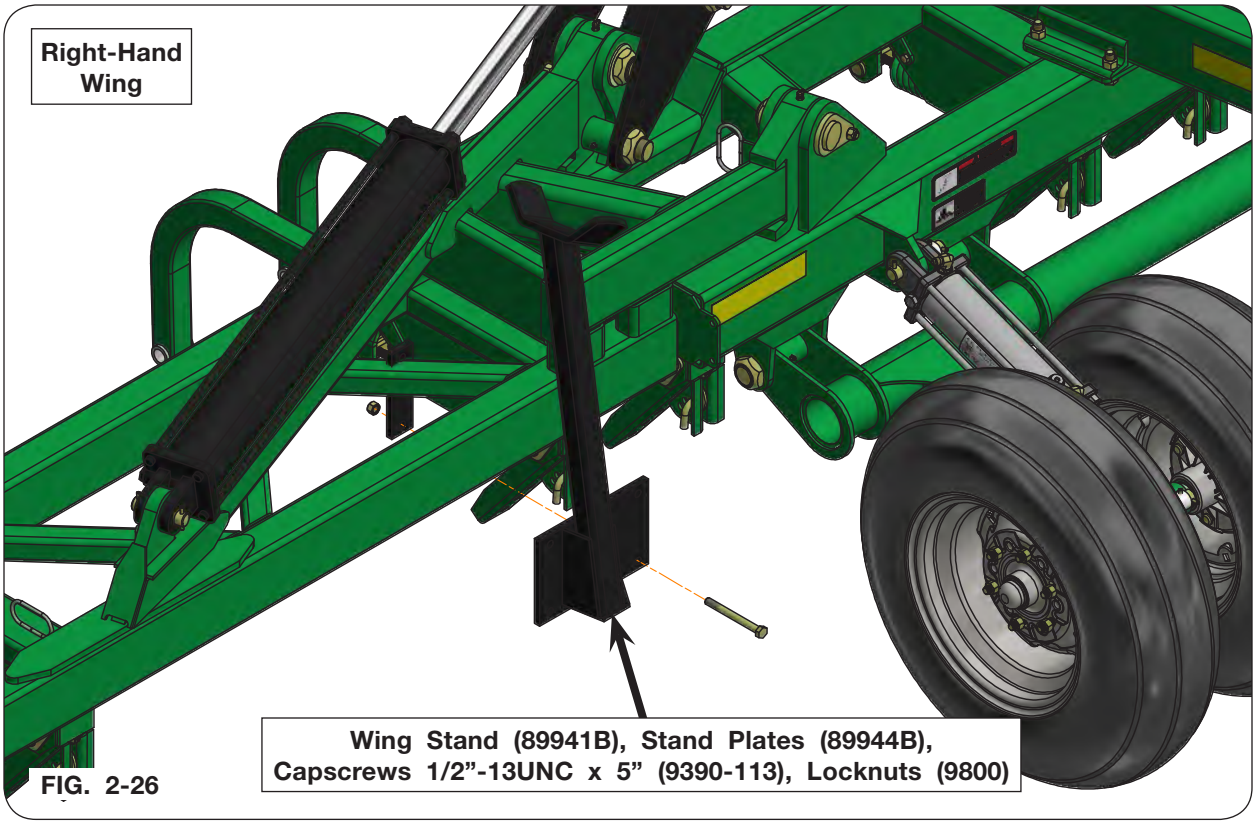


FIG. 2-26

Wing Stands (continued)

2. Loosely mount the wing stand (89941B) to the rear of the left-hand wing with stand plates (89944B), 1/2"-13UNC x 5" capscrews (9390-113), and 1/2"-13UNC locknuts (9800) as shown in FIG. 2-27.

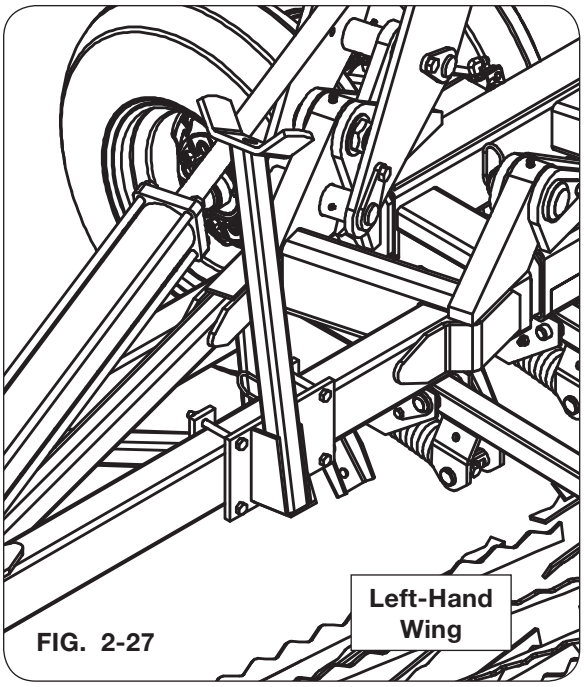


FIG. 2-27

3. Fold the wings and slide the assembled wing stands to rest on the base wing stands as shown in FIG. 2-28 and FIG. 2-29. Tighten hardware accordingly.

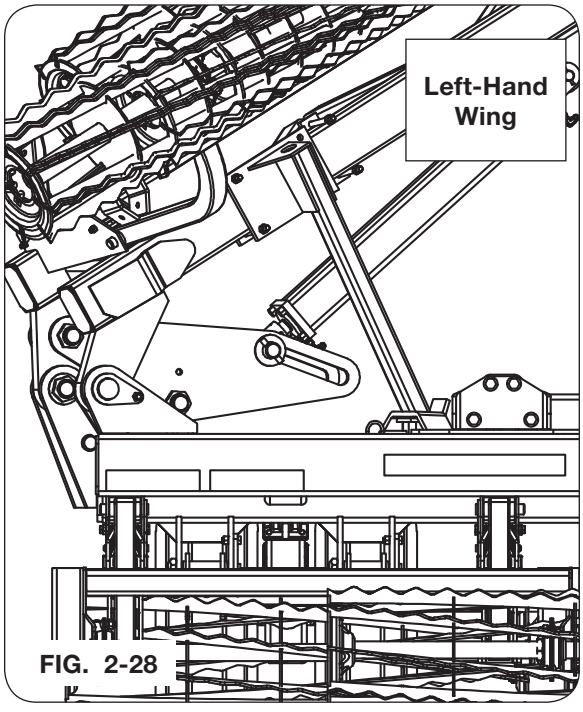


FIG. 2-28

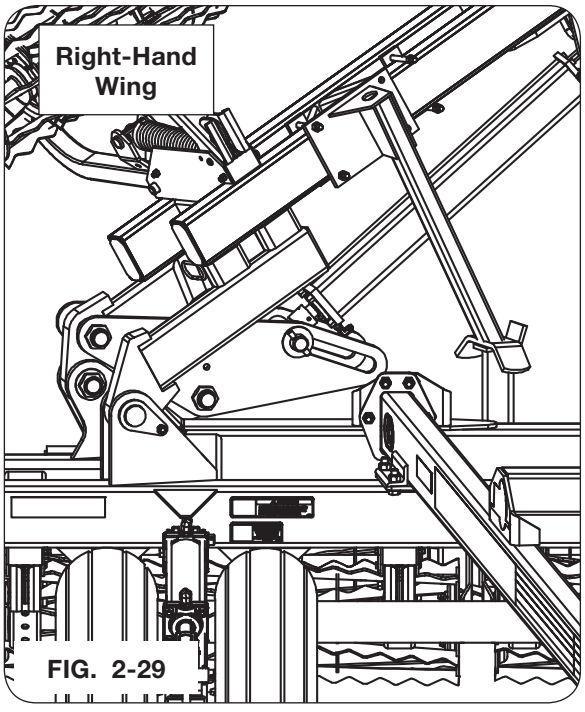


FIG. 2-29

Drum Scraper Assembly

1. Locate scrapers, bar mounts and hardware bags.

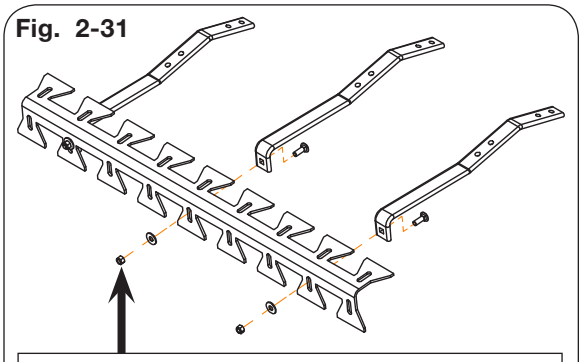
2. Install arm (75564B) to scraper using 1/2"-13UNC x 1 1/2" carriage bolts (9388-104) passing bolt through arm first. (FIG. 2-31)

NOTE: 4' basket/drum requires 2 bar mounts.
5' basket/drum requires 3 bar mounts.
6' basket/drum requires 4 bar mounts.

3. Install 1/2" USS flat washers (9405-088) and 1/2"-13UNC locknuts (9800) on scraper. (FIG. 2-31)

4. Slide arm all the way to the bottom of the scraper slot.

Fig. 2-31



Bar Mounts (75564B), Scraper, Carriage Bolts (9388-104), Flat Washers (9405-088), & Locknuts (9800)

5. Lay bar mounts/scraper assembly on top of basket frame near working position. (FIG. 2-32)

6. Install U-bolts (901837) from bottom of basket frame through arm. (FIG. 2-32)

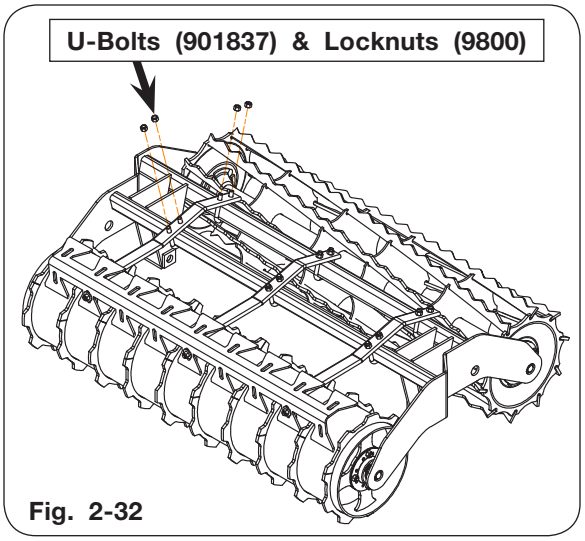
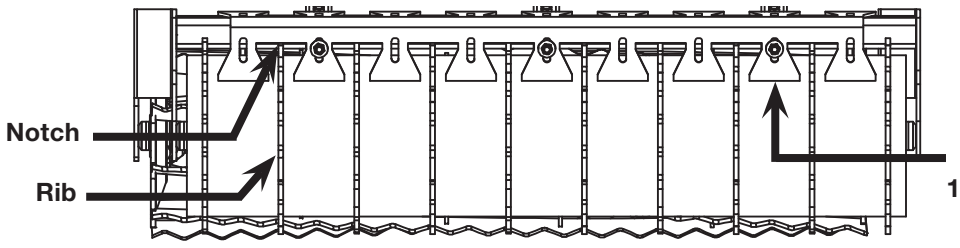


Fig. 2-32

7. Center notch in scraper over ribs on drums and secure scraper assembly with four 1/2"-13UNC locknuts per bar mount. (FIG. 2-33)

Center Notch In Scraper Over Ribs On Drum Roller

Fig. 2-33



8. Adjust scraper down to within 1/8" of the drum by loosening the locknuts on the carriage bolts, re-position scraper and secure with locknuts. (Some conditions may require the scraper to touch the drum to effectively scrape. Keep contact pressure to a minimum to prevent excessive wear to the scraper or drum.) Torque locknuts, refer to Torque Chart in MAINTENANCE section.

Basket & Frame Assembly

1. Connect the Rolling Harrow implement to a tractor. Raise the machine, but keep the wings unfolded. Install transport locks on main frame axle cylinders. Block the wings to remain level with the main frame. Lower machine onto transport locks and blocking. Relieve hydraulic oil pressure, see the power unit Operator's Manual for the proper procedure. Block the wheels on the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key.

2. Locate in base parts box/crate (73330B) the rubber basket/arm pivot covers (75707). There is a rubber cover for each basket mounting arm on the machine. Install rubber basket arm pivot covers over bent arms. See FIG. 3-30.

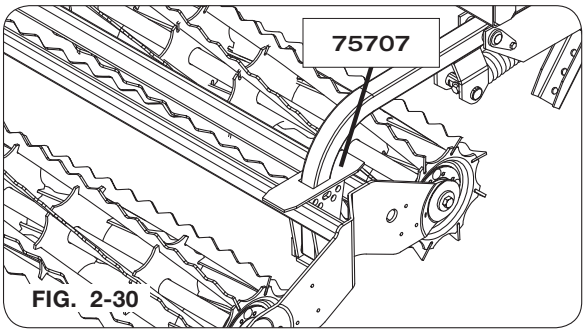


FIG. 2-30

3. Locate in the base parts box the 1" Dia. x 5 1/8" basket mounting pins (9500423) and 5/16" Dia. x 2" spiral pins (91144-186). (FIG. 2-31)

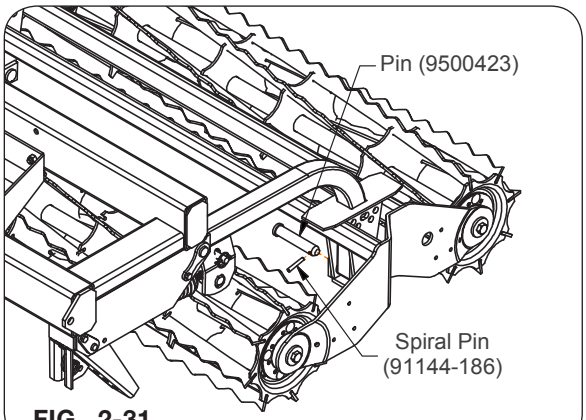


FIG. 2-31

Basket & Frame Assembly (continued)

4. Using a safe lifting device rated at 350 lbs. minimum, lift basket assembly into position on the mounting arms. Identify baskets and mating wings using Table 3-2 and FIG. 2-32. Position aggressive basket forward unless instructed otherwise. Install the basket mounting pins and spiral pins.

5. Repeat for each basket assembly.

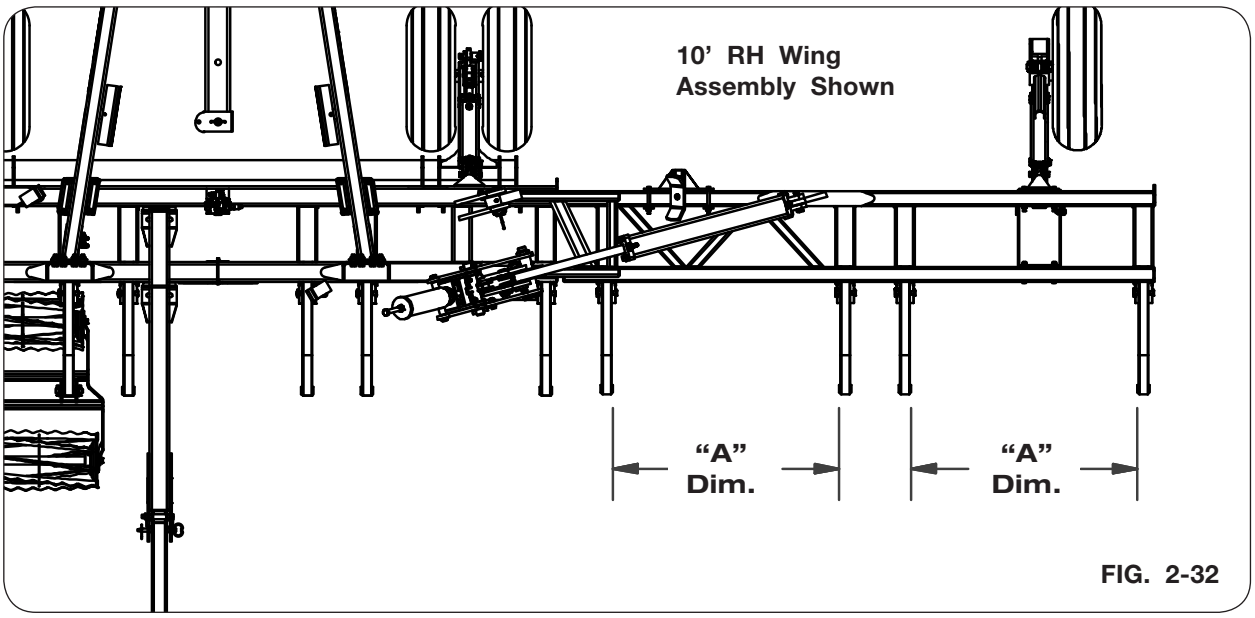


FIG. 2-32

TABLE 3-2		
"A" DIM. (FIG. 2-32)	BASKET WIDTH	FRAME WIDTH
34"	4'	47"
46"	5'	59"
58"	6'	71"

Optional Leveler Bar Assembly

1. Connect the Rolling Harrow implement to a tractor. Raise the machine, but keep the wings unfolded. Install transport locks on main frame axle cylinders. Block the wings to remain level with the main frame. Lower machine onto transport locks and blocking. Relieve hydraulic oil pressure, see the power unit Operator's Manual for the proper procedure. Block the wheels on the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key.

⚠ WARNING

- **FALLING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**

2. See Adjustments Section for procedure to adjust leveling bar tension.
3. Determine the style of leveler bar to be installed and follow instructions for that style. Unverferth Manufacturing does not recommend mixing leveler bar styles on a machine. See torque chart for proper tightening of all leveler bar hardware.

Spike Tooth Leveler Bar

1. Refer to chart below for determining which leveler bars are required for each machine section (FIG. 2-32).

"A" DIM. (FIG. 2-32)	ONE-BAR SIZE	ANGLE LENGTH
36"	4'	45"
48"	5'	57"
60"	6'	69"

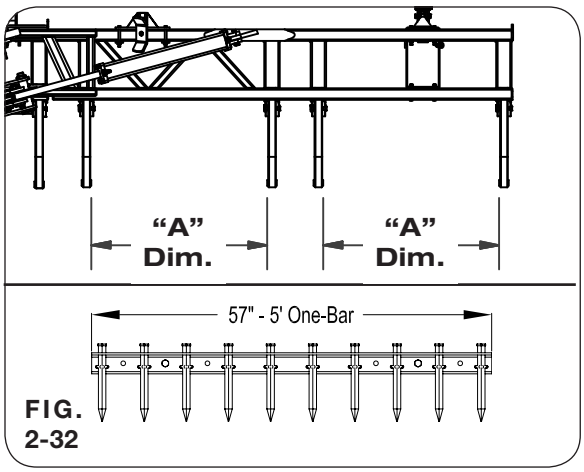


FIG. 2-32

2. Remove the 5/8"-11UNC x 1 1/2" capscrews (9390-122), square washers (83284), and 5/8"-11UNC locknuts (9801) from the angle of the leveler bar assembly (FIG. 2-33).
3. Center the leveler bar assembly between the mounting arms and align with the proper set of mounting holes. Mount the spike leveler bars in the lowest holes on the mounting arms unless directed otherwise. Place the flats of the angles against the mounting arms and insert the capscrews. Place the square washers inside the mounting arms and secure with the locknuts as shown in Fig 2-33.

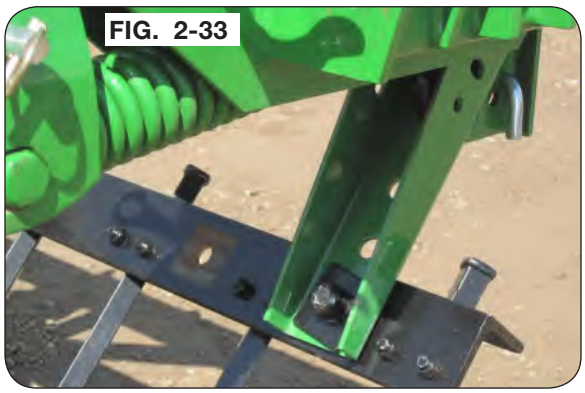


FIG. 2-33

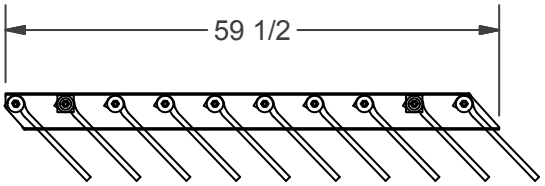
Optional Leveler Bar Assembly (continued)

Diagonal Tooth Leveler Bar

Diagonal tooth leveler bars come in right-hand and left-hand assemblies. The teeth will point diagonally to the outside of the machine on each assembly.

1. Use the chart below and the diagonal tooth leveler bar layouts to identify the bars needed for your machine (FIG. 2-34).

ONE-BAR SIZE	RIGHT/LEFT LENGTH	CENTER LENGTH
4’	47 1/2”	44 1/2”
5’	59 1/2”	56 1/2”
6’	73 3/8”	68 1/2”



5’ One Bar

FIG. 2-34

2. The dimensions on the diagonal tooth leveler bar layouts identify which holes must be used for mounting. The diagonal bars attach to the machine’s mounting arms using the 1/2”-13UNC x 3” carriage bolts (9388-110), two square washers (3788B), 1/4” thick flat washers (91069B), 1/2” USS washers (9405-088), and 1/2”-13UNC locknuts (9800) (FIG. 2-35). Often, this mounting hardware will not be assembled to the diagonal bar at the correct location shown by the layouts. Switch mounting hardware to the position shown on Diagonal Tooth One-Bar Layouts in this section.

FIG. 2-35

FIG. 2-36

3. Mount the diagonal bar to the MIDDLE hole on the machine’s mounting arms (Fig 2-35).

IMPORTANT

- *Machine damage will result if the diagonal leveler bars are installed in any hole in the machine’s mounting arms other than the middle.*

Optional Leveler Bar Assembly (continued)

Coil Tine Leveler Bar

1. Refer to the chart below to identify the coil tine leveler bars needed for each section (FIG. 2-37).

"A" DIM. (FIG. 2-37)	ONE-BAR SIZE	ANGLE LENGTH
36"	4'	46"
48"	5'	58"
60"	6'	70"

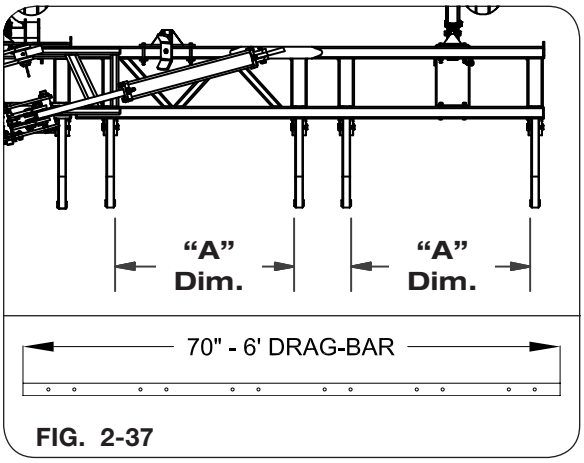


FIG. 2-37

2. Remove the 7/16"-14UNC locknuts (9799), 7/16" flat washers (9405-082), and U-bolts (95914) from the coil tine bar assemblies (FIG. 2-38).

FIG. 2-38

3. Mount the tine bar clamps in the lower two holes of the machine mounting arm unless directed otherwise. Place the clamp castings (84720) against the front of the machine mounting arms, put the tine bar assemblies in the clamps, and install the U-bolts (95914). Place the 7/16" flat washers (9405-082) against the back of the mounting arm and install the 7/16"-14UNC locknuts (9799). Center the tine bar between the machine mounting arms before tightening hardware.

4. Identify the tines behind the base frame tires and wing transport tires that could rotate forward into the tires. These tines must have the anti-rotation clips (84837) installed to prevent tire damage. Check the hydraulic base parts bundle and wing transport wheel parts bundle for the clips.

IMPORTANT

- *Operating coil tine leveler bars without tine anti-rotation clips installed may cause tire damage.*

Optional Leveler Bar Assembly (continued)

5. Remove both 5/16”-18UNC x 1 3/4” capscrews (9390-062) and 5/16-18UNC locknuts (9928) on a tine directly behind a base frame or wing transport tire. See Fig 2-39.

FIG. 2-39

6. Attach clip, bushing, capscrew, and 3/8”-16UNC centerline locknut provided in hydraulic bundle (Fig 2-40). Then install the other capscrew and locknut previously removed. Tighten hardware.

FIG. 2-40

IMPORTANT

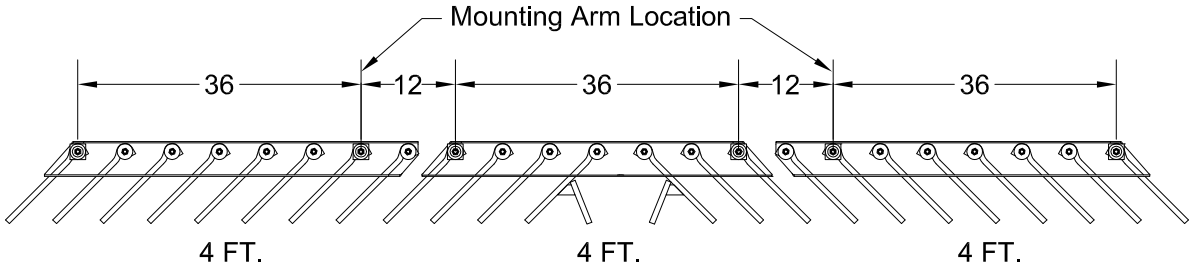
- *Clip 84837 must be assembled against the tine bar and hooked around the coil tine.*

7. Check that coil tine cannot rotate into tires when clip is properly installed. If tines can still rotate into tires, loosen U-bolts on tine bar mounts and rotate tine bar until tines cannot touch tires. Re-tighten U-bolts. Grind lip on clip to set clearance if necessary.

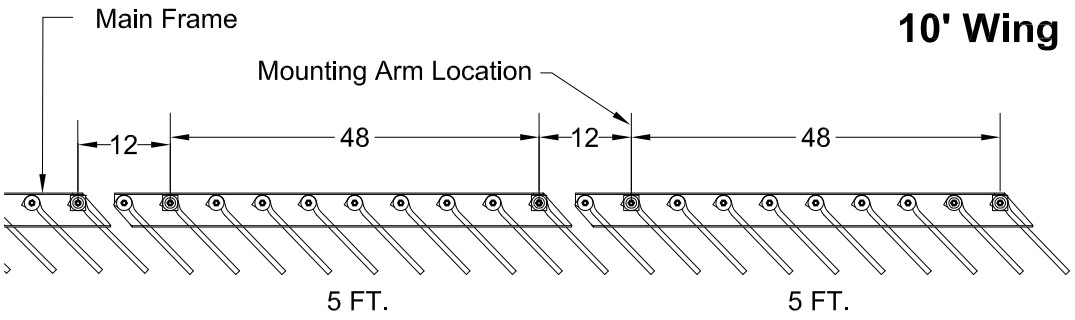
Diagonal Tooth One-Bar Layouts

Use these layouts to locate diagonal tooth one-bars with "Y" tooth as shown.
NOTE: On wings, right-hand view shown, assemble left-hand in the same manner.

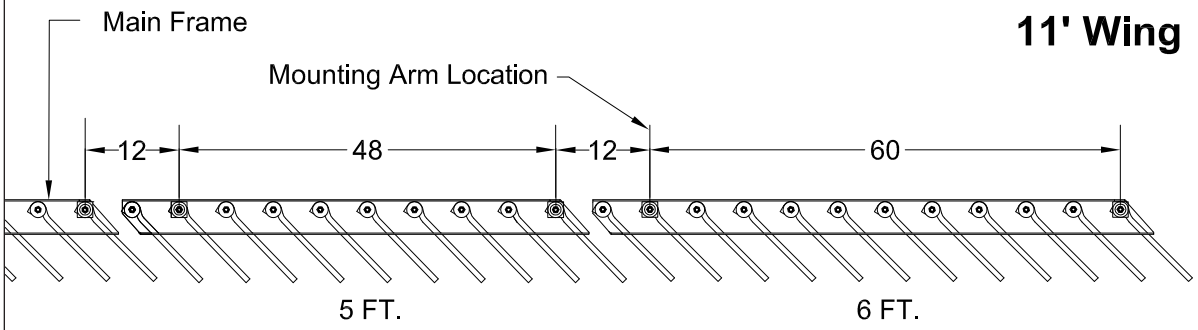
12' Base



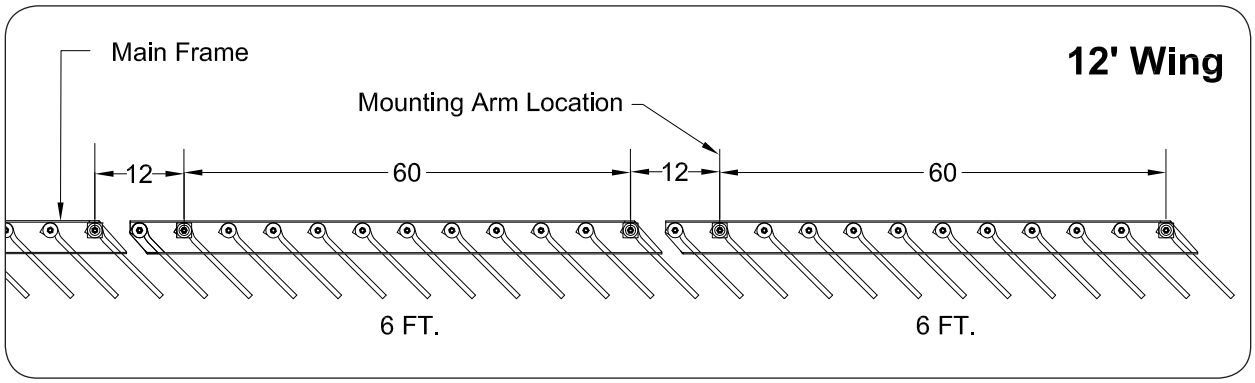
10' Wing

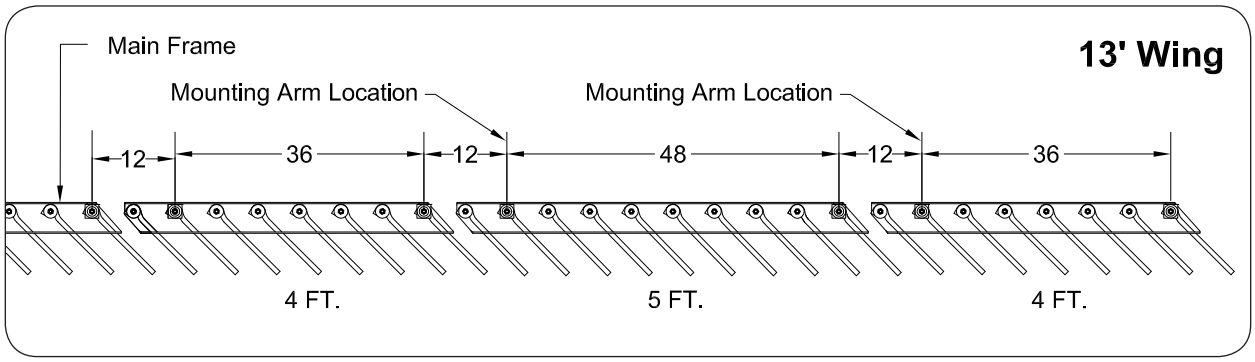


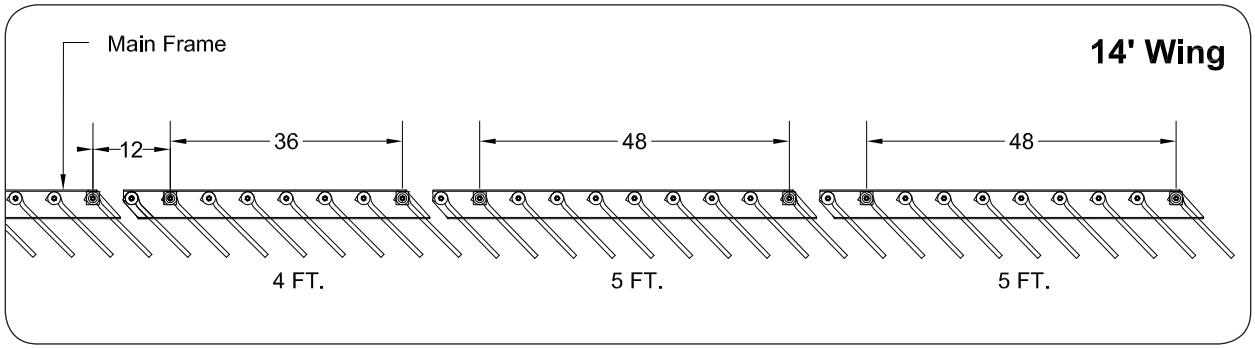
11' Wing



Diagonal Tooth One-Bar Layouts (continued)







Transport Marking & Light Kit (73146B)

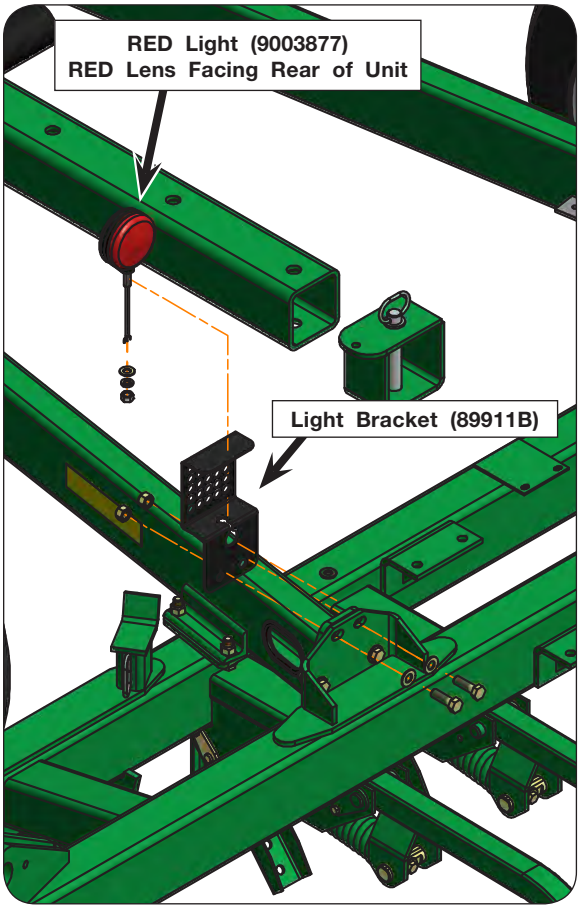
Before installing this kit, lower machine completely to the ground and block securely. Set parking brake on tractor, release any pressure in hydraulic system, and shut tractor engine off.

By following these instructions, your Rolling Harrow will comply with ASABE lighting standards.

Front, rear, left, and right are determined from the tractor operator's seat, facing forward.

Lights

1. Attach brackets (89911B) to the hitch mount bolts. Remove existing nuts, slide bracket onto bolts and reassemble nuts. Secure red round light (9003877), with red lens facing to the rear, to bracket using 1/2"-20UNF nut provided with light. Be careful not to overtighten and damage light. Use same procedure for both sides.



Transport Marking & Light Kit (73146B) (continued)

2. Attach the guard bracket (89609B) to the outer most front corners of the main frame as shown in FIG. 2-48 and FIG. 2-49 using two 3/8"-16UNC x 1" capscrews and locknuts (9928). Use same procedure for both sides.

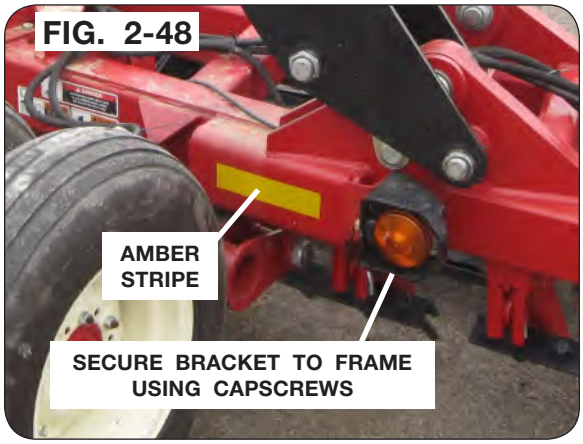


FIG. 2-48

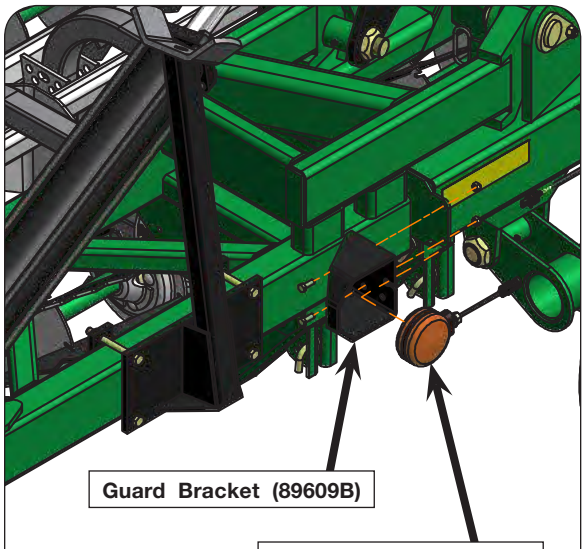


FIG. 2-49

3. Secure the amber light (9003876) to the guard bracket (89609B). Do not to overtighten. Connect light to the cross harness (22790).

NOTE: Make certain lights are clearly visible and no hoses or other components obstruct view of lights from the rear of machine.

NOTE: Amber lens must always be to the outside of implement.

Transport Marking & Light Kit (73146B) (continued)

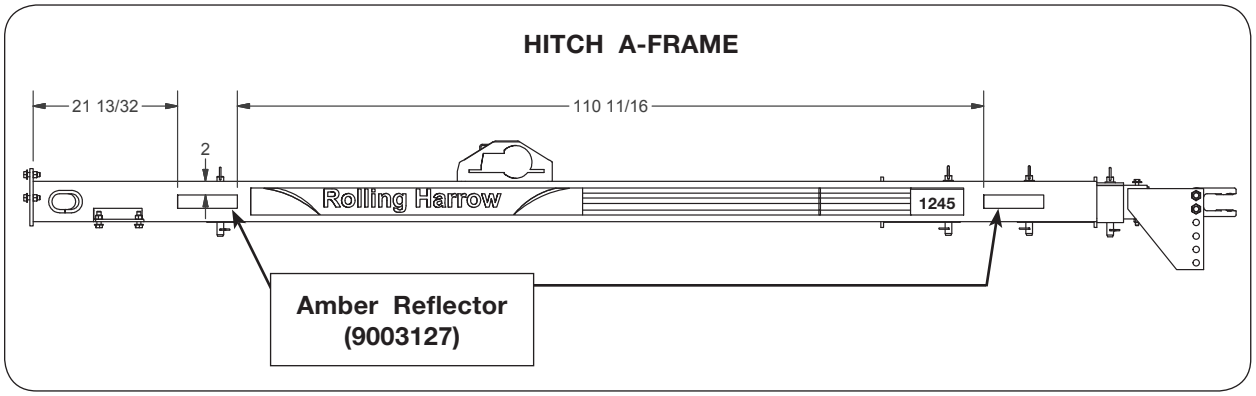
Transport Markings

NOTE: Reflectors are as important as light locations in order to comply with ASABE standards. These reflectors measure 2"x9". Other reflectors will NOT comply with ASABE standards.

1. Inspect your Rolling Harrow for 2"x9" amber (9003127), red (9003126), and fluorescent orange (9003125) transport markings.

Be sure reflectors are in locations shown in parts section of this manual.

These reflectors are required to comply with ASABE standards. If you do not meet the ASABE standards, contact your UNVERFERTH dealer to order reflectors needed.



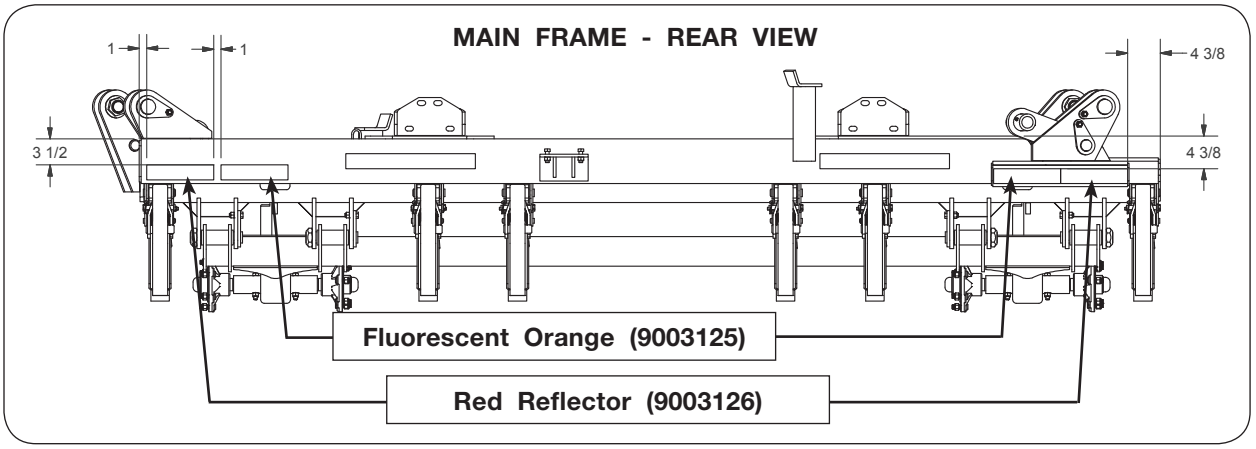
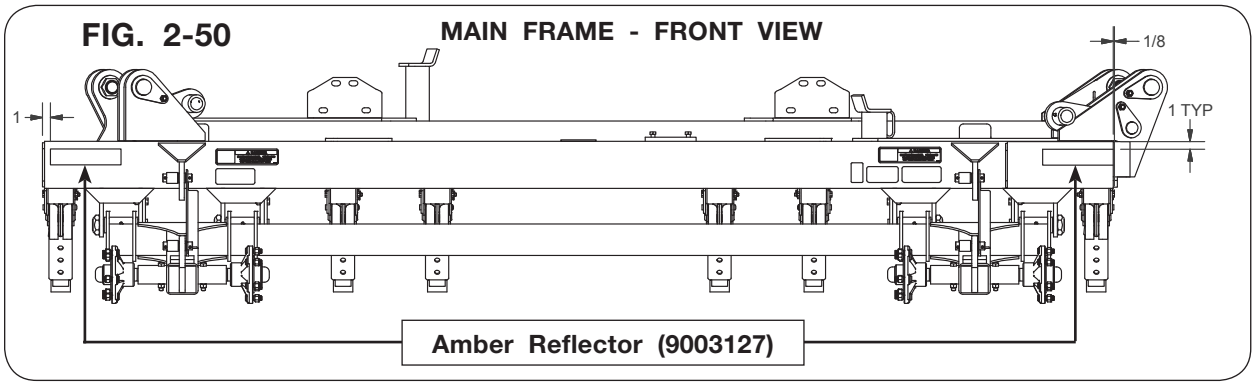


FIG. 2-50



Transport Marking & Light Kit (73146B) (continued)

Wiring Harness

When installing the harnesses, do not cut or break the wire coverings. Tie harnesses away from moving parts, such as cylinders and folding links. The wiring harnesses consist of four pieces, the main harness, the cross harness, and two extension harnesses.

The main harness has a 7-pin (round) plug conforming to SAE standards that connects to tractor or other towing vehicle. If your tractor or other towing vehicle does not have the mating socket connector, contact a respective dealer.

1. Route the main harness (89467) along the extendible tongue and the hitch frame. Allow sufficient slack at the hitch for the machine to turn (approximately 4 ft.).

2 Attach the wiring extension (86466) to the main harness (89467).

The cross harness (22790) connects to the 6 pin connector of the main harness, both red taillights, and the extension harnesses.

3. Route the legs labeled “R” to the right side of machine, and the legs labeled “L” to the left side.

4. Connect the three pin connectors on the cross harness to the 3 pin connectors on the red taillights.

5. Coil up any excess and secure harness to frame with cable ties.

The extension harnesses (86421) connect the two pin connector of the cross harness to the two pin connectors on the amber extremity lights.

6. Route extension harnesses along the main frame and connect it to the amber extremity lights.

7. Tie the extension harnesses to the extremity light mounting bracket through the extra hole in the light bracket.

8. Coil up any excess and tie the remainder to the main frame with cable ties. Be sure to avoid contact with the fold cylinders, fold linkage, or any other moving parts.

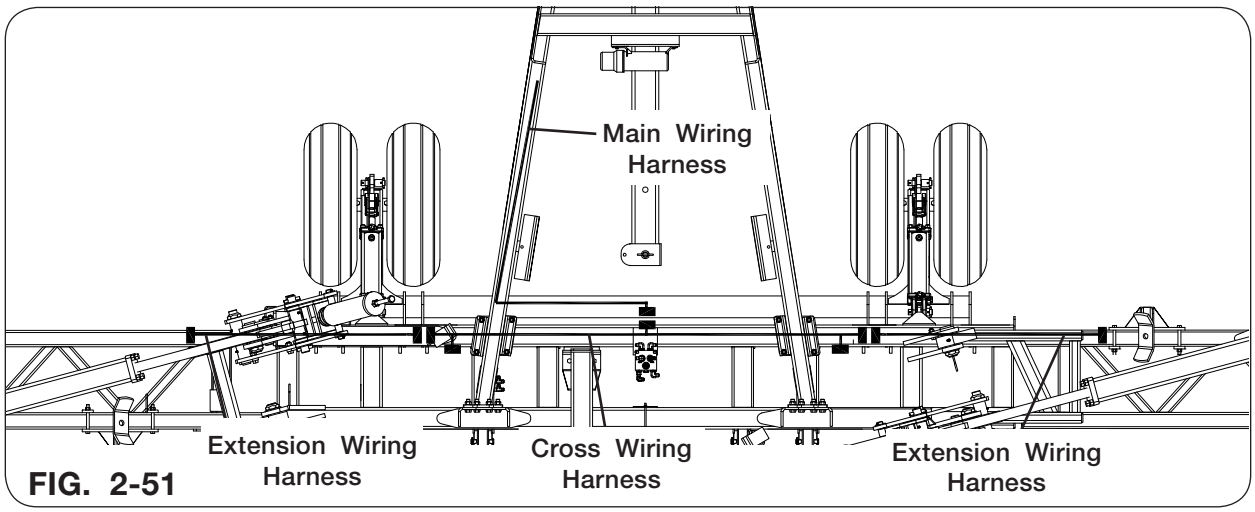


FIG. 2-51

Transport Marking & Light Kit (73146B) (continued)

Wiring Harness (continued)

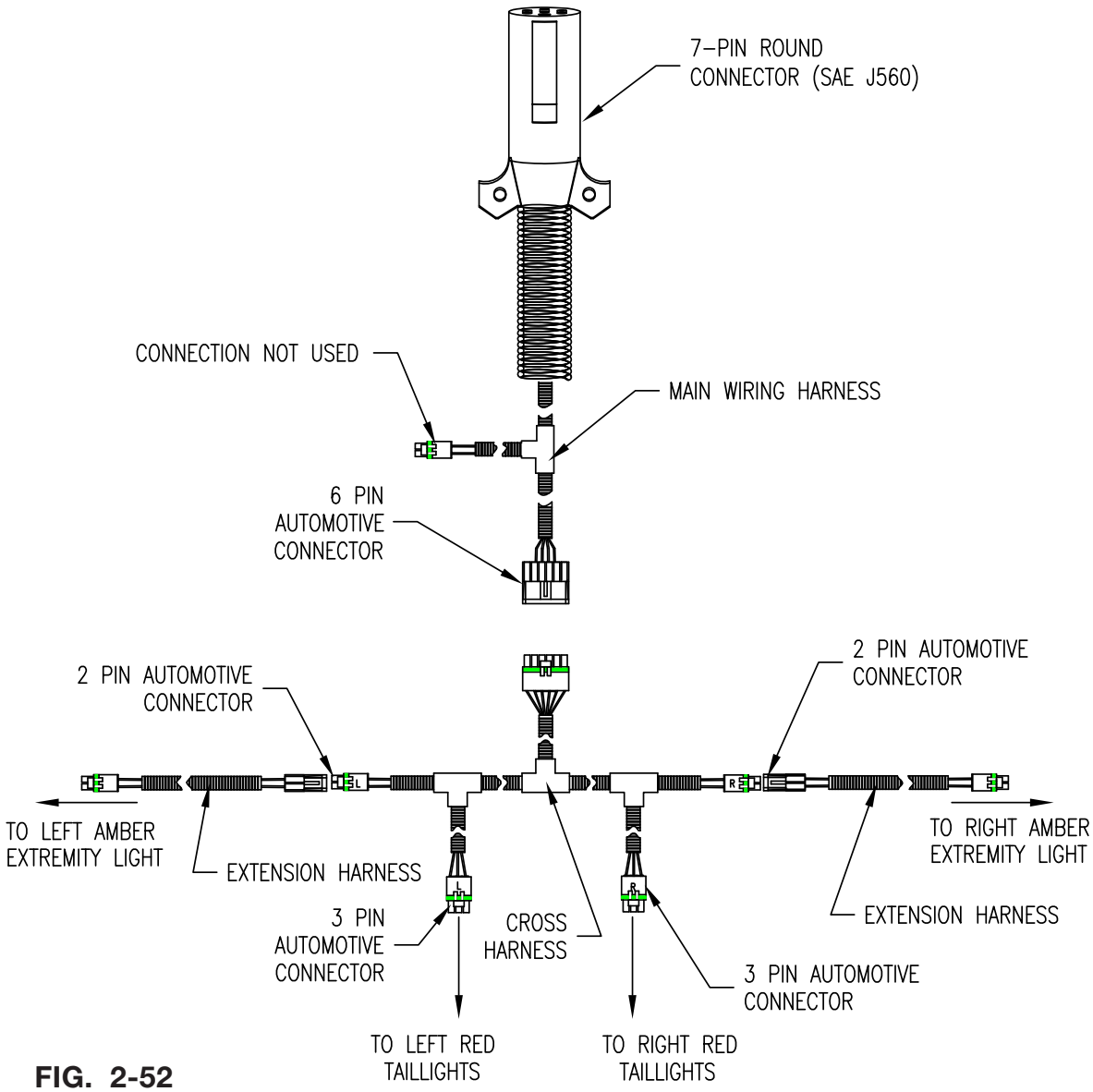


FIG. 2-52

Optional Reinforcement Disc Part #74964

This option is for reinforcing both the regular and aggressive basket in rocky soils. This accessory will provide additional stiffness to your basket.

WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**

IMPORTANT

- *Disconnect harrow completely from tractor before welding on equipment. Damage may occur to the electrical system.*

1. **Position discs inside of the basket by inserting horizontally between blades, and then rotating vertically.**

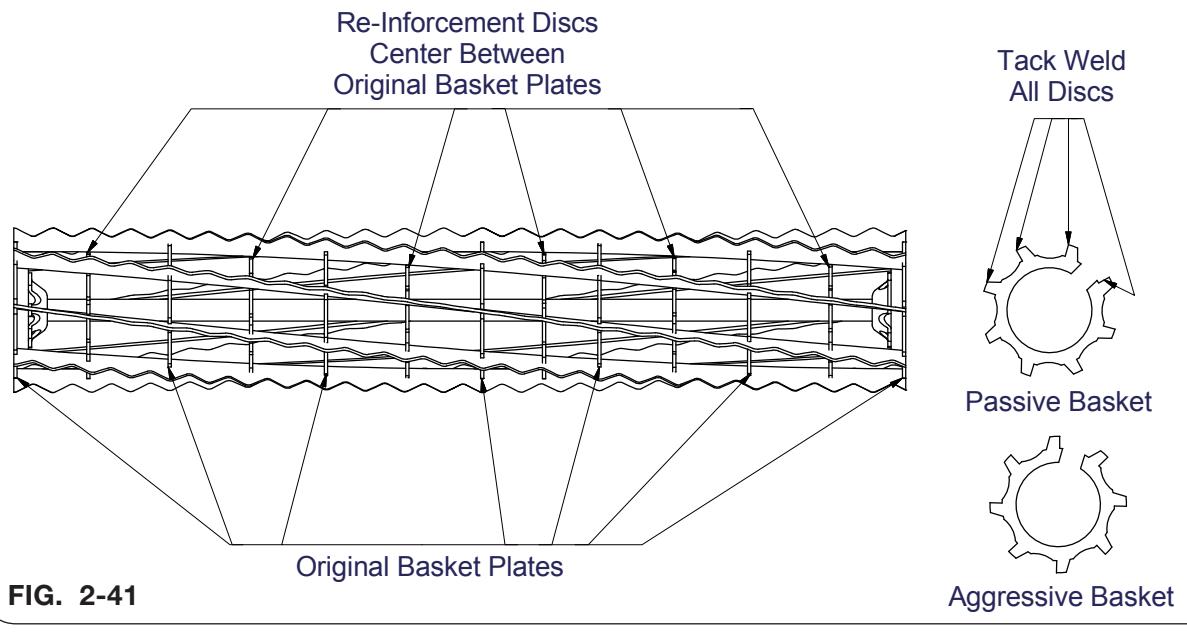


FIG. 2-41

2. **Center reinforcement discs between original basket plates and hold into position using locking pliers or clamps (FIG. 2-42).**

FIG. 2-42

IMPORTANT

- *Be sure that all welding is done by qualified personnel. Failure to do so could result in damage to your ROLLING HARROW implement.*

Optional Reinforcement Disc Part #74964 (continued)

3. Remove powder coating before welding. Secure discs into place by tack welding. Weld where discs and basket blades are in contact (FIG. 2-43 & 2-44).

Aggressive Basket

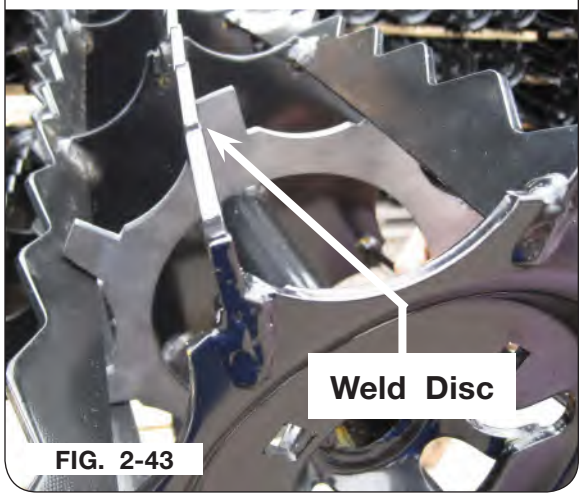


FIG. 2-43

Passive Basket

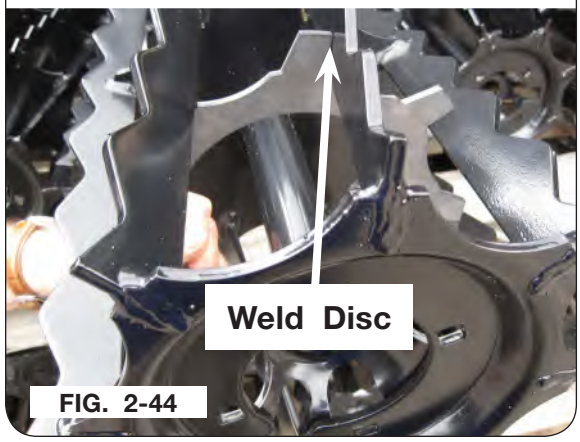


FIG. 2-44

4. Paint plates and repaint areas where welds have been made for rust protection.

Optional Pilot Check Valve (Part #91240)

This option is for use with primary tillage tools having rephasing hydraulic cylinders. This option prevents the ROLLING HARROW implement from drifting down from the transport position.

⚠ WARNING

- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

Depressurize the hydraulic systems of the primary tillage tool and the ROLLING HARROW implement before beginning valve installation.

Install the pilot operated check valve onto the rear of the primary tillage tool. Connections from the rephase system must be installed into the ports of the valve that are closest together. Connections to the ROLLING HARROW system go into the other two ports.

Purge hydraulic system before use. Refer to primary tillage tool manual to purge that system. Refer to Purging A Hydraulic System in this section.

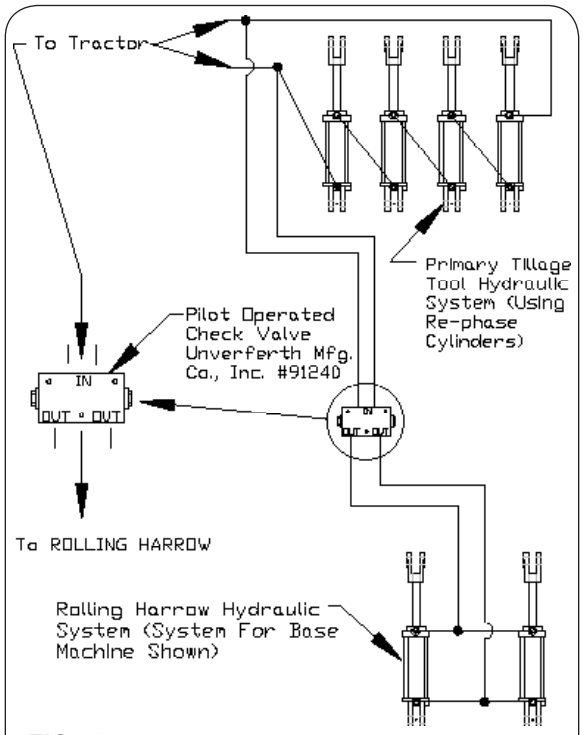


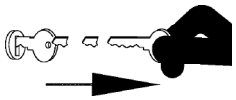
FIG. 2-45

Optional Dual Hydraulic Kit #74704FS

Dual hydraulic kit is available for all sizes of the ROLLING HARROW implement. This kit will separate the lift and wing fold hydraulics into two different systems for better control of the lift and fold functions. Each system will then require its own remote control valve from the tractor or must be plumbed into existing circuits on the primary tillage tool.

Unverferth Manufacturing recommends that the regular machine hydraulics be completely installed before installing a dual hydraulic kit. Wing lift wheels should be installed before the dual hydraulic kit is installed.

For dual hydraulic kit installation, park the machine on a firm, level surface, unfold the wings and lower the unit to the ground. Block the machine from any movement, set the tractor parking brake, depressurize the hydraulic system, shut off the engine and remove the ignition key.



⚠ WARNING

- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

1. Switch the fitting in Ports "A" and "B". Redirect the fittings towards the right-hand side of the machine as shown in FIG. 2-47.

2. Switch the hoses that go to the Ports "A" and "B" from the left-hand to the right-hand side of the machine (refer to FIG. 2-47).

3. Remove the hoses from the tees shown in FIG. 2-47. Attach a cap to the tee where the hoses were removed.

4. Attach the 90° elbows (9897) to the end of the loose hoses (refer to FIG. 2-47).

5. Secure the hoses (98700) to the 90° elbows (9897) as shown in FIG. 2-47. Tighten all fittings and route these hoses through the right side of the hitch A-frame.

6. Install the #91383 male tip couplers and #91511 dust covers on the ends of the hoses from step #5. The wheel lift circuit should now be complete. Check that the base and rod ends of the lift cylinders are connected to the same side of the circuit.

IMPORTANT

- *Machine damage will result if hydraulic circuits are not plumbed correctly.*

Optional Dual Hydraulic Kit #74704FS (continued)

Dual Hydraulics With Combination Valve #903045

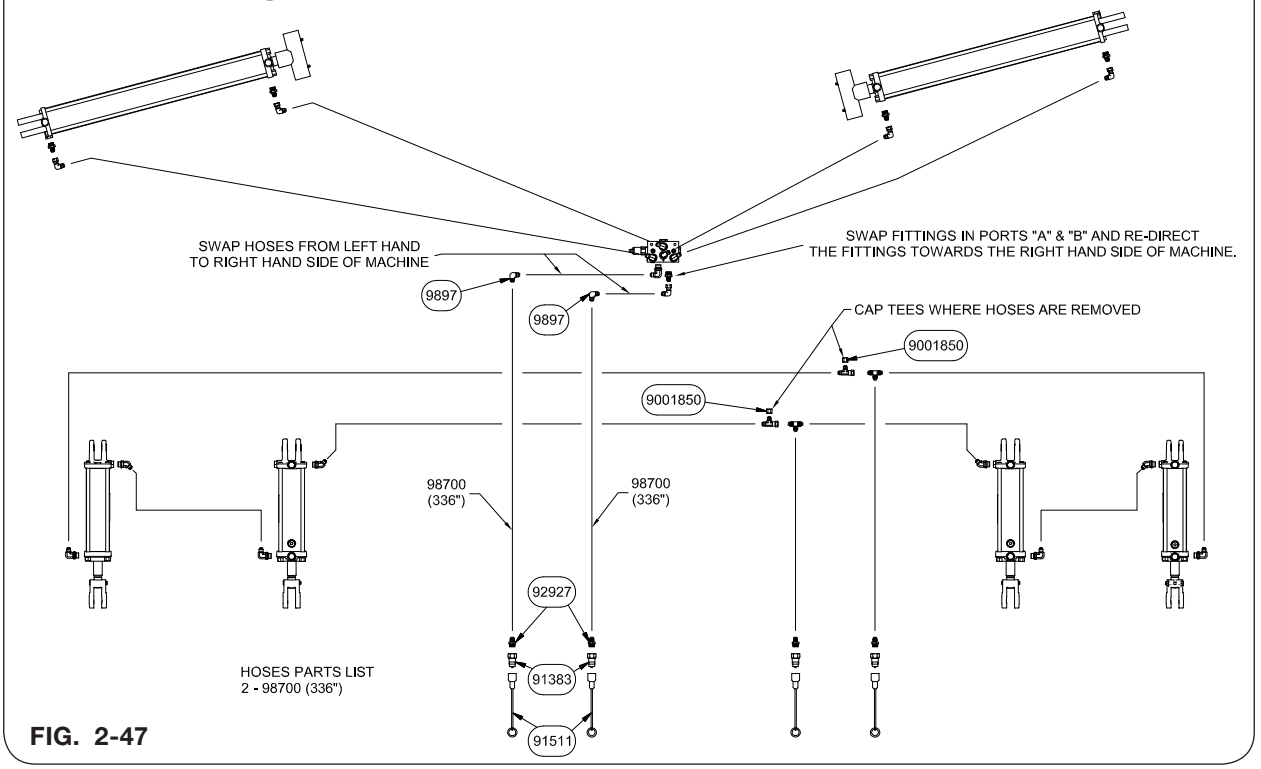
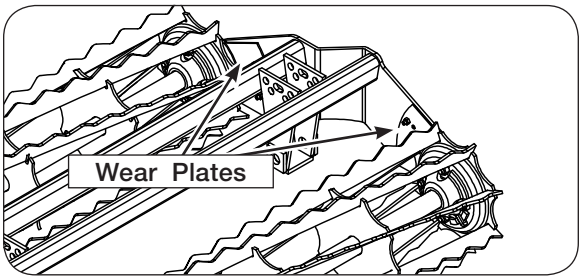
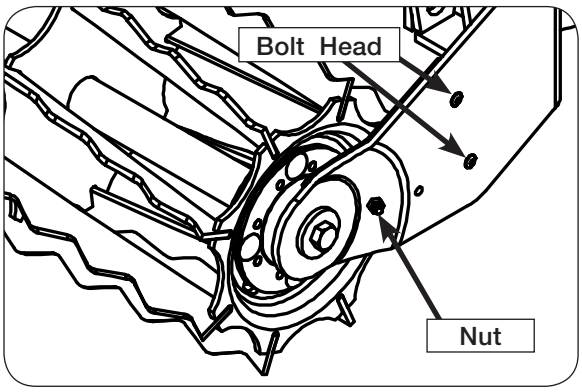


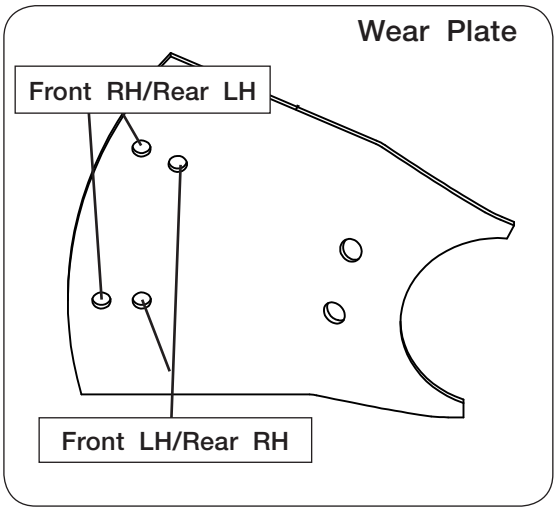
FIG. 2-47

Optional Wear Guard Kit (Basket Models Only)

1. Park the unit on a firm, level surface. Unfold the wings into the field working position, and lower the machine to the ground. Block the wheels on the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key.
2. Place the wear plate, part number 73220B, between the basket and basket frame.
3. Line up the three mounting holes.
4. Insert two 5/16" bolts on the flat side of the shield from the outside of the basket frame through the shield to the inside. Install the nuts loosely.
5. Install one 5/16" bolt on the cupped dish of the shield through the basket frame to the outside. Install the nut.
6. Tighten all hardware.







Optional Tire Scraper Kit (89360B)

1. Park the unit on a firm, level surface and unfold the wings. Lower machine until baskets are in contact with ground. Block the tires on the machine to keep it from moving. Set the tractor's parking brake, shut-off the engine, and remove the ignition key.

2. Attach the scraper brackets (89358B) to the axle weldment using U-bolts (95531) and 1/2"-13UNC locknuts (9800) as shown in FIG. 2-58 and FIG. 2-59.

3. Secure the scraper plates (89359B) to the scraper brackets (89358B) using 1/2"-13UNC x 1 1/2" capscrews (9390-101) and 1/2"-13UNC locknuts (9800) as shown in FIG. 2-58 and FIG. 2-59.

FIG. 2-58

FIG. 2-59

FIG. 2-60

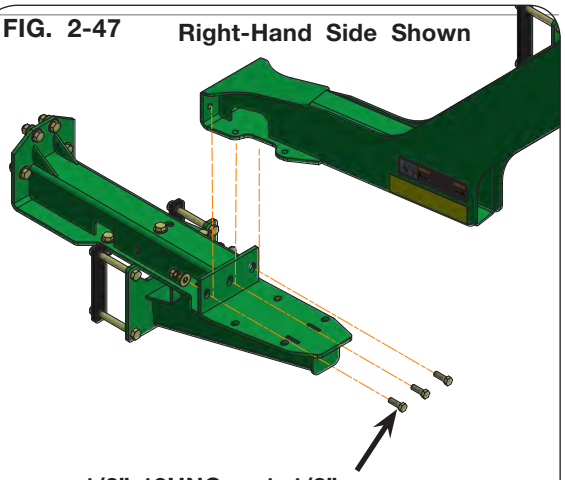
Gooseneck Hitch Assembly (Optional)

⚠ WARNING

- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**
- **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 1200 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

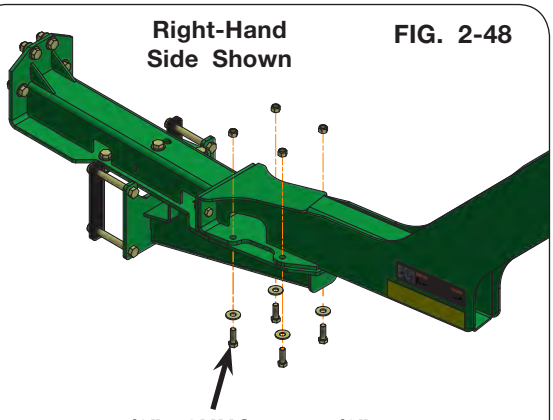
1. Remove the fourteen 1/2”-13UNC x 1 1/2” capscrews (9390-101), 1/2” flat washers (9405-088) and 1/2”-13UNC locknuts (9800) from the hitch. Using a safe lifting device rated at 100 lbs. minimum, lift left-hand and right-hand gooseneck hitch adapters into position to the gooseneck a-frame hitch assembly (FIG. 2-47 & FIG. 2-48). Reinstall the previously removed hardware.

FIG. 2-47 Right-Hand Side Shown



1/2”-13UNC x 1 1/2” Capscrews (9390-101), 1/2” Flat Washers (9405-088) & 1/2”-13UNC Lock Nuts (9800)

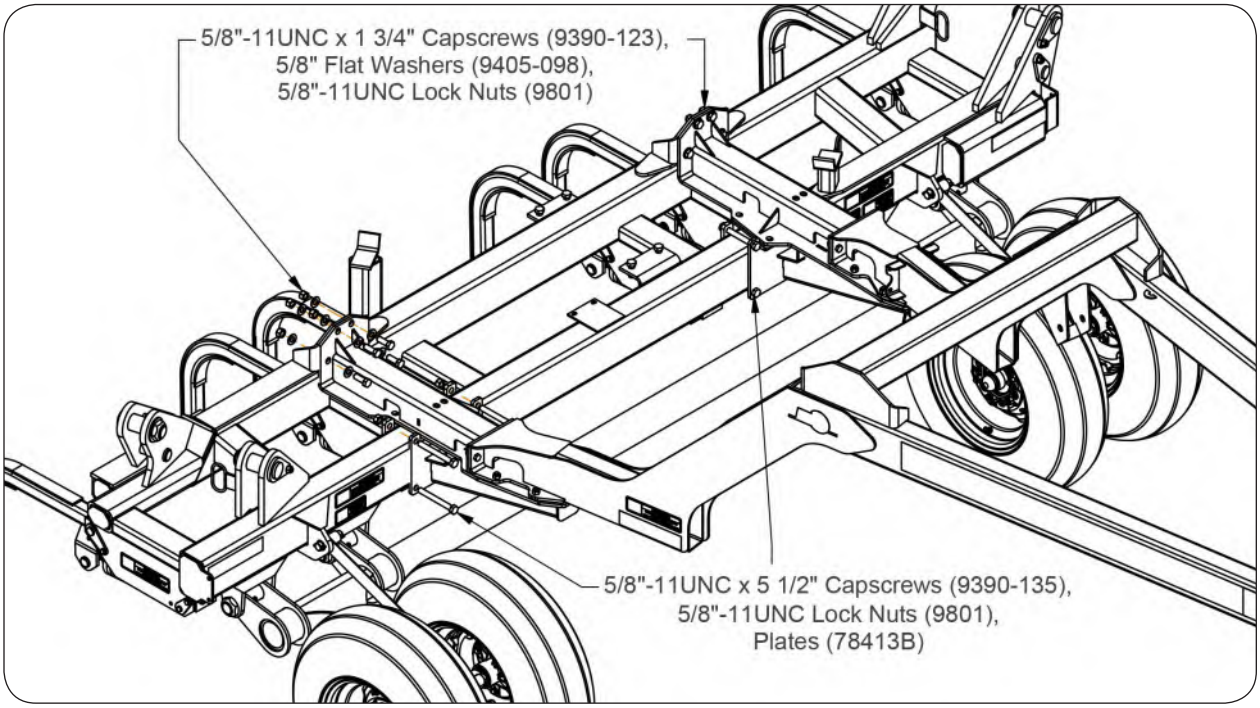
Right-Hand Side Shown FIG. 2-48



1/2”-13UNC x 1 1/2” Capscrews (9390-101), 1/2” Flat Washers (9405-088) & 1/2”-13UNC Lock Nuts (9800)

Gooseneck Hitch Assembly (Optional) (continued)

2. Remove the fourteen 5/8”-11UNC x 1 3/4” capscrews (9390-123), ten 5/8”-11UNC x 5 1/2” capscrews (9390-135), 5/8” flat washers (9405-098), four plates (78413B) and 5/8”-11UNC locknuts (9801) from the left-hand and right-hand gooseneck hitch adapters. Using a safe lifting device rated at 1400 lbs. minimum, lift gooseneck hitch into position on the main frame (FIG. 2-49 & FIG. 2-50). Reinstall the previously removed hardware.



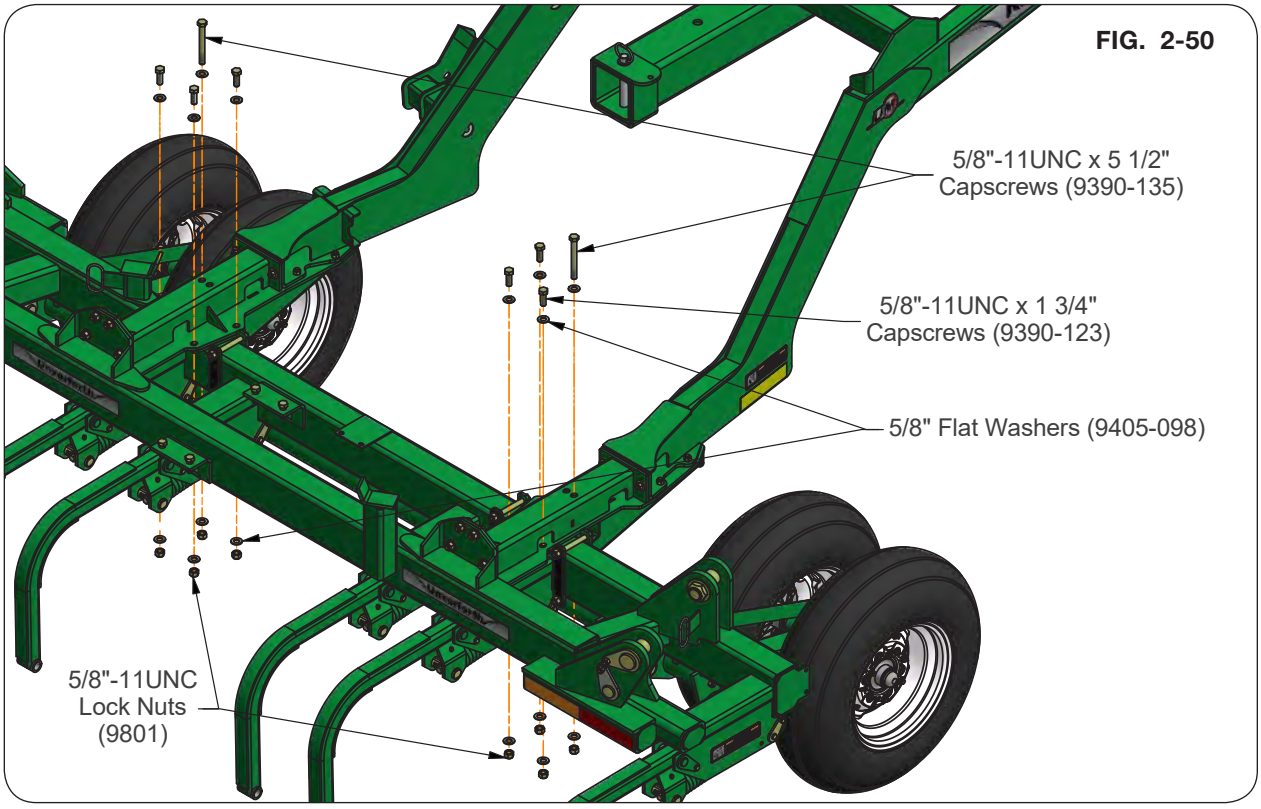
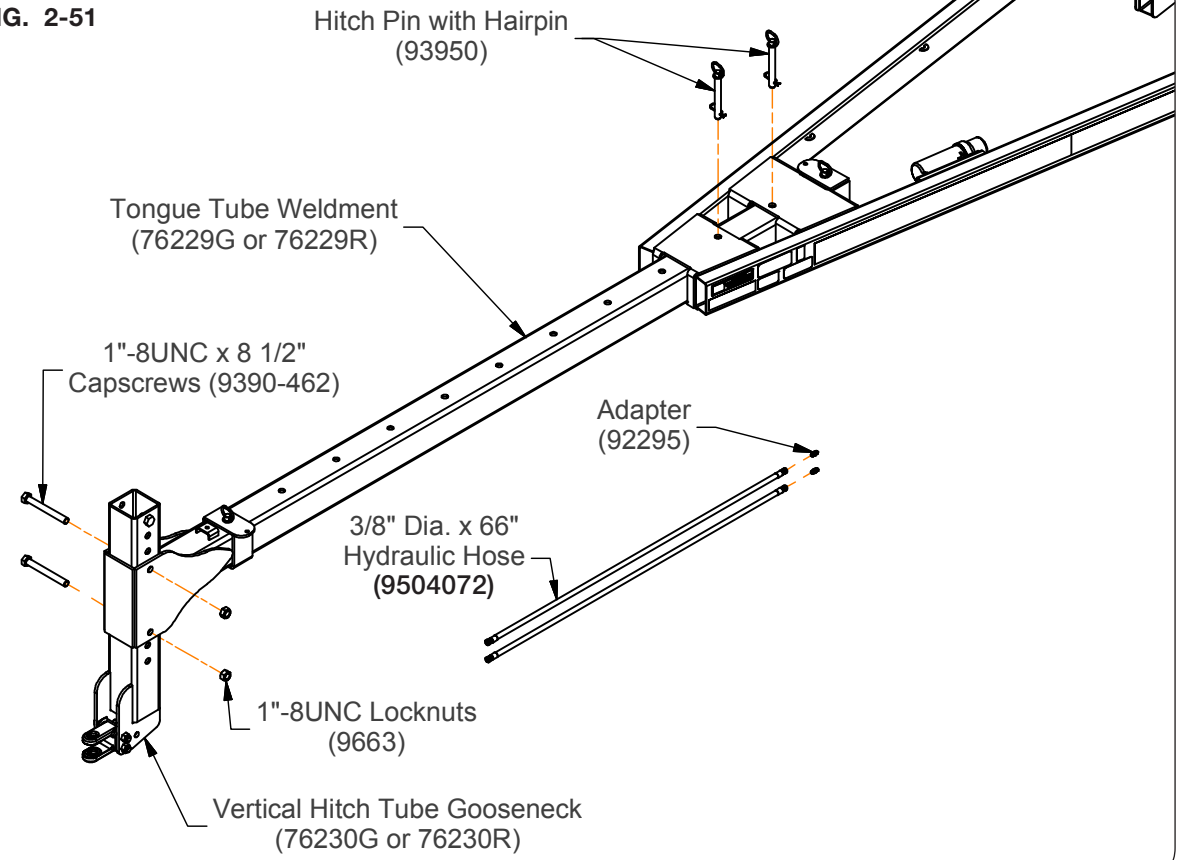


FIG. 2-50

Gooseneck Hitch Assembly (Optional) (continued)

3. With the hitch still supported with a safe lifting device up to 1400 lbs., use an additional safe lifting device up to 150 lbs. and adjust the vertical post of the hitch by removing the 1”-8UNC x 8 1/2” capscrews (9390-462) and 1”-8UNC locknuts (9663). Then retain the vertical hitch tube into position with the previously removed hardware. (FIG. 2-51)

FIG. 2-51



4. Adjust the tongue length so the outside ends of the lead tool/finishing attachment will pass under the arched portion of the tongue when performing a sharp turn. Remove the two hitch pins with hairpins (93950) retaining the tongue tube weldment (76229G or 76229R). Extend the tongue tube weldment (76229G or 76229R) then reinsert the two hitch pins with hairpins (93950). (FIG. 2-51)

5. Install the adapters (92295) and hose extensions (9504072) to the Rolling Harrow hoses that lead to the tractor. Route the hoses along the inside of the frame and cable tie them in place. (FIG. 2-51)

Refer to “Hitch” in this section.

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 Rolling Harrow 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 Rolling Harrow.

Adjust the tractor drawbar vertically so the top side of the bar is approximately 17 inches from the ground, and lock on centerline of tractor.

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

Preparing Primary Tillage Tool

Follow these recommendations if the Rolling Harrow implement will be connected to another tillage tool.

Refer to the units "Operator's Manual" for specifications, setup, maintenance, and operating procedures of this unit.

Confirm that the rear hitch of the primary tillage tool has sufficient capacity to operate the Rolling Harrow.

Be sure the rear hitch is securely attached to the primary tillage tool frame. Check hitch every day of use for loose, broken, or worn components.

Rear Hitch Height On Primary Tillage Tool

For maximum performance and adjust ability of your ROLLING HARROW implement, it is recommended the rear hitch height of the primary tillage tool (FIG. 3-1) be approximately 20 to 28 inches (24" nominal) from the ground line when in the field.

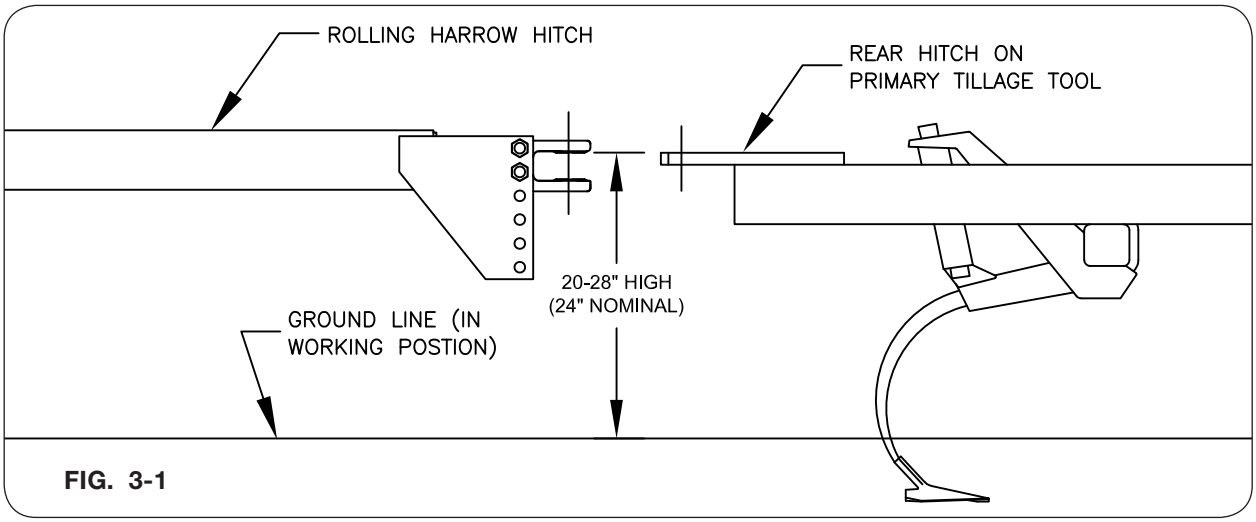


FIG. 3-1

Preparing Rolling Harrow

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.

Leveler Bar Mounting Arms

Frame assemblies are shipped with mounting arms for leveler bars down. If the machine will be operated without leveler bars, the arms should be folded up for best performance. See "Leveler Bar Lock-Up" in this section for fold procedures.

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 Rolling Harrow Implement To Primary Tillage Tool or Tractor

Before attaching the ROLLING HARROW to your primary tillage tool or tractor, adjust the extended length of the hitch tube to give adequate turning clearance between the two machines when turning on the ends.

To Lengthen:

1. Unfold the machine and lower machine to ground.
2. Remove the pin from the rear tongue tube stop collar.
3. Reset rear tongue tube stop collar to desired tongue extended length and re-insert pin.
4. Remove two vertical pins that attach tongue to A-frame.
5. Pull machine forward until rear tongue stop collar contacts A-frame.
6. Re-insert the two vertical pins that attach the tongue to the A-frame.

To Shorten:

1. Unfold the machine and lower machine to ground.
2. Remove two vertical pins that attach tongue to A-frame.
3. Back machine until front tongue stop collar contacts A-frame.
4. Re-insert the two vertical pins that attach the tongue to the A-frame.

If unit is parked in the raised position, turn handle on jack to remove pressure and rotate jack into “Transport Position”, see “Jack Assembly” in SETUP section.

Attaching Rolling Harrow To Primary Tillage Tool or Tractor

Hydraulic Hook-Up

The unit's hydraulic system may be connected to a 2-way control valve on the back of a tractor or to an existing circuit on the primary tillage tool.

⚠ WARNING

- **ALWAYS RELIEVE HYDRAULIC SYSTEM PRESSURE BEFORE DISCONNECTING HOSES FROM TRACTOR OR SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

NOTE: Refer to SETUP section for purging process.

NOTE: Refer to MAINTENANCE section when checking hydraulic circuit operation.

HYDRAULIC HOOK-UP INTO A CIRCUIT USING REPHASE CYLINDERS:

If the unit's hydraulic system is connected to an existing hydraulic circuit using rephase cylinders on the primary tillage tool, Unverferth recommends installing the optional #91240 pilot check valve between the two hydraulic systems. This valve prevents the unit's lift system from bypassing oil through the rephase system and leaking down from the transport position. See your Unverferth dealer to order this valve. See SETUP section for hydraulic hook-up.

Raise unit into transport position and install cylinder transport locks (FIG. 3-2).

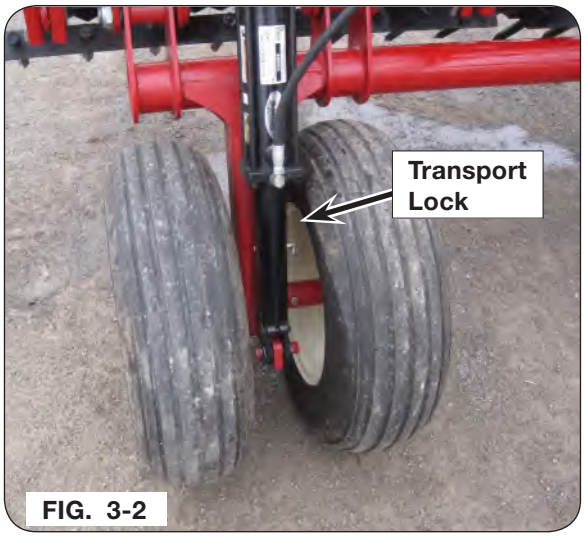


FIG. 3-2

FIG. 3-3

Unfolding The Wings

DANGER

- **KEEP CLEAR OF POWER LINES WHEN FOLDING/UNFOLDING WINGS. WINGS MAY BECOME TALLER THAN SOME POWER LINES DURING THE FOLD CYCLE CAUSING ELECTROCUTION AND SERIOUS INJURY OR DEATH.**

IMPORTANT

- *Follow one of these procedures to avoid damaging the Rolling Harrow during the wing unfolding process.*

If transport locks will be removed before unfolding:

1. Fully raise the unit and remove the transport locks from the lift cylinders.
2. Park the Rolling Harrow implement on a loose surface (soil, gravel, etc). Do not unfold the wings with the unit parked on concrete, asphalt, or similar packed surfaces.
3. Activate the unit's hydraulic system to lower the machine/unfold the wings. The machine should lower itself to the ground before the wings start to unfold.
4. As the wing baskets approach the ground, slowly pull the unit forward. This will prevent the unit's baskets and leveler bar teeth from jamming sideways into the ground and possibly damaging the unit.
5. Reverse oil flow once wings have unfolded. Wing transport wheel gravity latches should release.
6. Lower the machine to the field working position.

NOTE: Gravity latch (73118B) should automatically engage when wings fold-up.

If transport locks will be removed after unfolding:

1. Activate the unit's hydraulic system to lower the machine/unfold the wings. The machine should lower itself onto the transport locks before the wings start to unfold. BOTH TRANSPORT LOCKS MUST BE INSTALLED.
2. Fully unfold the wings. Once the wings have unfolded, reverse the oil flow through the hydraulic system to fully extend the wheel lift cylinders. Transport wheel gravity latches should release.
3. Remove the transport locks from the lift cylinders.
4. Lower the machine to the field working position.

NOTE: Gravity latch (73118B) should automatically engage when wings fold-up.

FIG. 3-4

LH WING ASSEMBLY SHOWN

Transport Chain

CAUTION

- **ALWAYS USE TRANSPORT CHAIN WHEN TRANSPORTING IMPLEMENTS. FAILURE TO USE CHAIN COULD CAUSE PERSONAL INJURY OR DAMAGE IF IMPLEMENTS BECOME DISENGAGED.**

FIG. 3-5 shown with hook-up between tractor and Rolling Harrow implement. Always use intermediate support when connecting the implement directly to a tractor. DO NOT use the intermediate support as the chain attaching point. FIG. 3-6 shows how the transport chain must be installed between primary tillage tool and ROLLING HARROW implement.

Transport chain should have a minimum rating equal to the gross weight of implement and all attachments. Use only ASABE approved chains. Allow no more slack in chain than necessary to permit turning.

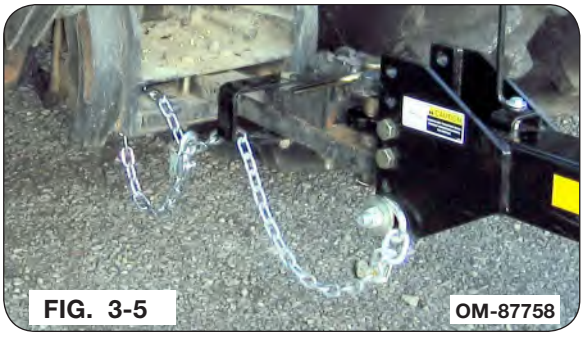


FIG. 3-5 OM-87758

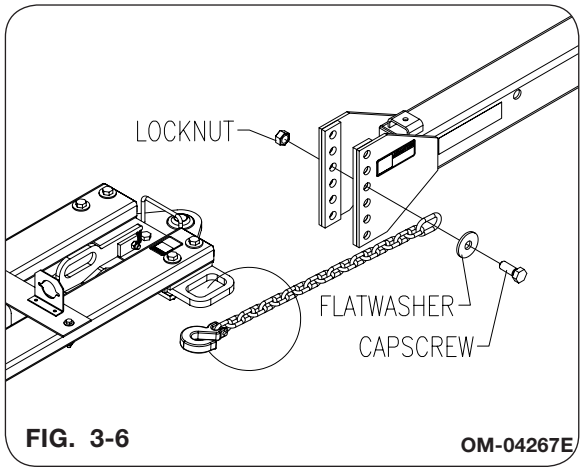


FIG. 3-6 OM-04267E

CAUTION

- **REPLACE TRANSPORT CHAIN IF ANY LINK OR END FITTING IS BROKEN, STRETCHED, OR DAMAGED. DO NOT WELD TRANSPORT CHAIN.**

IMPORTANT

- *FIG. 3-6 is a typical rear hitch representation. Actual rear hitch may vary.*

Transporting

⚠ WARNING

- **THE ROLLING HARROW IMPLEMENT WILL INCREASE THE OVERALL LENGTH OF THE PRIMARY TILLAGE TOOL. USE EXTREME CAUTION WHEN TURNING TO AVOID BYSTANDERS, OBSTACLES, ETC. REDUCE GROUND SPEEDS TO AVOID DAMAGE TO ROLLING HARROW OR PRIMARY TILLAGE TOOL.**

Before unit is transported, be sure the jackstand is in the "Transport Position" see "Jack Assembly" in SETUP section.

⚠ CAUTION

- **INSTALL HYDRAULIC CYLINDER TRANSPORT LOCKS BEFORE TRANSPORTING (FIG. 3-7).**

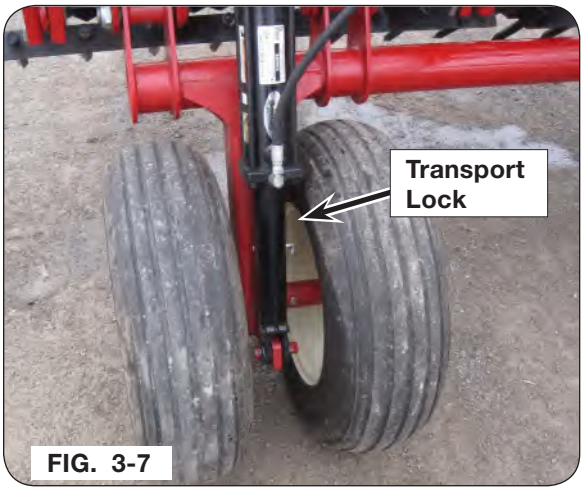


FIG. 3-7

Comply with all state and local 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 SETUP section.

⚠ CAUTION

- **USE APPROVED ACCESSORY LIGHTS AND REFLECTORS WHEN TRANSPORTING AT NIGHT, DURING PERIODS OF POOR VISIBILITY, AND AS REQUIRED BY LOCAL LAW.**

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

Please 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.

Transporting (continued)

For safe transporting of these implements, the transport speed should never exceed 10 M.P.H. in the field or over rough terrain. Reduce transport speed to maintain full control of the implement and tractor at all times.

Retroreflective and fluorescent tapes are provided with this implement. Red reflective tape should be in place on the back and outermost extremity of the rear frame tube on each side. Orange fluorescent should be next to red. Amber reflectors are on side of hitch tube and hitch frame. Be sure these reflectors are in place and clearly visible.

This product may be equipped with brake light functionality which will activate the high intensity mode of the red tail lights when braking. The "RED" terminal of your tractor's electrical socket may or may not energize when the brakes are applied. Check your tractor's owner's manual. If your tractor does not energize the "RED" terminal when the brakes are applied, contact your dealer.

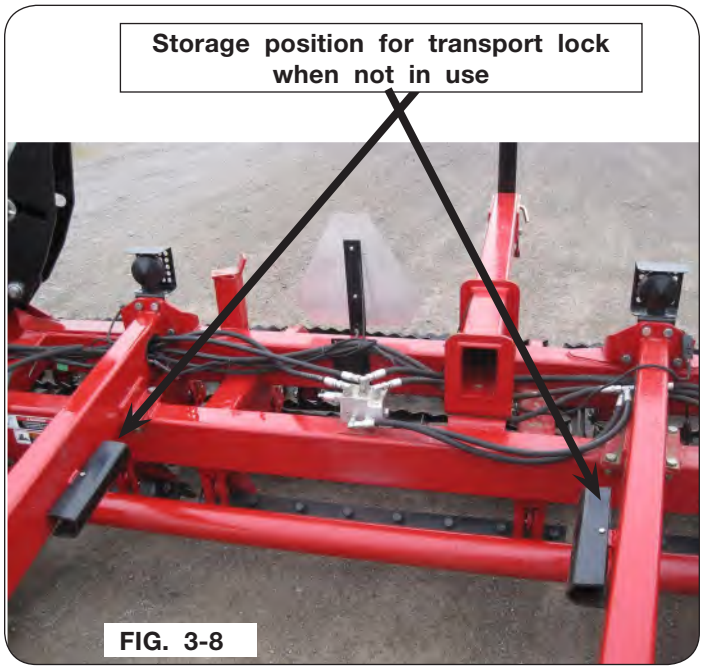


FIG. 3-8

Unhitching

⚠ WARNING

- **RISING OR FALLING TONGUE CAN CAUSE SERIOUS INJURY OR DEATH. USE JACK TO SUPPORT IMPLEMENT BEFORE REMOVING HITCH PIN.**

- **IF UNIT IS UNHOOKED IN THE TRANSPORT POSITION, INSTALL HYDRAULIC CYLINDER TRANSPORT LOCKS (FIG. 3-8) AND LOWER JACKSTAND TO GROUND BEFORE UNHOOKING UNIT.**

Refer to “Jack Assembly” in SETUP section for positioning of jackstand into “Parked Position”.

⚠ CAUTION

- **KEEP HANDS AND FEET AWAY FROM JACKSTAND WHEN LOWERING.**

When parking the ROLLING HARROW implement onto rear jackstand, lower jack down into position and turn handle to transfer the weight of the unit to the jack.

Remove hitch pin.

⚠ WARNING

- **ALWAYS RELIEVE HYDRAULIC SYSTEM PRESSURE BEFORE DISCONNECTING HOSES FROM TRACTOR OR SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

Disconnect the hydraulic hoses. Install dust covers over the hose plugs and outlets.

Before unhitching the primary tillage tool, refer to the unit’s operator’s manual for unhitching procedures.

Field Adjustments

Wing Weight Transfer System

The weight transfer system is designed to make adjustments for optimum wing down pressure on any wing size. Initial settings can be found in the "SETUP" section of this manual. The machine should run with the base and wings level across the entire machine.

NOTE: Due to the cross folding design the left-hand wing will take more weight transfer than the right-hand wing for the machine to run level.

Adjustments can be made to both wings at the same time. It is best to drive the machine forward on flat ground and watch for the frame to be level. The weight transfer may not adjust the frames until the machine has moved.

To decrease the down pressure on a wing loosen the jam nut on top of the spring can and turn out the bolt increasing the distance from the the underside of the bolt head to the top of the spring can. It is recommended to adjust in small increments such as 2-3 turns of the bolt.

To increase the down pressure on a wing loosen the jam nut on top of the spring can and turn in the bolt decreasing the distance from the the underside of the bolt head to the top of the spring can. It is recommended to adjust in small increments such as 2-3 turns of the bolt.

NOTE: It may be necessary to decrease pressure on the right side to get the left side of the main frame to pick up level. Just increasing the settings on the left side may not raise the left side of the frame due to the right side having excessive weight transfer.

Rolling Harrow Basket

The Rolling Harrow basket is designed to provide an excellent seedbed when used with your primary tillage tool.

For maximum field performance, the Rolling Harrow implement should be operated with the transport wheels in the "Raised" position. This allows maximum transfer of weight to the baskets, thus providing for better leveling and ground working action by allowing the unit to more closely follow the ground contour.

Field Adjustments (continued)

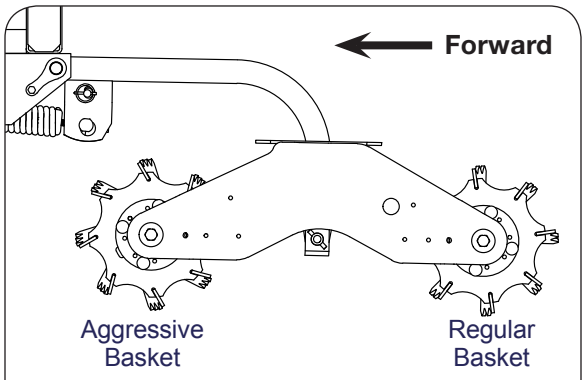
Basket Running Positions

The Rolling Harrow basket assemblies consist of an aggressive basket with the blades angled forward and a regular basket with the blades positioned perpendicular to the center shaft. The basket assemblies can operate with either basket in the forward or leading position.

NORMAL POSITION

In most cases, the unit runs with the aggressive basket positioned to the front (Fig 3-9) for maximum penetration in normal soil conditions.

A maximum amount of leveling and conditioning of the soil is obtained when the aggressive basket is positioned to the front (as shown in FIG. 3-9). This position also helps provide thorough mixing of chemicals into the top two to three inches of the soil, when used for incorporation.



View Looking From LH Side

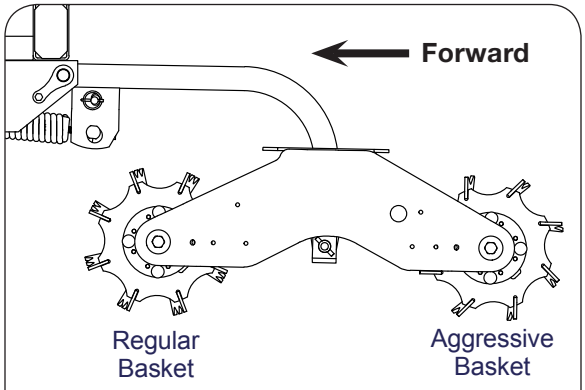
FIG. 3-9

ALTERNATE POSITION

The unit runs with aggressive basket positioned to the rear (FIG. 3-10) for maximum firming action in light sandy soils.

A maximum amount of soil firming is obtained when the aggressive basket is positioned at the rear (as shown in FIG. 3-10).

To reverse Rolling Harrow baskets, remove mounting pin (9500423) and spiral pin (91144-186) (FIG. 3-10) connecting basket frame to spring arm, rotate the double roller assembly and reinstall mounting pins and spiral pins.



View Looking From LH Side

FIG. 3-10

Leveler Bar

The optional level bar is designed to improve the seedbed leveling capabilities of your Rolling Harrow implement. This accessory can be ordered with your unit or added later; see your dealer for details. Spike tooth, diagonal tooth, and coil tine leveler bars are available. The spike tooth bar performs best in heavier soils under conventional tillage with lower amounts of residue. The diagonal tooth bar is recommended for lighter soils in a conventional or minimum tillage system with light to moderate residue. The coil tine bar is recommended for minimum tillage systems with higher amounts of residue. Spring pressure on the leveler bar controls the aggressiveness of the bar. For greater leveling action in heavier soils with little residue, increase the spring pressure. For better residue flow through the leveler bar, decrease the spring pressure.

Tool-Free Style — Spring Tension Adjustment

Spring pressure is adjusted by aligning different holes between the adjustment casting and the leveler bar arm as shown in FIG. 3-11, FIG. 3-12, and FIG. 3-13.

To adjust spring pressure:

1. Remove bent pin from arm.
2. To INCREASE spring pressure, align the arm to be in the most vertical position.
3. To DECREASE spring pressure, adjust the arm to be more horizontal.
4. Always adjust both leveler bar arms for the same leveler bar to the same setting.

FIG. 3-11

FIG. 3-12

FIG. 3-13

Leveler Bar (continued)

Spike Bar Adjustment

The spike tooth leveler bar can be mounted in any of the 3 holes of the hanger. Set the spike bar lower for more leveling action. The bar should be set to the same height on both hangers of each leveler bar section of the machine.

Tooth depth adjustment is provided, but should only be adjusted to compensate for tooth wear.

To adjust individual tooth depth:
1. Loosen the U-bolt on each tooth
2. Drive the tooth up or down, as desired
3. Re-tighten the U-bolts
4. Always set each tooth to the same height on each leveler bar

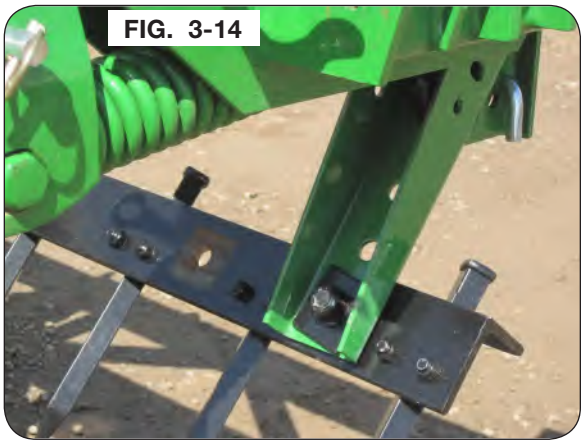


FIG. 3-14

Diagonal Bar Adjustment

Diagonal tooth leveler bars can mount ONLY in the center hole on each hanger arm (FIG. 3-15). Mounting in any other location will damage the machine. Control the aggressiveness of the diagonal bars by adjusting the spring pressure (see previous section).


FIG. 3-15

Coil Tine Bar Adjustment

Coil tine bars may be mounted in the lower two or upper two holes of the hanger. Mount the bars in the lower holes for greater leveling action.

The aggressiveness of the coil tines can be controlled by rotating the tine bars relative to the mounting U-bolts. For more leveling and mixing action, loosen the U-bolts and rotate the tine bar until the spacers hold the coil tines in a nearly vertical position (Fig 3-16) For better performance in high-residue conditions, rotate the tine bar so the tines have more room to rotate back before touching the spacers. When adjusting the coil tines, always be sure the tines will not contact the tires or tire damage could occur.

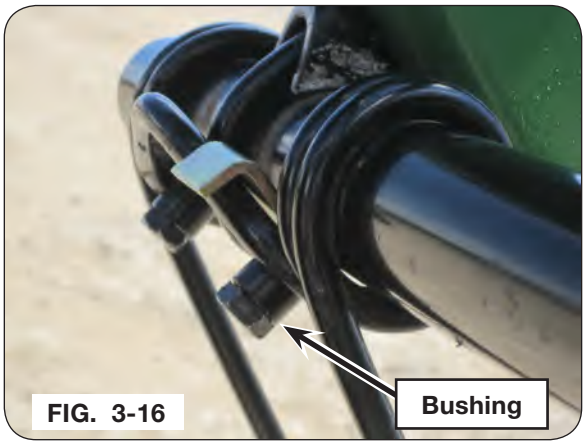


FIG. 3-16

Leveler Bar (continued)

Tool-Free Style — Leveler Bar Lock-Up

In very high residue conditions or when less tillage action is desired, all types of leveler bars may be locked up so they will not contact the ground.

To lock up tool-free style leveler bars:

1. Remove bent pin from leveler arm.
2. Raise arm to highest setting where hole in arm matches hole in adjustment casting. (See Fig 3-17)
3. Reinstall bent pin.
4. Be sure both arms are in the same setting for each leveler bar.

FIG. 3-17

FIG. 3-18

Basket Pitch Adjustment

In some conditions, it may be desirable to limit the float of the basket frame. Only limit the float sufficiently to improve performance. Excessive float limitation may damage the machine.

⚠ WARNING

- **WHEN WORKING AROUND THE MACHINE, BE SURE IT IS SECURELY BLOCKED; FAILURE TO DO SO COULD RESULT IN TIPPING OR MOVEMENT OF MACHINE, CAUSING SEVERE BODILY HARM.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING 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 100 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Park the unit on a firm, level surface. Unfold the wings into the field working position, and lower the machine onto the ground. Set the vehicle parking brake.

2. Raise the machine off the ground and insert the transport cylinder locks. Lower and rest the machine on the transport cylinder stops. Block the wheels on the machine to keep it from moving.

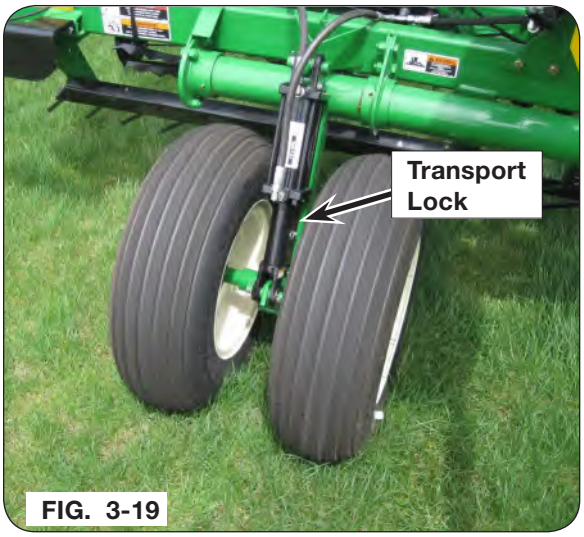
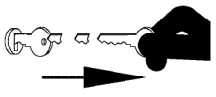


FIG. 3-19

3. Shut off the engine and remove the ignition key.



Basket Pitch Adjustment (Optional) (continued)

4. Install pin and spacer in the third hole from the front with the plate facing the mounting arm. Reposition into alternate holes as necessary for field conditions.

NOTE: Place the pins and spacers in the storage box when not in use.

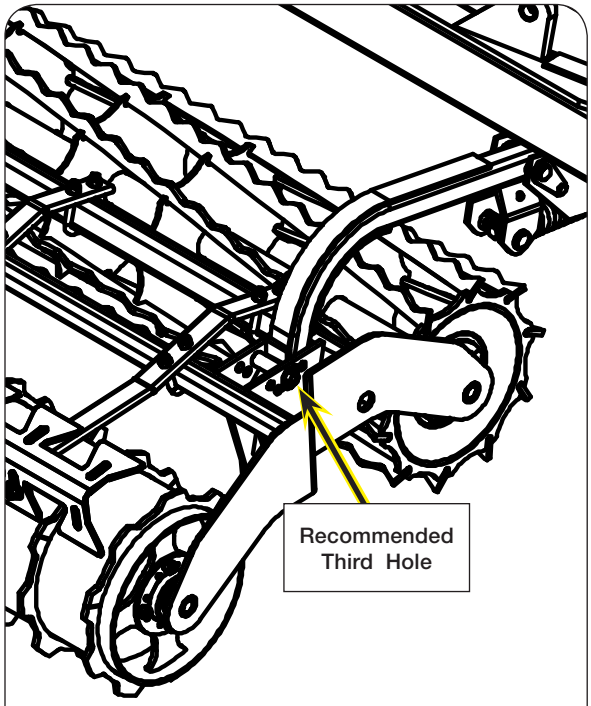


Fig. 3-20

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. Lubricate wing pivots (FIG. 4-1).

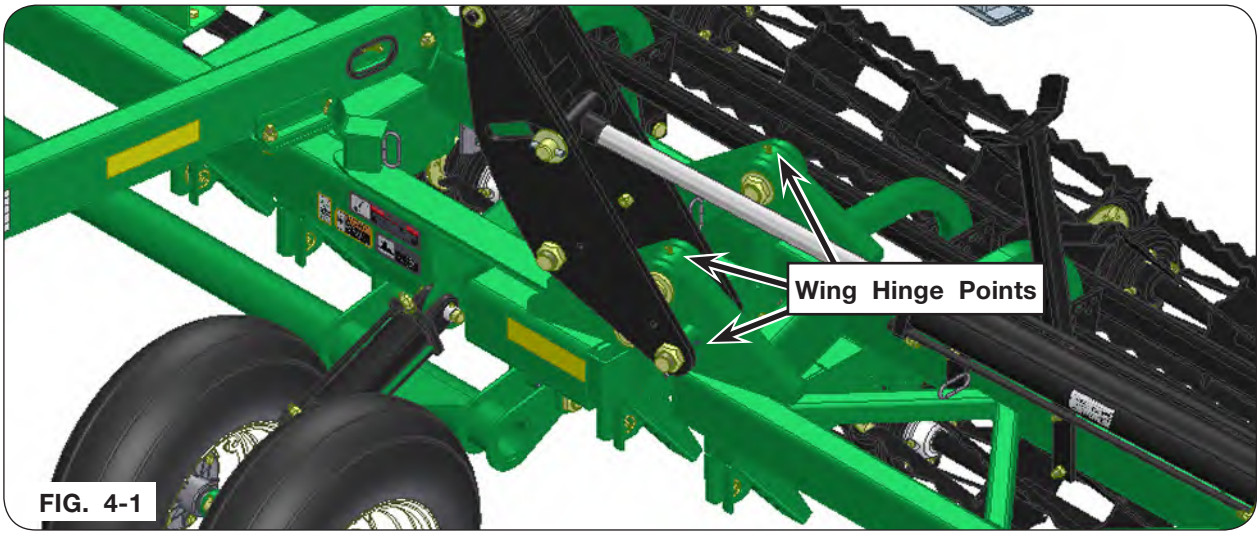


FIG. 4-1

4. Coat all earth moving surfaces with grease or suitable rust preventative.
5. Inspect for damage or worn parts, replace before next season.
6. Store implement inside, away from livestock.
7. Block up implement to keep tires and ground tools off ground.
8. Replace all worn, torn or faded decals and reflectors.

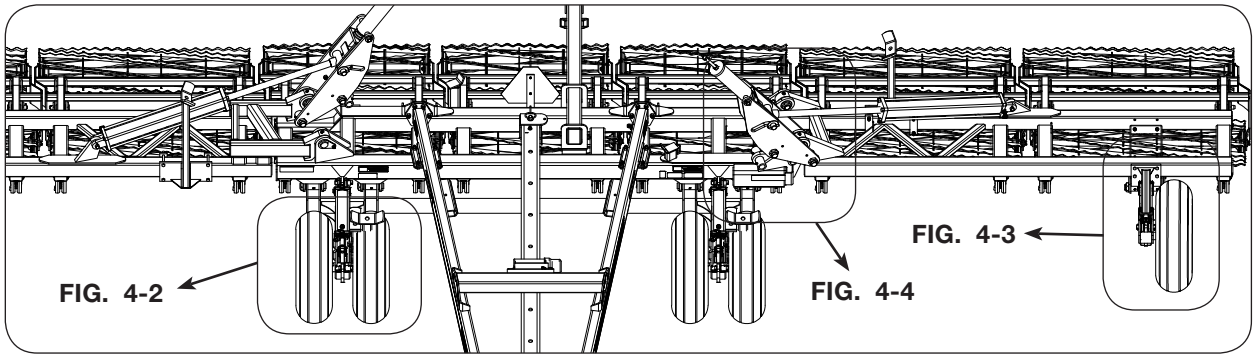
To save storage space, the telescopic tongue may be pushed into the A-frame. The tongue will need to be lengthened to the proper working length when the machine is used again.

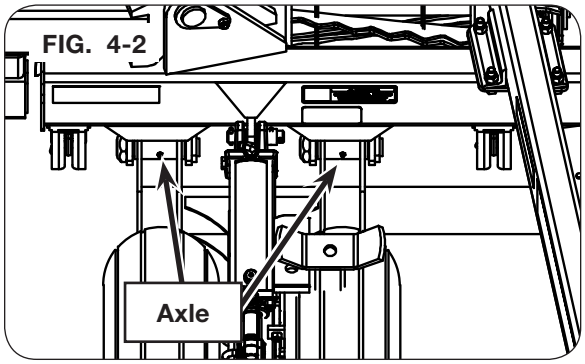
DO NOT store the machine with the wings folded and the base frame lowered to the ground. This can damage the base frame basket springs.

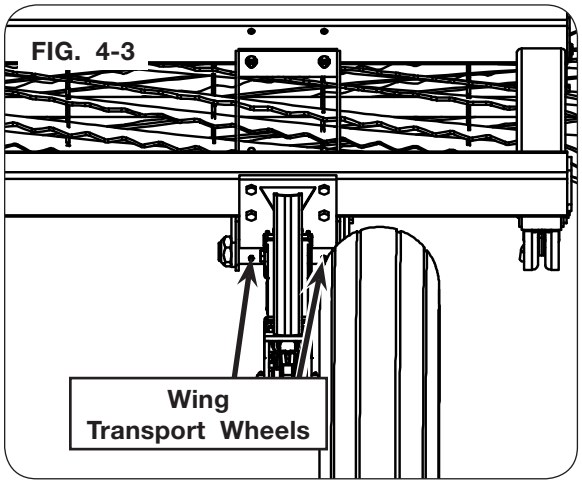
Lubrication

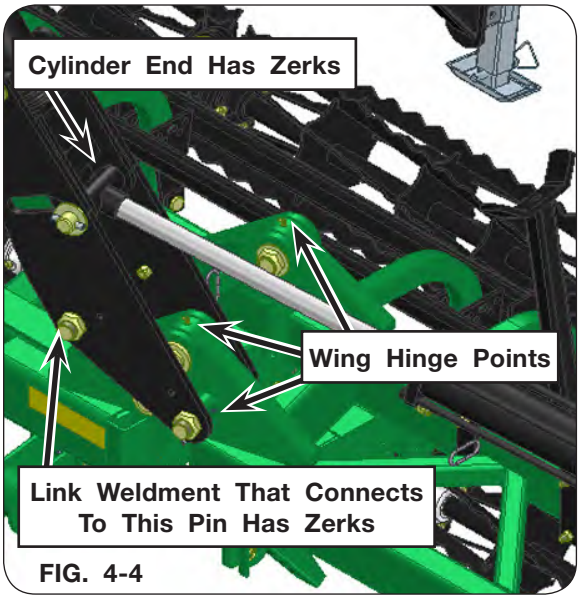
Be sure to lubricate the indicated points of the Rolling Harrow implement as outlined.

LOCATION	SEASON		HOURS
	BEGINNING	END	
AXLE & WING TRANSPORT WHEELS - 8 lube fittings - grease gun	✓	✓	8
WING HINGE POINTS - 16 lube fitting - grease gun	✓	✓	8
WHEEL HUBS - repack All bearings	✓		







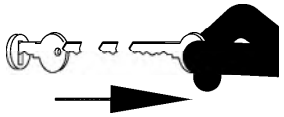


Replacing Rolling Harrow Basket Bearings

WARNING

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

1. Unverferth Manufacturing bearing replacement kit (74006) is available for the ROLLING HARROW baskets.
2. Park unit on a firm level surface. Unfold wings, lower the ROLLING HARROW to the ground, set the tractor parking brake, depressurize the hydraulic system, shut off the engine, and remove the ignition key.



3. Remove pin (9500423) from the basket assembly with the worn bearing. Using the tractor hydraulic system, raise the unit to transport height. Install transport stops on lift cylinders. Set tractor parking brake, depressurize the hydraulic system, shut off the engine and remove the ignition key.
4. Roll the basket assembly from under the machine.
5. Remove the 5/8”-11UNC x 1 1/4” capscrew (900872) from the stub shaft (74280) on the worn bearing. Place pry bar between the head of the stub shaft and the basket weldment to prevent the head of the stub shaft from turning.
6. Push the stub shaft into the basket weldment so the shaft disengages the basket frame side plate.
7. It should be possible to move the basket so the worn bearing is clear of the side frame. If this is not possible, repeat steps 4 & 5 for the capscrew and stub shaft on the other end of the basket and roll the basket away from the frame.
8. Remove the 1/2”-13UNC x 1 1/4” carriage bolts from the bearing and basket. Remove bearing from the basket and remove stub shaft from bearing.
9. Inspect the square recess for the stub shaft in the frame side plate. Remove dirt and debris from this area and make certain edges are not worn or rounded. Repair or replace frame as needed.
10. Discard worn bearing and used mounting hardware. Examine inner race of replacement bearing. If the inner race protrudes beyond the housing more on one side than the other, install the bearing in the basket such that this side is facing the frame side plate. Insert the stub shaft into the bearing and mount the bearing to the basket with the new carriage bolts. Torque locknuts on carriage bolts to 70-75 ft.-lbs.

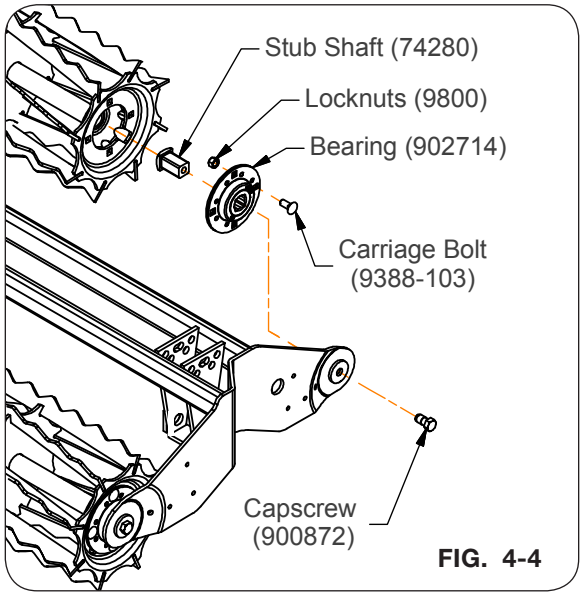


FIG. 4-4

Replacing Rolling Harrow Basket Bearings (continued)

11. Push the basket back into the frame. Align the hole in the stub shaft with the hole in the frame side plate. Thread the new 5/8”-11UNCx 1 1/4” capscrew into the stub shaft until the epoxy begins to engage.

12. Use a pry bar to force the head of the stub shaft against the inner race of the bearing. This may flex the side plate of the frame away from the basket; this is acceptable. While maintaining pressure on the head of the stub shaft, use the 5/8”-11UNCx 1 1/4” capscrew to rotate the stub shaft until the end of it engages in the square recess of the frame side plate. Often there will be an audible click when the shaft engages and the side plate moves toward the basket. Use the pry bar to prevent the stub shaft from turning and torque the 5/8”-11UNCx 1 1/4” capscrew to 150-160 ft.-lbs.

IMPORTANT

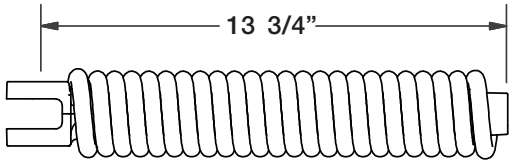
- *The stub shaft MUST fully engage the square recess in the frame side plate to prevent machine damage. Make certain the stub shaft is fully engaged before tightening the 5/8”-11UNCx 1 1/4” capscrew.*

13. Reinstall basket assembly on machine with pins (9500423).

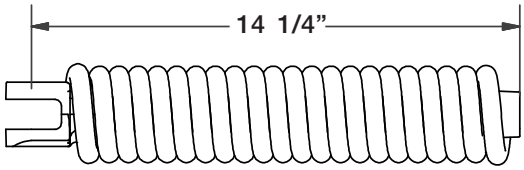
Replacing Spring Assemblies

If it is necessary to replace basket springs, be sure to replace with the comparable spring assembly. See FIG. 4-5 & FIG. 4-6

SPRING ASSEMBLY #84260B FIG. 4-5



SPRING ASSEMBLY #75473B FIG. 4-6



Hydraulic System

NOTE: For plumbing diagram, refer to "Hydraulic Diagram 1". Refer to PARTS section for hydraulic components detail listing.

STANDARD SINGLE HYDRAULIC OPERATION

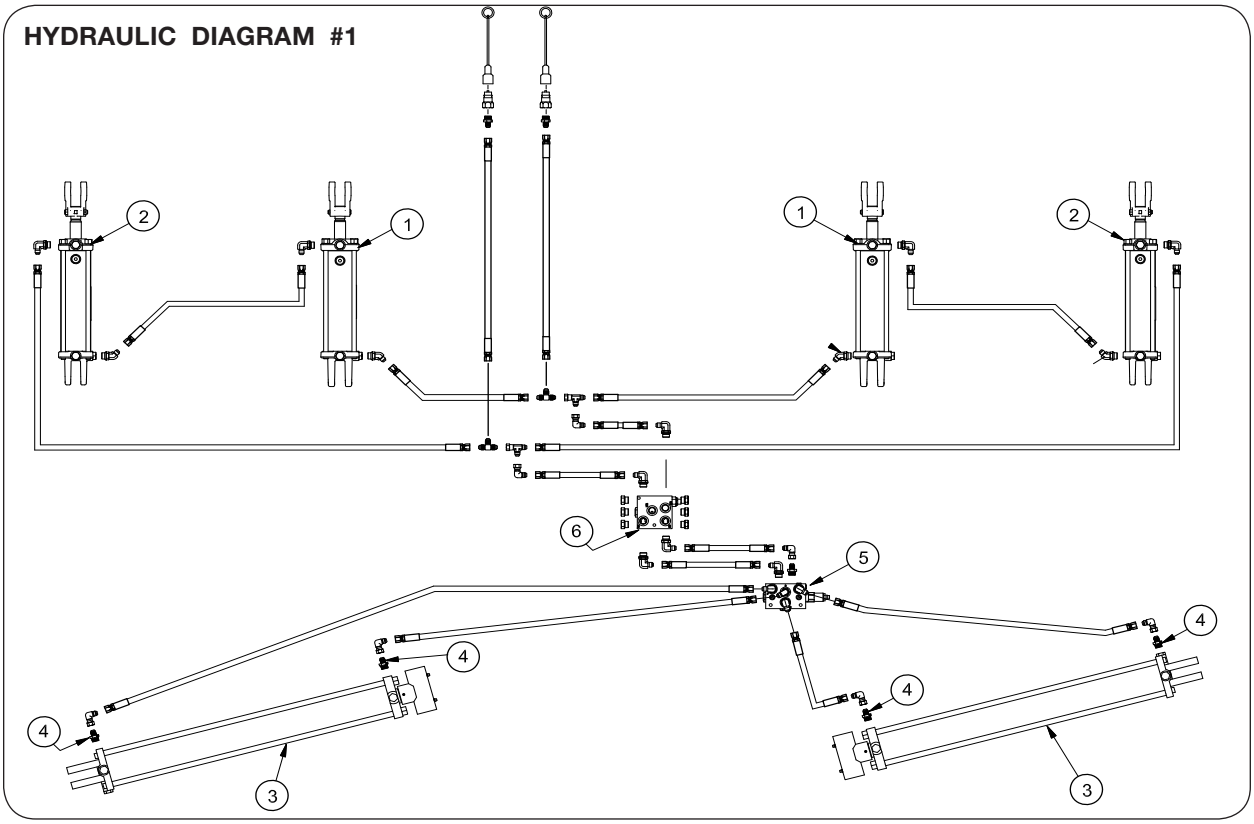
Proper valve function: On the raise cycle, the unit should raise completely then fold. On the lower cycle, the unit will lower/unfold at the same time.

NOTE: It is recommend to adjust valves when hydraulic oil is at operating temperature.
NOTE: Recommended operating hydraulic flow is 8-15 gpm. Recommended operating hydraulic pressure is greater than 2,200 psi.

Unit folds before raising completely: Reference pressure cartridge valve SQ1. Back off jam nut. Use Allen Wrench turn valve clockwise ¼ turn at a time until the unit raises completely then folds. Tighten jam nut.

Unit raises but does not fold: Reference pressure cartridge valve SQ1. Back off jam nut. Use Allen Wrench turn valve counter-clockwise ¼ turn at a time until the unit raises completely then folds. Tighten jam nut.

HYDRAULIC DIAGRAM #1



ITEM	DESCRIPTION	QTY	NOTES
1	Base Wheel Cylinder	2	Cylinder 3 x 10
2	Wing Wheel Cylinder	2	Cylinder 3 1/4 x 10
3	Wing Fold Cylinder	2	Cylinder 4 x 30
4	Orifices	4	with 0.060 Restrictor
5	Combination Valve	1	
6	Split Function Sequence Valve	1	

All hoses, cylinders, and fittings are rated for a minimum of 3000PSI. Any replacement components must be rated for 3000PSI minimum.

Troubleshooting — Hydraulics Not Functioning Properly

PROBABLE CAUSE	CORRECTION
Incorrect hose hook-up to tractor control levers	Refer to Tractor Operator's Manual for valve and control lever arrangement
Insufficient tractor hydraulic pressure	A. Check hydraulic reservoir oil level B. Refer to tractor "Operator's Manual" or hydraulic system recommendations
Hydraulic components leaking oil	Find cause and correct, see MAINTENANCE section hydraulic systems
Hydraulic hoses kinked or twisted	Find cause and correct
Malfunction of hydraulic cylinders	
A. Cylinder leakage	A. Repair or replace cylinders. See PARTS section for cylinder or seal kit part numbers
B. Orifice in wing-fold cylinders plugged	B. Remove contamination from system (flush system, change oil and filter)
Unit "Bleeding Down" when hooked into primary tillage tools hydraulic system (with rephase cylinders)	Install pilot operated check valve, refer to OPERATIONS section
Wings raise when unit is raised off the ground	Normal Operation - wing fold operation can be shut off by installing wing-fold lock-out kit or dual hydraulic hose option. See your ROLLING HARROW dealer

Complete Torque Chart – Capscrews - Grade 5

NOTE: Grade 5 capscrews can be identified by three radial dashes on head.

NOTE: For wheel torque requirements, refer to **Wheels and Tires**.

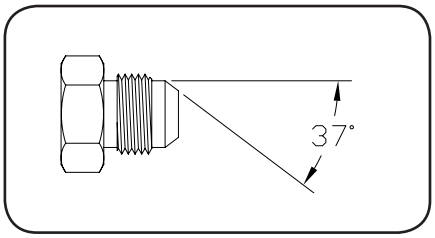
NOTE: Tighten U-bolts to have the same number of threads exposed on each end.

SIZE	FOOT POUNDS	NEWTON METERS	SIZE	FOOT POUNDS	NEWTON METERS
1/4-20 1/4-28	8-10 9-11	11-13 12-15	3/4-10 3/4-16	200-220 210-230	270-300 285-310
5/16-18 5/16-24	15-17 17-19	20-23 23-26	7/8-9 7/8-14	330-350 360-380	425-475 460-515
3/8-16 3/8-24	25-28 28-31	34-38 38-42	1-8 1-14	500-525 540-560	675-710 730-760
7/16-14 7/16-20	40-45 45-50	54-61 61-68	1 1/8-7 1 1/8-12	600-635 665-700	815-860 920-950
1/2-13 1/2-20	62-68 68-75	84-92 92-102	1 1/4-7 1 1/4-12	850-895 940-990	1150-1215 1275-1340
9/16-12 9/16-18	90-98 100-110	22-133 134-148	1 3/8-6 1 3/8-12	1125-1175 1280-1335	1525-1590 1735-1810
5/8-11 5/8-18	120-135 124-137	162-183 168-186	1 1/2-6 1 1/2-12	1500-1560 1685-1755	2035-2115 2285-2380

Hydraulic Fittings – Torque and Installation

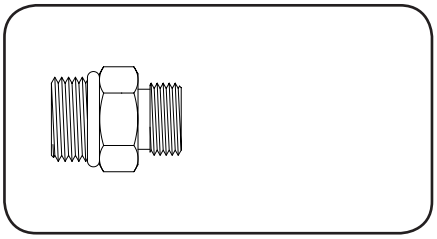
SAE FLARE CONNECTION (J. I. C.)

1. Tighten nut with finger until it bottoms the seat.
2. Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.



SAE STRAIGHT THREAD O-RING SEAL

1. Insure jam nut and washer are backed up to the back side of smooth portion of elbow adapter.
2. Lubricate o-ring -- VERY IMPORTANT!
3. Thread into port until washer bottoms onto spot face.
4. Position elbows by backing up adapter.
5. Tighten jam nut.



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.

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

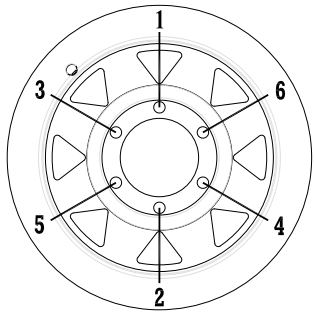


Diagram 1 - 6 bolt

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.**

Recommended....44 PSI maximum

Wheels and Tires

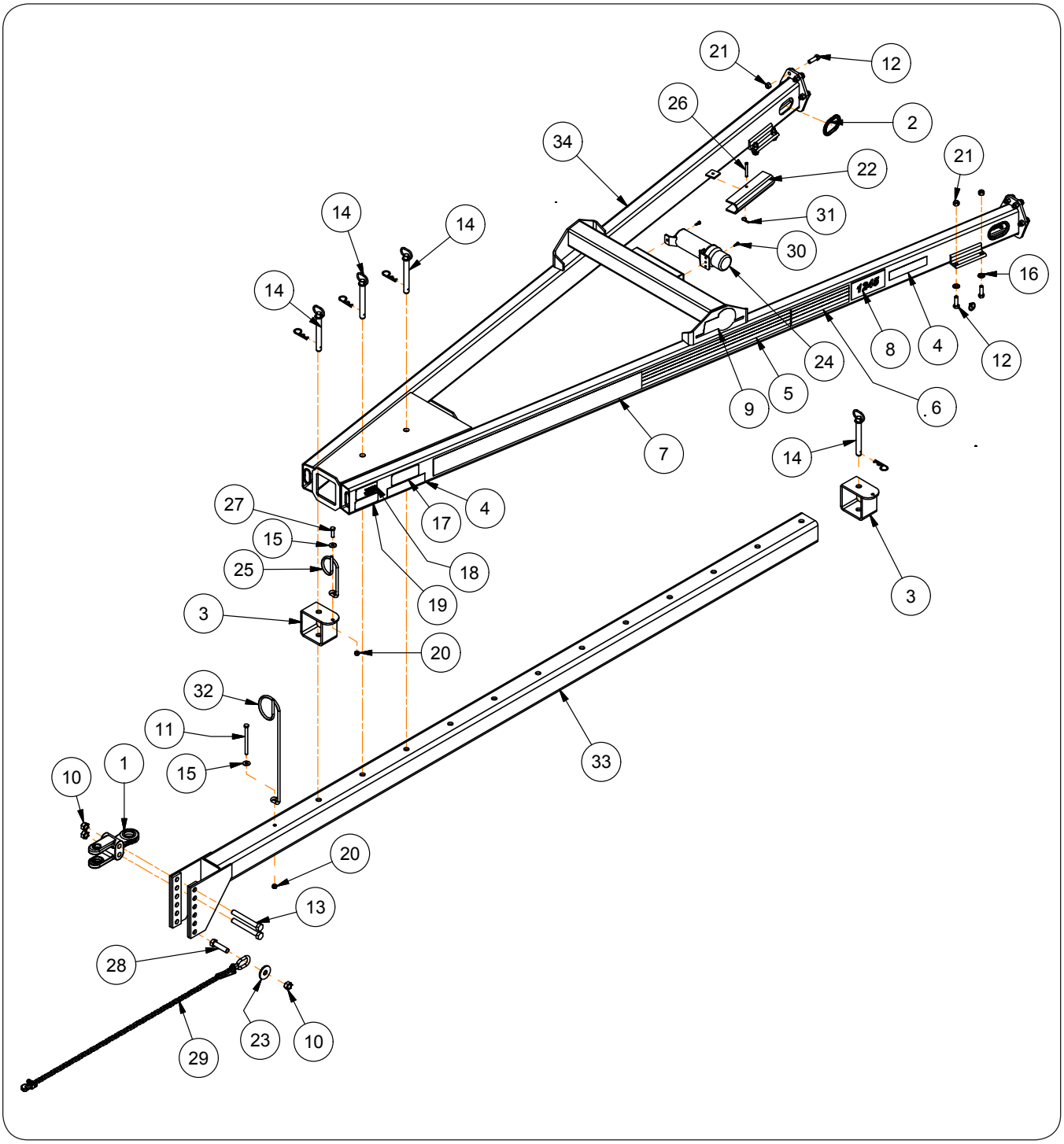
Tire Warranty

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
Titan or Goodyear	www.titan-intl.com Phone 800-USA-BEAR Fax 515-265-9301
Michelin/ Kleber	www.michelinag.com Phone 888-552-1213 Fax 864-458-5538
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

SECTION V
Parts

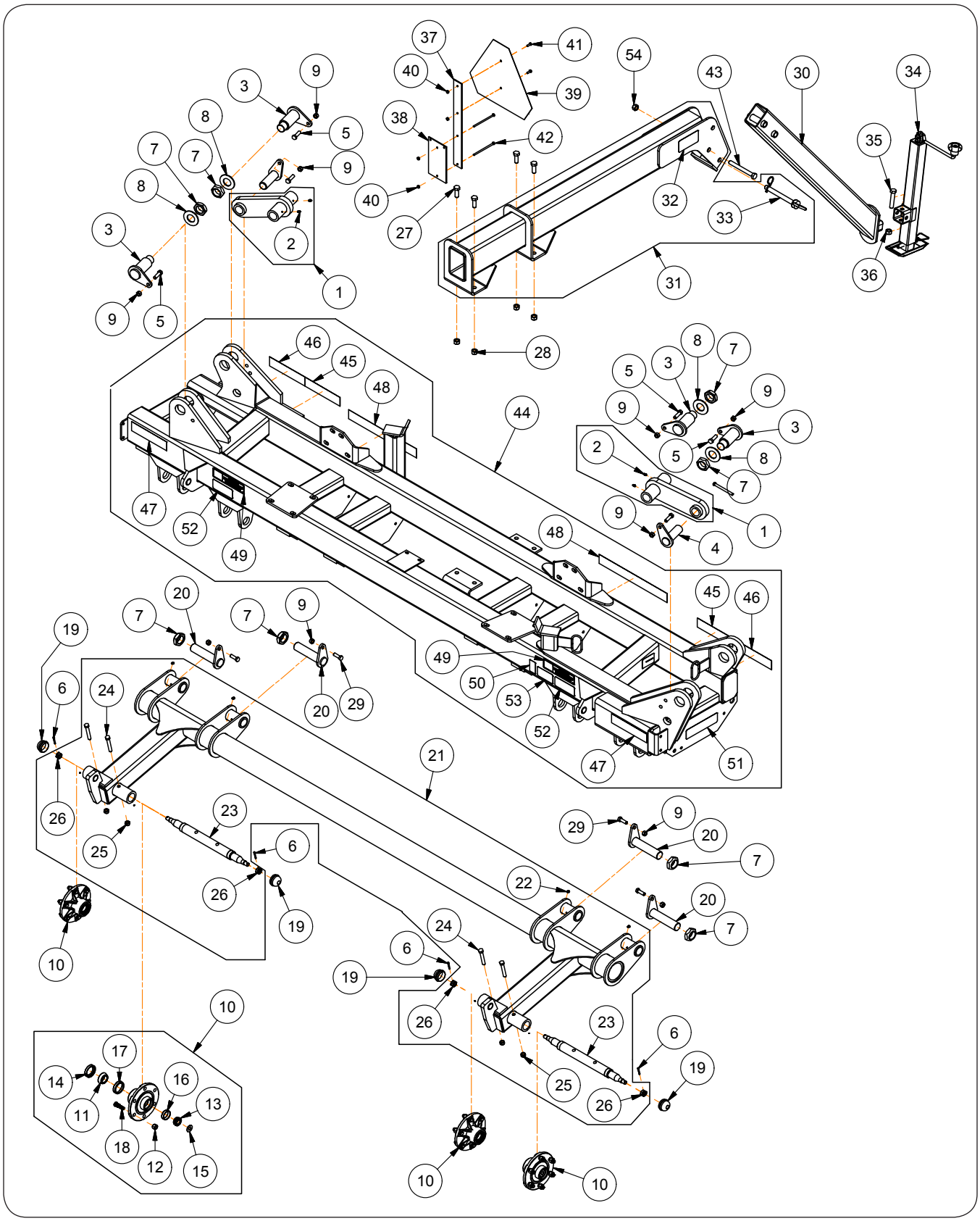
Hitch Components



Hitch Components

ITEM	PART NO.	DESCRIPTION
1	83301B	Hitch Clevis
2	87754	U-Channel
3	89045G	Stop Weldment =Green=
	89045R	Stop Weldment =Red=
4	9003127	Reflector =Amber=
5	900706	Decal, Stripe (4 x 36)
6	900732	Decal, Stripe (4 x 14)
7	901129	Decal, Rolling Harrow
8	9501232	Decal, 1245
9	901607	Decal, UM Oval
10	91141	Locknut 7/8-9UNC
11	9390-116	Capscrew 1/2-13UNC x 6 1/2
12	9390-124	Capscrew 5/8-11UNC x 2
13	9390-178	Capscrew 7/8-9UNC x 7
14	93950	Hitch Pin 1" Dia. x 8 with Hairpin
15	9405-088	Flat Washer 1/2 USS
16	9405-098	Flat Washer 5/8 SAE
17	94094	Decal, WARNING (Rising or Falling Tongue...)
18	95445	Decal, WARNING (High-Pressure Fluid...)
19	97575	Decal, CAUTION (Do Not Tow without Transport Chain)
20	9800	Locknut 1/2-13UNC
21	9801	Locknut 5/8-11UNC
22	73130B	Cylinder Stop
23	85723	Washer
24	900552	Manual Holder
25	902979B	Hose Holder 7/16" Dia.
26	92955	Clevis Pin 3/8" Dia. x 3
27	9390-102	Capscrew 1/2-13UNC x 1 3/4
28	9390-170	Capscrew 7/8-9UNC x 3 1/2
29	94098	Chain With Hook Eye & Decal
30	9512	Self-Drilling Screw 1/4-14 x 1
31	9514	Hairpin Cotter
32	9661	Hose Holder 7/16" Dia.
33	89894G	Tongue Weldment =Green=
	89894R	Tongue Weldment =Red=
34	73356G	A-Frame 12' Assembly with Decals =Green=
	73356R	A-Frame 12' Assembly with Decals =Red=

Main Frame Components

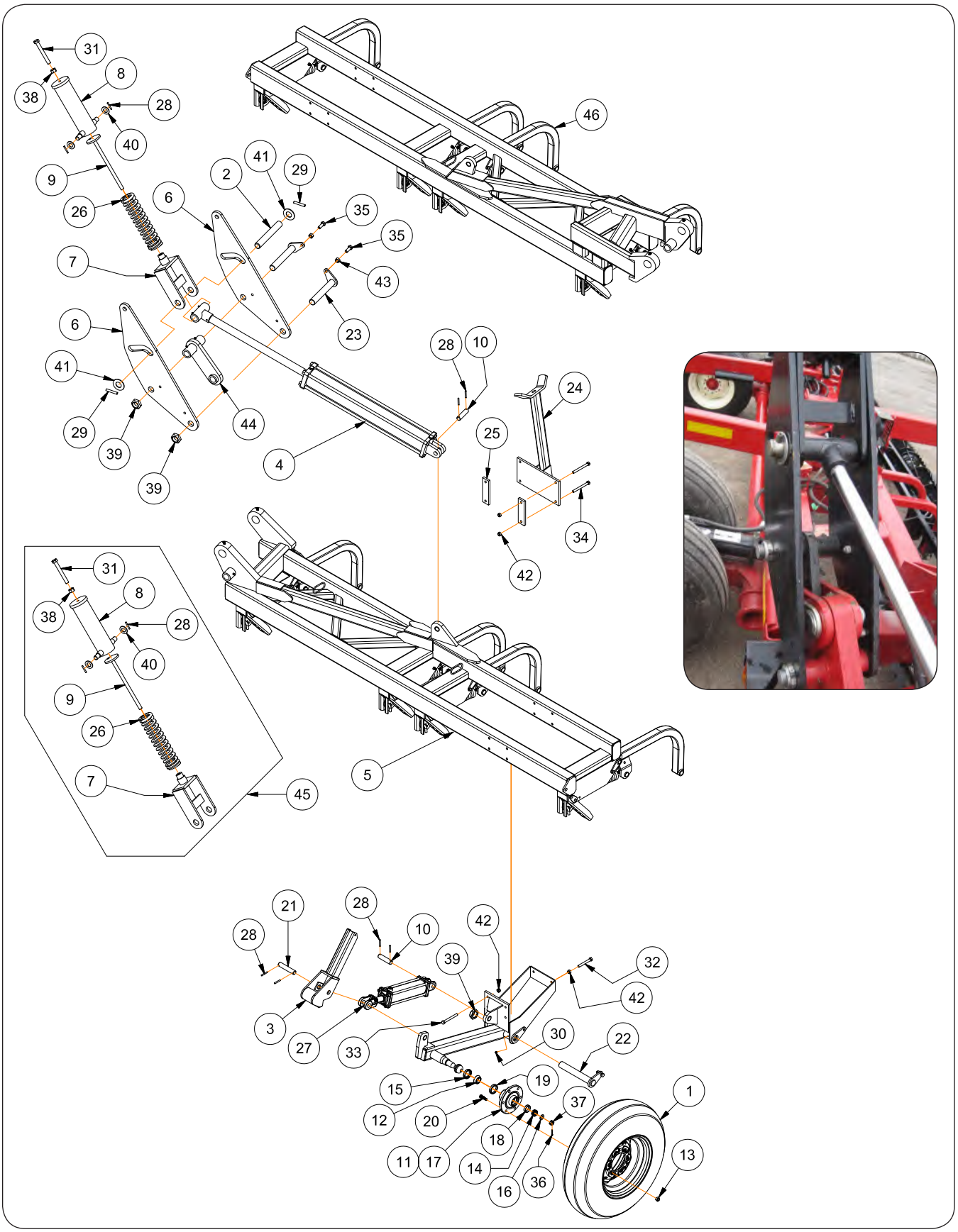


Main Frame Components

ITEM	PART NO.	DESCRIPTION
1	89501679B	Pivot Arm Weldment
2	91160	Grease Zerk
3	89902	Pin Weldment 2" Dia. x 5 11/16
4	89904	Pin Weldment 1 1/2" Dia. x 4 7/8
5	9390-102	Capscrew 1/2-13UNC x 1 3/4
6	9391-043	Cotter Pin 3/16" Dia. x 1 1/4
7	9397-022	Elastic Jam Nut 1 1/2-12UNF
8	9405-140	Flat Washer 1 1/2" SAE
9	9800	Locknut 1/2-13UNC
10	9500001B	Hub 6 Bolt Assembly Complete
11	9165	Bearing Cone #LM67048
12	9348	Beveled Nut 1/2-20UNF
13	9789	Bearing Cone #LM11949
14	9790	Seal 1 5/8" ID
15	9791	Flat Washer 21/32" ID
16	9784	Bearing Cup #LM11910
17	9345	Bearing Cup #LM67010
18	9347	Stud Bolt 1/2-20UNF x 1 7/8
19	9787	Hub Cap
20	89912	Pin Weldment 1 1/2" Dia. x 7
21	74713B	Axle Weldment =Black=
22	91160	Grease Zerk
23	86966	Spindle 1 5/8" Dia. x 20 3/4 5/8-18UNF Threaded Ends
24	9390-108	Capscrew 1/2-13UNC x 3 1/4
25	9800	Locknut 1/2-13UNC
26	9393-014	Slotted Nut 5/8-18UNF (Grade 2)
27	9390-123	Capscrew 5/8-11UNC x 1 3/4
28	9801	Locknut 5/8-11UNC
29	9390-101	Capscrew 1/2-13UNC x 1 1/2
30	75907B	Jack Mount Weldment =Black=
31	75906G	Arm Weldment =Green=
	75906R	Arm Weldment =Red=
32	98229	Decal, WARNING (Falling/Lowering Equipment)
33	95958	Hitch Pin w/HairPin
34	901061	Jack Top Wind 5000# Drop Leg
35	9390-129	Capscrew 5/8-11UNC x 3 1/4
36	9801	Locknut 5/8-11UNC
37	88259B	Strip/SMV Bracket =Black=
38	88587B	Plate 4 1/2 x 8 =Black=
39	9829	SMV Emblem
40	9936	Locknut 1/4-20UNC
41	9390-003	Capscrew 1/4-20UNC x 3/4

ITEM	PART NO.	DESCRIPTION
42	9390-019	Capscrew 1/4-20UNC x 5
43	9390-157	Capscrew 3/4-10UNC x 6
44	73354G	Main Frame 12' w/Decals =Green=
	73354R	Main Frame 12' w/Decals =Red=
45	9003125	Fluorescent Orange Decal
46	9003126	Reflector 2 x 9 =Red=
47	9003127	Reflector 2 x 9 =Amber=
48	901576	Decal, Unverferth
49	901891	Decal, DANGER (Electrocution)
50	91605	Decal FEMA
51	95136	Decal, WARNING (Folding/Unfolding Wings)
52	95605	Decal, WARNING (Falling Equipment)
53	97961	Decal, WARNING (Read & Understand Manual)
54	9802	Locknut 3/4-10UNC

Wing Components

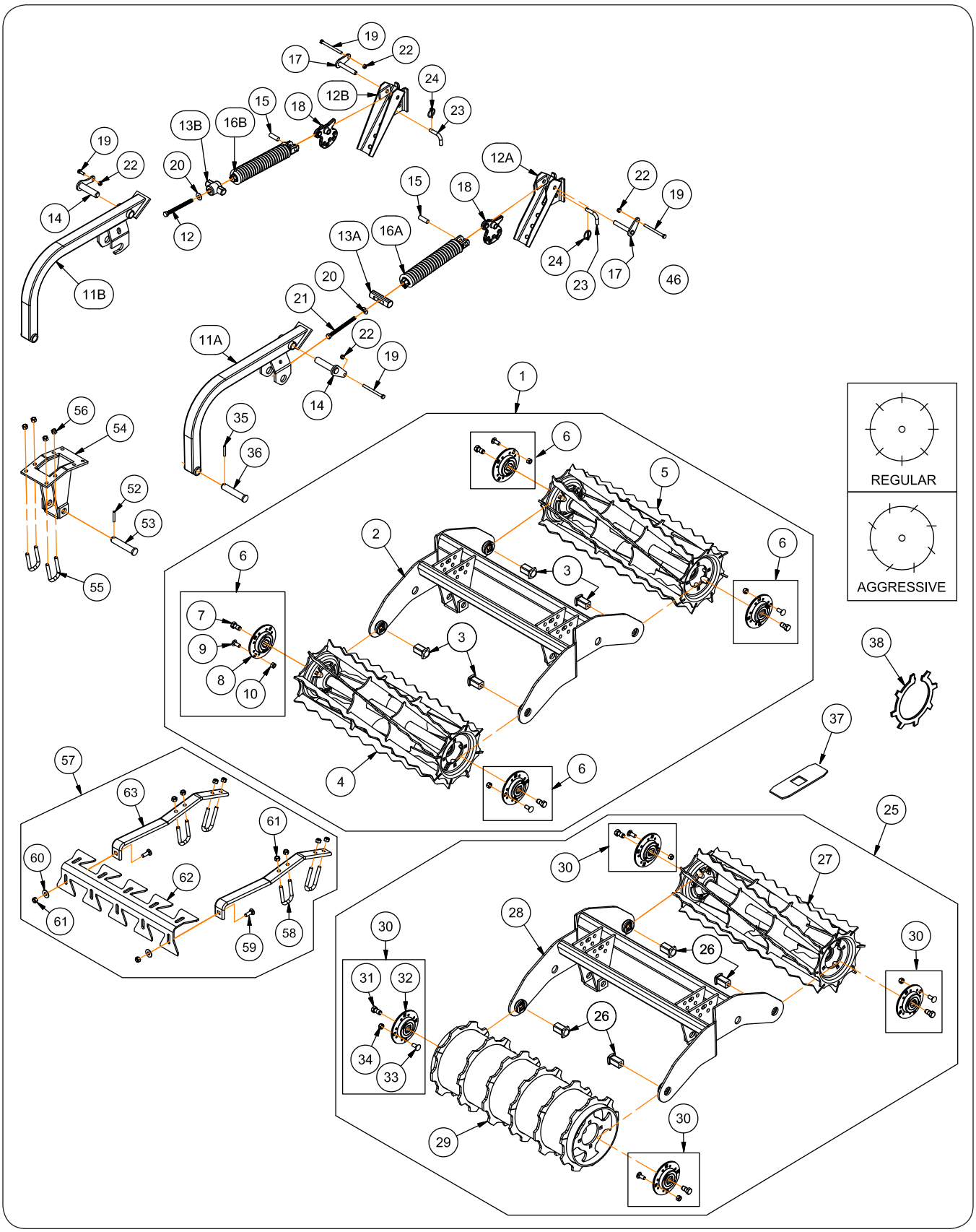


Wing Components

ITEM	PART NO.	DESCRIPTION
1	60911	Mounted Tire & Wheel (Off White)
	60911SM	Mounted Tire & Wheel (Silver Mist)
2	73084	Pin 1 1/2" Dia. x 10 3/4"
3	73118B	Gravity Latch Weldment
4	73576B	Cylinder Assembly
	91160	Grease Zerk
	9399-070	Set Screw
5	76972G	Wing 10' LH Asy =Green=
	76972R	Wing 10' LH Asy =Red=
	76974G	Wing 11' LH Asy =Green=
	76974R	Wing 11' LH Asy =Red=
	76976G	Wing 12' LH Asy =Green=
	76976R	Wing 12' LH Asy =Red=
	76978G	Wing 13' LH Asy =Green=
	76978R	Wing 13' LH Asy =Red=
	76980G	Wing 14' LH Asy =Green=
	76980R	Wing 14' LH Asy =Red=
6	73480B	Plate
7	73562B	Yoke Weldment
8	73566B	Spring Can Weldment
9	73570B	Rod Weldment
10	85631	Pin 1" Dia. x 4"
11	91591B	Hub 6 Bolt Asy Complete =BLACK=
12	9165	Bearing Cone #LM670481
13	9348	Beveled Nut 1/2-20UNF
14	9789	Bearing Cone #LM11949
15	9790	Seal 1 5/8" I.D.
16	9791	Flat Washer 21/32" I.D.
17	9782	Hub Casting
18	9784	Bearing Cup #LM11910
19	9345	Bearing Cup #LM67010
20	9347	Stud Bolt 1/2"-20UNF x 1 7/8"
21	88038	Pin 1" Dia. x 5 1/8"
22	88047	Pin Weldment
23	89263	Pin Weldment

ITEM	PART NO.	DESCRIPTION
24	89941B	Rest Bracket Weldment
25	89944B	Bar/Strap
26	9004371B	Compression Spring
27	902760	Cylinder 3" x 10" (3000 PSI)
28	91144-165	Spiral Pin 1/4" Dia. x 1 7/8"
29	91144-239	Spiral Pin 1/2" Dia. x 3"
30	91160	Grease Zerk
31	91175	Capscrew 3/4"-10UNC x 6"
32	9390-111	Capscrew 1/2"-13UNC x 4"
33	9390-112	Capscrew 1/2"-13UNC x 4 1/2"
34	9390-113	Capscrew 1/2"-13UNC x 5"
35	9390-123	Capscrew 5/8"-11UNC x 1 3/4"
36	9391-043	Cotter Pin 3/16" Dia. x 1 1/4"
37	9393-014	Slotted Nut 5/8"-18 UNF
38	9394-016	Hex Nut 3/4"-10UNC
39	9397-022	Elastic Jam Nut 1 1/2"-12UNF
40	9405-116	Flat Washer 1" SAE
41	9405-140	Flat Washer 1 1/2" SAE
42	9800	Locknut 1/2"-13UNC
43	9801	Locknut 5/8"-11UNC
44	89501679B	Pivot Arm Weldment
45	73633B	Weight Transfer Kit
46	76973G	Wing 10' RH Asy =Green=
	76973R	Wing 10' RH Asy =Red=
	76975G	Wing 11' RH Asy =Green=
	76975R	Wing 11' RH Asy =Red=
	76977G	Wing 12' RH Asy =Green=
	76977R	Wing 12' RH Asy =Red=
	76979G	Wing 13' RH Asy =Green=
	76979R	Wing 13' RH Asy =Red=
	76981G	Wing 14' RH Asy =Green=
	76981R	Wing 14' RH Asy =Red=

Rolling Harrow Basket Components



Rolling Harrow Basket Components

ITEM	PART NO.	DESCRIPTION	NOTE
1	74845B	Basket & Frame 3' Assembly	
	74846B	Basket & Frame 4' Assembly	
	74828B	Basket & Frame 5' Assembly	
	74847B	Basket & Frame 6' Assembly	
2	74842B	Frame 3' Weldment	
	74843B	Frame 4' Weldment	
	74822B	Frame 5' Weldment	
	74844B	Frame 6' Weldment	
3	74280	Bearing Bolt	
4	74596B	Basket 3' Regular Weldt	
	74597B	Basket 4' Regular Weldt	
	74576B	Basket 5' Regular Weldt	
	74598B	Basket 6' Regular Weldt	
5	74599B	Basket 3' Aggressive Weldment	
	74600B	Basket 4' Aggressive Weldment	
	74579B	Basket 5' Aggressive Weldment	
	74601B	Basket 6' Aggressive Weldment	
6	74006	Flange Bearing Kit	
7	900872	Capscrew 5/8-11UNC x 1 1/4"	
8	902714	Flange Bearing	
9	9388-103	Carriage Bolt 1/2-13UNC x 1 1/4"	
10	9800	Locknut 1/2-13UNC	
11A	74793G	Bent Arm Weldt =Green=	
	74793R	Bent Arm Weldt =Red=	
11B	84732G	Bent Arm Weldt =Green=	
	84732R	Bent Arm Weldt =Red=	
12A	74848G	One-Bar Arm/Saddle Weldt =Green=	
	74848R	One-Bar Arm/Saddle Weldt =Red=	
12B	89260G	One-Bar Arm/Saddle Weldt =Green=	
	89260R	One-Bar Arm/Saddle Weldt =Red=	
13A	74850	Trunnion	
13B	85741B	Trunnion	
14	76331PL	Pin Weldment 1" Dia. x 4 11/16"	
15	81321	Pin 5/8" Dia. x 1 7/8"	
16A	75473B	Spring Assembly 2 13/16" Dia. x 14 1/4"	
16B	84260B	Spring Assembly 2 1/2" Dia. x 13 7/8"	
17	86251B	Pin-Link Weldment 5/8" Dia. x 3 7/8"	
18	89256	Adjustable Link	
19	9390-068	Capscrew 3/8-16UNC x 4 1/2"	
	9390-055	Capscrew 3/8-16UNC x 1"	
20	9405-082	Flat Washer 7/16 USS	
21	97171	Capscrew 1/2-13UNC x 6"	
22	9928	Locknut 3/8"-16UNC	
23	902450	Bent Pin	
24	9093	Klik Pin 3/16" Dia. x 1 9/16" w/Lock Ring	

(Continued on next page)

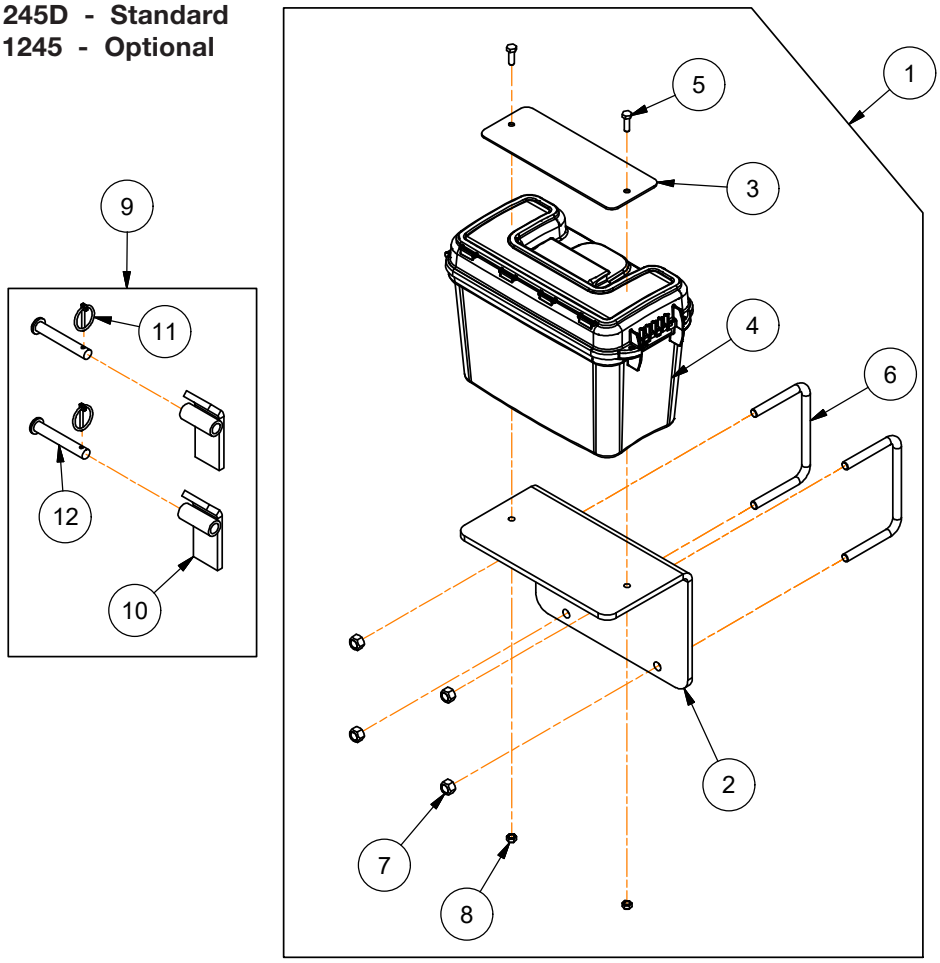
Rolling Harrow Basket Components (continued)

ITEM	PART NO.	DESCRIPTION	NOTES
25	76030B	Drum & Frame 3' Assembly	
	76031B	Drum & Frame 4' Assembly	
	76008B	Drum & Frame 5' Assembly	
	76032B	Drum & Frame 6' Assembly	
26	74280	Bearing Bolt	
27	74599B	Basket 3' Aggressive Weldment	
	74600B	Basket 4' Aggressive Weldment	
	74579B	Basket 5' Aggressive Weldment	
	74601B	Basket 6' Aggressive Weldment	
28	74842B	Frame 3' Weldment	
	74843B	Frame 4' Weldment	
	74822B	Frame 5' Weldment	
	74844B	Frame 6' Weldment	
29	76024B	Drum/Basket 3' Weldment	
	76025B	Drum/Basket 4' Weldment	
	76009B	Drum/Basket 5' Weldment	
	76026B	Drum/Basket 6' Weldment	
30	74006	Flange Bearing Kit	
31	900872	Capscrew 5/8-11UNC x 1 1/4"	
32	902714	Flange Bearing	
33	9388-103	Carriage Bolt 1/2-13UNC x 1 1/4"	
34	9800	Locknut 1/2-13UNC	
35	91144-186	Spiral Pin 5/16" Dia. x 2"	
36	9500423	Pin 1" Dia. x 5 1/8"	
37	88826	Cover - Rubber	
38	74964	Reinforcing Disc Weld-In	
52	91144-186	Spiral Pin 5/16" Dia. x 2"	
53	9500423	Pin 1" Dia. x 5 1/8"	
54	88585B	Bolt-On Basket Bracket Weldment	
55	901837	U-Bolt 1/2"-13UNC	
56	9800	Locknut 1/2"-13UNc	
57	76539B	Drum Scraper Kit 3'	
	76540B	Drum Scraper Kit 4'	
	76541B	Drum Scraper Kit 5'	
	76542B	Drum Scraper Kit 6'	
58	901837	U-Bolt 1/2"-13UNC	
59	9388-104	Carriage Bolt 1/2"-13UNC x 1 1/2"	
60	9405-088	Flat Washer 1/2" USS	
61	9800	Locknut 1/2"-13UNC	
62	75598B	Drum Scraper 3'	
	76969B	Drum Scraper 4'	
	76970B	Drum Scraper 5'	
	75600B	Drum Scraper 6'	
63	75564B	Drum Scraper Bar Mount	

Basket Pin Up & Storage Box Components

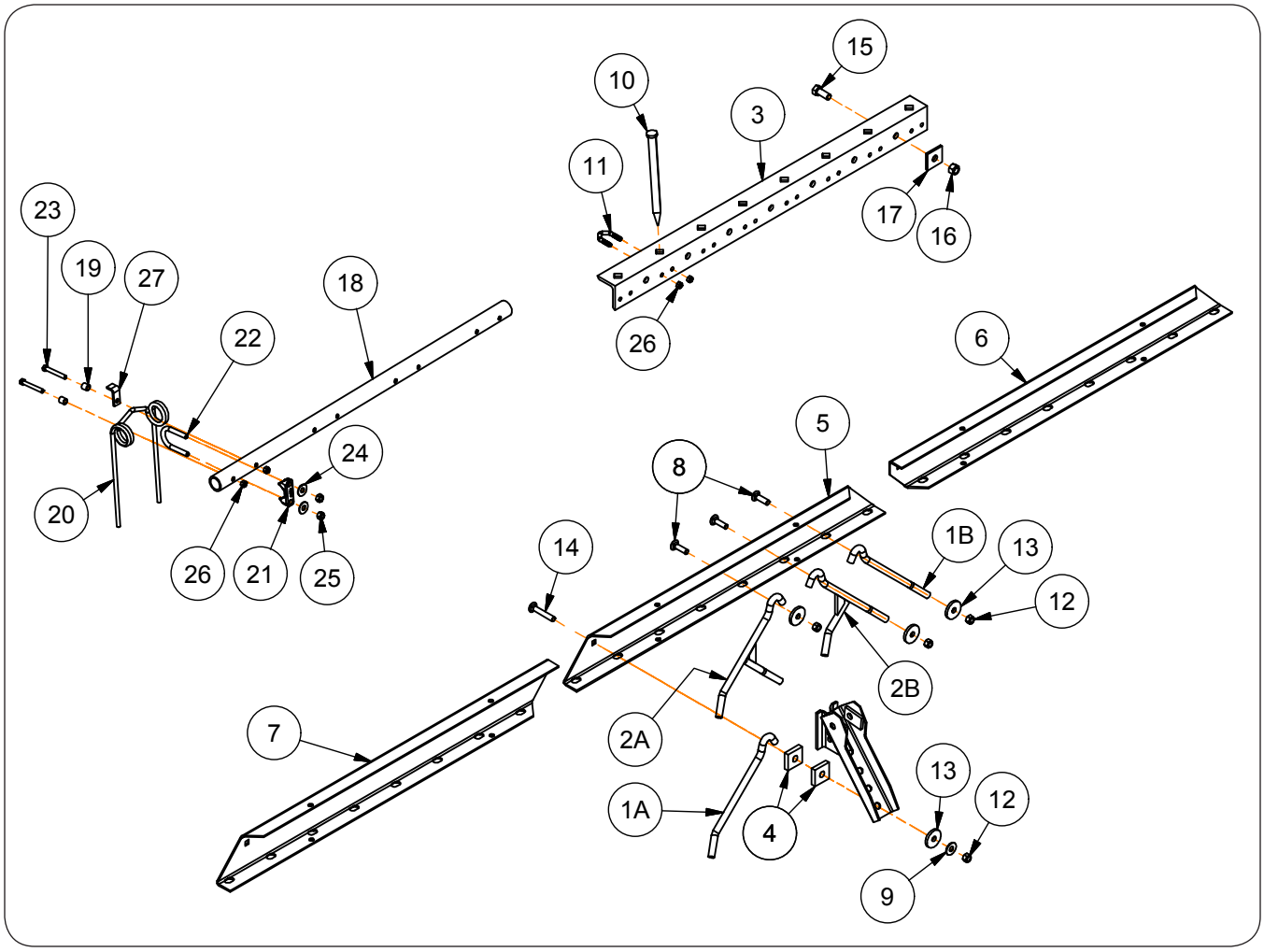
Please visit www.unverferth.com/parts/ for the most current parts listing.

Model 1245D - Standard
Model 1245 - Optional



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	77401B	Storage Box Bracket Assembly	1	Includes Items 2 through 8
2	77400B	Stroage Box Bracket =Black=	1	
3	27741B	Plate 4" x 11"	1	
4	902456	Storage Box	1	
5	9390-030	Capscrew, 5/16"-18UNC x 1" G5	2	
6	9502320	U-Bolt, 1/2"-13UNC x 4 1/16"	2	
7	9800	Lock Nut/Top, 1/2"-13UNC	4	
8	9807	Lock Nut/Top, 5/16"-18UNC	2	
9	77660B	Basket Pivot Limit {PAIR}	1	Includes Items 10, 11, 12
10	77042B	Basket Pin Up Bushing Weldment =Black=	2	
11	9093	Klik Pin 3/16" Dia. x 1 9/16"	2	
12	91523	Clevis Pin 5/8" Dia. x 4"	2	

Leveler Bar Components

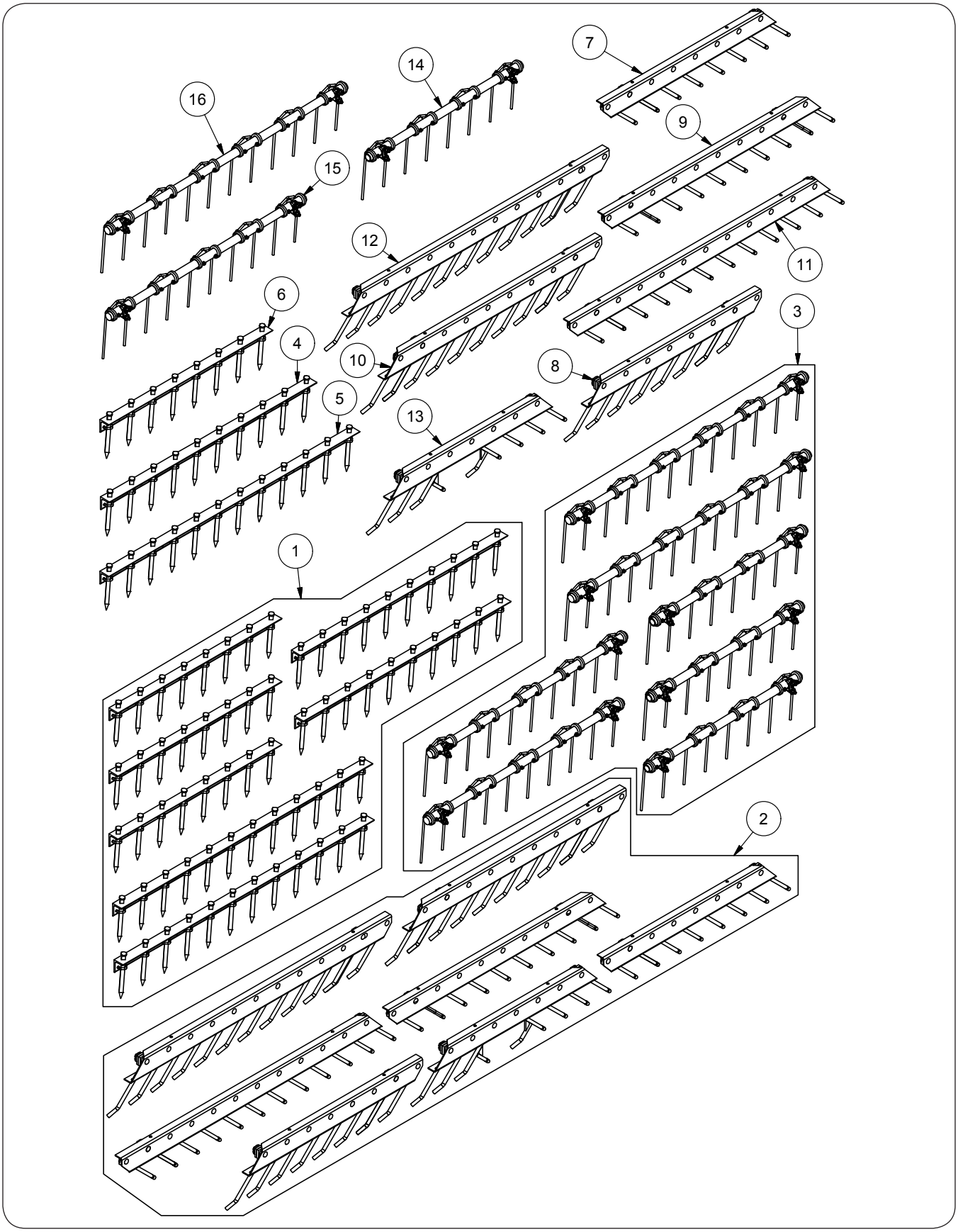


Leveler Bar Components

ITEM	PART NO.	DESCRIPTION
1A	74676B	Tooth/Diagonal - Left-Hand
1B	74672B	Tooth/Diagonal - Right-Hand
2A	74671B	Tooth/Diagonal "Y" - Left-Hand
2B	74670B	Tooth/Diagonal "Y" - Right-Hand
3	71185B	4 Ft. Spiked Tooth One-Bar
	71186B	5 Ft. Spiked Tooth One-Bar
	71580B	6 Ft. Spiked Tooth One-Bar
4	3788B	Spacer/Washer
5	71254B	4 Ft. Diagonal Tooth One-Bar Center
6	71258B	4 Ft. Diagonal Tooth One-Bar Right-Half
	71260B	5 Ft. Diagonal Tooth One-Bar Right-Half
	72144B	6 Ft. Diagonal Tooth One-Bar Right-Half
7	71259B	4 Ft. Diagonal Tooth One-Bar Left-Half
	71261B	5 Ft. Diagonal Tooth One-Bar Left-Half
	72147B	6 Ft. Diagonal Tooth One-Bar Left-Half
8	9388-105	Carriage Bolt, 1/2-13UNC x 1 3/4" (Gr. 5)
9	9405-088	Flat Washer 1/2"

ITEM	PART NO.	DESCRIPTION
10	9634P	Spike Tooth
11	9635	V-Bolt 3/8-16UNC (Gr. 2)
12	9800	Locknut 1/2-13UNC
13	91069B	Flat Washer 2" OD
14	9388-110	Carriage Bolt 1/2-13UNC x 3" (Gr. 5)
15	9390-122	Capscrew 5/8-11UNC x 1 1/2" (Gr. 5)
16	9801	Locknut 5/8-11UNC
17	83284B	Washer
18	86570B	6 Ft. Tine One-Bar
	84477B	5 Ft. Tine One-Bar
	84478B	4 Ft. Tine One-Bar (Shown)
19	84531B	Tube/Bushing
20	84724B	Spring/Coil Tine
21	84735B	Clamp
22	95914	U-Bolt 7/16-14UNC (2.12CC - Gr. 5)
23	9390-062	Capscrew 3/8-16UNC x 2 3/4" (Gr. 5)
24	9405-082	Flat Washer 7/16"
25	9799	Top Locknut 7/16-14UNC
26	9928	Top Locknut 3/8-16UNC
	902875	Center Locknut 3/8-16UNC (With Clip ONLY)
27	84837	Clip (Behind Wheels ONLY)

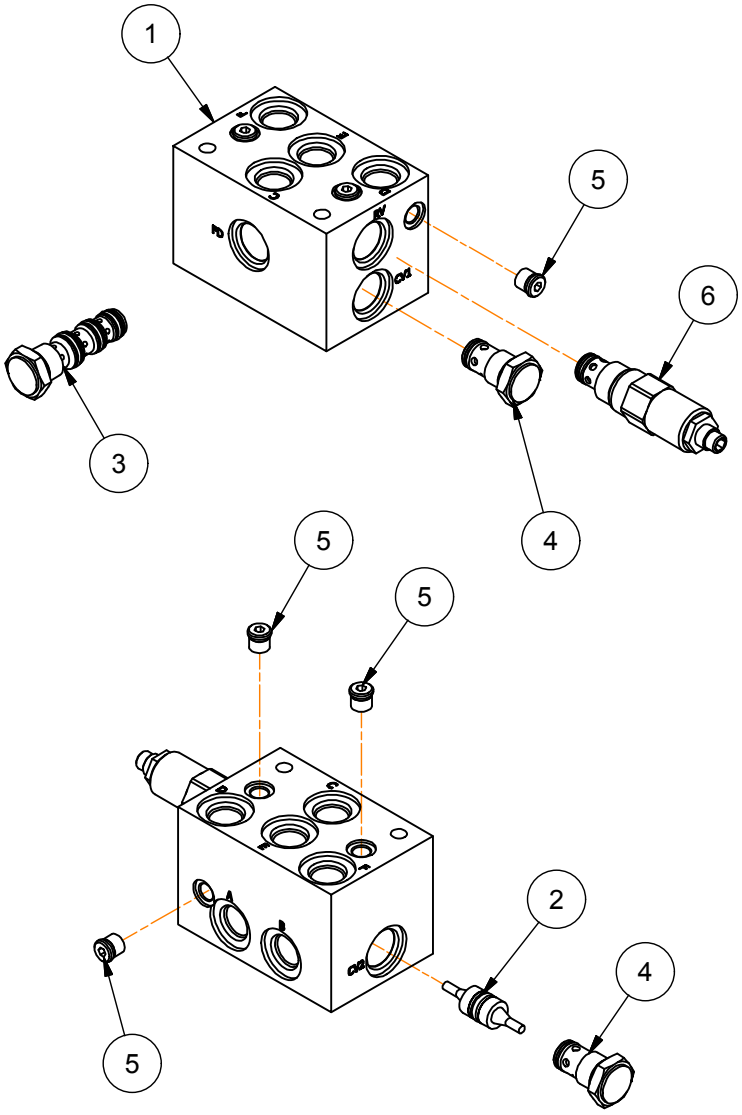
Leveler Bar Assemblies



Leveler Bar Assemblies

ITEM	PART NO.	DESCRIPTION
1	73131B	Straight Spike-Tooth One Bar Bundle for 32' Cross Fold
	73132B	Straight Spike-Tooth One Bar Bundle for 34' Cross Fold
	73133B	Straight Spike-Tooth One Bar Bundle for 36' Cross Fold
	73134B	Straight Spike-Tooth One Bar Bundle for 38' Cross Fold
	73135B	Straight Spike-Tooth One Bar Bundle for 40' Cross Fold
2	76847B	Diagonal-Tooth One Bar Bundle for 32' Cross Fold
	76850B	Diagonal-Tooth One Bar Bundle for 34' Cross Fold
	76853B	Diagonal-Tooth One Bar Bundle for 36' Cross Fold
	76855B	Diagonal-Tooth One Bar Bundle for 38' Cross Fold
	76857B	Diagonal-Tooth One Bar Bundle for 40' Cross Fold
3	73141B	Coil-Tine One Bar Bundle 32' Cross Fold
	73142B	Coil-Tine One Bar Bundle 34' Cross Fold
	73143B	Coil-Tine One Bar Bundle 36' Cross Fold
	73144B	Coil-Tine One Bar Bundle 38' Cross Fold
	73145B	Coil-Tine One Bar Bundle 40' Cross Fold
4	71182	Straight Spike-Tooth One Bar 4' Assembly
5	71183	Straight Spike-Tooth One Bar 5' Assembly
6	71579B	Straight Spike-Tooth One Bar 6' Assembly
7	74681B	Diagonal-Tooth One Bar 4' LH Assembly
8	74682B	Diagonal-Tooth One Bar 4' RH Assembly
9	74683B	Diagonal-Tooth One Bar 5' LH Assembly
10	74684B	Diagonal-Tooth One Bar 5' RH Assembly
11	74685B	Diagonal-Tooth One Bar 6' LH Assembly
12	74686B	Diagonal-Tooth One Bar 6' RH Assembly
13	74687B	Diagonal-Tooth One Bar 4' CTR Assembly
14	84480	Coil-Tine One Bar 5' Assembly
15	84481	Coil-Tine One Bar 4' Assembly
16	86569B	Coil-Tine One Bar 6' Assembly

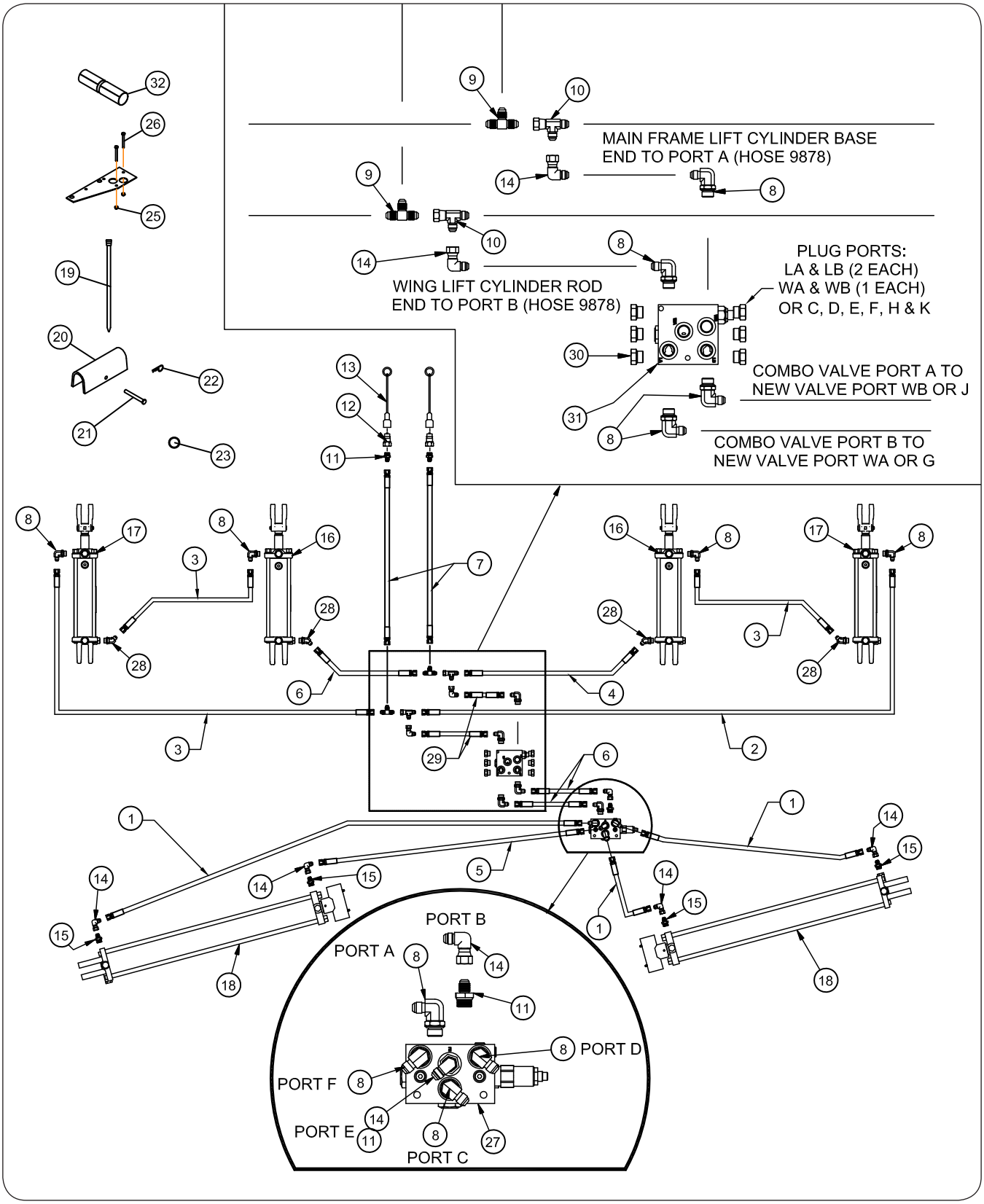
Combination Valve #903045 Components



Combination Valve #903045 Components

ITEM	PART NO.	DESCRIPTION	QTY.
1	903072	Aluminum Block	1
2	903078	Pilot Pistion	1
3	903077	Cartridge Flow Divider	1
	903099	Seal Kit for Cartridge Flow Divider	-
4	903074	Check Valve	2
	903097	Seal Kit for Check Valve	-
5	902818	Plug SAE-4	4
6	903076	Cartridge Relief Valve	1
	903097	Seal Kit for Cartridge Relief Valve	-

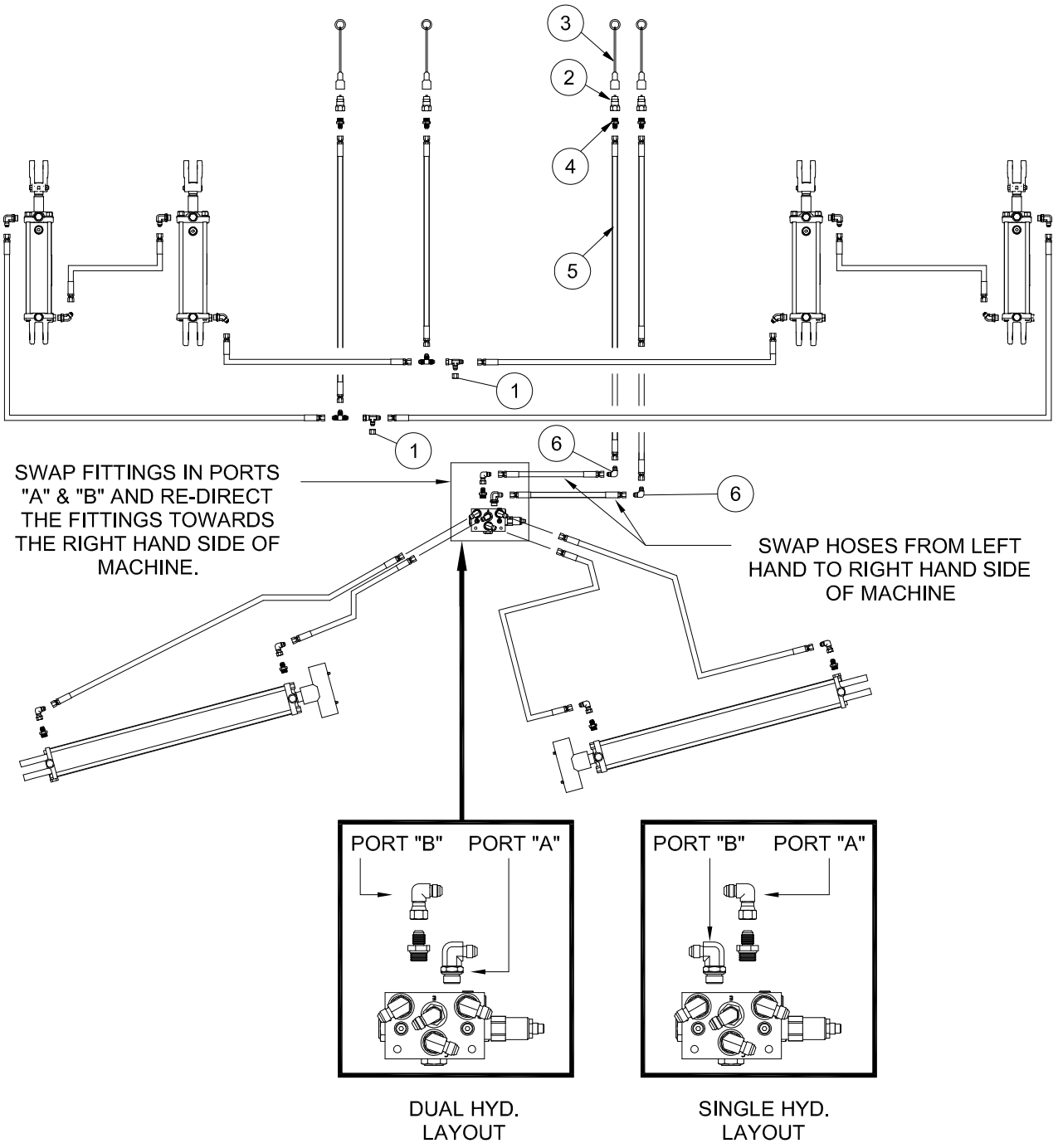
Hydraulics With Combination Valve #903045



Hydraulics With Combination Valve #903045

ITEM	PART NO.	DESCRIPTION	QTY.
1	9003514	Hose 3/8 x 136 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
2	9501691	Hose 3/8 x 228 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
3	9501702	Hose 3/8 x 174 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
4	9501687	Hose 3/8 x 96 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
5	9501695	Hose 3/8 x 114 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
6	9501694	Hose 3/8 x 34 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
7	98700	Hose 3/8 x 330 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
8	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	15
9	9875	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	2
10	91465	Tee 9/16-18 JIC Female x 9/16-18 JIC Male x 9/16-18 JIC Male	2
11	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	3
12	91383	Male Tip Coupling 3/4-16 O-Ring Female	2
13	91511	Dust Cap	2
14	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	6
15	98474	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring w/.078 Restrictor	4
16	902759	Cylinder 3 1/4 x 10	2
	902762	Seal Kit for Cylinder 3 1/4 x 10	-
17	902760	Cylinder 3 x 10	2
	902763	Seal Kit for Cylinder 3 x 10	-
18	73576B	Cylinder 4 x 30	2
	95407	Seal Kit for Cylinder 4 x 30	-
19	94038	Locking Cable Tie (32" Long)	A/R
	94037	Locking Cable Tie (15 1/2" Long)	
20	73130B	Cylinder Stop	2
21	92955	Clevis Pin 3/8" Dia. x 3	2
22	9514	Hairpin Cotter	2
23	9840	O-Ring (For Repairs)	-
24	74490B	Mounting Plate	1
25	9936	Locknut 1/4-20UNC	2
26	9390-011	Capscrew 1/4-20UNC x 2 1/2 (Grade 5)	2
27	903045	Combination Valve	1
28	91508	45° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
29	9501679	Hose 3/8 x 22 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
30	93657	Plug 3/4-16 O-Ring Male	6
31	9500379	Split Function Sequence Valve	1
32	75884	Velcro Hose Wrap	2

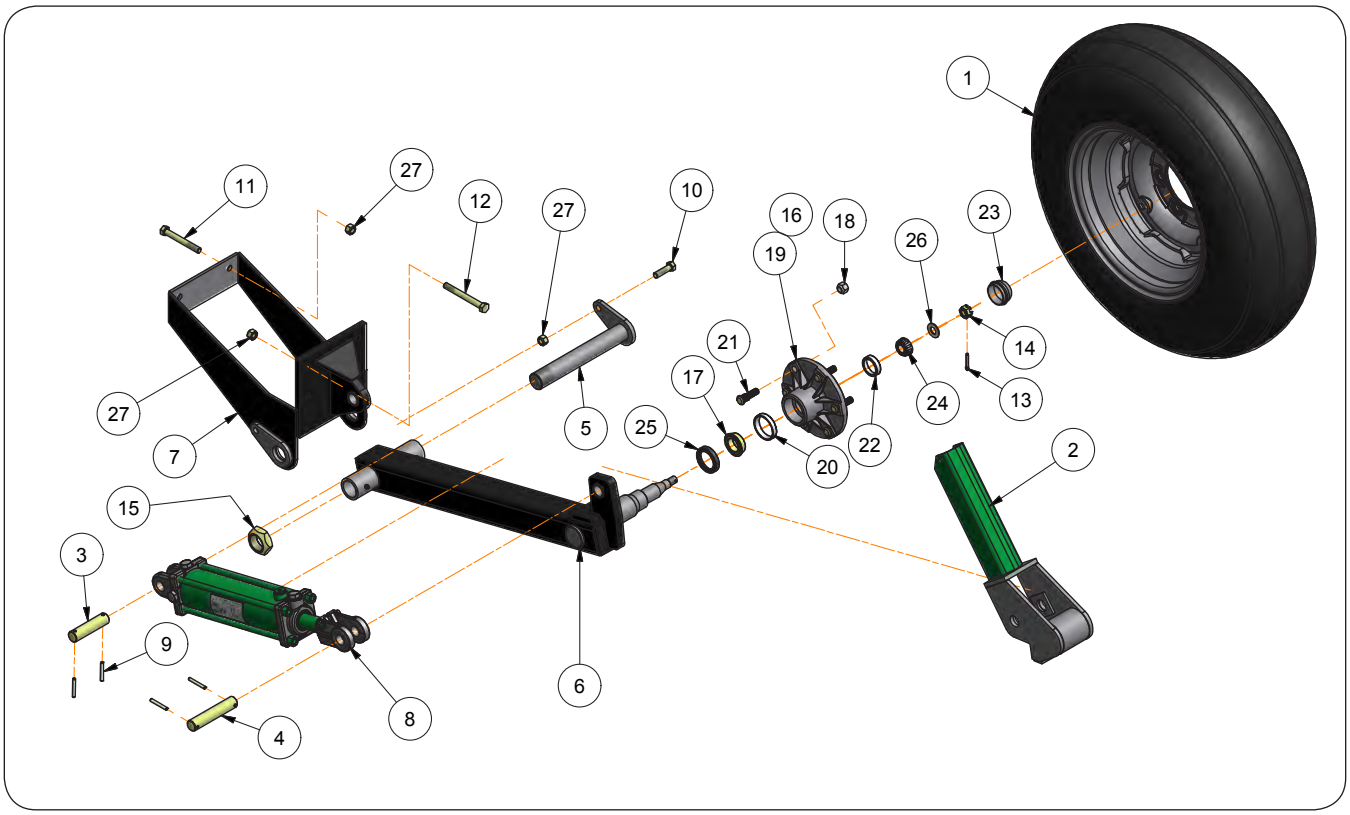
Dual Hydraulic Kit #74704FS For Valve #903045



Dual Hydraulic Kit #74704FS For Valve #903045

ITEM	PART NO.	DESCRIPTION	QTY.
1	9001850	Cap Nut	2
2	91383	Male Tip Coupling 3/4-16 O-Ring Female	2
3	91511	Dust Cap	2
4	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	2
5	98700	Hose 3/8 x 330 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
6	9897	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Male	2

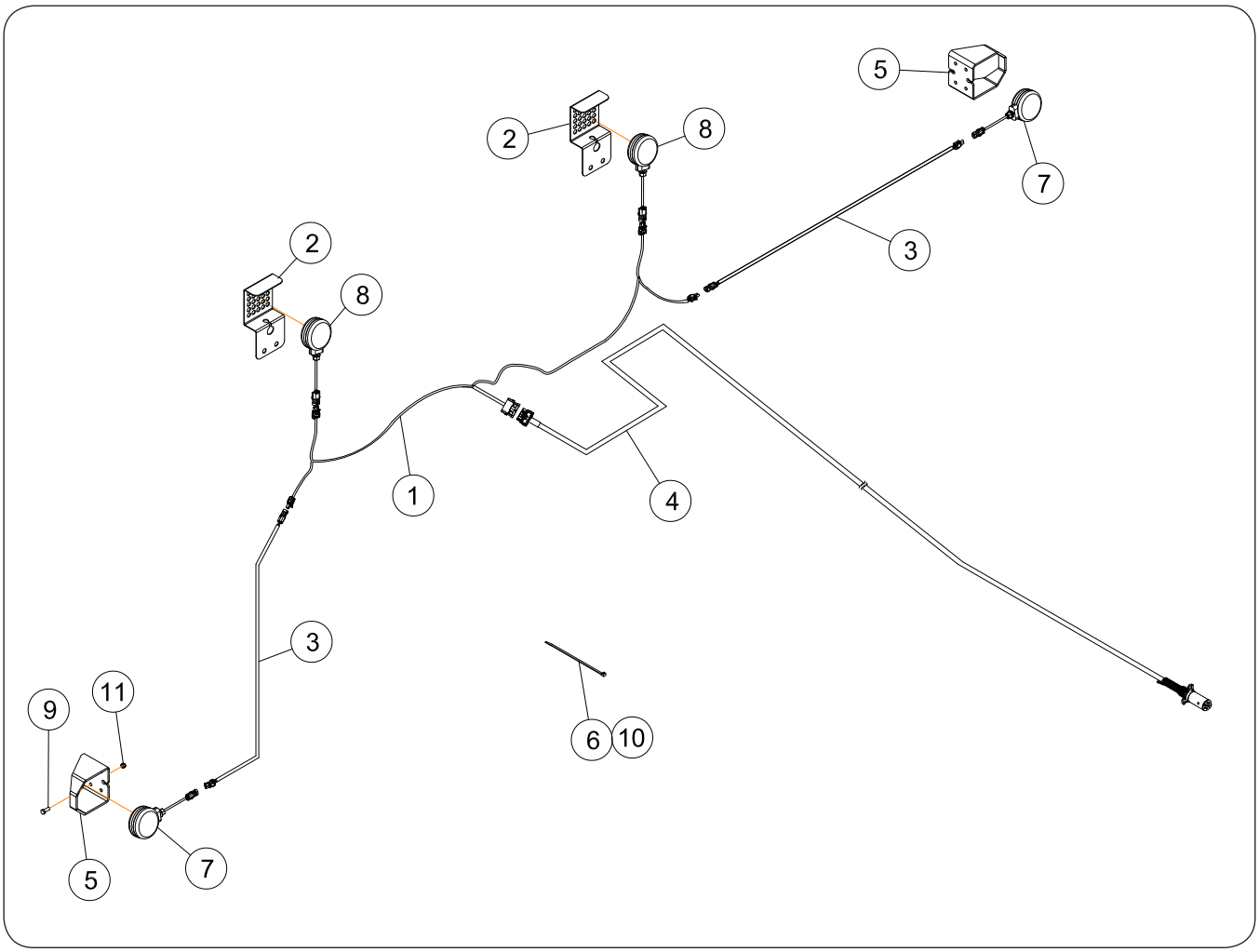
Wing Transport Wheel & Hub Components



Wing Transport Wheel & Hub Components

ITEM	PART NO.	DESCRIPTION
1	60911	Mounted Tire & Wheel (7.6-15 8-Ply Tire)
	W815-6-08	Implement Wheel
	9002500	Valve Stem
2	73118B	Gravity Latch Weldment
3	85631	Pin 1" Dia. x 4
4	88038	Pin 1" Dia. x 5 1/8
5	89261	Pin Weldment with Elastic Jam Nut
6	89928B	Axle Weldment (Right-Hand)
	89929B	Axle Weldment (Left-Hand) SHOWN
	91160	Grease Zerk
7	89933B	Wheel Bracket Weldment
8	902760	Cylinder 3 x 10 (3000 PSI)
9	91144-165	Spiral Pin 1/4" Dia. x 1 7/8"
10	9390-102	Capscrew 1/2-13UNC x 1 3/4
11	9390-111	Capscrew 1/2-13UNC x 4
12	9390-112	Capscrew 1/2-13UNC x 4 1/2
13	9391-043	Cotter Pin 3/16" Dia. x 1 1/4"
14	9393-014	Slotted Nut 5/8-18UNF
15	9397-022	Elastic Jam Nut, 1 1/2-12UNF Gr.5
16	91591B	Hub Assembly
17	9165	Bearing Cone
18	9348	Beveled Nut 1/2-20UNF
19	9781B	Hub 6 Bolt Subassembly w/Cups & Bolts
20	9345	Bearing Cup #LM67010
21	9347	Stud Bolt 1/2-20UNF x 1 7/8
22	9784	Bearing Cup #LM11910
23	9787	Hub Cap
24	9789	Bearing Cone
25	9790	Seal
26	9791	Flat Washer
27	9800	Locknut 1/2-13

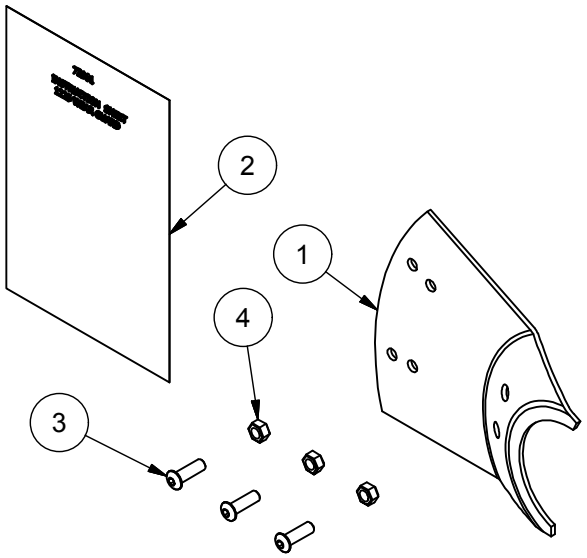
Tranport Marking & Light Kit (73146B)



Tranport Marking & Light Kit (73146B)

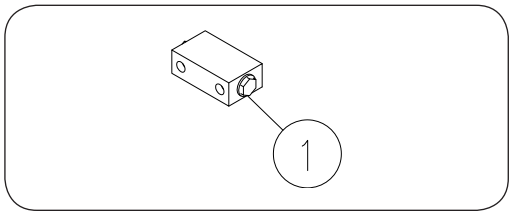
ITEM	PART NO.	DESCRIPTION
1	22790	Cross Wiring Harness 132”
2	89911B	Light Bracket
3	86421	Wiring Extension 48”
4	89467	Main Wiring Harness 336”
5	89609B	Guard
6	9000106	Cable Tie 6” Long
7	9003876	Light - Round Amber
8	9003877	Light - Round Red
9	9390-055	Capscrew 3/8-16UNC x 1
10	94037	Cable Tie 15 1/2” Long
11	9928	Locknut 3/8-16UNC22

Wear Guard Kit (Basket Models Only)



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
	73903B	Wear Guard Kit	-	
1	73220B	Wear Guard	1	
2	73901	Instruction Sheet	1	
3	901563	Button Head Screw 5/16-18UNC x 1	3	
4	9807	Locknut 5/16-18UNC	3	

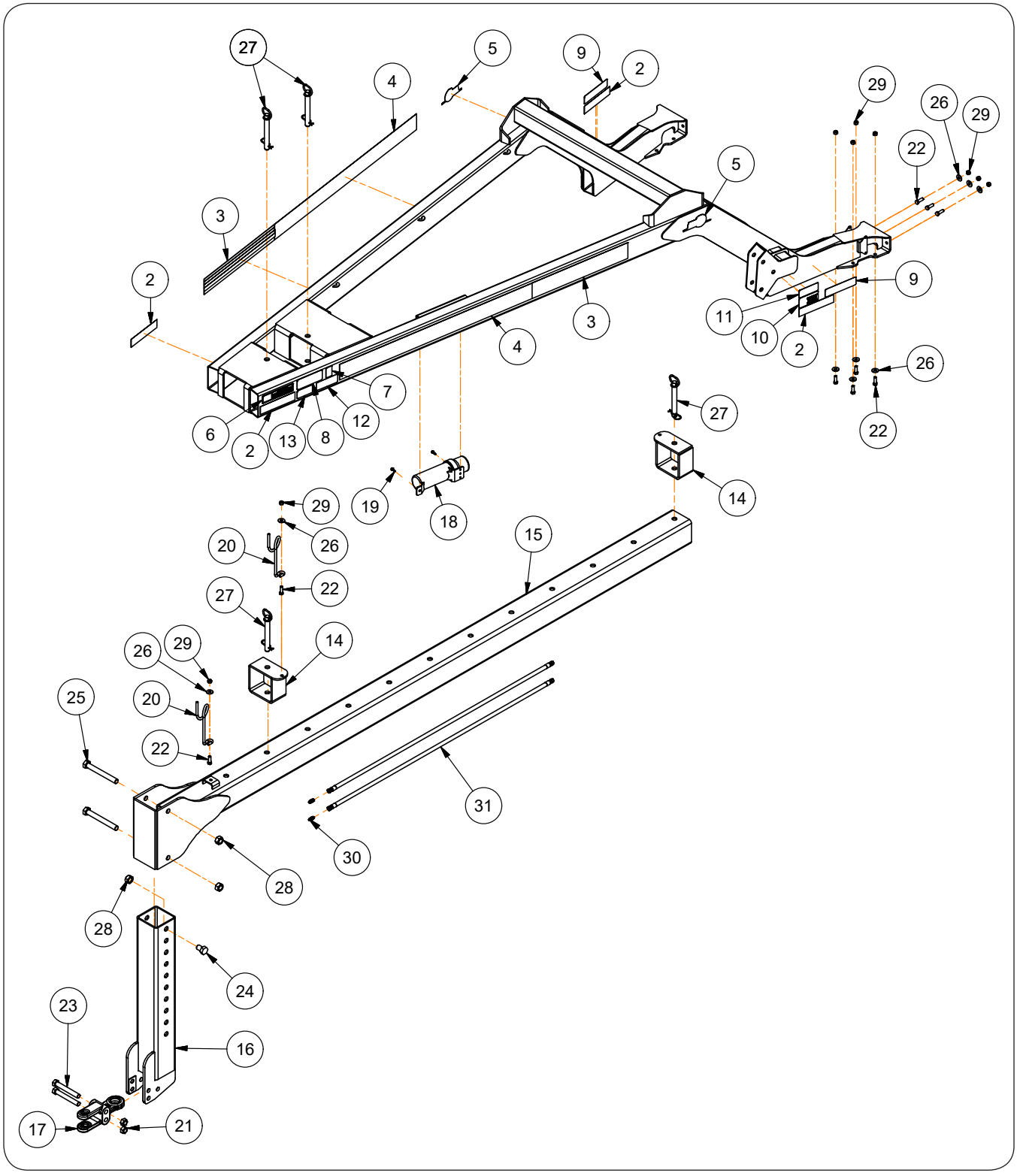
Optional Lock/Check Valve



ITEM	PART NO.	DESCRIPTION	NOTES
1	91240	Lock/Check Valve	Connecting Rolling Harrow to lead machine that uses rephase hydraulics

A-Frame Gooseneck Hitch Assembly (Optional)

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



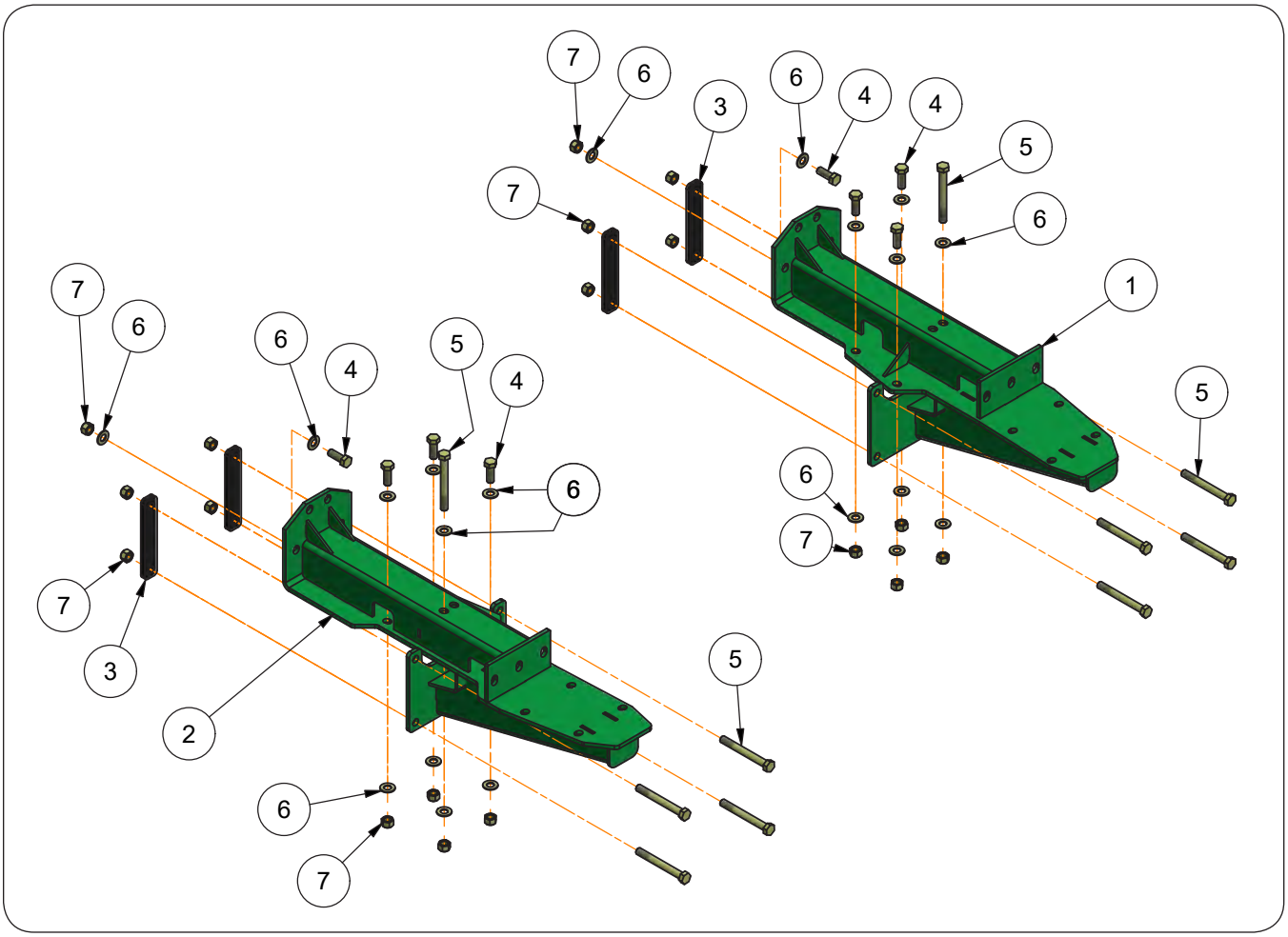
A-Frame Gooseneck Hitch Assembly (Optional)

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
	77737G	A-Frame Gooseneck Hitch Assembly =Green=	-	
	77737R	A-Frame Gooseneck Hitch Assembly =Red=		
1	77736G	A-Frame Gooseneck Hitch w/Decals =Green=	1	Includes Items 2 through 13
1	77736R	A-Frame Gooseneck Hitch w/Decals =Red=		
2	9003127	Reflector =Amber= (2 x 9)	4	
3	900713	Decal, Stripe	2	
4	901129	Decal, Rolling Harrow	2	
5	901764	Decal, UM Swoosh (3 x 7)	2	
6	901891	Decal, DANGER “Electrocution”	1	
7	91605	Decal, FEMA	1	
8	94094	Decal, WARNING “Tongue”	1	
9	95136	Decal, WARNING “Foldng/Unfolding Wings”	2	
10	95445	Decal, WARNING “High-Pressure Fluid”	1	
11	95605	Decal, WARNING “Falling Equipment”	1	
12	97575	Decal, CAUTION “Transport Chain”	1	
13	97961	Decal, WARNING “Read and Understand Manual”	1	
14	76203G	Stop Weldment =Green=	2	
14	76203R	Stop Weldment =Red=		
15	76229G	Tongue Tube Weldment =Green=	1	
15	76229R	Tongue Tube Weldment =Red=		
16	76230G	Vertical Hitch Tube Gooseneck =Green=	1	
16	76230R	Vertical Hitch Tube Gooseneck =Red=		
17	83301B	Hitch Clevis =Black=	1	
18	900552	Manual Holder	1	
19	9512	Self-Drilling Screw 1/4-14 x 1”	2	
20	902979B	Hose Holder	2	
21	91141	Locknut 7/8”-9UNC	2	
22	9390-101	Capscrew 1/2”-13UNC x 1 1/2”	2	
23	9390-177	Capscrew 7/8”-9UNC x 6 1/2”	2	
24	9390-181	Capscrew 1”-8UNC x 1 1/2”	1	
25	9390-462	Capscrew 1”-8UNC x 8 1/2”	2	
26	9405-088	Flat Washer 1/2” USS	16	
27	93950	Hitch Pin with Hairpin	4	
28	9663	Locknut 1”-8UNC	3	
29	9800	Locknut 1/2”-13UNC	16	
30	92295	Adapter	2	
31	9504072	Hydraulic Hose 3/8 x 66	2	

Gooseneck Hitch Adapters (Optional)

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



Gooseneck Hitch Adapters (Optional)

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	78411G	Gooseneck Adapter Left-Hand Weldment =Green=	1	
	78411R	Gooseneck Adapter Left-Hand Weldment =Red=		
2	78416G	Gooseneck Adapter Right-Hand Weldment =Green=	1	
	78416R	Gooseneck Adapter Right-Hand Weldment =Red=		
3	78413B	Plate 1 1/2" x 8 5/16"	4	
4	9390-123	Capscrew, 5/8"-11UNC x 1 3/4" G5	14	
5	9390-135	Capscrew, 5/8"-11UNC x 5 1/2" G5	10	
6	9405-098	Flat Washer 5/8" SAE	32	
7	9801	Lock Nut, 5/8"-11UNC	24	

MEMBER

FEMA

FARM EQUIPMENT
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