Seedbed Tillage

CROSS-FOLD ROLLING HARROW® 1245

Soil Conditioner
39-45 Ft. Models

Beginning with Serial Number A61410100 & Up

Part No. 74928

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 near the hinge area (Fig. 1).

Purchase Date _____ Model _____Serial No._____

Dealer _____ City _____

Dealer Contact _____ Phone _____

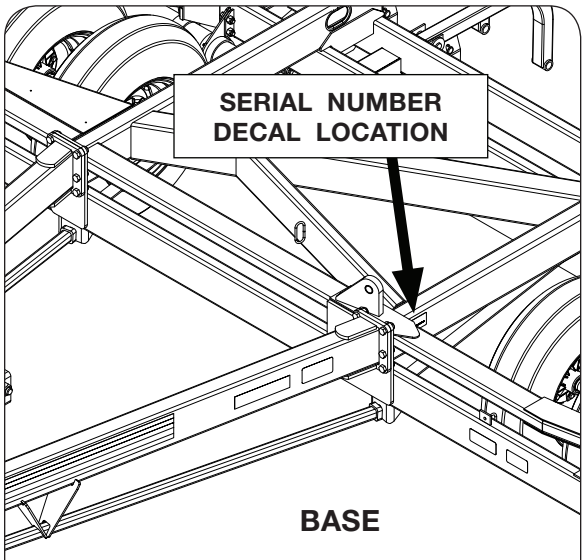


FIG. 1

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.

Table of Contents

SECTION I
Safety

Table of Contents

SECTION II
Set Up

Table of Contents

SECTION III
Operation

Table of Contents

SECTION IV
Maintenance

SECTION V
Parts

Notes

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

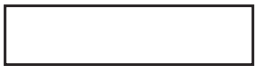
PART NO. 97961

PART NO. 95445

PART NO. 95605

PART NO. 94094

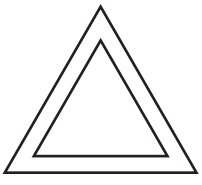
PART NO. 98229



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.

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 is 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

Notes

General Setup Information

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

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

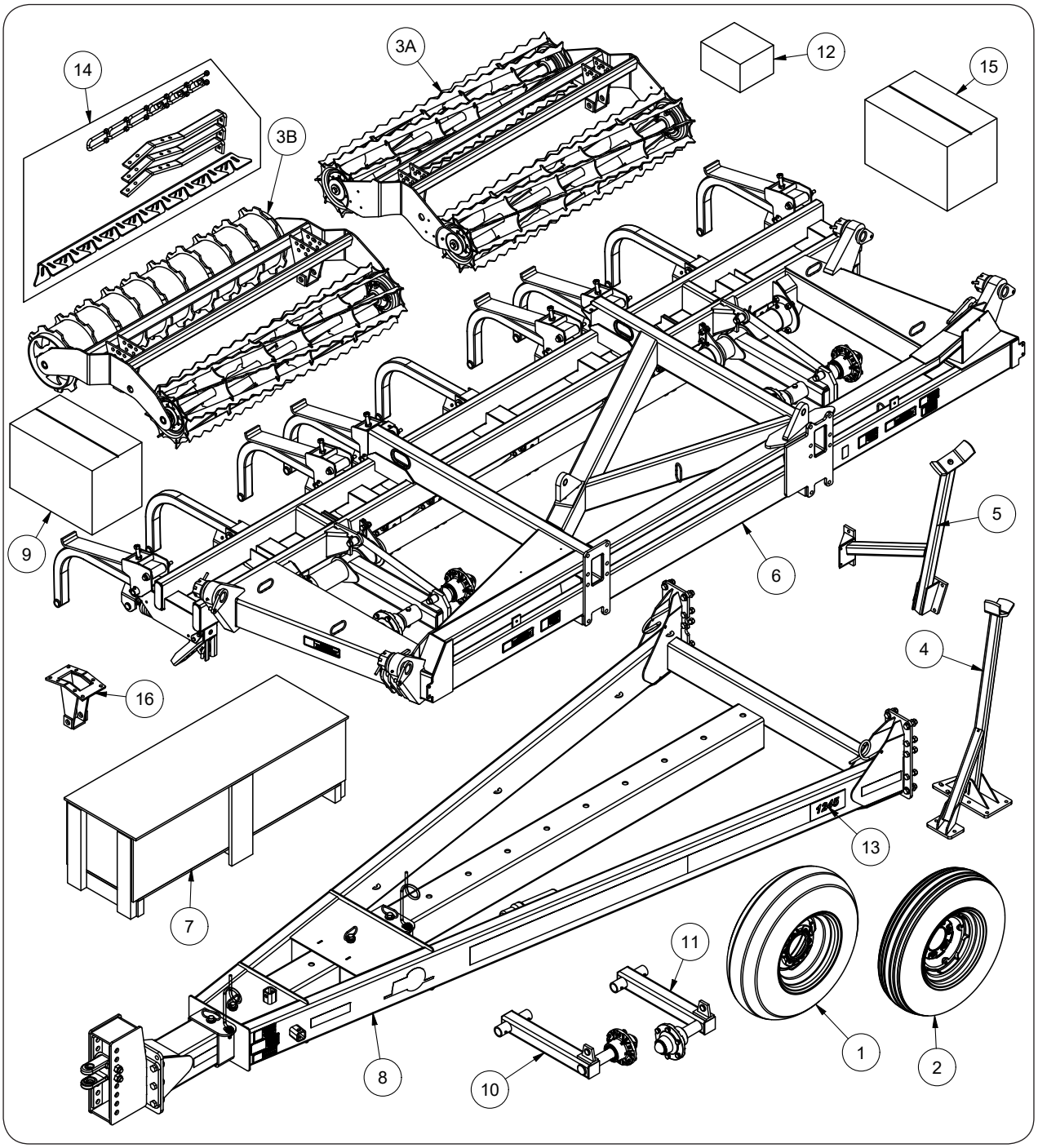
- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW THE SAFETY SECTION IN THIS MANUAL, IF NECESSARY.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **MOVING PARTS CAN CRUSH AND CUT. KEEP AWAY FROM MOVING PARTS.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **TO PREVENT MACHINE FROM TIPPING BACKWARDS, UNIT MUST BE HOOKED TO TRACTOR.**
- **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 2500 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

IMPORTANT

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

Rolling Harrow - 15' Base Shipping Bundles

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

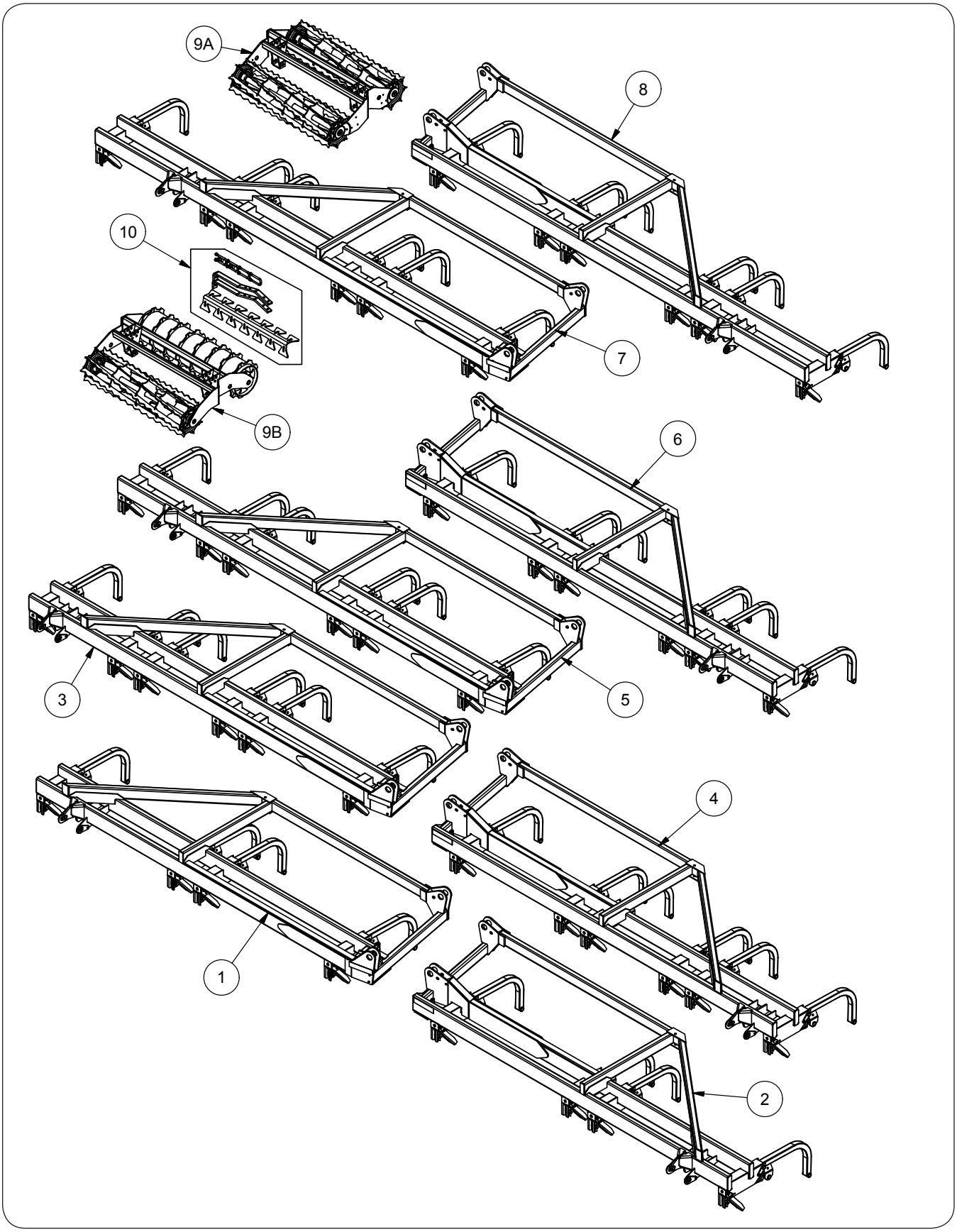


Rolling Harrow - 15' Base Shipping Bundles

ITEM	PART NO.	DESCRIPTION	QTY
1	60911	Mounted Tire & Wheel W815-6-08 TL9.5LB15 8Ply	4
2	81145	Mounted Tire & Wheel W615-6 TL7.6B15 8Ply	2
3A	74581B	Basket & Frame 5' Assembly	3
3B	76008B	Basket/Drum & Frame 5' Assembly	
4	79249B	Wing Stand LH Weldment	1
5	87887B	Wing Stand RH Weldment	1
6	76719G	Main Frame Assembly (Green)	1
	76719R	Main Frame Assembly (Red)	
7	87919B	Parts Box/Crate (For Model 1245)	1
	76572B	Parts Box/Crate (For Model 1245D)	
8	78572G	Cross Fold Hitch Assembly (Green)	1
	78572R	Cross Fold Hitch Assembly (Red)	
9	89110B	Light Transport Kit	1
10	73112B	Gauge Wheel LH Assembly	1
11	73113B	Gauge Wheel RH Assembly	1
12	74515B	Split Function Valve Kit	1
13	9501232	Decal - 1245 (SHOWN)	2
	9501822	Decal - 1245D	
14	76541B	Scraper 5' Assembly (For Model 1245D)	3
15	76573B	Basket Rocker Kit	1
16	88585B	Bolt-On Basket Bracket Weldment (For Model 1245) (SHOWN)	3
	79921B	Bolt-On Basket Bracket Weldment (For Model 1245D)	

NOTE: Refer to PARTS section for complete parts breakdown.

Rolling Harrow - 15’ Base 12’-15’ Wing Shipping Bundles



Rolling Harrow - 15' Base 12'-15' Wing Shipping Bundles

ITEM	PART NO.	DESCRIPTION	WING QTY.			
			12' WINGS	13' WINGS	14' WINGS	15' WINGS
1	76711G	Wing 12' RH Asy =Green=	1	-	-	-
	76711R	Wing 12' RH Asy =Red=				
2	76710G	Wing 12' LH Asy =Green=	1	-	-	-
	76710R	Wing 12' LH Asy =Red=				
3	76713G	Wing 13' RH Asy =Green=	-	1	-	-
	76713R	Wing 13' RH Asy =Red=				
4	76712G	Wing 13' LH Asy =Green=	-	1	-	-
	76712R	Wing 13' LH Asy =Red=				
5	76715G	Wing 14' RH Asy =Green=	-	-	1	-
	76715R	Wing 14' RH Asy =Red=				
6	76714G	Wing 14' LH Asy =Green=	-	-	1	-
	76714R	Wing 14' LH Asy =Red=				
7	76716G	Wing 15' RH Asy =Green=	-	-	-	1
	76716R	Wing 15' RH Asy =Red=				
8	76717G	Wing 15' LH Asy =Green=	-	-	-	1
	76717R	Wing 15' LH Asy =Red=				
9A	74603B	Basket & Frame 4' (Double) Assembly	-	4	2	-
	74581B	Basket & Frame 5' (Double) Assembly	-	2	4	6
	74604B	Basket & Frame 6' (Double) Assembly	4	-	-	-
9B	76031B	Roller Basket & Frame 4' (Double) Assembly	-	4	2	-
	76008B	Roller Basket & Frame 5' (Double) Assembly	-	2	4	6
	76032B	Roller Basket & Frame 6' (Double) Assembly	4	-	-	-
10	76540B	Drum Scraper Kit 4'	-	4	2	-
	76541B	Drum Scraper Kit 5'	-	2	4	6
	76542B	Drum Scraper Kit 6'	4	-	-	-

NOTE: Refer to PARTS section for complete parts breakdown.

Optional Shipping Bundles & Accessories

PART NO.	DESCRIPTION	NOTES
87929B	Straight Spiked-Tooth Leveler Bar	For Base & 12' Wing Set
87930B	Straight Spiked-Tooth Leveler Bar	For Base & 13' Wing Set
87931B	Straight Spiked-Tooth Leveler Bar	For Base & 14' Wing Set
87932B	Straight Spiked-Tooth Leveler Bar	For Base & 15' Wing Set
76856B	Diagonal Round-Tooth Leveler Bar	For Base & 12' Wing Set
76858B	Diagonal Round-Tooth Leveler Bar	For Base & 13' Wing Set
76859B	Diagonal Round-Tooth Leveler Bar	For Base & 14' Wing Set
76860B	Diagonal Round-Tooth Leveler Bar	For Base & 15' Wing Set
87934B	Coil-Tine Leveler Bar	For Base & 12' Wing Set
87935B	Coil-Tine Leveler Bar	For Base & 13' Wing Set
87936B	Coil-Tine Leveler Bar	For Base & 14' Wing Set
87937B	Coil-Tine Leveler Bar	For Base & 15' Wing Set
91240	Lock/Check Valve	Connecting Rolling Harrow to lead machine that uses rephase hydraulics
74964	Disc Plate/Reinforcing Disc (Weld-In)	
87922FS	Dual Hydraulic Kit	
88313B	Soil Deflector Kit	
73903B	Wear Guard Kit	
73540G	Offset Tongue 39-45' =Green=	In-Lieu of Standard Tongue
73540R	Offset Tongue 39-45' =Red=	
73393	Electric Control Option	For Offset Tongue
73543G	Retractable Tongue 39-45' =Green=	In-Lieu of Standard Tongue
73543R	Retractable Tongue 39-45' =Red=	In-Lieu of Standard Tongue
73395	Electric Control Option	For Retractable Tongue

Main Frame/Tire & Wheel

1. Using safe lifting devices rated at 2500 lbs. minimum, lift main frame assembly (76719G or 76719R) onto stands rated at 1250 lbs. each.

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

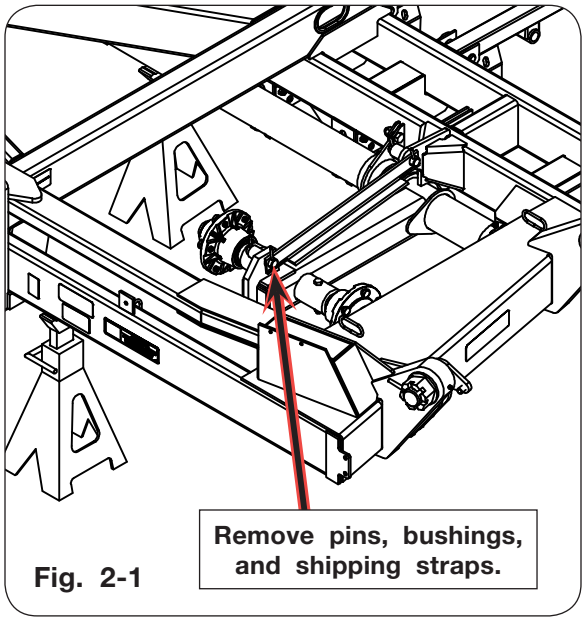


Fig. 2-1

3. Open the parts box/crate (87919B-1245, or 76572B-1245D) and locate the two 3" x 8" hydraulic cylinders (95397). Check that retracted cylinder length is 20 1/4" (Fig. 2-2). Adjust both cylinders to this dimension as necessary.

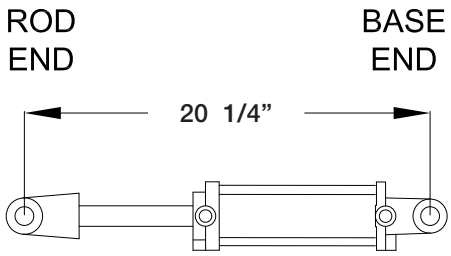


Fig. 2-2

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 out. 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.

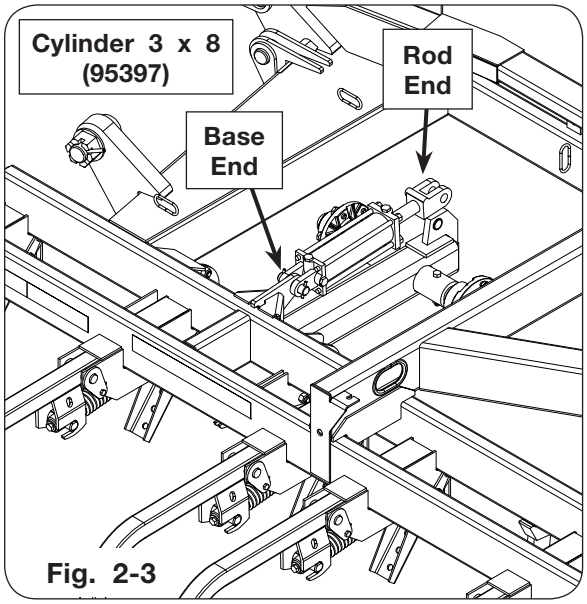


Fig. 2-3

5. Install the four mounted tire and wheel assemblies (60911) to the main frame assembly as shown in Fig. 2-4. Torque wheel nuts according to specifications in “MAINTENANCE” Section.

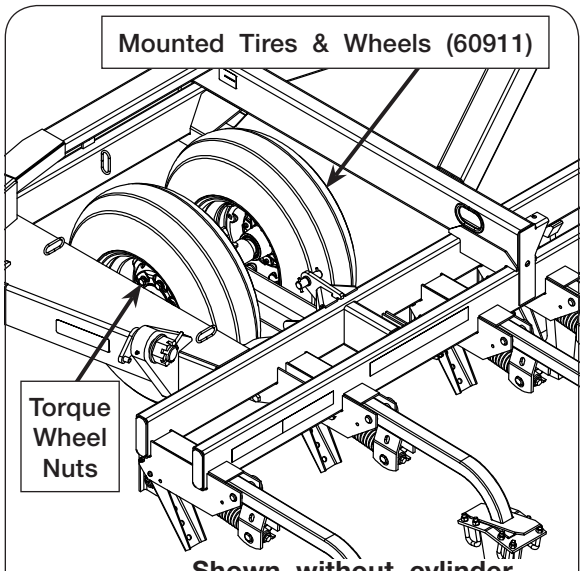


Fig. 2-4 Shown without cylinder for illustration purposes only.

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.

1. Remove and save the hardware from the rear of the cross fold hitch assembly (78572G or 78572R). Using hoist or lifting devices rated at 1,000 lbs. minimum, lift 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.

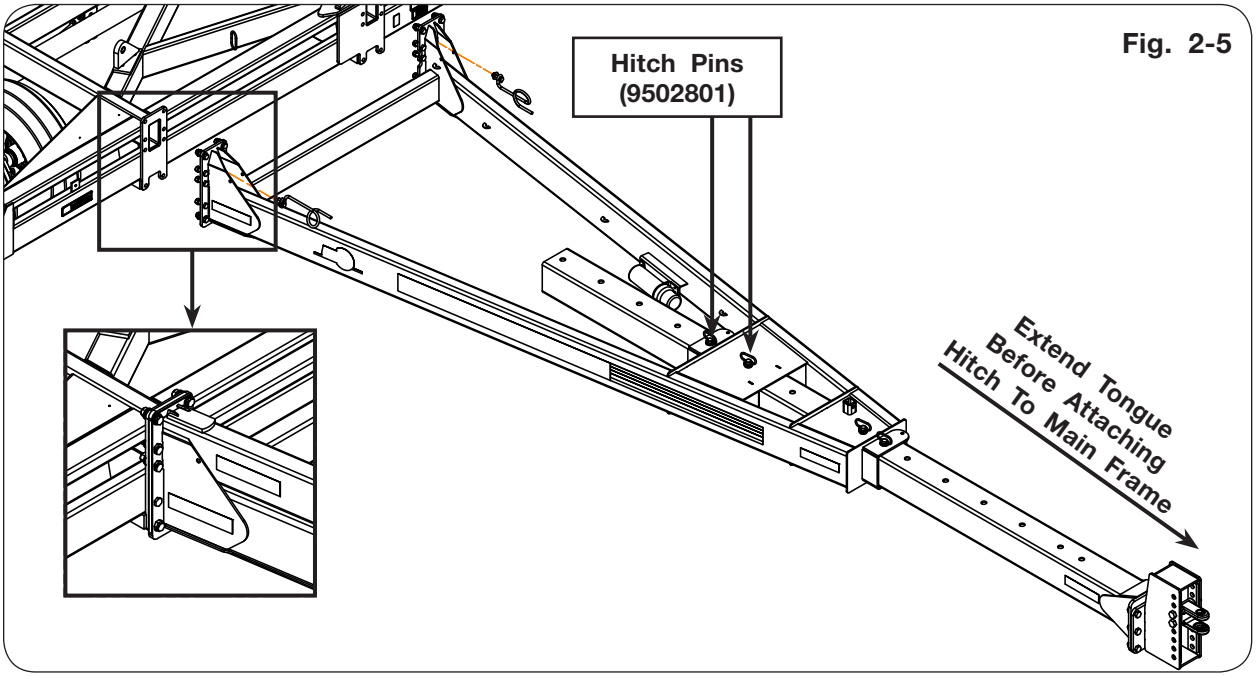


Fig. 2-5

Jack

1. With the hoist or lifting devices still attached to the cross fold hitch assembly (78572G or 78572R), attach the jack (901061), located in the parts box/crate (87919B-1245, or 76572B-1245D), to the hitch using bent pin with hairpin (84979) as shown in Fig. 2-6.

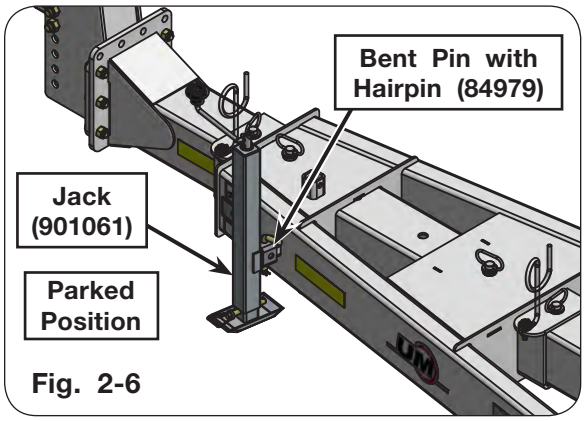
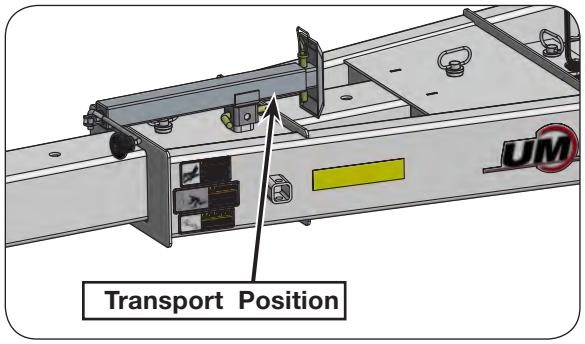


Fig. 2-6



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. 2-7. Parts are located in the parts box/crate (87919B-1245, or 76572B-1245D).

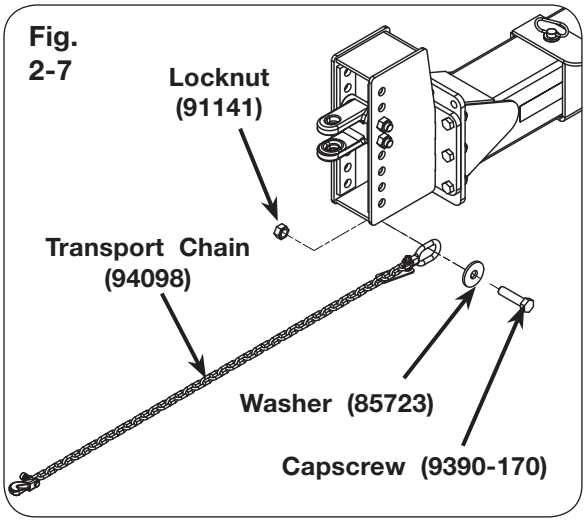


Fig. 2-7

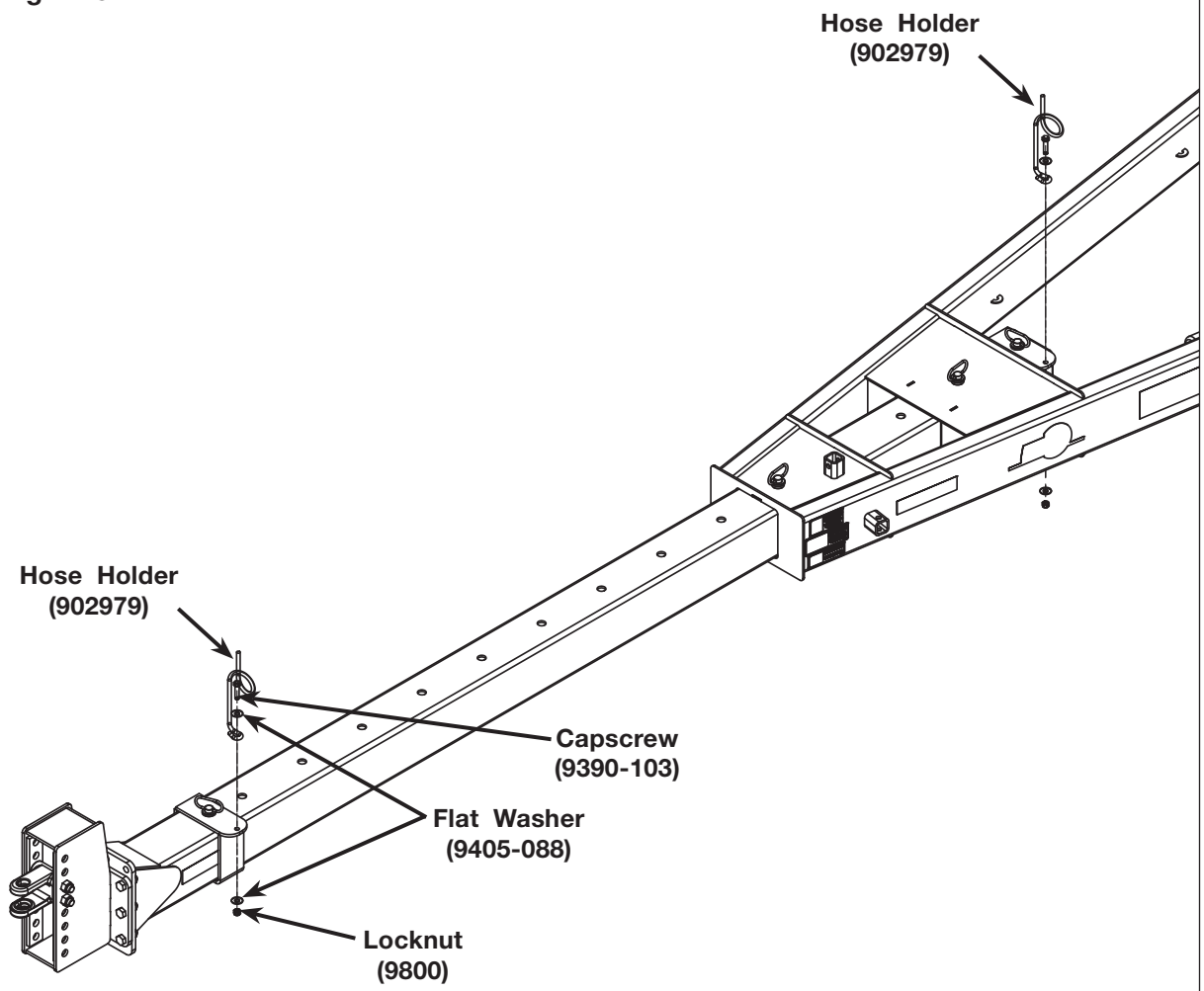
⚠ CAUTION

- **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 hose holders (902979) to the hitch assembly (78572G or 78572R) using 1/2"-13UNC x 2" capscrew (9390-103), two 1/2" flat washers (9405-088), and 1/2"-13UNC lock nut (9800) per hose holder as shown in Fig. 2-8.

Fig. 2-8



Wings

IMPORTANT

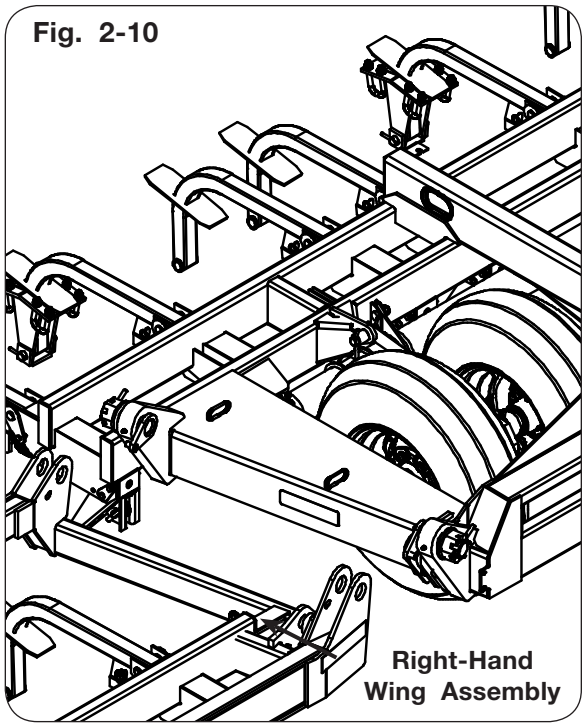
- *Remove and discard shipping stand attached to bent arm on wing*

1. Using hoist or 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. 2-10.

2. Using hoist or 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. 2-10 for reference)

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

Fig. 2-10



Right-Hand Wing Assembly

Wings (continued)

3. Attach the plate/base hinge link (87706B) to the left-hand side of the main frame assembly using the hardware in the hinge area as shown in Fig. 2-12. Attach the other plate/base hinge link (87706B) to the right-hand side of the main frame assembly using the hardware located in that hinge area. Plate/links are located in the parts box/crate (87919B-1245, or 76572B-1245D).

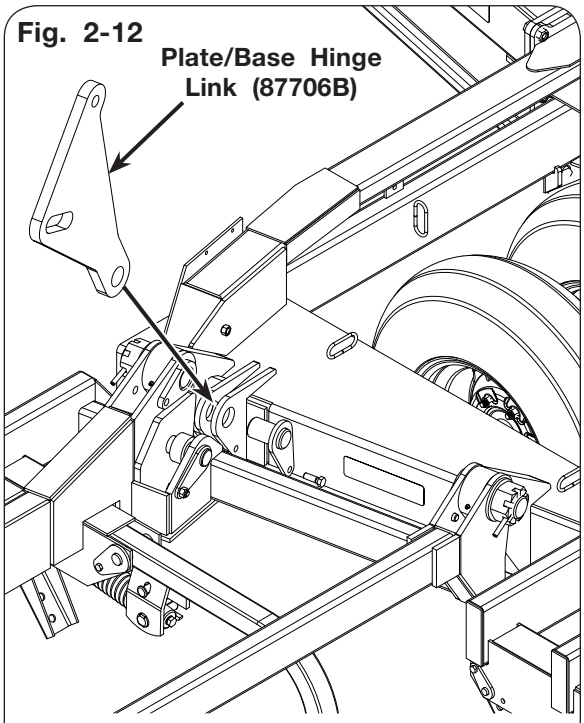


Fig. 2-12
Left-Hand Wing Shown

Wings (continued)

4. Attach two plate/fold links (87705B), located in the parts box/crate (87919B-1245, or 76572B-1245D), to the left-hand wing assembly using the hardware located on the wing assembly as shown in Fig. 2-13. Repeat procedure for the right-hand wing.

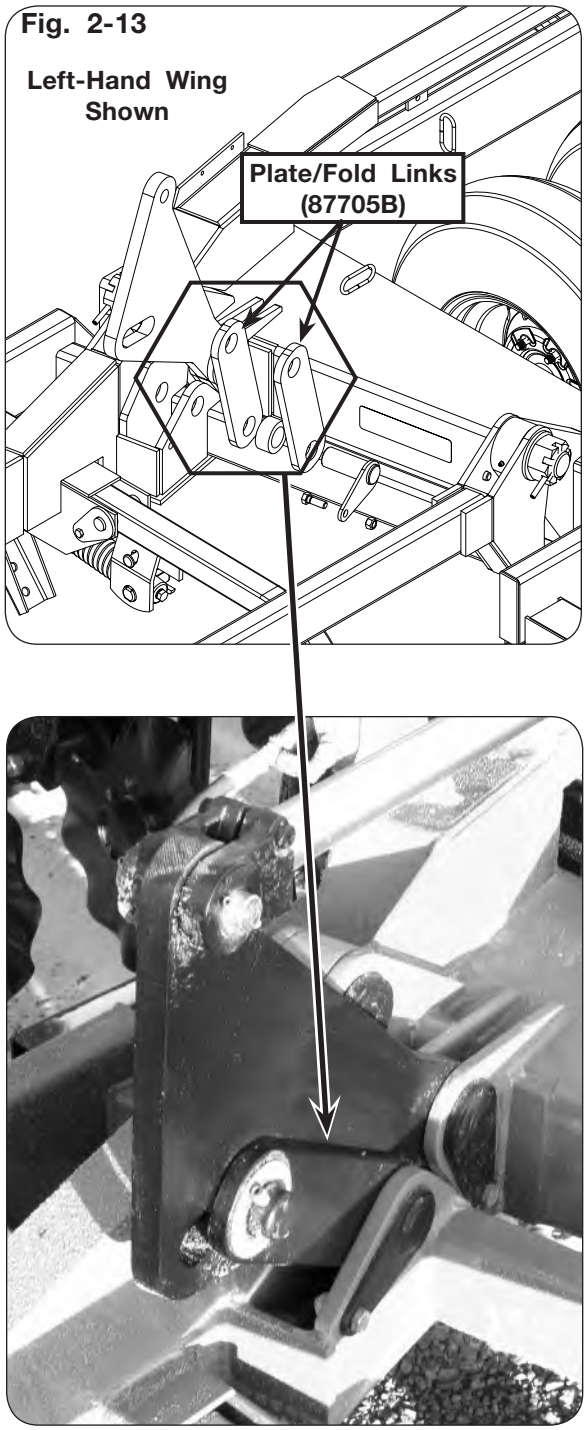


Fig. 2-13
Left-Hand Wing Shown

Wings (continued)

5. The plate/base hinge link (87706B) goes between the two plate/fold links (87705B) and place a 1 1/2" flat washer (9405-140) outside the plate/fold links secure with 1 1/2" Dia. x 4 3/8" pin (87872B) and 1/4" Dia. x 1 7/8" spiral pins (91144-165) as shown in Fig. 2-14. Washers and pins are located in the parts box/crate (87919B-1245, or 76572B-1245D). Repeat procedure for the opposite wing assembly.

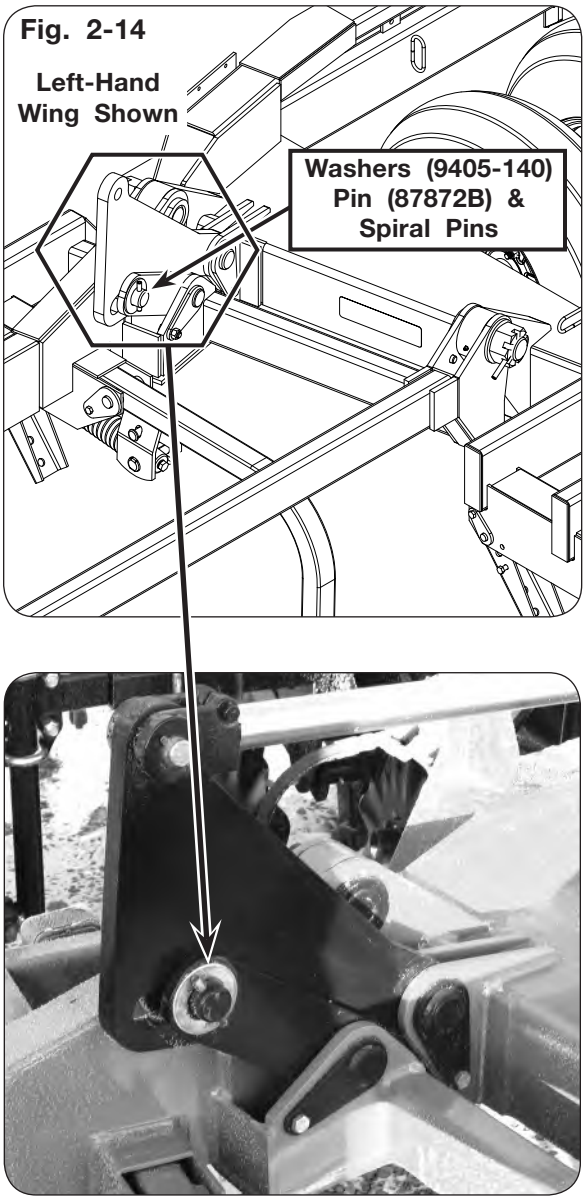


Fig. 2-14

Wings (continued)

6. In parts box/crate (87919B-1245, or 76572B-1245D) and locate the two hydraulic cylinders (4" x 30" hydraulic cylinders 901283-1245 or 4 1/2" x 30" hydraulic cylinders 75862B-1245D), 1" Dia. x 4" pins (85631), and four 1/4" Dia. x 1 7/8" spiral pins (91144-165). Check that retracted cylinder length is 40 1/4". Adjust both cylinders to this dimension as necessary.

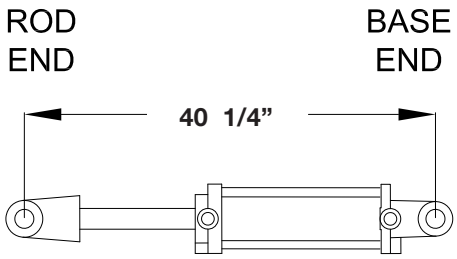
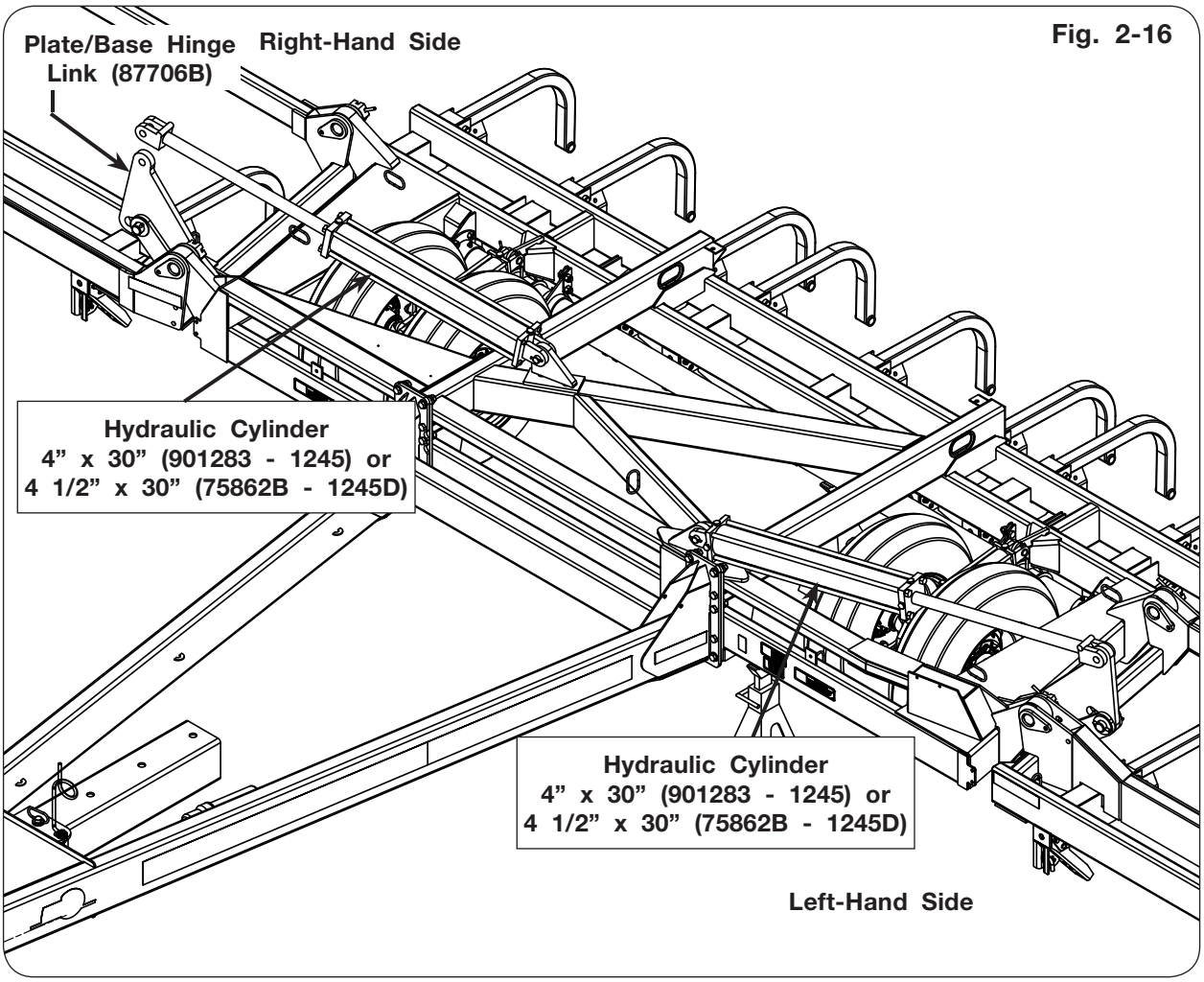


Fig. 2-15 OM-02960

NOTE: Before installing the rod end cylinder pins, see "Purging A Hydraulic System" in this section.

7. Using a safe lifting device rated for 100 lbs., secure the hydraulic cylinders with ports facing up, base end to the top of the main frame assembly and the rod end to the plate/base hinge link (87706B) using 1" Dia. x 4" pins (85631) and 1/4" Dia. x 1 7/8" spiral pins (91144-165) as shown in Fig. 2-16. Parts are located in the parts box/crate (87919B-1245, or 76572B-1245D).

Fig. 2-16



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 left-hand lift wheel assembly (73112B) to left-hand side of unit with 1 1/2" Dia. x 10 1/8" pin (88047), 1 1/2"-12UNF elastic stop nut (9397-022), 1/2"-13UNC x 1 3/4" capscrew, and locknut (9800) Fig. 2-17. Hardware can be located in the parts box/crate (87919B-1245, or 76572B-1245D).

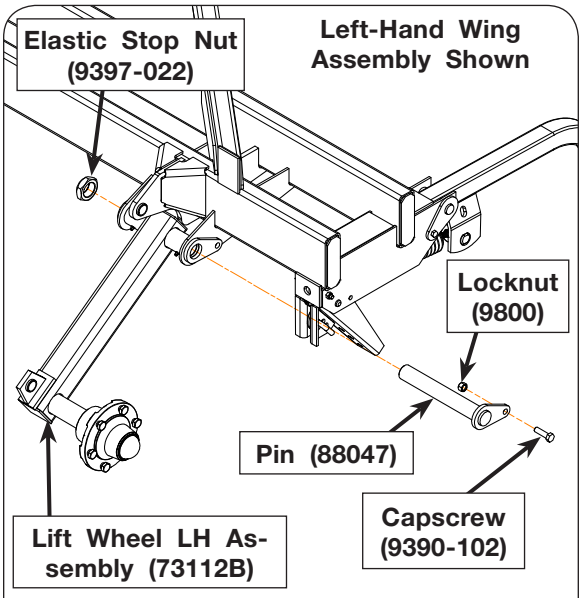


Fig. 2-17

2. Open the parts box/crate (87919B-1245, or 76572B-1245D) and locate the 2 1/2" x 6" hydraulic cylinder (95410), two 1" Dia. x 4" pins (85631), and 1/4" Dia. x 1 7/8" spiral pins (91144-165). Check that retracted cylinder length is 16 1/4". Adjust both cylinders to this dimension as necessary (Fig. 2-18).

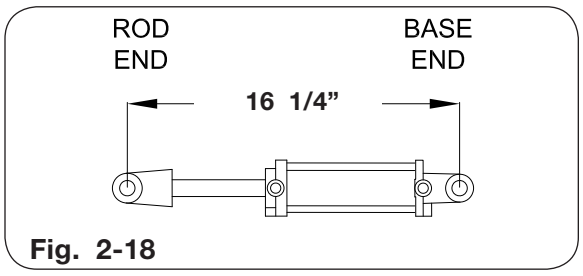


Fig. 2-18

3. With the ports facing out, secure base end of cylinder (95410) to the wing assembly and the rod end of cylinder to the lift wheel end using 1" dia. x 4" pins (85631) and 1/4" dia. x 1 7/8" spiral pins (91144-165) as shown in Fig. 2-19.

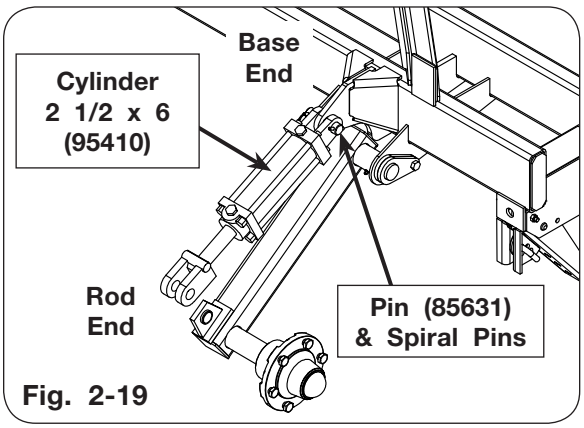
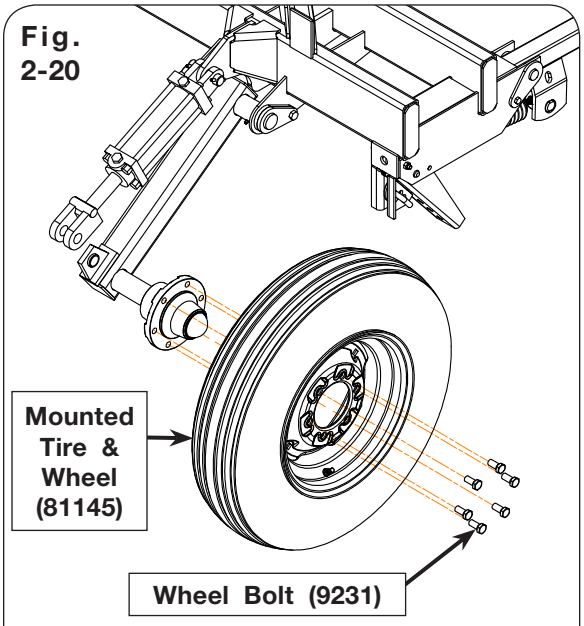


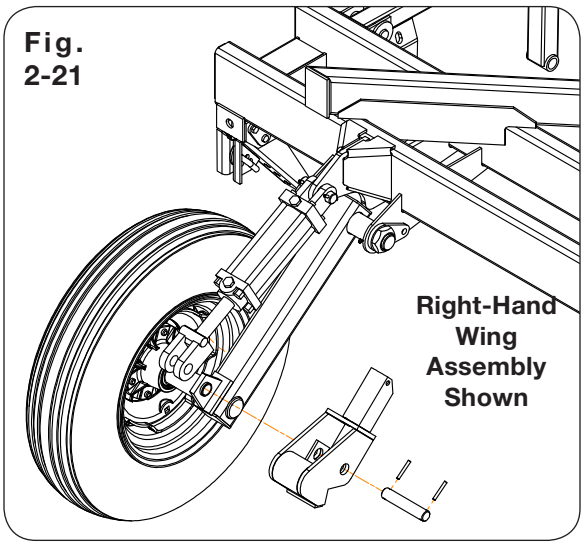
Fig. 2-19

Wing Lift Wheel Assembly (continued)

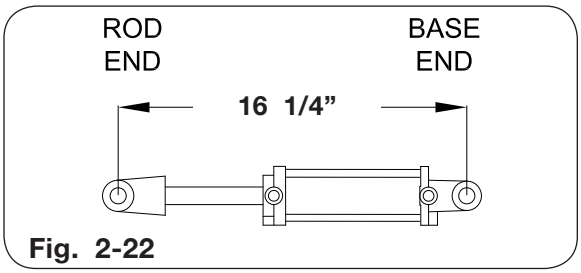
4. Mount the tire and wheel assembly (81145) to the lift wheel LH assembly (73112B) with the wheel bolts located on the hub. Torque wheel bolts, refer to "MAINTENANCE" Section, see Fig. 2-20.



5. Attach the lift wheel RH Assembly (73113B) to the right-hand side of the unit with 1 1/2" Dia. x 10 1/8" pin (88047) and 1/2"-13UNC x 1 3/4" capscrew, and 1/2"-13 UNC locknut (9800) (Fig. 2-21). Hardware can be located in the parts box/crate (87919B-1245, or 76572B-1245D).



6. In parts box/crate (87919B-1245, or 76572B-1245D). and locate the 2 1/2" x 6" hydraulic cylinder (95410), gravity latch (88035B), 1" Dia. x 4" pin (85631), 1" Dia. x 5 1/8" pin (88038), four 1/4" Dia. x 1 7/8" spiral pins (91144-165) (Fig. 2-21). Check that retracted cylinder length is 16 1/4". Adjust both cylinders to this dimension as necessary (Fig. 2-22).



SMV Emblem

1. Obtain the 2” x 18 3/4” plate (88259B), 2” x 7 1/4” clamp plate (64157B), SMV emblem (9829) two 1/4”-20UNC x 3” capscrews (9390-013), two 1/4”-20UNC x 3/4” capscrews, and four 1/4”-20UNC locknuts (9936) from parts box/crate (87919B-1245, or 76572B-1245D).

2. Attach the SMV emblem (9829), to the plate (88259B) with two 1/4”-20UNC x 3/4” capscrews (9390-003) and 1/4”-20UNC locknuts (9936) (Fig. 2-23). Secure the SMV to the main frame assembly with clamp plate (64157B), two 1/4”-20UNC x 3” capscrews (9390-013) and 1/4”-20UNC locknuts (9936). SMV should be left of center on main frame.


Fig. 2-23

Transport Cylinder Stops

The transport cylinder stops (73130B) can be attached to the hitch frame as shown in Fig. 2-24 with clevis pins (92955) and hairpin cotters (9514).

Before transporting unit, attach the transport cylinder stops (73130B) to the main frame cylinders (Fig. 2-24).

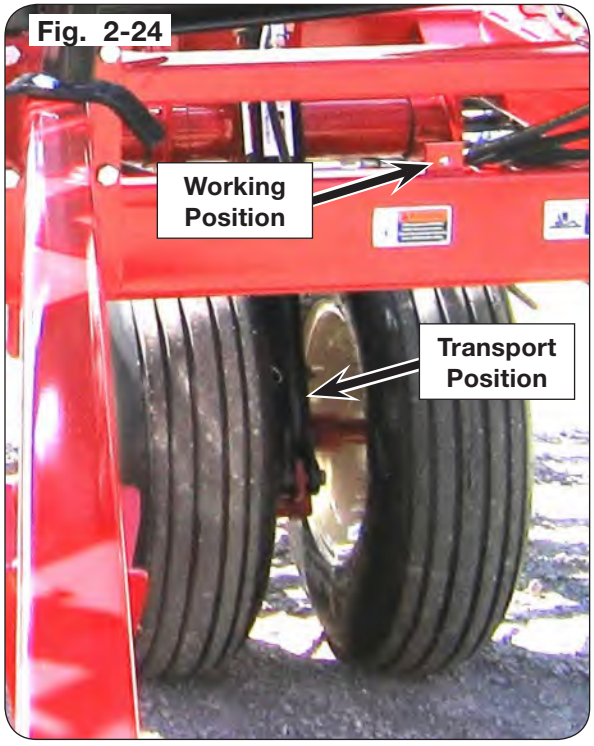
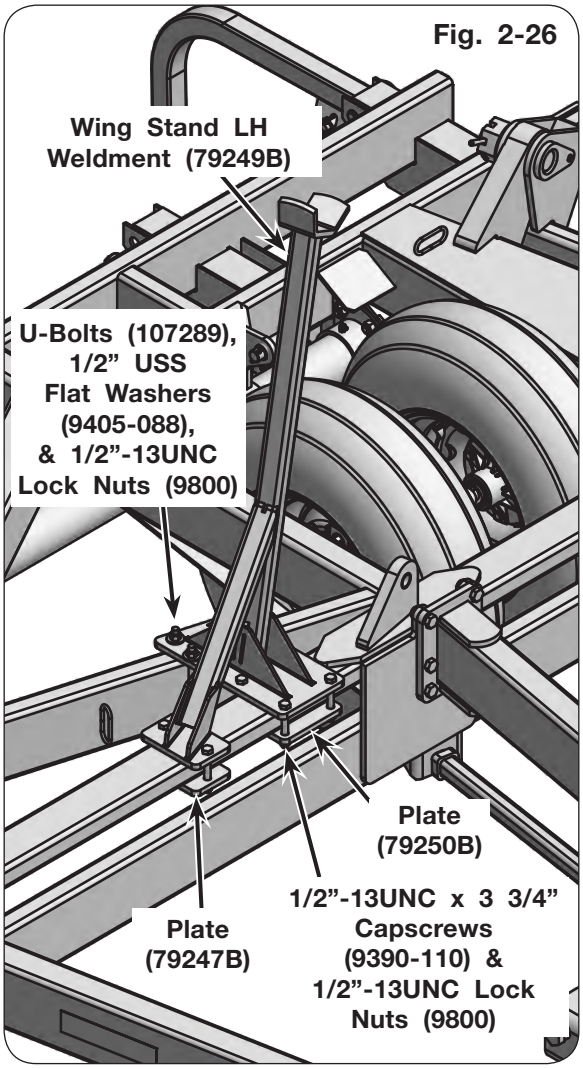


Fig. 2-24

Wing Stands

1. Mount the wing stand left-hand weldment (79249B) to the wing left-hand assembly as shown in Fig. 2-26 using 4" x 6 1/4" plate (79247B), 6 1/4" x 6 1/2" plate (79250B), six 1/2"-13UNC x 3 3/4" capscrews (9390-110), two 1/2"-13UNC x 7 1/2" U-bolts (107289), four 1/2" USS flat washers (9405-088), and ten 1/2"-13UNC lock nuts (9800). Torque hardware according to "Torque Chart" in MAINTENANCE section.

Fig. 2-26



Wing Stands (continued)

2. Loosely mount the wing stand right-hand weldment (87887B) to the center section of the main frame assembly as shown in Fig. 2-27 using 2 1/2" x 7 13/16" bar (87891B), 6" x 10" bar (87890B), six 1/2"-13UNC x 6" capscrews (9390-115) and six 1/2"-13UNC locknuts (9800). Bars and hardware are located in the part box/crate (87919B-1245, or 76572B-1245D).

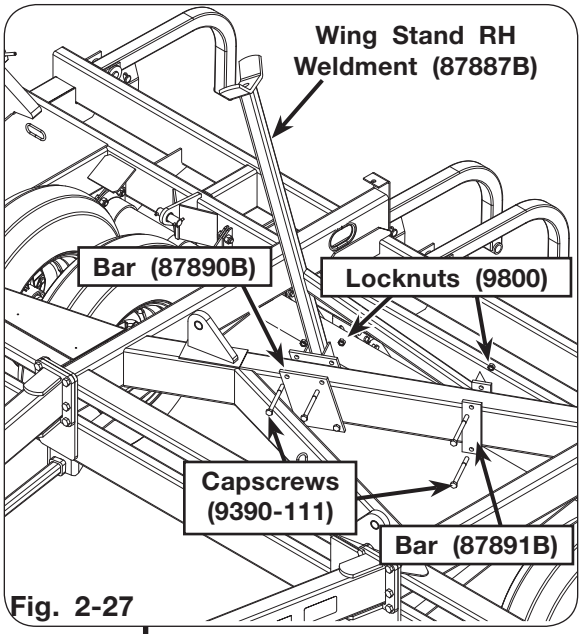
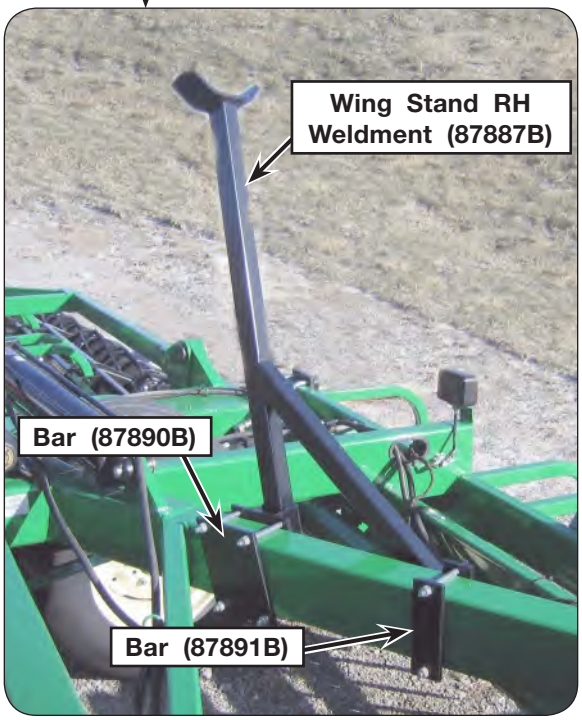


Fig. 2-27



Wing Stands (continued)

3. Slide the assembled right-hand wing stand to the left-hand side of the unit (Fig. 2-28).

4. The right-hand wing stand will be secured into the correction position once the hydraulics have been completely assembled and purged.

Fig. 2-28

Main Frame Basket Rocker Arm Assembly For Model 1245D

1. In parts box (75859B) locate three 1 1/2" x 6" cylinders (TA0-904623-0), three 1/2"-13UNC x 2 1/4" capscrews (9390-104) and three 1/2"-13UNC locknuts (9800). Install base end of cylinder with ports facing up to the mounting bracket of the basket rocker arms using capscrews and locknuts. See Fig. 2-29.

2. In parts box (75859B) locate three 1/2"-13UNC x 2 1/4" capscrews (9390-104) and three 1/2"-13UNC locknuts (9800). Attach the rod end of the cylinders to the link rocker weldment using capscrews and locknuts. See Fig. 2-29.

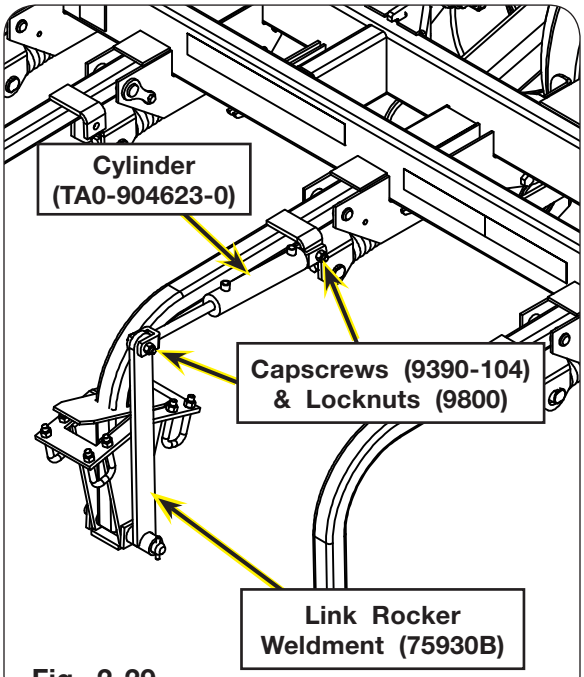


Fig. 2-29

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: 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.

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.**

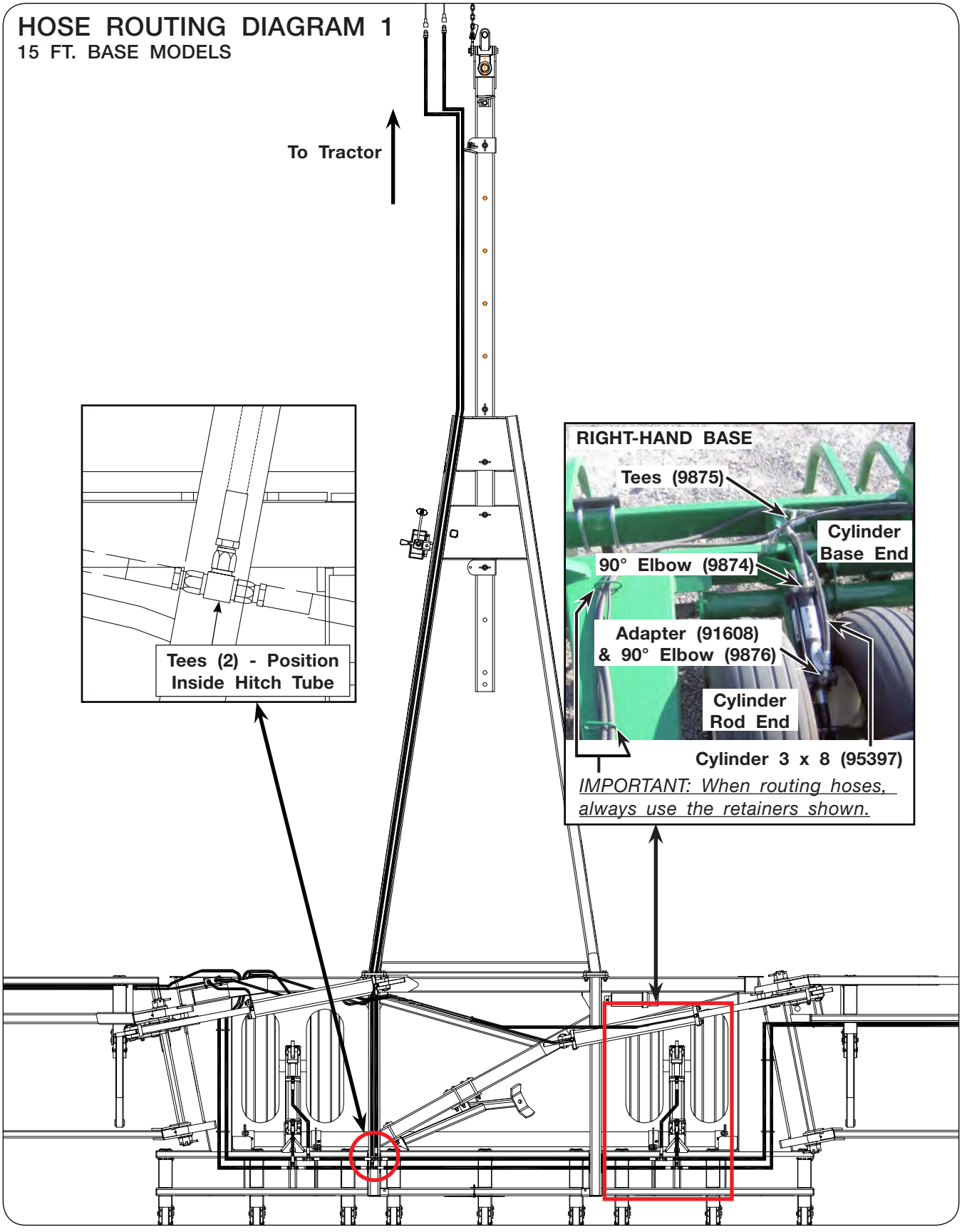
2. Purge air from system as follows:

   A. Disconnect the rod end of all cylinders in a circuit. Block up all rod end of each hydraulic cylinders 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.

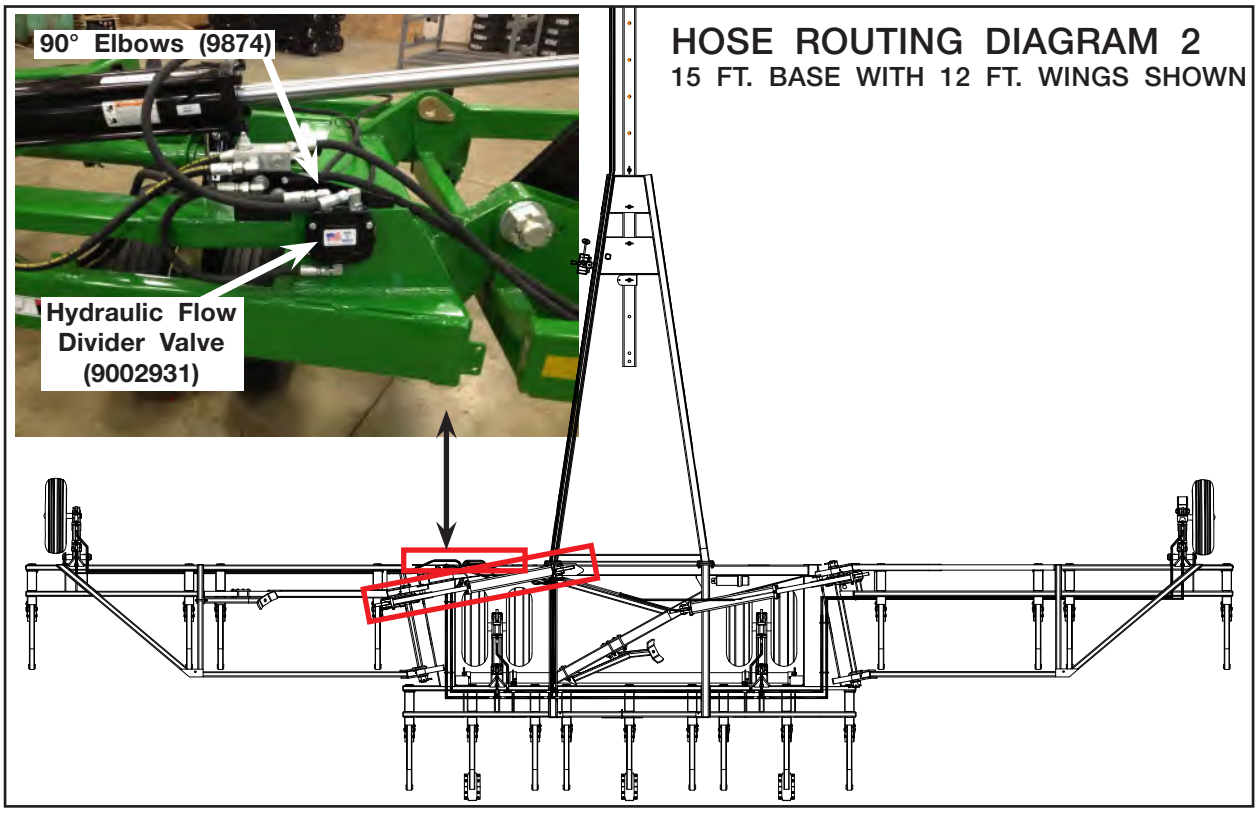
3. Install velcro hose wrap (75884).

Hydraulic Assembly (continued)

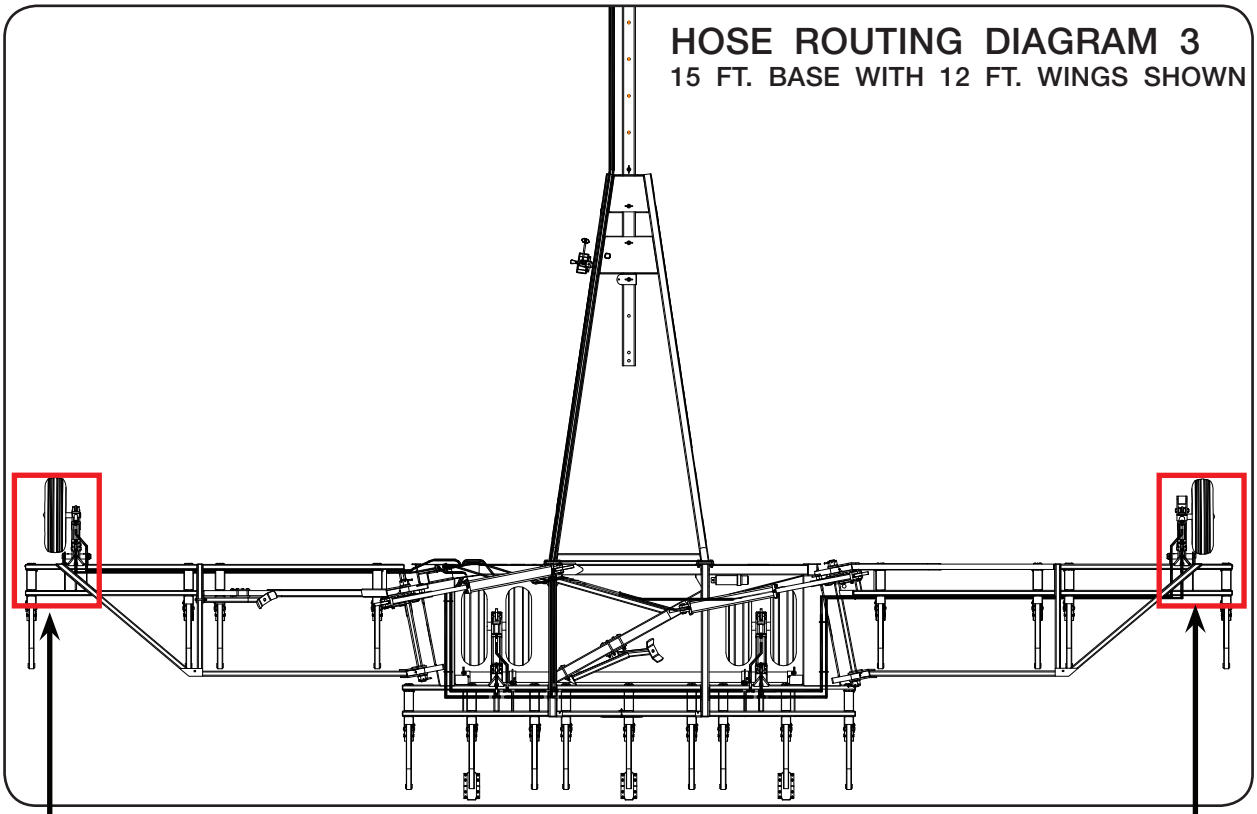
HOSE ROUTING DIAGRAM 1
15 FT. BASE MODELS

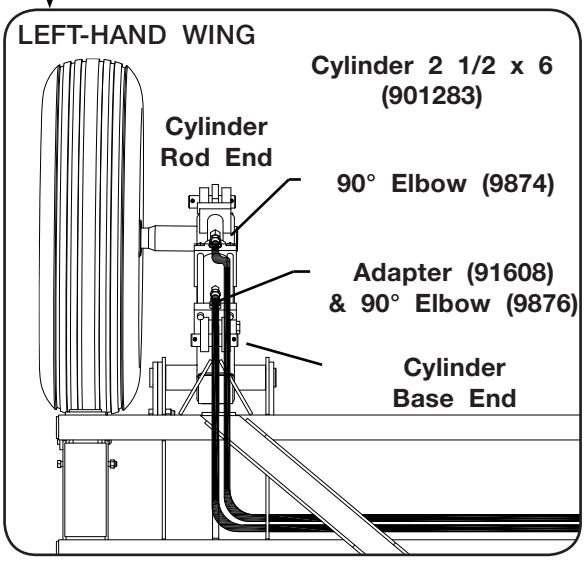


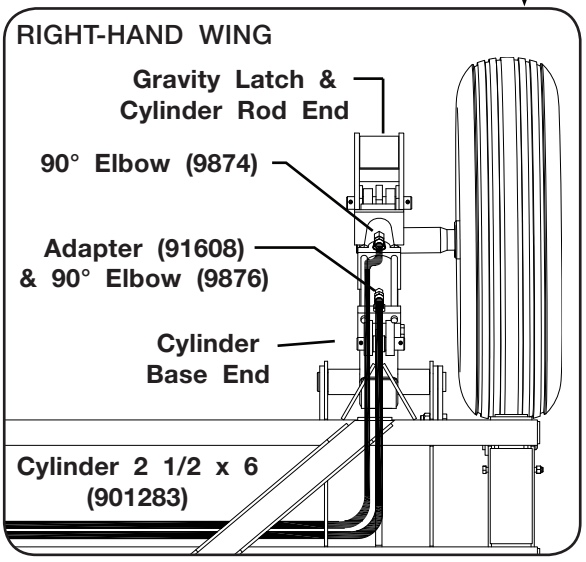
Hydraulic Assembly (continued)



Hydraulic Assembly (continued)







Hydraulic Assembly (continued)

4. See operations section for folding procedures. Fold the wings then slide the assembled right-hand wing stand to the right until it touches the right-hand wing assembly. Unfold the wings and slide the assembled right-hand wing stand 1" more to the right to support the right-hand wing assembly during transport (Fig. 2-25). Torque the assembled right-hand wing stand according to "Torque Chart" in MAINTENANCE section.

⚠ WARNING

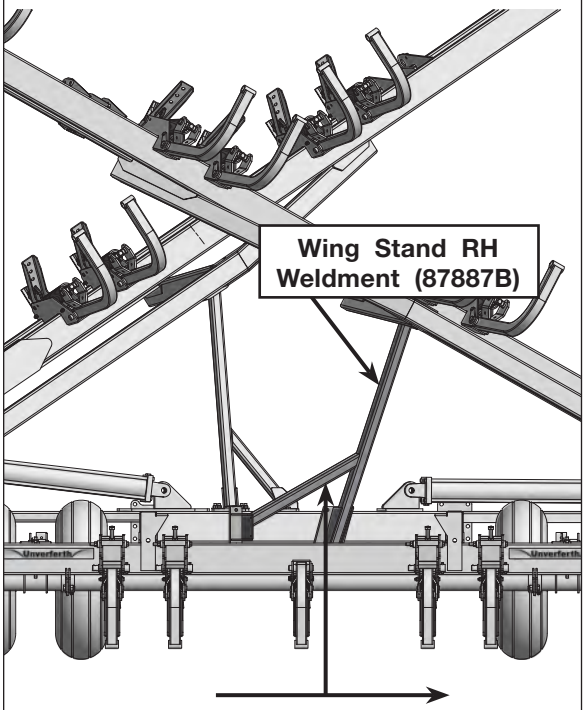
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

- **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 HYDRAULIC PRESSURE BEFORE SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUALS FOR PROPER PROCEDURE.**

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. 2-30 Rear View Shown

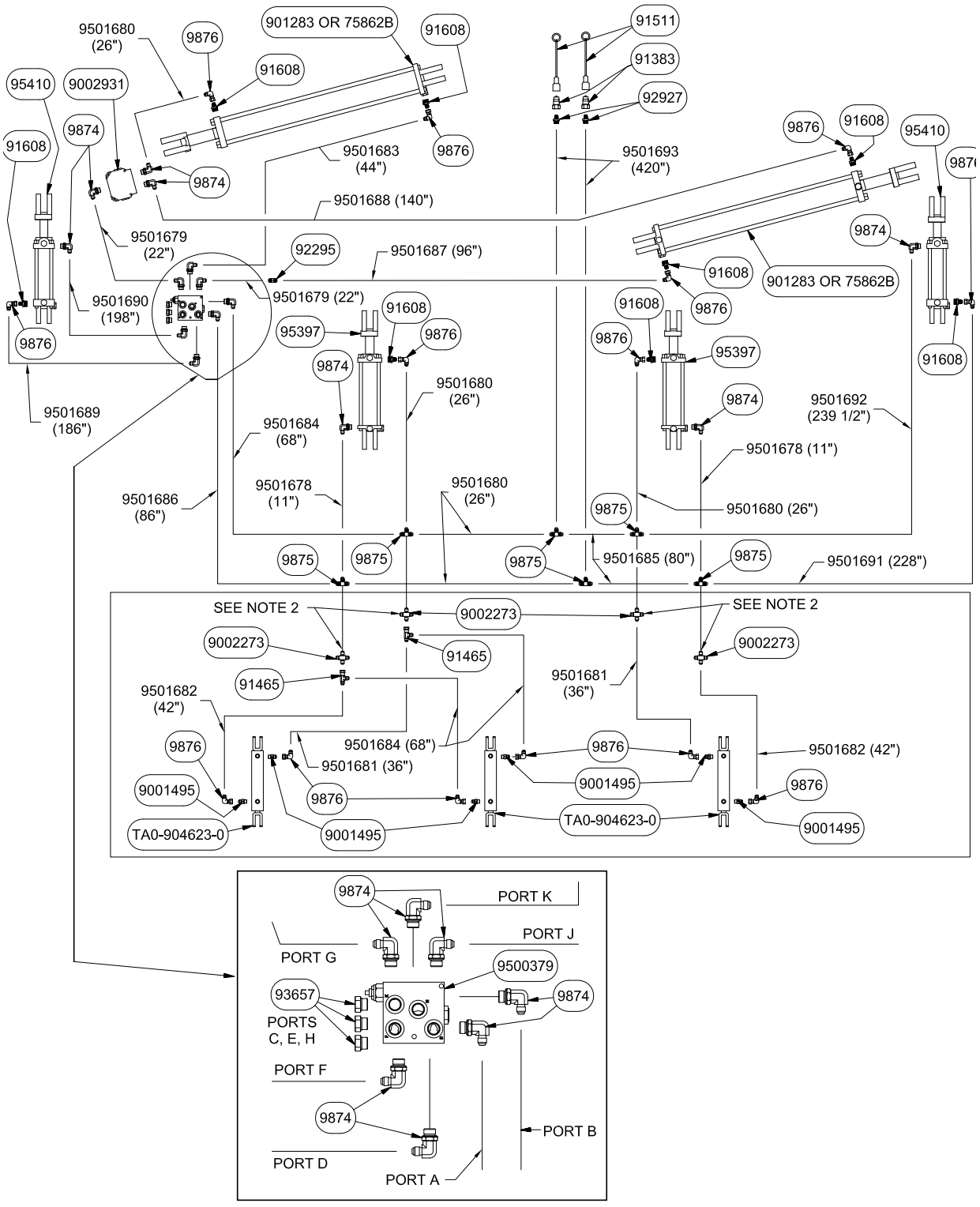


Hydraulic Assembly (continued)

ROLLING HARROW 39-45' MODELS

NOTE 1: When installing a dual hydraulic system in-lieu-of the standard system, use the optional dual hydraulic diagram located in the SET UP section.

NOTE 2: For 1245D Drum Machines, add basket rocker hydraulics. Use crosses in place of tees.



Basket/Drum & Frame Assembly — 1245D

⚠ WARNING

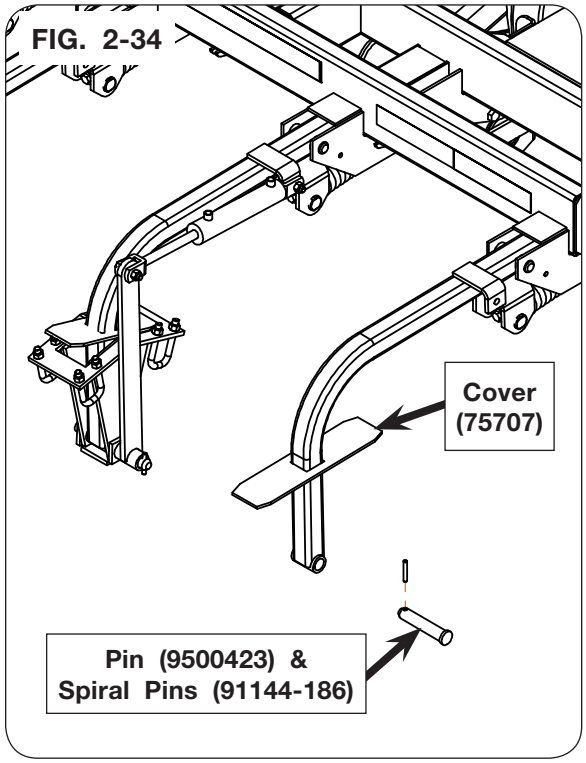
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 750 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Connect the Rolling Harrow 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 parts box/crate (75859B) 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. 2-34.

3. Locate in the parts box the 1" Dia. x 5 1/8" basket mounting pins (9500423) and 5/16" Dia. x 2" spiral pins (91144-186). See Fig. 2-34.

FIG. 2-34



Basket/Drum & Frame Assembly — 1245D (continued)

4. Remove and save the U-bolts and locknuts from the main frame basket bolt-on mounting brackets (Fig. 2-35).

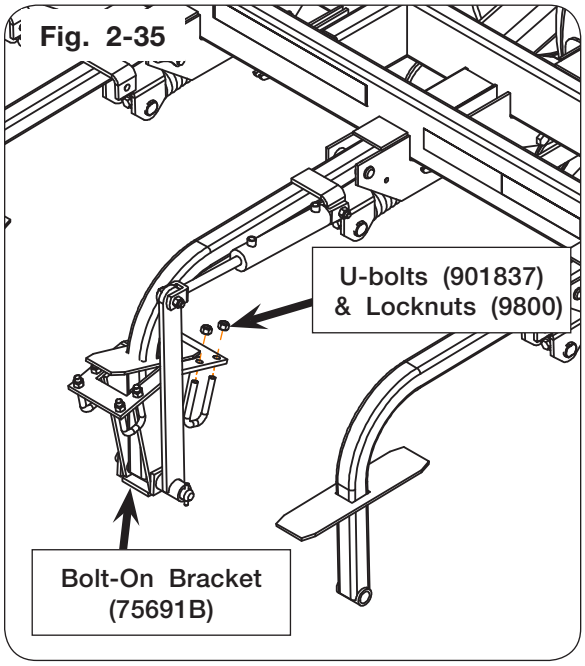


Fig. 2-35

Basket/Drum & Frame Assembly — 1245D (continued)

5. Using a safe lifting device rated at 750 lbs. minimum, lift basket assembly into position on the mounting arms. Identify baskets and mating wings using Table 3-2, Fig. 2-37, and Fig. 2-36. Units with drums have the drums mounted to the rear. Install the basket mounting pins and spiral pins. Also install the previously removed U-bolts to each bolt-on bracket.

6. Repeat for each basket/drum assembly.

FIG. 2-36

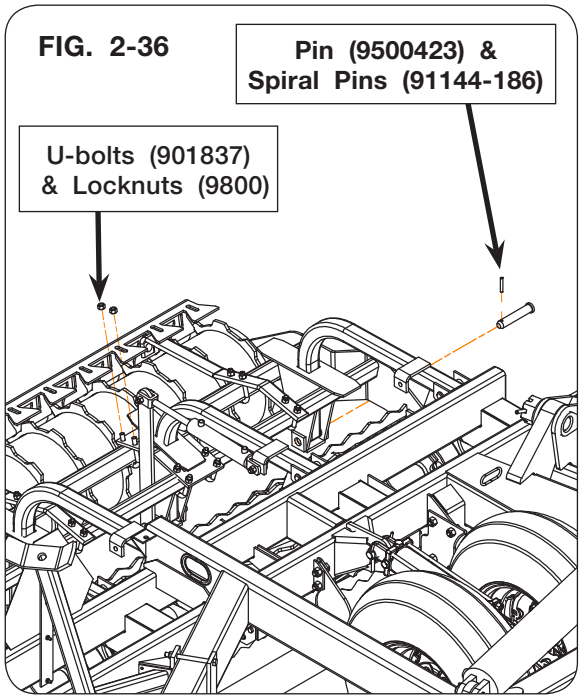
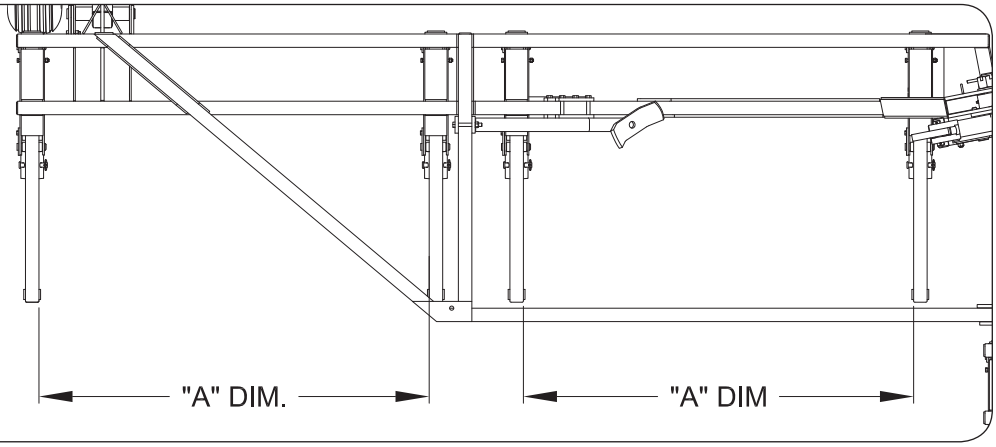


TABLE 3-2		
"A" DIM. (FIG. 2-37)	BASKET WIDTH	FRAME WIDTH
34"	4'	47"
46"	5'	59"
58"	6'	71"

Fig. 2-37

12' LH Wing Assembly Shown



Drum Scraper Assembly

1. Locate scrapers, bar mounts and hardware bags.

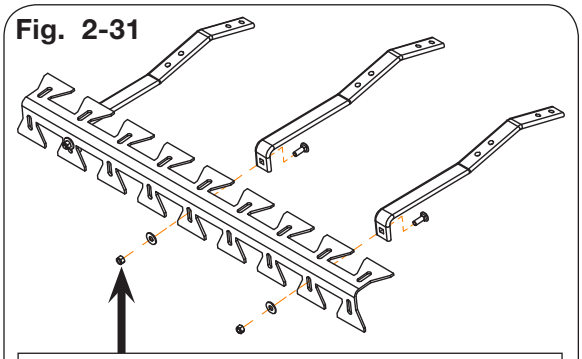
2. Install arm (75564B) to scraper using 1/2"-13UNC x 1 1/2" carriage bolts (9388-104) passing bolt through arm first. (FIG. 2-31)

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

NOTE: It is recommended to tighten u-bolts in a specific sequence. Starting with the front u-bolts first, tighten the rear nuts then the front nuts. Repeat this on the rear u-bolts.

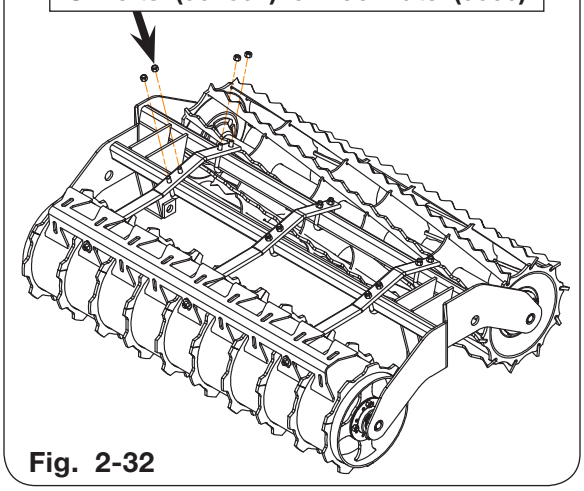
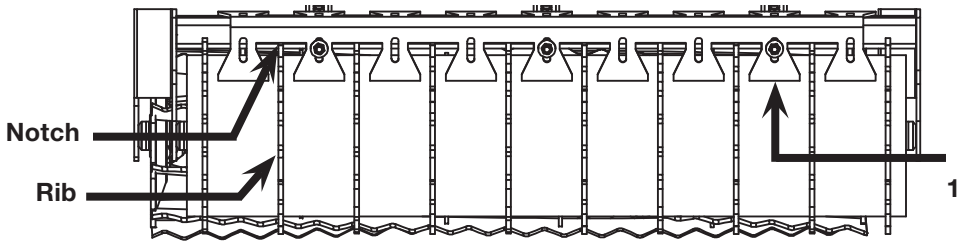


Fig. 2-32

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 — 1245

⚠ 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 750 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Connect the Rolling Harrow 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 (87919B), the rubber basket/arm pivot covers (88826). There is a rubber cover for each basket mounting arm on the machine. Install rubber basket arm pivot covers over bent arms. See Fig. 2-38.

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). See Fig. 2-39.

4. Remove and save the U-bolts and locknuts from the main frame basket bolt-on mounting brackets (Fig. 2-40).

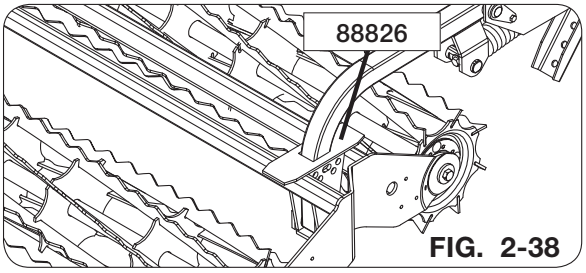


FIG. 2-38

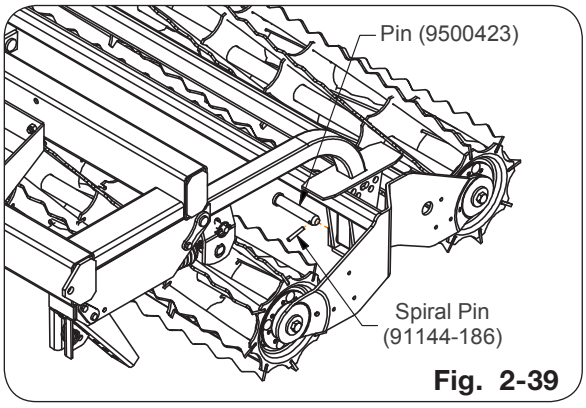


Fig. 2-39

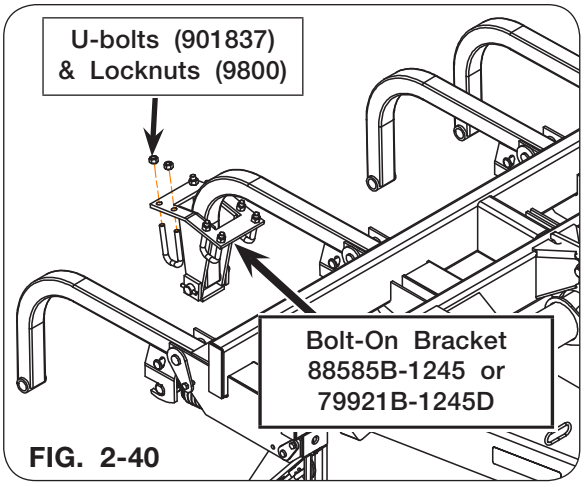


FIG. 2-40

Basket & Frame Assembly — 1245 (continued)

5. 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 3-3, Fig. 2-42, and Fig. 2-41. Position aggressive basket forward unless instructed otherwise. Install the basket mounting pins and spiral pins. Also install the previously removed U-bolts to each bolt-on bracket.

6. Repeat for each basket assembly.

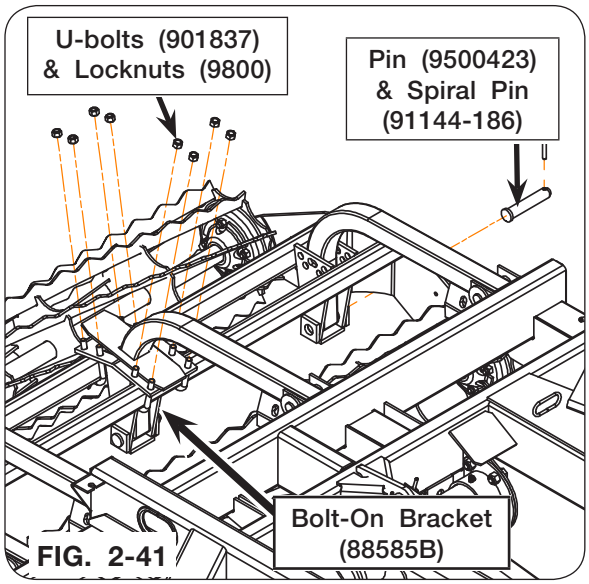


FIG. 2-41

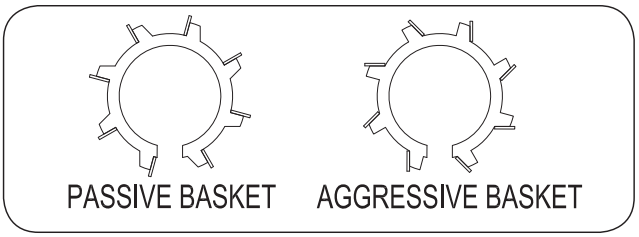
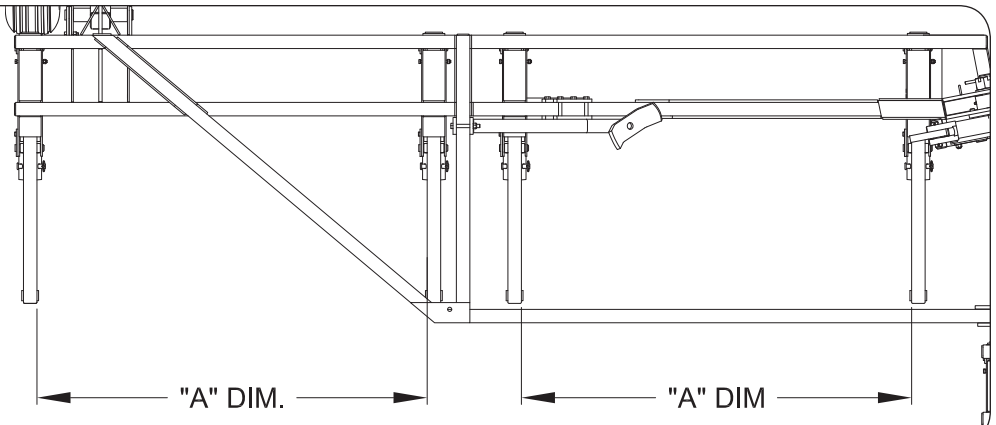


TABLE 3-3		
"A" DIM. (FIG. 2-42)	BASKET WIDTH	FRAME WIDTH
34"	4'	47"
46"	5'	59"
58"	6'	71"

Fig. 2-42

12' LH Wing Assembly Shown



Attach Storage Box

1. Attach the storage box mounting bracket (77400B) on the rear of the hitch frame with two 1/2”-13UNC U-bolts (9502320) and four 1/2”-13UNC lock nuts (9800) as shown in FIG. 2-43.

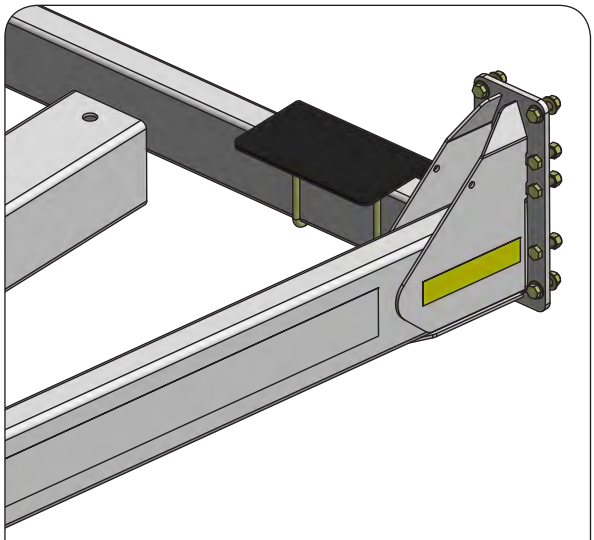


FIG. 2-43

2. Secure the storage box (902456) to the mounting bracket (77400B) with one strap (27741B), two 5/16”-18UNC x 1” capscrews (9390-030), and two 5/16”-18UNC lock nuts (9807) (FIG. 2-44).

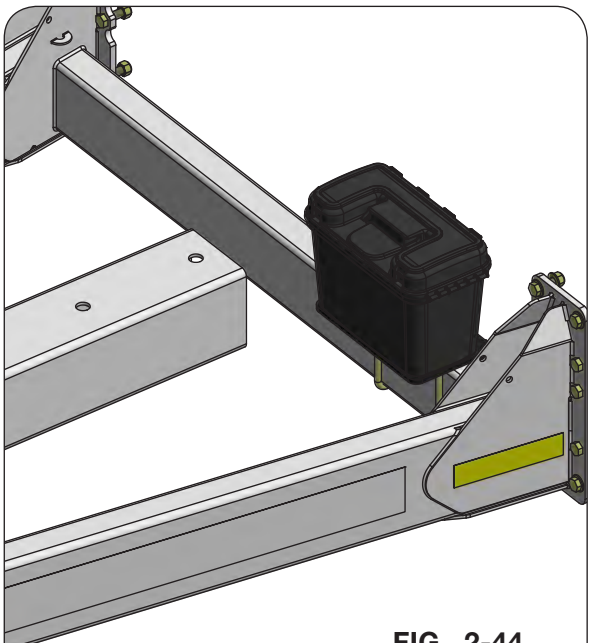


FIG. 2-44

Optional Leveler Bar Assembly

1. Connect the Rolling Harrow 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.
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. 2-43).
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 2-43.

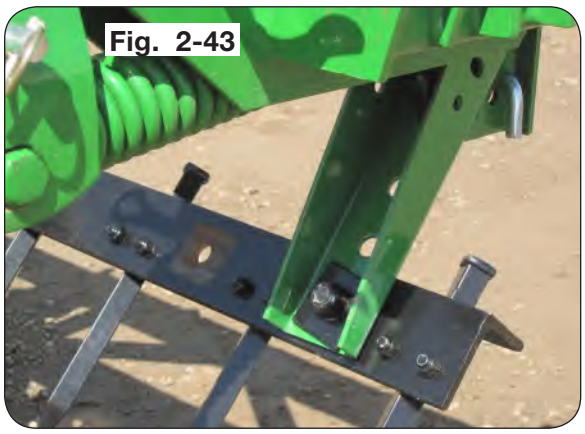
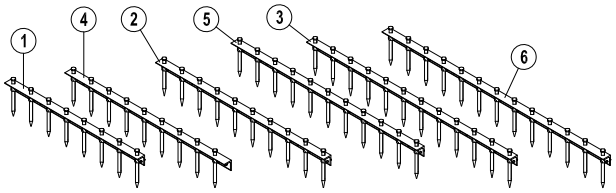


Fig. 2-43

Optional Leveler Bar Assembly (continued)

ITEM	PART NO.	DESCRIPTION	15' BASE 12' WINGS	15' BASE 13' WINGS	15' BASE 14' WINGS	15' BASE 15' WINGS
1	71182	One Bar 4' Assembly	-	4	2	-
2	71183	One Bar 5' Assembly	2	3	5	7
3	71579B	One Bar 6' Assembly	3	-	-	-
4	72964B	One Bar 4 1/2' Assembly	1	1	1	1
5	72966B	One Bar 5 1/2' Assembly	-	1	1	1
6	72968B	One Bar 6 1/2' Assembly	1	-	-	-

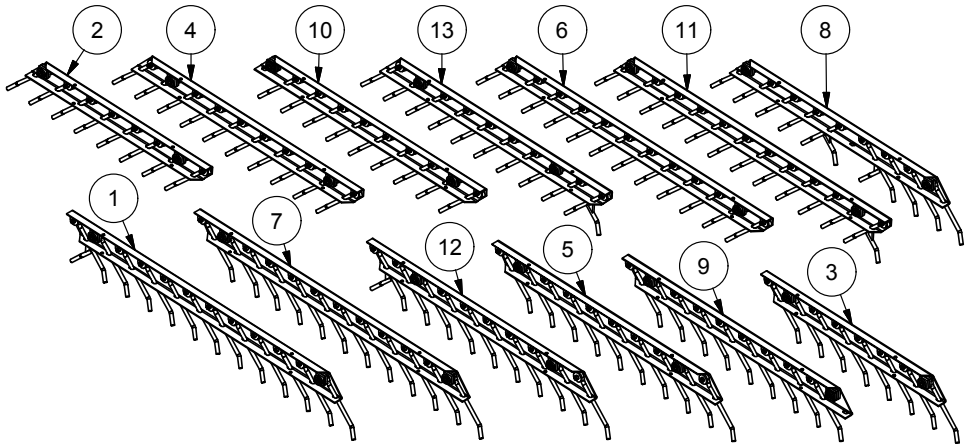


Diagonal Tooth Leveler Bar

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.

ITEM	PART NO.	DESCRIPTION	15' BASE 12' WINGS	15' BASE 13' WINGS	15' BASE 14' WINGS	15' BASE 15' WINGS
1	74216B	Diagonal-Tooth One Bar 6' RH Y Assembly	1	-	-	-
2	74681B	Diagonal-Tooth One Bar 4' LH Assembly	-	2	1	-
3	74682B	Diagonal-Tooth One Bar 4' RH Assembly	-	2	1	-
4	74683B	Diagonal-Tooth One Bar 5' LH Assembly (10 Tooth)	-	-	1	2
5	74684B	Diagonal-Tooth One Bar 5' RH Assembly (10 Tooth)	-	-	1	2
6	74685B	Diagonal-Tooth One Bar 6' LH Assembly	1	-	-	-
7	74686B	Diagonal-Tooth One Bar 6' RH Assembly	1	-	-	-
8	74688B	Diagonal-Tooth One Bar 5' CTR Assembly	1	1	1	1
9	76908B	Diagonal-Tooth One Bar 5' LH Assembly (9 Tooth)	1	1	1	1
10	76909B	Diagonal-Tooth One Bar 5' LH Assembly (9 Tooth)	1	1	1	1
11	76910B	Diagonal-Tooth One Bar 6' LH Y Assembly	1	-	-	-
12	76911B	Diagonal-Tooth One Bar 5 1/2' RH Y Assembly	-	1	1	1
13	76912B	Diagonal-Tooth One Bar 5 1/2' LH Y Assembly	-	1	1	1



Optional Leveler Bar Assembly (continued)

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. 2-44). 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. 2-44

Fig. 2-45

3. Mount the diagonal bar to the MIDDLE hole on the machine's mounting arms (Fig 2-44).

IMPORTANT

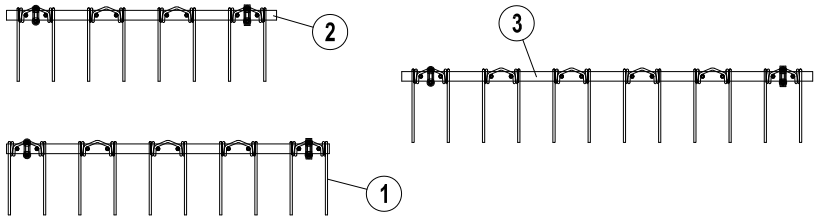
- *Machine damage will result if the diagonal leveler bars are installed in any hole in the machine's mounting arms other than the middle.*

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.

ITEM	PART NO.	DESCRIPTION	15' BASE 12' WINGS	15' BASE 13' WINGS	15' BASE 14' WINGS	15' BASE 15' WINGS
1	84480	One Bar Coil-Tine 5' Assembly	3	5	7	9
2	84481	One Bar Coil-Tine 4' Assembly	-	4	2	-
3	86569B	One Bar Coil-Tine 6' Assembly	4	-	-	-



2. Remove the 7/16"-14 locknuts (9799), 7/16" flat washers (9405-082), and U-bolts (95914) from the coil tine bar assemblies (Fig. 2-46).


Fig. 2-46

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. 2-47.

Fig. 2-47

6. Attach clip, bushing, capscrew, and 3/8”-16UNC centerline locknut provided in hydraulic bundle (Fig. 2-48). Then install the other capscrew and locknut previously removed. Tighten hardware.

Fig. 2-48

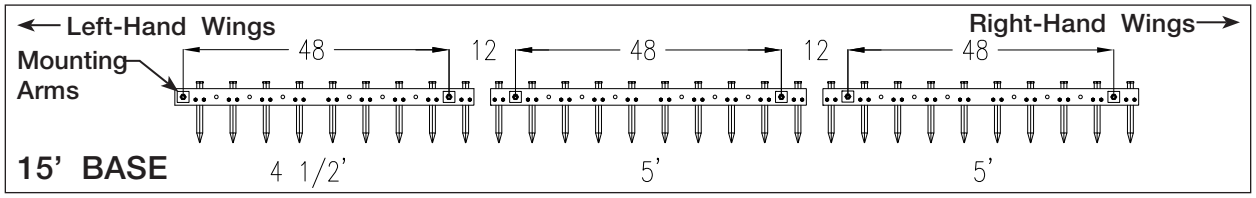
IMPORTANT

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

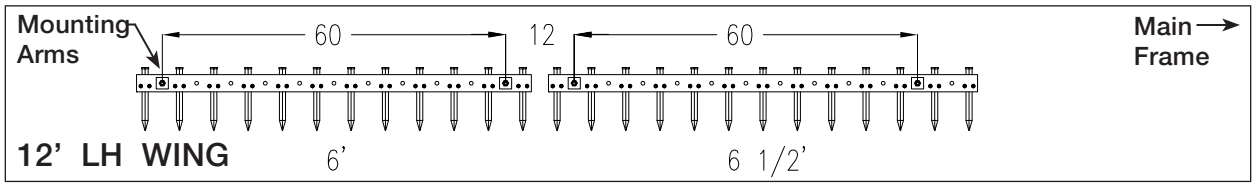
7. Check that coil tine cannot rotate into tires when clip is properly installed. If tines can still rotate into tires, loosen U-bolts on tine bar mounts and rotate tine bar until tines cannot touch tires. Re-tighten U-bolts. Grind lip on clip to set clearance if necessary.

Spike Tooth One-Bar Layouts

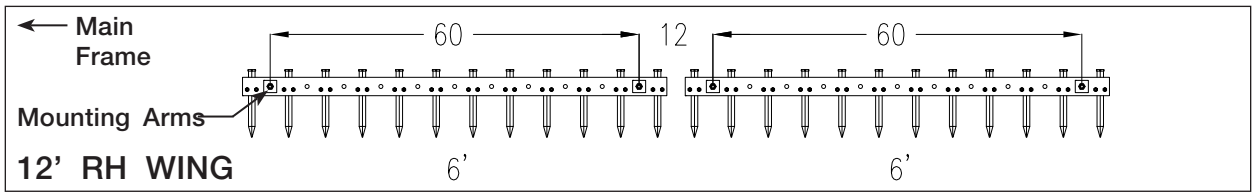
Use these layouts to locate spike tooth one-bars as shown.



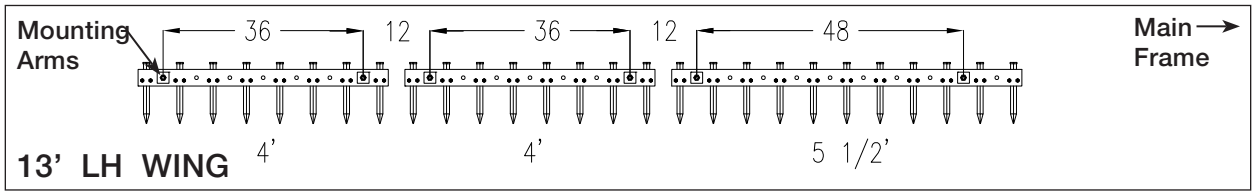
15' BASE



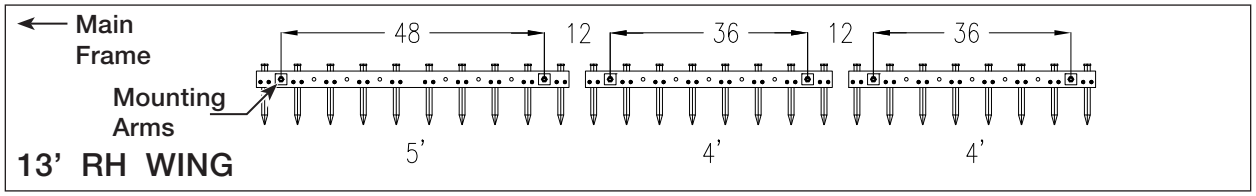
12' LH WING



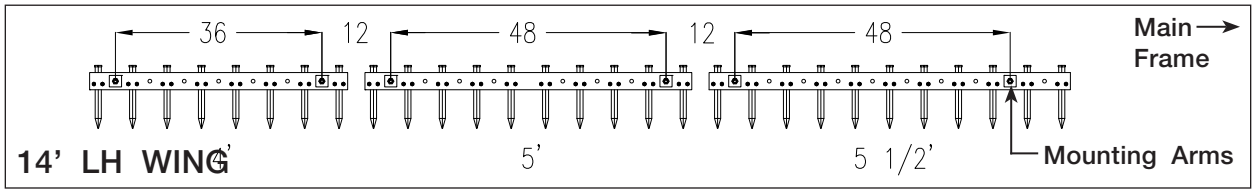
12' RH WING



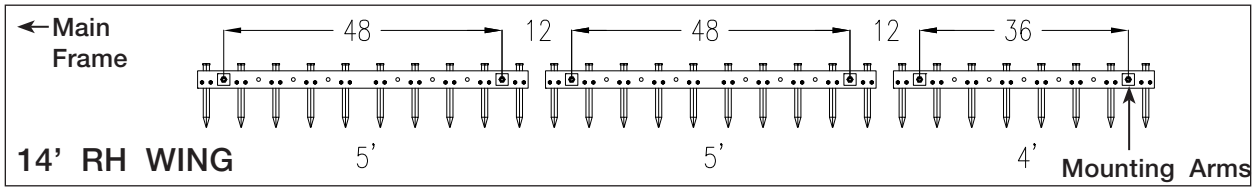
13' LH WING



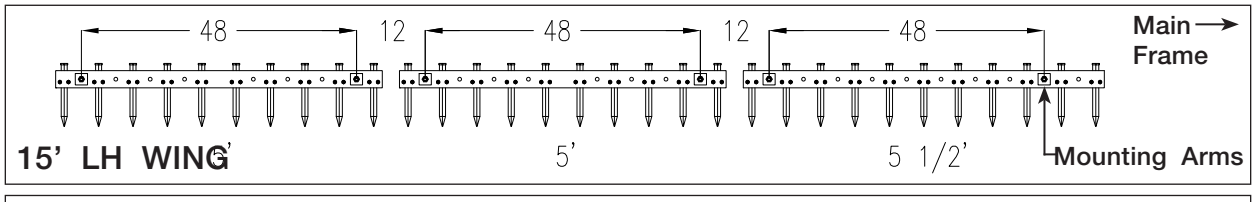
13' RH WING



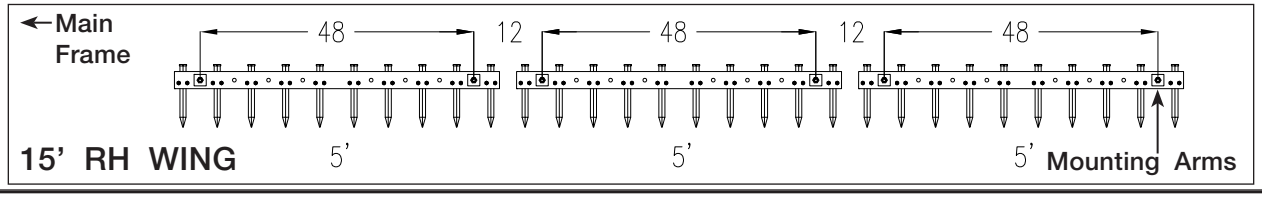
14' LH WING



14' RH WING



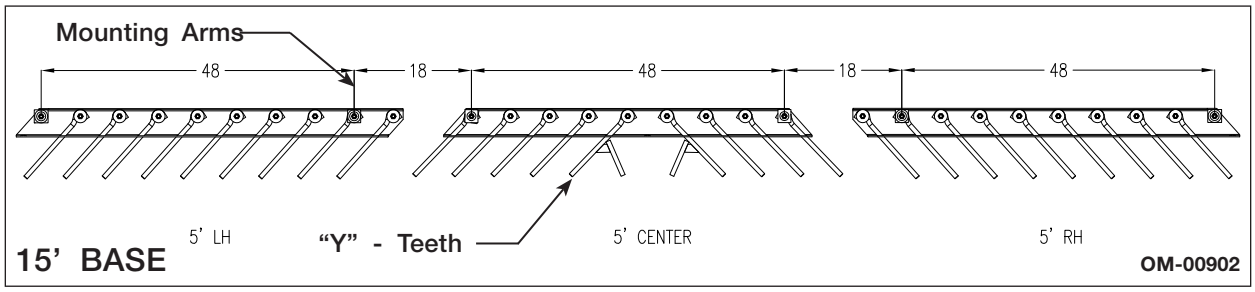
15' LH WING



15' RH WING

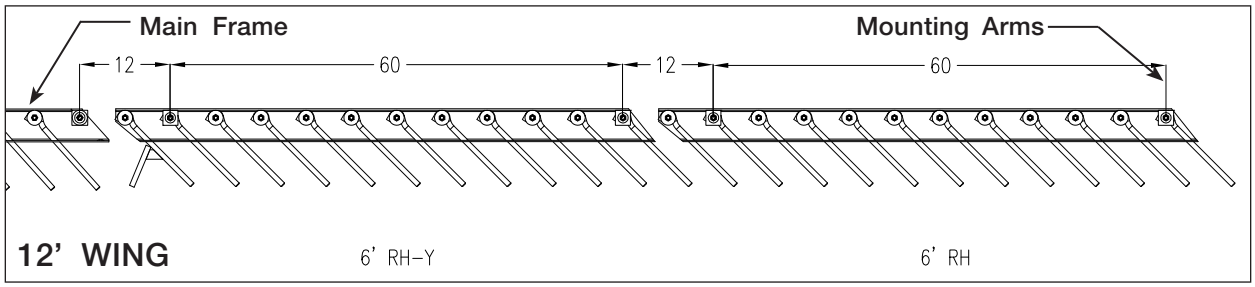
Diagonal Tooth One-Bar Layouts

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.

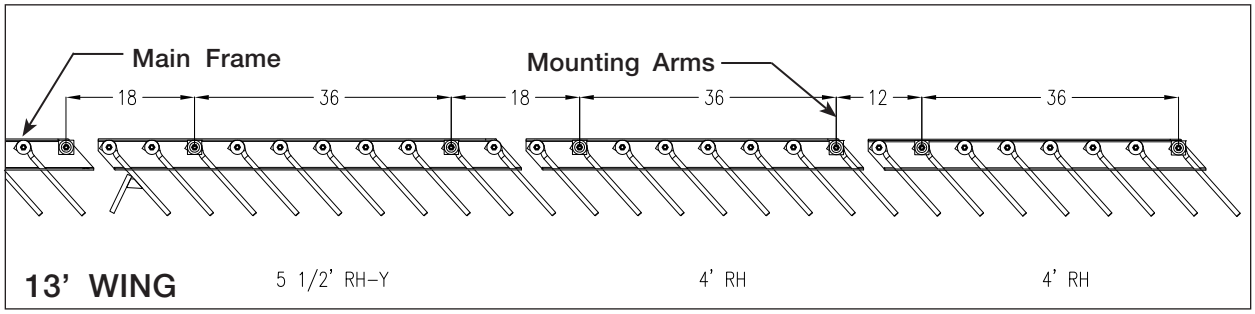


15' BASE

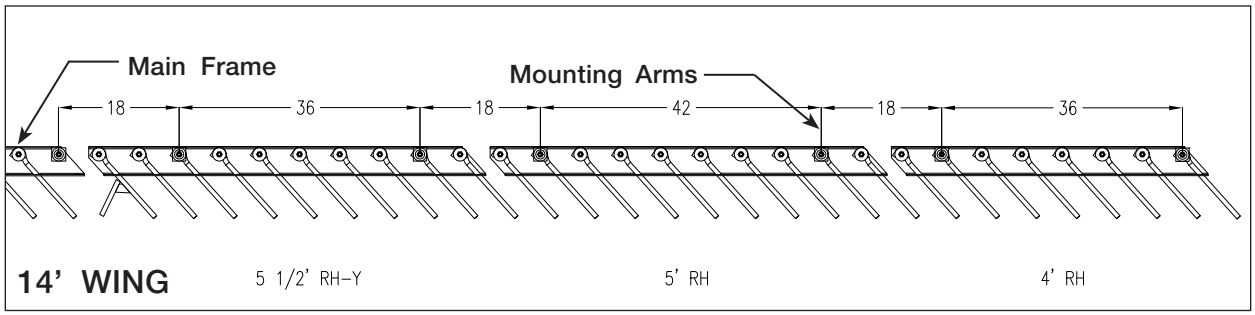
OM-00902



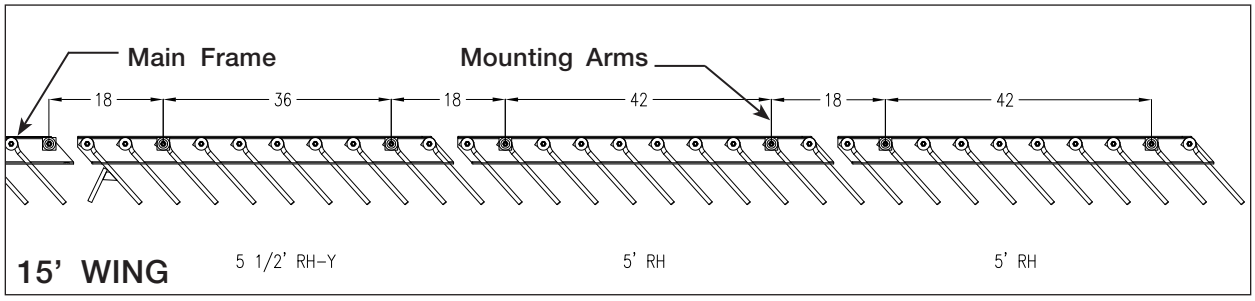
12' WING



13' WING



14' WING



15' WING

Transport Marking & Light Kit (89110B)

Before installation, 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.

NOTE: Unverferth Manufacturing has designed the transport lighting and marking kit to meet United States federal law and ASABE standards at the time of manufacture. Machine modifications, including additional features or changes to the intended configurations, may require updates to the lighting and marking as well.

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

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

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

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

Lights

1. Secure the red round light (9003877) to the bracket (73338B) with the lens facing the holes in the bracket using the nut provided with the light. Be careful not to overtighten and damage the light. Then attach the bracket (73338B) to the frame with a 1/2"-13UNC x 1" capscrew (9390-099) and 1/2"-13UNC locknut (9800).

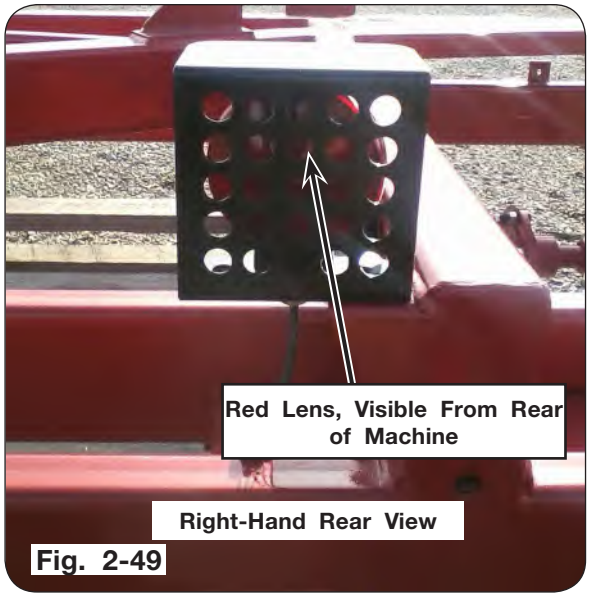


Fig. 2-49

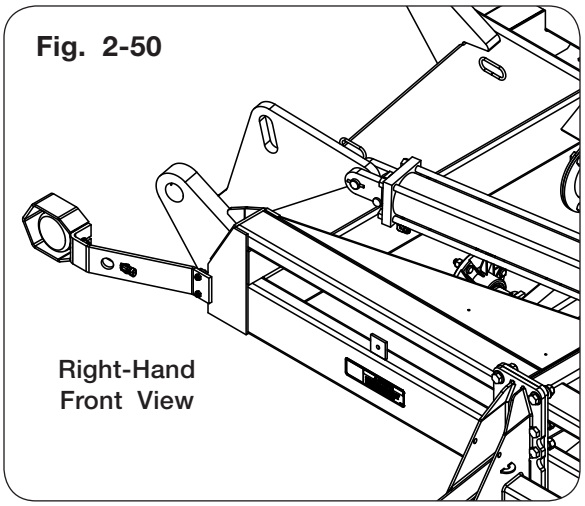
Transport Marking & Light Kit (89110B) (continued)

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

2. Secure right-hand light bracket (73434B) to the front of the unit, secure with 3/8"-16UNC x 1 1/4" capscrews (9390-056), and 3/8"-16UNC locknuts (9928) as shown in Fig. 2-50.

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

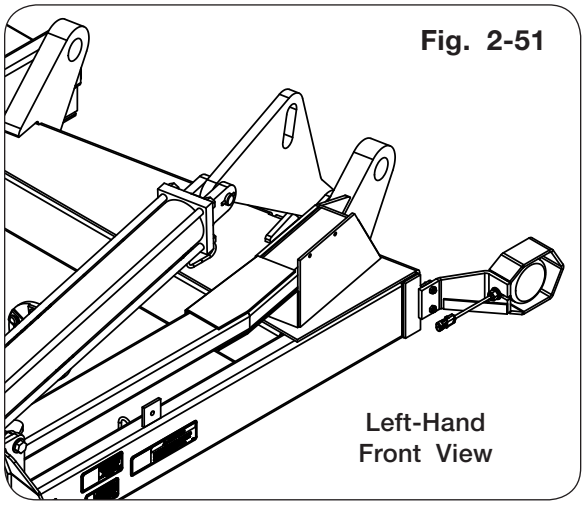
Fig. 2-50



Right-Hand
Front View

3. Secure left-hand light bracket (73433B) to the front of the unit, secure with 3/8"-16UNC x 1 1/4" capscrews (9390-056), and 3/8"-16UNC locknuts (9928) as shown in Fig. 2-51

Fig. 2-51



Left-Hand
Front View

Transport Marking & Light Kit (89110B) (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 standard, contact your UNVERFERTH dealer to order the reflectors needed.

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 your dealer to order socket part #92824.

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

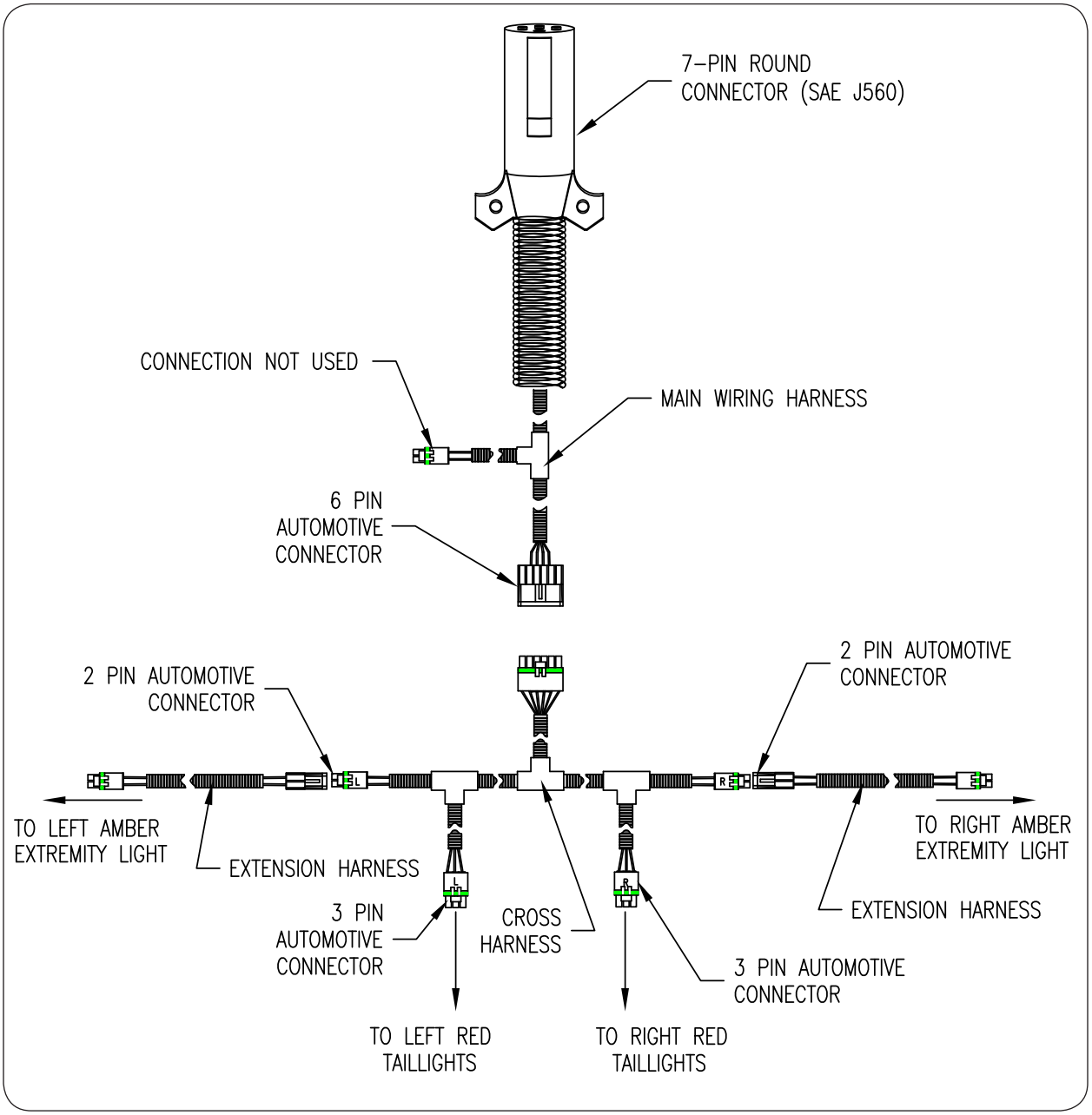
6. Route extension harnesses along the main frame and connect it to the amber extremity lights.

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

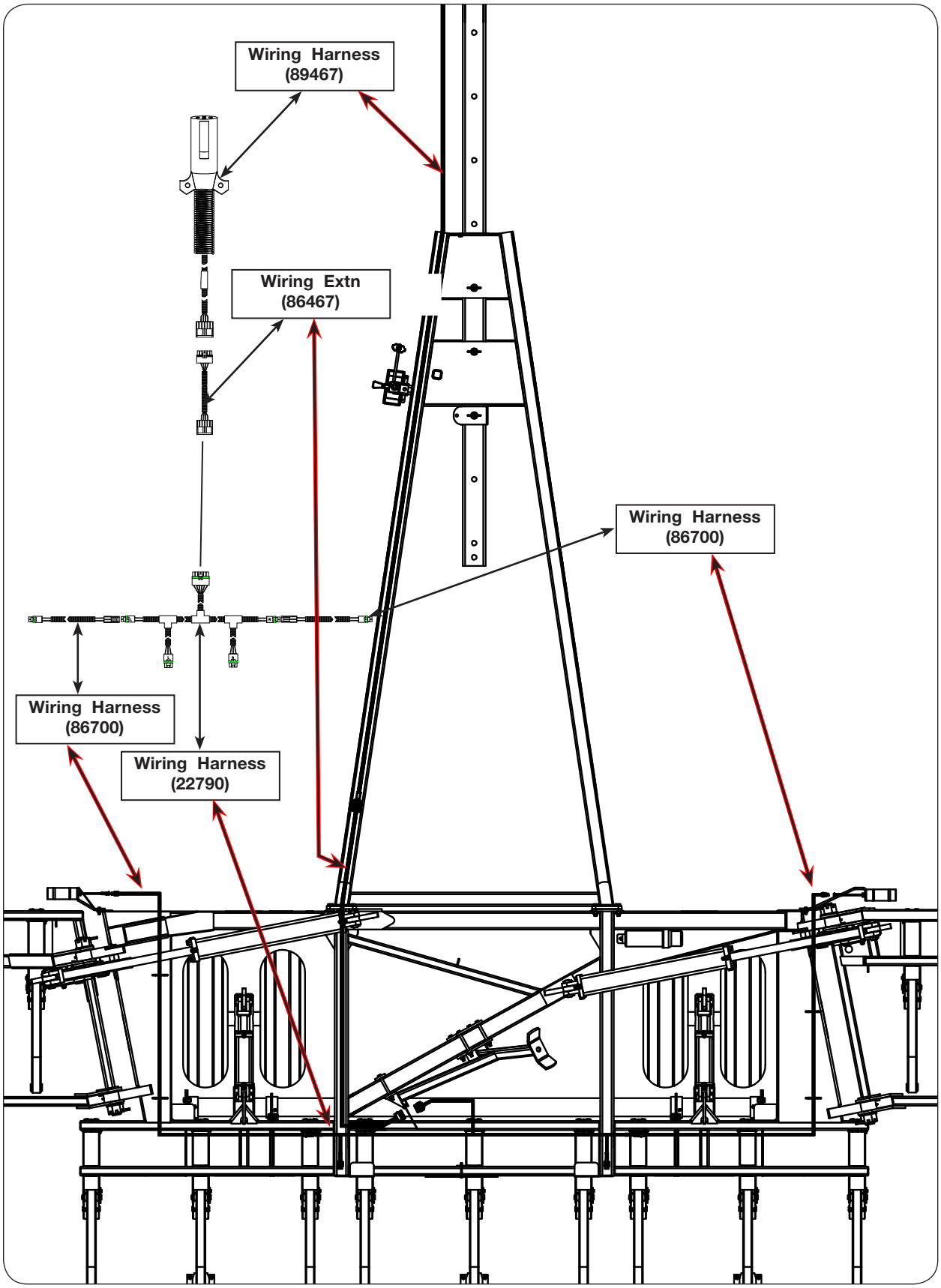
8. Coil up any excess and tie the remainder to the main frame with cable ties. Be sure to avoid contact with the fold cylinders, fold linkage, or any other moving parts.

Transport Marking & Light Kit (89110B) (continued)

Wiring Harness (continued)



Wiring Harness Layout



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.

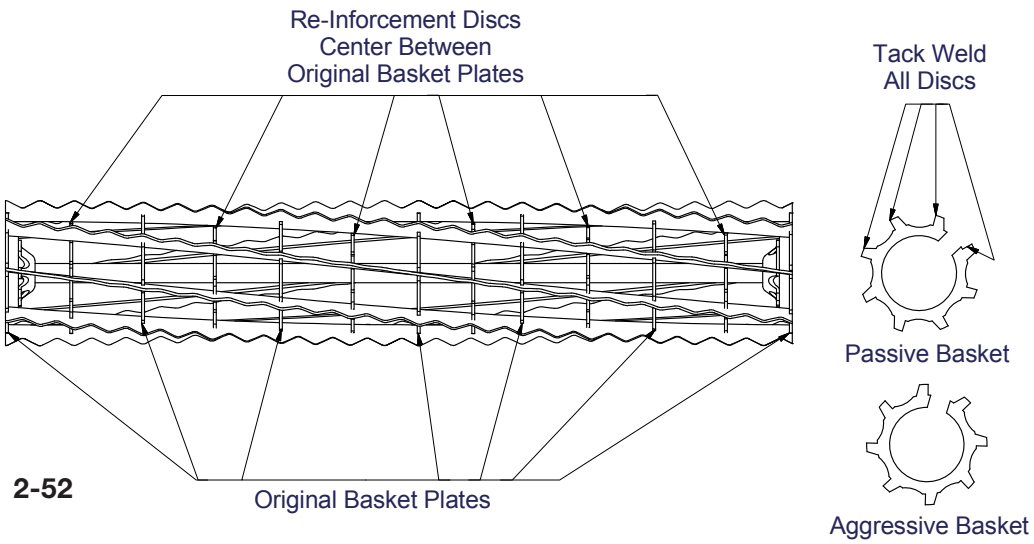


FIG. 2-52

2. Center reinforcement discs between original basket plates and hold into position using locking pliers or clamps (Fig. 2-53).

FIG. 2-53

IMPORTANT

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

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. 2-54 & 2-55).

Aggressive Basket

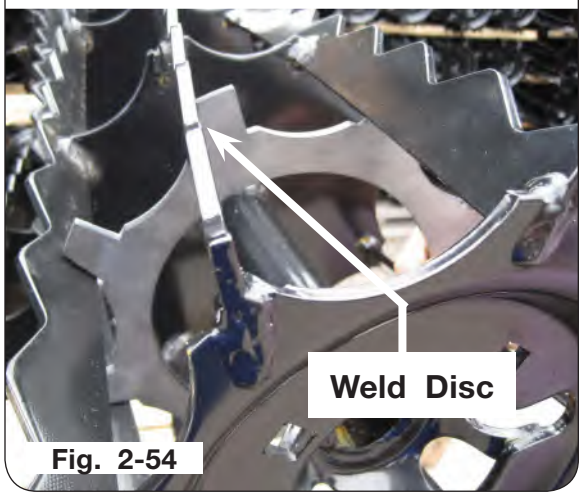


Fig. 2-54

Passive Basket

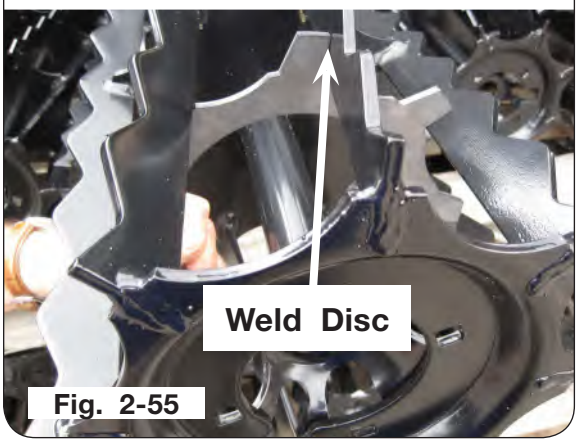


Fig. 2-55

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 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 HYDRAULIC PRESSURE BEFORE SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUALS FOR PROPER PROCEDURE.**

Depressurize the hydraulic systems of the primary tillage tool and the ROLLING HARROW 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.

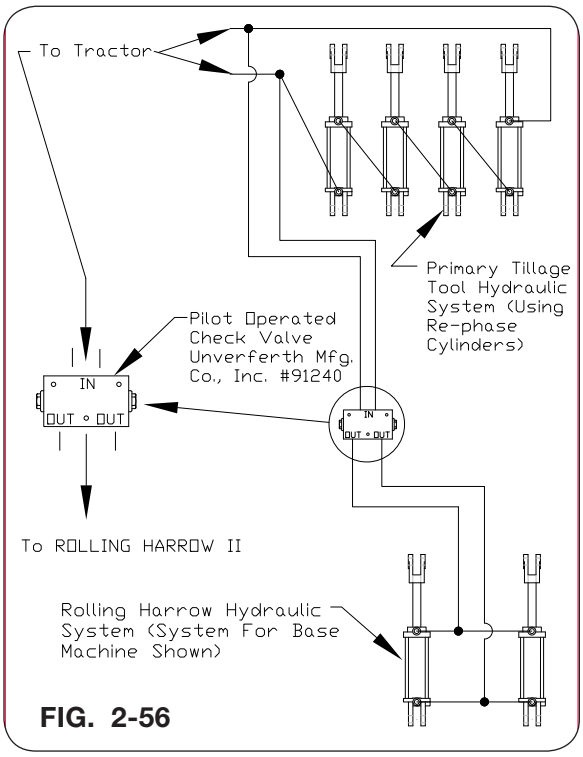
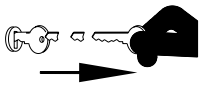


FIG. 2-56

Optional Dual Hydraulic Kit #87922FS

Dual hydraulic kit is available for all sizes of the ROLLING HARROW. 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.

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.

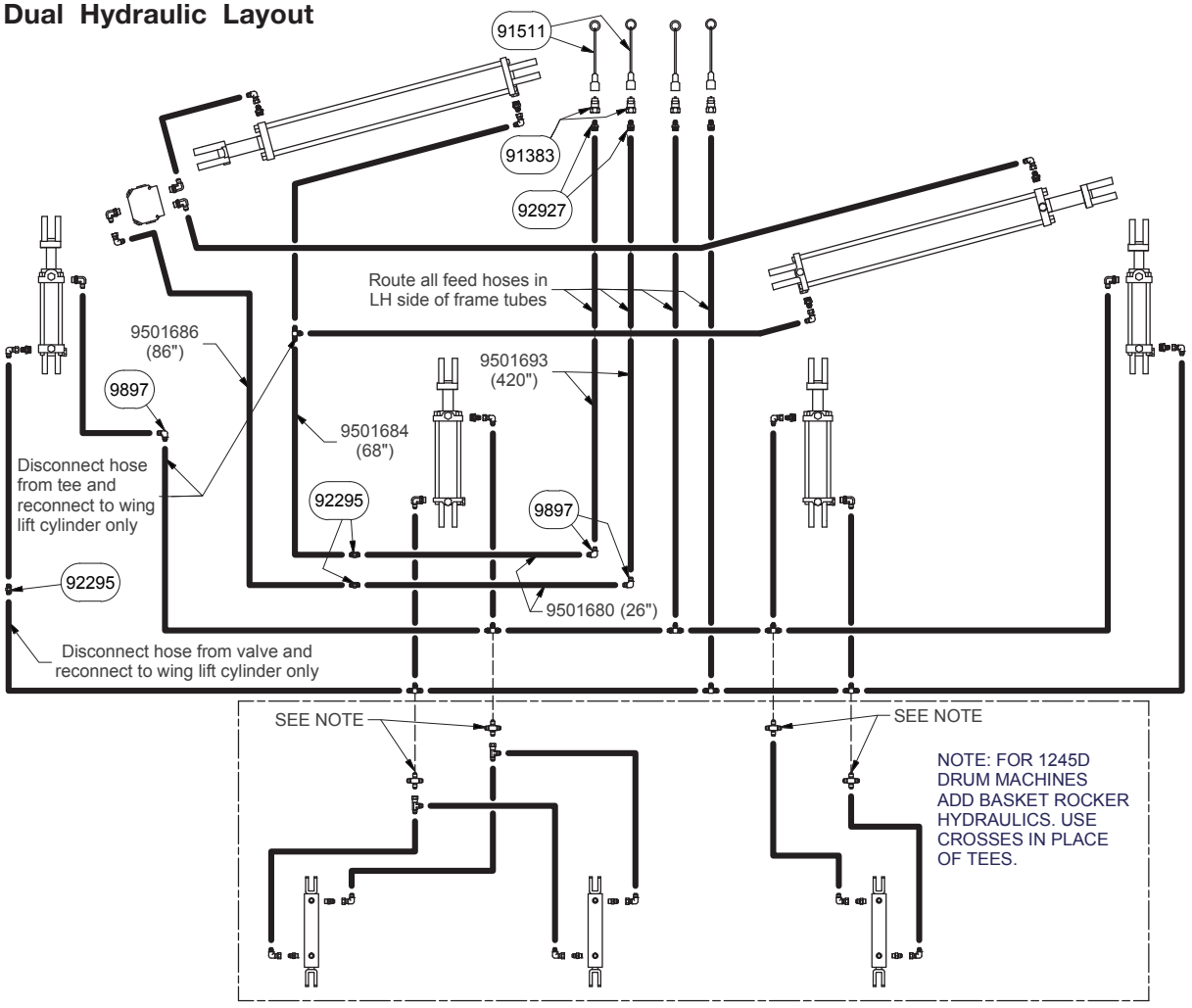


⚠ WARNING

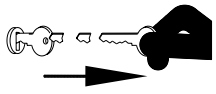
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**
- **RELIEVE HYDRAULIC PRESSURE BEFORE SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUALS FOR PROPER PROCEDURE.**

Optional Dual Hydraulic Kit #87922FS (continued)

Dual Hydraulic Layout

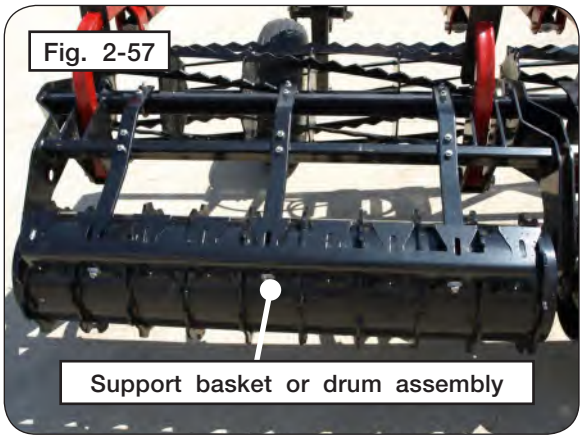


Main Frame Weight Transfer Spring

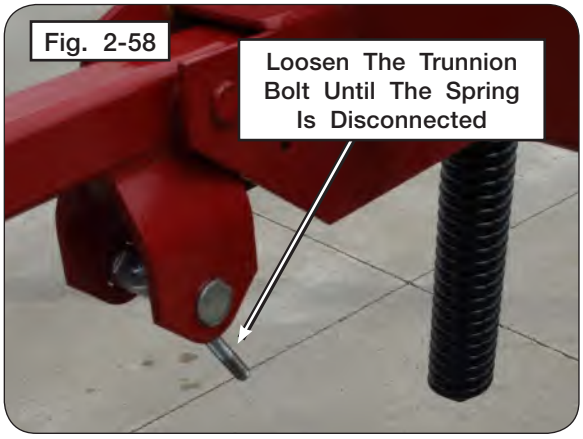


1. Park the unit on a firm, level surface. Unfold the wings into the field working position, and lower the machine onto the transport stops. Block the wheels on the machine to keep it from moving. Set the vehicle parking brake, shut off the engine and remove the ignition key.

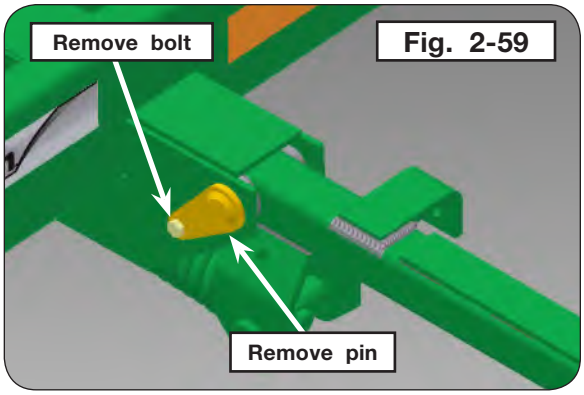
2. Using a safe lifting device rated at a minimum 600 lbs., support the affected basket and frame assembly to remove pressure from the bent arm pivot pins. (Fig. 2-57)



3. Loosen the bolt attaching the spring to the trunnion to allow the spring to swing away from the trunnion. (Fig. 2-58) Remove and retain the trunnion and bolt from the bent arm.

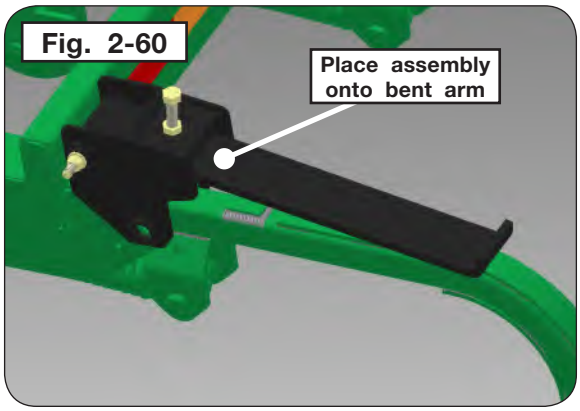


4. Remove the bolt holding the tear-drop of the bent arm pivot pin. Remove the tear-drop pin from the arm. The bolt and pin can be discarded. (Fig. 2-59)



Main Frame Weight Transfer Spring (continued)

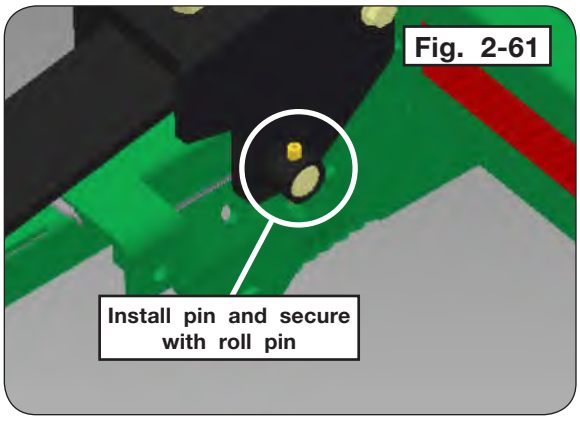
5. Remove the roll pin and pivot pin from the spring assembly. Place the assembly into position on the bent arm. (Fig. 2-60)



6. Install the new pivot pin through the spring assembly and bent arm pivot. Secure the pin with the supplied roll pin. (Fig. 2-61)

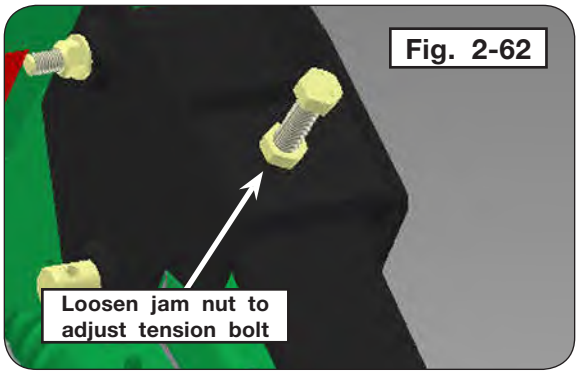
7. Repeat steps 3-6 for the other bent arms.

8. Install the trunnion into the arms. For each arm, swing the spring back into position against the trunnion and insert the bolt and washer through the trunnion and thread into the spring cap. Tighten the bolt until it bottoms out to achieve proper tension. Remove the safe lifting device.

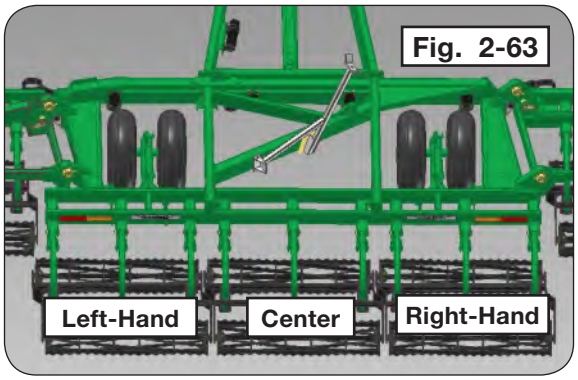


9. Use the adjustment bolts to apply the proper amount of spring assist to each arm. On each assembly, loosen the jam nut on the adjustment bolt. (Fig. 2-62) Tighten the adjustment bolt per the below chart and Fig. 2-63. Once the bolts have been adjusted, tighten the jam nuts and torque to 120-135 ft.-lbs.

Location	Spring Assist Bolt Setting
Right-Hand Basket	Tighten the bolt until it contacts the leaf spring.
Center Basket	Tighten the bolt to one revolution past contact with the leaf spring
Left-Hand Basket	Tighten the bolt to two revolutions past contact with the leaf spring



10. Adjust the springs as needed to achieve a level main frame. Turning a bolt clockwise will raise that area of the main frame and turning it counter-clockwise will lower that area of the main frame. Make adjustments at 1/4 of a revolution at a time. **DO NOT exceed 3 revolutions past contact with the leaf spring.**



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 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 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 adjustability of your ROLLING HARROW, it is recommended the rear hitch height of the primary tillage tool (Fig. 3-1) be approximately 16 to 24 inches (20" nominal) from the ground line when in the field.

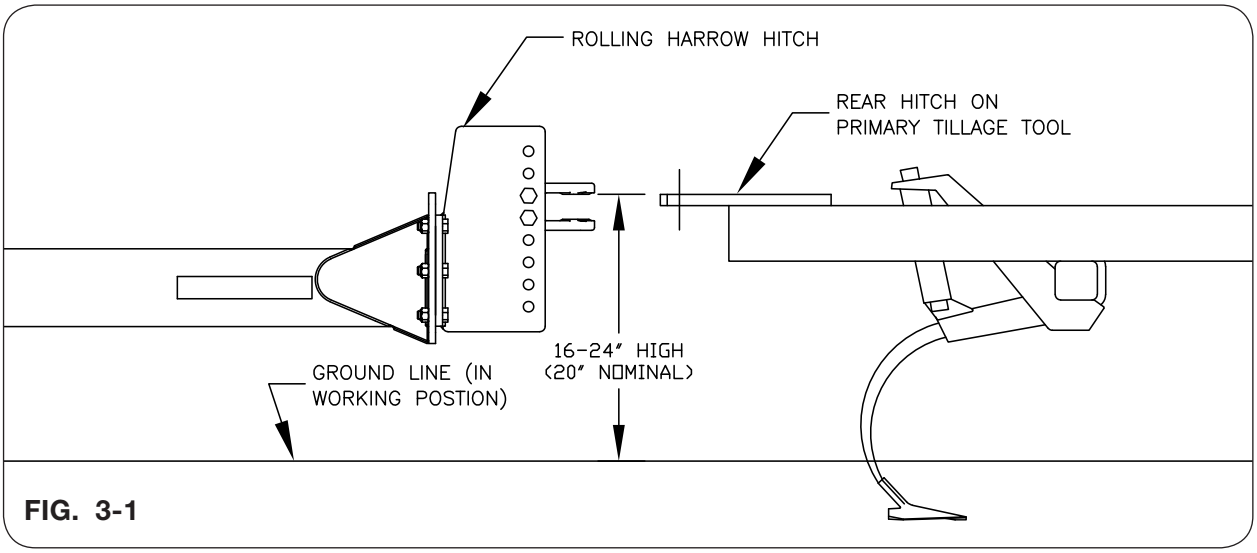


FIG. 3-1

Preparing Rolling Harrow

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

Tire Pressure

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

⚠ 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.

Attaching Rolling Harrow 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 the ground.
2. Remove the pin from the rear tongue tube stop collar.
3. Reset the rear tongue tube stop collar to the desired tongue extended length and reinsert the pin.
4. Remove the two vertical pins that attach the tongue to the A-frame.
5. Pull the machine forward until the rear tongue stop collar contacts the A-frame.
6. Reinsert the two vertical pins that attach the tongue to the A-frame.

To Shorten:

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

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 CYLINDERS MUST BE PURGED BEFORE HYDRAULIC SYSTEMS MAY BE USED. FAILURE TO DO THIS COULD RESULT IN SERIOUS INJURY.**

- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**

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 Manufacturing 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).

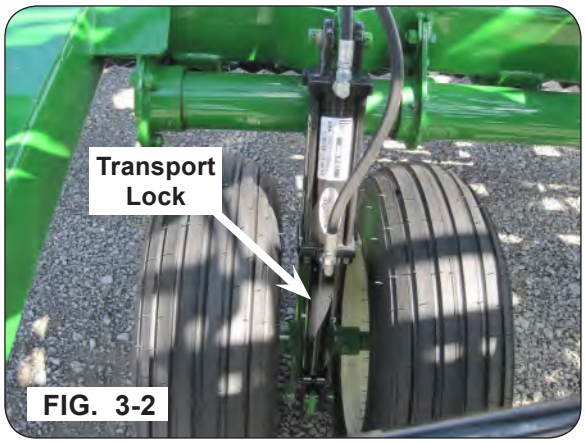


FIG. 3-2

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 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 the wings have unfolded. Wing transport wheel gravity latches should release.
6. Lower the machine to the field working position.

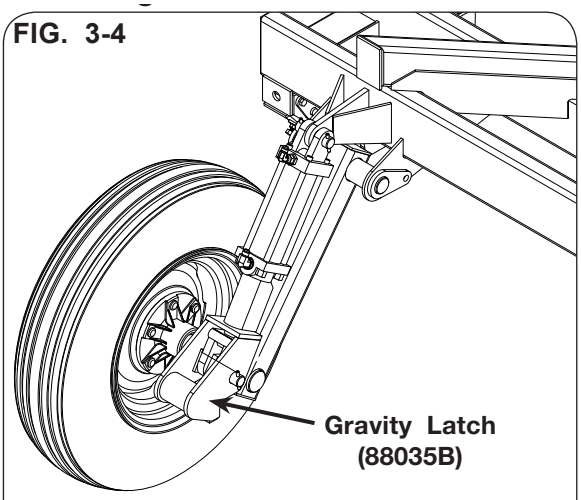
NOTE: Gravity latch (88035B) should automatically engage when wings fold-up.

If transport locks will be removed after unfolding:

1. Activate the units 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 (88035B) should automatically engage when wings fold-up.

FIG. 3-4



RH 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. 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.

Transport chain should have a minimum rating equal to the gross weight of implement and all attachments. Use only ASABE approved chains. Allow adequate slack in chain when turning in both directions.

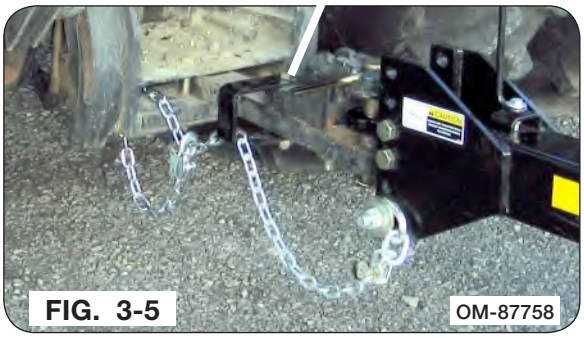


FIG. 3-5 OM-87758

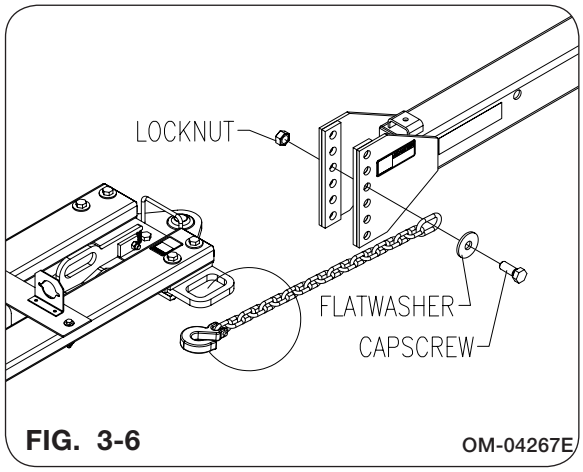


FIG. 3-6 OM-04267E

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 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).**

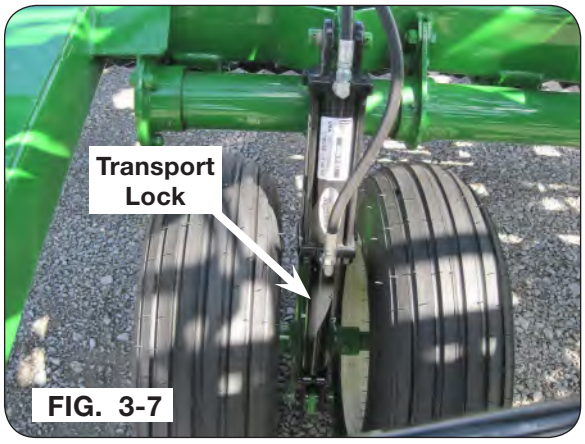


FIG. 3-7

FIG. 3-8

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

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

⚠ CAUTION

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

Check with local authorities to insure lights and reflectors comply with local standards.

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.

NOTE: Unverferth Manufacturing has designed the transport lighting and marking kit to meet United States federal law and ASABE standards at the time of manufacture. Machine modifications, including additional features or changes to the intended configurations, may require updates to the lighting and marking as well.

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

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

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

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 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, 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

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 should be run 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)

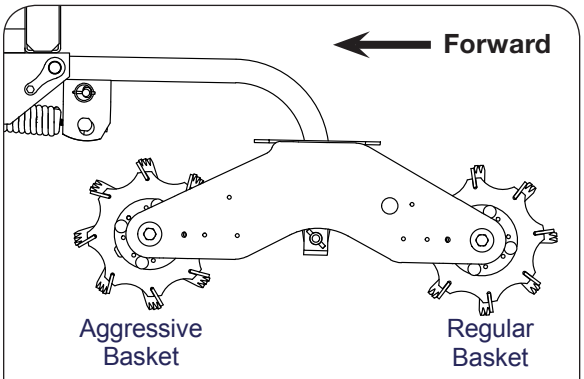
Basket Running Positions

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.



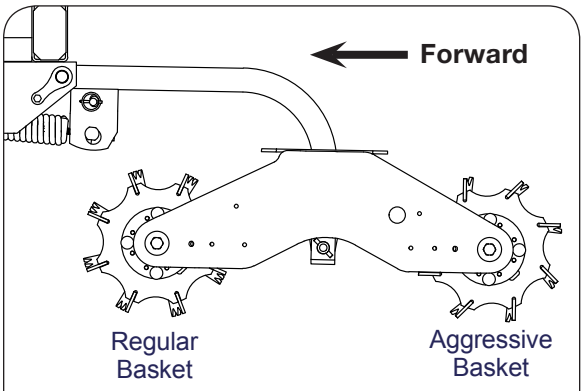
View Looking From LH Side

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.

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. 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

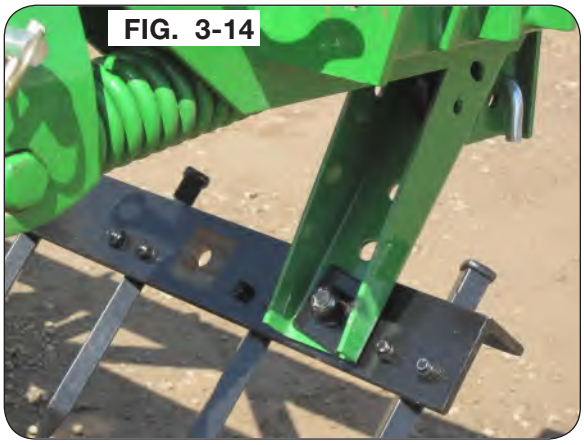


FIG. 3-14

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.

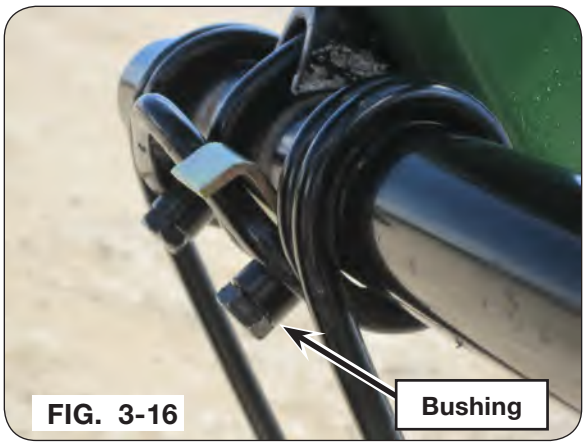


FIG. 3-16

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 (Optional)

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.

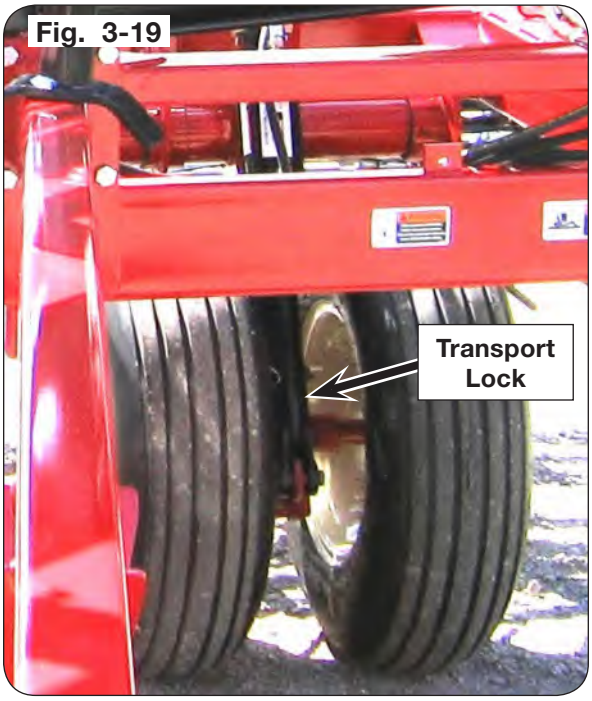
⚠ WARNING

- **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.**

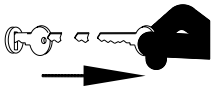
1. Park the unit on a firm, level surface. Unfold the wings into the field working position, and lower the machine onto the ground. Set the vehicle parking brake.

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 second hole from the rear with the plate facing the mounting arm. Reposition into alternate holes as necessary for field conditions.

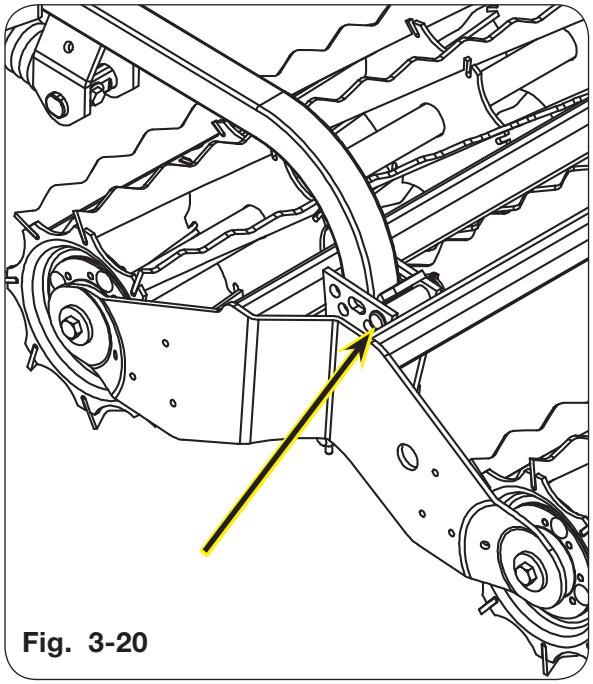


Fig. 3-20

NOTE: Place the pins and spacers in the storage box when not in use (FIG. 3-21).

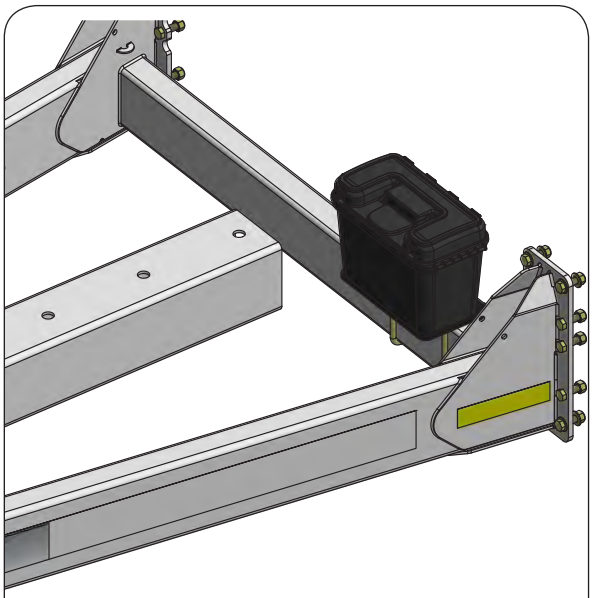


Fig. 3-21

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 daily (FIG. 4-1).

Fig. 4-1A

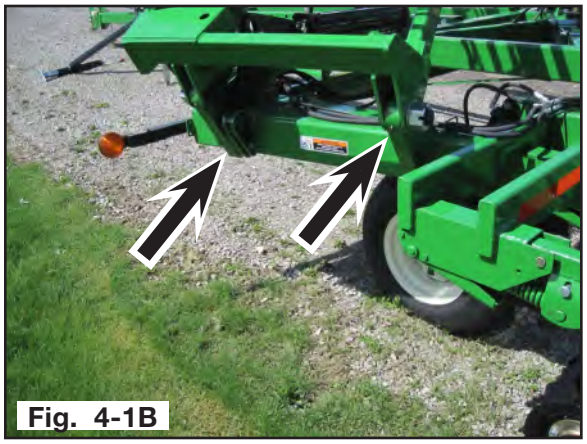


Fig. 4-1B

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 - 12 lube fittings - grease gun	✓	✓	8
WING HINGE POINTS - 4 lube fitting - grease gun	✓	✓	8
WHEEL HUBS - repack All bearings	✓		

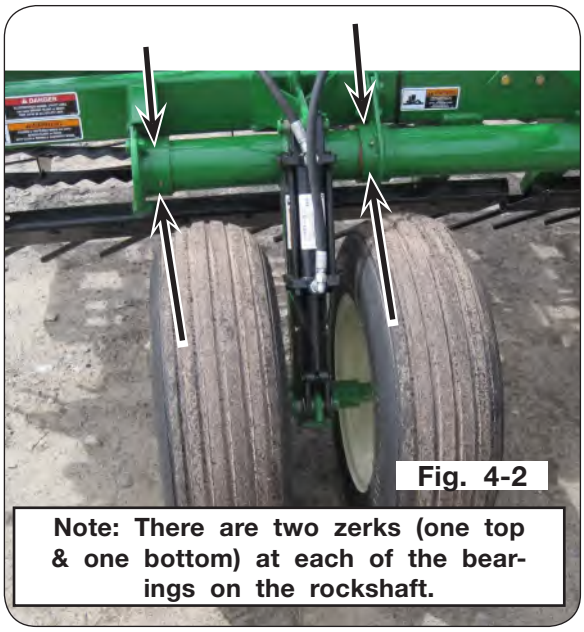


Fig. 4-2

Note: There are two zerks (one top & one bottom) at each of the bearings on the rockshaft.

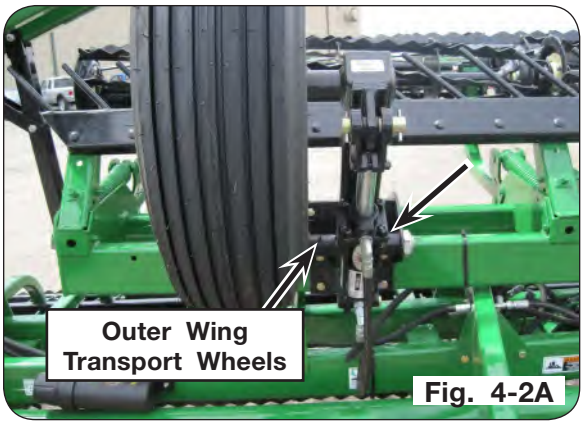


Fig. 4-2A

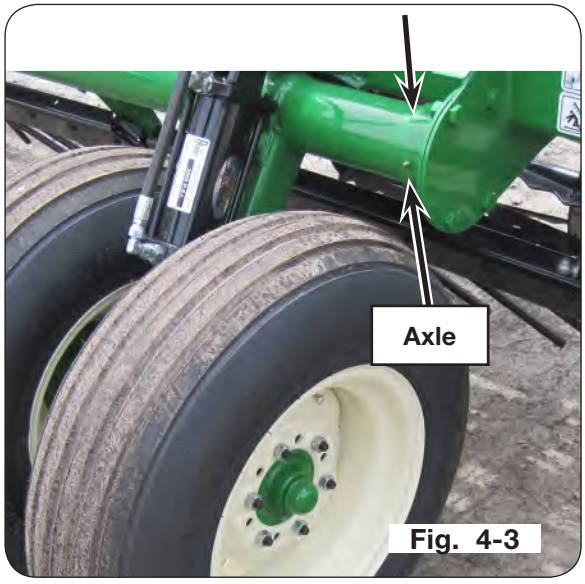


Fig. 4-3

Replacing Rolling Harrow Basket Bearings

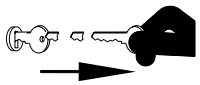
WARNING

- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THIS IMPLEMENT.**

- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

1. Unverferth Manufacturing bearing replacement kit (74006) is available for the ROLLING HARROW.

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.

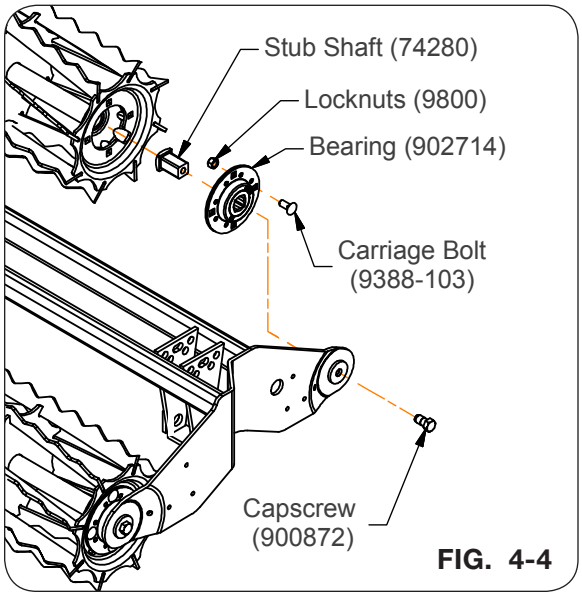


FIG. 4-4

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 5/8-11 x 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 5/8-11 x 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 move toward the basket. Use the pry bar to prevent the stub shaft from turning and torque the 5/8-11 x 1 1/4 capscrew to 150-160 ft.-lbs.

IMPORTANT

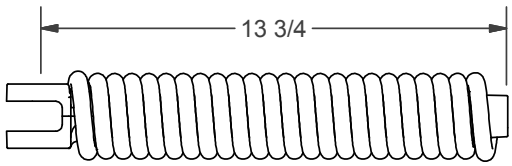
- *The stub shaft MUST fully engage the square recess in the frame side plate to prevent machine damage. Make certain the stub shaft is fully engaged before tightening the 5/8-11 x 1 1/4 capscrew.*

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

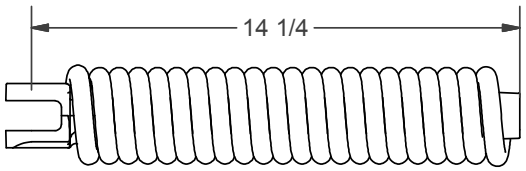
Replacing Spring Assemblies

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



If trunnion (85741B) is used, be sure to assemble the cast trunnion according to FIG. 4-7.

SPRING ASSEMBLY #84260B w/Trunnion

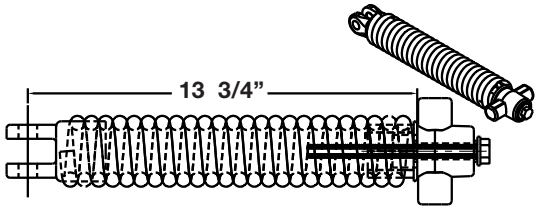


FIG. 4-7

Hub Maintenance

1. Use grease to lubricate the Seal Lip.
2. Assemble the hub onto the spindle. Rotate the hub while doing this so that the seal lip does not fold under as the lip goes on the seal lip of the spindle.
3. Be sure the outer bearing cone slides on the spindle and into the bearing cup.
4. Assemble the washer and the nut onto the spindle and tighten the nut to 20-25 ft-lbs. Rotate the hub while tightening the nut.
5. Back off the spindle nut until it becomes loose.
6. While rotating the hub retighten the nut to remove all CLEARANCE. Line up the next slot in the nut with the hole in the spindle. Insert the cotter pin and bend the cotter pin. Insert the hub cap.

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.

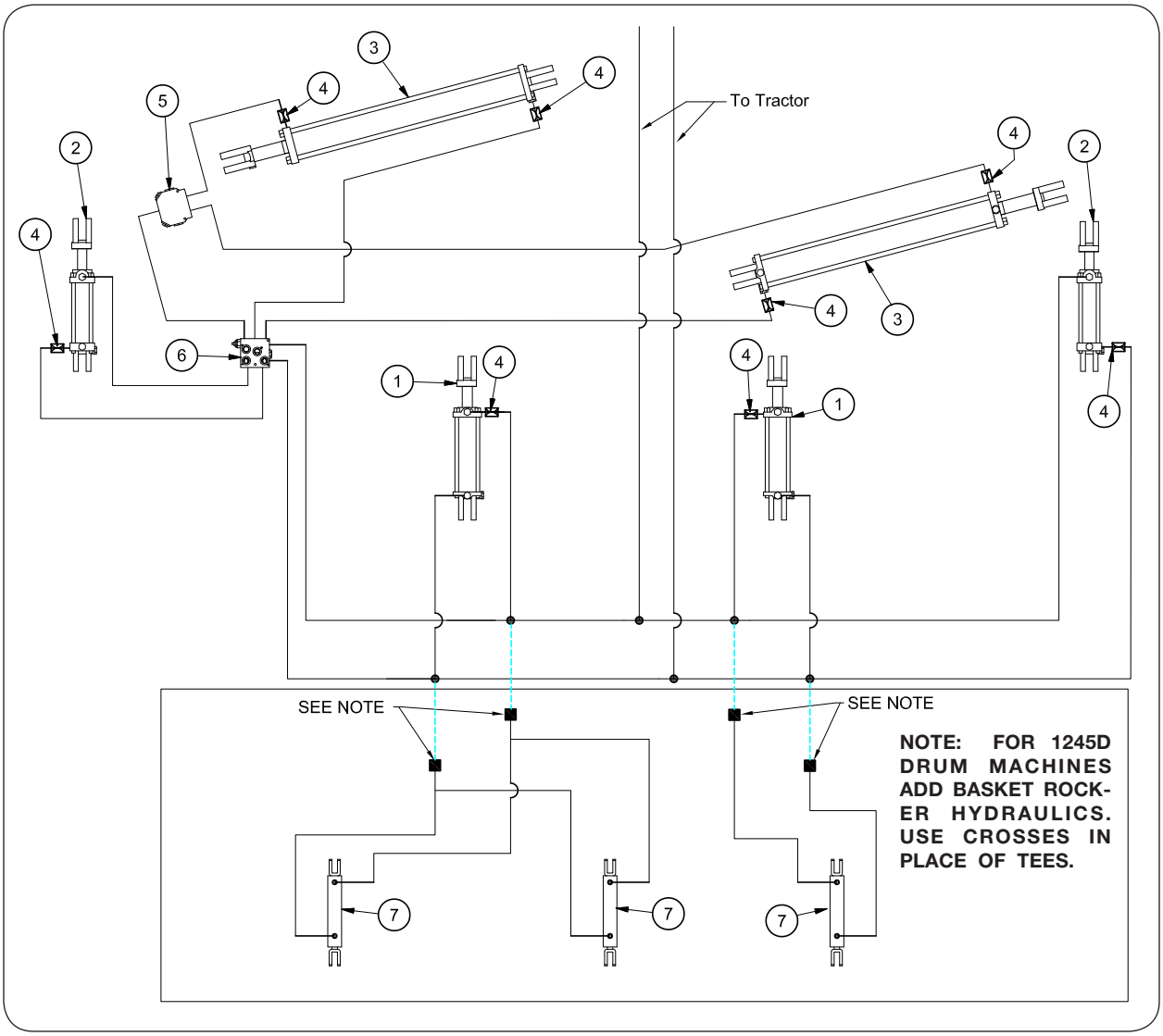
NOTE: It is recommend to adjust valves when hydraulic oil is at operating temperature.
NOTE: Recommended operating hydraulic flow is 8-15 gpm. Recommended operating hydraulic pressure is greater than 2,200 psi.

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 System (Continued)

HYDRAULIC DIAGRAM #1



ITEM	DESCRIPTION	QTY	NOTES
1	Base Wheel Cylinder	2	Cylinder 3 x 8
2	Wing Wheel Cylinder	2	Cylinder 2 1/2 x 6
3	Wing Fold Cylinder	2	Cylinder 4 x 30 or 4 1/2 x 30
4	Orifices	8	with 0.060" Restrictor
5	Hydraulic Flow Divider Valve	1	Located on LH side of base
6	Split Function Valve	1	Located on LH side of base
7	Rocker Cylinders	3	Cylinder 1 1/2 x 6

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 B. Orifice in wing-fold cylinders plugged	 A. Repair or replace cylinders. See PARTS section for cylinder or seal kit part numbers 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
Wings do not fold in sync.	A. Some discrepancy in wing fold is normal. B. For large discrepancy - check hose and valve routing.

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**.

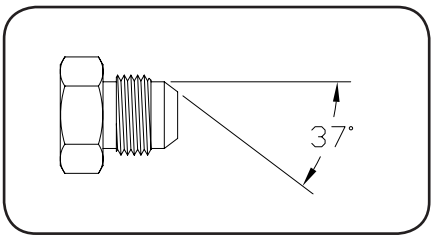
NOTE: Tighten U-bolts to have the same number of threads exposed on each end.

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

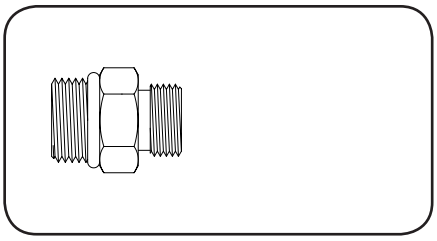
SAE FLARE CONNECTION (J. I. C.)

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.

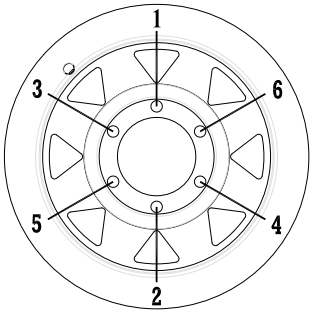


Diagram 1 - 6 bolt

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 (continued)

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:

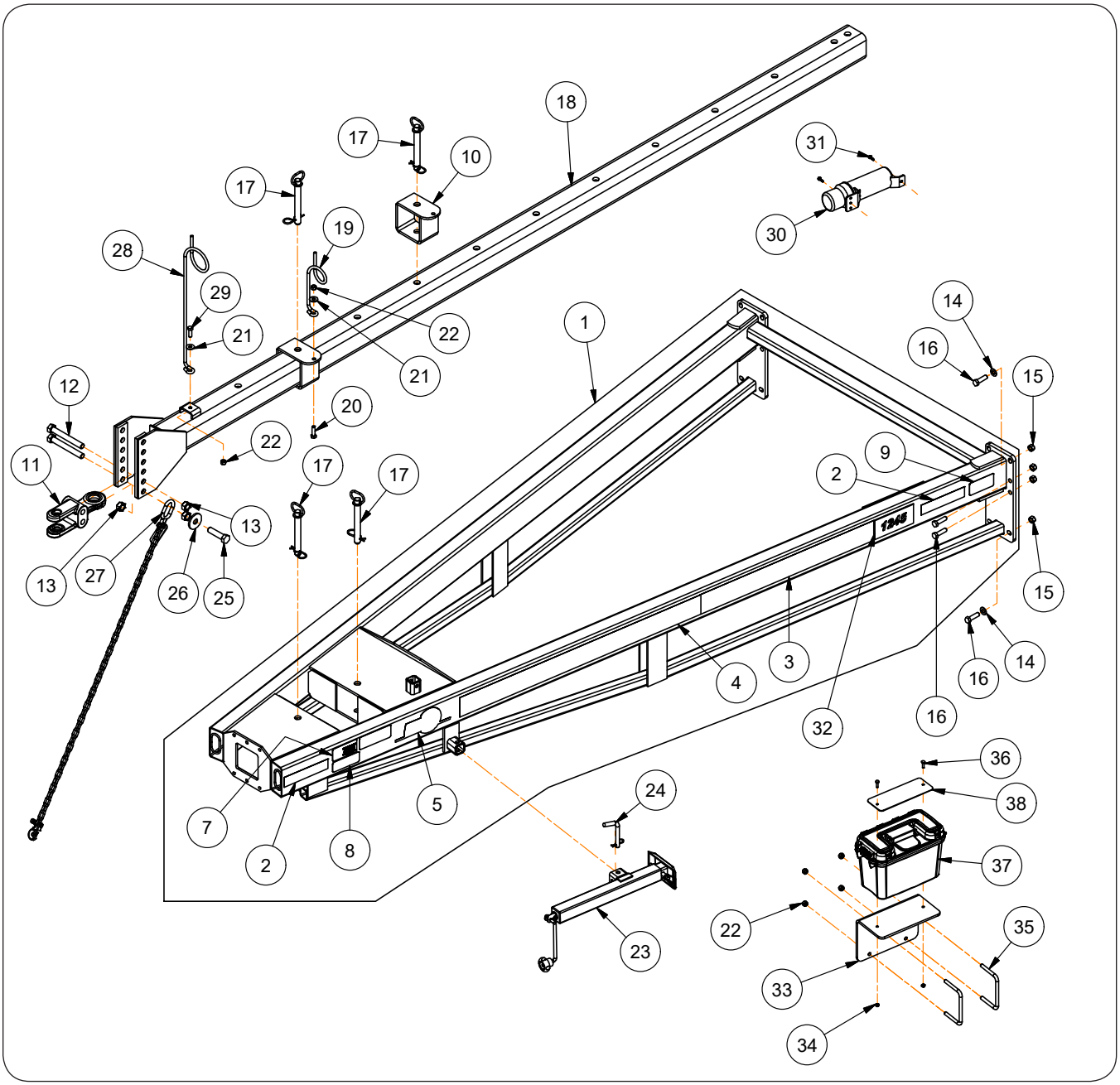
Carlisle
www.carlisletire.com
Phone 800-260-7959
Fax 800-352-0075

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

Notes

SECTION V
Parts

Hitch Components

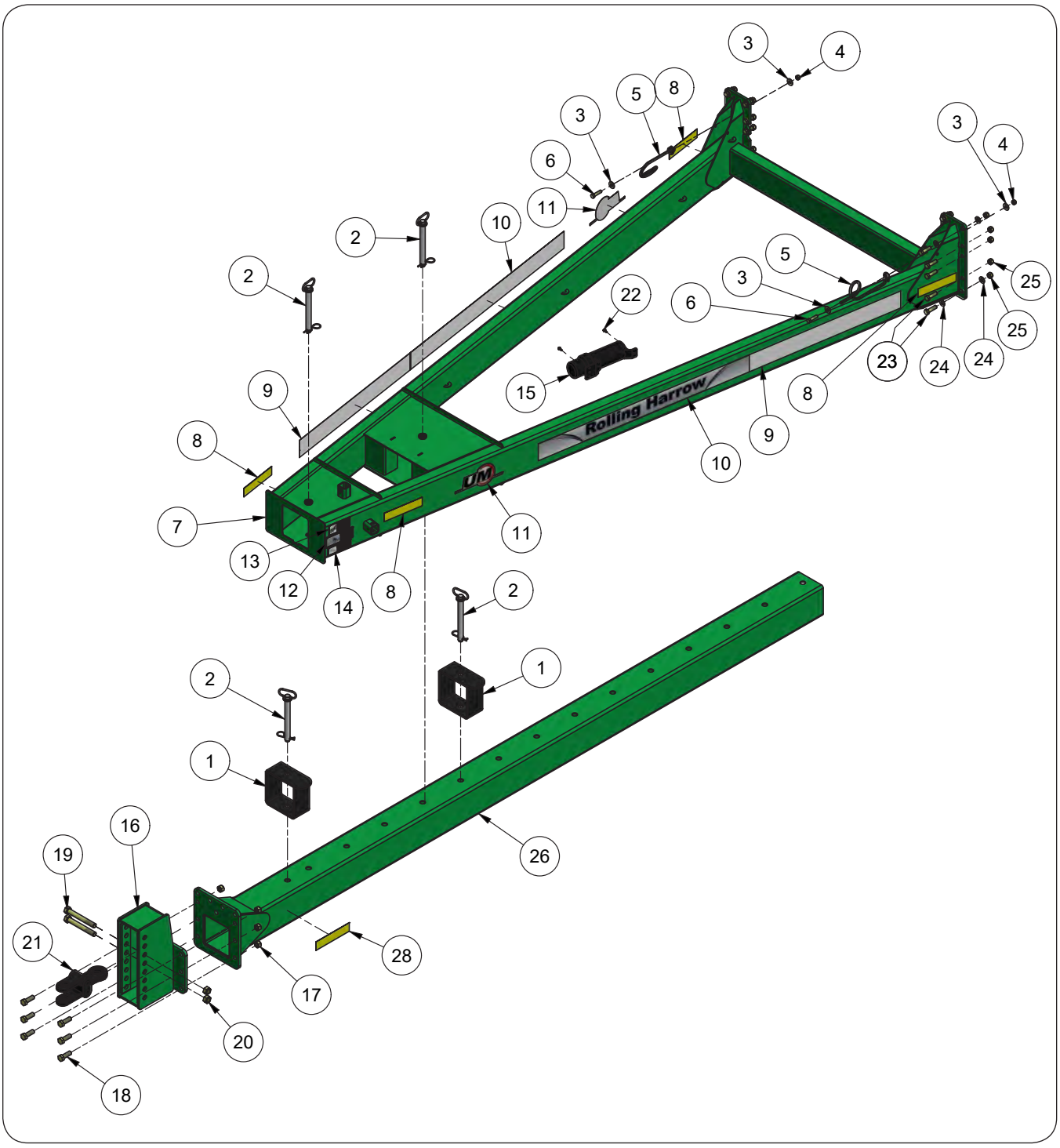


Hitch Components

ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
1	74287G	Hitch A-Frame Assembly w/Decals - Model 1245 (Green)	1	Includes Items 2 through 9
	74287R	Hitch A-Frame Assembly w/Decals - Model 1245 (Red)		
2	9003127	Reflector (Amber)	4	
3	900706	Decal, Stripe 36" Lg.	2	
4	901129	Decal, "ROLLING HARROW"	2	
5	901607	Decal, "UM"	2	
6	94094	Decal, "WARNING" (Rising or Falling Tongue)	1	
7	95445	Decal, "WARNING" (High Pressure Oil)	1	
8	97575	Decal, "CAUTION" (Always Use Transport Chain)	1	
9	98229	Decal, "WARNING" (Falling or Lowering Equipment)	1	
10	89045G	Stop Weldment =Green=	2	
	89045R	Stop Weldment =Red=		
11	83301B	Hitch Clevis	1	
12	9390-178	Capscrew 7/8-9UNC x 7"	2	Grade 5
13	91141	Locknut 7/8-9UNC	3	
14	9405-098	Flat Washer, 5/8	8	
15	9801	Locknut 5/8-11UNC	16	
16	9390-125	Capscrew 5/8-11UNC x 2 1/4"	16	Grade 5
17	93950	Hitch Pin 1" Dia. w/Hairpin	4	
18	88617G	Hitch Tube Assembly - 15' Base (Green)	1	
	88617R	Hitch Tube Assembly - 15' Base (Red)		
19	902979B	Hose Holder	1	
20	9390-102	Capscrew 1/2-13UNC x 1 3/4	1	Grade 5
21	9405-088	Flat Washer 1/2"	2	
22	9800	Locknut 1/2-13UNC	6	
23	901061	Jack 5000#	1	
24	84979	Bent Pin 5/8" Dia. x 4 w/Hairpin	1	
25	9390-170	Capscrew 7/8-9UNC x 3 1/2"	1	Grade 5
26	85723	Washer	1	
27	94098	Chain w/Hook	1	
28	9661	Hose Holder	1	
29	9390-101	Capscrew 1/2-13UNC x 1 1/2"	1	Grade 5
30	9512	Screw/Self Drilling 1/4-14x1	2	
31	900552	Manual Tube Holder	1	
32	9501232	Decal, "1245"	2	
33	77400B	Storage Box Mounting Bracket	1	
34	9807	Lock Nut/Top 5/16"-18UNC	2	
35	9502320	U-Bolt 1/2"-13UNC	2	
36	9390-030	Capscrew 5/16"-18UNC x 1" G5	2	
37	902456	Storage Box	1	
38	27741B	Strap	1	

Combination Hitch Components

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

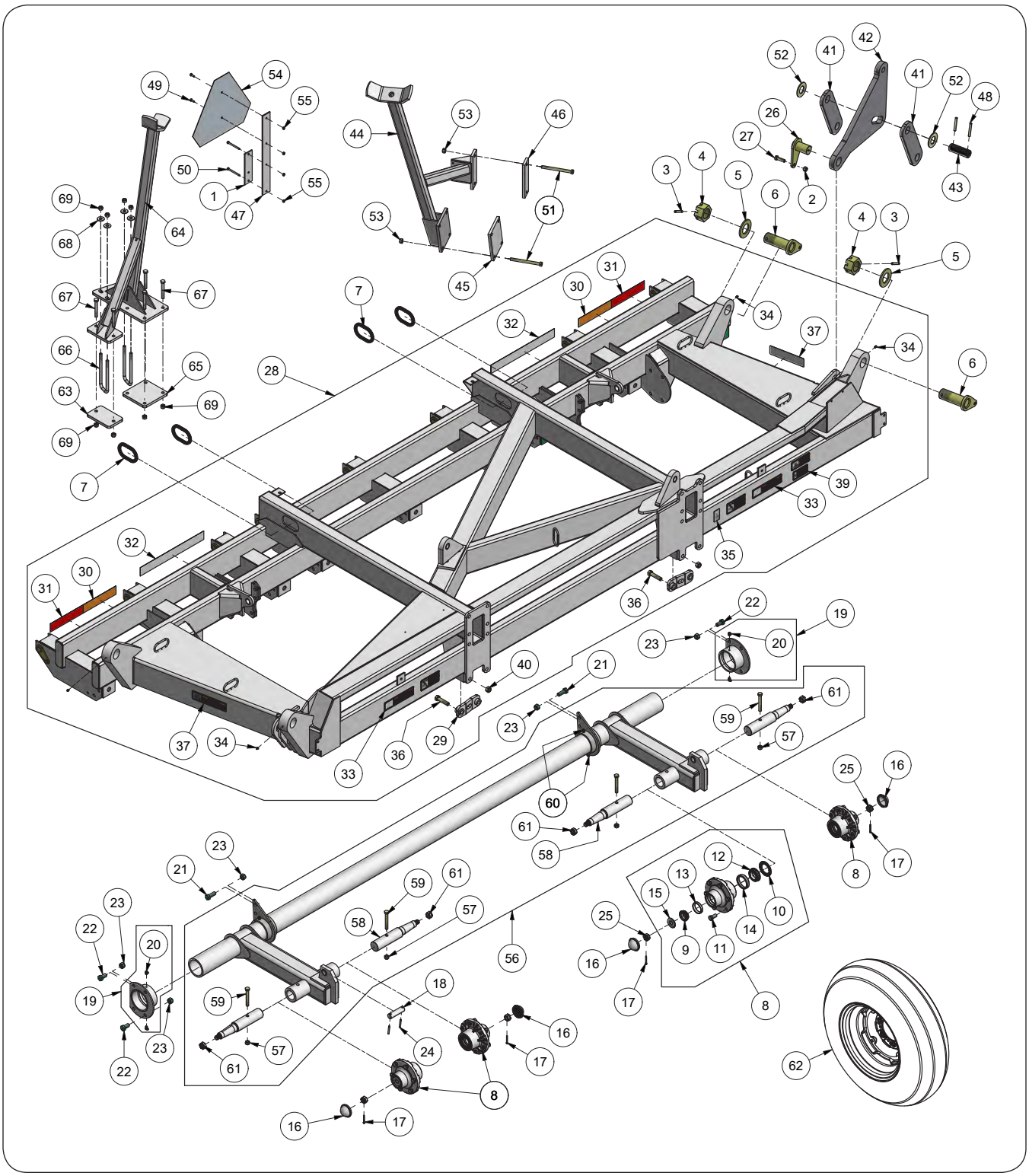


Combination Hitch Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	78085B	Stop Weldment =Black=	2	
2	9502801	Hitch Pin 1" Dia. w/Hairpin	4	
3	9405-088	Flat Washer 1/2"	4	
4	9800	Lock Nut, 1/2"-13UNC	2	
5	902979B	Hose Holder =Black=	2	
6	9390-103	Capscrew, 1/2"-13UNC x 2" G5	2	
7	78575G	Hitch A-Frame Assembly =Green=	1	Includes Items 8-14
	78575R	Hitch A-Frame Assembly =Red=		
8	9003127	Reflector 2 x 9 =Amber=	4	
9	900706	Decal, Stripe (4 x 36)	2	
10	901129	Decal, Rolling Harrow	2	
11	901607	Decal, UM Oval Logo	2	
12	94094	Decal, WARNING (Rising or Falling Tongue...)	1	
13	95445	Decal, WARNING (High-Pressure...)	1	
14	97575	Decal, CAUTION (Transport Chain)	1	
15	900552	Manual Holder	1	
16	78138G	Clevis Hitch Weldment =Green=	1	
	78138R	Clevis Hitch Weldment =Red=		
17	9802	Lock Nut, 3/4"-10UNC	6	
18	9390-146	Capscrew, 3/4"-10UNC x 2 1/4" G5	6	
19	9390-178	Capscrew, 7/8"-9UNC x 7" G5	2	
20	91141	Lock Nut, 7/8"-9UNC	2	
21	83301B	Hitch Clevis	1	
22	97420	Flange Screw, 1/4"-20UNC x 3/4"	20	
23	9390-125	Capscrew, 5/8"-11UNC x 2 1/4" G5	20	
24	9405-098	Flat Washer, 5/8" SAE	16	
25	9801	Lock Nut, 5/8"-11UNC	20	
26	79877G	Tongue Weldment w/Decal =Green=	1	Includes Item 28
	79877R	Tongue Weldment w/Decal =Red=		
27	9003127	Reflector 2 x 9 =Amber=	2	

Main Frame Components



Main Frame Components

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	64157B	Clamp Plate 2" x 7 1/4"	1	
2	9800	Locknut 1/2"-13UNC	2	
3	91144-210	Spiral Pin 3/8" Dia. x 2 3/4"	4	
4	9393-048	Slotted Nut 2-4.5 UNC	4	
5	9405-164	Flat Washer 2.125" ID	4	
6	88497	Pin Weldment 2" Dia. x 5 7/8"	4	
7	87754	U-Channel	4	
8	9500003B	Hub Assembly	4	Includes Items 9 through 15
9	9165	Bearing Cone #LM67048	1	
10	9230	Seal	1	
11	9231	Wheel Bolt 9/16-18UNF x 1 1/8	6	
12	9247	Bearing Cone #LM501349	1	
13	9345	Bearing Cup #LM67010	1	
14	9349	Bearing Cup #LM501310	1	
15	9234	Flat Washer (Hardened)	1	
16	9162	Hub Cap	4	
17	9391-035	Cotter Pin 5/32" Dia. x 1 1/2"	4	
18	85632	Pin 1" Dia. x 3 3/4"	4	
19	87274B	Bearing Housing with Zerks	2	Includes item 20
20	93415	90 Degree Zerk	2	
21	9390-123	Capscrew 5/8"-11UNC x 1 3/4"	6	
22	9390-121	Capscrew 5/8"-11UNC x 1 1/4"	8	
23	9801	Locknut 5/8"-11UNC	14	
24	91144-165	Spiral Pin 1/4"Dx1 7/8"	8	
25	9393-016	Slotted Nut 3/4"-16UNF Grade 2	4	
26	87862B	Base Link Pin Weldment	2	
27	91299-102	Capscrew 1/2"-13UNC x 1 3/4"	2	Grade 8

(Continued on next page)

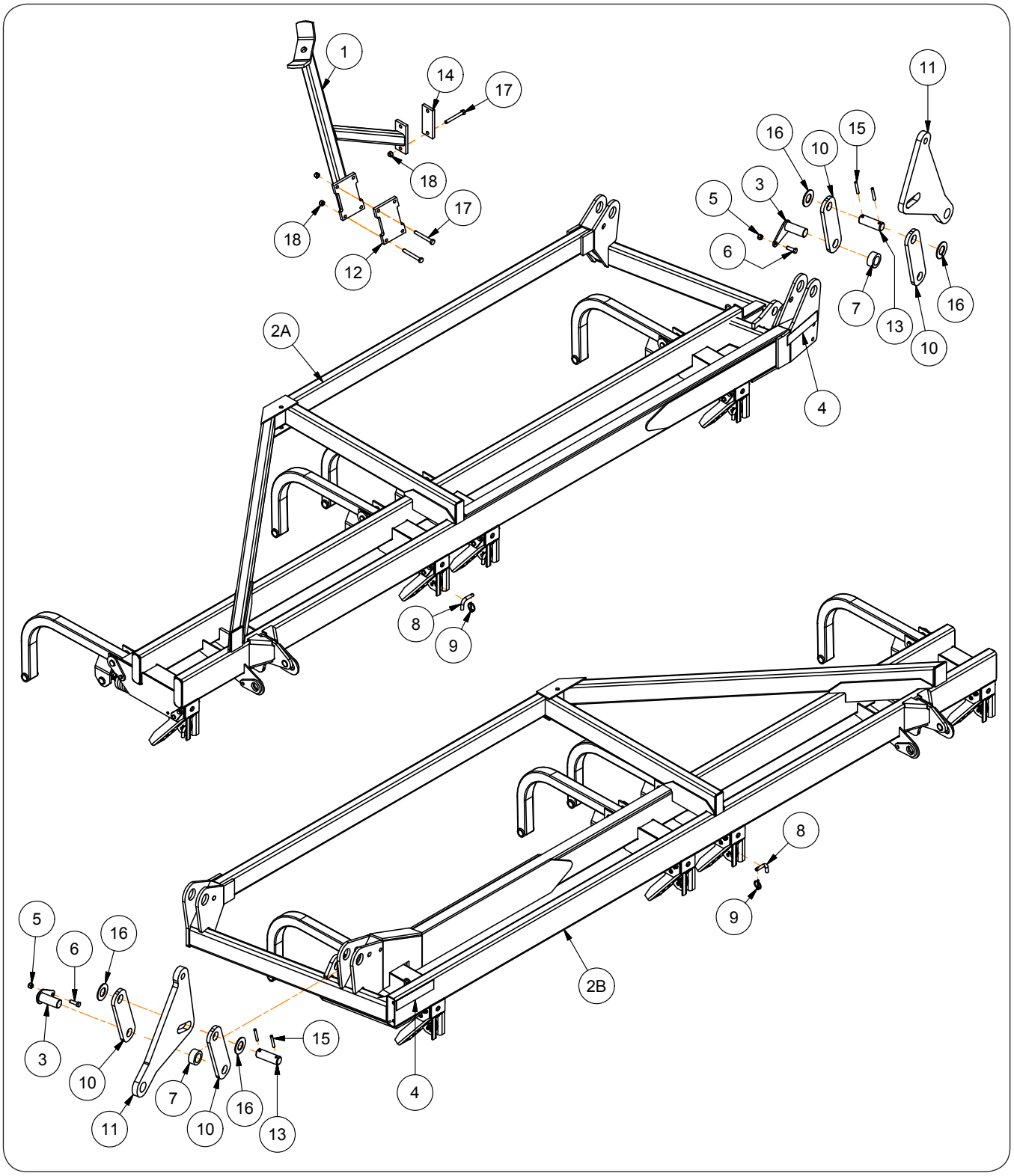
Main Frame Components (Continued)

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
28	74106G	Service Main Frame 15' Base =Green=	1	Includes Items 29 through 40
	74106R	Service Main Frame 15' Base =Red=		
29	74141B	Adapter Bracket =Black=		
30	9003125	Fluorescent Strip (Orange)	2	
31	9003126	Fluorescent Strip (Red)	2	
32	901576	Decal, Unverferth	2	
33	901891	Decal, "DANGER"	2	
34	91160	Grease Zerk	4	
35	91605	Decal FEMA	1	
36	9390-127	Capscrew 5/8"-11UNC x 2 3/4"	4	
37	95136	Decal, "WARNING" (Folding/Unfolding Wings...)	2	
38	95605	Decal, "WARNING" (Falling Equipment...)	1	
39	97961	Decal, "WARNING" (Manual...)	1	
40	9801	Locknut 5/8"-11UNC	4	
41	87705B	Plate/Fold Link	4	
42	87706B	Plate/Base Hinge Link	2	
43	87872B	Pin 1 1/2" Dia. x 4 3/8"	2	
44	87887B	Wing Stand RH Weldment	1	
45	87890B	Bar 6" x 10"	1	
46	87891B	Bar 2 1/2" x 7 13/16"	1	
47	88259B	Strip 2" x 18 3/4"	1	
48	91144-210	Spiral Pin 3/8" Dia. x 2 3/4"	4	
49	9390-003	Capscrew 1/4"-20UNC x 3/4"	2	
50	9390-013	Capscrew 1/4"-20UNC x 3" (Grade 5)	2	
51	9390-115	Capscrew 1/2"-13UNC x 6" (Grade 5)	6	
52	9405-140	Flat Washer 1 1/2"	4	
53	9800	Locknut 1/2"-13UNC	6	
54	9829	SMV Emblem	1	

Main Frame Components (Continued)

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
55	9936	Locknut 1/4"-20UNC	4	
56	88621B	Axle Assembly with Spindles	1	Includes Items 57 through 61
57	9800	Locknut 1/2"-13UNC	4	
58	88361	Spindle 2" Dia. x 12"	4	
59	9390-110	Capscrew 1/2"-13UNC x 3 3/4"	4	
60	93415	90 Degree Zerk	4	
61	9393-016	Slotted Nut 3/4"-16UNF Grade 2	4	
62	60911	Mounted Tire & Wheel Assembly =OFF WHITE=	4	
	60911SM	Mounted Tire & Wheel Assembly =SILVER MIST=		
	W815-6-08	Implement Wheel Only =OFF WHITE=	-	
	W815-6-08SM	Implement Wheel Only =SILVER MIST=		
	9002500	Valve Stem Only	-	
63	79247B	Plate, 1/2" x 4" x 6 1/4" =BLACK=	1	
64	79249B	Wing Rest Weldment =BLACK=	1	
65	79250B	Plate, 1/2" x 6 1/4" x 6 1/2" =BLACK=	1	
66	107289	U-Bolt, 1/2"-13UNC x 7 1/2", 2 5/8" C/C	2	
67	9390-110	Capscrew, 1/2"-13UNC x 3 3/4" G5	6	
68	9405-088	Flat Washer, 1/2" USS	4	
69	9800	Lock Nut/Top, 1/2"-13UNC	10	

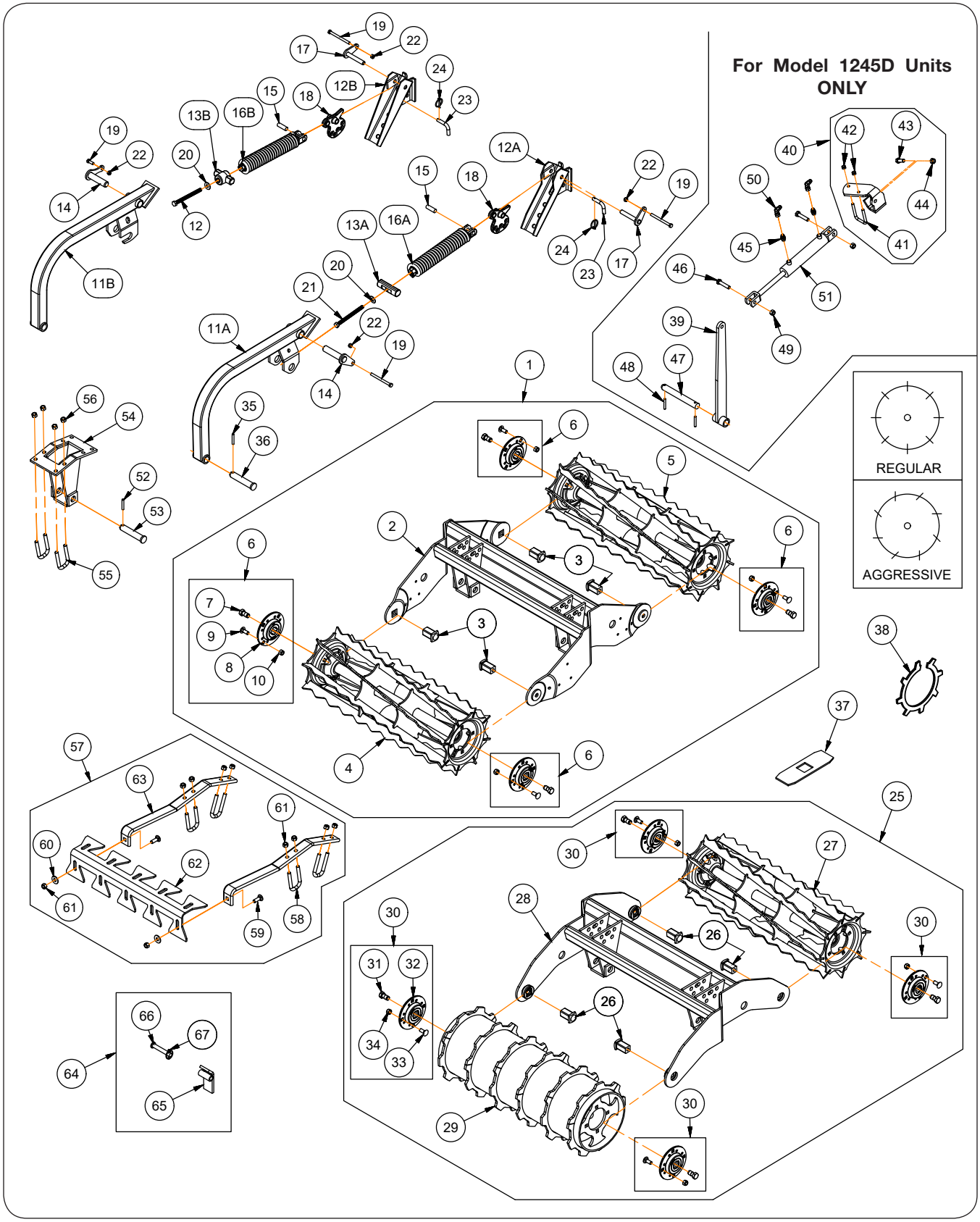
Wing Components



Wing Components

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
1	87884B	Wing Stand Left-Hand Weldment		
2A	76711G	Wing 12' RH Assembly =Green=	1	Includes Items 3 through 9
	76711R	Wing 12' RH Assembly =Red=		
	76713G	Wing 13' RH Assembly =Green=		
	76713R	Wing 13' RH Assembly =Red=		
	76715G	Wing 14' RH Assembly =Green=		
	76715R	Wing 14' RH Assembly =Red=		
	76716G	Wing 15' RH Assembly =Green=		
	76716R	Wing 15' RH Assembly =Red=		
2B	76710G	Wing 12' LH Assembly =Green=	1	Includes Items 3 through 9
	76710R	Wing 12' LH Assembly =Red=		
	76712G	Wing 13' LH Assembly =Green=		
	76712R	Wing 13' LH Assembly =Red=		
	76714G	Wing 14' LH Assembly =Green=		
	76714R	Wing 14' LH Assembly =Red=		
	76717G	Wing 15' LH Assembly =Green=		
	76717R	Wing 15' LH Assembly =Red=		
3	87867B	Wing Link Pin 1 1/2" Dia.	1	
4	9003127	Reflector (Amber)	1	
5	9800	Locknut 1/2-13UNC	1	
6	9390-101	Capscrew 1/2-13UNC x 1 1/2	1	
7	87864	Spacer	1	
8	902450	Bent Pin	4	
9	9093	Klik Pin 3/16" Dia.	4	
10	87705B	Plate/Fold Link	4	
11	87706B	Plate/Base Hinge Link	2	
12	79250B	Plate 6 1/4 x 6 1/2	1	
13	87872B	Pin 1 1/2 Dia. x 4 3/8	2	
14	79247B	Plate 4 x 6 1/4	1	
15	91144-210	Spiral Pin 3/8" Dia. x 2 3/4	4	
16	9405-140	Flat Washer 1 1/2	4	
17	9390-111	Capscrew 1/2-13UNC x 4	6	
18	9800	Locknut 1/2-13UNC	12	

Rolling Harrow Basket Components



Rolling Harrow Basket Components

ITEM	PART NO.	DESCRIPTION	NOTE
1	74602B	Basket & Frame 3' Assembly	
	74603B	Basket & Frame 4' Assembly	
	74581B	Basket & Frame 5' Assembly	
	74604B	Basket & Frame 6' Assembly	
2	74183B	Frame 3' Weldment	
	74184B	Frame 4' Weldment	
	74185B	Frame 5' Weldment	
	74076B	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	86096G	Bent Arm Weldt =Green=	
	86096R	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	

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Rolling Harrow Basket Components (continued)

ITEM	PART NO.	DESCRIPTION	NOTES
23	902450	Bent Pin	
24	9093	Klik Pin 3/16" Dia. x 1 9/16" w/Lock Ring	
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	
39	75930B	Link Weldment - Basket Rocker	
40	76495B	Cylinder Mount Weldment & Hardware	
41	9004680	U-Bolt 3/8"-16UNC x 3 1/4"	
42	9928	Locknut 3/8"-16UNC	
43	9390-101	Capscrew 1/2"-13UNC x 1 1/2"	
44	9800	Locknut 1/2"-13UNC	
45	9001495	Adapter 9/16-18 JIC Male x 9/16-18 JIC Male-O-Ring	
46	9390-104	Capscrew 1/2"-13UNC x 2 1/4"	
47	9501583	Pin 1" Dia. x 8 1/8"	
48	91144-186	Spiral Pin 5/16" Dia. x 2"	
49	9800	Locknut 1/2"-13UNC	
50	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	

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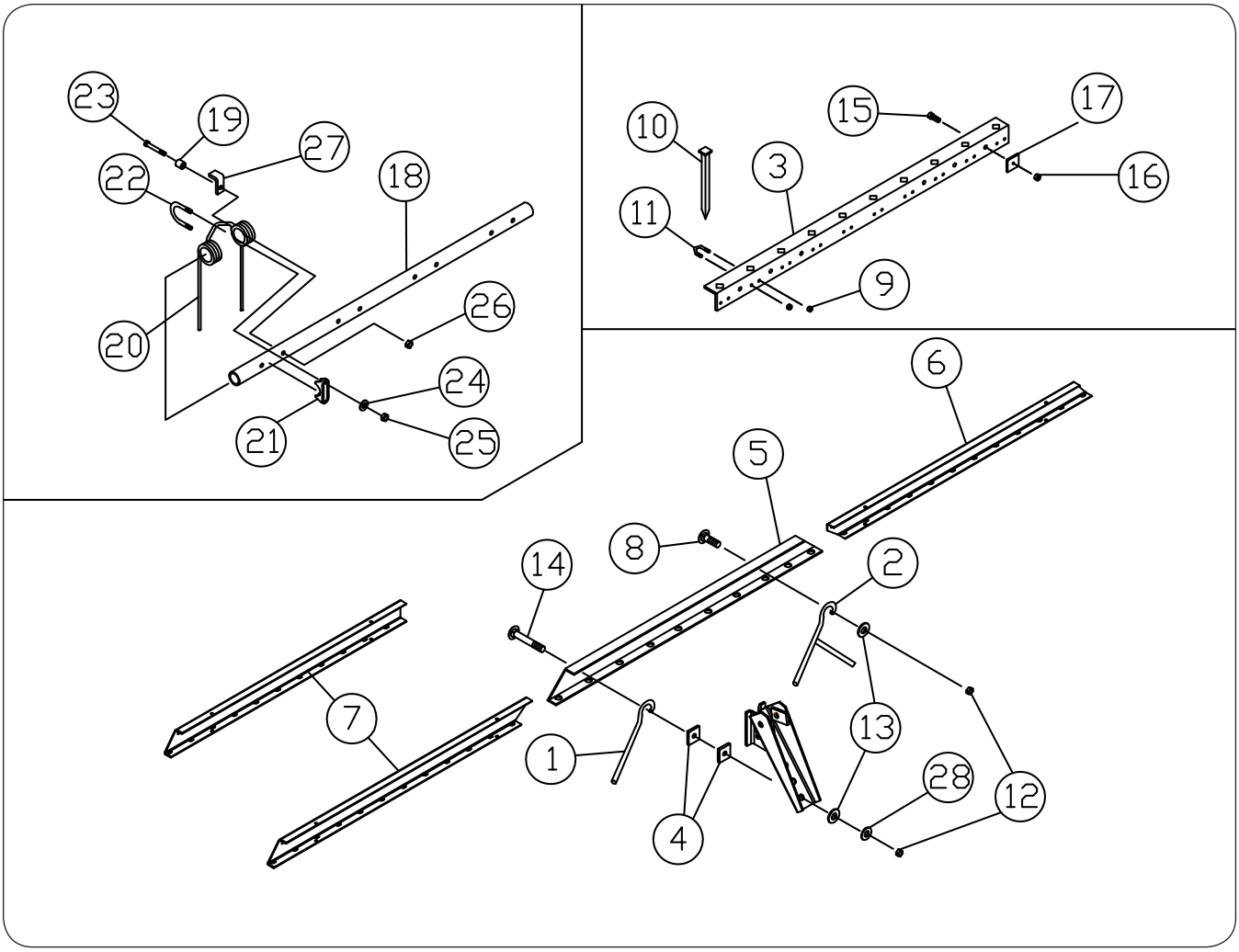
Rolling Harrow Basket Components (continued)

ITEM	PART NO.	DESCRIPTION	NOTES
51	TA0-904623-0	Hydraulic Cylinder 1 1/2 x 6	
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'	
	75599B	Drum Scraper 4'	
	75561B	Drum Scraper 5'	
	75600B	Drum Scraper 6'	
63	75564B	Drum Scraper Bar Mount	
64	77660B	Basket Pivot Limit Option (Pair)	
65	77042B	Basket Pitch Adjustment Bushing	
66	91523	Clevis Pin 5/8" Dia. x 4"	
67	9093	Klik Pin 3/16" Dia.	

Leveler Bar Components

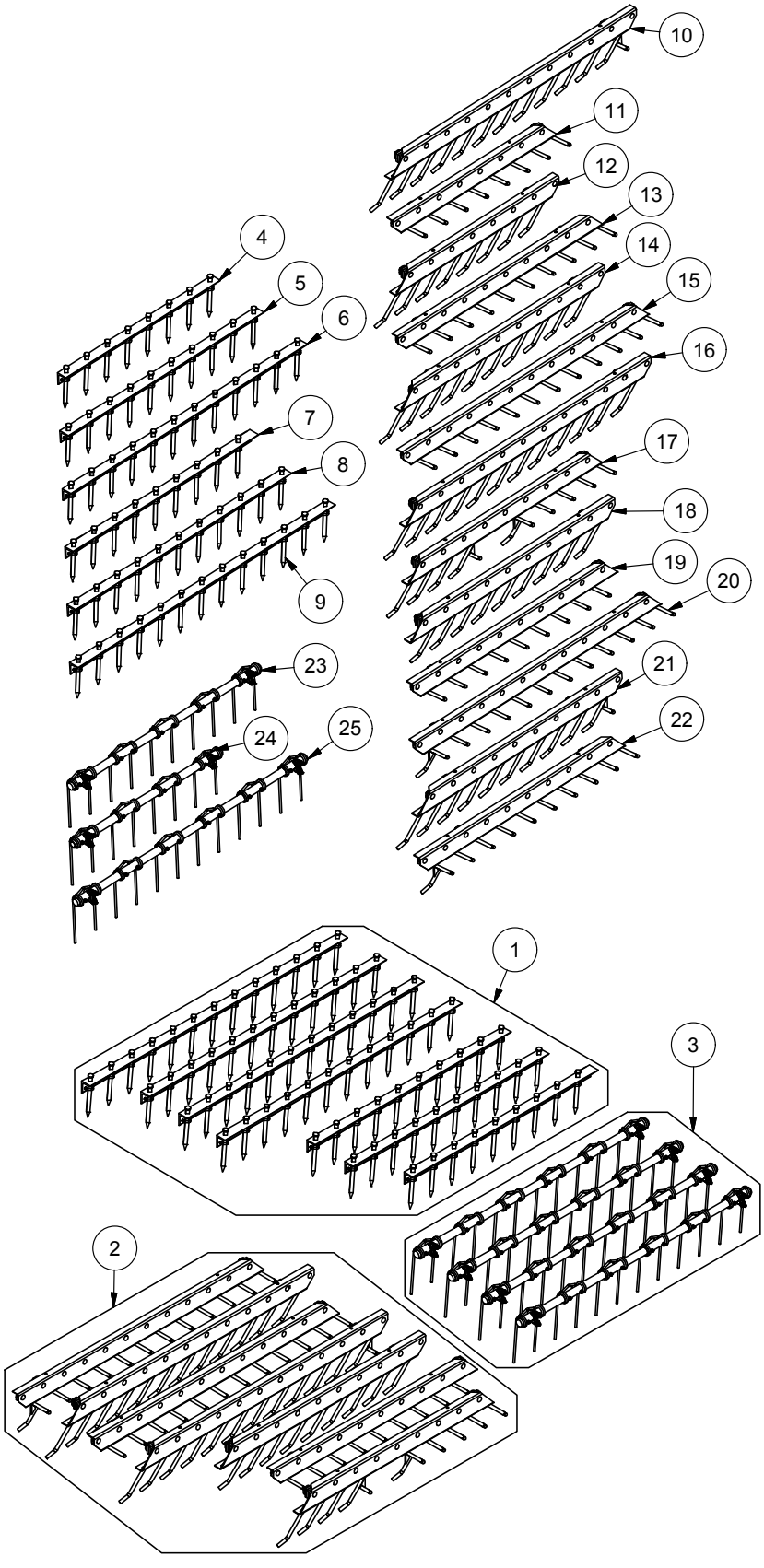


Leveler Bar Components

ITEM	PART NO.	DESCRIPTION
1	74672B	Tooth/Diagonal - Right-Hand
	74676B	Tooth/Diagonal - Left-Hand
2	74670B	Tooth/Diagonal "Y" - Right-Hand
	74671B	Tooth/Diagonal "Y" - Left-Hand
3	71185B	4 Ft. Spiked Tooth One-Bar
	72963B	4 1/2 Ft. Spiked Tooth One-Bar
	71186B	5 Ft. Spiked Tooth One-Bar
	72965B	5 1/2 Ft. Spiked Tooth One-Bar
	71580B	6 Ft. Spiked Tooth One-Bar
	72967B	6 1/2 Ft. Spiked Tooth One-Bar
4	3788B	Spacer/Washer
5	71255B	5 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 (For 5 Ft. & 5 1/2 Ft. Assemblies)
	72144B	6 Ft. Diagonal Tooth One-Bar Right-Half
7	71259B	4 Ft. Diagonal Tooth One-Bar Left-Hand
	71261B	5 Ft. Diagonal Tooth One-Bar Left-Hand (For 5 Ft. & 5 1/2 Ft. Assemblies)
	72147B	6 Ft. Diagonal Tooth One-Bar Left-Hand
8	9388-105	Carriage Bolt 1/2-13UNC x 1 3/4 (Grade 5)
9	9928	Locknut 3/8-16UNC
10	9634P	Spike Tooth
11	9635	V-Bolt 3/8-16UNC (Grade 2)
12	9800	Locknut 1/2-13UNC
13	91069B	Flat Washer 2" O.D.
14	9388-110	Carriage Bolt 1/2-13UNC x 3 (Grade 5)
15	9390-122	Capscrew 5/8-11UNC x 1 1/2 (Grade 5)
16	9801	Locknut 5/8-11UNC
17	83284	Washer
18	84478B	4 Ft. Tine One-Bar
	84477B	5 Ft. Tine One-Bar
	86570B	6 Ft. Tine One-Bar
19	84531	Tube/Bushing
20	84724	Spring/Coil Tine
21	84735B	Clamp
22	95914	U-Bolt 7/16-14UNC (2.12CC - Grade 5)
23	9390-062	Capscrew 3/8-16UNC x 2 3/4 (Grade 5)
24	9405-082	Flat Washer 7/16"
25	9799	Locknut 7/16-14UNC
26	9928	Top - Locknut 3/8-16UNC
	902875*	Center - Locknut 3/8-16 UNC
27	84837	Clip (Used Behind Wheels ONLY)
28	9405-088	Flat Washer 1/2"

*** When anti-rotation clip (84837) is used, center locknut (902875) is provided.**

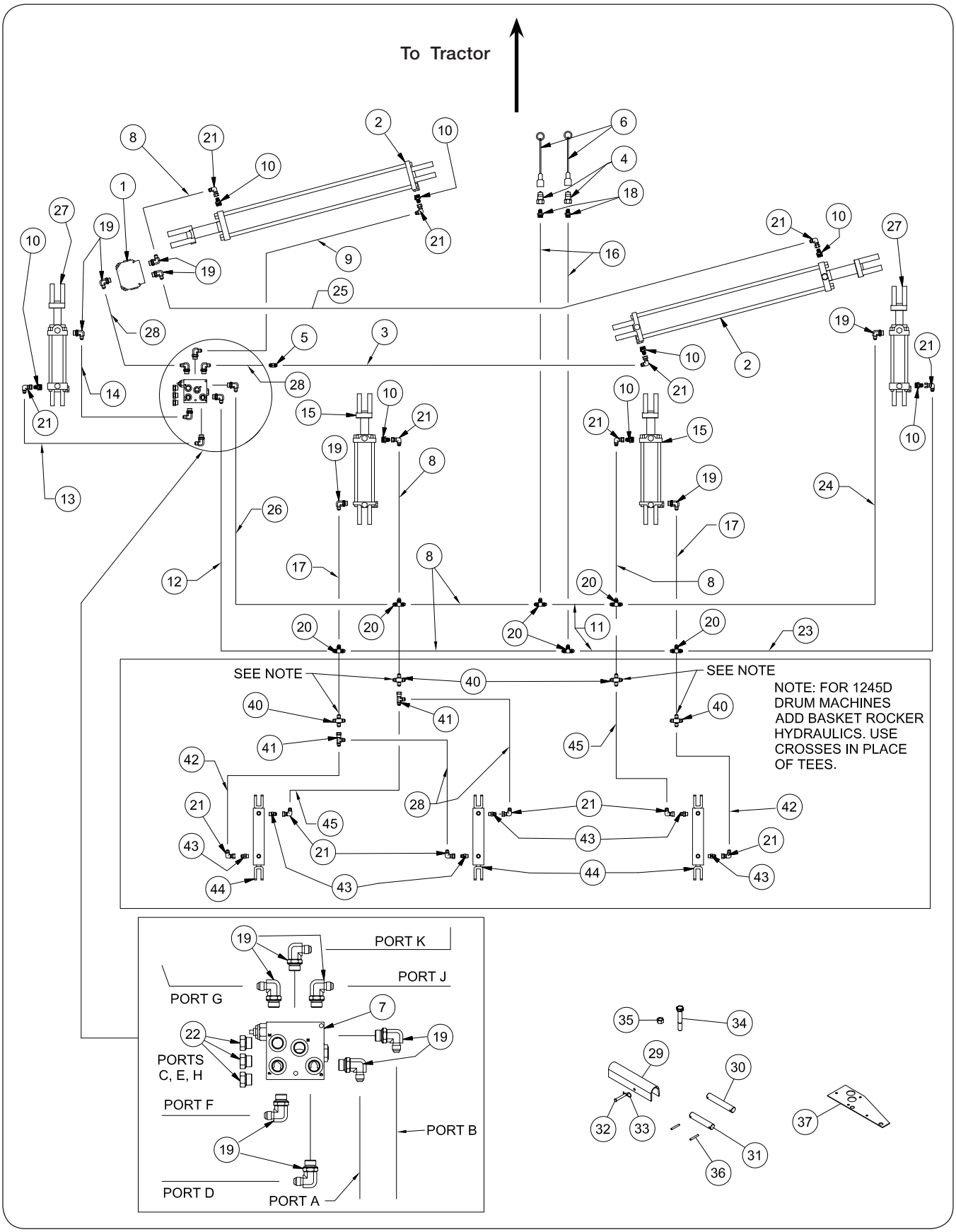
Leveler Bar Assemblies



Leveler Bar Assemblies

ITEM	PART NO.	DESCRIPTION
1	87929B	Straight Spike-Tooth One Bar Bundle for 39' Cross Fold (SHOWN)
	87930B	Straight Spike-Tooth One Bar Bundle for 41' Cross Fold
	87931B	Straight Spike-Tooth One Bar Bundle for 43' Cross Fold
	87932B	Straight Spike-Tooth One Bar Bundle for 45' Cross Fold
2	76856B	Diagonal-Tooth One Bar Bundle for 39' Cross Fold (SHOWN)
	76858B	Diagonal-Tooth One Bar Bundle for 41' Cross Fold
	76859B	Diagonal-Tooth One Bar Bundle for 43' Cross Fold
	76860B	Diagonal-Tooth One Bar Bundle for 45' Cross Fold
3	87934B	Coil-Tine One Bar Bundle 39' Cross Fold (SHOWN)
	87935B	Coil-Tine One Bar Bundle 41' Cross Fold
	87936B	Coil-Tine One Bar Bundle 43' Cross Fold
	87937B	Coil-Tine One Bar Bundle 45' 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	72964B	Straight Spike-Tooth One Bar 4 1/2' Assembly
8	72966B	Straight Spike-Tooth One Bar 5 1/2' Assembly
9	72968B	Straight Spike-Tooth One Bar 6 1/2' Assembly
10	74216B	Diagonal-Tooth One Bar 6' RH Y Assembly
11	74681B	Diagonal-Tooth One Bar 4' LH Assembly
12	74682B	Diagonal-Tooth One Bar 4' RH Assembly
13	74683B	Diagonal-Tooth One Bar 5' LH Assembly (10 Tooth)
14	74684B	Diagonal-Tooth One Bar 5' RH Assembly (10 Tooth)
15	74685B	Diagonal-Tooth One Bar 6' LH Assembly
16	74686B	Diagonal-Tooth One Bar 6' RH Assembly
17	74688B	Diagonal-Tooth One Bar 5' CTR Assembly
18	76908B	Diagonal-Tooth One Bar 5' LH Assembly (9 Tooth)
19	76909B	Diagonal-Tooth One Bar 5' LH Assembly (9 Tooth)
20	76910B	Diagonal-Tooth One Bar 6' LH Y Assembly
21	76911B	Diagonal-Tooth One Bar 5 1/2' RH Y Assembly
22	76912B	Diagonal-Tooth One Bar 5 1/2' LH Y Assembly
23	84480	Coil-Tine One Bar 5' Assembly
24	84481	Coil-Tine One Bar 4' Assembly
25	86569B	Coil-Tine One Bar 6' Assembly

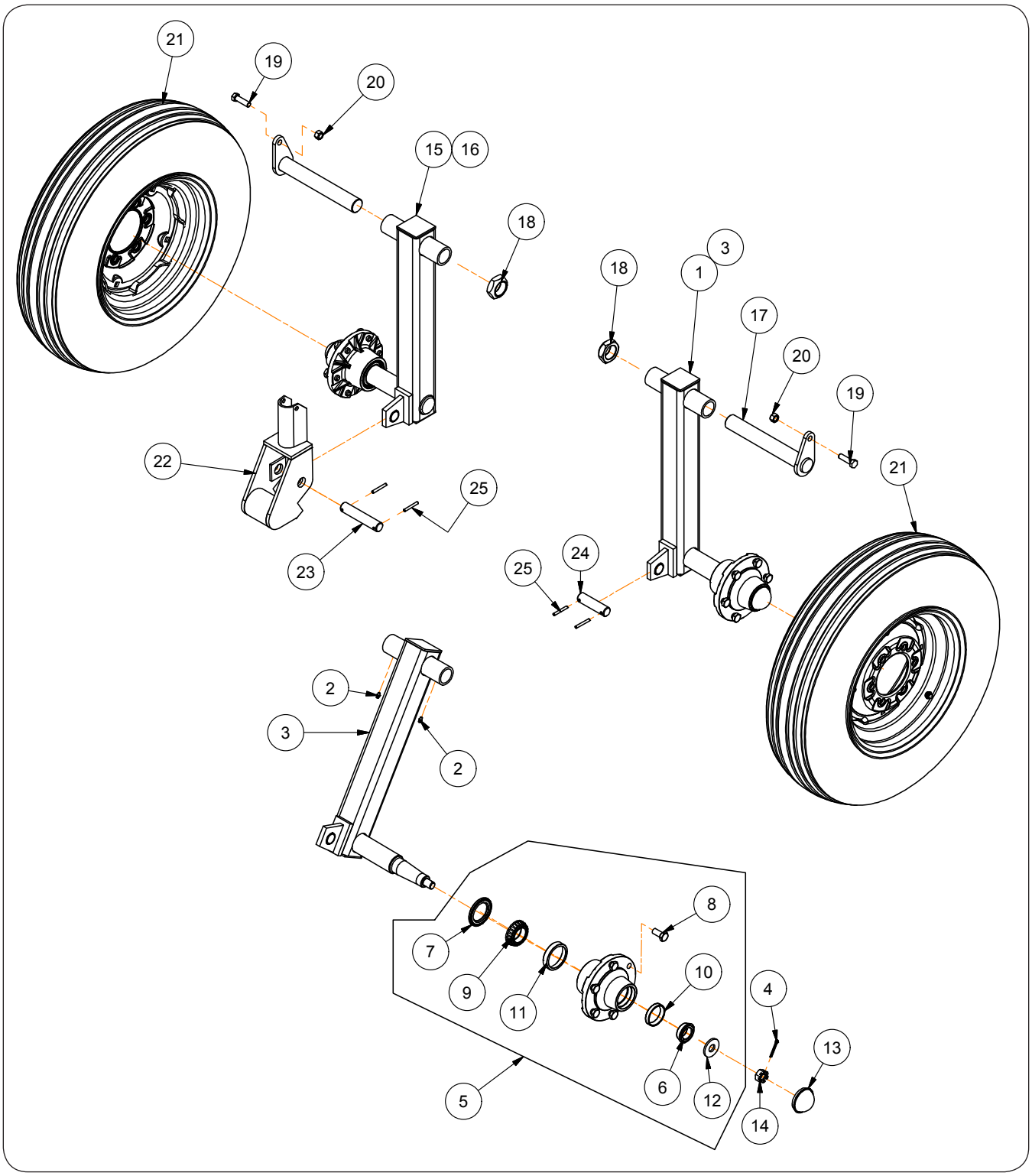
Standard Hydraulic Components



Standard Hydraulic Components

ITEM	PART NO	DESCRIPTION	QTY
1	9002931	Hydraulic Flow Divider Valve	1
2	901283	Hydraulic Cylinder 4 x 30 (3000 PSI) (Model 1245)	2
	95407	Seal Kit for Cylinder 4 x 30	-
	75862B	Hydraulic Cylinder 4 1/2 x 30 (3000 PSI) (Model 1245D)	2
	9502596	Seal Kit for Cylinder 4 1/2 x 30	-
3	9501687	Hose 3/8 x 96 (3000 PSI)	1
4	91383	Male Tip Coupling 3/4-16 O-Ring Female Thread (3000 PSI)	2
5	92295	Adapter 9/16-18 JIC Male x 9/16-18 JIC Male	1
6	91511	Dust Cap	2
7	9500379	Split Function Sequence Valve	1
8	9501680	Hose 3/8 x 26 (3000 PSI)	5
9	9501683	Hose 3/8 x 44 (3000 PSI)	1
10	91608	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male Boss w/.060" Restrictor	8
11	9501685	Hose 3/8 x 80 (3000 PSI)	2
12	9501686	Hose 3/8 x 86 (3000 PSI)	1
13	9501689	Hose 3/8 x 186 (3000 PSI)	1
14	9501690	Hose 3/8 x 198 (3000 PSI)	1
15	95397	Cylinder 3 x 8 (3000 PSI)	2
	95398	Seal Kit	-
16	9501693	Hose 3/8 x 420 (3000 PSI)	2
17	9501678	Hose 3/8 x 11 (3000 PSI)	2
18	92927	Adapter 9/16-18 JIC male x 3/4-16 O-Ring Male	2
19	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	14
20	9875	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	6
21	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	9/12
22	93657	Plug	6
23	9501691	Hose 3/8 x 228 (3000 PSI)	1
24	9501692	Hose 3/8 x 239 1/2 (3000 PSI)	1
25	9501688	Hose 3/8 x 140 (3000 PSI)	1
26	9501684	Hose 3/8 x 68 (3000 PSI)	1/3
27	95410	Cylinder 2 1/2 x 6 (3000 PSI)	2
	95388	Seal Kit	-
28	9501679	Hose 3/8 x 22 (3000 PSI)	2
29	80080	Stop (For Main Frame Wheel Cylinders)	2
30	85631	Pin 1" Dia. x 4 (For Wing Fold Rod End Cylinders ONLY)	2
31	85632	Pin 1" Dia. x 3 3/4	9
32	9828	Clevis Pin 3/8" Dia. x 2 1/2 (For Main Frame Wheel Cylinders)	2
33	9514	Hairpin Cotter (For Main Frame Wheel Cylinders)	2
34	9390-011	Capscrew 1/4-20UNC x 2 1/2 (For Mounting Flow Divider Valve)	4
35	9936	Locknut 1/4-20UNC (For Mounting Flow Divider Valve)	4
36	91144-165	Spiral Pin 1/4" Dia. x 1 7/8	24
37	74490B	Mounting Plate for Split Function Valve	-
38	9840	"O"-Ring (For Repairs ONLY - NOT SHOWN)	-
39	75884	Velcro Hose Wrap - NOT SHOWN)	2
40	9002273	Cross 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	4
41	91465	Tee 9/16-18 JIC Male x 9/16-18 JIC Female x 9/16-18 JIC Male	2
42	9501682	Hose 3/8 x 42 (3000 PSI)	2
43	9001495	Adapter 9/16-18 JIC Male x 9/16-18 O-Ring Male	6
44	TA0-904623-0	Cylinder 1 1/2 x 6 (3000 PSI)	3
45	9501681	Hose 3/8 x 36 (3000 PSI)	2

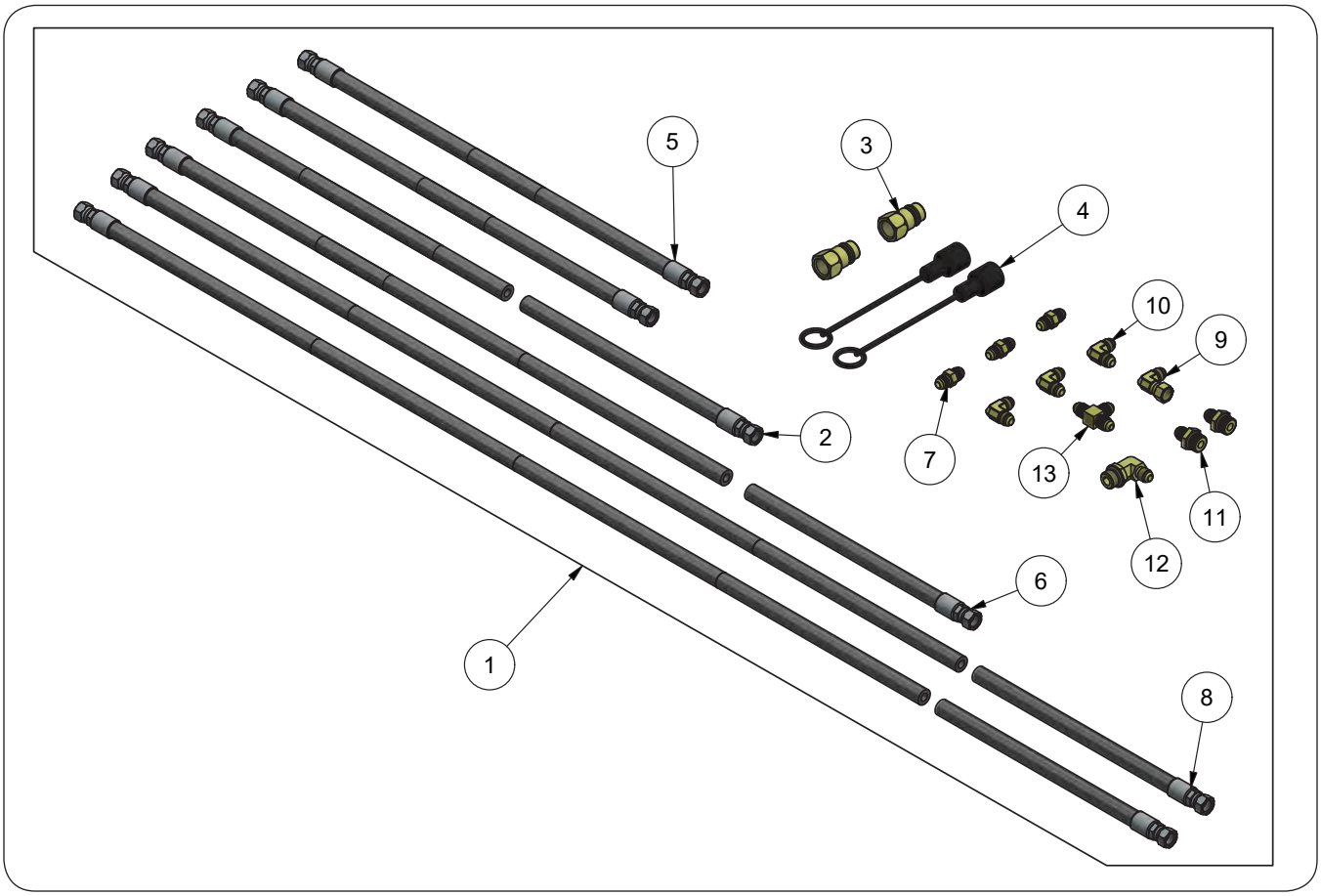
Wing Gauge Wheel & Hub Components



Wing Gauge Wheel & Hub Components

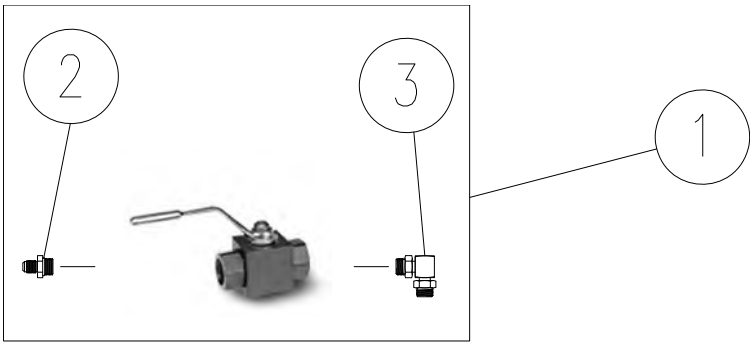
ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
1	73112B	Gauge Wheel LH Assembly	1	Includes Items 2 through 14
2	91160	Grease Zerk 1/4-28	4	
3	73110B	Axle LH Weldment	1	
4	9391-035	Cotter Pin 5/32" Dia. x 1 1/2	2	
5	9500003B	Hub Assembly	2	Includes Items 6 through 11
6	9165	Bearing Cone #LM67048	2	
7	9230	Seal	2	
8	9231	Wheel Bolt 9/16-18UNF x 1 1/8	12	
9	9247	Bearing Cone #LM501349	2	
10	9345	Bearing Cup #LM67010	2	
11	9349	Bearing Cup #LM501310	2	
12	9234	Flat Washer	2	
13	9162	Hub Cap	2	
14	9393-016	Slotted Nut 3/4-16UNF	2	
15	73113B	Gauge Wheel RH Assembly	1	Includes Items 2, 4 though 14, & 16
16	73111B	Axle RH Weldment (NOT SHOWN)	1	
17	89261	Pin Weldment & Nut (Includes Item #24)	2	
18	9397-022	Elastic Jam Nut 1 1/2-12UNF	2	
19	9390-102	Capscrew 1/2-13UNC x 1 3/4	2	
20	9800	Locknut 1/2-13UNC	2	
21	81145	Mounted Tire & Wheel (7.6-15 8-Ply Tire) (Includes Valve Stem) =OFF WHITE=	2	
	81145SM	Mounted Tire & Wheel (7.6-15 8-Ply Tire) (Includes Valve Stem) =SILVER MIST=		
	W615-6	Implement Wheel Only =OFF WHITE=	-	
	W615-6SM	Implement Wheel Only =SILVER MIST=		
	9002500	Valve Stem Only	-	
22	88035B	Gravity Latch Weldment	1	
23	88038	Pin 1" Dia. x 5 1/8	1	
24	85632	Pin 1" Dia. x 3 3/4	1	
25	91144-165	Spiral Pin 1/4" Dia. x 1 7/8	4	

Optional Dual Hydraulic Kit #87922FS



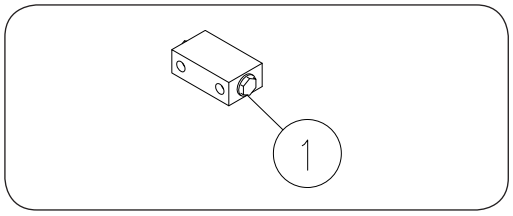
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	87922	Dual Hydraulic Kit		
2	9501684	Hose 3/8 x 68	1	
3	91383	Male Tip Coupling	2	
4	91511	Dust Cap	2	
5	9501680	Hose 3/8 x 26	2	
6	9501686	Hose 3/8 x 86	1	
7	92295	Adapter 9/16-18 JIC Male x 9/16-18 JIC Male	3	
8	9501693	Hose 3/8 x 420	2	
9	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	1	
10	9897	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Male	3	
11	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	2	
12	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	1	
13	9875	Union Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	1	

Optional Wing Fold Lock-Out Kit (87923)



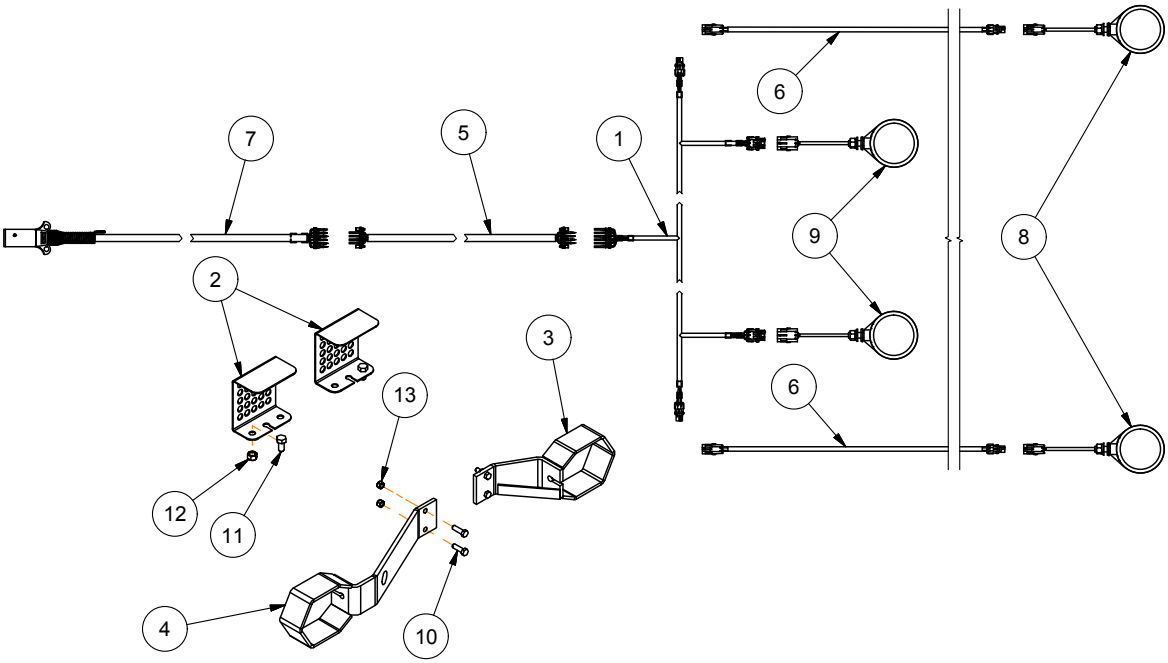
ITEM	PART NO.	DESCRIPTION
1	87923	Wing Fold Lock-Out Kit
2	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male
3	TA0-924696-0	90° Elbow 3/4-16 O-Ring Male x 3/4-16 O-Ring Male

Optional Lock/Check Valve



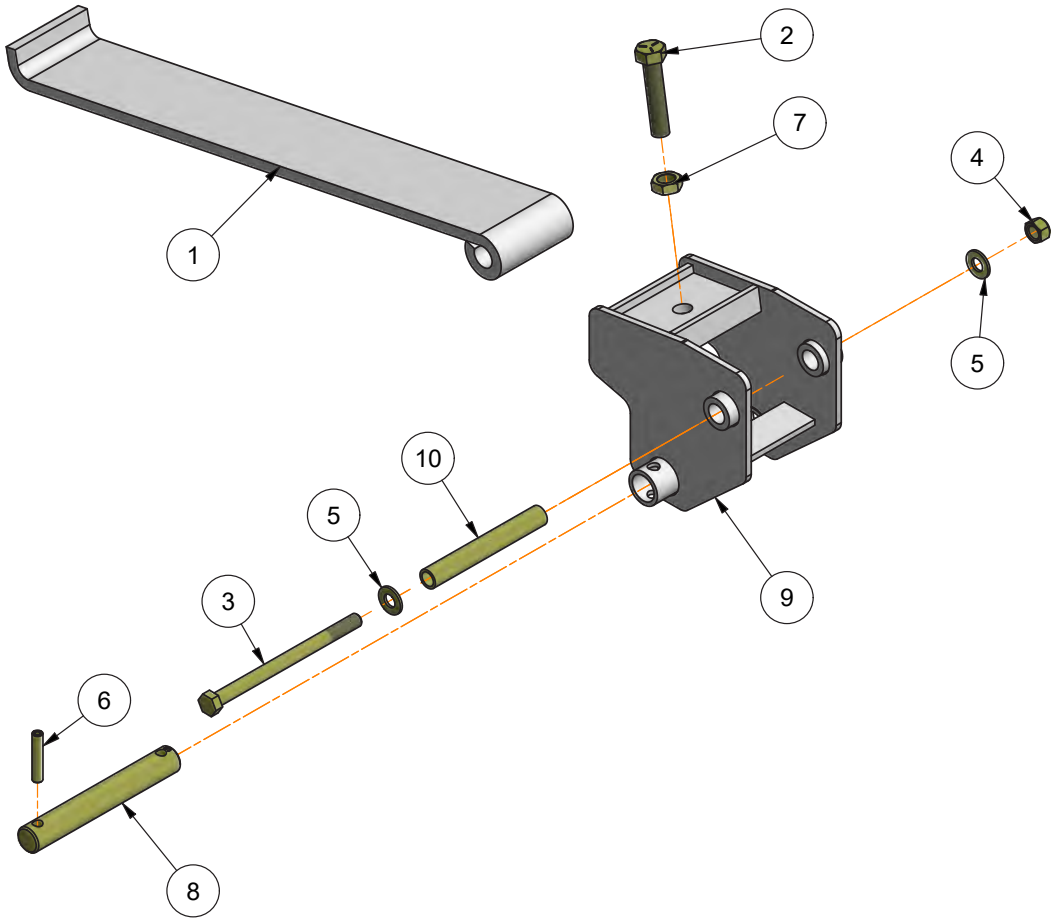
ITEM	PART NO.	DESCRIPTION	NOTES
1	91240	Lock/Check Valve	Connecting Rolling Harrow to lead machine that uses rephase hydraulics

Transport Marking & Light Kit (89110B)



ITEM	PART NO.	DESCRIPTION	NOTES
	89110B	Lights/Transport Marking Package	
1	22790	Wiring Harness/132" 3-T	
2	73338B	Light Bracket	
3	73433B	LH Light Bracket	
4	73434B	RH Light Bracket	
5	86467	Wiring Extension 120" - 6 Pin	
6	86700	Wiring Extension 120" - 2 Pin	
7	89467	Main Wiring Harness/336"	
8	9003876	Light - Amber	
9	9003877	Light - Red	
10	9390-056	Capscrew 3/8 x 1 1/4 UNC	Grade 5
11	9390-099	Capscrew 1/2 x 1 UNC	Grade 5
12	9800	Top Lock 1/2	
13	9928	Top Lock 3/8	

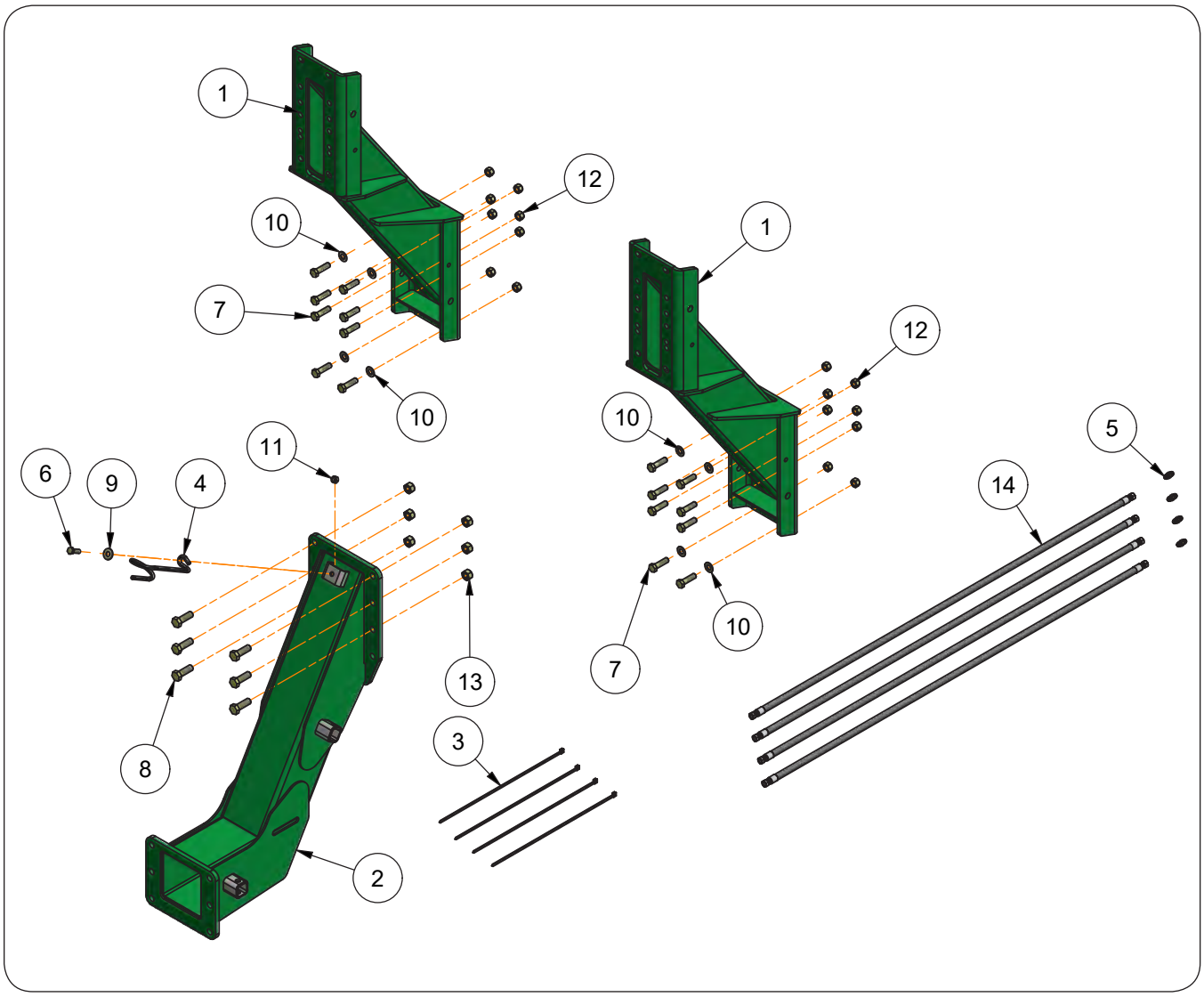
Main Frame Weight Transfer Option (Kit #79779B)



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
	78061B	Weight Transfer Assembly	-	Includes Items 1-10
1	31976B	Spring	1	
2	97601	Capscrew, 5/8"-11UNC x 3" G5	1	
3	9390-117	Capscrew, 1/2"-13UNC x 7" G5	1	
4	9800	Lock Nut/Top, 1/2"-13UNC	1	
5	9405-086	Flat Washer, 1/2" SAE	2	
6	91144-207	Spiral Pin, 3/8" Dia. x 2"	1	
7	9395-014	Hex Jam Nut, 5/8"-11UNC	1	
8	88376	Pin, 1" Dia. x 7"	1	
9	78055B	Spring Mount Weldment	1	
10	31975	Spacer Tube	1	

Gooseneck Hitch Components — Cross Fold Model

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



Gooseneck Hitch Components — Cross Fold Model

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

ITEM	PART NUMBER	DESCRIPTION	NOTES
1	78045G	Gooseneck Extension Weldment =Green=	
	78045R	Gooseneck Extension Weldment =Red=	
2	78157G	Gooseneck Drop-down Hitch Weldment =Green=	
	78157R	Gooseneck Drop-Down Hitch Weldment =Red=	
3	9000104	Cable Tie 21 1/2"	
4	902979B	Hose Holder =Black=	
5	92295	Adapter, 9/16"-18 JIC Male x 9/16"-18 JIC Male	
6	9390-101	Capscrew, 1/2"-13UNC x 1 1/2" G5	
7	9390-125	Capscrew, 5/8"-11UNC x 2 1/4" G5	
8	9390-146	Capscrew, 3/4"-10UNC x 2 1/4" G5	
9	9405-088	Flat Washer 1/2"	
10	9405-098	Flat Washer, 5/8" SAE	
11	9800	Lock Nut, 1/2"-13UNC	
12	9801	Lock Nut, 5/8"-11UNC	
13	9802	Lock Nut, 3/4"-10UNC	
14	9504072	Hydraulic Hose, 3/8" Dia. x 66" (9/16"-18 JIC Female x 9/16"-18 JIC Female)	

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