Primary Tillage

Rigid & Folding
ZONE-BUILDER®
Subsoiler Models 112, 122, 132

Beginning With Serial Number A63480100 & Higher

Part No. 69140

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.

Pre-Delivery Checklist

- ☐ Hardware tightened
- ☐ Machine lubricated
- ☐ Safety and operating procedures reviewed
- ☐ Field adjustment information reviewed
- ☐ Lubrication procedures reviewed
- ☐ Warranty information reviewed

IMPORTANT

The information, specifications, and illustrations in the manual are based on the 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.

Product Information

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

- Model number
- 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 frame as shown below.

Purchase Date _____ Model _____ Serial No._____

Dealer _____ City _____

Dealer Contact _____ Phone _____

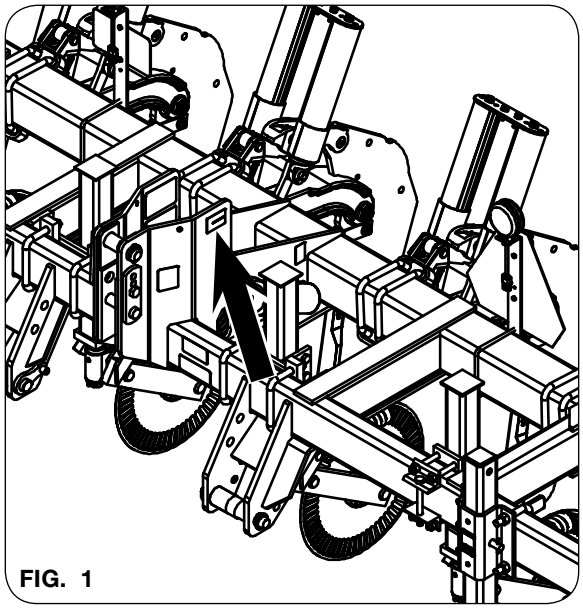

FIG. 1

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Safety

General Hazard Information

No accident-prevention program can be successful without the wholehearted cooperation of the person who is directly responsible for the operation of the equipment.

A large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it be on the highway, in the field, or in the industrial plant, can be safer than the person who is at the controls. If accidents are to be prevented--and they can be prevented--it will be done by the operators who accept the full measure of their responsibility.

It is true that the designer, the manufacturer, and the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator.

It is said that, “the best kind of a safety device is a careful operator.” We, at Unverferth Mfg. Co., Inc. ask that you be that kind of operator.

REMEMBER:

THINK SAFETY

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT!

SIGNAL WORDS

INDICATES AN EXTREMELY HAZARDOUS SITUATION OR ACTION THAT WILL RESULT IN SERIOUS INJURY OR DEATH.

INDICATES A HAZARDOUS SITUATION OR ACTION THAT COULD RESULT IN SERIOUS INJURY OR DEATH.

INDICATES AN UNSAFE SITUATION OR ACTION THAT MAY RESULT IN PERSONAL INJURY.

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

Safety Decals

PART NO. 95445

PART NO. 99507

PART NO. 902221

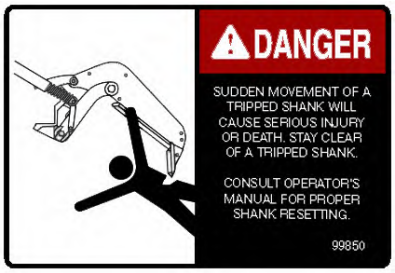
PART NO. 97048

PART NO. 97337

PART NO. 97973

PART NO. 97972

PART NO. 97961



PART NO. 99850

PART NO. 99613

Following Safety Instructions

- Read and understand this operator's manual before operating.

- All machinery should be operated only by trained and authorized personnel.
- To prevent machine damage, use only attachments and service parts approved by the manufacturer.
- Always shut tractor engine off and remove key before servicing.

- Avoid personal attire such as loose fitting clothing, shoestrings, drawstrings, pants cuffs, long hair, etc., that may become entangled in moving parts.
- Do not allow anyone to ride on the implement. Make sure everyone is clear before operating machine or towing vehicle.

- Never attempt to operate implement unless you are in driver's seat.

Before Servicing

- Avoid working under an implement; however, if it becomes absolutely unavoidable, make sure the implement is safely blocked.

- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.
- Explosive separation of a tire and rim can cause serious injury or death. Only properly trained personnel should attempt to service a tire and wheel assembly.
- Add sufficient ballast to tractor to maintain steering and braking control at all times. Do not exceed tractor's lift capacity or ballast capacity.
- Hot parts can cause severe burns. Use caution when working around power system/ground engaging components. Allow parts to cool before servicing.

Before Operating

- Do not stand between implement and tractor during hitching.
- Always make certain everyone and everything is clear of the machine before beginning operation.
- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.
- Add sufficient ballast to tractor to maintain steering and braking control at all times. Do not exceed tractor's lift capacity or ballast capacity.
- Inspect fields for buried utility lines (electric, natural gas, water, etc.). To find buried lines in the US or Canada contact 1-888-258-0808, in the US you may also contact 811.

During Operation

- Regulate speed to field conditions. Maintain complete control at all times.
- Never service or lubricate equipment when in operation.
- Keep away from overhead power lines. Electrical shock can cause serious injury or death.
- Use extreme care when operating close to ditches, fences, or on hillsides.
- Do not leave towing vehicle unattended with engine running.

Before Transporting

- Install transport locks before transporting.
- Check for proper function of all available transport lights. Make sure that all reflectors are clean and in place on machine. Make sure that the SMV emblem and SIS decal are visible to approaching traffic.

During Transport

- Comply with all laws governing highway safety when moving machinery.
- Use transport lights as required by all laws to adequately warn operators of other vehicles.
- Use good judgment when transporting equipment on highways. Regulate speed to road conditions and maintain complete control.
- Maximum transport speed of this implement should never exceed 20 mph as indicated on the machine. Maximum transport speed of any combination of implements must not exceed the lowest specified speed of the implements in combination. Do not exceed 10 mph during off-highway travel.
- Slow down before making sharp turns to avoid tipping. Drive slowly over rough ground and side slopes.
- It is probable that this implement is taller, wider and longer than the towing vehicle. Become aware of and avoid all obstacles and hazards in the travel path of the equipment, such as power lines, ditches, etc.

Pressurized Oil

- Relieve the hydraulic system of all pressure before adjusting or servicing. See hydraulic power unit manual for procedure to relieve pressure.

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

Preparing for Emergencies

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

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

Wearing Protective Equipment

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

- Wear steel-toed shoes when operating.

- Wear hearing protection when exposed to loud noises.

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

Notes

SECTION II
Set Up

Set Up Checklist

- ☐ Wheel bolts tightened (Recheck after initial use)
- ☐ Tire pressures checked
- ☐ Hardware tightened
- ☐ Machine lubricated
- ☐ Safety and operating procedures reviewed
- ☐ Field adjustment information reviewed
- ☐ Lubrication procedures reviewed
- ☐ Warranty information reviewed
- ☐ Hydraulic hoses properly routed/fittings tight

General Set Up Information

⚠ WARNING

- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW THE SAFETY SECTION IN THIS MANUAL IF NECESSARY.**
- **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 6,000 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 IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

Folding Wing Extension Assembly — Models 112 & 132

NOTE: For proper positioning, refer to "Overhead Layouts", in SET UP section for Rigid & Folding Units.

IMPORTANT

- Use the instructions (66120) provided with the main frame assembly before removing the shipping chains or straps for proper procedures on setting the machine in the working position.

1. Using a safe lifting device and stands rated for at least 5,000 lbs. position implement onto support stands approximately 40" tall, (Fig. 2-1).
2. Secure a 1000 lbs. min. lifting device to the end of the base wing. Remove the shipping brace and lower the wings so they are level with the main frame.

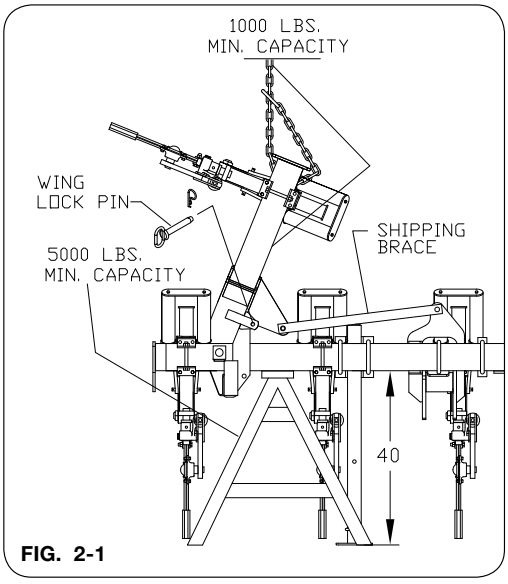


FIG. 2-1

Wing Extension Assembly — Models 112 & 132

1. Secure a 2,000 lbs. minimum lifting device to the wing extension pair while they are bolted together. Attach the entire assembly to the right-hand side of the machine.

ALL MODELS EXCEPT 16 SHANK

Secure with eight 3/4"-10UNC x 2" long capscrews and locknuts, (Fig. 2-2).

16 SHANK MODELS

Secure with six 3/4"-10UNC x 2" long capscrews, two 3/4"-10UNC x 1 1/2" long capscrews and two 3/4" lock washers.

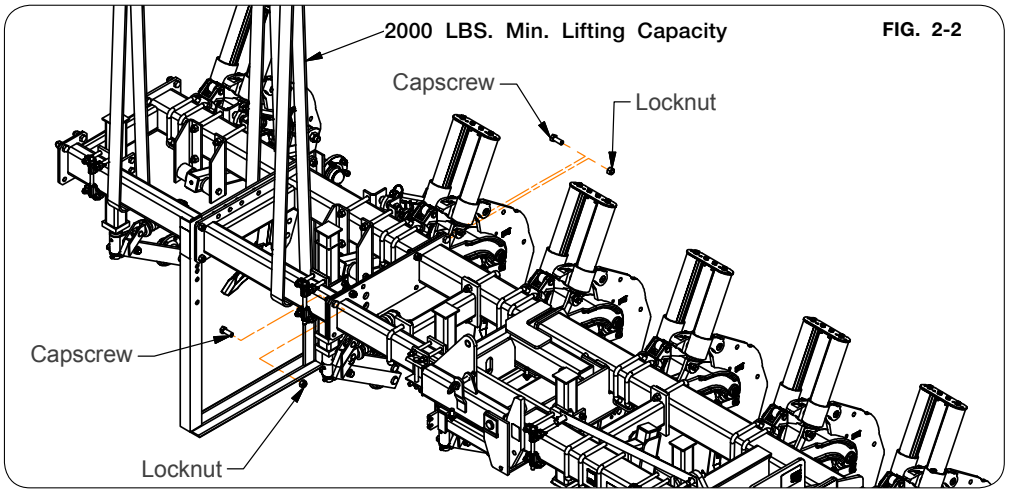


FIG. 2-2

IMPORTANT

- Make sure the 2-piece mounting plate is bolted to the machine. The 1-piece mounting plate should be positioned away from the machine. See Fig. 2-3.

NOTE: Use shims in between the wing and wing extension for proper leveling.

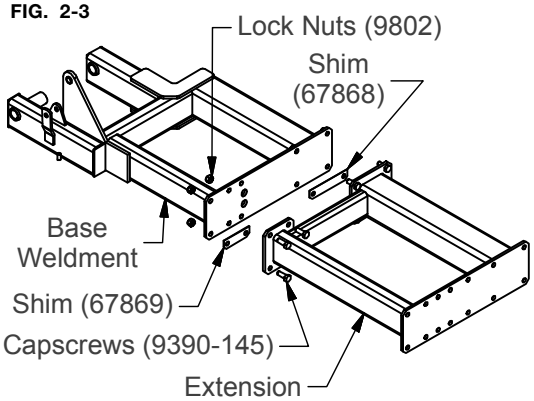


FIG. 2-3

Wing Extension Assembly — Models 112 & 132 (continued)

2. Reattach the lifting device to the left-hand wing of the wing extension pair.

⚠ CAUTION

- **THE EXTENSION COULD BECOME UNSTABLE IF NOT SUPPORTED BY LIFTING DEVICE.**

3. Remove the four 3/4”-10UNC locknuts and capscrews that secure the right-hand extension to the shipping stand. Remove the shipping stand (Fig. 2-4).

4. Attach the left-hand extension to the left-hand side of the machine (Fig. 2-4).

ALL MODELS EXCEPT 12 SHANK 36” & 38” SPACING; 16 SHANK

Secure with eight 3/4”-10UNC x 2” long capscrews and locknuts (Fig. 2-2).

12 SHANK 36” & 38” SPACING; 16 SHANK MODELS

Secure with shipping stand hardware and two 3/4”-10UNC x 1 1/2” long capscrews and two 3/4” lock washers.

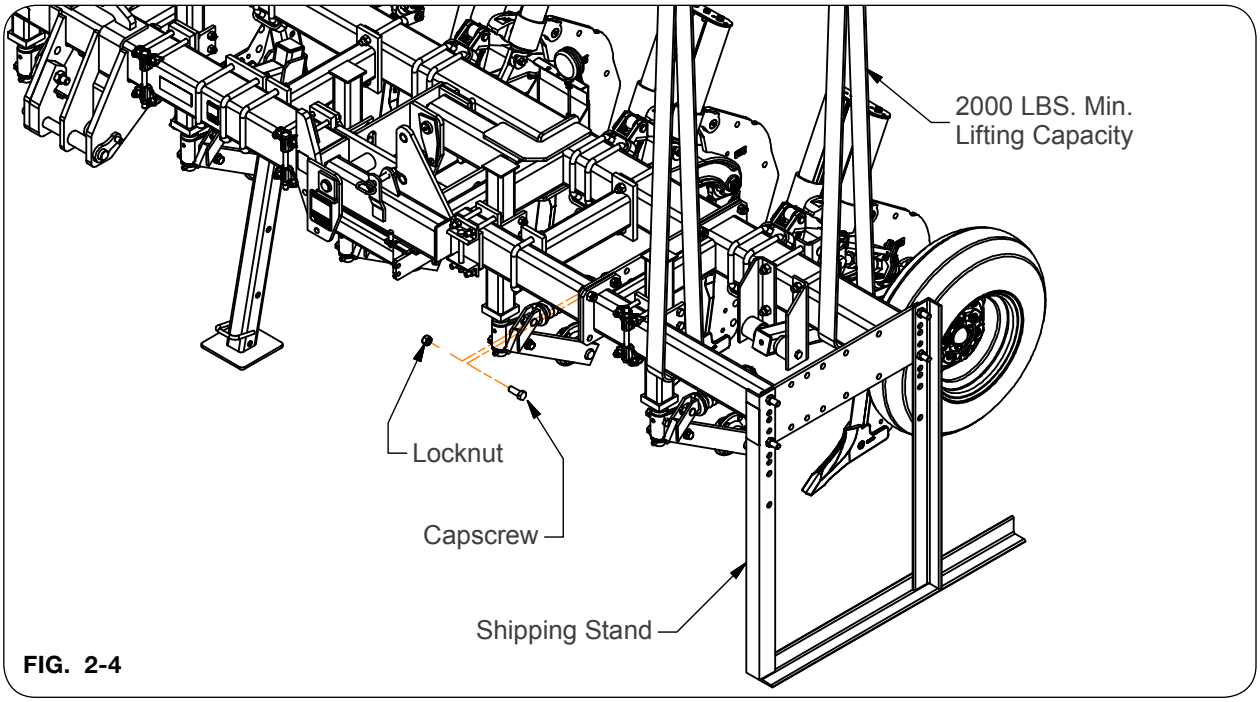


FIG. 2-4

Spacer Plate Kit (67016B) — Folding Units

1. Insert the plates (66990B) as shown in Fig. 2-5. Secure each plate with two 1”-8UNC x 4 1/2” capscrews (91299-192), one 1” SAE flat washers (9405-116) and two 1”-8UNC lock nuts (9663).

NOTE: Flat washer (9405-116) goes on the bottom capscrew on the inside to cover the slot when installing hardware.

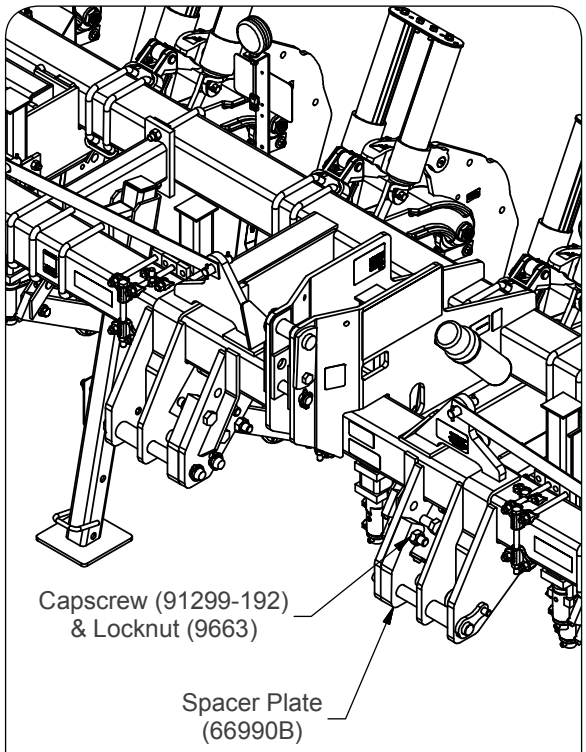


FIG. 2-5

Wing Extension With Spring-Cushioned Shanks — Model 122

Use a safe lifting device with a minimum rating of 2000 lbs. for a 2 shank extension pair and 4000 lbs. for a 4 shank extension pair.

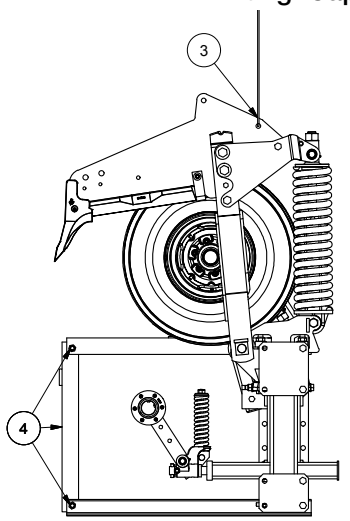
1. Be sure to position the wing extension shipping pair in an area that is firm and level.

2. With the safe lifting device spread and centered on the wing extension shipping pair, face the lower side on machine and position the length of the safe lifting device 3 to 4 feet above the top of the shanks.

3. Attach the safe lifting device to the back of shanks on machine (Fig. 2-6).

4. With the wing extension secured, remove ONLY the vertical bar on the shipping stand (Fig. 2-6).

FIG. 2-6



5. Remove ONLY the shipping stand upper angle (Fig. 2-7A).

6. Remove ONLY one bolt holding the lower angle shipping stand (Fig. 2-7A).

7. With shipping frame members removed as instructed, back-up slowly and carefully to move the unit backwards, lowering the shanks to the ground.

8. Maintain control of frame as it is being rotated downward.

9. After points are resting securely onto ground, relieve tension on lifting device and release load from lifting device.

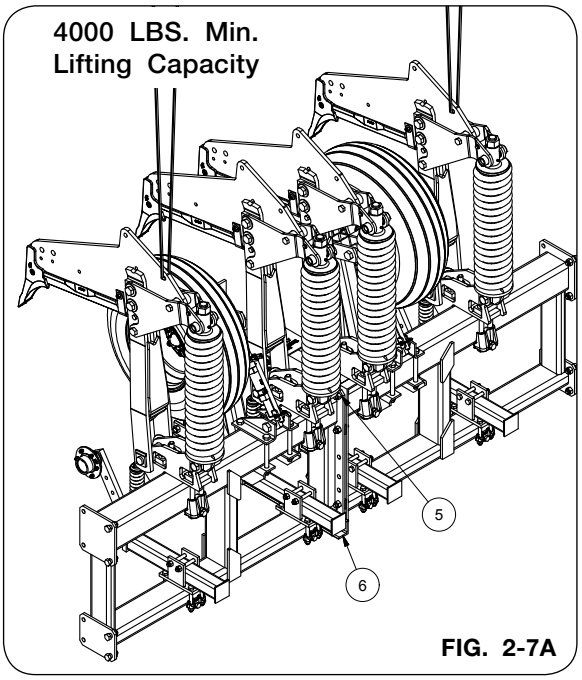


FIG. 2-7A

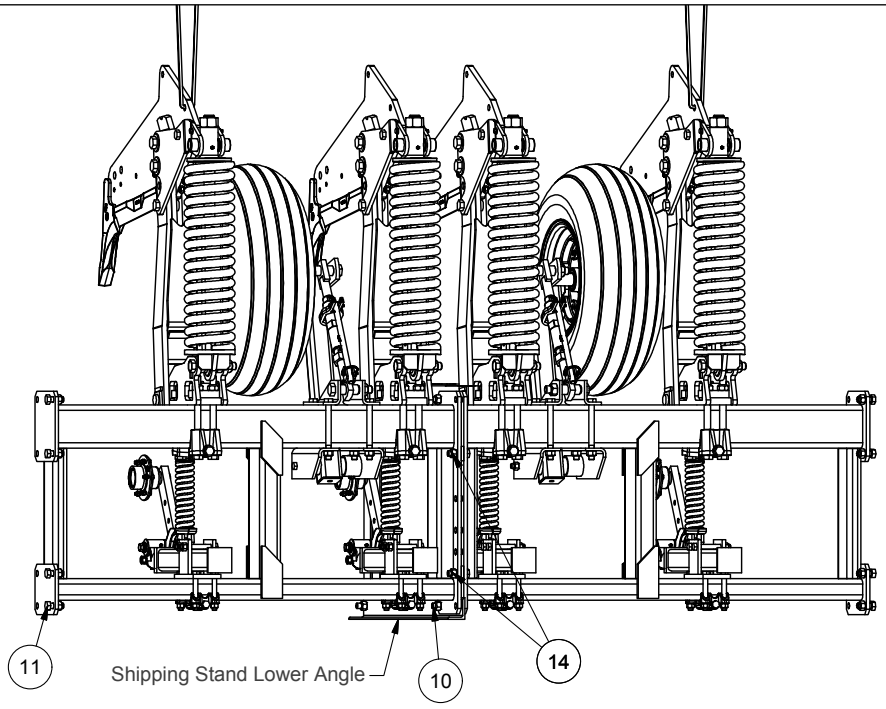
Wing Extension With Spring-Cushioned Shanks — Model 122 (cont.)

10. Remove hardware from outside end of extension pair assembly (see Fig. 2-7B).

11. Secure a safe lifting device rated at a minimum of 2000 lbs. for a 2 shank extension pair and 4000 lbs. for a 4 shank extension pair while they are bolted together. Attach the entire assembly to the right-hand base wing. Secure with eight 3/4”-10UNC x 2” capscrews and locknuts (see Fig. 2-8).

12. Remove the bolt and locknut holding the remaining lower angle of the shipping stand into position (see Fig. 2-7B).

FIG. 2-7B



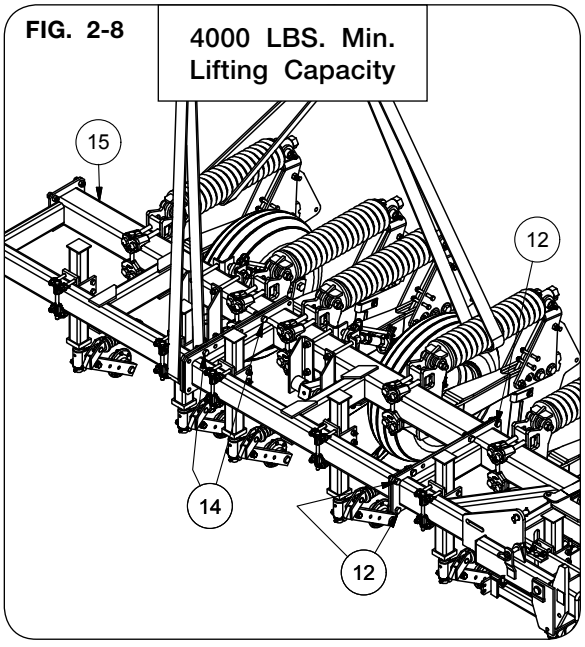
⚠ CAUTION

- **THE EXTENSION COULD BECOME UNSTABLE IF NOT SUPPORTED BY LIFTING DEVICE.**

14. Remove the three 3/4”-10UNC locknuts that secure the extensions together (see Fig. 2-7 and Fig. 2-8).

15. Attach the left-hand extension to the left-side.

FIG. 2-8



Combo® Coulter Blades (optional)

⚠ CAUTION

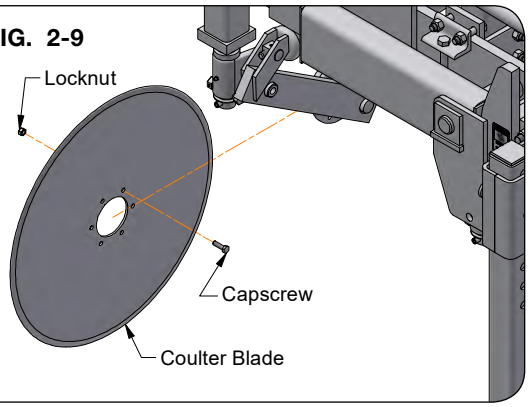
- **SHARP EDGES ON COULTER BLADES CAN CAUSE SERIOUS INJURY. BE CAREFUL WHEN WORKING AROUND COULTER BLADES.**

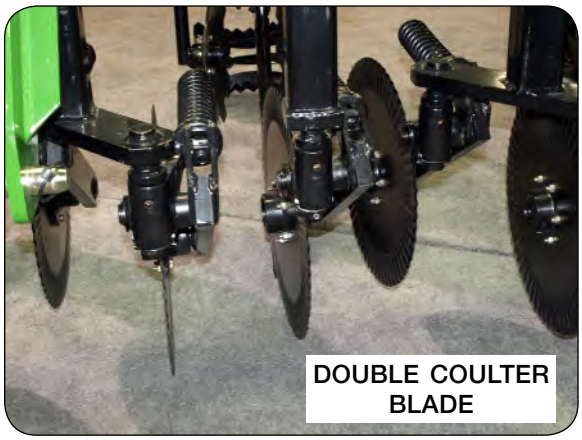
On some models, the coulter post and bracket assembly may be repositioned for shipping purposes. Before installing coulter blades, check alignment of coulter with shank. Reposition coulter unit to align with shank.

1. Install a coulter blade to each hub using six 3/8”-16UNC x 1 1/4” capscrews (9390-056) and 3/8”-16UNC locknuts (9928) (Fig. 2-9). Tighten all hardware on the frame mounting bracket to remove any slack. DO NOT torque any hardware until the slack has been removed on all capscrews and nuts.

2. Torque hardware. Refer to “Torque Chart” in MAINTENANCE section for proper torquing.

FIG. 2-9





DOUBLE COULTER BLADE

Support Stand

1. The rear support stand may be located out of position for shipping purposes, and must be relocated for field use. Refer to Fig. 2-10 for correct position.

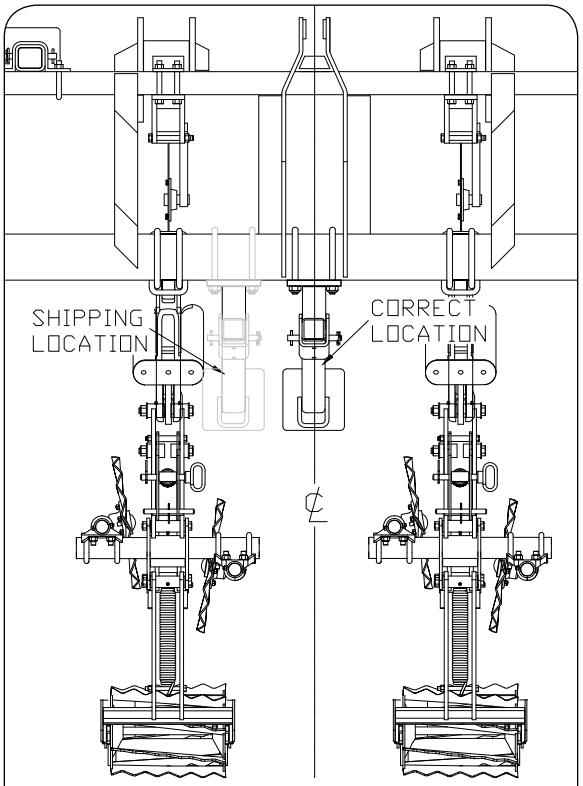


FIG. 2-10

Stabilizer Wheel Assembly

WARNING

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

8 Shank 30” Spacing Only

1. Attach extension tube to the base wing, secure with four 3/4”-10 x 1 3/4” long capscrews (9390-145) and locknuts, (Fig. 2-11). Tighten capscrews to torque chart in MAINTENANCE section.

2. Loosen the four 3/4”-10 x 8” long capscrews on the stabilizer wheel. Secure a 300 lb. minimum lifting device to the stabilizer wheel and slide unit onto the extension tube. Refer to “Overhead Layouts” in this section. Tighten capscrews to torque chart in MAINTENANCE section.

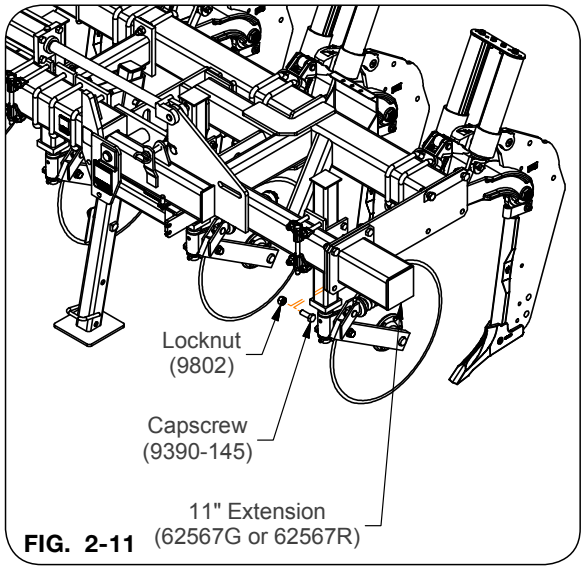


FIG. 2-11

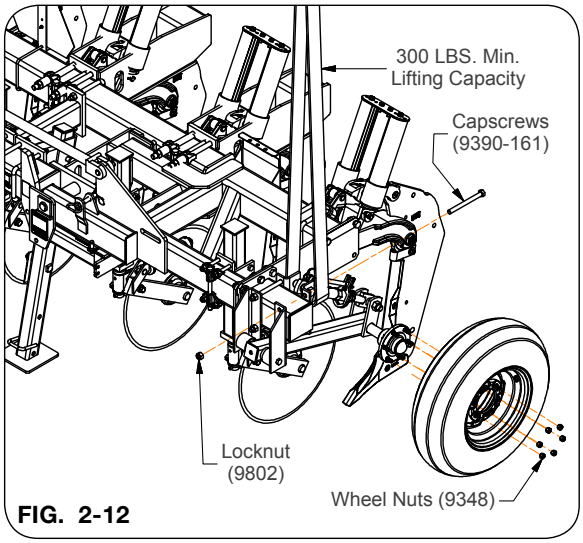


FIG. 2-12

Stabilizer Wheel Assembly (continued)

ALL Folding Models

⚠ 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. Install tire and wheel assemblies to the stabilizer wheel hub. Secure using 1/2”-20 tapered nut (9348).

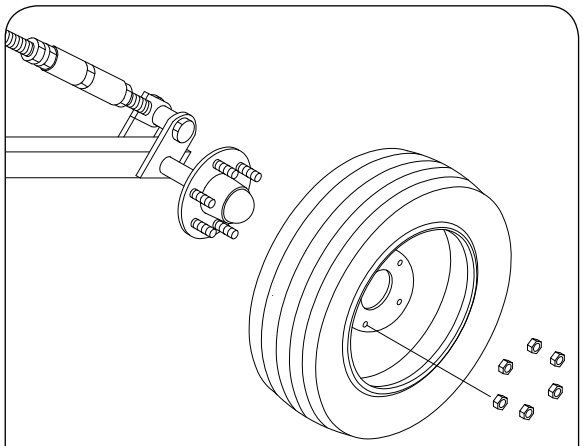


FIG. 2-13

Light and Panel Reflector Assembly

Outer Reflector Assemblies For Rigid Units

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

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

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

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

IMPORTANT

- *MODEL 132 - AUTO-RESET SHANKS*

  Red lights need to be in the highest position and visible from the rear to prevent damage to the light and/or bracket when shank trips.

RIGID 4, 5, 6, 7, & 9 SHANKS

1. Attach the reflector brackets (68958B) on the outer reflector assemblies at the top of the angle brackets with the red reflector farthest from the angle bracket as shown in FIG. 2-14 and FIG. 2-15. Secure with 3/8”-16UNC x 1” capscrews (9390-055) and 3/8”-16UNC lock nuts (9928). Secure the amber lights (9003876) to the top of the reflector assemblies.

Left-Hand Outer Reflector Assembly & Amber Light (9003876)

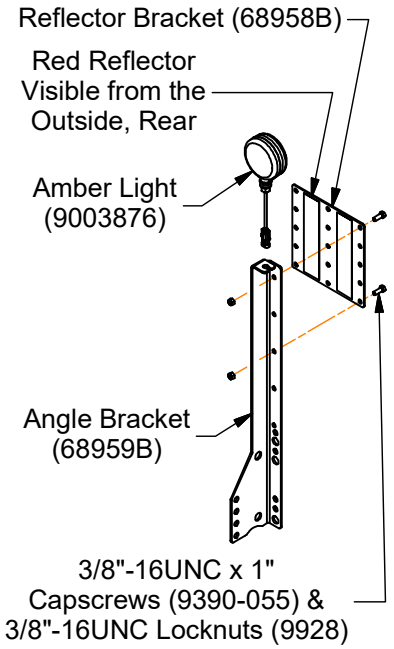


FIG. 2-14

Right-Hand Outer Reflector Assembly & Amber Light (9003876)

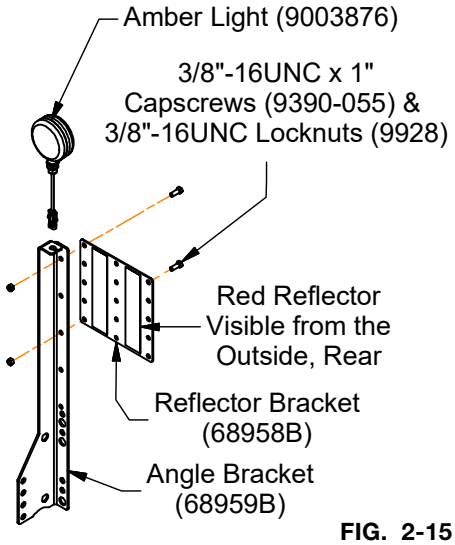


FIG. 2-15

Light and Panel Reflector Assembly (continued)

RIGID 8 & 9 SHANKS

1. Attach the reflector brackets (68958B) on the outer reflector assemblies at the top of the angle brackets with the red reflector closest to the the angle bracket as shown in FIG. 2-16 and FIG. 2-17 with 3/8”-16UNC x 1” capscrews (9390-055) and 3/8”-16UNC lock nuts (9928). Secure the amber lights (9003876) to the top of the reflector assemblies.

Left-Hand Outer Reflector Assembly & Amber Light (9003876)

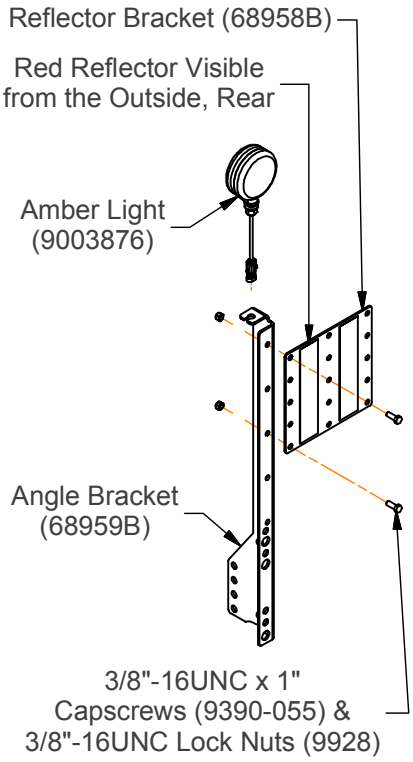


FIG. 2-16

Right-Hand Outer Reflector Assembly & Amber Light (9003876)

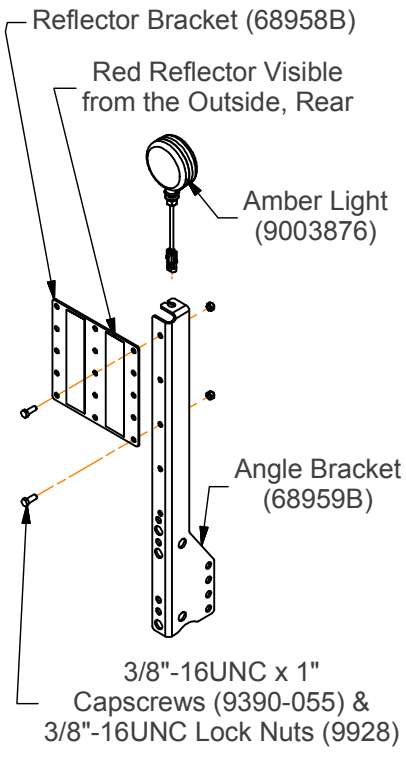


FIG. 2-17

Light and Panel Reflector Assembly (continued)

Attaching Outer Reflector Assemblies For Rigid Units

1. Secure the outer reflector assemblies to the stabilizer wheel assemblies using the existing hardware. See FIG. 2-18 through FIG. 2-21 for reference and "OVERHEAD LAYOUTS" for proper positioning.

5 SHANK LEFT-HAND, FRONT SHOWN

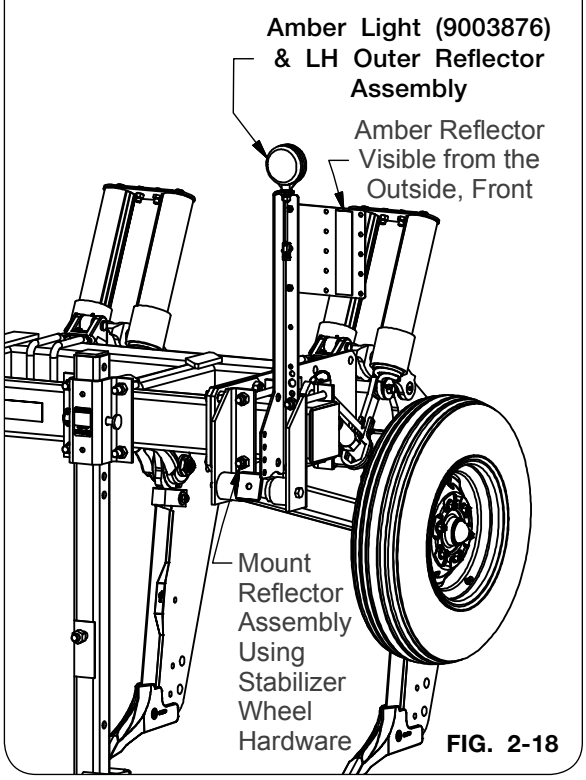


FIG. 2-18

5 SHANK RIGHT-HAND, FRONT SHOWN

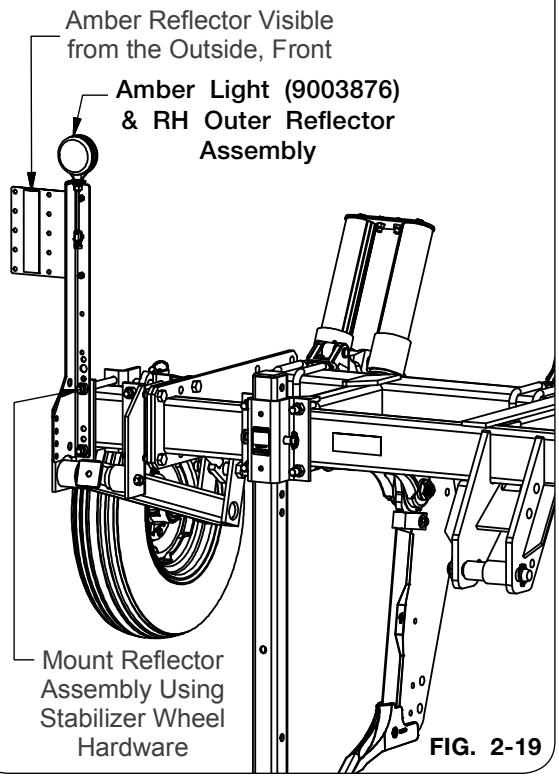


FIG. 2-19

8 SHANK LEFT-HAND, FRONT SHOWN

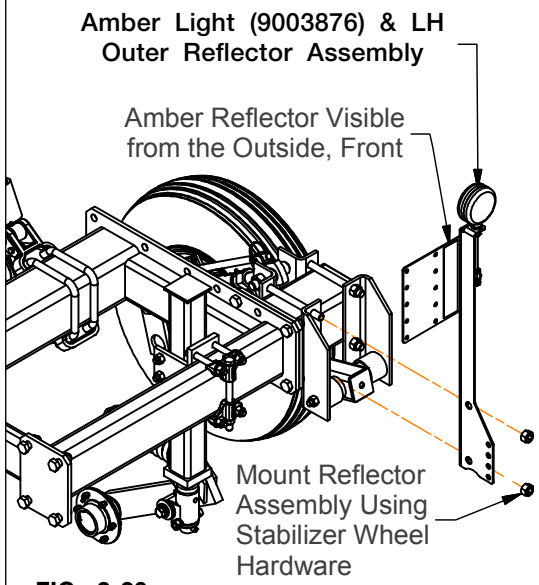


FIG. 2-20

8 SHANK RIGHT-HAND, FRONT SHOWN

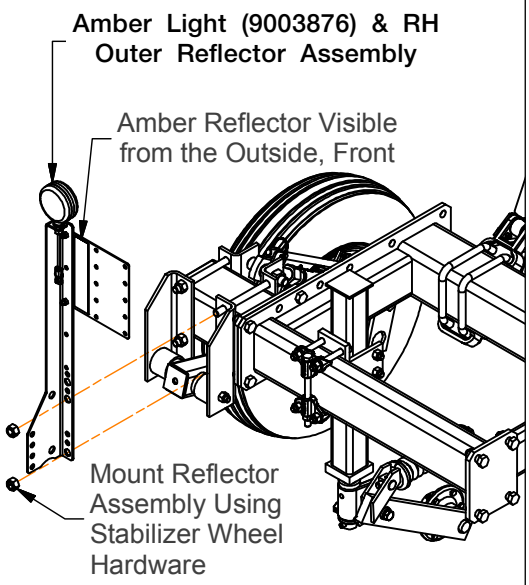


FIG. 2-21

Light and Panel Reflector Assembly (continued)

Outer Reflector Assemblies For Folding Units

1. Attach the reflector brackets (68958B) and assemble the light bracket (68960B) on the outer reflector assemblies at the middle of the angle bracket with the red reflector farthest from the angle brackets as shown in FIG. 2-22 and FIG. 2-23 with 3/8”-16UNC x 1” capscrews (9390-055) and 3/8”-16UNC lock nuts (9928). Secure the amber lights (9003876) to the light bracket.

Left-Hand Outer Reflector Assembly, light bracket (68960B), & Amber Light (9003876)

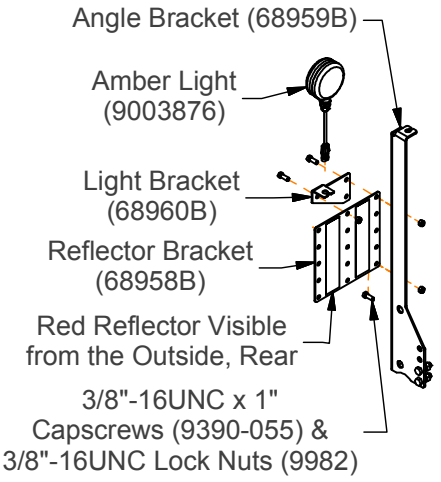


FIG. 2-22

Right-Hand Outer Reflector Assembly, light bracket (68960B), & Amber Light (9003876)

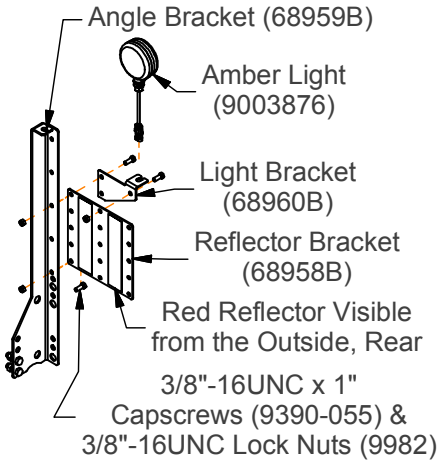


FIG. 2-23

Light and Panel Reflector Assembly (continued)

Attaching Outer Reflector Assemblies For Folding Units

1. Use 1/2”-13UNC x 1 1/2” capscrews (9390-101) and 1/2”-13UNC lock nuts (9800) to secure the outer reflector assemblies to the tabs located on the main frame with the red reflectors farthest away from angle bracket. See FIG. 2-24 through FIG. 2-25 for reference and “OVERHEAD LAYOUTS” for proper positioning.

10 SHANK LEFT-HAND, FRONT SHOWN

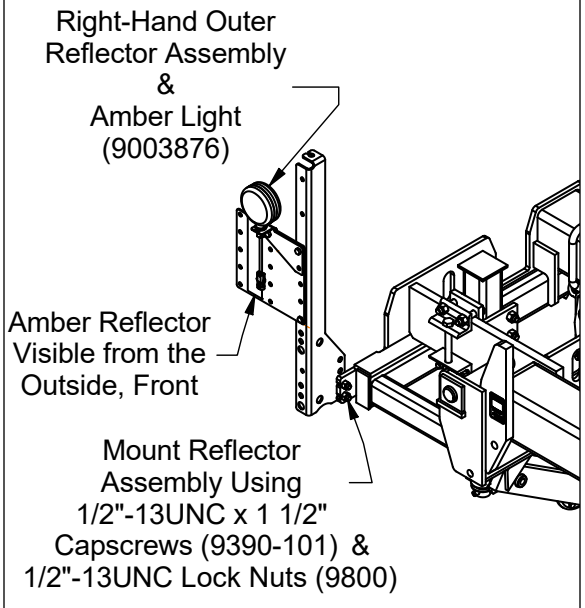


FIG. 2-24

10 SHANK RIGHT-HAND, FRONT SHOWN

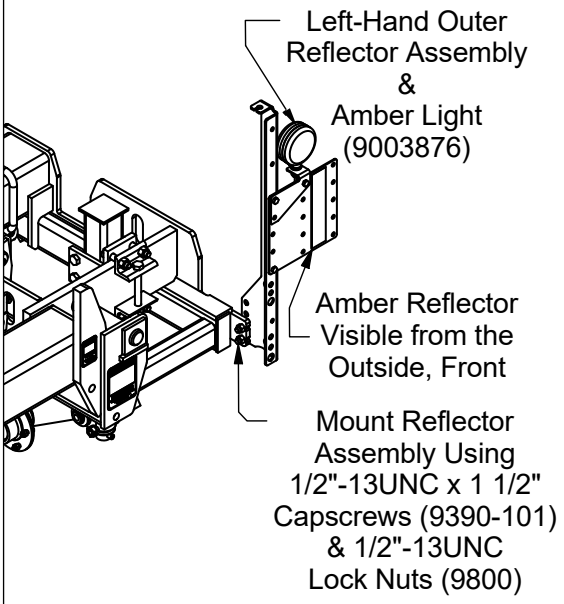


FIG. 2-25

NOTE: Position outer amber lights within 16” of the outer extremity of the folded machine, visible from front and rear of the unit.

Light and Panel Reflector Assembly (continued)

Center Reflector Assemblies & SMV Emblem - ALL Rigid, 7, 8, 9, 10, 11, 13 Folding & 12 Shank 30” Spacing Folding Units

IMPORTANT

- *MODEL 132 - AUTO-RESET SHANKS*

  Red lights need to be in the highest position and visible from the rear to prevent damage to the light and/or bracket when shank trips.

1. Secure the SMV Emblem (9829) to the reflector stand (69664B) with 1/4”-20UNC x 3/4” capscrews (9390-003) and 1/4”-20UNC lock nuts (9936) as shown in FIG. 2-26.

2. Attach red light (9003877) to the top of the reflector stand (69664B) with the red lens facing the same direction as the SMV.

NOTE: SMV emblem (9829) and red light (9003877) MUST be visible from the rear of the unit.

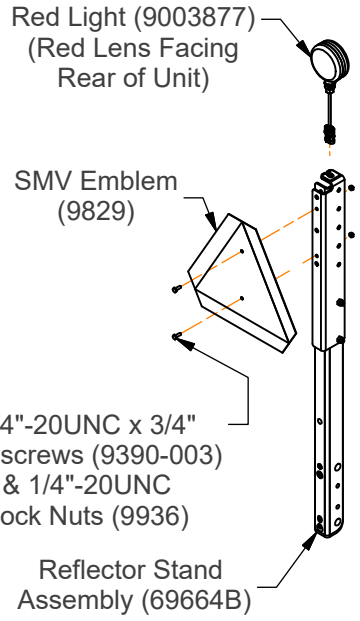


FIG. 2-26

3. Right-hand center reflector assembly is a reflector bracket (68958B) assembled to the reflector stand (69664B). Light bracket (68960B) may be required to secure the red light (9003877) to the assembly. Assemble reflector bracket and red light as shown in FIG. 2-27.

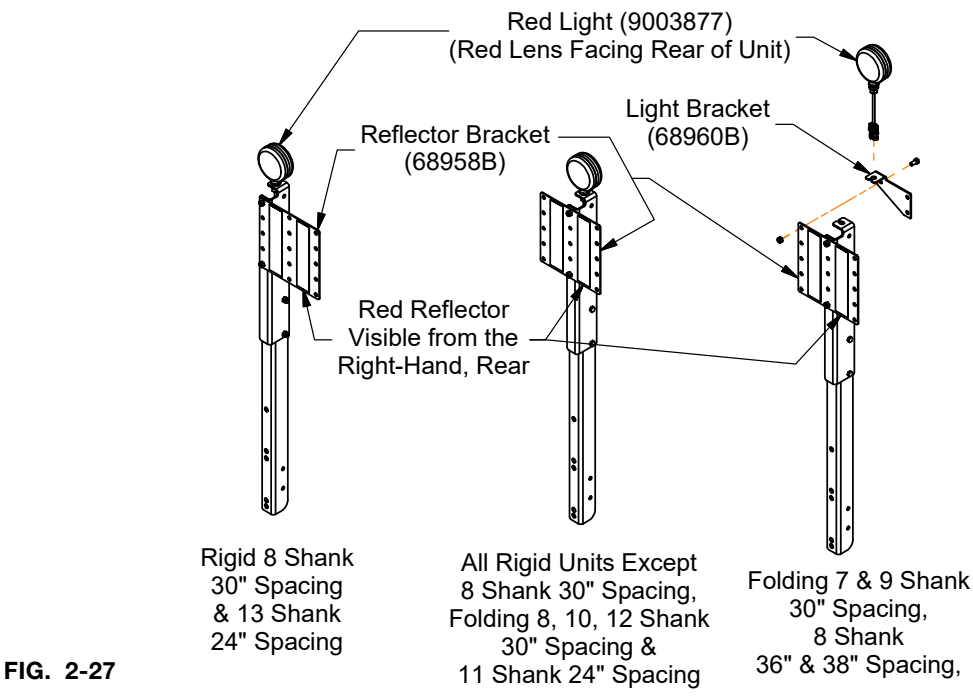


FIG. 2-27

NOTE: The RED reflector MUST be visible from the right-hand, rear side of the unit when installed.

Light and Panel Reflector Assembly (continued)

4. Attach the SMV assembly to the left-hand side of the frame with a 1/2”-13UNC U-bolt (9005460) and 1/2”-13UNC locknuts (9800) (FIG. 2-28). Refer to the OVERHEAD LAYOUTS for proper placement.

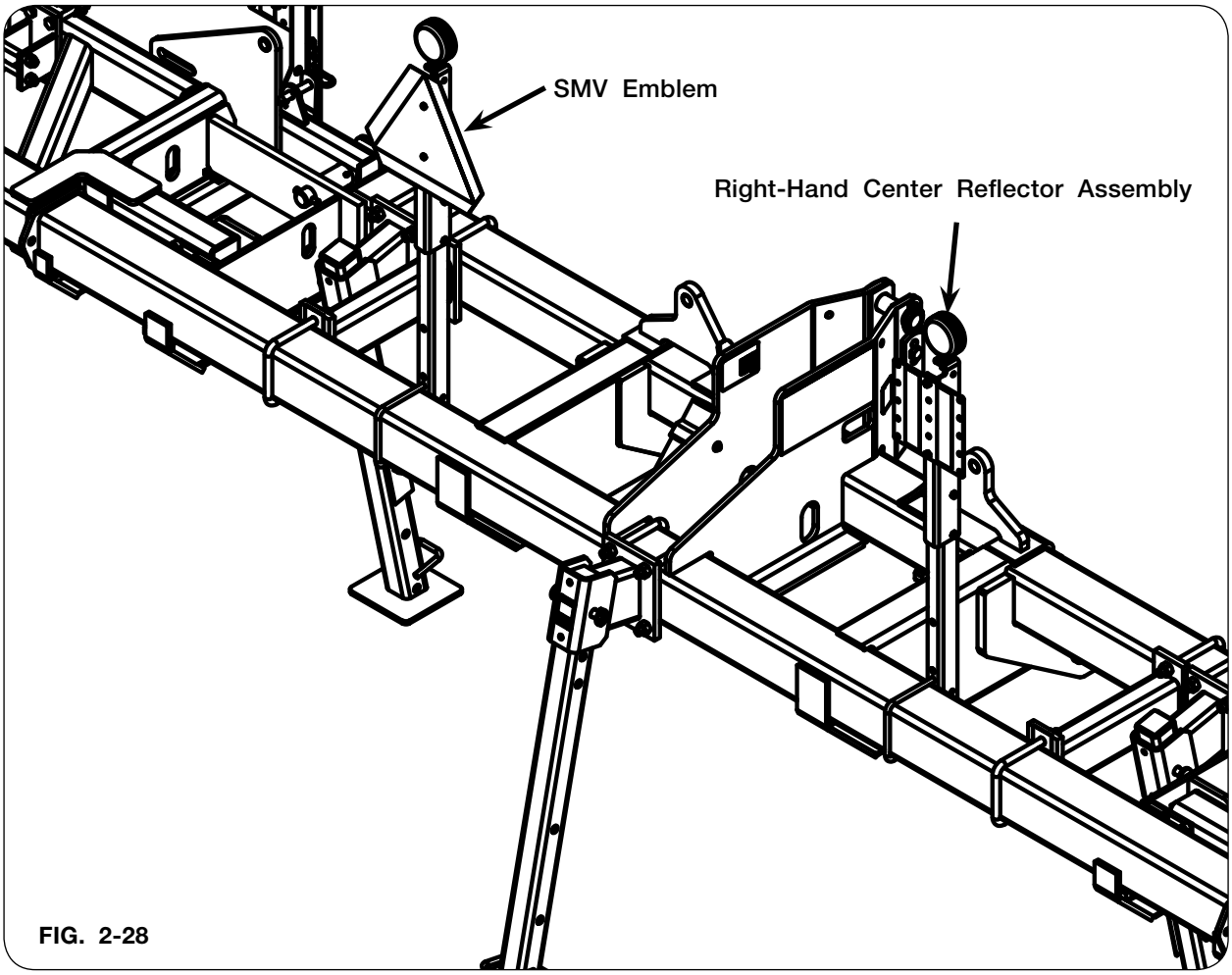


FIG. 2-28

NOTE: Position each RED light at a maximum of 5’ from the center of machine. Lights MUST be visible from the rear of the unit.

5. Attach the right-hand center reflector assembly to the right-hand side of the frame with a 1/2”-13UNC U-bolt (9005460) and 1/2”-13UNC locknuts (9800) (FIG. 2-28). Refer to the OVERHEAD LAYOUTS for proper placement.

Light and Panel Reflector Assembly (continued)

Center Reflector Assemblies & SMV Emblem - Folding 12 Shank 36” & 38” Spacing, 16 Shank 30” Spacing Units

IMPORTANT

- *MODEL 132 - AUTO-RESET SHANKS*

  Red lights need to be in the highest position and visible from the rear to prevent damage to the light and/or bracket when shank trips.

1. Secure the SMV Emblem (9829) to the reflector stand (69664B) with 1/4”-20UNC x 3/4” capscrews (9390-003) and 1/4”-20UNC locknuts (9936) as shown in FIG. 2-29.

2. Attach red light (9003877) to the top of the reflector stand (69664B) with the red lens facing the same direction as the SMV.

NOTE: SMV emblem (9829) and red light (9003877) MUST be visible from the rear of the unit.

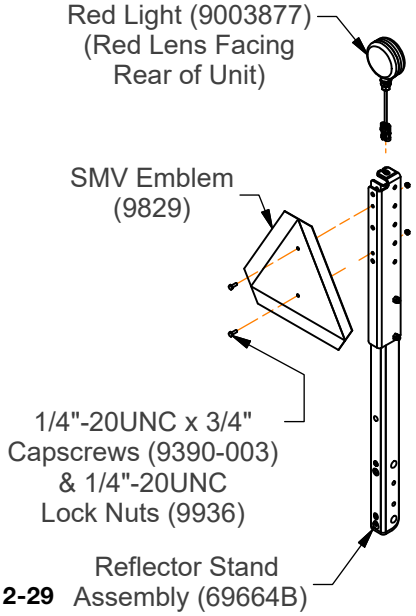


FIG. 2-29

3. Right-hand center reflector assembly is a reflector bracket (68958B) assembled to the reflector stand (69664B). Assemble reflector bracket and red light as shown in FIG. 2-30.

NOTE: The RED reflector MUST be visible from the right-hand, rear side of the unit when installed.

Right-Hand Center Reflector Assembly

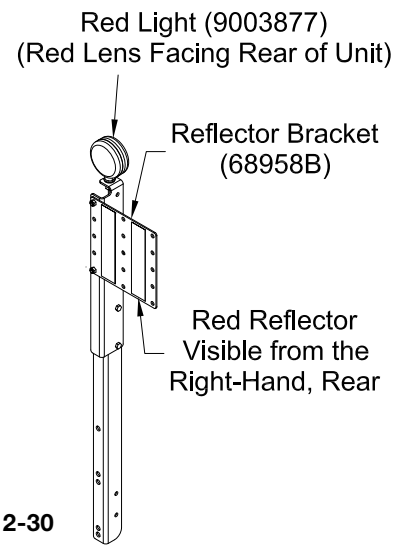


FIG. 2-30

Light and Panel Reflector Assembly (continued)

4. Left-hand center reflector assembly is a reflector bracket (68958B) assembled to the reflector stand (69664B). Assemble reflector bracket and red light as shown in FIG. 2-31.

NOTE: The RED reflector MUST be visible from the right-hand, rear side of the unit when installed.

Left-Hand Center Reflector Assembly

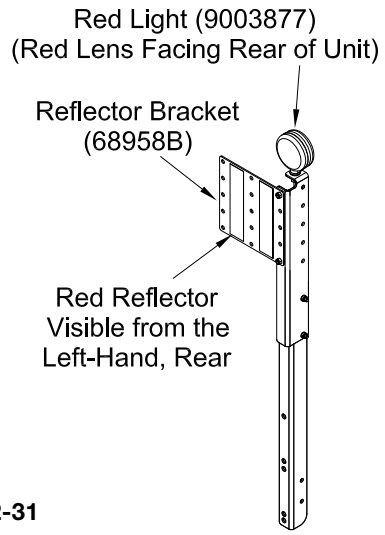
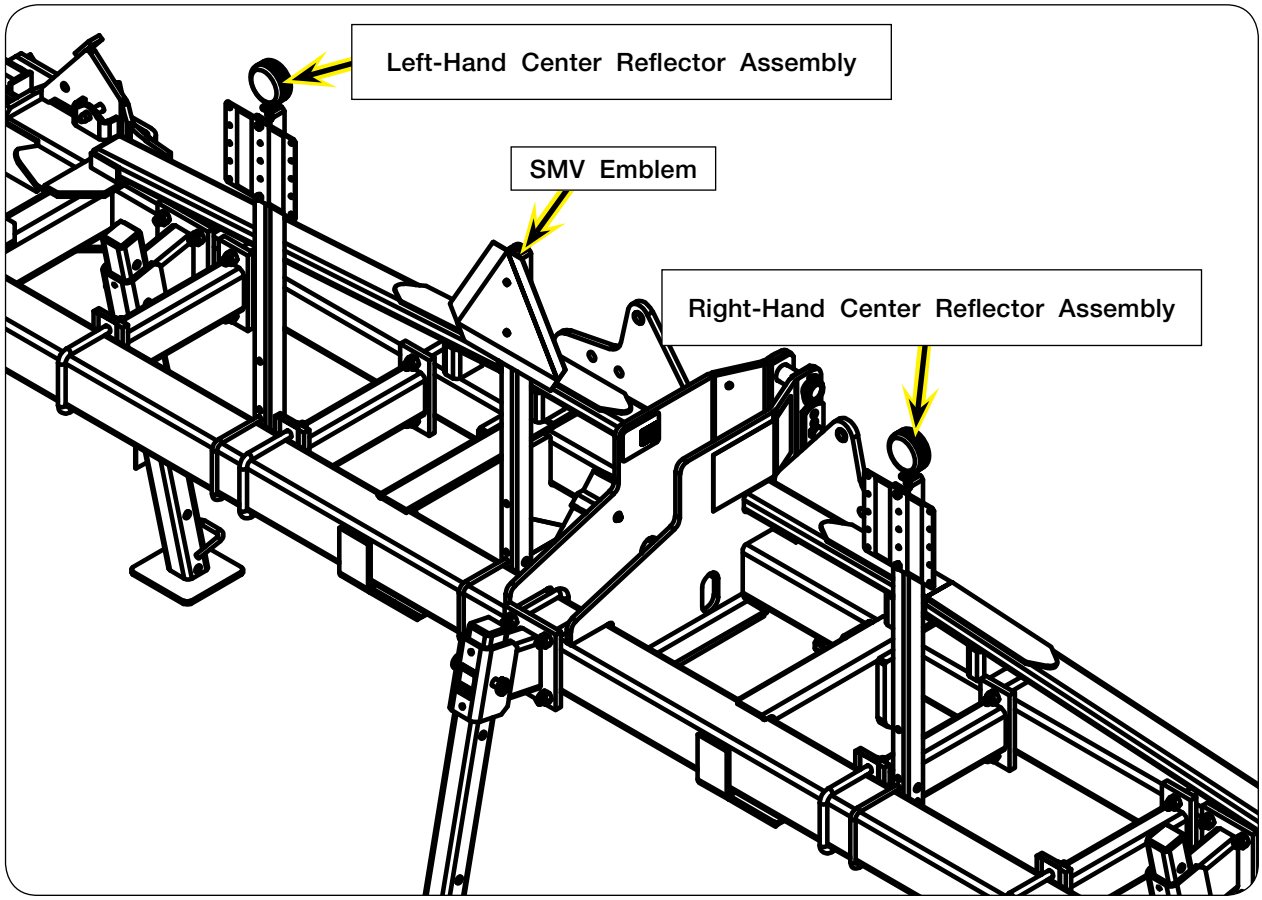


FIG. 2-31

5. Attach the left-hand center reflector assembly= to the left-hand side of the frame with a 1/2”-13UNC U-bolt (9005460) and 1/2”-13UNC locknuts (9800) (FIG. 2-32). Refer to the OVERHEAD LAYOUTS for proper placement.

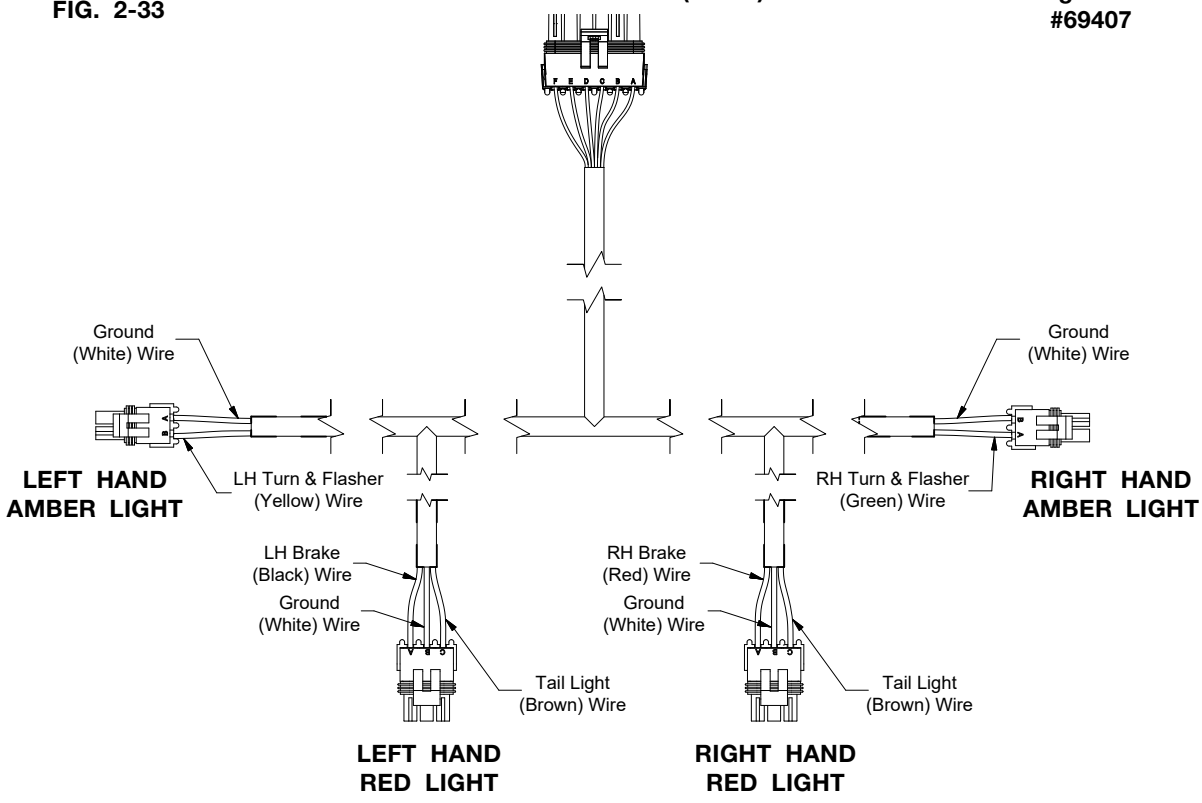


Light and Panel Reflector Assembly (continued)

Wiring

NOTE: "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.

FIG. 2-33



1. Locate the lighting wiring harness (69407) and lay it out on the unit frame with each harness connector leading to the appropriate light.

2. Plug the connectors into the lights. FIG. 2-33

3. Making sure the wires do not interfere with any moving parts, secure the excess wires to the unit frame using the provided cable ties.

4. Attach the 114" Main Harness (86466) to the connector of the attached light harness (69407), securing the excess to the unit frame. FIG. 2-34

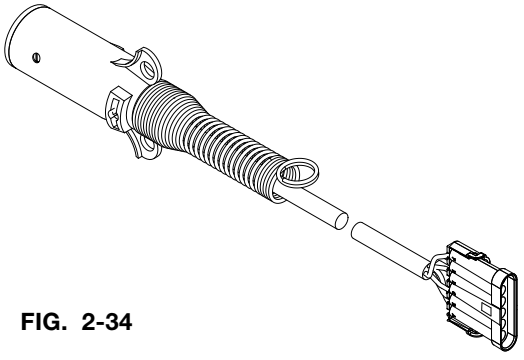
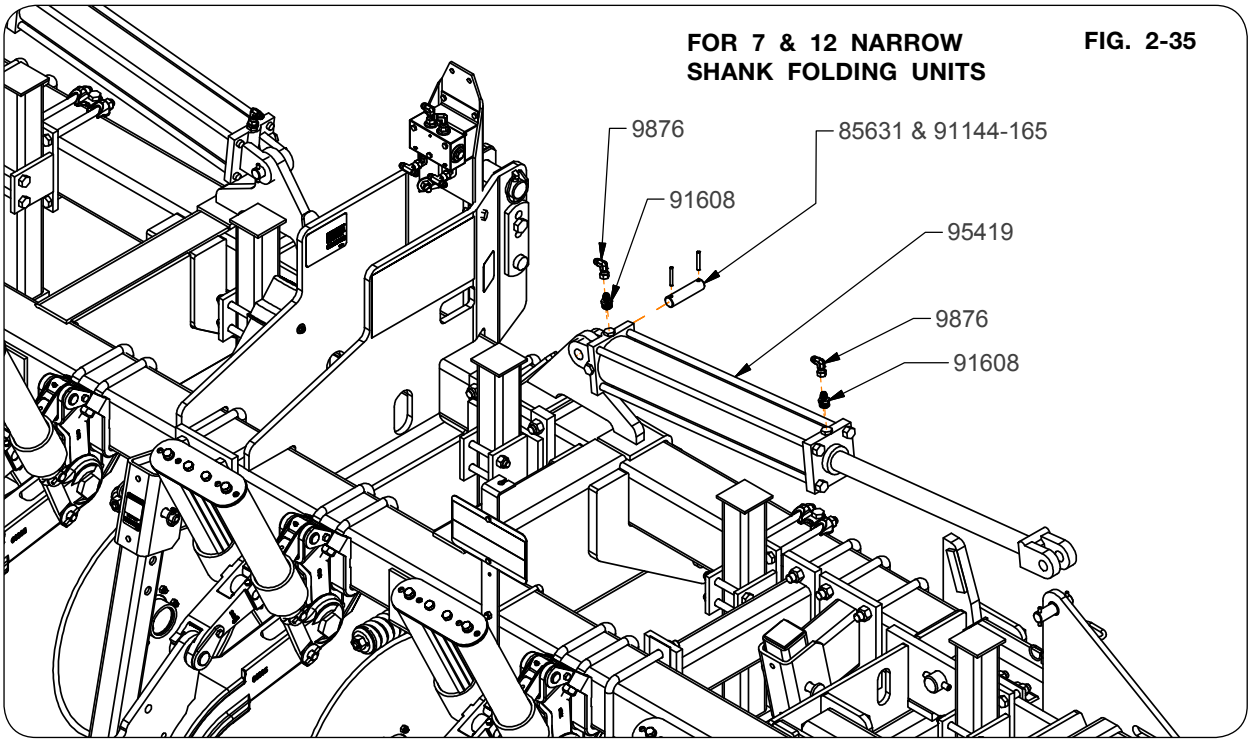


FIG. 2-34

Hydraulic Set Up — Standard

Folding 7 Shank through 11 Shank & 12 Shank 30” Spacing & 13 shank 24” Spacing

1. Attach only the base end of the hydraulic cylinder to the cylinder lug using a 1” dia. x 4” long pin (85631) and two 1/4” dia. x 1 7/8” long spiral pins (91144-165) on each side. (FIG. 2-35)



FOR 7 & 12 NARROW SHANK FOLDING UNITS

FIG. 2-35

Hydraulic Set Up — Standard (continued)
Folding 7 Shank through 11 Shank & 12 Shank 30” Spacing & 13 shank 24” Spacing

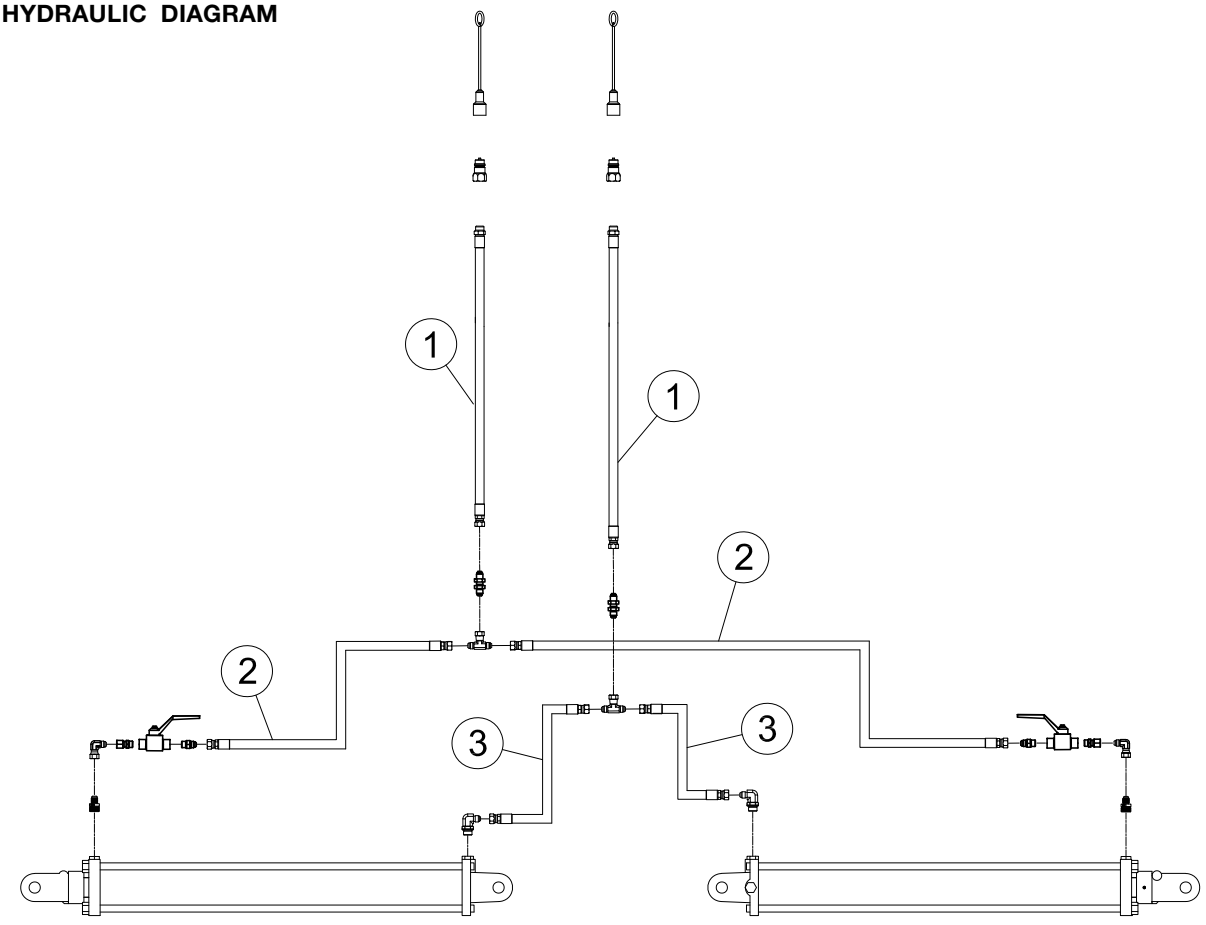
2. Attach all the hydraulic fittings, valve (if applicable), and hoses using the following hydraulic diagrams and Fig. 2-35, Fig. 2-36, and Fig. 2-37.

IMPORTANT

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

FOLDING 7 SHANK THROUGH 11 SHANK & 12 SHANK 30” SPACING & 13 SHANK 24” SPACING HYDRAULIC DIAGRAM

FIG. 2-37



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	96975	Hose 3/8” Dia. x 72”	2	
2	9002976	Hose 3/8” Dia. x 57”	2	
3	91589	Hose 3/8” Dia. x 28”	2	

3. Purge the hydraulic system. Refer to “Purging Hydraulic System” in this section.

Hydraulic Set Up — Standard (continued)
Folding 7 Shank through 11 Shank & 12 Shank 30” Spacing & 13 shank 24” Spacing

4. Shims are provided for adjusting/leveling wing height in the field. The cylinder rod end must also be adjusted. Refer to OPERATION section for “Adjusting/Leveling” procedures.

   Determine shim requirements as follows:

Wing Tip Distance Below Level	Approximate Shim Thickness Required
1/2”	1/16”
1”	1/8”
1 1/2”	1/16” & 1/8”
2”	1/4”
2 1/2”	1/16” & 1/4”

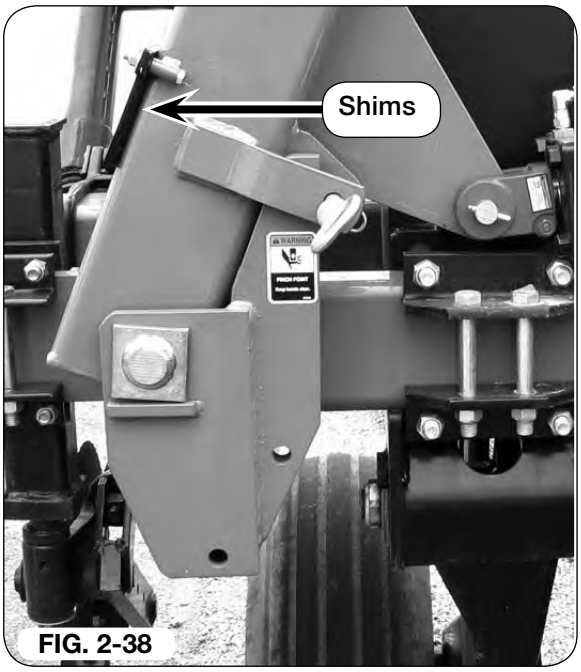


FIG. 2-38

Hydraulic Set Up — Rigid Hydraulics

Folding 8 Shank 60” Spacing; Folding 10 Shank 40” Spacing; Folding 12 Shank 36” & 38” Spacing; Folding 16 Shank 30” Spacing

WARNING

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

1. Attach the cylinder anti-rotational plates (68276B) to the 4” x 48” cylinders (9501464) with 1/2”-13UNC x 1 1/2” capscrews (9390-101) and 1/2”-13UNC locknuts (9800) (FIG. 2-39).

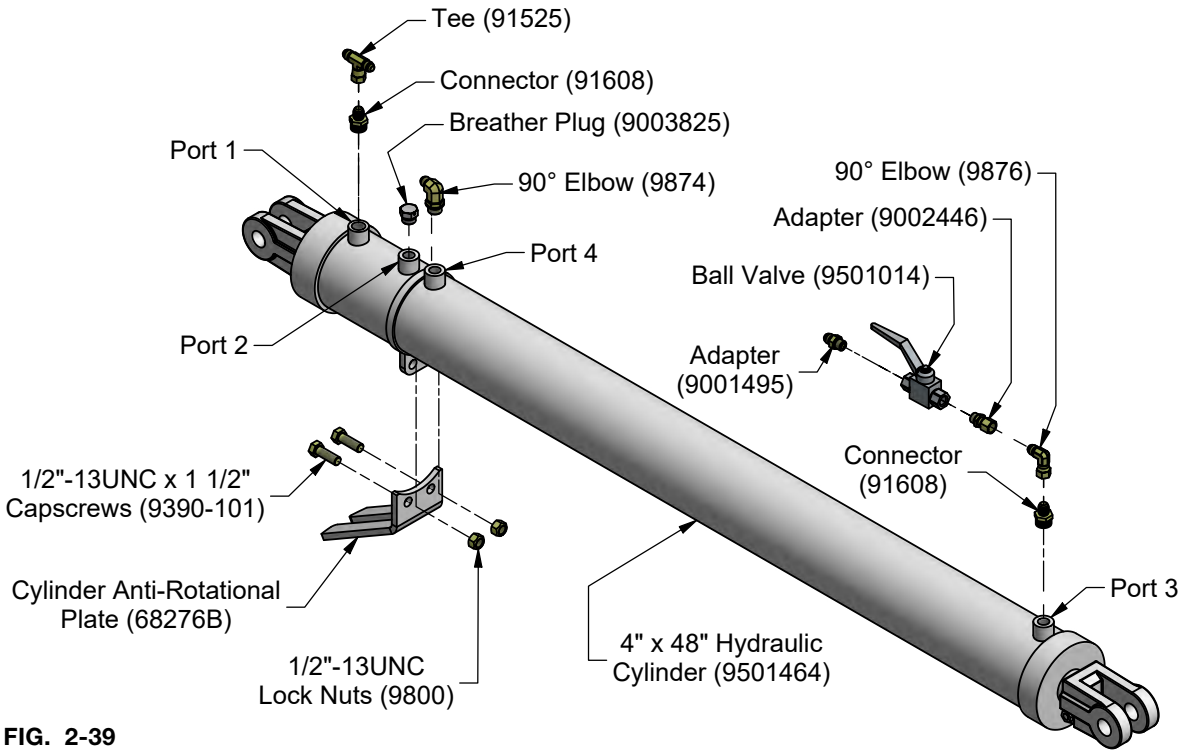


FIG. 2-39

2. Assemble adapter (9001495), ball valve (9501014), adapter (9002446), 90° elbow (9876) and connector (91608) to cylinder port 3. (FIG. 2-39)
3. Assemble tee (91525) and connector (91608) to cylinder port 1. (FIG. 2-39)
4. Assemble 90° elbows (9874) to cylinder port 4. (FIG. 2-39)
5. Assemble breather plug (9003825) to cylinder port 2. (FIG. 2-39)

Hydraulic Set Up — Rigid Hydraulics (continued)
Folding 8 Shank 60” Spacing; Folding 10 Shank 40” Spacing; Folding 12 Shank 36” & 38” Spacing; Folding 16 Shank 30” Spacing

6. Attach the cylinders to the main frame with 1” Dia. x 4” pins (85631) and 1/4” Dia. x 1 7/8” spiral pins (91144-165) as shown in FIG. 2-40.

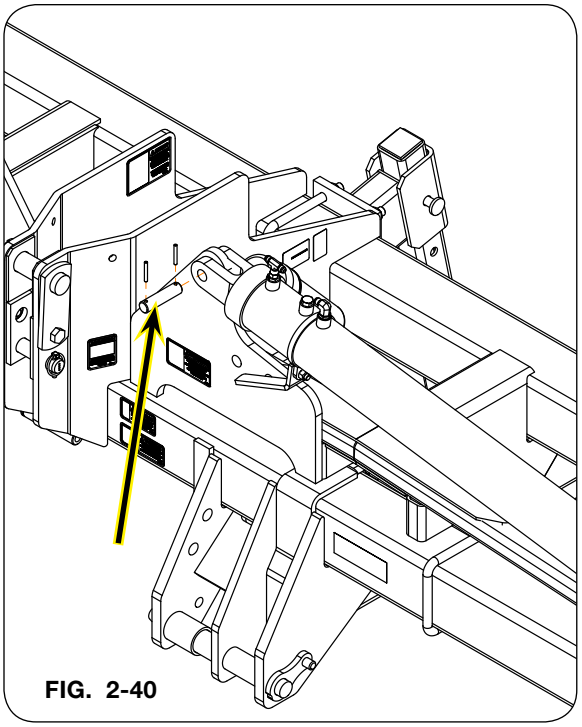


FIG. 2-40

7. Attach the two bulkhead unions with nut (95192) to the mounting plate (68521B) as shown in FIG. 2-41.

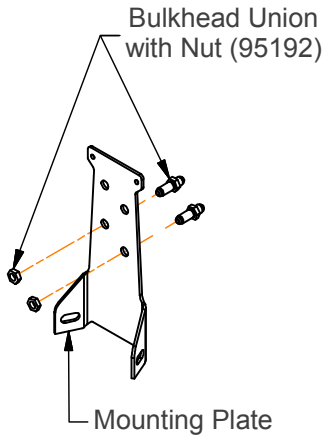


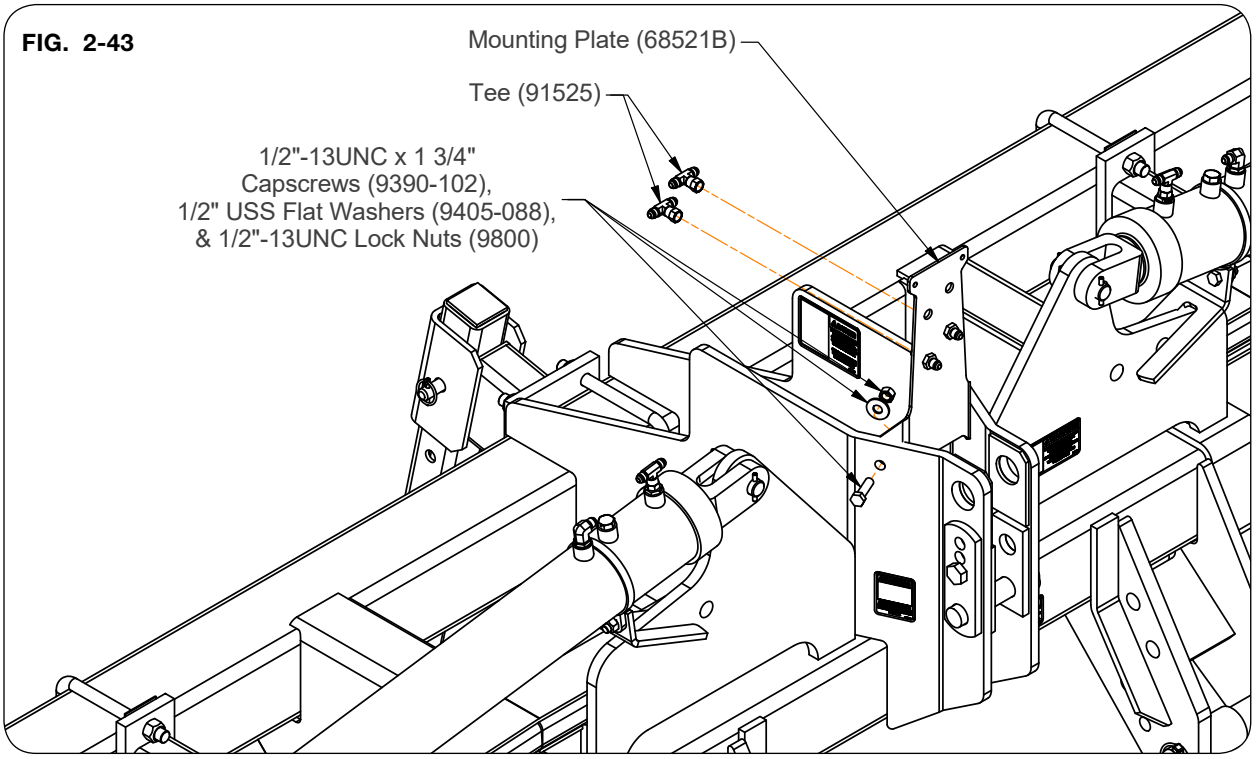
FIG. 2-41

Hydraulic Set Up — Rigid Hydraulics (continued)

Folding 8 Shank 60” Spacing; Folding 10 Shank 40” Spacing; Folding 12 Shank 36” & 38” Spacing; Folding 16 Shank 30” Spacing

8. Assemble the tees (91525) to the mounting plate adapters (FIG. 2-43).

FIG. 2-43



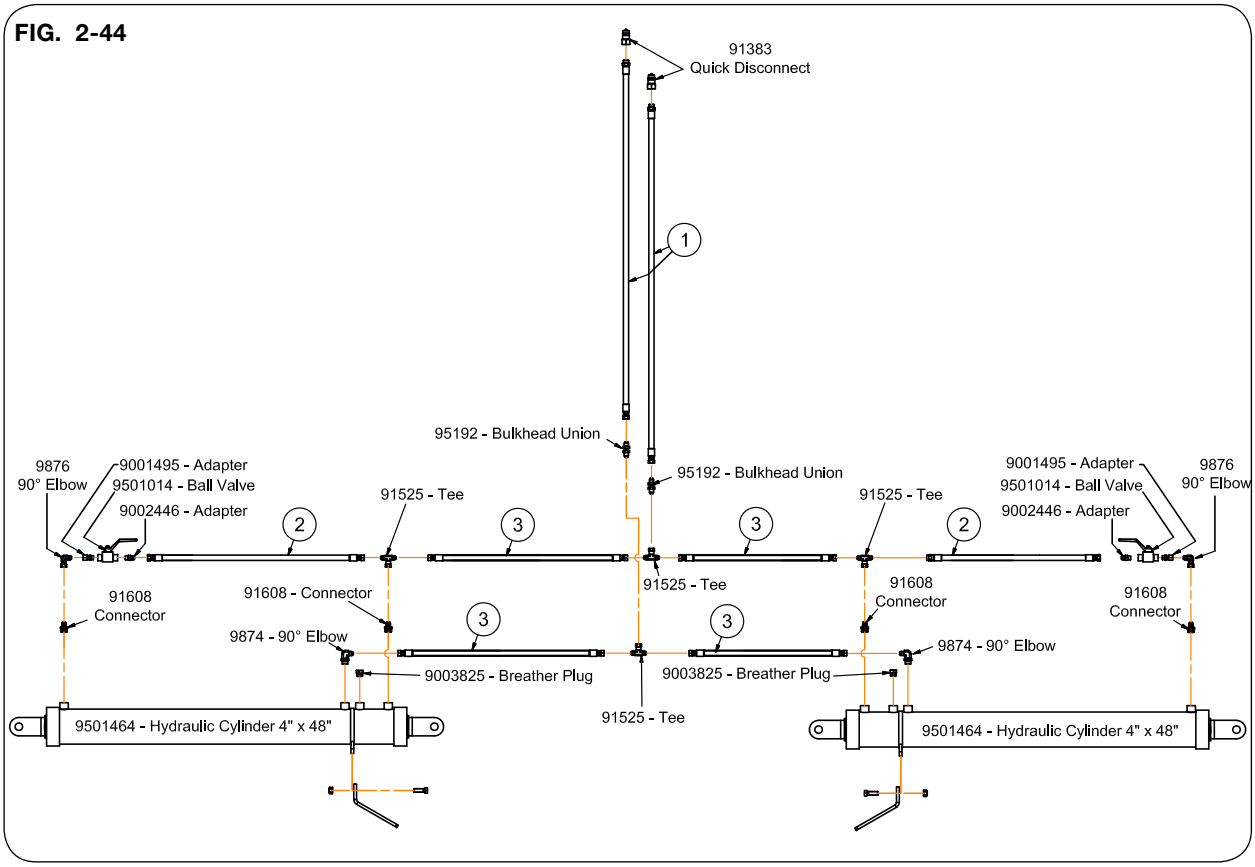
9. Secure the mounting plate (68521B) to the main frame with 1/2”-13UNC x 1 3/4” capscrews (9390-102), 1/2” USS flat washers (9405-088), and 1/2”-13UNC locknuts (9800) as shown in FIG. 2-43.

Hydraulic Set Up — Rigid Hydraulics (continued)

Folding 8 Shank 60” Spacing; Folding 10 Shank 40” Spacing; Folding 12 Shank 36” & 38” Spacing; Folding 16 Shank 30” Spacing

10. Route hydraulic hoses as shown in FIG. 2-44.

FIG. 2-44



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	9502772	Hose 3/8” Dia. x 72”	2	
2	9501677	Hose 3/8” Dia. x 54”	2	
3	9502793	Hose 3/8” Dia. x 28”	4	

11. Purge the hydraulic system. Refer to “Purging Hydraulic System” in this section.

Hydraulic Set Up — Rigid Hydraulics (continued)

Folding 8 Shank 60” Spacing; Folding 10 Shank 40” Spacing; Folding 12 Shank 36” & 38” Spacing; Folding 16 Shank 30” Spacing

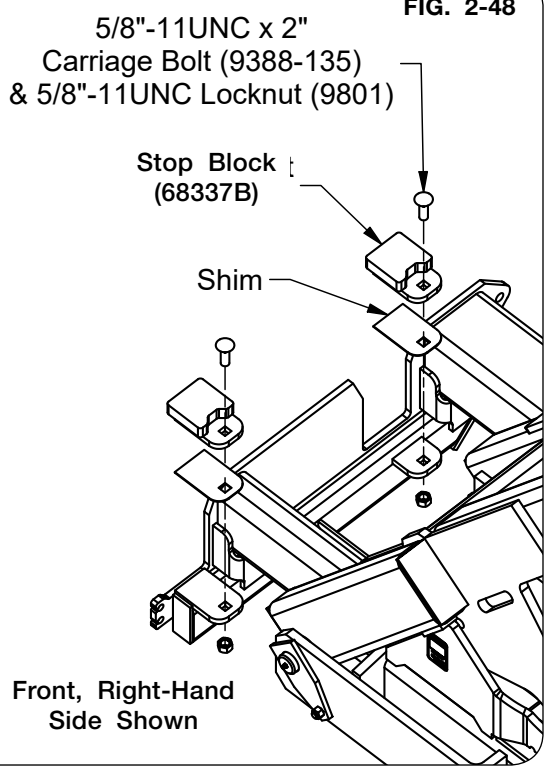
12. Add stop block (68337B) and add the shims if needed to the front and rear wing hinge section on both sides of the main frame with 5/8”-11UNC x 2” carriage bolts (9388-135) and 5/8”-11UNC lock nuts (9801) to adjust/level the wing height (FIG. 2-48).

CAUTION

- **SHIM KIT MUST NOT BE USED WITH FLEX VALVE.**

NOTE: There are 3 shims for each corner, you need to select the appropriate sizes as needed. (store unused on bottom side of mounting ear).

FIG. 2-48



Hydraulic Set Up — Flex Hydraulics
Folding 12 Shank 36” & 38” Spacing;
Folding 16 Shank 30” Spacing

WARNING

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

CAUTION

- **SHIM KIT MUST NOT BE USED WITH FLEX VALVE.**

1. Attach the fittings to the valve assembly (9503620) as shown in FIG. 2-49.

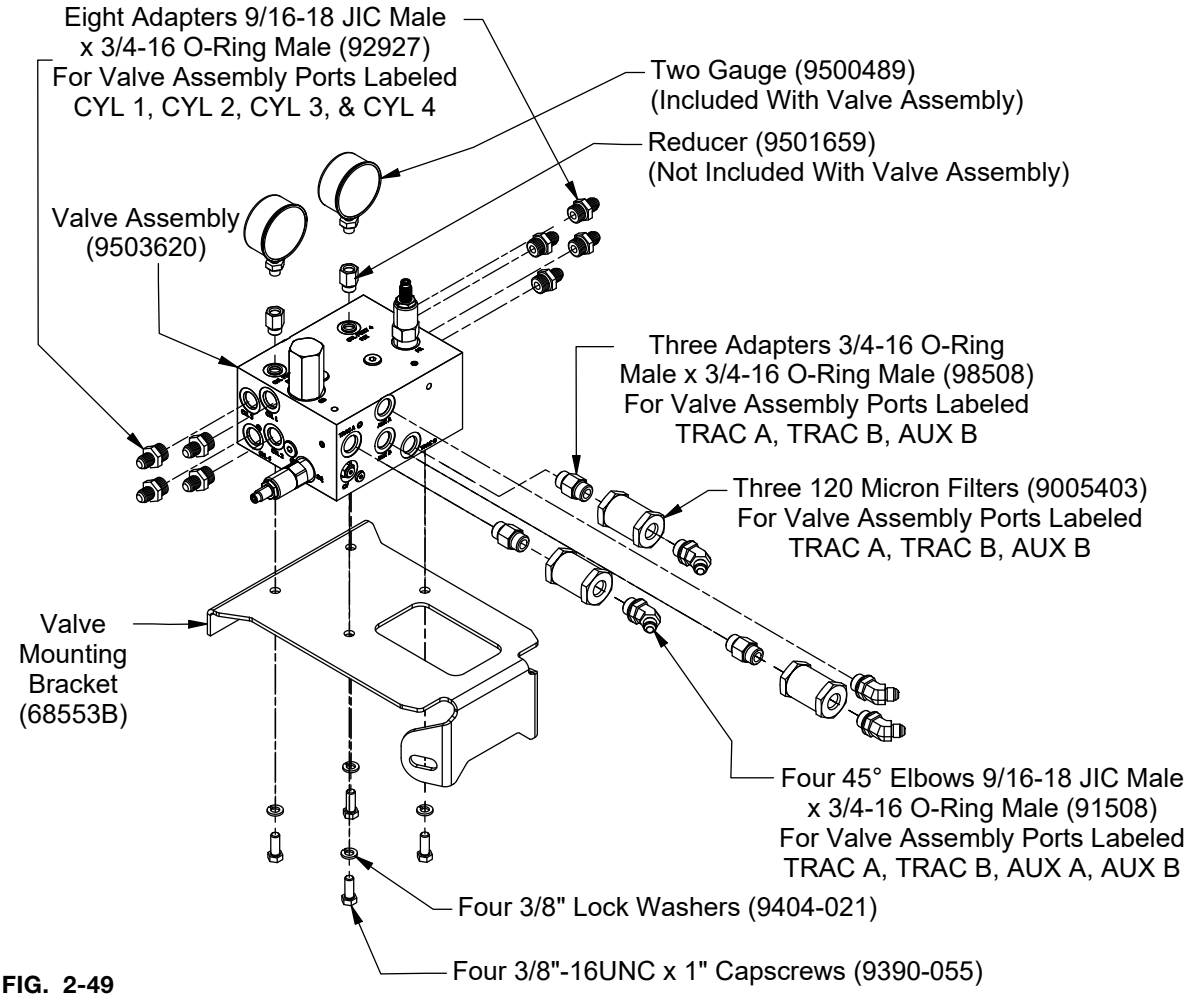


FIG. 2-49

2. Attach the valve assembly with fittings to the valve mounting bracket (68553B) with capscrews (9390-055) and lock washers (9404-021) FIG. 2-49.

Hydraulic Set Up — Flex Hydraulics (continued)
Folding 12 Shank 36” & 38” Spacing;
Folding 16 Shank 30” Spacing

3. Secure the valve mounting bracket to the main frame with capscrews (9390-101), flat washers (9405-088), and locknuts (9800) as shown in FIG. 2-50.

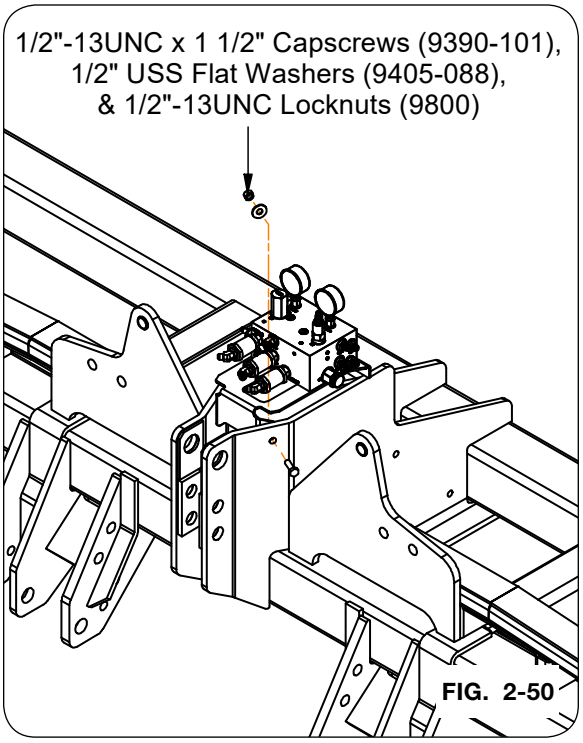


FIG. 2-50

Hydraulic Set Up — Flex Hydraulics (continued)
Folding 12 Shank 36” & 38” Spacing;
Folding 16 Shank 30” Spacing

4. Attach the cylinder plates to the cylinders with 1/2”-13UNC x 1 1/2” capscrews (9390-101) and 1/2”-13UNC locknuts (9800) (FIG. 2-51).

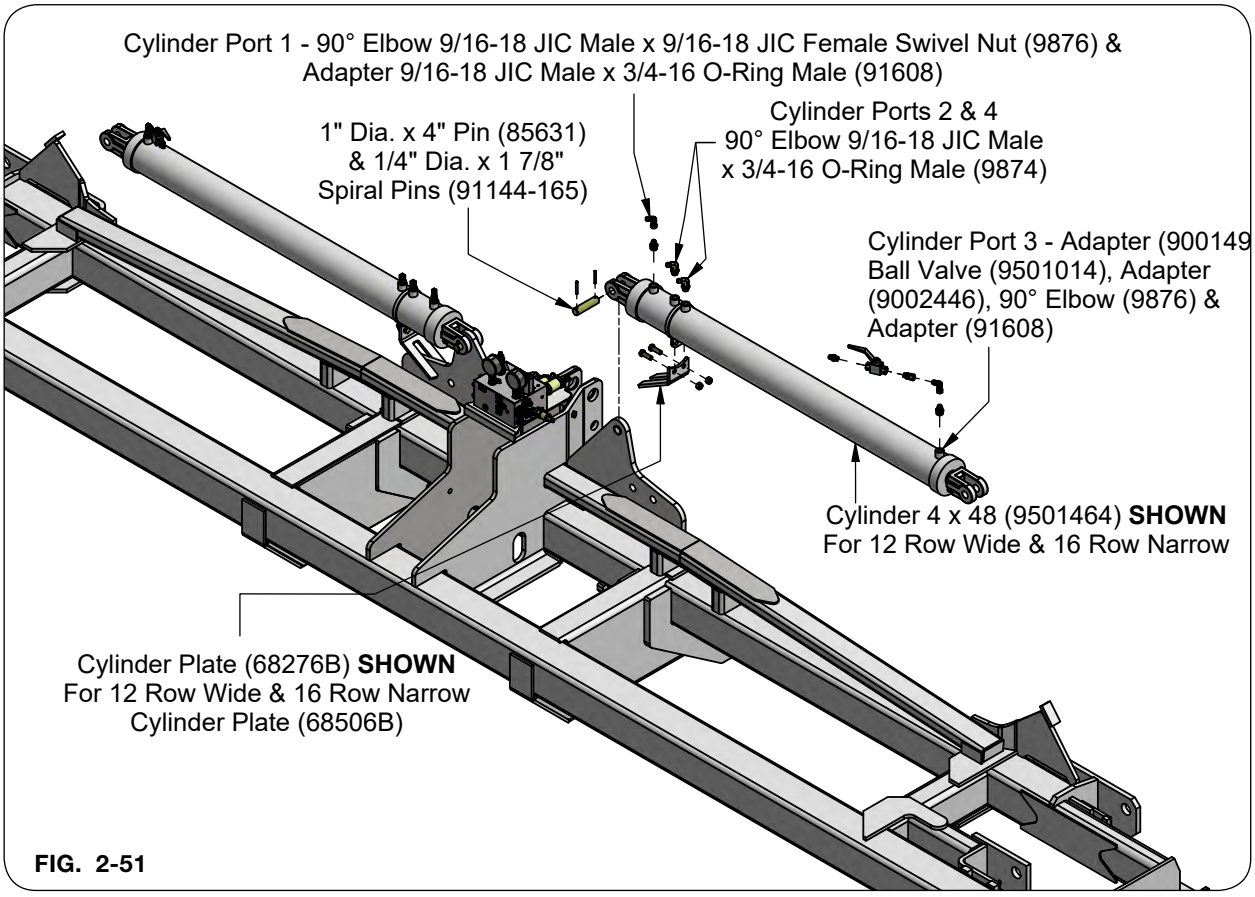


FIG. 2-51

5. Assemble adapter (9001495), ball valve (9501014), adapter (9002446), 90° elbow (9876) and connector (91608) to cylinder port 3. (FIG. 2-51)

6. Assemble 90° elbows (9876) and adapters (91608) to cylinder port 1. (FIG. 2-51)

7. Assemble 90° elbows (9874) to cylinder ports 2 and 4. (FIG. 2-51)

8. Attach the cylinder to the main frame with 1” Dia. x 4” pins (85631) and 1/4” Dia. x 1 7/8” spiral pins (91144-165) as shown in FIG. 2-51.

Hydraulic Set Up — Flex Hydraulics (continued)
Folding 12 Shank 36” & 38” Spacing;
Folding 16 Shank 30” Spacing

9. Attach the hoses to the cylinders and valve assembly as shown in FIG. 2-52.

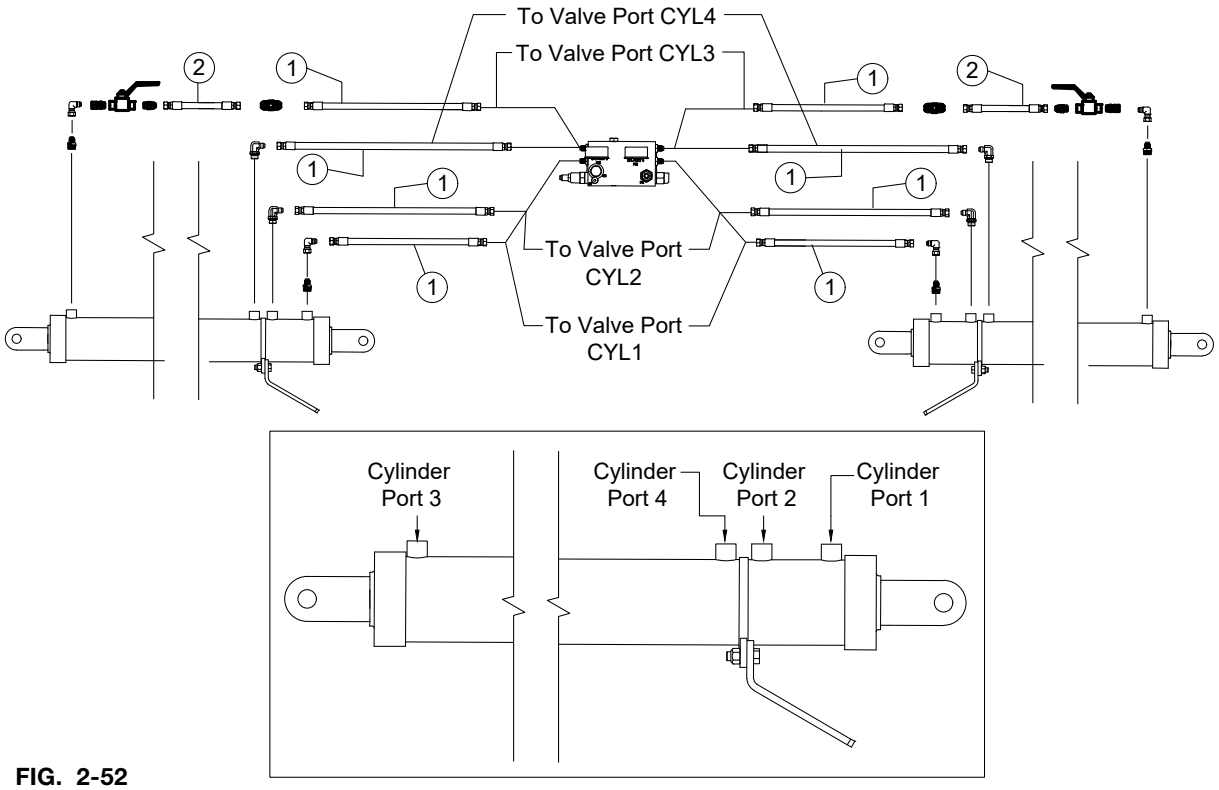
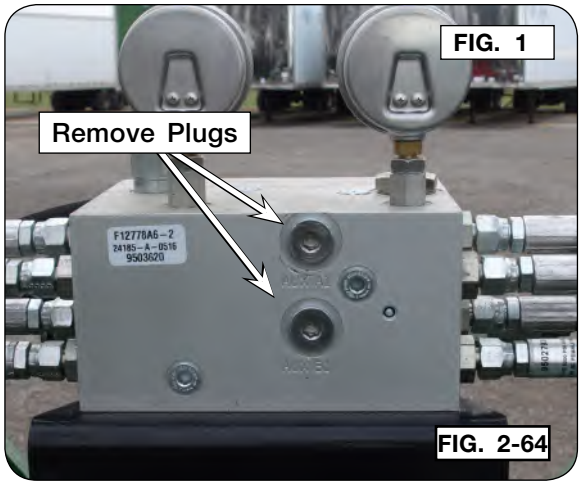


FIG. 2-52

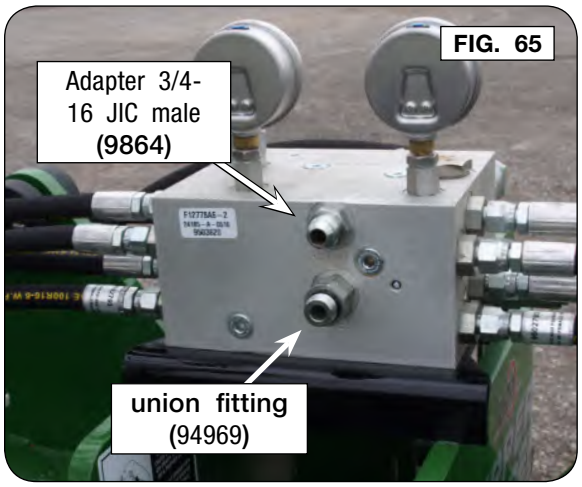
ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	9502793	Hose 3/8” Dia. x 28”	8	Cylinder Port 1 to Valve Port CYL1; Cylinder Port 2 to Valve Port CYL2; Cylinder Port 3 to Connector & Hose #2; Cylinder Port 4 to Valve Port CYL4
2	9501677	Hose 3/8” Dia. x 54”	2	Hose #1 & Connector to Valve Port CYL3

Hydraulic Set Up — Flex Hydraulics Optional (continued)
Folding 12 Shank 36”, 38” & 40” Spacing

8. Remove and discard the plugs in ports AUX A1 and AUX B1. (Fig. 64)

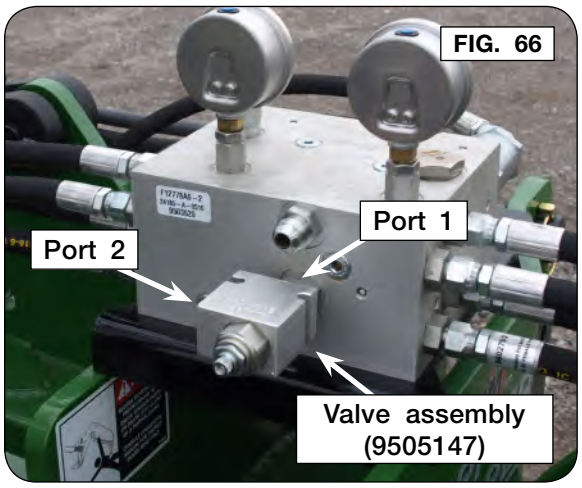


9. Install 3/4-16 JIC male adapter (9864) into port AUX A1 and the non-adjustable end of union fitting (94969) into port AUX B1 and torque to 12 ft-lbs. (Fig. 65)



10. Thread Port 1 of the pressure relief valve assembly (9505147) onto the adjustable union fitting in port AUX B1 as shown in figure 66. Torque the adjustable fitting nut to 12 ft-lbs.

NOTE: Port 1 of the relief valve assembly will attach to the union fitting and port 2 will face the left-hand side of the machine.



Hydraulic Set Up — Flex Hydraulics Optional (continued)
Folding 12 Shank 36”, 38” & 40” Spacing

11. Install 90-degree fitting (93683) onto the adapter in AUX A1. Point the JIC end toward the left-hand side of the machine as shown in figure 4. Hand tighten the JIC fittings until they are seated, then tighten an additional 1/6 turn.

12. Install 45-degree fitting (93586) into port 2 of the pressure relief valve block. Point the JIC end of the fitting downward and Torque the O-ring nut to 12 ft-lbs. (Fig. 67)

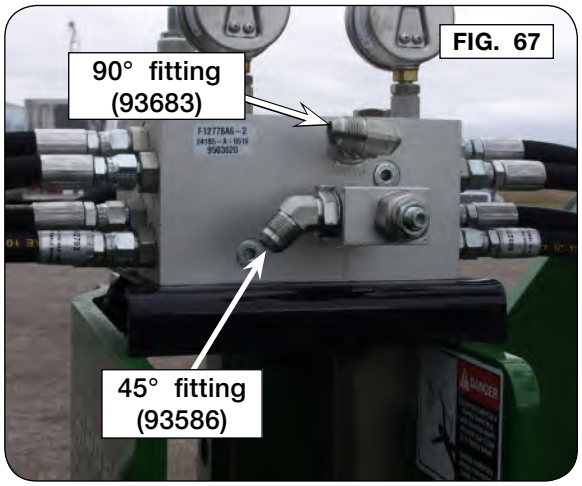


FIG. 67

13. Connect the two new fittings installed in steps 6 & 7 with the new hose (9502790). Hand tighten the JIC fittings until they are seated, then tighten an additional 1/6 turn. Ensure the hose does not twist while tightening the fittings. (Fig. 68)

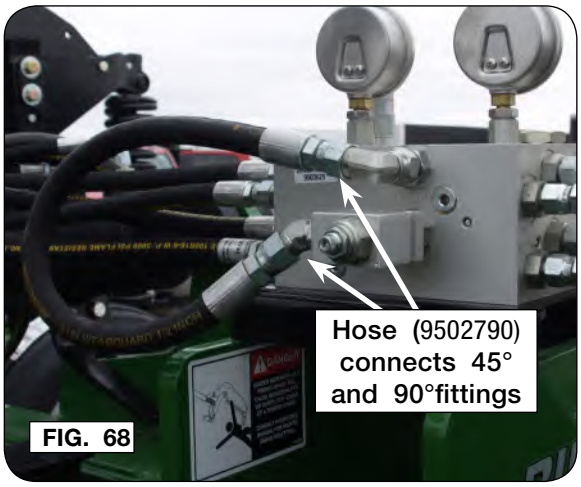


FIG. 68

Purging Hydraulic System

WARNING

- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

IMPORTANT

- *Flex frame configuration, wings will go below center when BOTH pistons are fully extended on each cylinder. IF Machine is not raised into transport OR system is not properly operated (hyd. valve shifts to pressure reducing mode), damage could occur.*

Purge air from system as follows:

A. Disconnect the rod end of all cylinders in a circuit and block up cylinders so the rod can completely extend and retract without contacting any other component.

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

C. Check oil reservoir in hydraulic power source and re-fill as needed.

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

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

F. Repeat steps B, C, D, and E 3-4 times.

G. De-pressurize hydraulic system and connect cylinder rod clevises to their mating lugs.

HYDRAULIC SYSTEM CHECKS ON ALL UNITS -- CHECK THE FOLLOWING:
ROUTING OF ALL HYDRAULIC HOSES: Hoses should not be kinked, twisted, or rubbing against sharp edges.

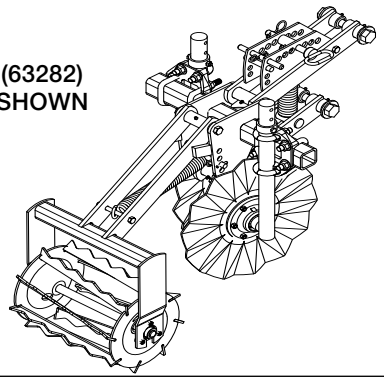
FITTINGS AND CONNECTIONS: Check for leaks. Refer to “Torque Chart” in MAINTENANCE section.

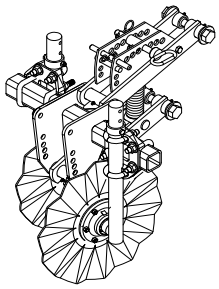
HOSES: Be sure hoses have room to “FLEX” (for folding) in hinge areas. Hoses must be secured with cable ties.

Attachments (Optional)

STRIP-BUILDER WITH STANDARD OR CONCAVE ROLLING HARROW BASKET & WAVY, SMOOTH CONCAVE OR NOTCHED CONCAVE BLADE 63282, 66184B, 66185B, 66186B, 66187B, 66796B)

(63282) SHOWN



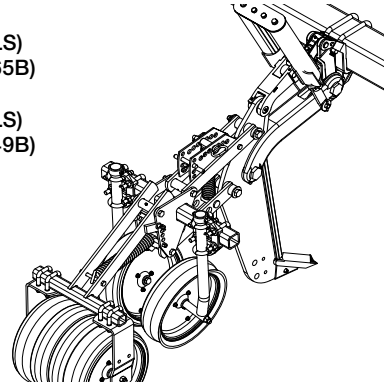


STRIP-BUILDER LESS ROLLING BASKET (63954)

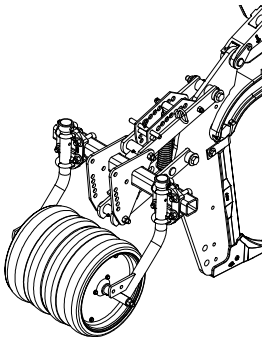
ZONE-FIRMER (3 PRESS WHEELS) w/ANGLED PRESS WHEELS (64965B)

ZONE-FIRMER (4 PRESS WHEELS) w/ANGLED PRESS WHEELS (65249B)

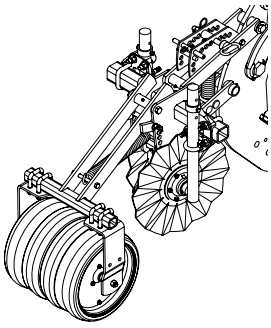
4-WHEEL SHOWN



ZONE FIRMER WITH 4 PRESS WHEELS (68082B)

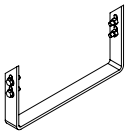


STRIP-BUILDER w/ ZONE FIRMER 4 PRESS WHEELS (65250B)

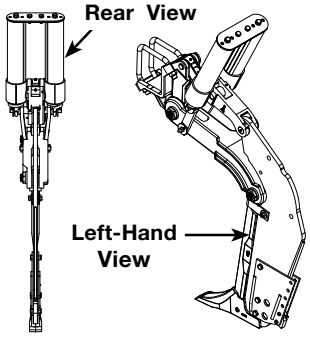


SCRAPER KIT (65264B) FOR 4-WHEEL REAR ZONE FIRMERS (65250B)

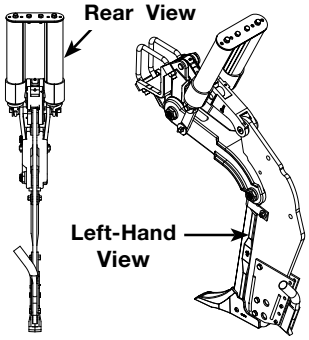
Scraper Kit (68083B) For 4-Wheel Zone-Firmer (68082B)



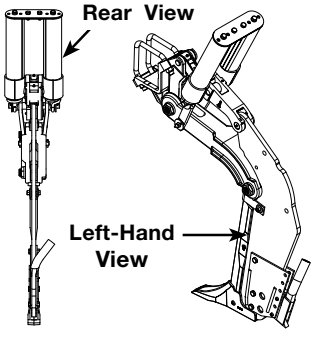
LIQUID FERTILIZER ATTACHMENT COMPLETE WITH SHANK PROTECTOR PLATES 65346B



DRY RH FERTILIZER ATTACHMENT COMPLETE WITH SHANK PROTECTOR PLATES 65583B

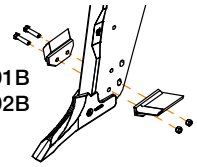


DRY LH FERTILIZER ATTACHMENT COMPLETE WITH SHANK PROTECTOR PLATES 65584B



Attachments (Optional) (continued)

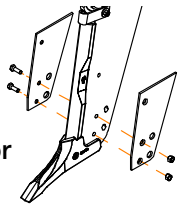
SHATTER WINGS



7"—67691B
9"—67692B

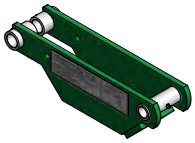
OTHER ATTACHMENTS & ACCESSORIES (NOT SHOWN):

- Semi-Mounted Lift-Assist Wheels
- Rolling Harrow Leveler
- Mounted Integral Planter Mounting Arm Kit
- 3-Point Implement Caddy
- Lift-Assist Package For 3-Point Units
- Double Coulter Tool Bar
- Row Cleaner for Lead Coulter
- Rear Pull Hitch
- Spike Drum

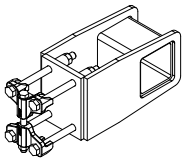


Shank Protector 64080

MODEL 122 SHANK SB TOP LINK TRIP GUARD (66245B)



16" STAGGER KIT 66952B



Strip-Builder With Trip Guard Required for Model 122 ONLY (Spring-Cushion)

⚠ WARNING

- **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 500 LBS. SPECIFIC LOAD RATING FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **PINCH POINTS EXIST IN LINKAGES AND FINISHING COMPONENTS. USE CARE WHEN REMOVING AND LIFTING COMPONENTS. KEEP HANDS AND FEET AWAY FROM UNIT.**

1. Using a safe lifting device rated for a minimum of 500 lbs., remove the Strip-Builder assembly from the pallet. Remove and save all of the hardware that attaches the top clevis arm to the strip-builder frame and spring.

2. Attach the optional trip guard clevis arm to the strip-builder frame and spring using the hardware removed in step 1.

3. Attach the strip-builder unit to the back of the shank using the hardware removed in step 1. Refer to the Torque Chart in the Maintenance section for proper torquing.

4. After tightening the hardware, tighten the 1/2" pivot bolt. Refer to the Torque Chart in the Maintenance section.

Strip-Builder Attachments

STRIP-BUILDER WITH STANDARD or CONCAVE ROLLING HARROW BASKET & WAVY, SMOOTH CONCAVE or NOTCHED CONCAVE BLADE 63282, 66184B, 66185B, 66186B, 66187B

STRIP-BUILDER WITH 2 COULTERS & 3-WHEEL or 4-WHEEL PRESS WHEELS 64610B, 65250B

⚠ WARNING

- **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 500 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 IMPLEMENT.**
- **PINCH POINTS EXIST IN LINKAGES AND FINISHING COMPONENTS. USE CARE WHEN REMOVING AND LIFTING COMPONENTS. KEEP HANDS AND FEET AWAY FROM UNIT.**

IMPORTANT

- *The 2 1/2" cross tube on the Strip-Builder frame must be trimmed to permit clearance with some other attachments (e.g., lift-assist wheels, rear hitch, etc.) See operator's manual for these attachments for modification procedure.*

NOTE: Refer to "Overhead Layouts" in SET UP section for placement of rear angled storage stand location(s).

Strip-Builder less Rolling Harrow Basket & Strip-Builder with Rolling Harrow Basket are for use on Model 112 (Shear-Bolt for Top Pivot Style Shank), Model 122 (Spring-Cushion) and Model 132 (Auto-Reset).

1. Remove the Strip-Builder assembly from pallet. Disassemble the two capscrews, bushings, flat washers, and locknuts from the front of the unit as shown in Fig. 2-54.
2. Attach a 500 lb. min. lifting device to the rear coulter frame assembly unit (Fig. 2-54).
3. If your unit is a Strip-Builder less basket (63954), rotate parallel arms into position and assemble adjustment pin to spring & upper arm.
4. Attach the Strip-Builder unit to back of shank using the hardware removed in step 1. Refer to "Torque Chart" in MAINTENANCE section for proper torquing.
5. After tightening hardware, tighten 1/2" pivot bolt. Refer to torque chart in MAINTENANCE section.

NOTE: If your machine is a 12 Row (30") or 16 Row (30") size you must follow the procedures for reversing Strip-Builder Coulters around stabilizer wheels as outlined in SET UP section.

Strip-Builder Attachments (continued)

STRIP-BUILDER WITH STANDARD ROLLING BASKET & WAVY BLADE (63282) SHOWN

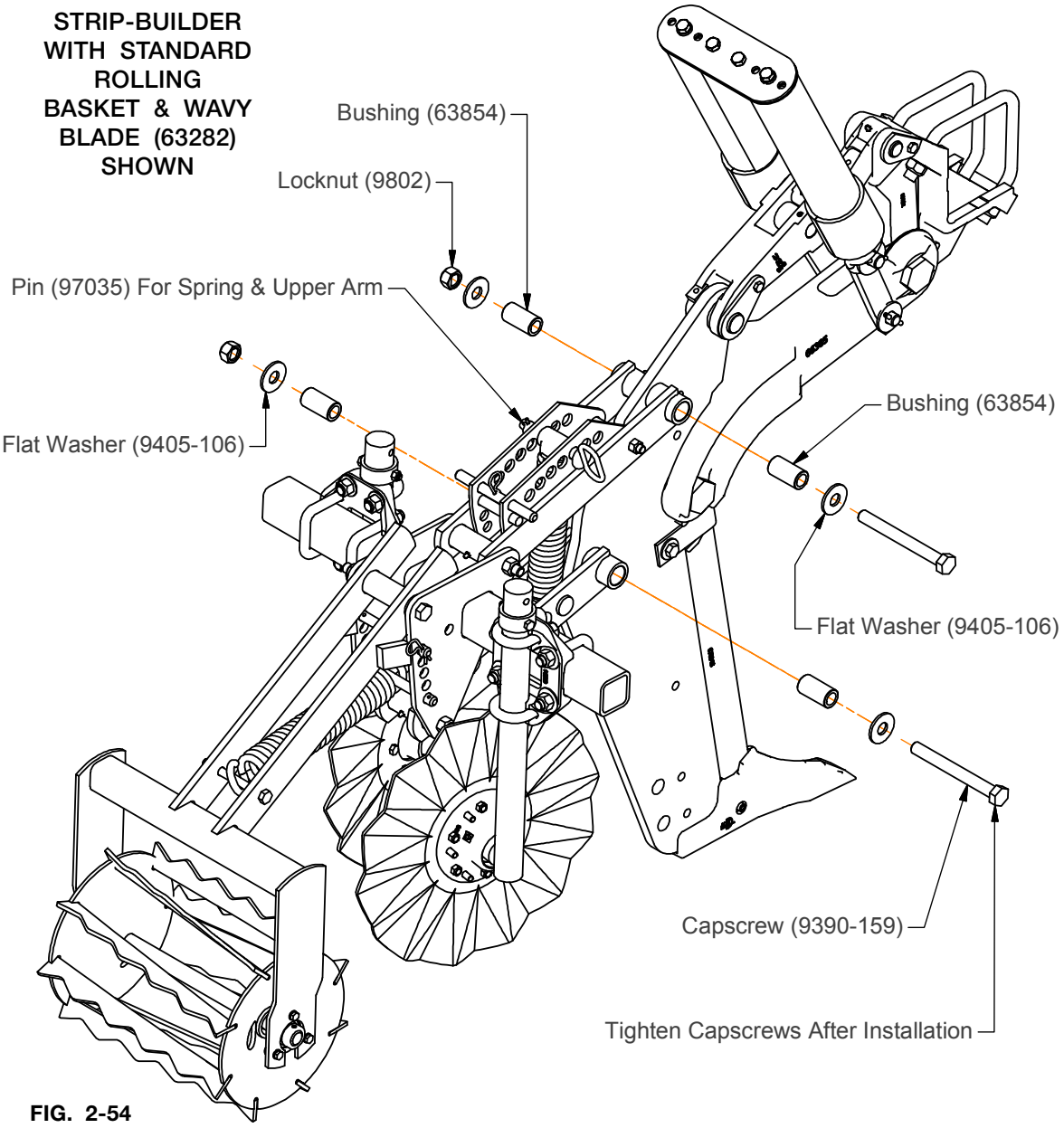


FIG. 2-54

Procedure for Reversing Rear Coulters On Strip Builders (Optional - All Units)

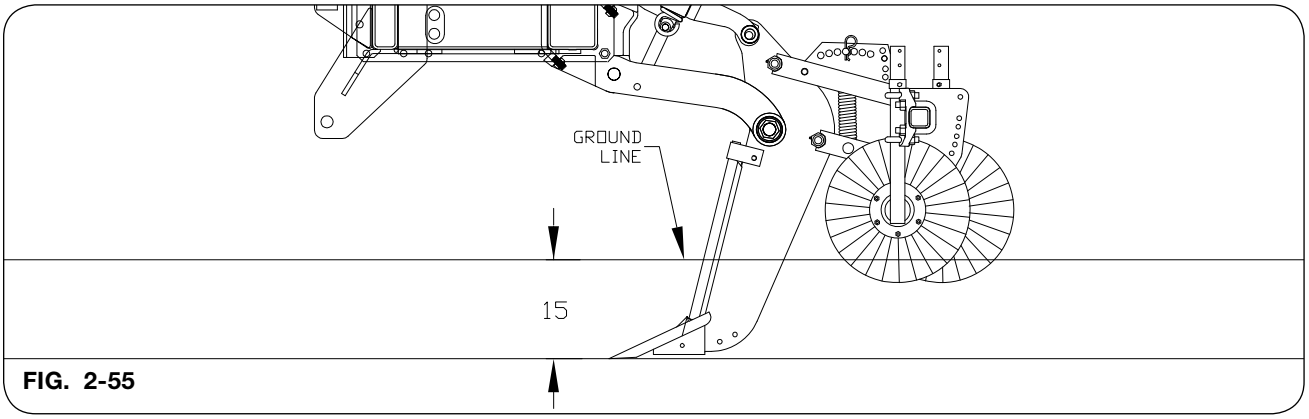


FIG. 2-55

If additional working width is desired on the Strip-Builders, the coulters can be reversed.

IMPORTANT

- *The rear coulters can not be reversed if unit is set up with pull type option or stabilizer wheels are installed between shanks. (If stabilizer wheels are installed between shanks, relocate stabilizer wheels to outside of machine before reversing coulters).*

Proceed as follows:

1. Disassemble blade from the hub.
2. Loosen the four 5/8”-11 u-bolts (95883) holding the coulter unit in place.
3. Rotate coulter hub 180°.
4. Move the coulter toward the inside till the casting is against the frame.
5. Reposition coulter angle and retighten all u-bolts (95883).
6. Reattach the blade to the hub. Tighten all hardware See Torque Chart in MAINTENANCE section.
7. Repeat procedure on other side of the stripper unit.

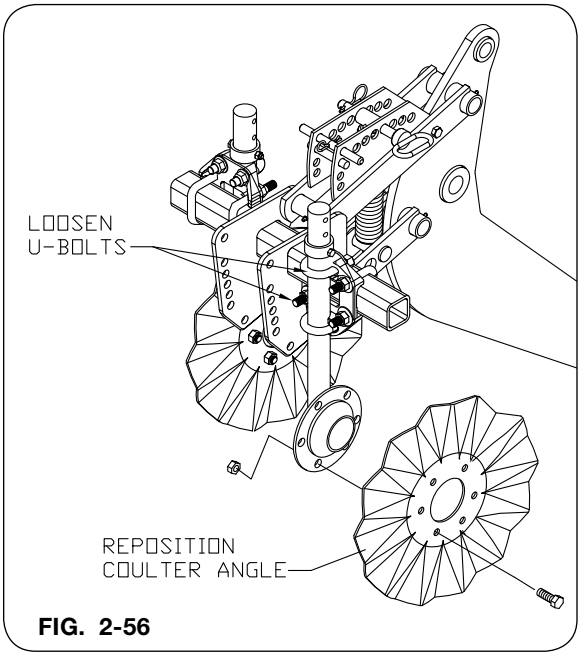


FIG. 2-56

Relocation for Strip-Builder Coulters on 12 Row 30" & 16 Row 30"

12 ROW 30" SIZE MACHINE:

The coulter units on the #2, and #12 shank need to be reversed to insure maximum clearance with stabilizer wheel tires.

16 ROW 30" SIZE MACHINE:

The coulter units on the #2, and #16 shank need to be reversed to insure maximum clearance with stabilizer wheel tires.

Refer to overhead layout for location of coulters affected. See Fig. 2-57.

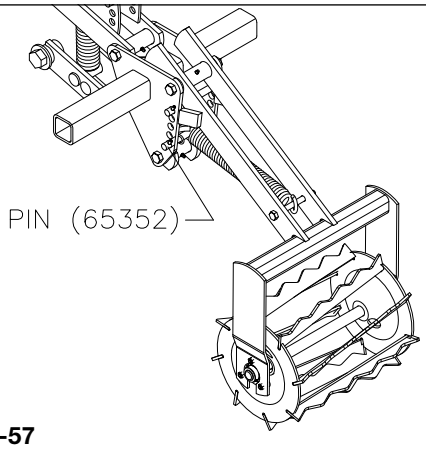


FIG. 2-57

1. Remove the (2) square u-bolts holding the coulter assembly to the 2 1/2" square tube on the #2 strip-builder. Loosen all four u-bolts on the coulters and remove the four coulters on basket and clamps affected.

2. Remove pin (65352) and insert from the opposite side. See Fig. 2-58.

3. Loosen round u-bolts holding coulter post to clamp. Rotate clamp 180° and re-tighten u-bolts. Place clamp against front of 2 1/2" square tube on the left hand side of the strip-builder. Reinstall square u-bolts, set lateral position of coulter assembly and retighten. Adjust coulter angle as desired. Repeat procedure for right hand coulter except place clamp against rear of 2 1/2" square tube when re-assembling. Repeat procedure for #12 strip-builder unit on 12 Row 30" & #16 strip-builder unit on 16 Row 30".

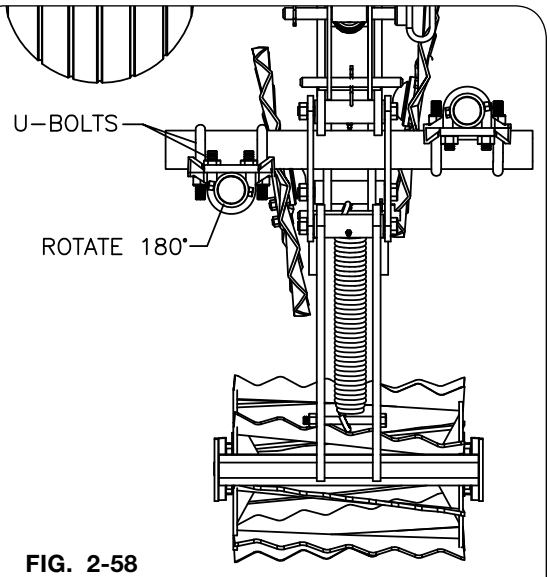


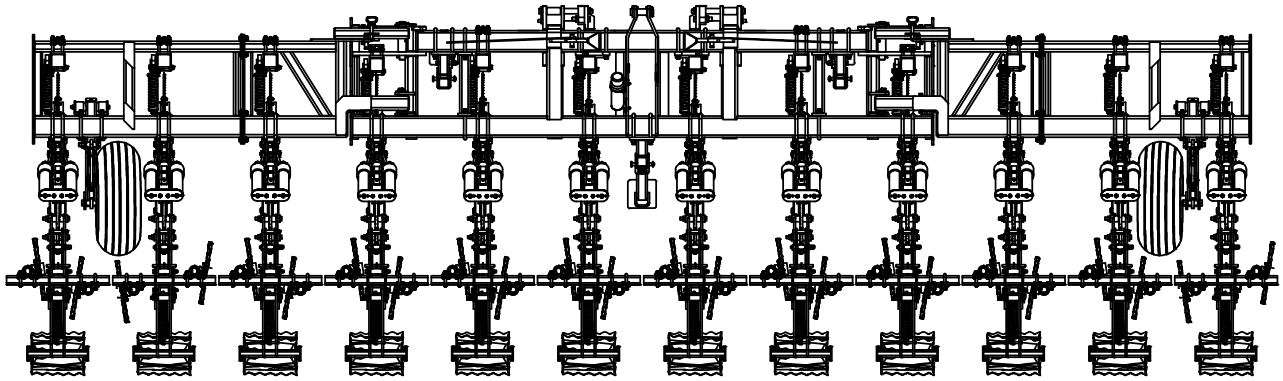
FIG. 2-58

4. Rotate coulter hub 180° and relocate the entire left hand coulter from the front of the 2 1/2" square tube to the back side of the 2 1/2" square tube, see Fig. 2-58. Repeat procedure relocating the right hand coulter from the back to the front of the 2 1/2" square tube. Tighten all hardware. See Torque Chart in MAINTENANCE section.

5. Reset coulters to desired angle and retighten all hardware using torque chart in MAINTENANCE section.

Relocation For Strip-Builder Coulters On 12 Row 30” & 16 Row 30” (continued)

12 SHANK 30” ROW SPACING WITH STRIP-BUILDER WITH BASKET SHOWN



ALL COULTERS MUST BE ARRANGED AS SHOWN

FIG. 2-59

Zone-Firmer (65249B) With Lead Angled Press Wheel & 4-Wheel Press Wheel

⚠ WARNING

- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING 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 500 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Attach a safe lifting device rated at a minimum of 500 lbs to the rear frame weldment on the Zone-Firmer unit.

2. Remove the ZONE-FIRMER ATTACHMENT frame assembly from the pallet. Disassemble the capscrews, bushings, flat washers, and locknuts from the front of the unit as shown in Fig. 2-60.

3. Attach Zone-Firmer unit to back of the shank using the hardware removed in step 1. Refer to Torque Chart in MAINTENANCE section for proper tightening of hardware.

4. Tighten 1/2” pivot bolt. See Fig. 2-60.

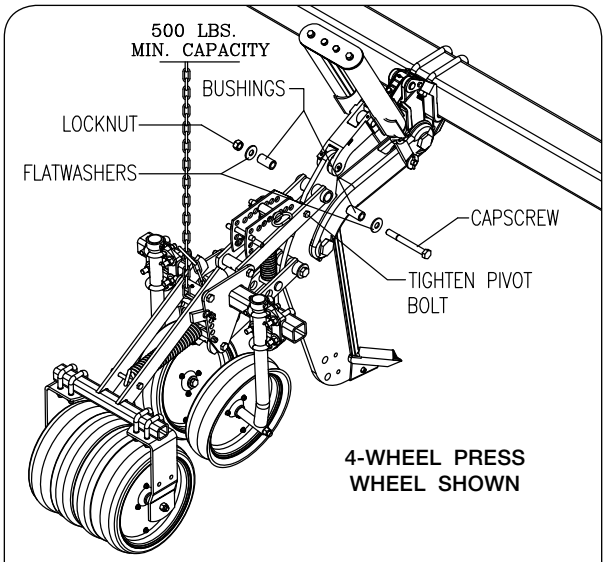


FIG. 2-60

IMPORTANT

- The 2 1/2” cross tube on the Zone-Firmer frame must be trimmed to permit clearance with some other attachments (e.g., lift-assist wheels, rear hitch, etc.). See operator’s manual of these attachments for modification procedures.

Scraper Kit (68083B) — 4-Wheel Zone Firmer (68082B)
Scraper Kit (65264B) — 4-Wheel Zone Firmers (65250B & 65249B)

⚠ WARNING

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

1. Disassemble the capscrews, flat washers, and locknuts from the scraper U-bar.
2. Attach the scraper U-bar to the packer frame using the existing holes as shown in Fig. 2-61 and Fig. 2-62. Secure using capscrews, flat washers and locknuts previously removed.
3. Tighten hardware.

4-WHEEL

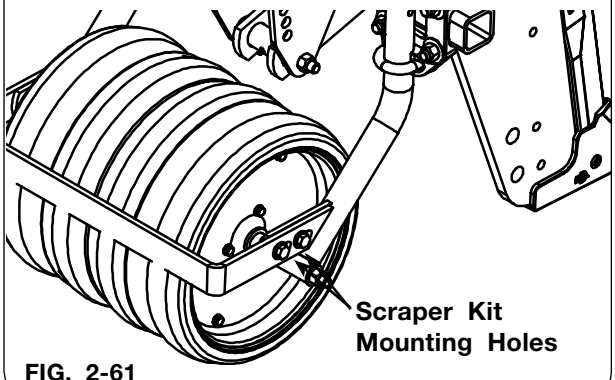


FIG. 2-61

4-WHEEL

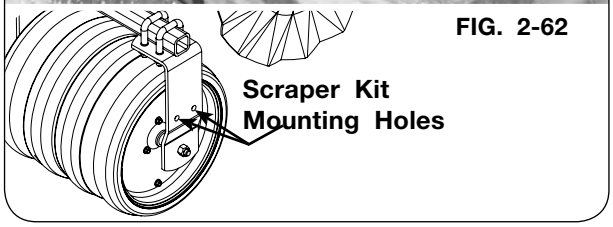


FIG. 2-62

Zone-Firmer Assemblies (68082B)

WARNING

- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING 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 500 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Attach a safe lifting device rated at a minimum of 500 lbs. minimum to rear of Zone-Firmer unit. See Fig. 2-63.

2. Remove Zone-Firmer assembly from pallet. Disassemble capscrews, bushings, flat washers, and locknuts from the front of the unit as shown in Fig. 2-63.

IMPORTANT

- *The 2 1/2" cross tube on the Zone-Firmer frame must be trimmed to permit clearance with some other attachments (e.g., lift-assist wheels, rear hitch, etc.). See operator's manual on these attachments for modification procedures.*

3. Rotate parallel arms into position and assemble adjusting pin to spring and upper arm.

4. Attach Zone-Firmer unit to back of the shank using the hardware removed in step 1. Refer to Torque Chart in MAINTENANCE section for proper tightening of hardware.

5. Tighten 1/2" pivot bolt. See Fig. 2-63.

6. Position scraper bar until light contact is made with firmer wheels, see Fig. 2-63.

4-WHEEL ZONE-FIRMER (68082B)

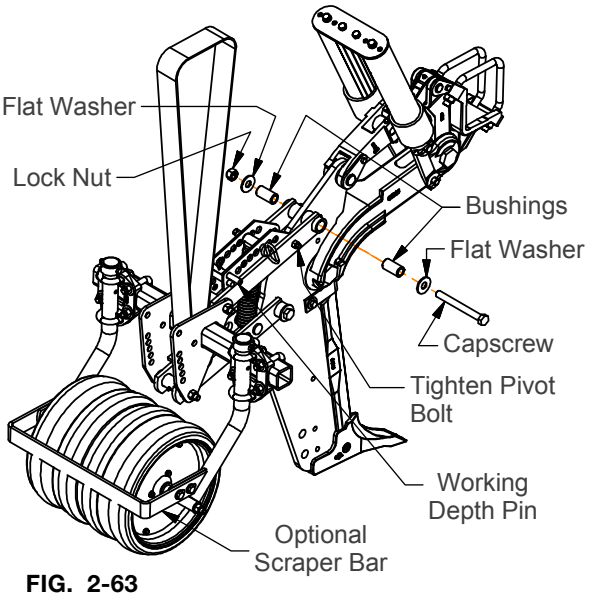


FIG. 2-63

NOTE: Be sure to rotate wheel 360° to make sure contact between scraper bar and firmer wheels is not too tight or loose and to check wheel shape for any distortion.

Steel Shank Protector Packages (64080)

To protect and extend the life of your shanks, in highly abrasive soils, shank protectors are available. Simply bolt to side of shank using hardware provided.

NOTE: Shank protectors should always be held in place using a minimum of two bolts.

NOTE: If installing shatter wings on shanks with shank protectors installed, the 2 1/4" long capscrews need to be replaced with 2 3/4" long capscrews.

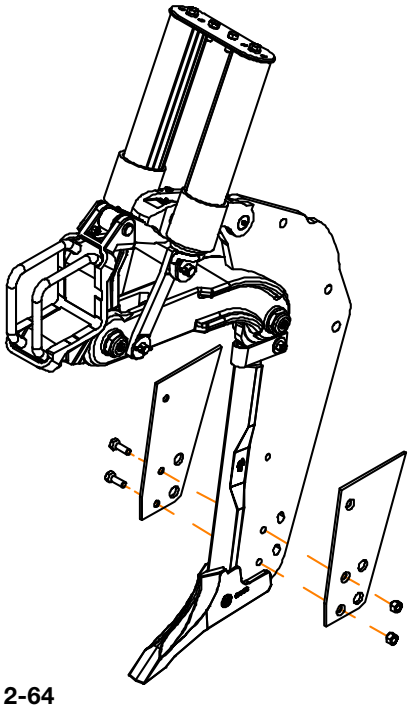


FIG. 2-64

Shatter Wing Package for 7" (67691B)

For initial installation, position shatter wings in bottom hole pattern with the rear capscrew positioned on the bottom of the large hole in the shank. This will provide minimal soil disturbance.

Secure the shatter wings to the shank with the beveled edge facing upward as follows:

For Shanks Less Shank Protector:
Retain into position using two 1/2" x 2 1/4" long bolts and 1/2" locknuts. See Fig. 2-65.

For increased soil disturbance, adjust the angle of the wings by loosening the bolts and pivoting back of wing upward to desired angle (see adjustments).

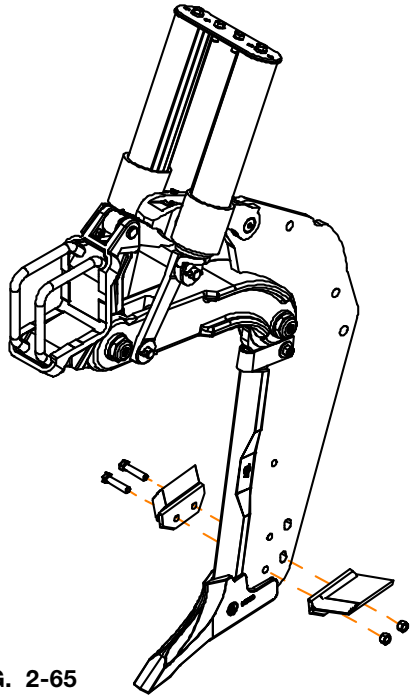


FIG. 2-65

Stagger Kits

Stagger kits are available to offset the shanks for improved material flow. For best results install stagger kits on every other shank.

66952B - 16” Stagger Kit (For Models 112, 122 & 132)

Note: If stagger kits are used with Rolling-Harrow Attachment, order arm extension 64320B (one per arm) to move roller 18” rearward.

⚠ WARNING

- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING 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 500 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Attach Zone-Builder subsoiler to a tractor as specified in tractor’s operator’s manual. Block the unit with supports rated at a minimum of 4000 lbs so the shank points are 1-2” from the ground. Unfold the wings, on folding machines. Shut off the tractor, set the parking brake and remove the ignition key.
2. Remove any finishing attachments from the shank (Strip-Builders, Zone-Firmers, etc.).
3. Using a safe lifting device rated at a minimum of 500 lbs, remove the shank from the machine. Fig. 2-66.
4. Using a safe lifting device rated at a minimum of 5000 lbs, attach bracket (66952B - 16” extensions) to the frame in the same location as the removed shank and secure with 7/8-9 x 11 capscrews (9390-459), spacer tubes (67015B) and locknuts (98420). Torque according to torque chart in “MAINTENANCE” section.
5. Using a safe lifting device rated at a minimum of 5000 lbs, mount the shank to the bracket. Check that lateral shank spacing is same as other shanks on the machine. Tighten all hardware to torque chart in “MAINTENANCE” section. See Fig. 2-67.
6. Repeat steps 1-4 on each shank to be repositioned.

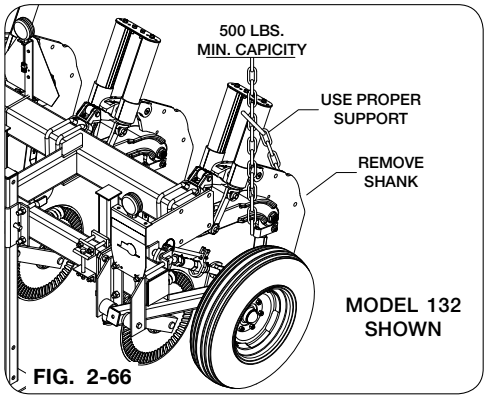
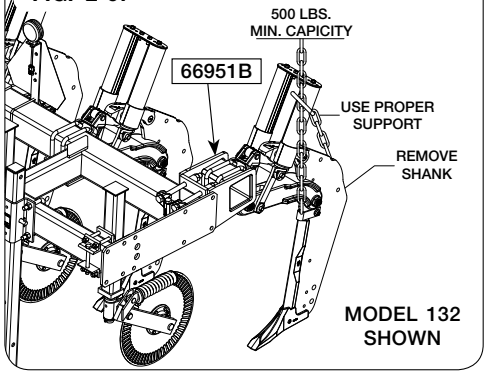


FIG. 2-66

FIG. 2-67



The stagger kits are now ready to use. Maintain torque on all mounting hardware.

Stagger Kits (continued)

66952B - 16” Stagger Kit (For Models 112, 122 & 132)

Installing the 66952B Stagger Kit.
Proceed as follows:

NOTE: If stagger kit is used with Rolling-Harrow Attachment, order arm extension 64320B (one per arm) to move roller 18” rearward.

⚠ WARNING

- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING 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 500 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

1. Attach Zone-Builder implement to a tractor as specified in tractor’s operator’s manual. Lower the storage stands to their lowest position and lower the Zone-Builder implement to the ground so the shank points are 1-2” from the ground. Unfold the wings on folding machines. Shut off the tractor, set the parking brake and remove the ignition key.

2. Remove any finishing attachments from the shank (Strip-Builders, Zone-Firmers, etc.).

3. Using a safe lifting device rated at a minimum of 500 lbs, remove the shank from the machine. Fig. 2-68.

4. Remove clamping bars from bracket. Place bracket in same location as removed shank. Install bracket using clamps (66737B), capscrews (9390-459), spacers (66837) and locknuts (98420). Torque all screws to 240 ft.-lbs.

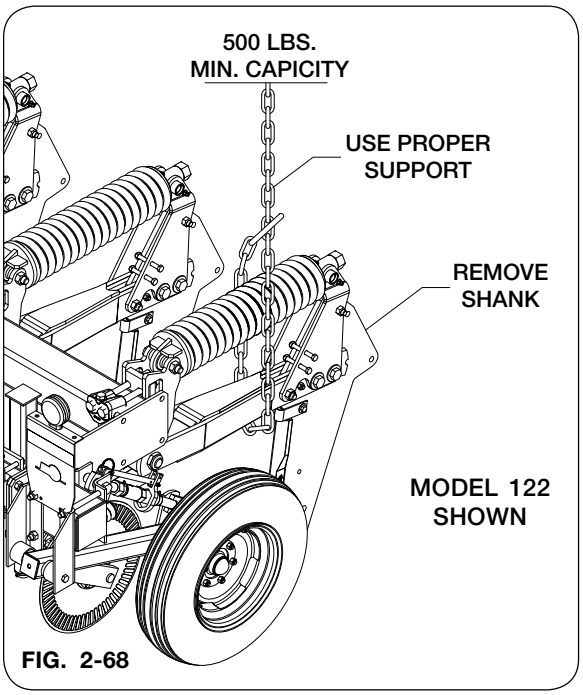


FIG. 2-68

Stagger Kits (continued)

66952B - 16” Stagger Kit (For Models 112, 122 & 132)

5. Mount the shank removed in step 3 to the bracket. Check that lateral shank spacing is same as other shanks on the machine. Tighten hex head capscrews. Torque screws to 230-250 ft.-lbs. See Fig. 2-69.

6. Repeat steps 1-5 on each shank to be repositioned.

When the 66952B stagger kit is used with a pull-type conversion kit on Model 122 Zone-Builder, in some cases it is necessary to relocate the wheel modules by a few inches. Refer to the pull-type conversion manual for instructions on relocating and retightening the wheel modules. It may be necessary to place stagger kits on shanks on both sides of the wheel module to achieve acceptable material flow.

Maintain torque on the hardware in the stagger bracket and the shank mount.

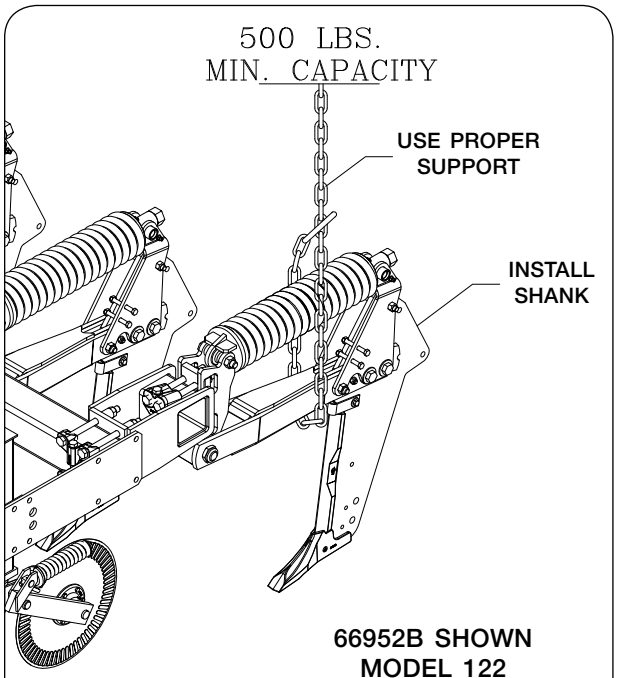


FIG. 2-69

Attachment with Shank Protector Plates (Optional)

Liquid Fertilizer Attachment Complete (65346B)
Dry RH Fertilizer Attachment Complete (65583B)
Dry LH Fertilizer Attachment Complete (65584B)
with Shank Protector Plates

⚠ WARNING

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

Liquid Fertilizer:

1. Disassemble the bolts (9500736) and nuts (9348) only from the liquid fertilizer attachment.
2. Attach the liquid fertilizer attachment to the shank using the existing holes as shown in Fig. 2-72. Secure using bolts (9500736) and nuts (9348) previously removed.
3. Tighten hardware.

Dry Fertilizer:

1. Disassemble the bolts (9500736) and nuts (9348) only from the liquid fertilizer attachment.
2. Attach the dry fertilizer attachment to the shank using the existing holes as shown in Fig. 2-70 & 2-71. Secure using bolts (9500736) and nuts (9348) previously removed.
3. Tighten hardware.

NOTE: For model 122 the top hole and only one bottom hole will be used to install the fertilizer attachments.

FIG. 2-70

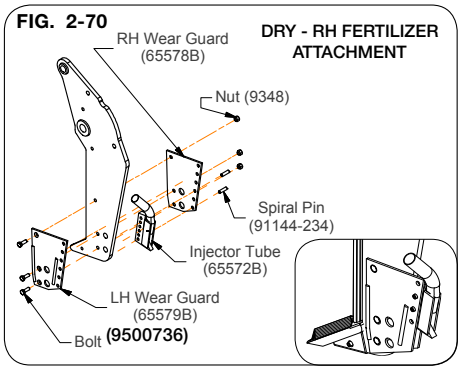


FIG. 2-71

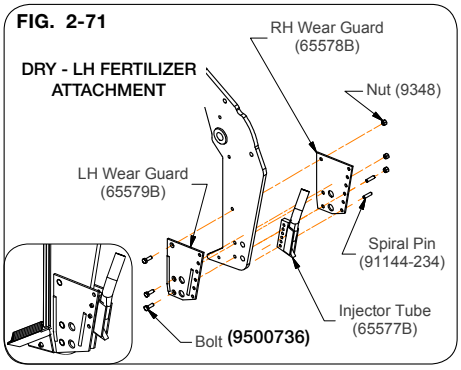
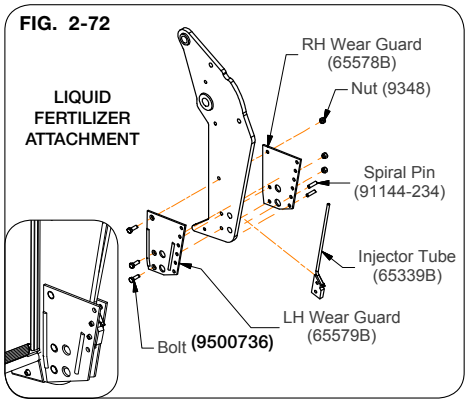


FIG. 2-72



Depth Adjustment

1. Remove the spiral pins (91144-234) and set the injector tube (65539B, RH-65572B or LH-65577B) depth.
2. Secure injector tube (65539B, RH-65572B or LH-65577B) using the 1/2" dia. spiral pins (91144-234) previously removed.

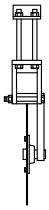
Overhead Layouts

NARROW BRACKET

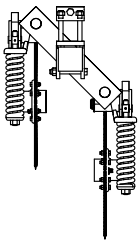
WIDE BRACKET

SUPPORT TUBE

COMBO COULTER

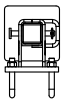


DOUBLE COULTER



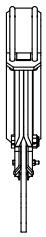
FRONT STORAGE STAND RIGID UNITS

FRONT STORAGE STAND FOLDING UNITS



REAR STORAGE STAND FOLDING UNITS

OPTIONAL SHEAR-BOLT SHANK

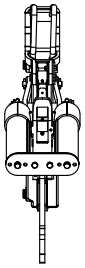


MODEL 112

SPRING-CUSHION SHANK

MODEL 122

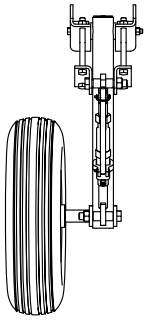
AUTO-RESET SHANK

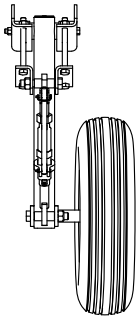


MODEL 132

STABILIZER WHEELS

ZONE BUILDER STABILIZER WHEEL PACKAGE NO. 67311B





ZONE BUILDER STABILIZER WHEEL PACKAGE NO. 67312B

IMPORTANT

- *MODEL 132 - AUTO-RESET SHANKS*

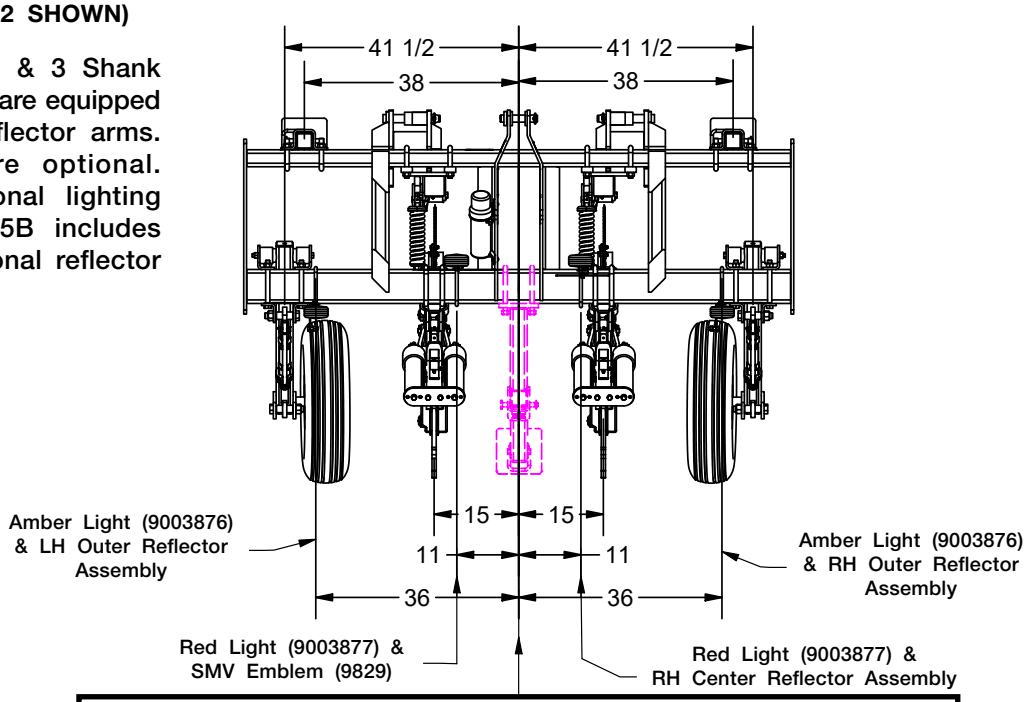
  Red lights need to be in the highest position and visible from the rear to prevent damage to the light and/or bracket when shank trips.

NOTE: All "Overhead Layout" dimensions are in inches.

Overhead Layouts (continued)

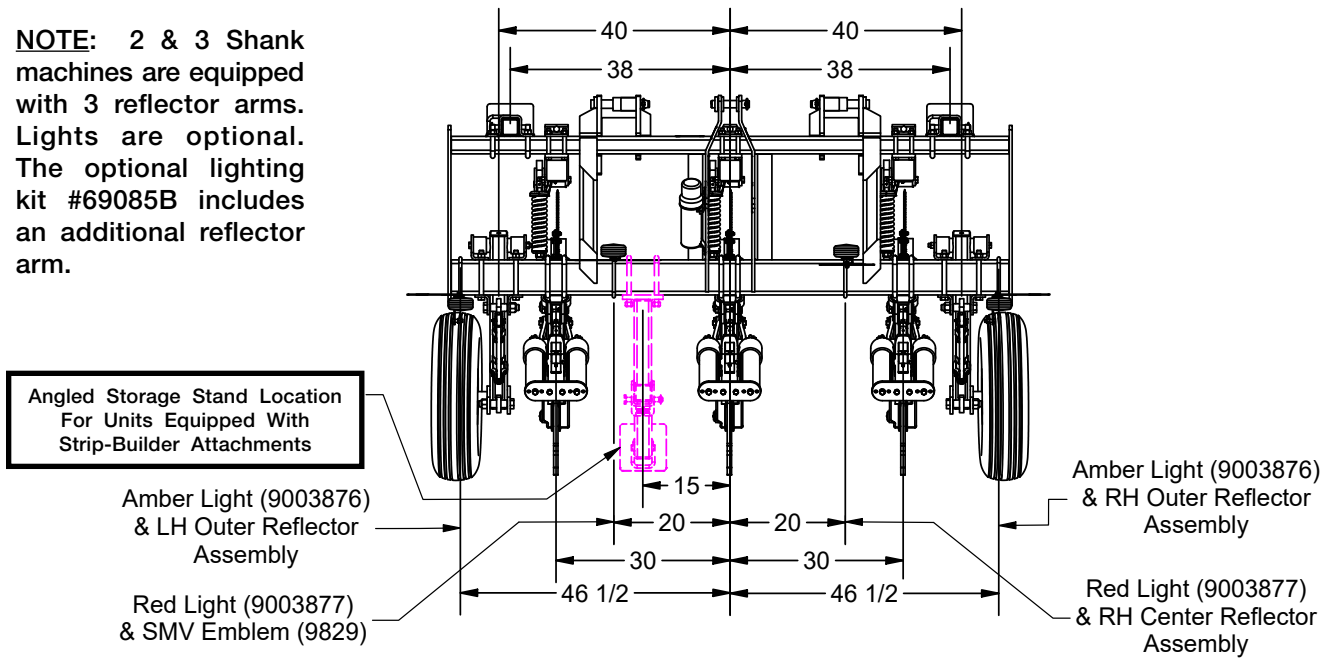
RIGID 2 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

NOTE: 2 & 3 Shank machines are equipped with 3 reflector arms. Lights are optional. The optional lighting kit #69085B includes an additional reflector arm.



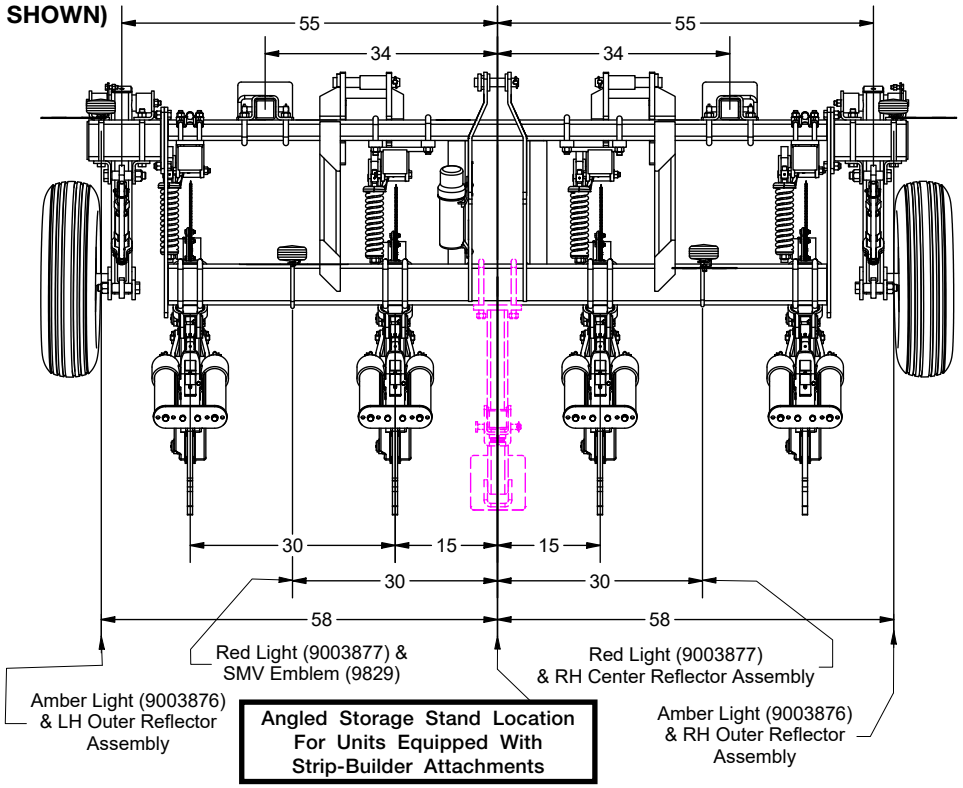
RIGID 3 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

NOTE: 2 & 3 Shank machines are equipped with 3 reflector arms. Lights are optional. The optional lighting kit #69085B includes an additional reflector arm.

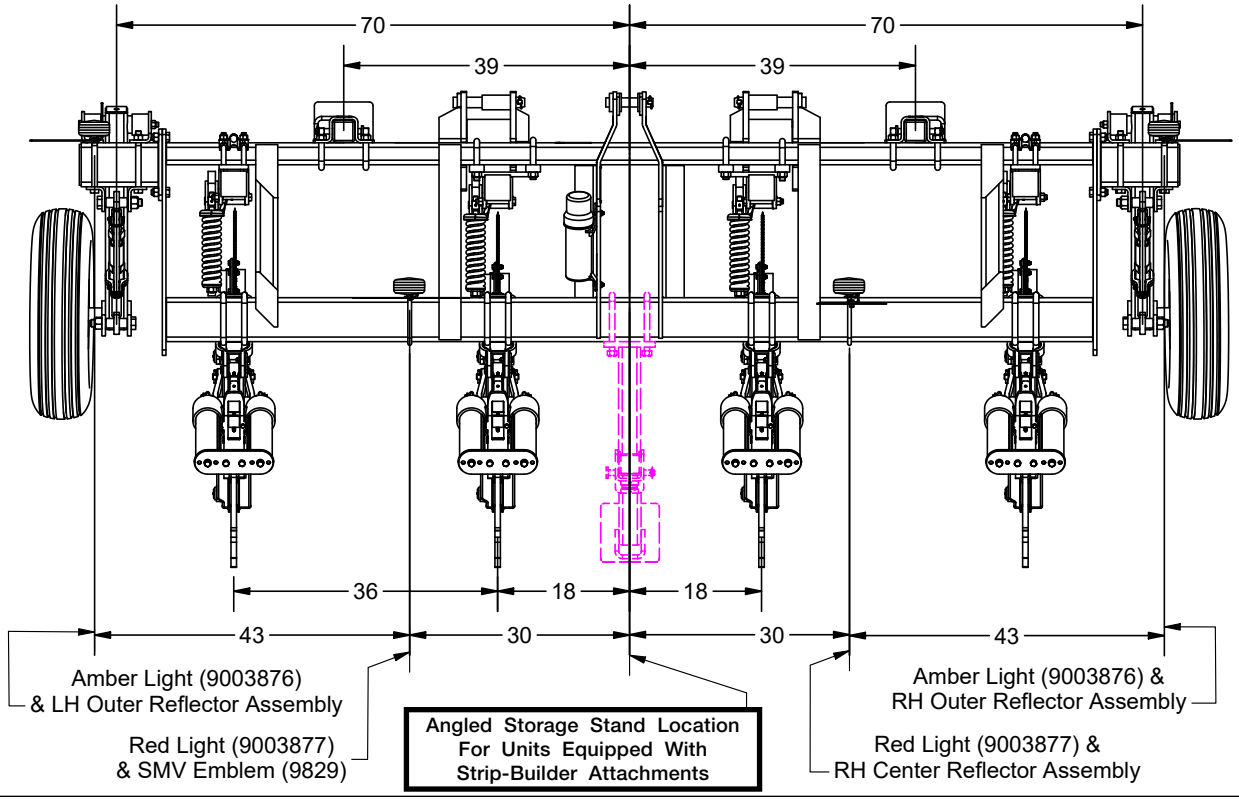


Overhead Layouts (continued)

RIGID 4 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

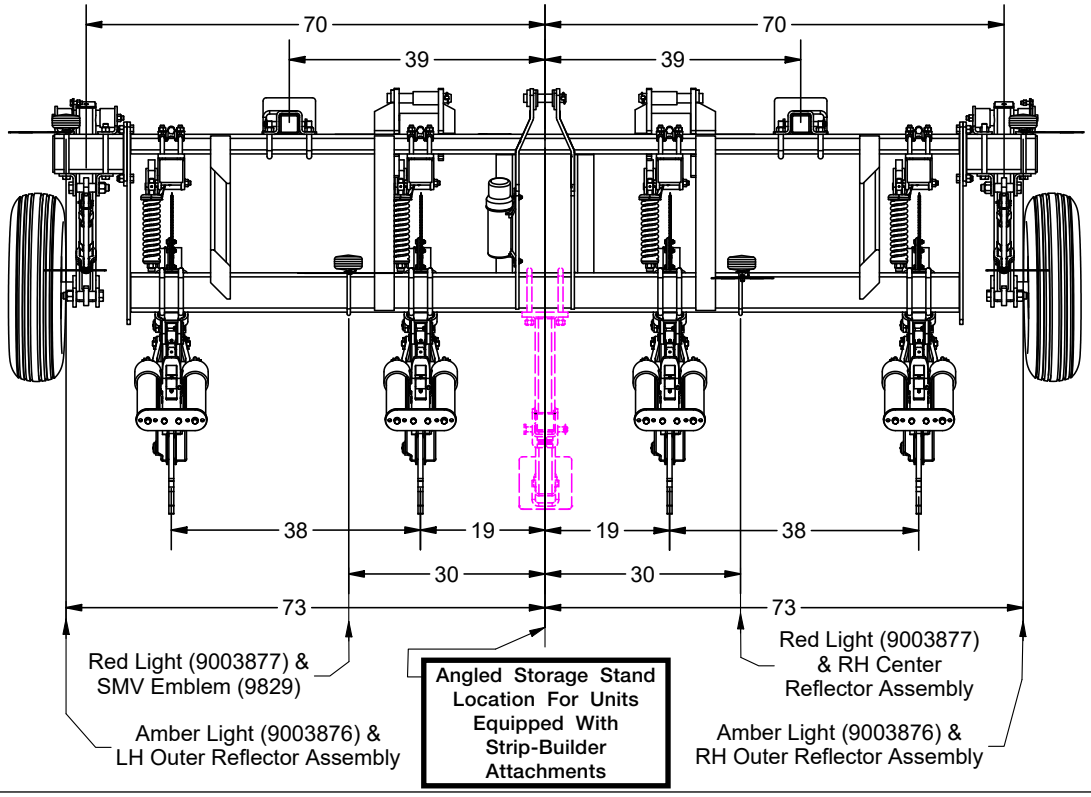


RIGID 4 SHANK WIDE (36" SPACING)
(MODEL 132 SHOWN)



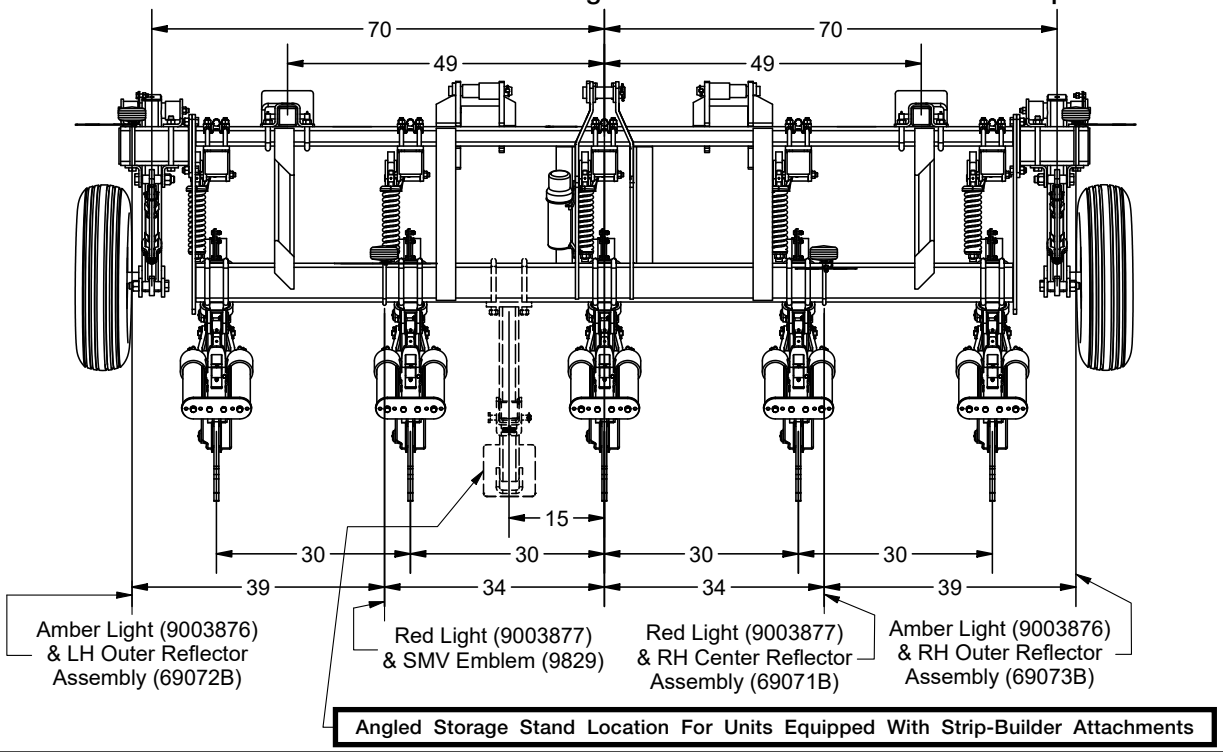
Overhead Layouts (continued)

RIGID 4 SHANK WIDE (38" SPACING)
(MODEL 132 SHOWN)



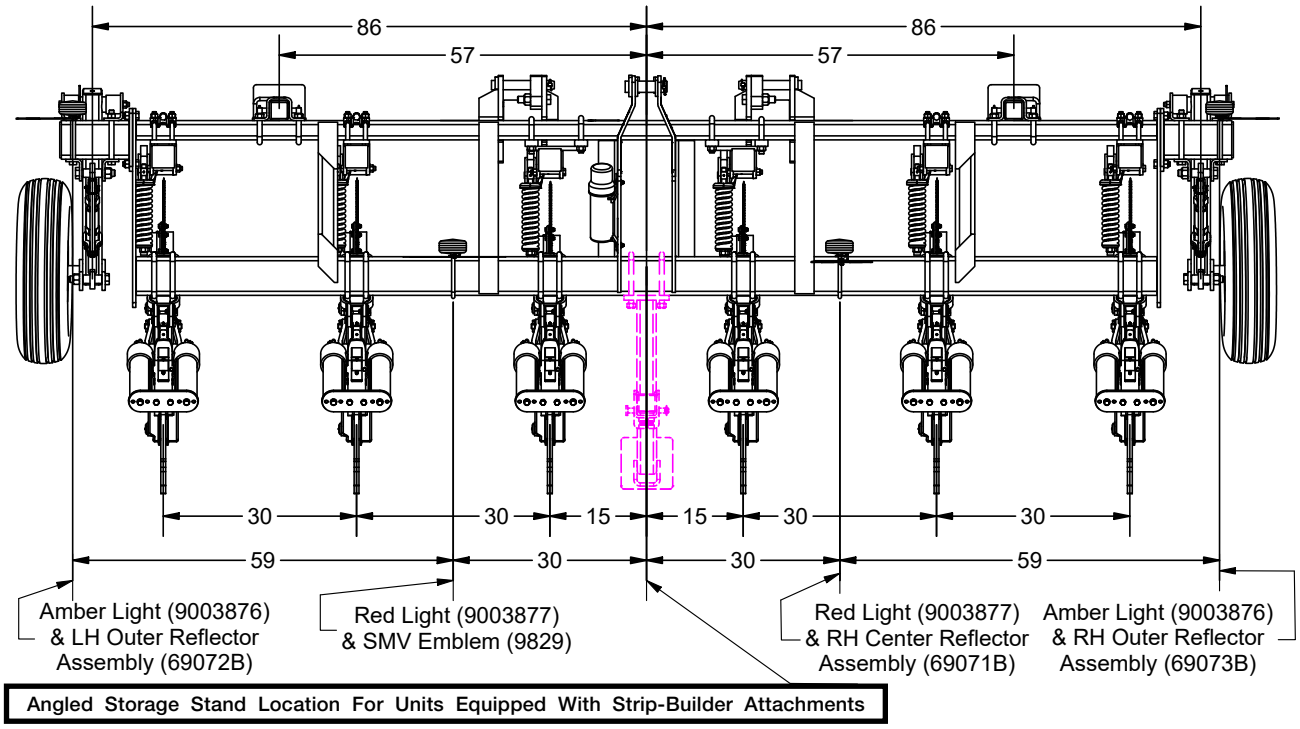
RIGID 5 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

Red lights need to be in the highest position and visible from the rear to prevent damage to the light and/or bracket when shank trips.

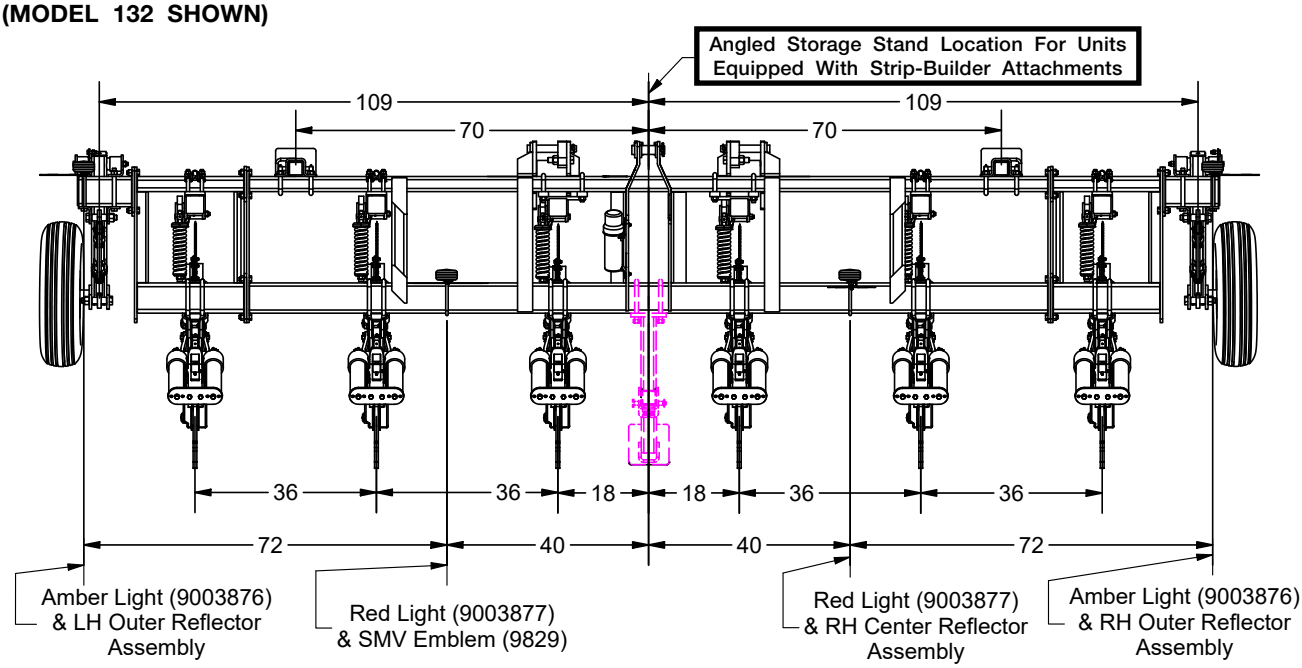


Overhead Layouts (continued)

RIGID 6 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

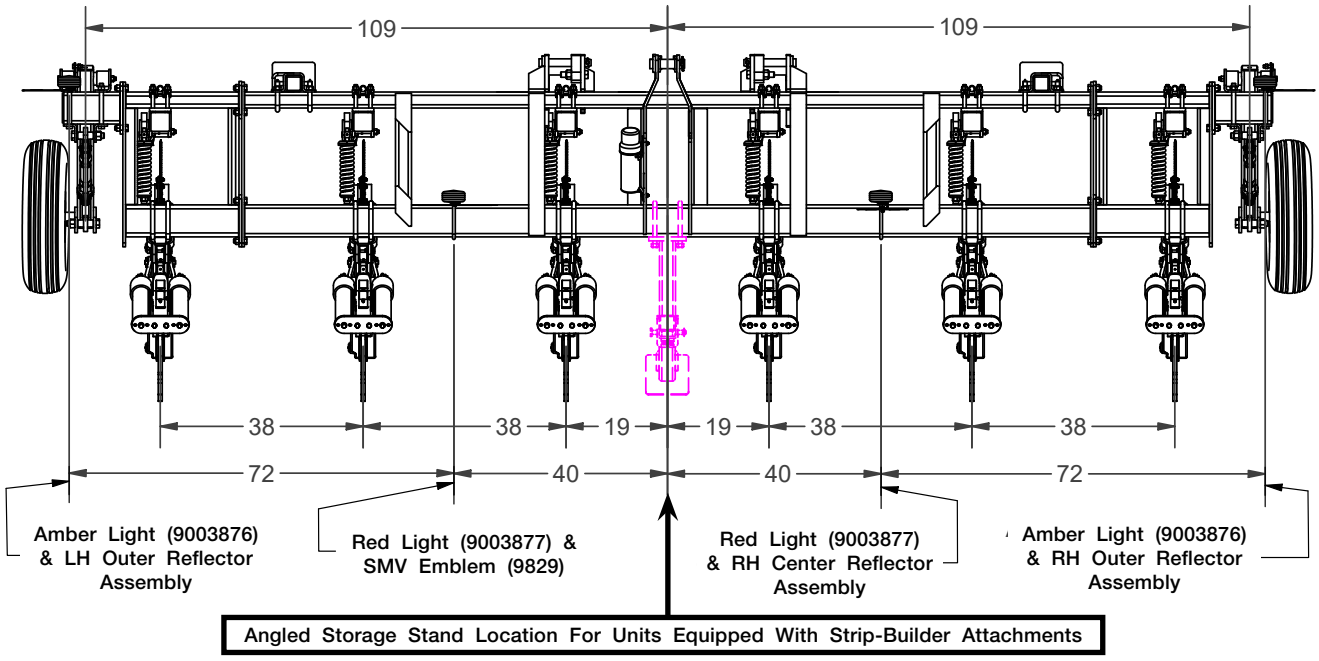


RIGID 6 SHANK WIDE (36" SPACING)
(MODEL 132 SHOWN)

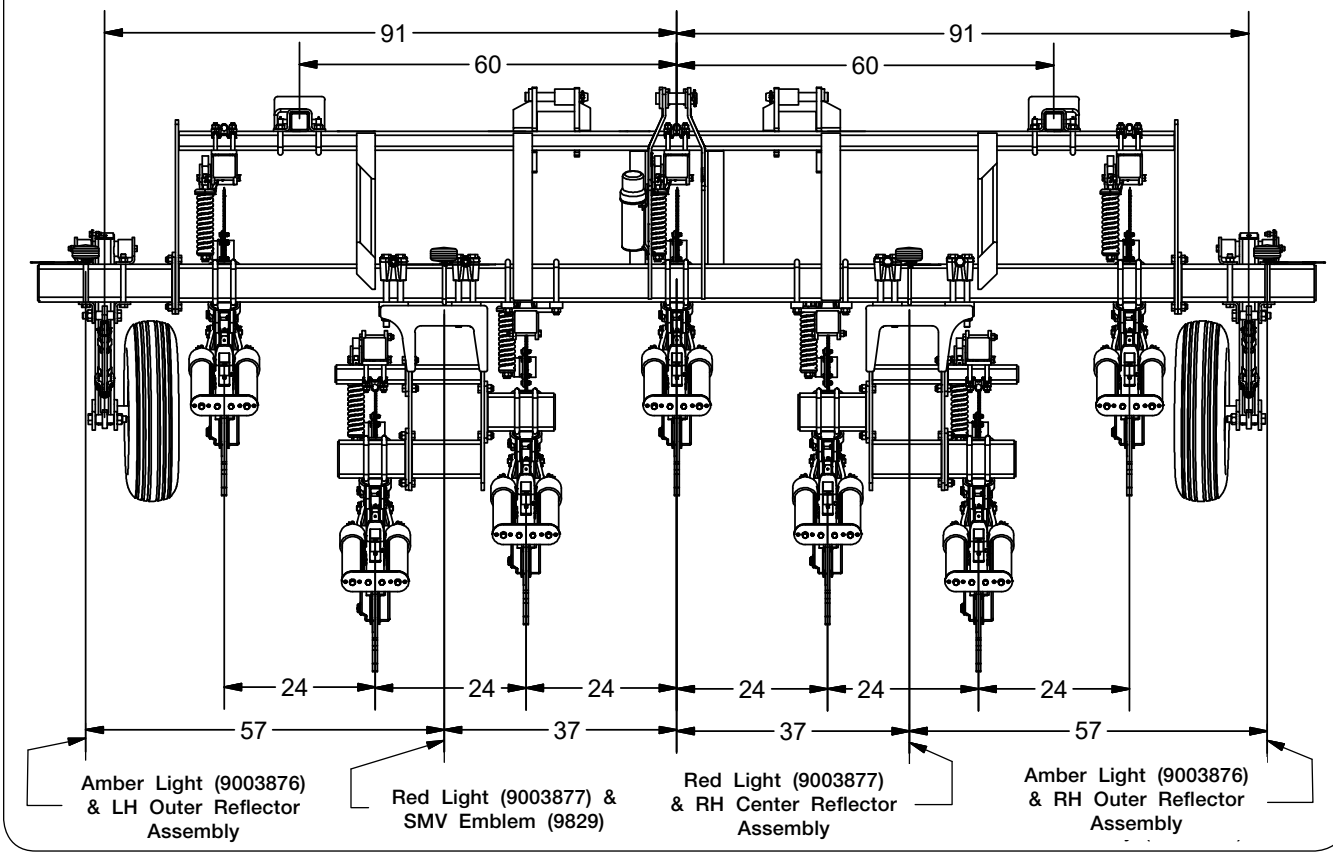


Overhead Layouts (continued)

RIGID 6 SHANK WIDE (38" SPACING)
(MODEL 132 SHOWN)



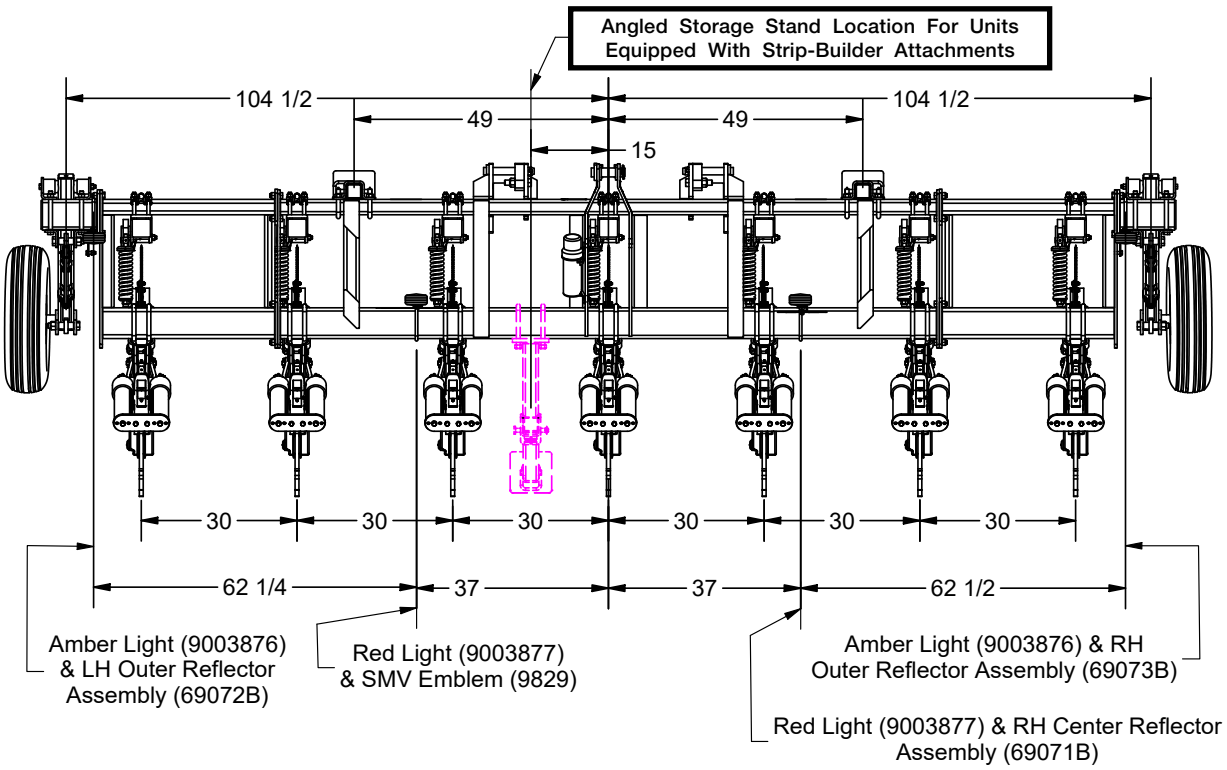
RIGID 7 SHANK NARROW (24" SPACING)
(MODEL 132 SHOWN)



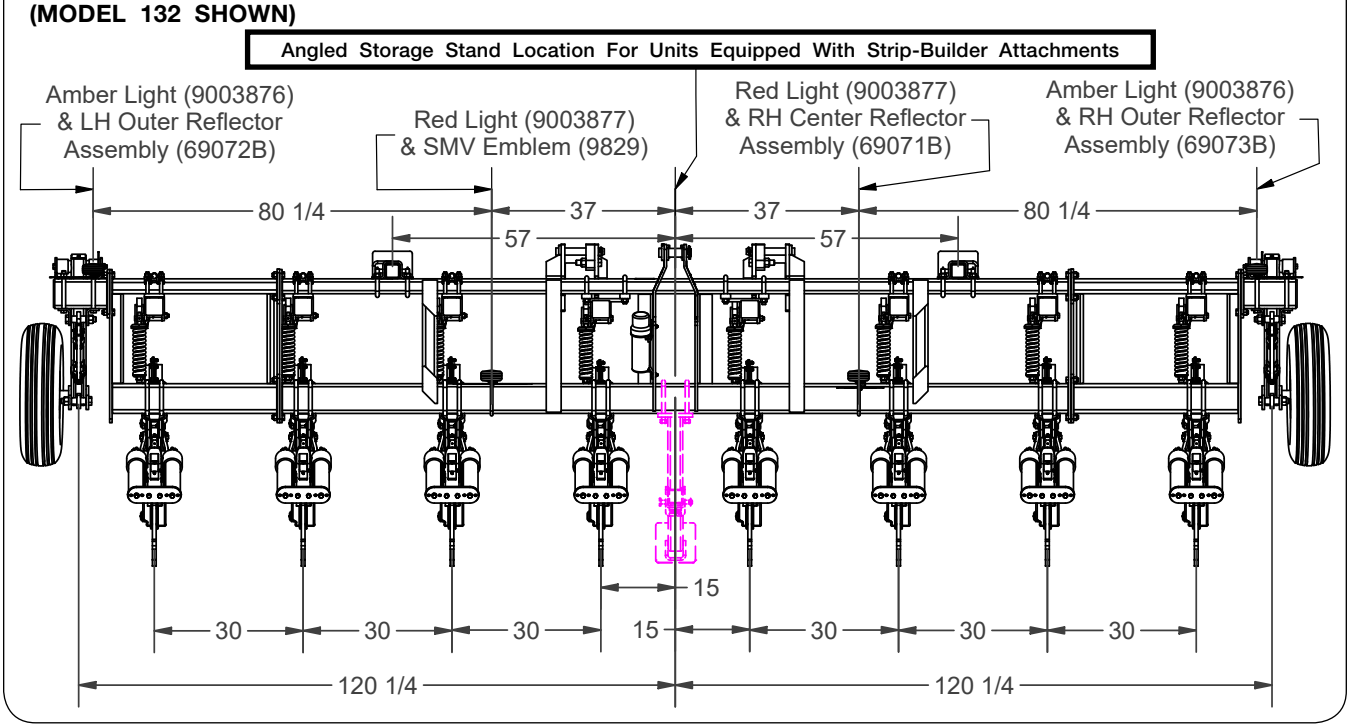
Overhead Layouts (continued)

RIGID 7 SHANK NARROW (30" SPACING) (MODEL 132 SHOWN)

Red lights need to be in the highest position and visible from the rear to prevent damage to the light and/or bracket when shank trips.

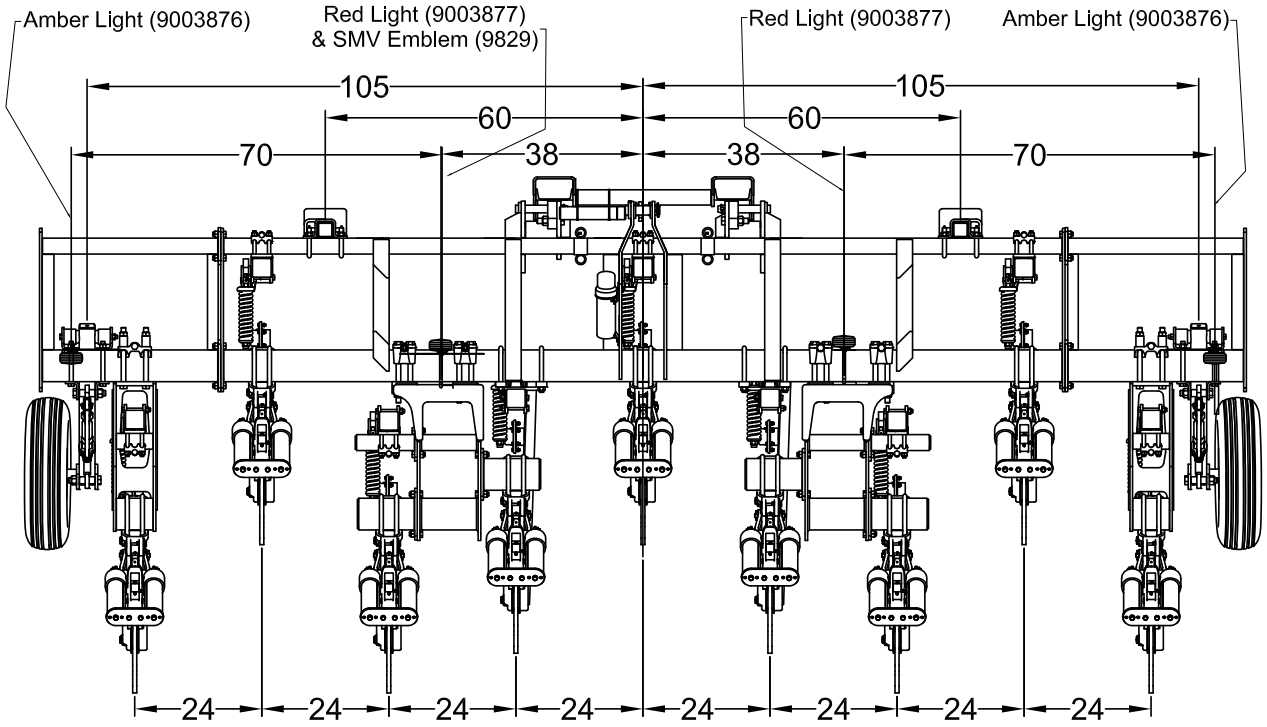


RIGID 8 SHANK NARROW (30" SPACING) (MODEL 132 SHOWN)

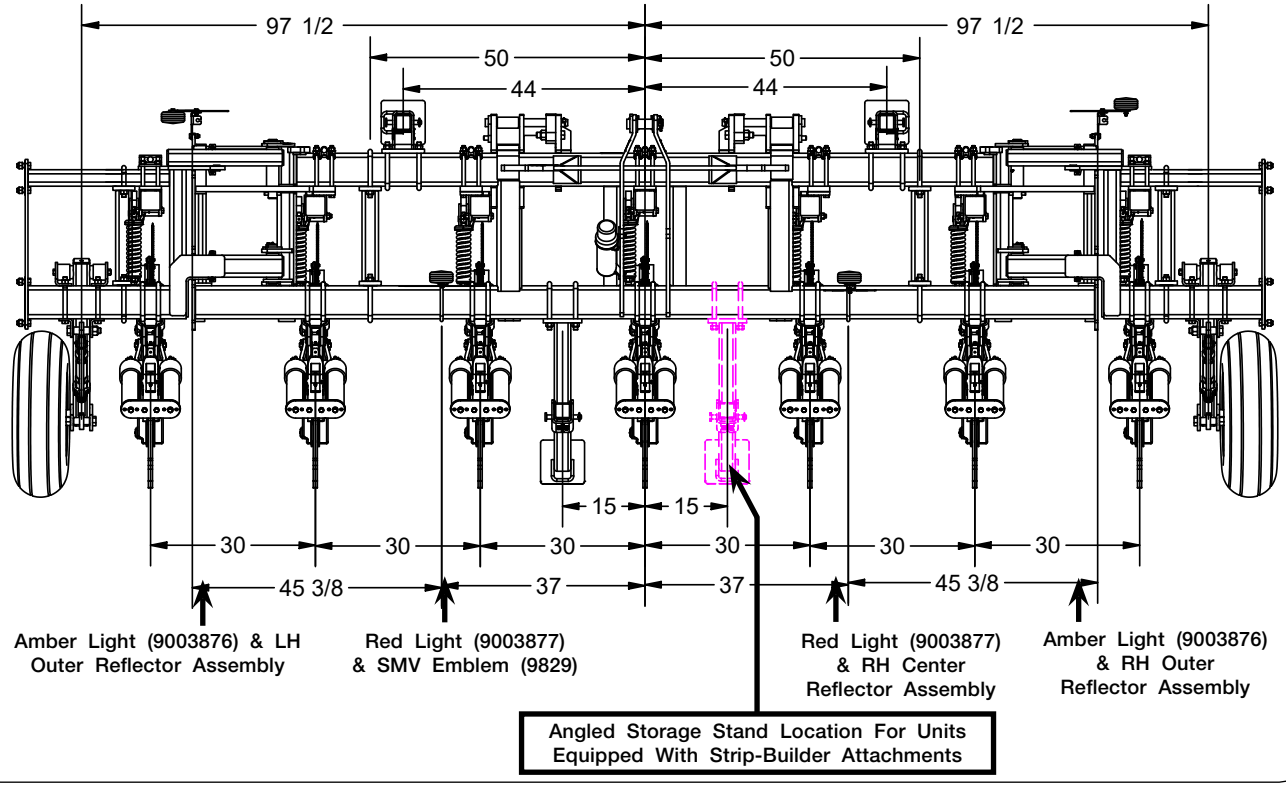


Overhead Layouts (continued)

RIGID 9 SHANK NARROW (24" SPACING)
(MODEL 132 SHOWN)

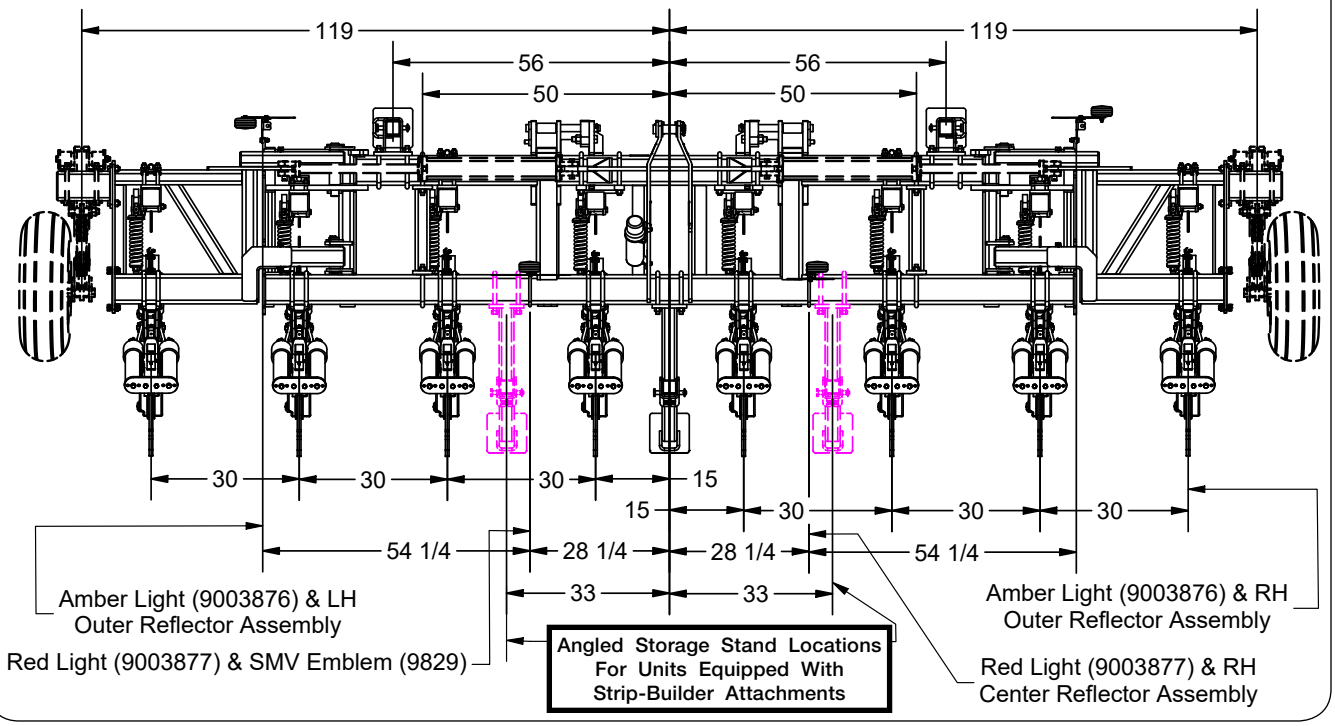


FOLDING 7 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

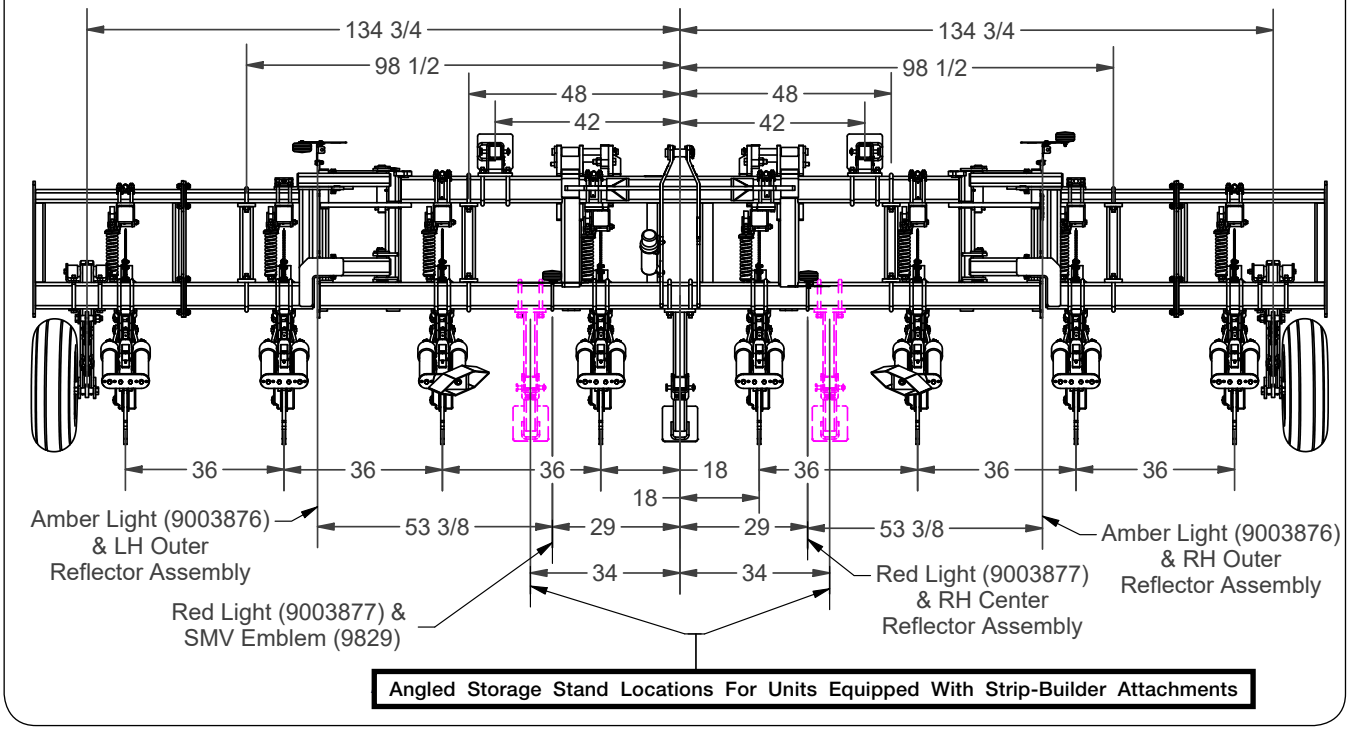


Overhead Layouts (continued)

FOLDING 8 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

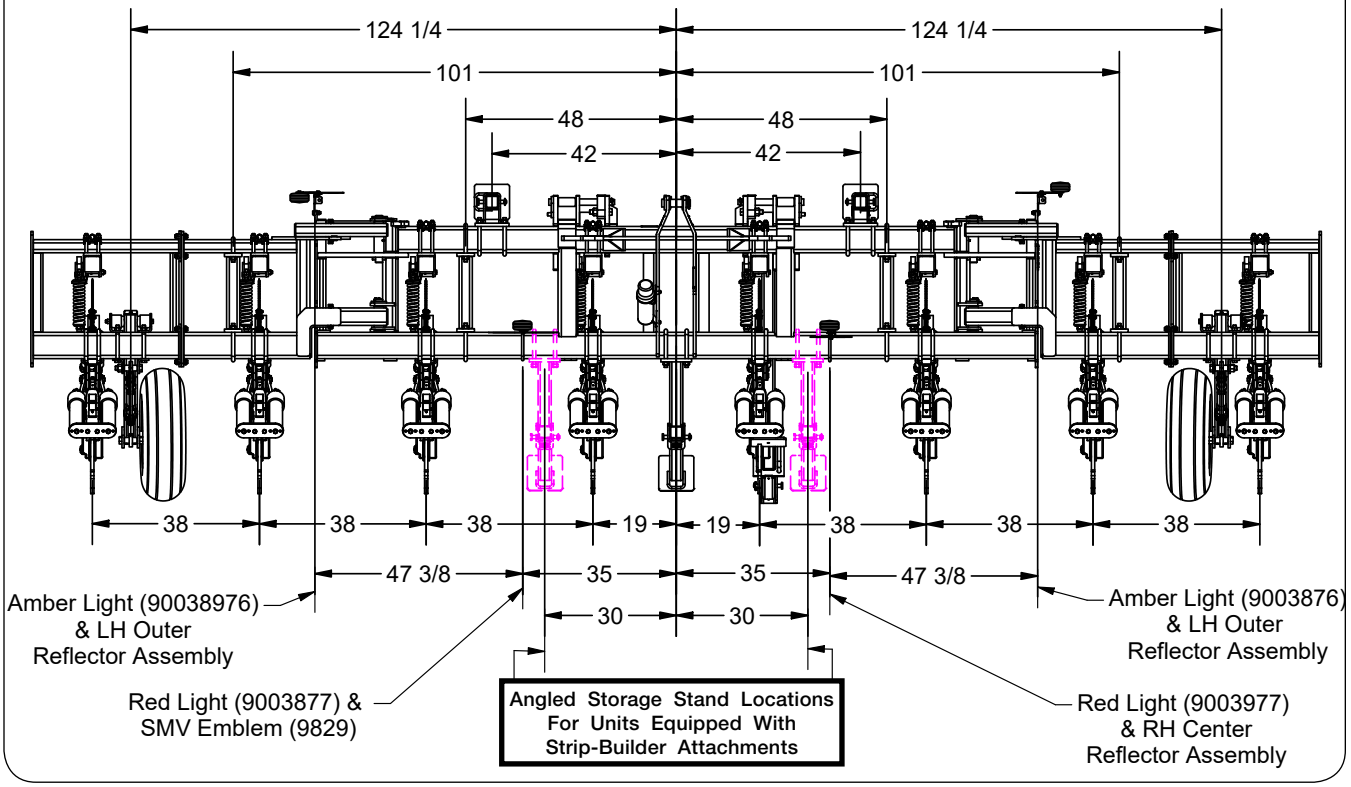


FOLDING 8 SHANK WIDE (36" SPACING)
(MODEL 132 SHOWN)

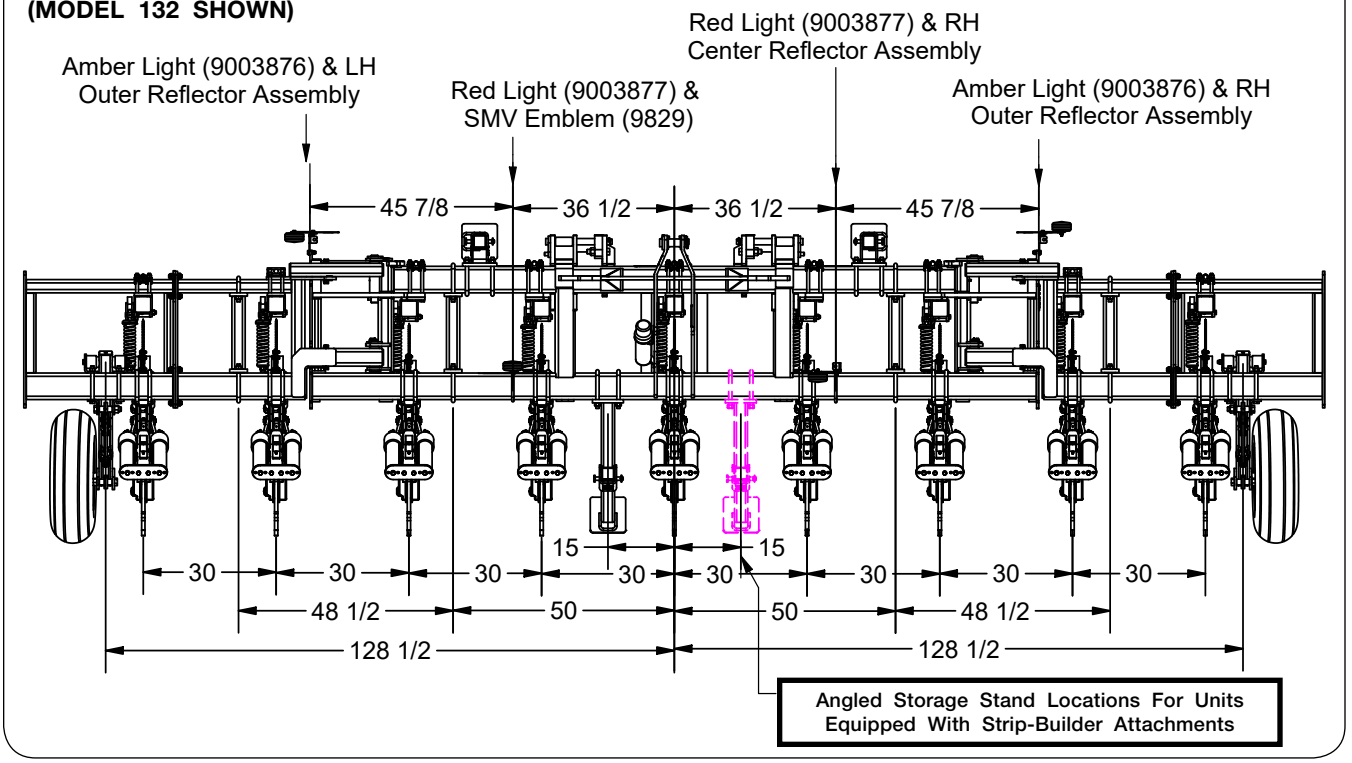


Overhead Layouts (continued)

FOLDING 8 SHANK WIDE (38" SPACING)
(MODEL 132 SHOWN)

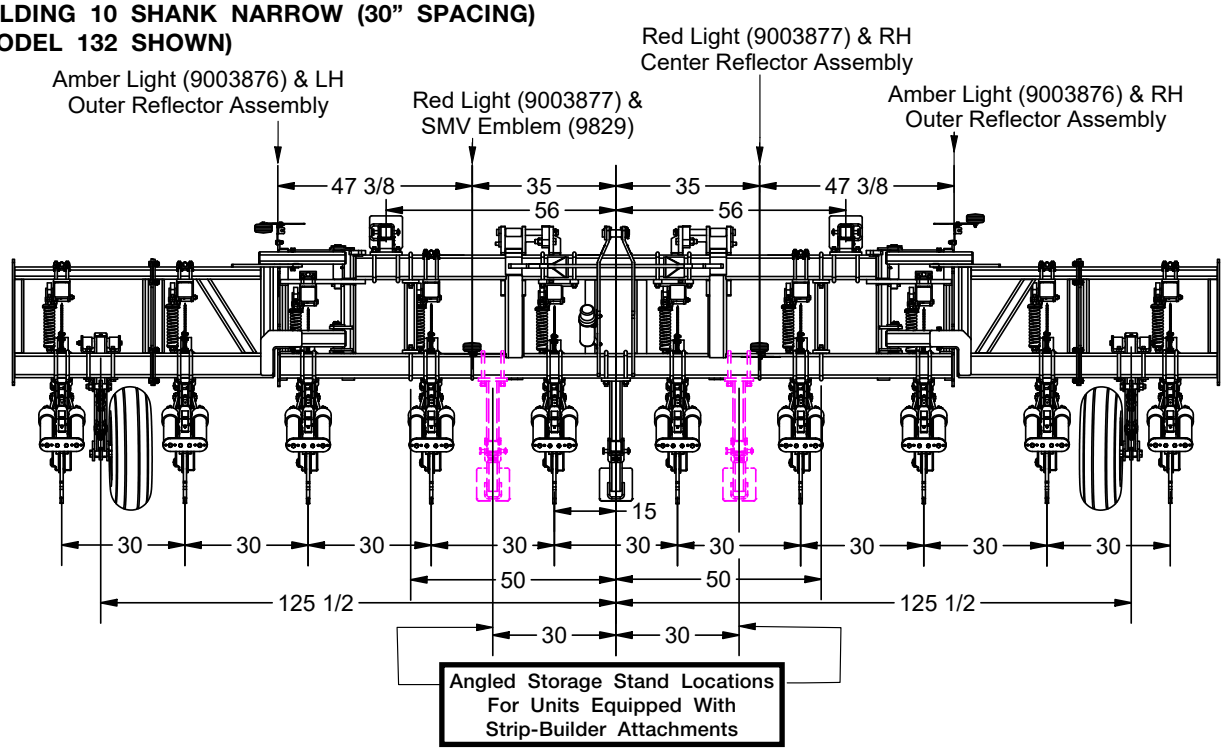


FOLDING 9 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

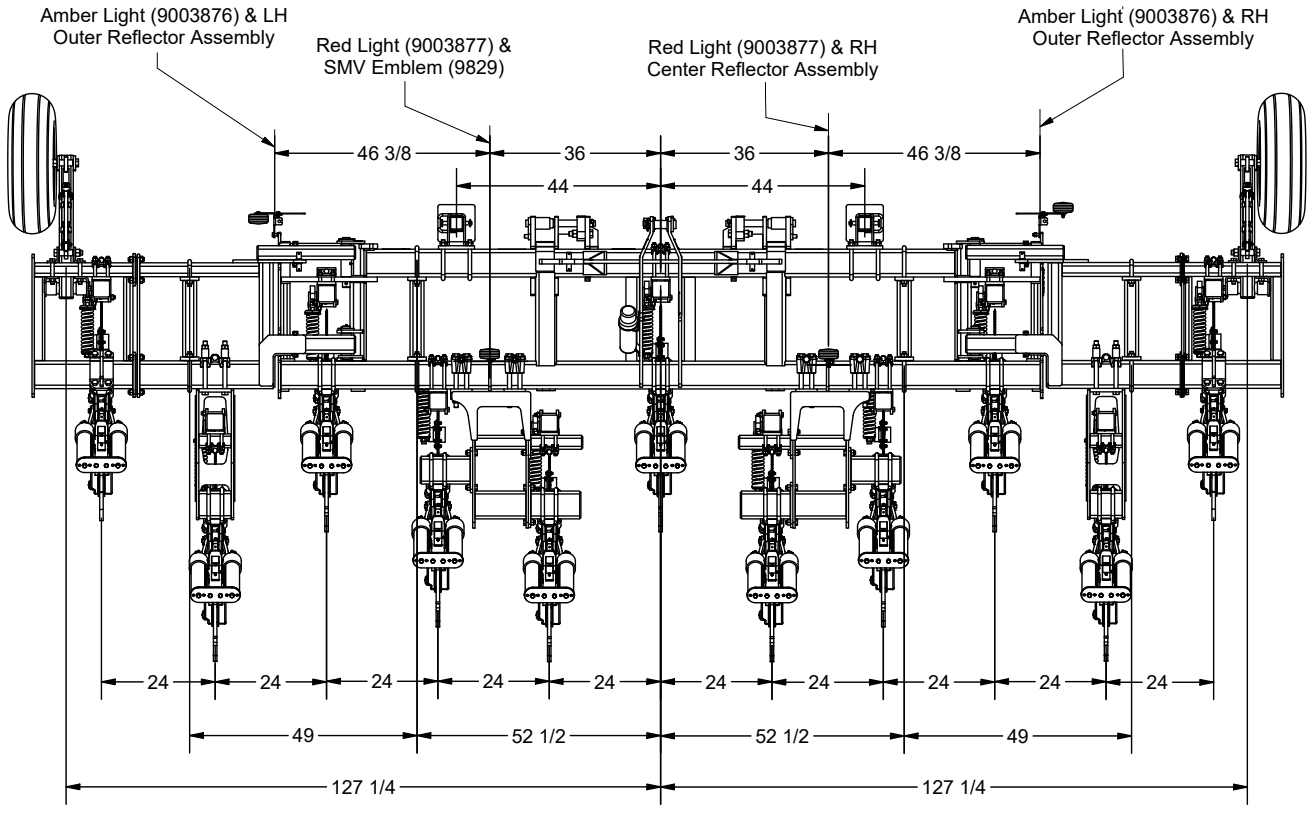


Overhead Layouts (continued)

FOLDING 10 SHANK NARROW (30” SPACING)
(MODEL 132 SHOWN)

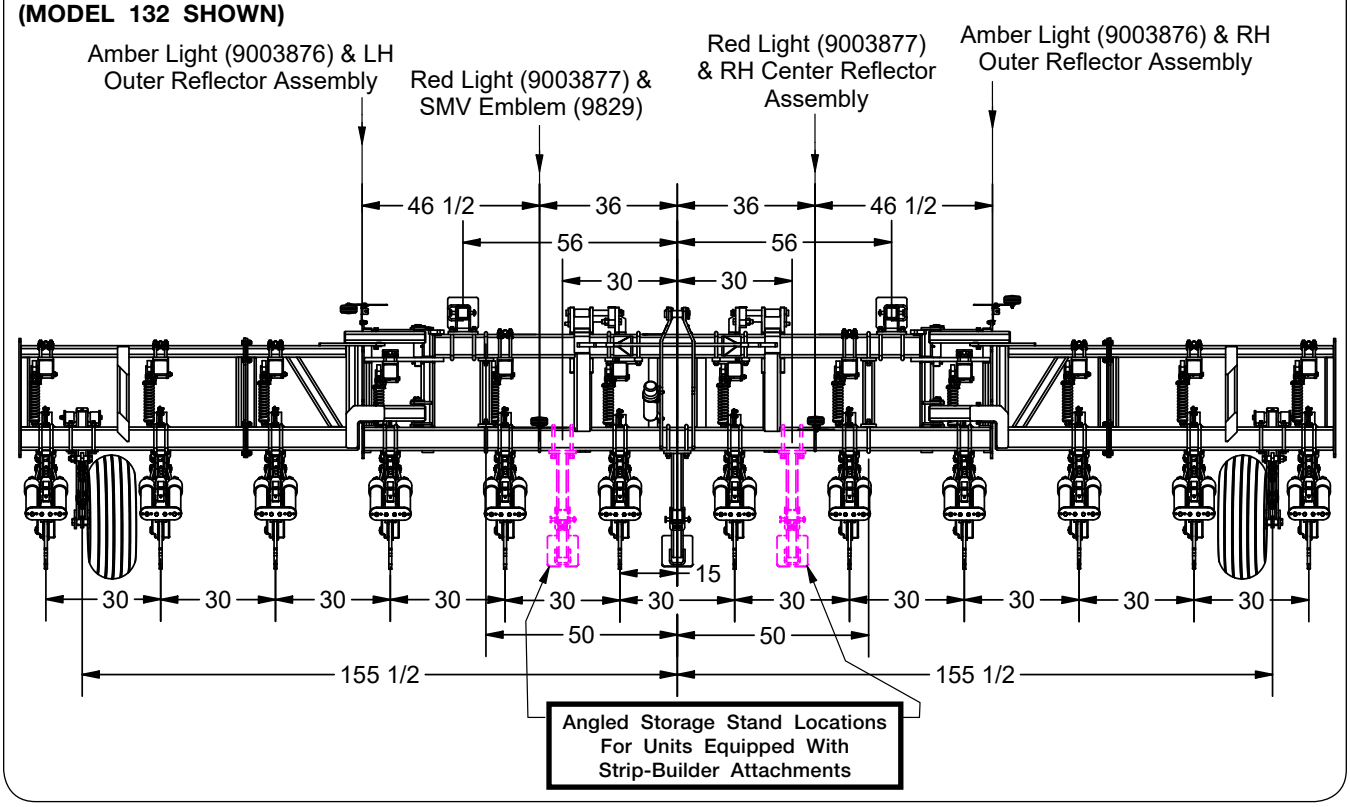


FOLDING 11 SHANK NARROW (24” SPACING)
(MODEL 122 SHOWN)

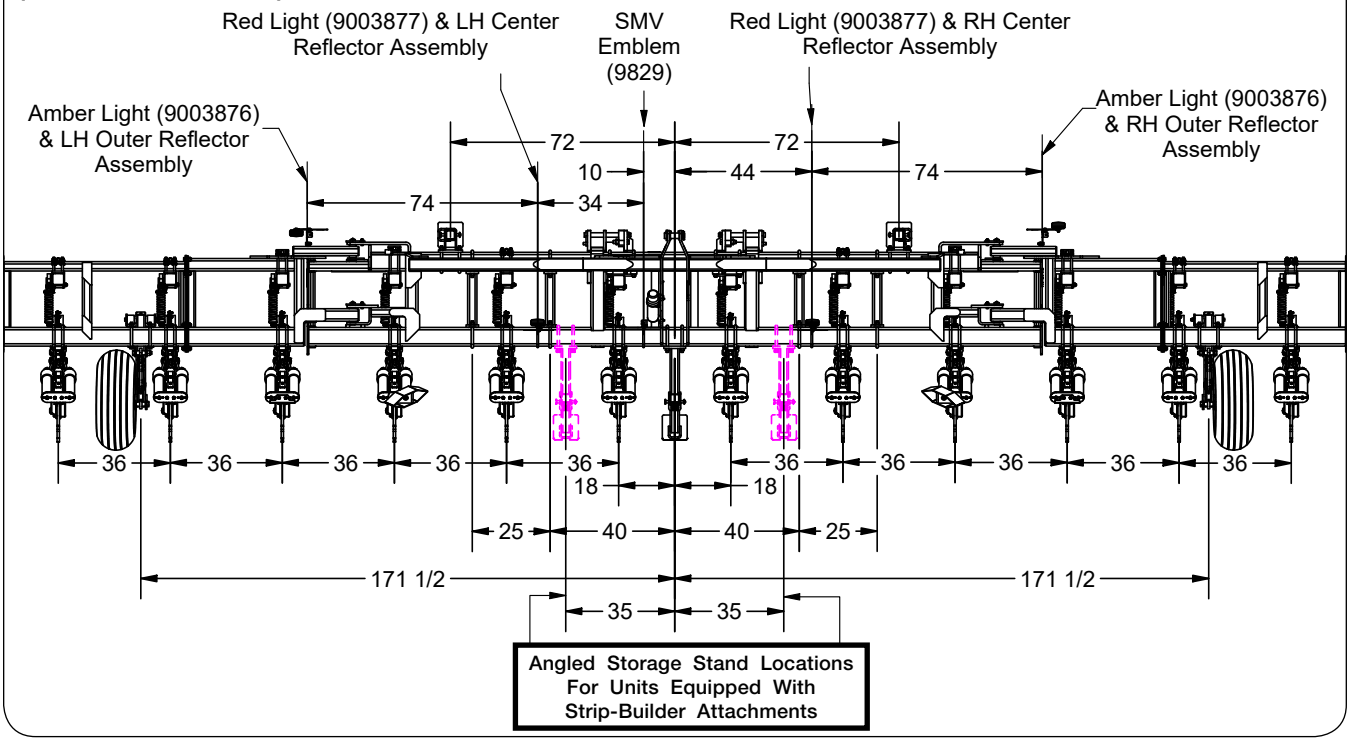


Overhead Layouts (continued)

FOLDING 12 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

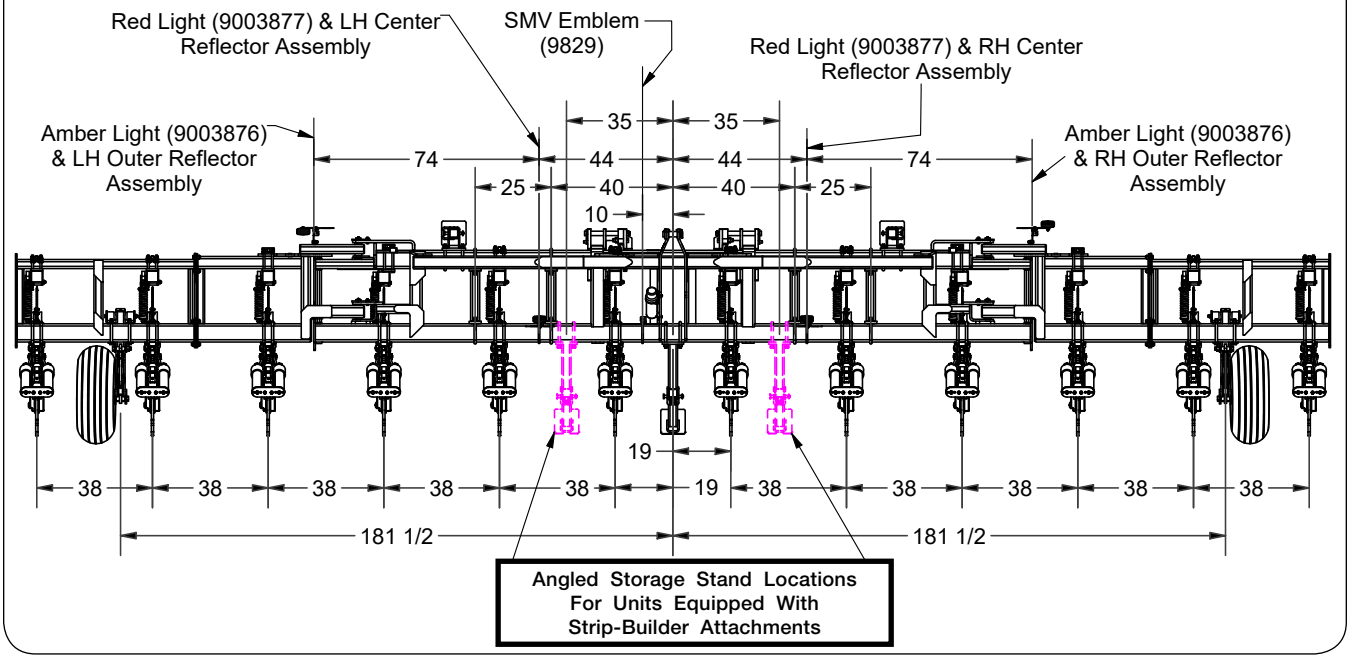


FOLDING 12 SHANK WIDE (36" SPACING)
(MODEL 132 SHOWN)

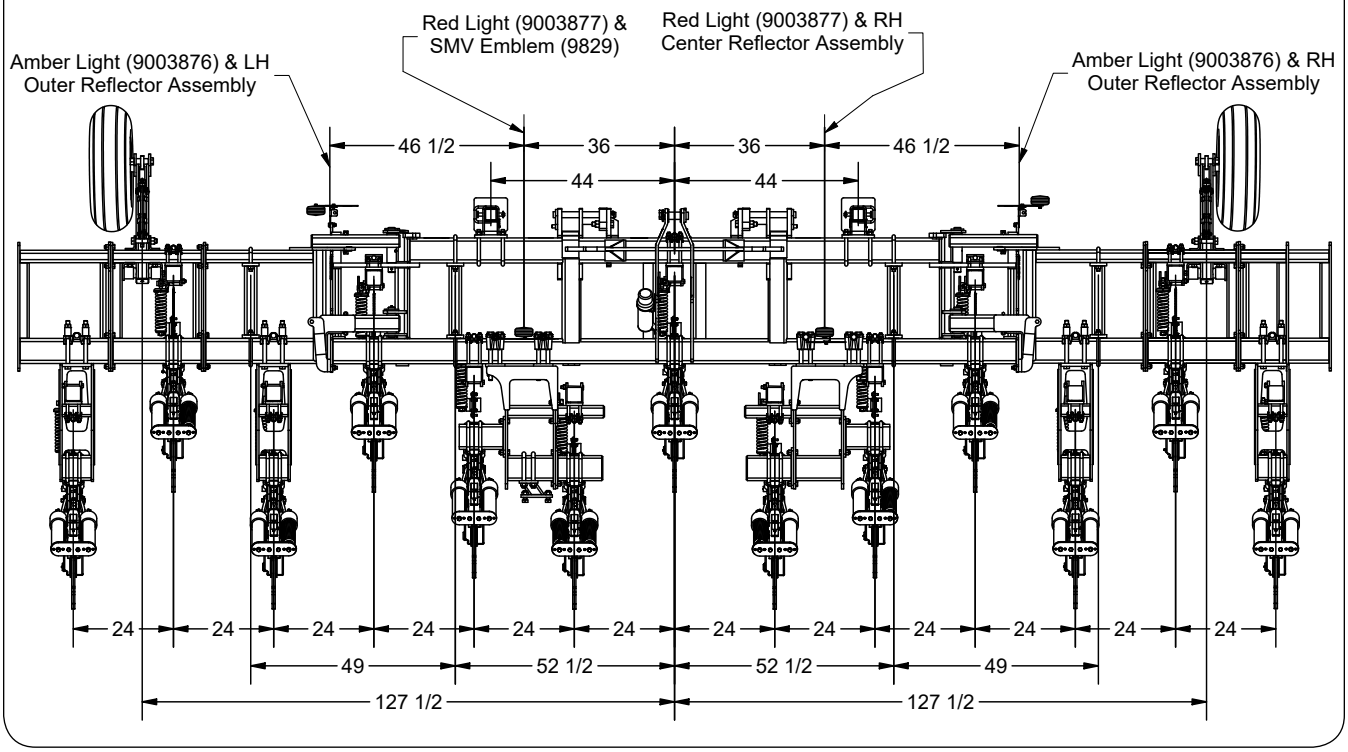


Overhead Layouts (continued)

FOLDING 12 SHANK WIDE (38" SPACING)
(MODEL 132 SHOWN)

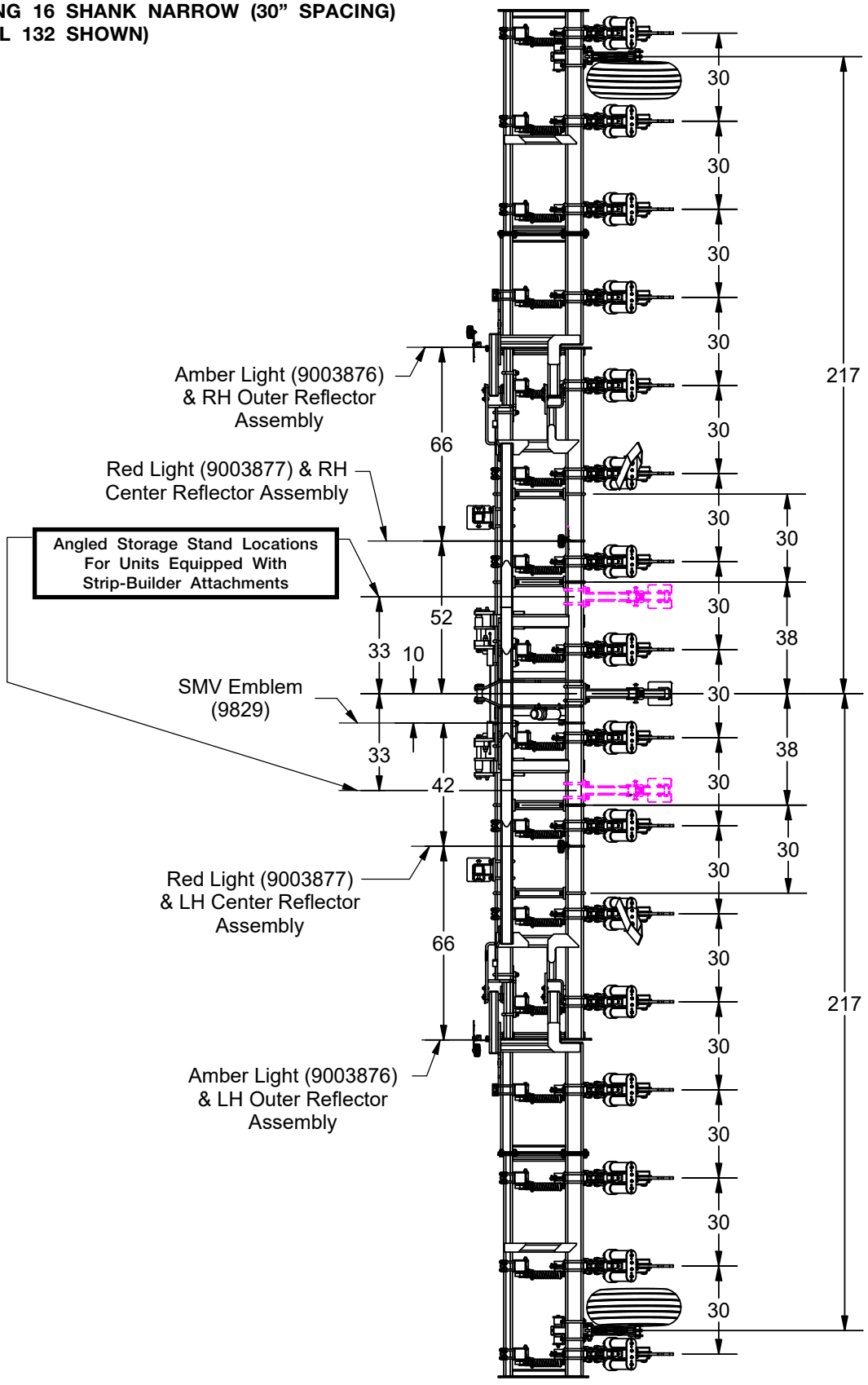


FOLDING 13 SHANK NARROW (24" SPACING)
(MODEL 132 SHOWN)



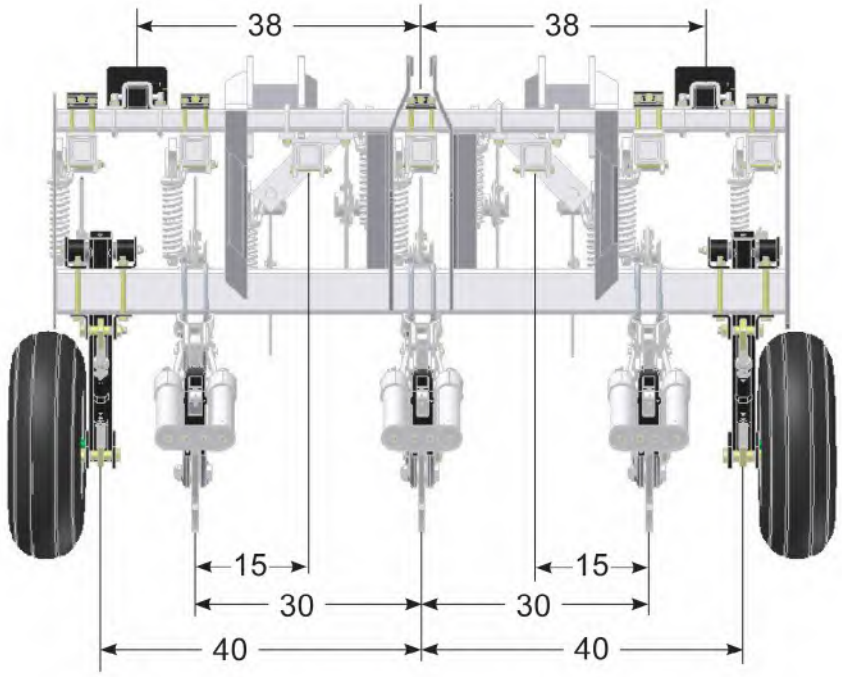
Overhead Layouts (continued)

FOLDING 16 SHANK NARROW (30" SPACING)
(MODEL 132 SHOWN)

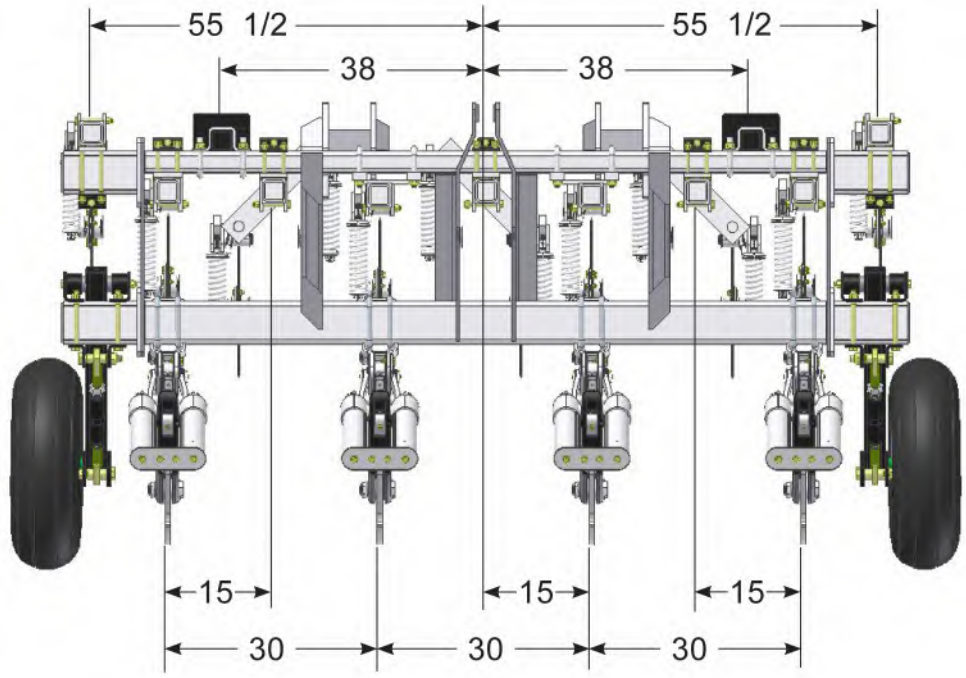


Overhead Layouts (continued)

RIGID 3 SHANK DOUBLE COULTERS NARROW (30” SPACING)
(MODEL 132 SHOWN)

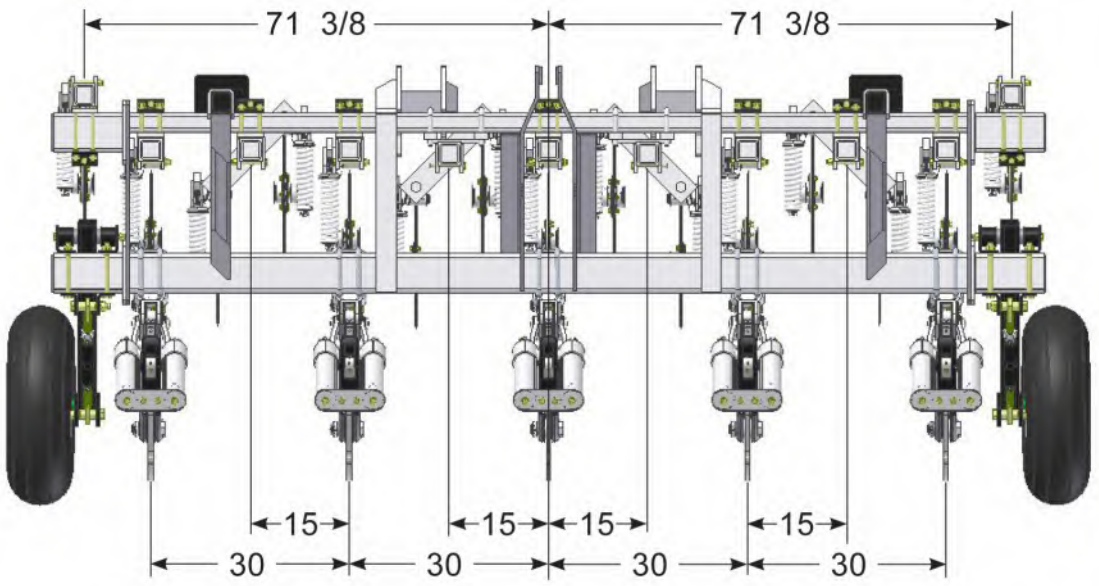


RIGID 4 SHANK DOUBLE COULTERS NARROW (30” SPACING)
(MODEL 132 SHOWN)

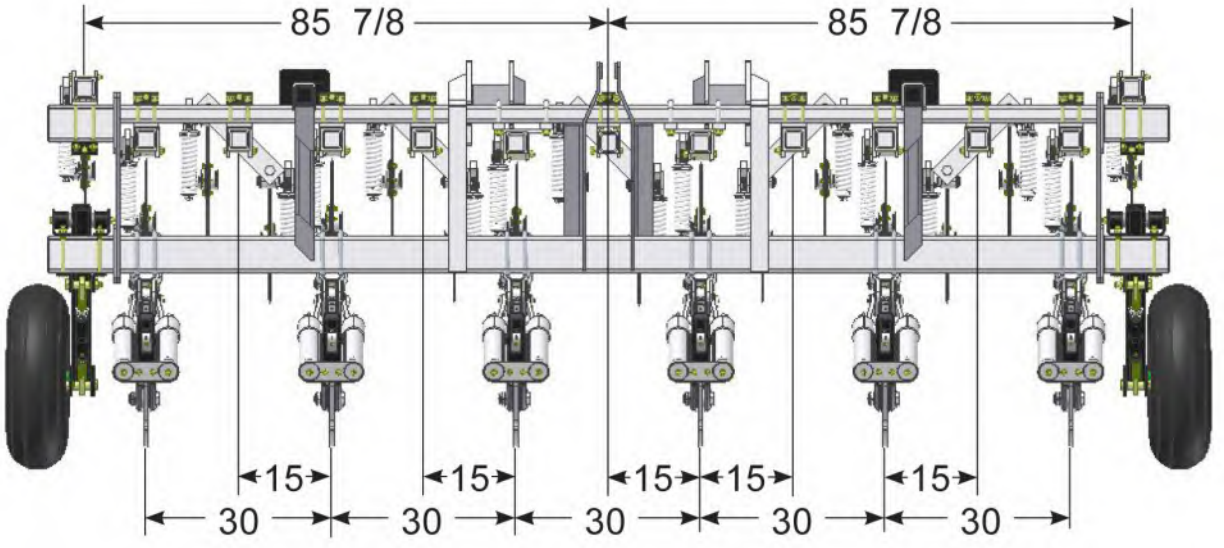


Overhead Layouts (continued)

RIGID 5 SHANK DOUBLE COULTERS NARROW (30" SPACING)
(MODEL 132 SHOWN)

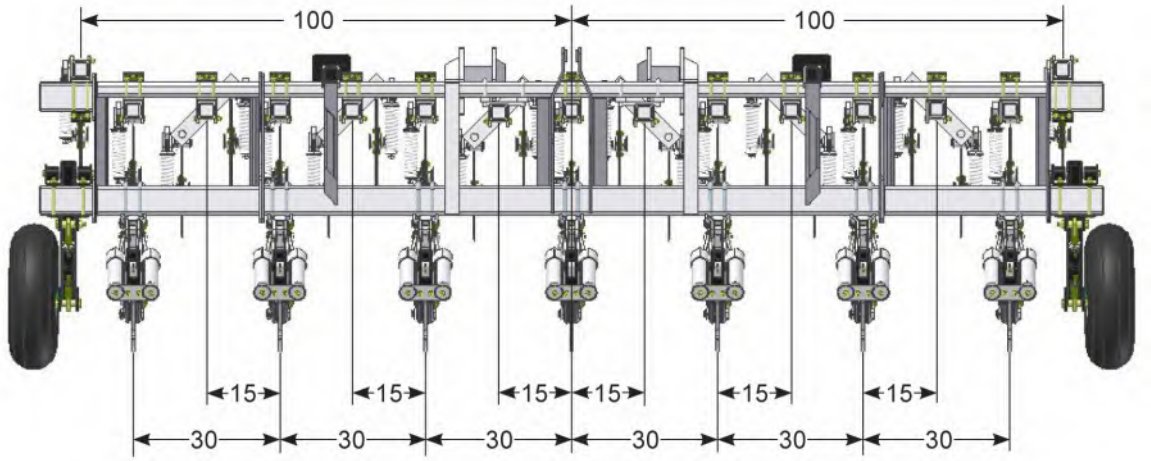


RIGID 6 SHANK DOUBLE COULTERS NARROW (30" SPACING)
(MODEL 132 SHOWN)

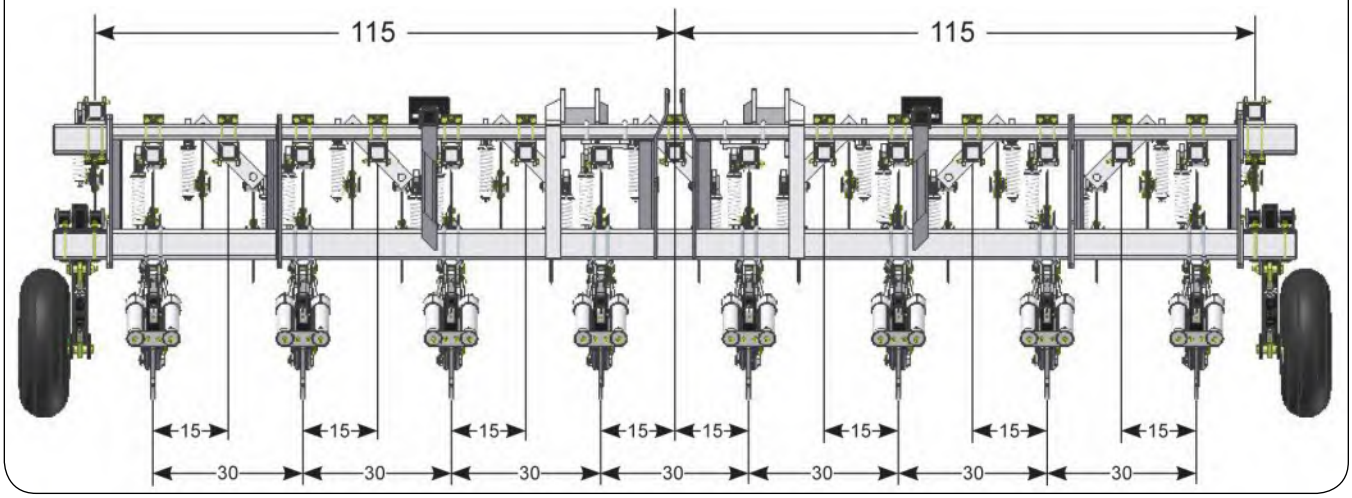


Overhead Layouts (continued)

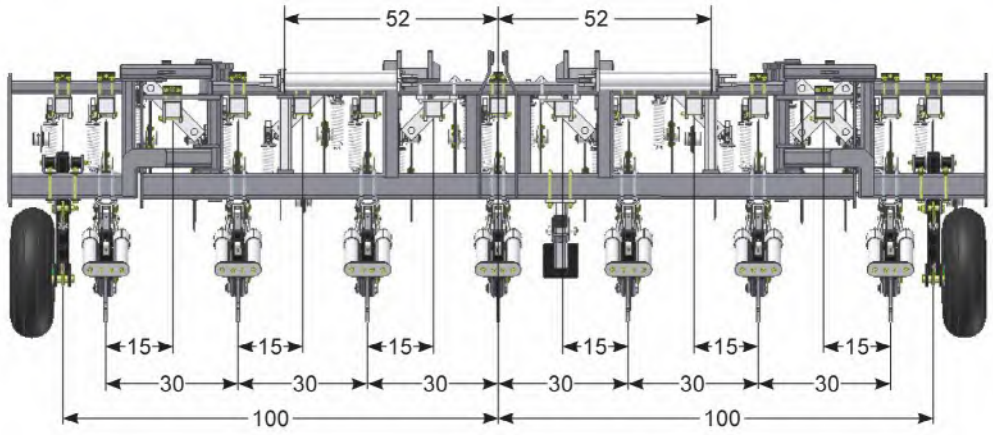
RIGID 7 SHANK DOUBLE COULTERS NARROW (30" SPACING)
(MODEL 132 SHOWN)



RIGID 8 SHANK DOUBLE COULTERS NARROW (30" SPACING)
(MODEL 132 SHOWN)

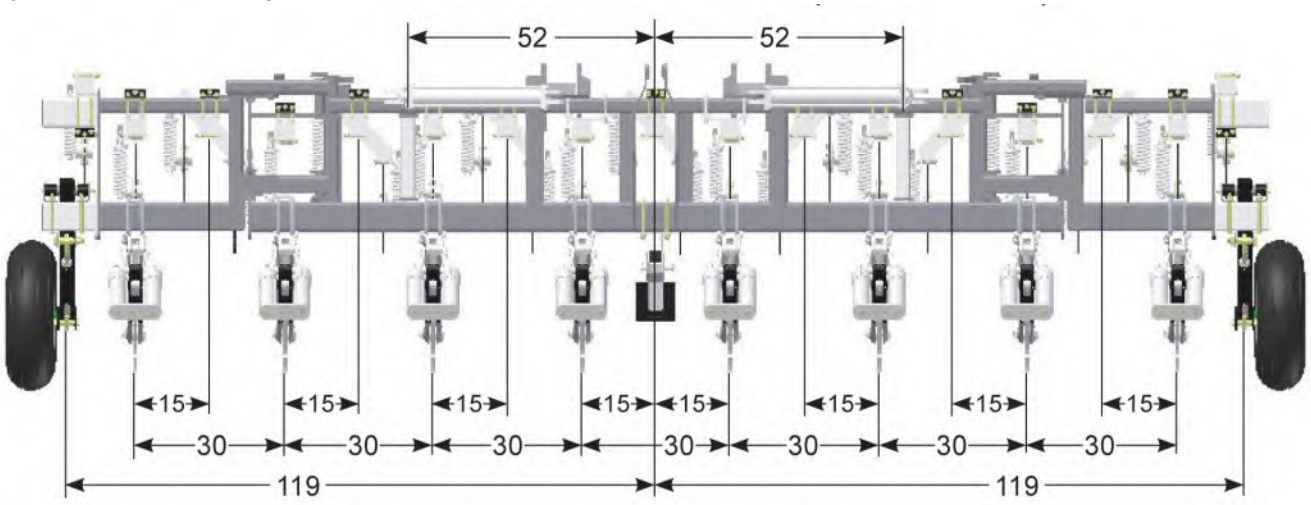


FOLDING 7 SHANK DOUBLE COULTERS NARROW (30" SPACING)
(MODEL 132 SHOWN)

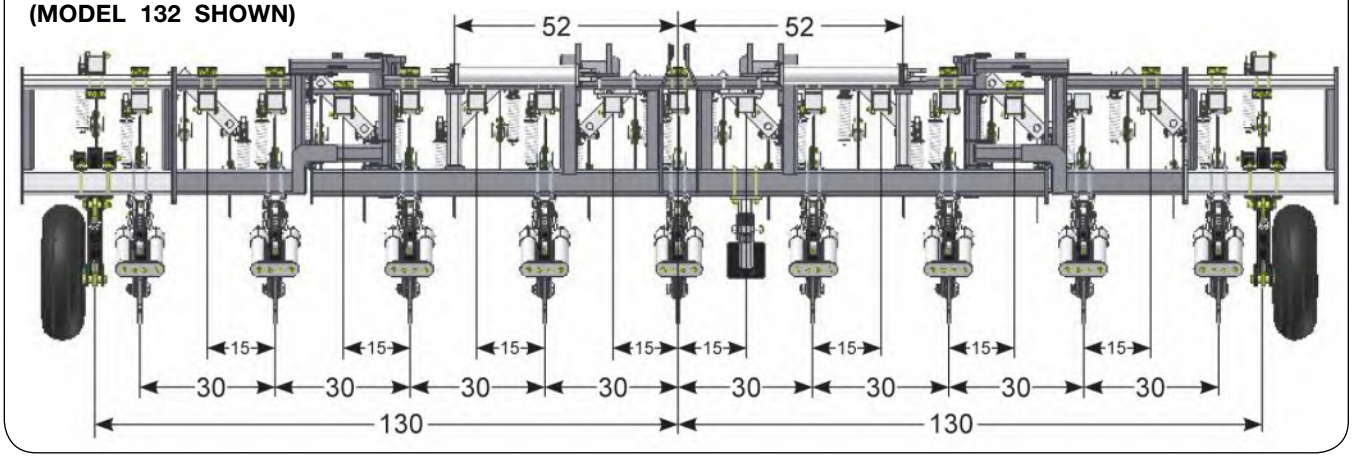


Overhead Layouts (continued)

FOLDING 8 SHANK DOUBLE COULTERS NARROW (30" SPACING)
(MODEL 132 SHOWN)



FOLDING 9 SHANK DOUBLE COULTERS NARROW (30" SPACING)
(MODEL 132 SHOWN)



Notes

SECTION III

Operation

Implement Overview

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.

The Zone Builder subsoiler shatters hardpan and relieves compaction from 10" to 20" deep with minimal soil disturbance. The machine is designed to be pulled at 2 to 6 mph. In average conditions, the horsepower requirement is 30-50 HP per shank with no accessories attached, depending on depth and soil condition.

The Zone Builder subsoiler is available with three shank options.

The shear bolt shank on the model 112 (Fig 3-1) is intended for use in areas without rocks or obstructions. The trip force of the shank is 7,500 lbs.

The spring cushioned shank on the model 122 (Fig. 3-2) is ideal for the toughest, highly compacted soils. To handle these severe conditions, the shank features a high reset force equal to or greater than the trip force of 5,040 lbs.

The auto-reset shank equipped on the model 132 (Fig. 3-3) is used in typical soils with few rocks or obstructions. The trip force of 6,000 lbs is higher than the reset force, allowing the shank to stay engaged or return to working position after tripping.

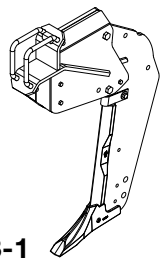


FIG. 3-1

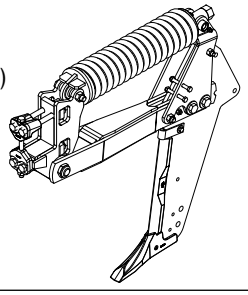


FIG. 3-2

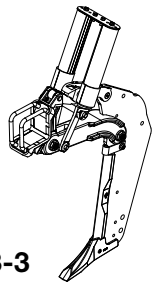


FIG. 3-3

Preparing 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.

⚠ WARNING

- **TRANSPORTING THE IMPLEMENT SIGNIFICANTLY CHANGES THE WEIGHT AND BALANCE OF YOUR TRACTOR. MAKE SURE THE TRACTOR IS PROPERLY BALLASTED.**

Front-End Weights

Use front-end weights as needed to provide effective steering control and front-end stability. See your tractor operator's manual for recommendations on ballasting procedures.

⚠ WARNING

- **DO NOT EXCEED THE TRACTOR'S LIFT CAPACITY OR BALLAST RECOMMENDATIONS.**

NOTE: Warranty consideration will only be given on items manufactured by Unverferth Mfg. Co., Inc.

Horsepower Requirements

The power requirement for this unit is 30-50 hp. per shank, depending on the depth of penetration and ground conditions. Select a tractor with sufficient power to operate this machine.

Sway Blocks

Sway blocks should be used and adjusted to limit movement in operating position. Your implement should be permitted to sway very little while operating and should be held rigid while transporting. See your tractor operator's manual.

Wheel Spacing

Set tractor wheels so they are equally spaced from center of tractor. If using the tool to penetrate in fields of row crops, set tractor wheels so they are centered between the rows.

See your tractor operator's manual for correct tire inflation pressure.

Drawbar Position

Place the drawbar in the short, center position to provide maximum clearance between drawbar and tool.

Attaching To Tractor

IMPORTANT

- *Operating a 3-point implement with an articulated four-wheel drive or track tractor requires the operator to drive straight to prevent damage to the implement. Sudden turns or steering corrections when the implement is in the ground can exert extreme forces through the implement's frame and/or shank components. Improper operation can void the implement's warranty. For these applications, customers are recommended to order an optional pull type conversion package or caddy.*

Mast And Hitch

The ZONE-BUILDER subsoiler should be used on a tractor with the appropriate hitch connection (see table below).

NOTE: N QC refers to Narrow Quick Attach Coupler. QC refers to Quick Attach Coupler.

*Use with the optional pin package (63869) on 2, 3 & 4 shank models only.

Hitch Type	Machine Type	
	Rigid Frame	Folding Frame
CAT 2 - 3PT	2/3/4 Row*	
CAT 2 - QC	2/3/4 Row*	
CAT 3 - 3PT	5/6/7/8 Row	7/8/9/10/12/16 Row
CAT 3 - QC	5/6/7/8 Row	7/8/9/10/12/16 Row
CAT 3 - N QC	5/6/7/8 Row	7/8/9/10/12/16 Row
CAT 4 - N QC	6/7/8 Row	7/8/9/10/12/16 Row
CAT 4		12-36"/38" & 16-30" Row
CAT 4 - QC		12-36"/38" & 16-30" Row

NOTE: N QC refers to Narrow Quick Attach Coupler. QC refers to Quick Attach Coupler.

IMPORTANT

- *Machine damage could occur if the CAT 2 pin package is used with a tractor rated higher than a CAT 2.*

Bolts And Nuts

Before operating, check all hardware for tightness. Re-check all bolts for tightness after the unit has been operated for several hours.

Pins And Retaining Rings

Before operating, check that all pins and retaining rings are in place and in good condition. Replace any worn, damaged, or missing pins, and retaining rings.

Attaching To Tractor (continued)

Pin Assembly (67188B & 67187B)

Pin assembly (67188B) is used for replacement only on 1 1/4" diameter holes and contains a spacer which can be placed on the inside or outside depending on style of unit. Pin assembly (67187B) is used for replacement only on 1 3/4" diameter holes.

The spacer should be placed on the inside when used on all 2, 3 and 4 shank units, see figure 3-4.

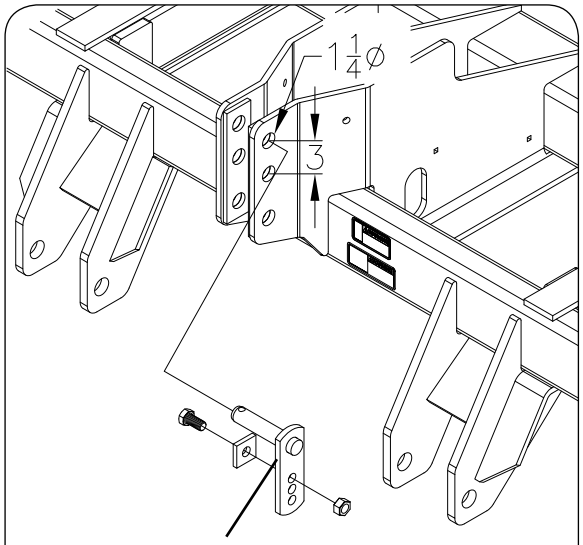


FIG. 3-4 OM-03298B

The spacer should be placed on the outside when used on 5 shank and larger rigid and all folding units with a 1 3/4" top hole on the main frame. Pin assembly (67187B) is to be used in the 1 3/4" top hole. See figure 3-5.

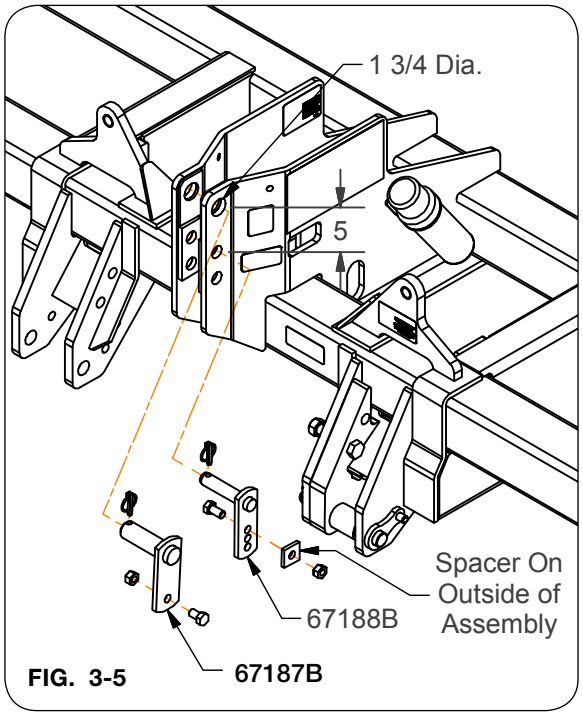


FIG. 3-5

Attaching To Tractor (continued)

Tractor Without Quick Attach Coupler

WARNING

- **CRUSHING CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT STAND BETWEEN TOWING VEHICLE AND IMPLEMENT WHEN HITCHING. ALWAYS ENGAGE PARKING BRAKE AND STOP ENGINE BEFORE INSERTING HITCH PINS OR SECURING LATCHES.**

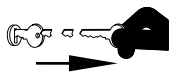
IMPORTANT

- *Before attaching tractor to ZONE-BUILDER subsoiler, check mast pins for any wear or damage. Replace any worn or damaged pins.*

Attach the unit to the tractor as specified in the tractor's operator's manual. Use the appropriate size hitch pins and lock in place.

Back the tractor up to the front of the implement and position the draft links in front of, and in line with, the lower hitch pins (Fig. 1-6).

Set parking brake, shut-off the engine and remove key from ignition before dismounting from tractor.



CAT 2 Standard (Optional On 2, 3 and 4 Shank Rigid Frame Models ONLY):

IMPORTANT

- When a category 2 standard hitch is used, an optional pin package (63869) must be installed. Refer to Fig. 3-6 for proper installation of pins.

LOWER LINKS: Install new pins.

TOP LINKS: Remove standard pin and insert new pin, and bushing into the lowest set of holes. Use existing klik pins.

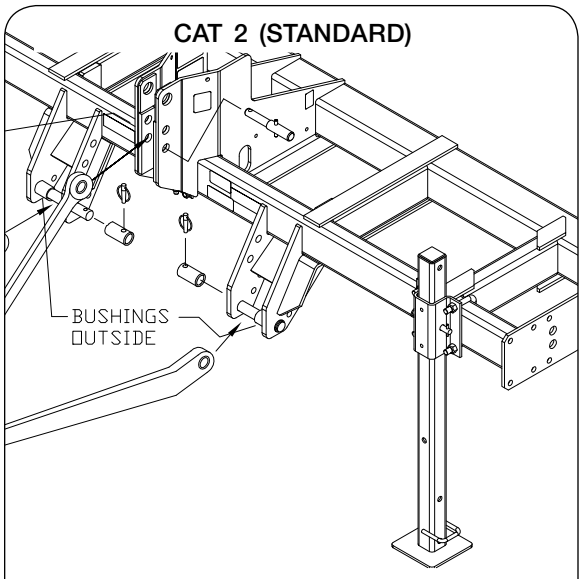


FIG. 3-6 OM-03606

Attaching To Tractor (continued)

CAT 3, CAT 3-N, CAT 4-N:

Connect the draft links to the front of the machine. Install pins and secure with klik-pins.

Position hitch bushings to match the tractor's lower link spacing. See figures 3-7 & 3-8. Adjust tractor's sway blocks as required. See tractor operator's manual.

FOR ALL RIGID - CAT 3 (STANDARD)

TOP LINK:
2, 3 & 4 Shank Rigid - Top Hole (CAT. III)
5 Shank & Larger Rigid & ALL FOLDING - Middle Hole (CAT. III)

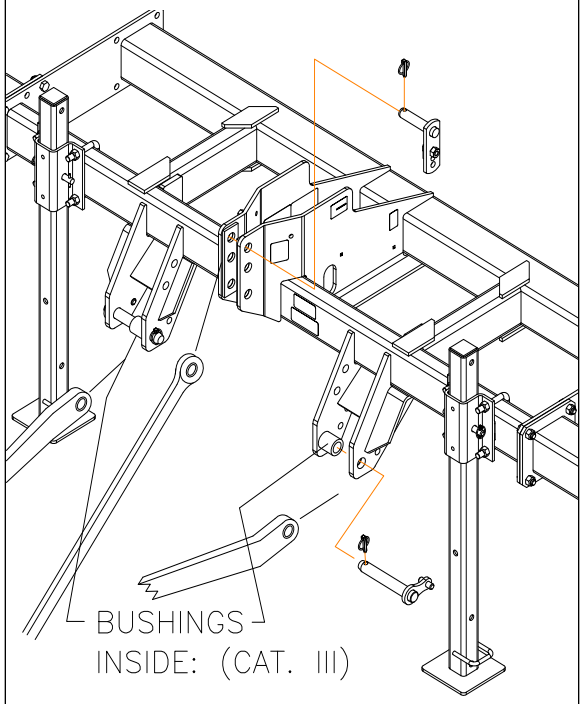


FIG. 3-7

FOR 5 SHANK & LARGER RIGID & ALL FOLDING - CAT 3, CAT 4

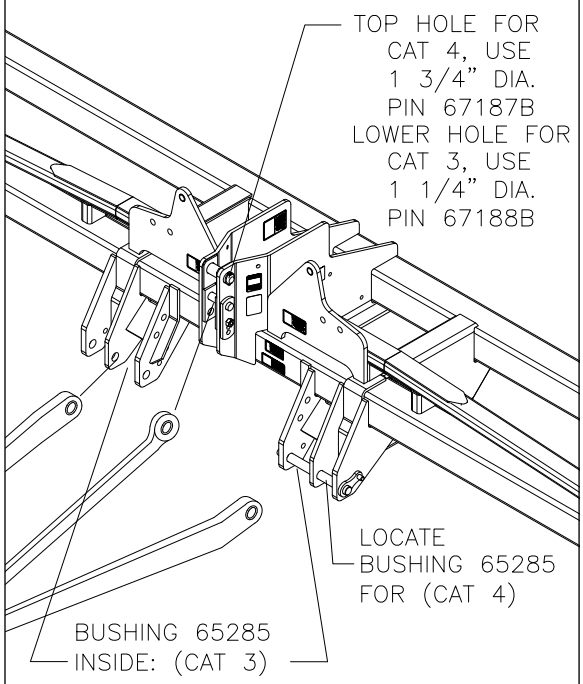


FIG. 3-8

Attaching To Tractor (continued)

Tractor With Quick Attach Coupler

⚠ WARNING

- **CRUSHING CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT STAND BETWEEN TOWING VEHICLE AND IMPLEMENT WHEN HITCHING. ALWAYS ENGAGE PARKING BRAKE AND STOP ENGINE BEFORE INSERTING HITCH PINS OR SECURING LATCHES.**

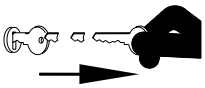
IMPORTANT

- Before attaching tractor to ZONE-BUILDER implement, check mast pins for any wear or damage. Replace any worn or damaged pins.

Lower the coupler to allow jaws to pass under mast and hitch pins.

Back the tractor to front of the implement until the jaws are under their respective hitch pins.

Set parking brake, shut-off engine and remove key from ignition before dismounting from tractor.



FOR 5-30 to 8-30 Rigid & 8-30 to 16-30 Folding CAT 3, CAT 3-N, CAT 4 (Standard on 16-30 ONLY), CAT 4-N

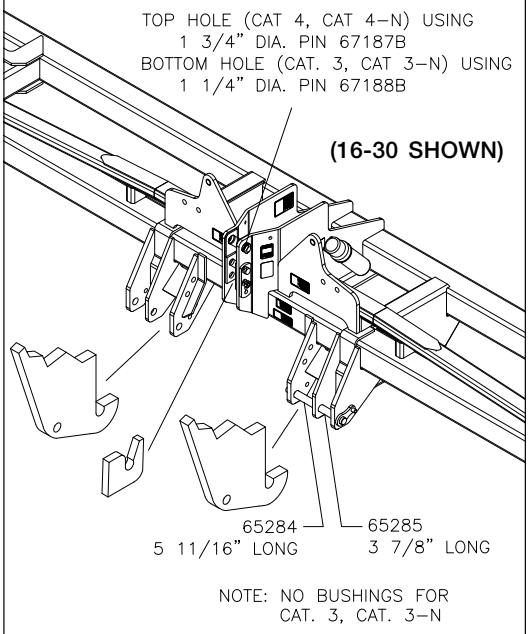
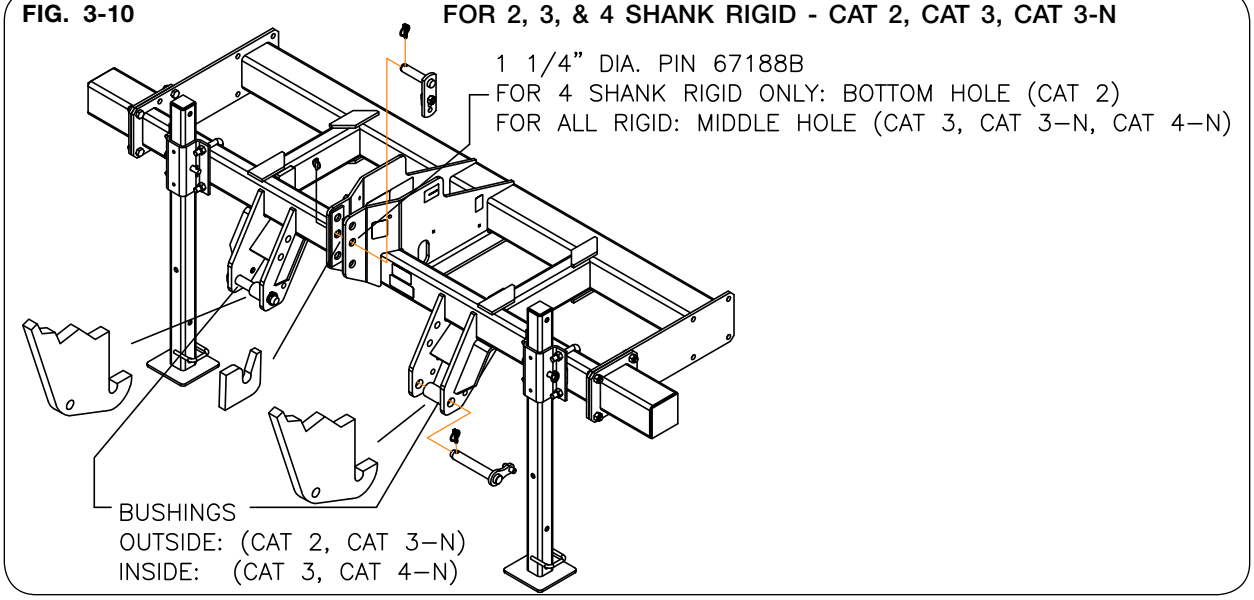


FIG. 3-9

FIG. 3-10

FOR 2, 3, & 4 SHANK RIGID - CAT 2, CAT 3, CAT 3-N



Folding Wings

WARNING

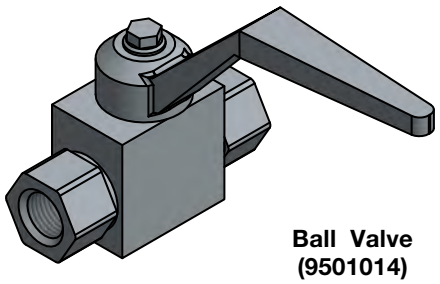
- **MOVING WINGS CAN CAUSE SERIOUS INJURY OR DEATH. KEEP AWAY FROM FOLDING AND UNFOLDING WINGS.**

Before folding wings, be sure markers are fully retracted and locked into transport position. On shear-bolt machines (Model 312) replace any shear-bolts that have sheared on any of the shanks located on the wings before folding wings.

Place the wing ball valves (9501014) in the "OPEN/WORKING POSITION" FIG. 3-11.

Raise unit to transport position. Fold wings so that the hydraulic cylinders are fully retracted.

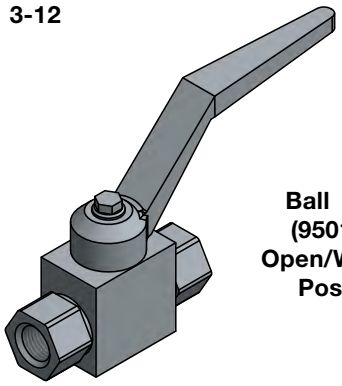
Place the wing ball valves (9501014) in the "CLOSED/STORAGE POSITION" FIG. 3-12.



Ball Valve (9501014) Closed/Storage Position

FIG. 3-11

FIG. 3-12



Ball Valve (9501014) Open/Working Position

Transporting

DANGER

- **ELECTROCUTION WILL CAUSE SERIOUS INJURY OR DEATH. THE ZONE BUILDER IS NOT INSULATED. KEEP AWAY FROM ALL ELECTRICAL LINES AND DEVICES. ELECTROCUTION CAN OCCUR WITHOUT DIRECT CONTACT.**

WARNING

- **INADVERTENT LOWERING OF WINGS CAN CAUSE SERIOUS INJURY OR DEATH. INSTALL WING TRANSPORT LOCKS BEFORE TRANSPORTING.**
- **USE TRANSPORT LIGHTS AS REQUIRED BY ALL LAWS TO ADEQUATELY WARN OPERATORS OF OTHER VEHICLES.**
- **ALWAYS TRAVEL AT A SPEED WHICH PERMITS COMPLETE CONTROL OF TRACTOR AND IMPLEMENT.**
- **TRANSPORTING THE IMPLEMENT SIGNIFICANTLY CHANGES THE WEIGHT AND BALANCE OF YOUR TRACTOR. MAKE SURE THE TRACTOR IS PROPERLY BALLASTED.**

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

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

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

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

Do not operate near electrical lines. Know height and width of implement.

For safe transporting of this implement, 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. Do not exceed 20 m.p.h. when transporting the implement on the highway.

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

Be sure SMV Emblem, lights and reflectors are in place and clearly visible to approaching traffic.

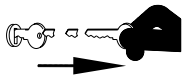
Unhitching From Tractor

⚠ WARNING

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN RAISING OR LOWERING.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**
- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

Select a firm, level surface for parking the machine. Lower all support stands to the same height. Lower unit with tractor's 3-point hitch until stands and shank points contact the ground.

Set parking brake and remove key from ignition before dismounting from tractor.



Place the wing ball valves (9501014) in the "CLOSED/STORAGE POSITION" on winged machines. Depressurize the hydraulic system according to tractor operator's manual.

WITH QUICK ATTACH COUPLER

1. Disconnect hoses (if applicable), release latches, lower 3-point and drive away slowly.

LESS QUICK ATTACH COUPLER

2. Disconnect hoses (if applicable), remove pins, lower 3-point and drive away slowly.

Leveling Frame

For best results, when leveling the implement, position the tractor with implement on a level floor. Check tractor tire pressure and inflate equally from side-to-side. See your tractor operator's manual for correct tire inflation pressure.

Side-to-Side Leveling

With the implement attached to tractor, raise the unit 1 to 2 inches off the floor. Shut-off engine and lock brakes on tractor. Measure to the bottom edge of the rear frame tube on each side of the machine. Frame will be level when dimension "A" is the same as dimension "B", Fig. 3-13. Level frame from side to side by adjusting the lift links on tractor 3-point hitch.

Before adjusting 3-point links see your tractor operator's manual for correct adjustment procedures and safety requirements.

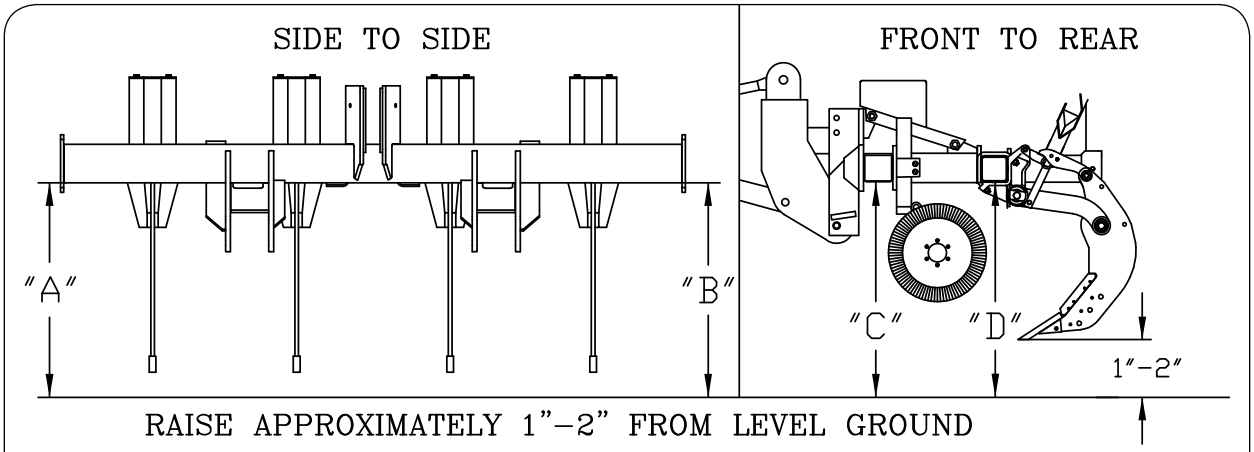


FIG. 3-13

Front-to-Rear Leveling

Before setting the coulter and stabilizer wheels it is necessary to level the frame from the front to the rear.

For initial adjustment keep the machine raised off the ground 1 to 2 inches (being sure bottom of shanks clear floor). Measure to the bottom of the front frame tube and the rear frame tube.

If frame is not level from front to rear with ground line, extend or retract the tractor top link until frame is parallel (or level) to the ground line. Frame will be level when dimension "C" is the same as dimension "D".

Before adjusting 3-point links see your tractor operator's manual for correct adjustment procedures and safety requirements.

Further front to back adjustment will be required once machine is operated in the field. When properly leveled, all shanks will enter the ground to a uniform depth.

Leveling Wings (7, 8, 9, 10, 11, 13 Shanks, & 12 Shank 30" Spacing)

Adjustment Procedures

Check for levelness of machine in the field. The wing tips should be operating at the same working depth as the center section of the machine. If the wing tips are running deeper than the center section, shims may be needed. Shims are provided for adjusting/leveling wing height in the field. The cylinder rod end must also be adjusted.

Determine shim requirements as follows:

Wing Tip Distance Below Level	Approximate Shim Thickness Required
1/2"	1/16"
1"	1/8"
1 1/2"	1/16" & 1/8"
2"	1/4"
2 1/2"	1/16" & 1/4"

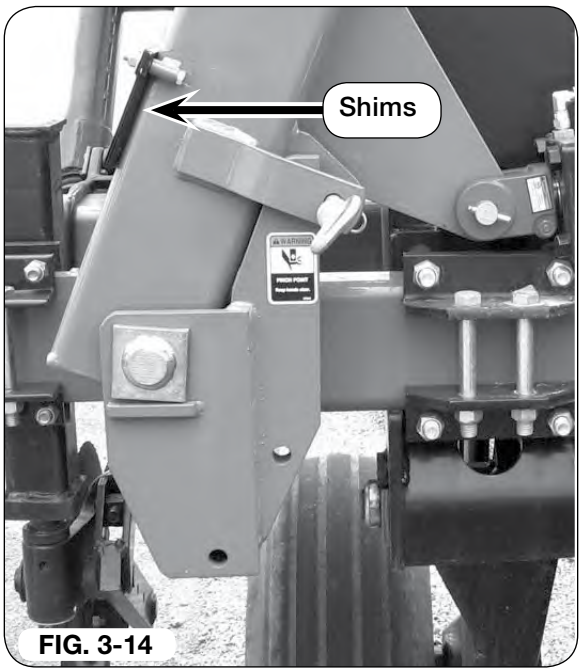
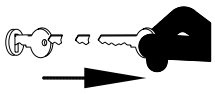


FIG. 3-14

Adjusting Cylinder Clevis End

Adjust the cylinder clevis end when installing the shims as follows:

1. Lower machine completely to the ground with the wings in the transport position and block securely. Set parking brake on tractor, release any pressure in hydraulic system, shut tractor engine off, and remove the ignition key.



2. Place the ball valve (9501014) in "CLOSED/ STORAGE" position as shown in Fig. 3-15.

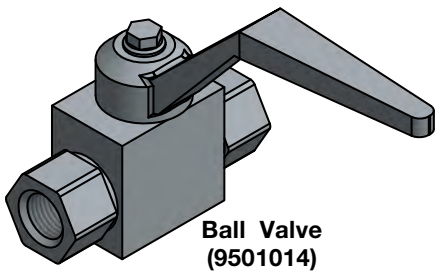

Ball Valve (9501014) Closed/Storage position

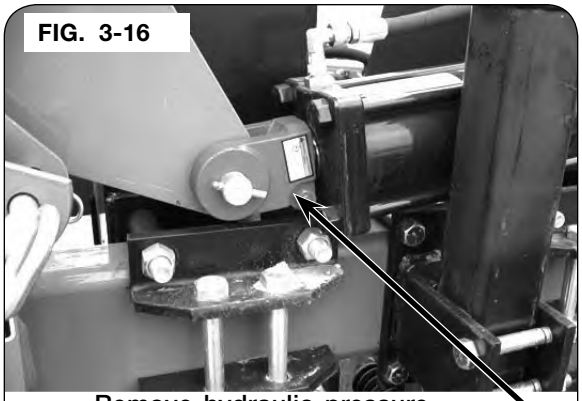
FIG. 3-15

Leveling Wings (7, 8, 9, 10, 11, 13 Shanks, & 12 Shank 30" Spacing) (Continued)

3. Relieve the cylinder pressure and remove the clevis pin (Fig. 3-16).

4. Swing cylinder up and block.

FIG. 3-16



Remove hydraulic pressure, then remove the clevis pin.

5. Loosen bolt and adjust clevis (Fig. 3-17).

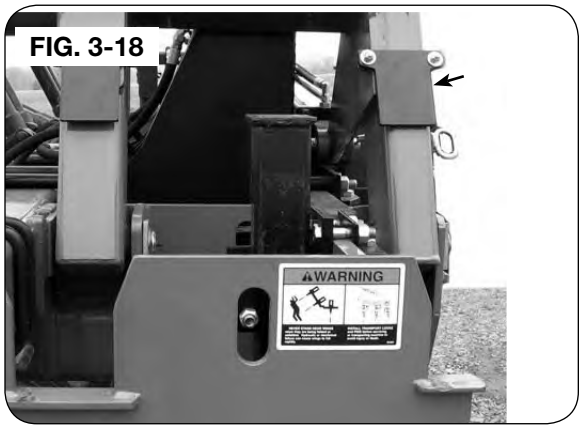
NOTE: The clevis DOES NOT need to be removed, only adjusted.

6. Adjust the clevis accordingly:
   FOR 8-30" & 12-30"
   4x24 Cylinder Retracted Length - 34 1/4
   FOR 16-30"
   5x36 Cylinder Retracted Length - 48 1/4
   Wing Tip Sag Up To 1"
   - adjust clevis 1/16" in from nominal
   Wing Tip Sag More Than 1"
   - adjust clevis 1/8" in from nominal

FIG. 3-17

Loosen bolt and adjust the clevis.

FIG. 3-18



Shim(s) being used should be placed against tube. Additional shims should be placed over the ones being used.

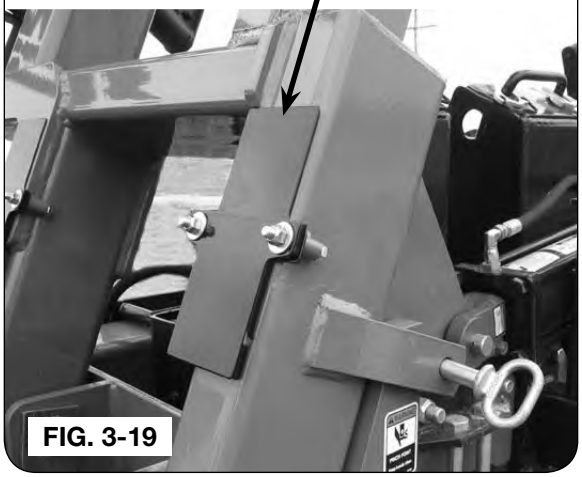


FIG. 3-19

Leveling Wings (12 Shank 36” & 38” Spacing & 16 Shank 30” Spacing)

Adjustment Procedures

CAUTION

- **SHIM KIT MUST NOT BE USED WITH OPTIONAL FLEX-FRAME HYDRAULICS.**

NOTE: Shims are used on 12 Shank 36” & 38” Spacing; 16 Shank 30” Spacing machines with the rigid wing hydraulic set up ONLY.

Check for levelness of machine in the field. The wing tips should be operating at the same working depth as the center section of the machine. If the wing tips are running deeper than the center section, shims may be needed. Shims are provided for adjusting/leveling wing height in the field. The cylinder rod end must also be adjusted.

Determine shim requirements as follows:

Wing Tip Distance Below Level	Approximate Shim Thickness Required
1/2”	1/16”
1”	1/8”
1 1/2”	1/16” & 1/8”
2”	1/4”
2 1/2”	1/16” & 1/4”

Hydraulic — Rigid/Standard Folding 12 Shank 36” & 38” Spacing; Folding 16 Shank 30” Spacing

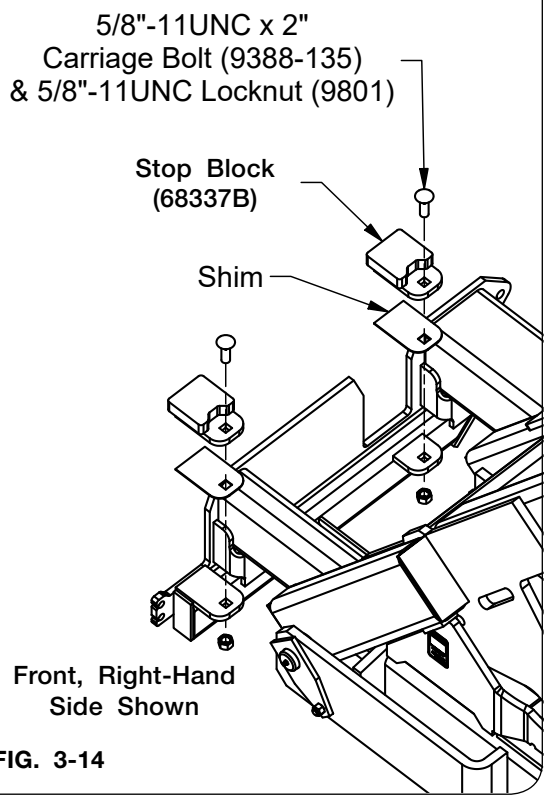


FIG. 3-14

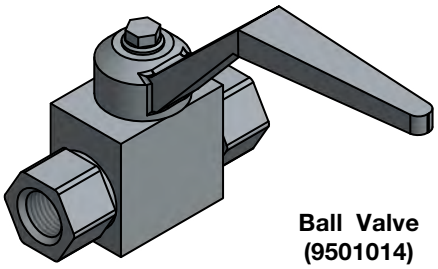
Unfolding Wings

To unfold the wings, place ball valve to OPEN/WORKING (handle in-line) position.

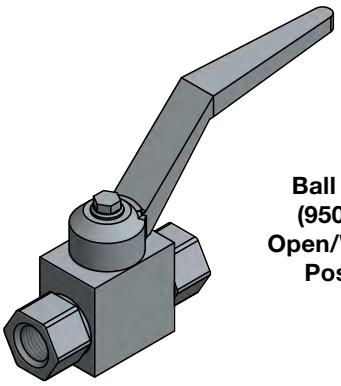
⚠ WARNING

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RAISING, OR LOWERING.**

Raise unit to transport position. Unfold wings so that the hydraulic cylinders are fully extended.



Ball Valve (9501014) Closed/Storage Position



Ball Valve (9501014) Open/Working Position

Flex Hydraulic (Optional) — Field Operation

The flex wing option features dual function cylinders that are designed with two separate chambers in one cylinder body. The longer 48" cylinder end folds the wings and allows wing flex. The shorter cylinder end activates wing tip-up for turning around on the ends.

The flex wing option allows wings to flex 5 degrees below center and 15 degrees above center. Relief valve cartridges inside the valve block assembly work with tractor hydraulics to allow the wings to float up or down in the field. Wing down-pressure can be added in difficult soil conditions where wing shank depth is not consistent.

IMPORTANT

- *If the Flex Frame Hydraulics are installed on the machine, the hydraulic valve operating the long end of the cylinder must run in FLOAT (no down pressure) or CONTINUOUS (down pressure active) to prevent potential cylinder damage. DO NOT operate the long end of the flex wing cylinder in NEUTRAL.*

Tractor SCV Settings

The implement flex frame option requires 2 sets of tractor SCV outlets.

Aux A and B Ports on Valve:

- The short end of the cylinder tilts the wings to level when turning on the ends of the field. This outlet is engaged at the same time as the machine raise to allow the wings to tilt up while the machine is raised and turning on the ends. This outlet also tilts the wings down when the machine is lowered. After the machine is fully lowered, the SCV for this function should be OFF. Set hydraulic flow to 6–10 GPM. Do not plumb this function into the lift/lower hydraulic circuit on the tractor.

Trac A and B Ports on Valve:

- The long end of the cylinder folds and unfolds the wings between transport position to field working position. During field operation, tractor hydraulics must be operated in FLOAT or CONTINUOUS (for down pressure) so the 48" cylinder rod can piston in/out when wings raise/lower with field contours.. Set hydraulic flow to 6–10 GPM.

Flex Hydraulic (Optional) — Field Operation

Unfolding

1. With the machine raised, ensure the wing tip-up end of the cylinders are fully retracted. These are the shorter of the two cylinder ends. If the rods are not retracted, engage the retract function on the SCV. (The hoses are connected to the Aux A / Aux B ports on the flex wing block)

2. Unfold the wings by extending the longer end of the cylinders. (The hoses are connected to the Trac A and Trac B ports on the flex wing block)

3. Put the longer end of the cylinders into either FLOAT or CONTINUOUS (for down pressure) in the extend direction on the tractor SCV.

Folding

⚠ CAUTION

- **HYDRAULIC VALVE MUST RUN IN FLOAT OR DETENT TO PREVENT POTENTIAL CYLINDER DAMAGE.**

1. With the machine raised, fully retract the tip-up end of the cylinders. (The hoses are connected to the Aux A / Aux B ports on the flex wing block)

2. Fold the wings by retracting the longer end of the cylinders. (The hoses are connected to the Trac A and Trac B ports on the flex wing block)

3. Relieve pressure from the hydraulic system. See the tractor operator's manual for the proper procedure.

Lowering Machine

1. Ensure machine is in the working position.

2. Lower the machine to working depth and extend the shorter wing tip-up cylinder end to lower the wings. Shut off the wing tip-up SCV once cylinders are fully extended. (Typical timer setting to disengage wing tip up is 4-5 seconds)

Raising Machine

1. Raise the machine from the soil and retract the shorter wing tip-up cylinder end to raise the wings to level. (Typical timer setting to engage wing tip-up is 4-5 seconds) Set that SCV to CLOSED.

Flex Hydraulic (Optional) — Field Operation (continued)

Down Pressure

1. If down pressure is required for the wings to properly follow field contours, place tractor hydraulics for the longer end of the cylinders to 8 GPM.

2. Set the hydraulics for the longer end of the cylinders to CONTINUOUS.

3. Refer to MAINTENANCE section of your owner's manual for adjusting wing down pressure.

NOTE: The lowering and raising procedure will remain the same.

Raising Subsoiler On Field Ends

Raise tractor 3-point on the end, and simultaneously activate SCV#1 to retract the short end of the cylinders to tilt wings to approximate level with main frame. (Timer may need to be adjusted from 4-5 seconds to match tractor 3-point speed.) Extend short cylinders when lowering machine back down to working position.

Primary Operating Procedure

⚠ CAUTION

- **HYDRAULIC VALVE MUST RUN IN FLOAT OR DETENT TO PREVENT POTENTIAL CYLINDER DAMAGE.**

Normally the tractor hydraulics for SCV#2 are set to float position during field operations to allow the wings to follow soil contours.

Alternate Operating Procedure

In difficult soil conditions where wing down pressure is required, place tractor hydraulics at 8 GPM in constant flow to apply controlled down pressure to the wings. Relief valve cartridges inside the valve block assembly allow the wings to float up or down in the field.

When raising/turning on field ends, simply retract the short cylinder chamber (SCV#1) to raise the wings to level.

Valve Down Pressure Adjustment

Refer to MAINTENANCE section "Adjusting Wing Down Pressure In The Field".

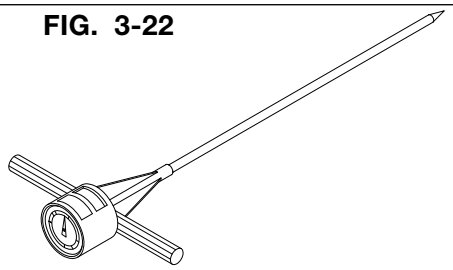
Preparing Implement

Depth of Penetration

Before adjusting the depth of your coulter and shank, first test your soil for the depth of the hardpan. For optimum performance from your implement, the penetration of the shank should be 2-3 inches below the hardpan. The hardpan is the area in your soil which acts as a barrier preventing the roots of your crops from benefiting from the water and nutrients below this area.

To determine the precise location of the hardpan, a "penetrometer" should be used (Fig. 1-20). For more information on this device, refer to your local Unverferth dealer or contact us, at Unverferth Mfg. Co., Inc.

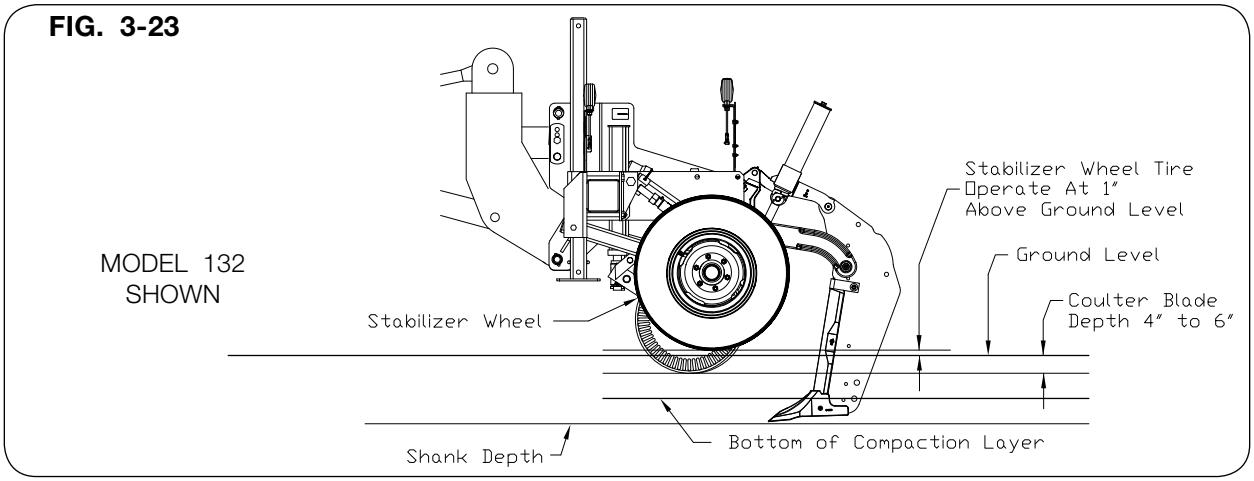
FIG. 3-22



An alternate method of locating the hardpan is to dig a hole to a depth of 24" or greater. Using a knife, slice the side wall of the hole vertically downward. You will be able to feel an increase in resistance upon entering the hardpan from the top. Repeat the knife slice from the bottom of the hole upward to determine the bottom of the hardpan.

Once the depth of the hardpan is determined, adjust the stabilizer wheels so that the shank will penetrate at least 2-3 inches below this barrier (Fig. 3-23).

FIG. 3-23



To adjust the stabilizer wheel, unpin the locking pin as shown in Fig. 3-24.

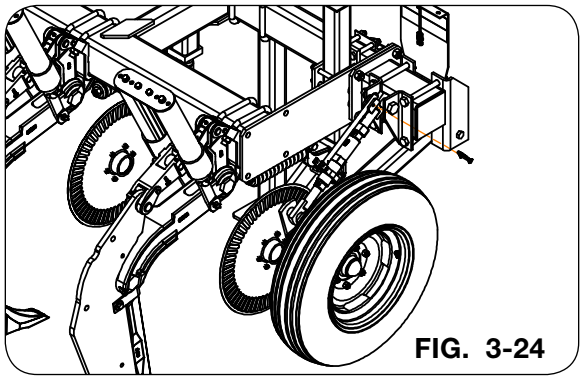
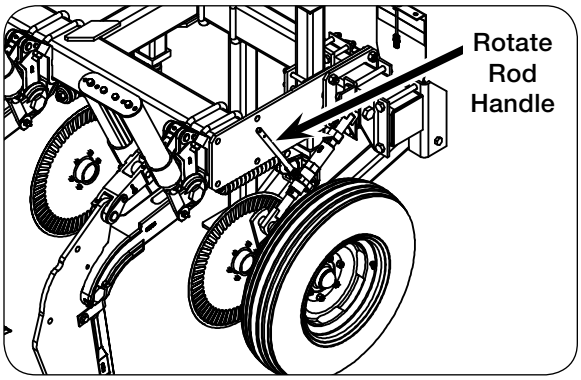
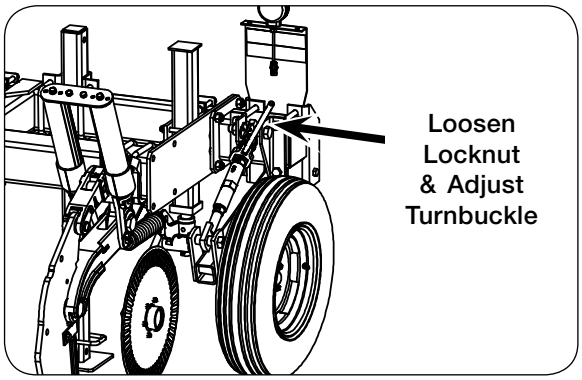


FIG. 3-24

Preparing Implement (continued)

Rotate the rod handle and insert the previously removed locking pin into the wrench plate and handle. Loosen the locking nut.





Rotate turnbuckle to the proper position (Fig. 1-21). To ensure proper depth, rest shank tips on a level surface.

Raise stabilizer wheel so that it is approximately 2-3 inches more than the determined depth of the hardpan, and retighten locking nut. Reposition handle back into the storage position and secure with the locking pin.

IMPORTANT

- *It is recommended that the stabilizer wheels are 1/2" to 1" off the ground during operation. This transfers more draft and weight onto the tractor rear tires for maximum traction.*

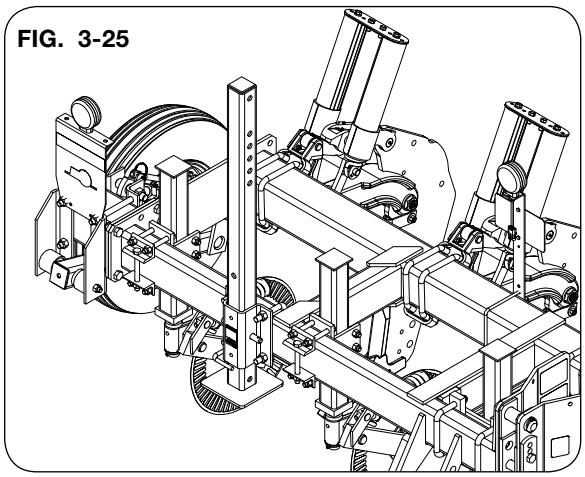
Support Stand

⚠ WARNING

- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN RAISING OR LOWERING.**

Before field operation can begin, support stands must be raised and locked into position. Raise unit into transport position and raise support stand by removing pin, raising the support stand and reinstalling the pin into the bottom hole (Fig. 3-25).

FIG. 3-25



Shanks

Your shanks can be adjusted horizontally for proper alignment.

Horizontal Adjustment (All Models)

⚠ CAUTION

- **ENSURE SHANKS HAVE BEEN GREASED PRIOR TO INITIAL USE.**

When positioning shanks from side-to-side, loosen hardware so that shank can be moved. When repositioned, be sure to securely tighten hardware.

NOTE: For proper positioning, refer to layouts in SETUP section.

NOTE: Be sure to align coulter and shank. Failure to do so may result in plugging and excessive surface ground disturbance.

NOTE: For Models 112 & 132 torque 3/4" shank mounting V-bolts to 240 ft. lbs. Do not over or under tighten.

NOTE: For Model 122 torque 3/4" & 7/8" shank mounting bolts to 230-250 ft.-lbs. Do not over or under tighten.

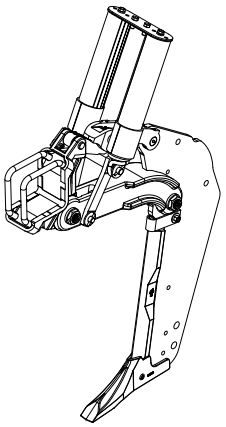


FIG. 3-26 OM-03697C

Re-Setting a Tripped Shank

⚠ DANGER

- **SUDDEN MOVEMENT OF A TRIPPED SHANK WILL CAUSE SERIOUS INJURY OR DEATH. STAY AWAY FROM A TRIPPED SHANK.**

In some cases, an auto-reset (Model 132) shank may not reset after striking a rock or buried obstruction. The shank springs store a tremendous amount of energy; keep all persons away from a tripped shank.

Follow this procedure to reset a tripped shank:

For Model 132 (Auto-Reset Shank):

1. Lower the unit into the ground and pull forward until the point of the tripped shank contacts the soil surface.
2. Torque front and rear pivot bolts to 250-300 ft-lbs. See Fig. 3-27. Loosen 1/2 turn. Keep all persons away from the shank, pull forward and raise the machine. The shank should automatically reset.
3. If the shank does not reset, re-insert the machine into the ground, as in Step 1. Loosen the pivot bolts another 1/4 turn. Clear all bystanders, pull forward and raise the machine. The shank should automatically reset. If it does not, repeat this procedure until it does.
4. After shank has reset, inspect trip mechanism and pull arm for wear or damage that would cause the malfunction. Replace components as needed. Re-torque pivot bolts to 250-300 ft-lbs. then loosen front pivot bolt 1/4 turn. Check shank for side play and retighten as required to minimize lateral movement.

Shanks (continued)

Lower Pull Arm (Model 132)

(AFTER INITIAL BREAK IN PERIOD)

After an initial break-in period (approximately 20 acres per shank) it may be necessary to retighten the pivot nuts (Fig. 3-27) to eliminate side to side movement of shank.

Proceed as follows:

1. With machine sitting firmly on the ground, tighten both (front & back) pivot nuts to 225-275 ft. lbs.
2. Loosen front pivot nut 1/4 turn.
3. Check for side play in shank (by prying on back of shank laterally to check for side to side movement). When properly adjusted, shank should have little side to side movement.

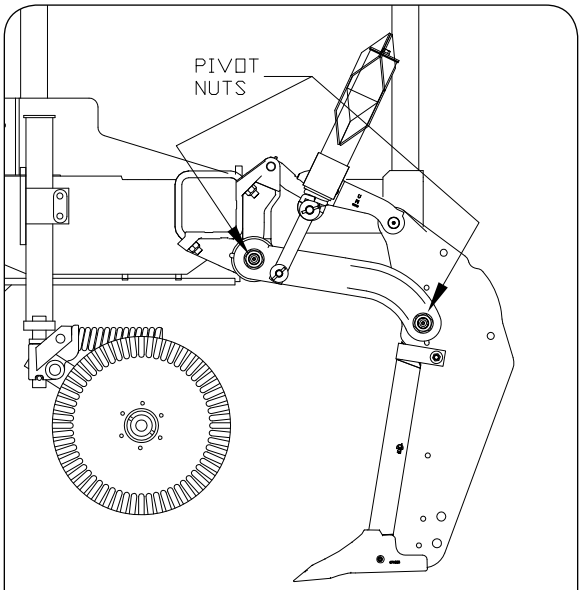


FIG. 3-27

Toggle Shim (Auto-Reset - For Model 132 Only)

In severe conditions where rocks or stumps are present, it may be desirable to reduce your point load (to allow the shank to trip easier), to minimize the number of objects pulled to the surface. Shims are available see MAINTENANCE section.

Coulters

Combo® Coulter

Your heavy-duty Combo coulter is designed to cut residue and to start an initial cut for the shank. The Combo coulter can be adjusted vertically for depth.

Vertical Position

To adjust the vertical positioning refer to the following steps:

⚠ WARNING

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

1. Determine how deep the shank will operate (page 3-18).
2. Lower the implement, machine should be level, shank points resting on the ground.

Coulters

3. The coulter blade will operate 4-6" deep in the soil: If desired, the coulter may run as deep as the flange of the hub. Subtract the blade working depth from the shank working depth. (i.e. - If the shank operates 14" deep, coulter blades 5" deep, distance from the ground to the bottom of the blade should measure 9"). Adjust coulter height accordingly.

NOTE: Folding machines operating at maximum shank depth may require coulters to be raised, exposing more of the coulter mounting post. To avoid interference and damage to components when folding, cut 6” off the coulter post on each end of the base machine (only on 8/10/12 shank machines). In these cases also order bolt-on dust cap #60677, capscrew #9390-067, and locknut #9928 for each modified coulter.

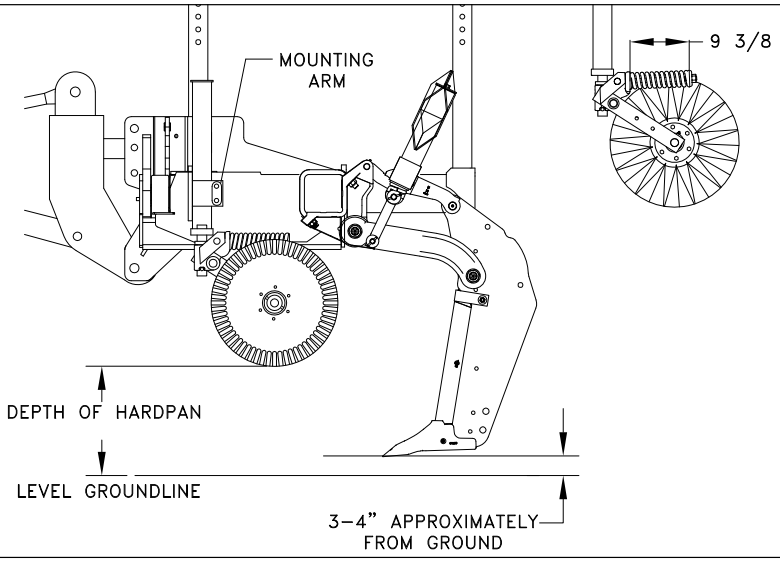


FIG. 3-28

4. After positioning, retighten hardware and be sure depths of all Combo coulters are the same.

NOTE: Recommended Combo coulter depth is between 3-6”. If rocks are present in fields, shallower depths should be used.

NOTE: Wavy Blades, in lieu of straight blades, can be used on the front coulter. These blades help to cut the soil deeper ahead of the shank resulting in less soil disturbance.

The coulter springs are preset at the factory at 9 3/8”. This measurement is the total amount of exposed spring.

NOTE: Adjusting the spring below 9 3/8” could cause premature part failure and void any warranty considerations.

Coulters (continued)

Procedure For Reversing Rear Coulters

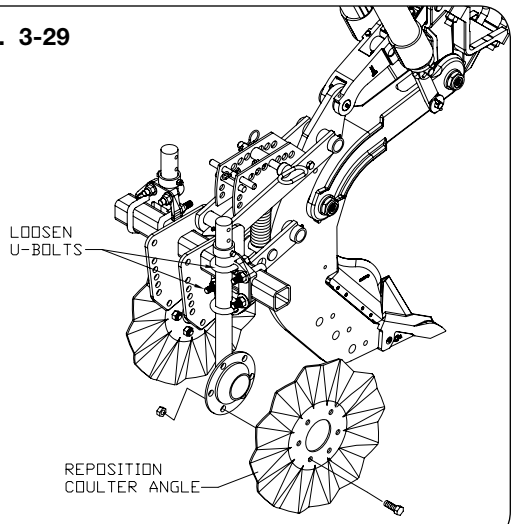
Refer to "Rear Coulter Assembly Adjustments" in SETUP section for additional information, if unit is set up with pull type option or planter attachment.

IMPORTANT

- *On units with 30" row spacing the rear coulters cannot be reversed if unit is set up with pull-type option or planter attachment, or stabilizer wheels are installed between shanks. (If stabilizer wheels are installed between shanks relocate stabilizer wheels to outside of machine before reversing coulters).*

1. Disassemble blade from the hub.
2. Loosen the four 5/8"-11UNCU-bolts (95883) holding the coulter unit in place.
3. Rotate coulter hub 180°.
4. Move the coulter toward the inside until the casting is against the frame.
5. Reposition coulter angle and retighten all U-bolts (95883).
6. Reattach the blade to the hub. Tighten all hardware to torque chart in MAINTENANCE section.

FIG. 3-29



7. Repeat procedure on other side of the stripper unit.

Coulters (continued)

Rear Coulter

NOTE: Level the main frame in field working position from front-to-back and side-to-side before beginning any adjustments.

Rear Coulter Spring Pressure

The rear coulter pressure can be adjusted by placing the hitch pin in the appropriate hole (Fig. 3-30).

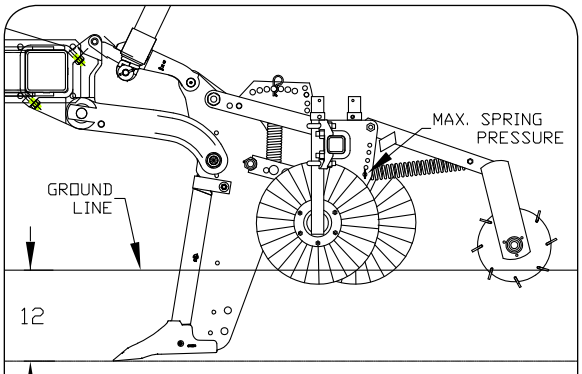


FIG. 3-30

Working Depth

The rear coulter depth can be adjusted by placing pin and hair pin in the appropriate hole (Fig. 3-31).

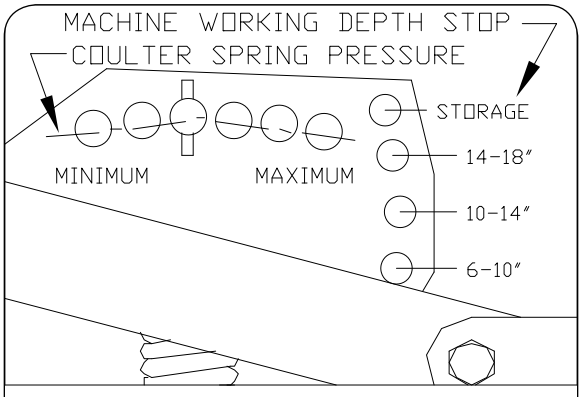
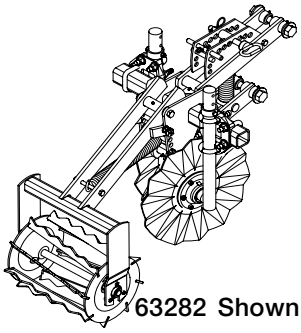


FIG. 3-31 OM-02812

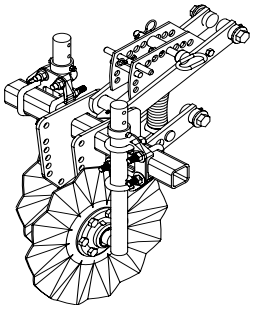
Attachments (Optional)

Strip-Builders with Rolling Harrow basket
63282 - wavy blades with straight 15" RH basket
66184B - notched concave blades with straight 15" RH basket
66185B - notched concave blades with concave 15" RH basket
66186B - notched smooth blades with straight 15" RH basket
66187B - notched smooth blades with concave 15" RH basket



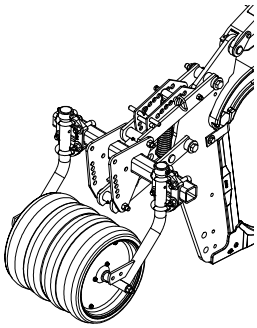
63282 Shown

Strip-Builder Less Rolling Basket (63954)

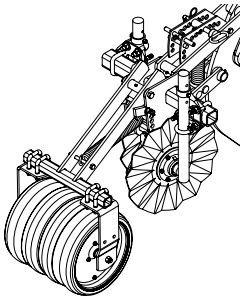


Several additional Strip-Builder attachments are available. Please contact your Zone-Builder dealer for additional information.

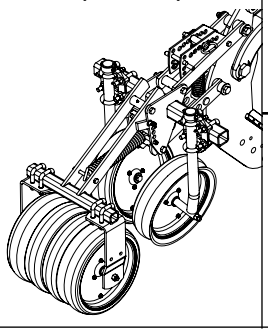
Zone-Firmer With 4 Press Wheels (68082B)



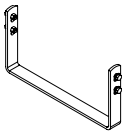
Strip-Builder w/Zone-Firmer 4 Press Wheels (65250B)



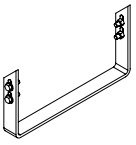
Zone-Firmer 4-Press Wheel w/ Angled Press Wheels (65249B)



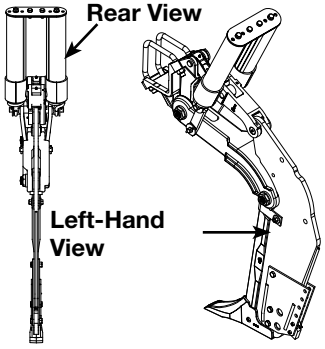
Scraper Kit (65264B) For 4-Wheel Rear Zone-Firmers (65250B & 65249B)



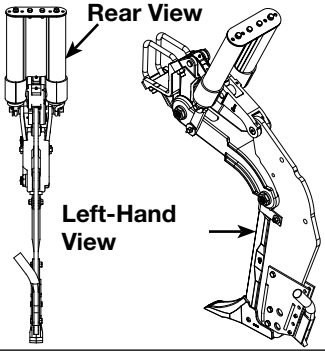
Scraper Kit (68083B) For 4-Wheel Zone-Firmer (68082B)



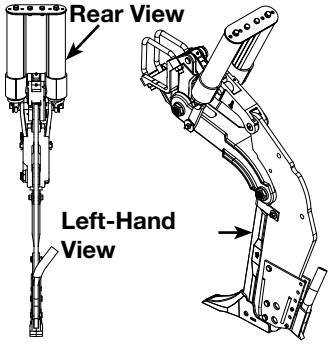
Liquid Fertilizer Attachment Complete With Shank Protector Plates 65346B



Dry RH Fertilizer Attachment Complete With Shank Protector Plates 65583B

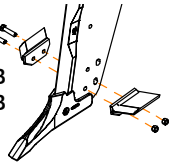


Dry LH Fertilizer Attachment Complete With Shank Protector Plates 65584B

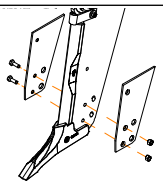


SHATTER WINGS

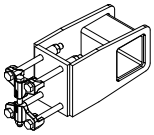
7"—67691B
9"—67692B



Shank Protector 64080



16" Stagger Kits 66952B



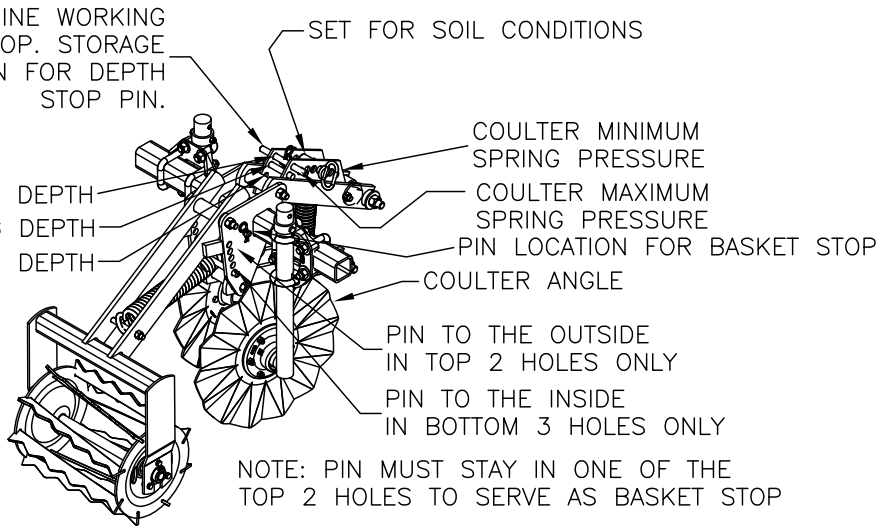
OTHER ATTACHMENTS & ACCESSORIES (NOT SHOWN):

- Semi-Mounted Lift-Assist Wheels
- Rolling Harrow Leveler
- Mounted Integral Planter Mounting Arm Kit
- 3-Point Implement Caddy
- Lift-Assist Package For 3-Point Units
- Double Coulter Tool Bar
- Row Cleaner for Lead Coulter
- Rear Pull Hitch • Spike Drum

Attachments (Optional) (continued)

Strip-Builders & Zone-Firmer 4-Wheel Press Wheels

FIG. 3-32



STRIP-BUILDER w/STANDARD ROLLING BASKET & WAVY BLADE (63282) - SHOWN

Adjustments For Optional Strip-Builder Units

After adjusting machine for levelness and working depth, the following adjustments should be made to your strip-till units.

1. Set working depth of unit to match machine working depth.

2. Set coulter spring pressure according to soil conditions.

IMPORTANT

- *The 2 1/2" cross tube on the Zone Firmer frame must be trimmed to permit clearance with some other attachments (e.g., lift-assist wheels, rear hitch, etc.). See operator's manual on these attachments for modification procedures.*

NOTE: The coulter spring pressure setting will influence the coulter working depth. If less down pressure is required, the lower spring trunnion can be relocated to the rear hole to decrease spring pressure.

3. Adjust coulter angle if necessary.

NOTE: Coulter angle is pre-set at 9° at factory, this should provide good soil flow, without excess ridging. Reducing angle will minimize soil flow and disturbance.

NOTE: The Coulter spring pressure may need to be readjusted, if coulter angle is changed.

NOTE: Coulters may be spaced wider to pull more soil into the strip. In addition, coulter angle may be increased to aid in the aggressiveness of these coulters. If additional working width is desired, see "Procedure for reversing rear coulters" in the SET UP Section.

Attachments (Optional) (continued)

IMPORTANT

- *If adjusting coulters outward (to increase strip working width) be sure to check clearance between stabilizer wheel tires and coulter blades. Maintain minimum of 2-3" clearance between coulter blades and tire at all times.*

- *On units with 30" row spacing the rear coulters cannot be reversed if unit is set up with pull-type option or planter attachment, or stabilizer wheels are installed between shanks. (If stabilizer wheels are installed between shanks, relocate stabilizer wheels to outside of machine before reversing coulters).*

NOTE: 20" wavy coulter blades are furnished on the front coulter. These blades help to cut the soil deeper ahead of the shank resulting in less soil disturbance.

4. **For attachment with baskets, set rear basket or firmer wheels spring pressure, according to soil conditions.**

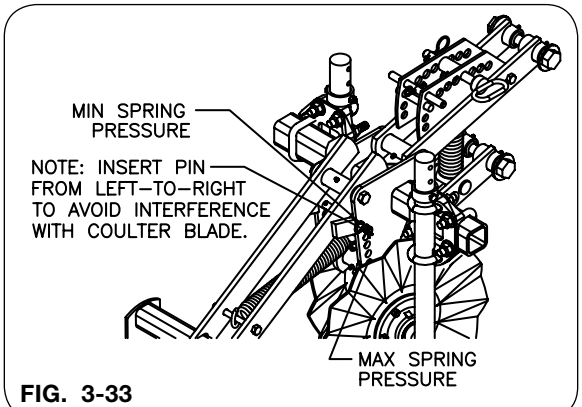
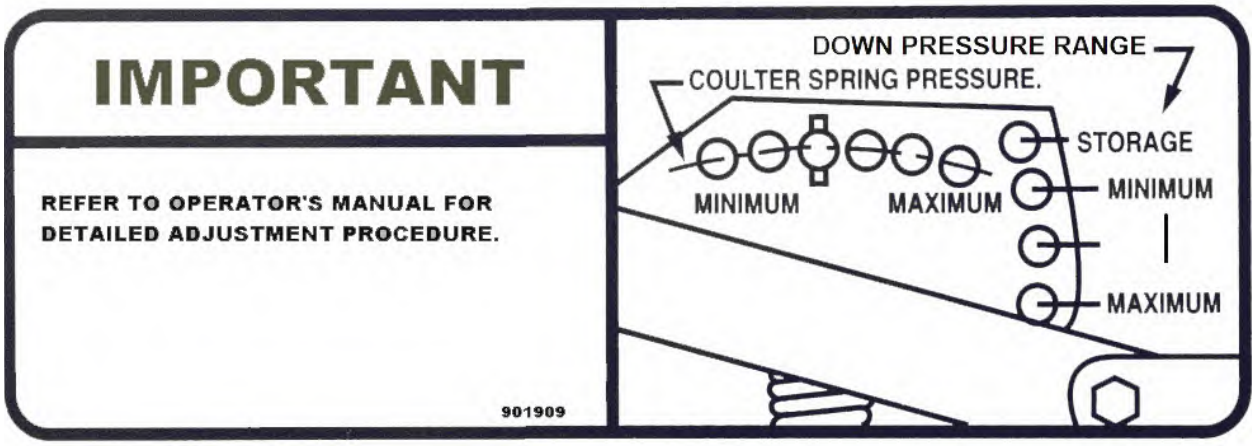


FIG. 3-33



Attachments (Optional) (continued)

Zone Firmer Assemblies (68082B)

Adjustments For Zone Firmer (Optional)

After adjusting machine for levelness and working depth, the following adjustments should be made to your Zone Firmer units:

1. Set working depth of unit to match machine working depth.

2. Set Zone Firmer down pressure according to soil conditions.

IMPORTANT

- *The 2 1/2" cross tube on the Zone Firmer frame must be trimmed to permit clearance with some other attachments (e.g., lift-assist wheels, rear hitch, etc.). See operator's manual on these attachments for modification procedures.*

NOTE: 20" rippled coulters are available on the front coulter. These blades help to cut the soil deeper ahead of the shank resulting in less soil disturbance.

3. If additional down pressure is desired, the lower spring trunnion can be relocated to front hole to increase working pressure (Fig. 3-35).

4. Adjust scraper bar (64970B) as close as possible to the firming wheels without making contact.

NOTE: Be sure to rotate wheel 360° to make sure contact between scraper bar and firmer wheels is not too tight or loose and to check wheel shape for any distortion.

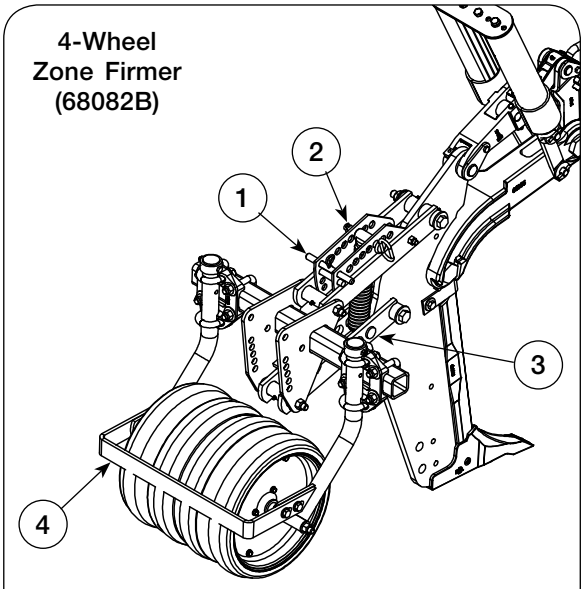


FIG. 3-35

Attachments (Optional)

Leveler Attachments

Height Adjustment & Working Depth

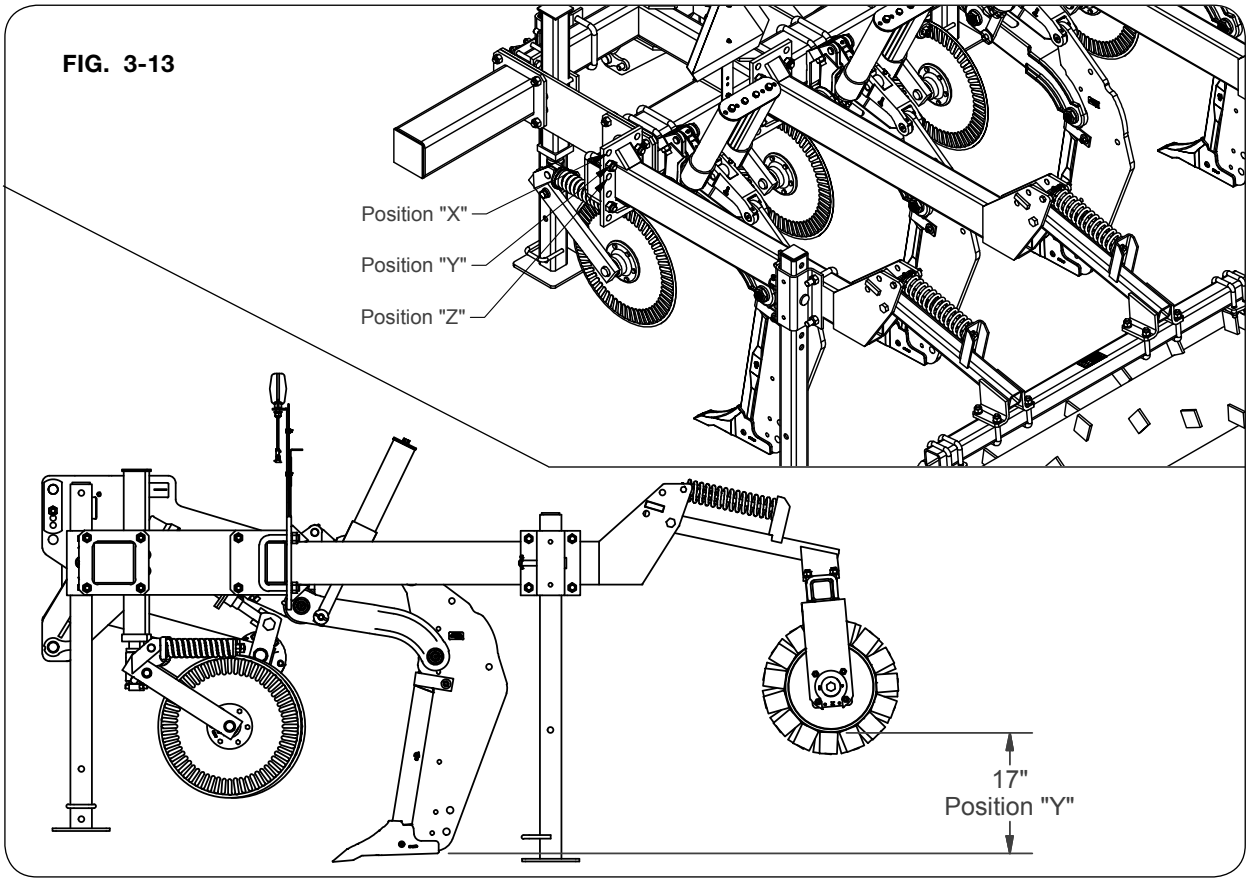
To adjust the height, lower the subsoiler to the ground, remove the 7/8-9UNC U-Bolt (97582) which attaches to the rectangular tube to the arm. Reassemble at the desired height.

Position “Y” in Fig. 1 is the standard assembly position. Additional adjustment is provided (Position “X” & “Z”) to allow the Rollers working height to be raised in the field. These positions allow more working depth, yet still maintaining the normal working action from the rolling harrow.

Typically, the Rolling Finisher should run in 3”-4” of worked soil behind the shanks. Use the alternate mounting positions to adjust finisher height to best match shank working depth.

Arm Mounting Position	Working Depth Range
	Less Tube Spacer
X	12-15”
Y	15-17”
Z	17-19”

FIG. 3-13



Attachments (Optional) (continued)

Shatter Wings (67691B)

This option can be set to operate in either of the 2 locations provided.

For Minimum Disturbance Of Top Soil
Position shatter wings in the lower location with wings set in the flat position.

For Maximum Disturbance Of Top Soil
Position shatter wings in the upper location with wings set in maximum up position.

For Increased Soil Disturbance
Adjust the angle of the wings by loosening the 1/2”-13UNC x 2 1/4” Lg. capscrews and pivoting wings to desired angle. Retighten capscrews to torque chart in MAINTENANCE section.

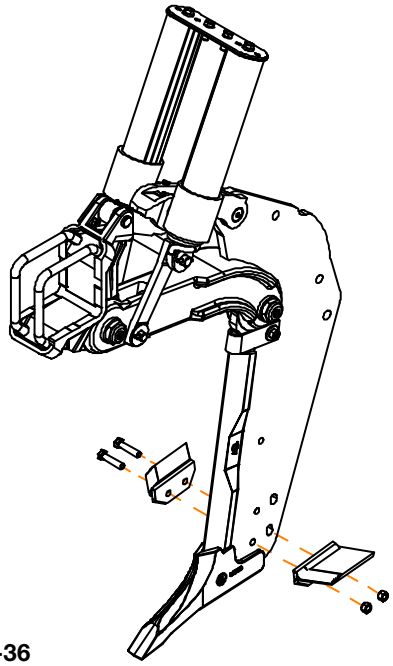
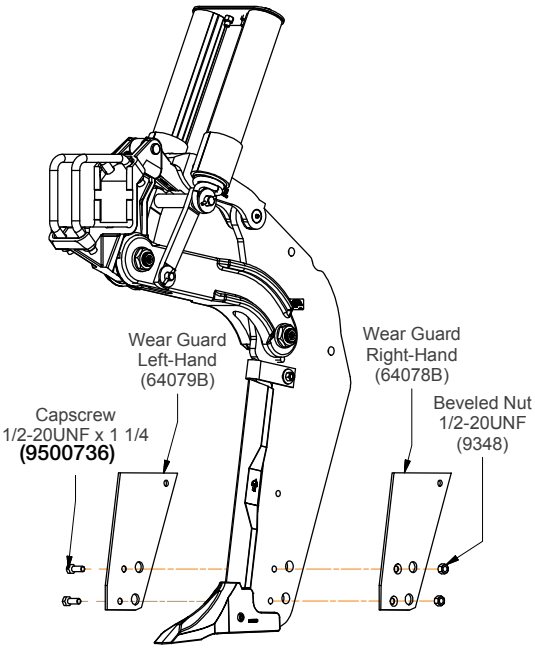


FIG. 3-36

Shank Protector Kit (64080)

This option adds to the shank life.



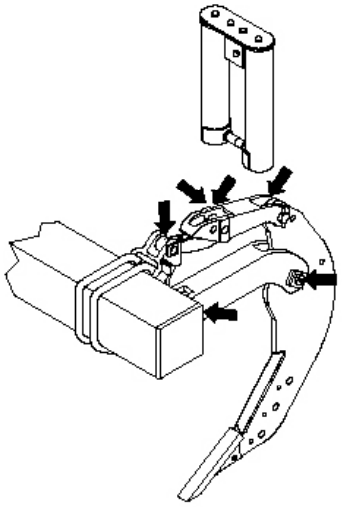
SECTION IV
Maintenance

Lubrication Points

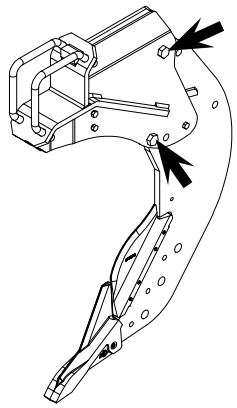
LOCATION	SEASON		HOURS
	BEGINNING	END	
AUTO-RESET SHANK (Model 132) - 6 lube fittings; grease gun	✓	✓	8*
SHEAR-BOLT SHANK (Model 112) - 2 pivot pins; oil can	✓	✓	8*
SPRING-CUSHION SHANK (Model 122) - 2 lube fittings; grease gun	✓	✓	8*
BASE WING HINGE POINTS - 4 lube fitting; grease gun	✓		
STABILIZER WHEEL HUB - repack bearings	✓		
COMBO® COULTER ARM - 1 lube fitting; grease gun - repack bearings	✓	✓	8
COULTER HUB - repack bearings	✓		50
ROLLING HARROW FRAME - 1 lube fitting; grease gun	✓	✓	8*

* This figure can vary depending on the frequency of shanks tripping. The figure shown is based on normal conditions.

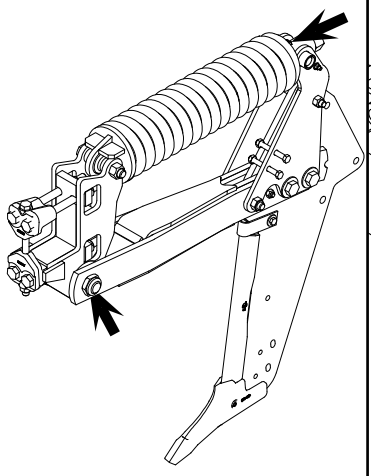
AUTO-RESET SHANK



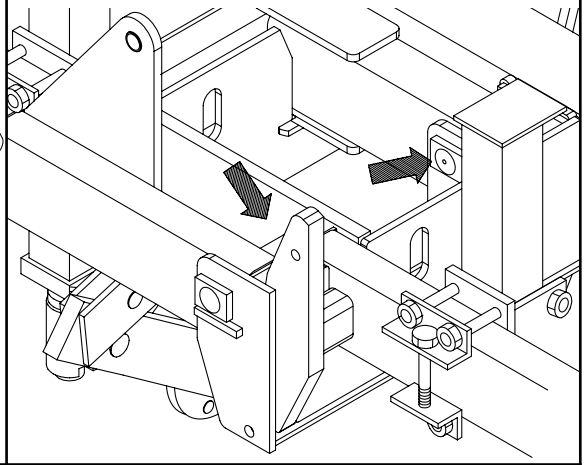
SHEAR-BOLT SHANK



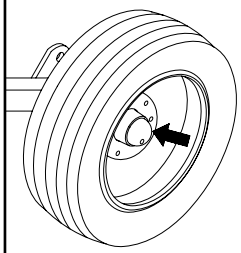
SPRING-CUSHION SHANK



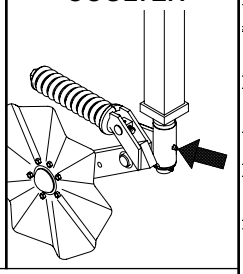
BASE WING HINGE POINTS



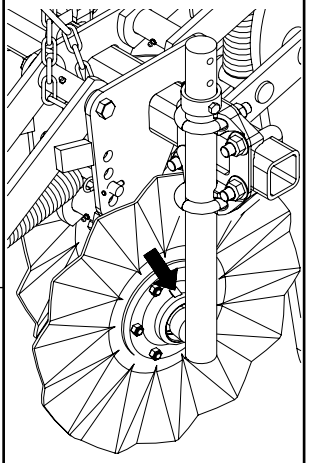
STABILIZER WHEEL HUB



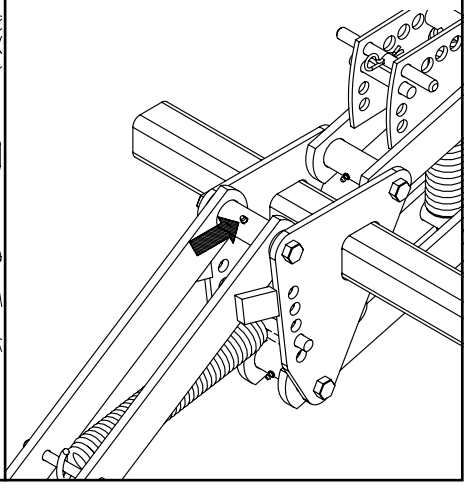
COMBO COULTER



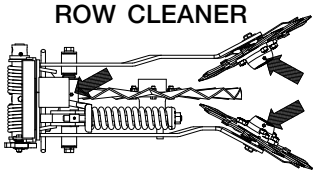
COULTER HUB



ROLLING HARROW FRAME



ROW CLEANER



Daily Service

Beginning of Day

NOTE: Before initial use, ensure all lubrication points have been greased.

Check all U-bolts and bolts for tightness. This is especially important during the first days of operation. See “Torque Chart” in this section.

IMPORTANT

- *Inspect mast pins for any wear or damage. Replace any worn or damaged pins.*

Perform any daily lubrication outlined in “Lubrication” in this section.

Check stabilizer tire air pressure and inflate to correct pressure, if necessary.

IMPORTANT

- *To assure level penetration of shanks, both tires must be inflated to the same pressure.*

Tighten deep till pivot bolts/nuts after the initial 50 acres to remove side play (Fig 4-1).

Tighten until side-to-side play in shank is eliminated. Do not over-tighten. Over-tightening will prevent shank from freely resetting after tripping.

Before adjusting see OPERATION section for procedures.

NOTE: Re-check torque of pivot nuts (225-275 ft.-lbs.) on shank assembly after initial 20 acres, again daily during the first week of operation, due to initial wear in casting. After first week, check annually.

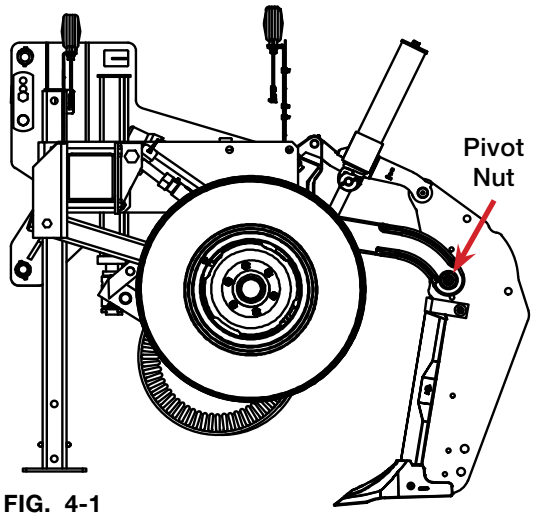


FIG. 4-1

End of Day

Clean off dirt and residue which may have accumulated on implement during operation.

Check implement for damage which could have occurred during operation, and repair.

Annual Service

Beginning of Season

WARNING

- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW "SAFETY" SECTION IN THIS MANUAL IF NECESSARY.**

Check all bolts, U-bolts, and wheel bolts for tightness. Refer to “Torque Chart” in this section.

Lubricate implement (see “Lubrication” in this section).

Check air pressure in tires and inflate to correct pressure if necessary (see “Daily Service” in this section).

End of Season

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.

Perform the following before placing the implement in storage:

1. Remove dirt and residue which could cause rusting.
2. Repaint any chipped or scraped areas.
3. Lubricate implement (see “Lubrication” in this section).
4. Coat all earth moving surfaces with grease or suitable rust preventatives.
5. Inspect for damaged parts. Replace before next season.
6. Store implement inside, away from livestock.
7. Use blocking to keep implement tires and points up off bare ground.
8. Replace all worn, torn or faded decals and reflectors.

Wear Bar & Point Replacement - All Models

The shanks have a replaceable wear bar and point which, after a period of time, will need to be replaced (Fig. 4-3). To replace these components on your machine, refer to the following guidelines:

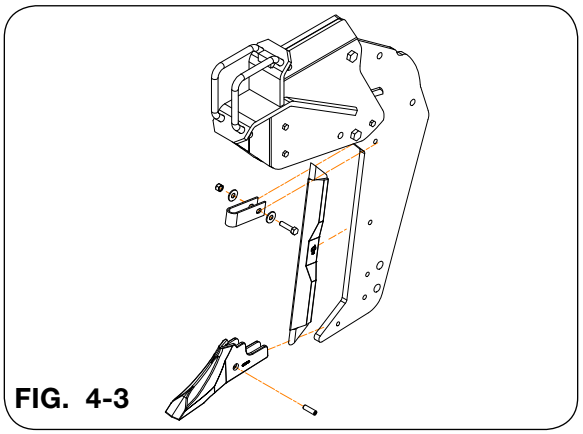


FIG. 4-3

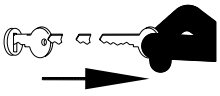
⚠ WARNING

- **BE SURE THAT THE IMPLEMENT IS SECURELY BLOCKED TO PREVENT FALLING. FAILURE TO DO SO COULD RESULT IN INJURY OR DEATH. CHANGE ONLY ONE SHANK AT A TIME. IF PRESSURE IS RELIEVED ON ALL SHANKS, UNIT COULD TIP OVER BACKWARDS.**

⚠ CAUTION

- **WEAR BAR IS RETAINED TO THE SHANK BY THE POINT. SECURE THE WEAR BAR AS THE POINT IS BEING REMOVED TO PREVENT PERSONAL INJURY.**

With Zone-Builder implement attached to a tractor, find a firm level surface and unfold the wings if applicable. Lower the unit's jack stands until they are 1-2 inches below the points, and lower machine to the ground so that the stands support the entire implement and all points are off ground. Shut off tractor engine, set parking brake, and remove the ignition key.



Wear Bar Replacement

1. Remove the capscrew, flat washers, strap, and locknut in order to remove the wear bar.

NOTE: The wear bar is locked into the point. Remove the point roll pin. Hold onto the wear bar and remove the point first, then the wear bar. (Reverse procedure for assembly.)

2. Replace with new wear bar (67034B) and secure into top of point and mounting strap on top.

NOTE: The wear bars are reversible and should be rotated or replaced often for maximum life of shank.

Point Replacement

1. Drive out the spiral pin that secures the point.
2. Replace worn point with new point (67949B or 67948B) and install new spiral pin (91144-234) to securely hold point in place.

IMPORTANT

- *Periodically check the lower half of the shank for wear - excessive shank wear will occur if point and wear bar are not replaced (or reversed).*

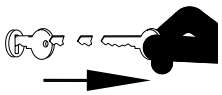
Auto-Reset Shank Replacement — Model 132

The Auto-Reset shank consists of 3 important components: Spring Mechanism Toggle Components, Shank Weldments, and Lower Pull-Arm. If service is required to any of these components, proceed as follows:

⚠ WARNING

- **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 300 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 IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **STORED ENERGY HAZARD. WHEN SPRING PRESSURE IS RELEASED, THE SPRING TUBES CAN PIVOT CAUSING SERIOUS INJURY. ALLOW SPRING CANS TO ROTATE BACKWARDS AND REST INTO POSITION.**

1. With Zone-Builder implement attached to a tractor, find a firm level surface and unfold the wings if applicable. Set the unit's jack stands so they are 1-2 inches below the points, and lower machine to the ground so that the stands support the entire implement and all points are off ground. Shut off tractor engine, set parking brake, and remove the ignition key.



2. If attachments are on back of the shanks, remove them before proceeding. See Attachment sections of this operator manual.

NOTE: Grease all lubrication points after servicing components.

IMPORTANT

- *After disassembly of all shank components, clean and inspect all parts for damage or wear. Replace any damaged or worn parts before reassembly. Refer to "Auto-Reset Shank" in Parts Section.*

Auto-Reset Shank Replacement — Model 132 (continued)

SPRING MECHANISM TOGGLE COMPONENTS:

3. Remove all tension from springs by removing capscrews.

IMPORTANT

- *To prevent binding and possible damage, remove spring pressure equally and evenly from side to side.*

4. Remove capscrews holding top plate. Remove top plate and set aside.

5. Remove pin holding lower end of spring (use caution, springs may fall to the ground). Observe the position and location of parts along with the direction the spring guide tubes are positioned inside the springs before removing pin.

6. Remove springs, note washer position.

7. Remove spring tubes from toggles by spreading tubes.

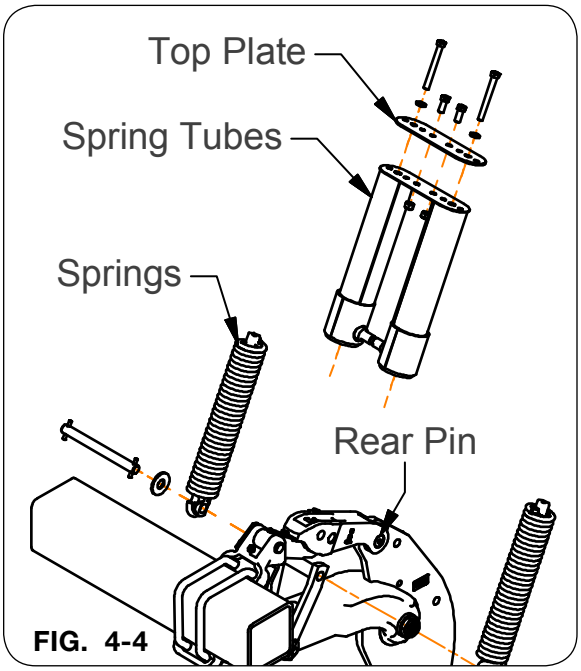


FIG. 4-4

8. If no other service is required, reassemble as follows:

9. Reverse procedures for reassembly. Tighten springs equally and evenly to prevent damage. Capscrew should draw the spring completely to the top of the canister.

TOGGLE COMPONENTS:

If service is required to toggle components, refer to steps 1 - 7 under Spring Mechanism Components for disassembly of spring components.

⚠ WARNING

- **CRUSH HAZARD - BE SURE SHANK IS SUPPORTED BEFORE REMOVING TOGGLE ASSEMBLY. REMOVE ALL SHANK ATTACHMENTS BEFORE PROCEEDING.**

10. Remove pin (66926B) from the outer toggle. Remove pin (63157B) from the inner toggle. Then remove the toggle assembly.

11. Remove toggle assembly components and replace components as required. If no other service is required, reverse procedures for reassembly.

Auto-Reset Shank Replacement — Model 132 (continued)

SHANK WELDMENT:

If replacement of shank weldment is required, refer to steps 1 - 7 under Spring Mechanism Components and steps 8 & 9 under Toggle Components for removal.

⚠ WARNING

- **CRUSH HAZARD - BE SURE SHANK IS SUPPORTED BEFORE REMOVING TOGGLE ASSEMBLY. REMOVE ALL SHANK ATTACHMENTS BEFORE PROCEEDING.**

12. Using a safe lifting device rated at a minimum of 300 lbs. secure the shank and remove the rear pin. Remove rear pin and shank and replace as required.

If no other service is required, reverse procedure for reassembly.

LOWER PULL-ARM:

If replacement of lower pull-arm is required, refer to steps 1 - 7 under Spring Mechanism Components and steps 8 & 9 under Toggle Components and step 10 under Shank Weldment for removal.

NOTE: Before inserting the front pull arm pin, check the clearance between the pull arm and mounting bracket. Install the shims as required (63098B/66834B) to fill the gap. Install equally from side to side, if possible.

11. Remove Lower Pull-Arm by removing front pin.

12. Reverse procedure for reassembly.

IMPORTANT

- *Torque 1 1/4"-12UNF locknuts used with the pivot pin on the pull arms to maximum 250-300 ft.-lbs.*

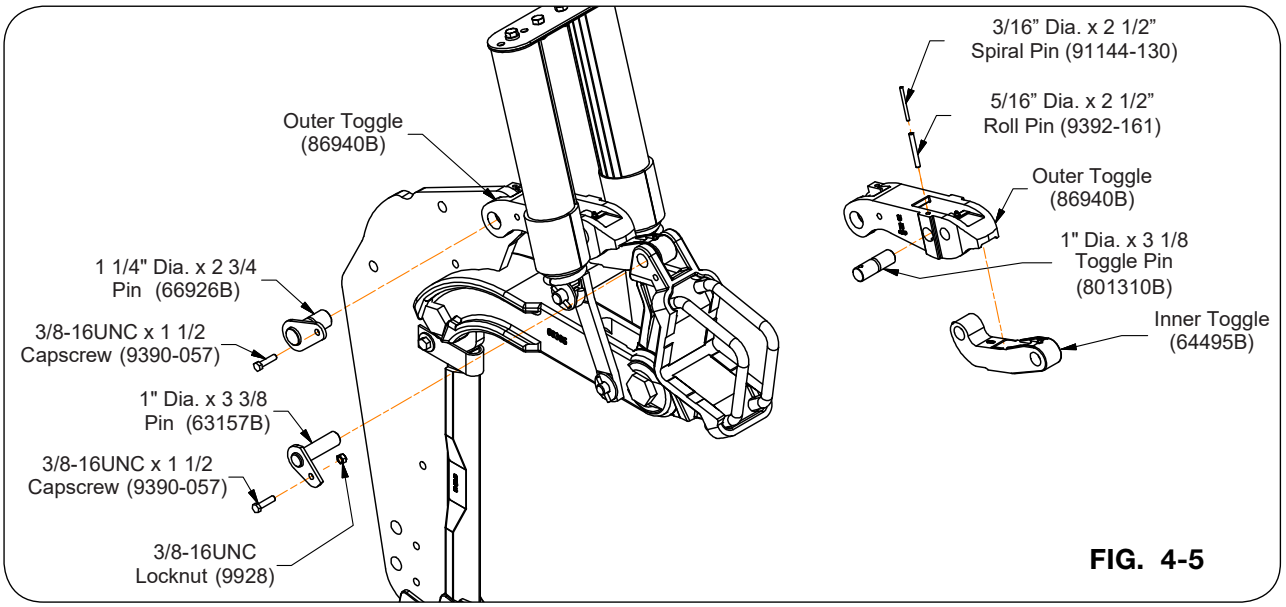


FIG. 4-5

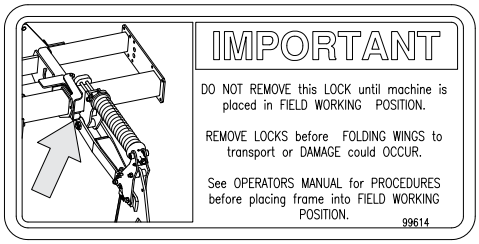
Spring-Cushioned Shanks — Model 122

Spring Replacement

The spring assembly in the spring-cushioned shank is factory pre-loaded and individual components are not designed to be serviced in the field.

⚠ WARNING

- **DISASSEMBLING SPRING CAN RESULT IN SERIOUS INJURY OR DEATH. THE SPRING IS UNDER COMPRESSION WHEN ASSEMBLED. NEVER ATTEMPT TO DISASSEMBLE SPRING.**



NOTE: Grease all lubrication points after servicing components.

If attachments are on back of the shanks, remove them before proceeding. See Attachment Section of this operator manual.

The spring assembly must be replaced as a whole, individual component parts are not available.

Carefully dispose of a worn or damaged assembly to avoid release of spring tension.

⚠ WARNING

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

1. With Zone Builder implement attached to a tractor, find a firm level surface and unfold the wings if applicable. Lower the unit's jack stands until they are 1-2 inches below the points, and lower machine to the ground so that the stands support the entire subsoiler and all points are off the ground. Shut off tractor engine, set parking brake, and remove the ignition key.
2. Use lifting device with a minimum capacity of 150 lbs to support the spring.
3. Loosen nuts on ONLY one side plate. Spread plate to remove the spring from the back.
4. Once the back of the spring is free, remove the front bolt of the spring and remove spring.

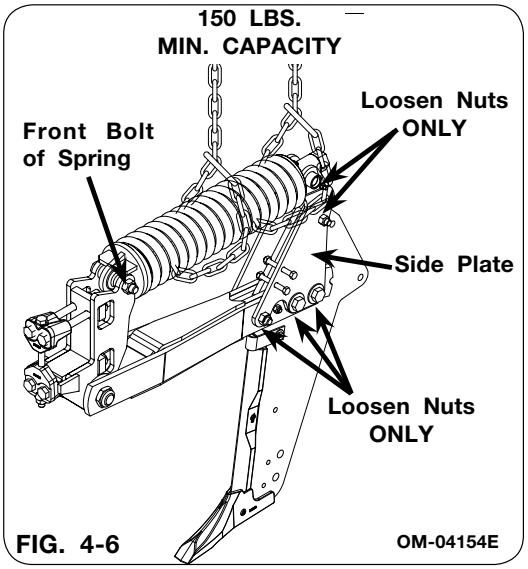


FIG. 4-6

5. Replace spring by attaching lifting device to spring and attach front bolt of spring. Once secure attach back of spring and tighten plate. Tighten hardware according to torque chart in MAINTENANCE section.

Spring-Cushioned Shanks — Model 122 (continued)

Shank Replacement

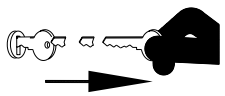
Follow these procedures to remove or replace the entire shank assembly from the Zone-Builder frame:

If attachments are on back of the shanks, remove them before proceeding. See Attachment Section of this operator manual.

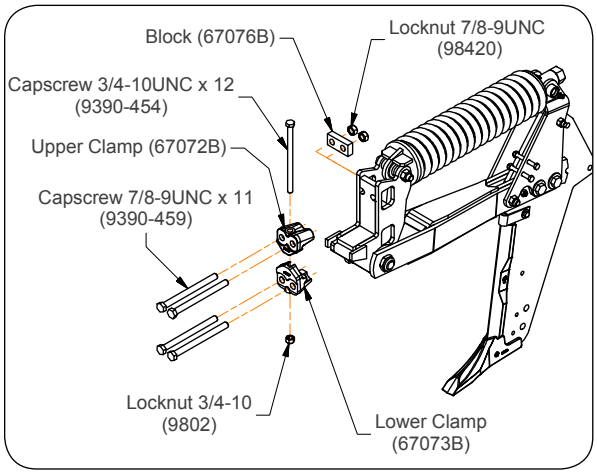
Spring-cushioned shanks are installed and aligned at the factory. The shank clamps have a unique design that pulls the shank onto all four sides of the frame tube. When properly tightened, all sides of the shank mount will firmly be seated against all the sides of the frame tube.

To move or replace a spring-cushioned shank:

1. With Zone Builder subsoiler attached to a tractor, find a firm level surface and unfold the wings if applicable. Lower the unit's jack stands until they are 1-2 inches below the points, and lower machine to the ground so that the stands support the entire Zone Builder implement and all points are off the ground. Shut off tractor engine, set parking brake, and remove the ignition key.



2. Use a safe lifting device with a minimum capacity of 500 lbs to support the shank.
3. Loosen or remove the capscrews (9390-454 and 9390-459) in the clamps.
4. Remove or relocate the shank as required.
5. Position shank on bar and attach clamps (67072B and 67073B) to the tube and shank using capscrews (9390-459), spacer blocks (67076B) and locknuts (98420), tighten lightly.
6. Secure the clamps to shank using capscrew (9390-454) and locknuts (9802).
7. Torque 7/8" & 3/4" capscrews to 240 ft-lbs.
8. Do not substitute other hardware for the UNVERFERTH supplied parts.



Spring-Cushioned Shanks — Model 122 (continued)

Shank & Pull Arm Replacement

Follow these procedures to replace or repair the shank and/or pull arm:

IMPORTANT

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

If attachments are on back of the shanks, remove them before proceeding. See Attachment Section of this operator manual.

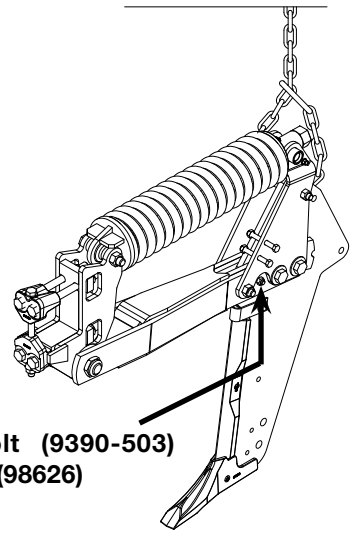
All shank assembly illustrations are shown loose for illustration purposes only.

With Zone Builder implement attached to a tractor, find a firm level surface and unfold the wings if applicable. Lower the unit's jack stands until they are 1-2 inches below the points, and lower machine to the ground so that the stands support the entire Zone Builder implement and all points are off the ground. Shut off tractor engine, set parking brake, and remove the ignition key.

1. Support the back of the spring with a safe lifting device rated at a minimum of 500 lbs. (Fig. 4-7).

2. Remove the shear-bolt 9/16"-12UNC x 4 1/2" (9390-503) and locknut 9/16"-12UNC (98626) as shown in Fig. 4-7.

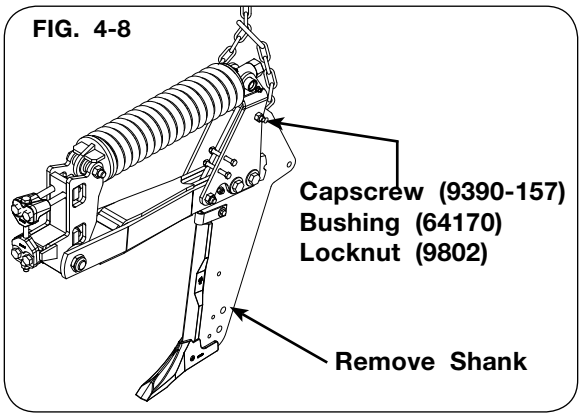
FIG. 4-7



Spring-Cushioned Shanks — Model 122 (continued)

3. Support the shank and remove the 3/4"-10UNC x 6" capscrew (9390-157), tube/bushing (64170) and 3/4"-10UNC locknut (9802) as shown in Fig. 4-8. Then remove the shank.

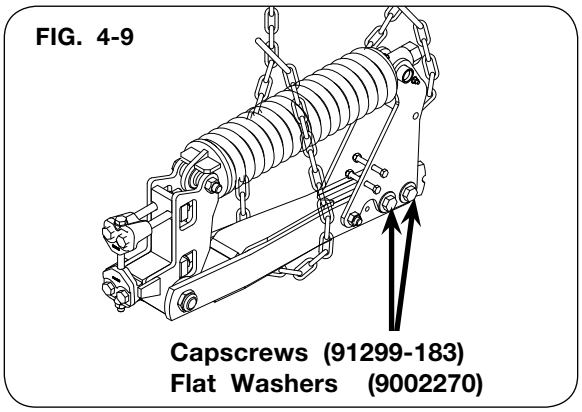
FIG. 4-8



4. Support the pull arm as shown in Fig. 4-9 and remove the 1"-8UNC x 2" capscrews (91299-183) grade 8 and flat washers (9002270).

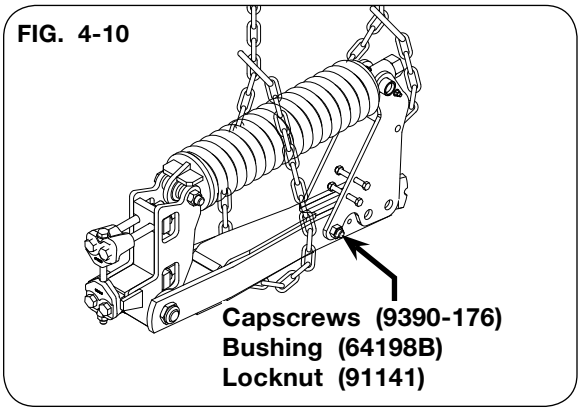
NOTE: Parts will fall at this point if spring is not supported.

FIG. 4-9



5. Next, remove the 7/8"-9UNC x 6" capscrew (9390-176), tube/bushing (64198B), and 7/8"-9UNC locknut (91141) as shown in Fig. 4-10.

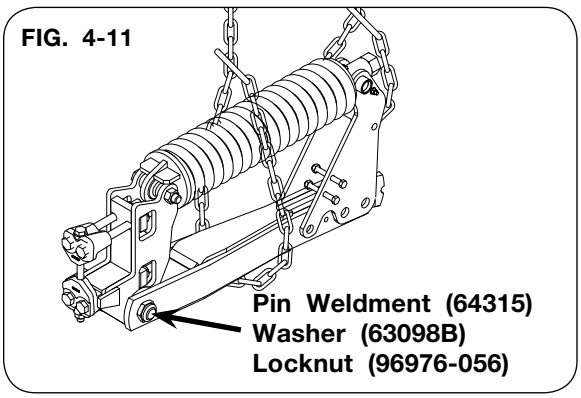
FIG. 4-10



6. After you remove the pin weldment (64315), washer (63098B) and 1/2"-12UNF locknut (96976-056) the pull arm will be loose as shown in Fig. 4-11.

7. Replace the pull arm using steps in reverse order as for the removal process. Position the pull arm as shown in Fig. 4-11. Reinsert the pin weldment (64315), washer (63098B) and 1/2"-12UNF locknut (96976-056). Torque hardware to 250-300 ft.-lbs.

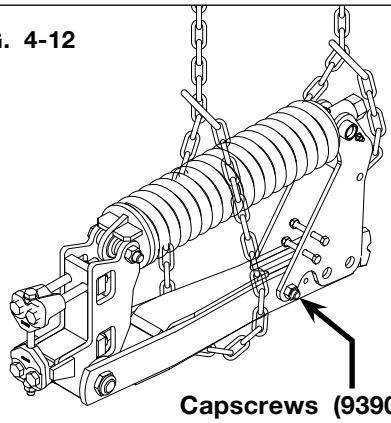
FIG. 4-11



Spring-Cushioned Shanks — Model 122 (continued)

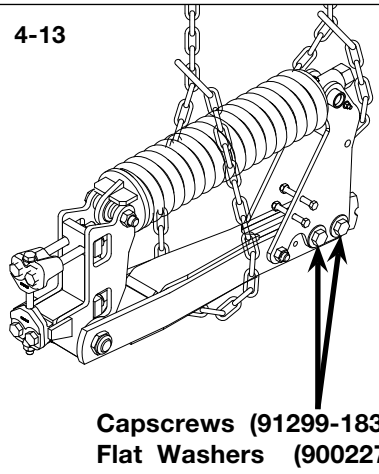
8. Insert the 7/8”-9UNC x 6” capscrew (9390-176), tube/bushing (64198B), and 7/8”-9UNC locknut (91141) as shown in Fig. 4-12. Torque hardware to 330-350 ft.-lbs.

FIG. 4-12



9. Insert the 1”-8UNC x 2” capscrews (91299-183) grade 8 and flat washers (9002270) as shown in Fig. 4-13. Torque hardware to 500-520 ft.-lbs. Then remove the pull arm support.

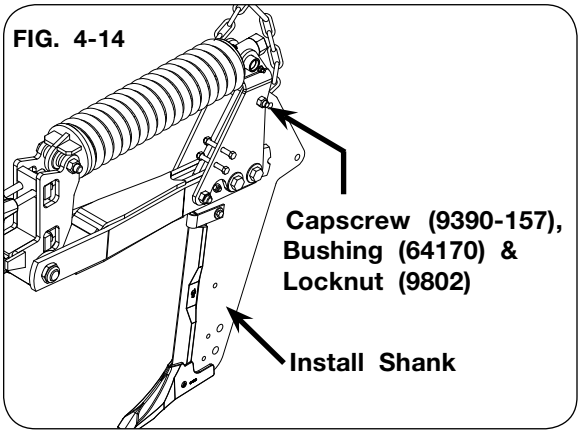
FIG. 4-13



10. Position the shank as shown in Fig. 4-14 and secure using 3/4”-10UNC x 6” capscrew (9390-157), tube/bushing (64170) and 3/4”-10UNC locknut (9802). Torque hardware to 200-220 ft.-lbs.

11. Insert the 9/16”-12UNC x 4 1/2” shear-bolt (9390-503) and 9/16”-12UNC locknut (98626) as shown in Fig. 2-7. Torque hardware to 90-98 ft.-lbs.

FIG. 4-14



IMPORTANT

- Tighten shear-bolt as indicated after all other hardware has been torqued as specified.

12. Remove the support from the back of the spring.

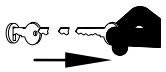
13. Reattach optional attachment if applicable. See attachment section of this manual.

Spring-Cushioned Shanks — Model 122 (continued)

Shear-Bolt Replacement

The shear-bolt in the spring-cushioned shank is a redundant protection mechanism for the shank. The shear-bolt should shear only when the shank encounters an obstacle so large that it cannot trip over it or there has been a failure in the shank pivot mechanism that prevents the shank from tripping.

1. With Zone Builder implement attached to a tractor, find a firm level surface and unfold the wings if applicable. Lower the unit's jack stands until they are 1-2 inches below the points, and lower machine to the ground so that the stands support the entire Zone Builder subsoiler and all points are off ground. Shut off tractor engine, set parking brake, and remove the ignition key.



2. Remove any remaining portions of the shear-bolt from the shank assembly. Inspect shear-bolt holes in the shank and the pull arm weldments. Severely distorted holes will result in shorter shear-bolt life and should be repaired or replaced. The hole in the outer portion of the pull arm weldment is oversized for easier shear-bolt installation. The inner portion of the hole is properly sized for shearing action.

3. The shank should pass through the pull arm and contact the front stop (A) with slight pressure applied to back of shank. If the shank will not contact the front stop, loosen the front stop bolt 1/4 turn (A), see Fig. 4-15. Repeat procedure until the holes align. If shank stops too far forward to allow for shear-bolt installation, use a pry bar on front of shank to help align holes, see Fig. 4-16.

4. Align the holes with a 9/16" diameter drift pin and install UNVERFERTH shear-bolt (9390-503) and locknut (98626). Additional shear-bolts are stored in the left side formed plate of the shank assembly. Do not use a different size or different grade of shear-bolt; unsatisfactory performance and or shank damage may occur. Tighten the nut to 90-98 ft.-lbs, see Figure 4-15.

NOTE: Refer to PARTS section for serviceable hardened bushings (66281 or 98795).

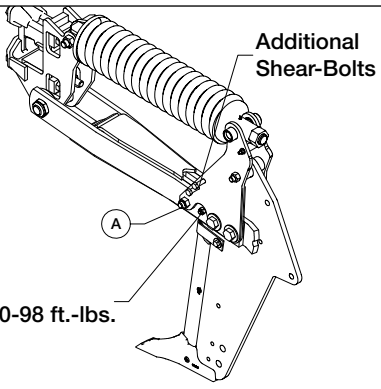


FIG. 4-15

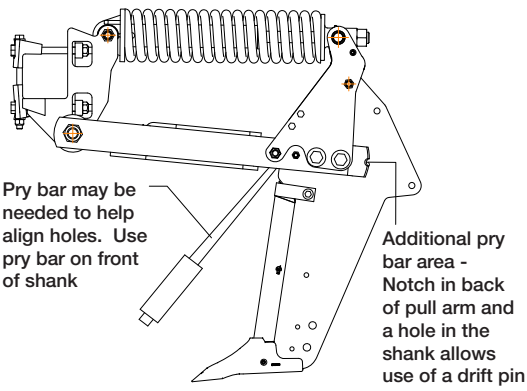


FIG. 4-16

Shear-Bolt Shanks — Model 112

Shear-Bolt Replacement

The shear-bolt should shear only when the shank encounters an obstacle.

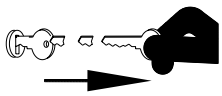
⚠ WARNING

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

IMPORTANT

- *On wing fold units, be sure to replace the shear-bolt on shanks on wing before folding wings. Damage to equipment could occur.*

1. With Zone Builder implement attached to a tractor, find a firm level surface and unfold the wings if applicable. Lower the unit's jack stands until they are 1-2 inches below the points, and lower machine to the ground so that the stands support the entire implement and all points are off ground. Shut off tractor engine, set parking brake, and remove the ignition key.

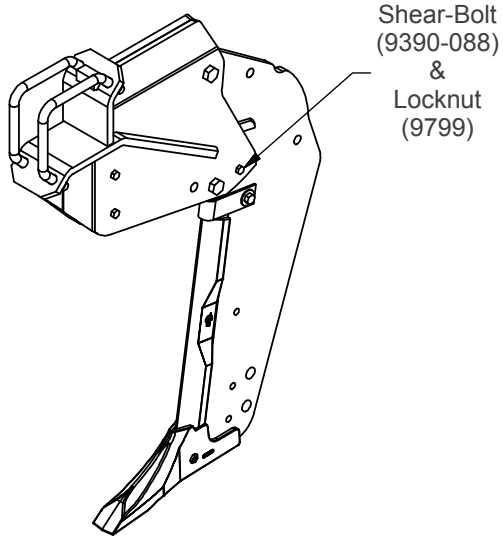


2. Remove any remaining portions of the shear-bolt from the shank assembly. Inspect shear-bolt holes in the shank and the pull arm weldments. Severely distorted holes will result in shorter shear-bolt life and should be repaired or replaced.

3. Align the holes with 7/16" diameter drift pin and install UNVERFERTH shear-bolt (9390-151) and locknut (9802). Do not use a different size or different grade of shear-bolt; unsatisfactory performance and or shank damage may occur. Tighten the nut to 55 ft.-lbs.

NOTE: Additional shear-bolts are stored in the front of the shank.

FIG. 4-17



Combo® Coulter Spring Replacement

The following guidelines are for replacing the spring on the coulters.

⚠ WARNING

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

⚠ CAUTION

- **SHARP EDGES ON COULTER BLADES CAN CAUSE SERIOUS INJURY. BE CAREFUL WHEN WORKING AROUND COULTER BLADES.**

IMPORTANT

- *The spring should only be adjusted when repairs are being made. The springs have been preset before leaving the factory.*

1. Loosen the set screw retaining the spring bolt on the coulter arm (Fig. 4-18).
2. Slowly unscrew the spring bolt which will relieve spring pressure (Fig. 4-18).
3. Once the bolt is removed, replace with new spring and re-insert bolt.

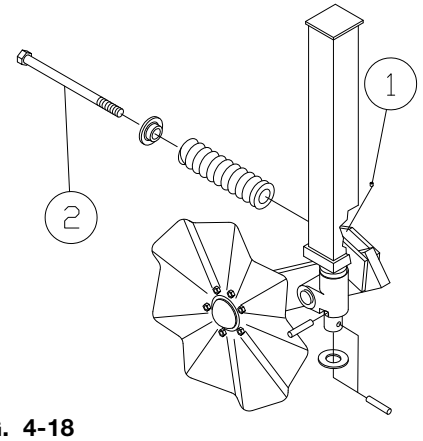


FIG. 4-18

4. Tighten bolt until a deflection of 1” is obtained on spring (Fig. 4-19).

The coulter springs are preset at the factory to 9 3/8”. This measurement is the total amount of exposed spring.

NOTE: Adjusting the spring below 9 3/8” could cause premature part failure and void any warranty considerations.

5. Tighten set screw to secure bolt.

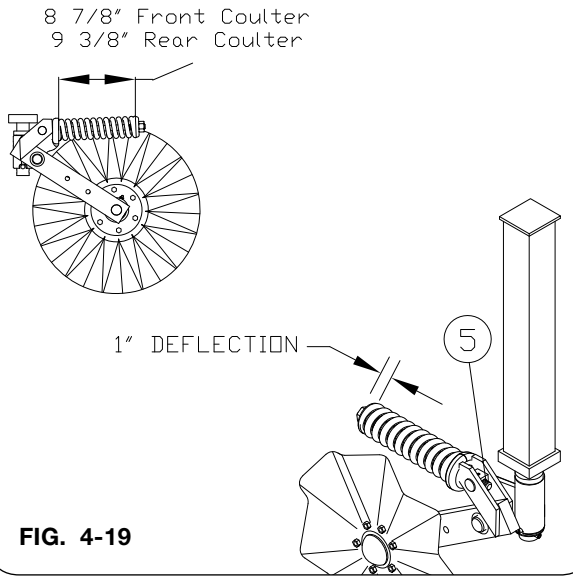


FIG. 4-19

Hub Adjustment and Replacement For Combo® Coulters and Rear Coulters

After the first 100 acres, the hubs should be checked for tightness and wear.

⚠ WARNING

- **BE SURE THAT THE IMPLEMENT IS SECURELY BLOCKED TO PREVENT FALLING. FAILURE TO DO SO COULD RESULT IN INJURY OR DEATH.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

⚠ CAUTION

- **SHARP EDGES ON COULTER BLADES CAN CAUSE INJURY. BE CAREFUL WHEN WORKING AROUND COULTER BLADES.**

IMPORTANT

- *Do not allow dirt and debris to contaminate the hub and its internal components. Neglecting to do so could result in failure of the hub and its components due to excessive wear.*

1. Check the coulter hub and bearing for looseness or wobble by gripping the ends of the blade. Rotate and laterally push and pull on the coulter blade. A tight hub will have no wobble and will rotate smoothly with a slight resistance.

2. If there is wobble in the hub, the hub must be tightened to the spindle. To do this, remove retaining ring and the hub cap. Remove the nut retainer and tighten the slotted nut. The nut should be torqued to 40-45 foot-pounds. Increase the tightness to reinsert the c-ring.

3. After tightening, retest the hub for wobble by repeating Step #1. If wobble still exists, continue with the following guidelines.

IMPORTANT

- *When tightening slotted nut onto spindle, rotate hub back and forth so that flats do not form on bearings.*

4. Turn the blade and feel for any roughness in the rotation. Also, check the base of the hub to see if the seal is intact and in position. If either problem exists, the hub must be dismantled, cleaned, inspected for damage, and repacked with grease. Refer to the following guidelines for this procedure.

A. Remove the blade and hub cap. Remove the C-ring securing the slotted nut.

IMPORTANT

- *Removal of C-ring is best accomplished by using two screwdrivers or similar tools and prying on the outside ends to spread ring. If ring is damaged discard and replace.*
- *When removing the hub and its components, be sure to keep them free of debris and dirt. Failure to do so will result in contamination of hub and bearing failure.*

B. Unscrew the nut and carefully remove the hub from the spindle.

C. Remove the components, clean, and inspect for any damage or wear. If even the slightest imperfection exists, replace the component(s). Once the hub is dismantled, always replace the bearing and seal assembly, o-ring, and triple lip seal.

Hub Adjustment and Replacement For Combo® Coulters and Rear Coulters (continued)

IMPORTANT

- *Always replace the "O"-ring and seal if dismantling the hub. Failure to do so could result in premature failure of hub and its components.*

D. Replace any damaged parts before reassembling the components. Be sure to remove any debris or dirt and repack bearings with an SAE approved hub grease.

E. Assemble O-ring (95565) to spindle, use grease to lubricate seal.

G. While rotating hub, slide the hub, seal, and bearing onto spindle. Make sure not to damage seal. Be sure outer bearing and washer slide on the spindle and bearing seats in the cup.

H. Assemble nut to spindle. While rotating hub, torque nut to 40 ft-lbs.

IMPORTANT

- *Rotate coulter hub when torquing slotted nut. Doing this will prevent flats from forming on bearings.*

I. Back nut off and finger tighten. Tighten nut to align the next notch with hole in the spindle without rotating hub.

J. Check for looseness in the hub. It should not wiggle. If it does, tighten the nut one more slot and repeat step 8.

K. Check hub rotation for excessive drag. There should be slight resistance. If there is excessive drag, repeat procedure starting at step I.

L. Install Retaining Spring (9504825).

IMPORTANT

- *Assembly of C-ring is best accomplished by the use of a hog ring type pliers or similar tool. After installation be sure C-ring will lay flat against the spindle retaining nut to allow for proper installation of hub cap.*

M. Add moly #2 grease through hub zerk until grease extends above the washer all around cavity. Also add grease to pivot arm zerk.

N. Install O-ring, hub cap & retaining ring. Paint hub cap and retaining ring if necessary.

Hub Adjustment and Replacement For Combo® Coulters and Rear Coulters (continued)

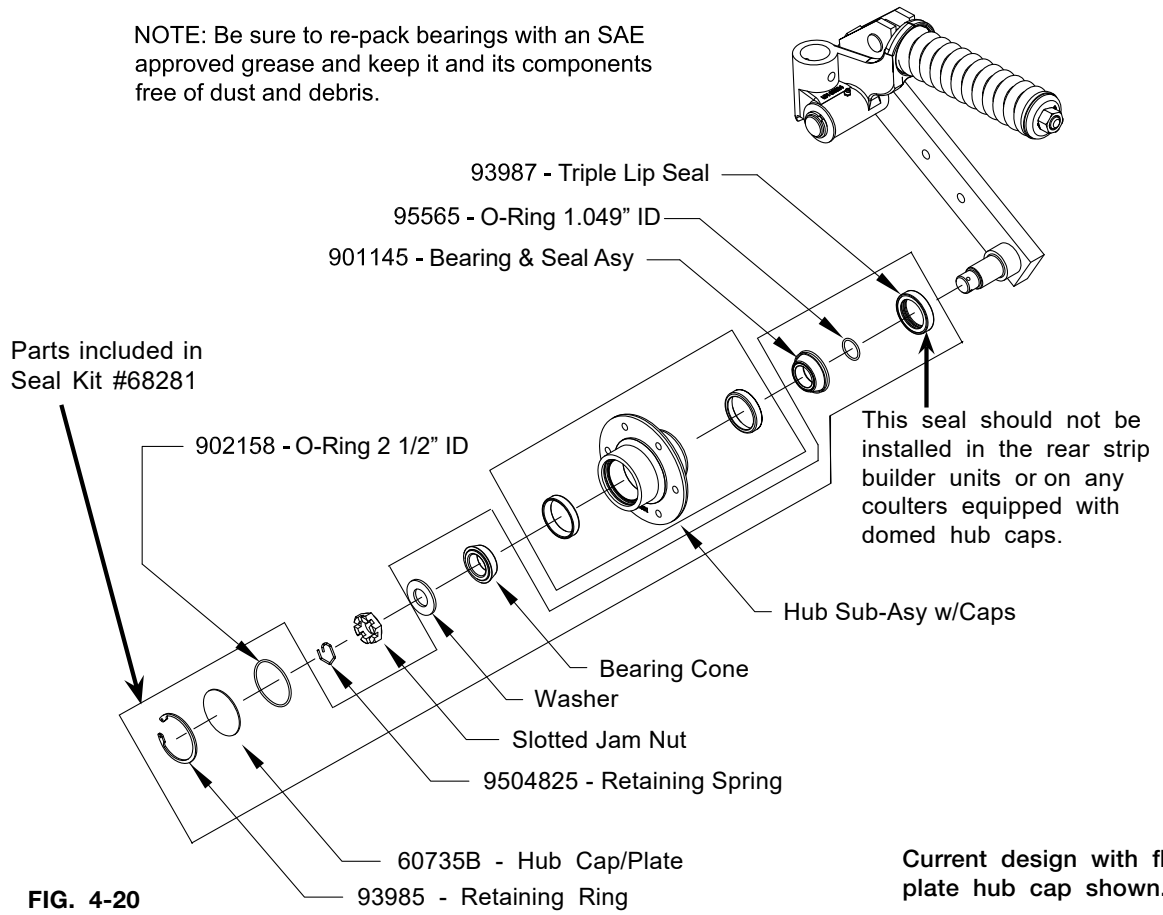


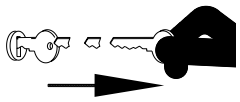
FIG. 4-20

Current design with flat plate hub cap shown.

Replacing Bearings In Rolling Harrow Baskets

⚠ WARNING

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



1. Lower implement unit to the ground and securely block to prevent tipping, or moving. Shut off tractor, set parking brake, and remove ignition key.
2. Install block under each basket to support weight of basket.
3. Remove the three 5/16”-18UNC carriage bolts or capscrews and the clip which hold the bearing on.
4. Use a pry bar to pry the end of the basket out of the basket frame slot.
5. Loosen the set screw in the lock collar. Loosen lock collar by turning with punch in opposite direction of basket travel.
6. Place a punch through the hole in the end plate on the basket and use a hammer to remove the bearing. If the bearing is still tight on the shaft, use a bearing puller to remove the bearing.
7. File off any burrs left on the shaft. Finish with a strip of emery cloth. Make sure bearing will slide on the shaft.
8. Slide a new bearing (87181) on the shaft with the lock collar on the outside (Fig. 4-21).
9. Pry the end of the basket into the slot of the frame (Fig 4-21).
10. Assemble the new 5/16”-18UNC capscrews through the holes in the frame and into the bearing housing (Fig. 4-21).

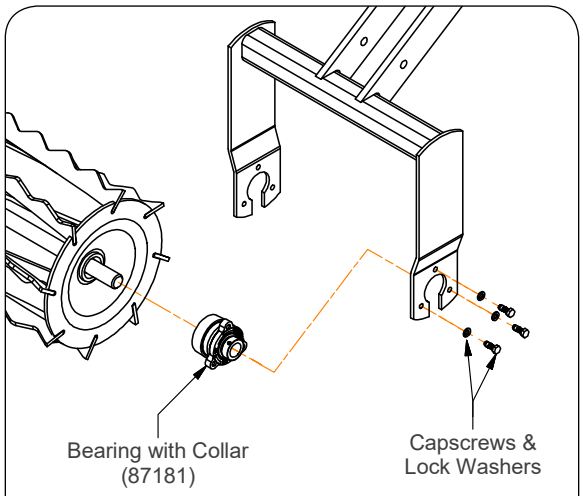


FIG. 4-21

IMPORTANT

- *Tighten screws in bearing before tightening setscrew in lock collar. Tighten lock collar on shaft in direction of rotation. Tighten screws according to Torque Chart, in this section.*

Use UNVERFERTH bearings (87181) with triple lip seals for maximum life.

Notes

Troubleshooting

PROBABLE CAUSE	CORRECTION
Poor Penetration	
Frame is not level	See the OPERATION section "Leveling Frame" for instructions
Ground is too hard for hitch control setting	Adjust the hitch control position. See the OPERATION section "Load and Depth control"
Worn or dull tool points	Replace with new tool points
Plugging	
Coulters are not spaced correctly	See "Overhead Layouts" for correct spacing of shanks in SETUP section
Poor field conditions	Wait until the field is dry enough to till properly without excessive slippage
Machine not level	Level Machine
Coulters are not penetrating deep enough	Lower the coulters
Coulter blades not cutting residue	Wait until the field is dry enough to allow blades to cut through residue
Implement Running Crooked In Field	
Shanks are not spaced correctly	See "Overhead Layouts" for correct spacing of the shanks
Stabilizer wheels are not adjusted equally from side-to-side	Check the side-to-side adjustment and correct
Tractor tires are not properly spaced or equally inflated	Find the cause and correct. See OPERATION section "Wheel Spacing"
Tractor 3-point lift linkage is not adjusted for level operation	Re-level Zone-Builder frame. See OPERATION section "Leveling Frame"
Tractor 3-point lift linkage lateral float pins are not set properly	Check the position of the lateral float pins. See OPERATION section "Left Link Lateral Float"
Shank Leading Off Row Center	
Main pivots not properly tightened	Tighten until side-to-side play in shank is eliminated. Take care not to over-tighten, not allowing shank to freely reset after tripping.

Troubleshooting (continued)

PROBABLE CAUSE	CORRECTION
Shanks Not Resetting Into Ground After Tripping	
Ground conditions hard or the unit is being operated very deep	While moving, raise Zone-Builder slightly to reset, then lower and resume operation
Pivot nuts on front and rear of pull arm are overtightened	Refer to OPERATION section for adjustment procedure
Excessive Soil Disturbance	
Shanks are operating at shallow depths	Operate at depth to get under hardpan. This may require larger tractor or smaller tool.
Dry soil conditions	Wait for additional rain
Running implement too fast	Slower speeds create less disturbances
Too much sealing	Decrease down pressure, decrease coulter angle, raise coulters, or move coulters apart
Not enough sealing	Increase down pressure, increase coulter angle, increase coulter depth, or move coulters closer
Coulter not moving	Decrease coulter angle, decrease spring pressure, decrease coulter depth, or move coulters apart

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 applicable torque value shown in table. Start all nuts/bolts by hand to prevent cross threading. Torque nuts in the recommended sequence as shown in Fig. 4-2.

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

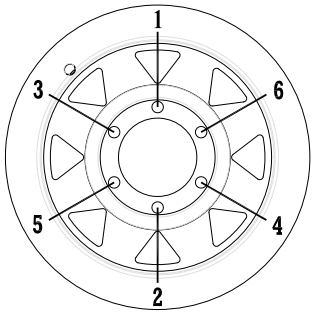


Fig. 4-2 - 6 Bolt

Tire Pressure

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

TIRE	INFLATION
7.60 x 15 - 8 Ply	max. 52 PSI
9.5 x 15 - 8 Ply	max. 44 PSI
12.5 x 15 - 10 Ply	max. 44 PSI

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 Phone 800-847-3364
Carlisle	www.carlisletire.com Phone 800-260-7959 Fax 800-352-0075
Greenball	www.greenball.com Phone 866-767-9637

Complete Torque Chart

U-BOLTS - GRADE 7

Torque 3/4”-10UNC U-Bolts to 240 Ft.-Lbs.
Torque 3/4”-10UNC Shank Mount V-bolts to 240 Ft.-Lbs.

EXTENSION HARDWARE

Model 122 - Vertical Bolts: Torque 3/4”-10UNC to 240 ft.-lbs.
Model 122 - Horizontal Bolts: Torque 7/8”-9UNC to 240 ft.-lbs.

PULL-ARM HARDWARE

Model 122 Pull Arm Front Pin: Locknut 1 1/2”-12UNF torque to 250-300 ft.-lbs.
Model 122 Pull Arm Rear Screws: Capscrews (1”-8UNC x 2” Grade 8) torque to 500-520 ft.-lbs.

Model 132 Pull Arm Pins: Thin Collar Locknut 1 1/4”-12UNF torque to 225-275 ft.-lbs.

Complete Torque Chart

Capscrews - Grade 5

NOTE:

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

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

IMPORTANT

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

Complete Torque Chart

Capscrews - Grade 8

NOTE:

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

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

IMPORTANT

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

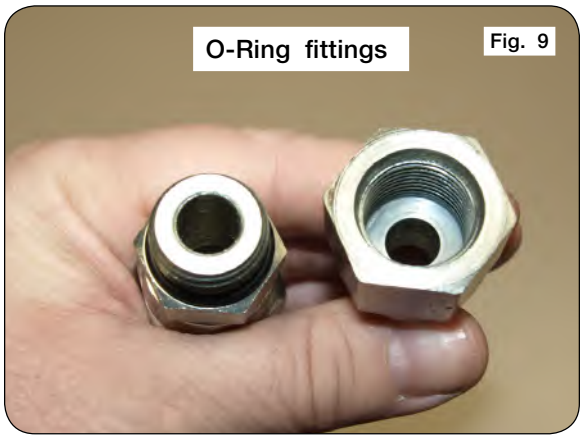
Hydraulic Fittings

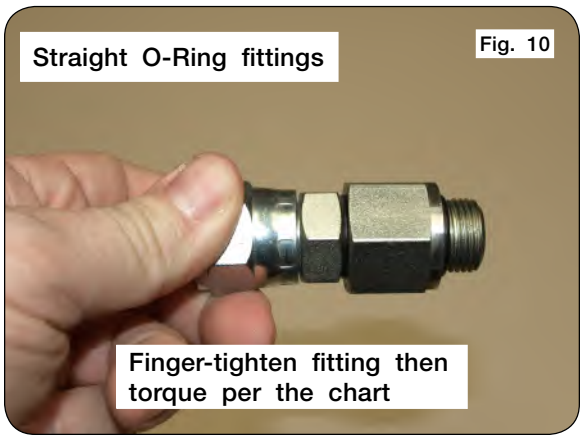
Tightening O-Ring Fittings

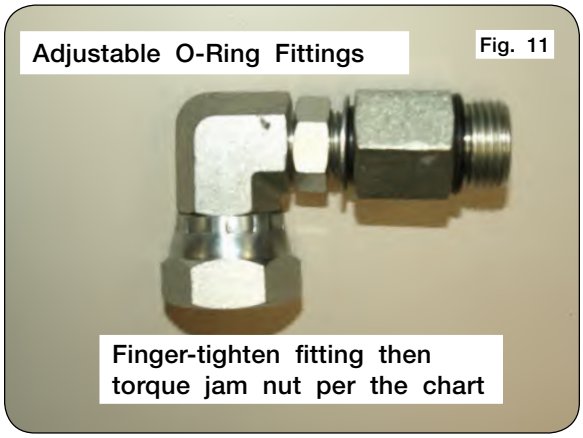
1. Inspect components for damage or contamination. Do not connect any other type of fitting to an O-ring fitting.
2. For adjustable fittings, insure the jam nut and washer are fully backed up.
3. Lubricate the O-ring and threads on the fitting.
4. Turn the fitting into the port until it is finger tight.
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

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.

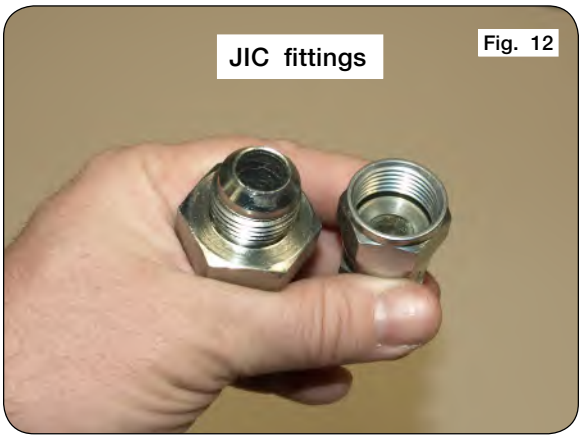


Fig. 12

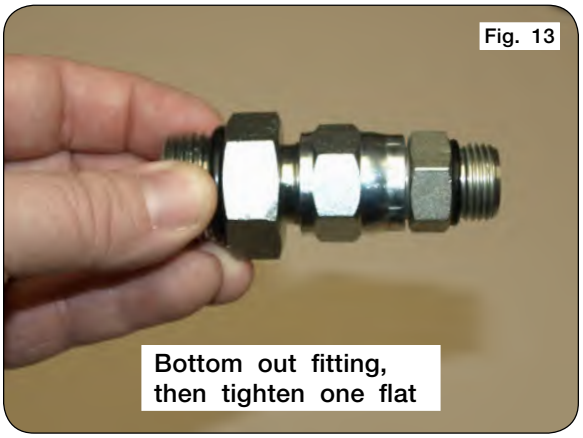
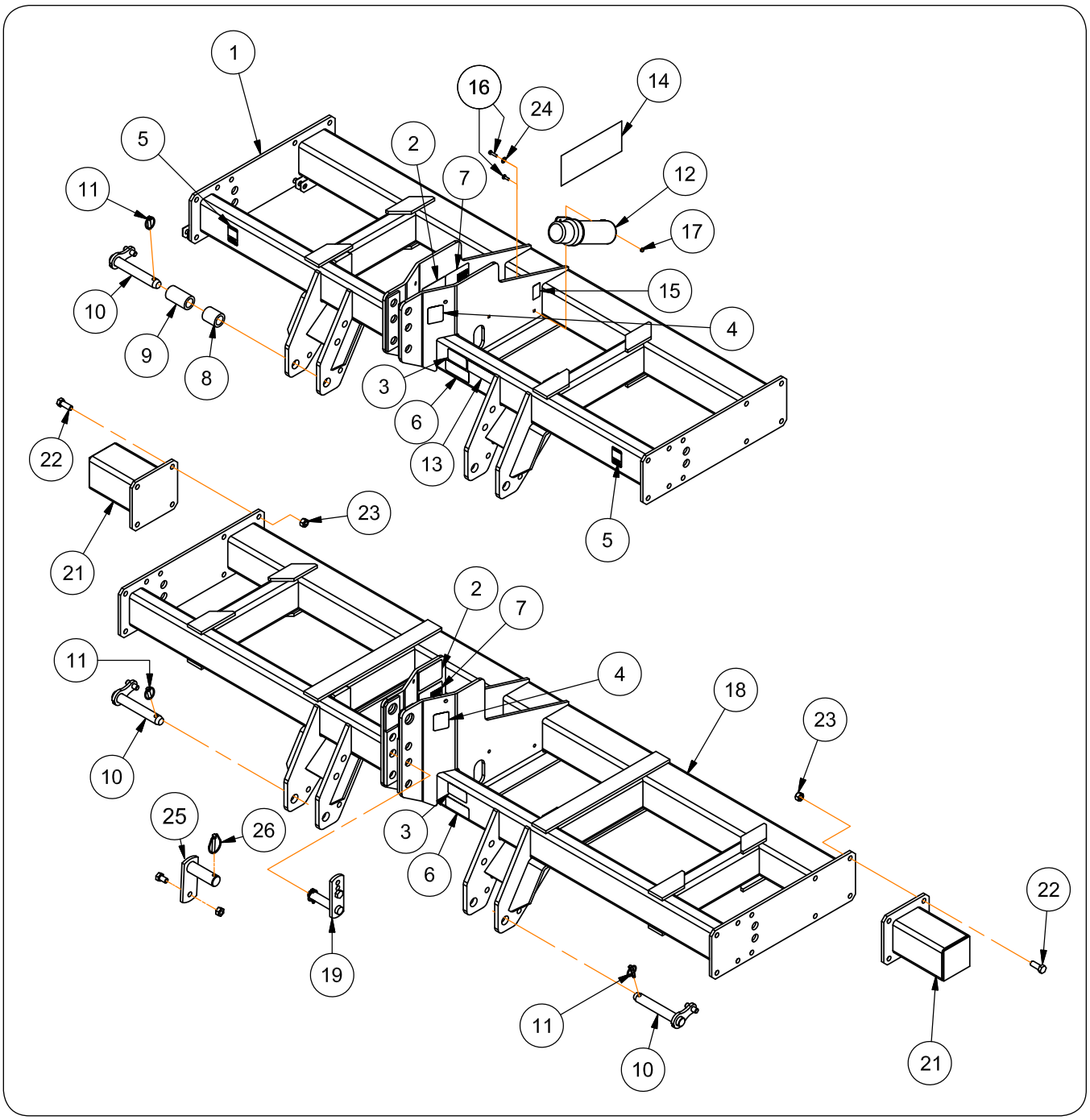


Fig. 13

SECTION V
Parts

Rigid Main Frame — 2/3/4/5/7 Shank 30" Spacing, 4 Shank 36/38" Spacing

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



NOTE: 2 & 3 Shank machines are equipped with 3 reflector arms. Lights are optional. The optional lighting kit #69085B includes an additional reflector arm.

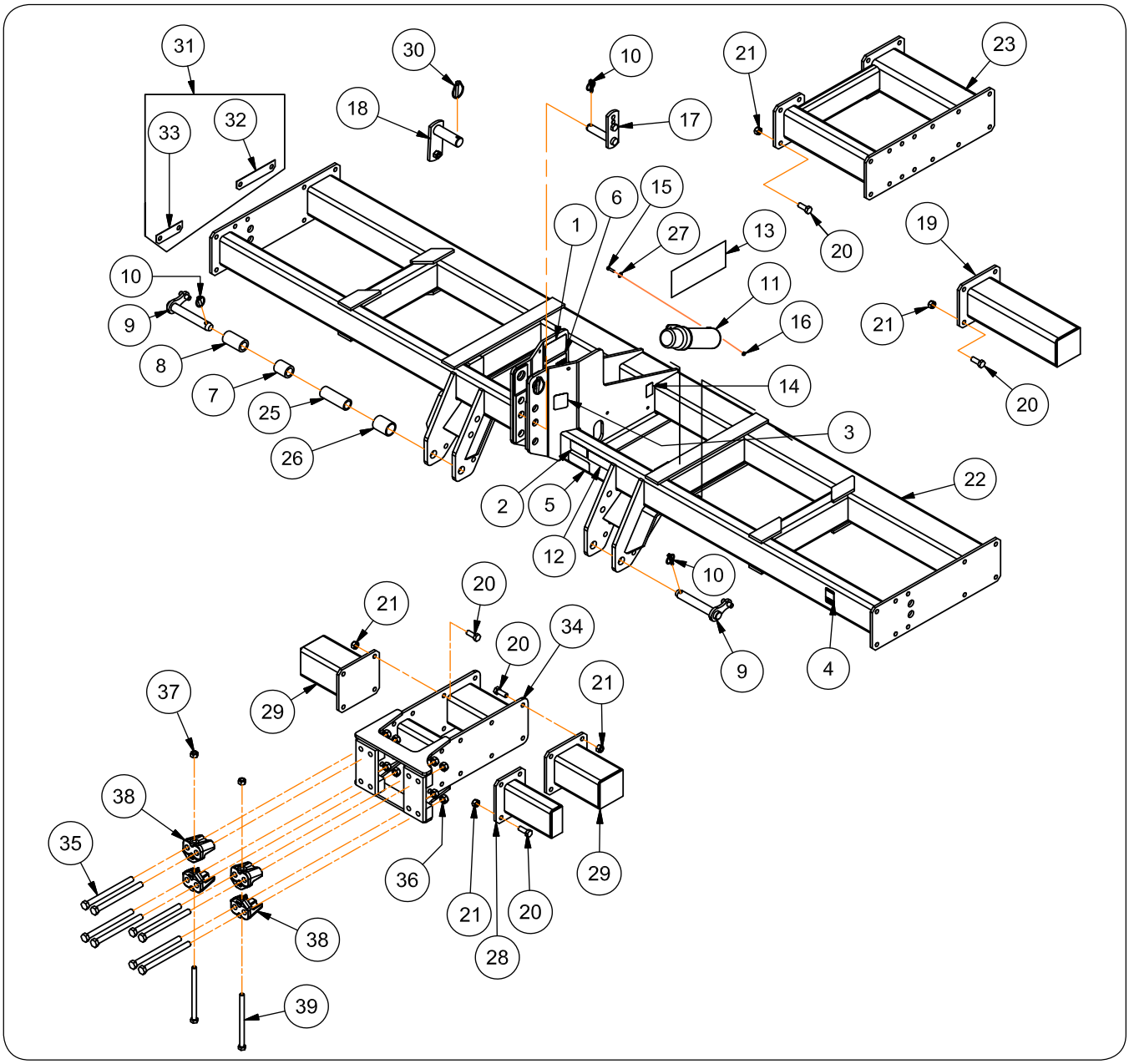
Rigid Main Frame — 2/3/4/5/7 Shank 30" Spacing, 4 Shank 36/38" Spacing

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

ITEM	PART NO.	DESCRIPTION	2 & 3 SHANK QTY	4 SHANK QTY		5 & 7 SHANK QTY
			30"	30"	36"/38"	30"
1	63845G	Main Frame (w/Decals) =Green=	1	1 Auto-Reset ONLY	-	-
	63845R	Main Frame (w/Decals) =Red=				
2	9003164	Decal, DANGER (Compressed Spring)	2	2	2	2
3	97961	Decal, WARNING (Read & Understand)	1	1	1	1
4	97972	Decal, WARNING (Crush Hazard)	2	2	2	2
5	97973	Decal, WARNING (Crush Hazard)	2	2	2	2
6	99507	Decal, WARNING (Falling Equipment)	1	1	1	1
7	99850	Decal, DANGER (Tripped Shanks)	2	2	2	2
8	61315	Spacer Tube	2	2	2	2
9	65285	Bushing 2 1/2" Dia. x 4" Lower Spacer CAT III	2	2	2	2
10	69695	Pin Weldment/Anti-Rotational Pin	2	2	2	2
11	95031	Klik-Pin 7/16" Dia. x 2"	3	3	3	3
12	900552	Manual Holder	1	1	1	1
13	903138	Decal, Model 112	2	2	2	2
	903139	Decal, Model 122				
	903140	Decal, Model 132				
14	903208	Decal, Zone-Builder	2	2	2	2
15	91605	Decal, FEMA	1	1	1	1
16	9388-025	Carriage Bolt 5/16"-18UNC x 1"	2	2 Auto-Reset ONLY	-	-
	9390-031	Capscrew 5/16"-18UNC x 1 1/4"	-	2 Shear-Bolt ONLY	2	2
17	9397-008	Elastic Jam Nut 5/16"-18UNC	2	2	2	2
18	67430G	Main Frame (w/Decals) =Green=	-	1 Shear-Bolt ONLY	1	1
	67430R	Main Frame (w/Decals) =Red=				
19	67188B	Mast Pin Asy 1 1/4" Dia.	1	1	1	1
20	9936	Locknut 1/4"-20UNC	-	4	4	4
21	62567G	Extension Tube 11' Weldment =Green=	-	2 Auto-Reset ONLY	2	2
	62567R	Extension Tube 11' Weldment =Red=				
22	9390-145	Capscrew 3/4"-10UNC x 2" (Grade 5)	-	-	8	8
23	9802	Locknut 3/4"-10UNC	8	-	8	8
24	9405-070	Flat Washer 5/16" USS	-	2 Shear-Bolt ONLY	2	2
25	67187B	Mast Pin 1 3/4"	-	-	-	1
26	9501028	Klik Pin	-	-	-	1
	97301	12 oz. Crimson Red Touch-Up Paint	-	-	-	-
	97015	12 oz. Implement Green Touch-Up Paint				

Rigid Main Frame — 6 Shank 30/36/38" Spacing, 7 Shank 24" Spacing; 8 Shank 30" Spacing; 9 Shank 24" Spacing

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



ITEM	PART NO.	DESCRIPTION	6 SHANK		7 SHANK	8 SHANK	9 SHANK
			30"	36/38"	24"	30"	24"
1	9003164	Decal, DANGER (Compressed Spring)	2	2	2	2	2
2	97961	Decal, WARNING (Read & Understand)	1	1	1	1	1
3	97972	Decal, WARNING (Crush Hazard)	2	2	2	2	2
4	97973	Decal, WARNING (Crush Hazard)	2	2	2	2	2
5	99507	Decal, WARNING (Falling Equipment)	1	1	1	1	1
6	99850	Decal, DANGER (Tripped Shanks)	2	2	2	2	2
7	61315	Spacer Tube	2	2	2	2	2
8	65285	Bushing 2 1/2" Dia. x 4"/Lower Spacer CAT III	2	2	2	2	2

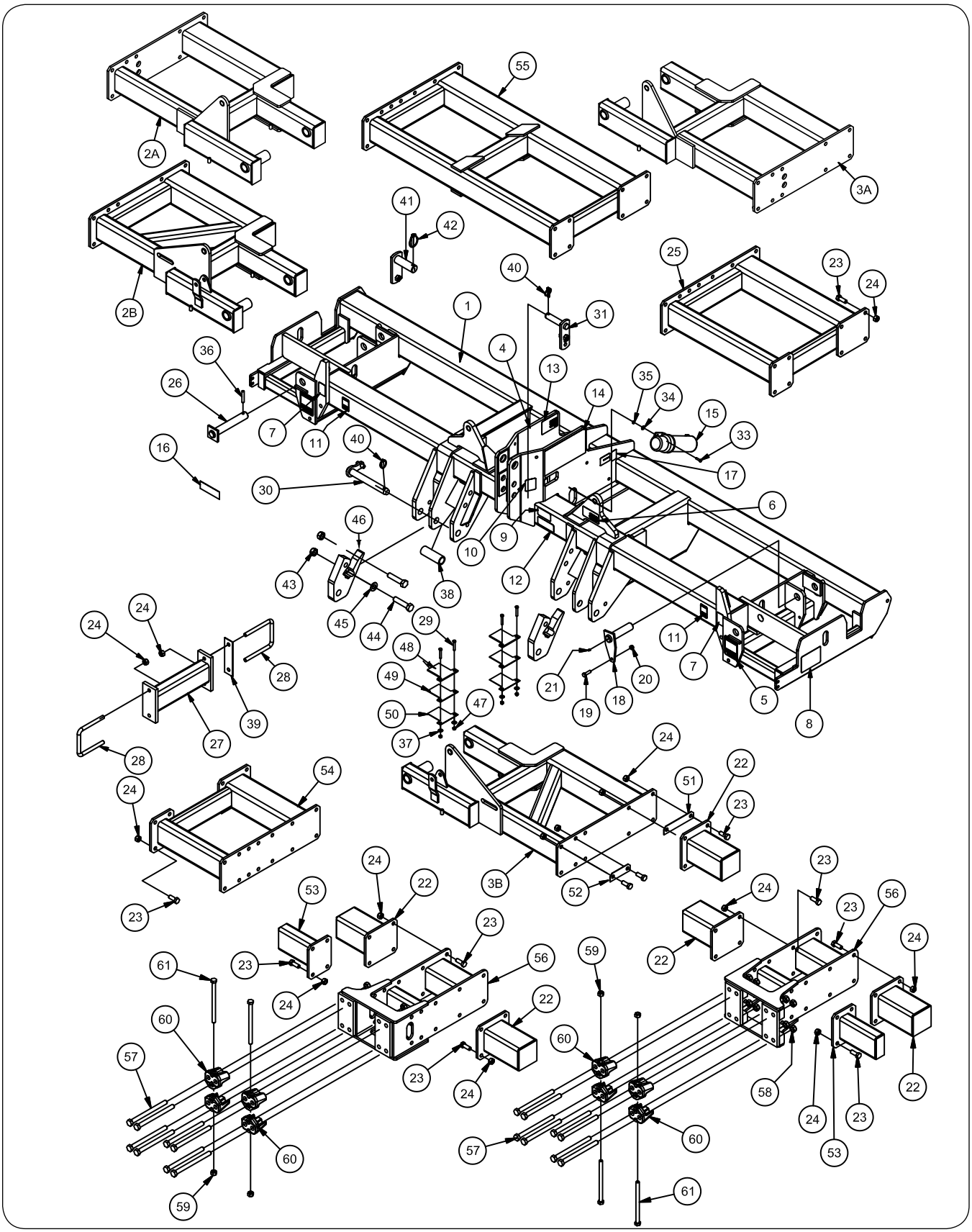
Rigid Main Frame — 6 Shank 30/36/38" Spacing, 7 Shank 24" Spacing; 8 Shank 30" Spacing; 9 Shank 24" Spacing

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

ITEM	PART NO.	DESCRIPTION	6 SHANK		7 SHANK	8 SHANK	9 SHANK
			30"	36/38"	24"	30"	24"
9	69695	Pin Weldment/Anti-Rotational Pin	2	2	2	2	2
10	95031	Klik-Pin 7/16" Dia. x 2"	3	3	3	3	3
11	900552	Manual Holder	1	1	1	1	1
12	9500592	Decal, MODEL 312	2	2	2	2	2
	9500593	Decal, MODEL 332					
13	9500594	Decal, RIPPER-STRIPPER	2	2	2	2	2
14	91605	Decal, FEMA	1	1	1	1	1
15	9390-031	Capscrew 5/16"-18UNC x 1 1/4"	2	2	2	2	2
16	9397-008	Elastic Jam Nut 5/16"-18UNC	2	2	2	2	2
17	67188B	Mast Pin Asy 1 1/4" Dia.	1	1	1	1	1
18	67187B	Pin Sub Assembly/Mast Pin Asy 1 3/4" Dia.	1	1	1	1	1
19	65623G	Extension Tube 22' Weldment =Green=	-	-	2	-	-
	65623R	Extension Tube 22' Weldment =Red=					
20	9390-145	Capscrew 3/4"-10UNC x 2" (Grade 5)	12	28	36	28	36
21	9802	Locknut 3/4"-10UNC	12	28	36	28	36
22	67437G	Main Frame (w/Decals & Mast Pins) =Green=	1	1	1	1	1
	67437R	Main Frame (w/Decals & Mast Pins) =Red=					
23	63186G	Extension Frame 19" Weldment =Green=	-	2	-	-	2
	63186R	Extension Frame 19" Weldment =Red=					
25	65284	Bushing 2" Dia. x 5 11/16"/Lower Spacer CAT IV	2	2	2	2	2
26	64428	Bushing 2 1/2" Dia. x 3 1/8"/Lower Spacer CAT IV	2	2	2	2	2
27	9405-070	Flat Washer 5/16" USS	2	2	2	2	2
28	68277G	Stub Tube Weldment =Green=	-	-	2	-	2
	68277R	Stub Tube Weldment =Red=					
29	62567G	Extension Tube 11" Weldment =Green=	2	2	4	2	4
	62567R	Extension Tube 11" Weldment =Red=					
30	9501028	Lynch Pin	1	1	1	1	1
31	67870	Shim Kit (Includes items 42 & 43)	1	1	1	1	1
32	67868	Shim 2" x 9 1/4"	1	1	1	1	1
33	67869	Shim 2" x 6 1/4"	1	1	1	1	1
34	68260G	Extension Weldment =Green=	-	-	2	-	2
	68260R	Extension Weldment =Red=					
35	9390-459	Capscrew, 7/8"-9UNC x 11" G5	-	-	32	-	32
36	98420	Lock Nut/Top, 7/8"-9UNC	-	-	32	-	32
37	9802	Lock Nut/Top, 3/4"-10UNC	-	-	4	-	4
38	67072B	Clamp =Black=	-	-	8	-	8
39	9390-452	Capscrew 3/4"-10UNC x 11" G5	-	-	4	-	4
	97301	12 oz. Crimson Red Spray Touch-Up Paint	-	-	-	-	-
	97015	12 oz. Implement Green Spray Touch-Up Paint					

Folding Main Frame — 7/8/9/10/12 Shank 30” Spacing, 8 Shank 36/38” Spacing; 11/13 Shank 24” Spacing

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



Folding Main Frame — 7/8/9/10/12 Shank 30" Spacing, 8 Shank 36/38" Spacing; 11/13 Shank 24" Spacing

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

ITEM	PART NO.	DESCRIPTION	7 SHANK	8 SHANK		9 SHANK	10 SHANK	11 SHANK	12 SHANK	13 SHANK
			30"	30"	36/38"	30"	30"	24"	30"	24"
V	67432G	Main Frame w/Decals =Green=	1	1	1	1	1	1	1	1
	67432R	Main Frame w/Decals =Red=								
2A	63227G	Wing Base 45" (Right-Hand) =Green=	1	-	1	1	-	1	-	1
	63227R	Wing Base 45" (Right-Hand) =Red=								
2B	67427G	Wing Base 45" (Right-Hand) =Green=	-	1	-	-	1	-	1	-
	67427R	Wing Base 45" (Right-Hand) =Red=								
3A	63228G	Wing Base 45" (Left-Hand) =Green=	1	-	1	1	-	1	-	1
	63228R	Wing Base 45" (Left-Hand) =Red=								
3B	67428G	Wing Base 45" (Left-Hand) =Green=	-	1	-	-	1	-	1	-
	67428R	Wing Base 45" (Left-Hand) =Red=								
4	9003164	Decal, DANGER	2	2	2	2	2	2	2	2
5	902221	Decal, DANGER	1	1	1	1	1	1	1	1
6	95445	Decal, WARNING! Do not use hands...	1	1	1	1	1	1	1	1
7	97048	Decal, WARNING! Pinch Points...	2	2	2	2	2	2	2	2
8	97337	Decal, WARNING! Never Stand...	2	2	2	2	2	2	2	2
9	97961	Decal, WARNING! Read & Understand...	1	1	1	1	1	1	1	1
10	97972	Decal, WARNING! Crushing Hazard...	2	2	2	2	2	2	2	2
11	97973	Decal, WARNING! Crushing...	3	3	3	3	3	3	3	3
12	99507	Decal, WARNING! Falling Equipment...	1	1	1	1	1	1	1	1
13	99850	Decal, DANGER! A tripped...	2	2	2	2	2	2	2	2
14	903208	Decal, ZONE-BUILDER	2	2	2	2	2	2	2	2
15	900552	Manual Holder	1	1	1	1	1	1	1	1
16	903138	Decal, MODEL 112	2	2	2	2	2	2	2	2
	903139	Decal, MODEL 122								
	903140	Decal, MODEL 132								
17	91605	Decal, FEMA	1	1	1	1	1	1	1	1
18	63223	Pin Weldment 1 5/8" Dia. x 7 1/4	2	2	2	2	2	2	2	2
19	9390-102	Capscrew (Grade 5) 1/2"-13UNC x 1 3/4"	2	2	2	2	2	2	2	2
20	9800	Locknut 1/2"-13UNC	4	4	4	4	4	4	4	4
21	91160	Grease Zerk	4	4	4	4	4	4	4	4
22	62567G	Extension Tube 11" =Green=	-	2	-	-	-	4	-	4
	62567R	Extension Tube 11" =Red=								
23	9390-145	Capscrew 3/4"-10UNC x 2" Gr.5	-	8	16	16	16	48	16	48
24	9802	Locknut 3/4"-10UNC	8	16	24	24	24	56	24	56

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Folding Main Frame — 7/8/9/10/12 Shank 30" Spacing, 8 Shank 36/38" Spacing; 11/13 Shank 24" Spacing

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

ITEM	PART NO.	DESCRIPTION	7 SHANK	8 SHANK		9 SHANK	10 SHANK	11 SHANK	12 SHANK	13 SHANK
			30"	30"	36/38"	30"	30"	24"	30"	24"
25	63184G	Extension Frame 31" Weldment =Green= Includes Items 23 & 24	-	-	2	2	2	-	-	-
	63184R	Extension Frame 31" Weldment =Red= Includes Items 23 & 24								
26	63220	Pin Weldment 1 5/8" Dia. x 10 3/4"	2	2	2	2	2	2	2	2
27	61303G	Support Tube 18" =Green=	4	2	2	4	2	2	2	2
	61303R	Support Tube 18" =Red=								
28	94090	U-Bolt 3/4"-10UNC x 8"	4	4	4	4	4	4	4	4
29	9390-060	Capscrew 3/8"-16UNC x 2 1/4" Gr.5	8	8	8	8	8	8	8	8
30	69657	Pin Weldment 1 7/16" Dia. x 15 7/16"	2	2	2	2	2	2	2	2
31	67188B	Mast Pin Asy 1 1/4" Dia. (Shown)	1	1	1	1	1	1	1	1
	67187B	Mast Pin Asy 1 3/4" Dia. w/ Lynch Pin								
32	N/A	N/A	-	-	-	-	-	-	-	-
33	9390-031	Capscrew 5/16"-18UNC x 1 1/4" Gr.5	2	2	2	2	2	2	2	2
34	9405-070	Flat Washer 5/16"	2	2	2	2	2	2	2	2
35	9397-008	Elastic Nut 5/16"-18UNC	2	2	2	2	2	2	2	2
36	91144-239	Spiral Pin 1/2" x 3" Lg.	2	2	2	2	2	2	2	2
37	9405-076	Flat Washer 3/8" USS	8	8	8	8	8	8	8	8
38	65285	Bushing 2" OD x 1.50" ID x 3 7/8"	2	2	2	2	2	2	2	2
39	62643	Shim	2	2	2	2	2	2	2	2
40	95031	Lynch/Klik Pin 7/16" x 2"	3	3	3	3	3	3	3	3
41	67187B	Mast Pin 1 3/4" Dia.	1	1	1	1	1	1	1	1
42	9501028	Lynch Pin 13/32" Dia. x 3 11/32"	1	1	1	1	1	1	1	1
43	9663	Locknut 1"-8UNC	4	4	4	4	4	4	4	4
44	91299-192	Capscrew 1"-8UNC x 4 1/2"	4	4	4	4	4	4	4	4
45	9405-116	Flat Washer 1"	2	2	2	2	2	2	2	2
46	66990B	Lower Mast Plate	2	2	2	2	2	2	2	2
47	9928	Locknut 3/8"-16UNC	8	8	8	8	8	8	8	8
48	65896B	Shim Plate 1/4"	4	4	4	4	4	4	4	4
49	65897B	Shim Plate 1/8"	4	4	4	4	4	4	4	4
50	65898B	Shim Plate 3/8"	4	4	4	4	4	4	4	4
51	67868	Shim 2" x 9 1/4"	-	2	2	2	2	2	2	2
52	67869	Shim 2" x 6 1/4"	-	-	2	2	2	2	2	2
53	68277G	Stub Tube Weldment =Green=	-	-	-	-	-	2	-	2
	68277R	Stub Tube Weldment =Red=								
54	63186G	Extension Frame 19" Weldment =Green=	-	-	-	-	-	2	-	4
	63186R	Extension Frame 19" Weldment =Red=								

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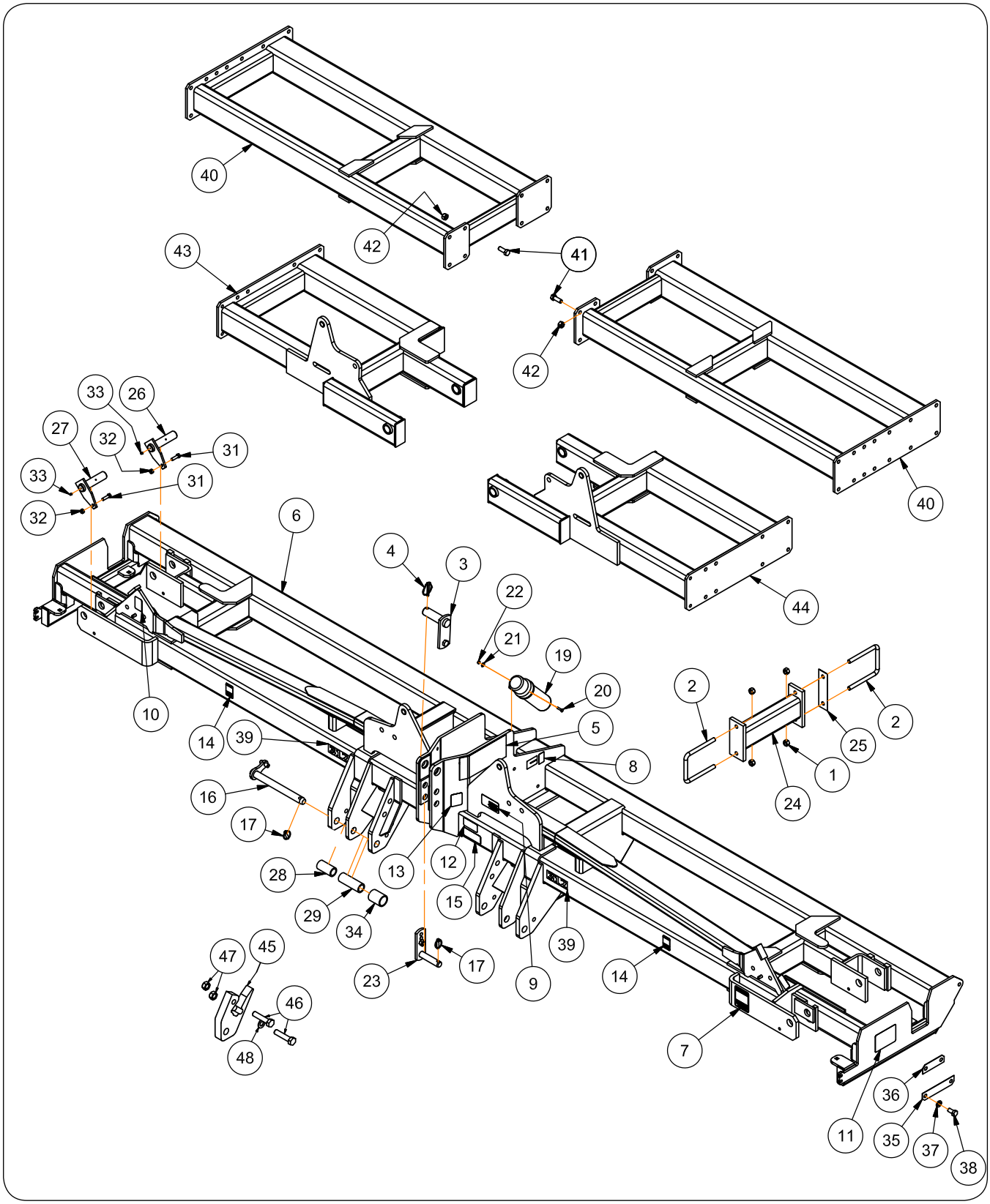
Folding Main Frame — 7/8/9/10/12 Shank 30" Spacing, 8 Shank 36/38" Spacing; 11/13 Shank 24" Spacing

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

ITEM	PART NO.	DESCRIPTION	7 SHANK	8 SHANK		9 SHANK	10 SHANK	11 SHANK	12 SHANK	13 SHANK
			30"	30"	36/38"	30"	30"	24"	30"	24"
55	63245G	Extension Frame 57" Weldment =Green=	-	-	-	-	-	-	2	-
	63245R	Extension Frame 57" Weldment =Red=								
56	68263G	Extension Assembly =Green= (Includes Items 57-61)	-	-	-	-	-	2	-	2
	68263R	Extension Assembly =Red= (Includes Items 57-61)								
57	9390-459	Capscrew, 7/8"-9UNC x 11" G5	-	-	-	-	-	16	-	16
58	98420	Lock Nut/Top, 7/8"-9UNC	-	-	-	-	-	16	-	16
59	9802	Lock Nut/Top, 3/4"-10UNC	-	-	-	-	-	4	-	4
60	67072B	Clamp =Black=	-	-	-	-	-	8	-	8
61	9390-452	Capscrew 3/4"-10UNC x 11" G5	-	-	-	-	-	4	-	4
	97301	12oz. Crimson Red Spray Touch-Up Paint	-	-	-	-	-	-	-	-
	97015	12oz. Implement Green Spray Touch-Up Paint	-	-	-	-	-	-	-	-

Folding Main Frame — 12 Shank 36 & 38” Spacing & 16 Shank 30” Spacing

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



Folding Main Frame — 12 Shank 36 & 38" Spacing & 16 Shank 30" Spacing

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

ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	9802	Locknut 3/4"-10UNC	32	
2	94090	U-Bolt 3/4"-10UNC x 8"	4	
3	67187B	Mast Pin 1 3/4" Dia. w/Lynch Pin	1	
4	9501028	Lynch Pin	1	
5	903208	Decal, ZONE-BUILDER	2	
6	68532G	Main Frame w/Decals =Green=	1	
	68532R	Main Frame w/Decals =Red=		
7	902221	Decal, DANGER! "Electrocution Hazard..."	2	
8	91605	Decal, FEMA	1	
9	95445	Decal, WARNING! "Do not use hands..."	2	
10	97048	Decal, WARNING! "Pinch Points..."	2	
11	97337	Decal, WARNING! "Never Stand..."	2	
12	97961	Decal, WARNING! "Read & Understand..."	1	
13	97972	Decal, WARNING! "Crushing Hazard..."	2	
14	97973	Decal, WARNING! "Crushing..."	2	
15	99507	Decal, WARNING! "Falling Equipment..."	1	
16	69657	Pin 1 7/16" Dia. x 15 7/16"	2	
17	95031	Lynch/Klik Pin 7/16" x 2"	3	
18	N/A	N/A	-	
19	900552	Manual Holder	1	
20	9390-031	Capscrew 5/16"-18UNC x 1 1/4"	2	Grade 5
21	9405-070	Flat Washer 5/16"	2	
22	9397-008	Elastic Nut 5/16"-18UNC	2	
23	67188B	Mast Pin Asy 1 1/4" Dia.	1	
24	61303G	Support Tube 18" =Green=	2	
	61303R	Support Tube 18" =Red=		
25	62643	Shim	2	
26	64277	Pin Lock Weldment (Rear)	2	
27	64279	Pin Lock Weldment (Front)	2	
28	65285	Bushing 2" OD x 3 7/8"	2	
29	65284	Bushing 2" OD x 5 11/16" (Lower CAT IV)	2	
30	N/A	N/A	-	
31	9390-102	Capscrew 1/2"-13UNC x 1 3/4"	4	Grade 5
32	9800	Locknut 1/2"-13UNC	4	
33	91160	Grease Zerk	4	
34	64428	Bushing 2 1/2" OD x 3 1/8"	2	
35	67868	Shim 2" x 9 1/4"	1	
36	67869	Shim 2" x 6 1/4"	1	

(Continued on next page)

Folding Main Frame — 12 Shank 36 & 38" Spacing & 16 Shank 30" Spacing

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

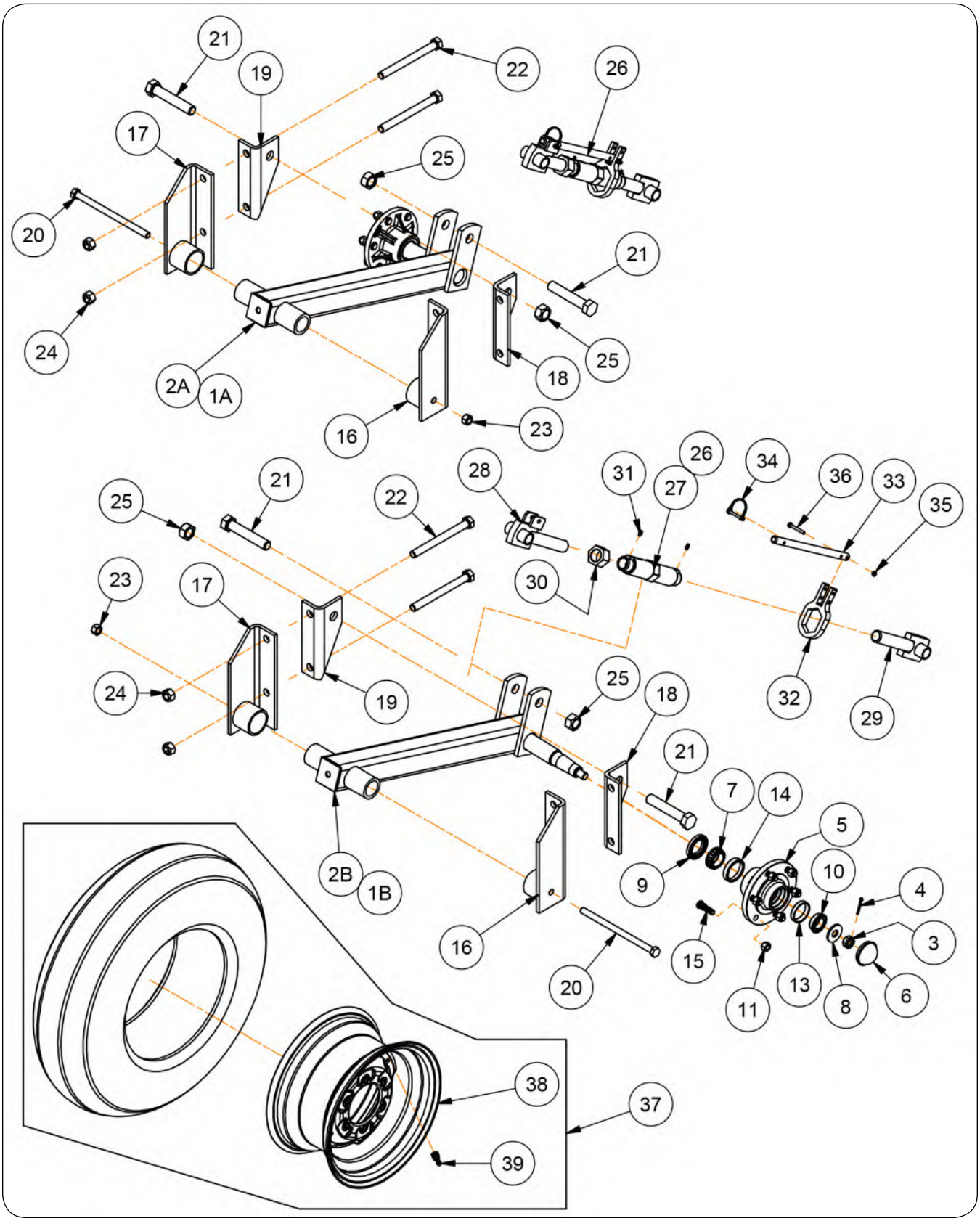
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
37	9404-034	Lock Washer 3/4"	4	
38	9390-143	Capscrew 3/4"-10UNC x 1 1/2" Gr5	4	
39	903138	Decal, MODEL 112	2	
	903139	Decal, MODEL 122		
	903140	Decal, MODEL 132		
40	64388G	Extension Frame 74"=Green=	2	For 16 Shank
	64388R	Extension Frame 74" =Red=		
	63245G	Extension Frame 57" =Green=		For 12 Shank 36 & 38"
	63245R	Extension Frame 57" =Red=		
41	9390-145	Capscrew 3/4"-10UNC x 2"	16	Grade 5
42	9802	Locknut 3/4"-10UNC		
43	68389G	Wing Base (Right-Hand) =Green=	1	
	68389R	Wing Base (Right-Hand) =Red=		
44	68390G	Wing Base (Left-Hand) =Green=	1	
	68390R	Wing Base (Left-Hand) =Red=		
45	66990B	Lower Mast Plate	2	
46	91299-192	Capscrew 1"-8UNC x 4 1/2"	4	
47	9663	Locknut 1"-8UNC	4	
48	9405-116	Flat Washer 1"	2	
	97301	12oz. Crimson Red Spray Touch-Up Paint	-	
	97015	12oz. Implement Green Spray Touch-Up Paint	-	

Notes

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

Stabilizer Wheel

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



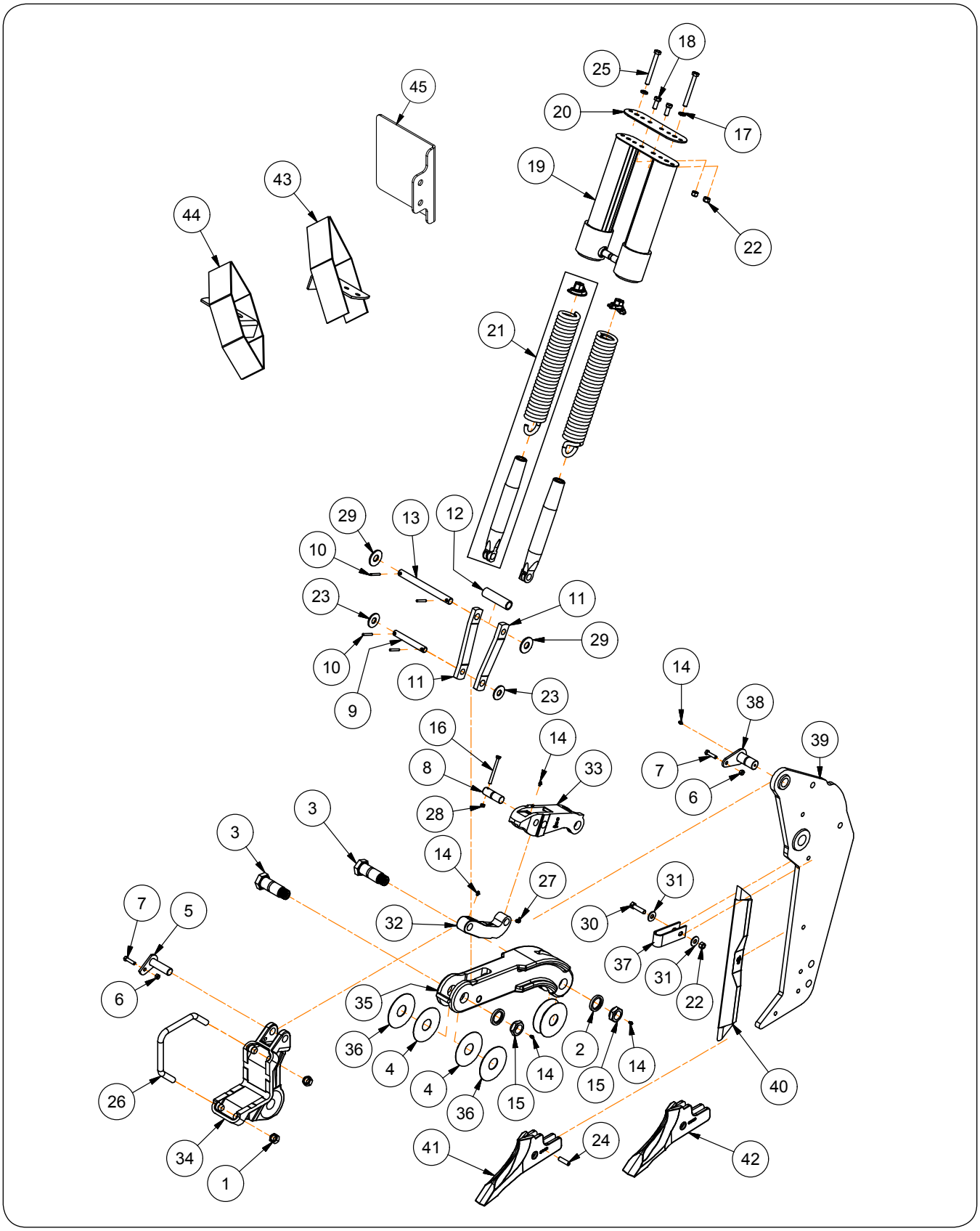
Stabilizer Wheel

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

ITEM	PART NO.	DESCRIPTION	QTY.
1A	67311B	Stabilizer Wheel Right-Hand Assembly less Wheel & Tire	1
1B	67312B	Stabilizer Wheel Left-Hand Assembly less Wheel & Tire	
2A	63624	Arm Hub Assembly Right-Hand (Includes Items 3 through 15)	1
2B	63623	Arm Hub Assembly Left-Hand (Includes Items 3 through 15)	
3	9393-016	Slotted Nut 3/4"-16UNF	1
4	9391-035	Cotter Pin 5/32" Dia. x 1 1/2"	1
5	9768B	Hub Assembly (Includes Items 7 through 15)	1
6	9162	Hub Cap	1
7	9166	Inner Cone	1
8	9234	Washer	1
9	9168	Seal	1
10	9165	Outer Cone	1
11	9348	Tapered Nut 1/2-20UNF	6
13	9345	Outer Cup	1
14	9346	Inner Cup	1
15	9347	Drive-In Stud 1/2"-20UNF x 1 7/8"	6
16	60909	Pivot Bracket Right-Hand	1
17	60910	Pivot Bracket Left-Hand	1
18	60890	Plate Right-Hand	1
19	60891	Plate Left-Hand	1
20	9390-444	Hex Capscrew 5/8"-11UNC x 10 1/2"	1
21	9390-194	Hex Capscrew 1"-8UNC x 5 1/2"	2
22	9390-161	Hex Capscrew 3/4"-10UNC x 8" (For Rear Bar Mounting)	4
	9390-155	Hex Capscrew 3/4"-10UNC x 5" (For Front Bar Mounting)	
23	9801	Locknut 5/8"-11UNC	1
24	9802	Locknut 3/4"-10UNC	4
25	9663	Locknut 1"-8UNC	2
26	66833	Turnbuckle Assembly (Includes Items 27-36)	1
27	62324	Turnbuckle	1
28	66832	Adjusting Rod Weldment Right-Hand	1
29	60907	Adjusting Rod Weldment Left-Hand	1
30	9394-024	Hex Nut 1 1/4"-7UNC	1
31	91160	Grease Zerk	2
32	67957	Wrench Body	1
33	66830	Rod Handle	1
34	9000936	Lynch Pin	1
35	9936	Locknut 1/4"-20UNC	1
36	9390-009	Capscrew 1/4"-20UNC x 2"	1
37	11895	Tire & Wheel Assembly (Tire 12.5LB15)	1
38	W1015-6-98RG	10 x 15 Wheel	-
37	60911	Tire & Wheel Assembly (Tire 9.5LB15)	1
38	W815-6-08	8 x 15 Wheel	-
37	81145	Tire & Wheel Assembly (Tire 7.6B15)	1
38	W615-6	6 x 15 Wheel	-
39	9002500	Valve Stem With Cap	1

Auto-Reset Shank — Model 132

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



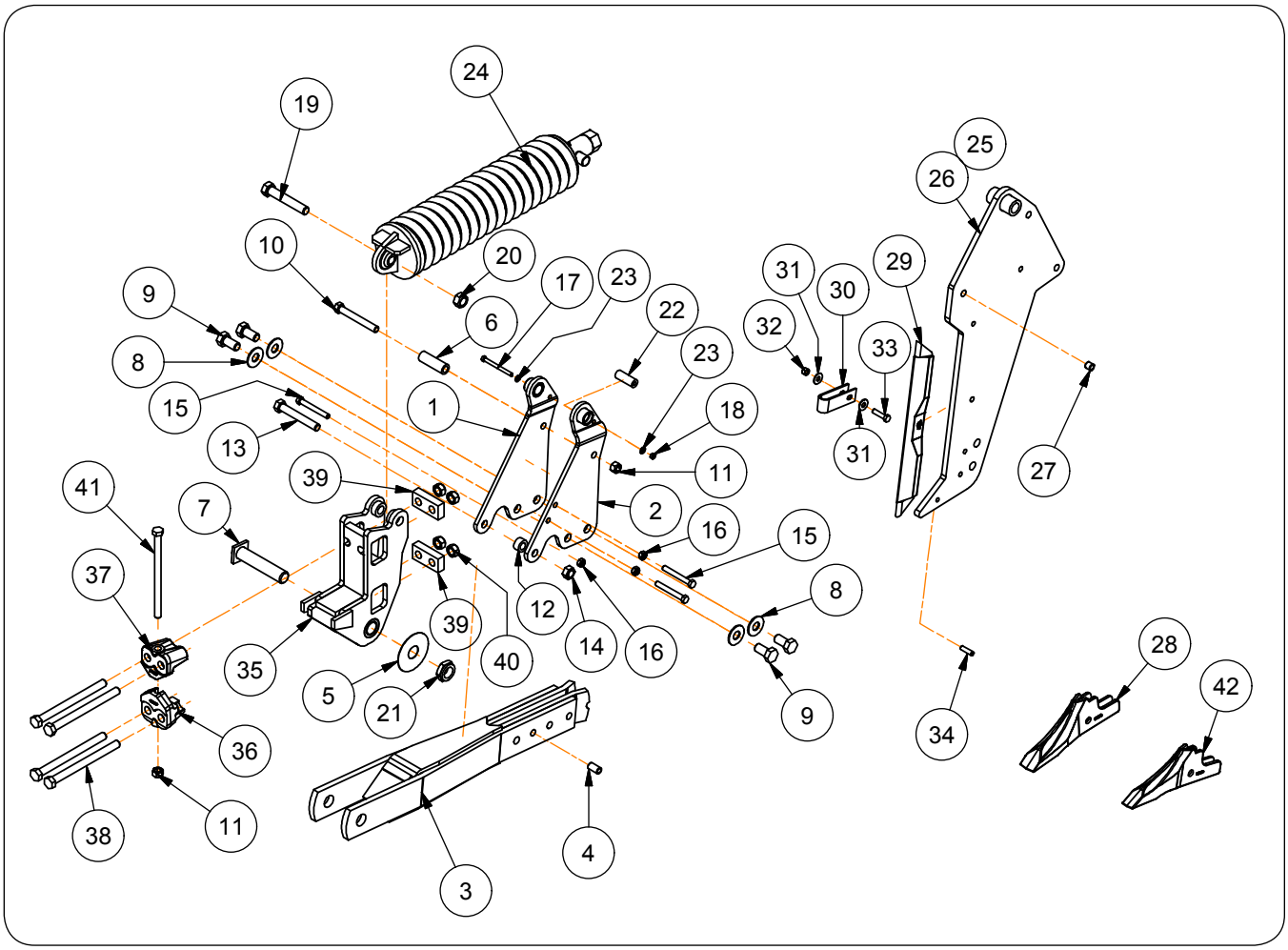
Auto-Reset Shank — Model 132

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

ITEM	PART NO.	DESCRIPTION	QTY
	67228B	Straight Shank Asy Complete	-
1	97025	Locknut 3/4”-10UNC	4
2	85791	Beveled Flat Washer 1 9/16” Dia.	2
3	86749B	Pivot Pin with Zerk	2
4	63098B	Shim Washer 5” OD x 1 5/8” ID x .050”	2
5	63157B	Front Pivot Pin	1
6	9928	Locknut 3/8”-16UNC	2
7	9390-057	Capscrew 3/8”-16UNC x 1 1/2”	2
8	801310B	Middle Toggle Pin	1
9	63144B	Bottom Spring Pin 3/4”	1
10	91144-165	Spiral Pin 1/4” Dia. x 1 7/8”	4
11	63145B	Spring Strap	2
12	63313PL	Roller	1
13	63091B	Top Spring Pin 7/8” x 9 9/16”	1
14	91160	Zerk 1/4”-28 (Inner Toggle)	4
15	96976-048	Thin Collar Locknut 1 1/4”-12 (Torque to 250-300 ft.-lbs.)	2
16	9390-041	Capscrew 5/16”-18UNC x 3 3/4” (Grade 5)	1
17	9404-026	Lock Washer 1/2”	2
18	9390-100	Capscrew 1/2”-13UNC x 1 1/4”	2
19	801302B	Outer Spring Can	1
20	801318B	Spring Tube Brace	1
21	67896B	Extension Spring Assembly	2
22	9800	Locknut 1/2”-13UNC	2
23	9405-105	Flat Washer 3/4”	2
24	91144-234	Spiral Pin 1/2” Dia.	1
25	93400	Capscrew 1/2”-13UNC x 4 1/2”	2
26	94135B	V-Bolt 3/4”-10UNC	2
27	93415	90° Zerk 1/4”-28 (Inner Toggle)	1
28	9807	Locknut 5/16”-18UNC	1
29	9405-112	Flat Washer 7/8” Dia.	2
30	9390-103	Capscrew 1/2”-13UNC x 2”	1
31	9405-088	Flat Washer 1/2”	2
32	64357B	Inner Toggle Subassembly (Includes Items 3 & 4, grease zerks)	1
33	64784B	Outer Toggle	1
34	83291B	Shank Mount	1
35	68393B	Pull Arm Bracket	1
36	66834B	Shim Washer 5” OD x 1 5/8” ID x 0.090”	2
37	66822B	Strap	1
38	66926B	Pin Assembly 1 1/4” Dia. x 2 3/4” Long	1
39	67031B	Shank Weldment	1
40	67034B	Wear Bar	1
41	67948B	Point 1 3/4” Wide	1
42	67949B	Point 2 1/4” Wide	1
43	68514B	Spring Can Bracket Weldment for 16 Shank 30” Spacing	-
44	63525	Spring Can Bracket Weldment for 8 Shank 36” Spacing	-
45	68804B	Plate, Black, for 12 Shank 36” Spacing with Auto-Reset Shanks	2

Spring-Cushioned Shank — Model 122

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



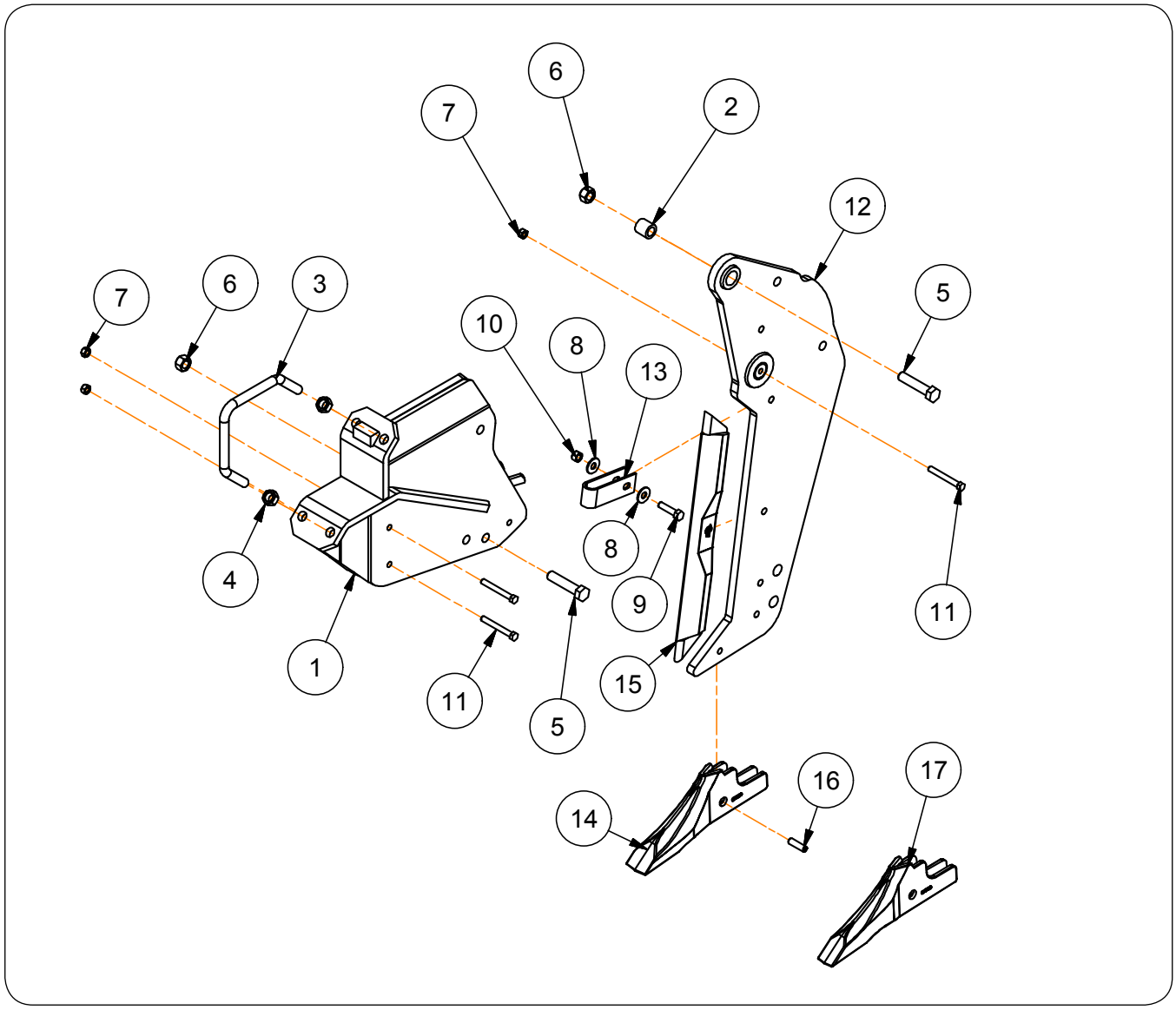
Spring-Cushioned Shank — Model 122

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

ITEM	PART NO.	DESCRIPTION	QTY.
	67229B	Shank Asy Complete (Includes Items 1-17, 19, 22, 23, 26-30, 34, 35, 42)	-
1	65589B	Clevis, Right-Hand	1
2	65590B	Clevis, Left-Hand	1
3	65592B	Pull Arm Weldment	1
4	66281	Bushing, 13/16" OD x 1.5"	1
5	63098B	Shim Washer 5" OD x 1 5/8" ID x .050"	1
6	64170	Tube 1 1/4" OD x 3 13/16"	1
7	64315	Pin Weldment	1
8	9002270	Flat Washer 1" (Hardened)	4
9	91299-183	Capscrew 1"-8UNC x 2" (Grade 8) (Torque to 500-520 ft.-lbs.)	4
10	9390-157	Capscrew 3/4"-10UNC x 6"	1
11	9802	Locknut 3/4"-10UNC	2
12	64198B	Tube 1 1/2" OD x .79"	1
13	9390-176	Capscrew 7/8"-9UNC x 6"	1
14	91141	Locknut 7/8"-9UNC	1
15	9390-503	Shear-Bolt 9/16"-12UNC x 4 1/2"	3
16	98626	Locknut 9/16"-12UNC	3
17	9390-068	Capscrew 3/8"-16UNC x 4 1/2"	1
18	9928	Locknut 3/8"-16UNC	1
19	9390-195	Capscrew 1"-8UNC x 6"	1
20	9663	Locknut 1"-8UNC	1
21	96976-056	Locknut 1 1/2"-12UNF (Grade 8) (Torque to 250-300 ft.-lbs.)	1
22	64534B	Tube 1" OD x 2 3/4"	1
23	9405-074	Flat Washer 3/8"	2
24	807775B	Spring Assembly	1
25	67030B	Shank Assembly (Includes Items 26 through 34)	1
26	67027B	Shank Weldment (Includes Item #27)	1
27	98795	Bushing 13/16" Dia. x 3/4	1
28	67949B	Point 2 1/4" Wide	1
29	67034B	Wear Bar	1
30	66822B	Strap	1
31	9405-088	Flat Washer 1/2"	1
32	9800	Locknut 1/2"-13UNC	1
33	9390-103	Capscrew 1/2"-13UNC x 2"	1
34	91144-234	Spiral Pin 1/2" Dia. x 1 3/4"	1
35	67078B	Pull Bracket	1
36	67073B	Clamp Bottom	1
37	67072B	Clamp Top	1
38	9390-459	Capscrew 7/8"-9UNC x 11"	4
39	67076B	Block	2
40	98420	Locknut 7/8"-9UNC	4
41	9390-454	Capscrew 3/4"-10UNC x 12"	1
42	67948B	Point 1 3/4" Wide	1

Shear-Bolt Shank — Model 112

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



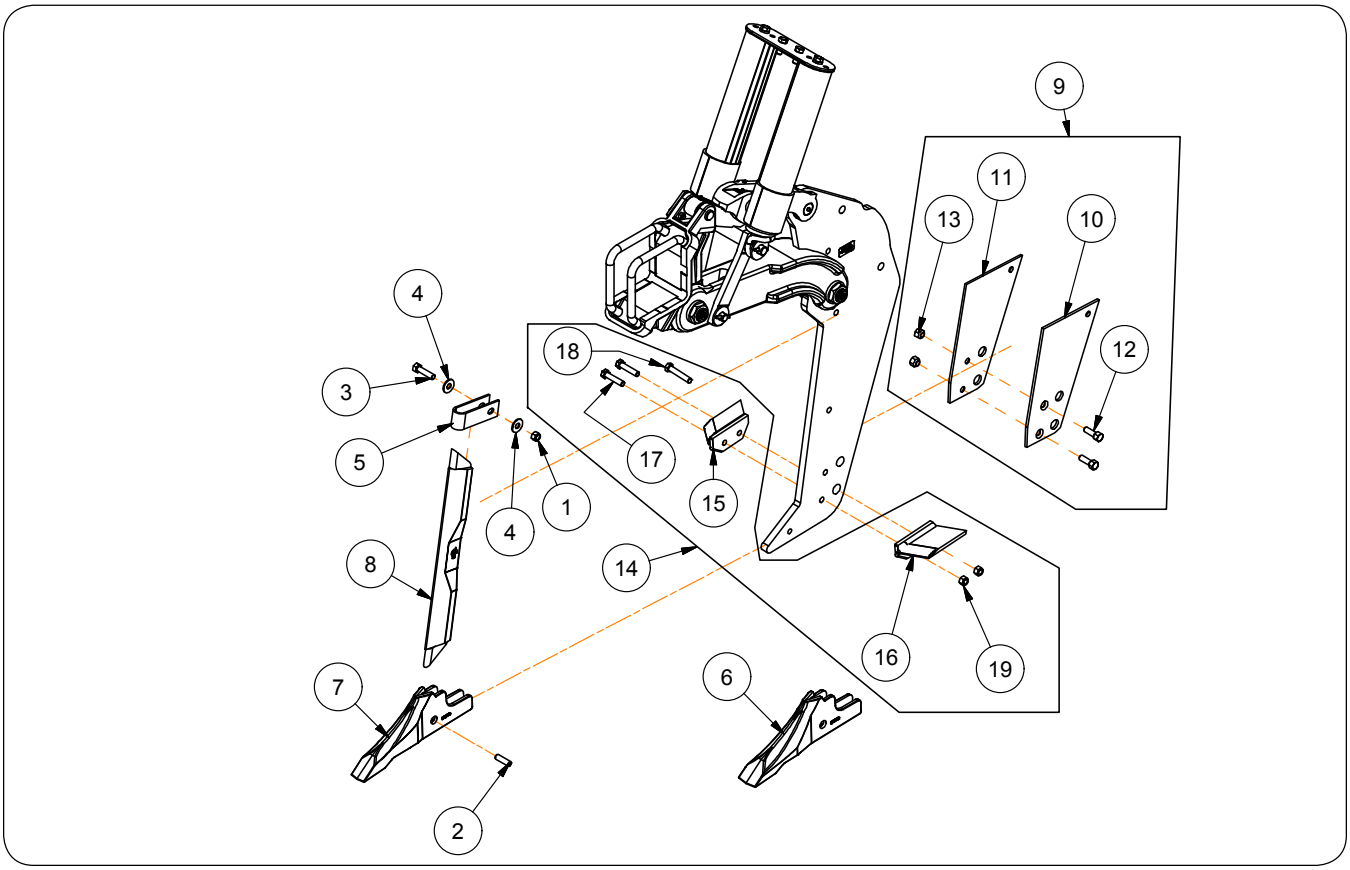
Shear-Bolt Shank — Model 112

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

ITEM	PART NO.	DESCRIPTION	QTY.
	67227B	Shank Assembly	-
1	67049B	Bracket Weldment	1
2	71415	Bushing	1
3	94135B	V-Bolt 3/4"-10UNC	2
4	97025	Locknut 3/4"-10UNC	4
5	9390-151	Capscrew (Grade 5) 3/4"-10UNC x 3 1/2" Lg.	1
6	9802	Locknut 3/4"-10UNC	2
7	9799	Locknut 7/16"-14UNC	3
8	9405-088	Flat Washer 1/2"	2
9	9390-103	Capscrew (Grade 5) 1/2"-13UNC x 2" Lg.	1
10	9800	Locknut 1/2"-13UNC	1
11	9390-088	Capscrew (Shear Bolt) 7/16-14UNC x 3 1/2"	3
12	67226B	Shear-Bolt Shank Weldment	1
13	66822B	Strap	1
14	67949B	Point 2 1/4" Wide	1
15	67034B	Wear Bar	1
16	91144-234	1/2" Roll Pin	1
17	67948B	Point 1 3/4" Wide	1

Ground Engaging Parts

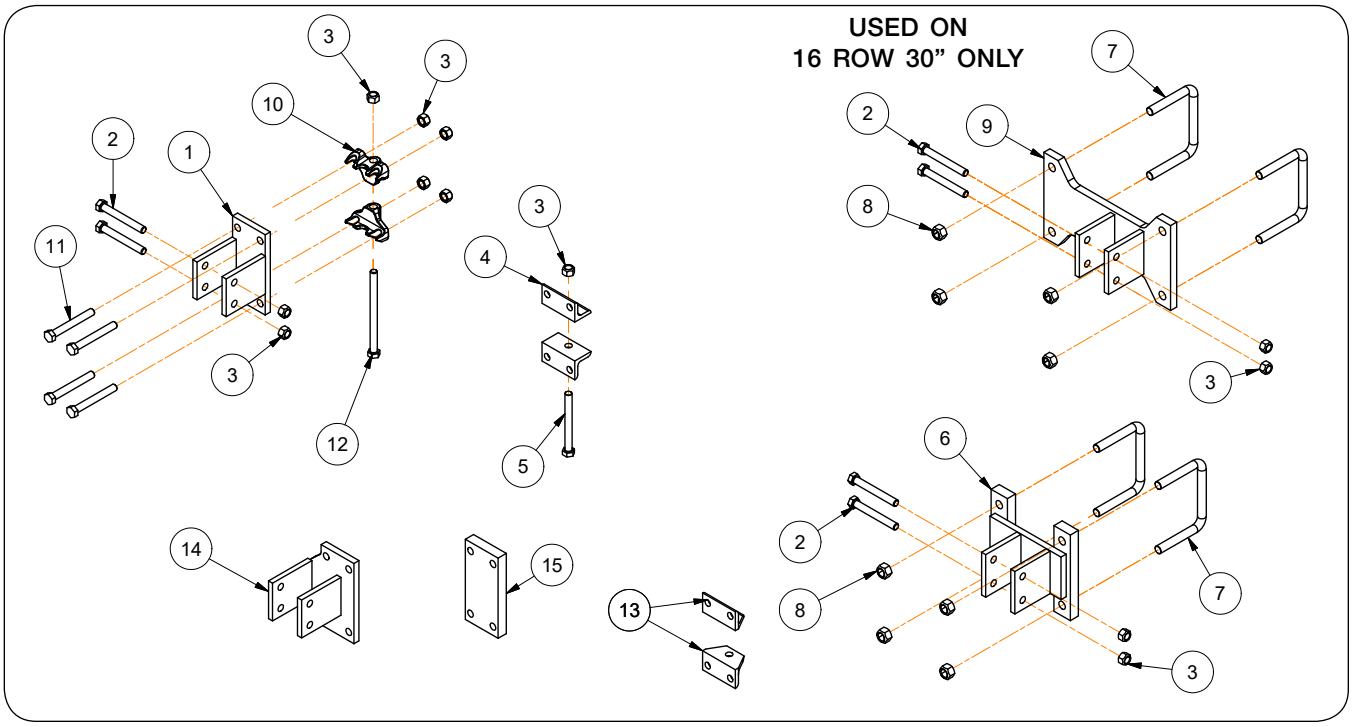
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY
1	9800	Locknut 1/2”-13UNC	1
2	91144-234	Spiral Pin 1/2” Dia x 1 3/4” Lg.	1
3	9390-103	Hex Capscrew 1/2”-13UNC x 2” Lg.	1
4	9405-088	Flat Washer 1/2”	2
5	66822B	U-Strap	1
6	67949B	Point 2 1/4” Wide	1
7	67948B	Point 1 3/4” Wide	1
8	67034B	Wear Guard	1
9	64080	Shank Protector Bundle Option	1
10	N/A	Plate RH	1
11	N/A	Plate LH	1
12	9500736	Bolt 1/2”-20UNF x 1 3/8”	2
13	9348	Beveled Nut 1/2”-20UNF	2
14	67691B	Shatter Wing Bundle (Optional)	1
15	—	Right-Hand Wing	1
16	—	Left-Hand Wing	1
17	9390-104	Capscrew 1/2”-13UNC x 2 1/4” Lg.	2
18	9390-106	Capscrew 1/2”-13UNC x 2 3/4” Lg.	2
19	9800	Locknut 1/2”-13UNC	2

Flush Clamps

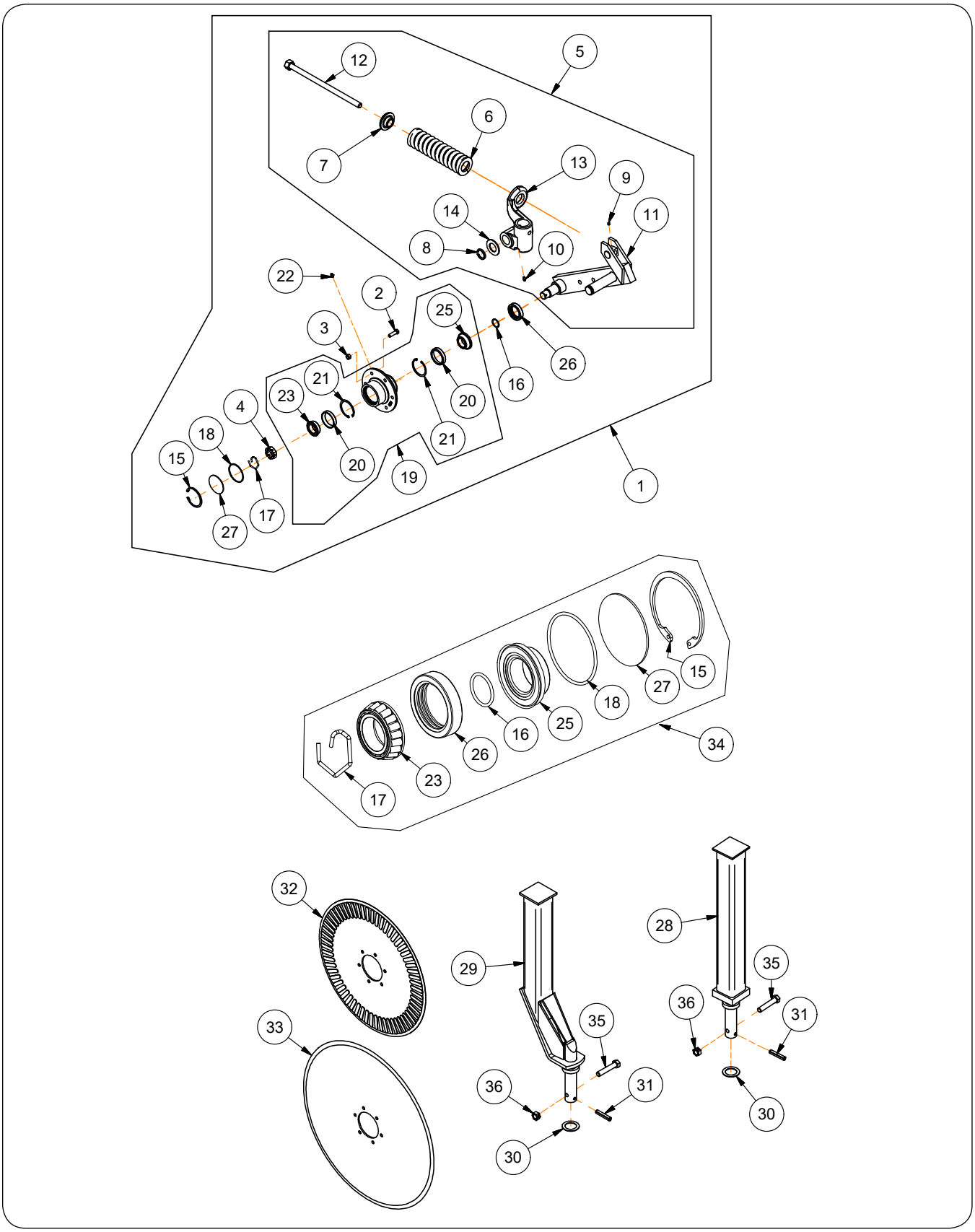
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NUMBER	DESCRIPTION	DESCRIPTION
1	60245	6" Flush Clamp Weldment	
	60205	Flush Bracket Bundle	Includes Items 1, 2, 3, 4, 5, 13
2	9390-134	Capscrew 5/8"-11UNCx 5"	
3	9801	Locknut 5/8"-11UNC	
4	60271	Angle Bracket	
5	9390-136	Capscrew 5/8"-11UNCx 6"	
6	62546	Offset Bracket Weldment	
	63063	Offset Bracket Bundle (For Even Shank Machines)	Includes Items 2, 3, 6, 7, 8
7	94012	U-Bolt 3/4"-10UNC x 5"	
	94090	U-Bolt 3/4"-10UNC x 8"	
8	9802	Locknut 3/4"-10UNC	
9	64425B	Mounting Bracket	
10	67922B	Extension Clamp	
11	9390-134	Capscrew 5/8"-11UNCx 5"	
	9390-128	Capscrew 5/8"-11UNCx 3"	
	9390-135	Capscrew 5/8"-11UNCx 5 1/2"	
	9390-137	Capscrew 5/8"-11UNCx 6 1/2"	
	9390-140	Capscrew 5/8"-11UNCx 8"	
12	9390-441	Capscrew 5/8"-11UNCx 8 1/2"	
13	62543	Clipped Angle Bracket	
14	68520B	Flush Clamp Offset Weldment	
15	68970B	Spacer Plate	

Combo® Coulter — Beginning with Serial #A60830170

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



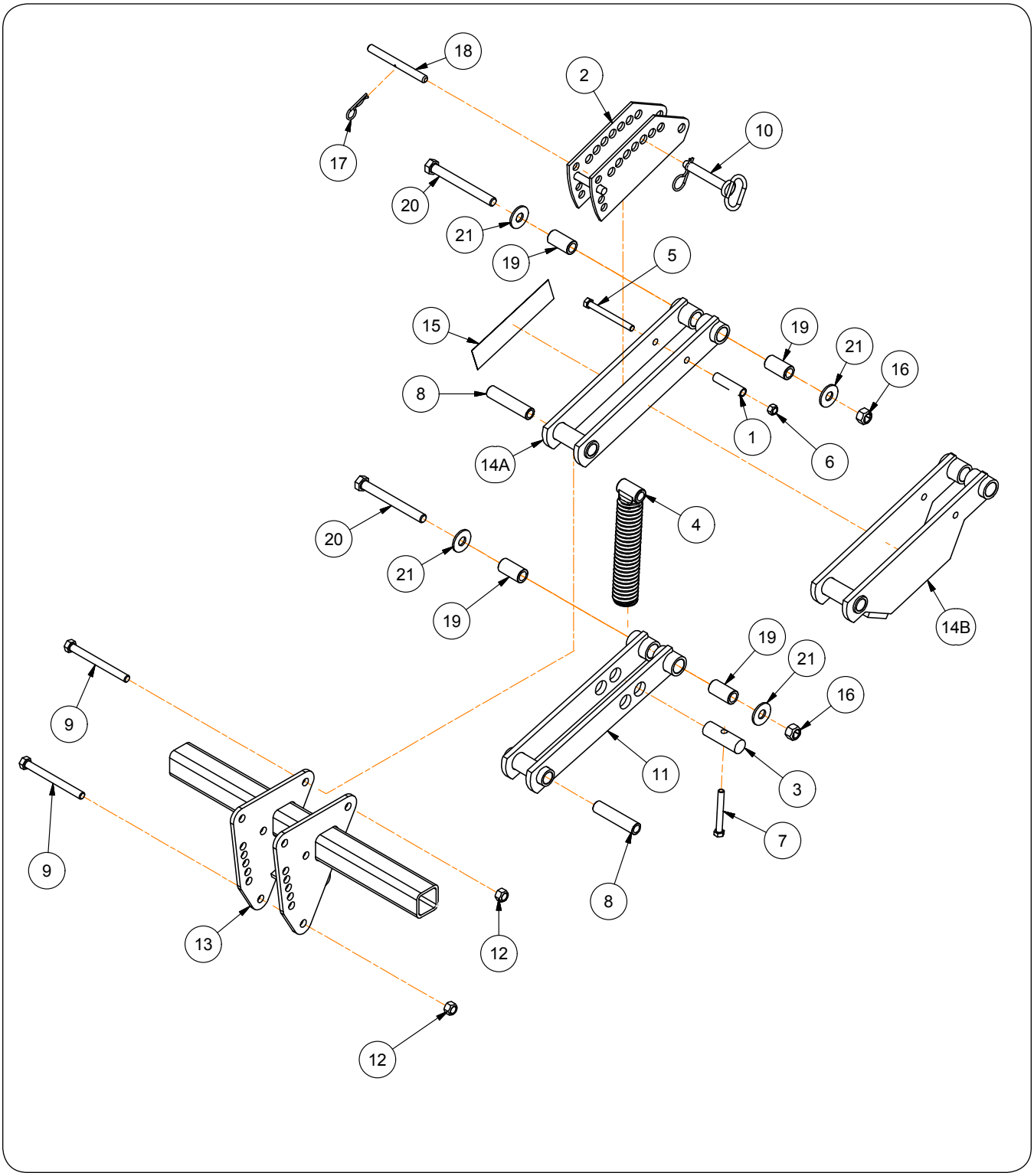
Combo® Coulter — Beginning with Serial #A60830170

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

ITEM	PART NO.	DESCRIPTION	QTY
1	68114B	Coulter Left-Hand Subassembly (Includes Items 2-27) (No Holes in Coulter Arm)	1
	65854B	Coulter Left-Hand Subassembly (Includes Items 2-27) (Two Holes in Coulter Arm)	
2	9390-056	Capscrew 3/8"-16UNC x 1 1/4" Lg.	6
3	9928	Locknut 3/8-16	6
4	94795	Slotted Jam Nut 1-14	1
6	94756B	Spring	1
7	82826B	Spring Washer	1
8	94144	Retaining Ring 1 1/4"	1
9	9399-057	Set Screw 1/4-20 x 1/4" Lg.	1
10	91160	Grease Zerk	1
11	68112B	Coulter Arm LH Weldment (No Holes in Arm)	1
	65852B	Coulter Arm LH Weldment (Two Holes in Arm)	
12	83371B	Spring Rod Weldment	1
13	82823B	Coulter LH Swivel Bracket	1
14	92528B	Bushing	1
15	93985	Retaining Ring (Beginning with Serial #A39230100)	1
16	95565	O-ring 1.049 I.D.	1
17	9504825	Retaining Spring 1/8"Dx1 3/4"	1
18	902158	O-Ring	1
19	64533	Hub 6 Bolt Assembly (Includes Items 20-25)	1
20	9345	Bearing Cup	2
21	94796	Retaining Ring 2 1/2" (Beginning with Serial #A39230100)	2
22	9501603	Grease Zerk	1
23	9165	Bearing Cone #LM67048	1
25	901145	Seal & Bearing Kit	1
26	93987	Triple Lip Seal	1
27	60735B	Hub Cap (Beginning with Serial #A39230100)	1
28	68730B	Straight Post (Auto-Reset Shanks) (Includes Items 30, 31, 35, 36)	1
29	68729B	Offset Post (Includes Items 30, 31, 35, 36)	1
30	96581	Machinery Washer	1
31	9392-210	Roll Pin 1/2" Dia. x 2 1/2"	1
32	93934	Coulter Blade (Ripple) .83" Wide x 20" Dia. (SHOWN)	1
33	95633	Coulter Blade (Smooth) .197" Wide x 24" Dia. (For Models 112 & 132 ONLY)	
34	68281	Seal Kit (Includes Items 15, 16, 17, 18, 25, 26, & 27)	-
35	9390-129	Capscrew 5/8"-11UNC x 3 1/4 (Grade 5)	1
36	95905	Locknut 5/8"-11UNC	1
	68247B	Complete Coulter Assembly (Straight Post)	-
	68248B	Complete Coulter Assembly (Offset Post)	-

Strip-Builder Frame

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



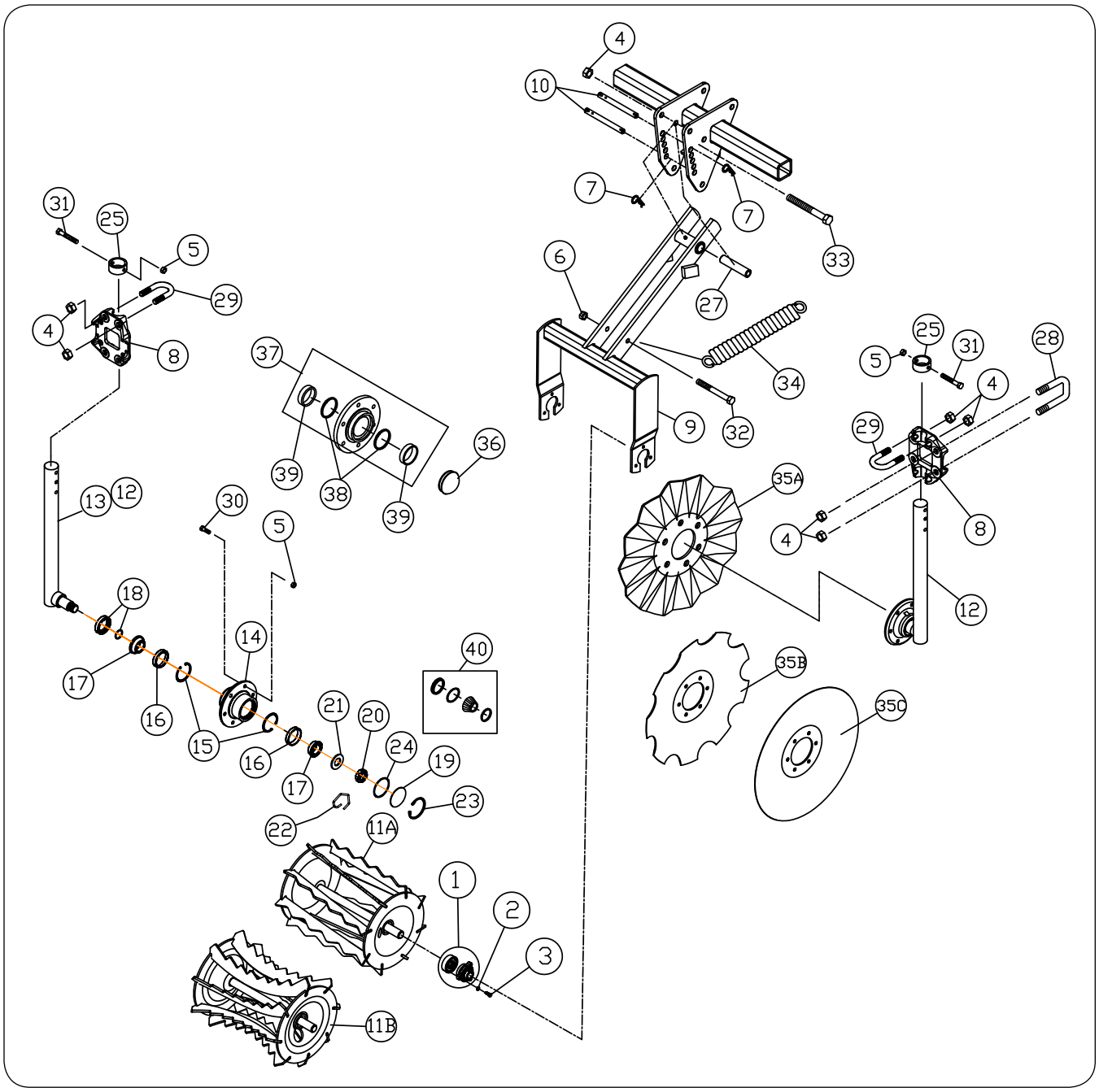
Strip-Builder Frame

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

ITEM	PART NO.	DESCRIPTION	QTY.
	63163	Strip-Builder Frame & Arm Assembly (Includes Items 1 through 14)	-
1	62810	Tube 3 3/16 Lg.	1
2	62721	Adjustable Link	1
3	67173	Trunnion	1
4	8235	Spring Assembly	1
5	9390-113	Capscrew 1/2"-13UNC x 5" (Gr. 5)	1
6	9800	Locknut 1/2"-13UNC	1
7	91552	Full Threaded Capscrew 1/2"-13UNC x 4"	1
8	63855	Tube 4 9/16" Lg.	2
9	9390-137	Capscrew 5/8"-11UNC x 6 1/2" (Gr. 5)	2
10	97035	Hitch Pin 4 1/4" Lg. & Hairpin (95959)	1
11	62728	Bottom Clevis Arm Assembly	1
12	9801	Locknut 5/8"-11UNC	2
13	63966B	Frame	1
14A	63967B	Top Clevis Arm Assembly	1
14B	66245B	Top Clevis Arm Trip Guard Option	
15	901909	Decal, Setting Coulter Depth	1
16	9802	Locknut 3/4"-10UNC	2
17	9806	Hairpin Cotter Pin 2 11/16" Lg.	1
18	62811	Pin 5/8" Dia. x 6 5/8" Lg.	1
19	63854	Tube 2 5/16" Lg.	4
20	9390-159	Capscrew 3/4"-10UNC x 7" (Gr. 5)	2
21	9405-106	Flat Washer 3/4" USS	4

Strip-Builder Coulter & Basket

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



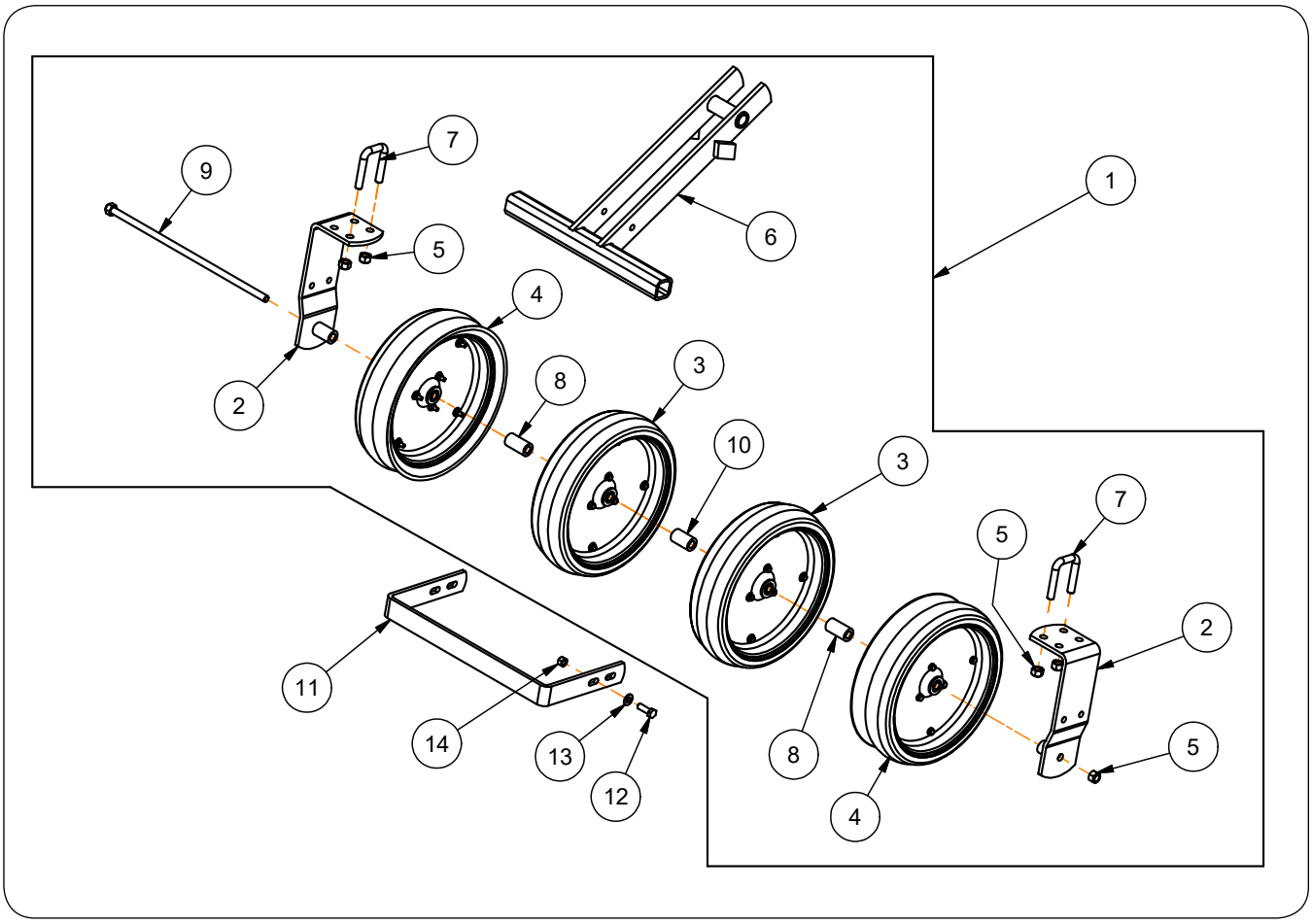
Strip-Builder Coulter & Basket

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

ITEM	PART NO.	DESCRIPTION	QTY.
1	87181	Bearing Repair Kit	2
2	9404-019	5/16 Lock Washer	6
3	97321	Capscrew 5/16"-18UNC x 7/8" Lg. (Gr. 5)	6
4	9801	Locknut 5/8"-11UNC	9
5	9928	Locknut 3/8"-16UNC	20
6	9800	Locknut 1/2"-13UNC	1
7	9806	Hairpin Cotter Pin 2 11/16" Lg.	2
8	62594	Mounting Clamp	2
9	65272B	Basket Frame	1
10	65352	Pin 5/8" Dia. x 6 1/2"	2
11A	62800	15" Aggressive/Standard Blade Basket	1
11B	65919B	15" Concave Blade Basket	
12	62806	Spindle Post & Hub Assembly	2
13	62792	Spindle Post	1
14	64533	Hub Assembly	1
15	94796	Retaining Ring 2 1/2"	2
16	9345	Bearing Cup	2
17	901145	Inner Bearing Cone & Seal Combo	2
	9165	Outer Bearing Cone #LM67048	
18	95565	O-Ring	
19	60735B	Hub Cap	1
20	94795	Slotted Jam Nut 1"-14	1
21	94800	Washer 2" O.D.	1
22	9504825	Retaining Spring 1/8"Dx1 3/4"	1
23	93985	Retaining Ring 2 1/2"	1
24	902158	O-Ring	1
25	62823B	Tube	2
26	62810	Tube 3 3/16 Lg.	2
27	63855	Tube 4 9/16" Lg.	1
28	94015	U-Bolt 5/8"-11UNC(Gr. 5)	2
29	95883	U-Bolt 5/8"-11UNC(Gr. 5)	2
30	9390-056	Capscrew 3/8"-16UNC x 1 1/4" Lg. (Gr. 5)	12
31	9390-062	Capscrew 3/8"-16UNC x 2 3/4" Lg. (Gr. 5)	2
32	9390-113	Capscrew 1/2"-13UNC x 5" Lg. (Gr. 5)	1
33	9390-137	Capscrew 5/8"-11UNCx 6 1/2" Lg. (Gr. 5)	1
34	97083B	Extension Spring	1
35A	93931	Coulter Blade 17.63" Dia. (1" - 13 Wave)	2
	93932	Coulter Blade 17.27" Dia. (2" - 8 Wave)	
35B	900586	Coulter Concave Blade 18.375" Dia.	
35C	900598	Coulter Concave Blade 18" Dia.	
36	94789B	Hub Cap (Prior to Serial #A39230099)	2
37	63989	Hub Subassembly (Prior to Serial #A39230099)	2
38	63985	Retaining Rings	2
39	9345	Bearing Cup	2
40	68281	Bearing & Seal Kit Includes Items 17, 18, 24	-
41	63966B	Strip-Builder Frame	1

4 Wheel Zone-Firmer with Frame Components

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



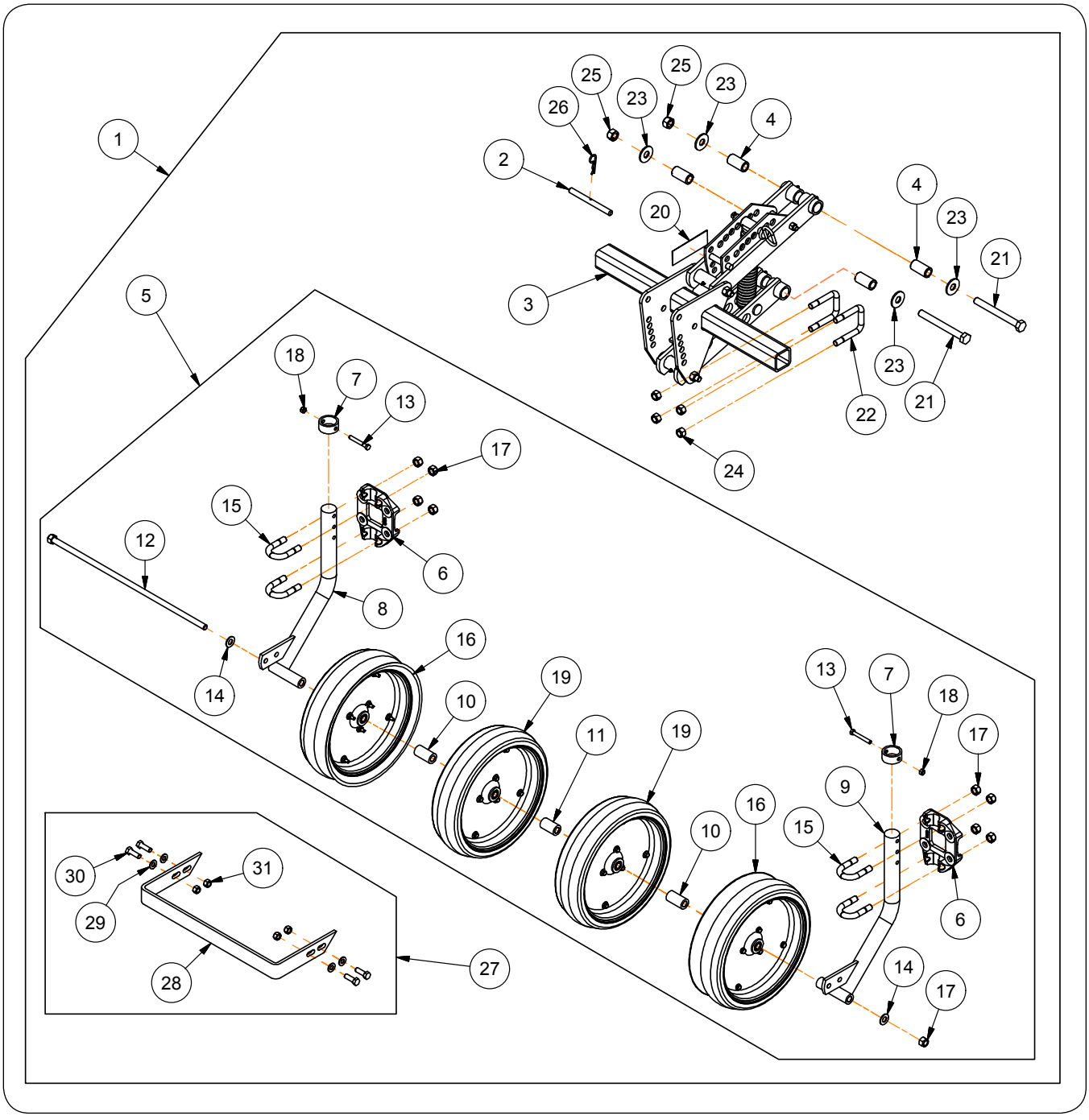
ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	65246B	4 Wheel Zone Firmer	1	
2	64599B	Plate Weldment	2	
3	99712	Tire & Wheel Assembly	3	
4	97520	Offset Tire & Wheel	2	
5	9801	Locknut 5/8”-11UNC	9	
6	65273B	Frame Weldment (19 1/2” Wide)	1	
7	85620	U-Bolt 5/8”-11UNC	4	
8	64598	Tube 2 3/8” Long	2	
9	65248	Rod Weldment	1	
10	65251	Tube 2 1/8” Long	2	
11	65264B	Scraper Bar Bundle	-	
	65263B	Scraper Bar	1	
12	9405-086	Flat Washer 1/2” SAE	4	
13	9390-101	Capscrew 1/2”-13UNC x 1 1/2”	4	Grade 5
14	9800	Locknut 1/2”-13UNC	4	

Notes

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

4 Wheel Zone-Firmer with Posts Components

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



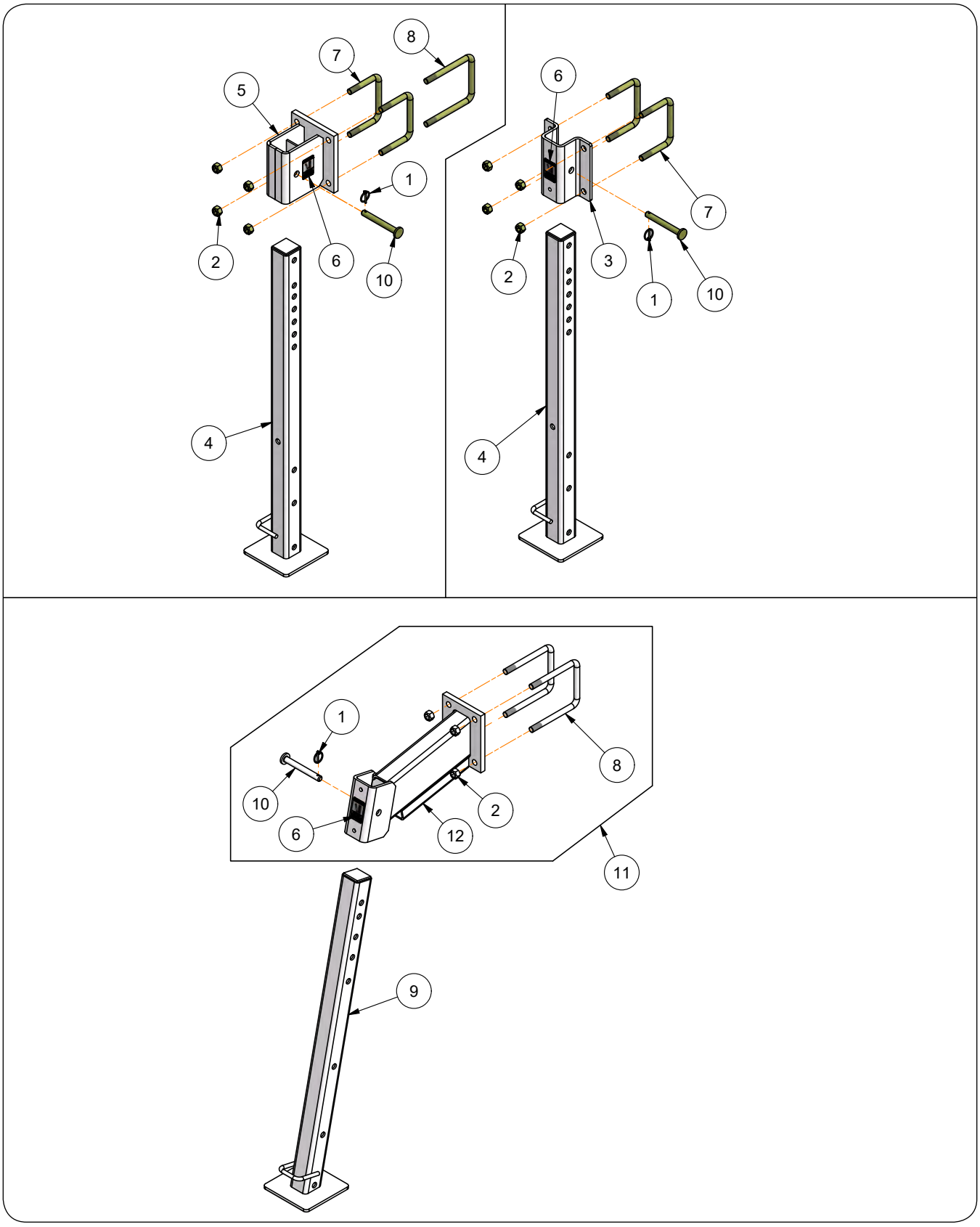
4 Wheel Zone-Firmer with Posts Components

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

ITEM	PART NO.	DESCRIPTION	QTY
1	68082B	Zone Firmer Assembly 4-Wheel (16" Wide) Option	-
2	62811	Pin 5/8" Dia. x 6 5/8"	1
3	63163	Frame & Arm Assembly	1
4	63854	Tube 1 1/4" Dia. x 2 5/16"	4
5	N/A	Press Wheel Assembly 4-Wheel (16" Wide)	1
6	62594	Clamp Mounting Casting	2
7	62823B	Tube 1" Long	2
8	64216B	Axle Post Weldment Left-Hand	1
9	64217B	Axle Post Weldment Right-Hand	1
10	64598	Tube 2 3/8" Long	2
11	65251	Tube 1 1/4" Dia. x 2 1/8"	1
12	68080	Tie Rod Weldment 5/8" Dia. x 25 1/4	1
13	9390-062	Capscrew 3/8"-16UNC x 2 3/4 (Grade 5)	2
14	9405-098	Flat Washer 5/8" SAE	2
15	95883	U-Bolt 5/8"-11UNC	4
16	97520	Offset Tire & Wheel	2
17	9801	Locknut 5/8"-11UNC	9
18	9928	Locknut 3/8"-16UNC	2
19	99712	Tire & Wheel Assembly	2
20	901909	Decal, Adjustment Procedures	1
21	9390-159	Capscrew 3/4"-10UNC x 7" (Grade 5)	2
22	94015	U-Bolt 5/8"-11UNC x 3 7/8" (Grade 5)	4
23	9405-106	Flat Washer 3/4" USS	4
24	9801	Locknut 5/8"-11UNC	8
25	9802	Locknut 3/4"-10UNC	2
26	9806	Hairpin Cotter for 5/8-3/4" Dia. Shafts	1
27	68083B	Scraper Bar Bundle	-
28	N/A	Scraper Bar	1
29	9405-086	Flat Washer 1/2" SAE	4
30	9390-101	Capscrew 1/2"-13UNC x 1 1/2"	4
31	9800	Locknut 1/2"-13UNC	4

Storage Stand

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



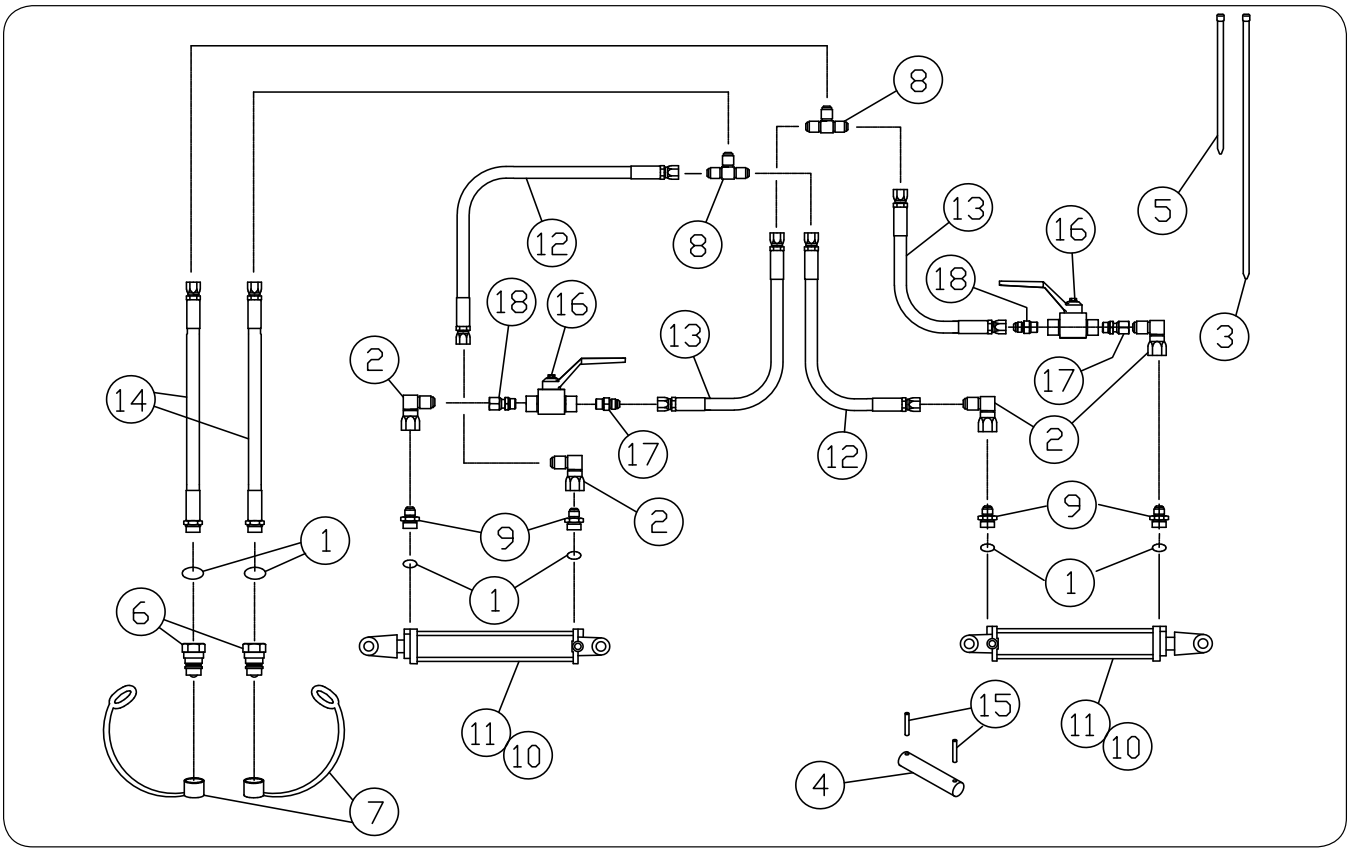
Storage Stand

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

ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
1	9093	Klik-Pin	1	
2	9802	Locknut 3/4”-10UNC	4	
3	60850	Mounting Bracket (for Rigid Units)	1	
4	63529	Storage Stand (for Rigid Units)	1	
5	77341B	Mounting Bracket	1	
6	97973	Decal, WARNING	1	
7	94012	U-Bolt 3/4”-10UNC x 5”	4	
8	94090	U-Bolt 3/4”-10UNC x 8”	2	
9	63571	Storage Stand, (Auto-Reset Folding Units, Shear-Bolt Rigid & Folding)	1	
10	9500153	Pin	1	
11	602034B	Stand Mount Service Assembly Kit	-	Includes Items 1, 2, 6, 8, 10, & 12
12	601996B	Stand Mount Weldment	1	
	64354	Storage Stand Hardware Kit, Includes Items 5, 6, 7	-	Includes Items 2, 3, 6, 7
	602045B		-	Includes Items 9 & 11

Folding Hydraulic Components - 7, 8, 9, 10, & 12 Narrow Shank

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



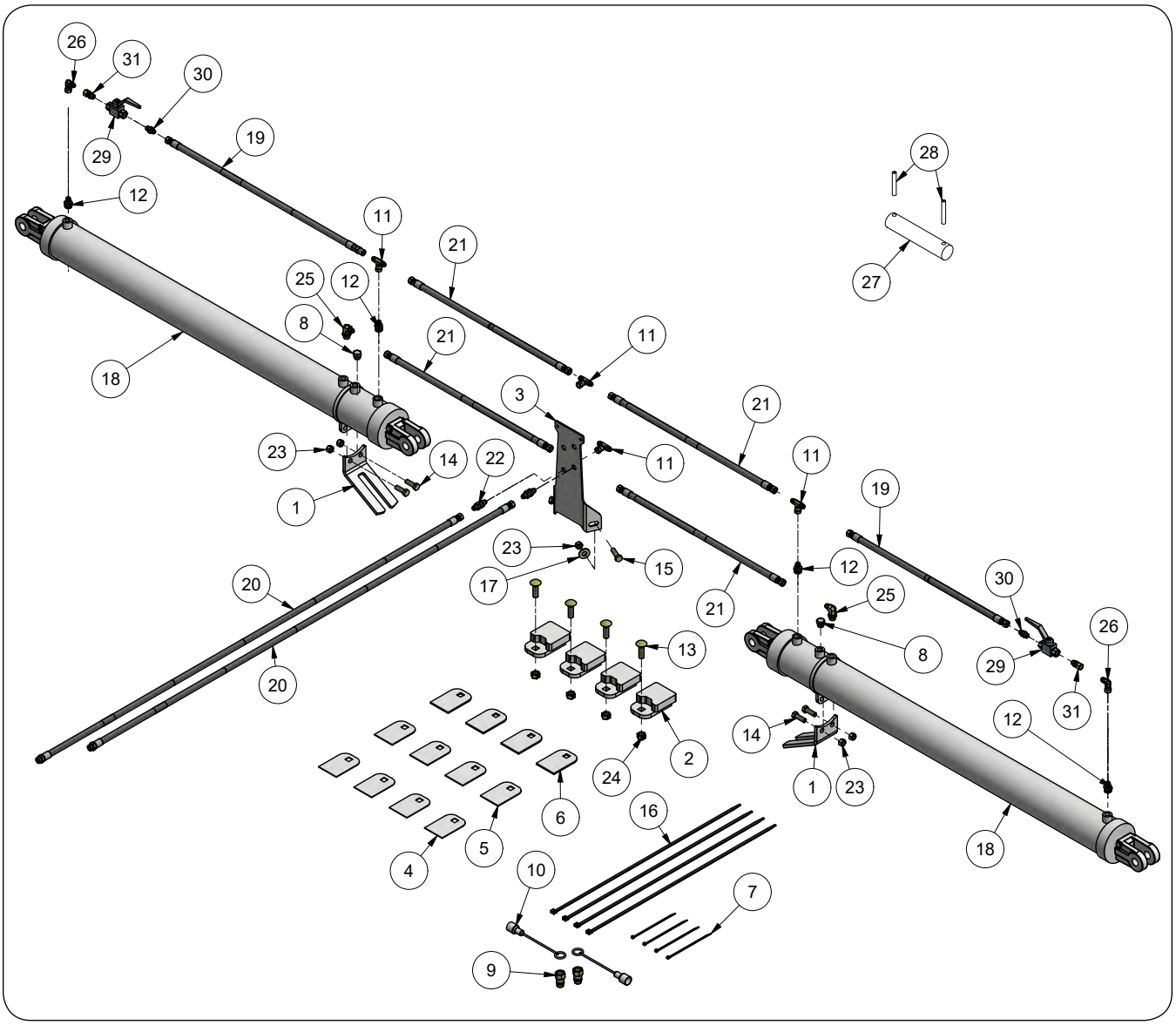
ITEM	PART NO.	DESCRIPTION	QTY.
1	9840	"O"-Ring	A/R
2	9876	90° Swivel Elbow (9/16-18 JIC Male x 9/16-18 JIC Female)	4
3	94038	Cable Tie 32" Long	A/R
4	85631	Pin 1" Dia. x 4" Long	4
5	9000106	Cable Tie 6" Long	A/R
6	91383	Quick Disconnect (3/4-16 O-Ring Female)	2
7	91511	Dust Cap	2
8	9875	Tee (9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male)	2
9	91608	Orifice Connector (9/16-18 JIC Male x 3/4-16 O-Ring Male w/Restrictor)	4
10	95407	Seal Kit for 4 x 24 Cylinder	-
11	95419	Hydraulic Cylinder 4 x 24	2
	65815	Replacement Clevis End	-
12	9502776	Hydraulic Hose 3/8" Dia. x 32" Long (9/16-18 JIC Female x 9/16-18 JIC Female)	2
13	9501701	Hydraulic Hose 3/8" Dia. x 63" Long (9/16-18 JIC Female x 9/16-18 JIC Female)	2
14	9502772	Hydraulic Hose 3/8" Dia. x 72" Long (9/16-18 JIC Female x 3/4-16 O-Ring Male)	2
15	91144-165	Spiral Pin 1/4" Dia. x 1 7/8" Long	8
16	9501014	Ball Valve	2
17	9001495	Adapter, 9/16-18 JIC Male x 9/16-18 O-Ring Male	2
18	9002446	Adapter, 9/16-18 O-Ring Male x 9/16-18 JIC Female	2

Notes

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

Rigid Wing Version for Flex Frame Machines - 12 Wide/16 Narrow

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



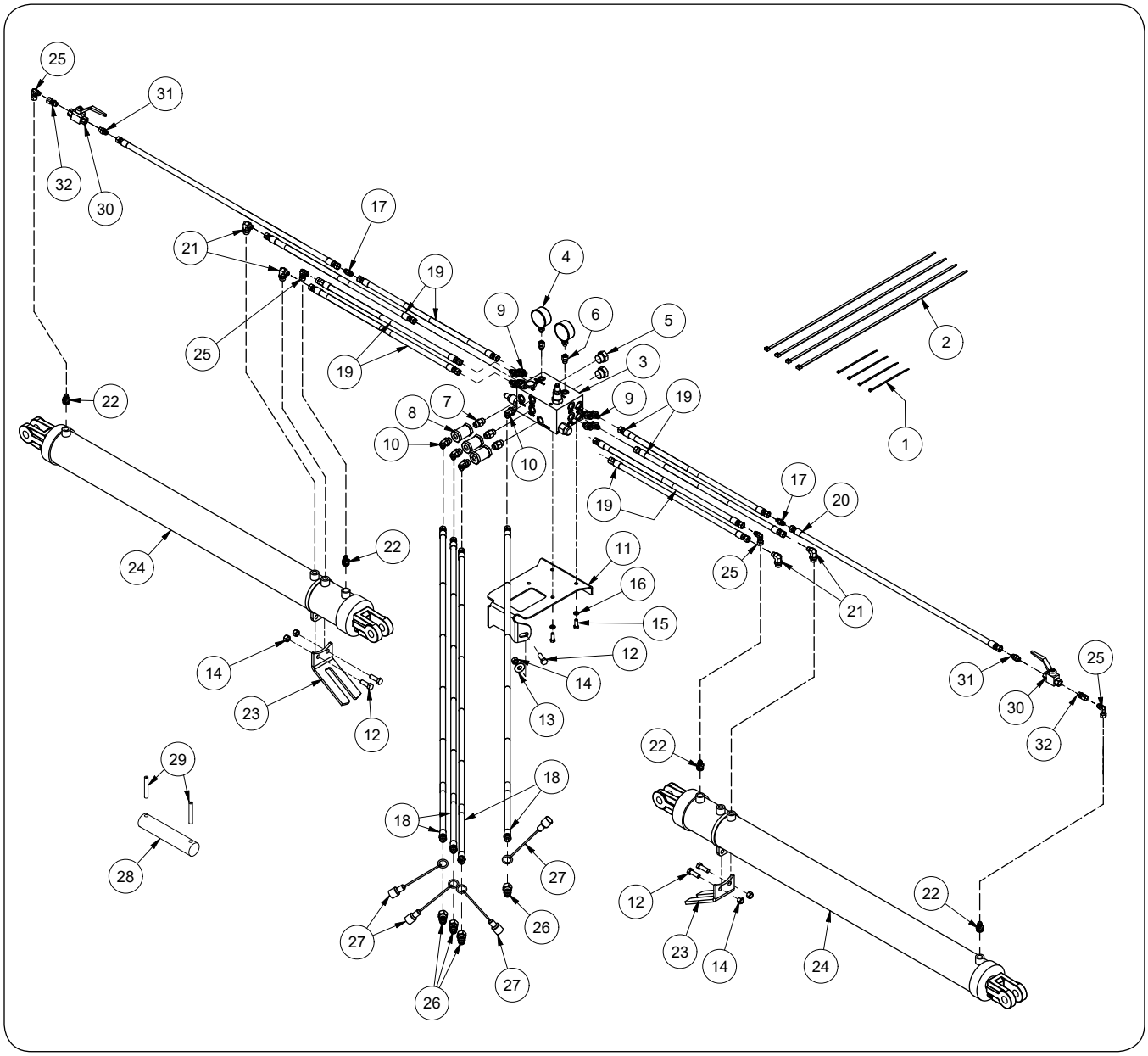
Rigid Wing Version for Flex Frame Machines - 12 Wide/16 Narrow

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

ITEM	PART NO.	DESCRIPTION	QTY
1	68276B	Cylinder Anti-Rotational Plate	2
2	68337B	Stop Block =BLACK=	4
3	68521B	Mounting Plate =BLACK=	1
4	68815B	Shim 14 GA.	4
5	68816B	Shim 12 GA.	4
6	68817B	Shim 7 GA.	4
7	9000106	Cable Tie 6" Long	AR
8	9003825	Breather Plug	2
9	91383	Quick Disconnect	2
10	91511	Dust Cap	2
11	91525	Tee	4
12	91608	Orifice Connector	2
13	9388-135	Carriage Bolt 5/8"-11UNC x 2" Gr5	4
14	9390-101	Capscrew 1/2"-13UNC x 1 1/2" Gr5	4
15	9390-102	Capscrew 1/2"-13UNC x 1 3/4" Long	2
16	94038	Cable Tie 32" Long	AR
17	9405-088	Flat Washer 1/2"	2
18	9501464	Hydraulic Cylinder 4 x 48 (Twin)	2
19	9501677	Hydraulic Hose 3/8" x 54"	2
20	9502772	Hydraulic Hose 3/8" x 72"	2
21	9502793	Hydraulic Hose 3/8" x 28"	4
22	95192	Bulkhead Union 9/16-18 JIC Male x 9/16-18 JIC Male (Threaded with Nut)	2
23	9800	Locknut 1/2"-13UNC	6
24	95905	Locknut/Center 5/8"-11UNC	4
25	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Adj. Male	2
26	9876	90° Swivel Elbow	2
27	85631	Pin 1" Dia. x 4"	4
28	91144-165	Spiral Pin 1/4" Dia. x 1 7/8"	8
29	9501014	Ball Valve	2
30	9001495	Adapter, 9/16-18 JIC Male x 9/16-18 O-Ring Male	2
31	9002446	Adapter, 9/16-18 O-Ring Male x 9/16-18 JIC Female	2

Flex Folding Hydraulic Components (Optional) — 12 Wide/16 Narrow

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



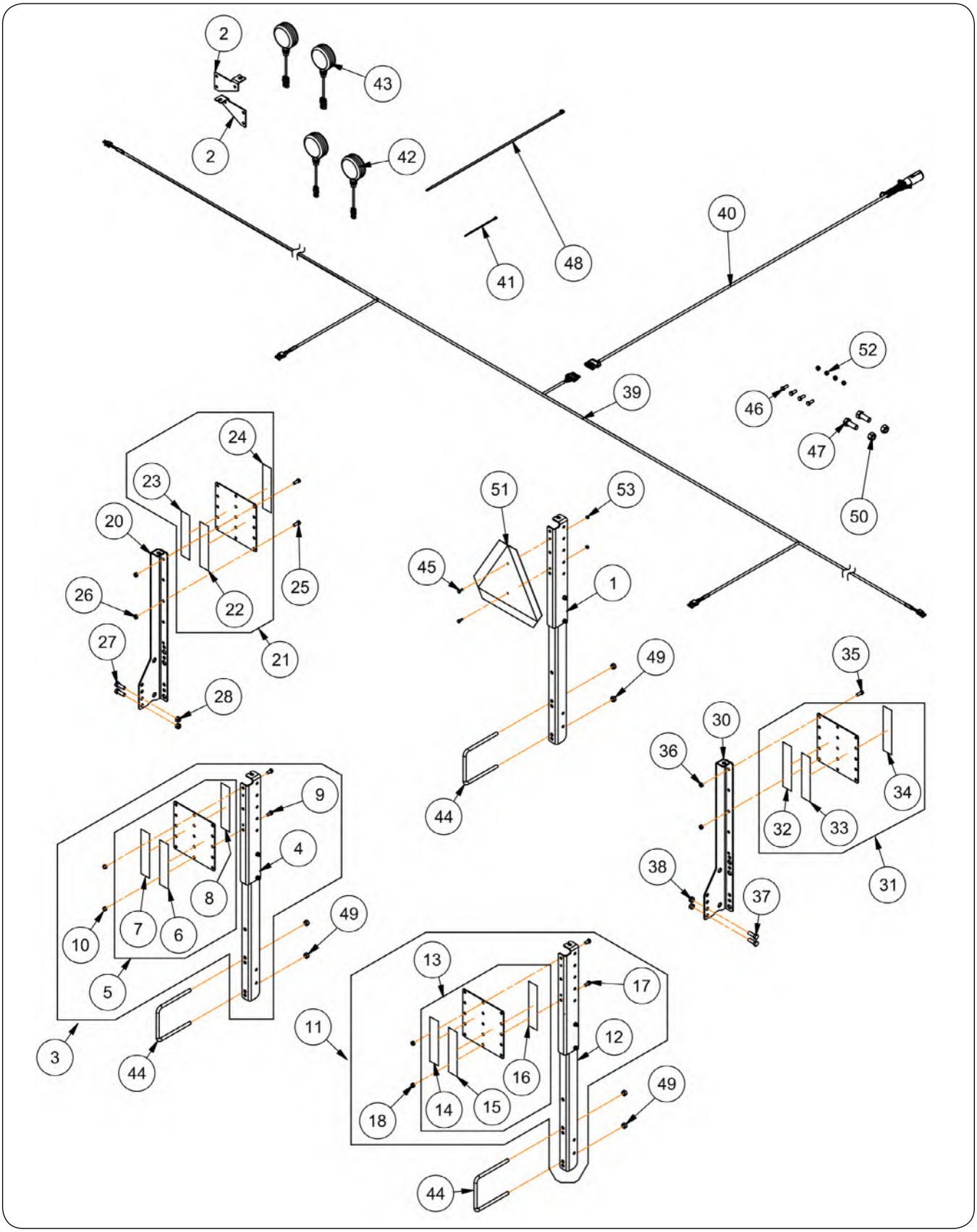
Flex Folding Hydraulic Components (Optional) — 12 Wide/16 Narrow

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

ITEM	PART NO.	DESCRIPTION	QTY
1	9000106	Cable Tie 7 1/2"	4
2	94038	Cable Tie 32"	4
3	9503620	Valve Assembly	1
4	9500489	Pressure Gauge	2
5	98048	Plug	2
6	9501659	Hydraulic Reducer	2
7	98508	Adapter/Union	3
8	9005403	120 Micron Hydraulic Filter	3
9	92927	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male	8
10	91508	45° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
11	68553B	Valve Mount Plate	1
12	9390-101	Capscrew 1/2"-13UNC x 1 1/2" Gr5	6
13	9405-088	Flat Washer 1/2" USS	2
14	9800	Top Locknut 1/2"-13UNC	6
15	9390-055	Capscrew 3/8"-16UNC x 1" Gr5	4
16	9404-021	Lock Washer 3/8"	4
17	92295	Adpater 9/16-18 JIC Male x 9/16-18 JIC Male	2
18	9502772	Hydraulic Hose 3/8" Dia. x 72”	4
19	9502793	Hydraulic Hose 3/8" Dia. x 28”	8
20	9501677	Hydraulic Hose 3/8" Dia. x 54”	2
21	9874	90° Elbow 9/16-18 JIC Male x 3/4-16 O-Ring Male	4
22	91608	Adapter 9/16-18 JIC Male x 3/4-16 O-Ring Male w/ .060 Restrictor	4
23	68276B	Cylinder Anti-Rotational Plate	2
24	9501464	Hydraulic Cylinder 4 x 48 (Twin)	2
25	9876	90° Elbow 9/16-18 JIC Male x 9/16-18 JIC Female Swivel Nut	4
26	91383	Male Tip Coupling	4
27	91511	Dust Cap	4
28	85631	Pin 1” Dia. x 4”	4
29	91144-165	Spiral Pin 1/4” Dia. x 1 7/8”	8
30	9501014	Ball Valve	2
31	9001495	Adapter, 9/16-18 JIC Male x 9/16-18 O-Ring Male	2
32	9002446	Adapter, 9/16-18 O-Ring Male x 9/16-18 JIC Female	2

Reflector & Lighting Components

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



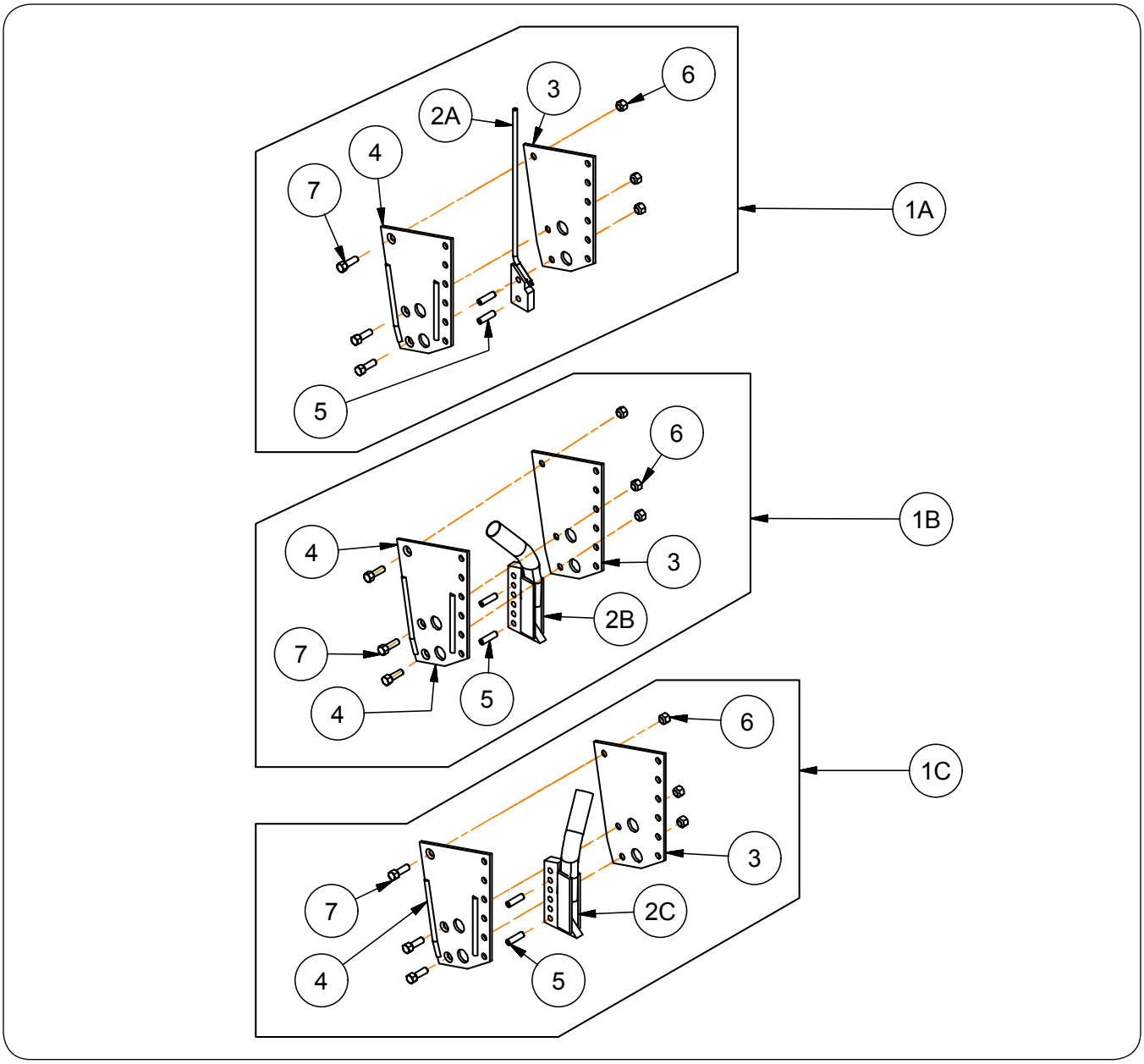
Reflector & Lighting Components

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

ITEM	PART NO.	DESCRIPTION	12W & 16N Shank 68963B	4/5/6/7/8/9/10/11/12N/ 13 Shank 69054B	2 & 3 Shank Option 69409B
1	69664B	Reflector Stand Assembly	1	1	1
2	68960B	Light Bracket	2	2	-
3	N/A	Left-Hand Center Reflector Asy	1	-	-
4	69664B	Reflector Stand Assembly	1	-	-
5	68958B	Reflector Bracket	1	-	-
6	9003125	Decal, Fluorescent Orange	1	-	-
7	9003126	Red Reflector	1	-	-
8	9003127	Amber Reflector	1	-	-
9	9390-053	Capscrew, 3/8"-16UNC x 3/4" G5	2	-	-
10	9928	Lock Nut, 3/8"-16UNC	2	-	-
11	N/A	Right-Hand Center Reflector Asy	1	1	-
12	69664B	Reflector Stand Assembly	1	1	-
13	68958B	Reflector Bracket	1	1	-
14	9003125	Decal, Fluorescent Orange	1	1	-
15	9003126	Red Reflector	1	1	-
16	9003127	Amber Reflector	1	1	-
17	9390-053	Capscrew, 3/8"-16UNC x 3/4" G5	2	2	-
18	9928	Lock Nut, 3/8"-16UNC	2	2	-
20	68959B	Formed Angle	1	1	1
21	68958B	Reflector Bracket	1	1	1
22	9003125	Decal, Fluorescent Orange	1	1	1
23	9003126	Red Reflector	1	1	1
24	9003127	Amber Reflector	1	1	1
25	9390-055	Capscrew, 3/8"-16UNC x 1" G5	2	2	2
26	9928	Lock Nut, 3/8"-16UNC	2	2	2
27	9390-101	Capscrew, 1/2"-13UNC x 1 1/2" G5	2	2	2
28	9800	Lock Nut, 1/2"-13UNC	2	2	2
30	68959B	Formed Angle	1	1	1
31	68958B	Reflector Bracket	1	1	1
32	9003125	Decal, Fluorescent Orange	1	1	1
33	9003126	Red Reflector	1	1	1
34	9003127	Amber Reflector	1	1	1
35	9390-055	Capscrew, 3/8"-16UNC x 1" G5	2	2	2
36	9928	Lock Nut, 3/8"-16UNC	2	2	2
37	9390-101	Capscrew, 1/2"-13UNC x 1 1/2" G5	2	2	2
38	9800	Lock Nut, 1/2"-13UNC	2	2	2
39	69407	Wiring Harness	1	1	-
40	86466	Main Wiring Harness	1	1	-
41	9000106	Cable Tie 7 1/2"	8	8	-
42	9003876	Amber Round Light	2	2	-
43	9003877	Red Round Light	2	2	-
44	9005460	U-Bolt	3	4	1
45	9390-003	Capscrew, 1/4"-20UNC x 3/4" G5	2	2	2
46	9390-055	Capscrew, 3/8"-16UNC x 1" G5	4	4	-
47	9390-145	Capscrew, 3/4"-10UNC x 2" G5	4	4	4
48	94038	Cable Tie 32"	12	12	-
49	9800	Lock Nut, 1/2"-13UNC	6	8	2
50	9802	Lock Nut, 3/4"-10UNC	4	4	4
51	9829	SMV Emblem	1	1	1
52	9928	Lock Nut, 3/8"-16UNC	4	4	-
53	9936	Lock Nut, 1/4"-20UNC	2	2	2

Fertilizer Attachment Components (Optional)

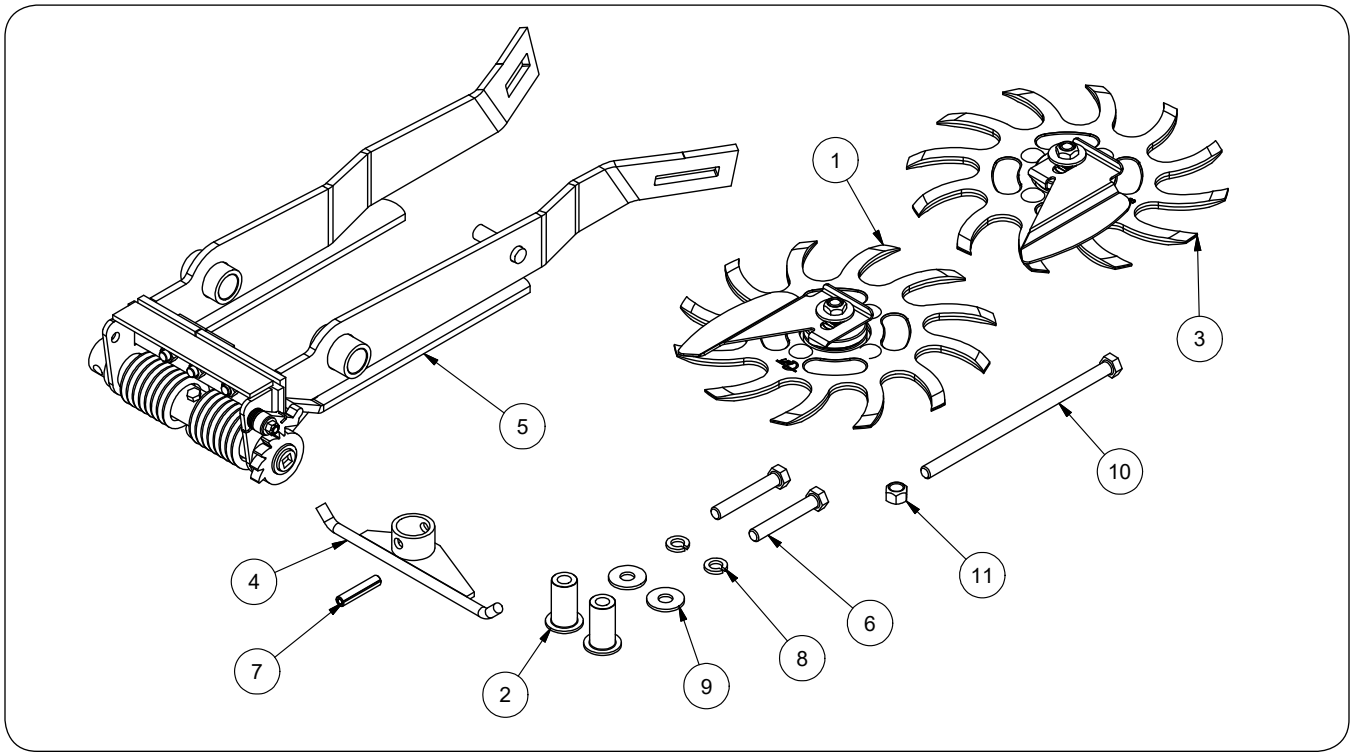
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY
1A	65346B	Liquid Fertilizer Attachment Complete	1
1B	65583B	Dry Fertilizer Attachment RH Complete	
1C	65584B	Dry Fertilizer Attachment LH Complete	
2A	65339B	Injector Tube Weldment (Liquid)	1
2B	65572B	Injector Tube Weldment RH (Dry)	
2C	65577B	Injector Tube Weldment LH (Dry)	
3	65428B	Wear Guard Weldment RH	1
4		Wear Guard Weldment LH	1
5	91144-234	Spiral Pin 1/2" Dia. x 1 3/4"	2
6	9500736	Bolt 1/2"-20UNF x 1 3/8"	2
7	9348	Bevel Nut 1/2"-20UNF	2

Row Cleaner — Serial Number A62200300 & Higher (Optional)

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

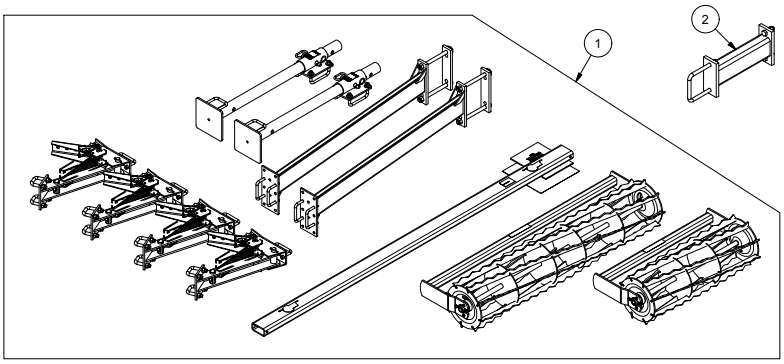


ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	68317B	Hub/Spindle Assembly Left-Hand	1	
2	67984	Hardened Bushing	2	
3	68323B	Hub/Spindle Assembly Right-Hand	1	
4	68100B	Spring Keeper	1	
5	68164B	Row Cleaner Assembly	1	Includes Items 1-4, 6-11
6	9390-132	Capscrew 5/8"-11UNC x 4" (Grade 5)	2	
7	9392-210	Roll Pin 1/2" Dia. x 2 1/2"	1	
8	9404-029	Lock Washer 5/8"	2	
9	9405-100	Flat Washer 5/8" USS	2	
10	9390-447	Capscrew 5/8"-11UNC x 12" G5	1	
11	9801	Locknut 5/8"-11UNC	1	

**Refer to your Row Cleaner manual #68163 for additional information.

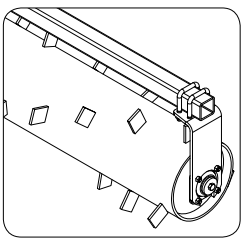
Rolling Harrow Leveler Attachments (Optional)

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



ITEM	PART NO.	DESCRIPTION	QTY
1	63462	Rigid 3 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit (Shown)	1
	63463	Rigid 4 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	63464	Rigid 5 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	63465	Rigid 6 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	63466	Rigid 7 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	67520B	Folding 7 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	63467	Rigid 8 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	67521B	Folding 8 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	64008	Folding 9 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	67958B	Folding 10 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	67959B	Folding 12 Shank 30” Spacing - 12” Rolling Harrow Leveler Kit	
	69604B	Rigid 4 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
	69605B	Rigid 5 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
	69606B	Rigid 6 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
	69607B	Rigid 7 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
	69608B	Rigid 7 Shank 24” Spacing - 16” Rolling Harrow Leveler Kit	
	69609B	Rigid 8 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
	69612B	Rigid 9 Shank 24” Spacing - 16” Rolling Harrow Leveler Kit	
	69613B	Folding 9 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
	69614B	Folding 10 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
	69615B	Folding 11 Shank 24” Spacing - 16” Rolling Harrow Leveler Kit	
	69616B	Folding 12 Shank 30” Spacing - 16” Rolling Harrow Leveler Kit	
2	64320B	Optional Extension Bracket for Rolling Harrow Leveler	2

Spike Drum Leveler Attachments (Optional)



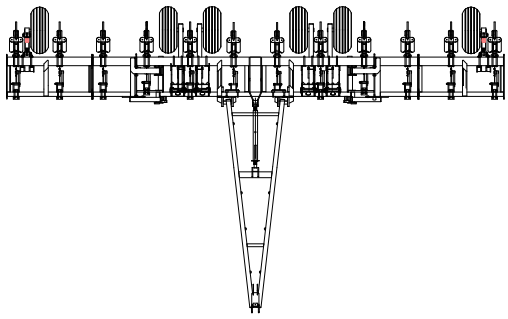
PART NO.	DESCRIPTION
66367B	Rigid 4 Shank 30” Spacing - 13” Drum and 3” Tall Spiral Drive Lugs
66368B	Rigid 5 Shank 30” Spacing - 13” Drum and 3” Tall Spiral Drive Lugs
66369B	Rigid 6 Shank 30” Spacing - 13” Drum and 3” Tall Spiral Drive Lugs
66370B	Rigid 7 Shank 30” Spacing - 13” Drum and 3” Tall Spiral Drive Lugs
66371B	Rigid 8 Shank 30” Spacing - 13” Drum and 3” Tall Spiral Drive Lugs

3-Point Implement Caddy (Optional)

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

PART NO.	DESCRIPTION
66794G or 66794R	3-Point Implement Caddy - Model 300 w/ 9.5L x 15 8-Ply Duals =Green= or =Red=
66795G or 66795R	3-Point Implement Caddy - Model 500 w/ 12.5L x 15 F-Range Duals =Green= or =Red=
67706G or 67706R	3-Point Implement Caddy - Model 500 w/ 14L x 16.1 14-Ply Duals =Green= or =Red=
69402G or 69402R	3-Point Implement Caddy - Model 700 w/ 295/75 x 22.5 Duals =Green= or =Red=
69403G or 69403R	3-Point Implement Caddy - Model 700 w/ 385/65 x 22.5 Duals =Green= or =Red=
66987B	Quick Hitch Link Kit =For Model 300 ONLY=
68965B	CAT 4 Top Link Kit =For Model 500 ONLY=
73523B	Electrical Extension Kit - Allows for implement lights connection at rear of Caddy
73467B	Hydraulic Extenion Kit - Allows for implement hydraulic connection at rear of 300 & 500 Caddy
69404	Hydraulic Extension Kit - Allow for 2 implement hydraulic connection at rear of 700 Caddy

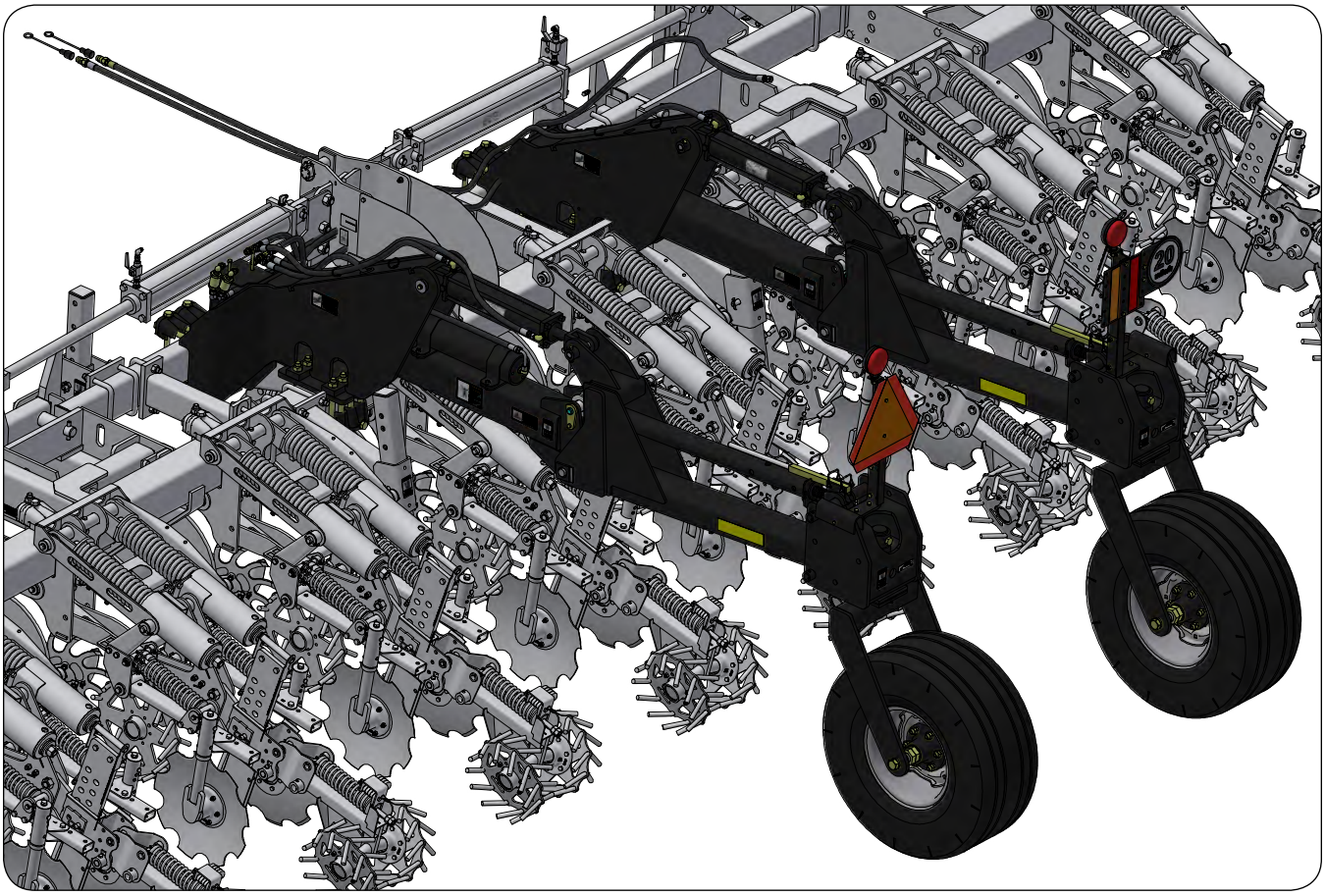
Pull-Type Conversion (Optional)



PART NO.	DESCRIPTION
62600	Conversion Kit w/12.5L x 15 10-Ply for 4,5,6,7 Shank Rigid 30", 36", 38" Spacing
64136	Conversion Kit w/12.5L x 15 F-Range for 4,5,6,7,8 Shank Rigid 30", 36", 38" Spacing
63764	Conversion Kit w/12.5L x 15 10-Ply for7 Shank Folding 30" Spacing
63766	Conversion Kit w/12.5L x 15 F-Range for 7,9,10 Shank Folding 30" Spacing; 8 Shank Folding 30", 36", 38" Spacing
63114	Conversion Kit w/12.5L x 15 F-Range for 8,10,12 Shank Folding 30" Spacing
65153B	Conversion Kit w/12.5L x 15 F-Range for 16 Shank Folding 30" Spacing

3-Point Lift-Assist (Optional)

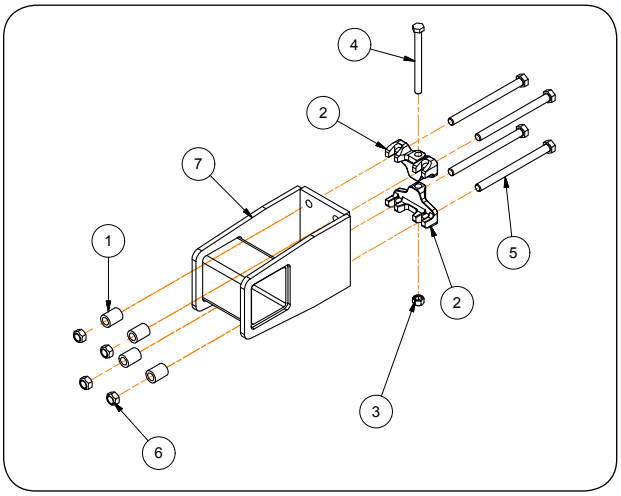
Please visit www.unverferth.com/parts/ for the most current parts listing.



PART NO.	DESCRIPTION
604089B	Zone-Builder Lift-Assist Package; Includes 2 Mounting Arms, Caster Wheels/10x15 Tires and Hydraulics package.

Shank 16” Stagger Kit #66952B (Optional)

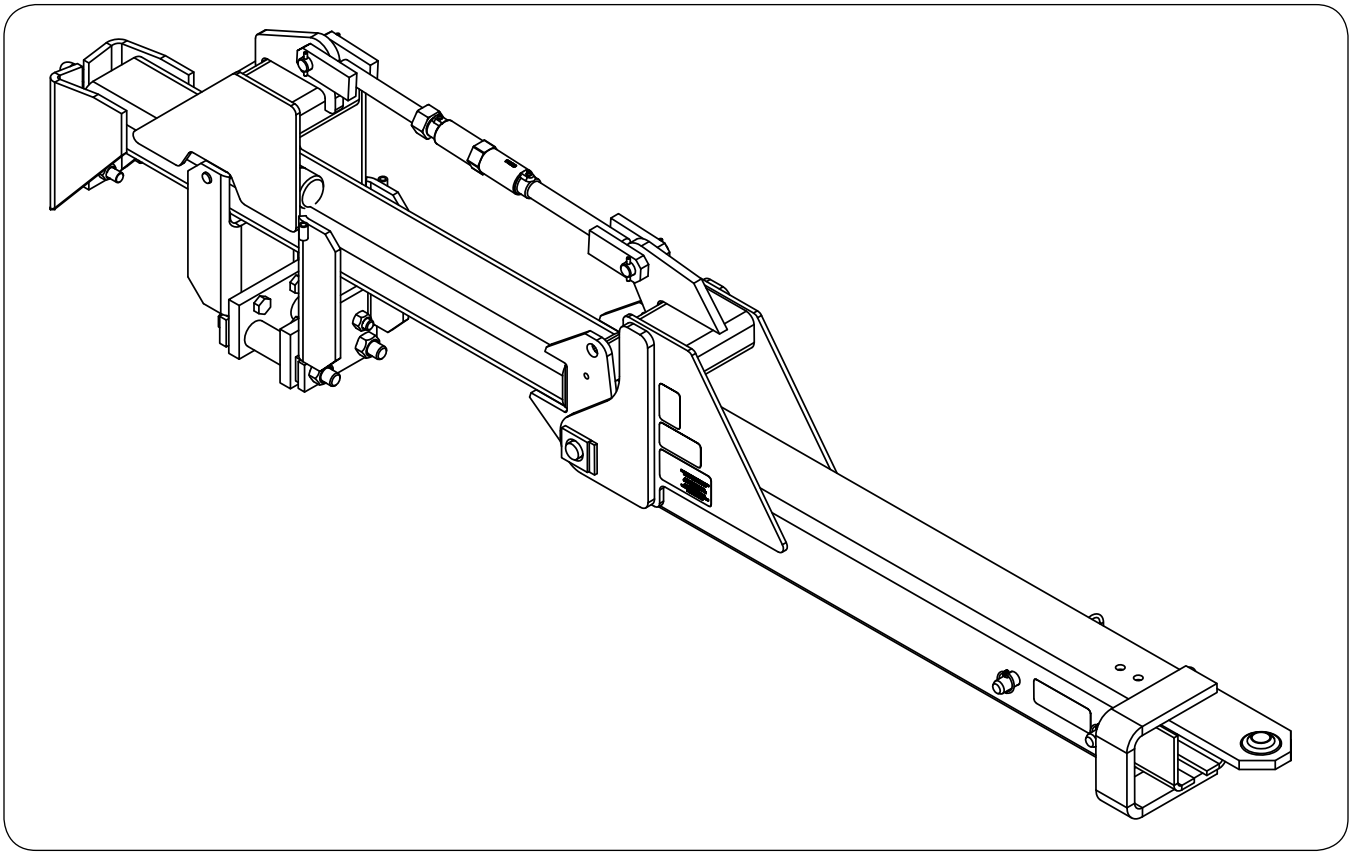
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	DESCRIPTION	QTY.
1	66837	Spacer Tube	4
2	66737B	Clamp	2
3	9802	Locknut 3/4”-10UNC	1
4	9390-448	Capscrew 3/4”-10UNC x 8 1/2	1
5	9390-459	Capscrew 7/8”-9UNC x 11”	4
6	98420	Locknut 7/8”-9UNC	4
7	66952B	16” Extension Assembly Includes Items 1-6	1

Rear Pull Hitch (Optional)

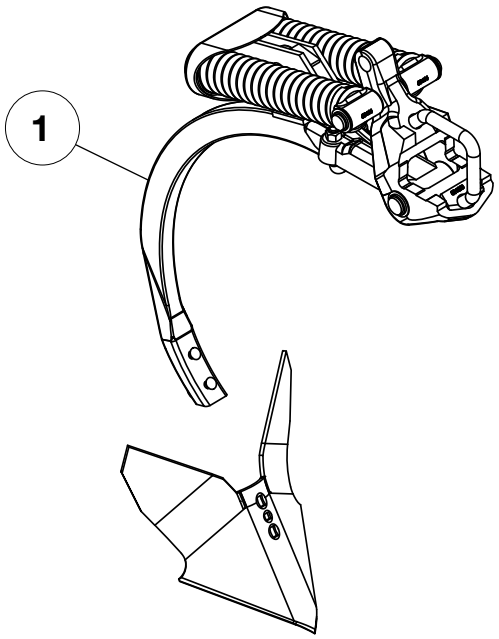
PART NO.	DESCRIPTION
65262B	Adjustable Rear Pull Hitch (Models with even number shanks only.)
64882	Optional Hydraulic Height Control



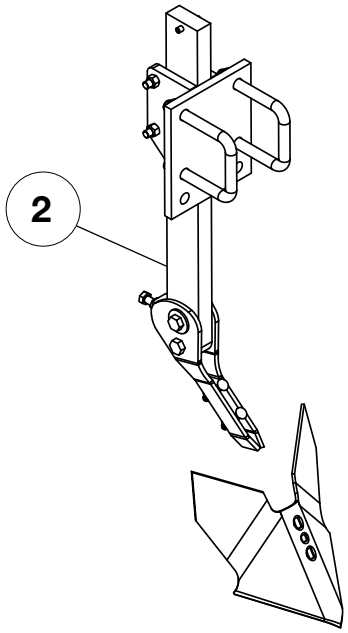
Bedding Attachments (Optional) — Spring Reset & Rigid Listers

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

Spring Reset Lister



Rigid Lister



ITEM	PART NO.	DESCRIPTION	QTY
1	68657B	4 Shank 36" & 38" Spacing - Spring Reset Lister	1
	68901B	6 Shank 30" Spacing - Spring Reset Lister	
	68658B	6 Shank 36" & 38" Spacing - Spring Reset Lister	
	68906B	8 Shank Rigid Frame 30" Spacing - Spring Reset Lister	
	68659B	8 Shank Folding Frame 36" Spacing - Spring Reset Lister	
	68660B	8 Shank Folding Frame 38" Spacing - Spring Reset Lister	
	68905B	12 Shank Folding Frame 30" Spacing - Spring Reset Lister	
	68662B	12 Shank Folding Frame 36" & 38" Spacing - Spring Reset Lister	
2	67874B	4 Shank 36" & 38" Spacing - Rigid Lister	
	67875B	6 Shank 30" Spacing - Rigid Lister	
	67876B	6 Shank 36" & 38" Spacing - Rigid Lister	
	67877B	8 Shank Rigid Frame 30" Spacing - Rigid Lister	
	67879B	8 Shank Folding Frame 36" Spacing - Rigid Lister	
	67880B	8 Shank Folding Frame 38" Spacing - Rigid Lister	
	97882B	12 Shank Folding Frame 30" Spacing - Rigid Lister	
	67883B	12 Shank Folding Frame 36" & 38" Spacing - Rigid Lister	

Notes

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