



**UM** **Seedbed Tillage**

**CROSS-FOLD ROLLING HARROW®  
1645/1645D**

**26-40 Ft. Models  
Soil Conditioner**

Beginning with Serial Number A62300100

Part No. 75469

## Foreword



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

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

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

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



**Product Information**

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

- Machine name
- Serial number

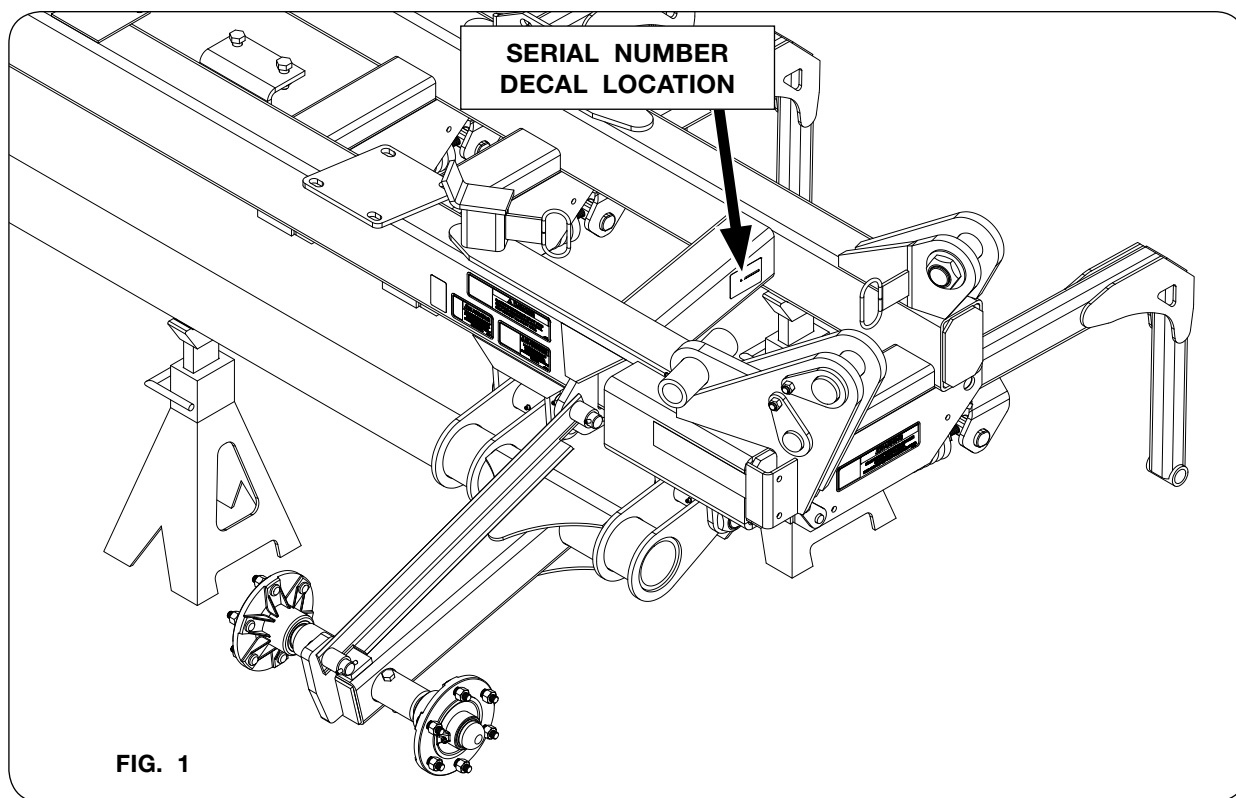
All products manufactured by Unverferth Mfg. Co., Inc. are warranted to be free from material and workmanship defects for one full year from time of consumer delivery. Your local dealer will gladly assist you with any warranty questions.

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

Purchase Date \_\_\_\_\_ Model \_\_\_\_\_ Serial Number \_\_\_\_\_

Dealer \_\_\_\_\_ City \_\_\_\_\_

Dealer Contact \_\_\_\_\_ Phone \_\_\_\_\_



**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**

Foreword ..... 2  
Product Information ..... 3

**SECTION I**  
**Safety**

General Hazard Information ..... 1-2  
Safety Decals ..... 1-3  
Following Safety Instructions ..... 1-4  
Before Servicing or Operating ..... 1-4  
During Operation ..... 1-5  
Before Transporting ..... 1-5  
During Transport ..... 1-6  
Pressurized Oil ..... 1-6  
Preparing for Emergencies ..... 1-7  
Wearing Protective Equipment ..... 1-7

**Table of Contents**

# **SECTION II**

# **Set Up**

General Set Up Information.....	2-2
12' Base Shipping Bundles.....	2-3
12' Base, 7-14' Wing Shipping Bundles .....	2-4
Optional Shipping Bundles & Accessories.....	2-6
Main Frame/Tire & Wheel .....	2-7
Hitch.....	2-9
Jack .....	2-10
Transport Chain.....	2-12
Hose Holders .....	2-13
Bolt-On Truss Assembly.....	2-14
Wings .....	2-15
Wing Lift Wheel Assembly.....	2-18
SMV Emblem .....	2-19
Transport Cylinder Stops .....	2-20
Hydraulic Assembly.....	2-20
Hose Routing Diagrams.....	2-21
Purging A Hydraulic System.....	2-25
Weight Transfer System Initial Settings .....	2-27
Wing Stands .....	2-28
Transport Marking & Light Kit.....	2-30
Lights.....	2-30
Transport Markings.....	2-32
Wiring Harness .....	2-33
Drum Scraper Assembly.....	2-35
Basket/Drum & Frame Assembly.....	2-36
Attach Storage Box .....	2-38
Optional Pilot Check Valve (Part #91240).....	2-39
Optional Dual Hydraulic Kit #73173 .....	2-40
Gooseneck Hitch Assembly (Optional) .....	2-42

**Table of Contents**

**SECTION III**  
**Operation**

General Operation Information.....	3-2
Preparing Tractor .....	3-2
Preparing Primary Tillage Tool .....	3-3
Rear Hitch On Primary Tillage Tool.....	3-3
Preparing Rolling Harrow.....	3-4
Bolts & Nuts.....	3-4
Pins.....	3-4
Hydraulics .....	3-4
Lubrication .....	3-4
Tire Pressure .....	3-4
Attaching Rolling Harrow To Primary Tillage Tool or Tractor.....	3-5
Hydraulic Hook-Up .....	3-6
Unfolding The Wings.....	3-7
Transport Chain.....	3-8
Transporting .....	3-9
Unhitching .....	3-11
Field Adjustments.....	3-12
Wing Weight Transfer System .....	3-12
Rolling Harrow Basket/Drum .....	3-12
Basket Pitch Adjustment.....	3-13

**Table of Contents**

## **SECTION IV**

# **Maintenance**

Lubrication .....	4-2
Hydraulic System .....	4-3
Replacing Rolling Harrow Basket/Drum Bearings.....	4-4
Troubleshooting .....	4-6
Storage.....	4-7
Wheels and Tires.....	4-8
Wheel Nut Torque.....	4-8
Tire Pressure .....	4-8
Tire Warranty.....	4-9
Torque Chart.....	4-10
Hydraulic Fittings .....	4-12

## **SECTION V**

# **Parts**

Hitch Components.....	5-2
Main Frame Components.....	5-4
Bolt-On Truss Assembly Components.....	5-7
Wing Components.....	5-8
Rolling Harrow Basket Components – Model 1645 .....	5-12
Rolling Harrow Basket Components – Model 1645D.....	5-14
Combination Valve #903045 Components.....	5-16
Hydraulic Components – 26’-32’ Units Without Wing Wheels .....	5-18
Hydraulic Components – 26’-28’ Units With Wing Wheels .....	5-20
Hydraulic Components – 30’-32’ Units With Wing Wheels .....	5-22
Hydraulic Components – 34’-40’ Units With Wing Wheels .....	5-24
Dual Hydraulic Kit #73173 for Valve #903045 .....	5-26
Wing Lift Wheel & Hub Components.....	5-28
Transport Marking & Light Kit (73146B) .....	5-30
A-Frame Gooseneck Hitch Assembly (Optional) .....	5-32
Gooseneck Hitch Adapters (Optional) .....	5-34

**Notes**



# **SECTION I**

# **Safety**

General Hazard Information .....	1-2
Safety Decals.....	1-3
Following Safety Instructions.....	1-4
Before Servicing Or Operating .....	1-4
During Operation.....	1-5
Before Transporting.....	1-5
During Transport .....	1-6
Pressurized Oil.....	1-6
Preparing for Emergencies .....	1-7
Wearing Protective Equipment.....	1-7

## 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**

**⚠ WARNING**

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



PART NO. 901891



PART NO. 97575



PART NO. 95136



PART NO. 97961



PART NO. 95445



PART NO. 95605



PART NO. 94094



PART NO. 98229



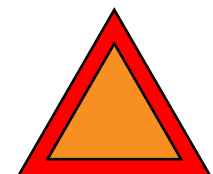
Part #9003126  
Red Reflector



Part #9003127  
Amber Reflector







Part #9003125  
Fluorescent 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 Or Operating

- Avoid working under an implement; however, if it becomes absolutely unavoidable, make sure the implement is safely blocked. 
- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.
- Explosive separation of a tire and rim can cause serious injury or death. Only properly trained personnel should attempt to service a tire and wheel assembly.
- Do not stand between towing vehicle and implement during hitching.
- Verify that all safety shields are in place and properly secured.

### **During Operation**

- Regulate speed to working 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 the machine. Make sure the SMV emblem and SIS decal are visible to approaching traffic

## During Transport

- Comply with all laws governing highway safety when moving machinery.
- Use transport lights as required by all laws to adequately warn operators of other vehicles.
- 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. Leaks of high-pressure fluids may not be visible. Use cardboard or wood to detect leaks in the hydraulic system. Seek medical treatment immediately if injured by high-pressure fluids. 
- Hydraulic system must be purged of air before operating to prevent serious injury or death.
- Do not bend or strike high-pressure lines. Do not install bent or damaged tubes or hoses.
- Repair all oil leaks. Leaks can cause fires, personal injury, and environmental damage.
- Route hoses and lines carefully to prevent premature failure due to kinking and rubbing against other parts. Make sure that all clamps, guards and shields are installed correctly.
- Check hydraulic hoses and tubes carefully. Replace components as necessary if any of the following conditions are found:
  - End fittings damaged, displaced, or leaking.
  - Outer covering chafed/cut or wire reinforcing exposed.
  - Outer covering ballooning locally.
  - Evidence of kinking or crushing of the flexible part of a hose.

### Preparing for Emergencies

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



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



### Wearing Protective Equipment

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



- Wear steel-toed shoes when operating.



- Wear hearing protection when exposed to loud noises.



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



**Notes**



# **SECTION II**

# **Set Up**

General Set Up Information.....	2-2
12' Base Shipping Bundles.....	2-3
12' Base, 7-14' Wing Shipping Bundles .....	2-4
Optional Shipping Bundles & Accessories.....	2-6
Main Frame/Tire & Wheel .....	2-7
Hitch.....	2-9
Jack .....	2-10
Transport Chain.....	2-12
Hose Holders .....	2-13
Bolt-On Truss Assembly.....	2-14
Wings.....	2-15
Wing Lift Wheel Assembly.....	2-18
SMV Emblem .....	2-19
Transport Cylinder Stops .....	2-20
Hydraulic Assembly.....	2-20
Hose Routing Diagrams.....	2-21
Purging A Hydraulic System.....	2-25
Weight Transfer System Initial Settings .....	2-27
Wing Stands .....	2-28
Transport Marking & Light Kit .....	2-30
Lights.....	2-30
Transport Markings.....	2-32
Wiring Harness .....	2-33
Drum Scraper Assembly.....	2-35
Basket/Drum & Frame Assembly.....	2-36
Attach Storage Box .....	2-38
Optional Pilot Check Valve (Part #91240).....	2-39
Optional Dual Hydraulic Kit #73173 .....	2-40
Gooseneck Hitch Assembly (Optional) .....	2-42

## General Set Up 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.**

---

- **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 3,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

---

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

---

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

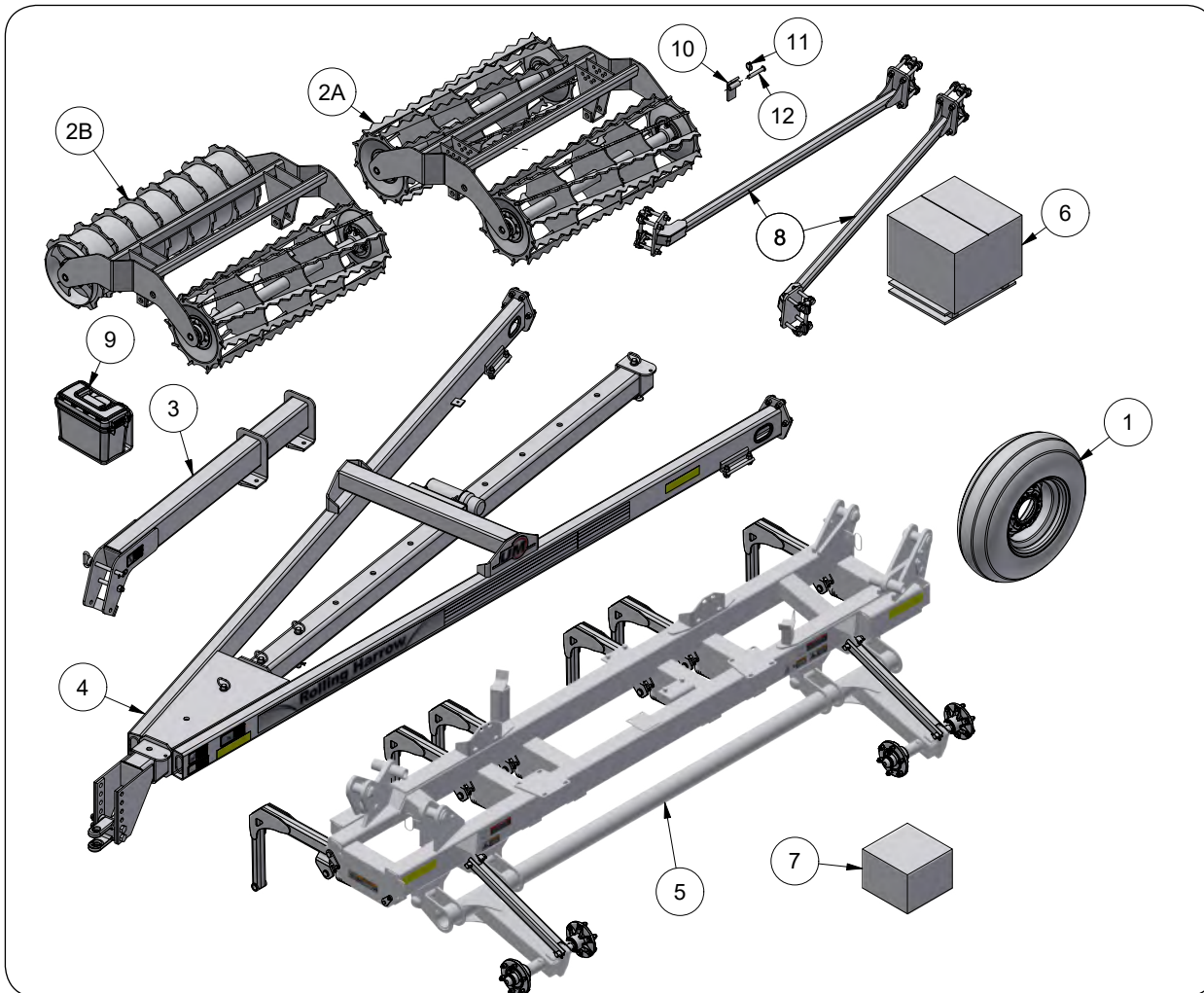
---

### **IMPORTANT**

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

# CROSS-FOLD ROLLING HARROW 1645/1645D — Set Up

## Rolling Harrow - 12' Base Shipping Bundles

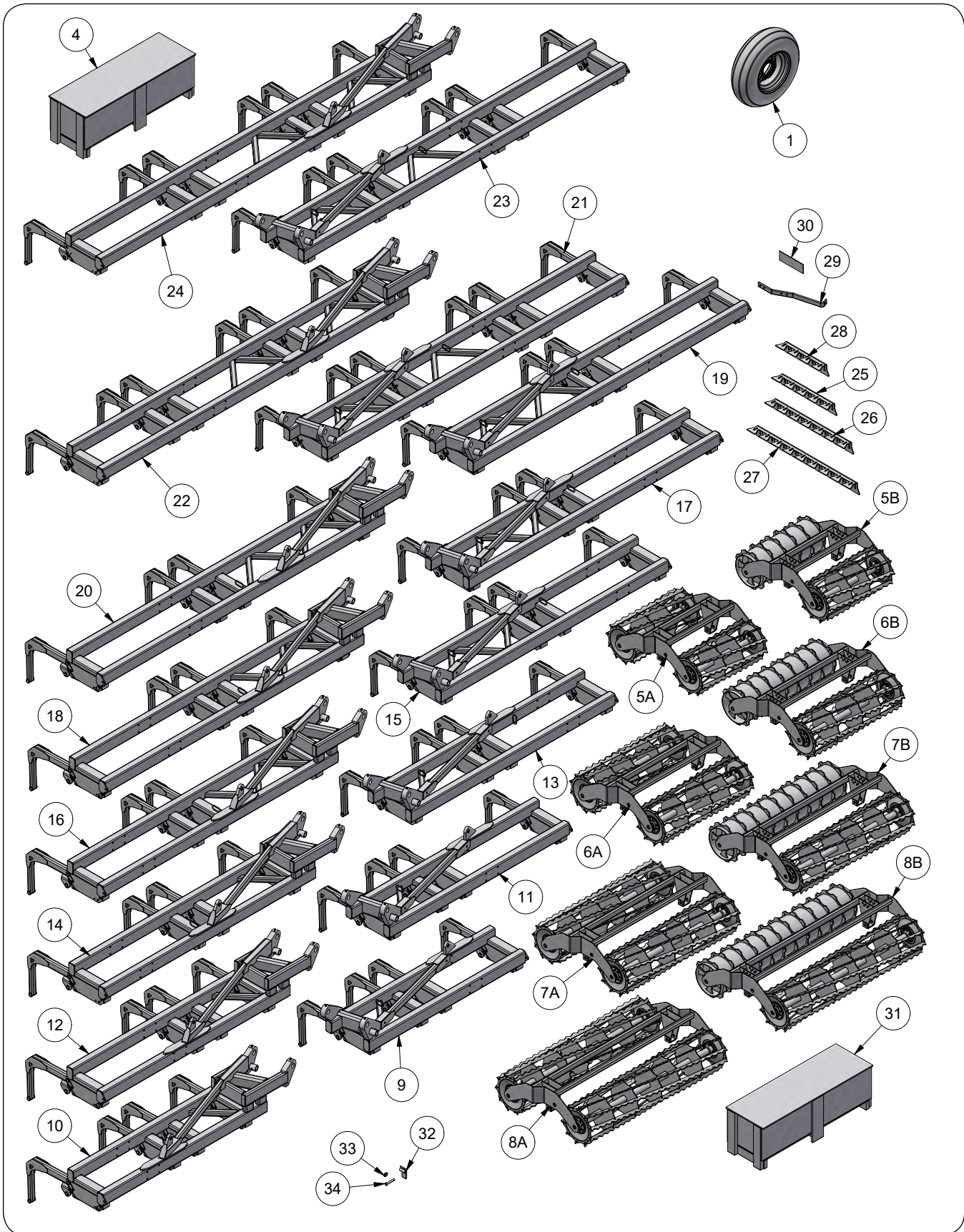


ITEM	PART NO.		DESCRIPTION	QTY
	MODEL 1645	MODEL 1645D		
1	60911	60911	Mounted Tire & Wheel W815-6-08 TL9.5LB15 8Ply	4
2A	77084B	-	Roller Basket 4 Ft. Assembly (Basket Roller)	3
2B	-	77088B	Roller Basket 4 Ft. Assembly (Drum Roller)	
3	75906G	75906G	Arm Weldment For Rear Jack (Green)	1
	75906R	75906R	Arm Weldment For Rear Jack (Red)	
4	73025G	73025G	Cross Fold Hitch A-Frame Assembly w/Decals (Green)	1
	73025R	73025R	Cross Fold Hitch A-Frame Assembly w/Decals (Red)	
5	700320G	700320G	Main Frame 12' Assembly w/Decals & Axle Hubs (Green)	1
	700320R	700320R	Main Frame 12' Assembly w/Decals & Axle Hubs (Red)	
6	73633B	73633B	Weight Transfer Box	1
7	73146B	73146B	Light Transport Kit	1
8	79983G	79983G	Bolt-On Truss Assembly (Green)	1
	79983R	79983R	Bolt-On Truss Assembly (Red)	
9	-	77401B	Storage Box Bracket Assembly	1
10	-	77042B	Basket Pin Up Bushing Weldment	6
11	-	9093	Klik Pin, 3/16" Dia. x 1 9/16"	6
12	-	91523	Clevis Pin, 5/8" Dia. x 4"	6

**NOTE:** Refer to PARTS section for complete parts breakdown.

# CROSS-FOLD ROLLING HARROW 1645/1645D — Set Up

## Rolling Harrow - 12' Base 7'-14' Wing Shipping Bundles



# CROSS-FOLD ROLLING HARROW 1645/1645D — Set Up

## Rolling Harrow - 12' Base 7'-14' Wing Shipping Bundles

ITEM	PART NO.	DESCRIPTION	QTY.							
			7' WINGS	8' WINGS	9' WINGS	10' WINGS	11' WINGS	12' WINGS	13' WINGS	14' WINGS
1	60911	Mounted Tire & Wheel - Model 1645	-	-	-	-	2	2	2	2
		Mounted Tire & Wheel - Model 1645D	2	2	2	2	2	2	2	2
2	N/A		-	-	-	-	-	-	-	
3	N/A		-	-	-	-	-	-	-	
4	75875B	Base Parts Box 26-32 Ft.	1	1	1	1	-	-	-	
	75812B	Base Parts Box 34-40 Ft.	-	-	-	-	1	1	1	
5A	75349B	Basket & Frame 3 Ft. Assembly - Model 1645	2	2	-	-	-	-	-	
5B	77087B	Roller Basket 3 Ft. Assembly - Model 1645D								
6A	77084B	Basket & Frame 4 Ft. Assembly - Model 1645	2	-	2	-	-	-	4	
6B	77088B	Roller Basket 4 Ft. Assembly - Model 1645D								
7A	75351B	Basket & Frame 5 Ft. Assembly - Model 1645	-	2	2	4	2	-	2	
7B	77089B	Roller Basket 5 Ft. Assembly - Model 1645D								
8A	75352B	Basket & Frame 6 Ft. Assembly - Model 1645	-	-	-	-	2	4	-	
8B	77090B	Roller Basket 6 Ft. Assembly - Model 1645D								
9	700271G	Wing 7 Ft. LH Assembly (Green)	1	-	-	-	-	-	-	
	700271R	Wing 7 Ft. LH Assembly (Red)								
10	700272G	Wing 7 Ft. RH Assembly (Green)	1	-	-	-	-	-	-	
	700272R	Wing 7 Ft. RH Assembly (Red)								
11	700273G	Wing 8 Ft. LH Assembly (Green)	-	1	-	-	-	-	-	
	700273R	Wing 8 Ft. LH Assembly (Red)								
12	700274G	Wing 8 Ft. RH Assembly (Green)	-	1	-	-	-	-	-	
	700274R	Wing 8 Ft. RH Assembly (Red)								
13	700275G	Wing 9 Ft. LH Assembly (Green)	-	-	1	-	-	-	-	
	700275R	Wing 9 Ft. LH Assembly (Red)								
14	700276G	Wing 9 Ft. RH Assembly (Green)	-	-	1	-	-	-	-	
	700276R	Wing 9 Ft. RH Assembly (Red)								
15	700277G	Wing 10 Ft. LH Assembly (Green)	-	-	-	1	-	-	-	
	700277R	Wing 10 Ft. LH Assembly (Red)								
16	700278G	Wing 10 Ft. RH Assembly (Green)	-	-	-	1	-	-	-	
	700278R	Wing 10 Ft. RH Assembly (Red)								
17	700279G	Wing 11 Ft. LH Assembly (Green)	-	-	-	-	1	-	-	
	700279R	Wing 11 Ft. LH Assembly (Red)								
18	700280G	Wing 11 Ft. RH Assembly (Green)	-	-	-	-	1	-	-	
	700280R	Wing 11 Ft. RH Assembly (Red)								
19	700266G	Wing 12 Ft. LH Assembly (Green)	-	-	-	-	-	1	-	
	700266R	Wing 12 Ft. LH Assembly (Red)								
20	700267G	Wing 12 Ft. RH Assembly (Green)	-	-	-	-	-	1	-	
	700267R	Wing 12 Ft. RH Assembly (Red)								
21	700287G	Wing 13 Ft. LH Assembly (Green)	-	-	-	-	-	-	1	
	700287R	Wing 13 Ft. LH Assembly (Red)								
22	700288G	Wing 13 Ft. RH Assembly (Green)	-	-	-	-	-	-	1	
	700288R	Wing 13 Ft. RH Assembly (Red)								

(Continued on next page)

NOTE: Refer to PARTS section for complete parts breakdown.

## CROSS-FOLD ROLLING HARROW 1645/1645D — Set Up

### Rolling Harrow - 12' Base 7'-14' Wing Shipping Bundles

ITEM	PART NO.	DESCRIPTION	QTY.							
			7' WINGS	8' WINGS	9' WINGS	10' WINGS	11' WINGS	12' WINGS	13' WINGS	14' WINGS
23	700289G	Wing 14 Ft. LH Assembly (Green)	-	-	-	-	-	-	-	1
	700289R	Wing 14 Ft. LH Assembly (Red)	-	-	-	-	-	-	-	-
24	700290G	Wing 14 Ft. RH Assembly (Green)	-	-	-	-	-	-	-	1
	700290R	Wing 14 Ft. RH Assembly (Red)	-	-	-	-	-	-	-	-
25	76968B	Drum Scraper 28" For 3 Ft. Drum Scraper	2	2	-	-	-	-	-	-
26	76969B	Drum Scraper 40" For 4 Ft. Drum Scraper	2	-	2	-	-	-	4	2
27	76970B	Drum Scraper 52" For 5 Ft. Drum Scraper	-	2	2	4	2	-	2	4
28	76971B	Drum Scraper 22" For 6 Ft. Drum Scraper	-	-	-	-	2	4	-	-
29	75564B	Drum Scraper Bar Mount	8	10	10	12	14	16	14	16
30	75688	Hardware Bag For 3 Ft. & 4 Ft. Drum Scraper	4	2	2	-	-	-	4	2
	75687	Hardware Bag For 5 Ft. Drum Scraper	-	2	2	4	2	-	2	4
	75843	Hardware Bag For 6 Ft. Drum Scraper	-	-	-	-	2	4	-	-
31	700317B	Jack Mount and Stand Bundle - Model 1645	1	1	1	1	-	-	-	-
		Jack Mount and Stand Bundle - Model 1645D	1	1	1	1	1	1	1	1
	700318B	Jack Mount and Stand Bundle - Model 1645	-	-	-	-	1	1	1	1
32	77042B	Basket Pin Up Bushing Weldment - Model 1645D	8	8	8	8	8	8	12	12
33	9093	Klik Pin, 3/16" Dia. x 1 9/16" - Model 1645D	8	8	8	8	8	8	12	12
34	91523	Clevis Pin, 5/8" Dia. x 4" - Model 1645D	8	8	8	8	8	8	12	12

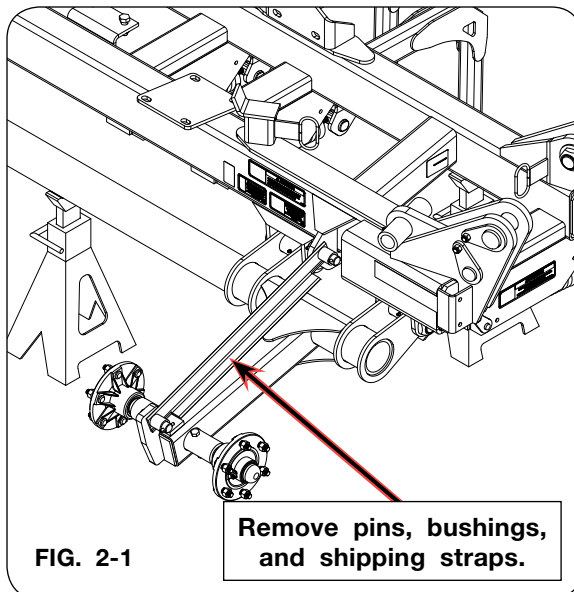
### Optional Shipping Bundles & Accessories

PART NO.	DESCRIPTION	NOTES
73173	Dual Hydraulic Kit	
91240	Check Valve	
73539G	Hydraulic Adjustable Offset Tongue =Green=	In-Lieu of Standard Tongue
73539R	Hydraulic Adjustable Offset Tongue =Red=	
73393	Electric Over Hydraulic Control Switch	For Offset Tongue
75877B	Wing Lift Assist Kit 26'-32' - Model 1645 ONLY	
89360B	Tire Scraper Kit	
79238G	Gooseneck Hitch Assembly w/Decals =Green=	
79238R	Gooseneck Hitch Assembly w/Decals =Red=	

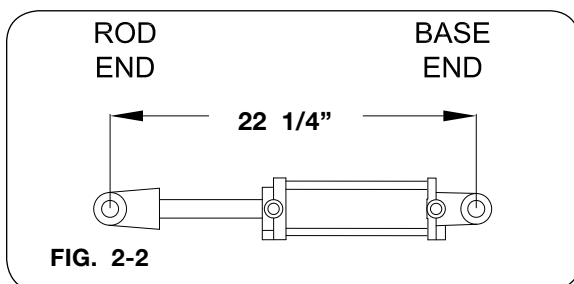
## Main Frame/Tire & Wheel

1. Using safe lifting devices rated at 1500 lbs. minimum, lift main frame assembly (700320G or 700320R) onto stands also rated at 1500 lbs. minimum.
2. Raise the front of machine until shipping strap and pins can be removed from the main frame assembly and rockshaft (FIG. 2-1).

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



3. **26'-32' Machines**  
Open the parts box/crate (75875B) and locate the two 3 1/4" x 10" hydraulic cylinders (902759), 1" Dia. x 4" pins (85631), and 1/4" Dia. x 1 7/8" spiral pins (91144-165). Check that retracted cylinder length is 22 1/4" (FIG. 2-2). Adjust both cylinders to this dimension as necessary.



### 34'-40' Machines

Open parts box/crate (75812B) and locate the two 3 1/2" x 10" hydraulic cylinders (9501530), 1" Dia. x 4" pins (85631), and 1/4" Dia. x 1 7/8" spiral pins (91144-165). Check that retracted cylinder length is 22 1/4" (FIG. 2.2). Adjust both cylinders to this dimension as necessary.

### 26'-32' Machines

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

### 34'-40' Machines

**NOTE:** This unit uses series cylinders for the lift system. Be certain to use the 3 1/2" bore cylinders on the main frame and 3 1/4" bore cylinders on the wings.

Main Frame/Tire & Wheel (continued)

**CAUTION**

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

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

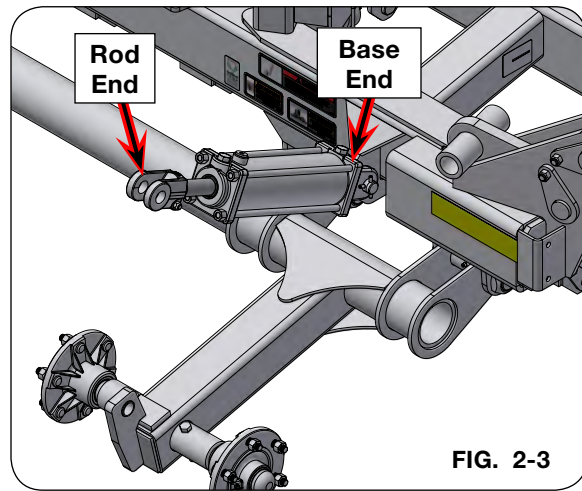
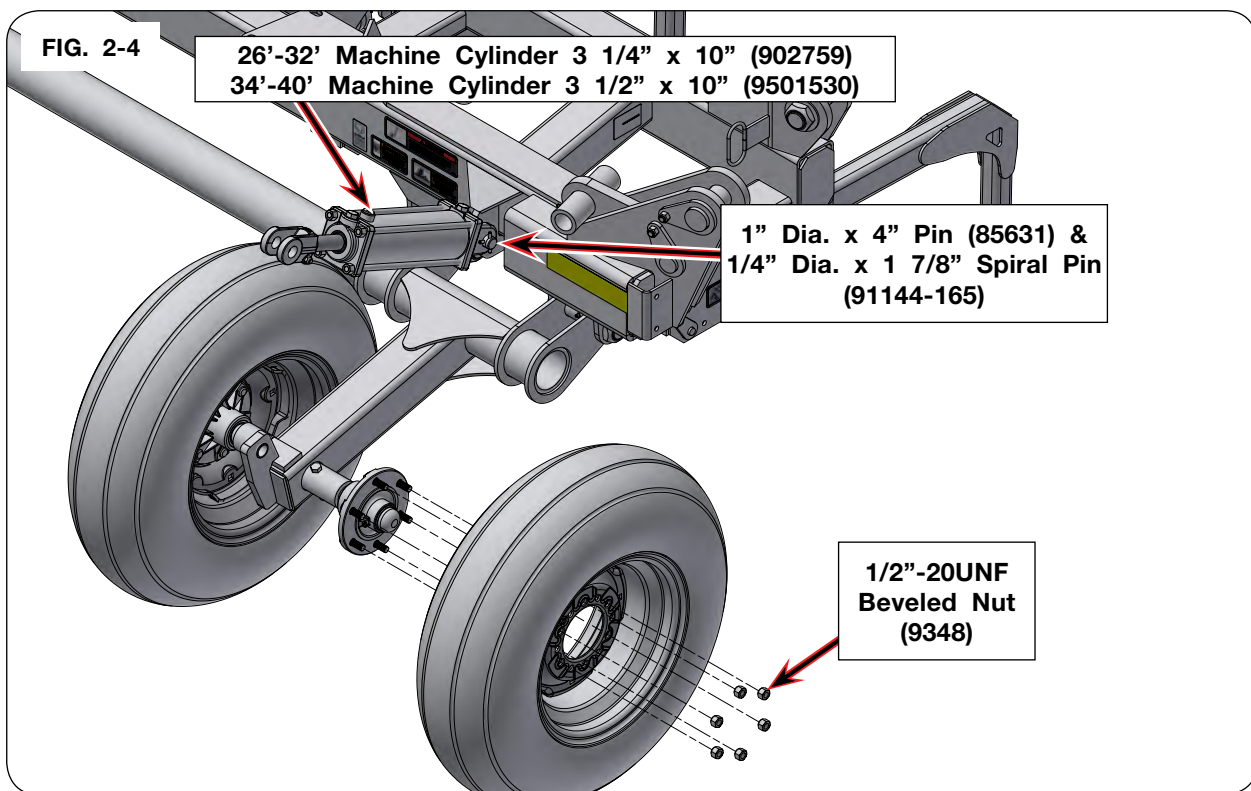


FIG. 2-3

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



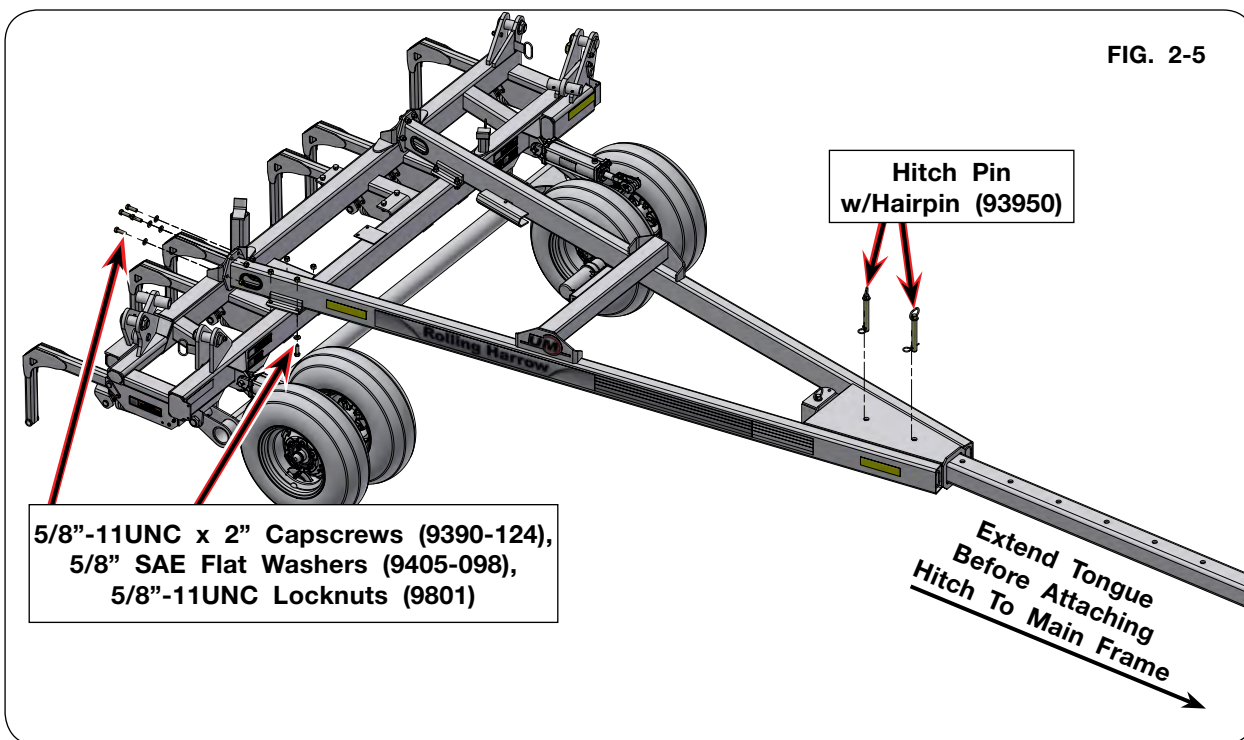


## Hitch

**NOTE:** 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 OPERATION section for procedure to lock up the arms.

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

1. Remove the center pins - hitch pin 1” Dia. x 8” with hairpin (93950) as shown in FIG. 2-5. Slide the extendible tongue out and reinsert the center pins.
2. Remove and save the hardware from the rear of the cross fold hitch assembly (73025G/73025R for standard hitch assembly, or 73546G/73546R for offset hitch assembly). Using hoist or lifting devices rated at 1000 lbs. minimum, lift cross fold hitch assembly and attach it to the main frame assembly as shown in FIG. 2-5 using the hardware previously removed from the cross fold hitch assembly.



## Jack

1. With the hoist or lifting devices still attached to the cross fold hitch assembly, attach the jack mounting arm (75906G or 75906R) to the rear of the main frame with the existing hardware as shown in FIG. 2-6.
2. In the parts box/crate (26'-32' Machines - 75875B; 34'-40' Machines - 75812B) locate the jack (901061), 3/4" Dia. x 6" hitch pin (95958) and inside the hardware bag locate one 3/4"-10UNC x 6" capscrew (9390-157), 5/8"-11UNC x 3 1/4" capscrew (9390-129), one 5/8"-11UNC locknut (9801), and one 3/4"-10UNC locknut (9802).
3. Attach the jack stand (75907B) to the jack mounting arm with a 3/4"-10UNC x 6" capscrew (9390-157), 3/4"-10UNC locknut (9802) and 3/4" Dia. x 6" hitch pin (95958) as shown in FIG. 2-6.
4. Secure the jack (901061) to the jack stand (75907B) by placing the 5/8"-11UNC x 3 1/4" capscrew (9390-129) and 5/8"-11UNC locknut (9801) in the vertical holes (FIG. 2-6).

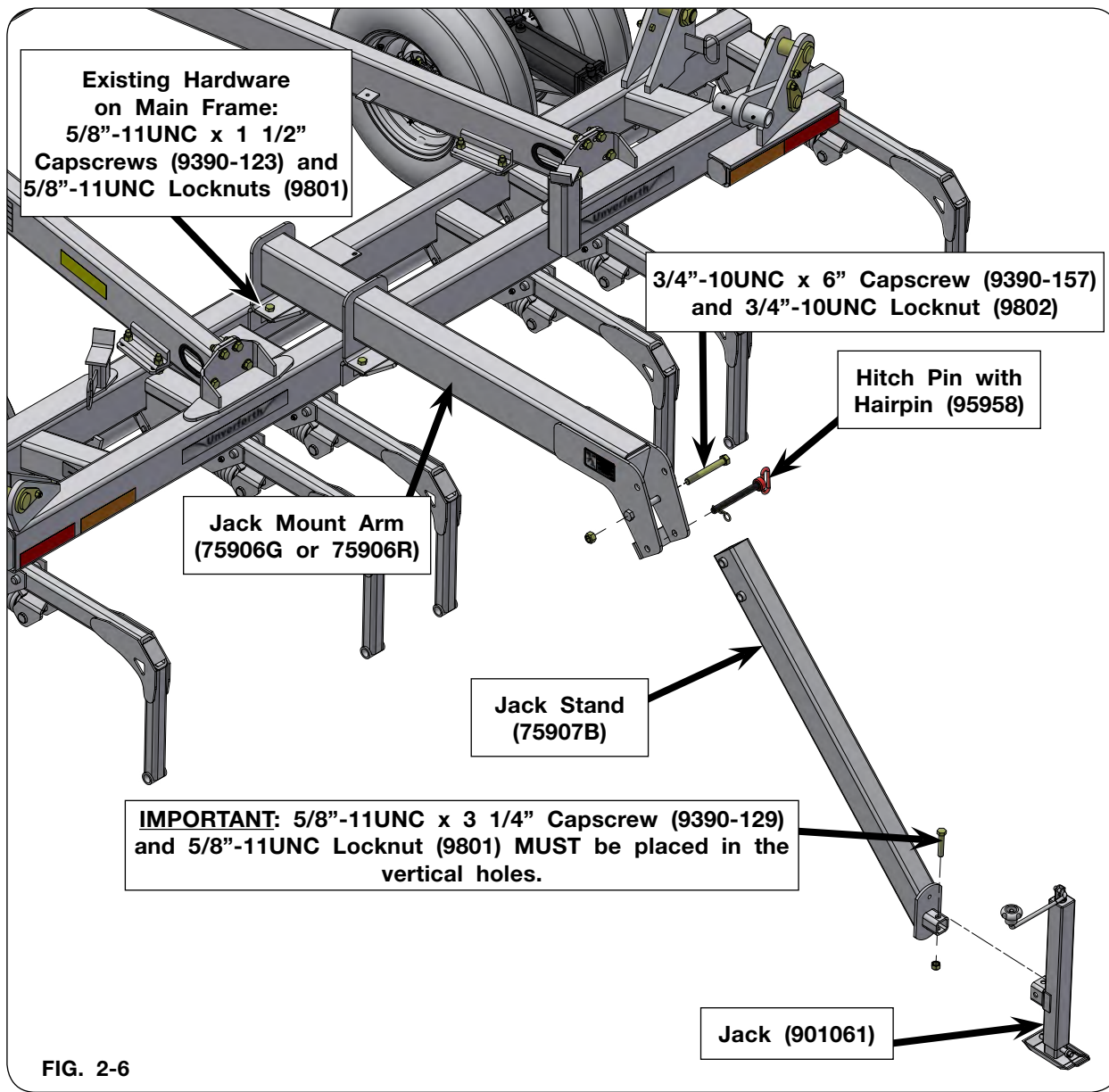
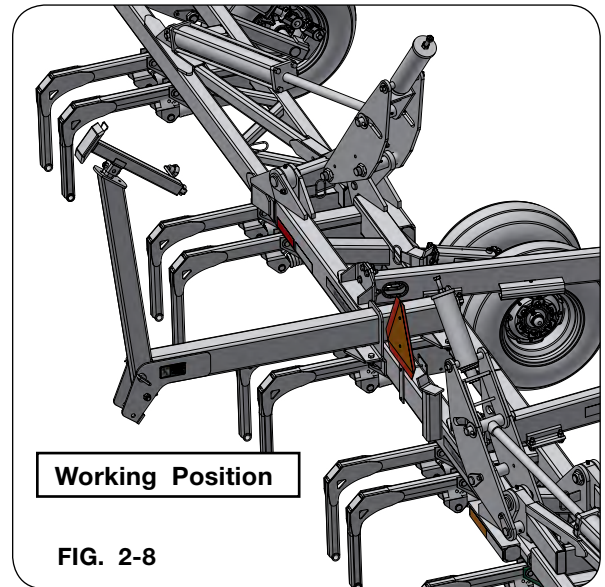
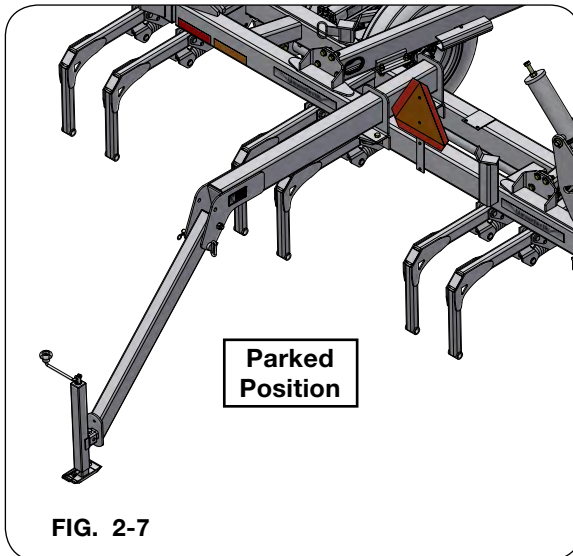


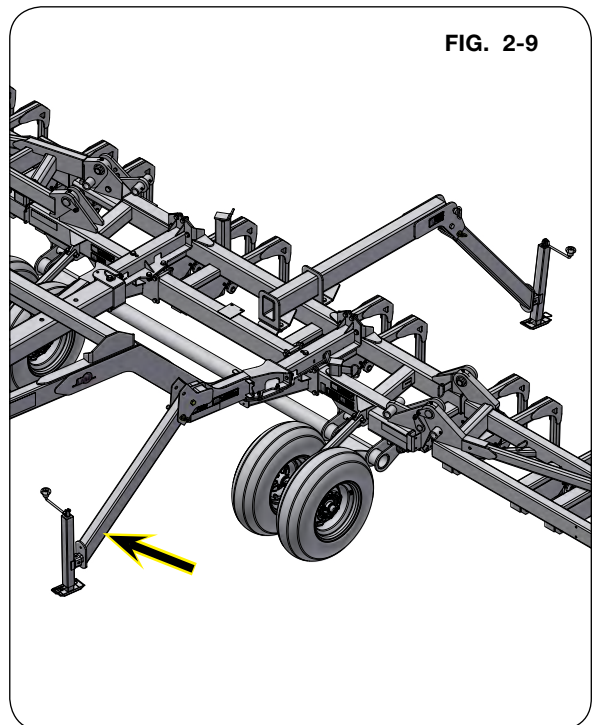
FIG. 2-6

## Jack (continued)

**NOTE:** See FIG. 2-7 for “Parked Position” and FIG. 2-8 for “Working Position”.

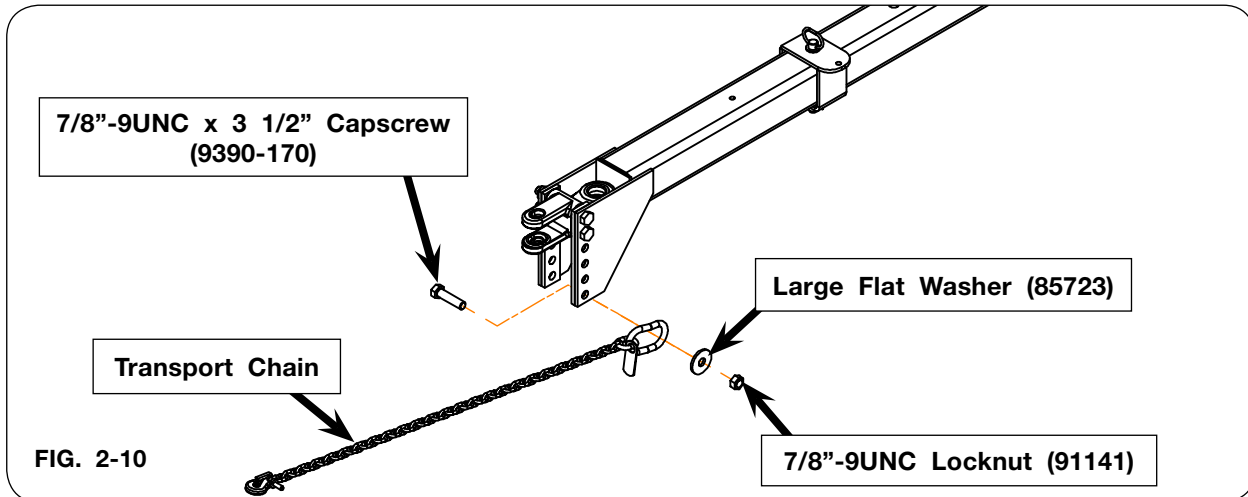


If the gooseneck hitch assembly is being used, gradually release the safe lifting device retaining the hitch. If the rear jack assembly raises off the ground, then a second jack needs to be purchased (kit #77813B). Assemble the second jack to the front of the gooseneck hitch assembly (FIG. 2-9).



## Transport Chain

1. Attach the transport chain (26'-32' Machines - 94098 with a rating of 10,100 lbs.; 34'-40' Machines - 97436 with a rating of 16,000 lbs.) to the front, left-hand side of the tongue/hitch using large flat washer (85723), 7/8"-9UNC x 3 1/2" capscrew (9390-170), and 7/8"-9UNC locknut (91141) as shown in FIG. 2-10. Parts are located in the parts box/crate (26'-32' Machines - 75875B; 34'-40' Machines - 75812B).

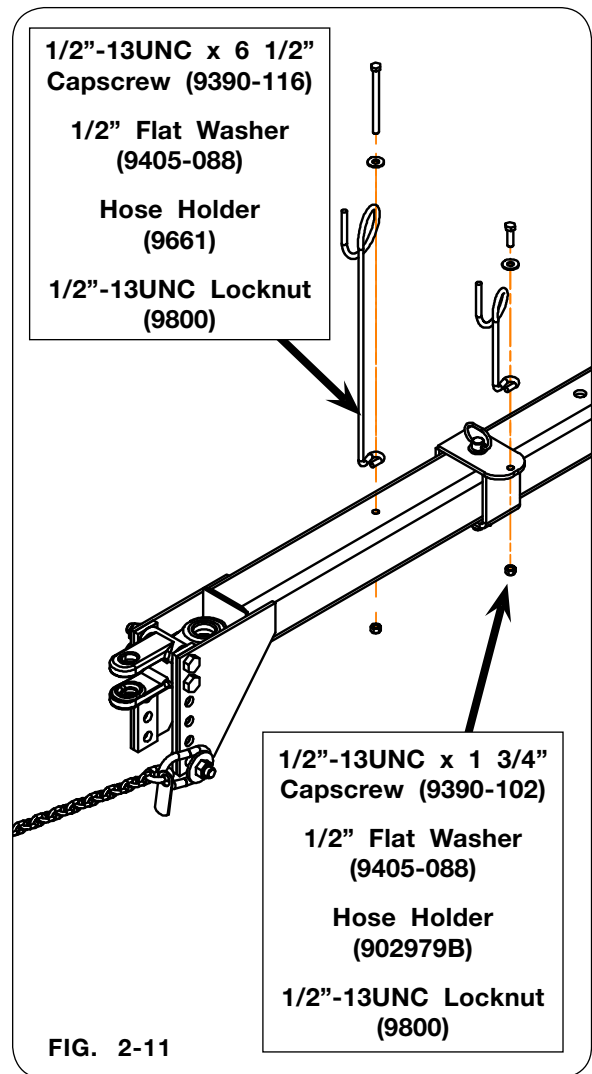


## CAUTION

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

### Hose Holders

1. Attach the small hose holder (902979B) using 1/2"-13UNC x 1 3/4" capscrew (9390-102), 1/2" flat washer (9405-088), and 1/2"-13UNC locknut (9800) as shown in FIG. 2-11.
2. Attach the large hose holder (9661) to the hitch with 1/2"-13UNC x 6 1/2" capscrew (9390-116), 1/2" flat washer (9405-088), and 1/2"-13UNC locknut (9800) as shown in FIG. 2-11.



**Bolt-On Truss Assembly**

1. Identify the right-hand and left-hand braces. On the rear portion of the brace with the two side gussets, the taller side of the mounting plate will be positioned up. The other side of the brace will sit flush to the inside of the A-frame.

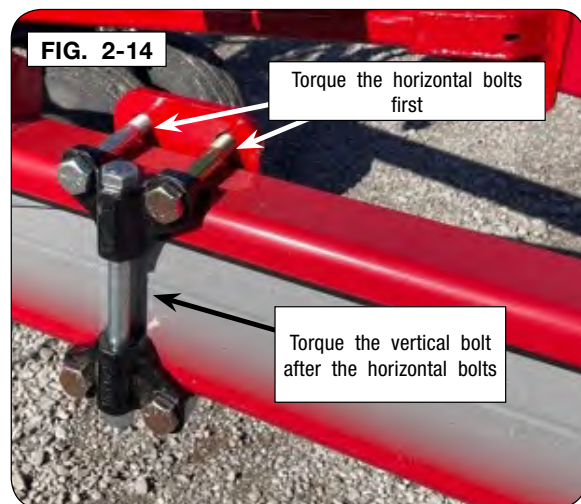
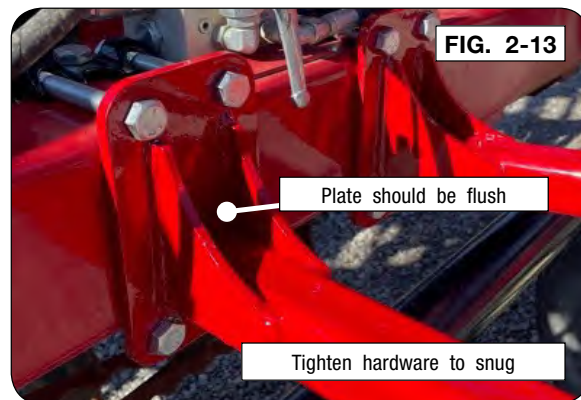
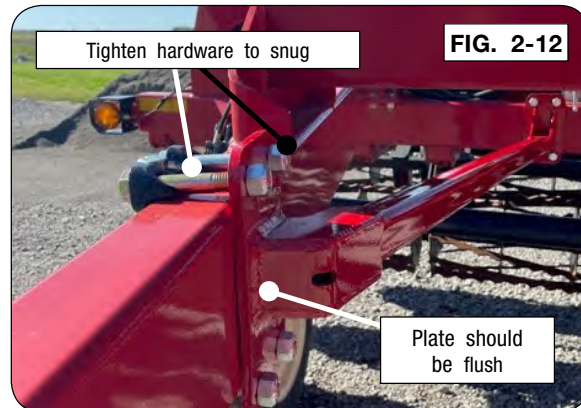
2. Remove the hardware and clamps from the brace assemblies. Retain the hardware and clamps.

3. Place one of the braces into position. The plates should sit flush against the inside of the A-frame and the front of the main frame. (FIG. 2-12 & FIG. 2-13)

4. Using the clamps, secure the brace to the main frame and the A-frame. Beginning with the clamp on the main frame, tighten the vertical 5/8" capscrew until the cast clamps seat on the top and bottom of the tube. Snug the four horizontal bolts. Repeat this process for the clamp on the A-frame. Do not torque the hardware at this time.

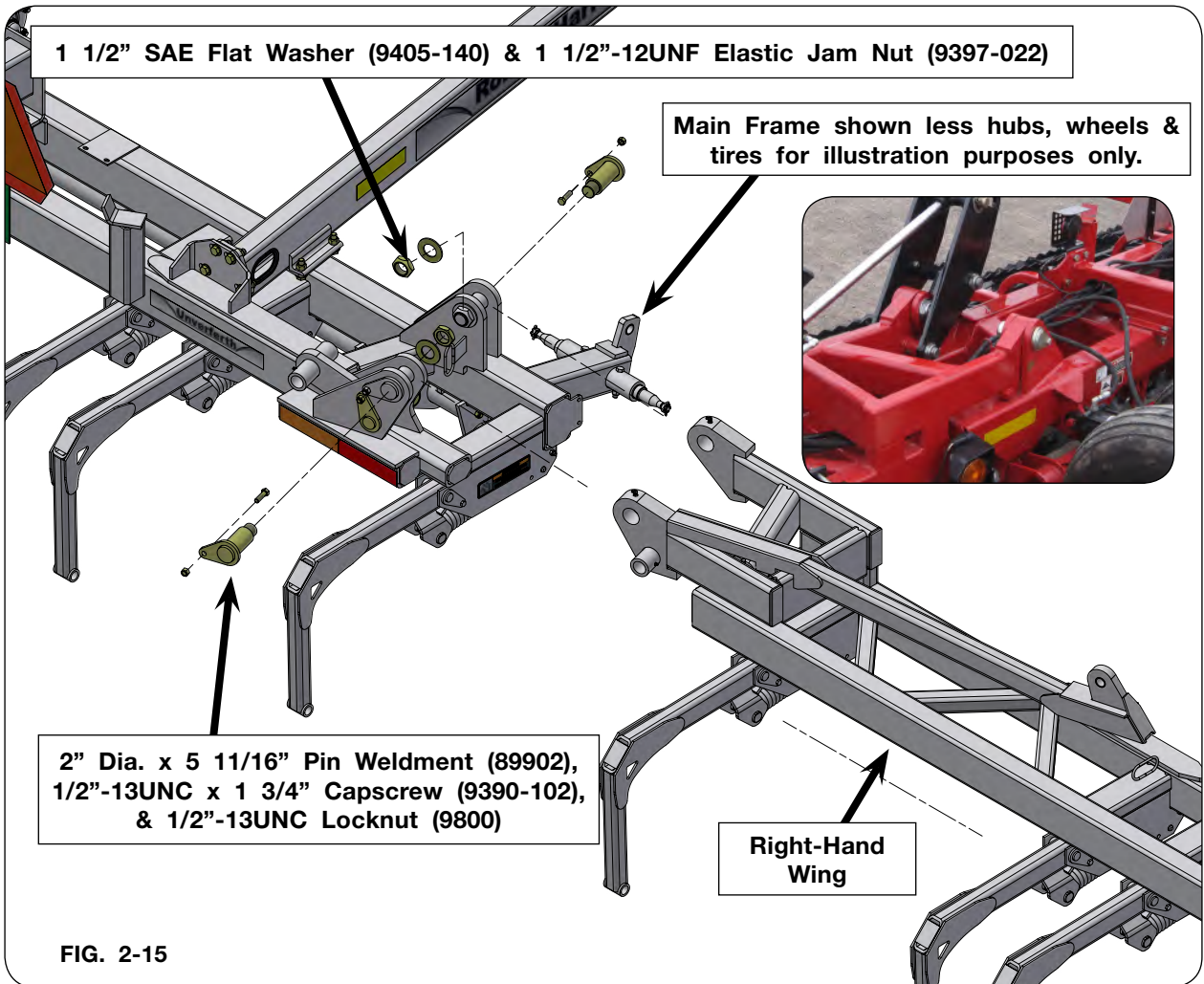
5. Beginning with the clamp on the main frame, torque the four horizontal bolts to 120-135 ft.-lbs. evenly from side to side. Next, torque the vertical bolt to 120-135 ft.-lbs. Repeat this procedure for the clamp on the A-frame.

6. Repeat steps 3-5 to install the second brace to the other side of the A-Frame.



## Wings

1. Using safe lifting devices rated at 1000 lbs. minimum, lift the right-hand wing assembly and attach it to the main frame assembly using the hardware in the wing hinge area as shown in FIG. 2-15.
2. Using safe lifting devices rated at 1000 lbs. minimum, lift the left-hand wing assembly and attach it to the main frame assembly using the hardware in the wing hinge area (not shown, use FIG. 2-15 for reference).



## Wings (continued)

NOTE: 26'-32' Machines use two 4" x 30" hydraulic cylinders (73576B). 34'-40' Machines use two 4 1/2" x 30" hydraulic cylinders (75754B)

3. In the parts box/crate (26'-32' Machines - 75875B; 34'-40' Machines - 75812B) locate the 30" stroke length hydraulic cylinders.
4. Fasten the base end of the cylinder with a base end port facing down or sideways to the right-hand wing assembly with 1" Dia. x 4" pin (85631) and 1/4" Dia. x 1 7/8" spiral pins (91144-165) as shown in FIG. 2-16. Hardware can be located in the parts box/crate (26'-32' Machines - 75875B; 34'-40' Machines - 75812B).

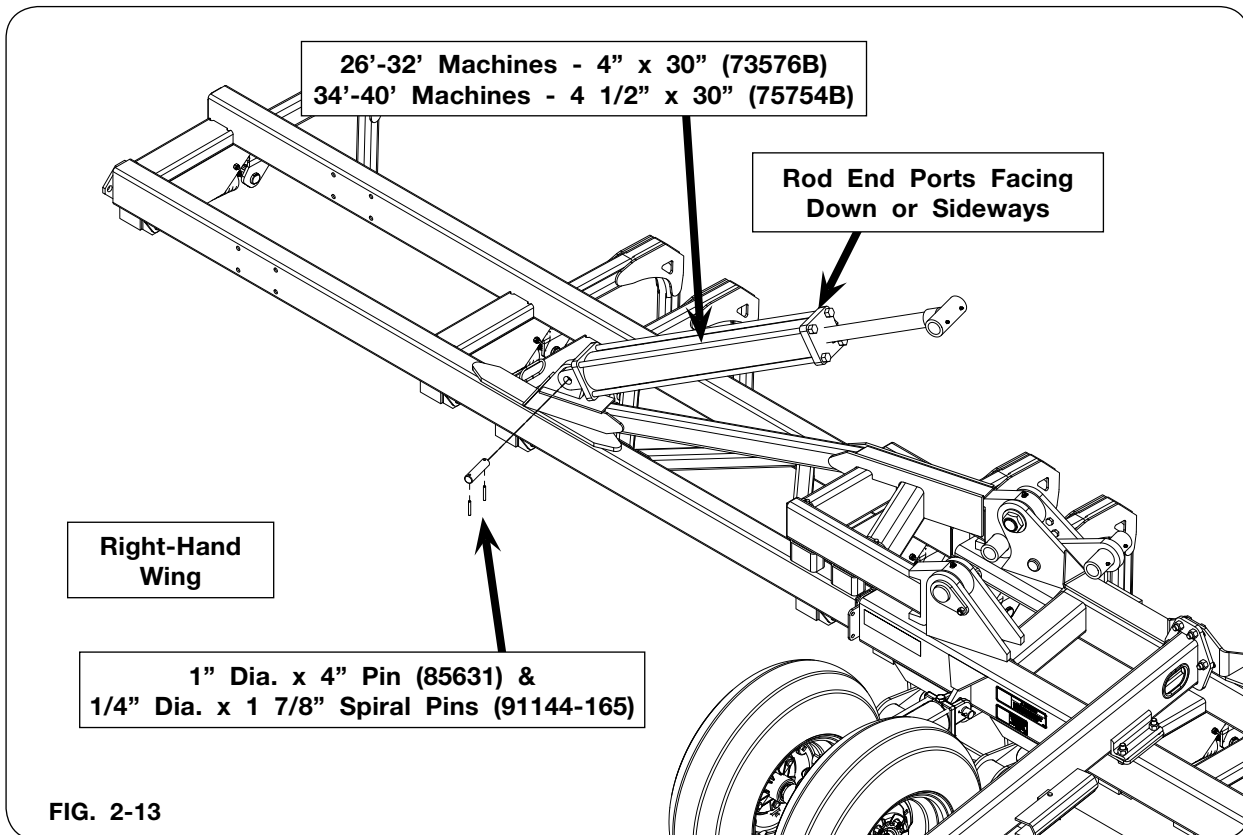


FIG. 2-13

5. Fasten the base end of the cylinder with a base end port facing down or sideways to the left-hand wing assembly with 1" Dia. x 4" pin (85631) and 1/4" Dia. x 1 7/8" spiral pins (91144-165) using FIG. 2-13 for reference. Hardware can be located in the parts box/crate (26'-32' Machines - 75875B; 34'-40' Machines - 75812B).



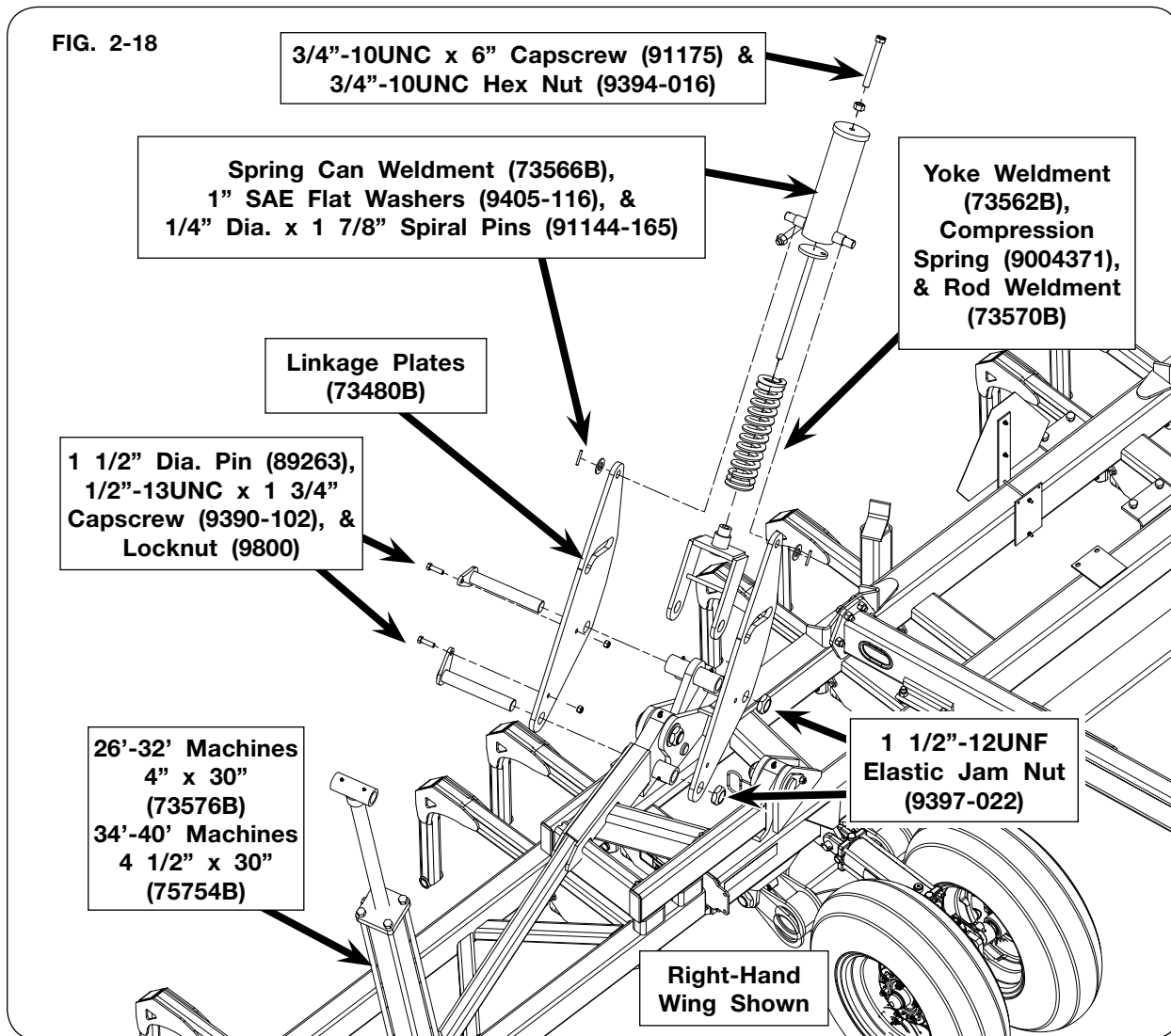
**Wings (continued)**

- Assemble the spring can weldment (73566B), rod weldment (73570B), compression spring (9004371), yoke weldment (73562B), 3/4"-10UNC x 6" capscrew (91175), and hex nut (9394-016) as shown in FIG. 2-18.

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

- Place the spring can assembly between the two linkage plates and secure using 1" SAE flat washers (9405-116) and 1/4" Dia. x 1 7/8" spiral pins (91144-165) as shown in FIG. 2-17 and FIG. 2-18.

- Attach the two linkage plates and spring can assembly to the unit with pins (89263), 1/2"-13UNC x 1 3/4" capscrews (9390-102), 1/2"-13UNC locknuts (9801), and 1 1/2"-12UNF elastic jam nuts (9397-022) as shown in FIG. 2-17 and FIG. 2-18.



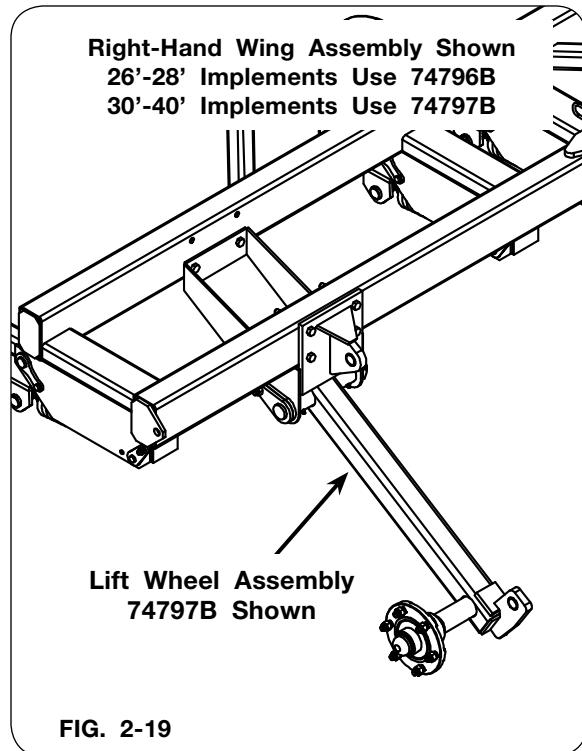
**Wing Lift Wheel Assembly**

**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.

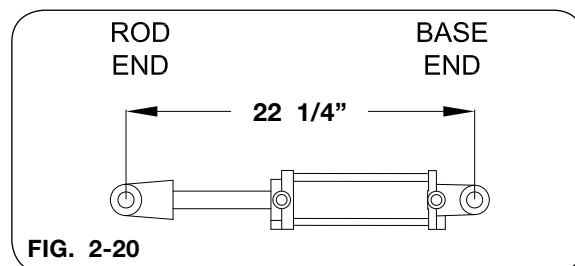
1. Locate the wing lift wheel assemblies (74797B and 74796B). Remove and save the hardware from the wing wheel assemblies.

**NOTE:** Attach the wing wheels with hubs facing the center of machine on the 26'-28' implements. On the 30'-40' implements the hubs must face out. (FIG. 2-19)



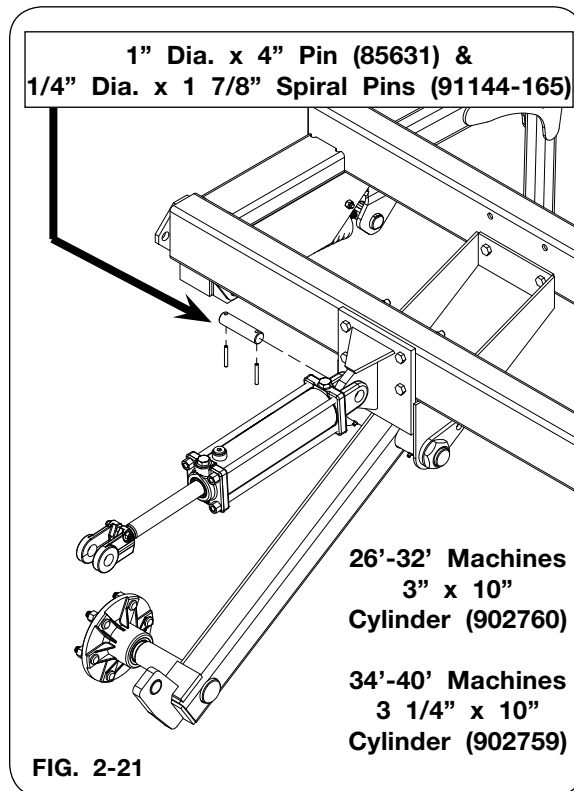
2. **26'-32' Machines**  
In the parts box/crate (75875B) locate the 3" x 10" hydraulic cylinders (902760). Check that retracted cylinder length is 22 1/4". Adjust both cylinders to this dimension as necessary (FIG. 2-20).

**32'-40' Machines**  
In the parts box/crate (75812B) locate the 3 1/4" x 10" hydraulic cylinders (902759). Check that retracted cylinder length is 22 1/4". Adjust both cylinders to this dimension as necessary (FIG. 2-20).



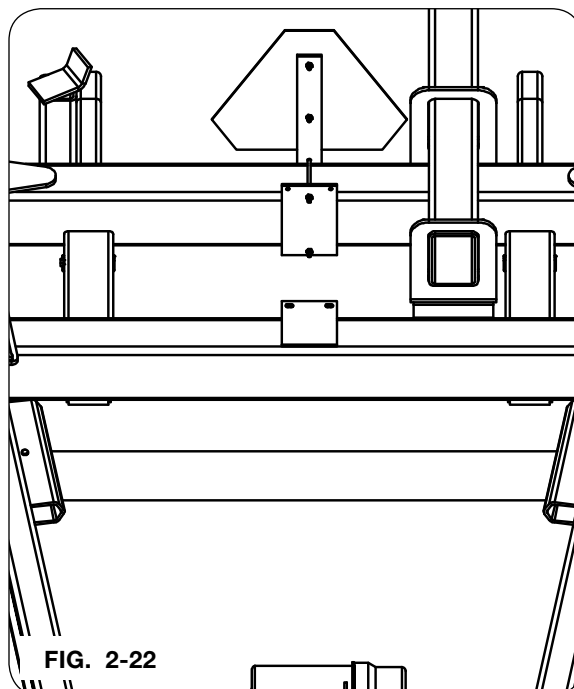
**Wing Lift Wheel Assembly (continued)**

3. Fasten the base end of the hydraulic cylinder with the ports facing up to each wing lift wheel assemblies with 1" Dia. x 4" pin (85631) and 1/4" Dia. x 1 7/8" spiral pins (91144-165) as shown in FIG. 2-21. Hardware can be located in the parts box/crate (**26'-32' Machines - 75875B; 34'-40' Machines - 75812B**).



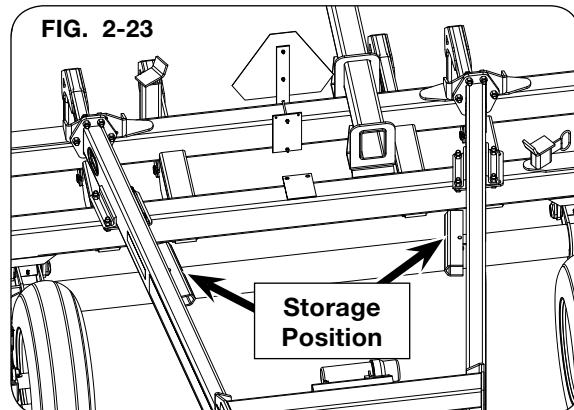
**SMV Emblem**

1. Obtain 4 1/2" x 8" plate (88587B), 2" x 18 3/4" strap (88259B), SMV emblem (9829) two 1/4"-20UNC x 5" capscrews (9390-019), two 1/4"-20UNC x 3/4" capscrews (9390-003), and four 1/4"-20UNC locknuts (9936) from parts box (**26'-32' Machines - 75875B; 34'-40' Machines - 75812B**).
2. Attach the SMV emblem (9829), to the strap (88259B) with two 1/4"-20UNC x 3/4" capscrews (9390-003) and 1/4"-20UNC locknuts (9936) (FIG. 2-22). Secure the SMV to the main frame assembly with clamp plate (88587B), two 1/4"-20UNC x 5" capscrews (9390-019) and 1/4"-20UNC locknuts (9936). SMV should be centered on main frame.

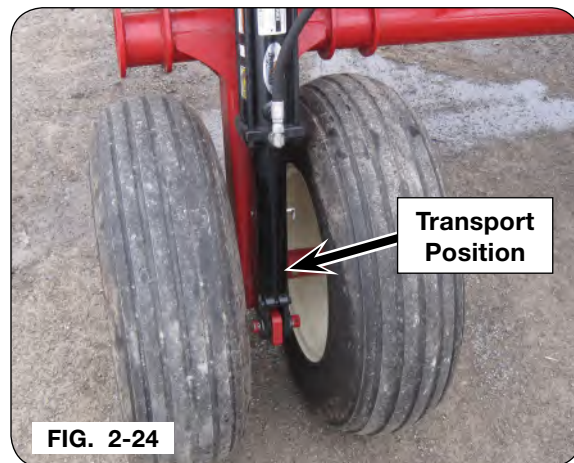


## Transport Cylinder Stops

The transport cylinder stops (73130B) can be attached to the hitch frame as shown in FIG. 2-23 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).



## 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:** Route the hoses with the pioneer ends through the left-hand tube of the Rolling Harrow main frame.

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

**NOTE:** Refer to the "HOSE ROUTING DIAGRAMS" for routing and positioning of the hydraulic components onto the frame. DO NOT twist hoses hoses when installing.

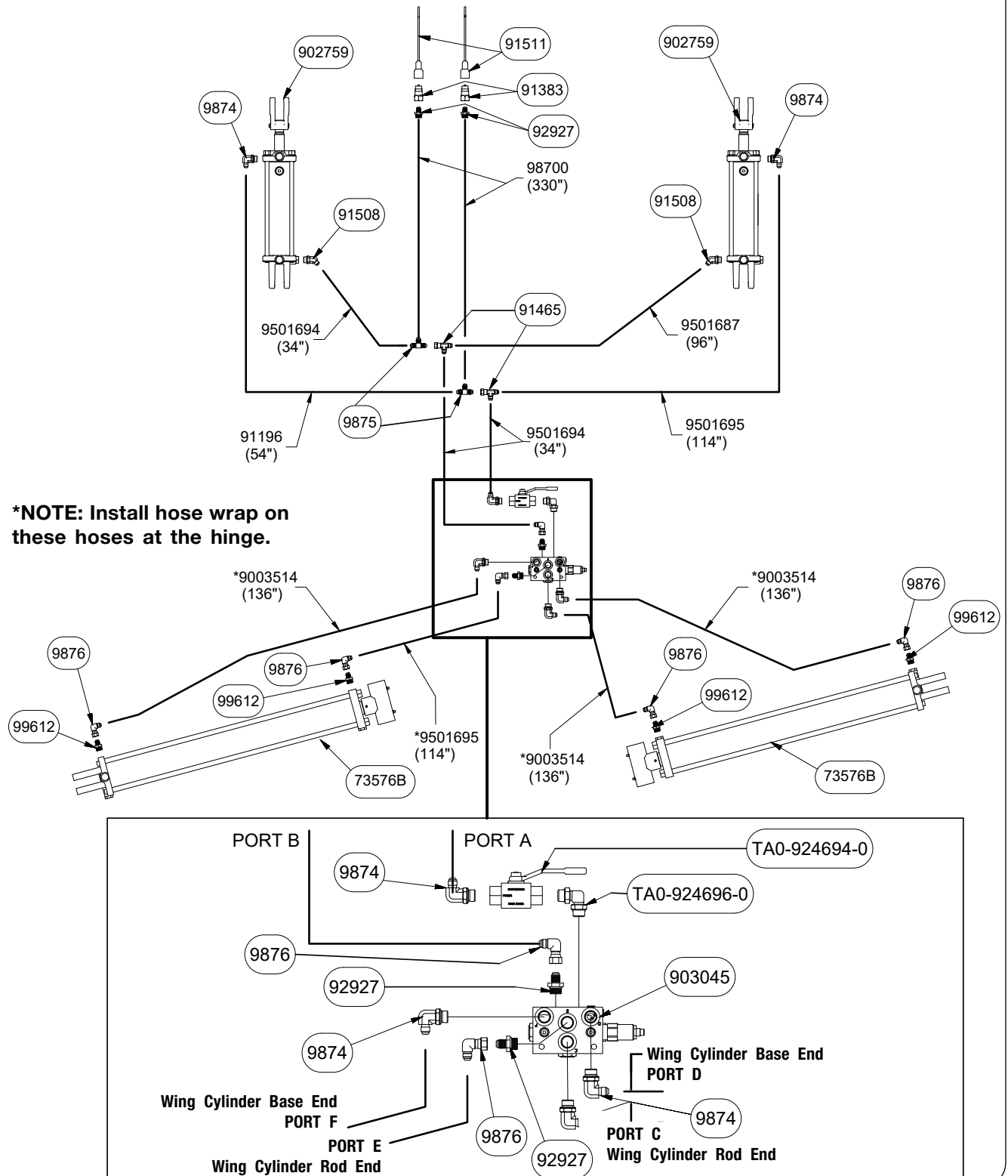
**NOTE:** Refer to the PARTS section for fitting type, hose size, and length required.

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

# CROSS-FOLD ROLLING HARROW 1645/1645D — Set Up

## Hydraulic Assembly (continued)

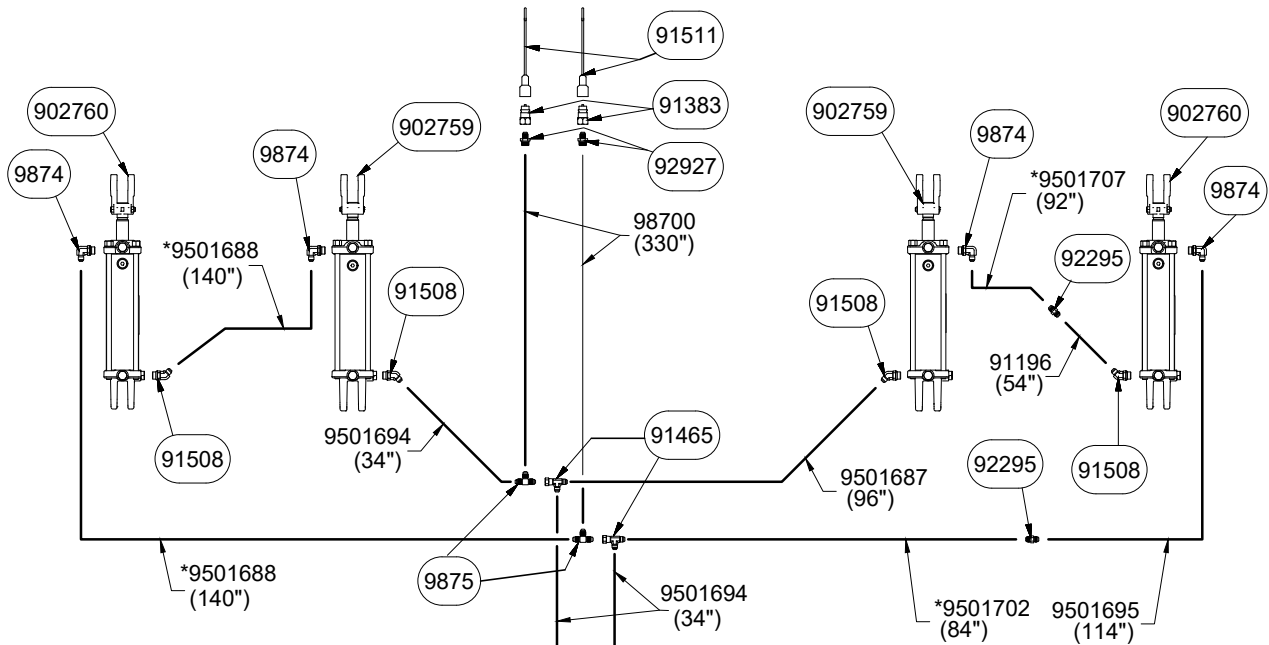
### Hose Routing Diagram 1 Single Hydraulics with Valve #903045 26'-32' Units Without Wing Wheels 1645 Standard Without Wing Wheels



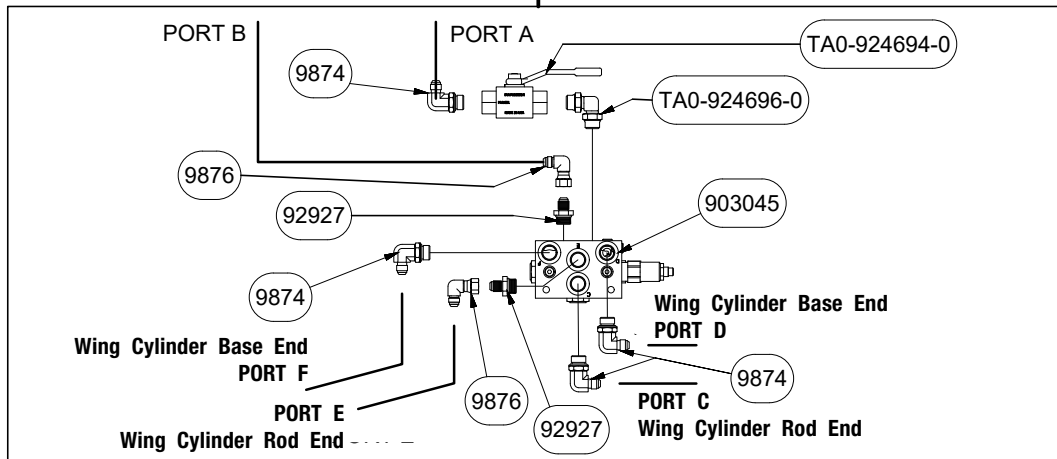
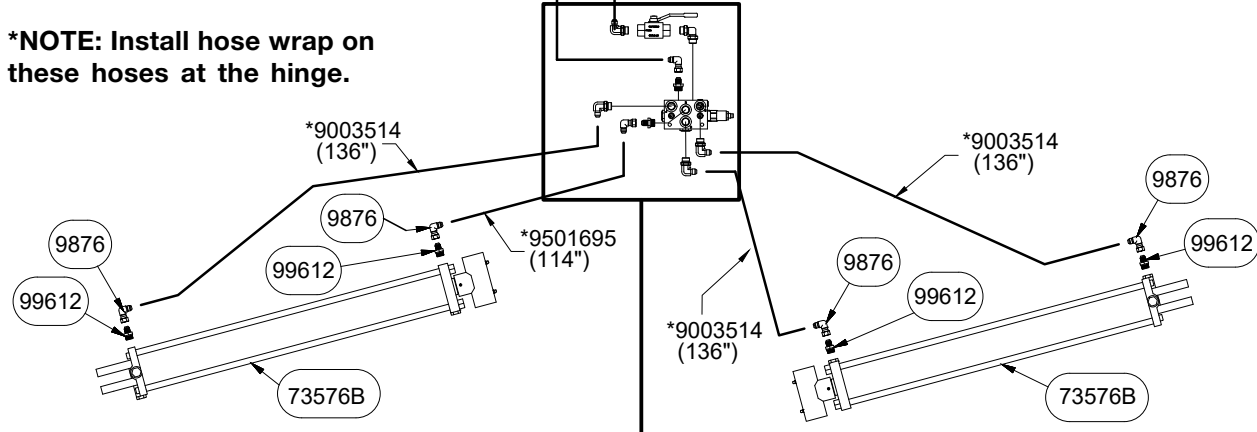
**Hydraulic Assembly (continued)**

**Hose Routing Diagram 2**

**Single Hydraulics with Valve #903045**  
**26'-28' Units With Wing Wheels**  
**1645 With Optional Wing Wheels**  
**1645D With Standard Wing Wheels**



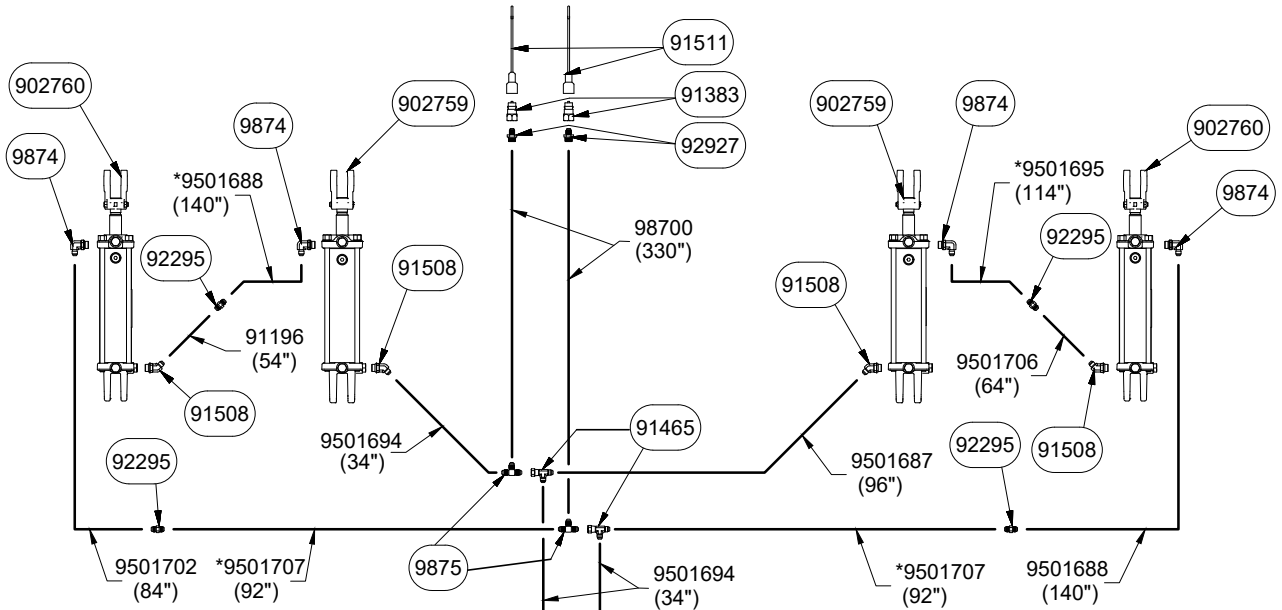
**\*NOTE: Install hose wrap on these hoses at the hinge.**



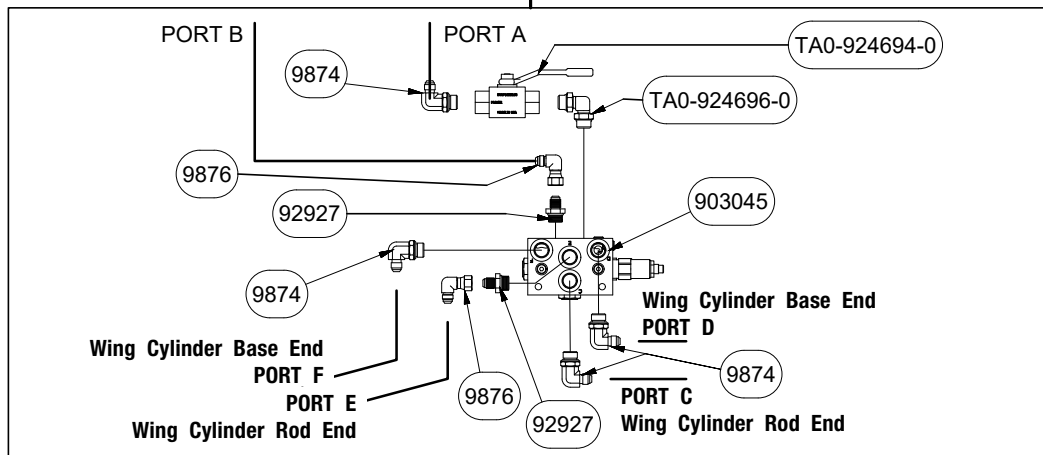
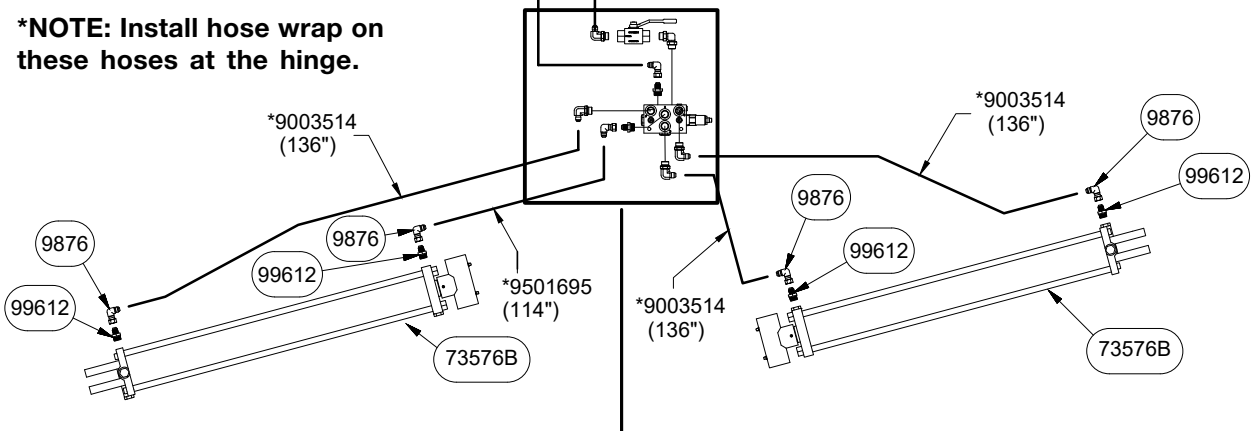
**Hydraulic Assembly (continued)**

**Hose Routing Diagram 3**

**Single Hydraulics with Valve #903045**  
**30'-32' Units With Wing Wheels**  
**1645 With Optional Wing Wheels**  
**1645D With Standard Wing Wheels**

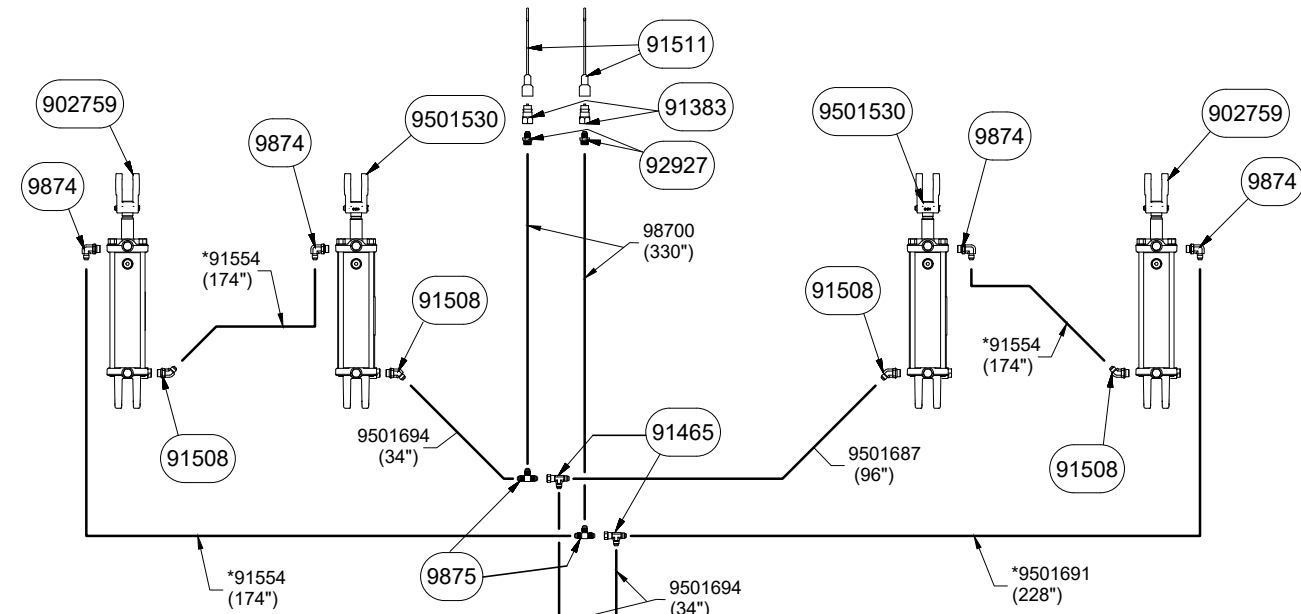


**\*NOTE: Install hose wrap on these hoses at the hinge.**

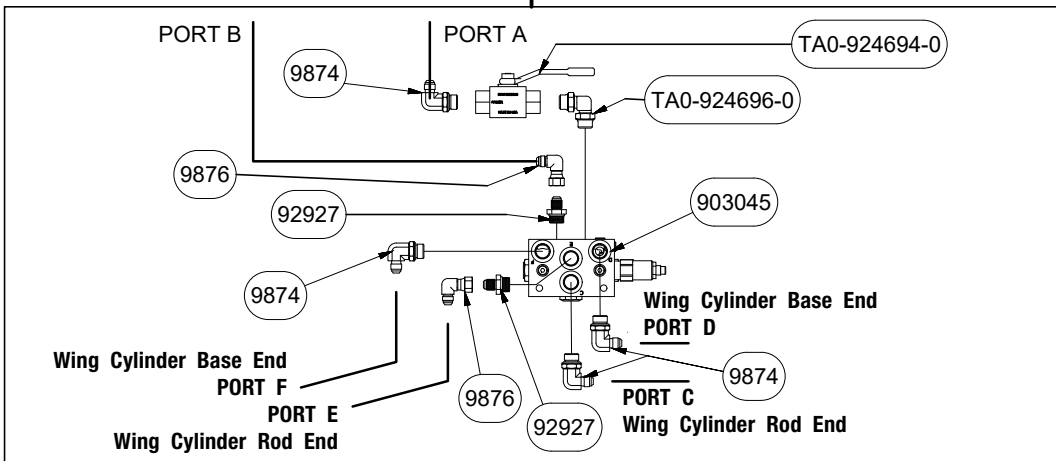
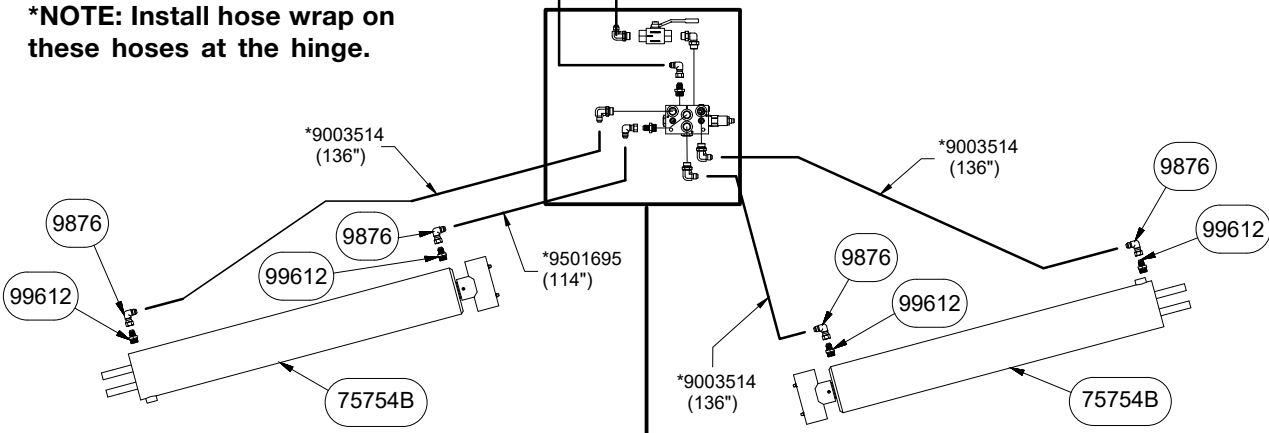


**Hydraulic Assembly (continued)**

**Hose Routing Diagram 4**  
**Single Hydraulics with Valve #903045**  
**34'-40' Units With Wing Wheels**  
**1645 With Standard Wing Wheels**  
**1645D With Standard Wing Wheels**



**\*NOTE: Install hose wrap on these hoses at the hinge.**





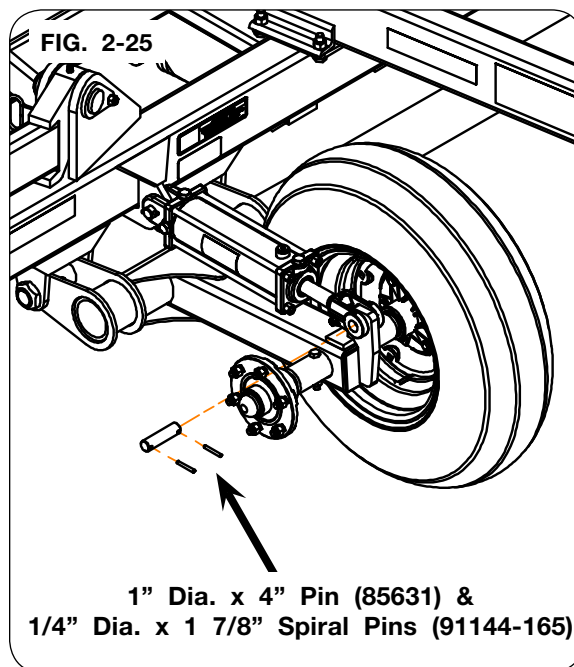
## Hydraulic Assembly (continued)

### Purging A Hydraulic System

#### **WARNING**

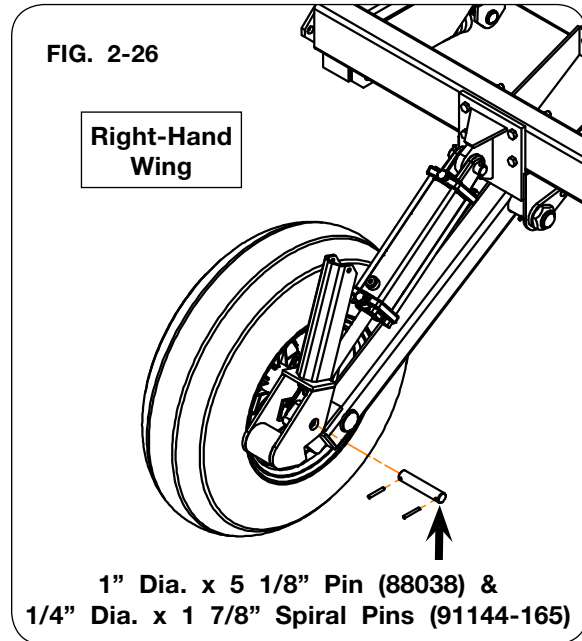
- RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.

1. Purge air from system as follows:
  - A. Clear all personnel and objects from the area, including where the machine will have full range of motion during the hydraulic movement. Remove transport locks from the machine.
  - B. Pressurize the system and maintain the system at full pressure for at least 5 seconds after the cylinder rods stop moving, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
  - C. Check oil reservoir in the hydraulic power source and refill as needed.
  - D. Pressurize the system again to reverse the motion of step B. Maintain pressure on the system for at least 5 seconds after the cylinder rods stop moving, or hydraulic motors have completed the required movement. Check that all movements are fully completed.
  - E. Check for hydraulic oil leaks using cardboard or wood. Tighten connections according to directions in the Torque Specifications in the MAINTENANCE section.
  - F. Repeat steps in B, C, D, and E 10-12 times.
2. Secure the rod end of right-hand and left-hand main frame assembly cylinders to the rockshaft using the 1" Dia. x 4" pins (85631) and 1/4" Dia. spiral pins (91144-165) as shown in FIG. 2-25.

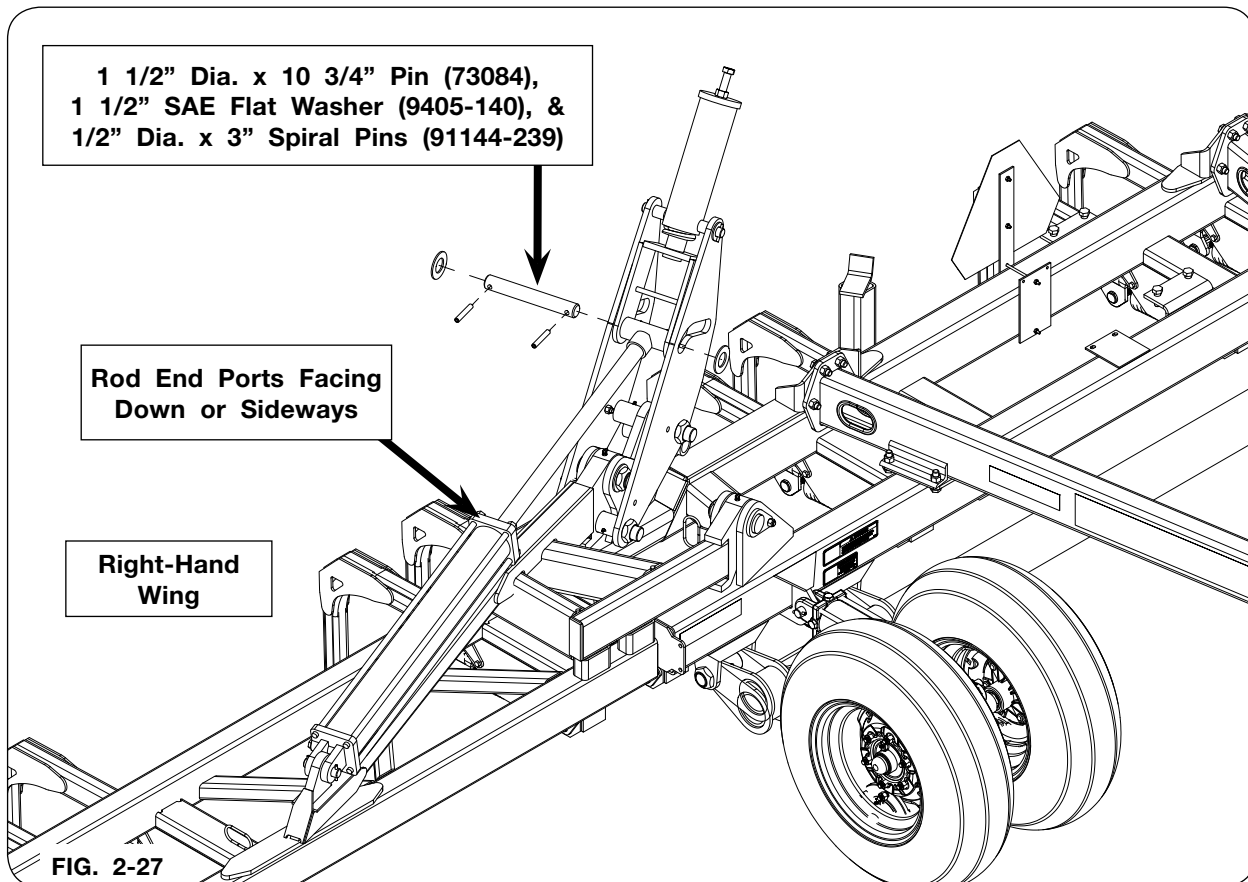


**Hydraulic Assembly (continued)**

4. Fasten the rod end of the right-hand and left-hand wing lift wheel assembly cylinders and gravity latches (73118B) with 1" Dia. x 5 1/8" pins (88038) and 1/4" Dia. spiral pins (91144-165) as shown in FIG. 2-26.

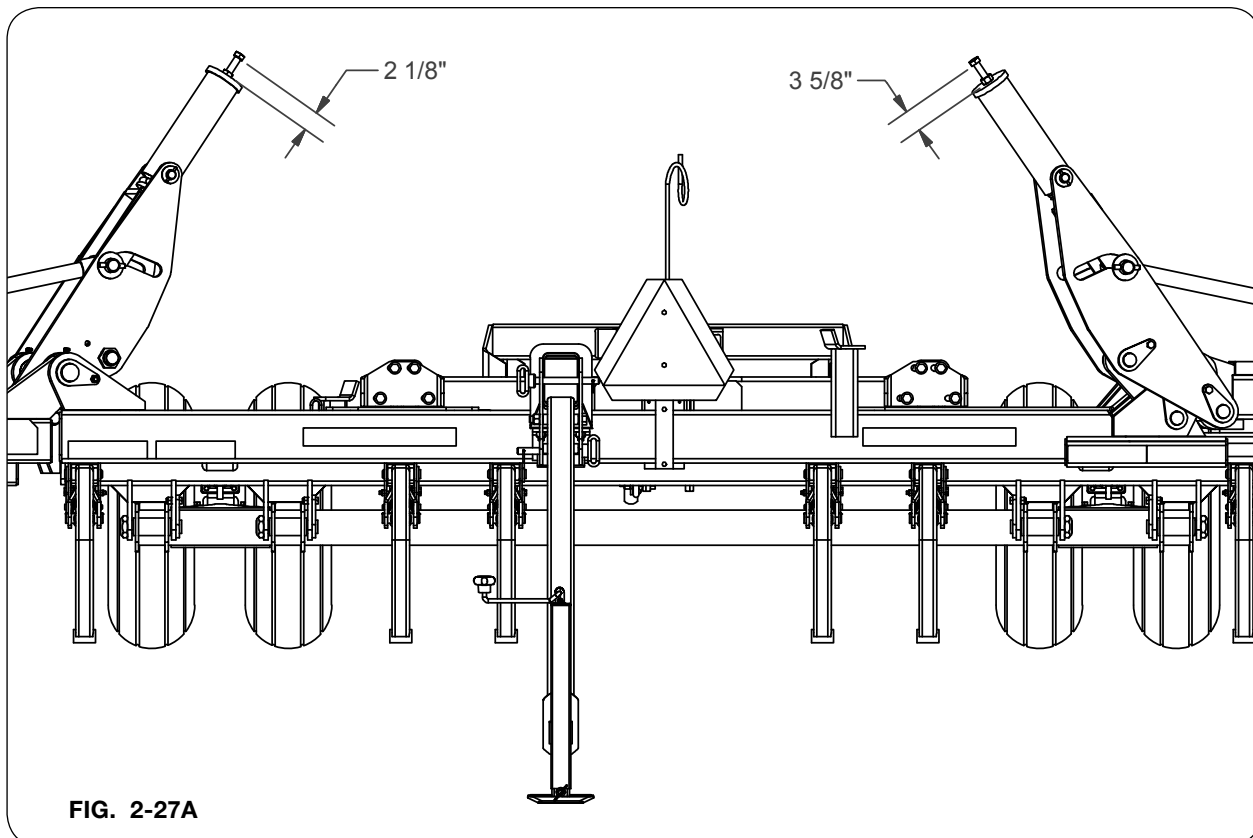


5. Insert the rod end of the wing fold cylinders on right-hand and left-hand side of the unit between the yoke weldment (73562B) and linkage plates (73480B). Secure using 1 1/2" Dia. x 10 3/4" pin (73084), 1 1/2" SAE flat washers (9405-140), and 1/2" Dia. x 3" spiral pins (91144-239).



**Weight Transfer System Initial Settings**

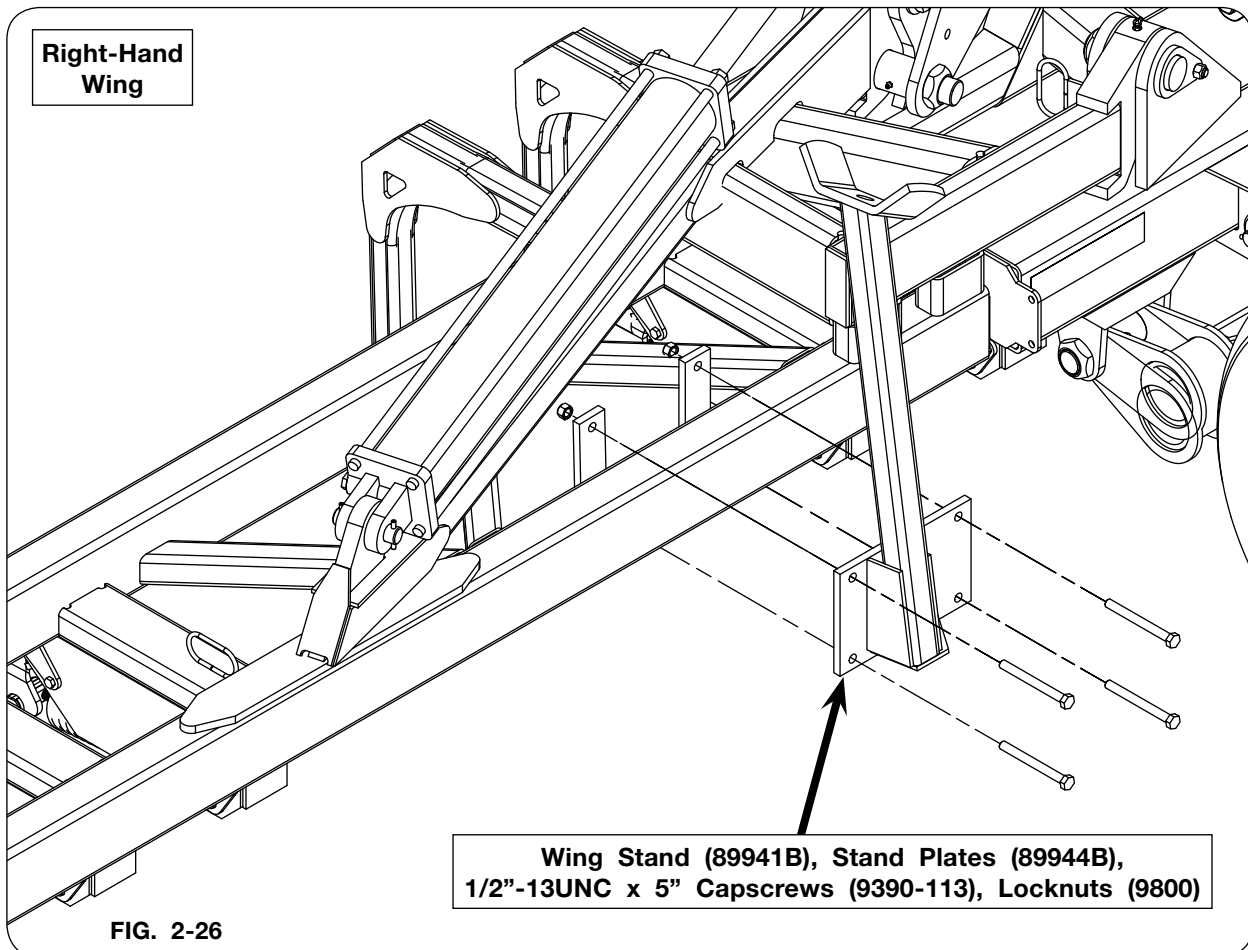
1. Tighten left-hand wing adjustment bolt until there is 2 1/8 inches from the top of the spring can to the under side of the adjustment bolt (FIG. 2-27A). Tighten the jam nut tight against the spring can.



2. Tighten the right-hand wing adjustment bolt until there is 3 5/8 inches from the top of the spring can to the under side of the adjustment bolt (FIG. 2-27A). Tighten the jam nut tight against the spring can.
3. Refer to OPERATION section for proper in-field adjustments of the weight transfer system.

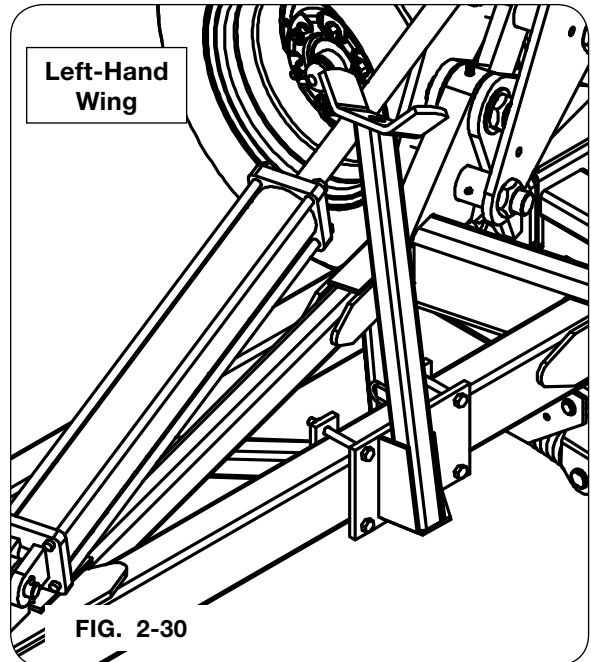
**Wing Stands**

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

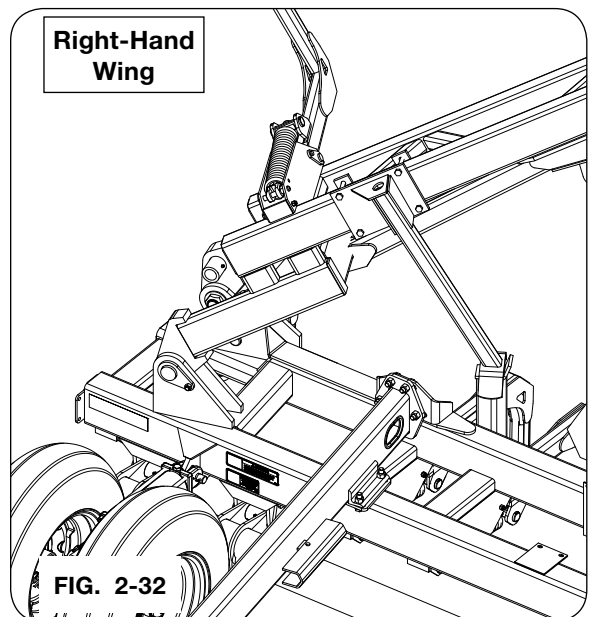
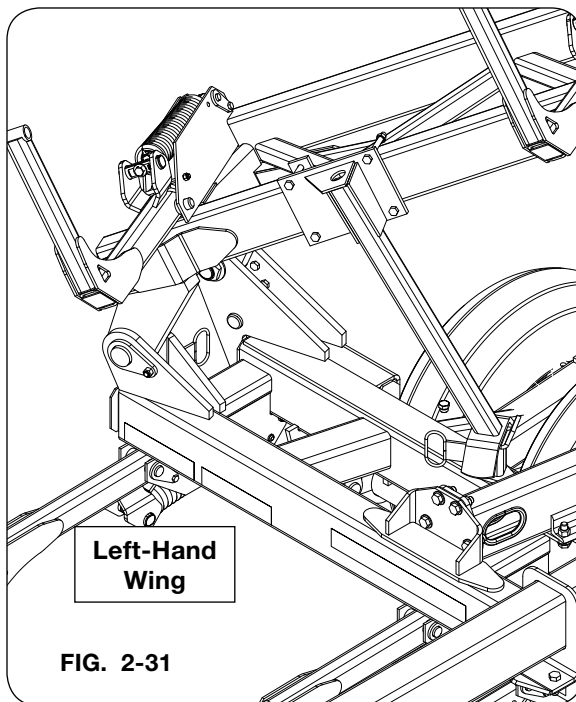


**Wing Stands (continued)**

2. Loosely mount the wing stand (89941B) to the rear of the left-hand wing with stand plates (89944B), 1/2"-13UNC x 5" capscrews (9390-113), and 1/2"-13UNC locknuts (9800) as shown in FIG. 2-30.



3. Fold the wings and slide the assembled wing stands to rest on the base wing stands as shown in FIG. 2-31 and FIG. 2-32. Tighten hardware accordingly.



## Transport Marking & Light Kit (73146B)

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

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

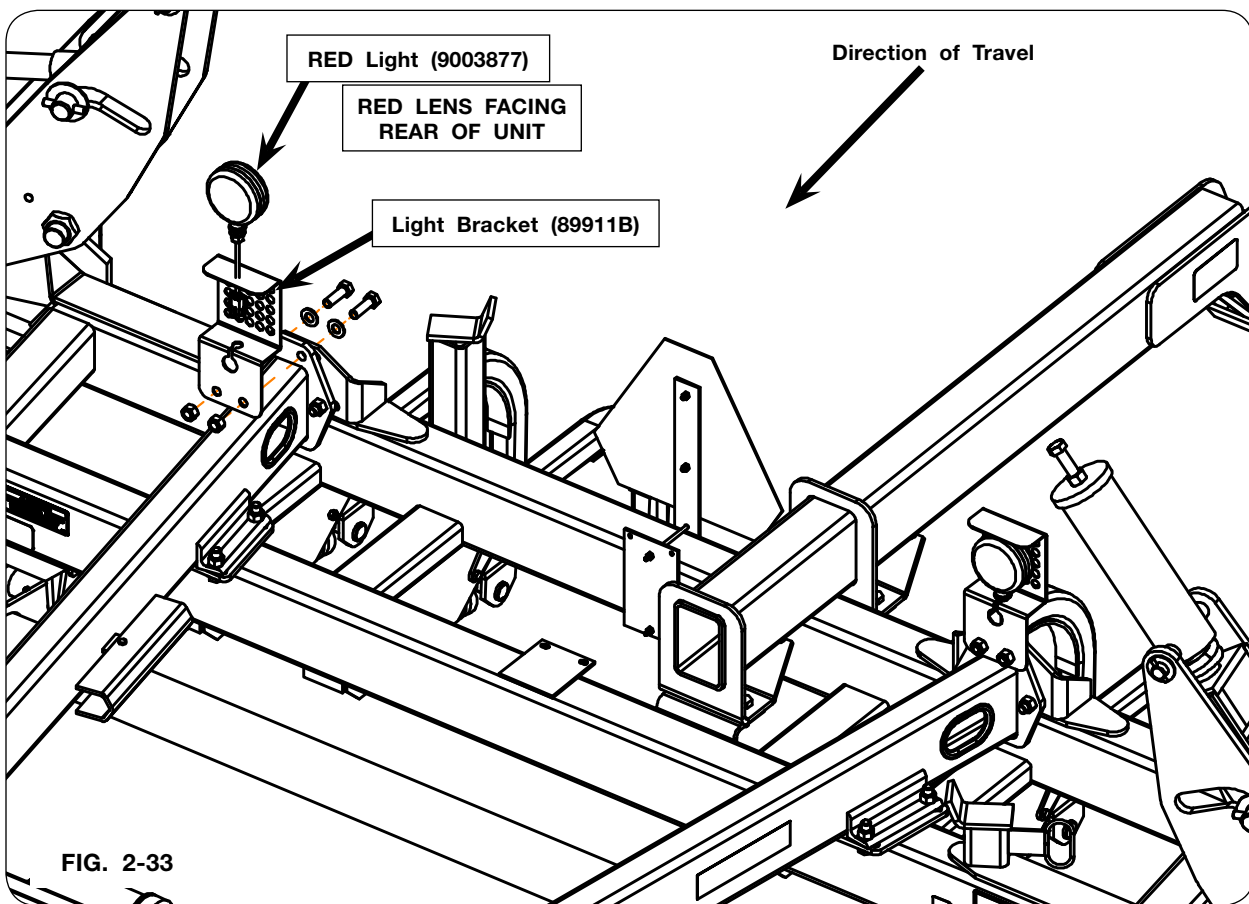
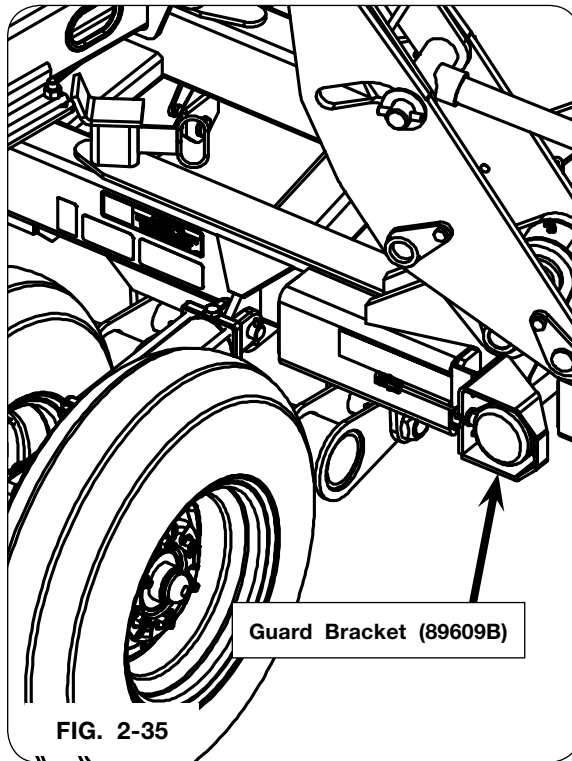
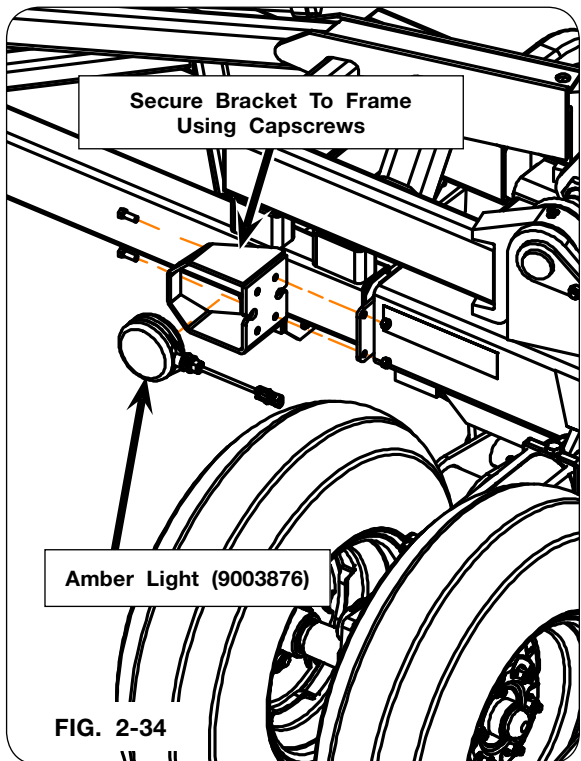


FIG. 2-33

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

2. Attach the guard bracket (89609B) to the outer most front corners of the main frame as shown in FIG. 2-34 and FIG. 2-35 using two 3/8"-16UNC x 1" capscrews (9390-055) and locknuts (9928). Use same procedure for both sides.



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

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

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

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

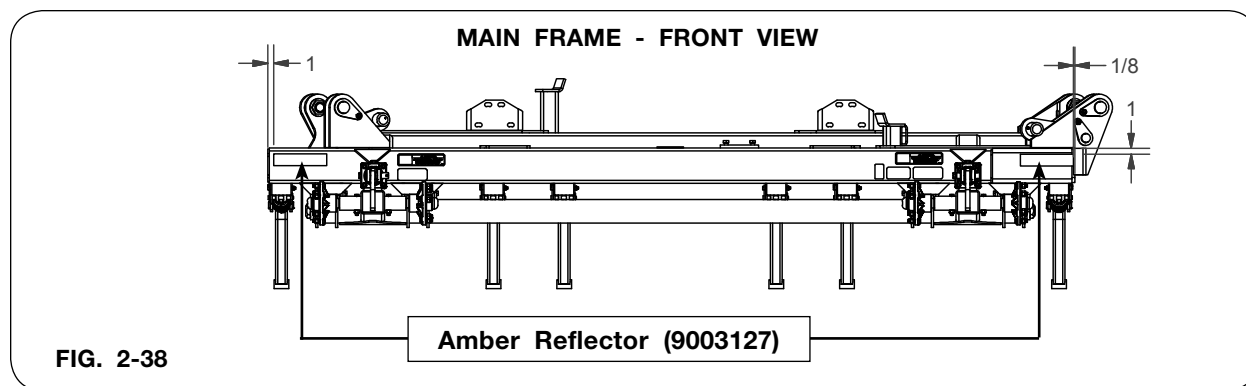
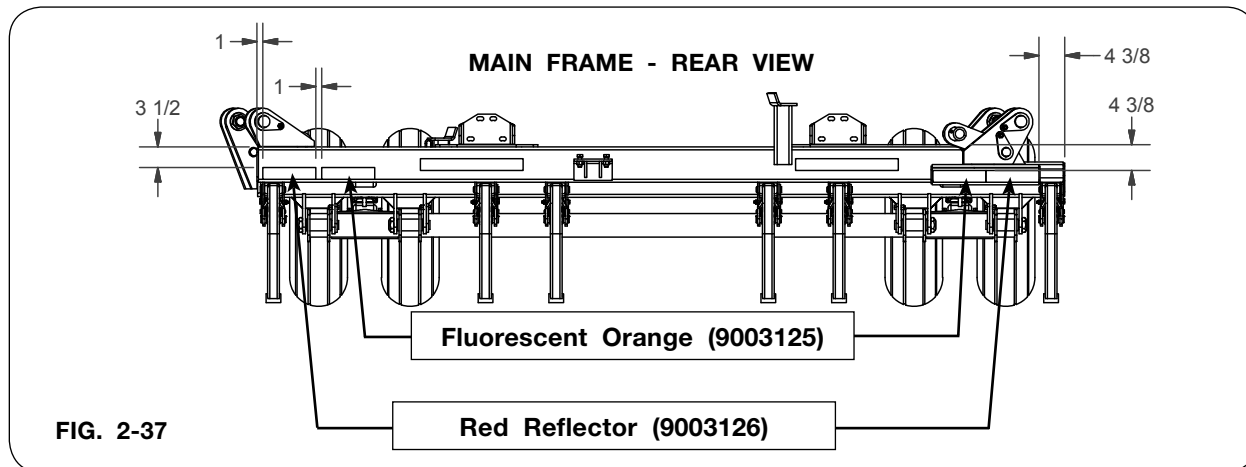
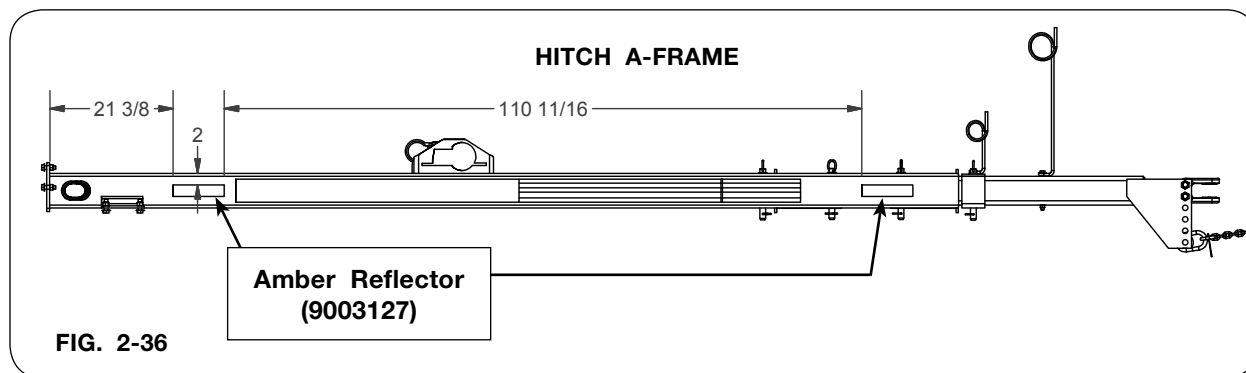
**Transport Markings**

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

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

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

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





**Transport Marking & Light Kit (73146B) (continued)****Wiring Harness**

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

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

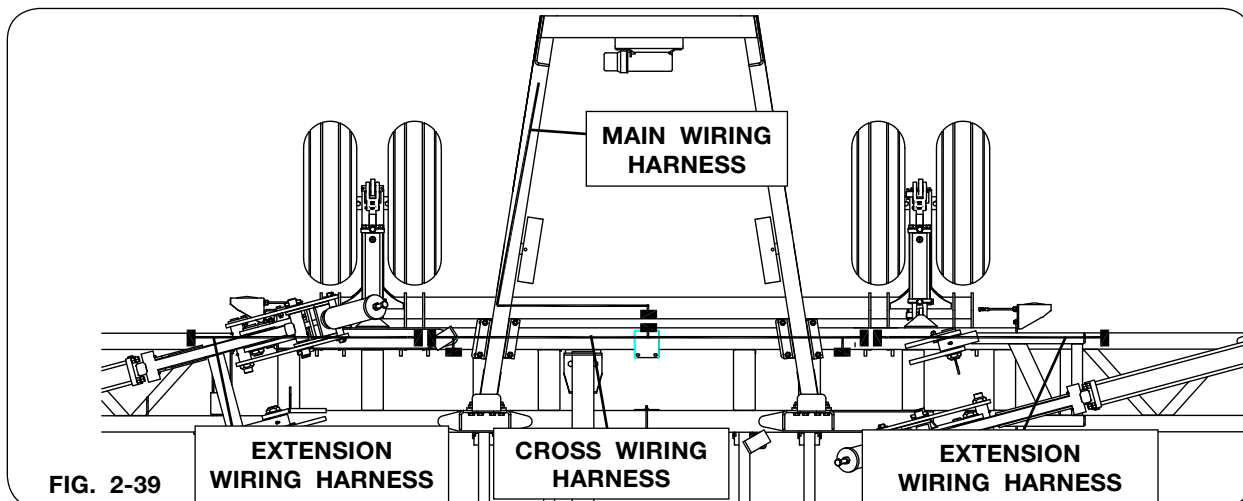
1. Route the main harness (89467) along the extendible tongue and the hitch frame. Allow sufficient slack at the hitch for the machine to turn (approximately 4 ft.).
2. Attach the wiring extension (86466) to the main harness (89467).

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

3. Route the legs labeled “R” to the right side of machine, and the legs labeled “L” to the left side.
4. Connect the three pin connectors on the cross harness to the 3 pin connectors on the red taillights.
5. Coil up any excess and secure harness to frame with cable ties.

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

6. Route extension harnesses along the main frame and connect it to the amber extremity lights.
7. Tie the extension harnesses to the extremity light mounting bracket through the extra hole in the light bracket.
8. Coil up any excess and tie the remainder to the main frame with cable ties. Be sure to avoid contact with the fold cylinders, fold linkage, or any other moving parts.

**FIG. 2-39**

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

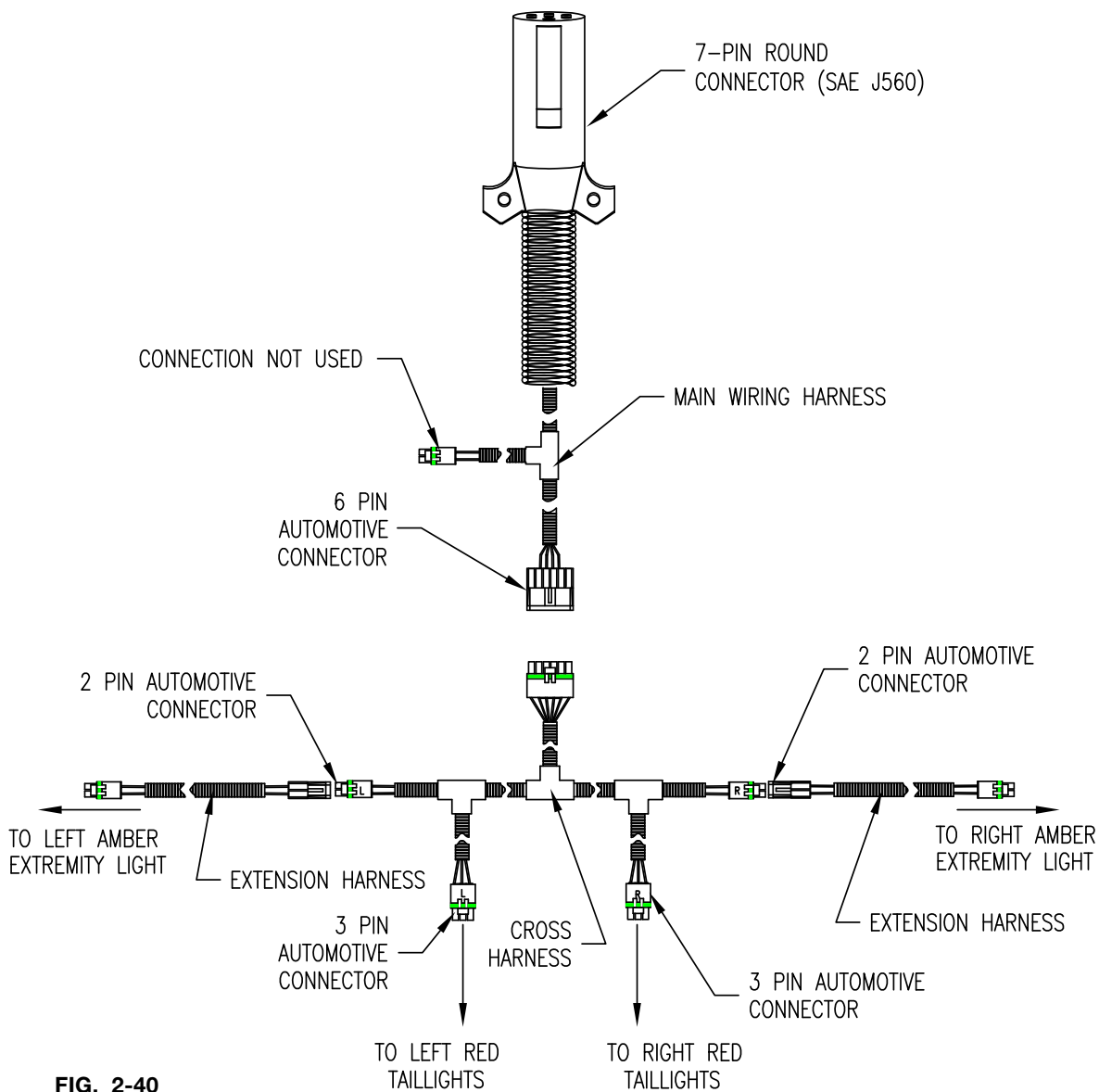


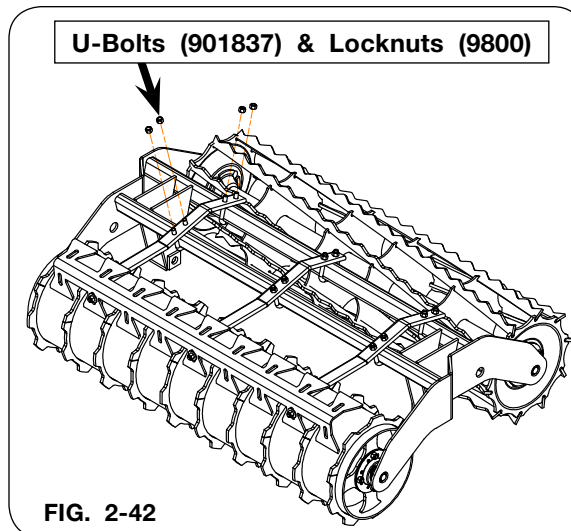
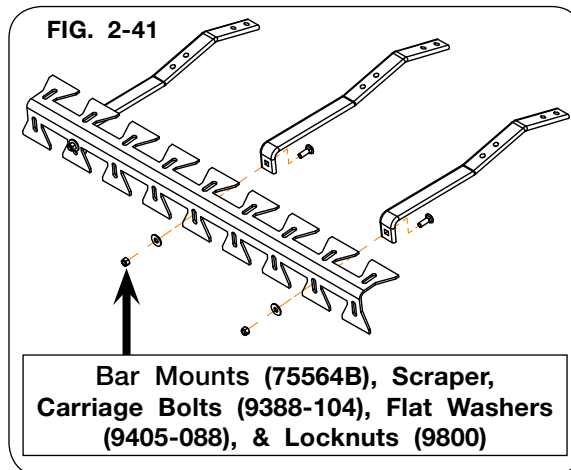
FIG. 2-40

**Drum Scraper Assembly**

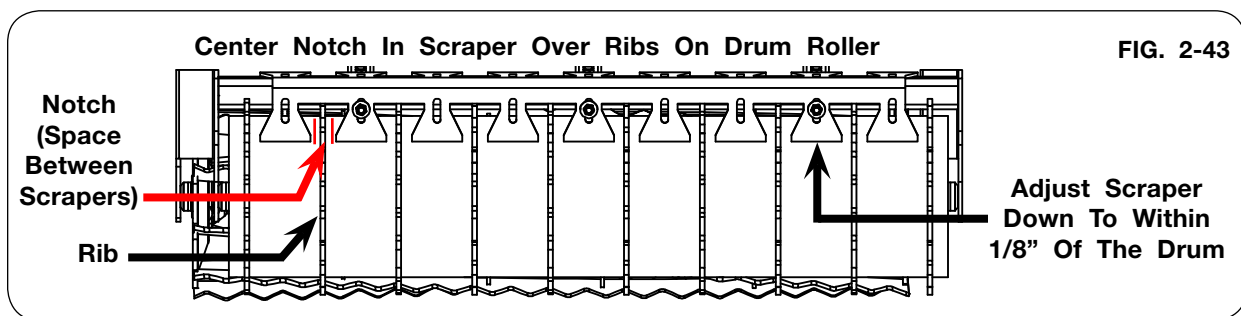
1. Locate scrapers, bar mounts and hardware bags.
2. Install arm (75564B) to scraper using 1/2"-13UNC x 1 1/2" carriage bolts (9388-104) passing bolt through arm first. (FIG. 2-41)

**NOTE:** 3' & 4' baskets require 2 bar mounts.  
 5' Baskets require 3 bar mounts.  
 6' baskets require 4 bar mounts.

3. Install 1/2" USS flat washers (9405-088) and 1/2"-13UNC locknuts (9800) on scraper. (FIG. 2-41)
4. Slide arm all the way to the bottom of the scraper slot.
5. Lay bar mounts/scraper assembly on top of basket frame near working position. (FIG. 2-42)
6. Install U-bolts (901837) from bottom of basket frame through arm. (FIG. 2-42)



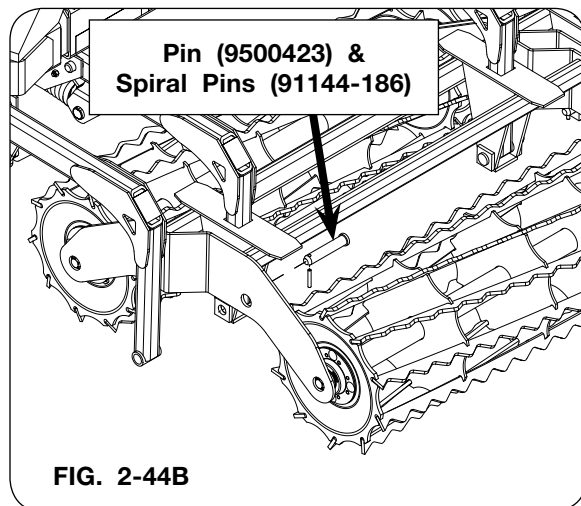
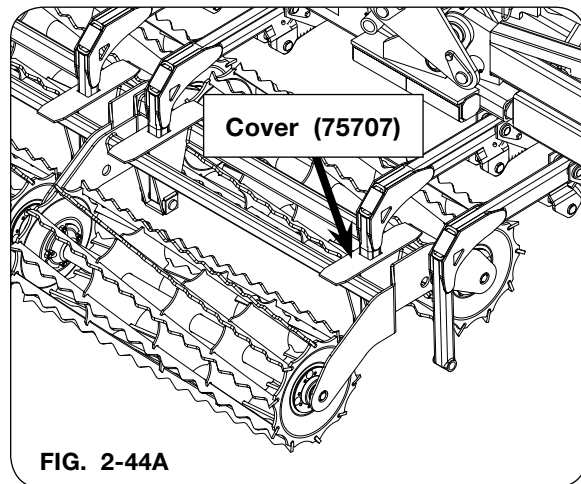
7. Center notch in scraper over ribs on drums and secure scraper assembly with four 1/2"-13UNC locknuts per bar mount. (FIG. 2-43)



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.

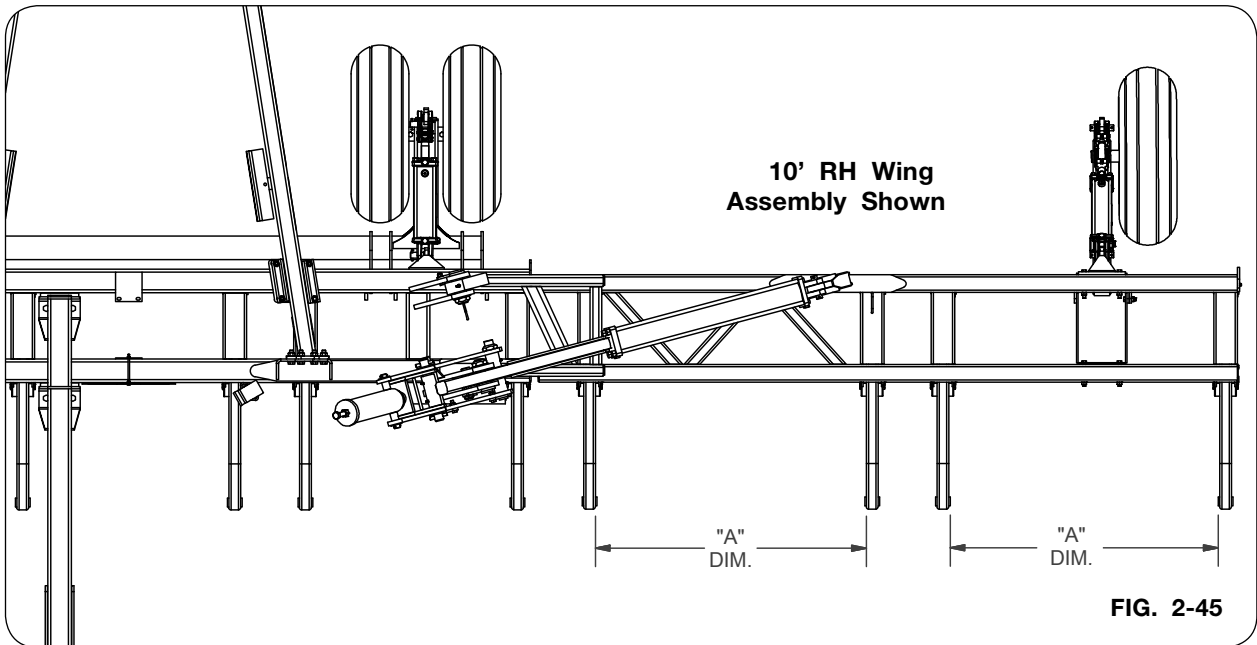
## Basket/Drum & Frame Assembly

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.
2. Locate in parts box/crate (26'-32' Machines - 75875B; 34'-40' Machines - 75812B) 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. 2-44A.
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). (FIG. 2-44B)



**Basket/Drum & Frame Assembly (continued)**

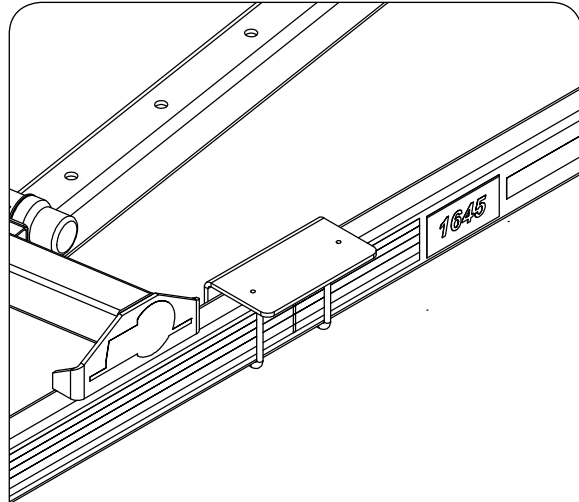
4. Using a safe lifting device rated at 750 lbs. minimum, lift basket/drum assembly into position on the mounting arms. Identify baskets and mating wings using Table 3-2 and FIG. 2-45. Units with two baskets may be assembled in either direction. Units with drums have the drums mounted to the rear. Install the basket mounting pins and spiral pins.
5. Repeat for each basket/drum assembly.



"A" DIM. (FIG. 2-45)	BASKET WIDTH	FRAME WIDTH
34"	4'	47"
46"	5'	59"
58"	6'	71"

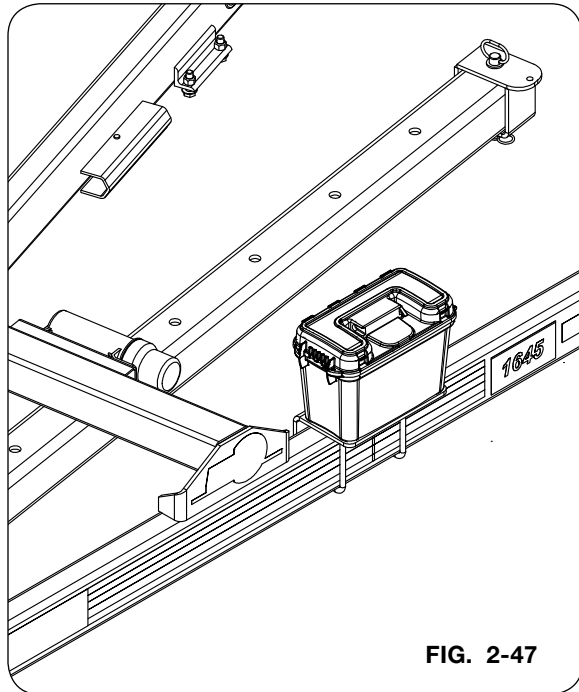
### **Attach Storage Box**

1. Attach the storage box mounting bracket (77400B) on the left-hand side of the hitch frame with two 1/2"-13UNC U-bolts (9502320) and four 1/2"-13UNC lock nuts (9800) as shown in FIG. 2-46.



**FIG. 2-46**

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. 2-47).



**FIG. 2-47**

**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.

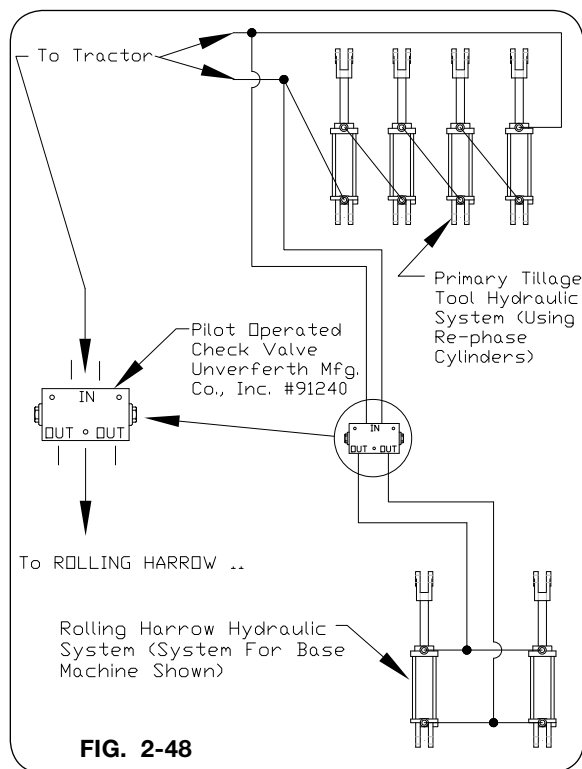
**⚠ WARNING**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**
- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR’S MANUAL FOR PROPER PROCEDURES.**
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

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.



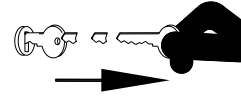
**FIG. 2-48**

## Optional Dual Hydraulic Kit #73173

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.

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

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



### **WARNING**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. LEAKS OF HIGH-PRESSURE FLUIDS MAY NOT BE VISIBLE. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**
- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

1. Remove the hoses that supply valve Ports "A" and "B" from the tees shown in FIG. 2-49. Attach a cap to the tee where the hoses were removed.
2. Redirect the fittings in Ports "A" and "B" towards the right-hand side of the machine as shown in FIG. 2-49.
3. Switch the hoses that go to the Ports "A" and "B" from the left-hand to the right-hand side of the machine (refer to FIG. 2-49).
4. Attach the 90° elbows (9897) to the end of the loose hoses (refer to FIG. 2-49).
5. Secure the hoses (9500369) to the 90° elbows (9897) as shown in FIG. 2-49. Tighten all fittings and route these hoses through the right side of the hitch A-frame.
6. Install the #91383 male tip couplers and #91511 dust covers on the ends of the hoses from step #5. The wheel lift circuit should now be complete. Check that the base and rod ends of the lift cylinders are connected to the same side of the circuit.

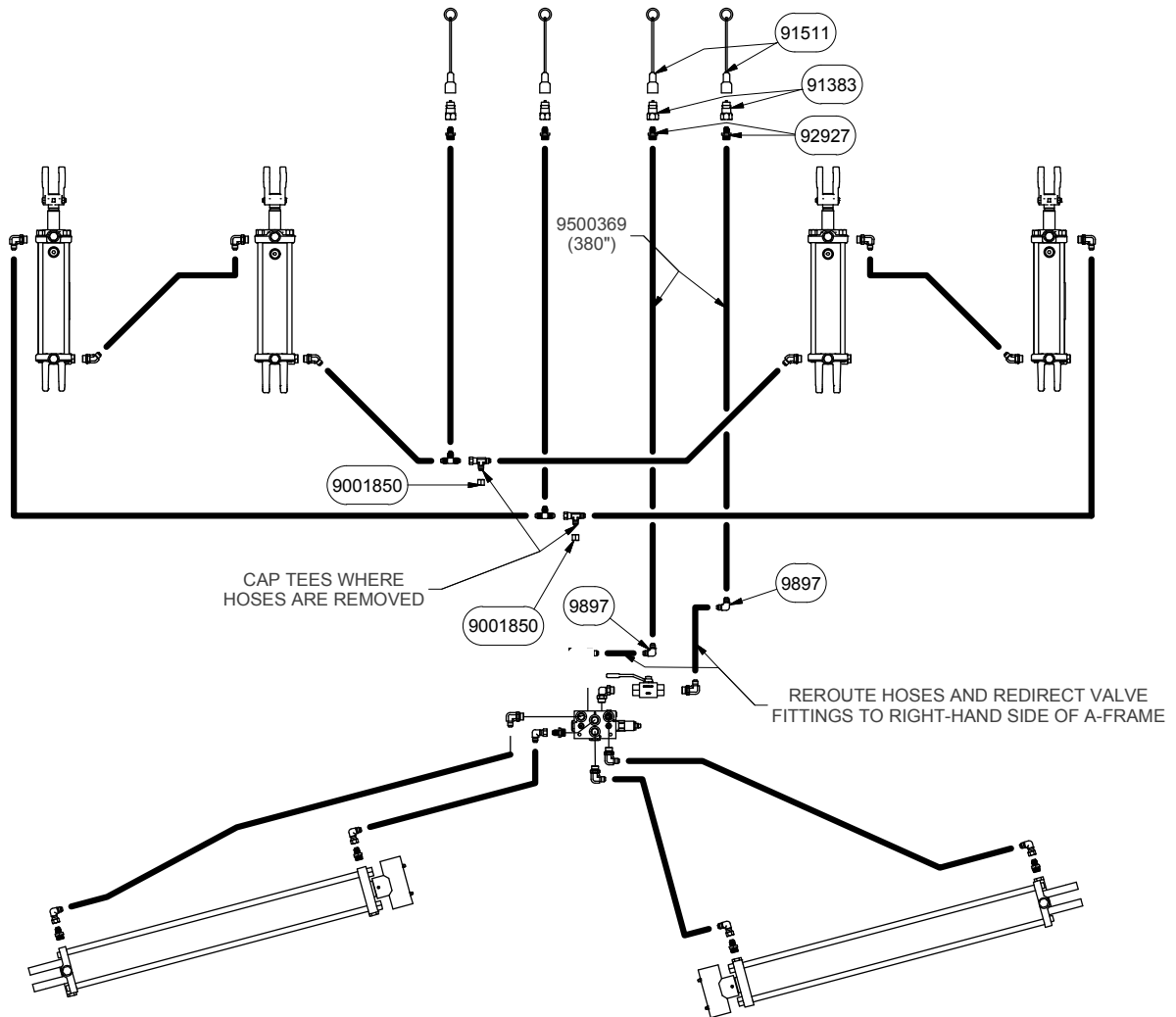
### **IMPORTANT**

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



**Optional Dual Hydraulic Kit #73173 (continued)**

**Dual Hydraulics with Valve #903045**



**FIG. 2-49**

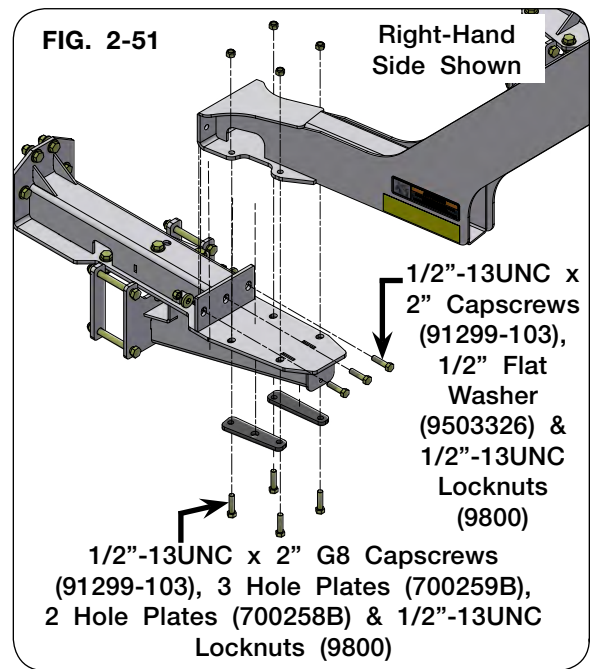
**Gooseneck Hitch Assembly (Optional)**

**⚠ WARNING**

- KEEP HANDS CLEAR OF PINCH POINT AREAS.
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.
- FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 1,200 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.

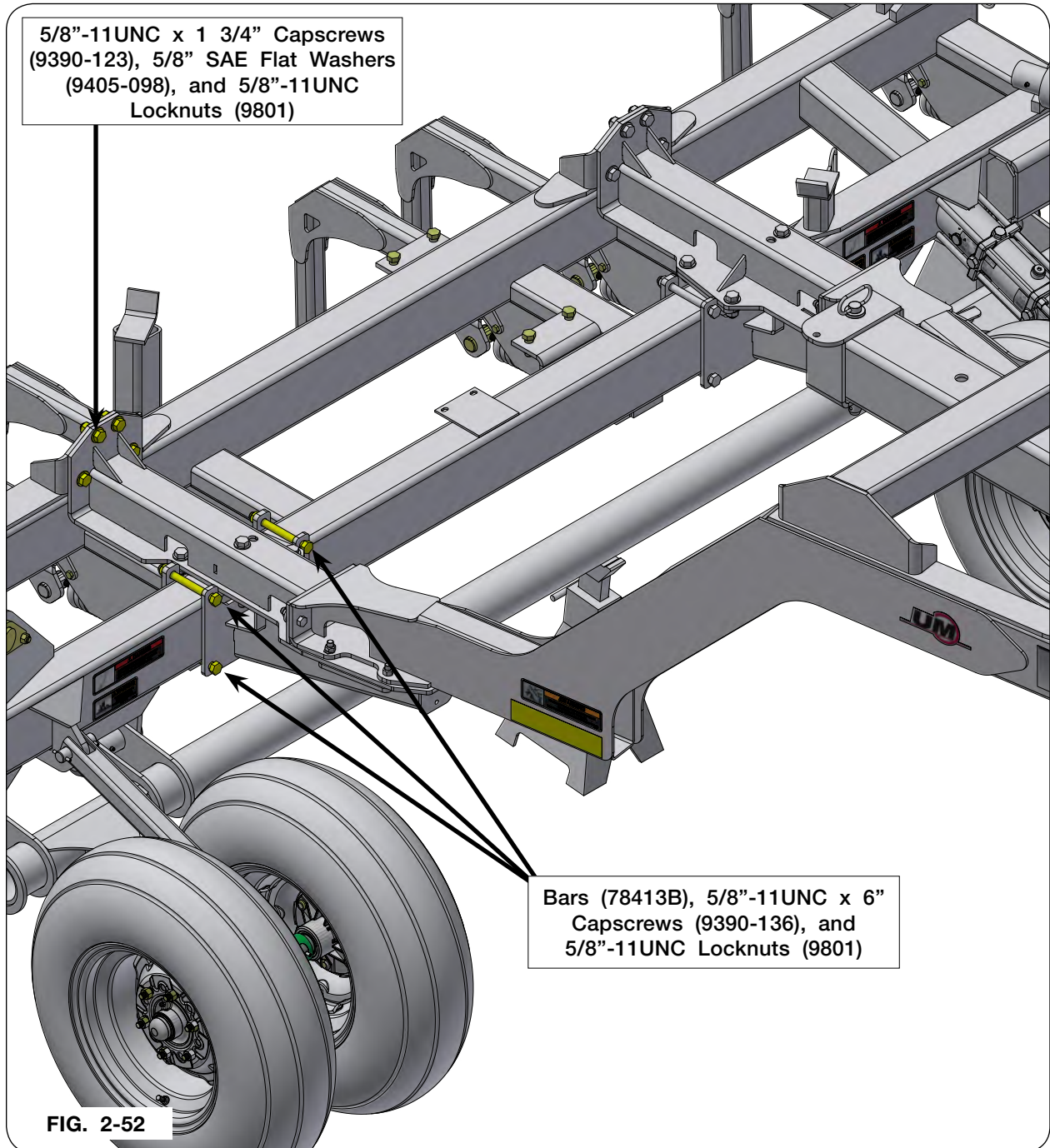
1. Using a safe lifting device and supports rated at a minimum 1,200 lbs. on the gooseneck hitch and 100 lbs. on the hitch adapters, remove the sixteen 5/8"-11UNC x 2" capscrews (9390-124), 5/8" flat washers (9405-098) and 5/8"-11UNC locknuts (9801) from the hitch adapters and on the two ends at the rear of the gooseneck hitch. (FIG. 2-51)

2. Using a safe lifting device rated at a minimum of 100 lbs., lift left-hand and right-hand gooseneck hitch adapters into position to the gooseneck a-frame hitch assembly (FIG. 2-451). Loosely secure vertically with 1/2"-13UNC x 2" grade 8 capscrews (91299-103), 3 hole plates (700259B), 2 hole plates (700258B), and 1/2"-13UNC locknuts (9800) (FIG. 2-51). Secure horizontally with 1/2"-13UNC x 2" grade 8 capscrews (91299-103), 1/2" flat washers (9503326), and 1/2"-13UNC locknuts (9800) (FIG. 2-51).



**Gooseneck Hitch Assembly (Optional) (continued)**

- Using a safe lifting device and supports rated at a minimum 1,200 lbs., loosely attach the gooseneck hitch and adapters to the main frame. Secure the front with four bars (78413B), eight 5/8"-11UNC x 6" capscrews (9390-136), and eight 5/8"-11UNC locknuts (9801). Secure the rear with eight 5/8"-11UNC x 1 3/4" capscrews (9390-123), sixteen 5/8" SAE flat washers (9405-098), and eight 5/8"-11UNC locknuts (9801) (FIG. 2-52)

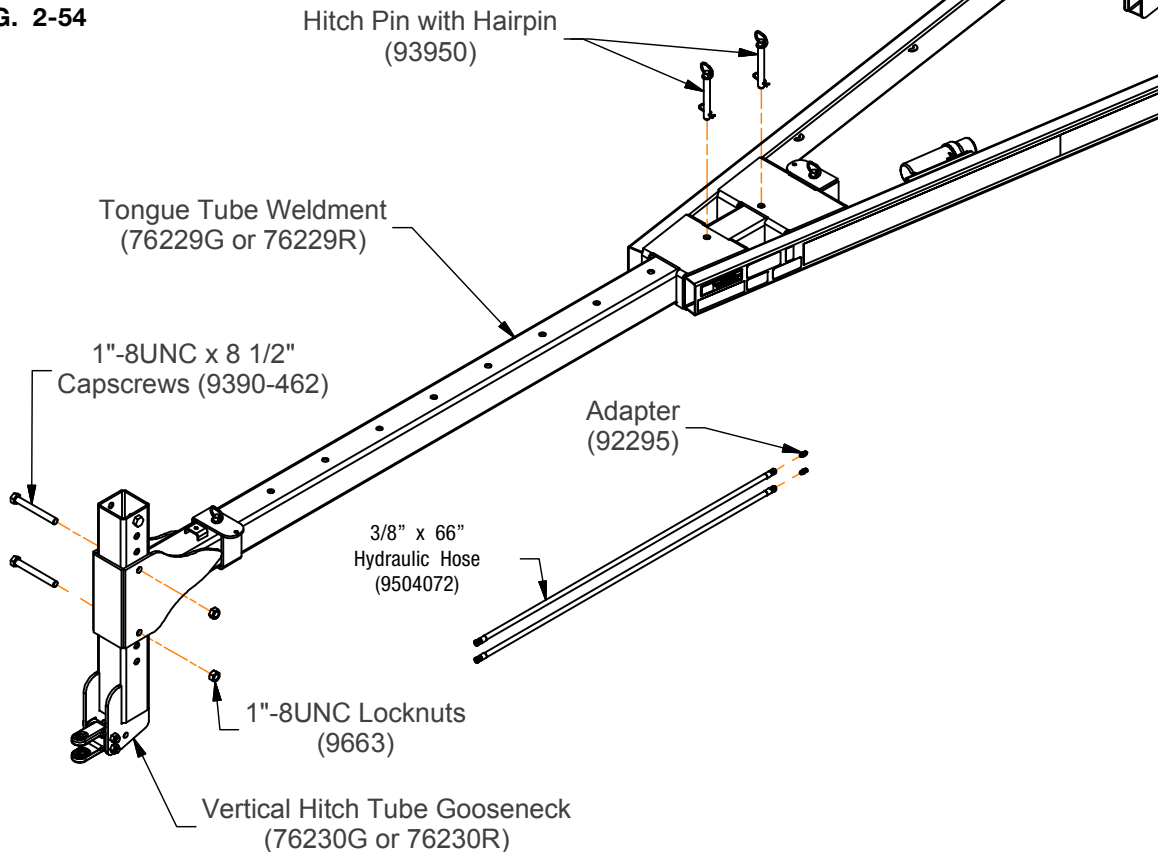


- Torque hardware according to "Torque Chart" in MAINTENANCE section.

**Gooseneck Hitch Assembly (Optional) (continued)**

5. With the hitch still supported with a safe lifting device up to 1400 lbs., use an additional safe lifting device up to 150 lbs. and adjust the vertical post of the hitch by removing the 1"-8UNC x 8 1/2" capscrews (9390-462) and 1"-8UNC locknuts (9663). Then retain the vertical hitch tube into position with the previously removed hardware. (FIG. 2-54)

**FIG. 2-54**



6. Adjust the tongue length so the outside ends of the lead tool/finishing attachment will pass under the arched portion of the tongue when performing a sharp turn. Remove the two hitch pins with hairpins (93950) retaining the tongue tube weldment (76229G or 76229R). Extend the tongue tube weldment (76229G or 76229R) then reinsert the two hitch pins with hairpins (93950). (FIG. 2-54)
7. Install the adapters (92295) and hose extensions (9504072) to the Rolling Harrow hoses that lead to the tractor. Route the hoses along the inside of the frame and cable tie them in place. (FIG. 2-54)

Refer to "Hitch" in this section.

## **SECTION III**

# **Operation**

General Operation Information .....	3-2
Preparing Tractor .....	3-2
Preparing Primary Tillage Tool .....	3-3
Rear Hitch On Primary Tillage Tool .....	3-3
Preparing Rolling Harrow.....	3-4
Bolts & Nuts.....	3-4
Pins.....	3-4
Hydraulics .....	3-4
Lubrication .....	3-4
Tire Pressure .....	3-4
Attaching Rolling Harrow To Primary Tillage Tool or Tractor .....	3-5
Hydraulic Hook-Up.....	3-6
Unfolding The Wings.....	3-7
Transport Chain.....	3-8
Transporting .....	3-9
Unhitching .....	3-11
Field Adjustments.....	3-12
Wing Weight Transfer System .....	3-12
Rolling Harrow Basket/Drum .....	3-12
Basket Pitch Adjustment.....	3-13

### 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, set up, maintenance, and operating procedures of this unit.

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

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

## Rear Hitch Height On Primary Tillage Tool

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

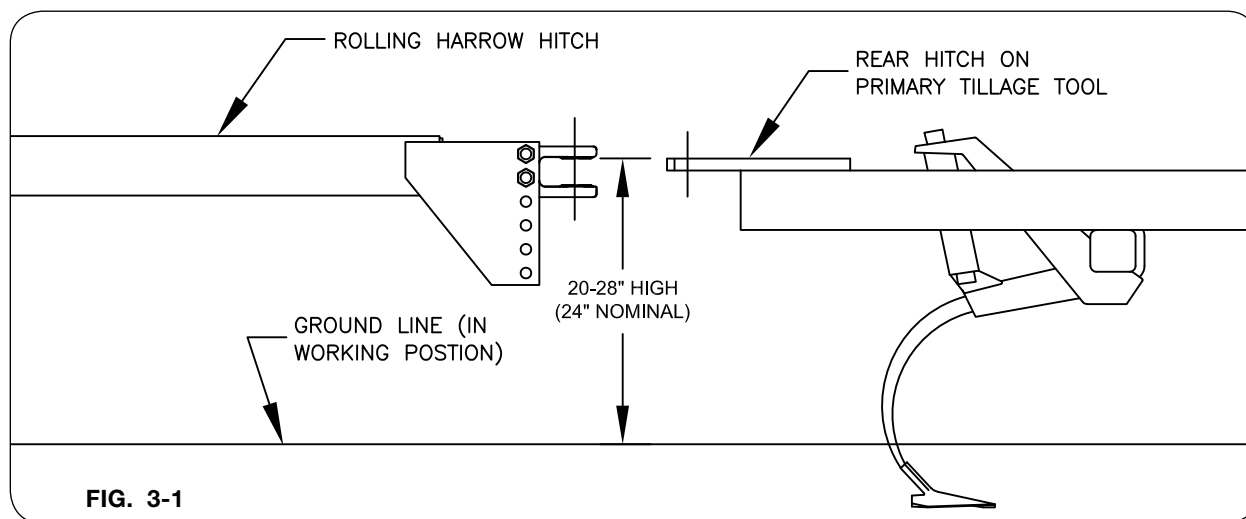


FIG. 3-1

## Preparing Rolling Harrow

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

### Bolts And Nuts

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



### CAUTION

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

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

### Pins

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

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

### Hydraulics

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

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

### Lubrication

Lubricate unit as outlined in MAINTENANCE section.

### Tire Pressure

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



### **Attaching Rolling Harrow To Primary Tillage Tool or Tractor**

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

#### **To Lengthen:**

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

#### **To Shorten:**

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

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

## Attaching Rolling Harrow To Primary Tillage Tool or Tractor

### Hydraulic Hook-Up

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

### **⚠ WARNING**

- ALWAYS RELIEVE HYDRAULIC SYSTEM PRESSURE BEFORE DISCONNECTING HOSES FROM TRACTOR OR SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.
- HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.

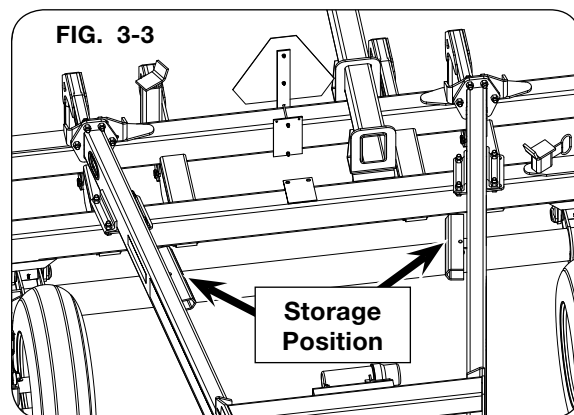
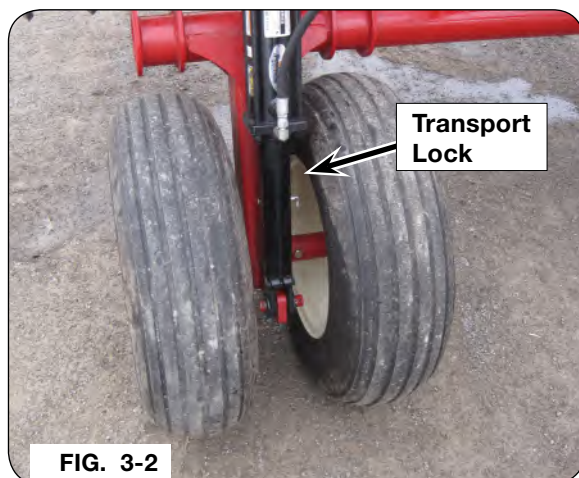
**NOTE:** Refer to SET UP section for purging process.

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

### HYDRAULIC HOOK-UP INTO A CIRCUIT USING REPHASE CYLINDERS:

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

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



## Unfolding The Wings



- **ELECTROCUTION WILL CAUSE SERIOUS INJURY OR DEATH. ELECTROCUTION CAN OCCUR WITHOUT DIRECT CONTACT. KEEP AWAY FROM ALL UTILITY LINES AND DEVICES.**

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

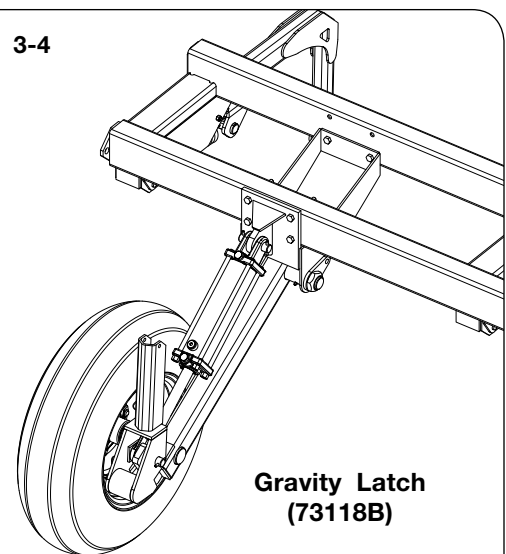
**NOTE:** Gravity latch (73118B) should automatically engage when wings fold-up.

#### **If transport locks will be removed after unfolding:**

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

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

FIG. 3-4



## Transport Chain

### CAUTION

- ALWAYS USE TRANSPORT CHAIN WHEN TRANSPORTING IMPLEMENTS. FAILURE TO USE A TRANSPORT 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.

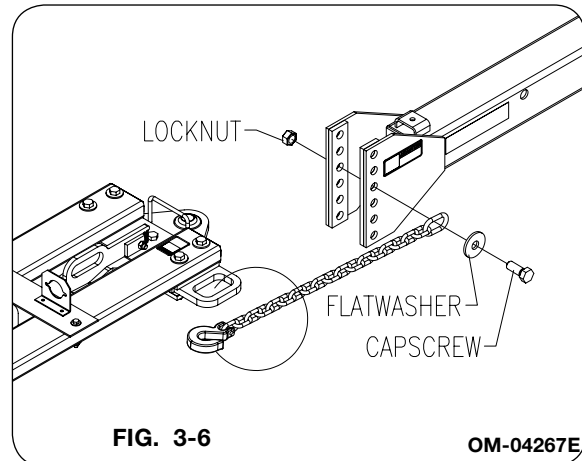
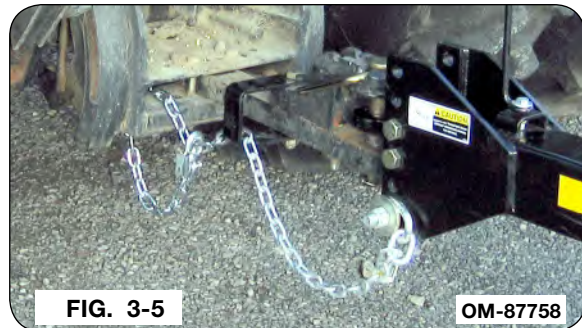
Transport chain should have a minimum rating equal to the gross weight of implement and all attachments. Use only ASABE approved chains. Allow no more slack in chain than necessary to permit turning.

### 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

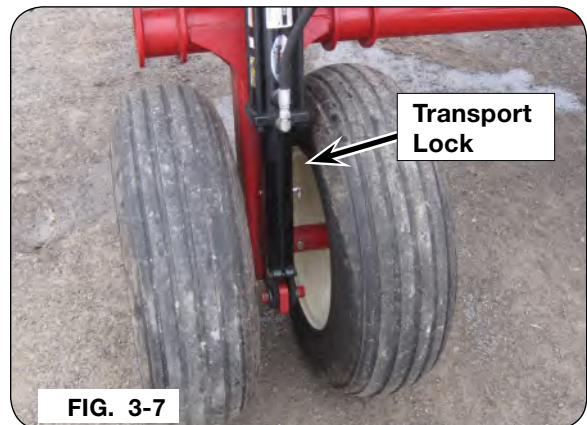
### **WARNING**

- 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 SET UP section.

### **CAUTION**

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



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

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

### **CAUTION**

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

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

See federal regulation 49 CFR 562; available at [www.govinfo.gov](http://www.govinfo.gov) for US federal law requirements.

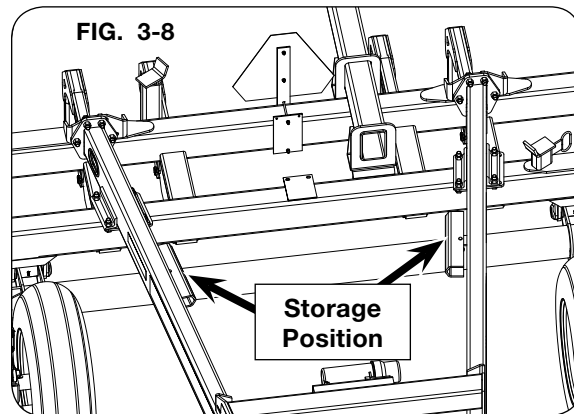
See your Unverferth dealer for additional brackets, reflectors, or lights to meet your requirements.

### Transporting (continued)

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

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

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



## **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 SET UP section for positioning of jackstand into “Parked Position”.

### **CAUTION**

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

---

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

Remove hitch pin.

### **WARNING**

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

---

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

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

## Field Adjustments

### Wing Weight Transfer System

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

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

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

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

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

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

### Rolling Harrow Basket/Drum

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

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



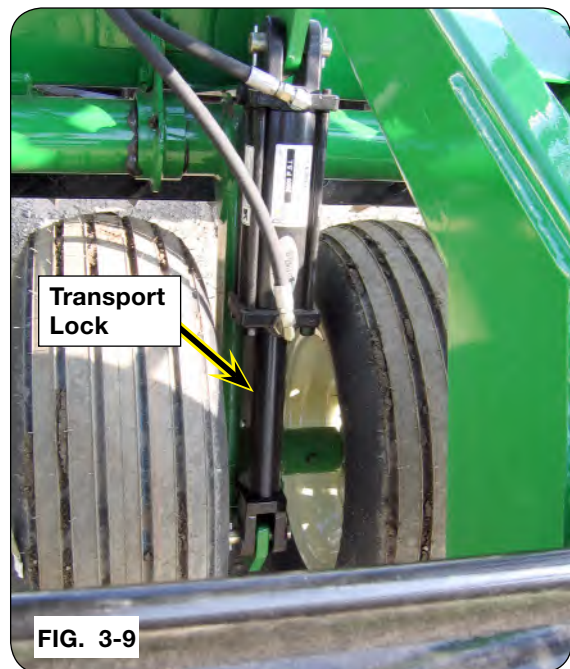
## Basket Pitch Adjustment

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

### **WARNING**

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**
- **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.



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



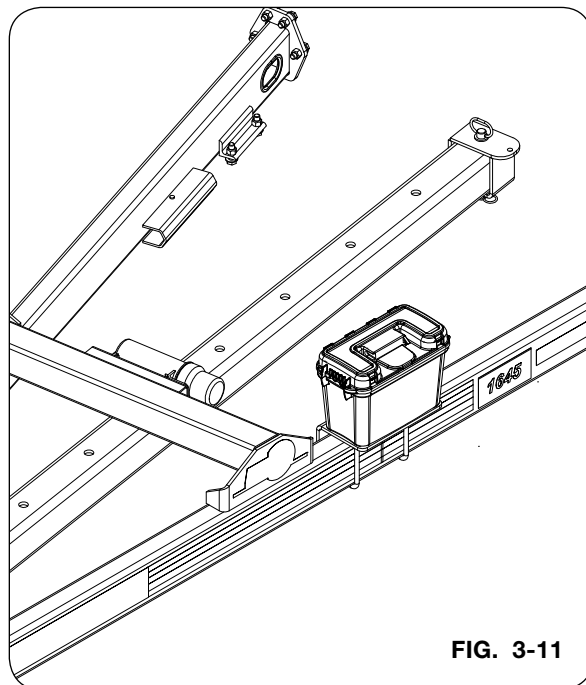
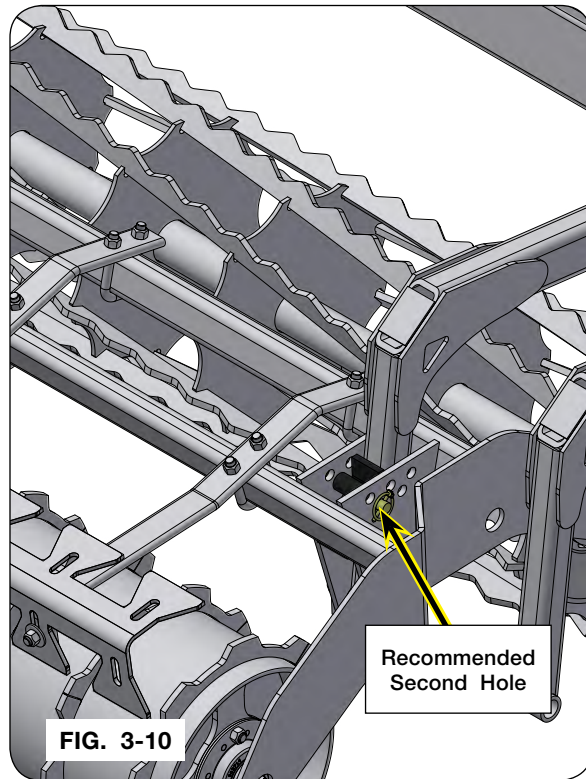
**Basket Pitch Adjustment (Optional) (continued)**

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

**NOTE:** Place the pins and spacers in the storage box when not in use. (FIG. 3-11)

**IMPORTANT**

- Only install the pin and spacer on the rear side of the basket arm. Installation of the pins on the front side of the arm could result in damage to the basket, frame, or other components



# **SECTION IV**

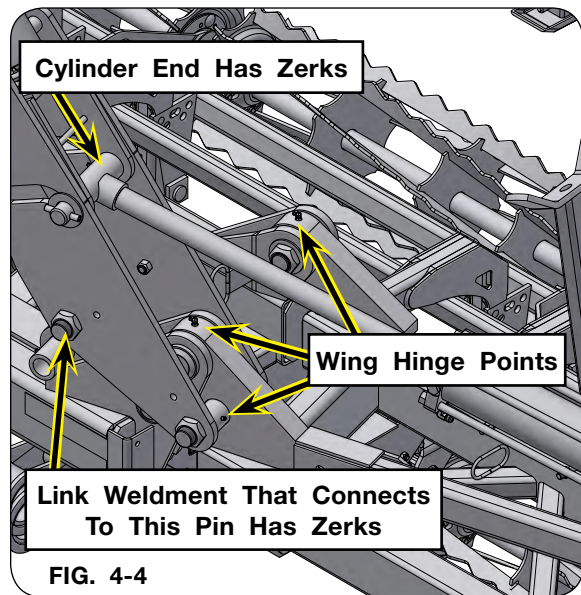
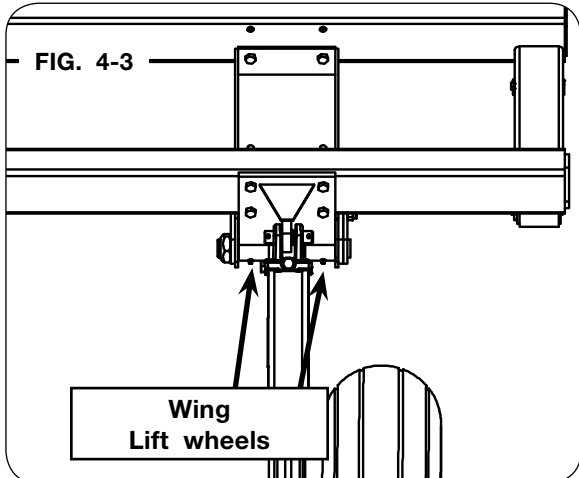
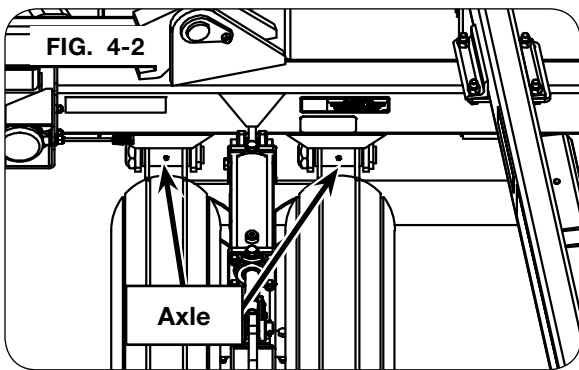
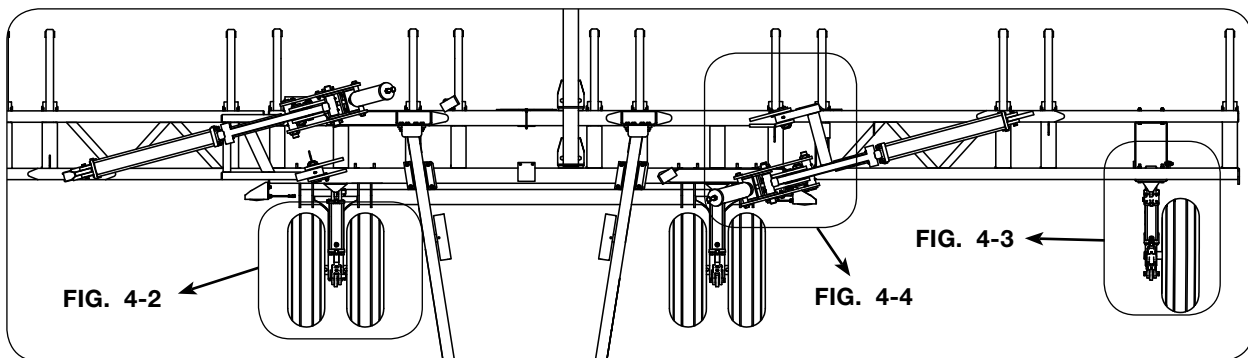
# **Maintenance**

Lubrication .....	4-2
Hydraulic System .....	4-3
Replacing Rolling Harrow Basket/Drum Bearings.....	4-4
Troubleshooting .....	4-6
Storage.....	4-7
Wheels and Tires.....	4-8
Wheel Nut Torque.....	4-8
Tire Pressure .....	4-8
Tire Warranty .....	4-9
Torque Chart.....	4-10
Hydraulic Fittings .....	4-12

**Lubrication**

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

LOCATION	SEASON		HOURS
	BEGINNING	END	
<b>AXLE &amp; WING LIFT WHEELS</b> - 8 lube fittings - grease gun	✓	✓	8
<b>WING HINGE POINTS</b> - 16 lube fitting - grease gun	✓	✓	8
<b>WHEEL HUBS</b> - repack All bearings	✓		



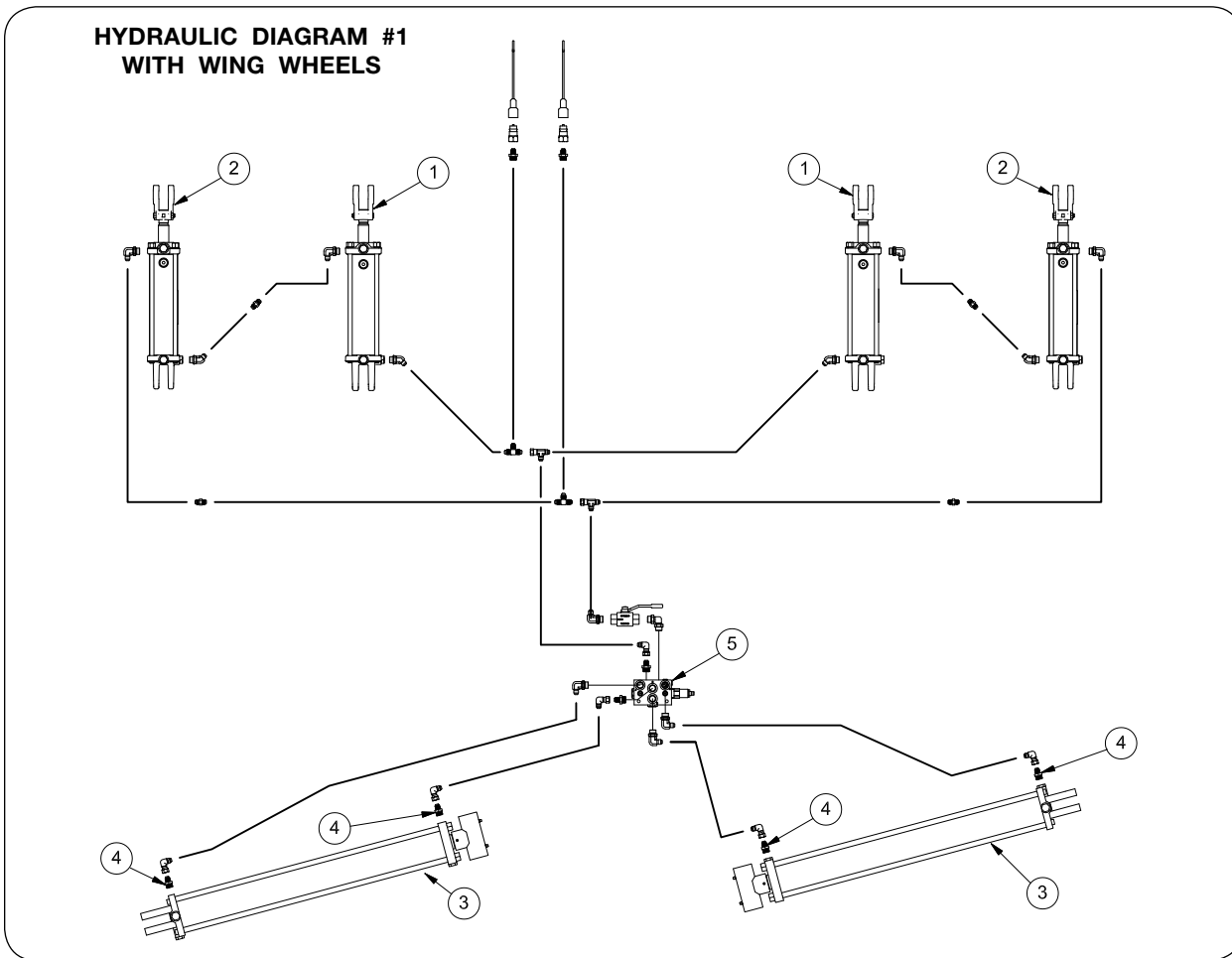
**Hydraulic System**

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

**OPERATION**

All cylinders on the ROLLING HARROW are double action cylinders. They are all teed together into one circuit. Depending on machine configuration the machine may lift first and then fold, or fold first and then lift. In some cases it may even lift and fold at the same time.

When hydraulic oil is directed in the opposite direction, the wheel axle cylinders will typically retract first, followed by extending of the wing fold cylinders.



ITEM	DESCRIPTION	QTY	NOTES
1	Base Wheel Cylinder 3 1/4 x 10	2	For 26'-32' Models
	Base Wheel Cylinder 3 1/2 x 10	2	For 34'-40' Models
2	Wing Wheel Cylinder 3 x 10	2	For 26'-32' Models
	Wing Wheel Cylinder 3 1/4 x 10	2	For 34'-40' Models
3	Wing Fold Cylinder	2	Cylinder with 30" Stroke
4	Orifices	4	with 0.125 Restrictor
5	Combination Valve	1	

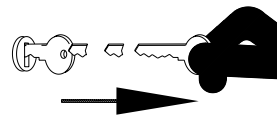
All hoses, cylinders, and fittings are rated for a minimum of 3000PSI. Any replacement components must be rated for 3000PSI minimum.

**Replacing Rolling Harrow Basket/Drum Bearings**

**⚠ WARNING**

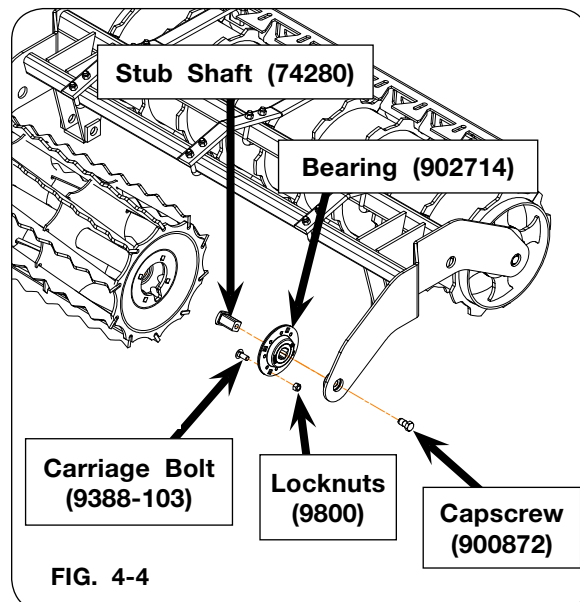
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- KEEP HANDS CLEAR OF PINCH POINT AREAS.

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/drum 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/drum 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/drum weldment to prevent the head of the stub shaft from turning.
6. Push the stub shaft into the basket/drum weldment so the shaft disengages the basket/drum frame side plate.
7. Repeat steps 4 & 5 for the capscrew and stub shaft on the other end of the basket/drum and roll the basket/drum away from the frame.

8. Remove the 1/2"-13UNC x 1 1/4" carriage bolts from the bearing and basket/drum. Remove bearing from the basket/drum 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.



**Replacing Rolling Harrow Basket/drum Bearings (continued)**

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/drum such that this side is facing the frame side plate. Insert the stub shaft into the bearing and mount the bearing to the basket/drum with the new carriage bolts. Torque locknuts on carriage bolts to 70-75 ft.-lbs.
11. Push the basket/drum back into the frame. Align the hole in the stub shaft with the hole in the frame side plate. Thread the new 5/8"-11UNC 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/drum; this is acceptable. While maintaining pressure on the head of the stub shaft, use the 5/8"-11UNC 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 moves toward the basket/drum. Use the pry bar to prevent the stub shaft from turning and torque the 5/8"-11UNC 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"-11UNC x 1 1/4" capscrew.*
13. Reinstall basket/drum assembly on machine with pins (9500423).

**Troubleshooting — Hydraulics Not Functioning Properly**

SYMPTOM	PROBABLE CAUSE AND CORRECTION
Erratic Rolling Harrow hydraulic function.	Incorrect hose hook-up to tractor control levers. Refer to Tractor Operator's Manual for valve and control lever arrangement.
Machine will not fold or unfold.	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. Hoses kinked or twisted. Replace hoses.
Malfunction of hydraulic cylinders A. Cylinder leakage  B. Orifice in wing-fold cylinders plugged	Malfunction of hydraulic cylinders.  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.
Unit lowers to ground before wings unfold.	Normal Operation. See Operation section for proper unfolding instructions.

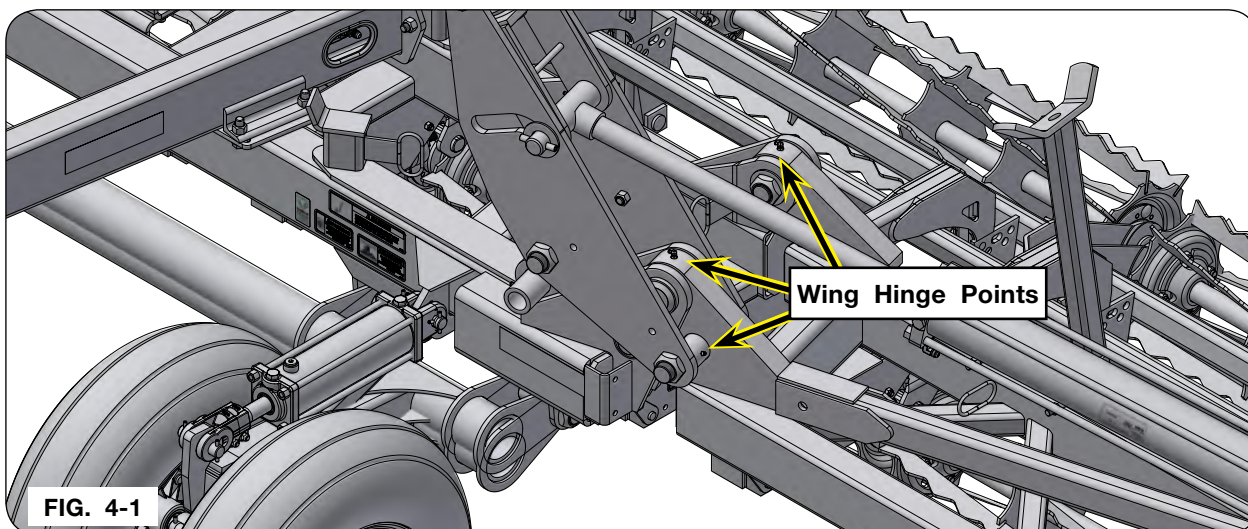


## Storage

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

Do the following before placing the implement in storage:

1. Remove dirt and trash which could cause rusting.
2. Repaint any chipped or scraped areas.
3. Lubricate wing pivots (FIG. 4-1).



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/drum springs.

**Wheels and Tires**

**Wheel Nut Torque**

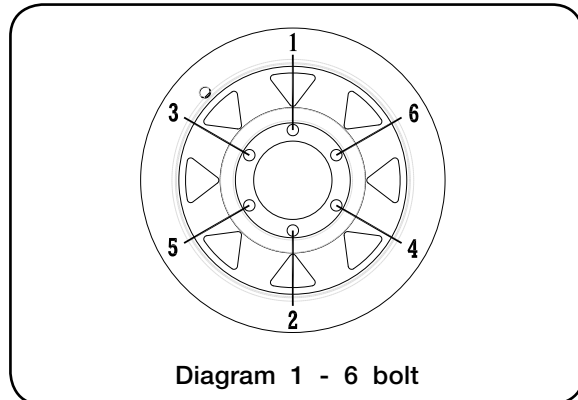


**CAUTION**

- **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.



**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:

Firestone            [www.firestoneag.com](http://www.firestoneag.com)  
Phone 800-847-3364

Titan  
or  
Goodyear            [www.titan-intl.com](http://www.titan-intl.com)  
Phone 800-USA-BEAR  
Fax 515-265-9301

Michelin/  
Kleber                [www.michelinag.com](http://www.michelinag.com)  
Phone 888-552-1213  
Fax 864-458-5538

Carlisle              [www.carlisletire.com](http://www.carlisletire.com)  
Phone 800-260-7959  
Fax 800-352-0075

Greenball            [www.greenball.com](http://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

**Complete Torque Chart**

**Cap screws - Grade 5**

**NOTE:**

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



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

**IMPORTANT**

- Follow these torque recommendations except when specified in text.

**Complete Torque Chart**

**Cap screws - Grade 8**



NOTE:

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

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

**IMPORTANT**

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

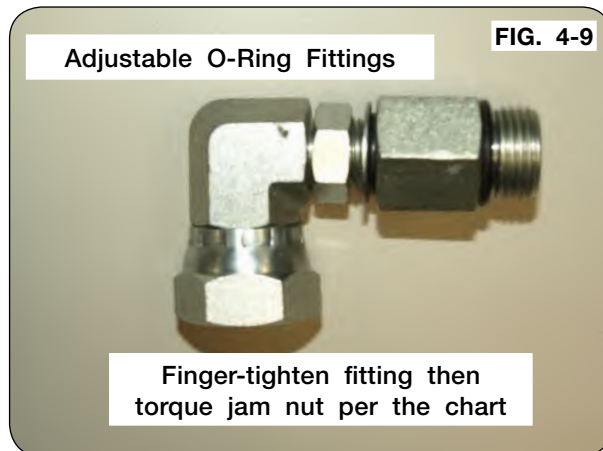
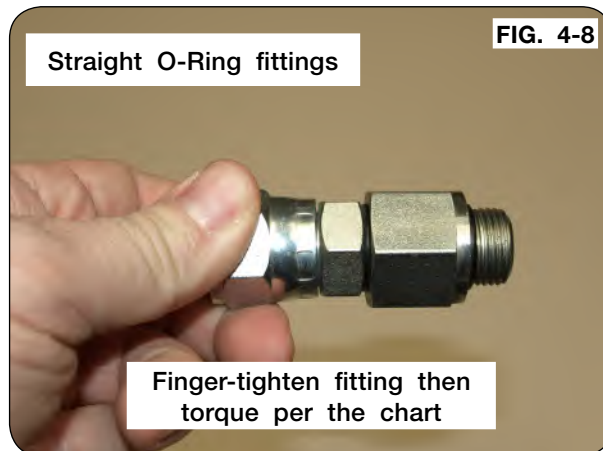
**Hydraulic Fittings - Torque and Installation**

**Tightening O-Ring Fittings**

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

**NOTE:** Never use a power tool to install a fitting.

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

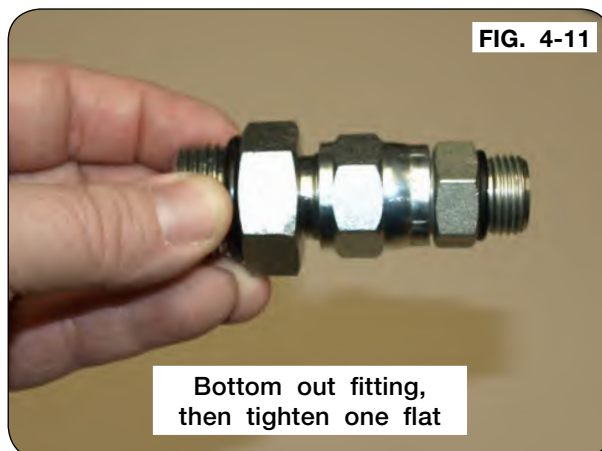
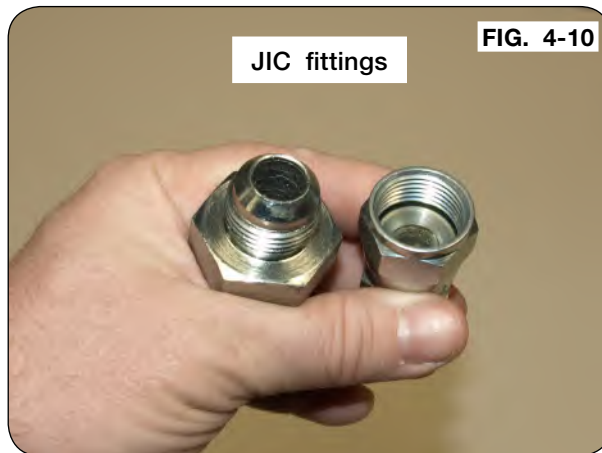


## Hydraulic Fittings - Torque and Installation (continued)

### Tightening JIC Fittings

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

**NOTE:** Never use a power tool to install a fitting.



**Notes**



# **SECTION V**

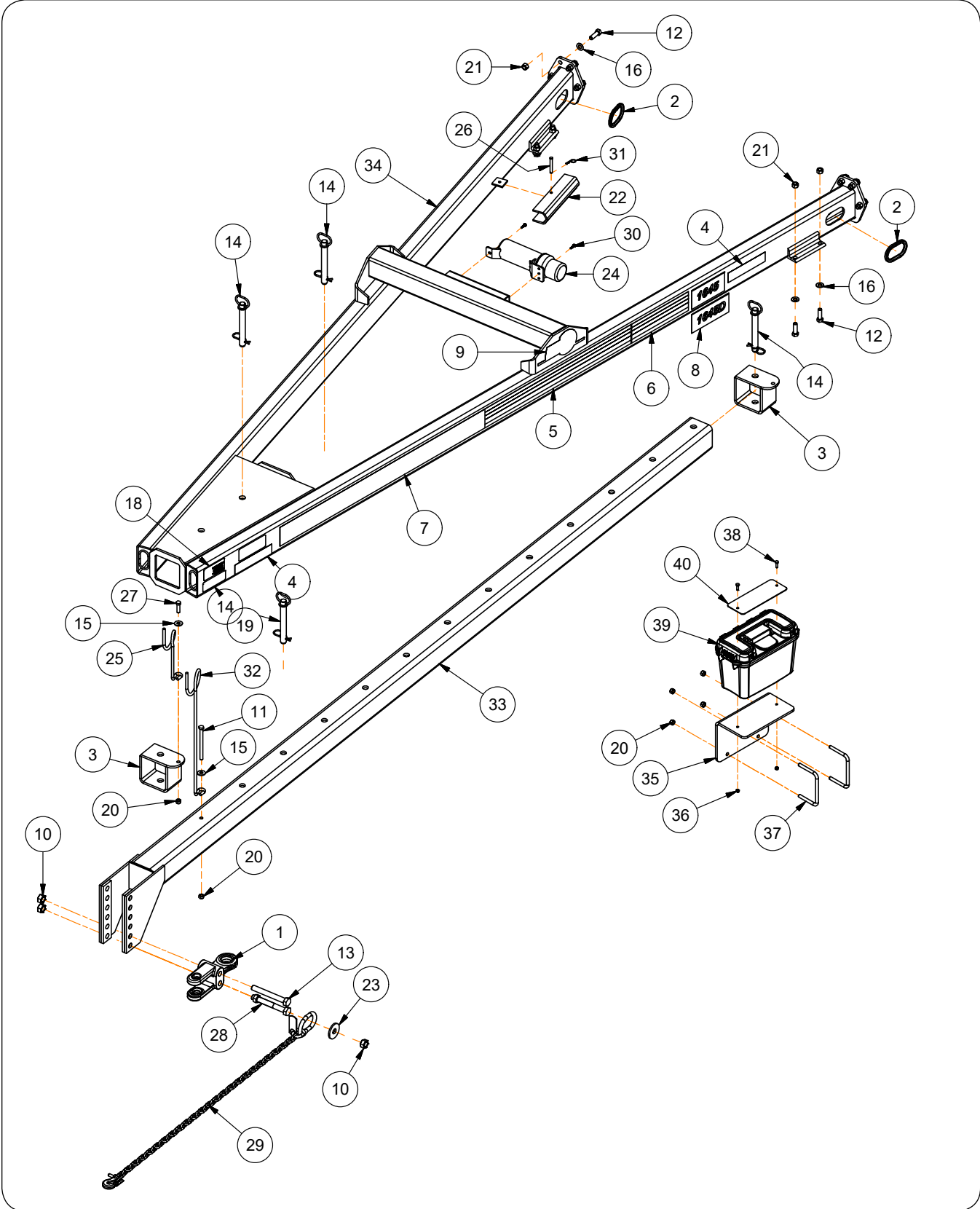
# **Parts**

Hitch Components.....	5-2
Main Frame Components.....	5-4
Bolt-On Truss Assembly Components.....	5-7
Wing Components.....	5-8
Rolling Harrow Basket Components – Model 1645.....	5-12
Rolling Harrow Basket Components – Model 1645D.....	5-14
Combination Valve #903045 Components.....	5-16
Hydraulic Components – 26'-32' Units Without Wing Wheels.....	5-18
Hydraulic Components – 26'-28' Units With Wing Wheels.....	5-20
Hydraulic Components – 30'-32' Units With Wing Wheels.....	5-22
Hydraulic Components – 34'-40' Units With Wing Wheels.....	5-24
Dual Hydraulic Kit #73173 for Valve #903045.....	5-26
Wing Lift Wheel & Hub Components.....	5-28
Transport Marking & Light Kit (73146B).....	5-30
A-Frame Gooseneck Hitch Assembly (Optional).....	5-32
Gooseneck Hitch Adapters (Optional).....	5-34

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Hitch Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Hitch Components

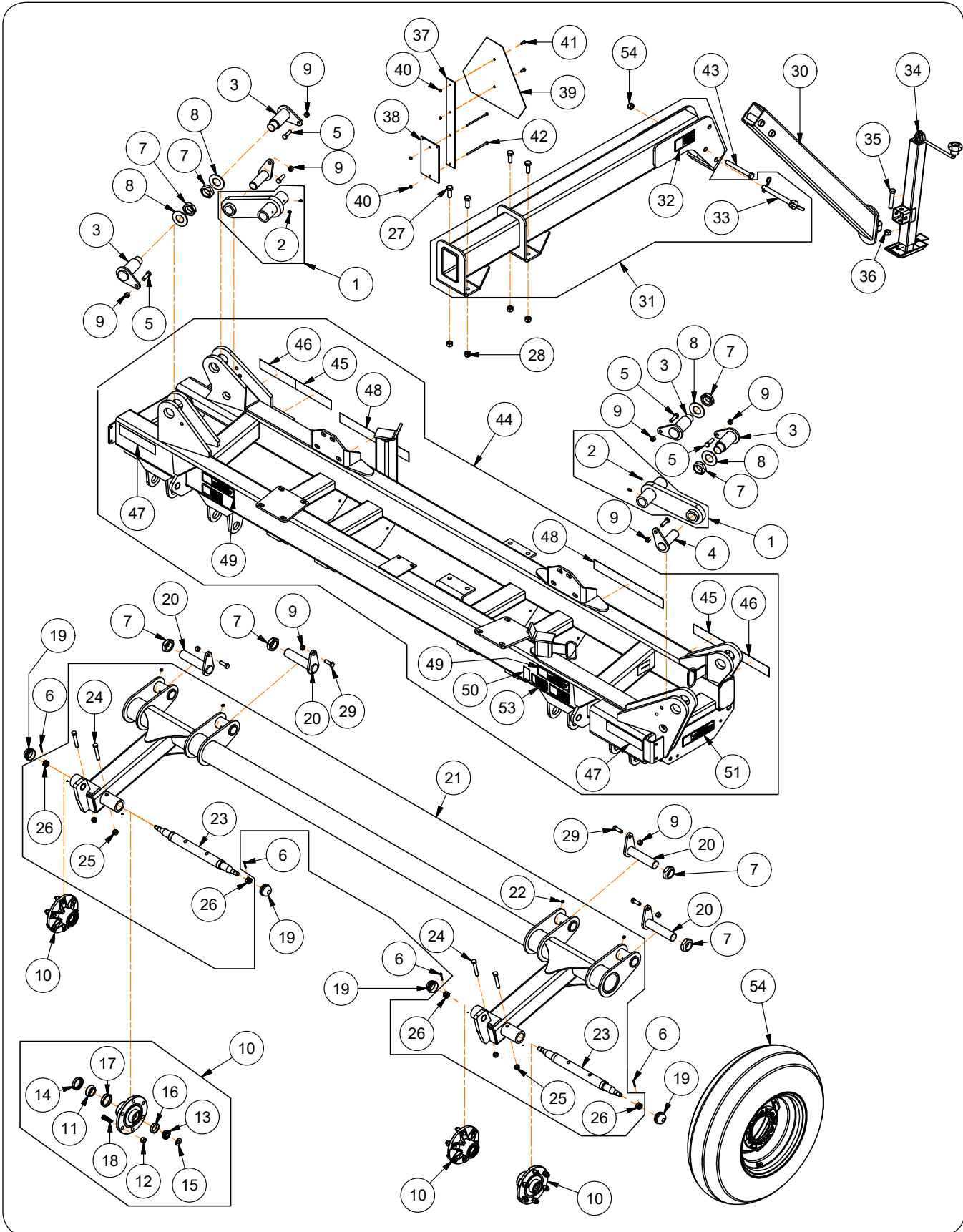
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
1	83301B	Hitch Clevis	1	
2	87754	U-Channel Trim	4	
3	89045G	Stop Weldment =Green=	2	
	89045R	Stop Weldment =Red=		
4	9003127	Reflector =Amber=	4	
5	900706	Decal, Stripe (4 x 36)	2	
6	900732	Decal, Stripe (4 x 14)	2	
7	901129	Decal, Rolling Harrow	2	
8	9501494	Decal, 1645	2	
	9501495	Decal, 1645D		
9	901607	Decal, UM Oval	2	
10	91141	Locknut 7/8-9UNC	3	
11	9390-116	Capscrew 1/2-13UNC x 6 1/2	1	
12	9390-124	Capscrew 5/8-11UNC x 2	16	
13	9390-178	Capscrew 7/8-9UNC x 7	2	
14	93950	Hitch Pin 1" Dia. x 8 with Hairpin	4	
15	9405-088	Flat Washer 1/2 USS	2	
16	9405-098	Flat Washer 5/8 SAE	16	
17	94094	Decal, WARNING (Rising or Falling Tongue...)	1	
18	95445	Decal, WARNING (High-Pressure Fluid...)	1	
19	97575	Decal, CAUTION (Do Not Tow without Transport Chain)	1	
20	9800	Locknut 1/2-13UNC	6	
21	9801	Locknut 5/8-11UNC	16	
22	73130B	Cylinder Stop	2	
23	85723	Washer	1	
24	900552	Manual Holder	1	
25	902979B	Hose Holder 7/16" Dia.	1	
26	92955	Clevis Pin 3/8" Dia. x 3	2	
27	9390-102	Capscrew 1/2-13UNC x 1 3/4	1	
28	9390-170	Capscrew 7/8-9UNC x 3 1/2	1	
29	94098	Transport Chain With Hook Eye & Decal (10,100 Lbs.)	1	For 26-32 Ft. Models
	97436	Transport Chain With Hook Eye & Decal (16,000 Lbs.)		For 34-40 Ft. Models
30	9512	Self-Drilling Screw 1/4-14 x 1	2	
31	9514	Hairpin Cotter	2	
32	9661	Hose Holder 7/16" Dia.	1	
33	89894G	Tongue Weldment =Green=	1	
	89894R	Tongue Weldment =Red=		
34	73356G	A-Frame 12' Assembly with Decals =Green=	1	Includes Items 4-7, 9, & 17-19
	73356R	A-Frame 12' Assembly with Decals =Red=		
35	77400B	Storage Box Mounting Bracket	1	
36	9807	Lock Nut/Top 5/16"-18UNC	2	
37	9502320	U-Bolt 1/2"-13UNC	2	
38	9390-030	Capscrew 5/16"-18UNC x 1" G5	2	
39	902456	Storage Box	1	
40	27741B	Strap	1	

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Main Frame Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Main Frame Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	89878B	Pivot Arm Weldment	2	
2	91160	Grease Zerk	2	
3	89902	Pin Weldment 2" Dia. x 5 11/16	4	
4	89904	Pin Weldment 1 1/2" Dia. x 4 7/8	2	
5	9390-102	Capscrew 1/2-13UNC x 1 3/4	6	
6	9391-043	Cotter Pin 3/16" Dia. x 1 1/4	4	
7	9397-022	Elastic Jam Nut 1 1/2-12UNF	8	
8	9405-140	Flat Washer 1 1/2" SAE	4	
9	9800	Locknut 1/2-13UNC	22	
10	9500001B	Hub 6 Bolt Assembly Complete	4	
11	9165	Bearing Cone #LM67048	1	
12	9348	Beveled Nut 1/2-20UNF	6	
13	9789	Bearing Cone #LM11949	1	
14	9790	Seal 1 5/8" ID	1	
15	9791	Flat Washer 21/32" ID	1	
16	9784	Bearing Cup #LM11910	1	
17	9345	Bearing Cup #LM67010	1	
18	9347	Stud Bolt 1/2-20UNF x 1 7/8	6	
19	9787	Hub Cap	4	
20	89912	Pin Weldment 1 1/2" Dia. x 7	4	
21	74713B	Axle Weldment =Black=	1	
22	91160	Grease Zerk	4	
23	86966	Spindle 1 5/8" Dia. x 20 3/4 (5/8-18UNF Threaded Ends)	2	
24	9390-108	Capscrew 1/2-13UNC x 3 1/4	4	
25	9800	Locknut 1/2-13UNC	4	
26	9393-014	Slotted Nut 5/8-18UNF (Grade 2)	4	
27	9390-123	Capscrew 5/8-11UNC x 1 3/4	4	
28	9801	Locknut 5/8-11UNC	4	
29	9390-101	Capscrew 1/2-13UNC x 1 1/2	4	
30	75907B	Jack Mount Weldment =Black=	1	
31	75906G	Arm Weldment =Green=	1	
	75906R	Arm Weldment =Red=		
32	98229	Decal, WARNING (Falling/Lowering Equipment)	2	
33	95958	Hitch Pin w/Cotter Pin	1	
34	901061	Jack Top Wind 5000# Drop Leg	1	
35	9390-129	Capscrew 5/8-11UNC x 3 1/4	1	

(Continued on next page)

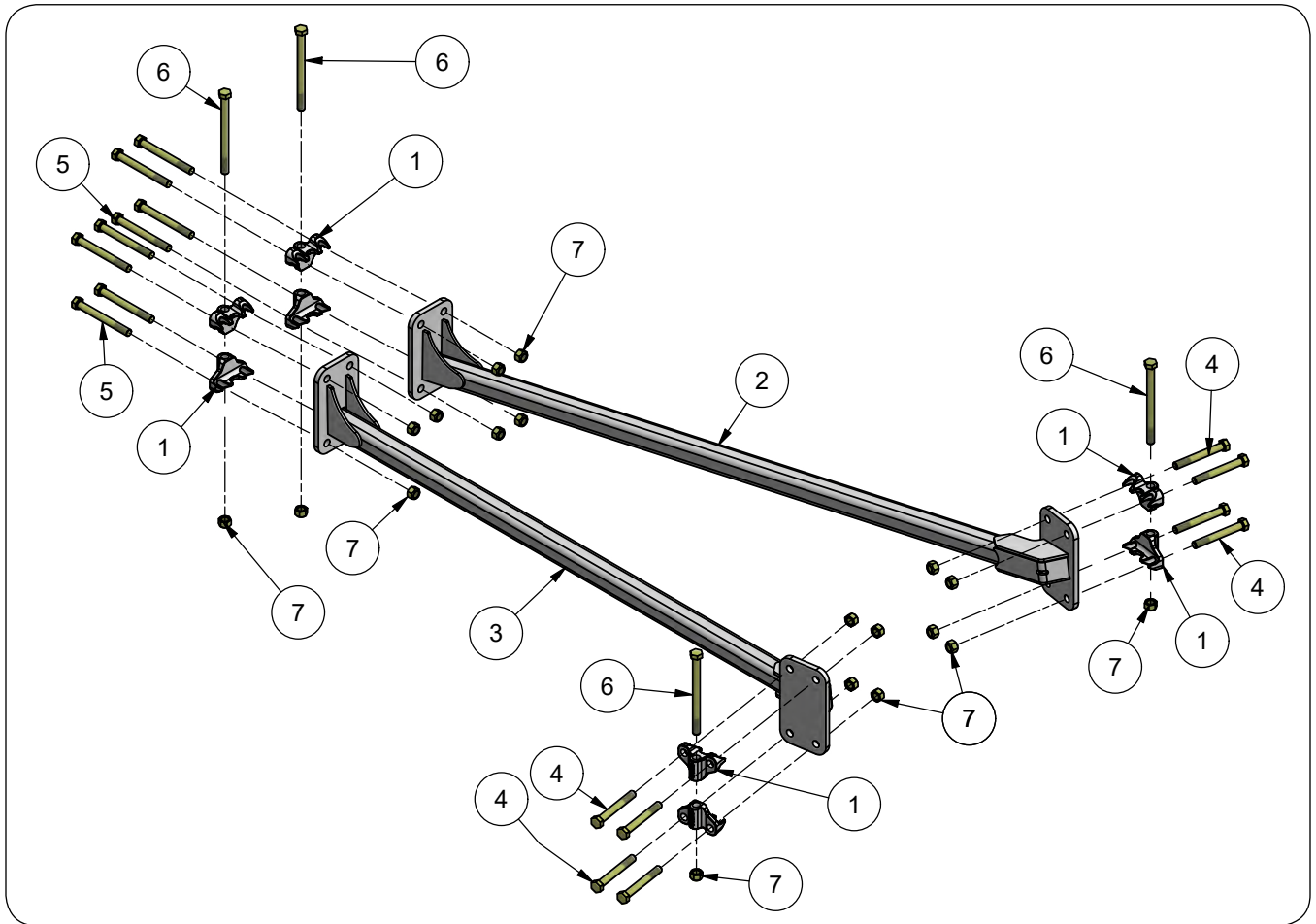
**CROSS-FOLD ROLLING HARROW 1645/1645D — Parts****Main Frame Components (continued)**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
36	9801	Locknut 5/8-11UNC	2	
37	88259B	Strip/SMV Bracket =Black=	1	
38	88587B	Plate 4 1/2 x 8 =Black=	1	
39	9829	SMV Emblem	1	
40	9936	Locknut 1/4-20UNC	4	
41	9390-003	Capscrew 1/4-20UNC x 3/4	2	
42	9390-019	Capscrew 1/4-20UNC x 5	2	
43	9390-157	Capscrew 3/4-10UNC x 6	1	
44	73354G	Main Frame 12' w/Decals =Green=	1	
	73354R	Main Frame 12' w/Decals =Red=		
45	9003125	Fluorescent Orange Decal	2	
46	9003126	Reflector 2 x 9 =Red=	2	
47	9003127	Reflector 2 x 9 =Amber=	2	
48	901576	Decal, Unverferth	2	
49	901891	Decal, DANGER (Electrocution)	2	
50	91605	Decal FEMA	1	
51	95136	Decal, WARNING (Folding/Unfolding Wings)	2	
52	95605	Decal, WARNING (Falling Equipment)	2	
53	97961	Decal, WARNING (Read & Understand Manual)	1	
54	60911	Mounted Tire & Wheel (9.5-15 8-Ply Tire)	4	
	W815-6-08	Implement Wheel	-	
	9002500	Valve Stem	-	

**Bolt-On Truss Assembly Components**

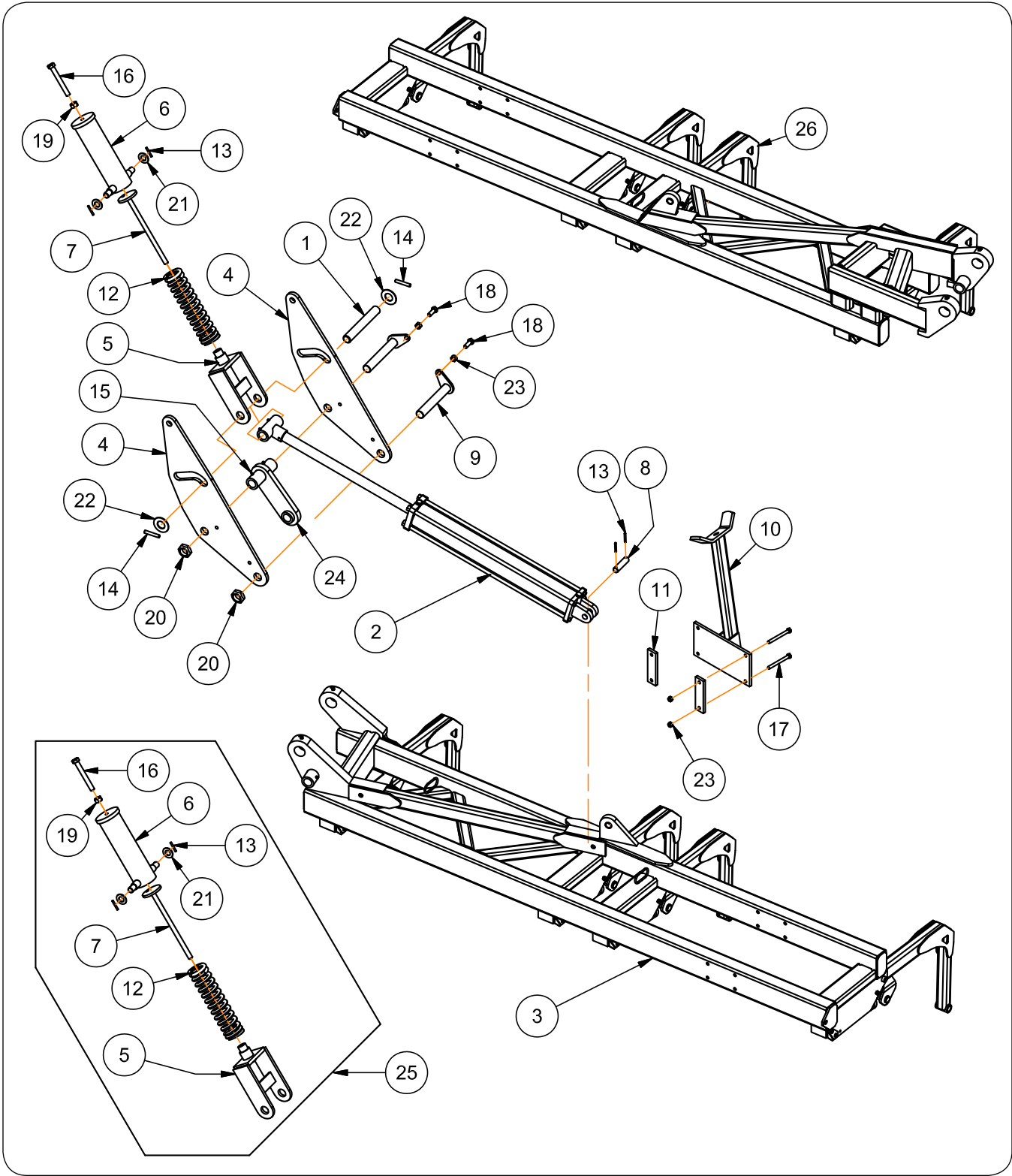
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	67922B	Extension Clamp =Black=	8	
2	79928G	Bolt-On Truss LH Weldment =Green=	1	
	79928R	Bolt-On Truss LH Weldment =Red=		
3	79929G	Bolt-On Truss RH Weldment =Green=	1	
	79929R	Bolt-On Truss RH Weldment =Red=		
4	9390-134	Capscrew, 5/8"-11UNC x 5" G5	8	
5	9390-136	Capscrew, 5/8"-11UNC x 6" G5	8	
6	9390-140	Capscrew, 5/8"-11UNC x 8" G5	4	
7	9801	Lock Nut/Top, 5/8"-11UNC	20	

Wing Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.





# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Wing Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
1	73084	Pin 1 1/2" Dia. x 10 3/4	2	
2	73576B	Cylinder 4 x 30 (SHOWN)	2	For 26'-32' Models
	91160	Grease Zerk	4	
	9399-070	Set Screw	2	
	75754B	Cylinder 4 1/2 x 30	2	For 34'-40' Models
	91160	Grease Zerk	4	
	9399-070	Set Screw	2	
3	700271G	Wing 7 Ft. LH Assembly (Green)	1	
	700271R	Wing 7 Ft. LH Assembly (Red)		
	700273G	Wing 8 Ft. LH Assembly (Green)		
	700273R	Wing 8 Ft. LH Assembly (Red)		
	700275G	Wing 9 Ft. LH Assembly (Green)		
	700275R	Wing 9 Ft. LH Assembly (Red)		
	700277G	Wing 10 Ft. LH Assembly (Green)		
	700277R	Wing 10 Ft. LH Assembly (Red)		
	700279G	Wing 11 Ft. LH Assembly (Green)		
	700279R	Wing 11 Ft. LH Assembly (Red)		
	700266G	Wing 12 Ft. LH Assembly (Green)		
	700266R	Wing 12 Ft. LH Assembly (Red)		
	700287G	Wing 13 Ft. LH Assembly (Green)		
	700287R	Wing 13 Ft. LH Assembly (Red)		
	700289G	Wing 14 Ft. LH Assembly (Green)		
	700289R	Wing 14 Ft. LH Assembly (Red)		
4	73480B	Plate	4	
5	73562B	Yoke Weldment	2	
6	73566B	Spring Can Weldment	2	
7	73570B	Rod Weldment	2	
8	85631	Pin 1" Dia. x 4	2	
9	89263	Pin Weldment	4	
10	89941B	Rest Bracket Weldment	2	
11	89944B	Strap	4	
12	9004371B	Compression Spring	2	
13	91144-165	Spiral Pin 1/4" Dia. x 1 7/8	8	
14	91144-239	Spiral Pin 1/2" Dia. x 3	4	
15	91160	Grease Zerk	4	
16	91175	Capscrew 3/4-10UNC x 6	2	

(Continued on next page)

## CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

### Wing Components (continued)

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
17	9390-113	Capscrew 1/2-13UNC x 5	8	
18	9390-102	Capscrew 1/2-13UNC x 1 3/4	4	
19	9394-016	Hex Nut 3/4-10UNC	2	
20	9397-022	Elastic Jam Nut 1 1/2-12UNF	4	
21	9405-116	Flat Washer 1" SAE	4	
22	9405-140	Flat Washer 1 1/2" SAE	4	
23	9800	Locknut 1/2-13UNC	12	
24	89878B	Pivot Arm Weldment	2	
25	73633B	Weight Transfer Kit For Both Wings	-	
26	700272G	Wing 7 Ft. RH Assembly (Green)	1	
	700272R	Wing 7 Ft. RH Assembly (Red)		
	700274G	Wing 8 Ft. RH Assembly (Green)		
	700274R	Wing 8 Ft. RH Assembly (Red)		
	700276G	Wing 9 Ft. RH Assembly (Green)		
	700276R	Wing 9 Ft. RH Assembly (Red)		
	700278G	Wing 10 Ft. RH Assembly (Green)		
	700278R	Wing 10 Ft. RH Assembly (Red)		
	700280G	Wing 11 Ft. RH Assembly (Green)		
	700280R	Wing 11 Ft. RH Assembly (Red)		
	700267G	Wing 12 Ft. RH Assembly (Green)		
	700267R	Wing 12 Ft. RH Assembly (Red)		
	700288G	Wing 13 Ft. RH Assembly (Green)		
	700288R	Wing 13 Ft. RH Assembly (Red)		
	700290G	Wing 14 Ft. RH Assembly (Green)		
	700290R	Wing 14 Ft. RH Assembly (Red)		

**Notes**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Rolling Harrow Basket Components - Model 1645

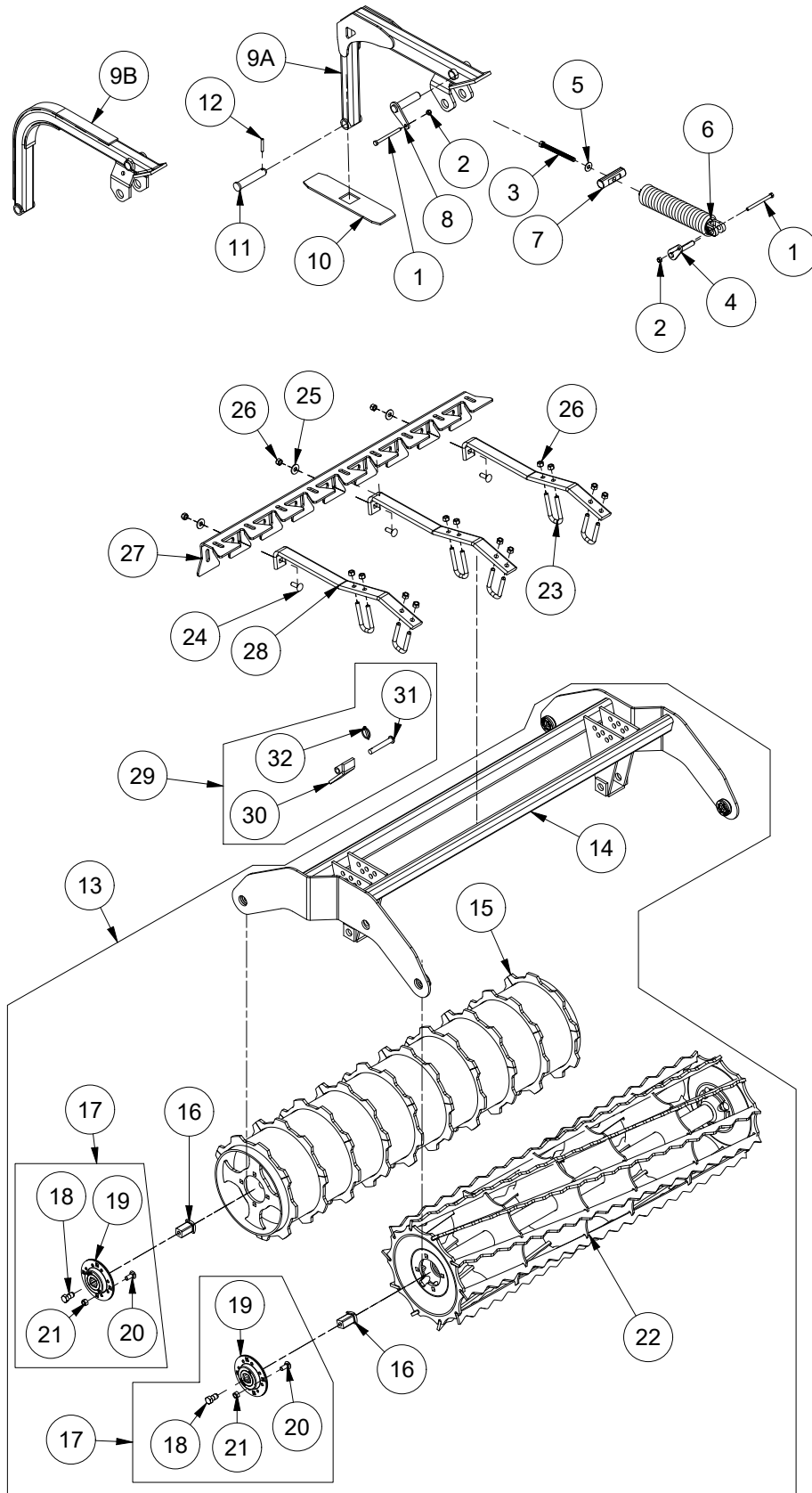
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY. PER BASKET				NOTES
			3 FT.	4 FT.	5 FT.	6 FT.	
1	77083B	Basket & Frame 3' Assembly	1	-	-	-	Includes Items 2-9
	77084B	Basket & Frame 4' Assembly	-	1	-	-	
	77085B	Basket & Frame 5' Assembly SHOWN	-	-	1	-	
	77086B	Basket & Frame 6' Assembly	-	-	-	1	
2	77079B	Frame 3' Weldment	1	-	-	-	
	77080B	Frame 4' Weldment	-	1	-	-	
	77081B	Frame 5' Weldment SHOWN	-	-	1	-	
	77082B	Frame 6' Weldment	-	-	-	1	
3	74280	Bearing Bolt	4	4	4	4	
4	74006	Bearing Service Kit	-	-	-	-	Includes Items 5-8
5	900872	Capscrew 5/8-11UNC x 1 1/4	4	4	4	4	
6	902714	Flange Bearing	4	4	4	4	
7	9388-103	Carriage Bolt 1/2-13UNC x 1 1/4	16	16	16	16	
8	9800	Locknut 1/2-13UNC	16	16	16	16	
9	75341B	Basket 3' Aggressive Weldment	1	-	-	-	
	75342B	Basket 4' Aggressive Weldment	-	1	-	-	
	75343B	Basket 5' Aggressive Weldment SHOWN	-	-	1	-	
	75344B	Basket 6' Aggressive Weldment	-	-	-	1	
10	9390-068	Capscrew 3/8-16UNC x 4 1/2	2	2	2	2	
11	9928	Locknut 3/8-16UNC	4	4	4	4	
12	97171	Capscrew 1/2-13UNC x 6	2	2	2	2	
13	86251B	Pin-Link Weldment 5/8" Dia. x 3 7/8	2	2	2	2	
14	9405-082	Flat Washer 7/16" USS	2	2	2	2	
15	75473B	Spring Assembly 2 13/16" Dia. x 14 1/4	2	2	2	2	
16	74850	Trunnion 1 1/4" Dia. x 4 1/4	2	2	2	2	
17A	77875G	Welded Arm Weldment - Tall =Green= (Gen 4)	2	2	2	2	
	77875R	Welded Arm Weldment - Tall =Red= (Gen 4)					
17B	77077G	Bent Arm Weldment - Tall =Green= (Gen 3)	2	2	2	2	
	77077R	Bent Arm Weldment - Tall =Red= (Gen 3)					
18	76331	Pin Weldment	2	2	2	2	
19	77108	Cover (Rubber Pad)	2	2	2	2	
20	9500423	Pin 1" Dia. x 5 1/8	2	2	2	2	
21	91144-186	Spiral Pin 5/16" Dia. x 2	2	2	2	2	
22	77660B	Basket Pivot Limit Option (Pair)	-	-	-	-	Includes Items 23-25
23	77042B	Basket Pitch Adjustment Bushing	2	2	2	2	
24	91523	Clevis Pin 5/8" Dia. x 4"	2	2	2	2	
25	9093	Klik Pin 3/16" Dia.	2	2	2	2	

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Rolling Harrow Basket/Drum Components - Model 1645D

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

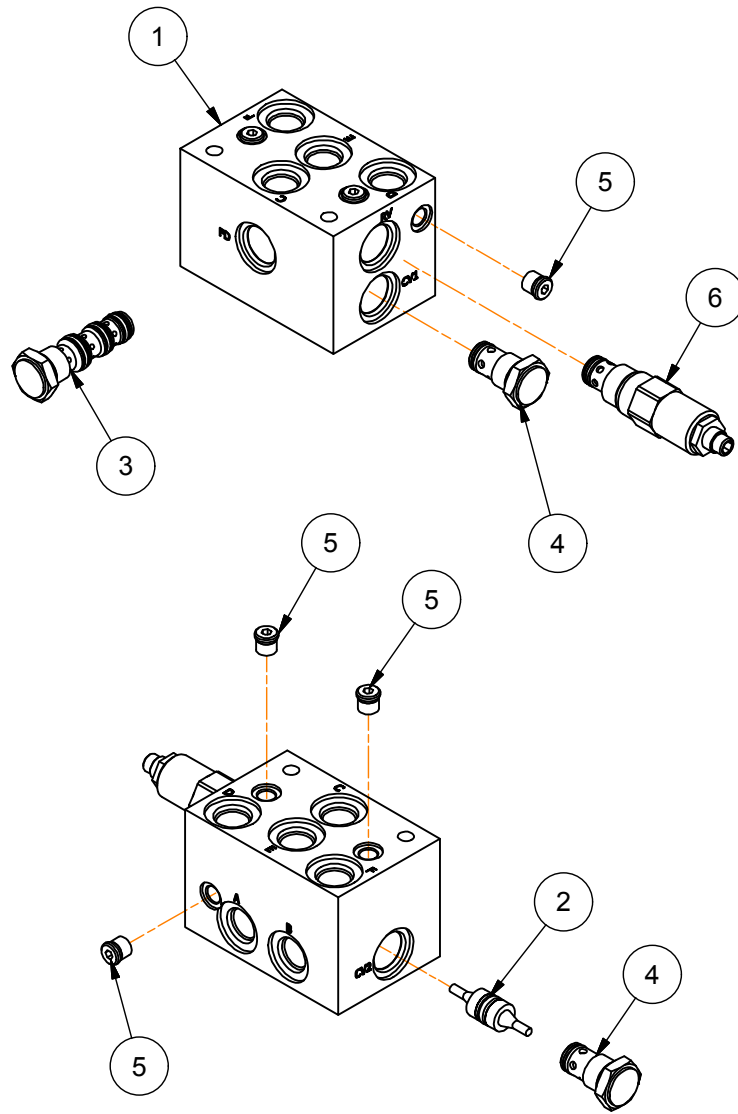
## Rolling Harrow Basket/Drum Components - Model 1645D

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY. PER BASKET				NOTES
			3'	4'	5'	6'	
1	9390-068	Capscrew 3/8"-16UNC x 4 1/2"	2	2	2	2	
2	9928	Locknut 3/8"-16UNC	4	4	4	4	
3	97171	Capscrew 1/2"-13UNC x 6"	2	2	2	2	
4	86251B	Pin-Link Weldment 5/8" Dia. x 3 7/8"	2	2	2	2	
5	9405-082	Flat Washer 7/16" USS	2	2	2	2	
6	75473B	Spring Assembly 2 13/16" Dia. x 14 1/4"	2	2	2	2	
7	74850	Trunnion 1 1/4" Dia. x 4 1/4"	2	2	2	2	
8	76331PL	Pin Weldment 1" Dia. x 4 11/16"	2	2	2	2	
9A	77875G	Welded Arm Weldment - Tall =Green= (Gen 4)	2	2	2	2	
	77875R	Welded Arm Weldment - Tall =Red= (Gen 4)					
9B	77077G	Bent Arm Weldment - Tall =Green= (Gen 3)	2	2	2	2	
	77077R	Bent Arm Weldment - Tall =Red= (Gen 3)					
10	77108	Cover (Rubber Pad)	2	2	2	2	
11	9500423	Pin 1" Dia. x 5 1/8"	2	2	2	2	
12	91144-186	Spiral Pin 5/16" Dia. x 2"	2	2	2	2	
13	77087B	Basket/Drum & Frame 3' Assembly	1	-	-	-	Includes Items 14 through 22
	77088B	Basket/Drum & Frame 4' Assembly	-	1	-	-	
	77089B	Basket/Drum & Frame 5' Assembly	-	-	1	-	
	77090B	Basket/Drum & Frame 6' Assembly	-	-	-	1	
14	77079B	Frame 3' Weldment	1	-	-	-	
	77080B	Frame 4' Weldment	-	1	-	-	
	77081B	Frame 5' Weldment SHOWN	-	-	1	-	
	77082B	Frame 6' Weldment	-	-	-	1	
15	75530B	Drum Roller 3' Weldment	1	-	-	-	
	75529B	Drum Roller 4' Weldment	-	1	-	-	
	75528B	Drum Roller 5' Weldment	-	-	1	-	
	75527B	Drum Roller 6' Weldment	-	-	-	1	
16	74280	Bearing Bolt	4	4	4	4	
17	74006	Bearing Service Kit	-	-	-	-	Includes Items 18-21
18	900872	Capscrew 5/8"-11UNC x 1 1/4"	4	4	4	4	
19	902714	Flange Bearing	4	4	4	4	
20	9388-103	Carriage Bolt 1/2"-13UNC x 1 1/4"	16	16	16	16	
21	9800	Locknut 1/2"-13UNC	16	16	16	16	
22	75341B	Basket 3' Aggressive Weldment	1	-	-	-	
	75342B	Basket 4' Aggressive Weldment	-	1	-	-	
	75343B	Basket 5' Aggressive Weldment SHOWN	-	-	1	-	
	75344B	Basket 6' Aggressive Weldment	-	-	-	1	
23	901837	U-Bolt 1/2"-13UNC	4	4	6	8	
24	9388-104	Carriage Bolt 1/2"-13UNC x 1 1/2"	2	2	3	4	
25	9405-088	Flat Washer 1/2" USS	2	2	3	4	
26	9800	Locknut 1/2"-13UNC	10	10	15	20	
27	76971B	Drum Scraper 2'	-	-	-	1	
	76968B	Drum Scraper 3'	1	-	-	-	
	76969B	Drum Scraper 4'	-	1	-	1	
	76970B	Drum Scraper 5'	-	-	1	-	
28	75564B	Drum Scraper Bar Mount	2	2	3	4	
29	77660B	Basket Pivot Limit (Pair)	-	-	-	-	Includes Items 30-32
30	77042B	Basket Pitch Adjustment Bushing	2	2	2	2	
31	91523	Clevis Pin 5/8" Dia. x 4"	2	2	2	2	
32	9093	Klik Pin 3/16" Dia.	2	2	2	2	

**Combination Valve #903045 Components**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.





**Combination Valve #903045 Components**

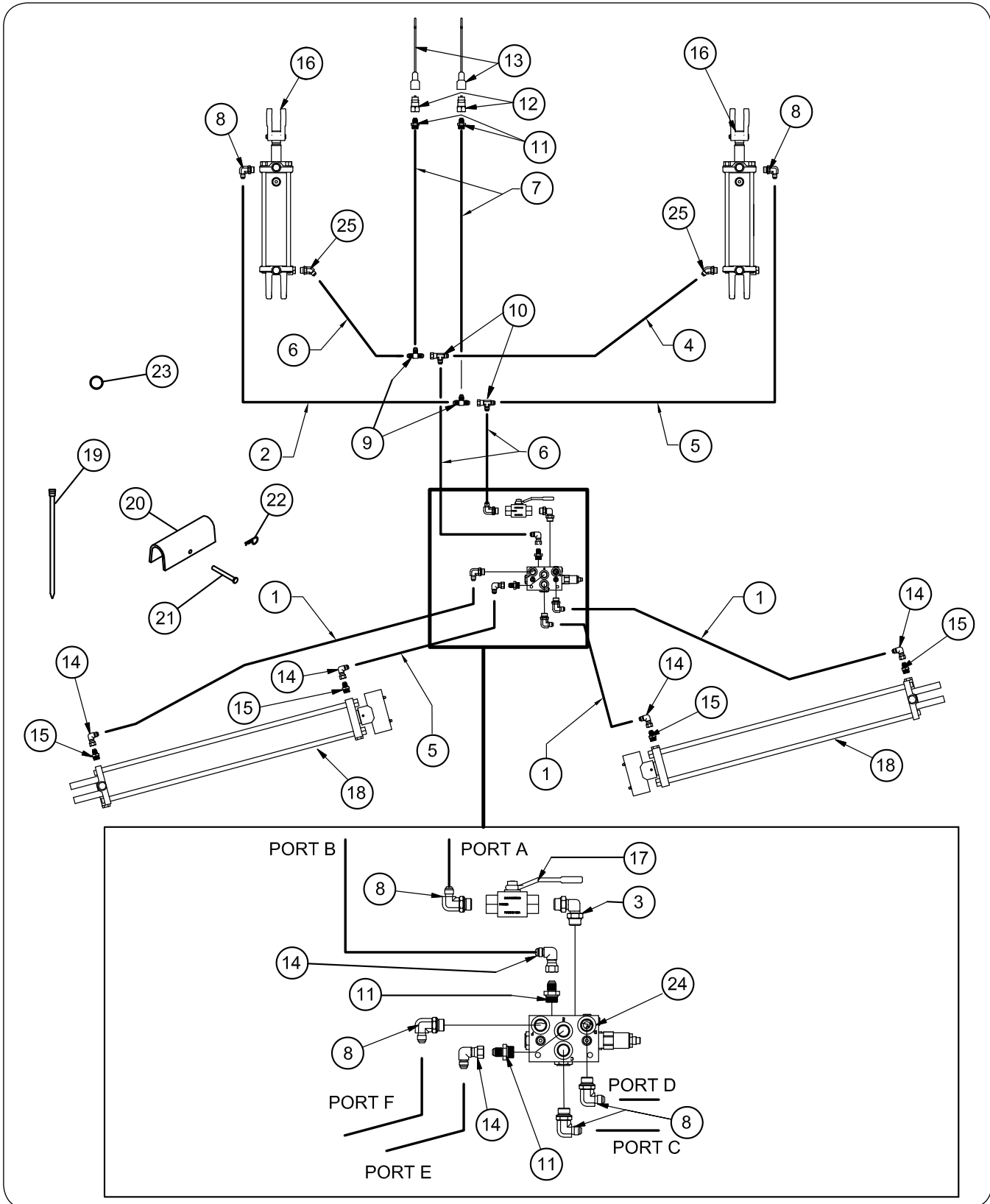
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

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

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Hydraulic Components — 26'-32' Units Without Wing Wheels Model 1645 Standard Without Wing Wheels

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



## CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

### Hydraulic Components — 26'-32' Units Without Wing Wheels Model 1645 Standard Without Wing Wheels

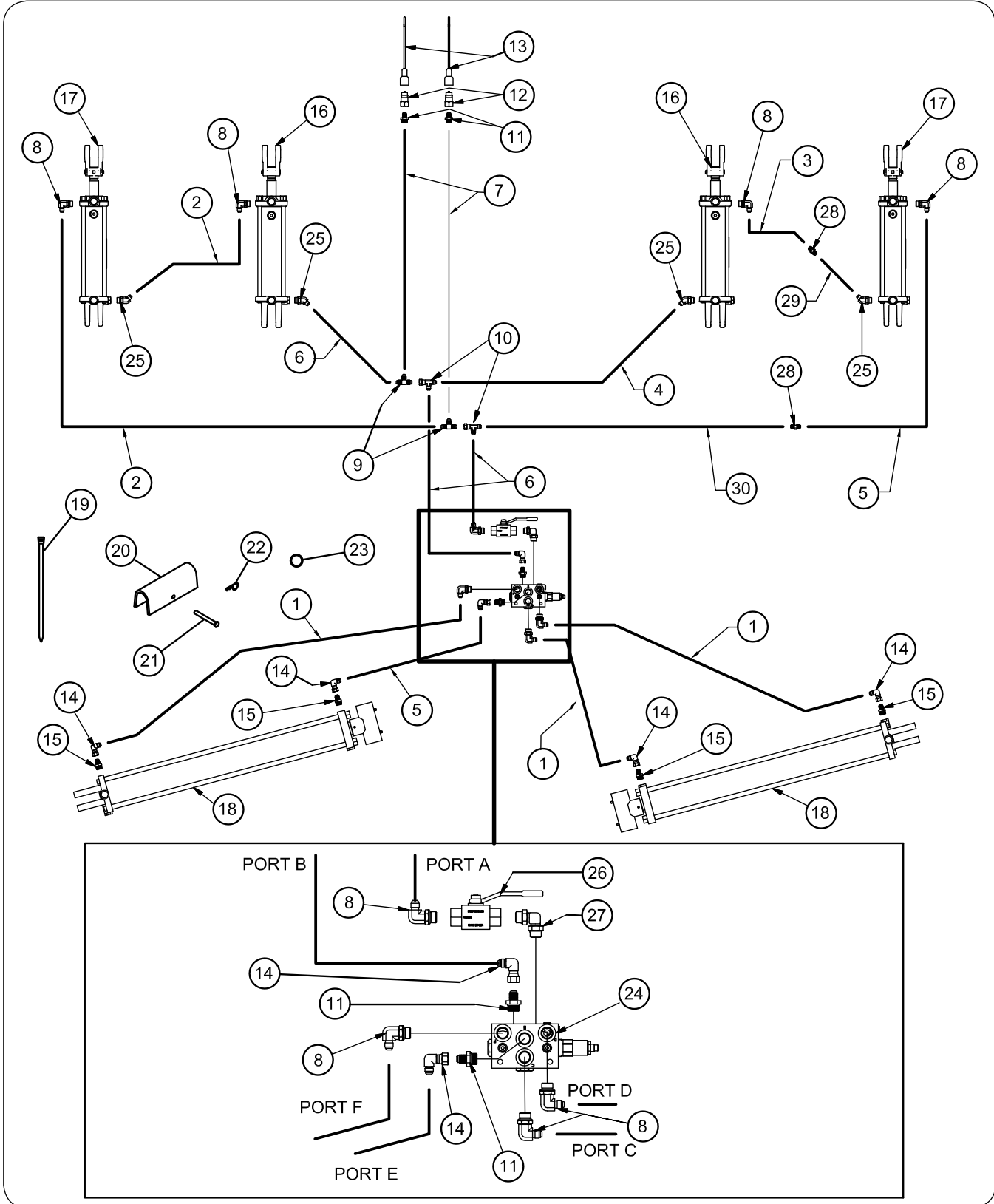
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.
1	9003514	Hose 3/8 x 136 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
2	91196	Hose 3/8 x 54 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
3	TA0-924696-0	90° Elbow 3/4-16 O-Ring Male x 3/4-16 O-Ring Male	1
4	9501687	Hose 3/8 x 96 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
5	9501695	Hose 3/8 x 114 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
6	9501694	Hose 3/8 x 34 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
7	98700	Hose 3/8 x 330 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
8	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	6
9	9875	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	2
10	91465	Tee 9/16-18 JIC Female x 9/16-18 JIC Male x 9/16-18 JIC Male	2
11	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
12	91383	Male Tip Coupling 3/4-16 O-Ring Female	2
13	91511	Dust Cap	2
14	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	6
15	99612	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring w/.125 Restrictor	4
16	902759	Main Frame Base Cylinder 3 1/4 x 10 For 26'-32' Models	2
	902762	Seal Kit for Cylinder 3 1/4 x 10	-
17	TA0-924694-0	Ball Valve With Handle 3/4-16 O-Ring Female Ports	1
18	73576B	Wing Fold Cylinder 4 x 30 For 26'-32' Models	2
	95407	Seal Kit for Cylinder 4 x 30	-
19	94038	Locking Cable Tie (32" Long)	A/R
	94037	Locking Cable Tie (15 1/2" Long)	
20	73130B	Cylinder Stop	2
21	92955	Clevis Pin 3/8" Dia. x 3	2
22	9514	Hairpin Cotter	2
23	9840	O-Ring (For Repairs)	-
24	903045	Combination Valve	1
25	91508	45° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	2

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Hydraulic Components — 26'-28' Units With Wing Wheels Model 1645 With Optional Wing Wheels Model 1645D With Standard Wing Wheels

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



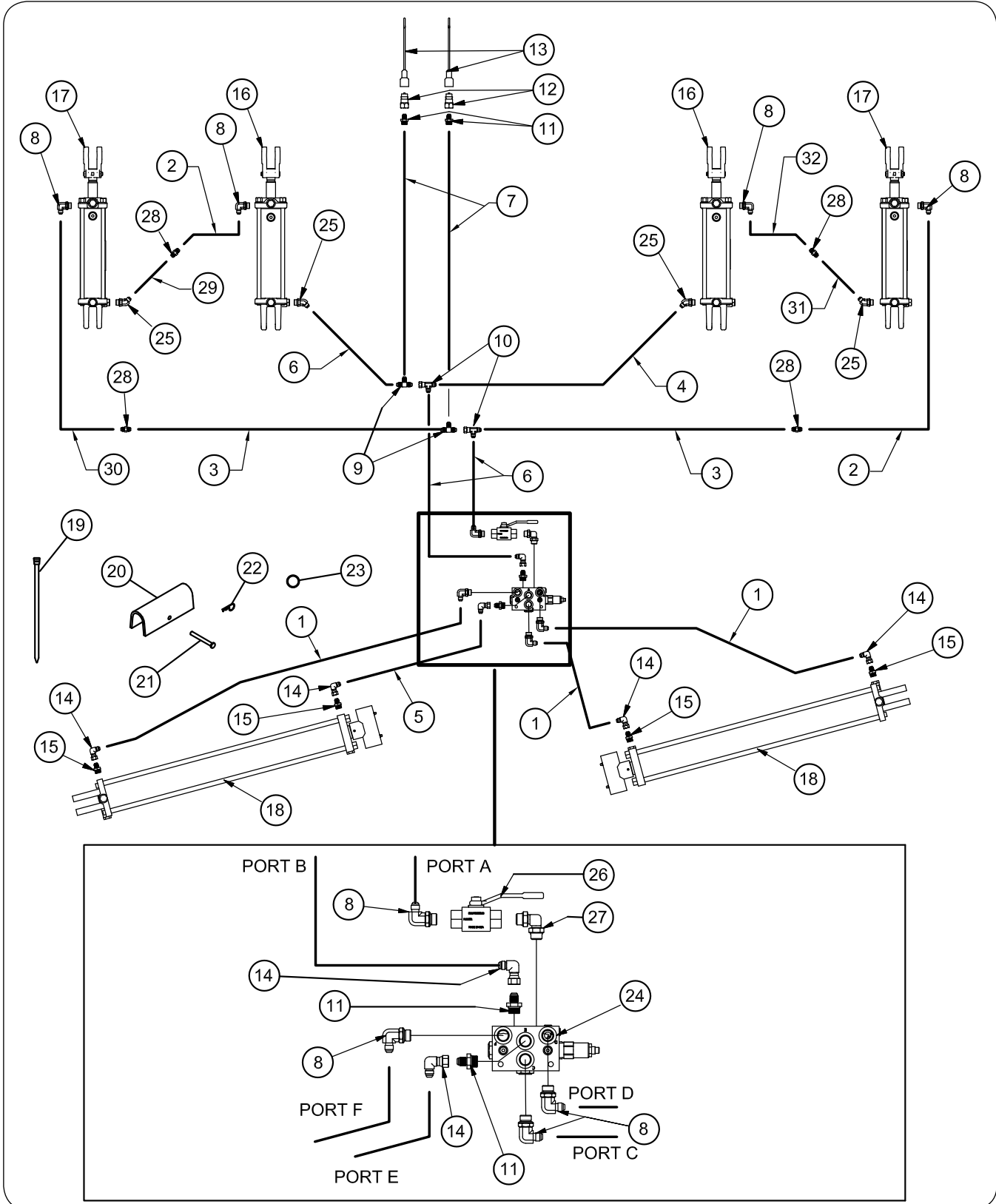
**CROSS-FOLD ROLLING HARROW 1645/1645D — Parts****Hydraulic Components — 26'-28' Units With Wing Wheels  
Model 1645 With Optional Wing Wheels  
Model 1645D With Standard Wing Wheels**Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.
1	9003514	Hose 3/8 x 136 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
2	9501688	Hose 3/8 x 140 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
3	9501707	Hose 3/8 x 92 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
4	9501687	Hose 3/8 x 96 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
5	9501695	Hose 3/8 x 114 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
6	9501694	Hose 3/8 x 34 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
7	98700	Hose 3/8 x 330 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
8	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	8
9	9875	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	2
10	91465	Tee 9/16-18 JIC Female x 9/16-18 JIC Male x 9/16-18 JIC Male	2
11	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
12	91383	Male Tip Coupling 3/4-16 O-Ring Female	2
13	91511	Dust Cap	2
14	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	6
15	99612	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring w/.125 Restrictor	4
16	902759	Main Frame Base Cylinder 3 1/4 x 10 For 26'-32' Models	2
	902762	Seal Kit for Cylinder 3 1/4 x 10	-
17	902760	Wing Lift Wheel Cylinder 3 x 10 For 26'-32' Models	2
	902763	Seal Kit for Cylinder 3 x 10	-
18	73576B	Wing Fold Cylinder 4 x 30 For 26'-32' Models	2
	95407	Seal Kit for Cylinder 4 x 30	-
19	94038	Locking Cable Tie (32" Long)	A/R
	94037	Locking Cable Tie (15 1/2" Long)	
20	73130B	Cylinder Stop	2
21	92955	Clevis Pin 3/8" Dia. x 3	2
22	9514	Hairpin Cotter	2
23	9840	O-Ring (For Repairs)	-
24	903045	Combination Valve	1
25	91508	45° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
26	TA0-924694-0	Ball Valve With Handle 3/4-16 O-Ring Female Ports	1
27	TA0-924696-0	90° Elbow 3/4-16 O-Ring Male x 3/4-16 O-Ring Male	1
28	92295	Adapter 9/16-18 JIC Male x 9/16-18 JIC Male	2
29	91196	Hose 3/8 x 54 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
30	9501702	Hose 3/8 x 84 (9/16-18 JIC Female x 9/16-18 JIC Female)	1

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Hydraulic Components — 30'-32' Units With Wing Wheels Model 1645 With Optional Wing Wheels Model 1645D With Standard Wing Wheels

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



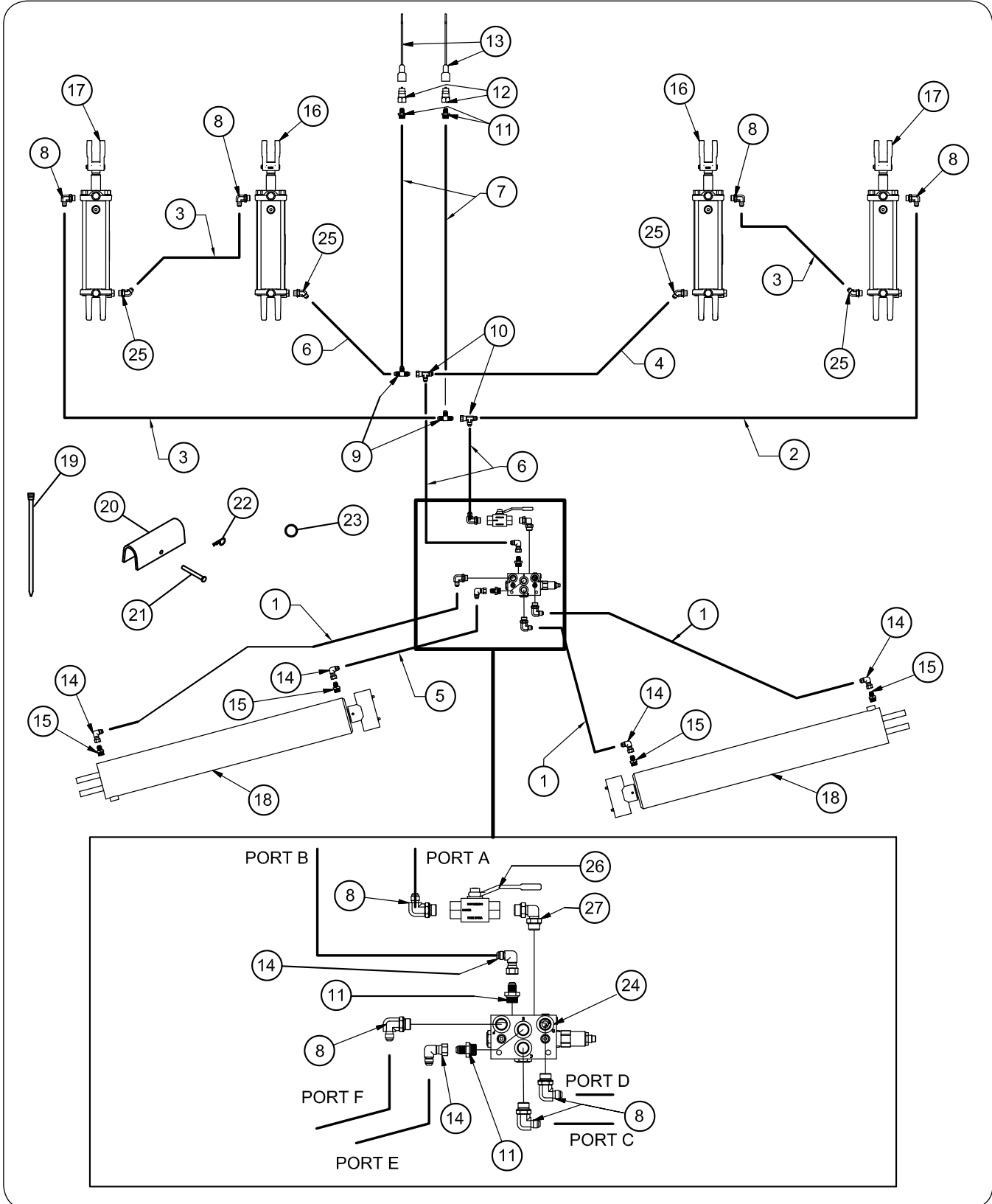
**CROSS-FOLD ROLLING HARROW 1645/1645D — Parts****Hydraulic Components — 30'-32' Units With Wing Wheels  
Model 1645 With Optional Wing Wheels  
Model 1645D With Standard Wing Wheels**Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.
1	9003514	Hose 3/8 x 136 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
2	9501688	Hose 3/8 x 140 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
3	9501707	Hose 3/8 x 92 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
4	9501687	Hose 3/8 x 96 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
5	9501695	Hose 3/8 x 114 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
6	9501694	Hose 3/8 x 34 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
7	98700	Hose 3/8 x 330 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
8	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	8
9	9875	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	2
10	91465	Tee 9/16-18 JIC Female x 9/16-18 JIC Male x 9/16-18 JIC Male	2
11	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
12	91383	Male Tip Coupling 3/4-16 O-Ring Female	2
13	91511	Dust Cap	2
14	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	6
15	99612	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring w/.125 Restrictor	4
16	902759	Main Frame Base Cylinder 3 1/4 x 10 For 26'-32' Models	2
	902762	Seal Kit for Cylinder 3 1/4 x 10	-
17	902760	Wing Lift Wheel Cylinder 3 x 10 For 26'-32' Models	2
	902763	Seal Kit for Cylinder 3 x 10	-
18	73576B	Wing Fold Cylinder 4 x 30 For 26'-32' Models	2
	95407	Seal Kit for Cylinder 4 x 30	-
19	94038	Locking Cable Tie (32" Long)	A/R
	94037	Locking Cable Tie (15 1/2" Long)	
20	73130B	Cylinder Stop	2
21	92955	Clevis Pin 3/8" Dia. x 3	2
22	9514	Hairpin Cotter	2
23	9840	O-Ring (For Repairs)	-
24	903045	Combination Valve	1
25	91508	45° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
26	TA0-924694-0	Ball Valve With Handle 3/4-16 O-Ring Female Ports	1
27	TA0-924696-0	90° Elbow 3/4-16 O-Ring Male x 3/4-16 O-Ring Male	1
28	92295	Adapter 9/16-18 JIC Male x 9/16-18 JIC Male	4
29	91196	Hose 3/8 x 54 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
30	9501702	Hose 3/8 x 84 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
31	9501706	Hose 3/8 x 64 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
32	9501695	Hose 3/8 x 114 (9/16-18 JIC Female x 9/16-18 JIC Female)	1

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Hydraulic Components — 34'-40' Units With Wing Wheels Model 1645 With Standard Wing Wheels Model 1645D With Standard Wing Wheels

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.





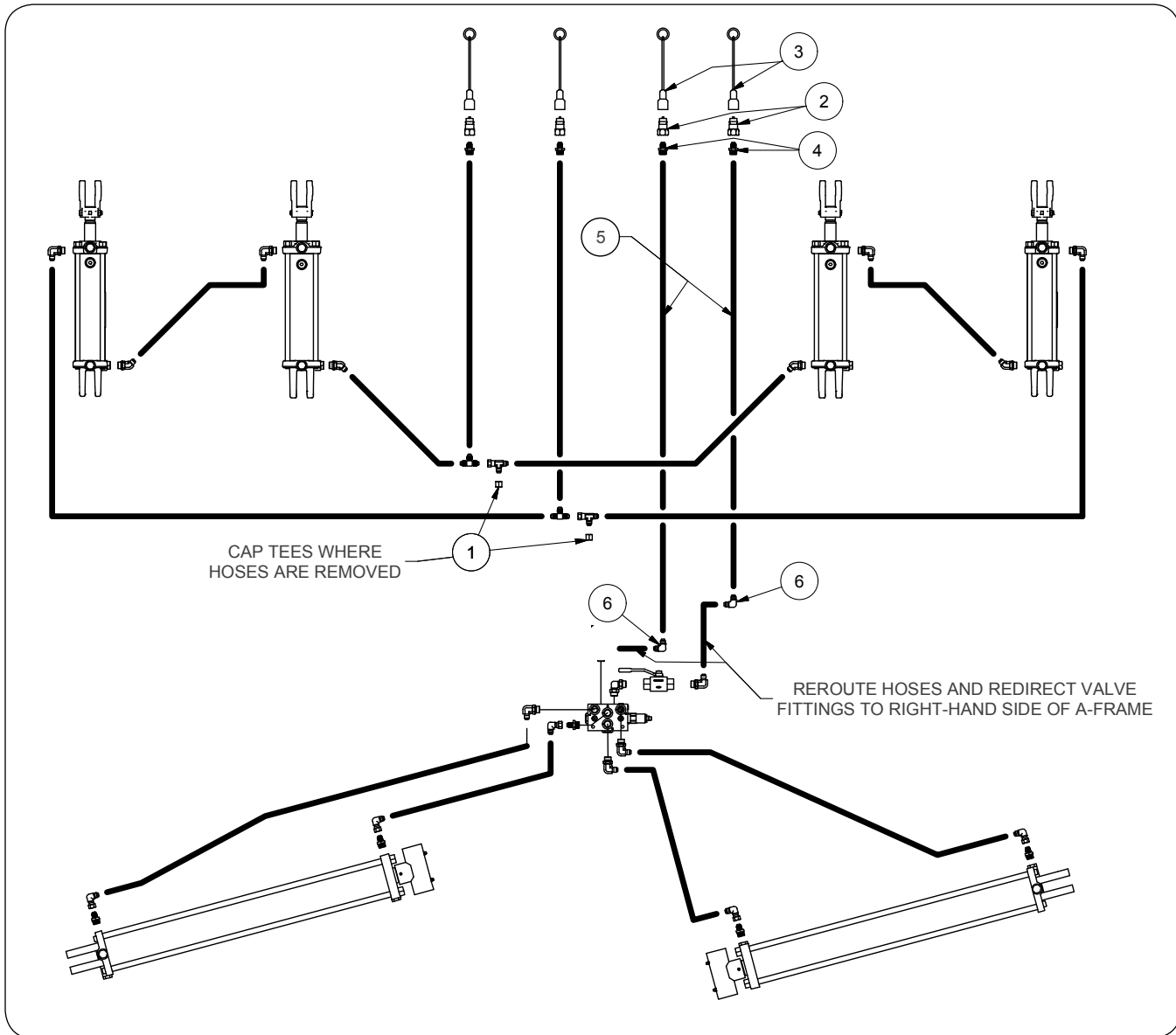
**CROSS-FOLD ROLLING HARROW 1645/1645D — Parts****Hydraulic Components — 34'-40' Units With Wing Wheels  
Model 1645 With Standard Wing Wheels  
Model 1645D With Standard Wing Wheels**Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.
1	9003514	Hose 3/8 x 136 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
2	9501691	Hose 3/8 x 228 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
3	91554	Hose 3/8 x 174 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
4	9501687	Hose 3/8 x 96 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
5	9501695	Hose 3/8 x 114 (9/16-18 JIC Female x 9/16-18 JIC Female)	1
6	9501694	Hose 3/8 x 34 (9/16-18 JIC Female x 9/16-18 JIC Female)	3
7	98700	Hose 3/8 x 330 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
8	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	8
9	9875	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	2
10	91465	Tee 9/16-18 JIC Female x 9/16-18 JIC Male x 9/16-18 JIC Male	2
11	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
12	91383	Male Tip Coupling 3/4-16 O-Ring Female	2
13	91511	Dust Cap	2
14	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female	6
15	99612	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring w/.125 Restrictor	4
16	9501530	Main Frame Base Cylinder 3 1/2 x 10 For 34'-40' Models	2
	9501539	Seal Kit for Cylinder 3 1/2 x 10	-
17	902759	Wing Lift Wheel Cylinder 3 1/4 x 10 For 34'-40' Models	2
	902762	Seal Kit for Cylinder 3 1/4 x 10	-
18	75754B	Wing Fold Cylinder 4 1/2 x 30 For 34'-40' Models	2
	9502596	Seal Kit for Cylinder 4 1/2 x 30	-
19	94038	Locking Cable Tie (32" Long)	A/R
	94037	Locking Cable Tie (15 1/2" Long)	
20	73130B	Cylinder Stop	2
21	92955	Clevis Pin 3/8" Dia. x 3	2
22	9514	Hairpin Cotter	2
23	9840	O-Ring (For Repairs)	-
24	903045	Combination Valve	1
25	91508	45° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
26	TA0-924694-0	Ball Valve With Handle 3/4-16 O-Ring Female Ports	1
27	TA0-924696-0	90° Elbow 3/4-16 O-Ring Male x 3/4-16 O-Ring Male	1

# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

## Dual Hydraulic Kit #73173 For Valve #903045

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



## CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

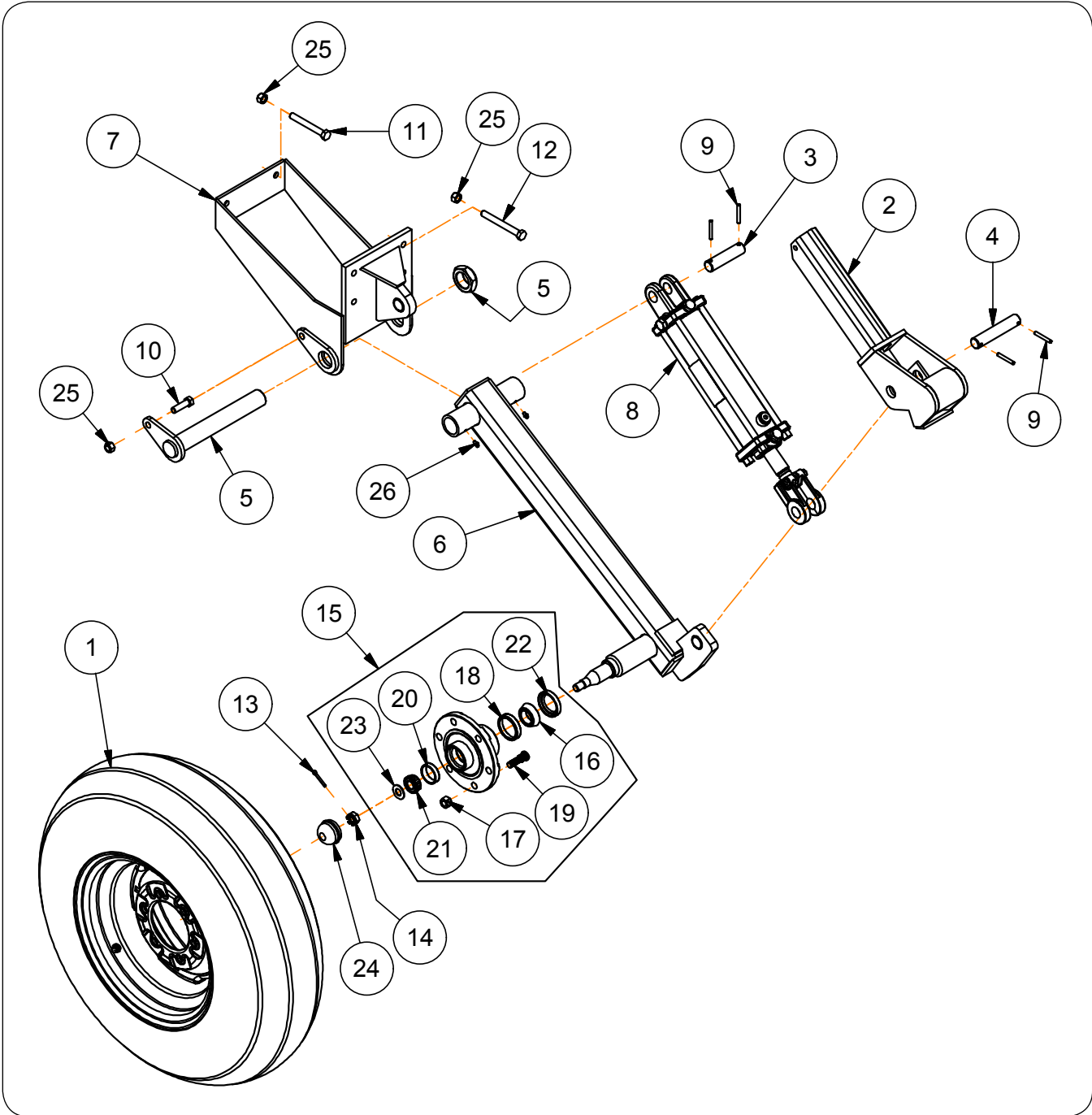
### Dual Hydraulic Kit #73173 For Valve #903045

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.
1	9001850	Cap Nut	2
2	91383	Male Tip Coupling 3/4-16 O-Ring Female	2
3	91511	Dust Cap	2
4	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	2
5	9500369	Hose 3/8 x 380 (9/16-18 JIC Female x 9/16-18 JIC Female)	2
6	9897	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Male	2

**Wing Lift Wheel & Hub Components**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

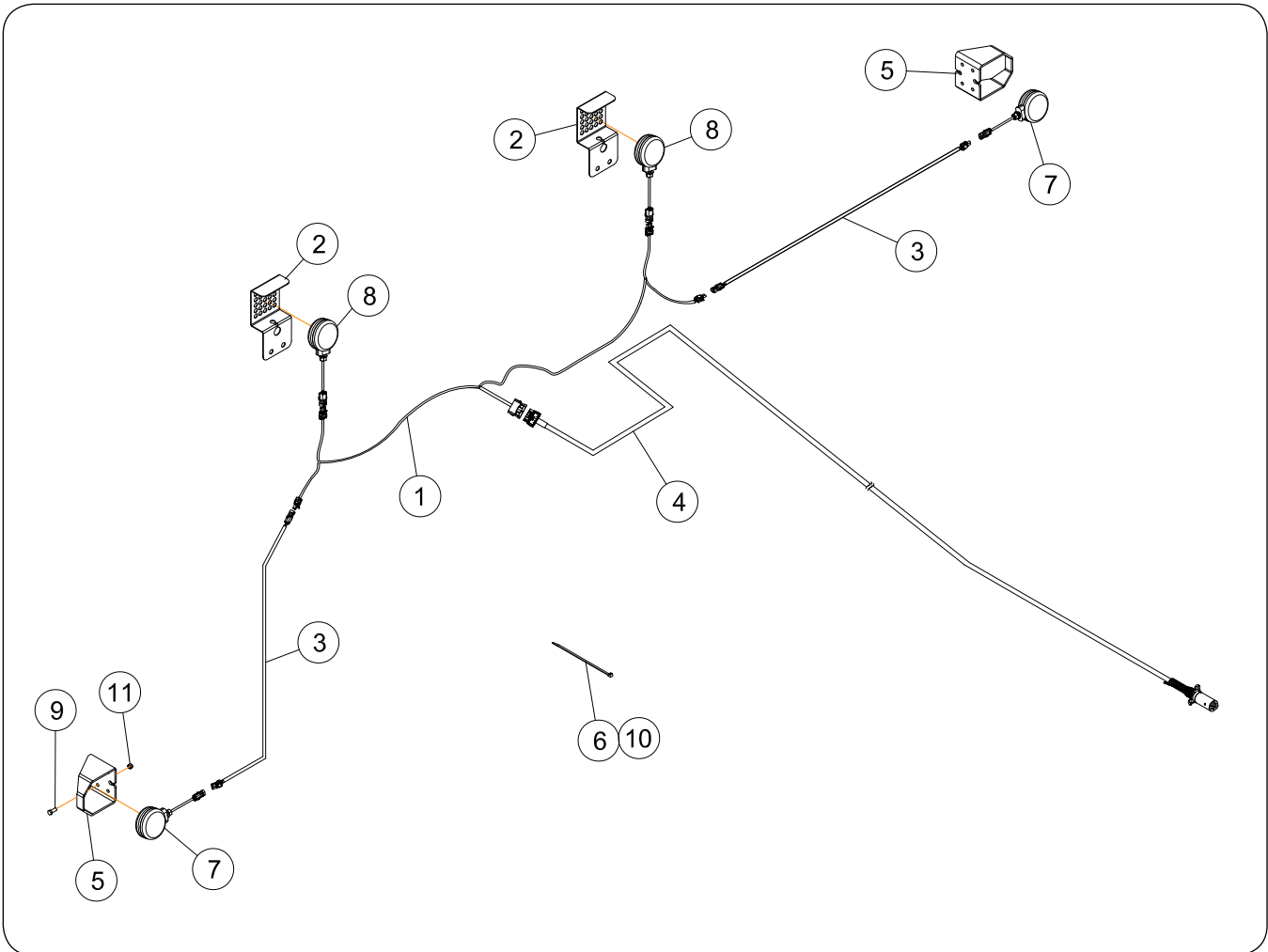
## Wing Lift Wheel & Hub Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
1	60911	Mounted Tire & Wheel (9.5-15 8-Ply Tire) =Off White=	2	
	60911SM	Mounted Tire & Wheel (9.5-15 8-Ply Tire) =Silver Mist=		
	W815-6-08	Implement Wheel	-	
	9002500	Valve Stem	-	
2	73118B	Gravity Latch Weldment	2	
3	85631	Pin 1" Dia. x 4	2	
4	88038	Pin 1" Dia. x 5 1/8	2	
5	89261	Pin Weldment with Elastic Jam Nut	2	
6	89928B	Axle Weldment (SHOWN)	1	
	89929B	Axle Weldment	1	
7	89933B	Wheel Bracket Weldment	2	
8	902760	Cylinder 3 x 10 (3000 PSI)	2	For 26'-32' Models
	902759	Cylinder 3 1/4 x 10 (3000 PSI)		For 34'-40' Models
9	91144-165	Spiral Pin 1/4" Dia. x 1 7/8"	8	
10	9390-102	Capscrew 1/2-13UNC x 1 3/4	2	
11	9390-111	Capscrew 1/2-13UNC x 4	4	
12	9390-112	Capscrew 1/2-13UNC x 4 1/2	8	
13	9391-043	Cotter Pin 3/16" Dia. x 1 1/4"	2	
14	9393-014	Slotted Nut 5/8-18UNF	2	
15	9500001B	Hub Assembly	2	
16	9165	Bearing Cone	1	
17	9348	Beveled Nut 1/2-20UNF	6	
18	9345	Bearing Cup #LM67010	1	
19	9347	Stud Bolt 1/2-20UNF x 1 7/8	6	
20	9784	Bearing Cup #LM11910	1	
21	9789	Bearing Cone	1	
22	9790	Seal	1	
23	9791	Flat Washer	2	
24	9787	Hub Cap	2	
25	9800	Locknut 1/2-13UNC	6	
26	91160	Grease Zerk	4	

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

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



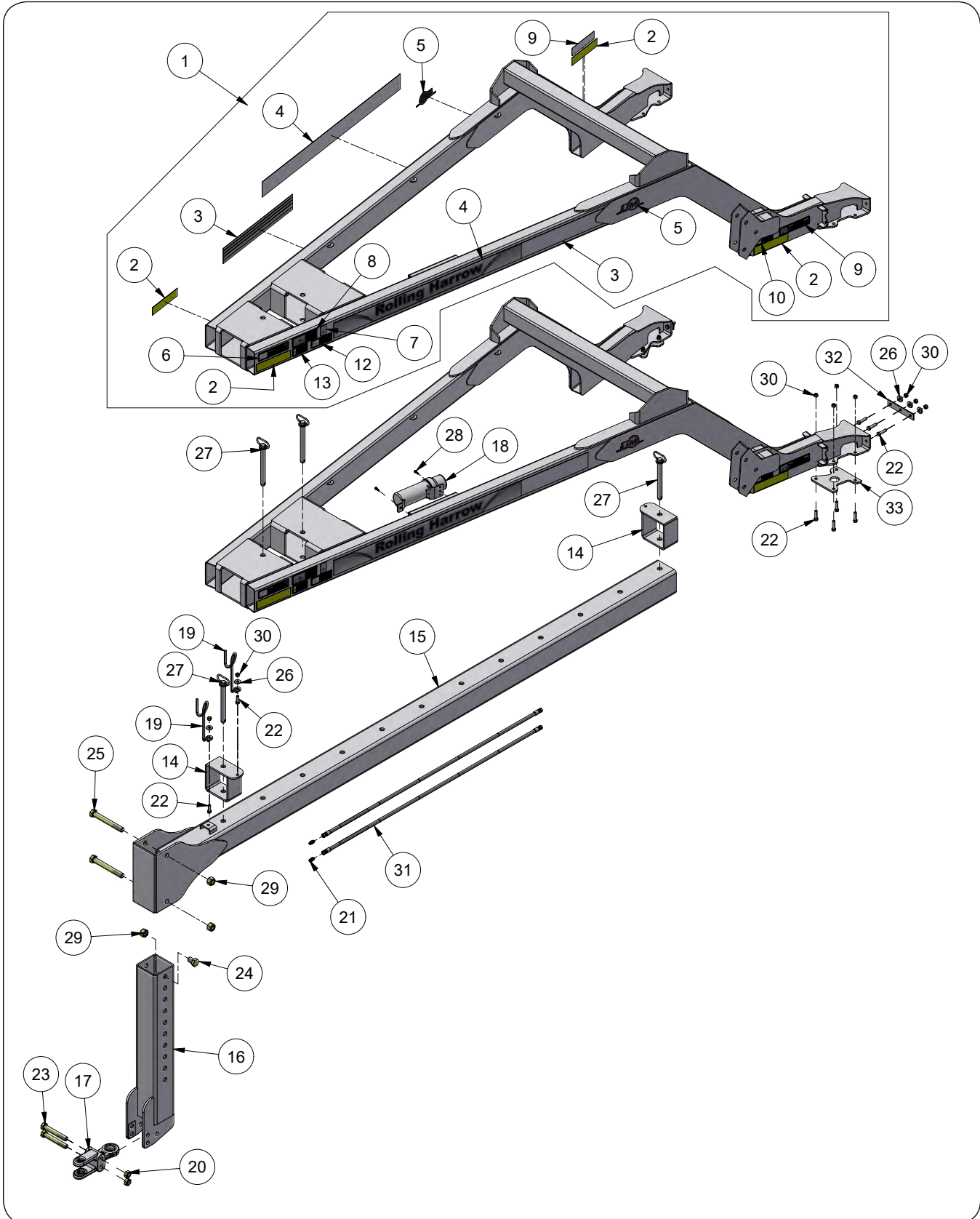
**Transport Marking & Light Kit (73146B)**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

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

**A-Frame Gooseneck Hitch Assembly (Optional)**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.





# CROSS-FOLD ROLLING HARROW 1645/1645D — Parts

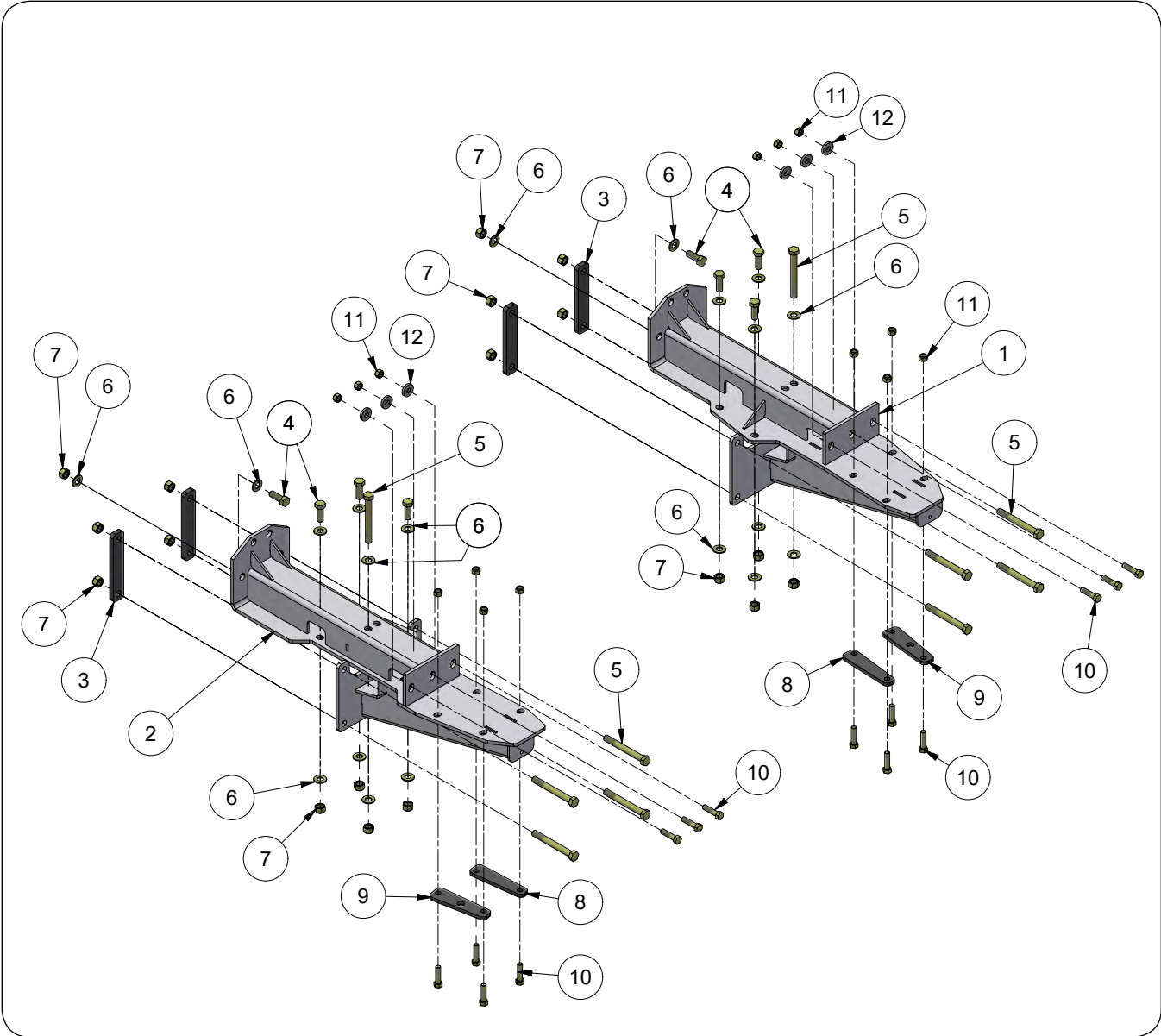
## A-Frame Gooseneck Hitch Assembly (Optional)

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
	77737G	A-Frame Gooseneck Hitch Assembly =Green=	-	
	77737R	A-Frame Gooseneck Hitch Assembly =Red=		
1	700240G	A-Frame Gooseneck Hitch w/Decals =Green=	1	Includes Items 2 through 13
	700240R	A-Frame Gooseneck Hitch w/Decals =Red=		
2	9003127	Reflector =Amber= (2 x 9)	4	
3	900732	Decal, Stripe	2	
4	901129	Decal, Rolling Harrow	2	
5	901764	Decal, UM Swoosh (3 x 7)	2	
6	901891	Decal, DANGER "Electrocution"	1	
7	91605	Decal, FEMA	1	
8	94094	Decal, WARNING "Tongue"	1	
9	95136	Decal, WARNING "Folding/Unfolding Wings"	2	
10	95445	Decal, WARNING "High-Pressure Fluid"	1	
11	95605	Decal, WARNING "Falling Equipment"	1	
12	97575	Decal, CAUTION "Transport Chain"	1	
13	97961	Decal, WARNING "Read and Understand Manual"	1	
14	76203G	Stop Weldment =Green=	2	
	76203R	Stop Weldment =Red=		
15	76229G	Tongue Tube Weldment =Green=	1	
	76229R	Tongue Tube Weldment =Red=		
16	76230G	Vertical Hitch Tube Gooseneck =Green=	1	
	76230R	Vertical Hitch Tube Gooseneck =Red=		
17	83301B	Hitch Clevis =Black=	1	
18	900552	Manual Holder	1	
19	902979B	Hose Holder	2	
20	91141	Locknut, 7/8"-9UNC	2	
21	92295	Adapter	2	
22	91299-103	Capscrew, 1/2"-13UNC x 2" G8	2	
23	9390-177	Capscrew, 7/8"-9UNC x 6 1/2" G5	2	
24	9390-181	Capscrew, 1"-8UNC x 1 1/2" G5	1	
25	9390-462	Capscrew, 1"-8UNC x 8 1/2" G5	2	
26	9503326	Flat Washer, 1/2" (Heavy)	16	
27	9502801	Hitch Pin with Hairpin Cotter	4	
28	9512	Self-Drilling Screw, 1/4-14 x 1"	2	
29	9663	Locknut, 1"-8UNC	3	
30	9800	Locknut, 1/2"-13UNC	16	
31	9504072	Hydraulic Hose, 3/8" Dia. x 66"	2	
32	78945B	Plate, 1 1/2" x 7 3/4" =Black=	2	NOT USED
33	700255B	Reinforcement Plate, 7 1/4" x 8 15/32" =Black=	2	NOT USED

**Gooseneck Hitch Adapters (Optional)**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



**Gooseneck Hitch Adapters (Optional)**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
	79237G	Gooseneck Adapter Bundle =Green=		Includes Items 1-9
	79237R	Gooseneck Adapter Bundle =Red=		
1	78411G	Gooseneck Adapter Left-Hand Weldment =Green=	1	
	78411R	Gooseneck Adapter Left-Hand Weldment =Red=		
2	78416G	Gooseneck Adapter Right-Hand Weldment =Green=	1	
	78416R	Gooseneck Adapter Right-Hand Weldment =Red=		
3	78413B	Plate 1 1/2" x 8 5/16"	4	
4	9390-123	Capscrew, 5/8"-11UNC x 1 3/4" G5	14	
5	9390-136	Capscrew, 5/8"-11UNC x 6" G5	10	
6	9405-098	Flat Washer 5/8" SAE	32	
7	9801	Lock Nut, 5/8"-11UNC	24	
8	700258B	Reinforcement Bar with 2 Holes =Black=	2	
9	700259B	Reinforcement Bar with 3 Holes =Black=	2	
10	91299-103	Capscrew, 1/2-13UNC x 2" G8	14	
11	9800	Locknut/Top, 1/2"-13UNC	14	
12	9503326	Flat Washer, 1/2" (Heavy)	6	



***Unverferth***<sup>®</sup>  
***Manufacturing Company, Inc.***

[www.unverferth.com](http://www.unverferth.com)