Fertilizer Applicator

NutriMax® Liquid Applicator
1400 Gallon Model

Serial Number B35940100 & Higher

Part No. 412375

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. It can be stored in the supplied tube located on the implement.

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

Product Information

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

- Machine name
- Model
- Serial number

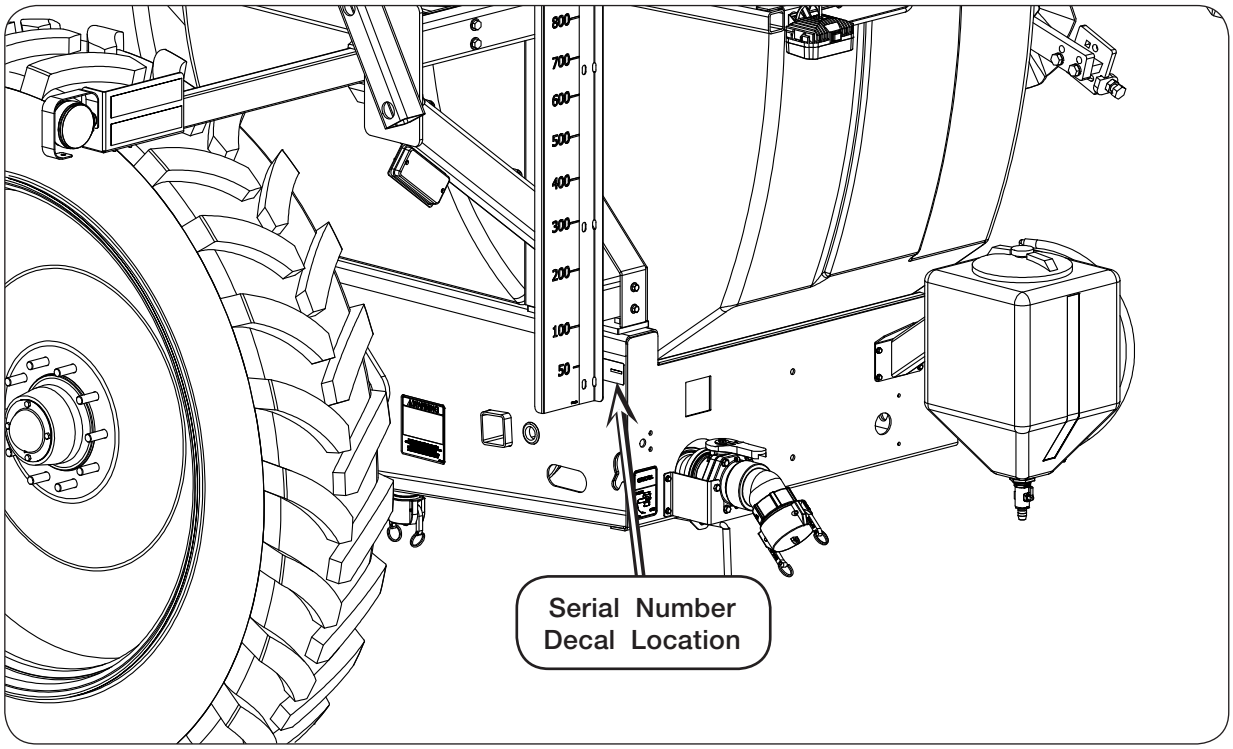
All products manufactured by Unverferth Mfg. Co., Inc. are warranted to be free from material and workmanship defects for one full year from time of consumer delivery. Your local dealer will gladly assist you with any warranty questions.

Please fill out and retain this portion for your records.

Purchase Date _____Model _____Serial Number _____

Dealer _____ City _____

Dealer Contact _____ Phone _____



IMPORTANT

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

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

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Section I
Safety

General Hazard Information

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

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

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

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

REMEMBER:

THINK SAFETY

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT!

SIGNAL WORDS

DANGER

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

WARNING

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

CAUTION

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

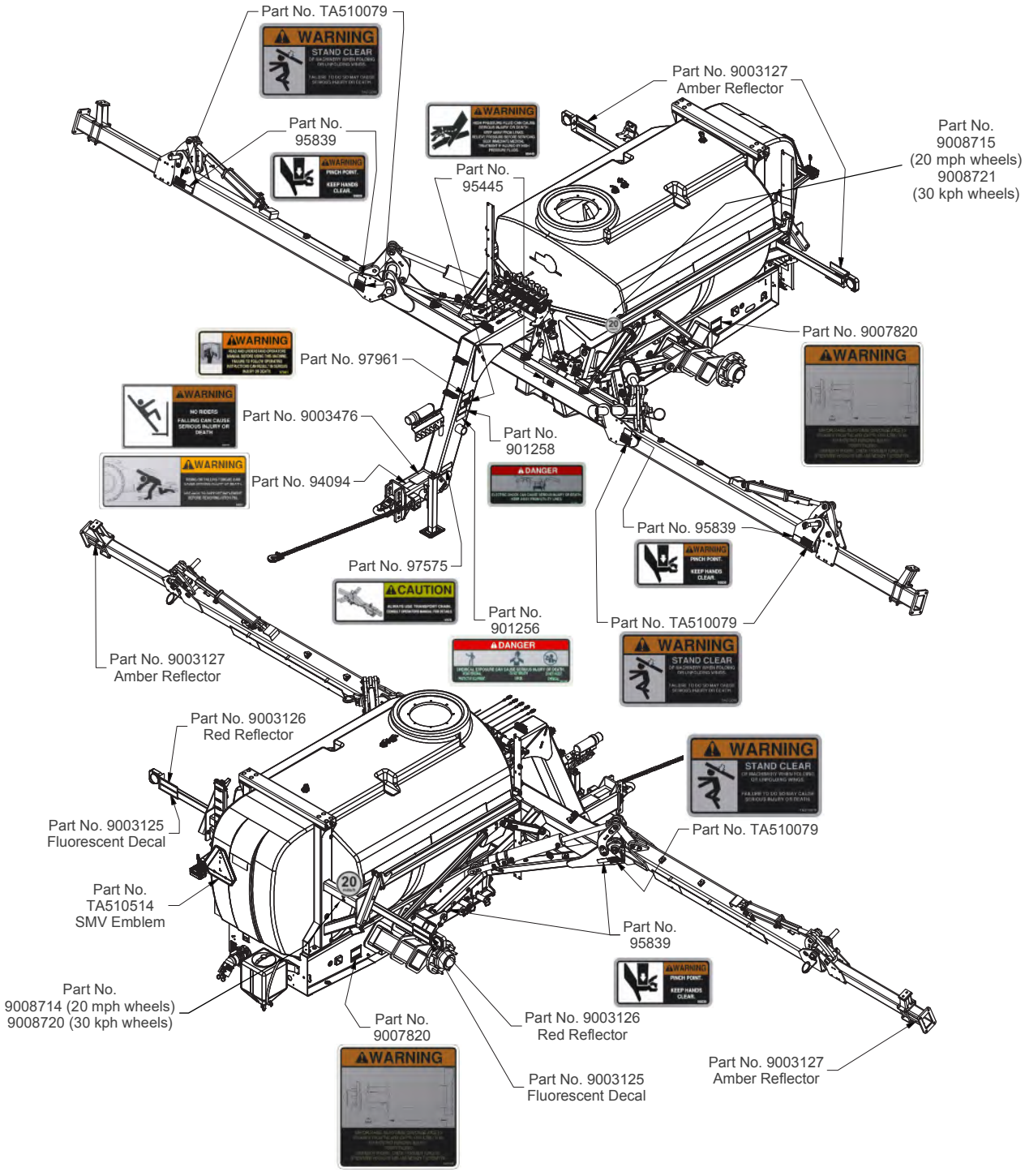
IMPORTANT

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

Safety Decals

WARNING

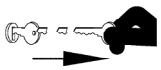
- **REPLACE LOST, DAMAGED, PAINTED, OR UNREADABLE DECALS IMMEDIATELY. IF PARTS THAT HAVE DECALS ARE REPLACED, ALSO MAKE SURE TO INSTALL NEW DECALS. THESE DECALS INFORM AND REMIND THE OPERATOR WITH OPERATIONAL INFORMATION AND SAFETY MESSAGES.**



Following Safety Instructions

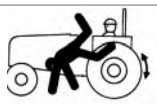
- Read and understand this operator's manual before operating.

- 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 Operating

- Do not stand between towing vehicle and implement during hitching.

- Always make certain everyone and everything is clear of the machine before beginning operation.
- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.
- Secure drawbar pin with safety latch and lock tractor drawbar in fixed position.
- This applicator is intended to apply only agricultural fertilizers. Attempting to apply other liquids may cause equipment damage and introduce unexpected personal hazards.
- When operating applicators on sidehill conditions, it is recommended that the wheel spacing be set as wide as possible for stability.
- Hitch applicator to towing vehicle and clear all personnel from the surrounding area before folding and unfolding wings.
- Ensure tank access covers are fully closed before beginning or resuming operation.
- Residual pressure may exist in applicator plumbing even when unit is not in use. Remove pressure before servicing any plumbing.

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.
- To prevent personal injury or death, always ensure that there are people who remain outside the applicator to assist the person working inside, and that all safe workplace practices are followed. There are restricted mobility and limited exit paths when working inside the implement.
- Secure drawbar pin with safety lock and lock tractor drawbar in fixed position.
- Ensure that the towing vehicle drawbar has sufficient strength to support the draft and vertical tongue load of a fully-loaded applicator.
- 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.
- Check equipment for leaks. Repair any leaks before beginning or resuming operation.

During Operation

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

Before Transporting

- Secure transport chain to towing vehicle before transporting. DO NOT transport without chain.
- Check for proper function of all available transport lights. Make sure that all reflectors are clean and in place on machine. Make sure the SMV emblem and SIS decals are visible to approaching traffic.
- This applicator is not equipped with brakes. Ensure that the towing vehicle has adequate weight and braking capacity to tow this unit.

During Transport

- Comply with all laws governing highway safety when moving machinery.
- Use transport lights as required by all laws to adequately warn operators of other vehicles.
- Regulate speed to road conditions and maintain complete control.
- Maximum transport speed of this implement should never exceed 20 m.p.h. 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 m.p.h. 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 pressure before disconnecting hydraulic lines from tractor, loosening any hydraulic fittings or servicing hydraulic system. See hydraulic power unit manual for procedure to relieve pressure.

- High-pressure fluids can penetrate the skin and cause serious injury or death. Use a piece of cardboard or wood to detect leaks of hydraulic fluid under pressure. 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:
    - o End fittings damaged, displaced, or leaking.
    - o Outer covering chafed/cut or wire reinforcing exposed.
    - o Outer covering ballooning locally.
    - o Evidence of kinking or crushing of the flexible part of a hose.

Chemical Hazards

- Always wear personal protective equipment when working with or near chemicals. This equipment includes, but is not limited to: protective eye wear, gloves, shoes, socks, long-sleeved shirt, and long pants. Additional protection may be required for many types of chemicals.
- Applicator tanks may contain residual toxic chemicals. DO NOT ENTER APPLICATOR TANK FOR ANY REASON WITHOUT WEARING PROPER VENTILATION EQUIPMENT. Failure to do so may result in asphyxiation and death.
- Seek and receive chemical product training prior to using agricultural chemicals.
- Read and understand the entire label of every chemical being applied with this applicator.
- Avoid breathing spray mist or vapor.
- Wash hands before eating, drinking, chewing gum, or using the toilet.
- Remove clothing immediately if chemicals penetrate clothing and contact skin. Wash thoroughly and put on clean clothing.
- Dispose of unused chemical in accordance with chemical label directions and local and national regulations.

Clean Water Tank

- A clean water tank is provided as standard equipment. It is equipped with a spigot for general washing and a hose for emergency eye washing.
- Always keep clean water in tank. Water in clean water tank is not suitable for human consumption.
- For emergency eyewash, pull hose off of the top fitting and flush affected area.

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.

Section II
Set Up

FOR INDUCTOR INFORMATION, PLEASE REFER TO YOUR INDUCTOR MANUAL.
FOR QUICK FILL METER INFORMATION, PLEASE REFER TO YOUR QUICK FILL METER MANUAL.
FOR GROUND DRIVEN PUMP INFORMATION, PLEASE REFER TO PUMP MANUAL.

Pre-Delivery Checklist

- ☐ Power wash any road salt off this unit to help prevent corrosion.
- ☐ Torque wheel nuts and check tire pressure as specified in MAINTENANCE section.
- ☐ Axles are adjusted from shipping position to desired operating width.
- ☐ All grease fittings have been lubricated.
- ☐ Verify all safety decals are correctly located and legible. Replace if damaged.
- ☐ Verify all reflective decals are correctly located.
- ☐ Verify SMV emblem is in place and shipping film is removed.
- ☐ Verify SIS decals are in place, clean and visible after shipping.
- ☐ Verify transport lights are working properly.
- ☐ Transport chains are properly installed and hardware is torqued to specification. See "Transport Chain Connection" in OPERATION section.
- ☐ Check hydraulic components for leaks.
- ☐ Check all plumbing components for leaks.
- ☐ Paint all parts scratched during shipment and dealer set up.

Dealer Set Up

⚠ WARNING

- **AFTER INITIAL SET-UP OR REPLACEMENT OF ANY HYDRAULIC COMPONENT ON THE APPLICATOR, AIR MUST BE REMOVED FROM THE WING-FOLD HYDRAULIC SYSTEM PRIOR TO ITS FIRST USE. FAILURE TO DO SO MAY RESULT IN DAMAGE TO TOOLBAR COMPONENTS DUE TO RAPID MOVEMENT.**

- **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 7,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

There are 4 hydraulic circuits on this unit.

- 1/4” hydraulic hose (Marked Red) – main lift and main wing tilt
- 1/4” hydraulic hose (Marked Blue) – outer wing extend and retract
- 1/4” hydraulic hose (Marked Gray) – fold and unfold wings
- 1/2” hydraulic hose (Marked Yellow) – Hydraulically Driven Centrifugal Pump

Hitch Extension

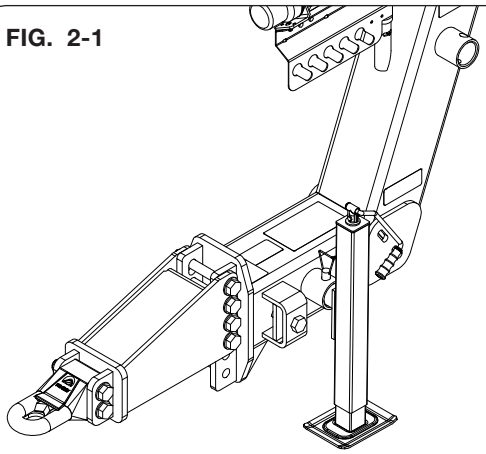
IMPORTANT

- *Tractors with rear duals must use the bolt-on hitch extension (410887G or 410887R) and associated hardware.*

1. Use a safe lifting device rated at a minimum of 100 lbs., lift the hitch extension into place and secure with four 1”-8UNC x 8” capscrews (9390-199), 1” SAE flat washers (9405-116), and 1”-8UNC locknuts (92199) (FIG. 2-1).

2. Torque 1”-8UNC hardware to 525 ft-lbs.

FIG. 2-1



Dealer Set Up (continued)

Wheels & Tires

1. Attach empty applicator to tractor. Refer to “Hitching to the Tractor” in OPERATION section.

2. The wheels are shipped in the narrowest setting. Refer to “Axle Tread Setting” in this section for proper spacing.

Coulter Assemblies

1. If applicable, engage the outer wing fold and unfold circuit and unfold the outer wings. Engage the main wing fold and unfold circuit. The main wings will unfold and then the toolbar transport latch will unlatch. (FIG. 2-2)

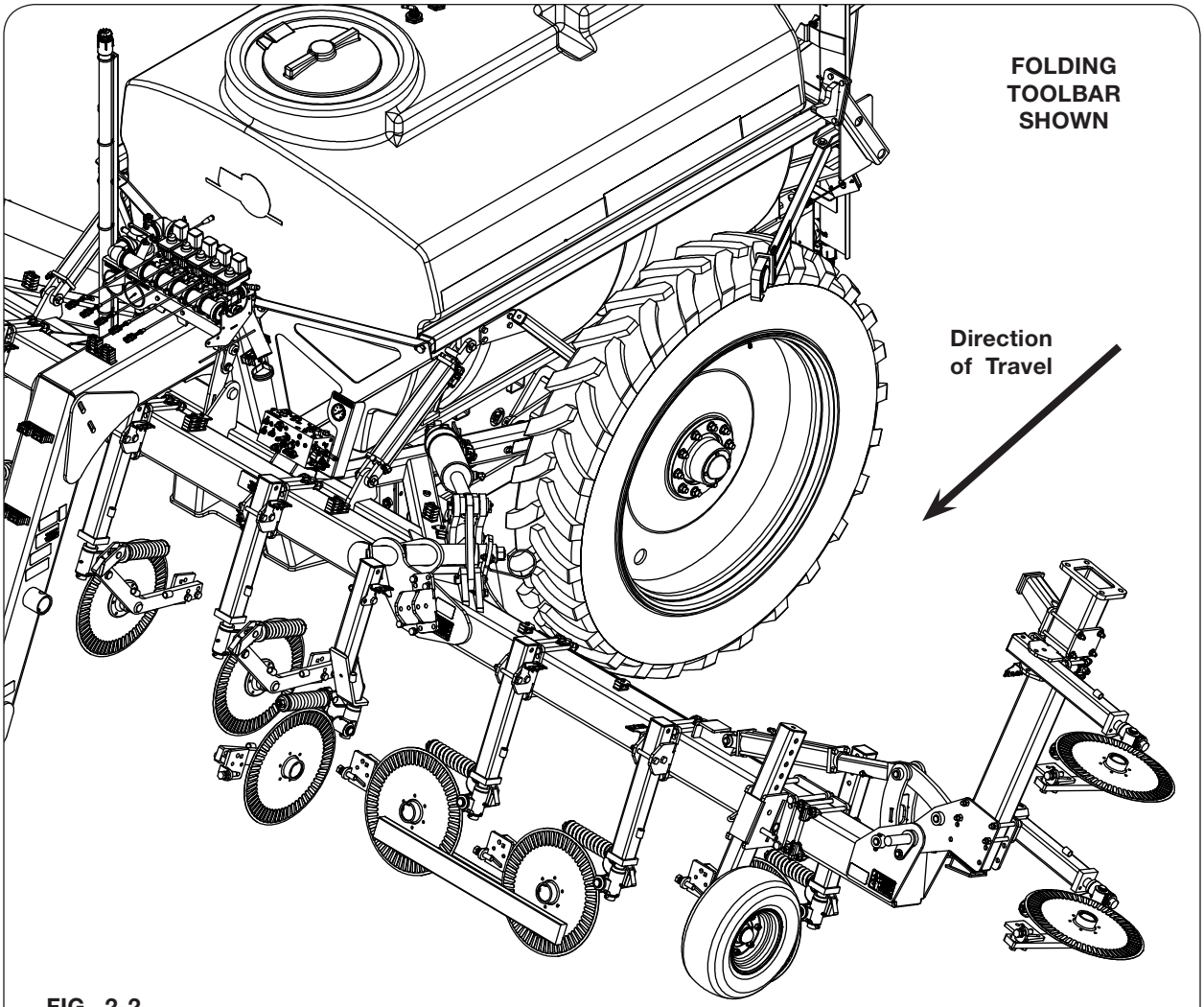


FIG. 2-2

Dealer Set Up (continued)

2. Using support stands rated at a minimum of 3,000 lbs. per side, position stands at the ends of the main wings (FIG. 2-3). Then lower the main wing. Place stands under main wings. Lower toolbar onto stands.

3. Use a safe lifting device rated at a minimum of 100 lbs., to support coulter post assembly while removing shipping boards. With toolbar and wings in the full operating position, remove the shipping boards used to secure the coulter blades. Repeat the process on the opposite side of the applicator. (FIG. 2-3)

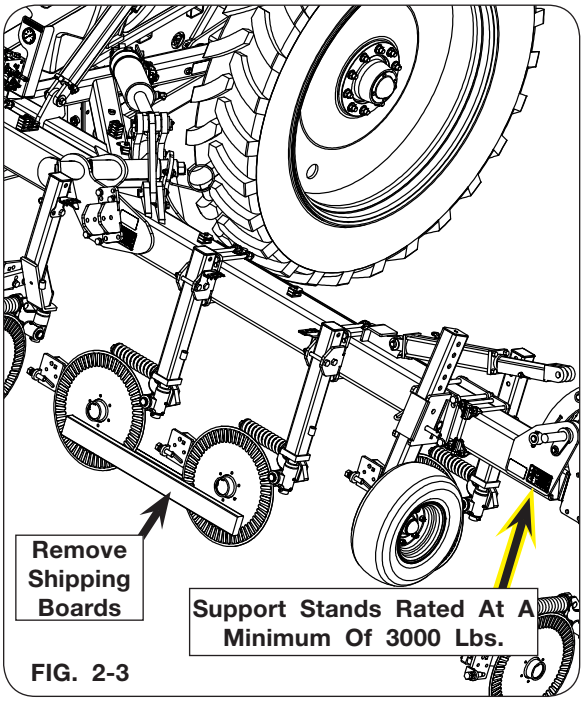
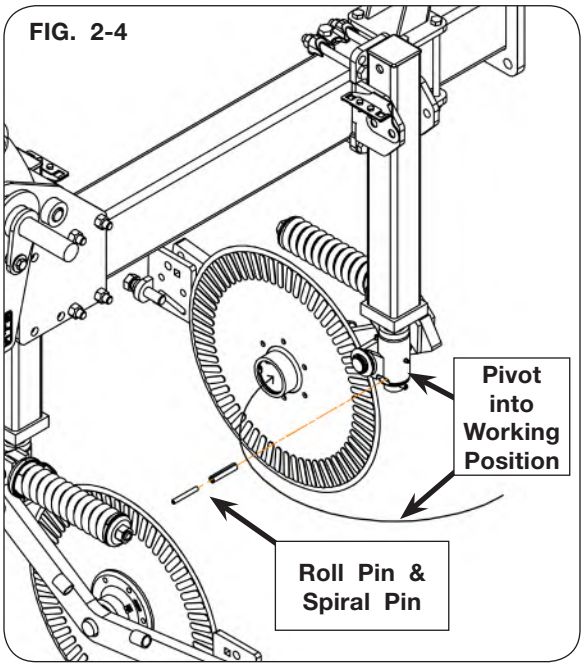


FIG. 2-3

4. Use a safe lifting device rated at a minimum of 100 lbs., to support coulter post assembly while repositioning. Pivot the coulter arms into working position. Install the existing roll pin (9501441-210) and spiral pin (9501442-209) (FIG. 2-4). Refer to the "Overhead Layouts" in this section to determine the proper positioning of the coulters.

NOTE: Double coulter toolbars will need to have some of the lower coulter swivel assemblies mounted onto the coulter posts.

FIG. 2-4



Dealer Set Up (continued)

Note: All but the center coulter post allows for four height settings, all of the mounted coulter posts are in the shortest position from the factory. The center coulter post allows for three height settings. The height difference between each position is 1 3/4". (FIG. 2-5)

Note: All hole settings are only recommended. Any combination of coulter hole settings and depth stop collars on each cylinder can be used to achieve the desired depth setting.

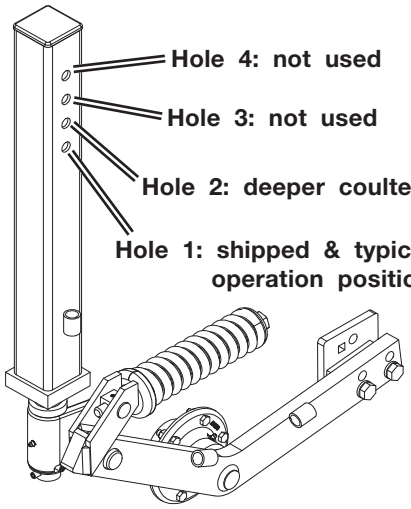


FIG. 2-5

Dealer Set Up (continued)

Gauge Wheels

1. Using a safe lifting device rated at a minimum of 125 lbs., install the main wing gauge wheel assembly with the included pin to the outside of the post (FIG. 2-6). Make sure gauge wheel tire is in-line with the coulter blade. Refer to "Overhead Lay-outs" in this section for proper positioning.

2. Once coulter post assemblies have been relocated and gauge wheels installed, raise toolbar and remove the safe lifting devices.

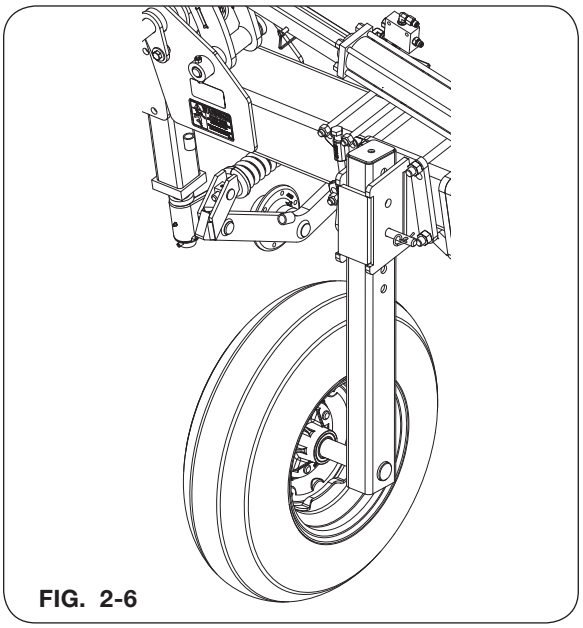


FIG. 2-6

Amber Warning Light Brackets

1. Rotate amber flasher bracket to be perpendicular to the front toolbar tube (FIG. 2-7). The amber light should be visible to the front and rear of the unit. The amber reflector should face forward. The red reflector and fluorescent orange decal should face rearward.

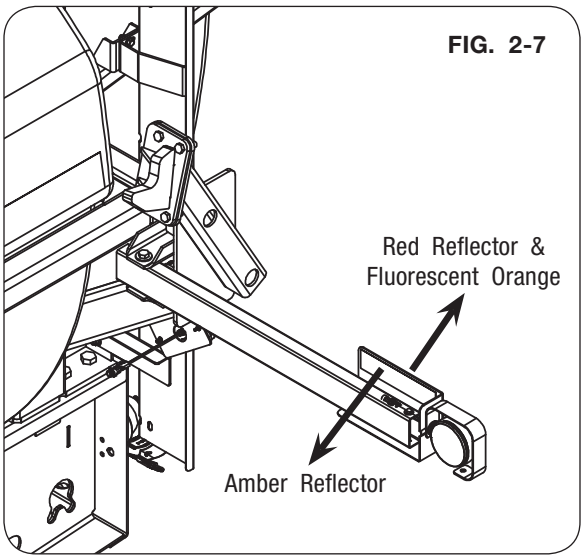


FIG. 2-7

Dealer Set Up (continued)

SMV Emblem & SIS Decals

1. Remove the protective film from SMV and ensure it is visible from the rear of the unit. (FIG. 2-8)

NOTE: Ensure front and rear SIS decals are clean and visible after shipping.

NOTE: For front and rear M.P.H. SIS decals, order 9008715 and 9008714. For front and rear K.P.H SIS decals order, 9008721 and 9008720.

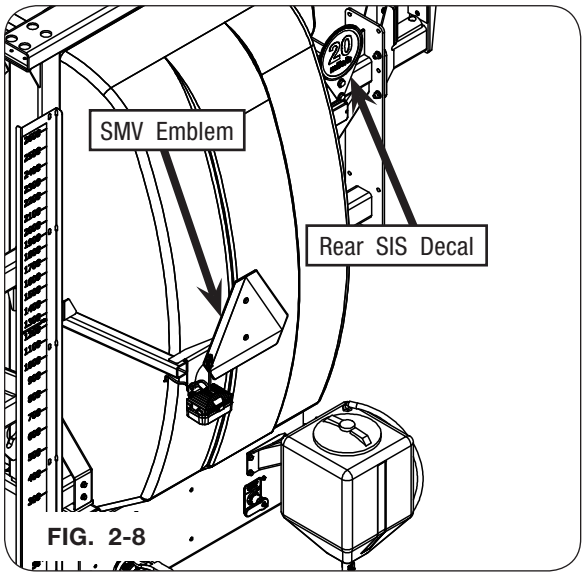


FIG. 2-8

Depth Stop/Bushings

NOTE: The depth stop/bushing adjusts the depth of the center section and main wings. The depth stop/bushing contacts the bottom of the center section toolbar main tubes when it is lowered down. To adjust the depth, remove the lynch pin on the depth stop and switch out the bushing.

IMPORTANT

- *Toolbar needs to be raised and secured in latch before changing the depth stop bushings.*

1. Depth can be changed in 1" increments by using the next size larger/smaller bushing.

2. To get additional depth control, the depth stop weldment can be flipped over by removing the pins shown in Figure 2-9. This gives an additional 3" of adjustment.

3. Repeat steps 1 and 2 adjusting each gauge wheel position all of the wing sections. (FIG. 2-9)

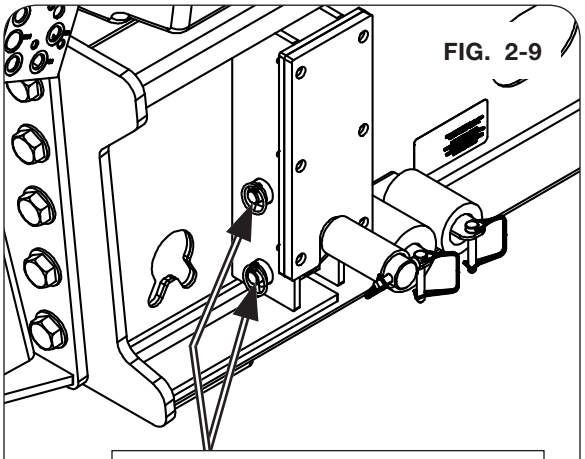


FIG. 2-9

Axle Tread Setting

Wheel Spacing Combinations

WARNING

- **USE EXCEPTIONAL CARE WHEN OPERATING APPLICATOR EQUIPPED WITH SINGLE TIRES SET AT NARROW WHEEL SPACING. THE POSSIBILITY OF TIPPING OVER DURING TURNS OR TRAVEL ON ROUGH ROADS IS INCREASED UNDER THESE CONDITIONS.**

The axle spacing is infinitely adjustable between minimum and maximum settings. A summary of the available wheel spacings for each tire and wheel combination is as follows:

WHEEL OFFSET TO INSIDE		
TIRE & WHEEL	1400 GALLON	
	MIN. SPACING (inches)	MAX. SPACING (inches)
380/90 x 46 Single (0" Offset)	88	132 - 152*
320/90 x 50 Single (0" Offset)	88	132
480/80 x 50 Single (0" Offset)	88	132 - 152*

NOTE: * 132 - 152 Spacing requires axle assembly 414131B.

Axle Tread Setting (continued)

Adjustment

⚠ WARNING

- **IMPROPER AXLE ADJUSTMENT CAN CAUSE AXLE TO SEPARATE FROM APPLICATOR, RESULTING IN PERSONAL INJURY OR DEATH DUE TO APPLICATOR OR AXLE FALLING.**

- **USE CARE THAT APPLICATOR DOES NOT FALL FROM SUPPORT STANDS DURING ADJUSTMENT. DO NOT ALLOW AXLE TO SLIDE OUT FROM APPLICATOR DURING ADJUSTMENT PROCEDURE.**

- **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 30,000 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.**

⚠ 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 USE, AFTER ONE HOUR OF UNLOADED USE OR AFTER FIRST LOAD, AND EACH LOAD UNTIL WHEEL NUTS/BOLTS MAINTAIN TORQUE VALUE. CHECK TORQUE EVERY 10 HOURS OF USE THERE-AFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

Axle Tread Setting (continued)

IMPORTANT

- *Always adjust axles equally.*

1. Hitch applicator to tractor to help stabilize unit. Refer to "Hitching to the Tractor" in OPERATION section.

2. Using a safe lifting device and supports rated at 7,000 lbs., raise one side of the empty applicator and place on stands. Stands should be securely positioned under both frame rails, as far toward the rear of the applicator as practical. (FIG. 2-10)

3. If necessary for desired wheel spacing, change wheel dish direction by unbolting wheels and swap between left and right sides on applicator. Refer to information in wheel spacing chart to see if wheel dish needs to be reversed. Tighten 3/4" wheel lug bolts to 365 ft-lbs. torque.

4. Loosen four 1" clamp bolts that hold one axle. Using a safe lifting device rated for 3,000 lbs., lift the axle slightly and slide it out until desired adjustment is reached.

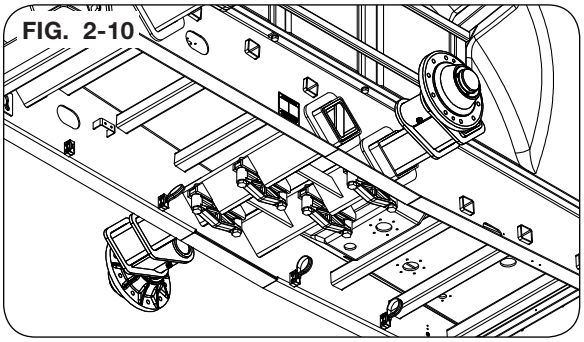


FIG. 2-10

NOTE: Do not extend axle beyond the clamps.

5. Verify the inner axle clamp fully contacts the axle.

6. After adjustment, tighten 1" clamp bolts to 525 ft.-lbs.

7. Repeat steps 2 through 6 for other axle. Remove safe lifting devices and supports.

Setting Up Controller

Refer to the appropriate Raven manual or OEM rate controller manual if applicable.

"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	20"	90"	100"	100"	100"	90"
40'	30"	75"	120"	90"	120"	75"
40'	36"	72"	90"	108"	90"	72"
40'	38"	76"	95"	114"	95"	76"
40' Folded Down to 30'	30"	-	135"	90"	135"	-
44'	22"	99"	110"	110"	110"	99"

Pump Hydraulic System Set Up

For set up of a PWM (Pulse Width Modulated) or non-PWM pump, refer to your Rate controller manual for details. For specific details related to your product pump, please refer to your pump manual.

NOTE: Foot switch must be installed and connected for PWM pump to function properly.

FIG. 2-11

IMPORTANT

- *Do not run pump for extended periods with outlet flow fully blocked. Overheating and pump damage can result.*
- *Liquid must be in the Solution Tank. Refer to Filling Applicator in the OPERATION section.*
- *Toolbar should be unfolded when setting the pump pressure. Refer to toolbar operation in the OPERATION section.*
- *The Pump Inlet valve should be open.*
- *Do not run pump without solution. Running a dry pump will shorten its life.*

Setting the Pump Pressure (PWM Pump)

1. Rate controller must be calibrated. See pump calibration in section “RCM Set Up.”
2. Select manual control on the console and turn the master switch on. Press and hold the Inc. button for 5 seconds to verify cartridge valve is fully open.
3. Turn off section valves and agitation valve if equipped.
4. Turn the hydraulic flow dial to 100%. The PWM cartridge valve is sized to divert a maximum of 11 GPM to the pump. Decrease the tractor’s hydraulic flow until Nutrimax system pressure starts to drop, approximately around 100 PSI.
5. If equipped with an inductor, open the agitation valve until the pump pressure drops by 5 psi. The gauge should now read 95 psi.
6. If not equipped with an inductor, keep the agitation valve closed.

RCM Set Up

Whenever the tractor is turned off or the ECU for the applicator loses power, the following steps will have to be performed in order for the RCM to function properly right away.

NOTE: Before programming the RCM, ensure the RCM monitor is connected to the battery.

1. Initial start-up screen. At “Profile Name” box, name as “Nutrimax”. Click “Machine Type” and select “Liquid Fert. Tool”. Next, enter 480 in., 720 in. or 1080 in. for “Application Width” depending on machine size and configuration. Click next arrow. (FIG 2-12)

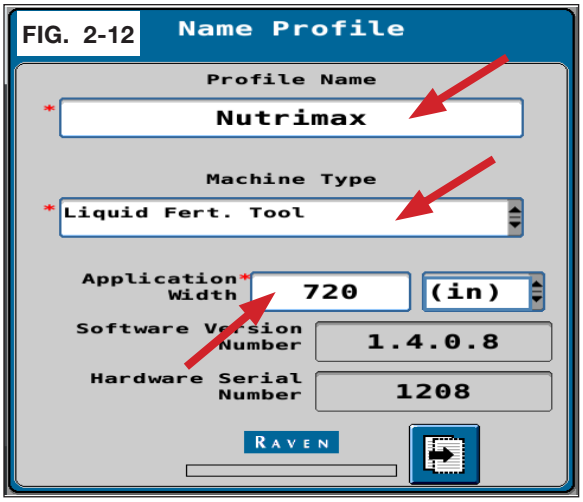


FIG. 2-12

NOTE: Highest value for “Application Width” is 1080 in.

2. Default for “ECU” box is 1. Click “Number of Products” box and enter 1. Click next. (FIG 2-13)

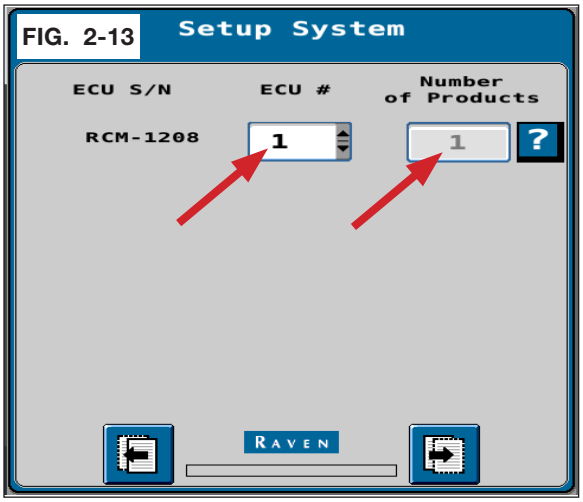


FIG. 2-13

3. Under “Application Type”, select “Liquid”. Click next. (FIG 2-14)

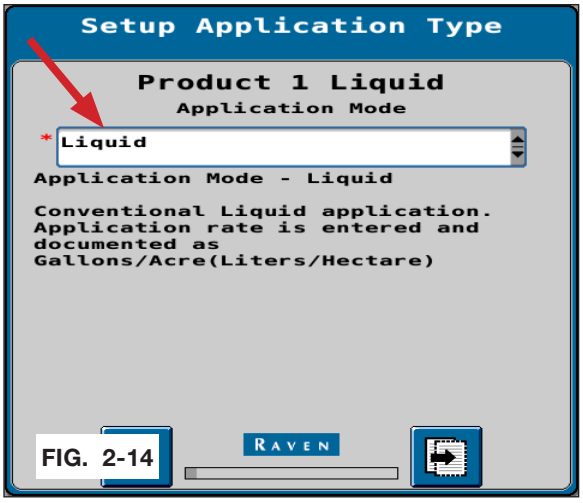


FIG. 2-14

RCM Set Up (continued)

NOTE: 40 FT. - 66 FT. units will have 5 sections. 80 FT. - 90 FT. units will have 6 sections.

4. Under “Number of Sections”, select 5 for 40 FT. - 66 FT. units or 6 for 80 FT. - 90 FT. units. Default for “Section Valve Type” is 3-Wire. Uncheck “Equal Width Sections” box. Click next. (FIG 2-15)

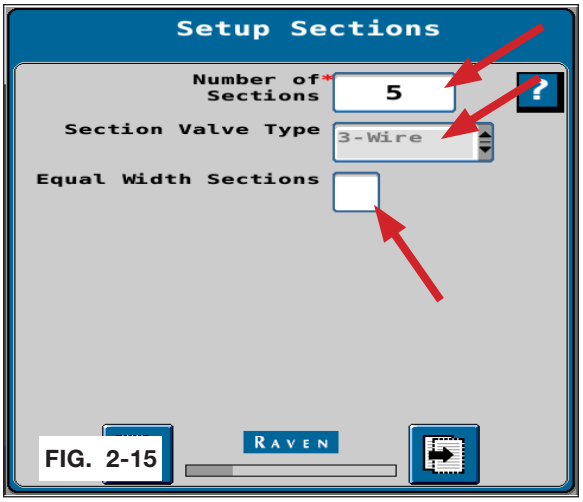


FIG. 2-15

NOTE: Each section is listed in inches and will equal total application width.

NOTE: See Controller Calibration Settings in the SET UP section for specific toolbar lengths

5. Enter values for each section. Click next. (FIG 2-16).

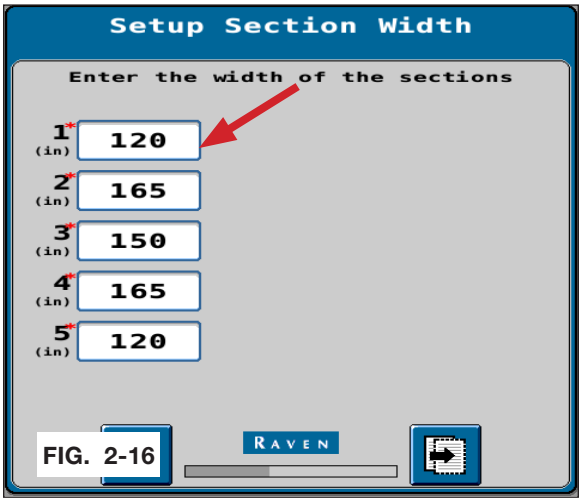


FIG. 2-16

6. Ensure all the appropriate boxes are selected as “None”. (FIG 2-17)

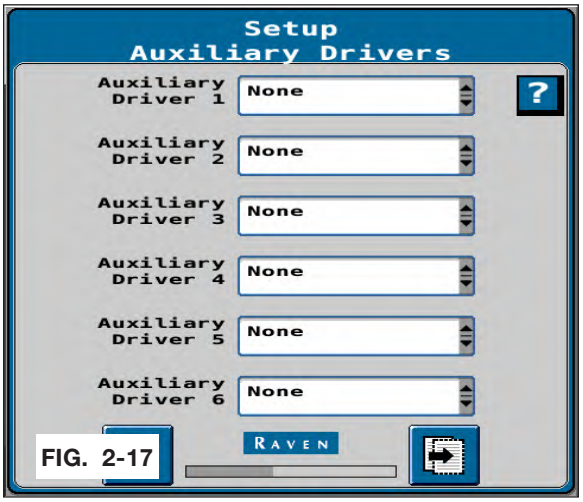


FIG. 2-17

RCM Set Up (continued)

7. No action required on this screen. Make sure this matches toolbar size and section widths. Continue to next page. (FIG 2-18)

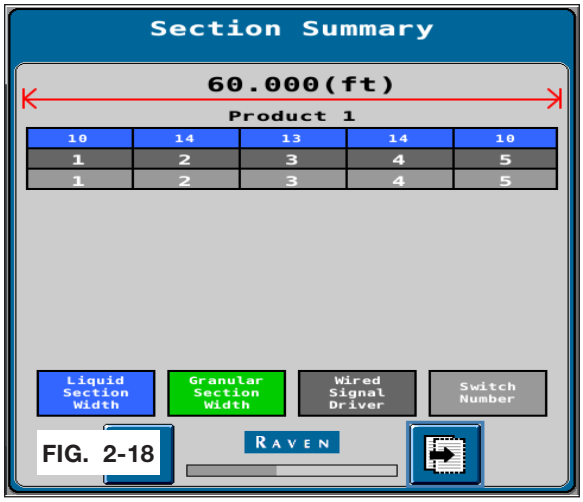


FIG. 2-18

8. Under “Pressure Sensor 1”, select “0-250 psi (1-5V)”. Under “Pressure Sensor 2”, select “None”. Click next. (FIG 2-19)

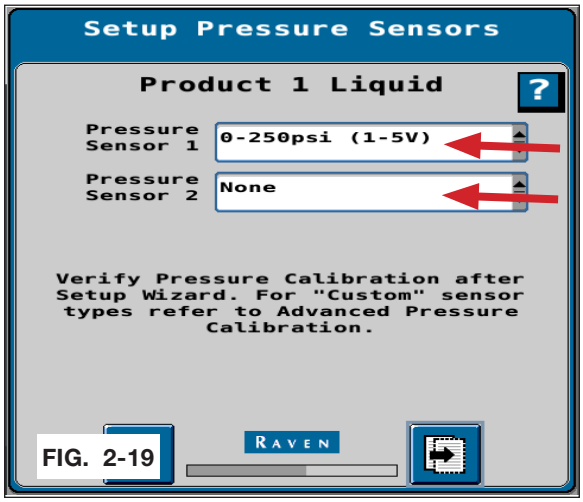


FIG. 2-19

9. Under “Pressure 1”, set minimum and maximum pressures. Recommend starting at 10 psi and 150 psi. Check box if alarm is desired when above max or below min. Click next. (FIG 2-20)

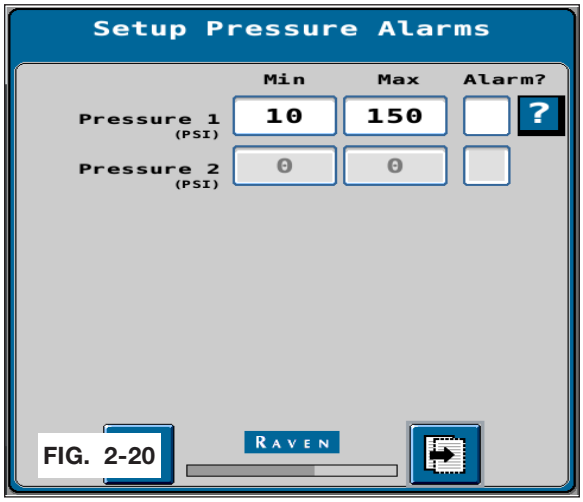


FIG. 2-20

RCM Set Up (continued)

10. For the auxilary functions: uncheck both boxes. Click next page. (FIG. 2-21)

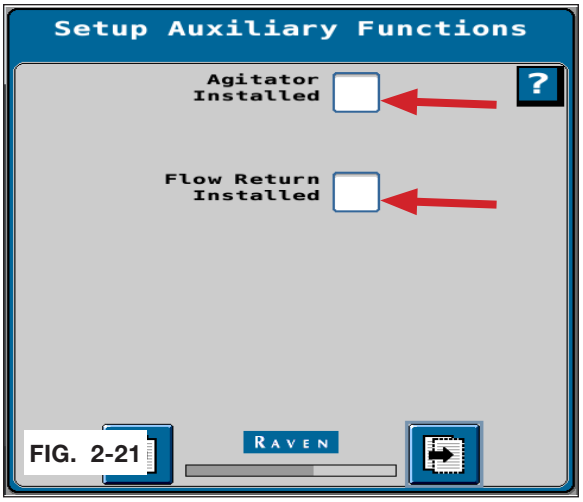


FIG. 2-21

11. "Product 1" is the set up for the liquid. For "Control Valve Type", always select "PWM". (FIG. 2-22)

12. For "Valve Response Rate", enter 40. This is how fast the valve responds.

13. Default for "Control Deadband %" box is 3 and "Valve Delay" box is 0.

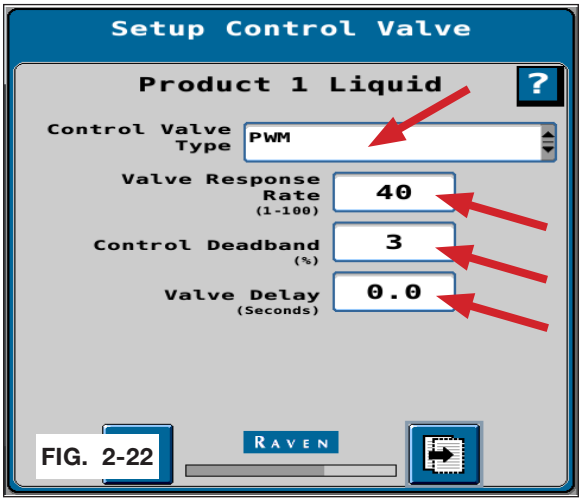


FIG. 2-22

14. For the PWM valve "Coil Frequency", ensure the value is set at 122. (FIG. 2-23)

NOTE: Inputting "PWM Standby" at 20, for example, can resolve "Solution Pump Dry" error.

15. Set the "PWM High Limit" at 100, "PWM Low Limit" at 10 and "PWM Standby" at 0. Click next page. (FIG. 2-23)

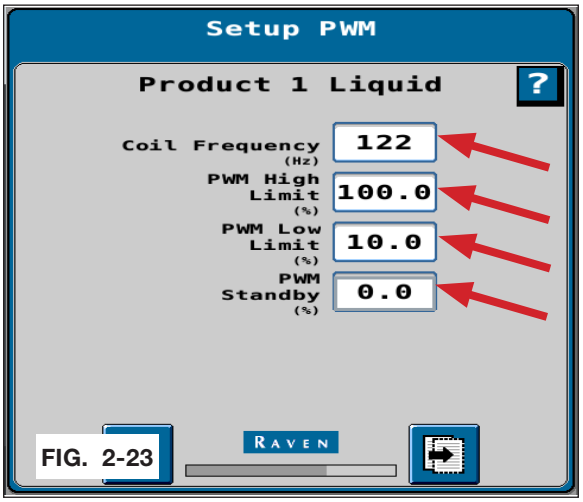


FIG. 2-23

RCM Set Up (continued)

16. For “Flowmeter Calibration”, check the tag on the flowmeter and enter the value. (FIG. 2-24)

17. Under “Flowmeter Pulse/Units” enter 10 gal. Click next page. (FIG. 2-24)

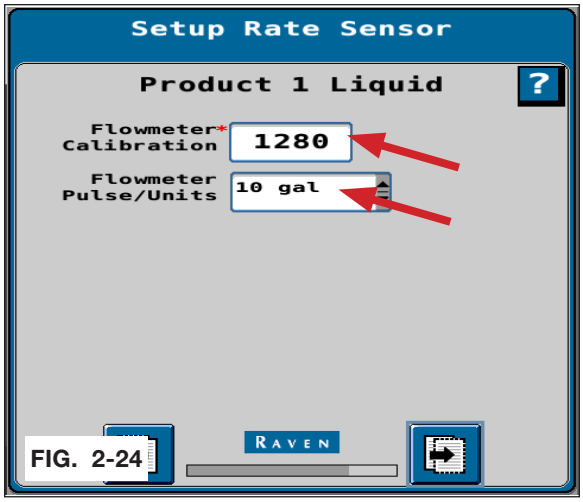


FIG. 2-24

18. For “Tank Fill/Level Sensor”, select “None”. (FIG. 2-25)

19. Enter gallon capacity of unit for “Tank Capacity”.

20. Enter current gallons in unit for “Current Tank Level”.

21. “Low Tank Level” is the value an alarm is set off for a low bin level. Recommended setting is 250 and ensure the “Alarm” box is checked.

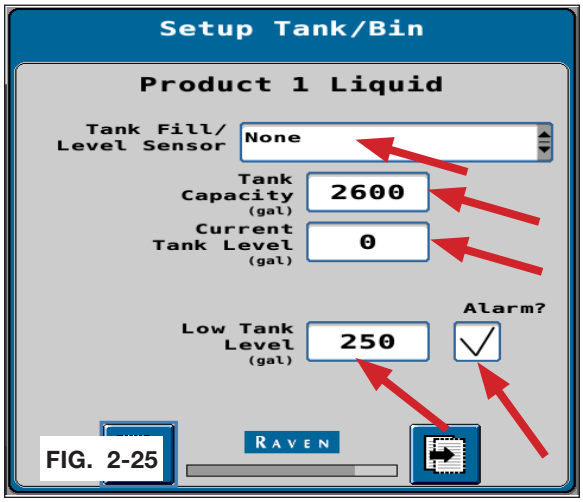


FIG. 2-25

22. “Set Up Rates” page controls the application rates for speed and determines how much product is being applied for “Product 1”. Enter three “Preset Rate Values”, as desired, which can be clicked between on the homescreen. On the homescreen, target rates can be entered as well. (FIG. 2-26)

23. Enter “Rate Bump” value in an increment as desired.

24. For “Rate Selection”, manually input a selection or import an “Rx”.

25. “Display Smoothing” needs to be checked and “Decimal Shift” remains at 0.

26. “Standby Pressure” remains at 0. Standby PWM valve is used instead. Click next page. (FIG. 2-26)

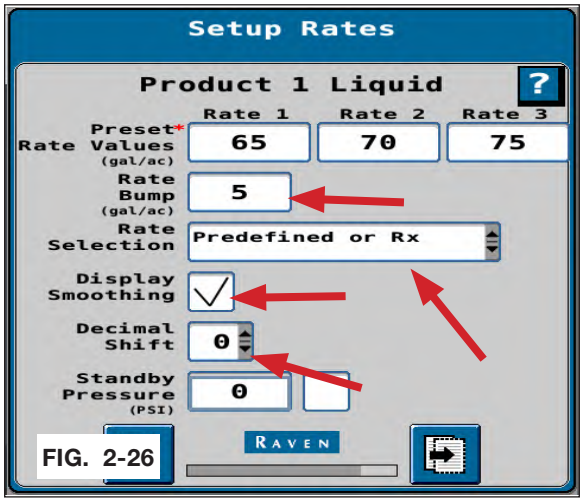


FIG. 2-26

RCM Set Up (continued)

27. Enter 20 for “Off Rate Alarm” and check box. Click next page. (FIG. 2-27)

    NOTE: Alarm prompts when over 20% off target rate.

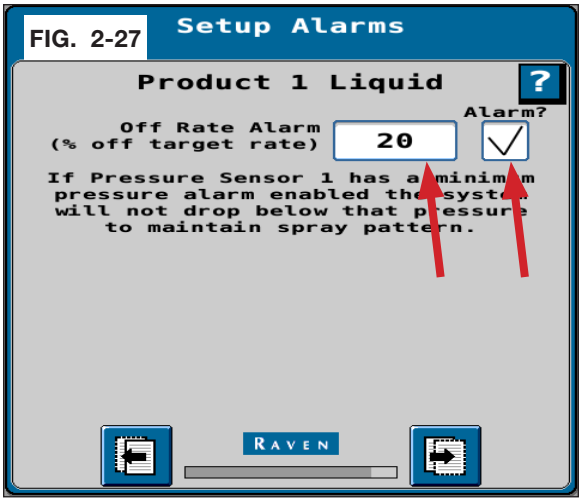


FIG. 2-27

    NOTE: “Number of Products” corresponds to liquid application. (FIG. 2-28)

28. No action required on this screen. Shows the set up summary. Make sure all values are correct. Continue to next page. (FIG. 2-28)

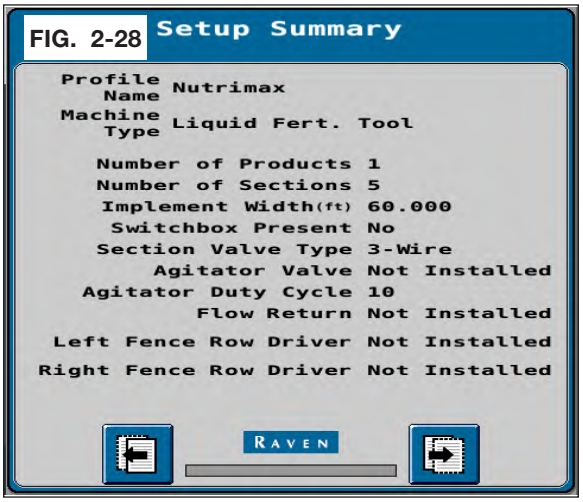


FIG. 2-28

RCM Set Up (continued)

PWM Pump Start Up Procedure (Rate Control Module)

Whenever the tractor is turned off or the ECU for the PWM Pump loses power, the following steps will have to be performed in order for the PWM Pump to function properly right away.

1. Fill solution tank with desired product and reduce the flow on the SCV to lowest setting for the PWM pump before engaging.

   Initial start-up screen (FIG. 2-29).

2. Switch the system from Auto to Manual (FIG. 2-29).

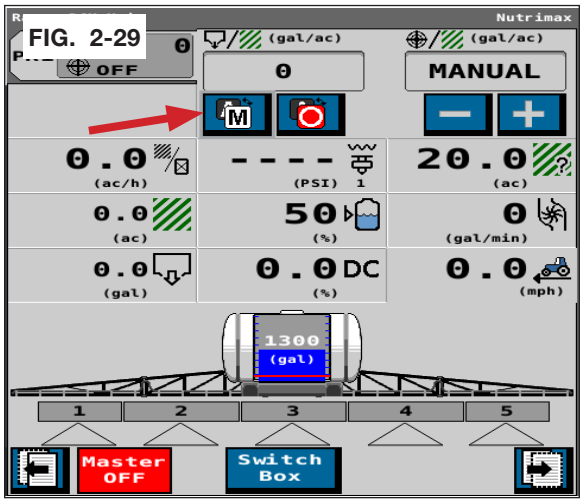


FIG. 2-29

3. Cycle the system from Off to On. (FIG. 2-30)

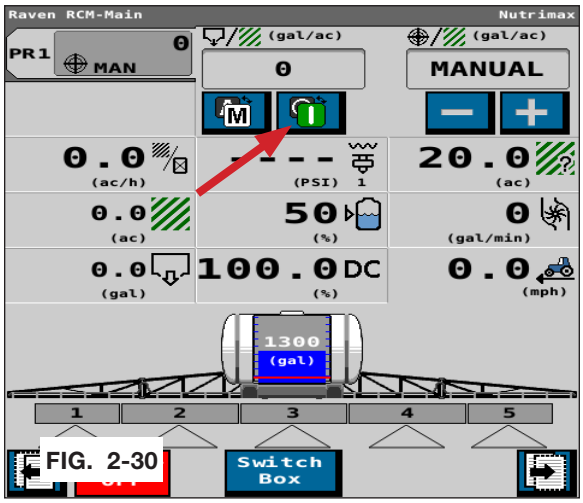


FIG. 2-30

4. Engage the SCV in continuous flow for the pump on the tractor.

5. Click the manual “+” button to increase the DC value to 100%. (FIG. 2-31)

6. Increase the hydraulic flow on the tractor until the pressure reaches 100 psi.

7. Switch the system from Manual back to Auto. The pump will go into Standby mode, and the pressure should drop.

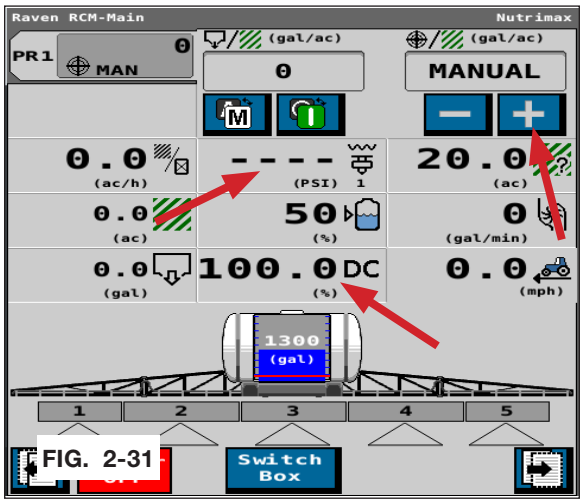


FIG. 2-31

Applicator Calibration

Determine Required Nozzle Size

Use the following procedure to assist with sizing the nozzle and calibrating the applicator. Additional information can be found in the rate controller owner's manual and also obtained from nozzle manufacturers.

The following procedure assumes that an electronic rate controller is being used.

1. Determine the typical operating speed (in MPH) and coverage rate (in GPA) that will be used.
2. Calculate nozzle flow:

$$\text{Nozzle GPM} = \frac{\text{MPH x GPA x Nozzle Spacing x DCF*}}{5940}$$

*DCF = Density Conversion Factor

Weight of Solution	Density Conversion Factor (DCF)
8.34 lb./gal. (Water)	1.00
10.65 lb./gal. (28% Nitrogen)	1.13
11.05 lb./gal. (32% Nitrogen)	1.15

Example:

Speed = 8 miles per hour
Rate = 10 gallons per acre
Nozzle Spacing = 20 inches
Liquid = Water

$$\text{Nozzle GPM} = \frac{\text{8 MPH x 10 GPA x 20 Nozzle Spacing x 1 DCF*}}{5940} = 0.27 \text{ GPM}$$

3. Go to the PARTS section, "Injector Nozzles and Injector Knives" to select a tip.

   Choose a nozzle that will provide the calculated GPM within the nozzle's operating pressure range. Typically, 2 or 3 nozzle sizes will be found that meet the calculated GPM. However, it is usually a good practice to choose a flow size that lists this GPM in the mid-portion of the nozzle's advertised ratings.

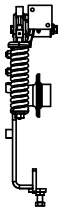
4. Go to the PARTS section, "Injector Nozzles and Injector Knives" to select a nozzle and knife orifice size. Choose a type of nozzle or orifice for the given application.

INJECTOR NOZZLE & ORIFICE GUIDE			
Nozzle Size	Knife Orifice Size	P.S.I.	Approx. G.P.A. at 30" Rows at 10 M.P.H.
#0004	#57	30 P.S.I.	7
#0006	#70		10
#0008	#80		14
#0010	#89		17
#0015	#107		26
#0020	#125		34
#0030	#151		51
#0040	#177		69

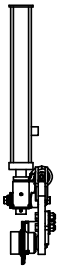
Overhead Layout - Legend

415752B - Coulter Post Assembly (Straight Post)
415753B - Center Coulter Post Assembly (Straight Post)

Overhead View

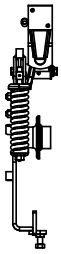


Front View

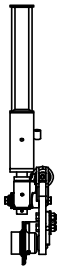


415754B - Coulter Post Assembly (Offset Post)

Overhead View

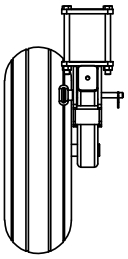


Front View



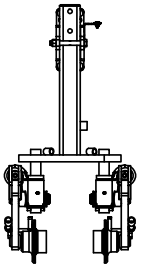
411261B - Gauge Wheel Assembly
60911 - Mounted Tire & Wheel (W815-6-08)

Overhead View

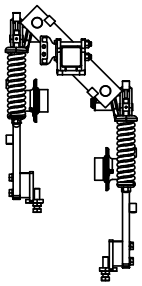


415755B - Double Coulter Post Assembly LH

Front View

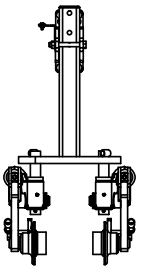


Overhead View

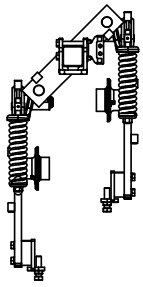


415757B - Double Coulter Post Assembly RH
415763B - Center Double Coulter Post Assembly RH

Front View



Overhead View



414887B Coulter Mount Weldment

Overhead View

Front View

414898B Coulter Mount Offset RH

Overhead View

Front View

414899B Coulter Mount Offset LH

Overhead View

Front View

414895B Coulter Mount Offset RH

Overhead View

Front View

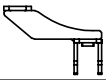
414894B Coulter Mount Offset LH

Overhead View

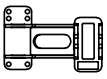
Front View

414896B Coulter Mount Offset LH

Overhead View

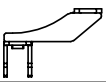


Front View

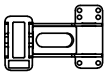


414897B Coulter Mount Offset RH

Overhead View

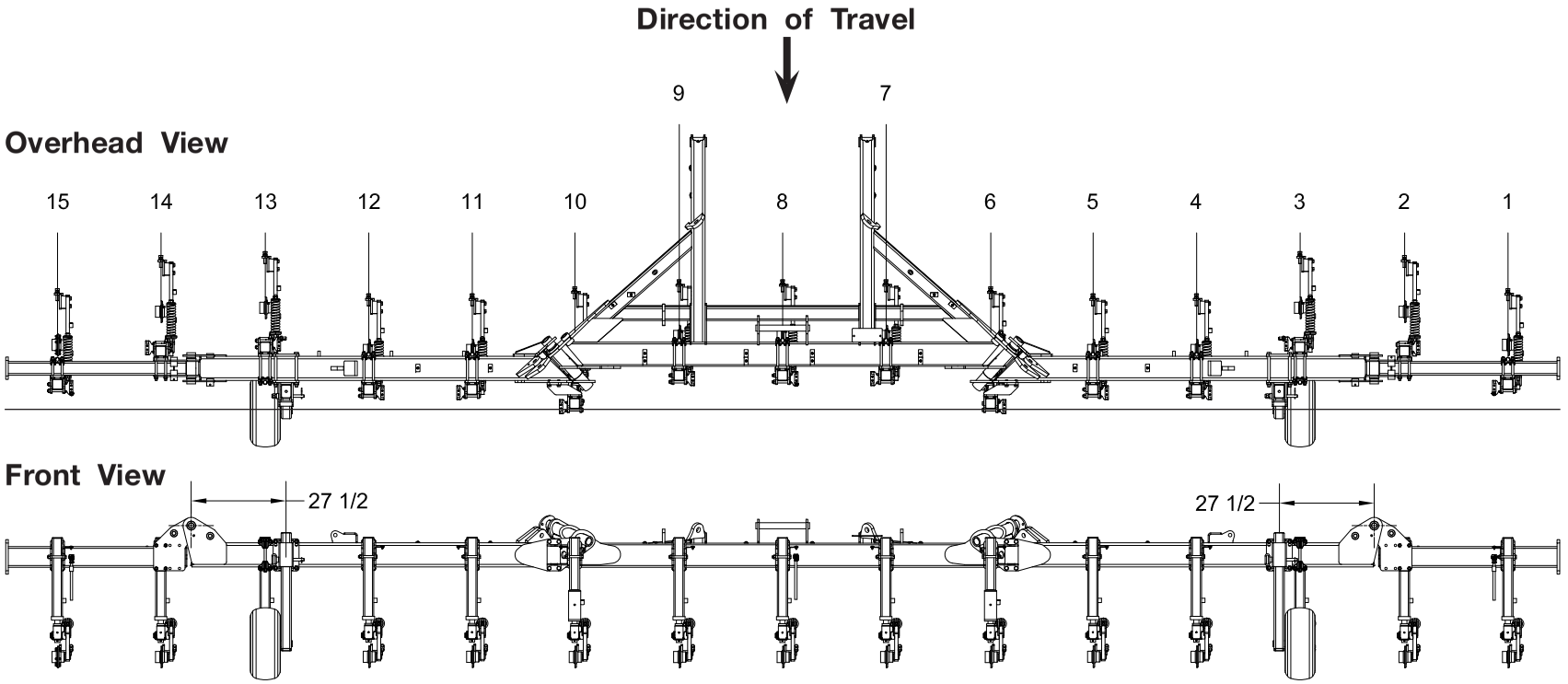


Front View



Overhead Layout - Rigid 40' Toolbar - 30" Row Spacing

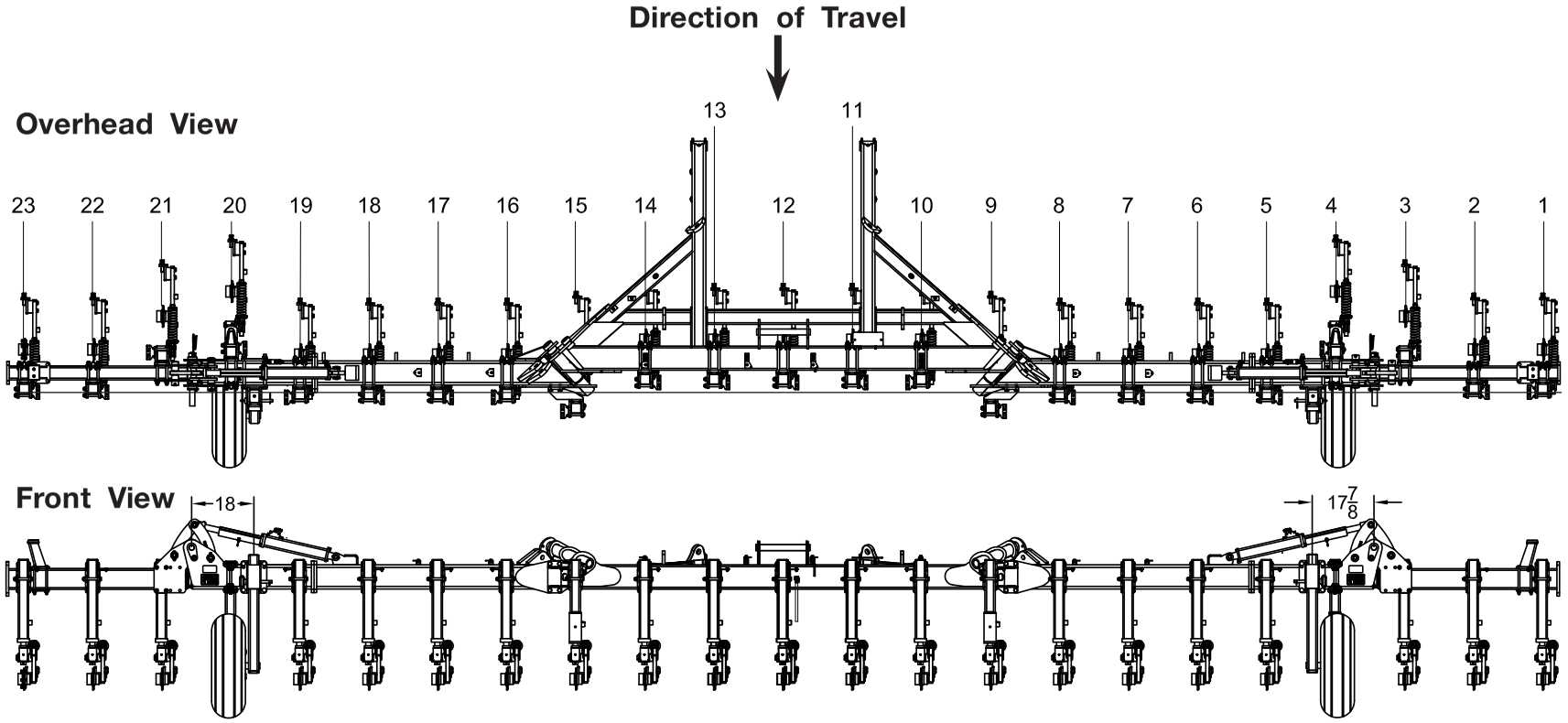
COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
1, 2, 4, 5, 7, 9, 11, 12, 14, 15	415752B - Straight Post	414887B - Coulter Mount Weldment
3, 13	415754B - Offset Post	414887B - Coulter Mount Weldment
6		414895B - Coulter Mount Weldment Offset Right-Hand
10		414894B - Coulter Mount Weldment Offset Left-Hand
8	415753B - Center Straight Post	414887B - Coulter Mount Weldment



"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	30"	75"	120"	90"	120"	75"

Overhead Layout - 40' Toolbar - 20" Row Spacing

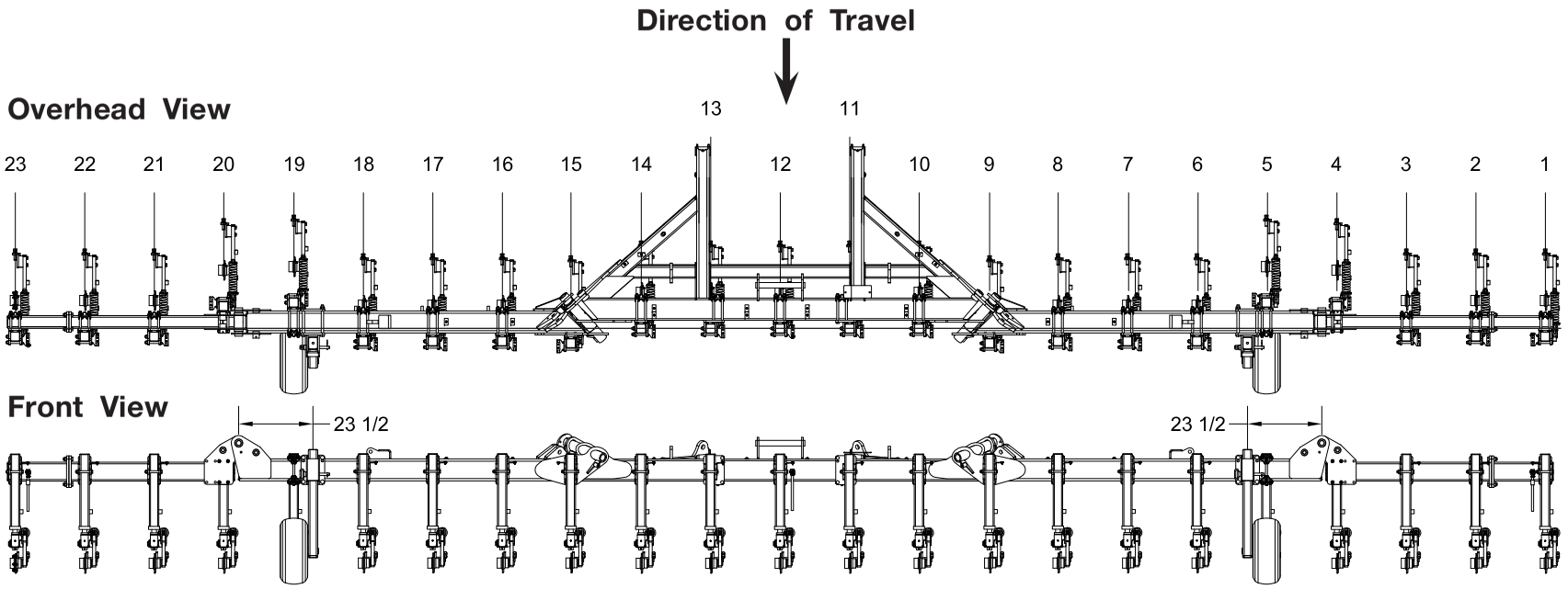
COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23	415752B - Straight Post	414887B - Coulter Mount Weldment
9	415754B - Offset Post	414895B - Coulter Mount Weldment Offset Right-Hand
15		414894B - Coulter Mount Weldment Offset Left-Hand
12	415753B - Center Straight Post	414887B - Coulter Mount Weldment



"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	20"	90"	100"	100"	100"	90"

Overhead Layout - 44' Toolbar - 22" Row Spacing

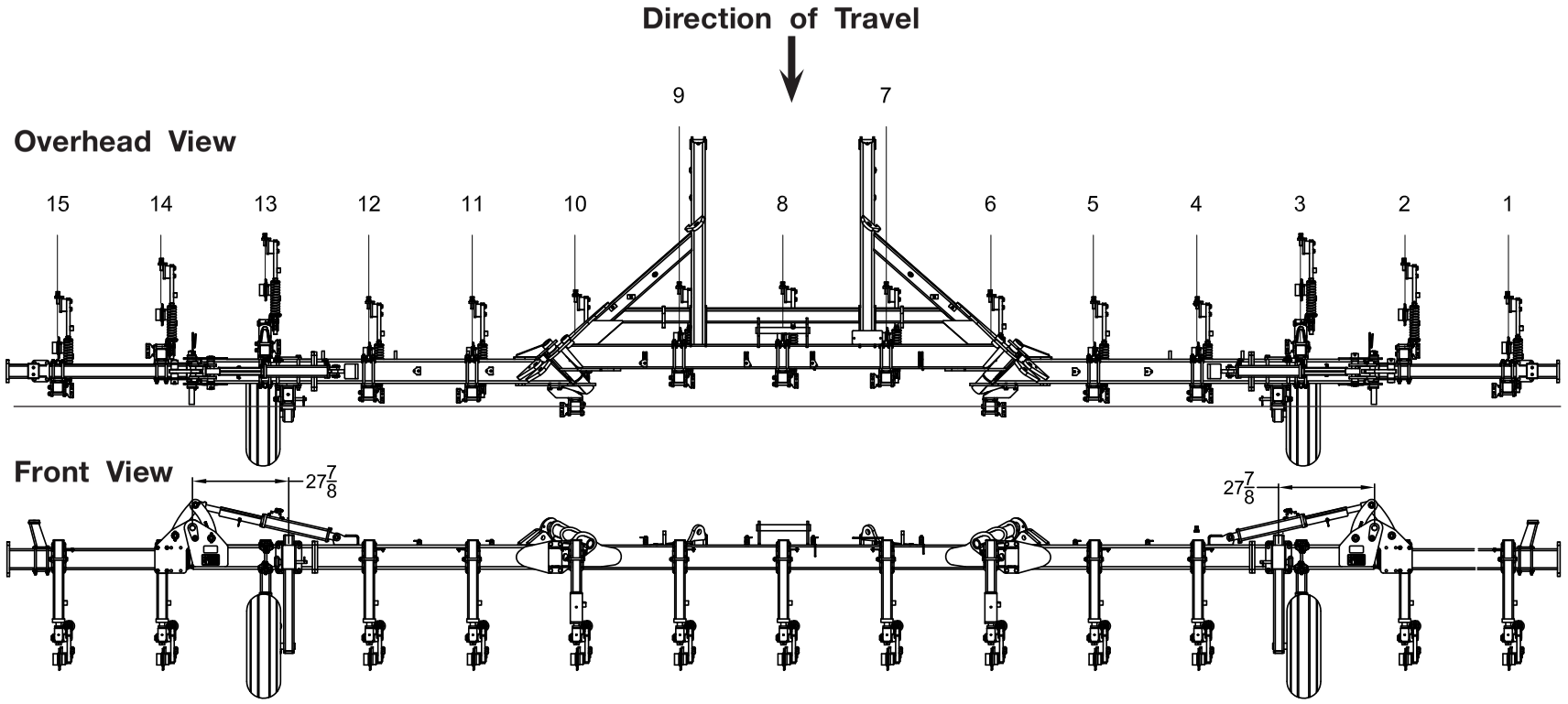
COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
1, 2, 3, 4, 6, 7, 8, 9, 10, 14, 15, 16, 17, 18, 20, 21, 22, 23	415752B - Straight Post	414887B - Coulter Mount Weldment
11		414899B - Coulter Mount Weldment Offset Right-Hand
13		414898B - Coulter Mount Weldment Offset Left-Hand
5, 19	415754B - Offset Post	414887B - Coulter Mount Weldment
12	415753B - Center Straight Post	414887B - Coulter Mount Weldment



"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
44'	22"	99"	110"	110"	110"	99"

Overhead Layout - 40' Toolbar - 30" Row Spacing

COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
1, 2, 3, 4, 5, 7, 9, 11, 12, 13, 14, 15	415752B - Straight Post	414887B - Coulter Mount Weldment
6	415754B - Offset Post	414895B - Coulter Mount Weldment Offset Right-Hand
10		414894B - Coulter Mount Weldment Offset Left-Hand
8	415753B - Center Straight Post	414887B - Coulter Mount Weldment



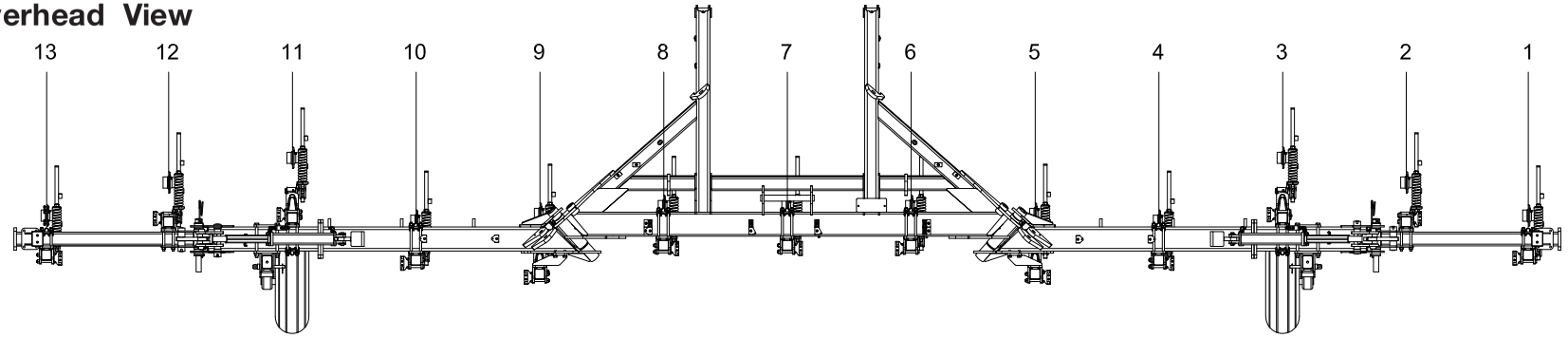
"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	30"	75"	120"	90"	120"	75"

Overhead Layout - 40' Toolbar - 36" Row Spacing

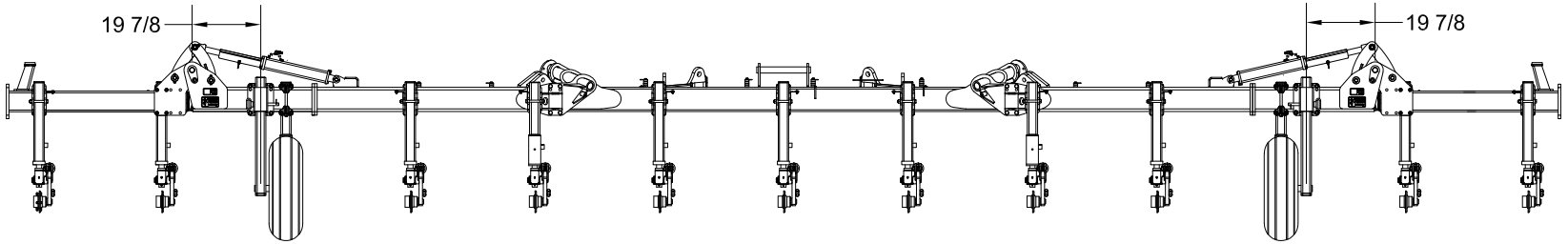
COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
1, 2, 4, 6, 8, 10, 12, 13	415752B - Straight Post	414887B - Coulter Mount Weldment
3, 11	415754B - Offset Post	414887B - Coulter Mount Weldment
9		414895B - Coulter Mount Weldment Offset Right-Hand
5		414894B - Coulter Mount Weldment Offset Left-Hand
7	415753B - Center Straight Post	414887B - Coulter Mount Weldment

Direction of Travel

Overhead View



Front View



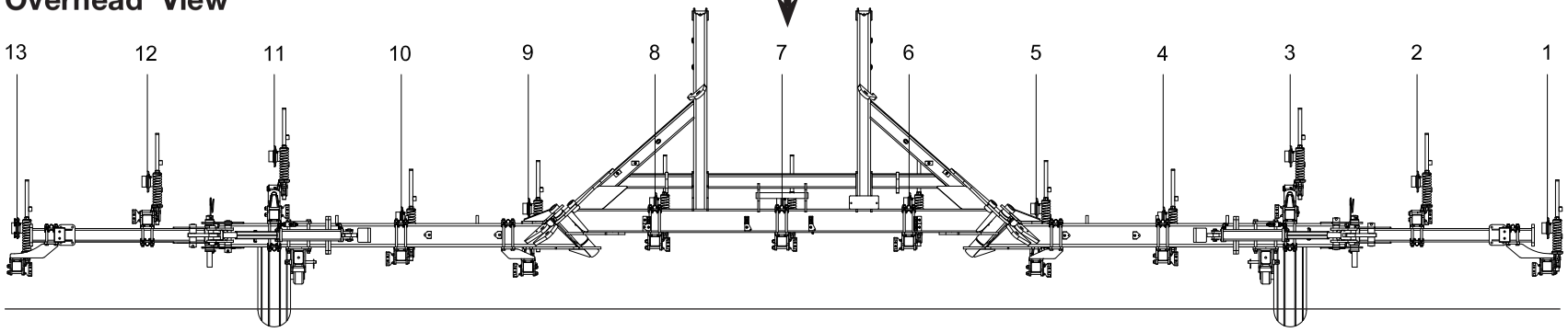
"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	36"	72"	90"	108"	90"	72"

Overhead Layout - 40' Toolbar - 38" Row Spacing

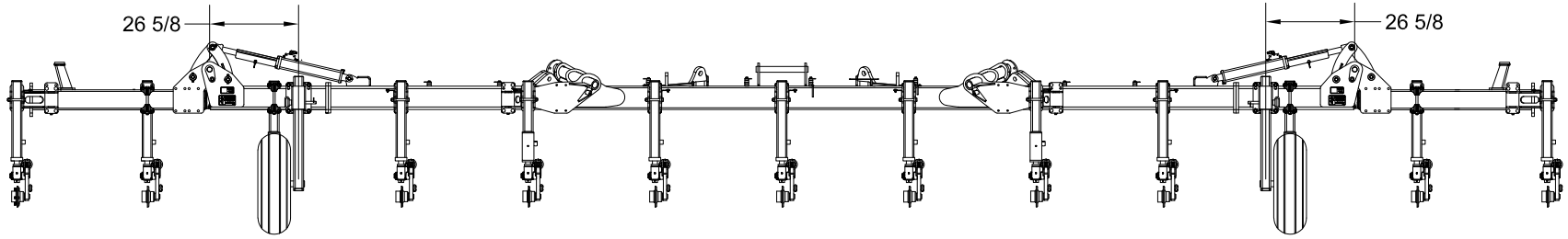
COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
2, 4, 6, 8, 10, 12	415752B - Straight Post	414887B - Coulter Mount Weldment
1		414896B - Coulter Mount Weldment Offset Left-Hand
13		414897B - Coulter Mount Weldment Offset Right-Hand
3, 11	415754B - Offset Post	414887B - Coulter Mount Weldment
5		414895B - Coulter Mount Weldment Offset Right-Hand
9		414894B - Coulter Mount Weldment Offset Left-Hand
7	415753B - Center Straight Post	414887B - Coulter Mount Weldment

Direction of Travel

Overhead View



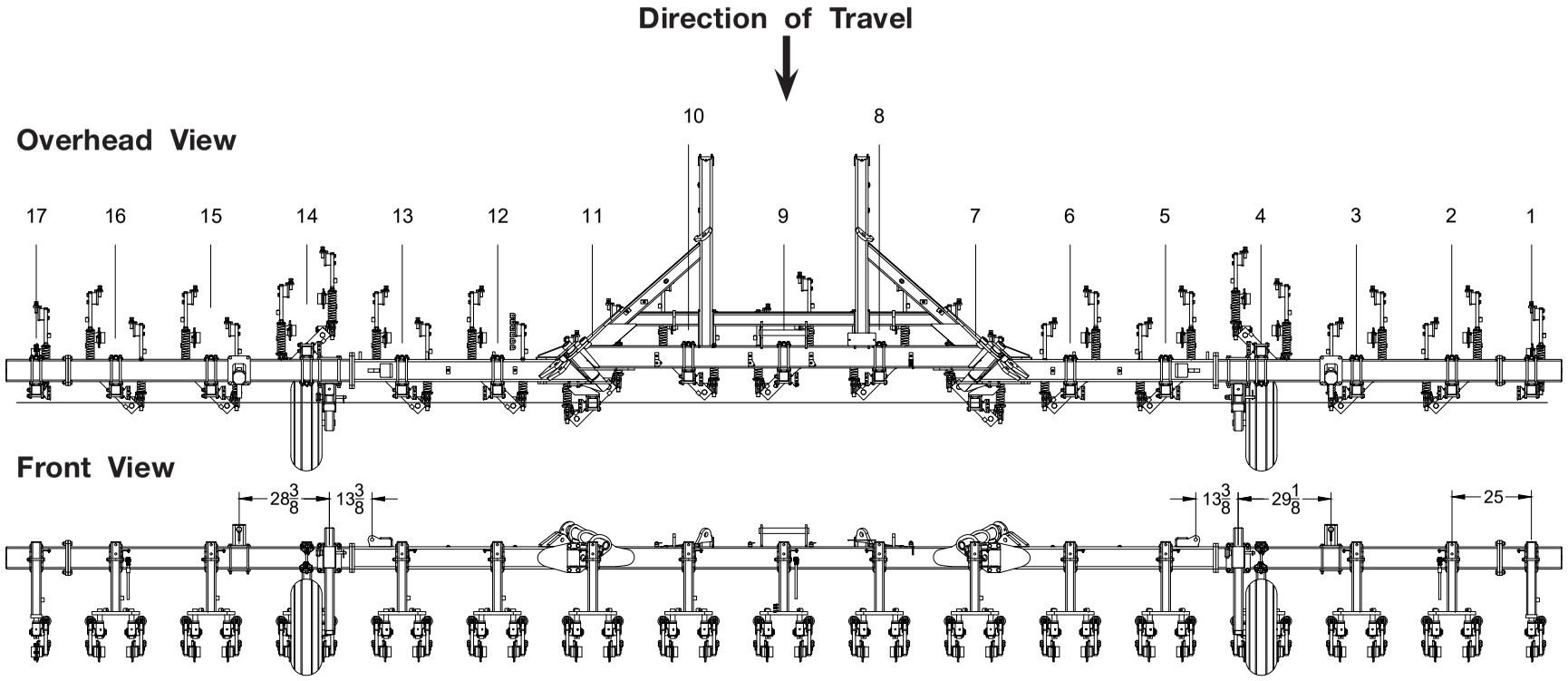
Front View



"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	38"	76"	95"	114"	95"	76"

Overhead Layout - Rigid 40' Toolbar - Double Coulter - 30" Row Spacing

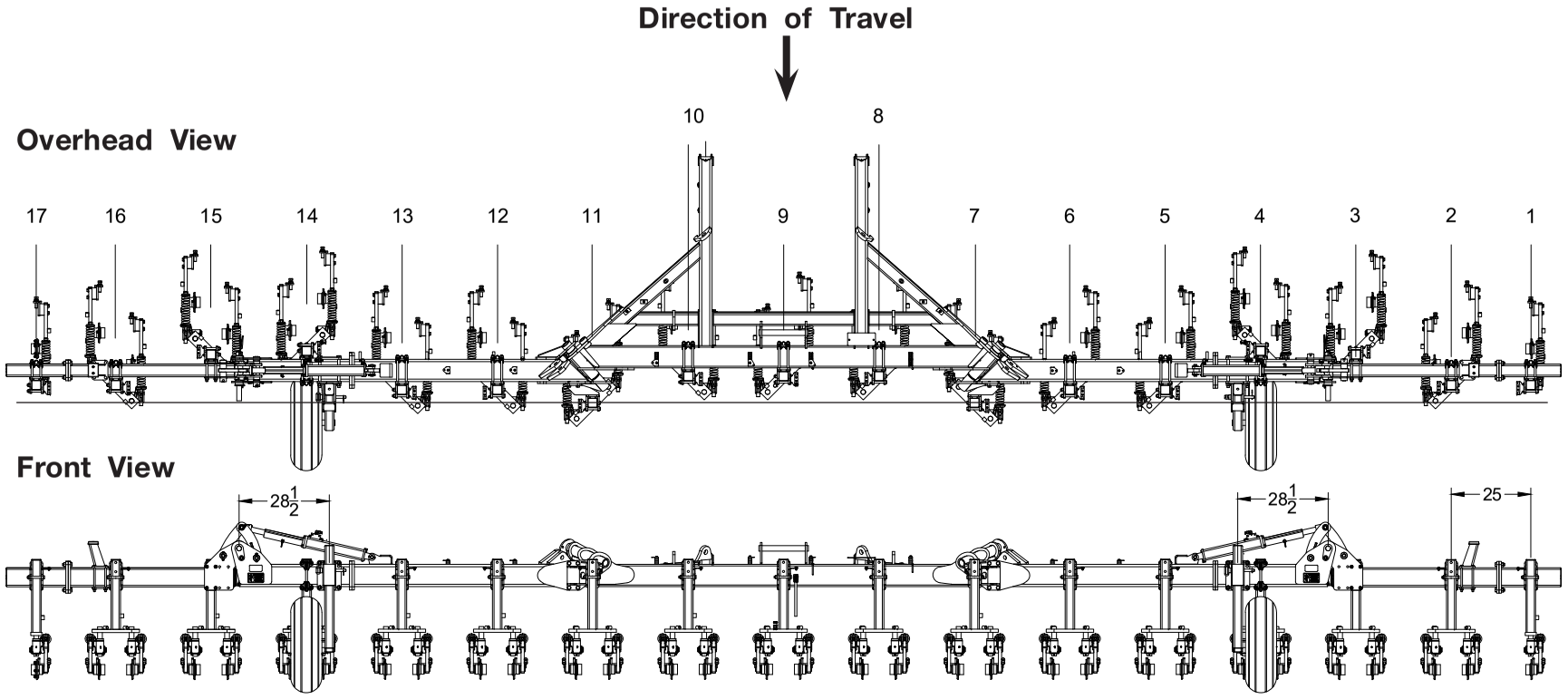
COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
1, 17	415752B - Straight Post	414887B - Coulter Mount Weldment
4, 10, 12, 13, 15, 16	415755B - Double Coulter Assembly LH	414887B - Coulter Mount Weldment
7		414895B - Coulter Mount Weldment Offset Right-Hand
2, 3, 5, 6, 8, 14	415757B - Double Coulter Assembly RH	414887B - Coulter Mount Weldment
11		414894B - Coulter Mount Weldment Offset Left-Hand
9	415763B - Center Doulber Coulter Assembly RH	414887B - Coulter Mount Weldment



"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	30"	75"	120"	90"	120"	75"

Overhead Layout - Folding 40' Toolbar - Double Coulter - 30" Row Spacing

COULTER ROW	COULTER POST ASSEMBLY	COULTER MOUNT WELDMENT
1, 17	415752B - Straight Post	414887B - Coulter Mount Weldment
4, 10, 12, 13, 15, 16	415755B - Double Coulter Assembly LH	414887B - Coulter Mount Weldment
7		414895B - Coulter Mount Weldment Offset Right-Hand
2, 3, 5, 6, 8, 14	415757B - Double Coulter Assembly RH	414887B - Coulter Mount Weldment
11		414894B - Coulter Mount Weldment Offset Left-Hand
9	415763B - Center Doulber Coulter Assembly RH	414887B - Coulter Mount Weldment



"BOOM CAL" Monitor Settings						
TOOLBAR SIZE	SPACING	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
40'	30"	75"	120"	90"	120"	75"

Section III
Operation

FOR INDUCTOR INFORMATION, PLEASE REFER TO YOUR INDUCTOR MANUAL.
FOR QUICK FILL METER INFORMATION, PLEASE REFER TO YOUR QUICK FILL METER MANUAL.
FOR GROUND DRIVEN PUMP INFORMATION, PLEASE REFER TO PUMP MANUAL.

Preparing Tractor

- Before operating applicator, read the tractor operator's manual and gain an understanding of its safe methods of operation.
- Check the tractor brakes and transport lights. Make sure they are in proper working order.
- Check the tractor hydraulic oil reservoir and add oil if needed.
- Verify that the tractor is adequately ballasted for drawbar operation at the anticipated draft and vertical tongue load. Vertical tongue load of a loaded applicator is approximately 4,025 lbs. unfolded (1,450 lbs. with toolbars folded to transport position). Ensure that the tractor's drawbar has sufficient strength to support this load.
- If possible, adjust the tractor drawbar vertically so the top side of the drawbar is at least 18 inches from the ground. Alternately, the applicator hitch may be adjusted vertically by choosing other mounting holes provided.
- Raise and secure all tractor 3-point hitch linkage to prevent interference with the implement tongue and hydraulic hoses during turning.

Preparing Applicator

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

Hardware

Check for loose bolts and nuts, and tighten as needed. Check again after the first half-day of operation.

Pivot Pins

Check that all pins are in place and in good condition. Replace any worn, damaged or missing pins.

Hitch

Check hitch and hitch retention hardware for damage and wear.

Hydraulic System

Check all hoses and cylinders for signs of leakage. Hoses should not be kinked, twisted or rubbing against sharp edges. Re-route or repair hoses as necessary. Refer to SAFETY section for additional information on safe repair and inspection of hydraulic components.

Preparing Applicator (continued)

Tires/Wheels

Check tire pressures and maintain at recommended values listed in the MAINTENANCE section.

⚠ 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.**

IMPORTANT

- *Installing wheels without the proper inset/offset could result in hub or spindle failure. This will cause substantial damage to the applicator and is not covered by warranty. Inset/offset will vary depending on tire size. Consult dealer for proper inset/offset.*

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

Lubrication

Lubricate the applicator as outlined in the MAINTENANCE section.

Hitching to the Tractor

Drawbar Hitching

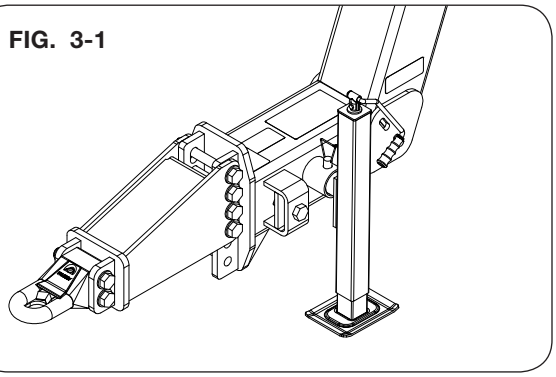
WARNING

- **DO NOT STAND BETWEEN THE APPLICATOR AND TRACTOR WHEN HITCHING. ALWAYS ENGAGE PARKING BRAKE AND STOP ENGINE BEFORE INSERTING HITCH PIN.**

IMPORTANT

- *Tractors with rear duals must use the bolt-on hitch extension (410887G or 410887R) and associated hardware (FIG. 3-1). When repositioning hitch, torque 1"-8UNC hardware to 525 ft-lbs. See "Dealer Set Up" in SET UP section.*

FIG. 3-1



Connect the hitch only to the tractor drawbar. Do not attempt to hitch to any other location on the tractor. (FIG. 3-2)

Lock the tractor drawbar in the centered position.

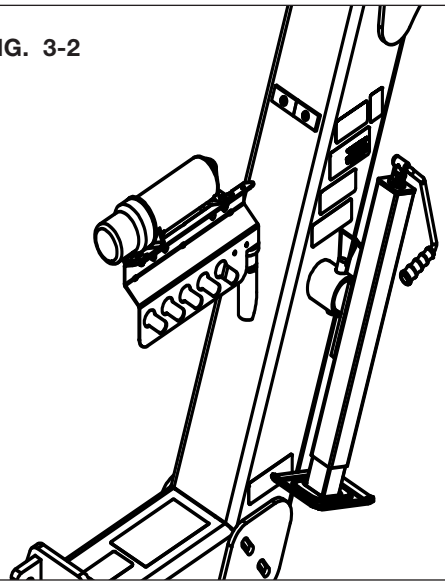
The applicator is equipped with a single tang hitch (TA610050) that is recommended to be used with 1 1/2" drawbar pin.

NOTE: 1 1/2" pin is for a CAT III drawbar.

The applicator must be relatively level in order for the tank volume indicator to read accurately.

NOTE:
Empty/Transport Tongue Weight is 1,450 lbs.
Loaded/Operating Tongue Weight is 4,025 lbs.

FIG. 3-2



IMPORTANT

- *The use of a smaller-diameter hitch pin will result in additional clearance between the implement hitch and pin. This additional clearance may cause accelerated pin and hitch wear, along with more pronounced jolting from the applicator during operation.*
- *Verify and/or adjust the applicator hitch height before coupling to the tractor. The applicator hitch is adjusted by unbolting the hitch and reinstalling in a different set of holes provided.*
- *After inserting drawbar pin, secure with a locking device to help prevent uncoupling during use.*

Hitching to the Tractor (continued)

Transport Chain

⚠ CAUTION

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

Always use intermediate chain support when connecting the applicator directly to a tractor. DO NOT use the intermediate chain support as the chain attaching point. FIG. 3-3 shows how the transport chain must be installed between the tractor and applicator.

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

Transport chain connection shown for illustration purposes only. Refer to tractor manufacturer for proper attachment.

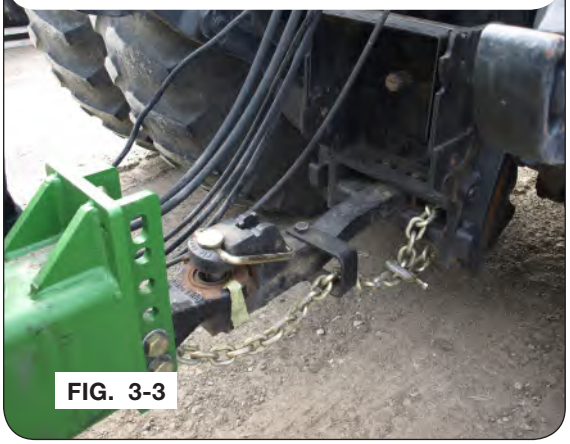


FIG. 3-3

Hitching to the Tractor (continued)

Hydraulic Connections

After cleaning hydraulic hose couplers, connect to tractor hydraulic circuits as follows:

Applicator Pump Hydraulics

IMPORTANT

- *The applicator pump is hydraulically driven, and needs to be configured correctly to match the type of hydraulic system on the tractor (closed center, open center, load-sensing, etc.). Failure to configure the pump correctly may permanently damage the pump through over-speeding. Refer to the MAINTENANCE section of this manual for guidelines on configuring the applicator pump.*

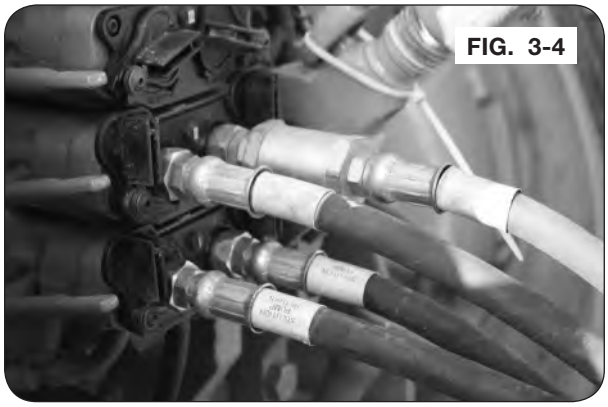


FIG. 3-4

Connect hoses from the applicator pump to a tractor selective control valve (SCV) circuit. The pump inlet (marked PUMP PRESSURE) should be connected to the RETRACT port and the pump outlet (marked PUMP RETURN) to a low-pressure return port at the tractor (recommended) or to the EXTEND port. (FIG. 3-4)

NOTE: It is recommended to pressurize all hydraulic circuits using the retract outlets on the SCVs. This allows all circuits to be shut-off by engaging the hydraulic float feature of the tractor hydraulic system.

Hose Connenctions				Function Settings For Tractors	
Hose Indentification	**SCV**	**Extend**	**Retract**	**Flow**	**Detent (Time)**
Main Lift Up / Down	1	Up	Down	10 GPM Maximum	Constant
Main Wing Fold In / Out	2	In	Out (Run in Float)	5 GPM Maximum	60 seconds or as required for full extend and retract
Outer Wing Fold In / Out	3	In	Out	5 GPM	60 seconds or as required for full extend and retract
Pump Pressure / Return					
ACE 205/HYPRO 930c PWM	4	Return	Pressure	11 GPM	Constant
or ACE HYD 750	4	Return	Pressure	17 GPM	Constant

To protect the applicator pump from damage due to excessive speed, adjust circuit flow to minimum setting prior to operating circuit for the first time.

IMPORTANT

- *Never operate applicator pump dry, or with pump inlet selector valve closed. Pump damage may result.*

Hitching to the Tractor (continued)

Toolbar Hydraulics

⚠ CAUTION

- **DO NOT UNFOLD OR FOLD TOOLBAR WITHOUT HITCHING TO THE TRACTOR.**

The applicator has 4 sets of hydraulic hoses.

NOTE: It is recommended to pressurize all hydraulic circuits using the retract outlets on the SCV's. This allows all circuits to be shut-off by engaging the hydraulic float feature of the tractor hydraulic system.

IMPORTANT

- *If the SCV control lever kicks out, the most likely reason is excessive hydraulic pressure. Try reducing the tractor's flow control setting.*

Refer to the MAINTENANCE section for sequence valve setup information.

Before disconnecting hoses from the tractor, relieve pressure from the lines. See tractor's operators manual for proper procedure to relieve pressure. Shut off engine and apply parking brake before disconnecting hoses.

⚠ WARNING

- **AFTER INITIAL SET-UP OR REPLACEMENT OF ANY HYDRAULIC COMPONENT ON THE APPLICATOR, AIR MUST BE REMOVED FROM THE WING-FOLD HYDRAULIC SYSTEM PRIOR TO ITS FIRST USE. FAILURE TO DO SO MAY RESULT IN DAMAGE TO TOOLBAR COMPONENTS DUE TO RAPID MOVEMENT.**

Electrical Connection

The main harness has a 7-pin (round) plug conforming to SAE standards that connects to tractor. If your tractor does not have the mating socket connector, contact your tractor dealer. (FIG. 3-5)

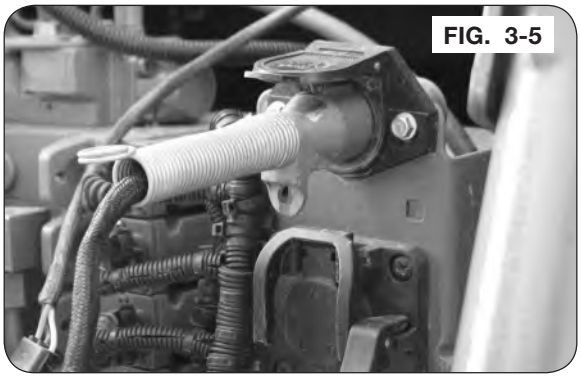


FIG. 3-5

The wiring schematic for this applicator as shown in the MAINTENANCE section complies with current ASABE standards. Always verify correct electrical function before using this applicator.

Jack Usage

WARNING

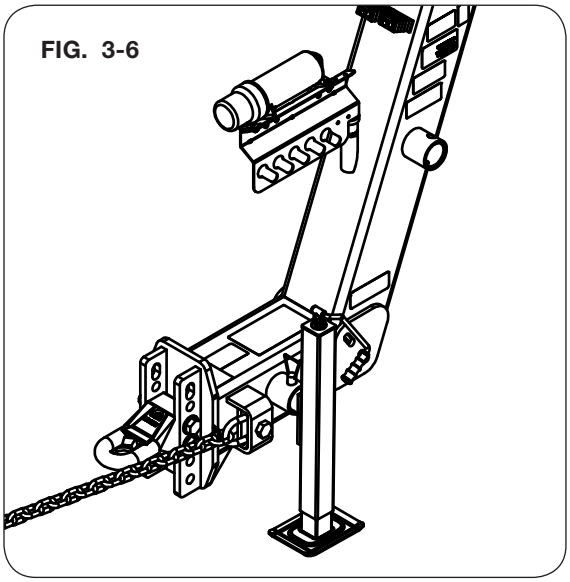
- **UNHITCHING A LOADED APPLICATOR CAN CAUSE SERIOUS INJURY OR DEATH DUE TO TONGUE RISING OR FALLING. ALWAYS HAVE A LOADED APPLICATOR ATTACHED TO A TRACTOR.**

Use jack to support an empty applicator, never a loaded applicator. Always have a loaded applicator hitched to tractor.

Parked Position

Remove jack retaining pin while supporting bottom of jack. Move the jack from storage bushing to lower jack bushing and reinstall pin. Crank jack leg downward to completely remove the hitch weight from tractor drawbar. (FIG. 3-6)

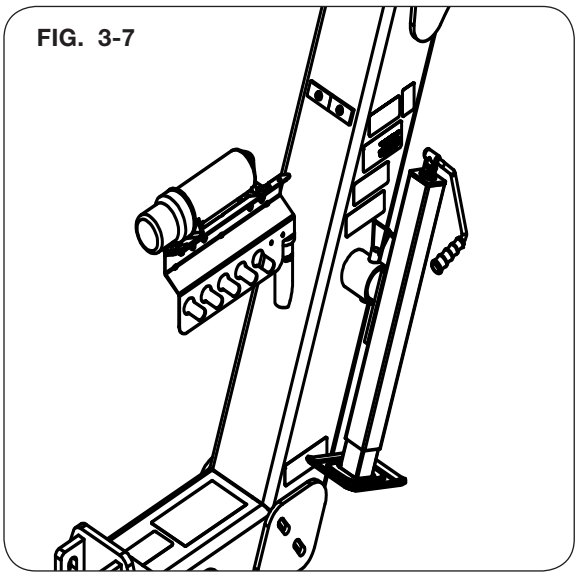
FIG. 3-6



Transport Position

After tractor connection is established, raise jack leg of the jack to highest position to maximize ground clearance. Remove jack pin. Remove jack and move to transport mount location on the side of the tongue. Reinstall the jack pin. (FIG. 3-7)

FIG. 3-7



Transporting

Drawbar Connection

WARNING

- **USE EXCEPTIONAL CARE WHEN OPERATING APPLICATOR EQUIPPED WITH SINGLE TIRES AND SET AT NARROW WHEEL SPACING. THE POSSIBILITY OF TIPPING OVER DURING TURNS OR TRAVEL ON ROUGH ROADS IS INCREASED UNDER THESE CONDITIONS.**

CAUTION

- **THIS IMPLEMENT IS NOT EQUIPPED WITH BRAKES. ENSURE THAT THE TOWING VEHICLE HAS ADEQUATE WEIGHT AND BRAKING CAPACITY TO TOW THIS IMPLEMENT.**

FIG. 3-8

- **IMMEDIATELY PRIOR TO ROAD TRANSPORT, RUN THE FULL FOLD SEQUENCE FOR PROPER SYSTEM PRESSURES AND TO AVOID INADVERTENT MOVEMENT.**

See towing vehicle manual for towing and braking capacity. Regulate speed to road conditions. Maximum speed of applicator with wheels should never exceed 20 m.p.h.

Secure drawbar pin with a locking device and lock tractor drawbar in centered position.

Secure transport chain to tractor chain support before transporting, see FIG. 3-8. Regulate speed to road conditions and maintain complete control.

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

Slow down before making sharp turns to avoid tipping. Drive slowly over rough ground and side slopes.

Toolbar Operation

DANGER

- **PERFORM TOOLBAR UNFOLDING AND FOLDING OPERATIONS ONLY IN AREAS WITH ADEQUATE HEIGHT, WIDTH AND LENGTH CLEARANCES. IN PARTICULAR, BE MINDFUL OF LOCATION OF OVERHEAD POWER LINES. FAILURE TO DO SO CAN RESULT IN PERSONAL INJURY AND PROPERTY DAMAGE.**

WARNING

- **KEEP ALL PERSONNEL A SAFE DISTANCE AWAY FROM THE APPLICATOR WHEN UNFOLDING OR FOLDING THE TOOLBAR. PERSONAL INJURY CAN RESULT FROM IMPACT WITH TOOLBAR.**

Unfolding

IMPORTANT

- *Never fold or unfold the unit without attaching to tractor first. Refer to "Hitching to the Tractor" and "Jack Usage" in this section.*

1. Engage the main wing fold/unfold circuit to unfold the main wings. The toolbar transport latch will unlatch and the main wing will unfold.

   NOTE: If the wings do not sequence properly, the unfold sequence valve on the hydraulic manifold will need to be adjusted. (Refer to MAINTENANCE section "Toolbar & Wing Adjustments - Sequence Valve Adjustments".)

2. Engage the toolbar lift/lower circuit to lower toolbar to desired working depth. Once the toolbar is in the ground, the lower circuit should be locked in continuous detent to engage the hydraulic down pressure feature of the toolbar. (Refer to MAINTENANCE section "Toolbar & Wing Adjustments - Down Pressure".)

Folding

1. Raise the toolbar and completely tilt the wings up.

2. Fold the main wings. The transport latch will engage and then the main wings will fold back. If the wings do not sequence properly, the fold sequence valve on the hydraulic manifold will need to be adjusted. (Refer to MAINTENANCE section "Toolbar & Wing Adjustments - Sequence Valve Adjustments".)

Toolbar Operation (continued)

Raise/Lower Toolbar In The Field

NOTE: The tractor SCV 2 main wing fold/unfold circuit must be running in float at all times.

NOTE: If unit is equipped with injection knives, the tractor must be moving forward when lowering toolbar into the ground.

1. Engage the toolbar lift and lower circuit to raise the toolbar and completely tilt the wings up.

2. When you are ready to lower the toolbar, engage the toolbar lift and lower circuit to lower toolbar to desired working depth. Once the toolbar is in the ground, the lower circuit should be locked in continuous detent to engage the hydraulic down pressure feature of the toolbar. (Refer to MAINTENANCE section "Toolbar & Wing Adjustments - Down Pressure".)

Depth Stop / Bushings / Gauge Wheels

NOTE: The depth stop/bushing adjusts the depth of the center section and main wings. The depth stop/bushing contacts the bottom of the center section toolbar main tubes when it is lowered down. To adjust the depth, remove the lynch pin on the depth stop and switch out the bushing.

IMPORTANT

- *Toolbar needs to be raised and secured in latch before changing the depth stop bushings.*

1. Depths can be changed in 1" increments by using the next size larger/smaller bushing.

2. To get additional depth control, the depth stop weldment can be flipped over by removing the pins shown in image 3-9, this gives an additional 3" of adjustment.

3. Adjust each gauge wheel position on all of the wing sections. (FIG. 3-10)

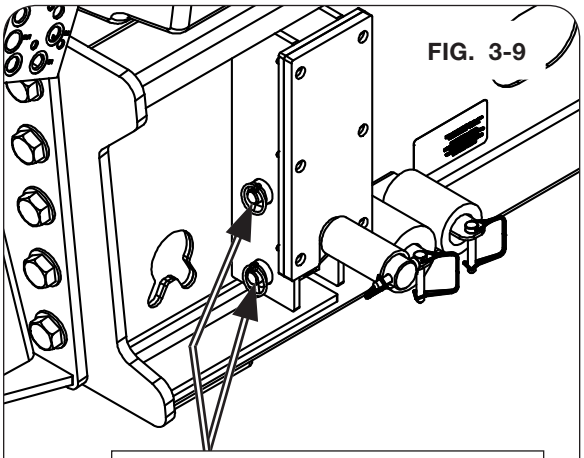


FIG. 3-9

Remove pins and flip weldment for additional depth.

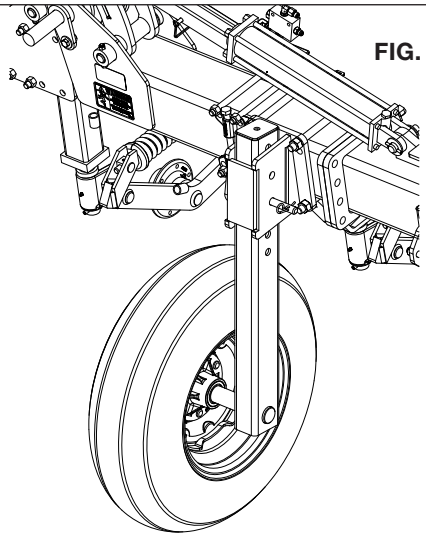


FIG. 3-10

Toolbar Operation (continued)

Dual Width Toolbar

1. Fold the toolbar to 30’ for the dual width application. (FIG. 3-10)

2. Turn off sections 1 and 5 on the flow controller, and turn on the chemsaver valves to the outside coulters on each main wing. (FIG. 3-10)

3. In the rate controller settings, change each section widths for sections 2 and 4 from 110” to 135”. Refer to “Setting Up Controller” in the SET UP section on page 2-11.

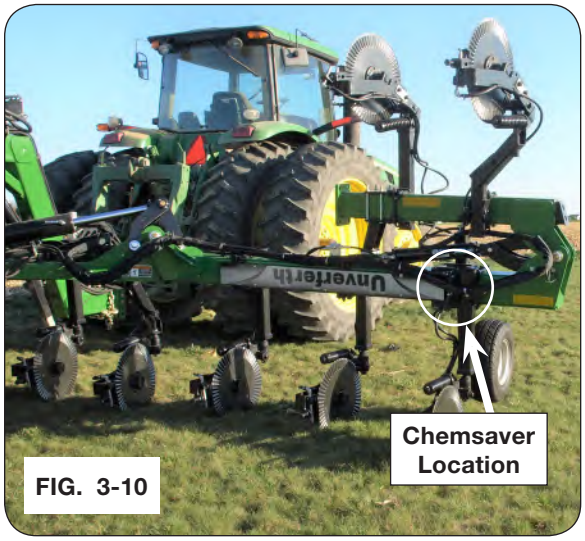


FIG. 3-10

Filling Applicator

Quick Fill

⚠ CAUTION

- **NEVER LEAVE APPLICATOR UNATTENDED WHILE FILLING. TANK CONTENTS MAY SPILL OUT OF AIR VENTS IF OVERFILLED.**

IMPORTANT

- *The tank is designed with additional air expansion space in excess of the rated capacity. The full capacity can be reached with the level approximately 6”- 8” below the top surface of the tank access hatch (lid opened).*
- *Sight gauge accuracy depends on the unit being on a level surface and a short delay can be experienced so user should anticipate shutoff for accurate volume.*

The QUICK-FILL VALVES and indicator level are shown in FIG. 3-11 for reference.

1. Assure that QUICK-FILL VALVES are <OFF>.
2. To fill the tank, remove the cap and attach the hose to the 3” quick fill coupler. Turn quick-fill valve on the tank <ON>.
3. Fill applicator solution tank to desired level.
4. Return valve to <OFF> when filling is complete.
5. Reinstall the cap when finished.

FIG. 3-11

Inductor

Basic Operation

IMPORTANT

- *The main solution tank should contain at least 50 gallons of liquid.*


FIG. 3-12

The INDUCTION VALVE, INDUCTOR MIX VALVE, and tank are shown in FIG. 3-12 and 3-13 for reference.

1. Assure INDUCTION VALVE on the bottom of the inductor tank is in the <OFF> position.
2. Push the tank lever and lower it to the "fill" position.
3. Set valves:

VALVE SETTINGS

PUMP INLET VALVE	OPEN
INDUCTOR MIX VALVE (OPT.)	OFF
AGITATION CONTROL (100 PSI)	PARTIALLY OPEN 1/4
INDUCTION VALVE	OFF

4. Start pump.
5. Open lid and pour chemical into inductor tank. (If using dry chemical, open INDUCTOR MIX valve to mix chemical, using care not to overfill inductor tank.)
6. Close the lid.
7. Open INDUCTION VALVE on the bottom of the inductor tank to evacuate the inductor tank.
8. Close INDUCTION VALVE when the inductor tank is empty and rinse. See "Jug and Inductor Tank Rinsing" in this secton.
9. Raise the tank to storage position.


FIG. 3-13

⚠ WARNING

- **WHEN USING JUG RINSER, BE CAREFUL NOT TO SPRAY SOLUTION INTO EYES OR FACE.**

Tank Mixing

Fertilizer additives can be added to the solution tank through the use of the optional inductor. Before adding fertilizer additives, ensure that the tank contains at least 50 gallons of liquid.

⚠ WARNING

- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**

Inductor (continued)

Jug and Inductor Tank Rinsing

WARNING

- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**

IMPORTANT

- *Do not allow pump to run dry. Pump damage will result.*
- *Rinse the jug, nozzle, or tank with the product in the main solution tank.*

The INDUCTION VALVE, INDUCTOR MIX VALVE, and tank are shown in FIG. 3-14 and 3-15 for reference.

1. To rinse a chemical container, place container upside down on rinse nozzle and squeeze handle on rinse wand.
2. To rinse inductor tank, close lid, open INDUCTOR MIX valve and squeeze rinse wand handle for approximately 10 seconds.
3. To rinse out container nozzle, close lid, and activate jug rinser for approximately 10 seconds.
4. Repeat steps 2 and 3 for additional rinsing, if desired.
5. Close INDUCTOR MIX valve and release rinse wand when rinsing is complete.
6. When inductor tank is empty, close INDUCTOR DRAIN valve.
7. Close INDUCTOR FLOW valve then set AGITATION CONTROL to proper settings.
8. Raise tank to storage position.

FIG. 3-14

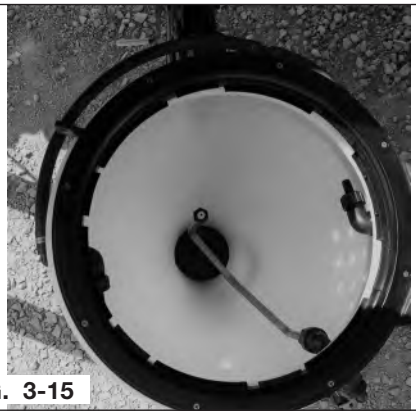


FIG. 3-15

WARNING

- **WHEN USING JUG RINSER, BE CAREFUL NOT TO SPRAY SOLUTION INTO EYES OR FACE.**

Flow Ball Indicator

WARNING

- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**
- **WASH HANDS AND EXPOSED SKIN IMMEDIATELY AFTER CONTACT WITH SPRAY/FERTILIZER SOLUTION AND APPLICATION EQUIPMENT.**
- **REMOVE CLOTHING IMMEDIATELY IF CHEMICALS PENETRATE CLOTHING AND CONTACT SKIN. WASH THOROUGHLY AND PUT ON CLEAN CLOTHING.**

The Flow Ball Indicator plumbing kit allows the operator to easily determine changes occuring in the hoses. It operates by utilizing hoses of equal length and size allowing for the ball to float at equal levels.

1. When liquid is flowing evenly all balls hover at the same level.
2. A ball that is lower than the others indicates the flow is too low due to a restriction or blockage.
3. A ball that is higher than the others indicates the flow is too high due to a leaking fitting or hose.

FIG. 3-16

Selecting the Correct Flow Ball

1. Calculate the flow rate required per flow indicator with the following formula:

$$\text{Flow Rate} = \frac{\text{MPH x GPA x Nozzle Spacing (in) x DCF*}}{5940}$$

*DCF = Density Conversion Factor

Weight of Solution	Density Conversion Factor (DCF)
8.34 lb./gal. (Water)	1.00
10.65 lb./gal. (28% Nitrogen)	1.13
11.05 lb./gal. (32% Nitrogen)	1.15

Example:

Speed = 8 miles per hour
Rate = 10 gallons per acre
Nozzle Spacing = 20 inches
Liquid = 28% Nitrogen

$$\text{Flow Rate } 0.304 = \frac{\text{8 MPH x 10 GPA x 20” Nozzle Spacing (in) x 1.13 DCF*}}{5940}$$

Flow Ball Indicator (continued)

2. Select the flow indicator ball required for you application using the calculated flow rate and the guide below.

Flow Indicator Ball Selector Guide		
Part Number	**Color**	**Flow Rate - U.S. GPM Range**
9007782	Green Polyproplene	0.05 - 0.18
9007781	Red Celcon	0.09 - 0.30
9007780	Maroon Glass	0.31 - 0.72
9007779	1/2" Stainless Steel	0.40 - 1.33
9007883	7/16" Stainless Steel	1.00 - 2.70

Flow Ball for Half Rate Nozzles

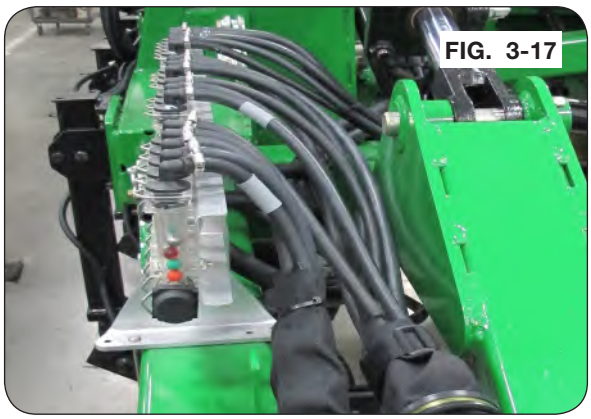


FIG. 3-17

NOTE: With the applicator unfolded, the end rows use the half rate nozzles. If applicator is running folded, internal rows use half rate nozzles.

1. Half rate nozzles require a different size ball than full rate nozzles. Once the ball has been sized for the full rate nozzles, pick the ball that corresponds to half the full rate of flow for the half rate nozzles. The half rates hoses have been marked with a gray sleeve (Fig. 3-17).

Ball Removal/Replacement

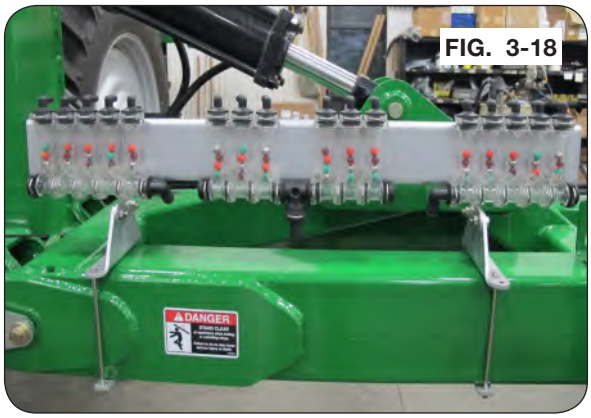


FIG. 3-18

NOTE: Flush the system with clean water before servicing.

1. Remove the fittings from the top of the flow ball manifold by removing the retaining clip (Fig. 3-18)

NOTE: During operation in the event of a blockage, each hose has been connected in order, beginning with the left most coulter nozzle representing the left most flow ball indicator. It is recommended the fittings be removed to access the ball and re-installed in the same location to maintain similar visual troubleshooting capabilities.


FIG. 3-19

2. Remove the rear capscrews from the flow ball manifold mounting brackets. This will allow the flow ball manifold assembly to be rotated (Fig 3-19).

Flow Ball Indicator (continued)

3. Rotate the manifold assembly down carefully to avoid any residual liquid that may be in the manifold to avoid coming in contact with exposed skin, eyes, or other sensitive areas. (Fig. 3-20)

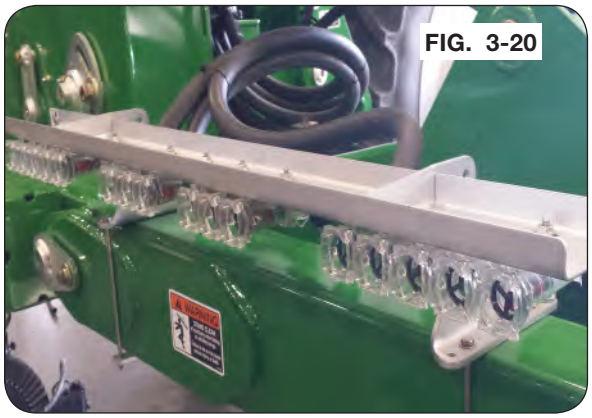


FIG. 3-20

4. Fully tilt manifold bracket down and remove plastic ball stop. This will allow indicator balls to roll out of flow monitors. (Fig. 3-21)

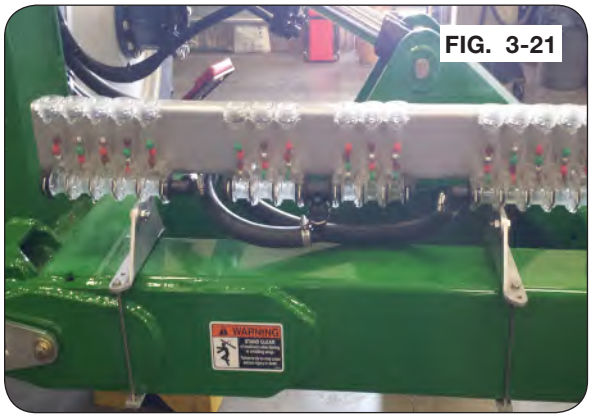


FIG. 3-21

5. Rotate bracket up completely, align capscrew holes, and reinsert hardware removed in Step 2, and insert indicator balls into the flow monitors.

6. Reinsert the fittings removed in step 1 ensuring that the hoses marked with the gray sleeves are inserted on the flow monitors that have the balls selected for the half rate nozzles. Reinsert retaining clips.

Section IV
Maintenance

FOR INDUCTOR INFORMATION, PLEASE REFER TO YOUR INDUCTOR MANUAL.
FOR QUICK FILL METER INFORMATION, PLEASE REFER TO YOUR QUICK FILL METER MANUAL.
FOR GROUND DRIVEN PUMP INFORMATION, PLEASE REFER TO PUMP MANUAL.

Applicator Maintenance

DANGER

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

WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**
- **AVOID BREATHING SPRAY MIST OR VAPOR.**
- **WASH HANDS BEFORE EATING, DRINKING, CHEWING GUM, OR USING TOILET.**
- **NEW HYDRAULIC SYSTEMS OR SYSTEMS THAT HAVE BEEN MAINTAINED MUST BE PURGED OF AIR BEFORE OPERATING OR MOVING MACHINE TO PREVENT SERIOUS INJURY OR DEATH.**

CAUTION

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

Seasonal Storage

Always open all product valves to remove any fluids and to allow moisture to dry.

Immediately after season is finished, completely wash machine to remove corrosive fertilizer inside and out before storing. When using pressure washers, maintain an adequate distance to avoid blasting water into bearings or electrical connections.

Repaint all areas where paint has been removed to keep rust from developing. Coat areas of coulter blades and knives, if equipped, and coulter posts with rust prohibitive material.

Applicator Maintenance (continued)

Seasonal Storage (continued)

Coat exposed cylinder piston rods with rust preventative material.

Inspect machine for parts that may need to be replaced so they may be ordered in the off season.

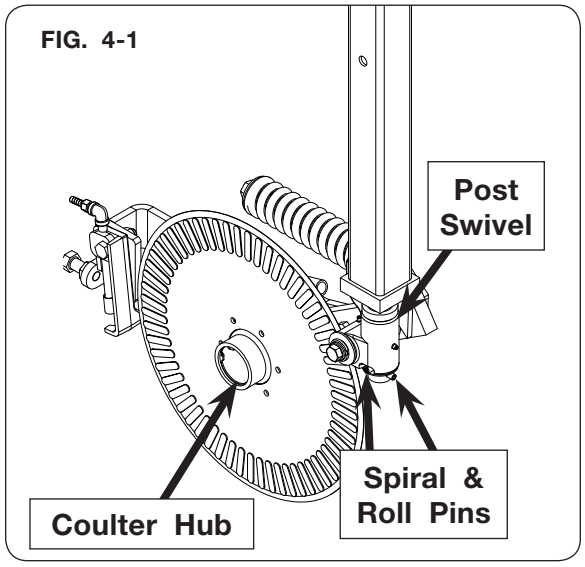
Lubricate machine at all points outlined.

Check coulter blade post swivel limit spiral and roll pins. Replace as needed. (FIG. 4-1)

Check coulter post blade hubs for free rotation. If blade hubs do not rotate, replace and/or pack bearings with grease. Replace coulter arm if spindle is damaged. (FIG. 4-1)

Check coulter post swivel for free movement. If post swivel does not move, free the swivels and grease. Grease the coulter post swivel until fresh grease purges top or bottom of swivel casting to prevent the coulter pivot seizing on post. (FIG. 4-1) Refer to "Lubrication" in this section.

FIG. 4-1



After any period of unused time, unit should be unfolded and refolded to check function of hydraulic system.

Purging Hydraulic System

⚠ WARNING

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

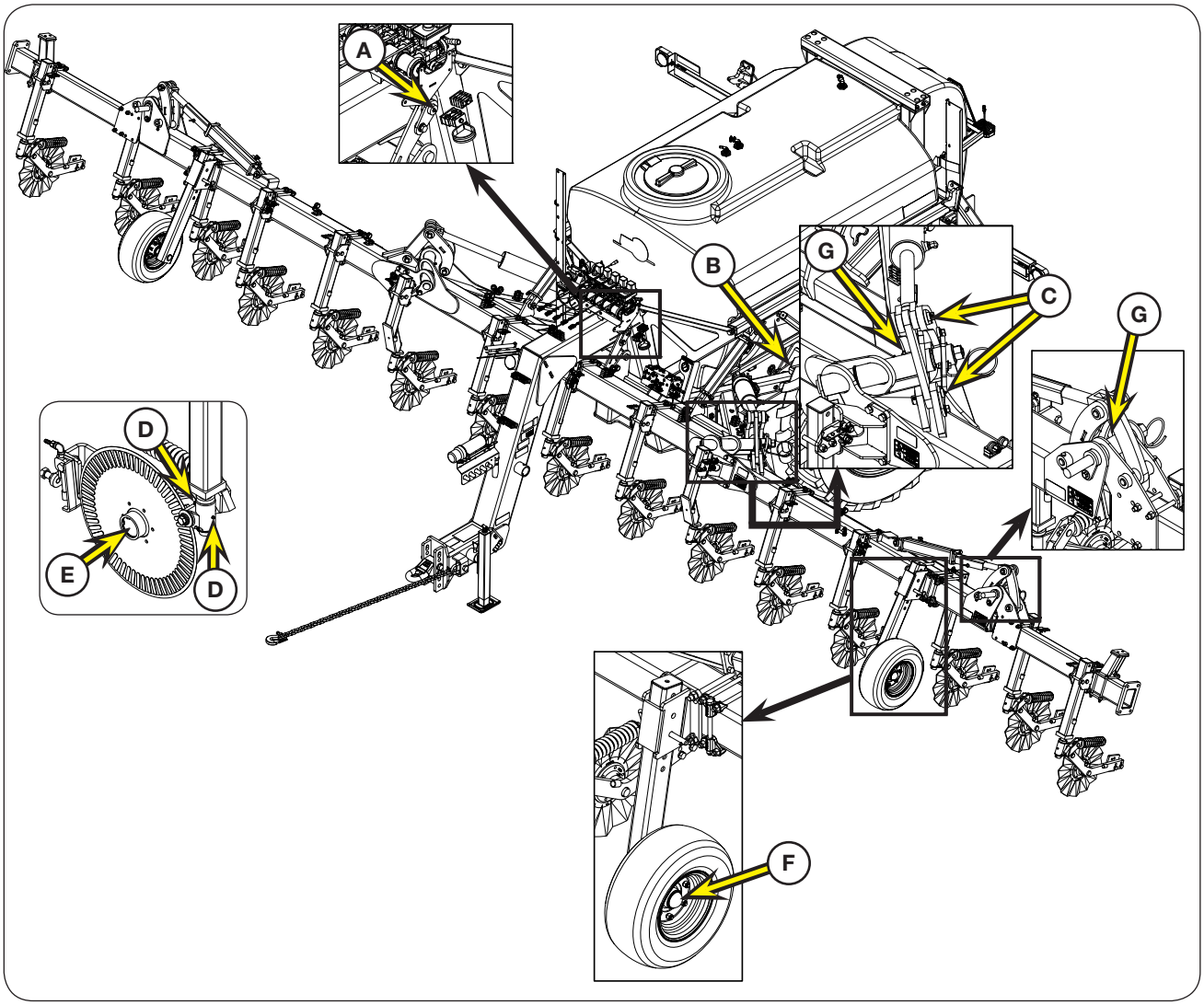
1. Purge air from system as follows:
   - A. Block up all rod ends of each hydraulic cylinder in each circuit so the rods can completely extend and retract without contacting any other component.
   - B. Pressurize the system and maintain system at full pressure for at least 5 seconds after cylinder 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 10-12 times.
   - G. De-pressurize hydraulic system and connect cylinder rod clevises to their mating lugs.

Applicator Maintenance (continued)

Relieving Hydraulic Pressure

To relieve hydraulic pressure in the system, be sure hydraulic motor is disengaged and/or hydraulic cylinder is not exerting force on the system. Next, consult tractor operators manual for procedure to relieve pressure.

Lubrication



To keep your applicator in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must.

Unverferth Mfg. recommends use of NLGI #2 Extreme Pressure grease.

The lubrication locations and recommended schedule are as follows:

ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	Latch Pivot Pin	1	EP-2	5 Shots	Weekly
B	Main Toolbar Pivot Hinge	1	EP-2	5 Shots	Weekly
C	Main Wing Linkage Pins	6	EP-2	3 Shots	Weekly
D	Coulter Swivel	2	EP-2	2 Shots	Weekly
E	Coulter Hub	-	EP-2	10 Shots	Once Every Season
F	Main Wing Gauge Wheel Hub	2	EP-2	Repack	Once Every Season
G	Main Wing/Outer Wing Hinge Area	2	EP-2	10 Shots	Weekly
H	Applicator Frame Hub (NOT SHOWN)	2	EP-2	Repack	Once Every Season

Hydraulically Driven Centrifugal Pump

ACE HYD 750 Barrier Fluid

IMPORTANT

- *Inflation valve must be assembled in the "IN" port of the regulating valve.*

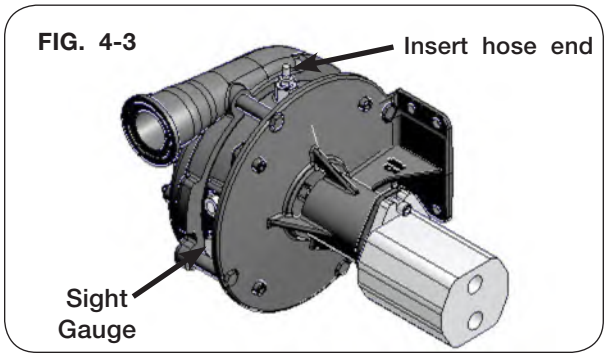
NOTE: During application, periodically check the regulating valve pressure gauge. (FIG. 4-2)

1. Turn regulating valve adjusting knob counterclockwise until it is at the minimum pressure setting. (FIG. 4-2)
2. Attach air chuck to air valve.
3. Turn adjusting knob on regulating valve clockwise until gauge reads 30 psi. (FIG. 4-2)


FIG. 4-2

NOTE: Check the barrier fluid level on the side of the pump. Add barrier fluid if fluid level is below half on the sight gauge. (FIG. 4-3)

4. Remove the air pressure before disconnecting the hose. To add barrier fluid to the fluid chamber, disconnect the hose from the fitting on top of the hydraulically driven centrifugal pump. Remove the fitting on top of the pump. (FIG. 4-3)
5. Fill the fluid chamber by attaching a 1/8" hose to the barrier fluid and using the hose to fill the fluid chamber where fitting was removed. (FIG. 4-4)
6. Add fluid until level is half-way up the sight gauge.



NOTE: Any 1/8" hose will attach to the nipple of the barrier fluid bottle (9005518) to ease filling of the sight gauge. (FIG. 4-4)

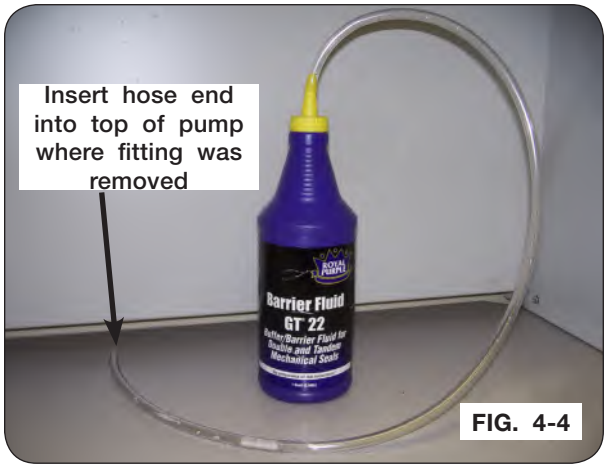


FIG. 4-4

At the end of each season, it is recommended to change/check the barrier fluid and seal. Follow the guidlines below.

- The pump requires pressure and/or fluid more frequently. Change barrier fluid and seal.
- The barrier fluid becomes cloudy, discolored, or water mixes with barrier fluid. Change barrier fluid and seal.

Refer to ACE pump manual and operating instructions.

Toolbar & Wing Adjustments

Several areas of adjustment have been designed into the toolbar to maintain proper wing folding operation throughout the life of the toolbar.

⚠ WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RAISING, OR LOWERING.**
- **MOVING WINGS CAN CAUSE SERIOUS INJURY OR DEATH. KEEP AWAY FROM FOLDING AND UNFOLDING WINGS.**
- **TIPPING OR MOVEMENT OF APPLICATOR CAN CAUSE SERIOUS INJURY OR DEATH. APPLICATOR MUST BE HITCHED TO THE TRACTOR BEFORE OPERATING BOOM.**
- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**
- **RESIDUAL PRESSURE MAY EXIST IN APPLICATOR PLUMBING EVEN WHEN UNIT IS NOT IN USE. RELIEVE PRESSURE BEFORE SERVICING ANY PLUMBING.**

Toolbar & Wing Adjustments (continued)

Center Toolbar & Main Wing Down Pressure

Proper down pressure is achieved when the gauge wheels contact the ground and maintain the coulter depth. Excessive down pressure can cause unnecessary stress on the toolbar gauge wheel components.

For the cartridge adjustment on the block, (FIG. 4-5):

- The jam nut needs an 11/16" wrench
- The set knob for the cartridge uses a 3/16" hex (FIG. 4-5)

1. Loosen the jam nut.
2. Turn set knob clockwise to increase pressure/counter clockwise to decrease pressure.

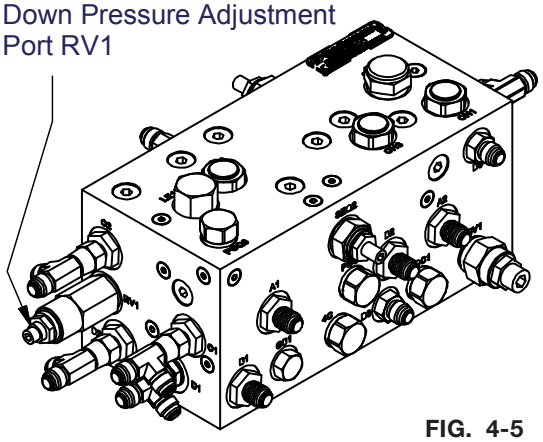


FIG. 4-5

Note: Down pressure setting should be between 750 and 1500 PSI. DO NOT EXCEED 1500 PSI

3. Tighten the jam nut.

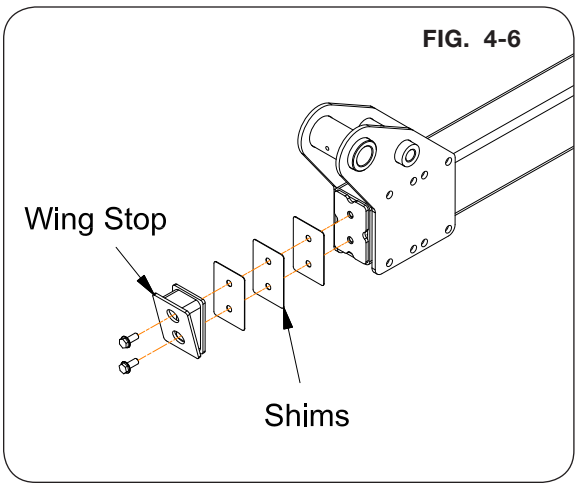
Outer Wing Adjustment

Rigid Setting - no cartridge adjustment on the block.

Wing Stop & Shim Adjustment

1. Place the wings in transport position.
2. For additional wing flex, remove stops and/or shims. For less wing flex, add wing stops and/or shims. (FIG. 4-6)
3. Unfold the wings. If additional adjustment is required, repeat steps 1 and 2.

FIG. 4-6



Toolbar & Wing Adjustments (continued)

Sequence Valve Adjustments

During sequence valve adjustment, disengage hydraulics, use ¼ turn adjustment, and then engage to check. Smaller increments may be used for fine tuning if needed.

For all the cartridge adjustments on the block:
- The jam nut needs an 11/16" wrench
- The set knob for the cartridge uses a 3/16" hex

Unfolding to Working Position

If the main wings are fully unfolded and the toolbar latch is not disengaged, adjust sequence valve SEQ2. Turn the adjustment screw counterclockwise until the toolbar latch actuates. (FIG. 4-7)

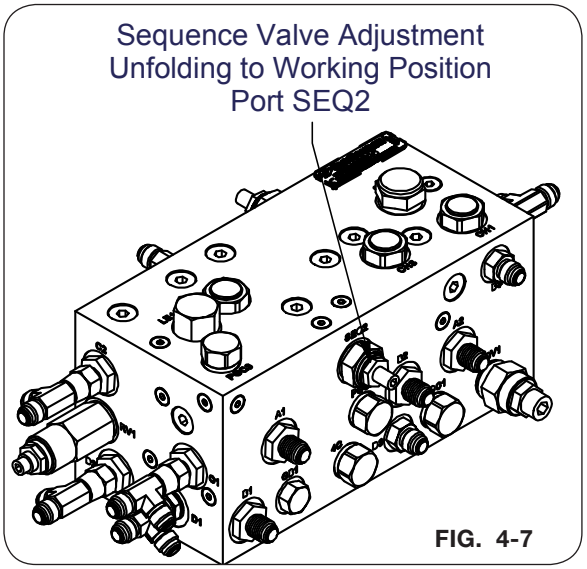


FIG. 4-7

Folding to Transport Position

If the main wings begin to fold before the latch engages adjust sequence valve SEQ1. Rotate the adjustment screw clockwise 1/4 of a turn and then cycle the fold circuit. (FIG. 4-8)

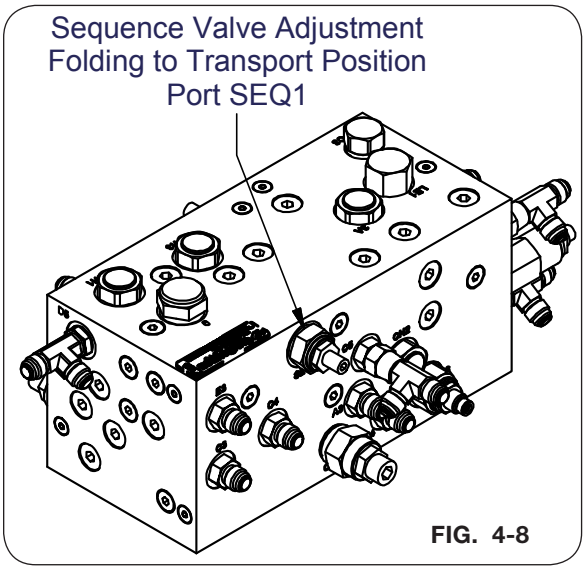


FIG. 4-8

Solution Filters

This applicator uses two filters to help ensure proper operation. These filters will need to be cleaned periodically during use and prior to applicator storage.

⚠ WARNING

- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**
- **RESIDUAL PRESSURE MAY EXIST IN APPLICATOR PLUMBING EVEN WHEN UNIT IS NOT IN USE. RELIEVE PRESSURE BEFORE SERVICING ANY PLUMBING.**

Primary Filter

To clean the filter located towards the front of the frame underneath the tongue, (FIG. 4-9):

1. Rotate the pump inlet valve to <OFF>.
2. Drain the strainer into an approved container.
3. Unscrew the filter housing by turning counter-clockwise and remove the filter screen.
4. Clean filter by flushing strainer element with water.
5. Reassemble filter, open pump inlet valve, and check for leaks.

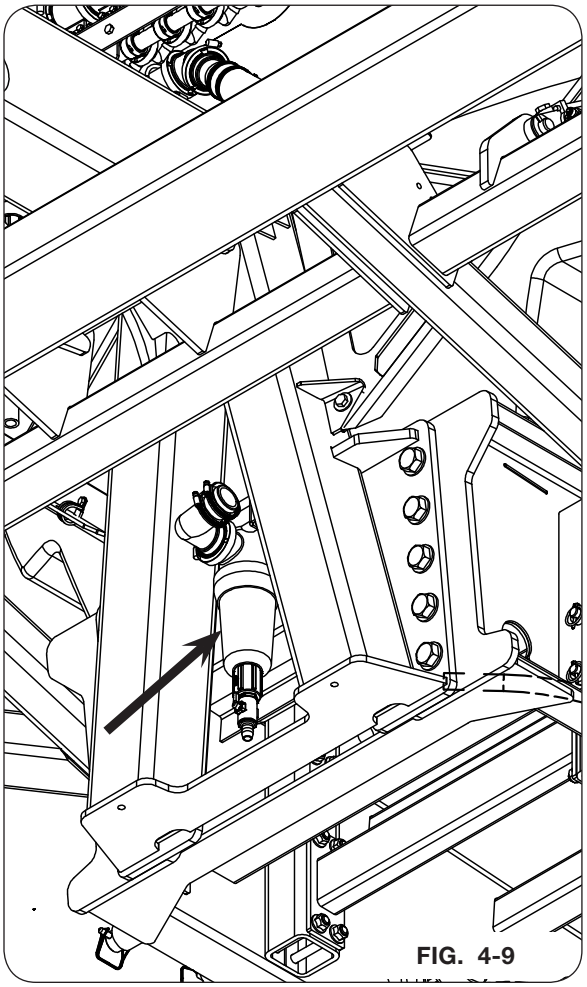


FIG. 4-9

Solution Filters (continued)

Secondary Filter

A secondary filter is located on the tongue near the toolbar electric valves. This filter is used to eliminate the need for strainers at the tips. To clean this filter, first drain the filter housing. Then unscrew the filter housing and remove the screen. Flush the strainer element with water. After cleaning, reassemble filter and check for leaks. (FIG. 4-10)

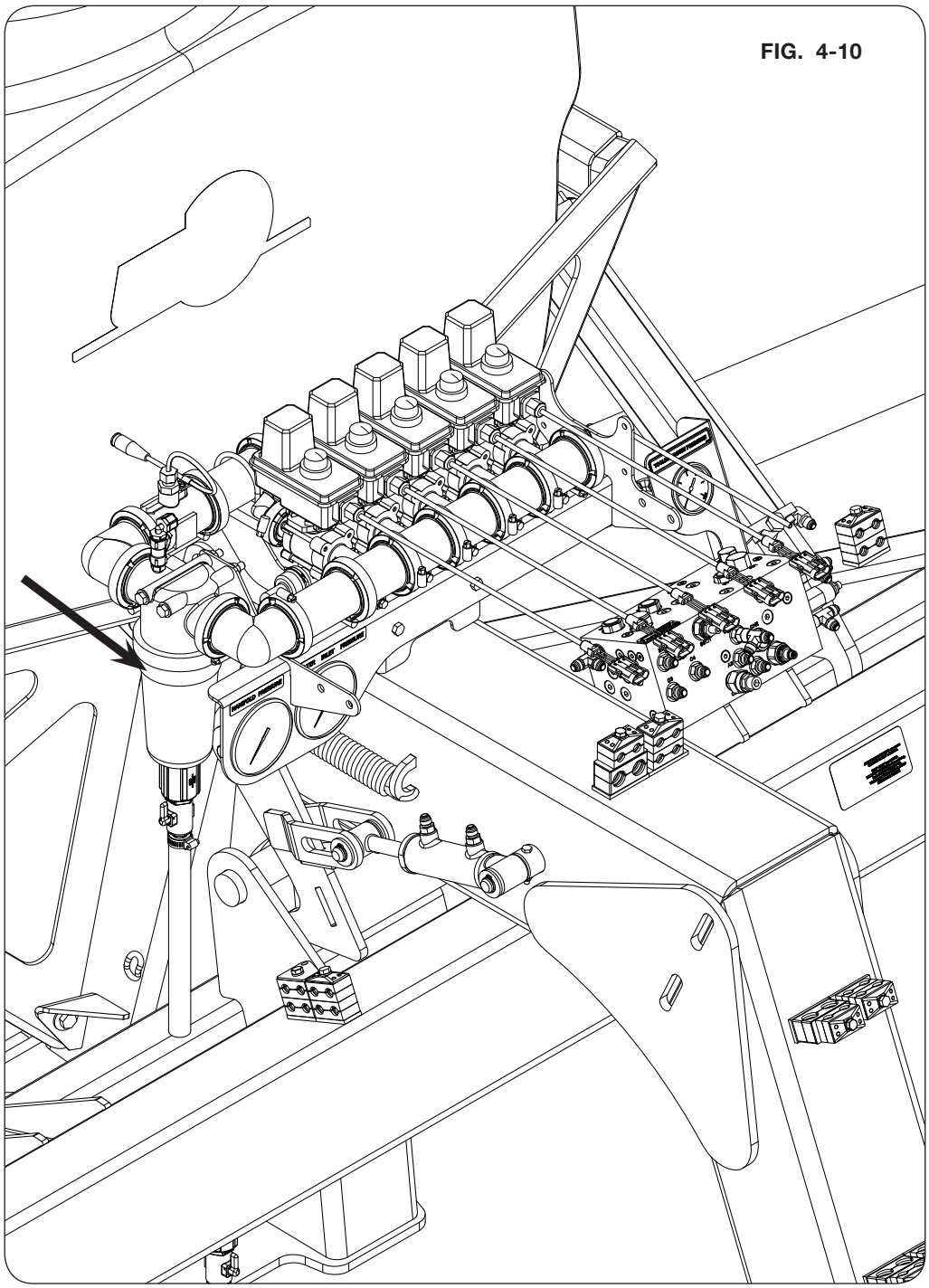


FIG. 4-10

Winterizing

WARNING

- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**

IMPORTANT

- *Do not allow pump to run dry. Pump damage will result.*

Before storing the applicator in freezing climates, perform the following winterizing procedure:

1. Perform a complete system rinse using procedure in the “OPERATION SECTION, INDUCTOR - Jug and Inductor Tank Rinsing” of this manual.

2. Wash the applicator thoroughly inside and out with a high-pressure washer.

3. Remove as much water from the main tank as possible. Close drain valve on main tank after draining.

4. Pour approximately 50 gallons of R.V. antifreeze into main tank.

NOTE: If equipped with an inductor, the applicator can circulate the R.V. antifreeze.

5. Loosen diaphragm caps on nozzle bodies to relieve pressure and allow excess antifreeze to drain from wings.

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. 4-11).
2. Slowly unscrew the spring bolt which will relieve spring pressure (FIG. 4-11).
3. Once the bolt is removed, replace with new spring and re-insert bolt.

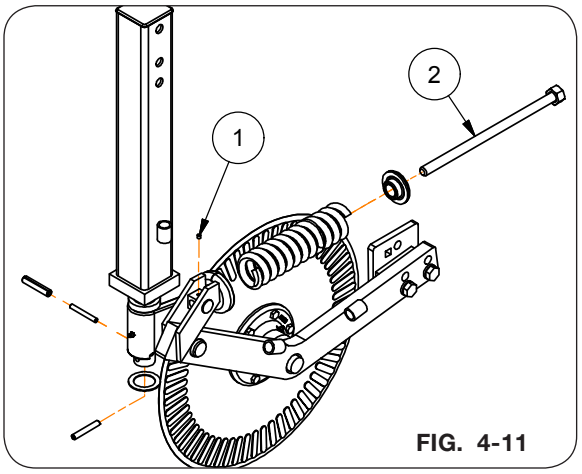


FIG. 4-11

4. Tighten bolt until a deflection of 1” is obtained on spring (FIG. 4-12).

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.

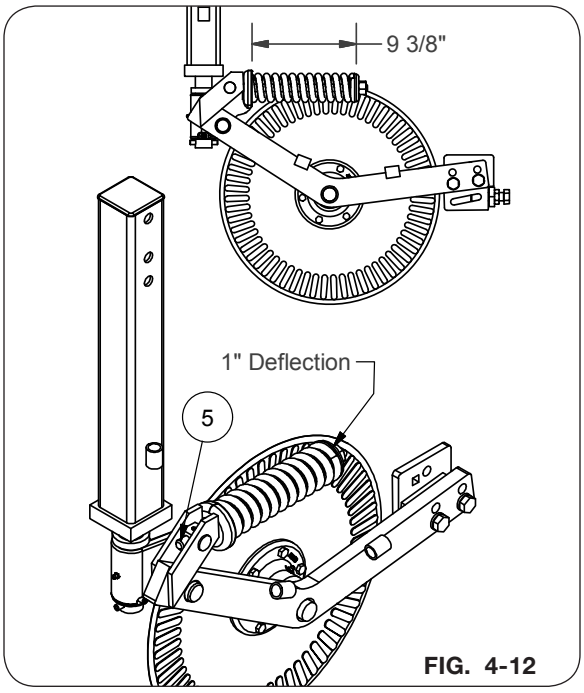


FIG. 4-12

Coulter Hub Adjustment and Replacement

The following instructions are for adjusting and lubricating the hub and replacing the "O"-ring and seal.

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

⚠ CAUTION

- **SHARP EDGES ON COULTER BLADES CAN CAUSE SERIOUS 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 (FIG. 4-13).

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 (FIG. 4-13).

   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.

Coulter Hub Adjustment and Replacement (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 onto spindle first. Assemble seal and bearings into hub and position onto spindle.**

F. **After reassembling the hub, position the slotted nut back onto the spindle and torque to 40-45 foot-pounds. Slightly tighten the nut to align slot (in nut) with the closest cotter pin hole and install C-ring and O-ring (902158) (FIG. 4-13).**

IMPORTANT

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

G. **Reinstall the hub cap and blade.**

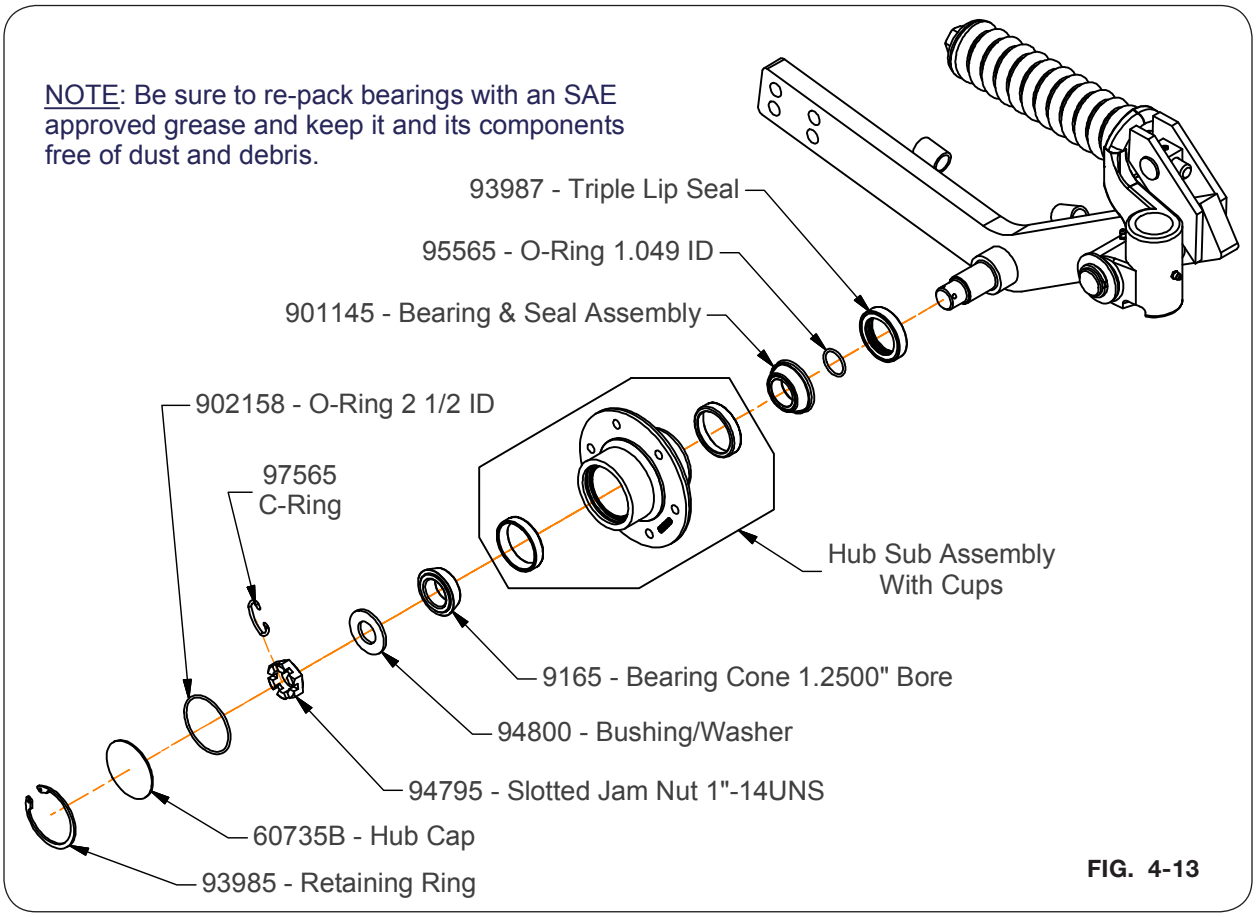


FIG. 4-13

Closer Wheel Adjustment and Replacement (Opt.)

The following guidelines are for adjusting and replacing the closer wheel on the coulters.

⚠ WARNING

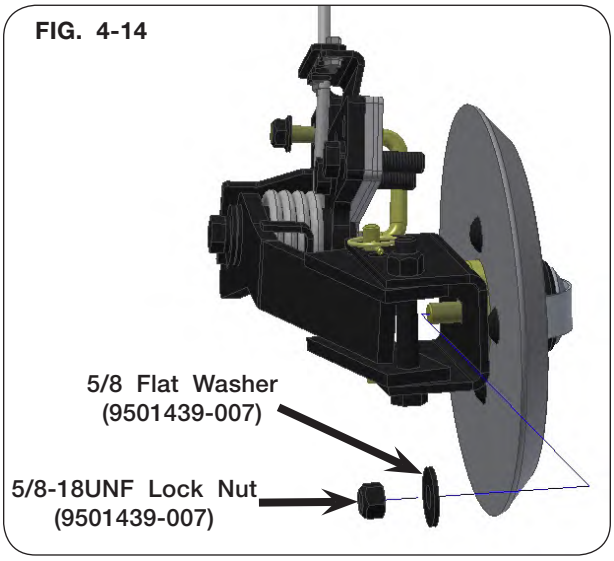
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

⚠ CAUTION

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

1. Remove 5/8”-18UNF lock nut (9501439-007) and 5/8” flat washer retaining the closer wheel and hub assembly. Keep hardware. (FIG. 4-14).

FIG. 4-14



2. Unattach the closer wheel and hub assembly from adjustable hub mount (69152B). (FIG. 4-15).

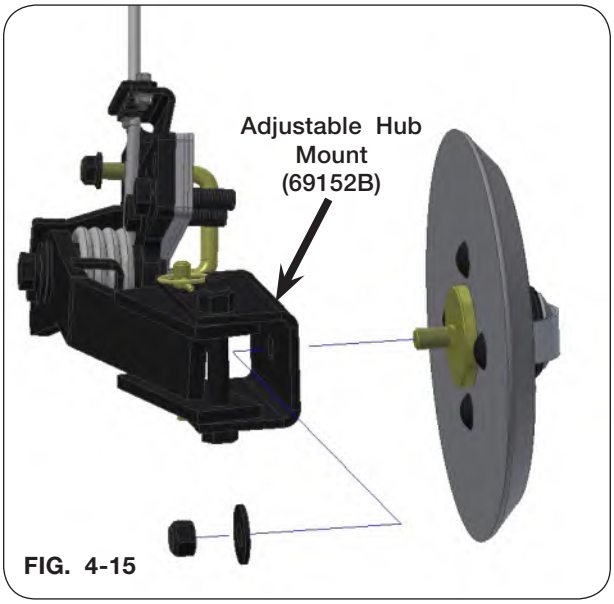


FIG. 4-15

Closer Wheel Adjustment and Replacement (Opt.) (continued)

3. Remove four 1/2”-13UNC x 1 1/2” carriage bolts (9501993-104) and four 1/2”-13UNC lock nuts (9501443-034) retaining the hub assembly (69161B) on the closer wheel (69142B), and hub strap (68315) on the hub. Keep hardware. (FIG. 4-16).

4. Replace closer wheel. (FIG. 4-16).

5. Once closer wheel is replaced, inspect 1/2”-13UNC x 1 1/2” carriage bolts, 1/2”-13UNC lock nuts, 5/8”-18UNF lock nut, and 5/8” flat washer for wear and replace, if necessary.

6. Re-install and loosely tighten 1/2” hardware to closer wheel and hub strap.

7. Reattach and loosely tighten 5/8” hardware to adjustable hub mount.

8. Tighten all hardware.

9. Grease hub assembly zerk before operation.

10. Check closer wheel for smooth rotation.

NOTE: Adjustable hub mount has two toe settings. The right-hand setting positions the closer wheel to toe out and left-hand setting to toe in. (FIG. 4-17)

11. Remove kilk pin (9093) from closer wheel retainer pin (415156). (FIG. 4-17).

12. Insert closer wheel retainer pin in desired position and lock with kilk pin. (FIG. 4-17).

13. Tighten screw to secure adjustable hub mount to the closer assembly (69217B).

FIG. 4-16

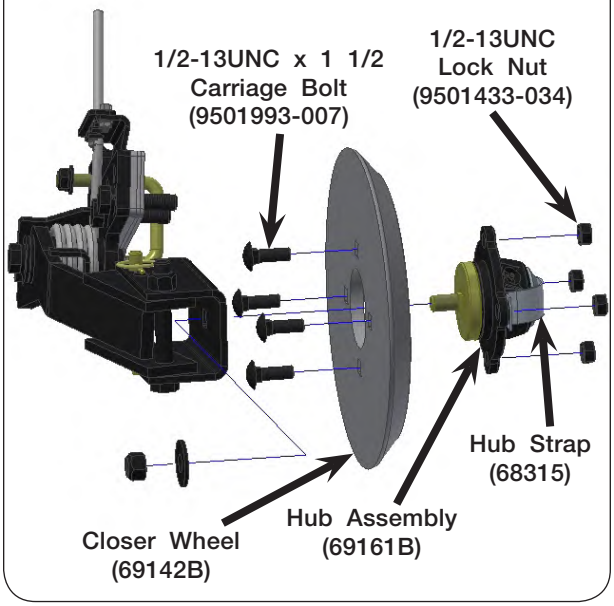
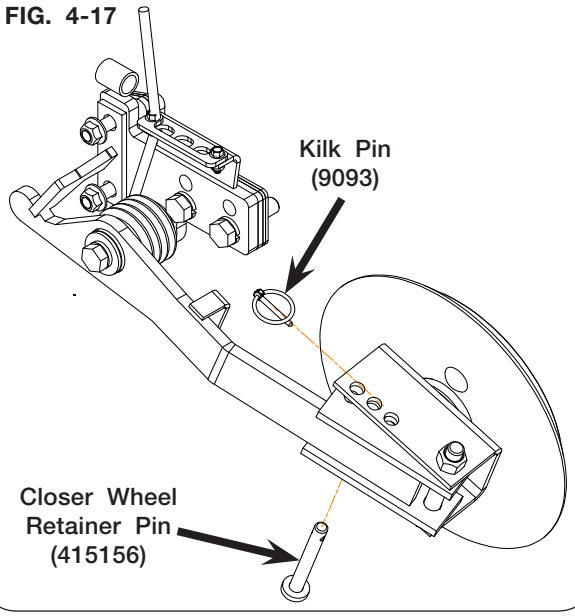


FIG. 4-17

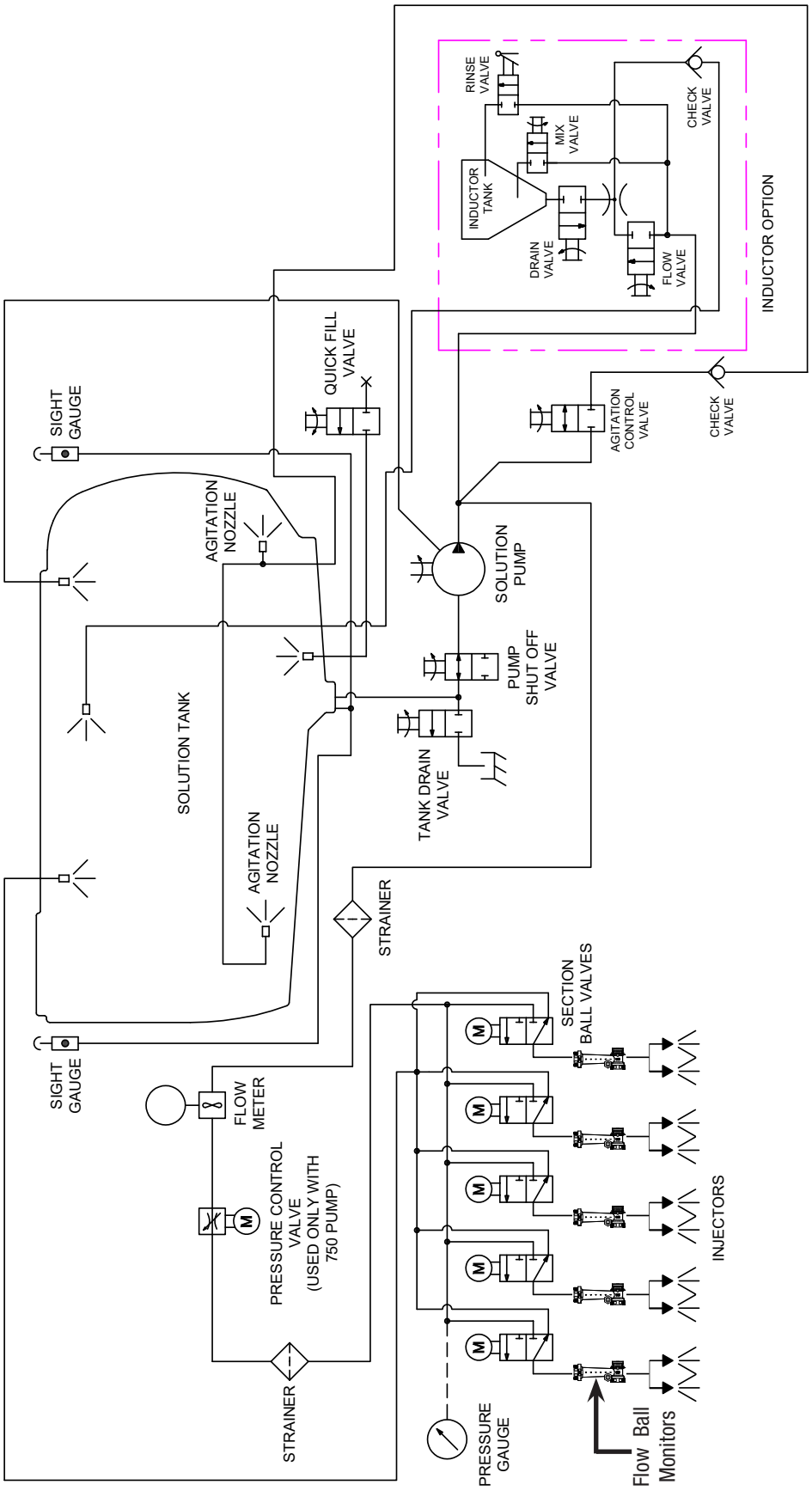


Flow Ball Indicator

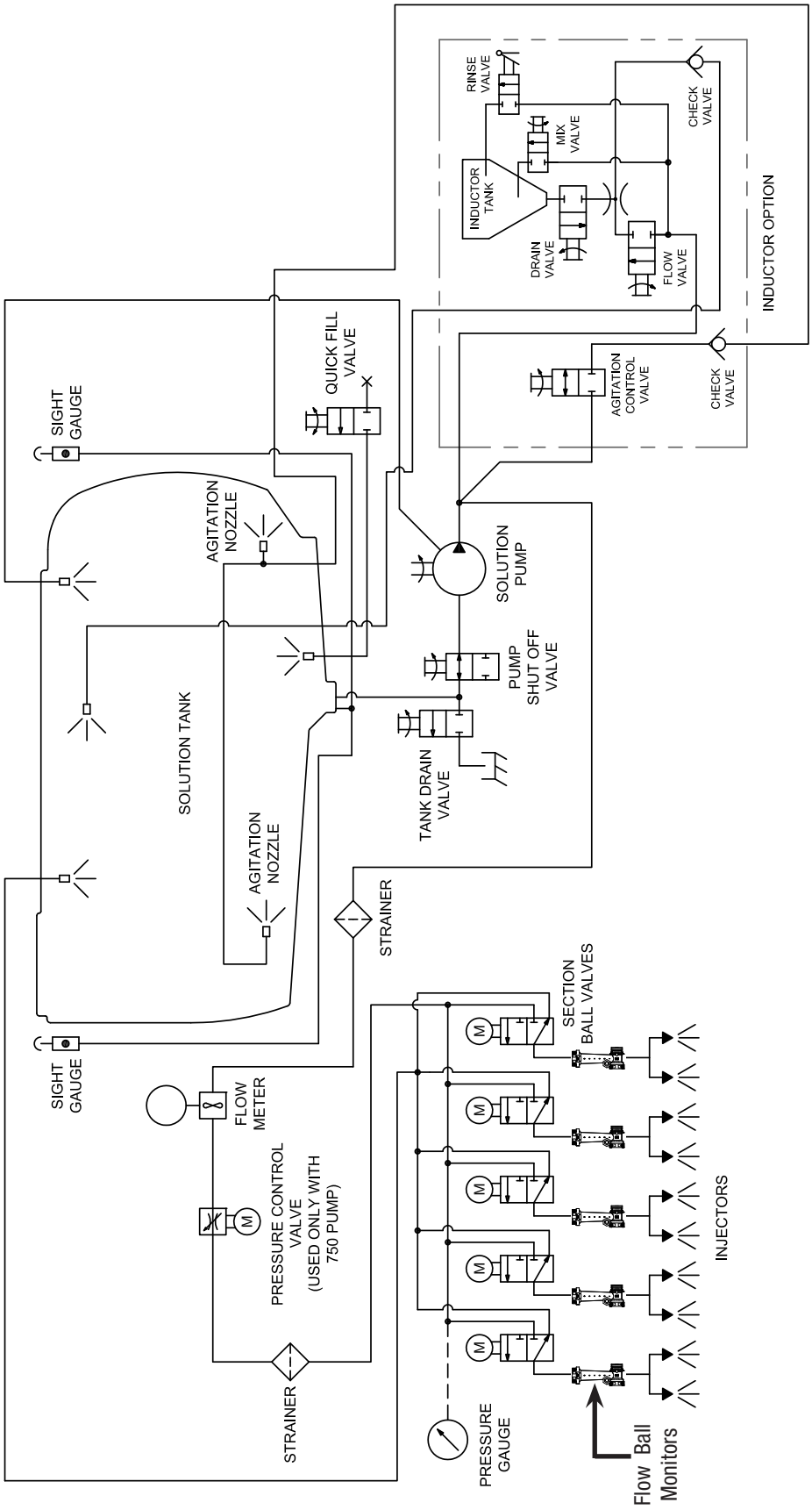
Off-Season Storage:

1. Protect the flow monitors from UV degradation by covering the clear flow monitors to block exposure to sunlight. Storing unit in a dark building free from sunlight exposure is also acceptable.

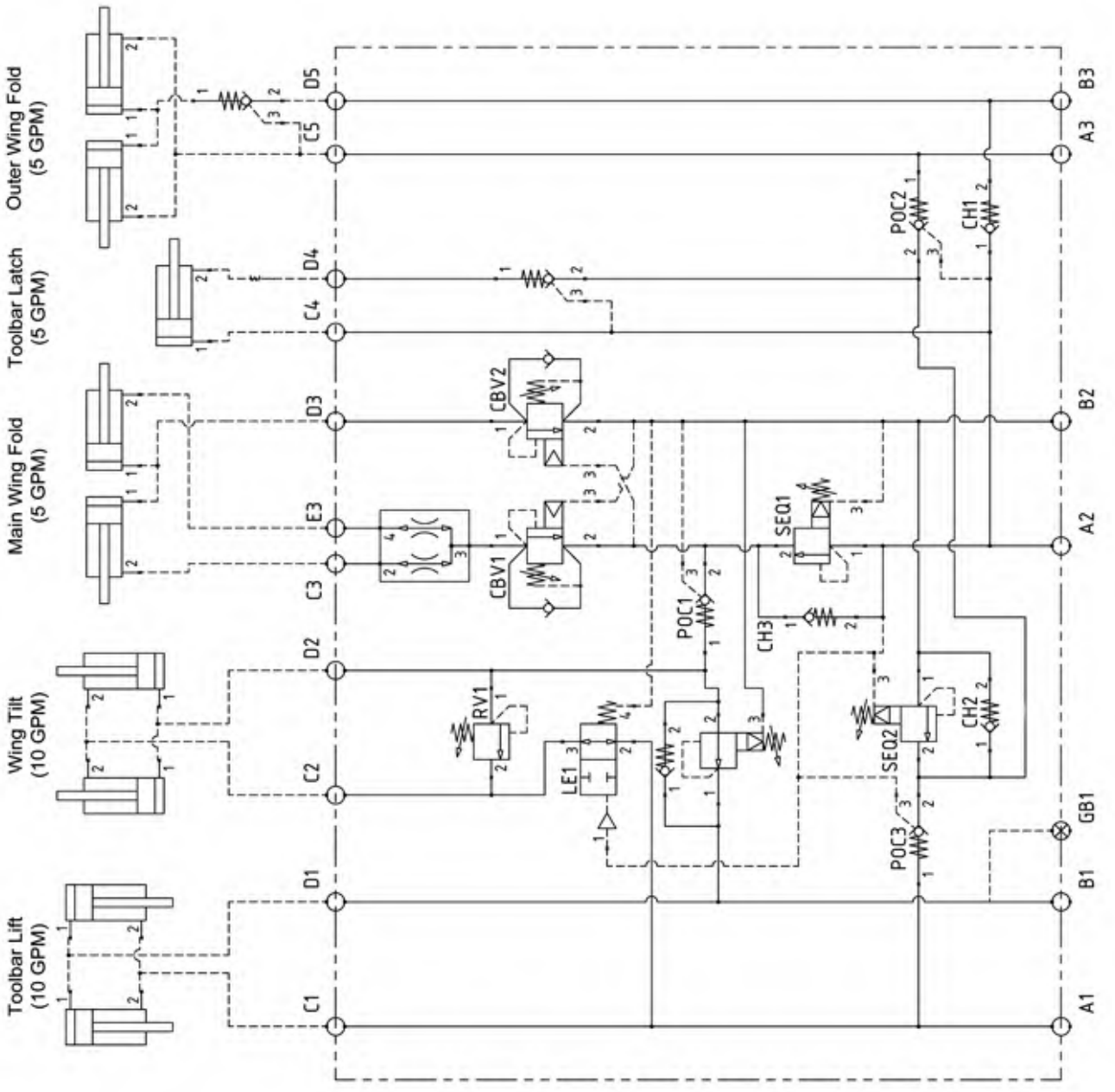
Schematics - Plumbing - For SN B39050100 & Higher



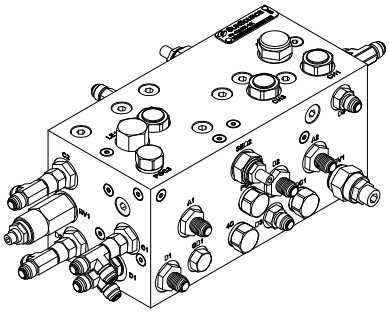
Schematics - Plumbing - For SN B39050099 & Lower



Schematics - Hydraulic



Schematics - Hyd. Hose Routing — Hoses to Tractor



Ports A1, B1
9008556 - Hydraulic Hose 1/4 x 226

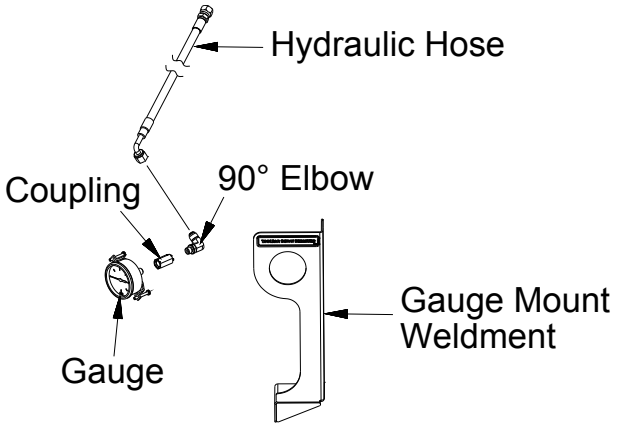
Ports A2, B2, B3
9007816 - Hydraulic Hose 1/4 x 204

Port A3
9004297 - Hydraulic Hose 1/4 x 222

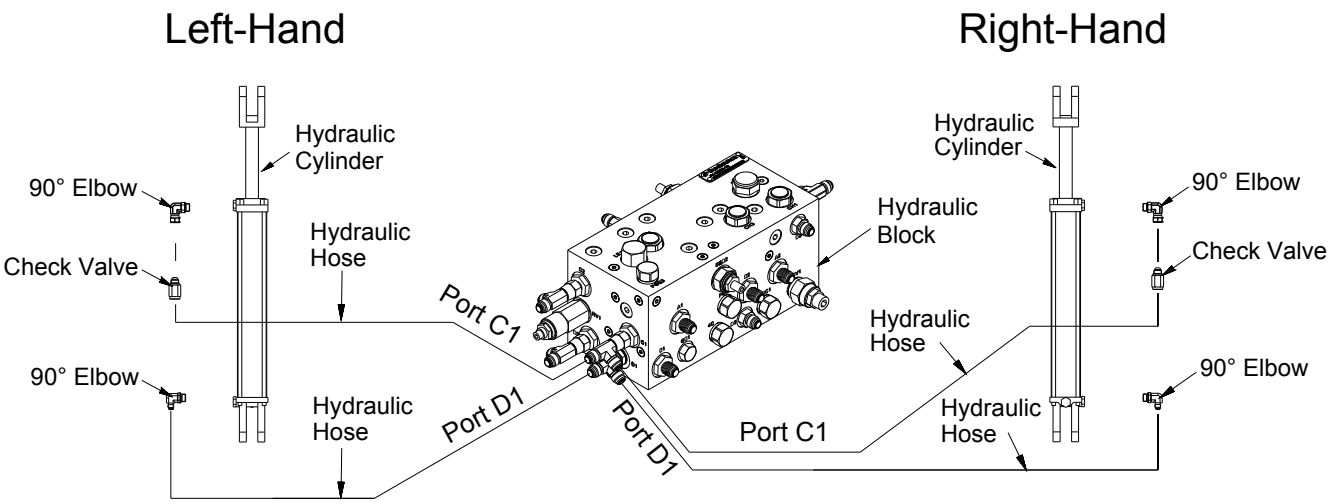
Hose Markers

Port A1	9007464 - Main Lift Up (RED)
Port A2	9007467 - Wing Fold In (GRAY)
Port A3	9007466 - Outer Wing Fold-In (BLUE)
Port B1	9007463 - Main Lift Down (RED)
Port B2	9007468 - Wing Fold-Out (GRAY)
Port B3	9007465 - Outer Wing Fold-Out (BLUE)

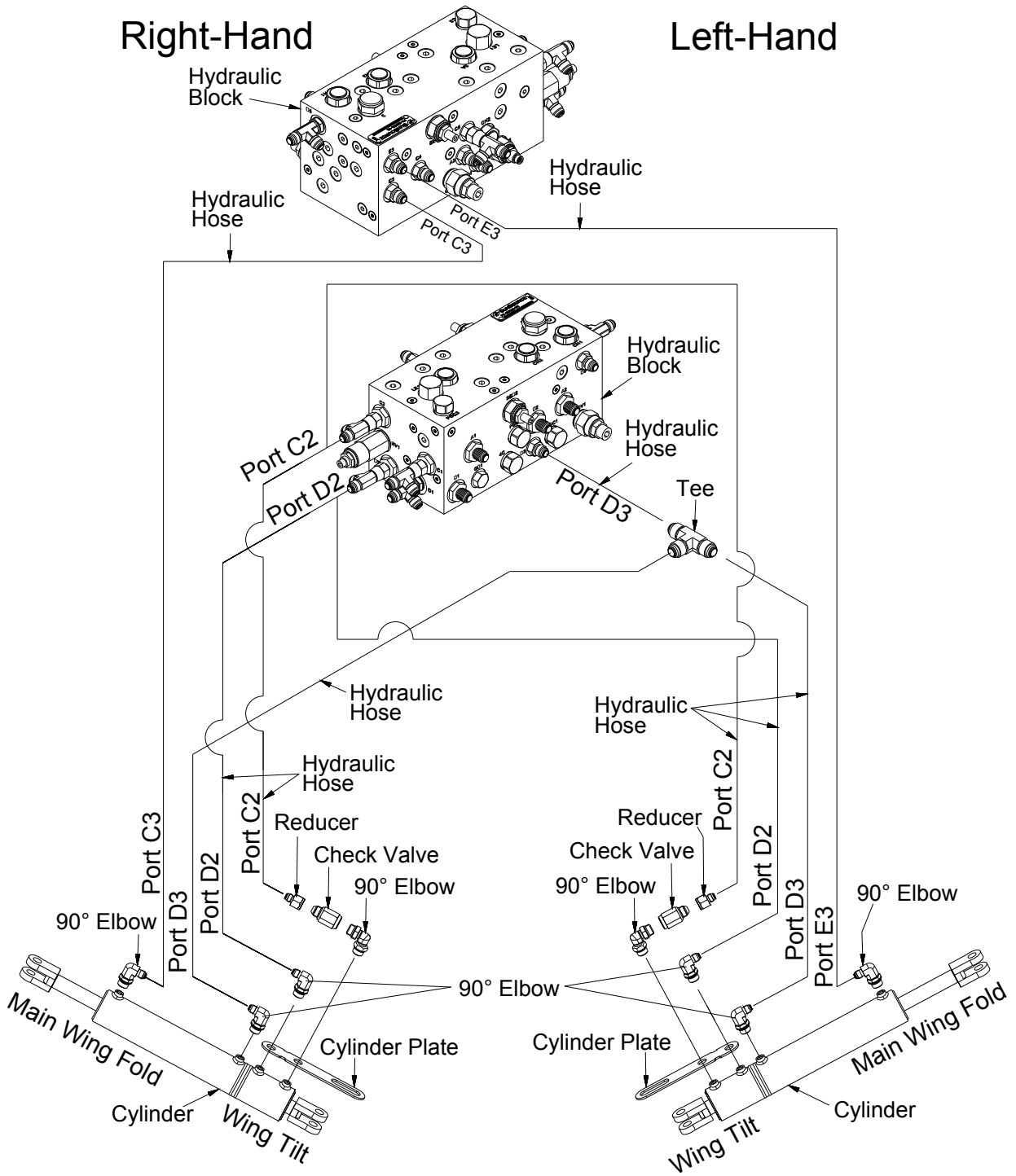
Schematics - Hyd. Hose Routing — Toolbar Down Pressure Gauge



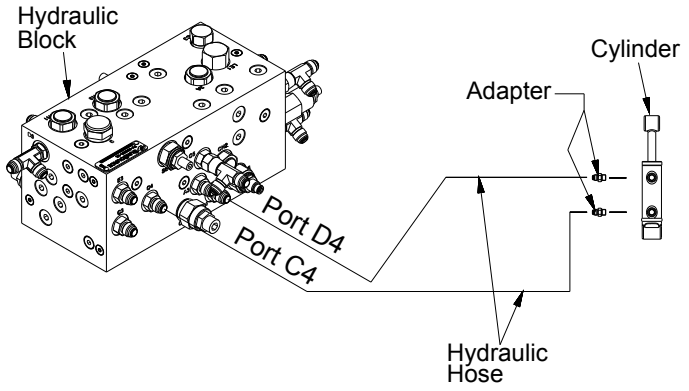
Schematics - Hyd. Hose Routing — Toolbar Lift Cylinders



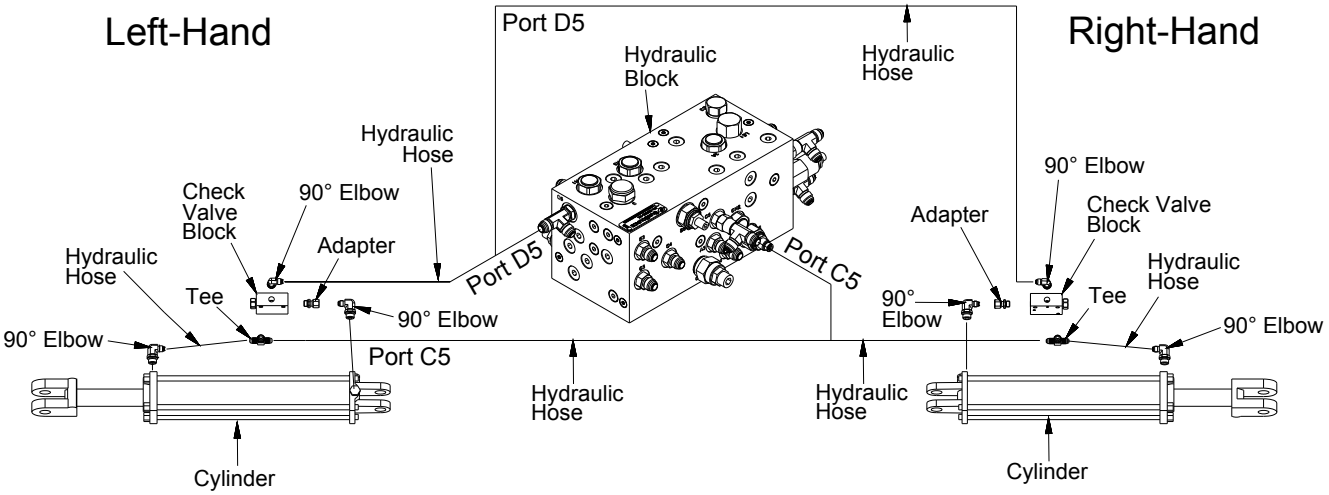
Schematics - Hyd. Hose Routing — Main Wing & Wing Tilt Cylinders



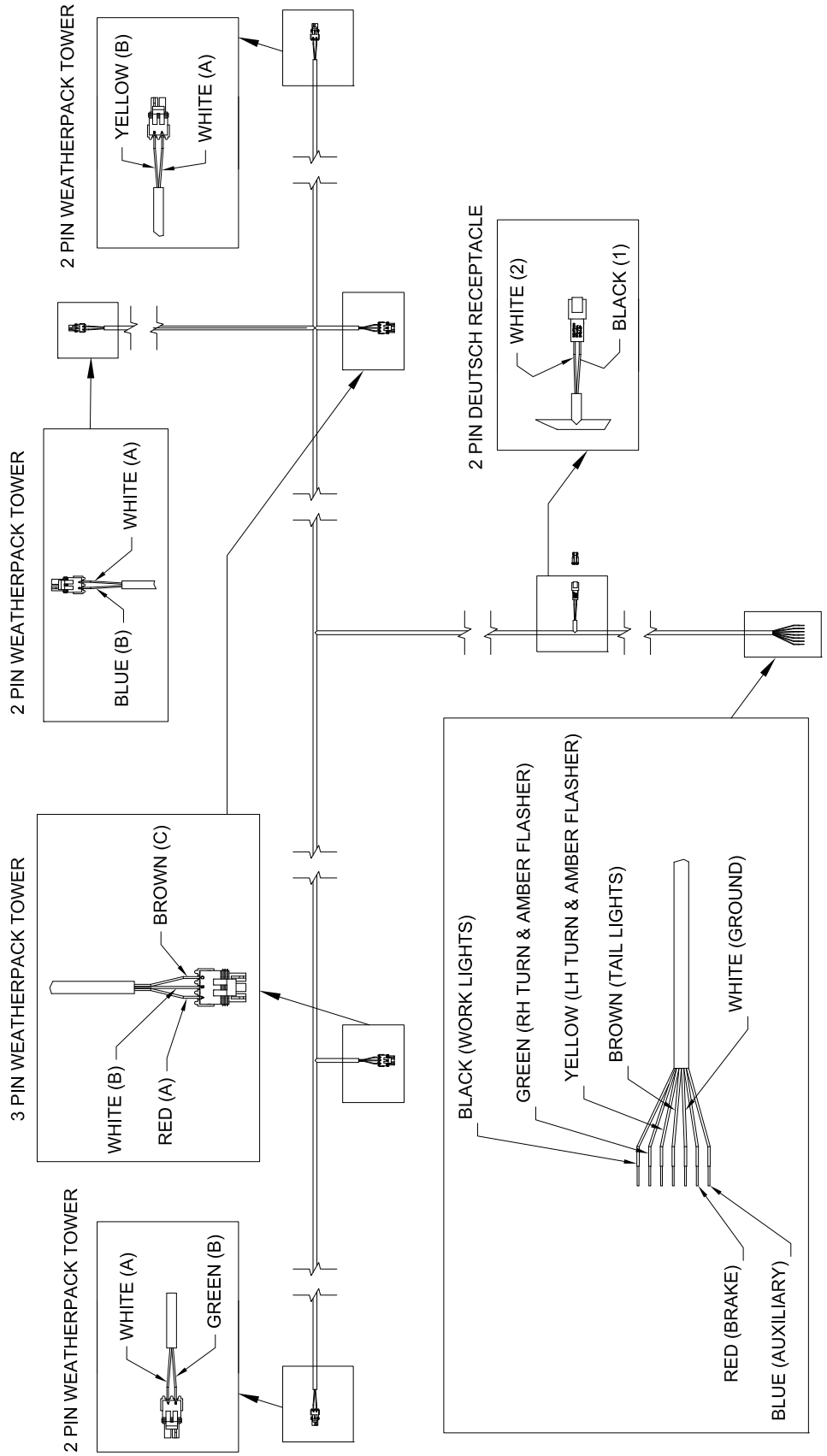
Schematics - Hyd. Hose Routing — Toolbar Latch Cylinder



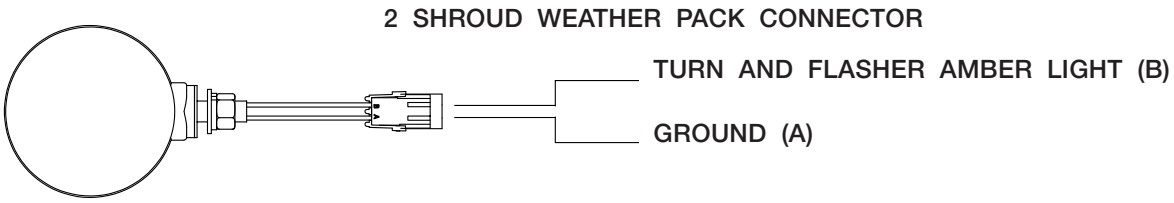
Schematics - Hyd. Hose Routing — Outer Wing Cylinders



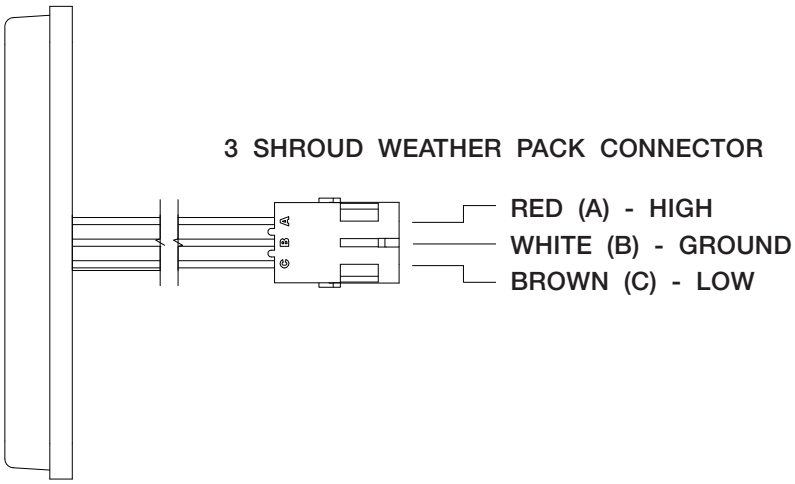
Schematic — Electrical — Main Light Harness (9007719)



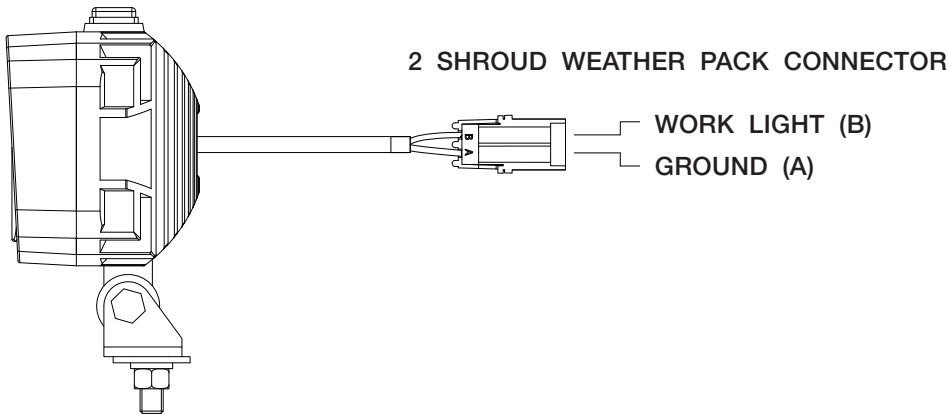
Schematic — Electrical — Amber LED Lamp (9005142)



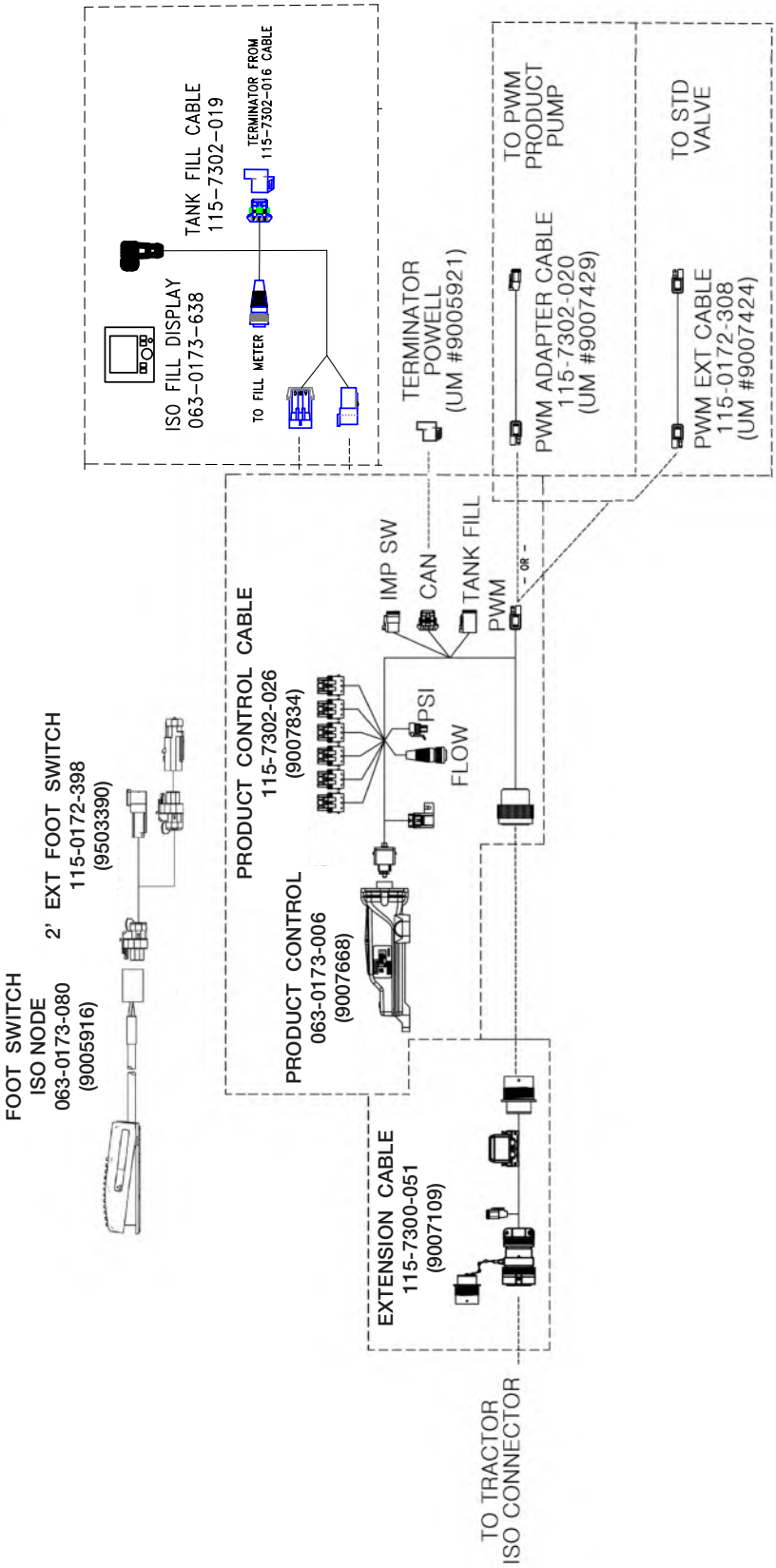
Schematic — Electrical — Red LED Tail/Turn Light (9006282)



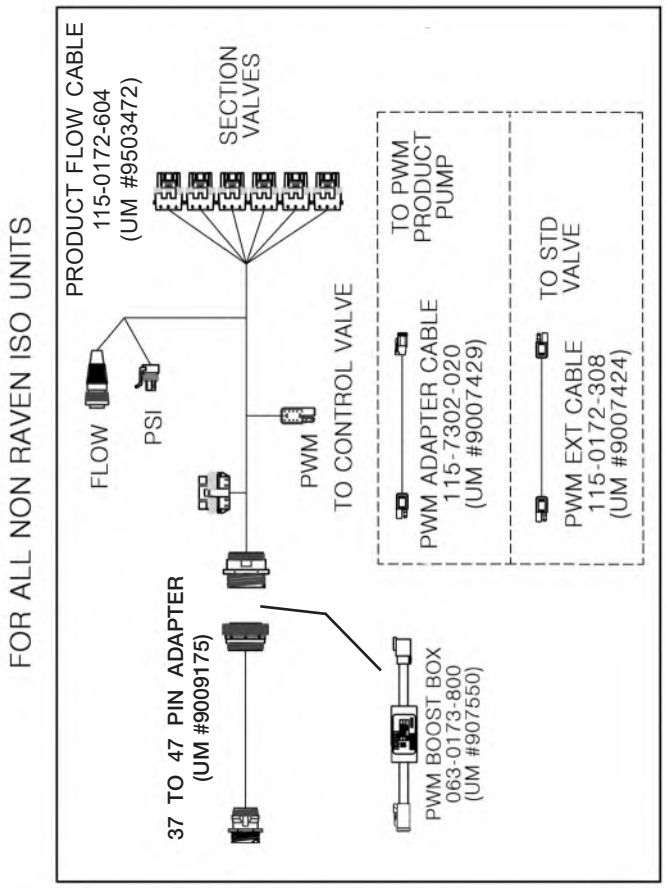
Schematic — Electrical — Work Light (9500801)



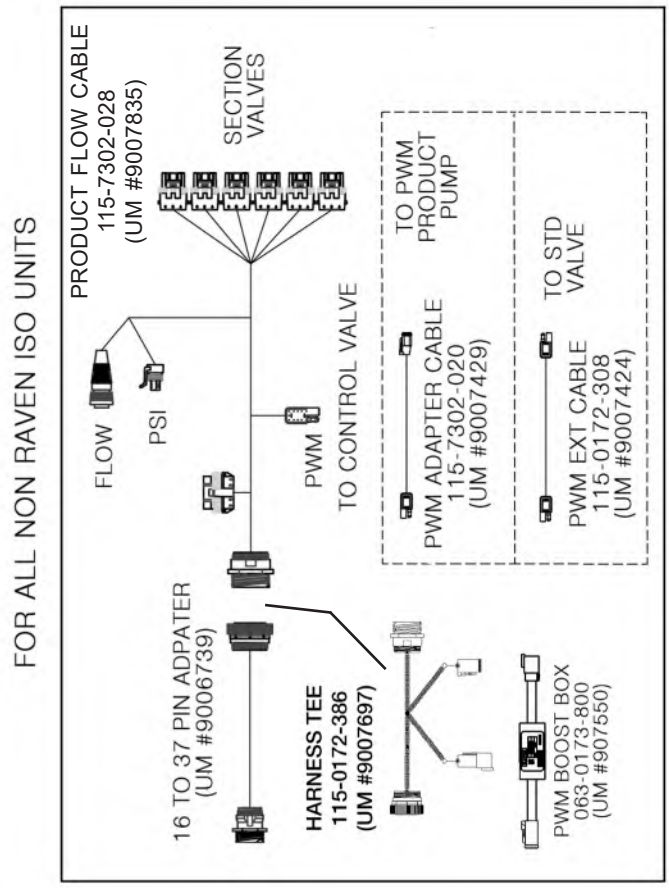
Schematics - ISO System Diagram

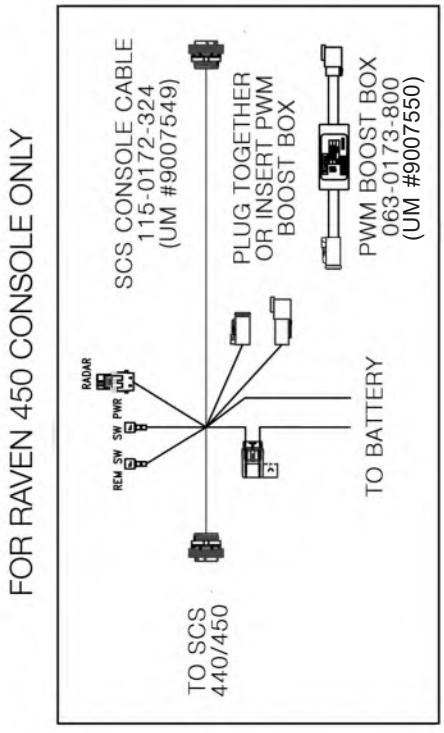


Schematics - Less ISO Raven System Diagram
For All Non Raven ISO Units
For SN B41940100 & Higher

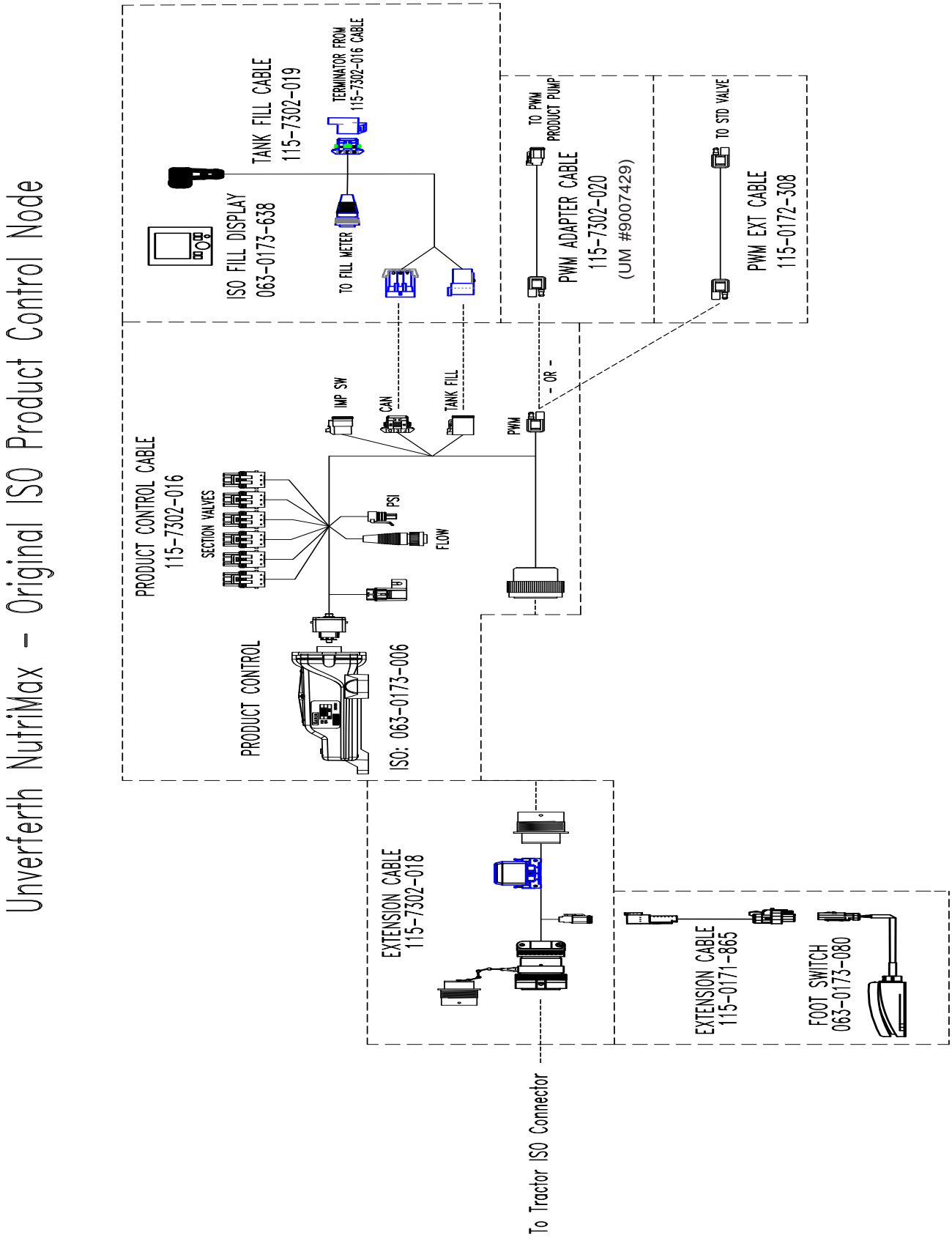


Schematics - Less ISO Raven System Diagram For All Non Raven ISO Units & For Raven 450 Console For SN B41940099 & Lower

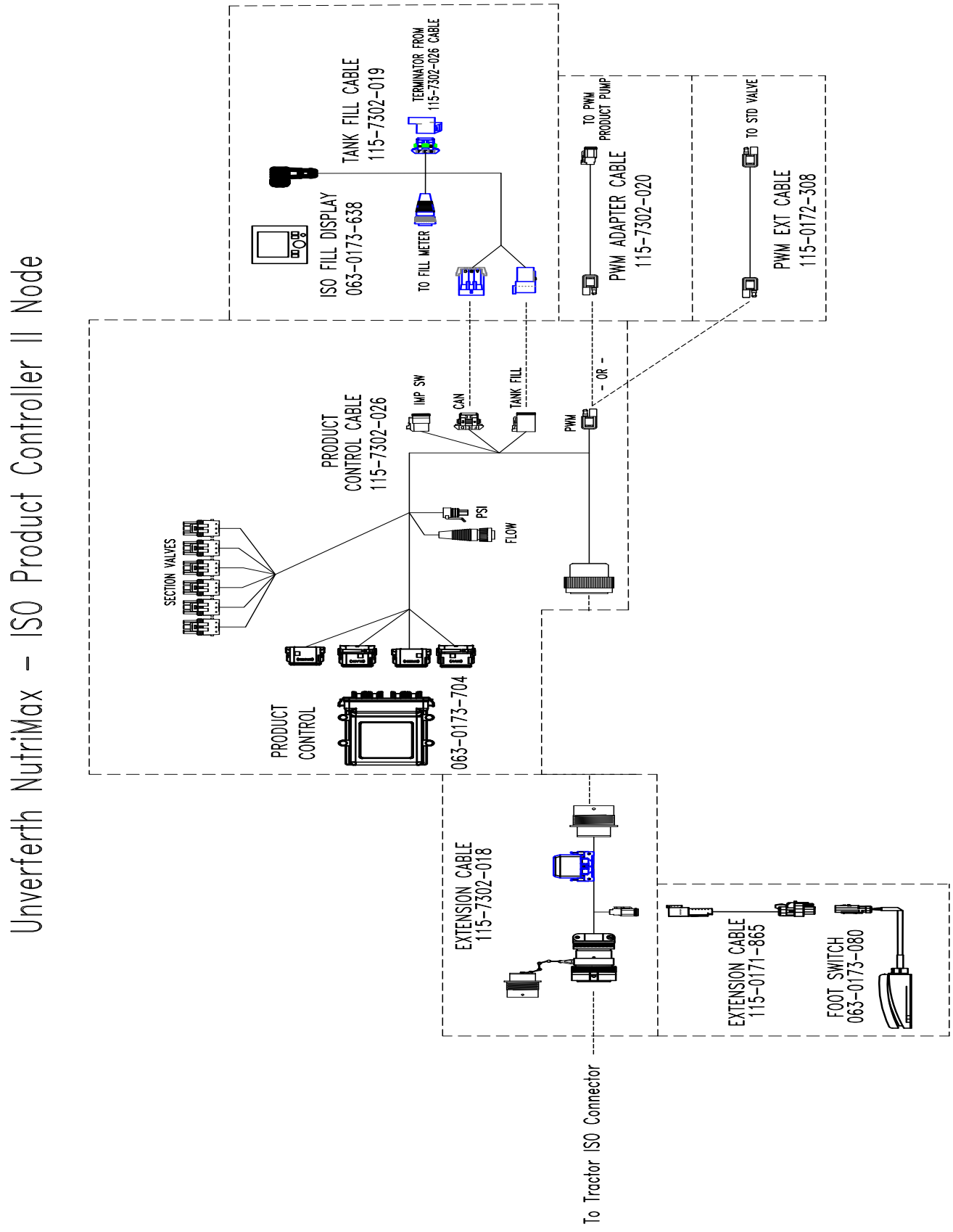




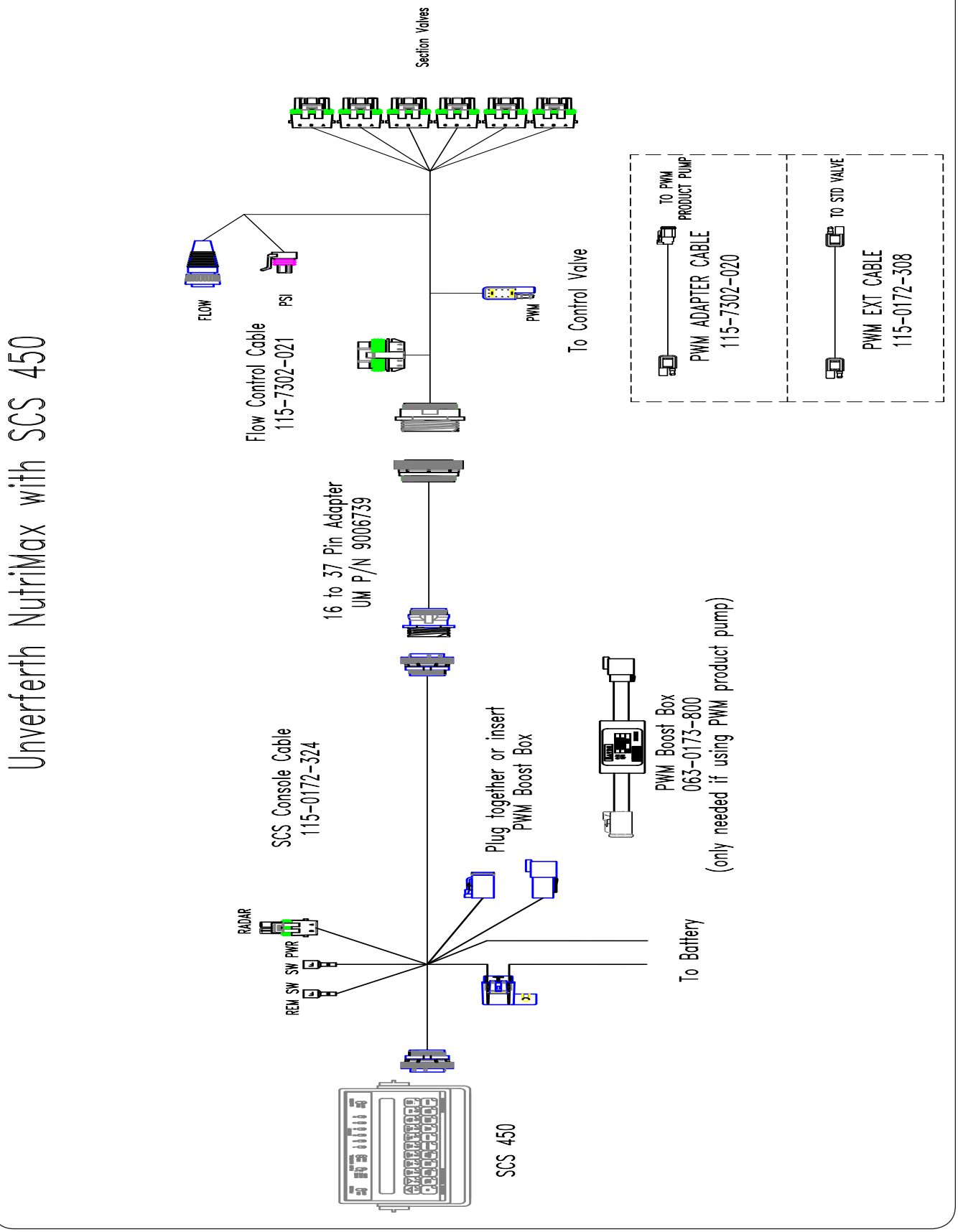
Schematics - Original ISO Rate Node



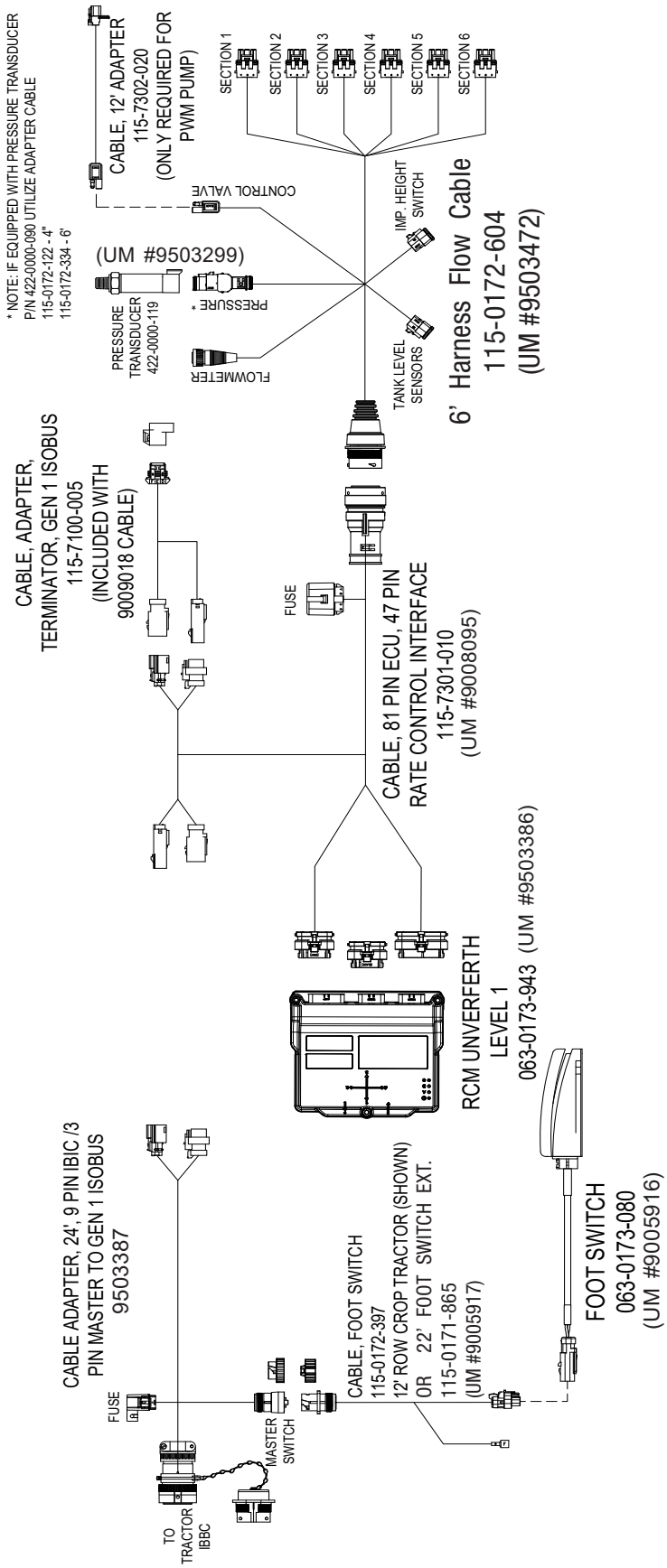
Schematics - Product Control II Node



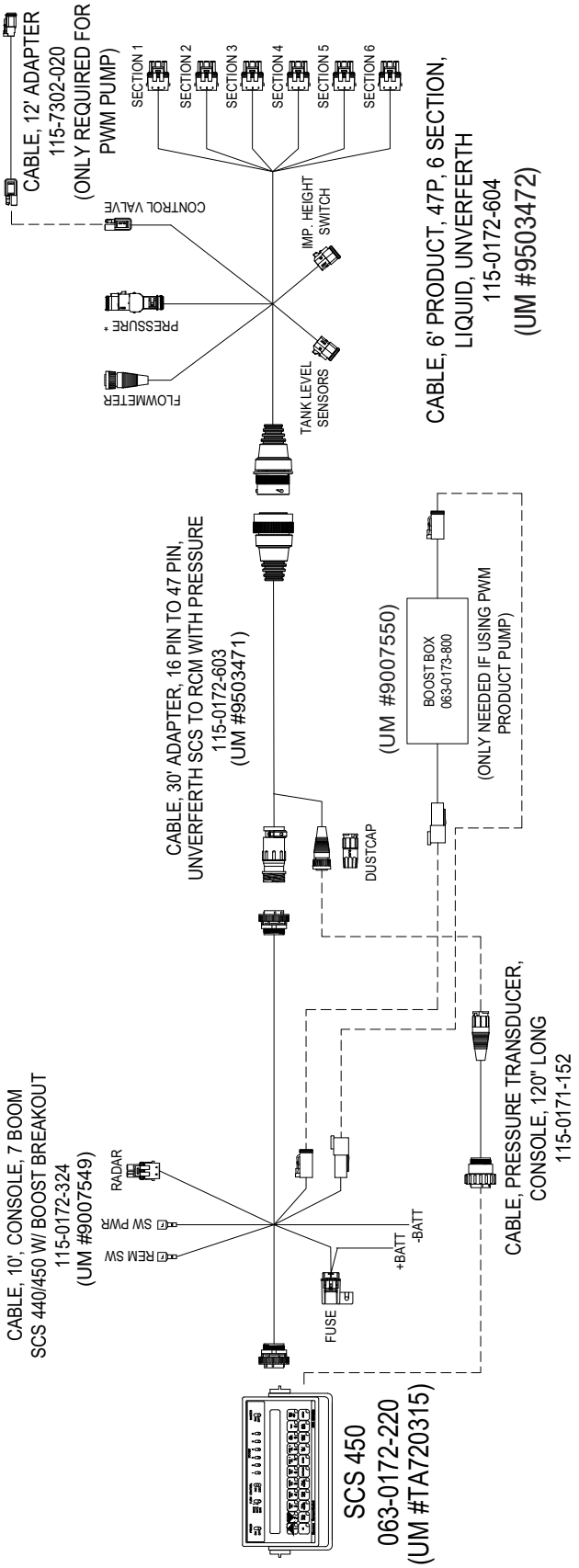
Schematics - SCS 450



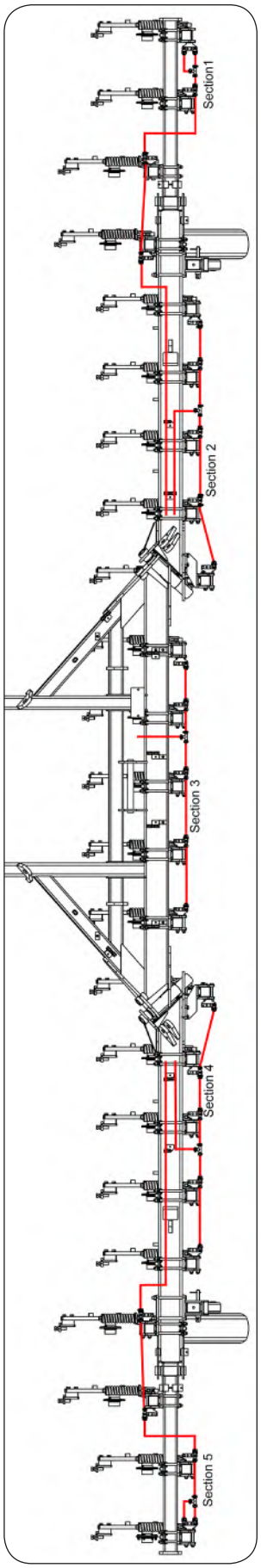
Schematics - Rate Contol Module (RCM)



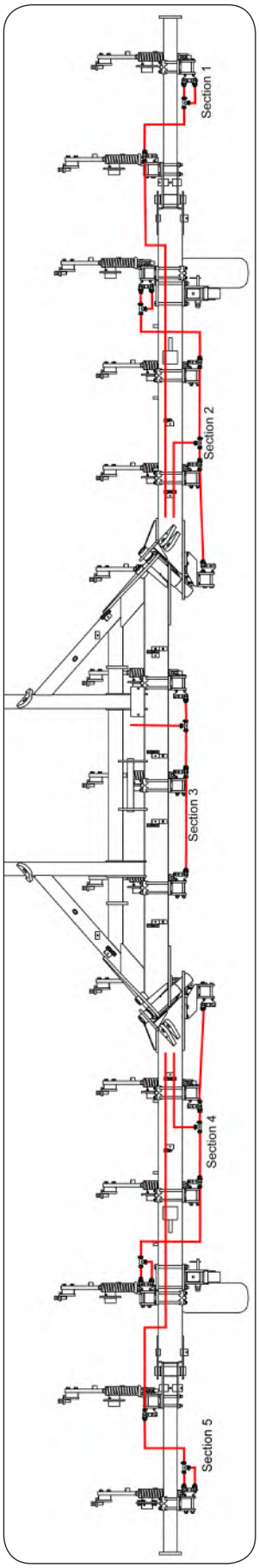
Schematics - SCS 450 Console



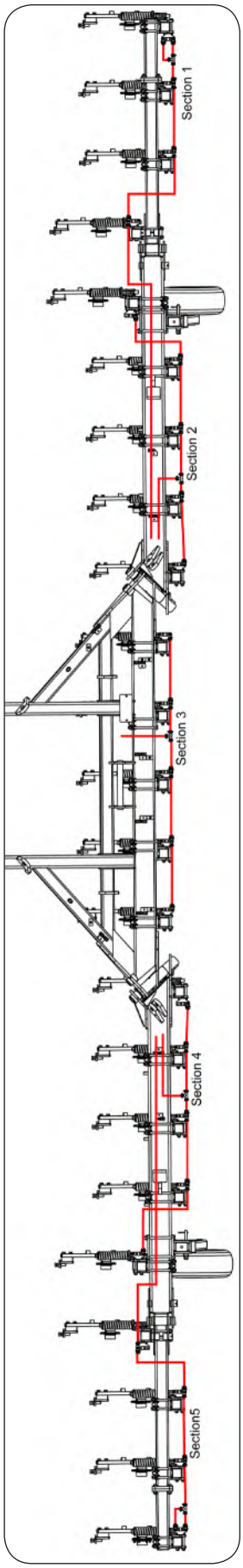
40’ Toolbar Plumbing for 20” Spacing and Orifice Options



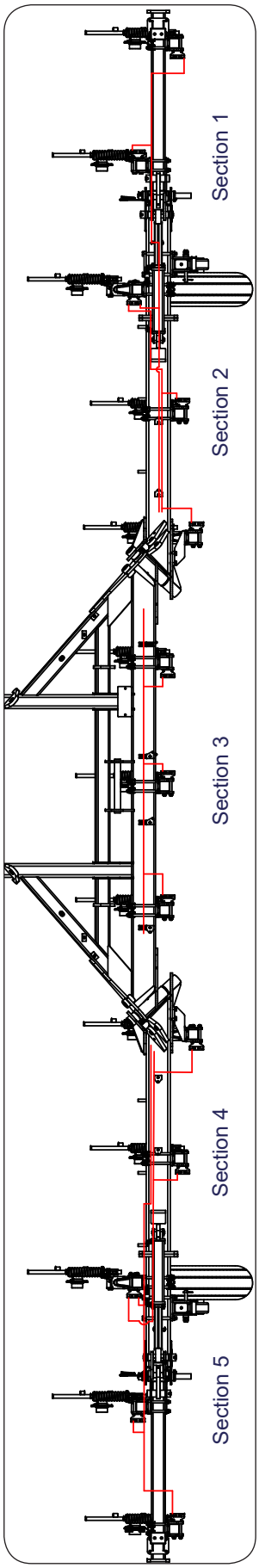
40’ Toolbar Plumbing for 30” Spacing and Orifice Options



44’ Toolbar Plumbing for 22” Spacing and Orifice Options



40’ Toolbar Plumbing for 36” & 38” Spacing and Orifice Options



Troubleshooting

Problem	Possible Cause	Corrective Action
No toolbar functions work	Not getting enough oil flow	Check tractor SCV flow setting. Check hydraulic oil level in tractor.
	Valve sticking	Remove the valves from the block. Lubricate the valve and re-check for easy movement. If still not getting any movement, replace the valve.
	Debris in block	Remove debris from block.
	Debris in SCV hose tips	Remove hose tips and clean.
Toolbar is slow or some functions work and others do not.	Valve sticking	Remove the valves from the block. Lubricate the valve and re-check for easy movement. If still not getting any movement, replace the valve.
	Defective or missing o-ring on valve	Inspect valve for missing or damaged o-rings. Replace any suspect o-rings.
	Debris in block	Remove debris from block.
Pressure too Low	Valve has an obstruction	Open all valves to pump and check for obstruction.
	Air lock in water tank	Check for air lock in tank.
	Hydraulic flow on tractor set too low	Increase hydraulic flow on tractor.
	Agitation is not set properly	Close agitation completely and slightly open the valve so the pump pressure decreases by 5 psi.
	Impeller has obstruction	Separate pump housing. Remove and clean the impeller.
	Impeller is not turning	Separate pump housing. Verify that shaft and impeller turn together.
Pressure too High	Hydraulic flow on tractor set too high	Decrease hydraulic flow on tractor.
	Improper nozzle size	Verify Nozzle Size.
Rate control console will not turn on	No power coming to the console	Check power source connections.
	Bad console	Check for 12 volts of power on Pin #16 with Pin #1 being ground on the cable coming into the console if equipped with 450 controller.
Do not have a rate	Not getting a speed	Press the speed button on the console to see if there is a speed.
	Not getting a flow	Press the vol/min button on the console to see if there is a flow.
Do not have a speed	Orange wire is unplugged	Verify the orange wire is plugged in to the speed sensor.
	Defective cable or sensor	Program a self test into the console and then check for a rate.
Speed is inaccurate	Loosen cable connection	Wiggle the connections for the speed cable. If accurate speed is displayed tighten connection.
	Cut in cable	Check speed cable for cuts in the cable. Fix the cable or replace the cable.
Do not have a flow	Regulating valve is not operating or PWM cartridge is not functioning	Check and remove debris from valve or PWM cartridge.
	Defective cable	Unplug the flow meter. With the plug keyway at the 12 o'clock position, check voltage between pins at the 2 o'clock and 6 o'clock positions (2 o'clock is ground). Should have 5 volts. Also check voltage between pins at the 2 o'clock and 10 o'clock positions (2 o'clock is ground). Should have 5 volts.
	Defective flow meter	Unplug the flow meter. Check for 5 volts across the 2 wires and getting voltage.
Rate is Unstable	Console is in manual	Put console into either rate 1 or rate 2 and check to see if rate becomes stable.
	Speed is inaccurate	Refer to "Speed is Inaccurate Section".
	Console is not programmed	Verify all numbers programed into console are correct.
Cannot adjust pressure when console is in manual	Defective cable or console	Unplug regulating valve or PWM cartridge. Check for 12 volts across the two wires.
	Defective Valve	Unplug regulating valve or PWM cartridge. Check for 12 volts across the two wires.
Transport Latch does not latch or unlatch	Debris in block, valve sticking	Fold/Unfold sequence valve is set too low.
Main Wing Fold/Unfold Separately	Flow setting set too low	Increase tractor flow setting for main wing fold/unfold circuit.
Transport Latch settles/engages during operation	Air in system	While operating, place main wing fold circuit in Float.

Wheel, Hub and Spindle Disassembly and Assembly

⚠ WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**
- **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 12,000 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.**

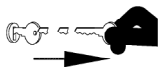
⚠ CAUTION

- **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 USE, AFTER ONE HOUR OF UNLOADED USE OR AFTER FIRST LOAD, AND EACH LOAD UNTIL WHEEL NUTS/BOLTS MAINTAIN TORQUE VALUE. CHECK TORQUE EVERY 10 HOURS OF USE THERE-AFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

IMPORTANT

- *Remove only one wheel and tire from a side at any given time in the following procedure.*

1. Hitch applicator to tractor. Park the empty applicator on a firm, level surface. Set the tractor's parking brake, shut off engine and remove key.



2. With applicator empty, use a safe lifting device rated at 12,000 lbs. to support the weight of your applicator. Place the safe lifting device under the axle closest to the tire.
3. Use a 3,000 lbs. safe lifting device to support the wheel and tire during removal.

⚠ WARNING

- **INNER WHEEL AND TIRE MAY FALL FROM HUB CAUSING SERIOUS INJURY OR DEATH. ALWAYS SUPPORT INNER WHEEL WHEN REMOVING OUTER WHEEL AND/OR THE WHEEL EXTENSION.**

4. If only changing wheel and tire, skip to Step 8; otherwise continue with Step 4.

   Remove the hardware retaining the hubcap. Next, remove the hubcap, gasket, cotter pin, castle nut and spindle washer. Remove hub with bearings from old spindle using a 200 lbs. safe lifting device.

Wheel, Hub and Spindle Disassembly and Assembly (continued)

5. Inspect the spindle and replace if necessary. If spindle does not need to be replaced, skip to Step 6; otherwise continue with Step 5.

   Remove the bolt and lock nut that retain the spindle to the axle. Using a safe lifting device rated for 150 lbs., replace the old spindle with a new spindle. Coat axle contact length of spindle shaft with anti-seize lubricant prior to installation. Reuse bolt and lock nut to retain spindle to axle. Tighten as outlined in MAINTENANCE section.

6. Remove seal and inspect bearings, spindle washer, castle nut and cotter pin. Replace if necessary. Pack both bearings with Extreme Pressure NLGI #2 grease and reinstall inner bearing. Install new seal in hub with garter spring facing the hub by tapping on flat plate that completely covers seal while driving it square to hub. Install until flush with back face of hub. Using a 200 lb. rated safe lifting device, install hub assembly onto spindle. Install outer bearing, spindle washer and castle nut.

IMPORTANT

- *Do not use an impact wrench!*

7. Slowly tighten castle nut while spinning the hub until drag causes the hub to stop freely spinning. Turn castle nut counterclockwise until the hole in the spindle aligns with the next notch in castle nut. Hub should spin smoothly with little drag and no end play. If play exists, tighten to next notch of castle nut. If drag exists, then back castle nut to next notch of castle nut. Spin and check again. Install cotter pin. Clean face for hub cap gasket and install gasket, grease filled hub cap and retain hubcap with hardware removed. Tighten hubcap hardware in alternating pattern.

8. Attach the wheel(s) and tire(s) to the hub using the same rated safe lifting device for removal. Tighten wheel nuts to appropriate requirements and recheck as outlined in the Wheel and Tire section of this manual.

9. Raise applicator, remove safe lifting device attached to wheel and tire and lower tire to the ground.

10. Remove safe lifting device from applicator.

Wheels and Tires

Wheel Nut Torque Requirements

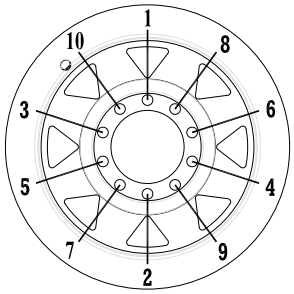
⚠ CAUTION

- **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 USE, AFTER ONE HOUR OF UNLOADED USE OR AFTER FIRST LOAD, AND EACH LOAD 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 load 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/bolts in the recommended sequence as shown in Diagrams 1 and 2.

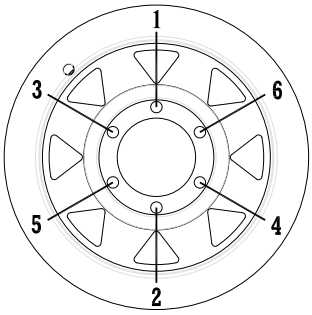
NOTE: Do not use anti-seize on wheel hardware.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
1/2-20 (UNF)	75 Ft.-Lbs.
3/4-16 (UNF)	365 Ft.-Lbs.



10 Bolt

DIAGRAM 1



6 Bolt

DIAGRAM 2

Wheels and Tires (continued)

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.** 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 Pressure for Top Air Sprayers

Tire Make	Tire Size	Load Index / Ply Rating	Max PSI
Firestone	480/80R42 R-1	151 A8	36
Goodyear	320/105R54 R-1W	166 A8	75
Mitas	320/95R46 R-1W	152 A8	58
	320/90R50 R-1W	150 A8	52
	320/105R54 R-1W	169 D	58
	380/90R46 R-1W	159 A8	58
	380/90R54 R-1W	152 A8	35
	480/80R50 R-1W	159 A8	35
	650/65R42 R-1W	168 A8	44

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
Titan or Goodyear	www.titan-intl.com Phone 800-USA-BEAR Fax 515-265-9301
Trelleborg	www.trelleborg.com Phone 866-633-8473
Continental/Mitas	www.mitas-tires.com Phone 704-542-3422 Fax 704-542-3474
Carlstar Group LLC	www.carlstargroup.com Phone 800-260-7959 Fax 800-352-0075
Kenda/Americana Tire & Wheel	www.americanatire.com Phone 800-225-4714

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

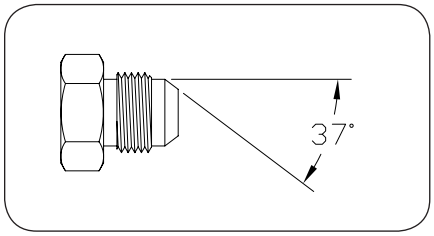
IMPORTANT

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

Hydraulic Fittings – Torque and Installation

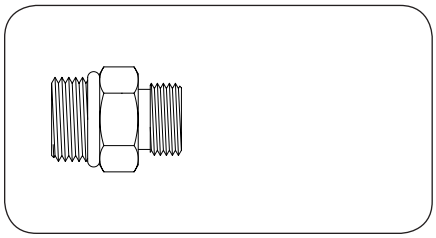
SAE Flare Connection (J. I. C.)

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



SAE Straight Thread O-Ring Seal

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

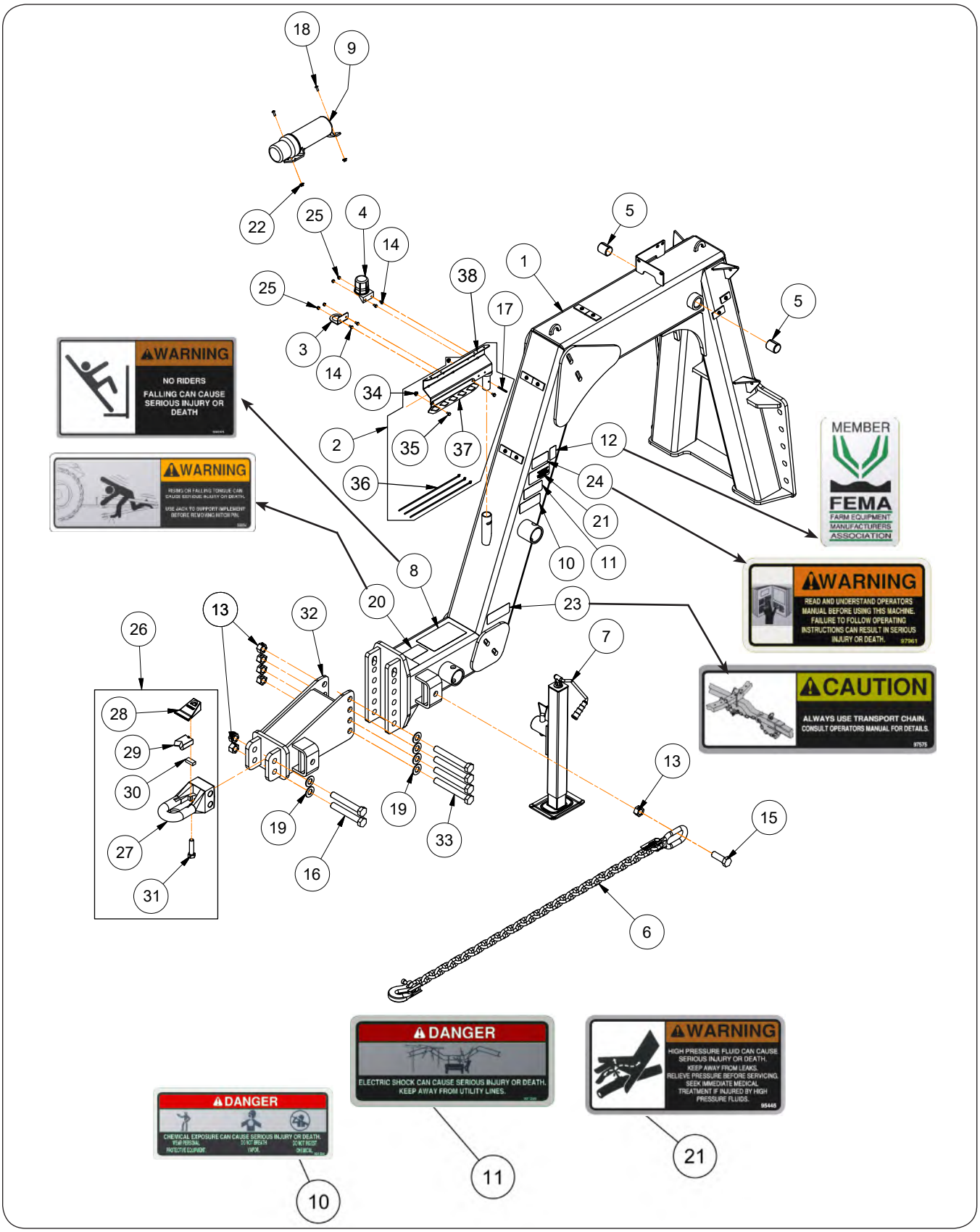


Section V
Parts

FOR INDUCTOR INFORMATION, PLEASE REFER TO YOUR INDUCTOR MANUAL.
FOR QUICK FILL METER INFORMATION, PLEASE REFER TO YOUR QUICK FILL METER MANUAL.
FOR GROUND DRIVEN PUMP INFORMATION, PLEASE REFER TO PUMP MANUAL.

Tongue Components

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



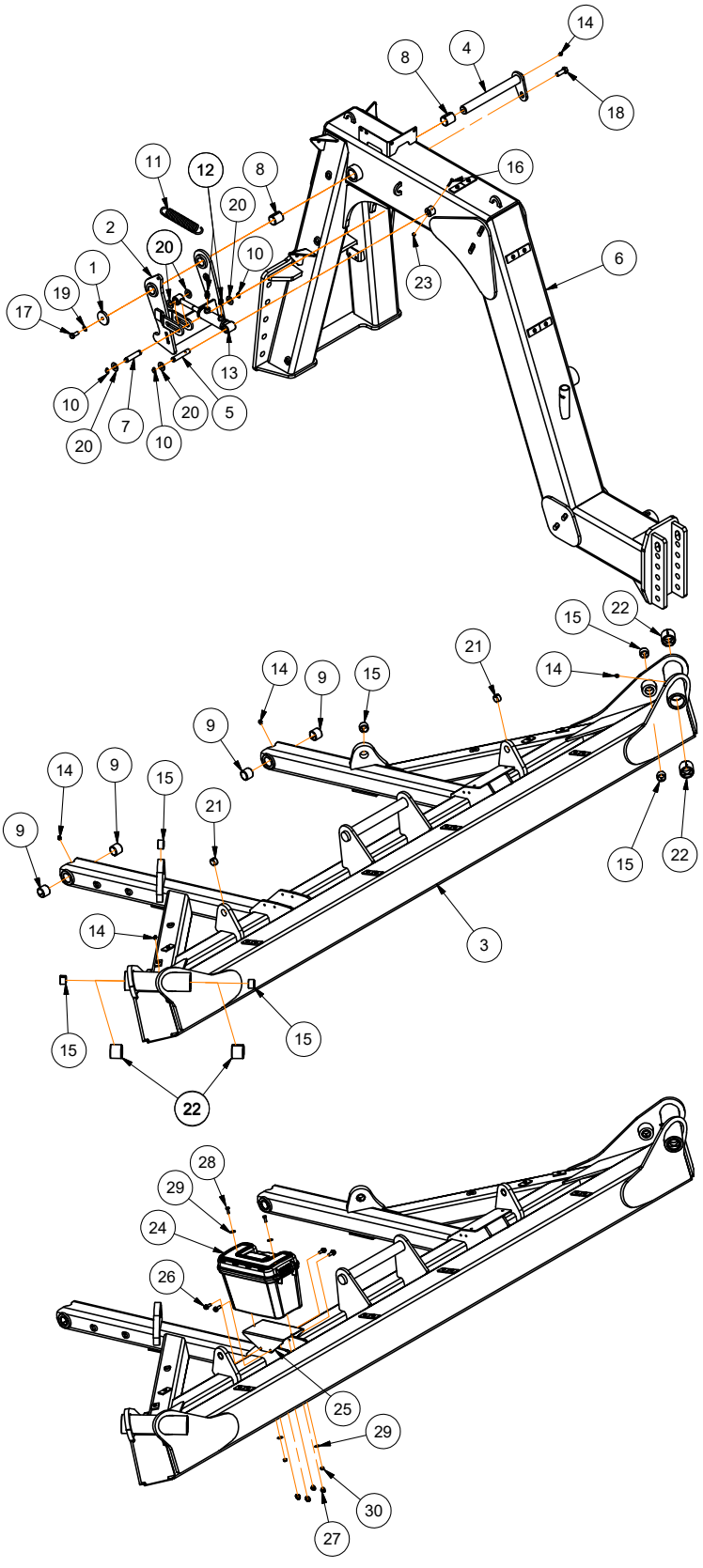
Tongue Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	414330G	Tongue Weldment =Green=	1	Includes Items 8, 10, 11, 20, 21, 23 & 24
	414330R	Tongue Weldment =Red=		
2	415534B	Hose Caddy Replacement Kit (Black)	1	Includes Items 17 & 34 - 38
				For SN B41810099 & Lower
3	281837B	Plate Holder =Black=	1	
4	9001968	Connector Holder	1	
5	9002806	Split Tension Bushing	2	
6	9003265	Transport Chain 30,400#	1	
7	9003295	Jack 5,000# Lift, Top Wind	1	
8	9003476	Decal, WARNING "No-Riders"	1	
9	900552	Manual Holder	1	
10	901256	Decal, DANGER "Chemical Exposure"	1	
11	901258	Decal, DANGER "Electric Shock"	1	
12	91605	Decal, FEMA	1	
13	92199	Locknut 1”-8UNC	7	
14	9390-001	Capscrew 1/4-20UNC x 1/2”	4	Grade 5
15	9390-187	Capscrew 1”-8UNC x 3”	1	Grade 5
16	91299-199	Capscrew 1”-8UNC x 8”	2	Grade 8
17	9392-140	Roll Pin 1/4" Dia. x 2”	1	
18	903174-535	Truss Head 1/4-20UNC x 3/4 Philips Machine Screw	2	
19	9405-116	Flat Washer 1" SAE	6	
20	94094	Decal, WARNING "Tongue May Raise or Drop Rapidly…"	1	
21	95445	Decal, WARNING "High-Pressure Fluid"	1	
22	97189	Hex Nut/Large Flange 1/4”-20UNC	2	
23	97575	Decal, CAUTION "Transport Chain"	1	
24	97961	Decal, WARNING "Read & Understand Operator Manual"	1	
25	9936	Locknut 1/4”-20UNC	4	
26	TA610050	Hitch Assembly	1	Includes Items 27 through 31
27	TA610050-1	Hitch Clevis	1	
28	TA610050-2	Hitch Top Plate	1	
29	TA610050-3	Hitch V-Block	1	
30	TA610050-4	Neoprene Hitch Cushion	1	
31	9390-149	Capscrew 3/4”-10UNC x 3”	1	
32	410887G	Hitch Extension Weldment =Green=	1	
	410887R	Hitch Extension Weldment =Red=		
33	9390-199	Capscrew 1”-8UNC x 8”	4	Grade 5
34	91257	Hex Nut/Large Flange 5/16-18UNC	2	
35	91256	Screw/Large Flange 5/16-18UNC x 3/4	2	
36	9000104	Cable Tie 21 1/2” x 5/16”	3	
37	415536	Hose Caddy Plate	1	
38	415532B	Hose Caddy Weldment =Black=	1	

Center Toolbar & Latch Components

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



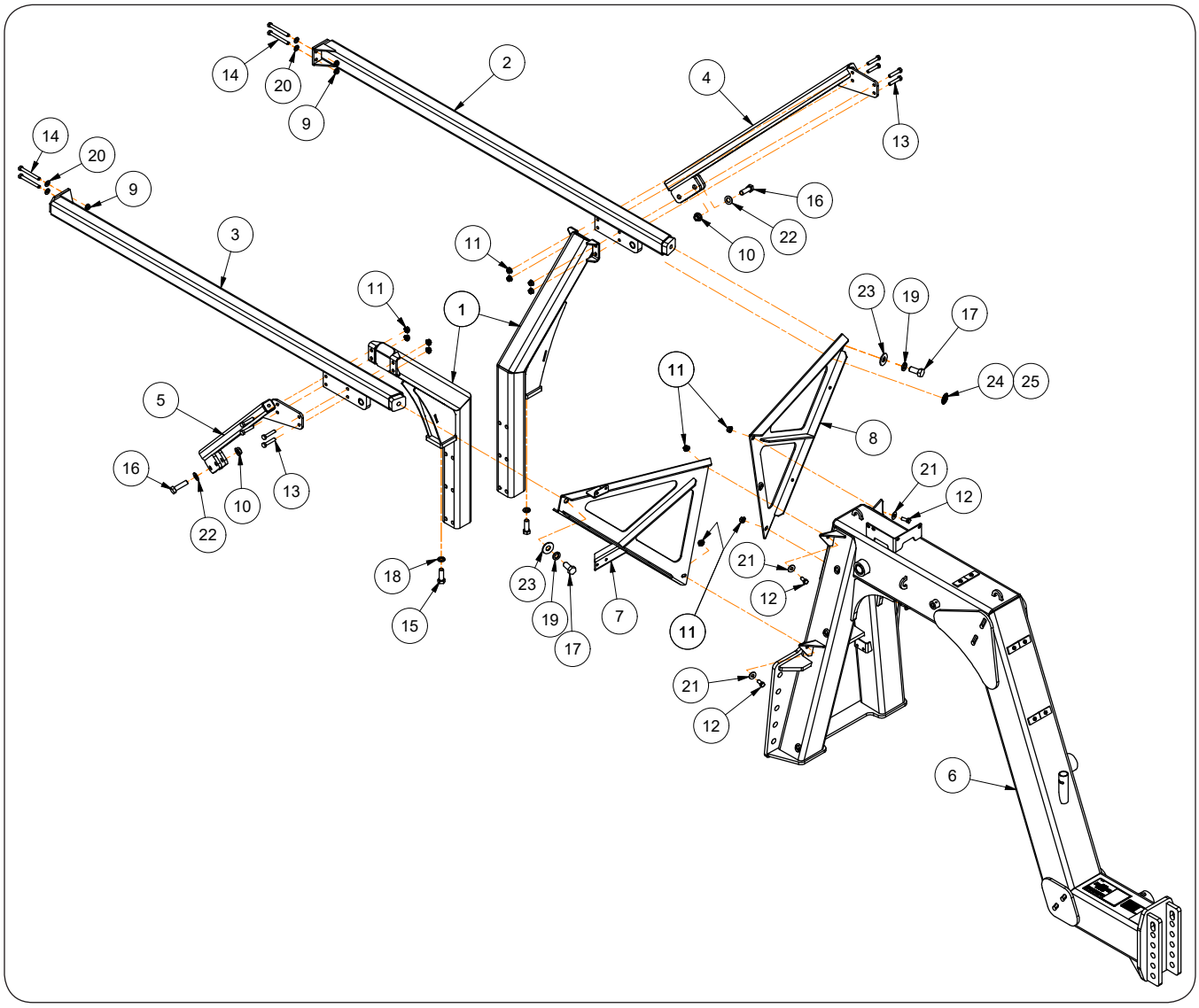
Center Toolbar & Latch Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	410446	Plate-Retainer, Pin	1	
2	411506G	Latch Weldment =GREEN=	1	
	411506R	Latch Weldment =RED=		
3	414313G	Toolbar Center Section Weldment =GREEN=	1	
	414313R	Toolbar Center Section Weldment =RED=		
4	411728	Latch Pin Weldmt	1	
5	411814	Pin- Latch, Tongue	1	
6	414330G	Tongue Weldment =GREEN=	1	
	414330R	Tongue Weldment =RED=		
7	412449	Pin-Cylinder	1	
8	9002806	Bushing-Split Tension	2	
9	9003553	Bushing-Tension Split	4	
10	9003810	Snap Ring 3/4"	3	
11	9004436	Spring-Extension	1	
12	9006150	Adapter 9/16-18 Male Flare x 9/16-18 O-Ring Male	2	5
13	9006935	Cylinder (1 1/2 x 2 1/2)	1	
	9006089	Seal Kit	-	
14	9007654	Zerk-Grease	5	
15	93622	Bushing	6	
16	9390-009	Capscrew 1/4"-20UNC x 2"	1	Grade 5
17	9390-100	Capscrew 1/2"-13UNC x 1 1/4"	1	Grade 5
18	9390-123	Capscrew 5/8"-11UNC x 1 3/4"	1	Grade 5
19	9404-025	Lock Washer 1/2"	1	
20	9405-104	Flat Washer 3/4" SAE	5	
21	95122	Bushing-Tension	2	
22	95123	Tension Bushing	4	
23	9936	Locknut 1/4"-20UNC	1	
24	902456	Toolbox	1	
25	414125B	Toolbox Mounting Plate	1	
26	91262	Capscrew, 3/8-16UNC x 1"	4	Grade 5
27	91263	Flange Locknut, 3/8-16UNC	4	Grade 5
28	9390-029	Capscrew, 5/16-18UNC x 7/8"	2	Grade 5
29	9405-070	Flat Washer 5/16"	4	
30	9807	Top Locknut 5/16-18UNC	2	

Upper, Front Frame Components

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



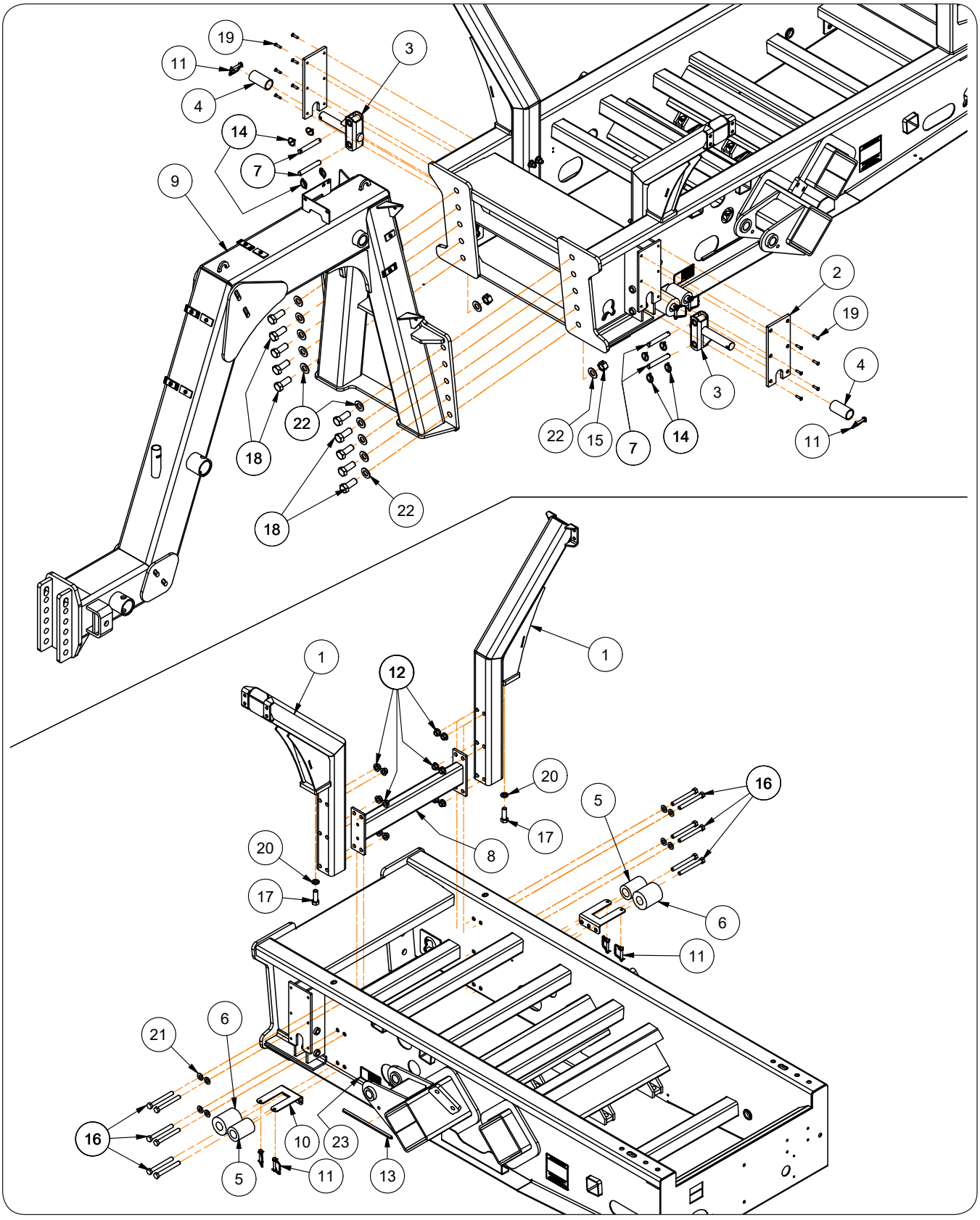
Upper, Front Frame Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	411586G	Tank Support Weldment =GREEN=	2	
	411586R	Tank Support Weldment =RED=		
2	411639G	Perimeter Weldment, LH =GREEN=	1	
	411639R	Perimeter Weldment, LH =RED=		
3	411640G	Perimeter Weldment, RH =GREEN=	1	
	411640R	Perimeter Weldment, RH =RED=		
4	411973G	Perimeter Support Weldment, LH =GREEN=	1	
	411973R	Perimeter Support Weldment, LH =RED=		
5	411974G	Perimeter Support Weldment, RH =GREEN=	1	
	411974R	Perimeter Support Weldment, RH =RED=		
6	414330G	Tongue Weldment =GREEN=	1	
	414330R	Tongue Weldment =RED=		
7	412436G	Perimeter Support Weldment, RH =GREEN=	1	
	412436R	Perimeter Support Weldment, RH =RED=		
8	412481G	Perimeter Support Weldment, LH =GREEN=	1	
	412481R	Perimeter Support Weldment, LH =RED=		
9	9003397	Locking Flange Nut 1/2”-13UNC	4	
10	9003399	Locknut/Top 3/4”-10UNC	4	
11	91267	Flange Nut 1/2”-13UNC	12	
12	9390-100	Capscrew 1/2”-13UNC x 1 1/4”	4	Grade 5
13	9390-105	Capscrew 1/2”-13UNC x 2 1/2”	8	Grade 5
14	9390-112	Capscrew 1/2”-13UNC x 4 1/2”	4	Grade 5
15	9390-146	Capscrew 3/4”-10UNC x 2 1/4”	2	Grade 5
16	9390-149	Capscrew 3/4”-10UNC x 3”	4	Grade 5
17	9390-164	Capscrew 7/8”-9UNC x 2”	2	Grade 5
18	9404-033	Lock Washer 3/4”	2	
19	9404-037	Lock Washer 7/8”	2	
20	9405-086	Flat Washer 1/2” SAE	4	
21	9405-088	Flat Washer 1/2” USS	4	
22	9405-104	Flat Washer 3/4” SAE	4	
23	9405-112	Flat Washer 7/8” USS	2	
24	9008715	Decal, Front SIS 20 MPH	1	
25	9008721	Decal, Front SIS 30 KPH	1	

Lower, Front Frame Components

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



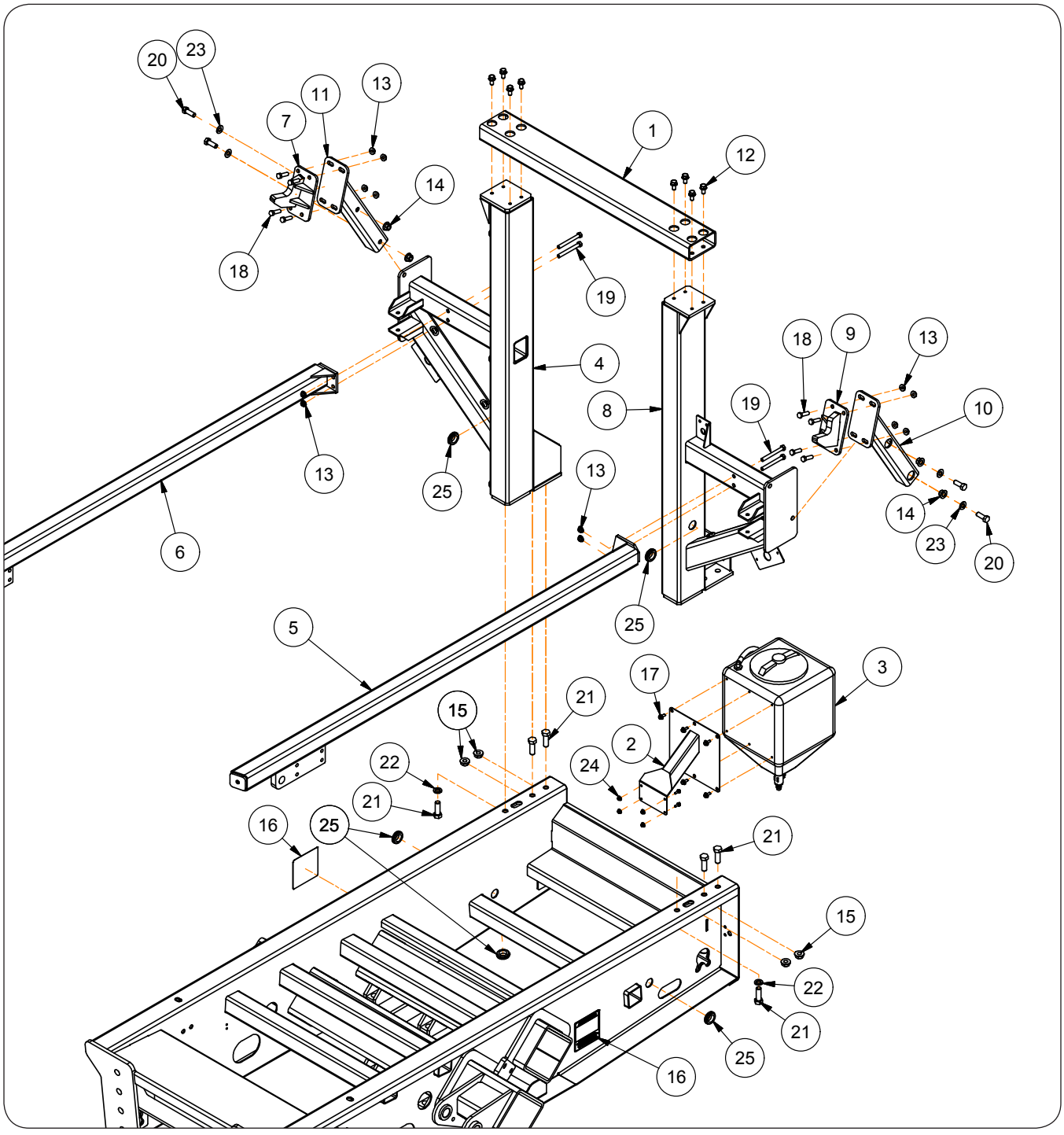
Lower, Front Frame Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	411586G	Tank Support Weldment =GREEN=	2	
	411586R	Tank Support Weldment =RED=		
2	411670	Pad - Frame Guide	2	
3	411673G	Toolbar Depth Stop Weldment =GREEN=	2	
	411673R	Toolbar Depth Stop Weldment =RED=		
4	411693	Stop/Tube 2" OD x 1 5/8" ID x 4"	2	
5	411694	Stop/Tube 2 3/4" OD x 1 5/8" ID x 4"	2	
6	411695	Stop/Tube 3 1/2" OD x 1 1/2" ID x 4"	2	
7	411809	Stop/Pin 3/4" Dia. x 5 1/4"	4	
8	411963G	Frame Support Weldment =GREEN=	1	
	411963R	Frame Support Weldment =RED=		
9	414330G	Tongue Weldment =GREEN=	1	
	414330R	Tongue Weldment =RED=		
10	412447G	Stop/Plate 5" x 8 1/4" =GREEN=	2	
	412447R	Stop/Plate 5" x 8 1/4" =RED=		
11	9000938	Lynch Pin 3/8" Dia. x 2 1/4"	6	
12	9003398	Locknut 5/8-11UNC	12	
13	9003946	Trimlock	3 Ft.	
14	9093	Klik Pin 3/16" Dia. x 1 9/16"	8	
15	92199	Locknut 1-8UNC	10	
16	9390-135	Capscrew 5/8-11UNC x 5 1/2 (Grade 5)	12	
17	9390-146	Capscrew 3/4-10UNC x 2 1/4	2	
18	9390-185	Capscrew 1-8UNC x 2 1/2	10	
19	903171-662	Flat Head/Phillips Machine Screw 5/16-18UNC x 1 1/4	12	
20	9404-033	Lock Washer 3/4"	4	
21	9405-098	Flat Washer 5/8" SAE	8	
22	9405-116	Flat Washer 1" SAE	20	
23	95445	Decal, WARNING "High-Pressure Fluid"	2	

Rear Frame Components

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



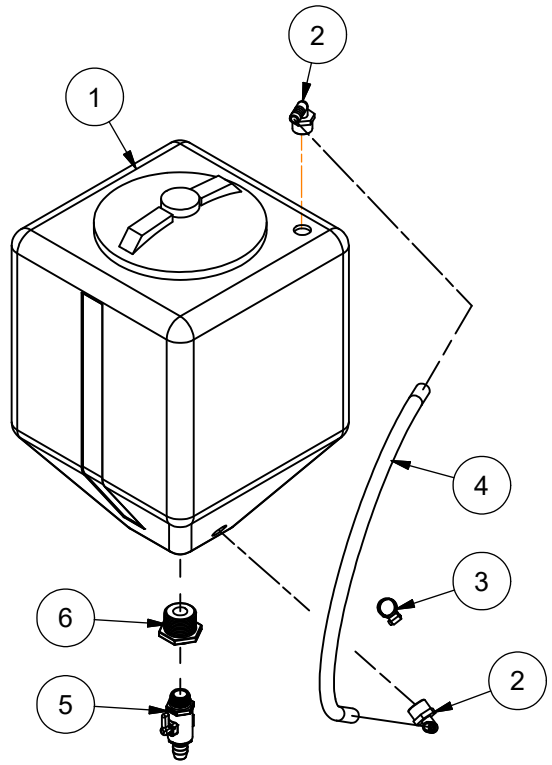
Rear Frame Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	410677G	Cross Tube =GREEN=	1	
	410677R	Cross Tube =RED=		
2	410757G	Clean Water Tank Mount Weldment =GREEN=	1	
	410757R	Clean Water Tank Mount Weldment =RED=		
3	410942	10 Gallon Clean Water Tank Assembly (Gray)	1	See Clean Water Tank Components in This Section
4	411570G	Wing Rest Mast Weldment, RH =GREEN=	1	
	411570R	Wing Rest Mast Weldment, RH =RED=		
5	411639G	Perimeter Weldment, LH =GREEN=	1	
	411639R	Perimeter Weldment, LH =RED=		
6	411640G	Perimeter Weldment, RH =GREEN=	1	
	411640R	Perimeter Weldment, RH =GREEN=		
7	411732G	Wing Rest Weldment, RH =GREEN=	1	
	411732R	Wing Rest Weldment, RH =RED=		
8	411735G	Wing Rest Mast Weldment, LH =GREEN=	1	
	411735R	Wing Rest Mast Weldment, LH =RED=		
9	411736G	Wing Rest Weldment, LH =GREEN=	1	
	411736R	Wing Rest Weldment, LH =RED=		
10	411833G	Rest Weldment, LH =GREEN=	1	
	411833R	Rest Weldment, LH =RED=		
11	411834G	Rest Weldment, RH =GREEN=	1	
	411834R	Rest Weldment, RH =RED=		
12	9001529	Flange Screw 1/2”-13UNC x 1”	8	Grade 5
13	9003397	Locking Flange Nut 1/2”-13UNC	12	Grade 5
14	9003398	Flange Locknut/Top 5/8”-11UNC	4	Grade 5
15	9003399	Flange Locknut/Top 3/4”-10UNC	4	Grade 5
16	9007820	Decal, WARNING “Axle Adjustment”	2	
17	91256	Flange Screw 5/16”-18UNC x 3/4”	6	
18	9390-101	Capscrew 1/2”-13UNC x 1 1/2”	8	Grade 5
19	9390-112	Capscrew 1/2”-13UNC x 4 1/2”	6	Grade 5
20	9390-123	Capscrew 5/8”-11UNC x 1 3/4”	4	Grade 5
21	9390-146	Capscrew 3/4”-10UNC x 2 1/4”	6	Grade 5
22	9404-033	Lock Washer 3/4”	4	
23	9405-098	Flat Washer 5/8” SAE	4	
24	97189	Hex Nut/Large Flange 1/4”-20UNC	12	
25	97840	Grommet 1/4” Wide x 1 1/2” Dia. Groove	5	

Clean Water Tank Components

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



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	410942	10 Gallon Clean Water Tank Assembly (Gray)	-	Includes Items 1-6
1	9007237	10 Gallon Tank (Gray)	1	
2	TA808275	Poly 90° Elbow Hose Barb 3/4" MPT x 1/2"	2	
3	TA800906	Hose Clamp SC-8 (Stainless Steel)	1	
4	TA806554	1/2" Clear Vinyl Tubing	1	
5	9007699	Poly Valve, 3/4" MPT x 3/4" HB	1	
6	TA814657	Reducer Bushing, 1 1/4-11 1/2 NPTF Male x 3/4-14 NPTF Female	1	

Touch-Up Paint

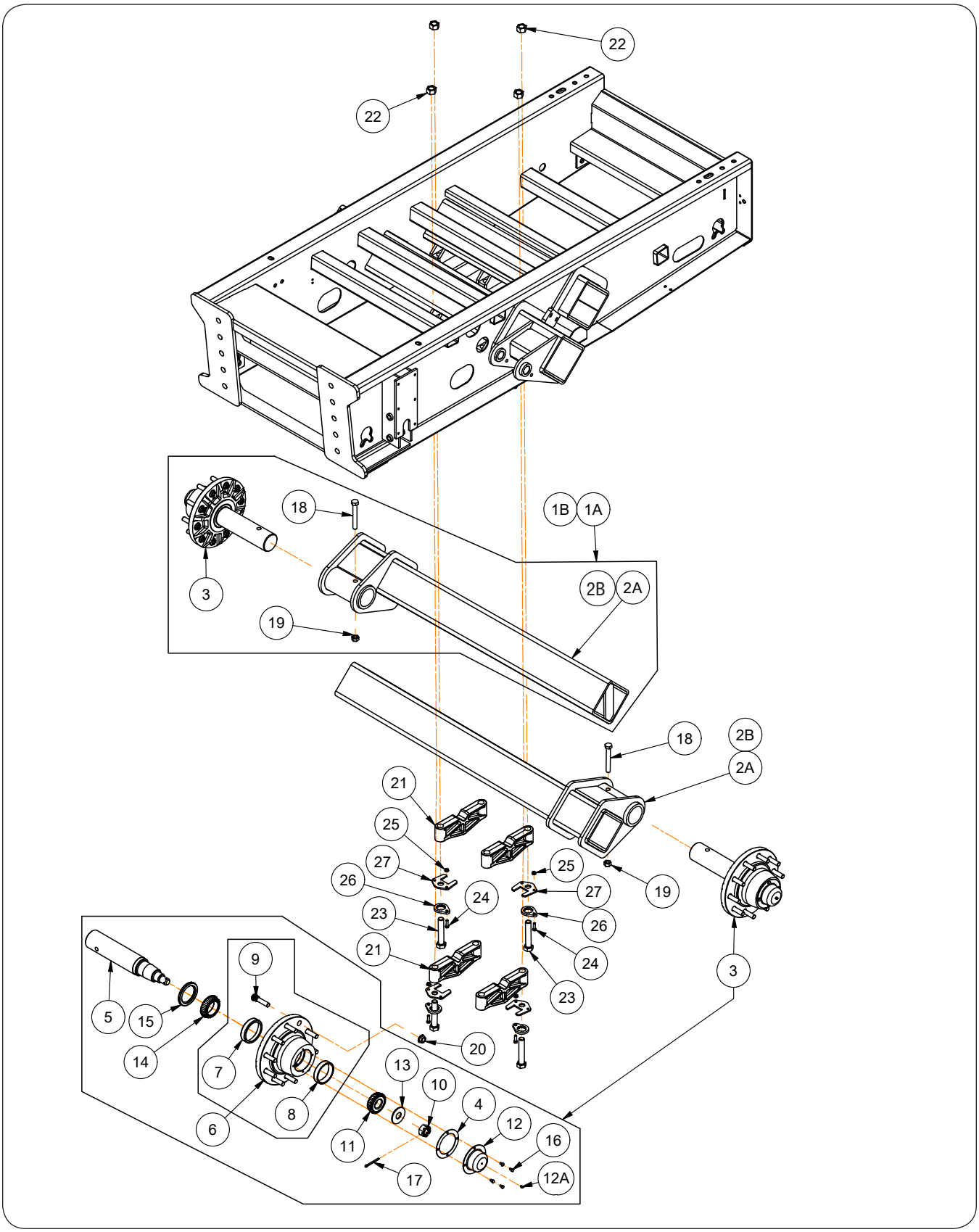
PART NUMBER	DESCRIPTION	QTY	NOTES
97015	Touch-Up Paint =Green=	-	
97301	Touch-Up Paint =Red=		
97013	Touch-Up Paint =Black=		
97012	Touch-Up Paint =Silver Mist=		

Notes

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

Axle and Hub Components

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



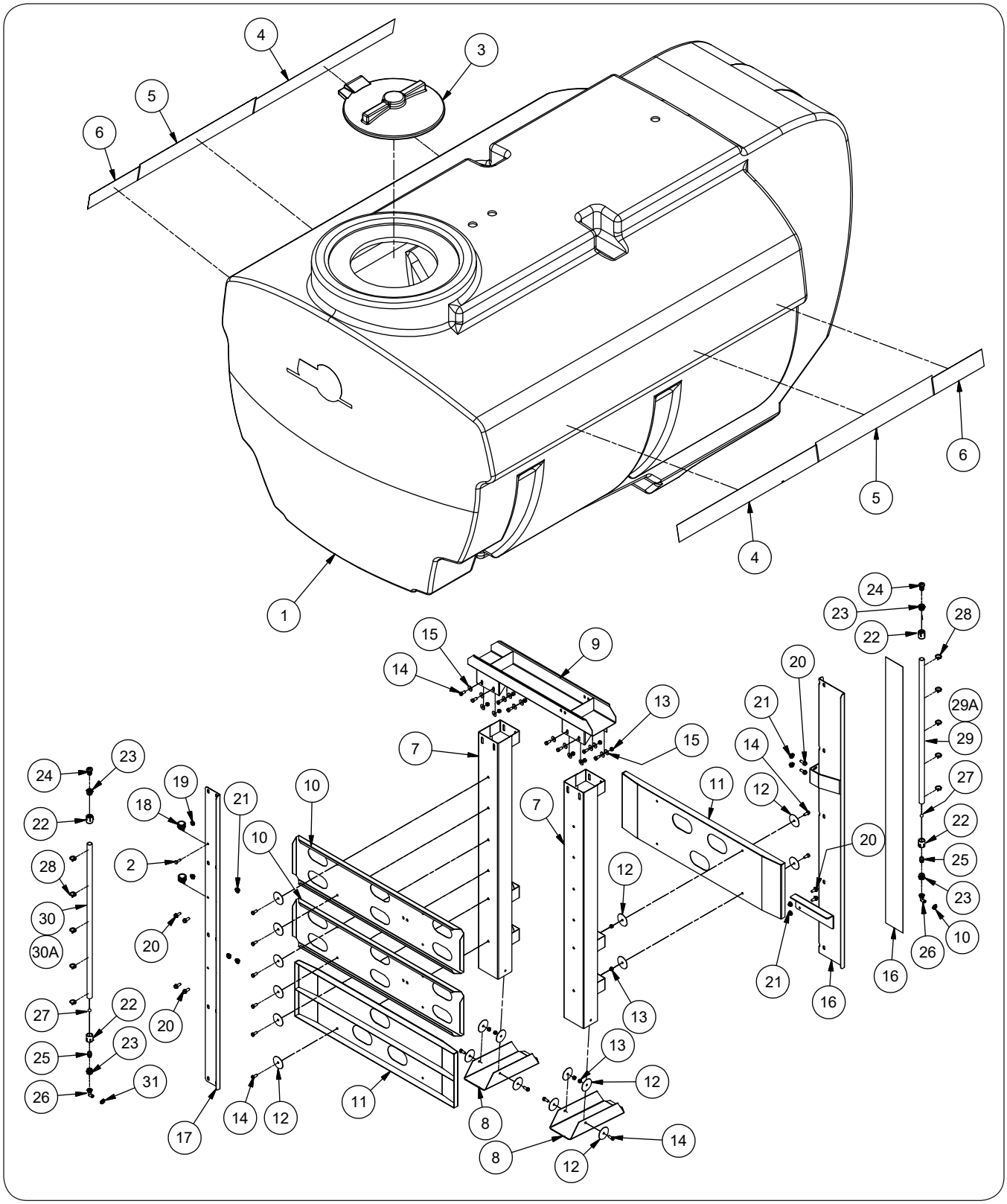
Axle and Hub Components

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

28ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1A	412344B	Axle Assembly =BLACK=	2	Includes Items 2 through 19 (For 20", 22", 30" Row Spacing)
1B	414131B			Includes Items 2 through 19 (For 36" and 38" Row Spacing)
2A	411843B	Axle Weldment =BLACK=	1	(For 20", 22", 30" Row Spacing)
2B	414132B			(For 36" and 38" Row Spacing)
3	411859B	Hub & Spindle Assembly =BLACK=	1	Includes Items 4 through 17
4	284229	Gasket 5.6875" Dia.	1	
5	300448	Spindle 3 1/2" Dia. x 19 11/16	1	
6	411914	Hub with Bearing Cups & Studs	1	
7	92475	Bearing Cup 4 5/8" OD (#33462)	1	
8	92461	Bearing Cup 4 1/4" OD (#9103321)	1	
9	93333	Stud Bolt 3/4"-16UNF x 3 1/2"	10	
10	9002721	Slotted Nut 1 1/4"-12UNF	1	
11	92463	Bearing Cone 1 3/4" ID (#460)	1	
12	281881B	Hub Cap =Black=	1	
12A	91160	Grease Zerk	1	
13	92471	Spindle Washer	1	
14	92546	Bearing Cone 2 3/4" ID (#33275)	1	
15	92829	Seal 3 3/8" ID (#33464TA)	1	
16	9390-026	Capscrew 5/16"-18UNC x 1/2"	4	Grade 5
17	9391-062	Cotter Pin 1/4" Dia. x 3	1	
18	9390-156	Capscrew 3/4"-10UNC x 5 1/2"	2	Grade 5
19	96732	Locknut/Center 3/4"-10UNC	2	
20	92458	Wheel Nut 3/4"-16UNF	20	
21	404785B	Axle Clamp =BLACK=	4	
22	9394-020	Hex Nut 1"-8UNC G5	8	
23	9390-194	Capscrew 1"-8UNC x 5 1/2"	8	Grade 5
24	9390-056	Capscrew 3/8"-16UNC x 1 1/4"	8	
25	9003396	Lock Nut 3/8"-16UNC	8	
26	413570B	Bolt Retainer Plate	8	
27	413569B	Bolt Retainer Plate	8	

Tank & Baffle 1400 Gallon Components

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



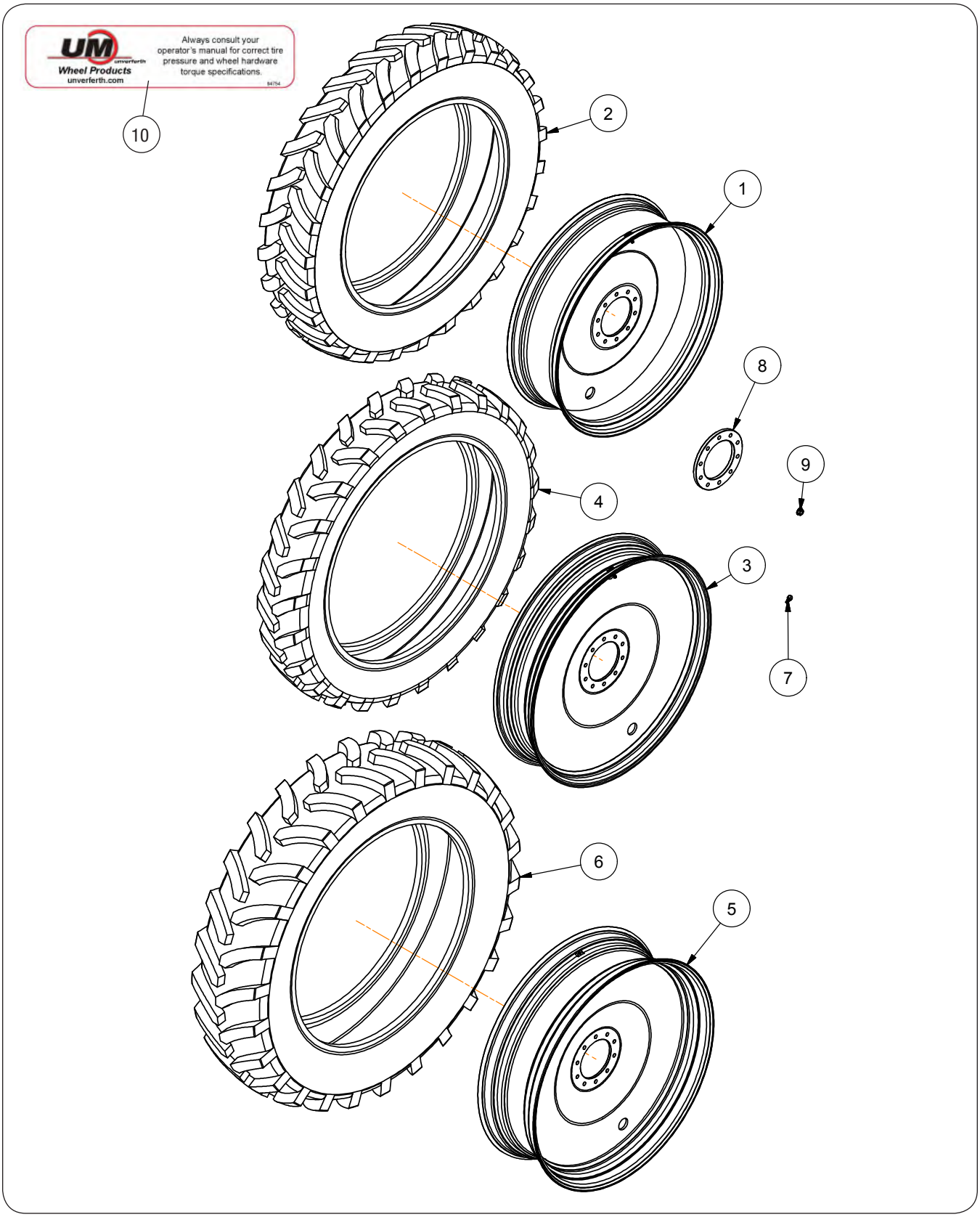
Tank & Baffle 1400 Gallon Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	412378	1400 Gray Tank With Holes	1	
2	9390-030	Capscrew 5/16"-18UNC x 1"	4	Grade 5
3	9008576	Tank Lid 16"	1	For SN B39050100 & Higher
	TA805210			For SN B39050100 & Lower
	TA805198	O-Ring	-	NOT SHOWN
4	9007822	Tank Decal-Unverferth (GREEN)	2	
	9007824	Tank Decal-Unverferth (RED)		
5	9007823	Tank Decal-Nutrimax (GREEN)	2	
	9007825	Tank Decal-Nutrimax (RED)		
6	9007827	Tank Decal-1400 (GREEN)	2	
	9007848	Tank Decal-1400 (RED)		
7	411536	Weldment-Baffle, Upright Support, 1400 Gal	2	
8	410813	Panel-Baffle Support	2	
9	411282	Weldment-Baffle, Upper	1	
10	411542	Panel - Baffle	2	
11	411862	Weldment- Baffle, Lower	2	
12	9004497	Fender Washer	40	Stainless Steel
13	900906-006	Center Locknut 3/8"-16UNC UNC	28	Stainless Steel
14	900900-054	Capscrew 3/8"-16UNC x 7/8"	28	Stainless Steel
15	900902-038	Flat Washer 3/8" USS	16	Stainless Steel
16	412377B	Sight Gauge, Rear Assembly (BLACK)	1	
17	411893B	Plate - Sight Gauge (BLACK)	1	
18	9007556	Cable Clamp 1 1/8" x 3/4" Wide	3	
19	91257	Flange Nut 5/16"-18UNC	4	
20	91262	Flange Screw 3/8"-16UNC x 1"	10	Grade 5
21	91263	Nut/Large Flange 3/8"-16UNC	16	
22	9004547	Adapter 1 1/2 Female x 1 1/2 NPT Female	2	
23	TA814661	Reducer Bushing 1 1/2-11 1/2 NPTF Male x 1-11 1/2 NPTF Female	2	
24	9005558	Tank Vent Breather	1	
25	9006477	Quick Connect Adapter 1" Male Pipe	2	
26	TA854886	Quick Connect Kit 90° Elbow 1" Hose Barb	2	
27	9003683	Indicator Ball 1 1/4" (RED)	1	
28	9000104	Cable Tie 6"	AR	
29		Sight Gauge Tube (1400 Gallon) 64"	1	
29A	412539	Sight Gauge Tube Rear Assembly (1400 Gallon) 69"	1	Includes Items 22, 23, 24, 27, 29
30		Sight Gauge Tube (1400 Gallon) 68 1/2"	1	
30A	412538	Sight Gauge Tube Front Assembly (1400 Gallon) 73 1/2"	1	Includes Items 22, 23, 24, 27, 30
31	TA800912	Hose Clamp (SAE #16)	2	

Wheel & Tire Components

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



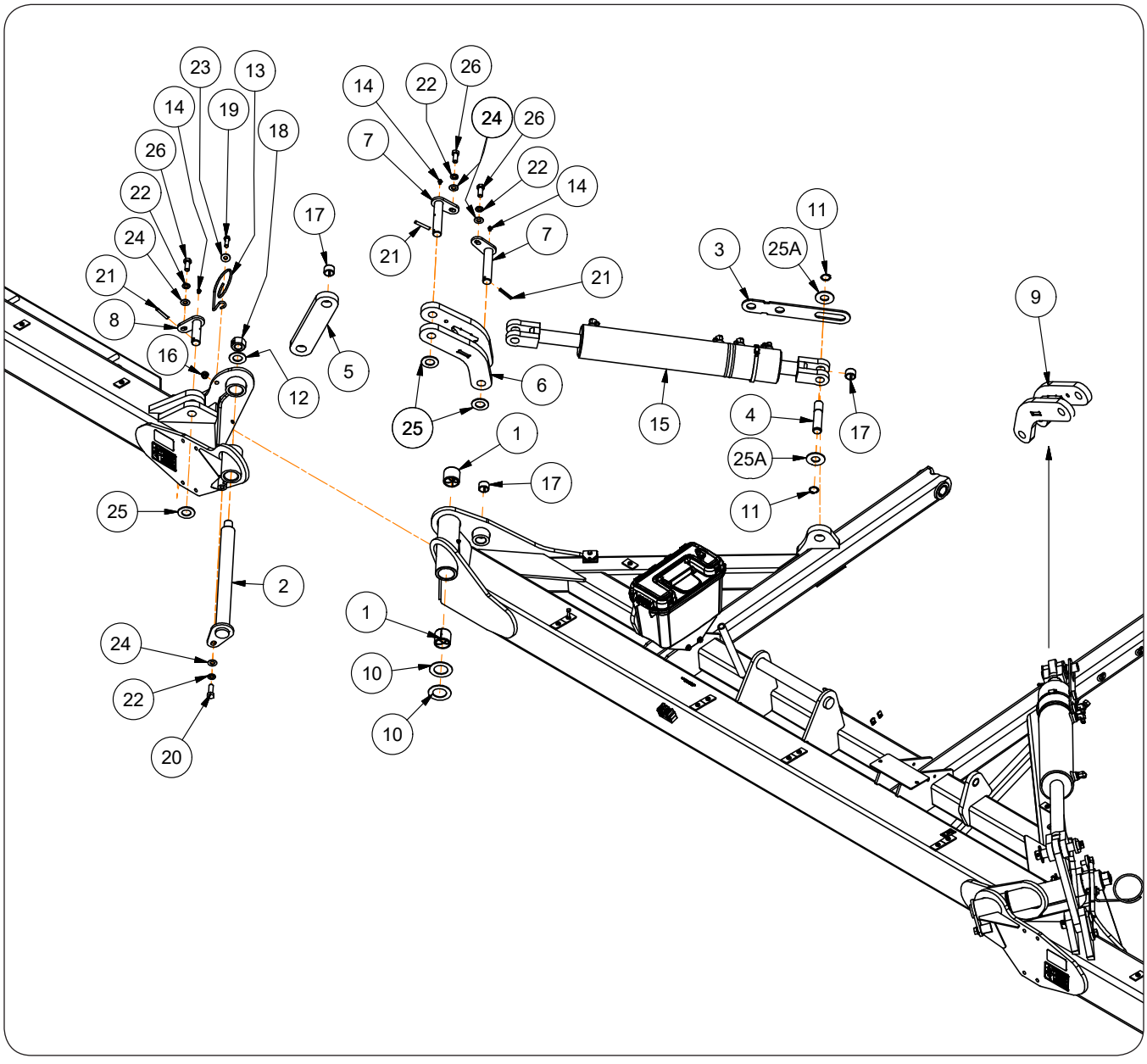
Wheel & Tire Components

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

ITEM	PART NUMBER	DESCRIPTION	NOTES
1	110487SM	13 x 46 Wheel w/0.00" Offset	
2	110487SM /902519	Tire 380/90x46 R-1W	
3	110488SM	10 x 50 Wheel w/0.00" Outset	
4	110488SM /9501538	Tire 320/90x50 R-1W	
5	110489SM	15 x 50 Wheel w/0.00" Offset	
6	110489SM /902535	Tire 480/80x50 R-1W	
7	93300	Valve Stem	
8	110496SM	Reinforcing Ring 13.50" Dia.	
9	92458	Wheel Nut 3/4"-16UNF	Grade 8
10	94754	Decal, UM Wheel Systems	

Center Toolbar to Main Wing Components

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



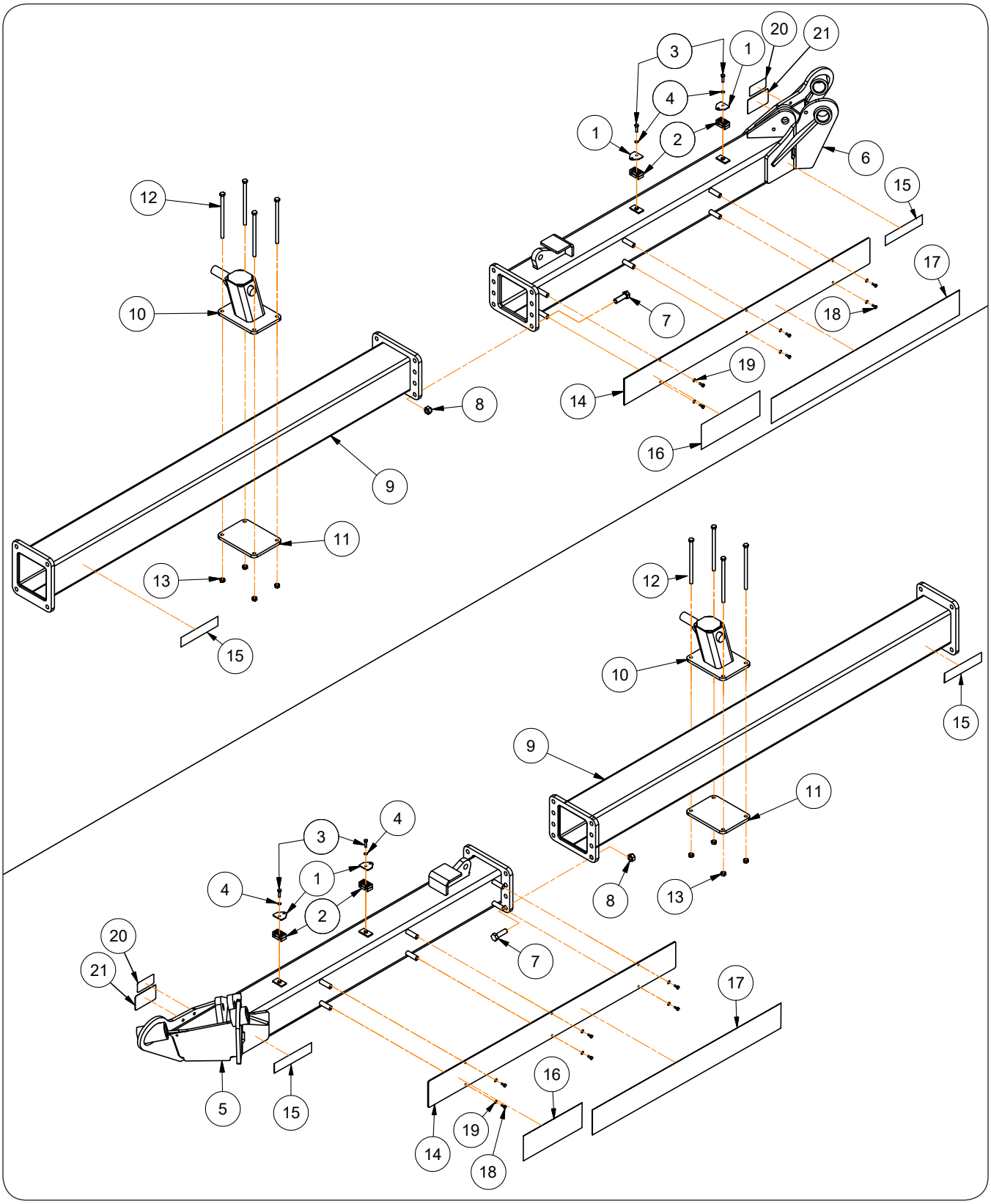
Center Toolbar to Main Wing Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	95123	Tension Spring Bushing	4	
2	411619	Main Wing Pin Weldment	2	
3	411740B	Anti-Rotation, Cylinder Plate	2	
4	411741	Cylinder Pin 1 1/4" Dia. x 5 5/8"	2	
5	411747B	Main Wing Linkage Plate =BLACK=	2	
6	411749B	Main Wing Linkage Weldment, RH =BLACK=	1	
7	412430	Linkage Pin Weldment	4	
8	412431	Linkage Pin Weldment	2	
9	412442B	Main Wing Linkage Weldment, LH =BLACK=	1	
10	412445	Plate- Washer	4	
11	9006084	Retaining Ring 1 1/4"	4	
12	9007160	Washer-Hardened 1 1/4"	2	
13	9007278	Hose Holder	2	
14	9007654	Zerk-Grease	2	
15	9007655	Cylinder-4 1/2 x 21 (Twin Piston)	2	
16	91267	Flange Nut 1/2"-13UNC	13	
17	93622	Bushing	10	
18	93476	Locknut 1 1/4"-7UNC	2	
19	9390-102	Capscrew 1/2”-13UNC x 1 3/4”	2	Grade 5
20	9390-123	Capscrew 5/8”-11UNC x 1 3/4”	2	Grade 5
21	9392-182	Roll Pin 3/8” Dia. x 2 1/2”	6	
22	9404-029	Lock Washer 5/8”	8	
23	9405-088	Flat Washer 1/2” USS	10	
24	9405-098	Flat Washer 5/8” SAE	2	
25	9405-128	Flat Washer 1 1/4” SAE	6	
25A	9405-124	Flat Washer 1 1/8”	4	Serial Number B35960100 and Higher
26	9390-122	Capscrew 5/8”-11UNC x 1 1/2”	6	Grade 5

Main Wing to Outer Wing Components — Rigid Toolbar
Beginning with Serial Number B36910100

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



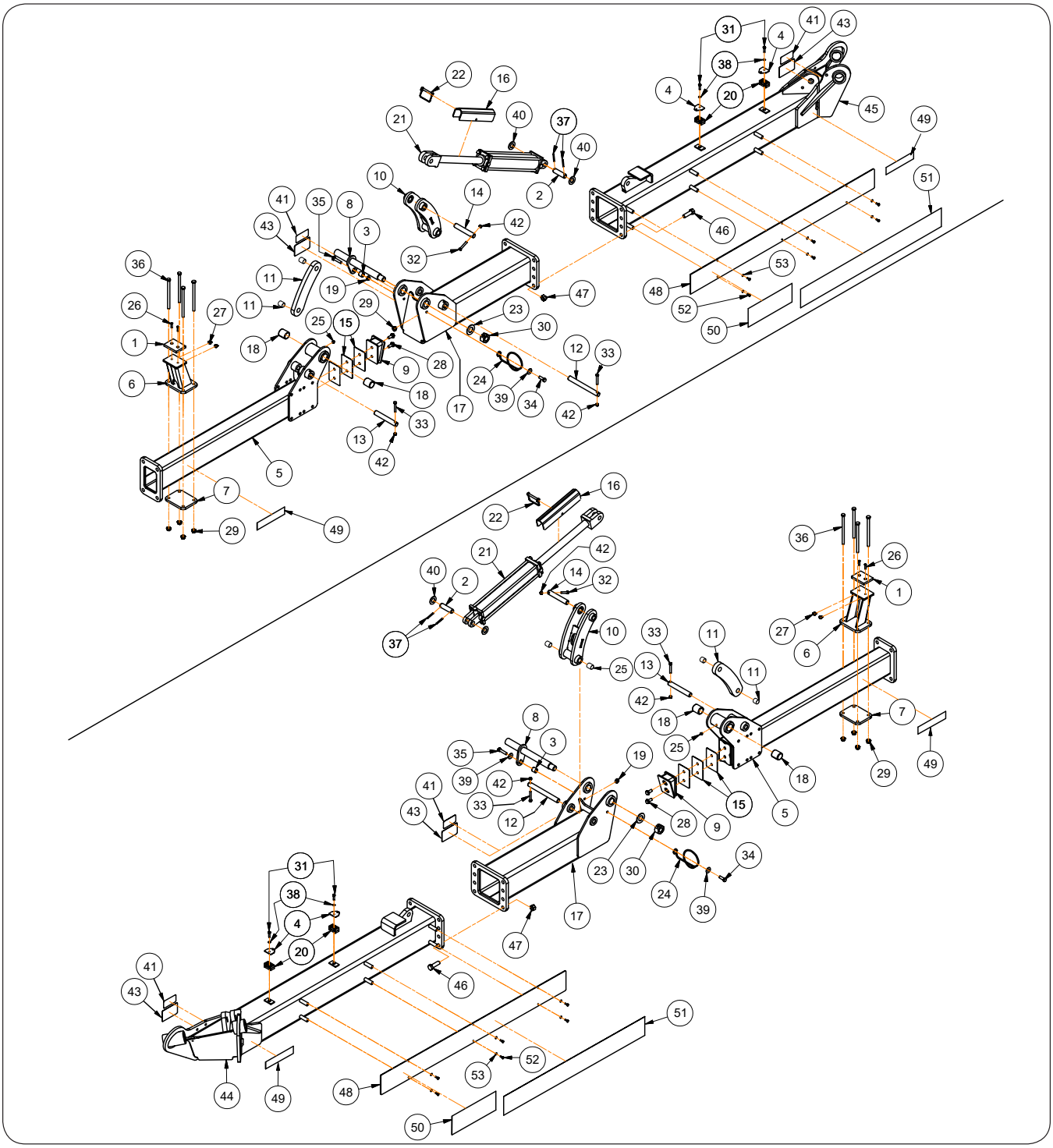
Main Wing to Outer Wing Components — Rigid Toolbar
Beginning with Serial Number B36910100

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	411427B	Clamp Plate	4	
2	9003816	Poly Clamp Pair (0.54)	4	
3	9390-031	Capscrew 5/16"-18UNC x 1 1/4"	4	Grade 5
4	9404-019	Lock Washer 5/16"	4	
5	414331G	Main Wing Weldment, RH =GREEN=	1	
	414331R	Main Wing Weldment, RH =RED=		
6	414332G	Main Wing Weldment, LH =GREEN=	1	
	414332R	Main Wing Weldment, LH =RED=		
7	9390-147	Capscrew 3/4"-10UNC x 2 1/2"	16	Grade 5
8	96732	Locknut 3/4"-10UNC	16	
9	412954G	Outer Wing Weldment =GREEN=	2	
	412954R	Outer Wing Weldment =RED=		
10	412972B	Wing Rest Weldment =BLACK=	2	
11	412973B	Wing Rest Plate =BLACK=	2	
12	9390-435	Capscrew 1/2"-13UNC x 9"	8	Grade 5
13	94981	Locknut/Center 1/2-13UNC	8	
14	411857B	Decal Mount Plate =BLACK=	2	
15	9003127	Reflector 2 x 9 =Amber=	4	
16	9004213	Decal, UM Logo Tail	2	
17	9004298	Decal, UM Logo	2	
18	9390-003	Capscrew 1/4"-20UNC x 3/4"	12	Grade 5
19	9405-052	Flat Washer 3/16" USS	12	
20	95839	Decal, WARNING "Pinch Point"	2	
21	TA510079	Decal, WARNING "Folding/Unfolding"	2	

Main Wing to Outer Wing Components — Folding Toolbar
Beginning with Serial Number B36910100

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



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	254468	Auger Stop Pad (3 x 4)	2	
2	405338	Cylinder Pin 1" Dia. x 3 3/4"	2	
3	410511	Spacer/Bushing 1" Dia. x 1"	2	
4	411427B	Clamp Plate	4	
5	411628G	Outer Wing Weldment =GREEN=	2	
	411628R	Outer Wing Weldment =RED=		

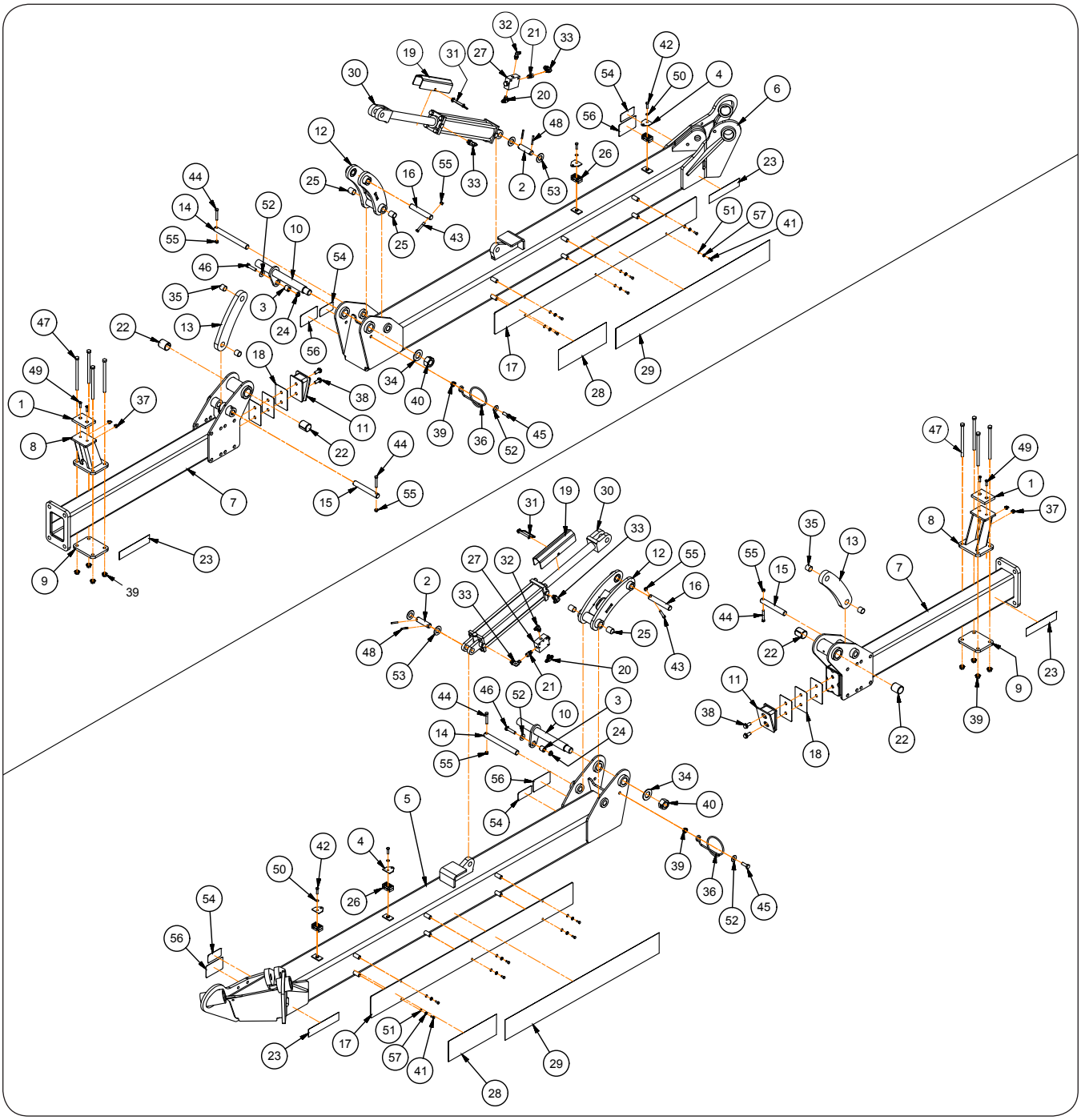
Main Wing to Outer Wing Components — Folding Toolbar
Beginning with Serial Number B36910100

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
6	411681B	Wing Rest Weldment =BLACK=	2	
7	411686B	Wing Rest Plate =BLACK=	2	
8	411726	Outer Wing Pin Weldment	2	
9	411737G	Wing Stop Weldment =GREEN=	2	
	411737R	Wing Stop Weldment =RED=		
10	411763B	Outer Wing Linkage Weldment =BLACK=	2	
11	411765B	Outer Wing Linkage Plate =BLACK=	2	
12	411806	Outer Wing Linkage Pin 1" Dia. x 9 3/4"	2	
13	411807	Outer Wing Linkage Pin 1" Dia. x 7 1/8"	2	
14	411808	Outer Wing Linkage Pin 1" Dia. x 6 1/4"	2	
15	411899	Outer Wing Shim	6	
16	412804B	Cylinder Stop =BLACK=	2	
17	414333G	Intermediate Wing Weldment 40' =Green=	2	
	414333R	Intermediate Wing Weldment 40' =Red=		
18	9002806	Split Tension Bushing 1 3/4" Dia. x 2"	4	Grade 5
19	9003397	Locking Flange Nut 1/2"-13UNC	2	
20	9003816	Poly Clamp Pair (0.54)	4	
21	9004660	Cylinder 3" x 16" (3000 PSI)	2	
22	9005305	Lynch Pin 3/8" Dia. x 3"	2	
23	9007160	Washer 1 1/4 (Hardened)	2	
24	9007278	Hose Holder	4	
25	9007654	Grease Zerk	2	
26	903171-662	Screw Flat Countersunk Head Phillips 5/16"-18UNC x 1 1/4"	4	
27	91257	Hex Nut/Large Flange 5/16"-18UNC	4	
28	91266	Flange Screw 1/2"-13UNC x 1 1/4"	4	
29	91267	Flange Nut 1/2"-13UNC	10	
30	93476	Locknut 1 1/4"-7UNC	4	
31	9390-031	Capscrew 5/16"-18UNC x 1 1/4"	4	Grade 5
32	9390-060	Capscrew 3/8"-16UNC x 2 1/4"	2	Grade 5
33	9390-061	Capscrew 3/8"-16UNC x 2 1/2"	4	Grade 5
34	9390-101	Capscrew 1/2"-13UNC x 1 1/2"	2	Grade 5
35	9390-104	Capscrew 1/2"-13UNC x 2 1/4"	2	Grade 5
36	9390-119	Capscrew 1/2"-13UNC x 8"	8	Grade 5
37	9392-140	Roll Pin 1/4Dx2	4	
38	9404-019	Lock Washer 5/16"	4	
39	9405-088	Flat Washer 1/2" USS	4	
40	9405-116	Flat Washer 1" SAE	4	
41	95839	Decal, WARNING "Pinch Point"	4	
42	9928	Locknut 3/8"-16UNC	6	
43	TA510079	Decal, WARNING "Folding/Unfolding"	4	
44	414331G	Main Wing Weldment, RH =GREEN=	1	
	414331R	Main Wing Weldment, RH =RED=		
45	414332G	Main Wing Weldment, LH =GREEN=	1	
	414332R	Main Wing Weldment, LH =RED=		
46	9390-147	Capscrew 3/4"-10UNC x 2 1/2" Gr5	16	
47	96732	Locknut 3/4"-10UNC	16	
48	411857B	Decal Mount Plate =BLACK=	2	
49	9003127	Reflector 2 x 9 =Amber=	4	
50	9004213	Decal, UM Logo Tail	2	
51	9004298	Decal, UM Logo	2	
52	9390-003	Capscrew 1/4"-20UNC x 3/4"	12	Grade 5
53	9405-052	Flat Washer 3/16" USS	12	

Main Wing to Outer Wing Components — Folding Toolbar
Prior to Serial Number B36910100

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



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	254468	Auger Stop Pad (3 x 4)	2	
2	405338	Cylinder Pin 1" Dia. x 3 3/4"	2	
3	410511	Spacer/Bushing 1" Dia. x 1"	2	
4	411427B	Clamp Plate	4	
5	414311G	Main Wing Weldment, RH =GREEN=	1	
	414311R	Main Wing Weldment, RH =RED=		
6	414312G	Main Wing Weldment, LH =GREEN=	1	
	414312R	Main Wing Weldment, LH =RED=		

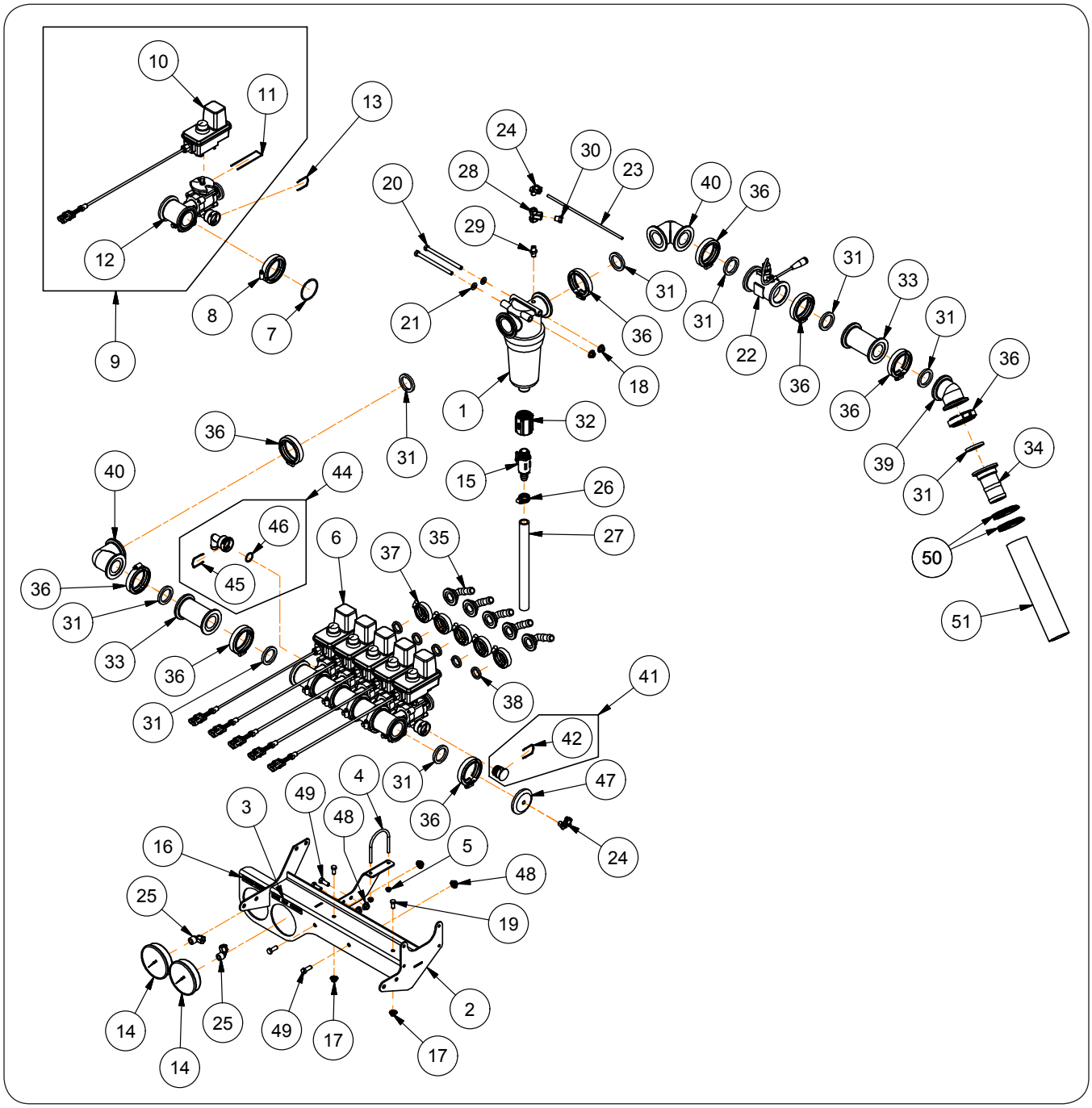
Main Wing to Outer Wing Components — Folding Toolbar
Prior to Serial Number B36910100

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
7	411628G	Outer Wing Weldment =GREEN=	2	
	411628R	Outer Wing Weldment =RED=		
8	411681B	Wing Rest Weldment =BLACK=	2	
9	411686B	Wing Rest Plate =BLACK=	2	
10	411726	Outer Wing Pin Weldment	2	
11	411737G	Wing Stop Weldment =GREEN=	2	
	411737R	Wing Stop Weldment =RED=		
12	411763B	Outer Wing Linkage Weldment =BLACK=	2	
13	411765B	Outer Wing Linkage Plate =BLACK=	2	
14	411806	Outer Wing Linkage Pin 1" Dia. x 9 3/4"	2	
15	411807	Outer Wing Linkage Pin 1" Dia. x 7 1/8"	2	
16	411808	Outer Wing Linkage Pin 1" Dia. x 6 1/4"	2	
17	411857B	Decal Mount Plate =BLACK=	2	
18	411899	Outer Wing Shim	6	
19	412805B	Cylinder Stop Kit=BLACK=	1	
20	9001710	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 O-Ring Male	2	Grade 5
21	9002446	Adapter 9/16-18 O-Ring Male x 9/16-18 JIC Female Swivel Nut	2	
22	9002806	Split Tension Bushing 1 3/4" Dia. x 2"	4	Grade 5
23	9003127	Reflector 2 x 9 =Amber=	4	
24	9003397	Locking Flange Nut 1/2"-13UNC	2	
25	9003440	Self-Lubricating Bushing 1.13" OD x 1 1/4"	4	
26	9003816	Poly Clamp Pair (0.54)	4	
27	9003990	Valve Block w/SAE 6 Ports, Pilot Operated Check	2	
28	9004213	Decal, UM Logo Tail	2	
29	9004298	Decal, UM Logo	2	
30	9004660	Cylinder 3" x 16" (3000 PSI)	2	
31	9005305	Lynch Pin 3/8" Dia. x 3"	2	
32	9006171	90° Elbow 9/16 Female x 9/16 Male	2	
33	9006173	90° Elbow 9/16 Female x 3/4 Male	4	
34	9007160	Washer 1 1/4 (Hardened)	2	
35	9007175	Self-Lubricating Bushing 1.1275" Dia. x 1"	4	
36	9007278	Hose Holder	4	
37	91257	Hex Nut/Large Flange 5/16"-18UNC	4	
38	91266	Flange Screw 1/2"-13UNC x 1 1/4"	4	
39	91267	Flange Nut 1/2"-13UNC	10	
40	93476	Locknut 1 1/4"-7UNC	4	
41	9390-003	Capscrew 1/4"-20UNC x 3/4"	12	Grade 5
42	9390-031	Capscrew 5/16"-18UNC x 1 1/4"	4	Grade 5
43	9390-060	Capscrew 3/8"-16UNC x 2 1/4"	2	Grade 5
44	9390-061	Capscrew 3/8"-16UNC x 2 1/2"	4	Grade 5
45	9390-101	Capscrew 1/2"-13UNC x 1 1/2"	2	Grade 5
46	9390-104	Capscrew 1/2"-13UNC x 2 1/4"	2	Grade 5
47	9390-119	Capscrew 1/2"-13UNC x 8"	8	Grade 5
48	9392-140	Roll Pin 1/4Dx2	4	
49	903171-662	Phillips Screw 5/16"-18UNC x 1 1/4" Flat Countersunk	4	
50	9404-019	Lock Washer 5/16"	4	
51	9405-052	Flat Washer 3/16" USS	12	
52	9405-088	Flat Washer 1/2" USS	6	
53	9405-116	Flat Washer 1" SAE	4	
54	95839	Decal, WARNING "Pinch Point"	4	
55	9928	Locknut 3/8"-16UNC	6	
56	TA510079	Decal, WARNING "Folding/Unfolding"	4	
57	9404-017	Lock Washer, 1/4"	12	

5 Section Manifold Components

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



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	412440B	Product Valves - 5 Section Assembly	1	
1	402255	2" Strainer	1	
2	411906B	Ball Valve Mount Weldment =Black=	1	
3	9003687	Decal, Filter Inlet Pressure	1	
4	9004681	U-Bolt 1/4"-20UNC	1	Stainless Steel
5	9004720	Serrated Flange Nut 1/4"-20UNC	2	Stainless Steel

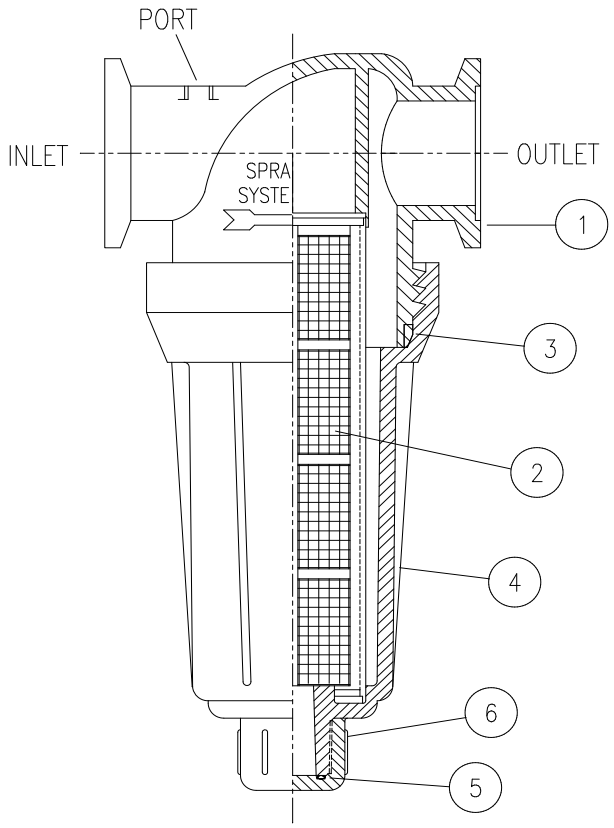
5 Section Manifold Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
6	9006801	Five Ball Valve Assembly	1	
7	9006626	O-Ring	4	
8	TA815025	2" Flange Clamp	4	
9	TA854881	Ball Valve Assembly	5	
10	TA854874	Valve Motor	1	
11	TA854875	Retainer Clip	1	
12	TA854882	Ball Valve	1	
13	TA854883	Wire Clip Retainer	4	Stainless Steel
14	9007569	Gauge-Pressure (0-160 PSI)	2	
15	9007699	Valve-Poly, Micro, 3/4" Male x 3/4" Hose Barb	1	
16	9003841	Decal, Tip Pressure	1	
17	91257	Flange Nut 5/16"-18UNC	2	
18	91263	Nut/Large Flange 3/8"-16UNC	2	
19	9390-028	Capscrew 5/16"-18UNC x 3/4"	2	
20	9390-070	Capscrew 3/8"-16UNC x 5 1/2"	2	
21	9405-074	Flat Washer 3/8" SAE	2	
22	TA720365	Flow Meter	1	
23	TA720620	Gauge Tubing 1/4"	15 Ft.	Beginning With Serial Number B36910100
			5 Ft.	Prior to Serial Number B36910100
24	TA720802	Elbow 1/4" NPT x 1/4" Gauge Tube	2	Prior to Serial Number B36910100
25	TA720812	Elbow 1/4" FPT x 1/4" Tube	2	
26	TA800910	Hose Clamp 1/2" SAE	1	
27	TA806250	Hose 3/4" Dia. EPDM	4 Ft.	
28	TA809190	Tee 1/4" FPT	1	
29	TA809325	Hex Pipe Nipple 1/4"	1	
30	TA809875	Hex Plug 1/4"-18 NPT	1	
31	TA811944	Gasket 1 5/8" ID	9	
32	TA814710	Reducer Coupling 1" FPT x 3/4" FPT	1	
33	TA815003	Coupling 2" Flange x 2" Flange	2	
34	TA815016	Hose Barb 2" Flange x 2" Hose Shank	1	
35	TA815017	90° Elbow 1" Flange x 3/4" Hose Barb	5	
36	TA815025	2" Worm Screw Flange Clamp	9	
37	TA815026	1" Worm Screw Flange Clamp	5	
38	TA815029	Gasket 1" ID	5	
39	TA816004	45° Elbow 2" Flange x 2" Flange	1	
40	TA816017	90° Elbow 2" Flange Short x 2" Flange Short	2	
41	TA854884	Plug Kit	1	
42	TA854883	Wire Clip Retainer	1	
43	TA854887	O-Ring	1	
44	TA854885	Adapter Kit	1	
45	TA854883	Wire Clip Retainer	1	
46	TA854887	O-Ring	1	
47	TA815023	Plug 2" Flange	1	Beginning With Serial Number B36910100
	TA883114	Plug 2" Flange With 1/4" FPT Gauge Port	1	Prior to Serial Number B36910100
48	91263	Nut/Large Flange 3/8"-16UNC	4	
49	9390-055	Capscrew 3/8"-16UNC x 1"	4	Grade 5
50	TA800922	Worm Drive Hose Clamp	2	
51	TA806328	Hose 2" Dia. EPDM	1 Ft.	

Strainer

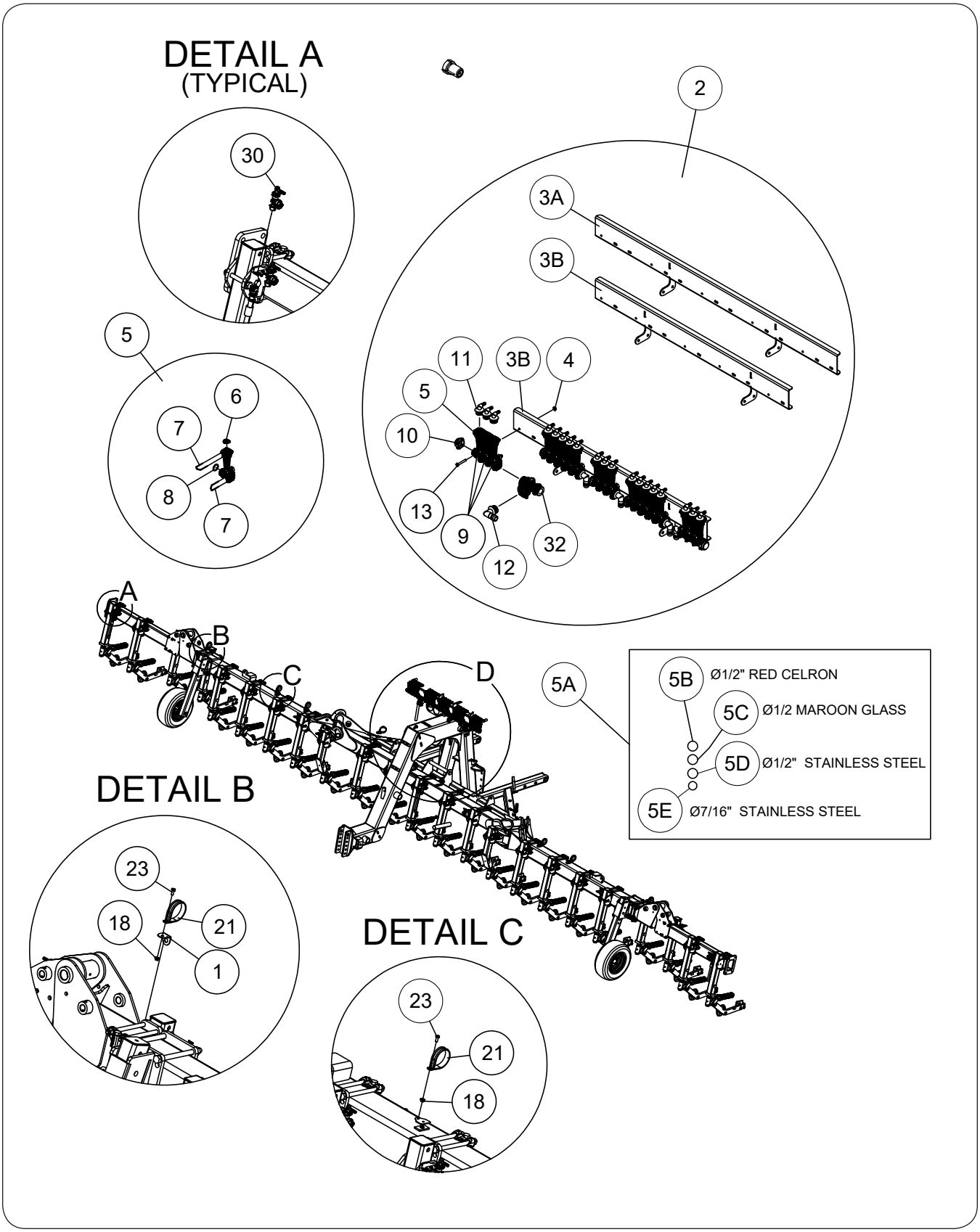
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
	402255	Strainer Complete	1	2" Flange
1	403257	Strainer Head	1	
2	TA869070	Screen, 50 Mesh (Gentain Blue)	1	
3	TA867486	Gasket, EPDM	1	
4	TA868842	Bowl, Polypropylene	1	
5	TA868843	O-Ring, Viton	1	
6	TA868844	Cap, Polypropylene	1	

Flow Ball Components

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



Flow Ball Components

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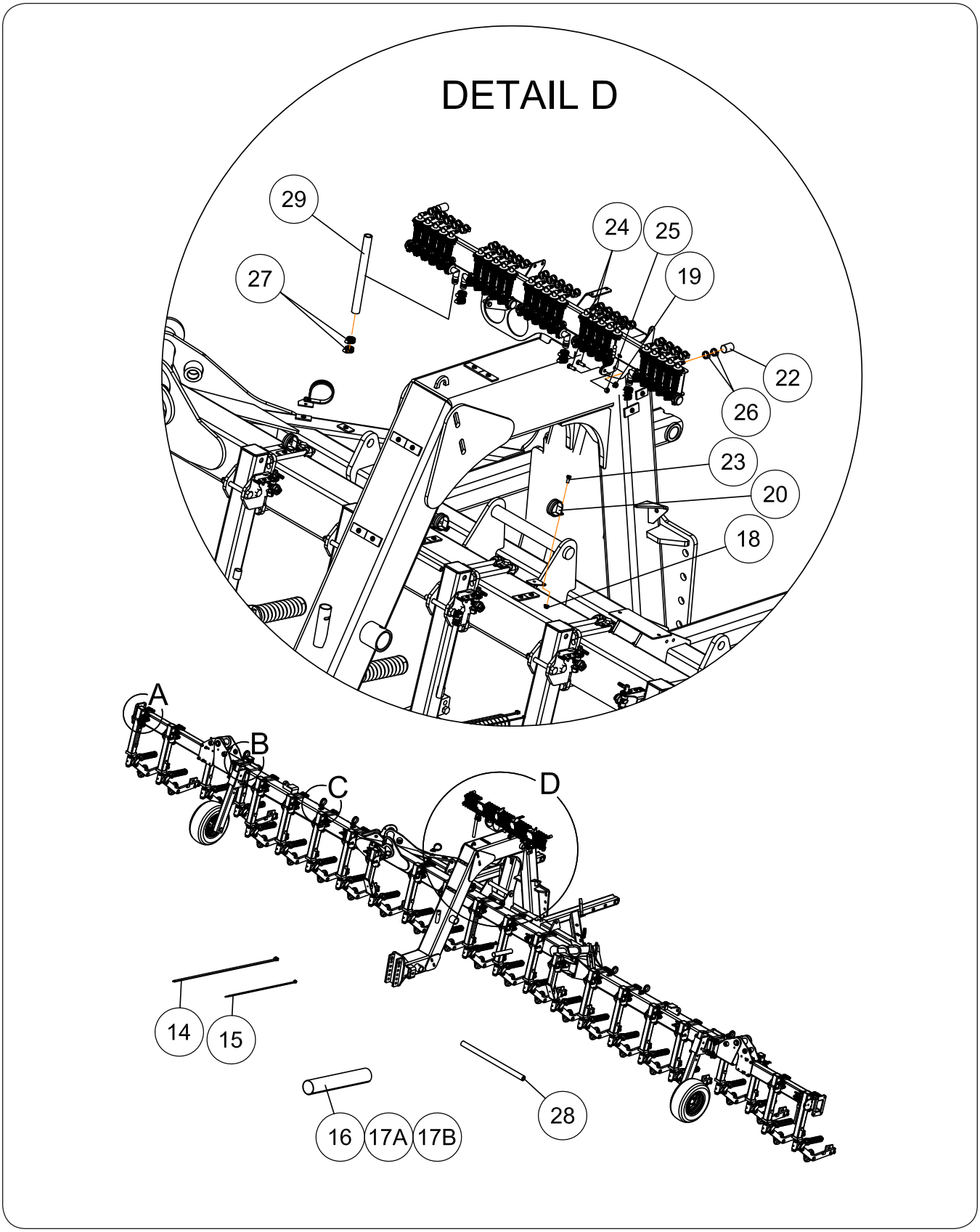


Flow Ball Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
	414038SM	Flow Ball Monitor, 40' - 30" (Silver Mist)	-	Rigid Toolbar
	412304SM	Flow Ball Monitor, 40' - 20" (Silver Mist)		Folding Toolbar
	412305SM	Flow Ball Monitor, 44' - 22" (Silver Mist)		Folding Toolbar
	412306SM	Flow Ball Monitor, 40' - 30" (Silver Mist)		Folding Toolbar
1	411267B	Clamp Plate Mount =Black=	2	
2	412467SM	Flow Monitor Assembly =Silver Mist=	1	(For 40'-20" & 44'-22")
	412438SM	Flow Monitor Assembly =Silver Mist=		(For 40'-30" - Folding Toolbar)
	414164SM	Flow Monitor Assembly =Silver Mist=		(For 40'-30" - Rigid Toolbar & 40'-36"/38" - Folding Toolbar)
3A	411931SM	Flow Monitor Mount Weldment =Silver Mist=	1	(For 40'-20" & 44'-22")
3B	411933SM	Flow Monitor Mount Weldment =Silver Mist=	1	(For 40'-30")
4	9004720	Flange Nut, 1/4-20UNC (SS)	15	(For 40'-20" & 44'-22")
			12	(For 40'-30" - Folding Toolbar)
			10	(For 40'-30" - Rigid Toolbar)
5	9008688	Flow Body Indicator Assembly	25	(For 40'-20" & 44'-22")
			19	(For 40'-30" - Folding Toolbar)
			17	(For 40'-30" - Rigid Toolbar)
5A	9007708	Indicator Flow Balls Assembly	1	Includes Items 5B through 5E
5B	9007779	Indicator Flow Ball =Stainless Steel=	1	
5C	9007780	Indicator Flow Ball =Maroon Glass=	1	
5D	9007781	Indicator Flow Ball =Red Celron=	1	
5E	9007883	Indicator Flow Ball =Stainless Steel=	1	
6	9007704	Ball Retainer Indicator	1	
7	9007705	Locking Clip	2	
8	9007706	O-Ring	1	
9	9008659	Flow Indicator Body	25	Includes Item 5A (For 40'-20" & 44'-22")
			19	Includes Item 5A (For 40'-30" - Folding Toolbar)
			17	Includes Item 5A (For 40'-30" - Rigid Toolbar)
10	9007707	Flow Cap Indicator	5	
11	9007710	Elbow Fitting Indicator, 3/8"	25	(For 40'-20" & 44'-22")
			19	(For 40'-30" - Folding Toolbar)
			17	(For 40'-30" - Rigid Toolbar)
12	9007713	Elbow Fitting Indicator, 3/4"	5	
13	900900-008	Capscrew, 1/4-20UNC x 1 3/4 (SS)	15	(For 40'-20" & 44'-22")
			12	(For 40'-30" - Folding Toolbar)
			10	(For 40'-30" - Rigid Toolbar)
14	9000104	Cable Tie, 21 1/2"	10	
15	9000107	Cable Tie, 14 1/2"	10	
16	9003848	Velcro Hose Wrap, 2"	12	
17A	9003849	Velcro Hose Wrap, 3"	25	(For 20" & 22")

(Continued on next page)

Flow Ball Components

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

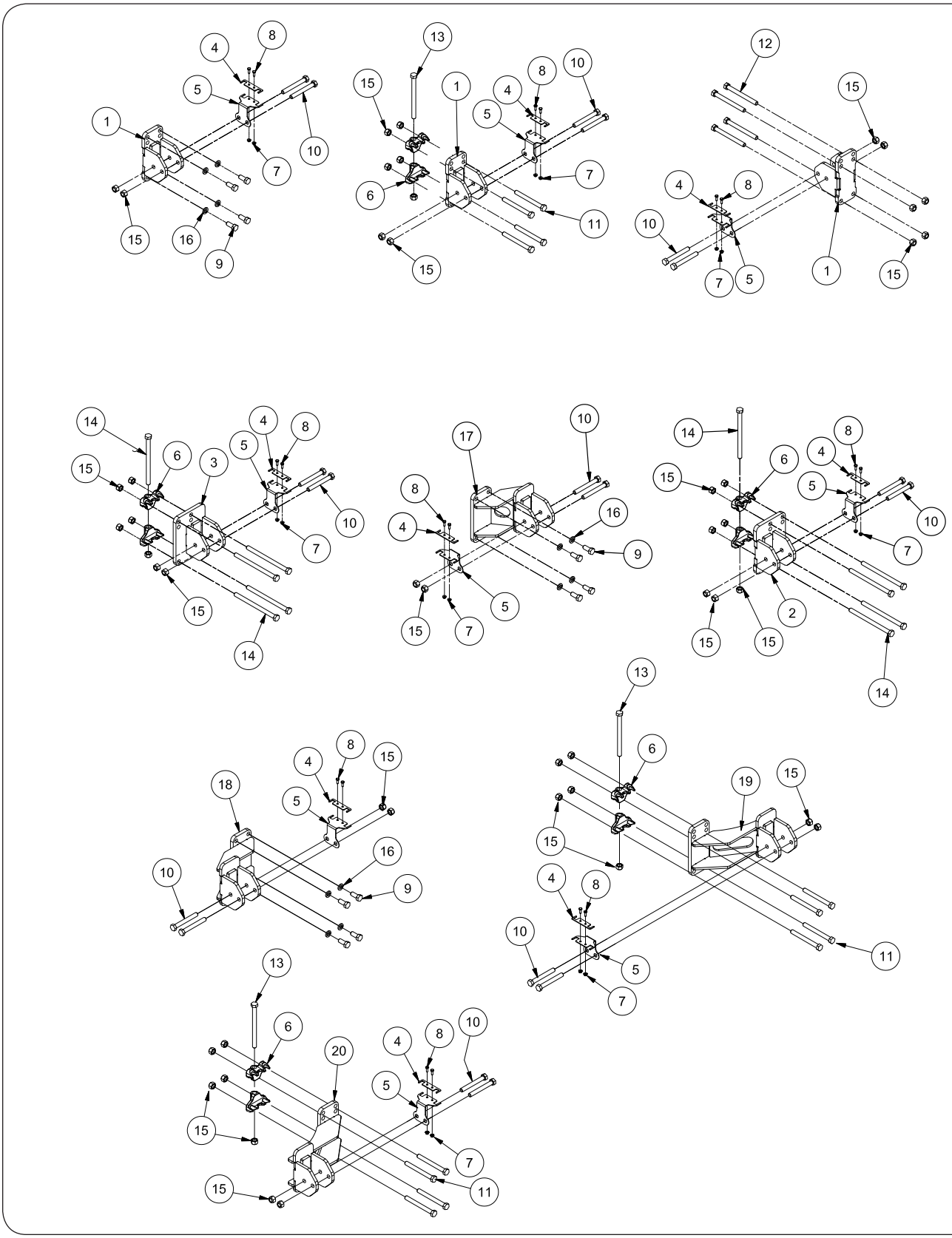
ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
17B	9003805	Velcro Hose Wrap, 4”	20	(For 30”)
18	9005639	Flange Nut, 5/16-18 THD	11	
19	9005640	Flange Nut, 3/8-16 THD	2	
20	9006213	Metal Cable Clamp, 2 x 3/4” Wide	3	(For 20” & 22”)
			6	(For 30”)
21	9007320	Metal Cable Clamp, 3 x 3/4” Wide	8	(For 20” & 22”)
	9007556	Metal Cable Clamp, 1 1/8 x 3/4” Wide	5	(For 30”)
22	9007772	Hose Sleeve Marker for Half Rate Nozzle	2	(For 20” & 22”)
			4	(For 30”)
23	900900-028	Capscrew, 5/16-18UNC x 3/4 (SS)	11	
24	900900-055	Capscrew, 3/8-16UNC x 1 (SS)	4	
25	900906-006	Center Lock Hex Nut, 3/8-16UNC (SS)	2	
26	TA800902	Hose Clamp, M-6 (SS)	50	(For 20” & 22”)
			38	(For 30”)
			34	
27	TA800910	Hose Clamp, 1/2 SAE	10	
28	TA806200	Rubber Hose, EPDM 3/8”	36’	(Specify in Feet for 20”) per Nozzle
			37 1/2’	(Specify in Feet for 22”) per Nozzle
			36’	(Specify in Feet for 30”) per Nozzle
29	TA806250	Hose, 3/4 Dia. x 12 EPDM	16	
30	TA880149	Sprayer Boom Nozzle Body - Single	25	(For 20” & 22”)
			19	(For 30” - Folding Toolbar)
			17	(For 30” - Rigid Toolbar)
31	9007657	Chemsaver Valve	2	
32	9007778	Tee Indicator Fitting	A/R	

Notes

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

Coulter Mounting Components

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



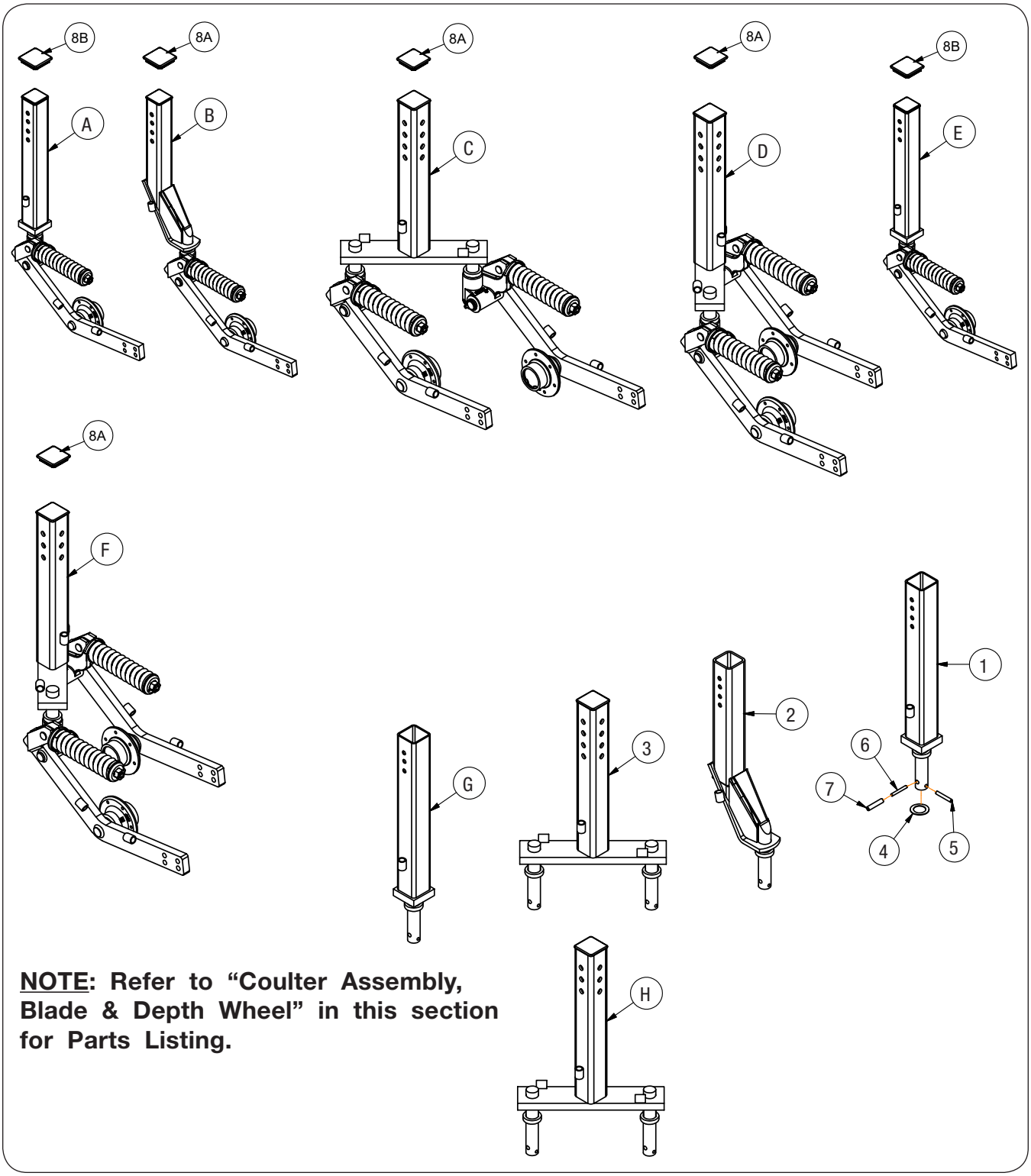
Coulter Mounting Components

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

ITEM	PART NUMBER	DESCRIPTION	RIGID 40' TOOLBAR		FOLDING 40' TOOLBAR					FOLDING 44' TOOLBAR
			QTY BY SPACING							
			30" SINGLE POSTS	30" DOUBLE POSTS	20" SINGLE POSTS	30" SINGLE POSTS	36" SINGLE POSTS	38" SINGLE POSTS	30" DOUBLE POSTS	22" SINGLE POSTS
1	414887B	Coulter Mount Weldment =Black=	13	15	21	13	11	9	15	21
2	414898B	Coulter Mount Weldment Offset Right-Hand =BLACK=	-	-	-	-	-	-		1
3	414899B	Coulter Mount Weldment Offset Left-Hand =BLACK=	-	-	-	-	-	-		1
4	411916B	Nozzle Retainer Plate =Black=	15	17	23	15	13	13	17	23
5	411917B	Nozzle Mount Plate =Black=	15	17	23	15	13	13	17	23
6	67922B	Extension Clamp =Black=	26	30	38	22	18	26	26	38
7	9004720	Serrated Flange Nut 1/4"-20UNC	30	34	46	30	26	26	34	46
8	900900-003	Capscrew 1/4"-20UNC 3/4" (Stainless Steel)	30	34	46	30	26	26	34	46
9	9501438-122	Capscrew 5/8-11UNC x 1 1/2 (Black)	8	8	8	8	8	-	8	8
10	9501438-134	Capscrew 5/8-11UNC x 5 (Black)	30	34	46	30	26	26	34	46
11	9501438-136	Capscrew 5/8-11UNC x 6 (Black)	-	-	16	8	8	16	16	24
12	9501438-137	Capscrew 5/8-11UNC x 6 1/2 (Black)	-	-	8	8	8	-	8	8
13	9501438-140	Capscrew 5/8-11UNC x 8 (Black)	-	-	4	2	2	4	4	6
14	9501438-442	Capscrew 5/8-11UNC x 9 (Black)	65	75	75	45	35	45	45	65
15	9501439-036	Locknut 5/8-11UNC (Black)	95	109	149	93	79	91	107	149
16	9501440-029	Lock Washer 5/8" (Black)	8	8	8	8	8	-	8	8
17	414894B	Coulter Mount Weldment Offset Left-Hand =BLACK=	1	1	1	1	1	1	1	-
18	414895B	Coulter Mount Weldment Offset Right-Hand =BLACK=	1	1	1	1	1	1	1	-
19	414896B	Coulter Mount Weldment Offset Left-Hand =BLACK=	-	-	-	-	-	1	-	-
20	414897B	Coulter Mount Weldment Offset Right-Hand =BLACK=	-	-	-	-	-	1	-	-

Coulter Post Assemblies

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



NOTE: Refer to "Coulter Assembly, Blade & Depth Wheel" in this section for Parts Listing.

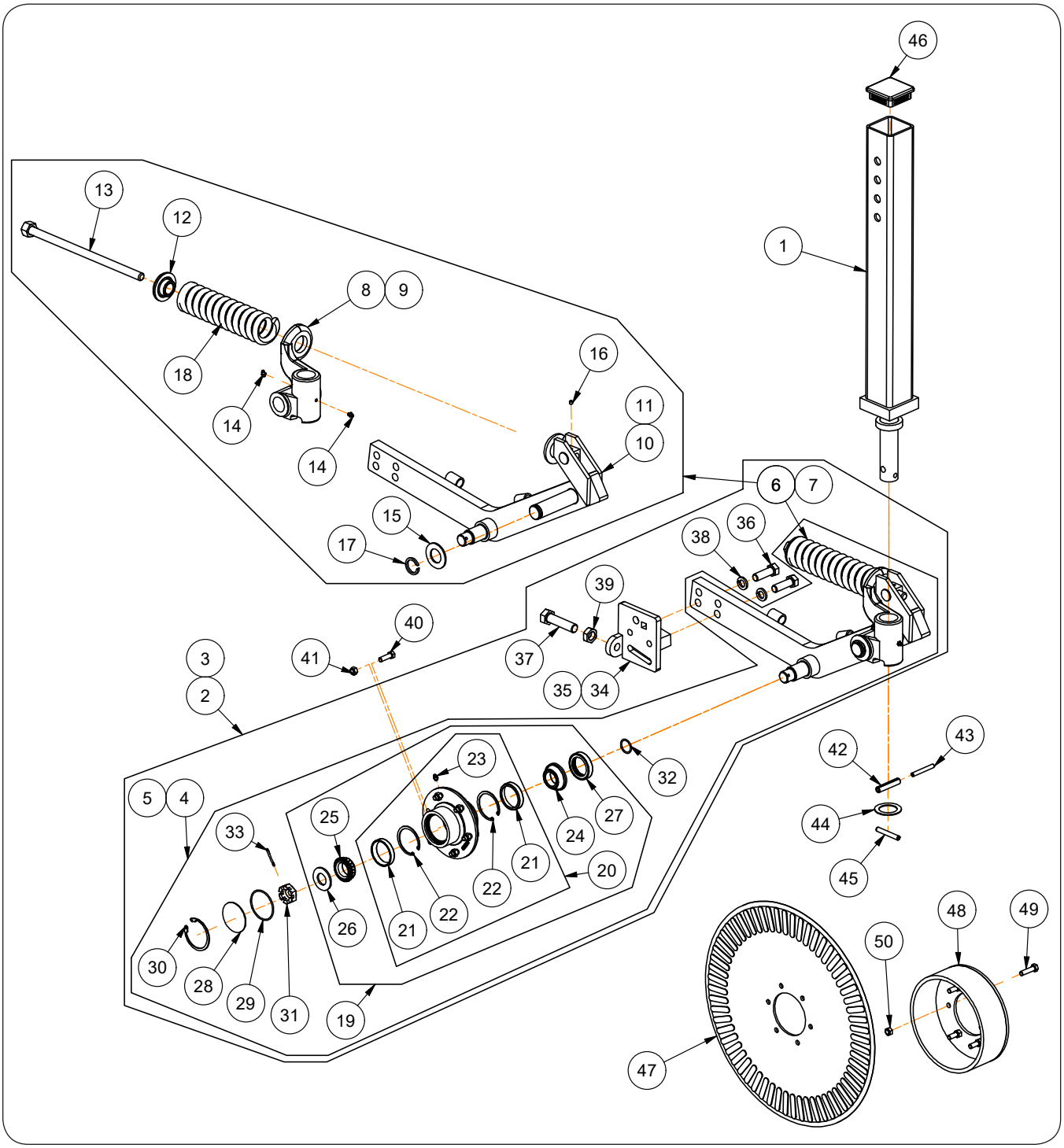
Coulter Post Assemblies

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

ITEM	PART NUMBER	DESCRIPTION	RIGID 40' TOOLBAR		FOLDING 40' TOOLBAR					FOLDING 44' TOOLBAR	NOTES
			QTY BY SPACING								
			30" SINGLE POSTS	30" DOUBLE POSTS	20" SINGLE POSTS	30" SINGLE POSTS	36" SINGLE POSTS	38" SINGLE POSTS	30" DOUBLE POSTS	22" SINGLE POSTS	
A	415742B	Coulter Post Vertical Assembly Straight Post w/Mount Plate (No Bracket) =Black=	10	2	18	10	8	8	2	20	Includes Items 1, 4 through 8B
B	415745B	Coulter Post Offset Assembly w/Mount Plate (No Bracket) =Black=	4	-	4	4	4	4	-	2	Includes Items 2, 4 through 8A
C	415750B	Double Coulter LH Forward Assembly w/Mount Plate (No Bracket) =Black=	-	7	-	-	-	-	7	-	Includes Items 3 through 8A
D	415751B	Double Coulter RH Forward Assembly w/Mount Plate (No Bracket) =Black=	-	7	-	-	-	-	7	-	Includes Items 3 through 8A
E	415744B	Center Coulter Post Vertical Assembly Straight Post w/Mount Plate (No Bracket) =Black=	1	-	1	1	1	1	-	1	Includes Items G 4 through 8B
F	415762B	Center Double Coulter Right-Hand Forward Assembly w/Mount Plate (No Bracket) =Black=	-	1	-	-	-	-	1	-	Includes Items H, 4 through 8A
G	415737B	Center Coulter Post Vertical Weldment (Straight Post) =Black=	1	-	1	1	1	1	-	1	
H	415761B	Center Double Coulter Post Weldment =Black=	-	1	-	-	-	-	1	-	
1	415736B	Coulter Post Vertical Weldment (Straight Post) =Black=	10	2	18	10	8	8	2	20	
2	415738B	Coulter Post Offset Weldment =Black=	4	-	4	4	4	4	-	2	
3	415741B	Double Coulter Post Weldment =Black=	-	14	-	-	-	-	14	-	
4	9501463	Washer 1 1/2" Dia.	15	32	23	15	13	13	32	23	
5	9501442-209	Spiral Pin 3/8" Dia. x 2 1/2" (Black)	15	32	23	15	13	13	32	23	
6	9501442-188	Spiral Pin 5/16" Dia. x 2 1/2" (Black)	15	32	23	15	13	13	32	23	
7	9501441-210	Roll Pin 1/2" Dia. x 2 1/2" (Black)	15	32	23	15	13	13	32	23	
8A	9007725	Square Plug, 3" x 3"	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	Offset & DBL Coulter Post Only
8B	9008253		A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	Straight Post Only

Coulter Assembly, Blade & Depth Wheel

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



Coulter Assembly, Blade & Depth Wheel

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	415742B	Coulter Post Vertical Assembly Straight Post w/Mount Plate Left-Hand (No Bracket) =Black=	1	Includes Items 1-46 Refer to "Coulter Post Assemblies" in this section for Parts Listing
1	415736B	Vertical Post Weldment (Straight Post) =Black=	1	
2	68634B	Coulter Sub-Assembly w/Injector Left-Hand =Black= (SHOWN)	1	Includes Items 4,6,8,10,12-39
3	41775B	Coulter Sub-Assembly w/Injector Right-Hand =Black=		Includes Items 5,7,9,11-39
4	68635B	Coulter Combo LH Assembly (Black)	1	Includes Items 6,8,10-33
5	41776B	Coulter Combo RH Assembly (Black)		Includes Items 7,9,11-33
6	68636B	Coulter Arm & Spring LH Assembly =Black=	1	Includes Items 8,10,12-18
7	41777B	Coulter Arm & Spring RH Assembly =Black=		Includes Items 9,11-18
8	68280B	Swivel Bracket Left-Hand =Black=	1	
9	82824B	Swivel Bracket Right-Hand =Black=	1	
10	68637B	Coulter Arm LH Weldment =Black=	1	
11	41770B	Coulter Arm RH Weldment =Black=	1	
12	82826B	Spring Washer, 2 1/2" OD x 13/16" ID =Black=	1	
13	83371B	Spring Rod Weldment 3/4" Dia. =Black=	1	
14	9501603	Grease Zerk, 1/4-28 Stainless Steel	2	
15	92528B	Bushing, 2 1/4" OD x 1 1/4" ID =Black=	1	
16	9399-057	Set Screw, 1/4"-20UNC x 1/4"	1	
17	94144	Retaining Ring, 1 1/4" Dia. Shaft	1	
18	94756B	Compression Spring, 2 5/8" Dia. x 10 5/8"	1	
19	68656B	Hub Assembly Less Spindle, 6 Bolt =Black=	1	Includes Items 20-27 64533 Replacement Kit
20	68655B	Hub Sub-Assembly, 6 Bolt =Black=	1	Includes Items 21-23
21	9345	Bearing Cup, 2.328" OD (LM67010)	2	
22	94796	Retaining Ring, 2 1/2" Dia.	2	
23	9501603	Grease Zerk, 1/4-28 Stainless Steel	1	
24	901145	Bearing & Seal, 1pc Assembly	1	
25	9165	Bearing Cone, 1.25" Bore (LM67048)	1	
26	94800	Machinery Bushing, 2" OD x 1.01" ID	1	
27	93987	Seal, Triple Lip	1	
28	60735B	Hub Cap for 6 Bolt Hub Assembly =Black=	1	
29	902158	O-Ring, 2 1/2"(NOM ID)	1	
30	93985	Retaining Ring, 2 9/16" DIA.	1	
31	94795	Slotted Jam Nut, 1"-14UNS Gr. 2	1	
32	95565	O-Ring, 1.049" ID	1	
33	97565	C-Ring, 1 3/4" Lg.	1	
34	68704B	Adjustment Plate Weldment Left-Hand =Black=	1	
35	41784B	Adjustment Plate Weldment Right-Hand =Black=		
36	9501438-124	Capscrew, 5/8"-11UNC x 2" Gr. 5 (Black)	2	
37	9501438-149	Capscrew, 3/4"-10UNC x 3" Gr. 5 (Black)	1	
38	9501440-029	Lock Washer, 5/8" (Black)	2	
39	9501444-037	Hex Jam Nut, 3/4"-10UNC Gr.5 (Black)	1	

(Continued on next page)

Coulter Assembly, Blade & Depth Wheel

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

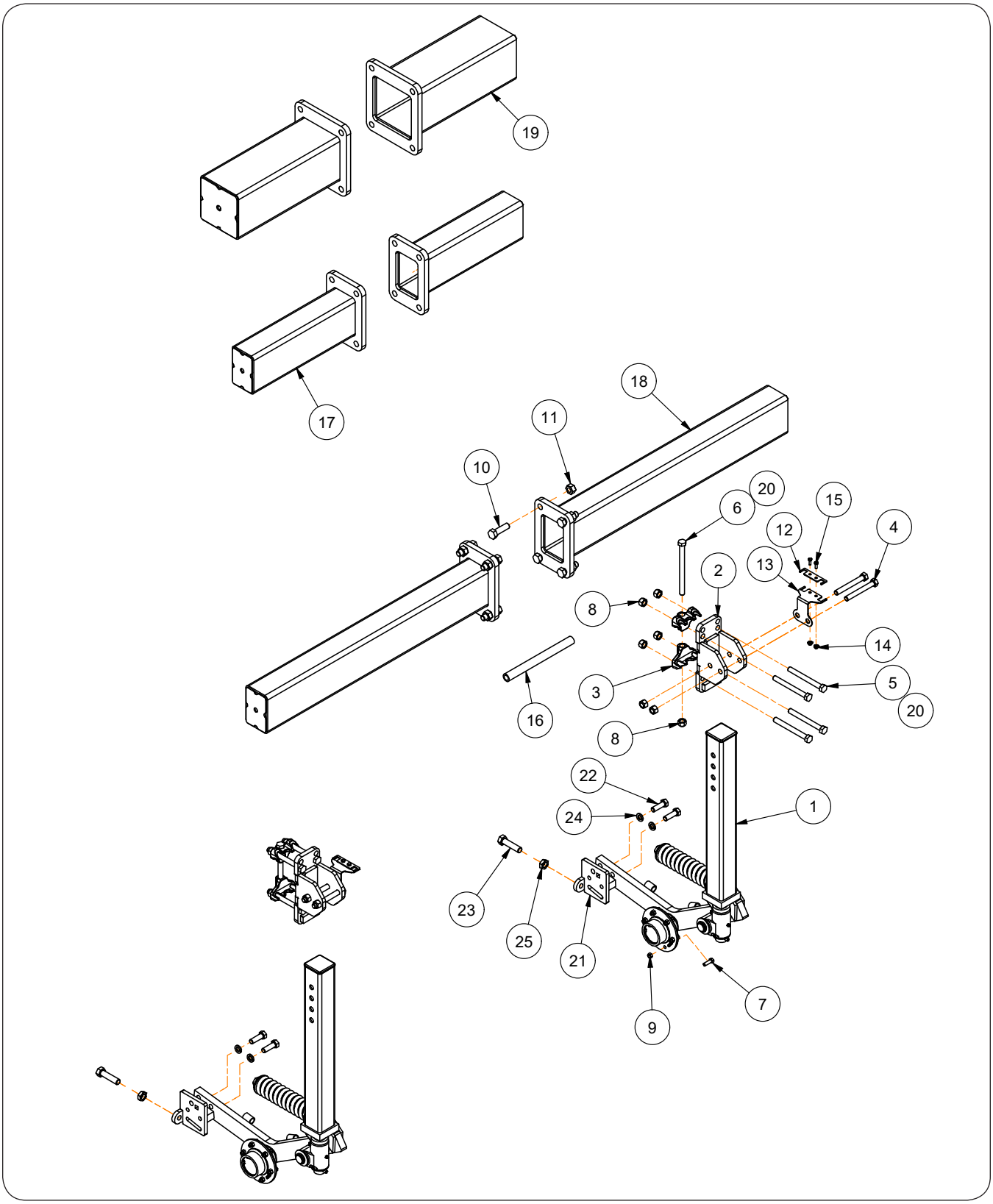
ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
40	9501438-056	Capscrew, 3/8"-16UNC x 1 1/4" Gr. 5 (Black)	6	
41	9501439-032	Locknut 3/8"-16UNC (Black)	6	
42	9501441-210	Roll Pin, 1/2" Dia. x 2" (Black)	1	
43	9501442-188	Spiral Pin, 5/16" Dia. x 2 1/2" (Black)	1	
44	9501463	Washer, 2 1/4" OD x 1 1/2" ID (Black)	1	
45	9501442-209	Spiral Pin, 3/8" Dia. x 2 1/2" (Black)	1	
46	9008253	Square Plug, 3"	1	
47	93934	Ripple Coulter Blade 20" Dia.	1	
48	412485B	Depth Wheel Assembly (Black)	1	
49	9390-057	Capscrew 3/8"-16UNC x 1 1/2" Gr. 5	6	
50	9928	Locknut 3/8"-16UNC	6	

Notes

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

Add-On Coulter Packages

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



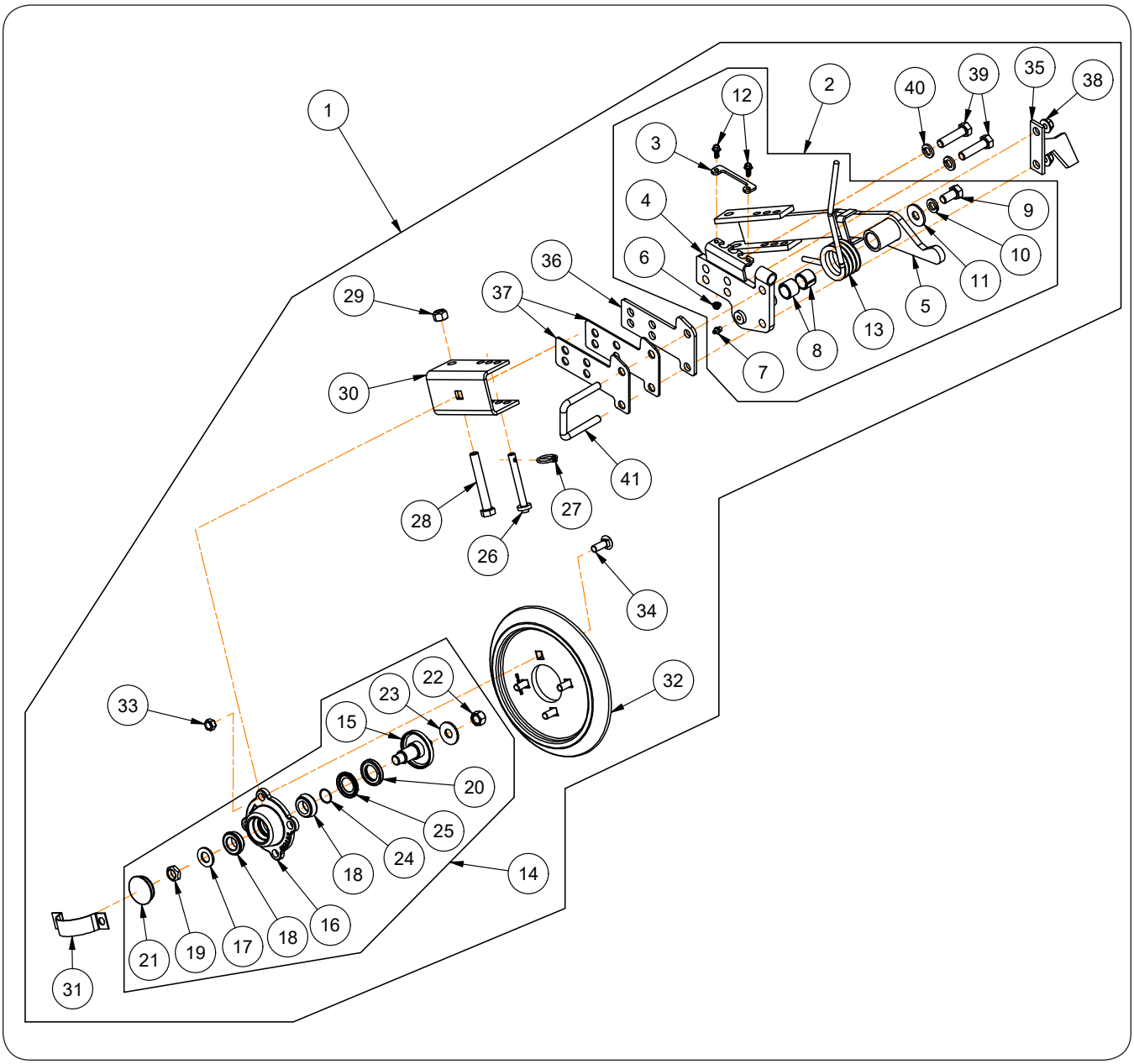
Add-On Coulter Packages

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

ITEM	PART NUMBER	DESCRIPTION	QTY.			NOTES
			RIGID 40' Toolbar	FOLDING 40' Toolbar	FOLDING 44' Toolbar	
	411892G	Add-On Coulter Package (2 Coulters For 20" & 30" Rows) =GREEN=	-	1	-	Includes Items 1 through 17 21 through 25
	411892R	Add-On Coulter Package (2 Coulters For 20" & 30" Rows) =RED=				
	412983G	Add-On Coulter Package (2 Coulters For 30" Rows) =GREEN=	1	-	-	Includes Items 1 through 4, 7 through 16, & 19 through 25
	412983R	Add-On Coulter Package (2 Coulters For 30" Rows) =RED=				
	412338G	Add-On Coulter Package (2 Coulters For 22" Rows) =GREEN=	-	-	1	Includes Items 1 through 16, 18, & 21 through 25
	412338R	Add-On Coulter Package (2 Coulters For 22" Rows) =RED=				
1	415752B	Coulter Post Assembly (Straight Post) =BLACK=	2	2	2	
2	414887B	Coulter Mount Weldment =BLACK=	2	2	2	
3	67922B	Extension Clamp =BLACK=	4	4	4	
4	9501438-134	Capscrew 5/8-11UNC x 5 =BLACK= Gr.5	4	4	4	
5	9501438-136	Capscrew 5/8-11UNC x 6 =BLACK= Gr.5	-	8	8	
6	9501438-140	Capscrew 5/8-11UNC x 8 =BLACK= Gr.5	-	2	2	
7	9501438-056	Capscrew 3/8-16UNC x 1 1/4 Gr.5	12	12	12	
8	9501439-036	Locknut 5/8-11UNC =BLACK=	14	14	14	
9	9501439-032	Locknut 3/8-16UNC	12	12	12	
10	9390-147	Capscrew 3/4"-10UNC x 2 1/2" Gr.5	8	8	8	
11	96732	Locknut 3/4-10UNC	8	8	8	
12	411916B	Nozzle Retainer Plate =BLACK=	2	2	2	
13	411917B	Nozzle Mount Plate =BLACK=	2	2	2	
14	9004720	Flange Nut 1/4"-20UNC (Stainless Steel)	4	4	4	
15	900900-003	Capscrew 1/4"-20UNC x 3/4" (Stainless Steel)	4	4	4	
16	TA806250	EPDM Hose 3/4" Dia. x 12"	6 Ft.	6 Ft.	6 Ft.	
17	411582G	Extension Weldment =GREEN=	-	2	-	
	411582R	Extension Weldment =RED=				
18	412339G	Extension Weldment =GREEN=	-	-	2	
	412339R	Extension Weldment =RED=				
19	412984G	Extension Weldment =GREEN=	2	-	-	
	412984R	Extension Weldment =RED=				
20	9501438-442	Capscrew 5/8"-11UNC x 9" Gr.5	10	-	-	
21	68704B	Adjustment Plate Weldment =BLACK=	2	2	2	
22	9501438-124	Capscrew 5/8"-11UNC x 2" Gr.5 (BLACK)	4	4	4	
23	9501438-149	Capscrew 3/4"-10UNC x 3" Gr.5 (BLACK)	1	1	1	
24	9501440-029	Lock Washer 5/8" (BLACK)	4	4	4	
25	9501444-037	Jam Nut 3/4"-10UNC G5 (BLACK)	2	2	2	

Closer Wheel Assembly & Components (Optional)

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



Closer Wheel Assembly & Components (Optional)

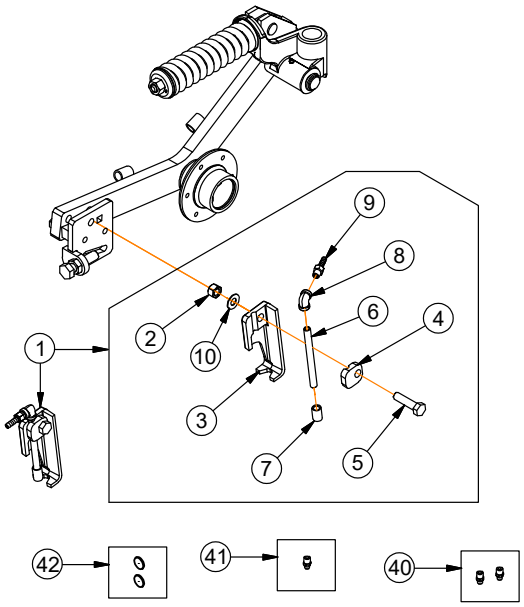
Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	69386B	Closer Wheel Assembly =Black=	1	Includes All Items
2	69217B	Closer Clearance Assembly =Black=	1	Includes Items 3 - 13
3	415157B	Spring Retainer Plate =Black=	1	
4	69144B	Closing Wheel Mounting Bracket Weldment =Black=	1	
5	69218B	Closing Wheel Arm Weldment =Black=	1	
6	9004720	Serrated Flange Nut 1/4-20UNC (SS)	2	
7	9007654	Grease Zerk	1	
8	91268	Tension Bushing	2	
9	9501438-121	Capscrew 5/8-11UNC x 1 1/4 Gr. 5	1	
10	9501440-029	Lock Washer 5/8	1	
11	9501606-065	Flat Washer 5/8	1	
12	9501948-021	Serrated Flange Screw 1/4-20UNC x 3/4 (SS)	2	
13	9501989	Torsion Spring	1	
14	69161B	Closer Wheel Hub & Spindle Assembly =Black=	1	Includes Items 15 - 25
15	68284	Spindle & Seal Cover Assembly	1	
16	68318B	Coulter Hub Casting =Black=	1	Includes Grease Zerk
17	902645-104	Flat Washer 3/4 SAE Gr. 8	1	
18	92523	Bearing Cone	2	
19	9397-016	Jam Nut	1	
20	9501380	Oil Seal	1	
21	9501381	Hub Cap	1	
22	9501439-007	Lock Nut 5/8-18UNF	1	
23	9501606-065	Flat Washer 5/8	1	
24	95595	O-Ring 1" Dia.	1	
25	95680	3 Lip Seal	1	
26	415156	Closer Wheel Retainer Pin Weldment	1	
27	9093	Kilk Pin	1	
28	9501438-133	Capscrew 5/8-11UNC x 4 1/2 Gr. 5	1	
29	9501439-036	Lock Nut 5/8-11UNC	1	
30	69152B	Adjustable Hub Mount =Black=	1	
31	68315	Hub Strap	1	
32	69142B	Closer Wheel Casting =Black=	1	
33	9501443-034	Lock Nut 1/2-13UNC	4	
34	9501993-104	Carriage Bolt 1/2-13UNC x 1 1/2 Gr. 5	4	
35	69783B	Stop Weldment =Black=	1	
36	69799B	Closer Shim 1/4" Thick	1	
37	69800B	Closer Shim 10GA	2	
38	9007642	Locking Flange Nut 1/2-13UNC	2	
39	9501438-126	Capscrew 5/8-11UNC x 2 1/2 Gr. 5	2	
40	9501440-029	Lock Washer 5/8	2	
41	9812	U-Bolt	1	

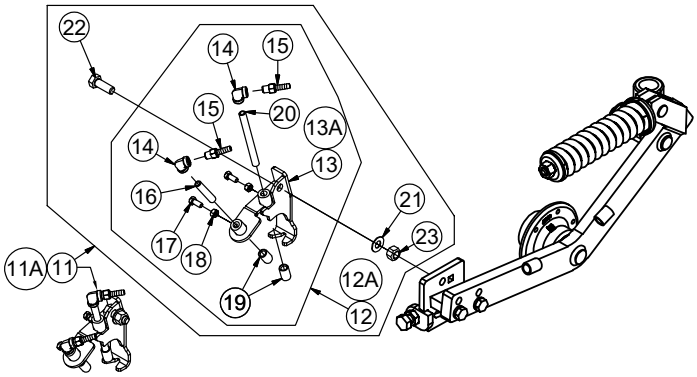
Injector Nozzles and Injector Knives

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

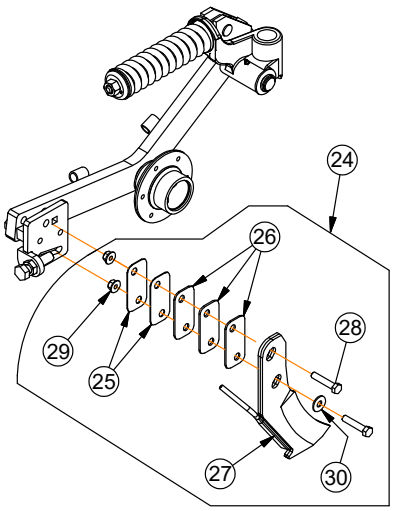
Single Injector Nozzle



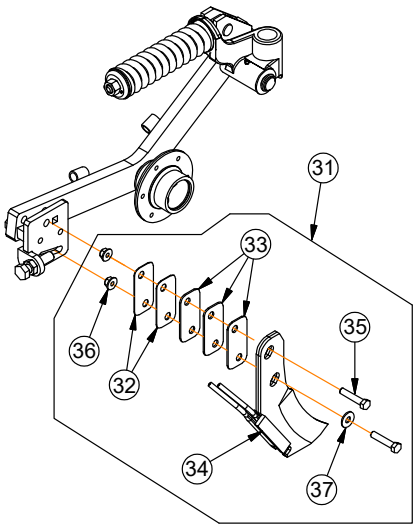
Dual Injector Nozzle



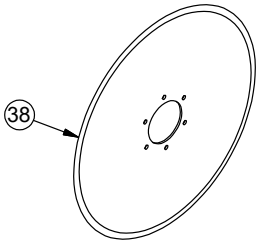
Single Injector Knife



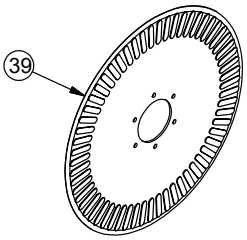
Dual Injector Knife



Smooth Blade



Ripple Blade



Injector Nozzles and Injector Knives

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
1	412080B	Single Nozzle Injector Assembly	-	
2	9501439-036	Locknut 5/8-11UNC	1	
3	68175B	Injector Guard	1	
4	68169B	Clamp	1	
5	9501438-126	Capscrew 5/8-11UNC x 2 1/2	1	
6	9501131	Pipe Nipple 1/4-18NPT	1	
7	93941	Pipe Coupling 1/4-14NPTF Female x 1 1/8"	1	
8	9007369	90° Elbow 1/4-18NPTF Female x 1/4-18NPT Female	1	
9	9007370	Hose Shank 1/4-18NPT Male x 3/8 Hose Barb	1	
10	900902-049	Flat Washer 5/8" SAE	1	Stainless Steel
11	414105B	Dual Injector Replacement Assembly, RH	-	
11A	412079B	Dual Injector Replacement Assembly, LH		
12	414104B	Dual Nozzle Injector Assembly, RH	1	
12A	410913	Dual Nozzle Injector Assembly, LH (BLACK)	1	
13	412850B	Double Nozzle Weldment, RH	1	
13A	410911B	Double Nozzle Weldment, LH	1	
14	9007369	90° Elbow 1/4-18NPTF Female x 1/4-18NPT Female	2	
15	9007370	Hose Shank 1/4-18NPT Male x 3/8 Hose Barb	2	
16	9007631	Pipe Nipple 1/4-18NPT	1	
17	900900-054	Capscrew 3/8-16UNC x 7/8 (Stainless Steel)	2	
18	900901-006	Hex Nut 3/8-16UNC (Stainless Steel)	2	
19	93941	Pipe Coupling 1/4-14NPTF Female x 1 1/8"	2	
20	9501131	Pipe Nipple 1/4-18NPT	1	
21	900902-049	Flat Washer 5/8" SAE	1	Stainless Steel
22	9501438-123	Capscrew 5/8-11UNC x 1 3/4	1	
23	9501439-036	Locknut 5/8-11UNC	1	
24	412078	Injector Knife/Single Assembly	-	
25	67928	Shim 14 Ga.	2	
26	67929	Shim 10 Ga.	3	
27	67923	Injector Knife/Fertilizer Shank w/ 3/8" Dia. Tube	1	
28	9501438-105	Capscrew 1/2"-13UNC x 2 1/2" (Black)	2	
29	9007642	Locking Flange Nut 1/2"-13UNC	2	
30	900902-044	Flat Washer 1/2" USS	1	Stainless Steel
31	412077	Injector Knife/Double Assembly	1	
32	67928	Shim 14 Ga.	2	
33	67929	Shim 10 Ga.	3	
34	9007544	Injector Knife/Fertilizer Shank w/ two 3/8" Dia. Tube	1	
35	9501438-105	Capscrew 1/2"-13UNC x 2 1/2" (Black)	2	
36	9007642	Locking Flange Nut 1/2"-13UNC	2	
37	900902-044	Flat Washer 1/2" USS	1	Stainless Steel
38	99986	Smooth Coulter Blade 20 7/16" Dia.	1	
39	93934	Ripple Coulter Blade 20" Dia.	1	

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Injector Nozzles and Injector Knives (continued)

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

ITEM	PART NUMBER	DESCRIPTION	QTY BY SPACING				NOTES NUMBER OF COULTERS PER TOOLBAR
			RIGID TOOLBAR	FOLDING TOOLBAR			
			40' BOOM	40' BOOM		40' & 44' BOOM	
			30"	30"	36"/38"	20"/22"	
40	414000	Nozzle Kit - #0004, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412222	Nozzle Kit - #0004, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412238	Nozzle Kit - #0004, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414170	Nozzle Kit - #0004, 40" Toolbar - 36"/38" Spacing			1		
	9007403	Nozzle Tip - #0002 Stainless Steel, 1/4-18NPT	-	4	6	2	
	TA852145	Nozzle Tip - #0004 Stainless Steel, 1/4-18NPT	15	15	9	23	
	414001	Nozzle Kit - #0006, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412223	Nozzle Kit - #0006, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412239	Nozzle Kit - #0006, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414171	Nozzle Kit - #0006, 40" Toolbar - 36"/38" Spacing			1		
	93959	Nozzle Tip - #0003 Stainless Steel, 1/4-18NPT	-	4	6	2	
	9007404	Nozzle Tip - #0006 Stainless Steel, 1/4-18NPT	15	15	9	23	
	414002	Nozzle Kit - #0008, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412224	Nozzle Kit - #0008, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412240	Nozzle Kit - #0008, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414172	Nozzle Kit - #0008, 40" Toolbar - 36"/38" Spacing			1		
	TA852145	Nozzle Tip - #0004 Stainless Steel, 1/4-18NPT	-	4	6	2	
	9007405	Nozzle Tip - #0008 Stainless Steel, 1/4-18NPT	15	15	9	23	
	414003	Nozzle Kit - #0010, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412225	Nozzle Kit - #0010, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412241	Nozzle Kit - #0010, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414173	Nozzle Kit - #0010, 40" Toolbar - 36"/38" Spacing			1		
	93960	Nozzle Tip - #0005 Stainless Steel, 1/4-18NPT	-	4	6	2	
	93961	Nozzle Tip - #0010 Stainless Steel, 1/4-18NPT	15	15	9	23	
	414004	Nozzle Kit - #0015, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412226	Nozzle Kit - #0015, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412242	Nozzle Kit - #0015, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414174	Nozzle Kit - #0015, 40" Toolbar - 36"/38" Spacing			1		
	9007405	Nozzle Tip - #0008 Stainless Steel, 1/4-18NPT	-	4	6	2	
	93962	Nozzle Tip - #0015 Stainless Steel, 1/4-18NPT	15	15	9	23	

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Injector Nozzles and Injector Knives (continued)

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

ITEM	PART NUMBER	DESCRIPTION	QTY BY SPACING				NOTES NUMBER OF COULTERS PER TOOLBAR
			RIGID TOOLBAR	FOLDING TOOLBAR			
			40' BOOM	40' BOOM		40' & 44' BOOM	
			30"	30"	36"/38"	20"/22"	
40	414005	Nozzle Kit - #0020, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412227	Nozzle Kit - #0020, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412243	Nozzle Kit - #0020, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414175	Nozzle Kit - #0020, 40" Toolbar - 36"/38" Spacing			1		
	93961	Nozzle Tip - #0010 Stainless Steel, 1/4-18NPT	-	4	6	2	
	93963	Nozzle Tip - #0020 Stainless Steel, 1/4-18NPT	15	15	9	23	
	414006	Nozzle Kit - #0030, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412228	Nozzle Kit - #0030, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412244	Nozzle Kit - #0030, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414176	Nozzle Kit - #0030, 40" Toolbar - 36"/38" Spacing			1		
	93962	Nozzle Tip - #0015 Stainless Steel, 1/4-18NPT	-	4	6	2	
	93964	Nozzle Tip - #0030 Stainless Steel, 1/4-18NPT	15	15	9	23	
	414007	Nozzle Kit - #0040, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	
	412229	Nozzle Kit - #0040, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412245	Nozzle Kit - #0040, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414177	Nozzle Kit - #0040, 40" Toolbar - 36"/38" Spacing			1		
	93963	Nozzle Tip - #0020 Stainless Steel, 1/4-18NPT	-	4	6	2	
	93965	Nozzle Tip - #0040 Stainless Steel, 1/4-18NPT	15	15	9	23	

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Injector Nozzles and Injector Knives (continued)

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

ITEM	PART NUMBER	DESCRIPTION	QTY BY SPACING				NOTES NUMBER OF COULTERS PER TOOLBAR
			RIGID TOOLBAR	FOLDING TOOLBAR			
			40' BOOM	40' BOOM		40' & 44' BOOM	
			30"	30"	36"/38"	20"/22"	
41	414008	Orifice Kit - #57, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	15 / 17 Coulters
	412230	Orifice Kit - #57, 40'/44' Toolbar - 20"/22" Spacing	-	-	-	1	23 / 25 Coulters
	412246	Orifice Kit - #57, 40'/44' Toolbar - 30" Spacing	-	1	-	-	15 / 17 Coulters
	414178	Orifice Kit - #57, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862017	Orifice Plate - 0.040 ID	2	4	6	2	
	TA862029	Orifice Plate - 0.057 ID	15	15	9	23	
	414009	Orifice Kit - #70, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	15 / 17 Coulters
	412231	Orifice Kit - #70, 40'/44' Toolbar - 20"/22" Spacing	-	1	-	-	23 / 25 Coulters
	412247	Orifice Kit - #70, 40'/44' Toolbar - 30" Spacing	-	-	-	1	15 / 17 Coulters
	414179	Orifice Kit - #70, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862024	Orifice Plate - 0.049 ID	2	2	6	4	
	TA862036	Orifice Plate - 0.070 ID	15	23	9	15	
	414010	Orifice Kit - #80, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	15 / 17 Coulters
	412232	Orifice Kit - #80, 40'/44' Toolbar - 20"/22" Spacing	-	1	-	-	23 / 25 Coulters
	412248	Orifice Kit - #80, 40'/44' Toolbar - 30" Spacing	-	-	-	1	15 / 17 Coulters
	414180	Orifice Kit - #80, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862029	Orifice Plate - 0.057 ID	2	2	6	4	
	TA862041	Orifice Plate - 0.080 ID	15	23	9	15	
	414011	Orifice Kit - #89, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	15 / 17 Coulters
	412233	Orifice Kit - #89, 40'/44' Toolbar - 20"/22" Spacing	-	1	-	-	23 / 25 Coulters
	412249	Orifice Kit - #89, 40'/44' Toolbar - 30" Spacing	-	-	-	1	15 / 17 Coulters
	414181	Orifice Kit - #89, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862032	Orifice Plate - 0.063 ID	2	2	6	4	
	TA862045	Orifice Plate - 0.089 ID	15	23	9	15	
	414012	Orifice Kit - #107, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	15 / 17 Coulters
	412234	Orifice Kit - #107, 40'/44' Toolbar - 20"/22" Spacing	-	1	-	-	23 / 25 Coulters
	412250	Orifice Kit - #107, 40'/44' Toolbar - 30" Spacing	-	-	-	1	15 / 17 Coulters
	414182	Orifice Kit - #107, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862041	Orifice Plate - 0.080 ID	2	2	6	4	
	TA862051	Orifice Plate - 0.107 ID	15	23	9	15	

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Injector Nozzles and Injector Knives (continued)

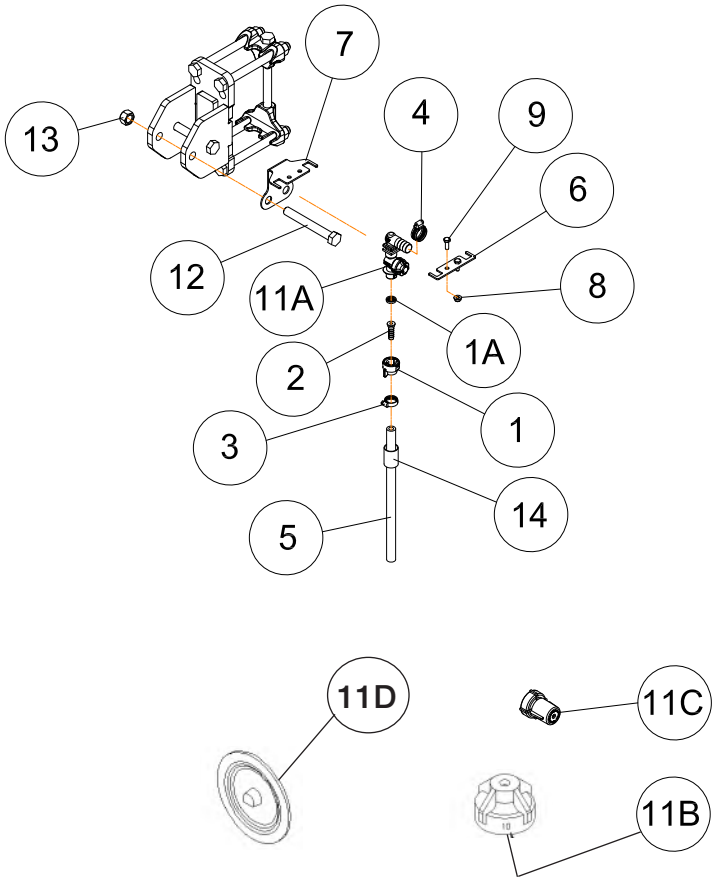
Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	PART NUMBER	DESCRIPTION	QTY BY SPACING				NOTES NUMBER OF COULTERS PER TOOLBAR
			RIGID TOOLBAR	FOLDING TOOLBAR			
			40' BOOM	40' BOOM		40' & 44' BOOM	
			30"	30"	36"/38"	20"/22"	
41	414013	Orifice Kit - #125, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	15 / 17 Coulters
	412235	Orifice Kit - #125, 40'/44' Toolbar - 20"/22" Spacing	-	1	-	-	23 / 25 Coulters
	412251	Orifice Kit - #125, 40'/44' Toolbar - 30" Spacing	-	-	-	1	15 / 17 Coulters
	414183	Orifice Kit - #125, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862045	Orifice Plate - 0.089 ID	2	2	6	4	
	TA862055	Orifice Plate - 0.125 ID	15	23	9	15	
	414014	Orifice Kit - #151, 40' Rigid Toolbar - 30" Spacing	1	-	-	-	15 / 17 Coulters
	412236	Orifice Kit - #151, 40'/44' Toolbar - 20"/22" Spacing	-	1	-	-	23 / 25 Coulters
	412252	Orifice Kit - #151, 40'/44' Toolbar - 30" Spacing	-	-	-	1	15 / 17 Coulters
	414184	Orifice Kit - #151, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862051	Orifice Plate - 0.107 ID	2	2	6	4	
	TA862062	Orifice Plate - 0.151 ID	15	23	9	15	
	414015	Orifice Kit - #177, 40' Rigid Toolbar - 30" Spacing	1	-	-	--	15 / 17 Coulters
	412237	Orifice Kit - #177, 40'/44' Toolbar - 20"/22" Spacing	-	1	-	-	23 / 25 Coulters
	412253	Orifice Kit - #177, 40'/44' Toolbar - 30" Spacing	-	-	-	1	15 / 17 Coulters
	414185	Orifice Kit - #177, 40' Toolbar - 36"/38" Spacing	-	-	1	-	
	TA862055	Orifice Plate - 0.125 ID	2	2	6	4	
	TA862068	Orifice Plate - 0.177 ID	15	23	9	15	

INJECTOR NOZZLE & ORIFICE GUIDE			
Nozzle Size	Knife Orifice Size	P.S.I.	Approx. G.P.A. at 30" Rows at 10 M.P.H.
#0004	#57	30 P.S.I.	7
#0006	#70		10
#0008	#80		14
#0010	#89		17
#0015	#107		26
#0020	#125		34
#0030	#151		51
#0040	#177		69

Nozzle

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



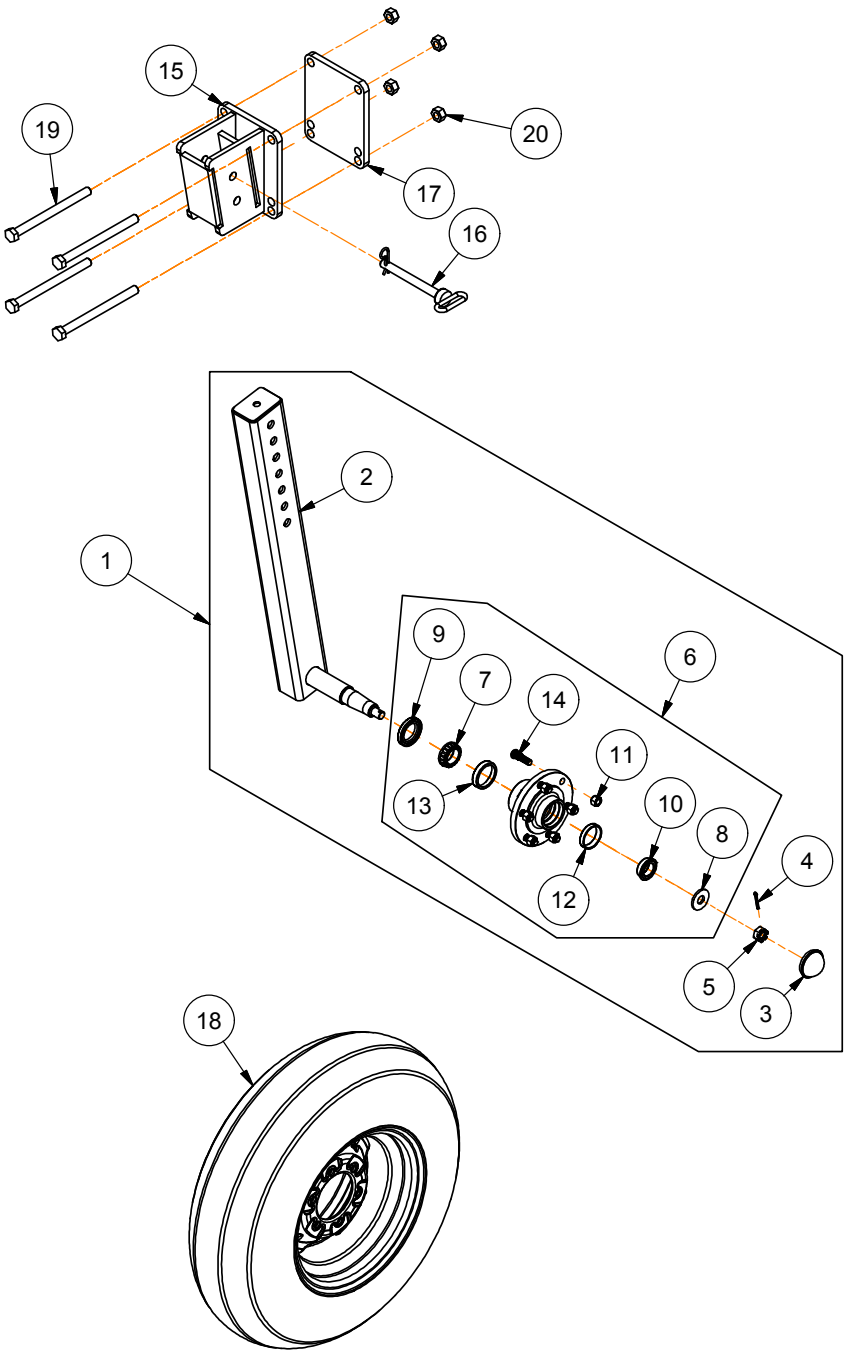
Nozzle

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
1	9007736	Quick Cap w/Gasket	A/R	
1A	9007735	Nozzle Cap Gasket	A/R	
2	TA865665	Hose Shank 1/4" ID x 1 3/8	A/R	
3	TA800902	Hose Clamp for 3/8" Dia. Hose	A/R	
4	TA800910	Hose Clamp for 3/4" Dia. Hose	A/R	
5	TA806200	Hose 3/8" Dia.	A/R	Specify by Feet
6	411916B	Nozzle Retainer Plate =Black=	A/R	
7	411917B	Nozzle Mount Plate =Black=	A/R	
8	9004720	Flange Nut 1/4-20UNC (Stainless Steel)	A/R	
9	900900-003	Capscrew 1/4-20UNC x 3/4 (Stainless Steel)	A/R	
11A	TA880149	Single Nozzle Body Elbow	A/R	
11B	TA885125	End Cap	A/R	
11C	9007657	Manual Chemsaver Valve	2	For 40' 30" Toolbar ONLY
11D	TA885127	EPDM Diaphragm	A/R	
12	9501438-134	Capscrew, 5/8-11UNC x 5 Gr.5 (Black)	A/R	
13	9501439-036	Locknut, 5/8-11UNC Gr.5 (Black)	A/R	
14	9007772	Hose Marker Sleeve	A/R	

Gauge Wheel Components

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



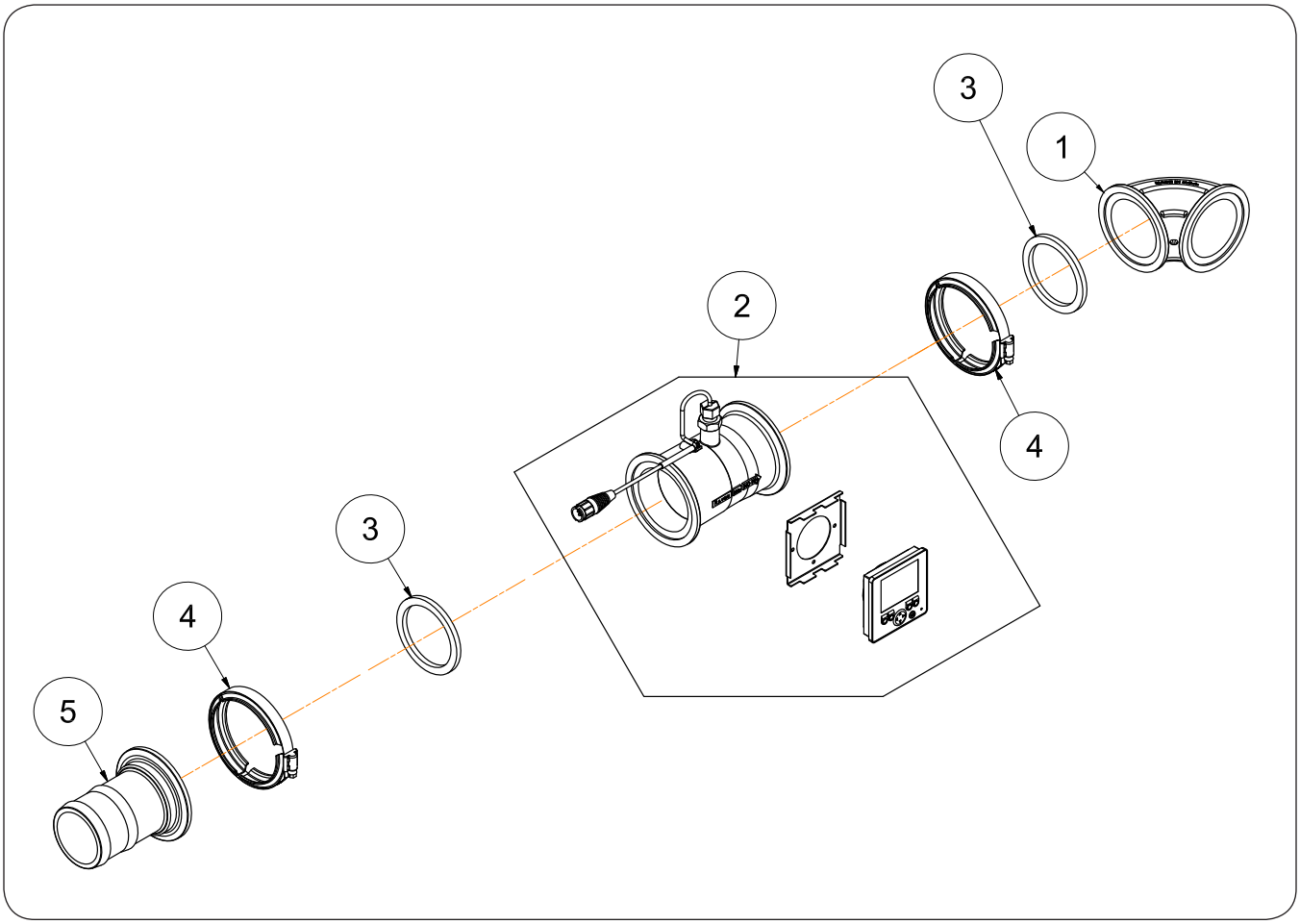
Gauge Wheel Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY		NOTES
			RIGID TOOLBAR	FOLDING TOOLBAR	
1	410014B	Gauge Wheel Assembly (Black)	2	2	Beginning With Serial Number B36910100
	411261B	Gauge Wheel Assembly (Black)	-	2	Prior to Serial Number B36910100
2	410015B	Gauge Wheel Post Weldment (Black)	1	1	Beginning With Serial Number B36910100
	411262B	Gauge Wheel Post Weldment (Black)	-	1	Prior to Serial Number B36910100
3	9162	Hub Cap	1	1	
4	9391-035	Cotter Pin 5/32" Dia. x 1 1/2	1	1	
5	9393-016	Slotted Nut 3/4-16UNF Gr.2	1	1	
6	9500002B	Hub 6 Bolt Assembly Complete	1	1	
7	9166	Bearing Cone #LM29749	1	1	
8	9234	Flat Washer 13/16" (Hardened)	1	1	
9	9168	Seal #17617	1	1	
10	9165	Bearing Cone #LM67048	1	1	
11	9348	Beveled Nut 1/2-20UNF	6	6	
12	9345	Bearing Cup #LM67010	1	1	
13	9346	Bearing Cup #LM29710	1	1	
14	9347	Stud Bolt 1/2-20UNF x 1 7/8	6	6	
15	410020B	Gauge Wheel Mount Weldment (Black)	2	2	
16	95958	Hitch Pin w/Hairpin Cotter	2	2	
17	410397B	Mounting Plate (Black)	2	2	
18	60911SM	Mounted Tire & Wheel - W815-6-08	2	2	Beginning With Serial Number B36910100
	95567SM	Mounted Tire & Wheel - W610-6	-	2	Prior to Serial Number B36910100
19	9501438-687	Capscrew 3/4-10UNC x 9 1/2 (Black)	8	8	
	9501438-448	Capscrew 3/4-10UNC x 8 1/2 (Black)			
	9501438-160	Capscrew 3/4-10UNC x 7 1/2 (Black)			
20	9501443-037	Locknut 3/4-10UNC	8	8	

Tank Fill Kit Raven ISO Only (Optional)

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



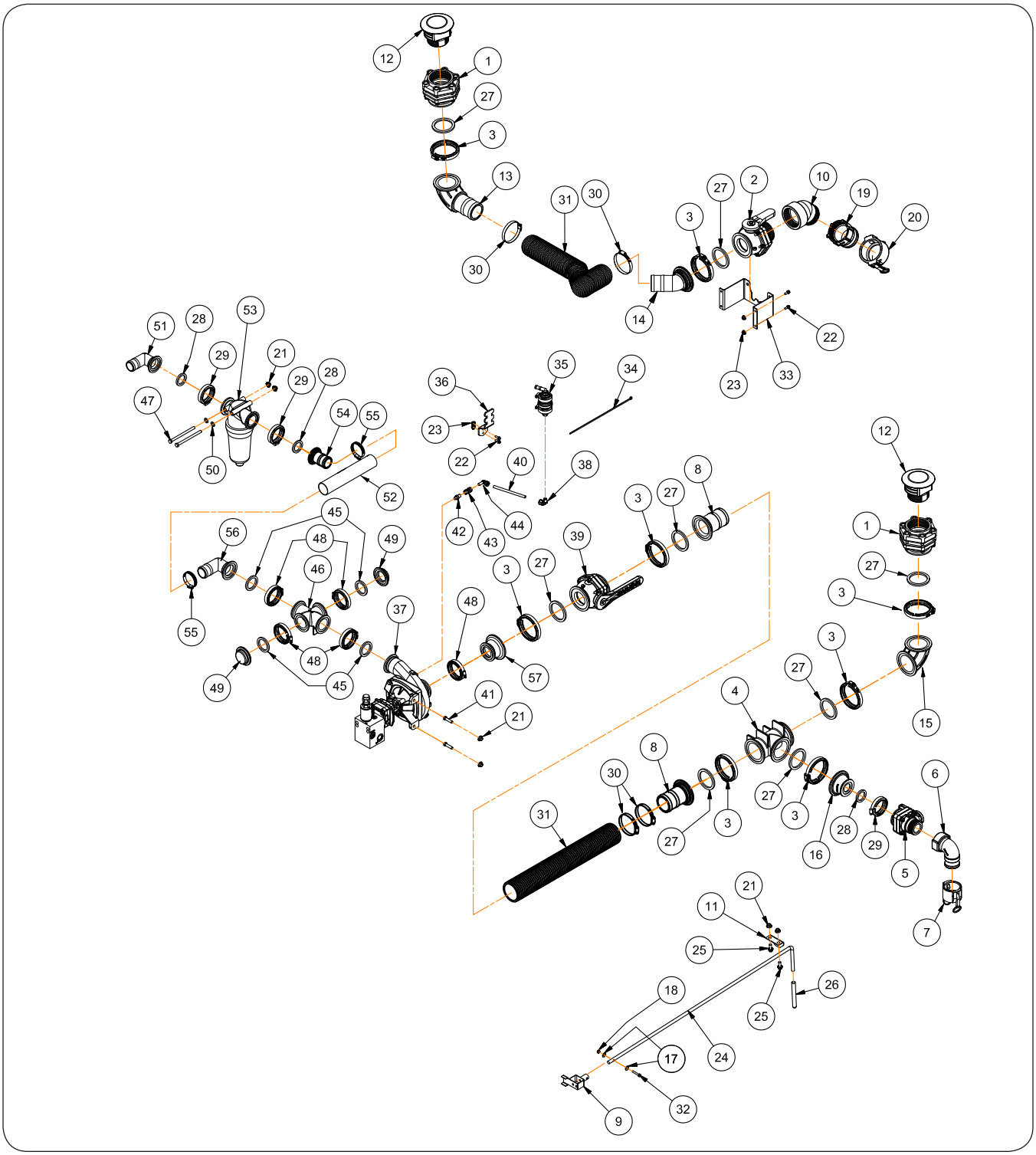
ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	412471	Tank Fill Kit	-	
1	9007195	Elbow, 3" Flange x 3" Flange	1	
2	9007752	Raven ISO Tank Fill Kit	1	
3	TA816038	Gasket, 3"	2	
4	TA816039	Flange Clamp, 3"	2	
5	TA816047	Hose Barb, 3" Flange x 3" Straight	1	

Notes

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

Undercarriage Plumbing Components

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



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	TA816042	Tank Flange 3" Manifold	2	
2	TA816041	Ball Valve Poly 3" Flange x 3" NPT Adapter	1	
3	TA816039	3" Flange Worm Screw Clamp	8	
4	TA816051	Tee 3" Flange x 3" Flange x 3" Flange	1	

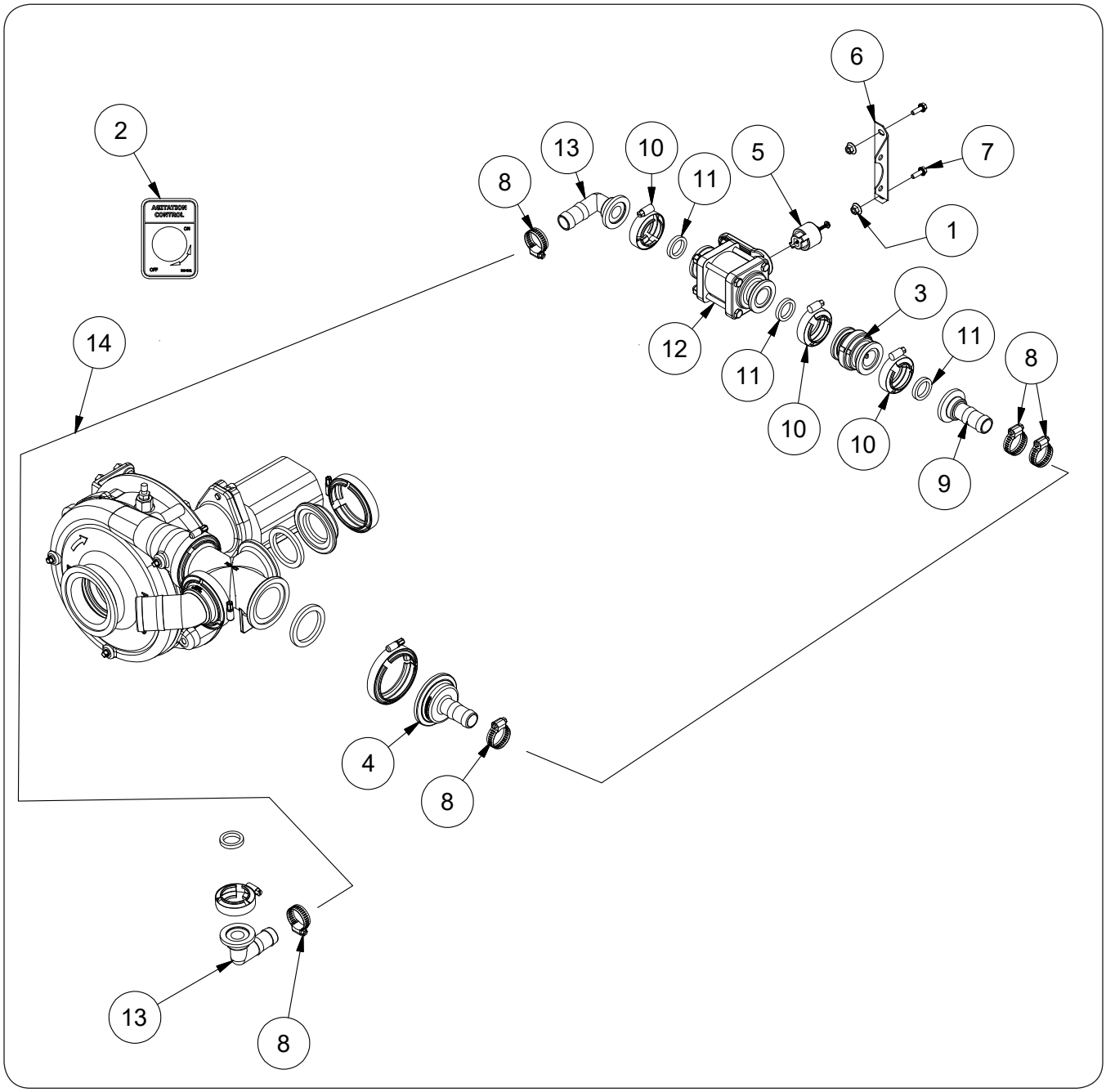
Undercarriage Plumbing Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
5	TA816022	Stubby Valve 2" Flange x 2" MPT	1	
6	TA811828	90° Elbow Poly Coupling 2" Male Adapter x 2" NPTF Female	1	
7	TA811500	Cap Coupler Poly 2"	1	
8	TA816047	Hose Barb 3" Flange x 3" Hose Shank	1	
9	402611B	Handle Weldment =Black=	1	
10	TA814730	45° Elbow Poly 3" MPT x 3" FPT	1	
11	402635B	Handle Bracket =Black=	1	
12	TA816053	Plug 3" Anti-Vortex	2	
13	9007117	90° Elbow Sweep Poly 3" Flange x 3" Hose Barb	1	
14	9005528	45° Elbow 3" Flange x 3" Hose Shank	1	
15	9007195	90° Elbow Sweep Poly 3" Flange x 3" Flange	1	
16	9007201	Coupler-Reducer 3" Flange x 2" Flange	1	
17	9405-064	Flat Washer 1/4" USS	2	
18	9936	Locknut 1/4-20UNC	1	
19	TA811810	Poly Fitting 3" Male Quick Coupler x 3" FPT	1	
20	TA811816	Cap Poly 3" Female Quick Coupler	1	
21	91263	Nut/Large Flange 3/8-16UNC	6	
22	97420	Flange Screw 1/4-20UNC x 3/4 (Grade 5)	6	
23	97189	Hex Nut/Large Flange 1/4-20UNC	6	
24	411907B	Valve Dump Handle =Black=	1	
25	91262	Flange Screw 3/8-16UNC x 1 (Grade 5)	6	
26	9004015	Yellow Grip	1	
27	TA816038	Gasket 3" EPDM	8	
28	TA811944	Gasket 1 5/8" EPDM	3	
29	TA815025	2" Flange Worm Screw Clamp	3	
30	TA800926	Hose Clamp, Worm Drive (SC-52)	4	
31	TA806334	Fertilizer Hose 3"	6	
32	9390-007	Capscrew 1/4-20UNC x 1 1/2 (Grade 5)	1	
33	410419B	Valve Bracket =Black=	1	
34	9000107	Cable Tie	2	
35	411078	Air Vent Assembly	1	
36	412062B	Vent Bracket Plate =Black=	1	
37	9007141	Pump Hypro 9306C Shown	1	
38	TA720802	90° Elbow 1/4" NPT x 1/4" Gauge Tube	1	
39	9007196	Stubby Valve 3" Flange x 3" Flange	1	
40	TA720620	Gauge Tubing 1/4" Dia. (Specify by Feet)	1	
41	9390-057	Capscrew 3/8-16UNC x 1 1/2 (Grade 5)	4	
42	9007182	Nipple Hex 1/4" NPT to 1/8" NPT	1	
43	9007341	Plastic Push-In Fitting 3/8" Push to Connect x 1/4" FNPT	1	
44	9005205	90° Elbow 3/8" Push Lock x 3/8" Stem	1	
45	TA816001	Gasket 2" Full Port Flange EPDM	4	
46	9007194	2" Full Port Flange Cross	1	
47	9390-070	Capscrew 3/8-16UNC x 5 1/2	2	
48	TA816000	Clamp 2" Full Port Flange	4	
49	TA816013	Manifold Plug 2" Full Port Flange	1	For SN B39050100 & Higher
			2	For SN B39050099 & Lower
50	9405-074	Flat Washer 3/8" SAE	2	
51	TA815021	90° Elbow 2" Flange x 2" Hose Barb	1	
52	TA806328	Hose 2" EPDM	15 Ft.	
53	TA855650	Strainer Bracket Weldment =Black=	1	
54	TA815016	Hose Barb 2" Flange x 2" Hose Shank	1	
55	TA800922	Worm Drive Hose Clamp	2	
56	TA816009	90° Elbow 2" Full Port Flange x 2" Hose Barb	1	
57	9007455	Couler-Reducer 3" Flange x 2" Full Port Flange	1	

Inductor Plumbing Components - For SN B39050100 & Higher

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



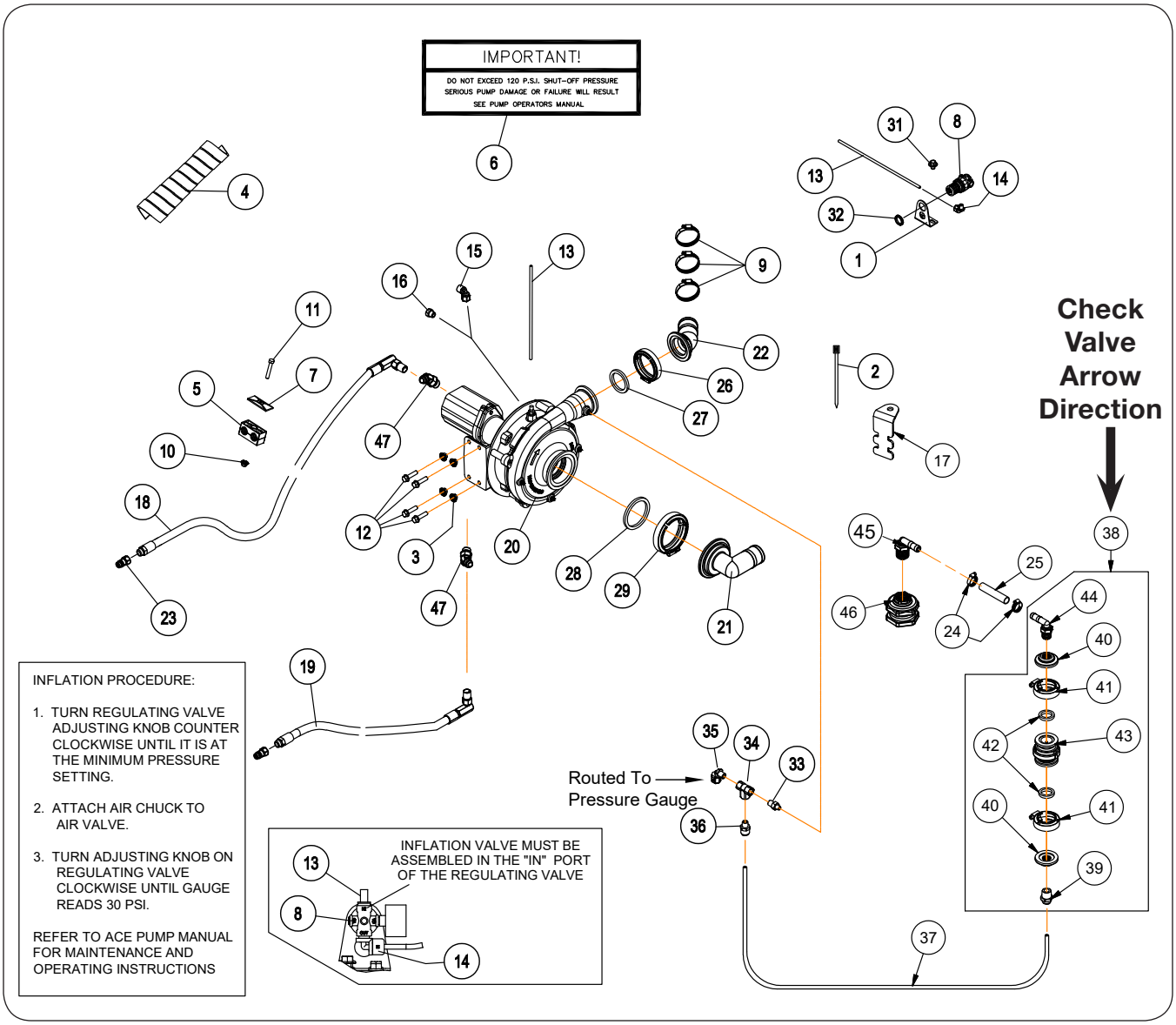
Inductor Plumbing Components - For SN B39050100 & Higher

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

ITEM	DESCRIPTION	PART NO.	QTY	NOTES
1	Large Flange Nut 1/4-20UNC	97189	2	
2	Decal, Agitation Control	9004361	1	
3	Check Valve 1" Flange	9006665	1	
4	Adapter 2" Full Port Flange x 1" Hose Barb	9007335	1	
5	Handle Risert w/Screw	9007360	1	
6	Inductor Valve Bracket	TA620369B	1	
7	Flange Screw 1/4-20UNC x 3/4	97420	2	
8	Hose Clamp SAE #16	TA800912	5	
9	Adapter 1" Flange x 1" Hose Barb	TA815013	1	
10	Clamp 1" Worm Screw	TA815026	3	
11	Gasket/Flange 1"	TA815029	3	
12	Valve 1" Flange	TA815040	1	
13	90° Elbow 1" Flange x 1" Hose Barb	TA815018	2	
14	1" EPDM Hose	TA806275	4 Ft.	

Pump — ACE HYD 750 Plumbing

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



ITEM	DESCRIPTION	PART NO.	QTY.	NOTES
1	Regulator Bracket	407597B	1	
2	Cable Tie, 6" Lg.	9000106	4	
3	Large Flange Nut, 3/8-16UNC	91263	6	Grade 5
4	Spiral Hose Wrap	9004075	A/R	
5	Poly Double Hose Clamp	9004856	1	
6	Decal, "IMPORTANT"	TA510212	1	
7	Top Plate for Hose Clamp	9004857	1	
8	Regulating Valve	408097	1	
9	Hose Clamp, SS (SC-36)	TA800922	3	
10	Large Flange Hex Nut 5/16-18UNC	91257	1	
11	Capscrew 5/16-18UNC x 2 1/4	9390-035	1	Grade 5

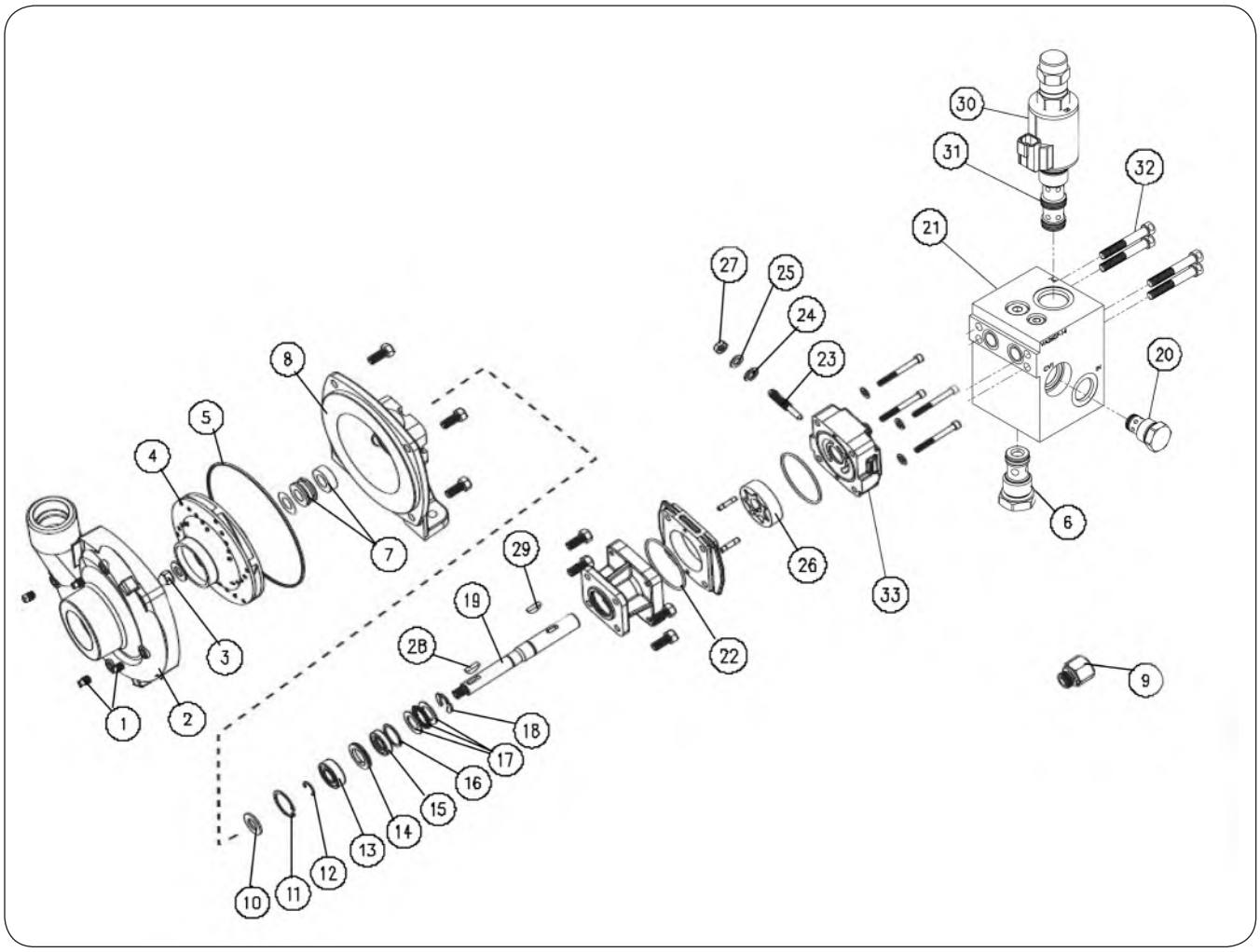
Pump — ACE HYD 750 Plumbing

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

ITEM	DESCRIPTION	PART NO.	QTY.	NOTES
12	Capscrew 3/8-16UNC x 1 1/4	9390-056	4	Grade 5
13	Gauge Tubing 1/4" Dia.	TA720620	A/R	
14	90° Elbow 1/4" NPT x 1/4" Gauge Tube	TA720802	1	
15	90° Elbow 1/4" FPT x 1/4" Gauge Tube	TA720812	1	
16	1/4" Close Nipple	TA809325	1	
17	Vent Bracket	412062B	1	
18	Hose Marker	9003935	1	For 1/2" Hose
		9009304		For 3/4" Hose
	Hose 3/4 x 232 (3000 PSI)	9009303	1	For SN B41810100 & Higher
	Hydraulic Pump Hose Replacement Kit (Black)	415540B		For SN B41810099 & Lower
19	Hose Marker	9003936	1	For 1/2" Hose
		9009305		For 3/4" Hose
	Hose 3/4 x 232 (3000 PSI)	9009303	1	For SN B41810100 & Higher
	Hydraulic Pump Hose Replacement Kit (Black)	415540B		For SN B41810099 & Lower
20	ACE 750 Hydraulic	9005840	1	
21	90° Elbow 3" Flange x 2" Hose Barb	9005844	1	
22	45° Elbow 2" Flange x 2" Hose Barb	9005845	1	
23	Male Tip Couplng	91383	2	For 1/2" Hose
		95477		For 3/4" Hose
24	Hose Clamp M-6	TA800902	1	Stainless Steel
25	Hose 1/2" EPDM	TA806225	A/R	Specify in Feet
26	Worm Screw Flange Clamp 2"	TA816000	1	
27	Gasket 2"	TA816001	1	
28	Gasket 3"	TA816038	1	
29	Worm Screw Flange Clamp 3"	TA816039	1	
31	Flange Screw, 3/8-16UNC x 1/2 Gr.5	9006040	2	
32	Regulator Metal Panel Nut	9006051	1	
33	Pipe Nipple, 1/4" NPT x 1/8" NPT	9007182	1	Stainless Steel
34	Poly Pipe Tee, 1/4"	TA809190	1	
35	Elbow, 1/4" NPT x 1/4" Gauge Tube	TA720802	1	
36	Quick Coupler 1/4-18 NPT x 3/8" ID	TA750120	1	
37	3/8" OD Tubing	TA750051	A/R	Specify in Feet
38	Air Vent Assembly	411078	1	Includes Items 39 through 44
39	3/8" Push to Connect x 1/2" MNPT	9007340	1	
40	1" Flange Plug x 1/2" FPT	TA816023	2	
41	Flange Clamp 1" Worm Screw	TA815026	2	
42	Gasket - 1" EPDM	TA815029	2	
43	1" Flange Check Valve	9007339	1	
44	90° Elbow 1/2-14 NPTF Male x 1/2 Hose Shank	TA814956	1	
45	90° Elbow 3/4-14 NPTF Male x 1/2 Hose Shank	TA814960	1	
46	Manifold Fitting 3/4" Double Threaded	TA805408	1	1 5/8" Hole Required
47	45° Elbow 7/8-14 JIC Male x 7/8-14 ORMB	9502614	2	

Hydraulically Driven Centrifugal PWM Pump - HYPRO 9306C-HM1C

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



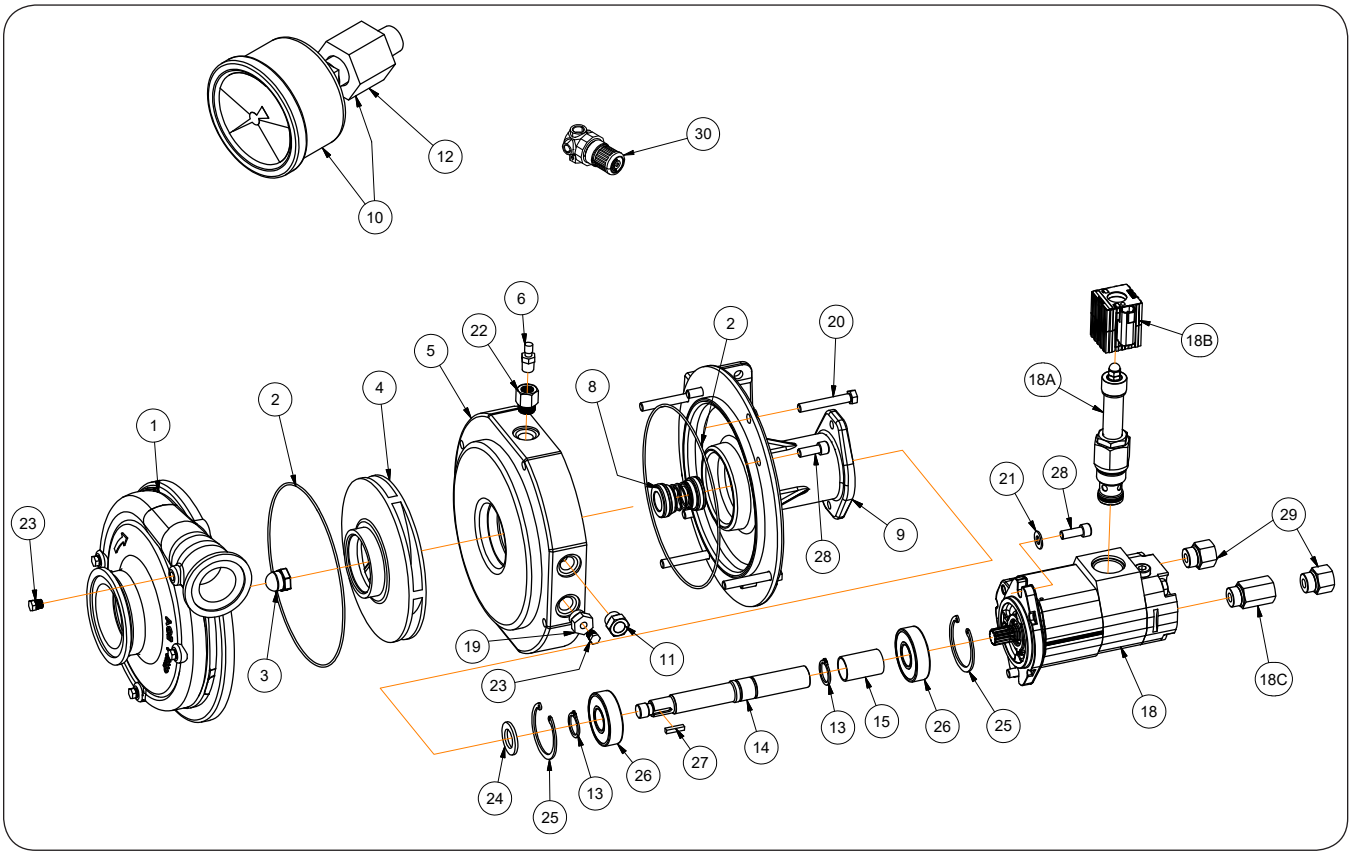
Hydraulically Driven Centrifugal PWM Pump - HYPRO 9306C-HM1C

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
	9007141	Pump Complete, Hypro 9306C-HM1C	1	Includes Items 1 thru 29
1	TA840300	Drain Vent Plug	4	
2	N/A	Pump Casing	1	
3	TA840101	Impeller Nut	1	
4	TA836050	Impeller	1	
5	TA838775	O-Ring	1	
6	9007536	Check Valve #12	1	
7	TA839575	Viton Seal	1	
8	TA837475	Mounting Flange	1	
9	98801	Port Adapter	2	
10	TA838300	Slinger Ring	1	
11	TA839125	Retaining Ring	1	
12	TA839050	Snap Ring	1	
13	TA839250	Ball Bearing	1	
14	TA838325	Spacer	1	
15	TA839450	Shaft Seal	1	
16	TA838350	Seal Spacer	1	
17	TA839350	Thrust Bearing Assembly	1	
18	TA839075	Snap Ring	1	
19	TA837050	Shaft, 7”	1	
20	9007537	Check Valve #10	1	
21	9007542	PWM Manifold Assembly	1	
22	TA838900	O-Ring	2	
23	TA840400	Bypass Adjusting Screw	1	
24	TA838700	Gasket	1	
25	TA840225	Washer	1	
26	TA841225	Gerotor	1	
27	TA840075	Lock Nut	1	
28	TA838625	Woodruff Key	1	
29	TA838650	Roll Pin	1	
30	9007540	PWM Valve Coil	1	
31	9007538	Proportional Cartridge Valve	1	
32	9007541	Capscrew	4	
33	9007535	Motor End Cover	1	

Hydraulically Driven Centrifugal PWM Pump - (ACE 755) (SS)

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



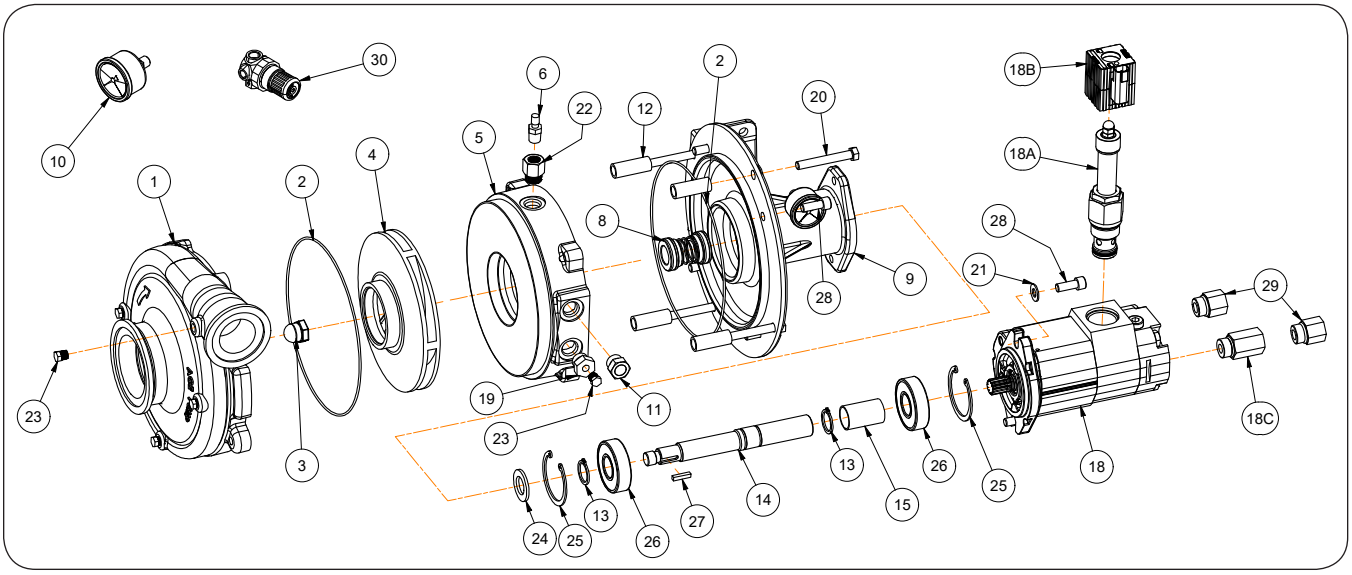
Hydraulically Driven Centrifugal PWM Pump - (ACE 755) (SS)

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

ITEM	DESCRIPTION	PART NO.	QTY.	NOTES
	PWM Pump, 755 Stainless Steel	9008739	1	
	Pump Seal Repair Kit	9005519	-	Includes Items 2, 8, and 16
1	Volute, 300 x 220 Flange, Stainless Steel	9008855	1	
2	O-Ring	9005503	2	
3	Acorn Nut, 5/8-11 SS	9005504	1	
4	Impeller (SS)	9008856	1	
5	Seal Plate (SS)	9008853	1	
6	Air Valve, Clamp-In (for Tubeless Tire)	9005507	1	
7	Plug	9005508	1	Not Shown
8	Dual Seal Assembly	9005509	1	
9	Pump Mounting Frame	9005510	1	
10	Pump Pressure Gauge	9008866	1	
11	Oil Level Sight Gauge	9005512	1	
12	Adapter, 1/4 x 1/8 (SS)	9008860	1	
13	Snap Ring	9005514	2	
14	Pump Shaft	9005515	1	
15	Shaft Spacer	9005516	1	
16	Royal Purple Barrier Fluid (Quart)	9005518	1.32	Qty. in quarts
17	Pump Repair Kit	9005519	1	Not Shown
18	PWM Hydraulic Motor Assembly	9008148	1	
18A	Valve	9008228	1	
18B	Coil	9008229	1	
18C	Reverse Check Assembly	9007530	1	
19	Adapter Plug, 3/4 x 1/8 (SS)	9008257	1	
20	Capscrew, 3/8-16UNC x 2 1/2 (SS)	900900-061	4	
21	Flat Washer, 3/8 (SS)	900902-037	3	
22	Adapter, 3/4 x 1/4	99928	1	
23	ACE Pipe Plug (SS)	TA826325	5	
24	Slinger, 7/8" Shaft	TA831022	1	
25	Snap Ring	TA831024	2	
26	Bearing	TA831026	2	
27	Key, .188 x .188 x .875	TA831030	1	
28	Capscrew, 3/8"NC x 1	TA831034	6	
29	Reducer 7/8-14 O-Ring Male x 3/4-16 O-Ring Female	98801	2	
30	Air Regulator	9006050	1	

Hydraulically Driven Centrifugal PWM Pump - (ACE 750)

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



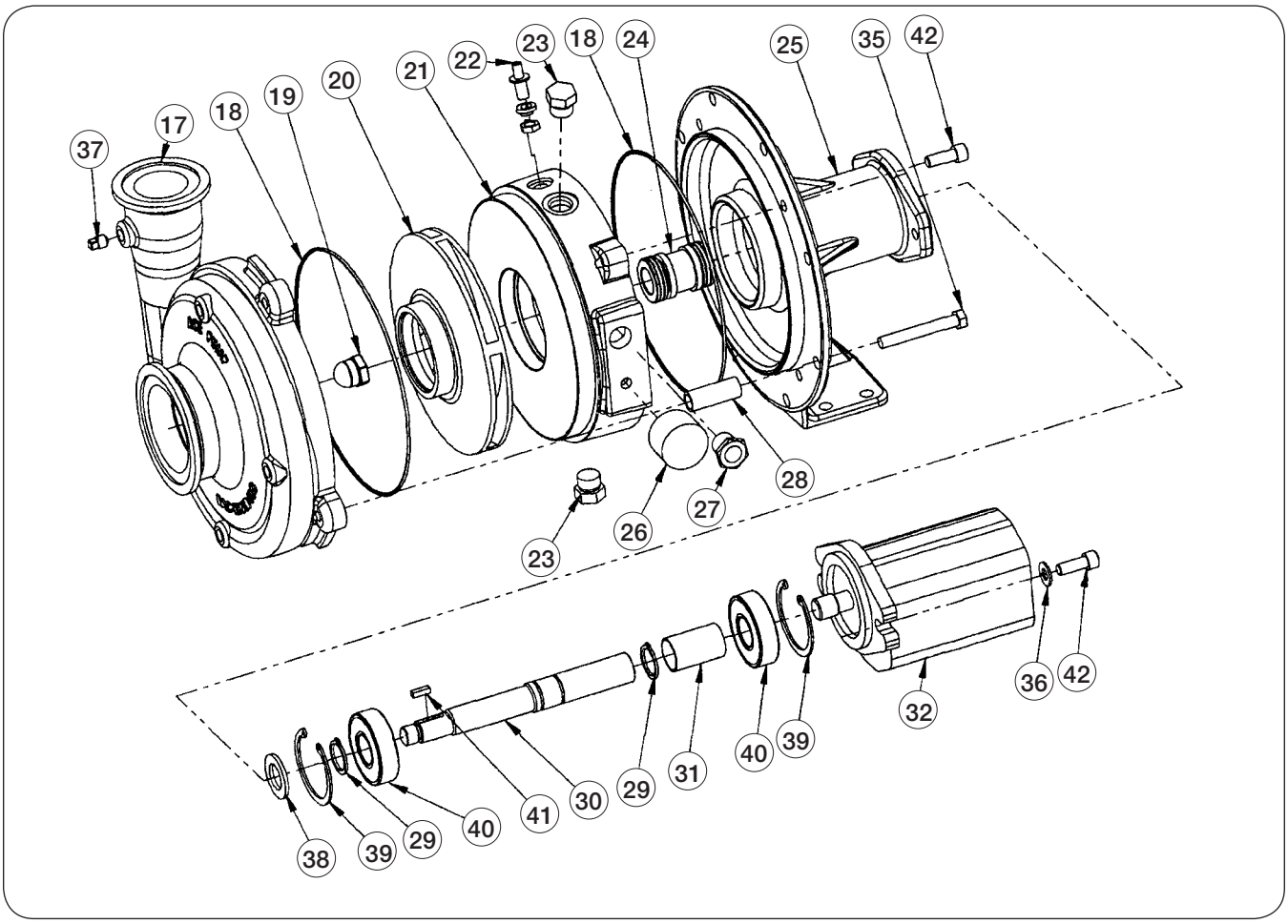
Hydraulically Driven Centrifugal PWM Pump - (ACE 750)

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

ITEM	DESCRIPTION	PART NO.	QTY.	NOTES
	PWM Pump, 750	9008132	1	
	750 Pump Seal Repair Kit	9005519	-	Includes Items 2, 8, and 16
1	Volute, 300 x 220 Flange	9005502	1	
2	O-Ring	9005503	2	
3	Acorn Nut, 5/8-11 SS	9005504	1	
4	Impeller	9005505	1	
5	Seal Plate	9005506	1	
6	Air Valve, Clamp-In (for Tubeless Tire)	9005507	1	
7	Plug	9005508	1	Not Shown
8	Dual Seal Assembly	9005509	1	
9	Pump Mounting Frame	9005510	1	
10	Pump Pressure Gauge	9005511	1	
11	Oil Level Sight Gauge	9005512	1	
12	Spacer Tube	9005513	4	
13	Snap Ring	9005514	2	
14	Pump Shaft	9005515	1	
15	Shaft Spacer	9005516	1	
16	Royal Purple Barrier Fluid (Quart)	9005518	1.32	Qty. in quarts
17	Pump Repair Kit, ACE 750	9005519	1	Not Shown
18	PWM Hydraulic Motor Assembly	9008148	1	
18A	Valve	9008228	1	
18B	Coil	9008229	1	
18C	Reverse Check Assembly	9007530	1	
19	Adapter Plug, 3/4 x 1/8	9008257	1	
20	Capscrew, 3/8-16UNC x 2 3/4	9390-062	4	Grade 5
21	Flat Washer, 3/8	900902-037	3	
22	Adapter, 3/4 x 1/4	99928	1	
23	ACE Pipe Plug	TA826325	5	
24	Slinger, 7/8" Shaft	TA831022	1	
25	Snap Ring	TA831024	2	
26	Bearing	TA831026	2	
27	Key, .188 x .188 x .875	TA831030	1	
28	Capscrew, 3/8"NC x 1	TA831034	6	
29	Reducer 7/8-14 O-Ring Male x 3/4-16 O-Ring Female	98801	2	
30	Air Regulator	9006050	1	

Hydraulically Driven Centrifugal Pump - ACE HYD 750

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



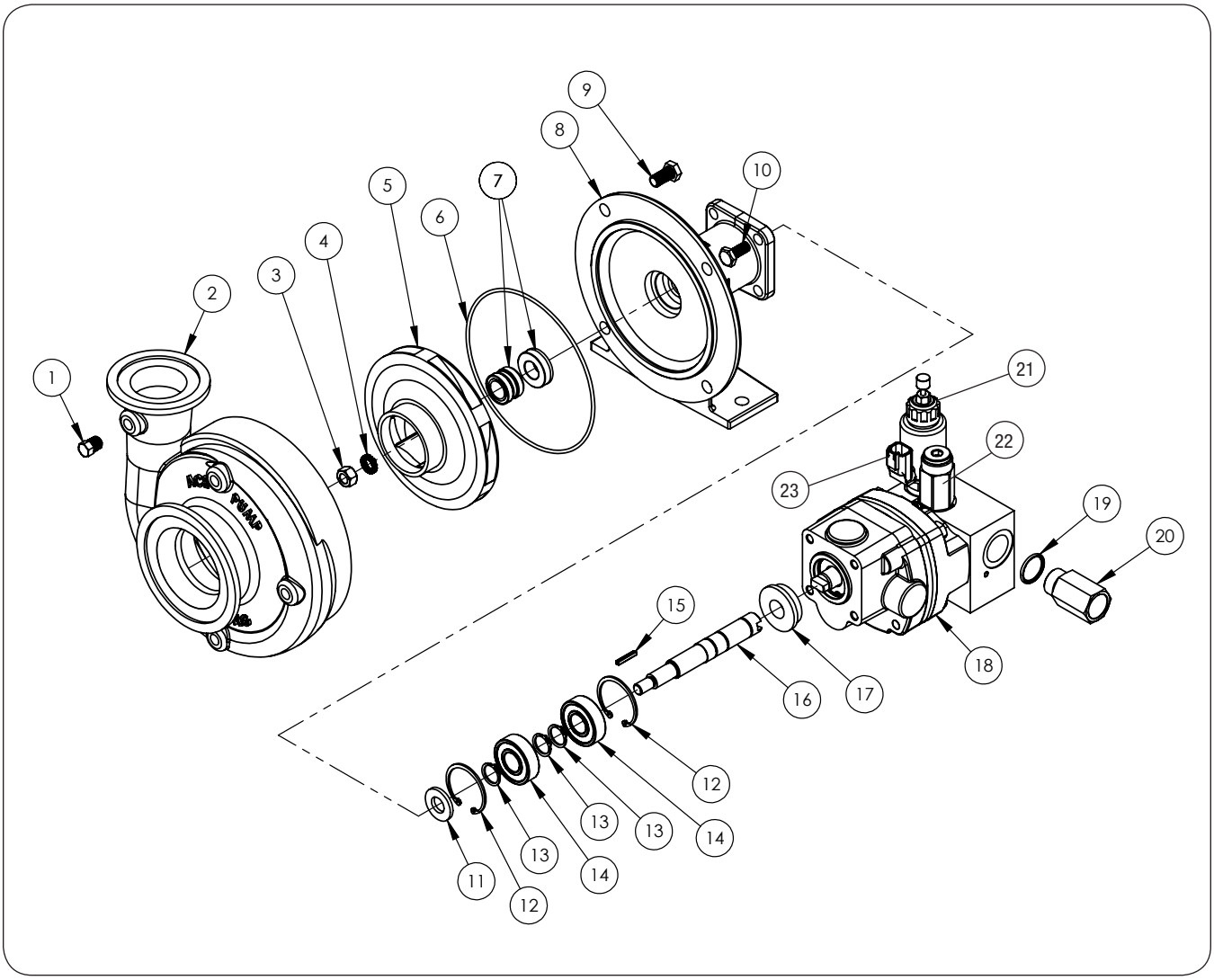
Hydraulically Driven Centrifugal Pump - ACE HYD 750

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
16	9005840	Pump, 750	1	
17	9005502	Volute, 300 x 220 Flange	1	
18	9005503	O-Ring	2	
19	9005504	Acorn Nut, 5/8-11 SS	1	
20	9005505	Impeller	1	
21	9005506	Seal Plate	1	
22	9005507	Air Valve, Clamp-In (for Tubeless Tire)	1	
23	9005508	Plug	2	
24	9005509	Dual Seal Assembly	1	
25	9005510	Pump Mounting Frame	1	
26	9005511	Pump Pressure Gauge	1	
27	9005512	Oil Level Sight Gauge	1	
28	9005513	Spacer Tube	4	
29	9005514	Snap Ring	2	
30	9005515	Pump Shaft	1	
31	9005516	Shaft Spacer	1	
	9005781	Hydraulic Motor Shaft Seal Repair Kit	1	Not Shown
32	9005517	Hydraulic Motor, 18 GPM	1	
33	9005518	Royal Purple Barrier Fluid (Quart)		Not Shown
34	9005519	Pump Repair Kit, ACE 750	1	Not Shown
35	9390-062	Capscrew, 3/8-16UNC x 2 3/4	4	Grade 5
36	9405-076	Flat Washer, 3/8	2	
37	TA826325	ACE Pipe Plug	4	
38	TA831022	Slinger, 7/8" Shaft	1	
39	TA831024	Snap Ring	2	
40	TA831026	Bearing	2	
41	TA831030	Key, .188 x .188 x .875	1	
42	TA831034	Capscrew, 3/8"NC x 1	4	

Hydraulically Driven Centrifugal PWM Pump - FMCSC 205F HYD 304

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



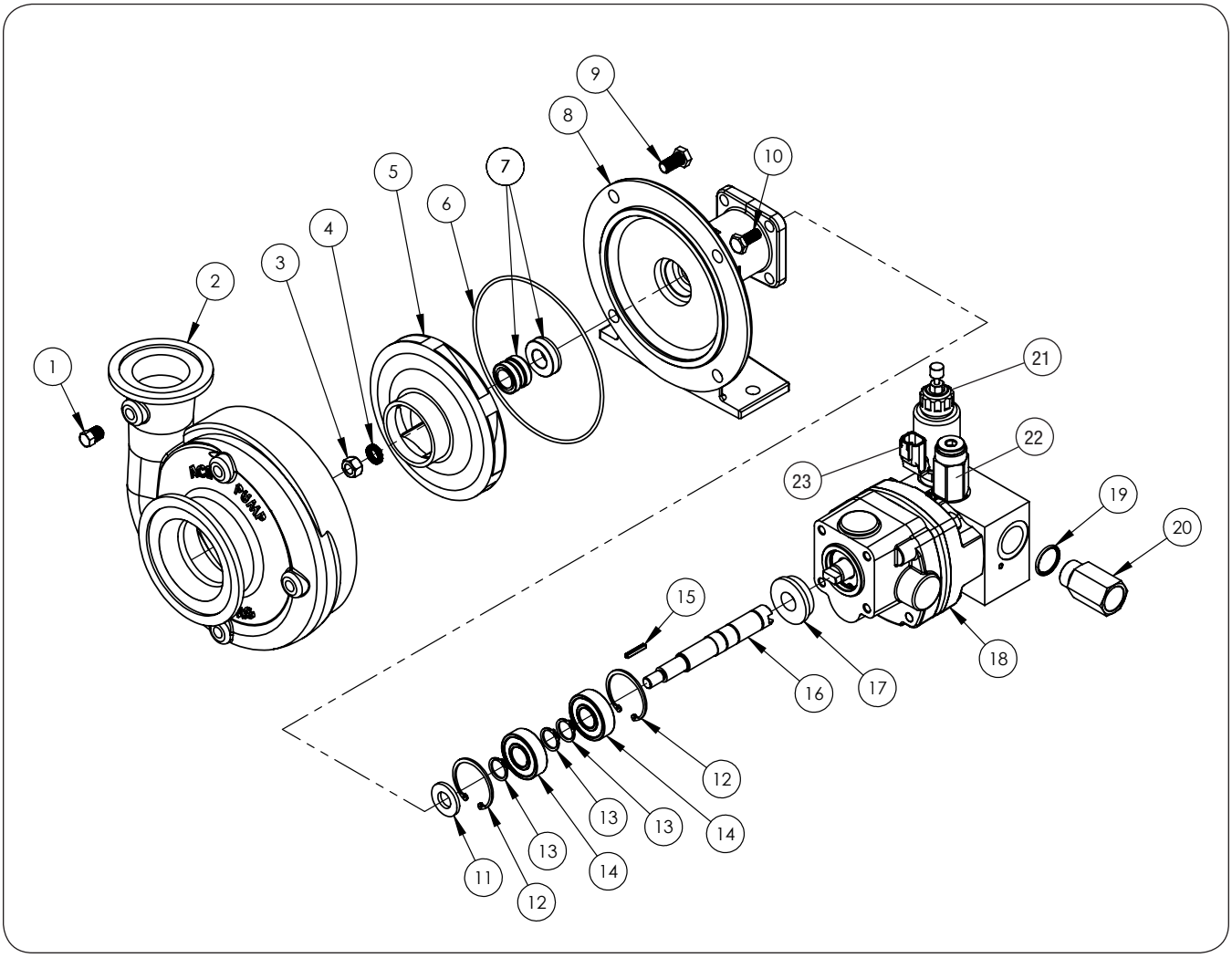
Hydraulically Driven Centrifugal PWM Pump - FMCSC 205F HYD 304

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
	9007100	Pump Complete, ACE FMCSC-205-HYD-304	1	Includes Items 1 thru 22
1	TA826325	Pipe Plug	4	
2	9007526	Volute, 300 Standard Flange x 220 Full Port Flange, Cast Iron	1	
	9005902	Repair Kit - FMC-205 Pump w/Carbide Shaft Seal	-	Not Shown
3	900901-005	Nut, 3/8" UNF, Stainless Steel	1	
4	9007531	Washer, 3/8", Stainless Steel, Self-Locking	1	
5	TA827920	Impeller, Thermoplastic	1	
	TA830732	Impeller, Cast Iron (Optional)		
6	TA827875	O-Ring	1	
7	9005894	Silicon Carbide Seal	1	
8	9005895	Mounting Frame, 205 Pump	1	
9	9390-053	Capscrew, 3/8-16UNC x 3/4	4	
10	TA829300	Capscrew, 5/16-18UNC x 3/4 (Motor to Pump)	4	
11	TA826275	Slinger	1	
12	9005897	Snap Ring, Internal	2	
13	9005898	Snap Ring, External	3	
14	9005899	Ball Bearing, Sealed	2	
15	TA830736	Key, 1/8 x 1/8 x 13/16” - Extended	1	
16	9005900	Shaft, Extended Keyway, Impeller	1	
17	9005901	Seal Support Spacer	1	
18	9007396	Hydraulic Motor, 304/205 - 11 GPM, PWM	1	
	TA830910	Repair Kit - Hydraulic Motor	-	Not Shown
19	TA831035	O-ring, #10 SAE fitting	1	
20	9007530	Reverse check assembly, #10 SAE x #10 SAE	1	
21	9007887	Cartridge Valve Assembly, 12-Volt Proportional	1	
22	9007889	Pressure Reducing Valve Assembly	1	
23	9009262	PWM Pump Coil, ACE 205	1	

Hydraulically Driven Centrifugal PWM Pump - ACE 205 PWM (SS)

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



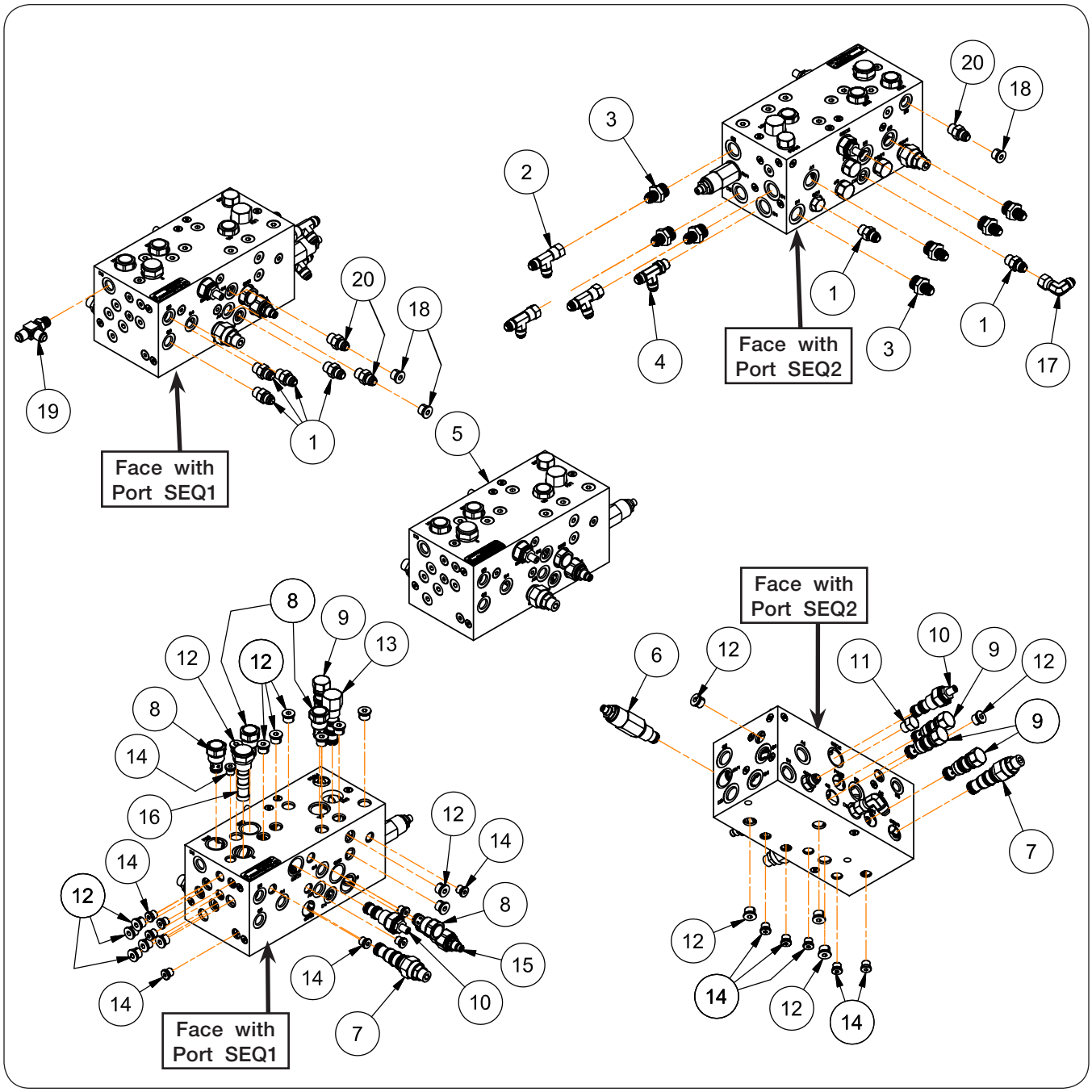
Hydraulically Driven Centrifugal PWM Pump - ACE 205 PWM (SS)

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
	9007431	Pump Complete, ACE FMCSC-205-HYD-304	1	Includes Items 1 thru 22
1	TA826325	Pipe Plug 1/8" NPT, Stainless Steel	4	
2	9007527	Volute, 300 Standard Flange x 220 Full Port Flange, Stainless Steel	1	
	9005902	Repair Kit - FMC-205 Pump w/Carbide Shaft Seal	-	Not Shown
3	900901-005	Nut, 3/8" UNF, Stainless Steel	1	
4	9007531	Washer, 3/8", Stainless Steel, Self-Locking	1	
5	TA827920	Impeller, Thermoplastic	1	
	9007528	Impeller, Stainless Steel (Optional)		
6	TA827875	O-Ring	1	
7	9005894	Silicon Carbide Seal	1	
8	9007529	Mounting Frame, 205 Pump, Stainless Steel	1	
9	900900-053	Capscrew, 3/8-16UNC x 3/4	4	
10	TA829300	Capscrew, 5/16-18UNC x 3/4 (Motor to Pump)	4	
11	TA826275	Slinger	1	
12	9005897	Snap Ring, Internal	2	
13	9005898	Snap Ring, External	3	
14	9005899	Ball Bearing, Sealed	2	
15	TA830736	Key, 1/8 x 1/8 x 13/16" - Extended	1	
16	9005900	Shaft, Extended Keyway, Impeller	1	
17	9005901	Seal Support Spacer	1	
18	9007396	Hydraulic Motor, 304/205 - 11 GPM, PWM	1	
	TA830910	Repair Kit - Hydraulic Motor	-	Not Shown
19	TA831035	O-ring, #10 SAE fitting	1	
20	9007530	Reverse check assembly, #10 SAE x #10 SAE	1	
21	9007887	Cartridge Valve Assembly, 12-Volt Proportional	1	
22	9007889	Pressure Reducing Valve Assembly	1	
23	9009262	PWM Pump Coil, ACE 205	1	

Hydraulic Valve Block Applicator Assembly Components

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



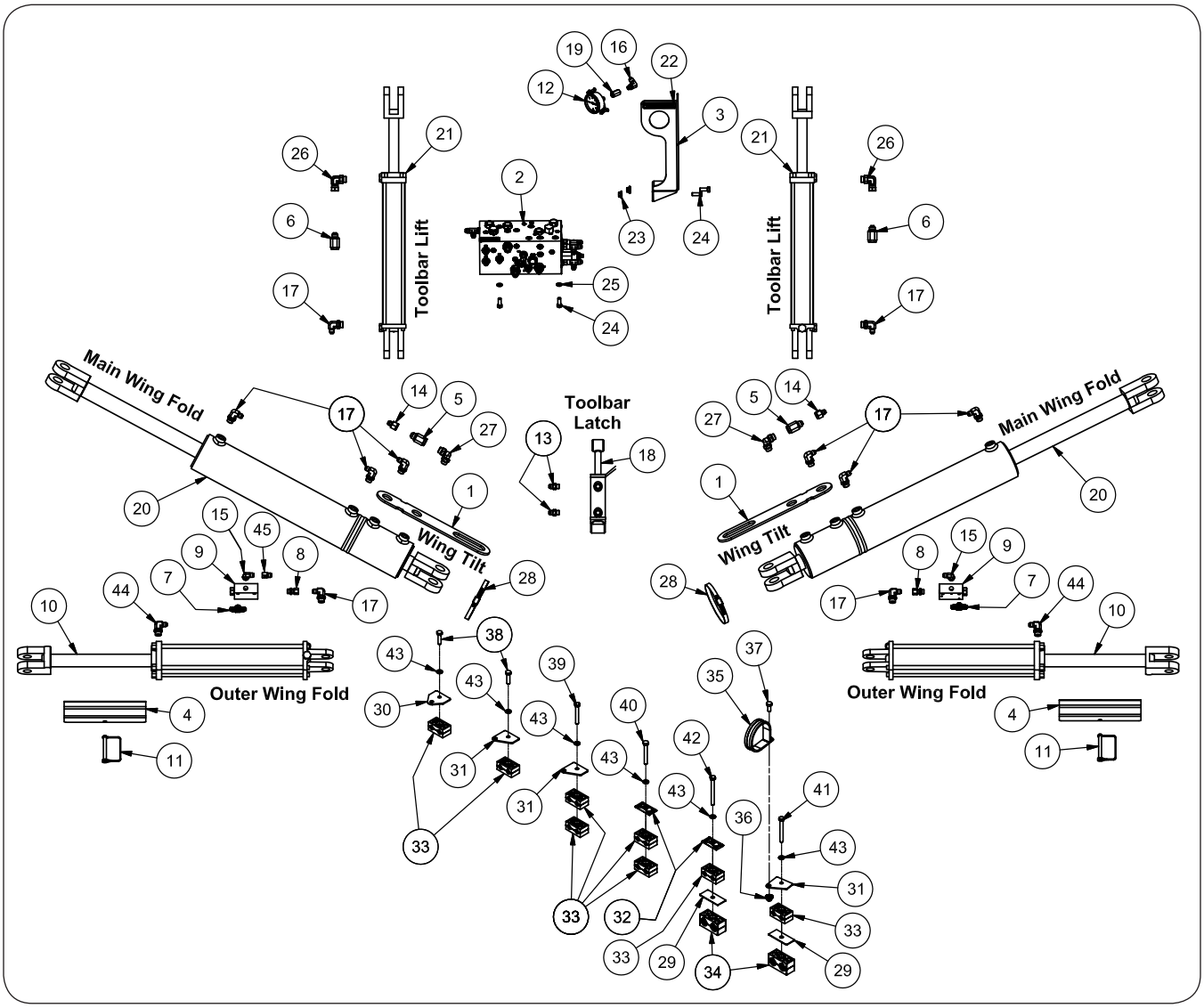
Hydraulic Valve Block Applicator Assembly Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY.		NOTES
			RIGID TOOLBAR	FOLDING TOOLBAR	
	412446	Hydraulic Valve Block Applicator Assembly	-	-	Includes Items 1 through 17
1	9006150	Adapter 9/16-16 JIC Male x 9/16-16 Male O-Ring	6	6	
2	9006157	Tee 9/16 Flare x 9/16 Flare x 9/16 Flare	3	3	
3	9006165	Adapter 9/16 Male Flare x 3/4 O-Ring Male	7	7	
4	9006168	Tee 9/16 Flare x 3/4 O-Ring Male x 9/16 Flare	1	1	
5	9007659	Manual Hydraulic Valve Block Assembly	1	1	Includes Items 6 through 16
6	9007811	Relief Valve	1	1	
7	9007380	Valve, Counterbalance	2	2	
8	9007812	Check Valve	4	4	
9	9007381	Valve, Pilot Operated Check	4	4	
10	9007240	Cartridge Valve - Sequence Valve	2	2	
11	9007243	Hex Plug, 9/16-18	1	1	
12	9003423	Plug, with Hollow Hex Socket 9/16-18 O-Ring Male Boss	19	19	
13	9008504	Logic Element	1	1	
14	9002598	Plug, with Hollow Hex Socket 7/16-20 O-Ring Male Boss	14	14	
15	9007844	Reducing Valve	1	1	
16	9007845	Flow Divider/Combiner Cartridge	1	1	
17	9876	90° Elbow, 9/16-18 JIC Male x 9/16-18 JIC Female	-	1	
18	9003423	Plug, with Hollow Hex Socket 9/16-18 O-Ring Male Boss	4	-	
19	9004064	Straight Run Tee, 9/16-18 Male O-Ring to 9/16 Male JIC	-	1	
20	9006150	Adapter 9/16-16 JIC Male x 9/16-16 Male O-Ring	-	3	

Hydraulic Components (Except Hydraulic Hoses)

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



ITEM	PART NUMBER	DESCRIPTION	RIGID TOOLBAR	FOLDING TOOLBAR	NOTES
1	411740B	Plate, Cylinder Anti-Rotation	2	2	
2	-	Applicator Valve Block Assembly	1	1	
3	412459B	Gauge Mount Weldment =BLACK=	1	1	
4	412805B	Cylinder Stop Kit	1	1	
5	75435	In-Line Check Valve with 0.055 Restrictor	2	2	
6	88685	In-Line Check Valve with 0.078 Restrictor	2	2	
7	9001710	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 O-Ring Male	-	2	
8	9006150	Adapter 9/16-18 Male Flare x 9/16-18 O-Ring Male	2	2	Beginning w/ Serial Number B36910100
	9002446	Adapter 9/16-18 O-Ring Male x 9/16-18 JIC Female Swivel Nut	2	2	Prior To Serial Number B36910100
9	9003990	Pilot Operated Check Valve Block	2	2	

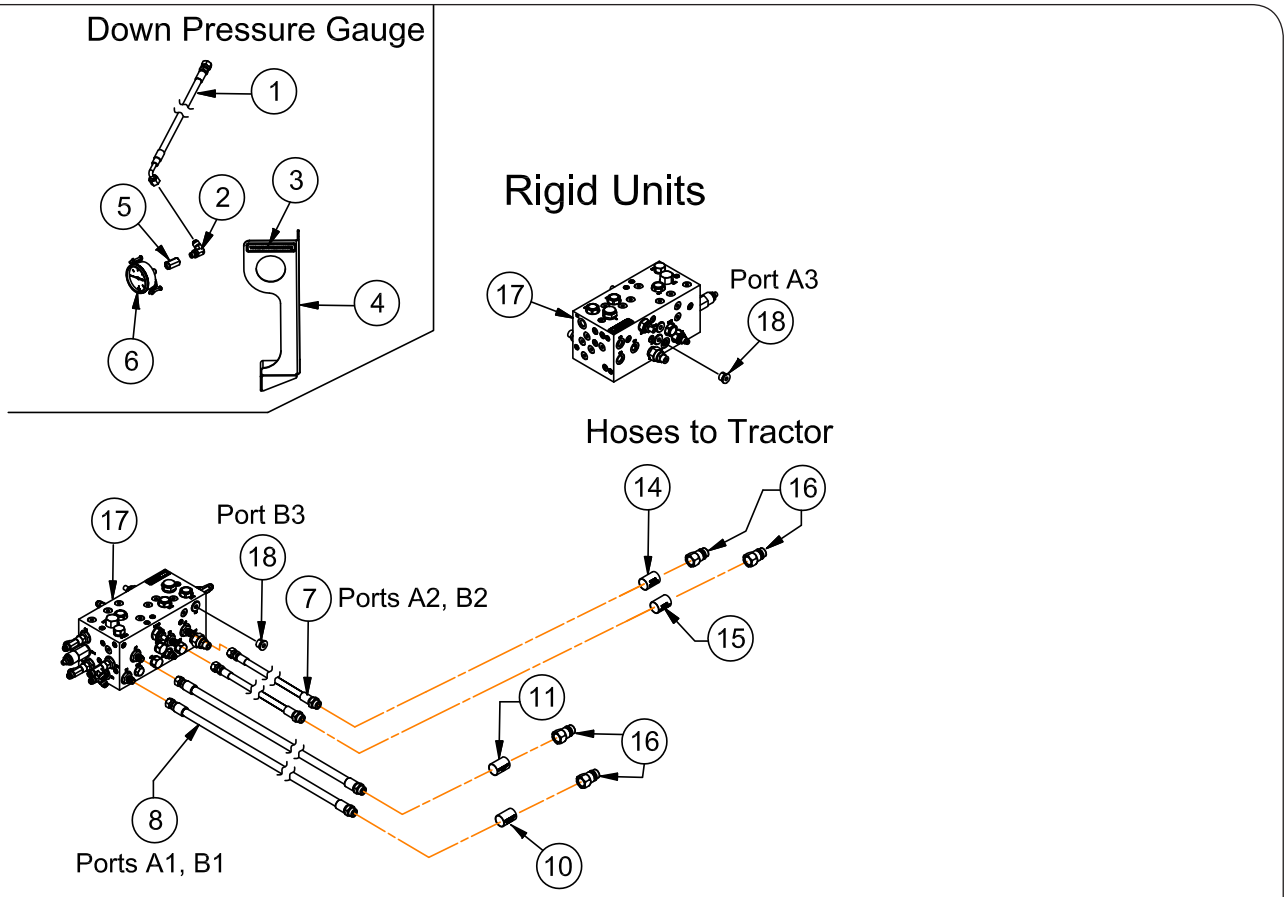
Hydraulic Components (Except Hydraulic Hoses)

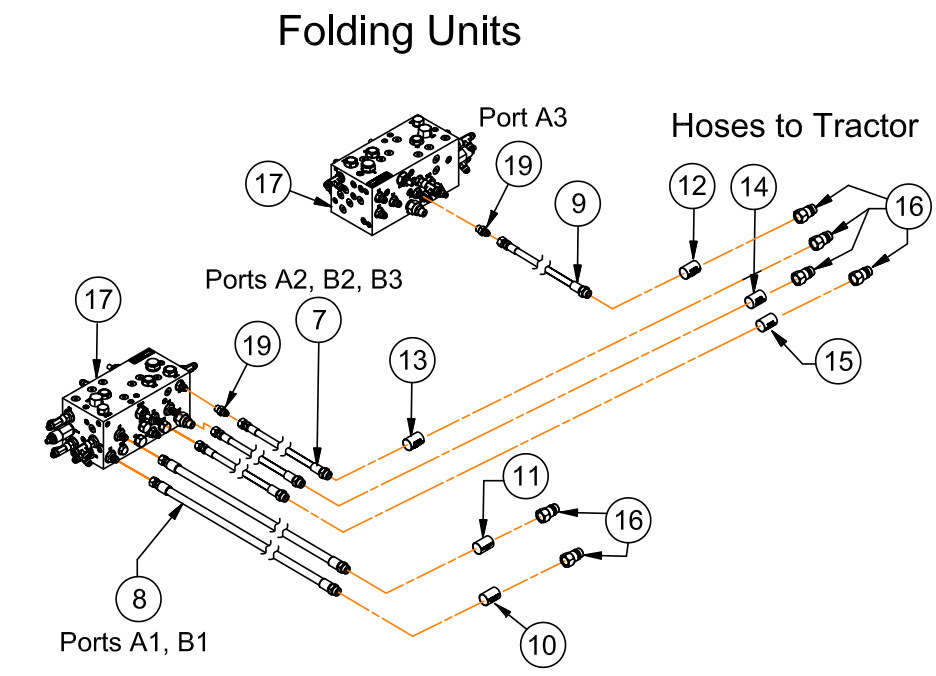
Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	PART NUMBER	DESCRIPTION	RIGID TOOLBAR	FOLDING TOOLBAR	NOTES
10	9004660	Hydraulic Cylinder 3" x 16"	-	2	
	9004382	Seal Kit	-	-	
11	9005305	Lynch Pin 3/8" Dia. x 3"	2	2	
12	9006017	Gauge (3000 PSI)	1	1	
13	9006150	Adapter 9/16-18 Male Flare x 9/16-18 O-Ring Male	2	2	
14	9006152	TB Reducer 3/4-16 Female JIS x 9/16-16 Male Flare	2	2	
15	9006171	90° Elbow 9/16 Male Flare x 9/16 O-Ring Male	2	2	
16	9006172	90° Elbow 9/16 Male Flare x 7/16 O-Ring Male	1	1	
17	9006173	90° Elbow 9/16 Male Flare x 3/4 O-Ring Male	8	10	
18	9006935	Hydraulic Cylinder 1 1/2" x 2 1/2"	1	1	
	9006089	Seal Kit	-	-	
19	9007580	Coupling-O-Ring, 7/16	1	1	
20	9007655	Hydraulic Cylinder 4 1/2" x 21" (Twin Piston)	2	2	
	9007852	Seal Kit	-	-	
21	9007793	Hydraulic Cylinder 2 1/2" x 16"	2	2	
	9007849	Seal Kit	-	-	
22	9007846	Decal, "Toolbar Down Pressure"	1	1	
23	91263	Nut/Large Flange 3/8"-16UNC	2	2	
24	9390-055	Capscrew 3/8"-16UNC x 1" Gr5	4	4	
25	9404-021	Lock Washer 3/8"	2	2	
26	95811	90° Elbow 3/4-16 O-Ring Male x 3/4-16 JIC Female	2	2	
27	TA0-924696-0	90° Elbow 3/4-16 O-ring Male x 3/4-16 O-Ring Male	2	2	
28	9007828	Hose Clamp	2	2	
29	410873B	Plate - Hose Clamp Spacer	4	4	
30	411427B	Clamp Plate	6	6	
31	411915B	Clamp Plate	5	5	
32	9003814	Top Plate	13	13	
33	9003816	Poly Double Hose Clamp (0.54)	36	36	
34	9004856	Poly Double Hose Clamp (0.87)	4	4	
35	9007320	Metal Cable Clamp 3" x 3/4"	1	1	
36	91257	Hex Nut/Large Flange 5/16"-18UNC	5	5	
37	9390-028	Capscrew 5/16"-18UNC x 3/4" Gr5	1	1	
38	9390-031	Capscrew 5/16"-18UNC x 1 1/4" Gr5	8	8	
39	9390-035	Capscrew 5/16"-18UNC x 2 1/4" Gr5	3	3	
40	9390-036	Capscrew 5/16"-18UNC x 2 1/2" Gr5	10	10	
41	9390-037	Capscrew 5/16"-18UNC x 2 3/4" Gr5	1	1	
42	9390-039	Capscrew 5/16"-18UNC x 3 1/4" Gr5	3	3	
43	9404-019	Lock Washer 5/16"	24	24	
44	9008101	90° Elbow 3/4-16 O-Ring Male x 9/16-18 JIC Female	-	2	Beginning w/ Serial Number B36910100
	9006173	90° Elbow 9/16 Male Flare x 3/4 O-Ring Male	-	2	Prior To Serial Number B36910100
45	9006161	Reducer 9/16-18 JIC Female x 9/16-18 O-Ring Male w/Restrictor	-	2	Beginning w/ Serial Number B36910100

Hydraulic Hoses to Tractor & Toolbar Down Pressure Gauge

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





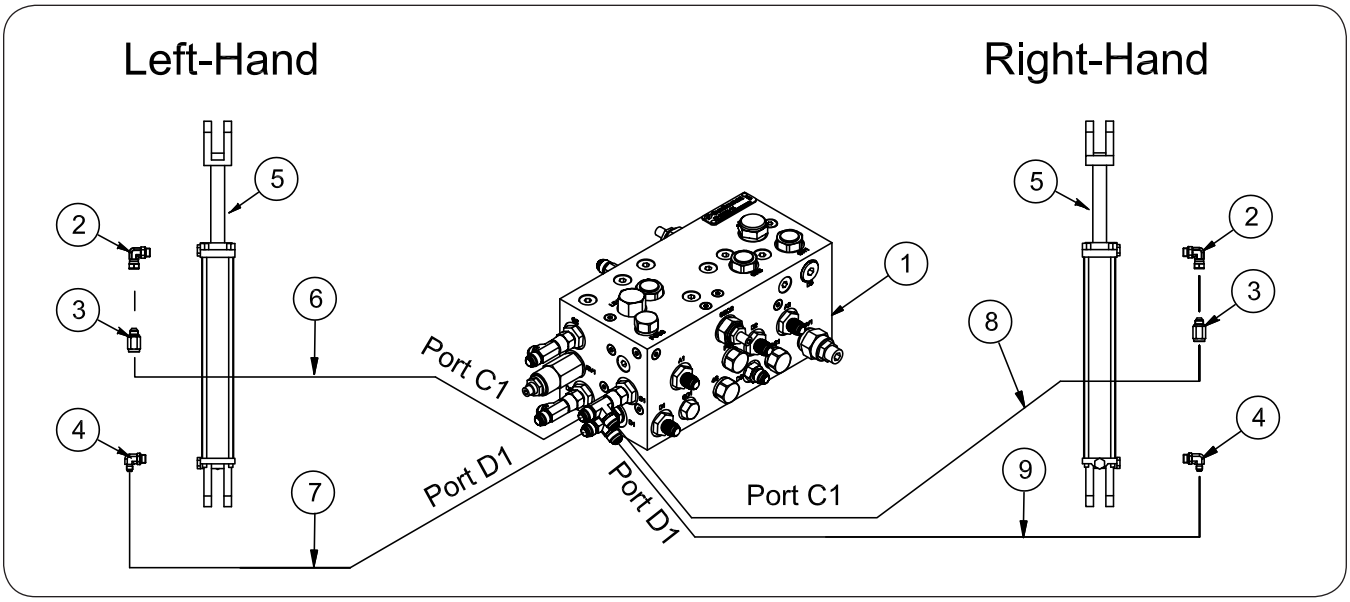
Hydraulic Hoses to Tractor & Toolbar Down Pressure Gauge

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

ITEM	PART NUMBER	DESCRIPTION	QTY		NOTES
			RIGID TOOLBAR	FOLDING TOOLBAR	
1	9004112	Hydraulic Hose 1/4" x 14" 9/16-18 JIC Female x 9/16-18 JIC 90° Female Short Drop	1	1	
2	9006172	90° Elbow 9/16 Male Flare x 7/16 O-Ring Male	1	1	
3	9007846	Decal, "Toolbar Down Pressure"	1	1	
4	412459B	Gauge Mount Weldment =BLACK=	1	1	
5	9007580	Coupling-O-Ring, 7/16	1	1	
6	9006017	Gauge (3000 PSI)	1	1	
7	9008556	Hydraulic Hose 1/4" x 226" 3/4-16 O-Ring Male x 9/16-18 JIC Female	2	3	
8	9008645	Hydraulic Hose 3/8" x 224" 3/4-16 O-Ring Male x 9/16-18 JIC Female	2	2	
9	9003339	Hydraulic Hose 1/4" x 243 1/2" 3/4-16 O-Ring Male x 9/16-18 JIC Female	-	1	
10	9007463	Hose Marker-Main Lift Down (Red)	1	1	
11	9007464	Hose Marker-Main Lift Up (Red)	1	1	
12	9007466	Hose Marker-Outer Wing Fold In (Blue)	-	1	
13	9007465	Hose Marker-Outer Wing Fold Out (Blue)	-	1	
14	9007467	Hose Marker-Wing Fold In (Gray)	1	1	
15	9007468	Hose Marker-Wing Fold Out (Gray)	1	1	
16	91383	Male Tip Coupling 3/4-16 JIC	4	6	
17	9007659	Hydraulic Block Valve Assembly	1	1	
18	9003423	Plug 9/16-18 O-Ring Male Boss W/Hollow Hex Socket	2	-	
19	9006150	Adapter 9/16-18 Male Flare x 9/16-18 O-Ring Male	-	2	

Hydraulic Hoses to Toolbar Lift Cylinders

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



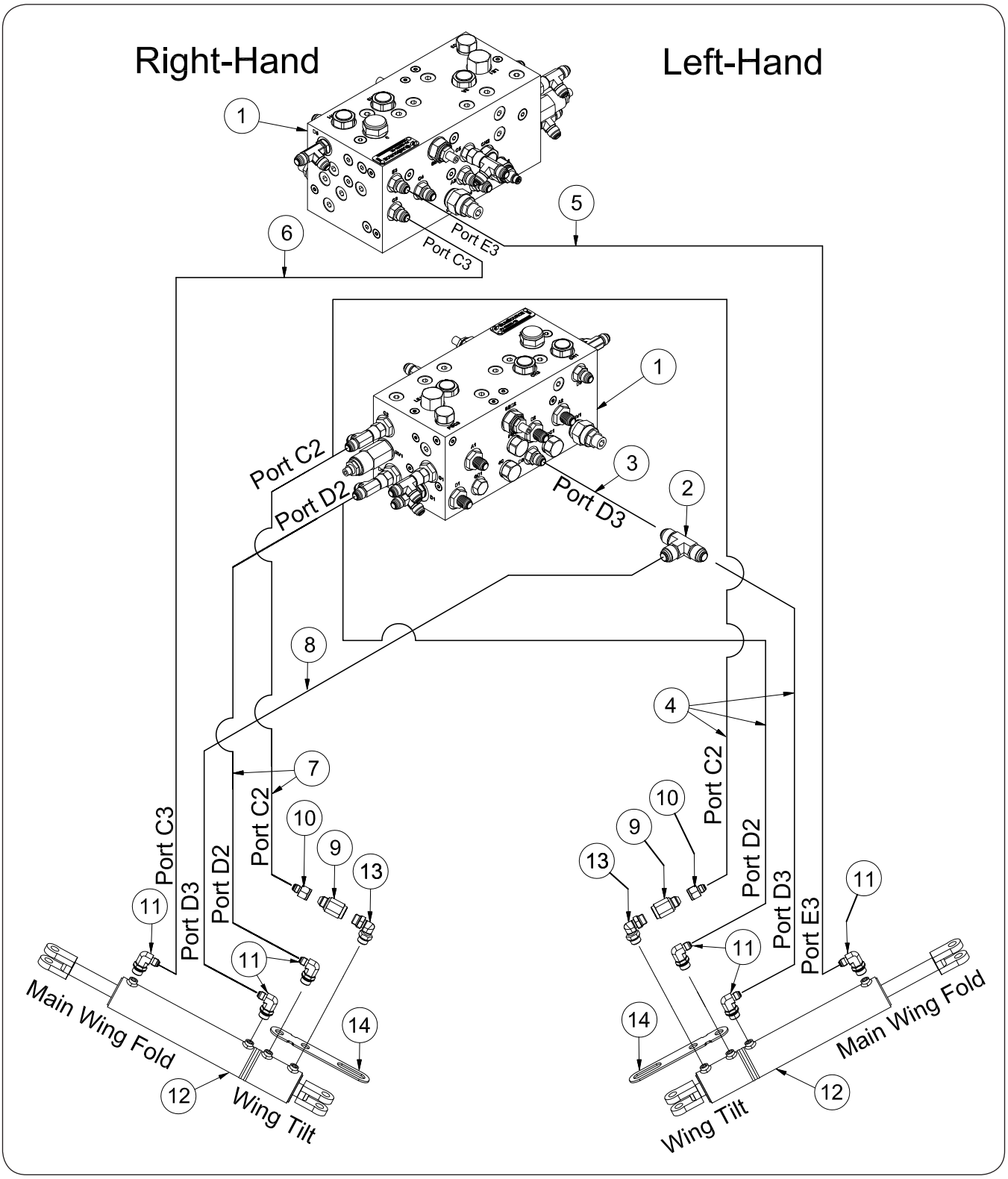
ITEM	PART NUMBER	DESCRIPTION	QTY RIGID & FOLDING TOOLBARS
1	9007659	Hydraulic Block Valve Assembly	1
2	95811	90° Elbow 3/4-16 O-Ring Male x 3/4-16 JIC Female Swivel Nut	2
3	88685	In-Line Check Valve with 0.078 Restrictor	2
4	9006173	90° Elbow 9/16 Male Flare x 3/4 O-Ring Male	12
5	9007793	Hydraulic Cylinder 2 1/2" x 16"	2
	9007849	Seal Kit	-
6	9007817	Hydraulic Hose 1/4 x 34 3/4-16 O-Ring Male x 9/16-18 JIC 90° Female Medium Drop	1
7	93472	Hydraulic Hose 1/4 x 16 9/16-18 JIC Female x 9/16-18 JIC Female	4
8	9007814	Hydraulic Hose 1/4 x 114 3/4-16 O-Ring Male x 9/16-18 JIC 90° Female Short Drop	1
9	9003251	Hydraulic Hose 1/4 x 86 9/16-18 JIC Female x 9/16-18 JIC Female	1

Notes

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

Hydraulic Hoses to Main Wing & Wing Tilt Cylinders

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

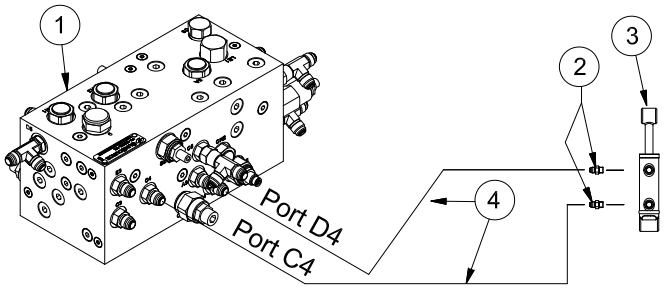


Hydraulic Hoses to Main Wing & Wing Tilt Cylinders

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

ITEM	PART NUMBER	DESCRIPTION	QTY RIGID & FOLDING TOOLBARS
1	9007659	Hydraulic Block Valve Assembly	1
2	9006164	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	1
3	93472	Hydraulic Hose 1/4 x 16 9/16-18 JIC Female x 9/16-18 JIC Female	4
4	9002503	Hydraulic Hose 1/4 x 76 9/16-18 JIC Female x 9/16-18 JIC Female	3
5	9003251	Hydraulic Hose 1/4 x 86 9/16-18 JIC Female x 9/16-18 JIC Female	1
6	9003563	Hydraulic Hose 1/4 x 106 9/16-18 JIC Female x 9/16-18 JIC 90° Female Short Drop	1
7	95639	Hydraulic Hose 1/4 x 140 9/16-18 JIC Female x 9/16-18 JIC Female	2
8	9007885	Hydraulic Hose 1/4 x 103 1/2 9/16-18 JIC Female Swivel (Ends Capped)	1
9	75435	In-Line Check Valve with 0.055 Restrictor	2
10	9006152	TB Reducer 3/4-16 Female JIS x 9/16-16 Male Flare	2
11	9006173	90° Elbow 9/16 Male Flare x 3/4 O-Ring Male	12
12	9007655	Hydraulic Cylinder 4 1/2" x 21" (Twin Piston)	2
12	9007852	Seal Kit	-
13	TA0-924696-0	90° Elbow 3/4-16 O-ring Male x 3/4-16 O-Ring Male	2
14	411740B	Plate, Cylinder Anti-Rotation	

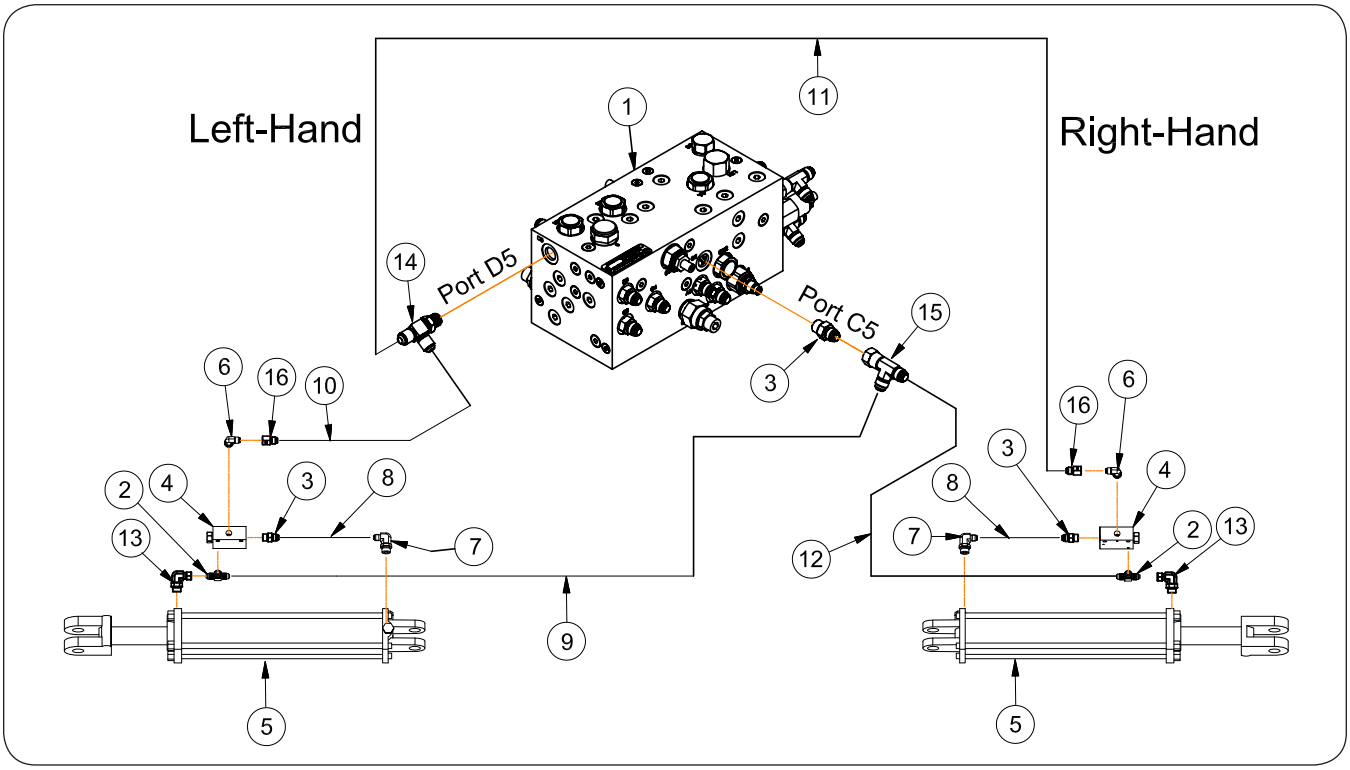
Hydraulic Hoses to Toolbar Latch Cylinder



ITEM	PART NUMBER	DESCRIPTION	QTY RIGID & FOLDING TOOLBARS
1	9007659	Hydraulic Block Valve Assembly	1
2	9006150	Adapter 9/16-18 Male Flare x 9/16-18 O-Ring Male	2
3	9006935	Hydraulic Cylinder 1 1/2" x 2 1/2"	1
	9006089	Seal Kit	-
4	95594	Hydraulic Hose 1/4 x 110 9/16-18 JIC Female x 9/16-18 JIC Female	2

Hydraulic Hoses to Outer Wing Cylinders
Beginning with Serial Number B36910100

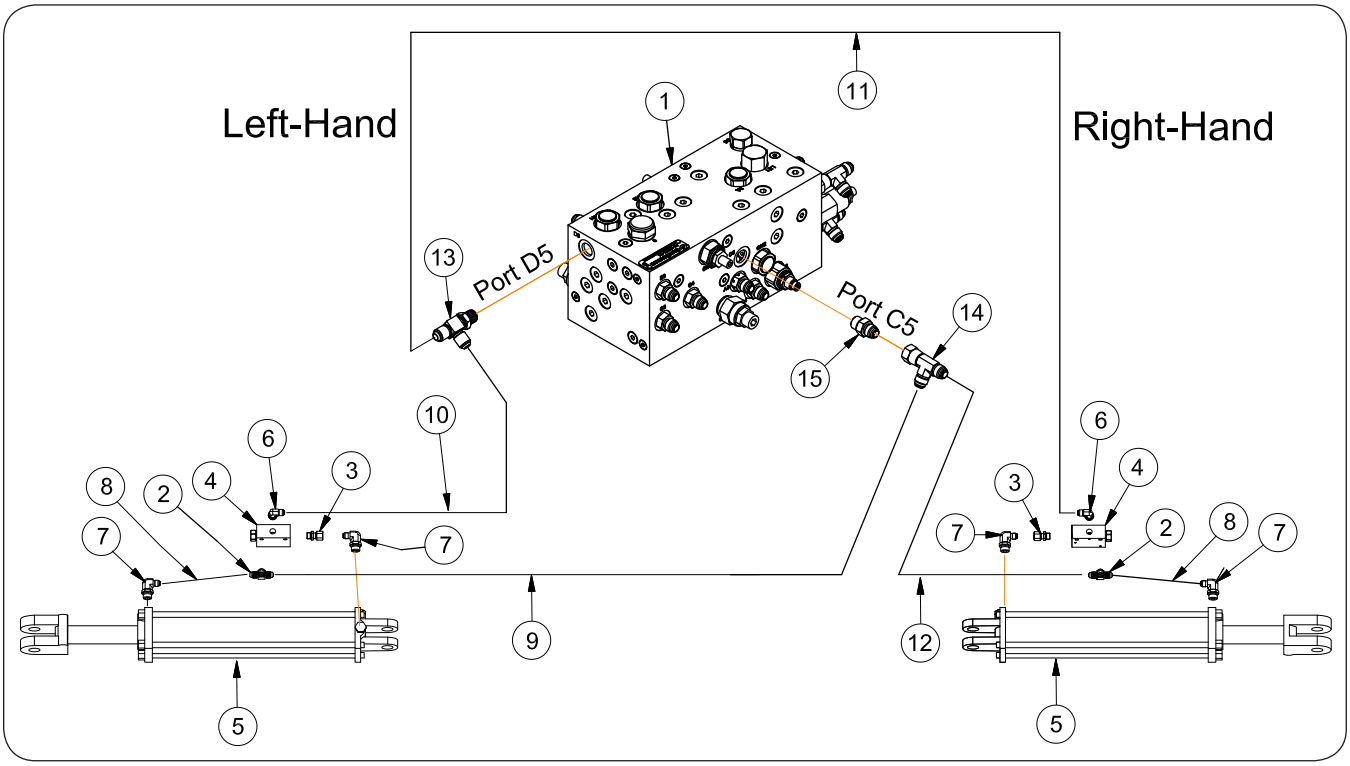
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NUMBER	DESCRIPTION	QTY FOLDING TOOLBARS ONLY
1	9007659	Hydraulic Block Valve Assembly	1
2	9001710	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 O-Ring Male	2
3	9006150	Adapter 9/16-18 Male Flare x 9/16-18 O-Ring Male	3
4	9003990	Pilot Operated Check Valve Block	2
5	9004660	Hydraulic Cylinder 3" x 16"	2
	9004382	Seal Kit	-
6	9006171	90° Elbow 9/16 Male Flare x 9/16 O-Ring Male	2
7	9006173	90° Elbow 9/16 Male Flare x 3/4 O-Ring Male	2
8	93472	Hydraulic Hose 1/4 x 16 9/16-18 JIC Female x 9/16-18 JIC Female	2
9	9004115	Hydraulic Hose 1/4 x 168 9/16-18 JIC Female x 9/16-18 JIC 90° Female Medium Drop	1
10	9003394	Hydraulic Hose 1/4 x 174 9/16-18 JIC Female x 9/16-18 JIC Female	1
11	9001853	Hydraulic Hose 1/4 x 200 9/16-18 JIC Female x 9/16-18 JIC 90° Female Short Drop	1
12	9001854	Hydraulic Hose 1/4 x 200 9/16-18 JIC Female x 9/16-18 JIC Female	1
13	9008101	90° Elbow 9/16-18 JIC Female x 3/4-16 O-Ring Male	2
14	9004064	Straight Run Tee, 9/16-18 Male O-Ring to 9/16 Male JIC	1
15	9006157	Tee 9/16 Flare x 9/16 Flare x 9/16 Flare	1
16	9006161	Reducer 9/16-18 JIC Female x 9/16-18 O-Ring Male w/Restrictor	2

Hydraulic Hoses to Outer Wing Cylinders
Prior to Serial Number B36910100

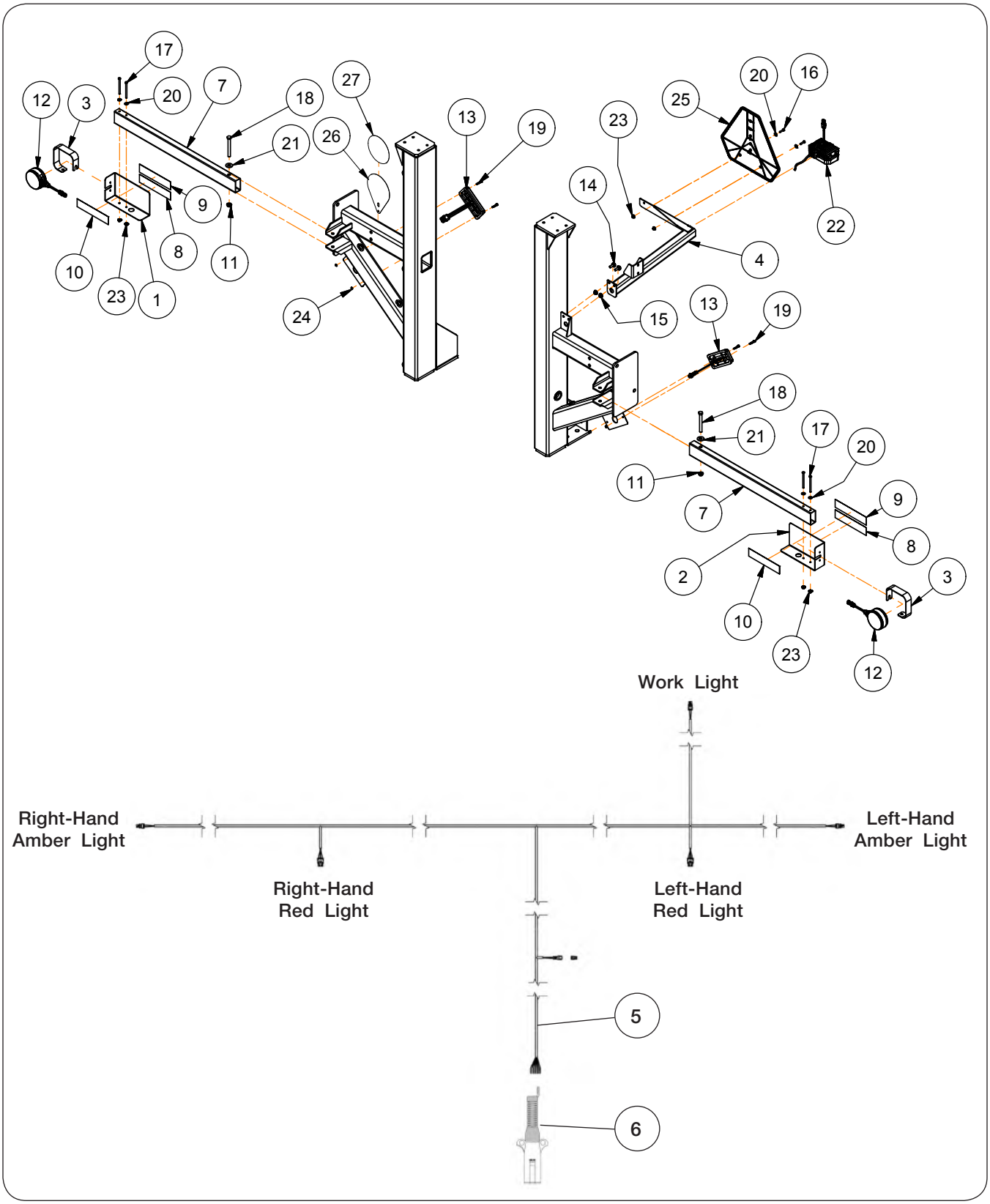
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NUMBER	DESCRIPTION	QTY FOLDING TOOLBARS ONLY
1	9007659	Hydraulic Block Valve Assembly	1
2	9001710	Tee 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 O-Ring Male	2
3	9002446	Adapter 9/16-18 O-Ring Male x 9/16-18 JIC Female Swivel Nut	2
4	9003990	Pilot Operated Check Valve Block	2
5	9004660	Hydraulic Cylinder 3" x 16"	2
	9004382	Seal Kit	-
6	9006171	90° Elbow 9/16 Male Flare x 9/16 O-Ring Male	2
7	9006173	90° Elbow 9/16 Male Flare x 3/4 O-Ring Male	4
8	93472	Hydraulic Hose 1/4 x 16 9/16-18 JIC Female x 9/16-18 JIC Female	2
9	9004115	Hydraulic Hose 1/4 x 168 9/16-18 JIC Female x 9/16-18 JIC 90° Female Medium Drop	1
10	9003394	Hydraulic Hose 1/4 x 174 9/16-18 JIC Female x 9/16-18 JIC Female	1
11	9001853	Hydraulic Hose 1/4 x 200 9/16-18 JIC Female x 9/16-18 JIC 90° Female Short Drop	1
12	9001854	Hydraulic Hose 1/4 x 200 9/16-18 JIC Female x 9/16-18 JIC Female	1
13	9004064	Straight Run Tee, 9/16-18 Male O-Ring to 9/16 Male JIC	1
14	9006157	Tee 9/16 Flare x 9/16 Flare x 9/16 Flare	1
15	9006150	Adapter 9/16-16 JIC Male x 9/16-16 Male O-Ring	1

Main Electrical Components

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



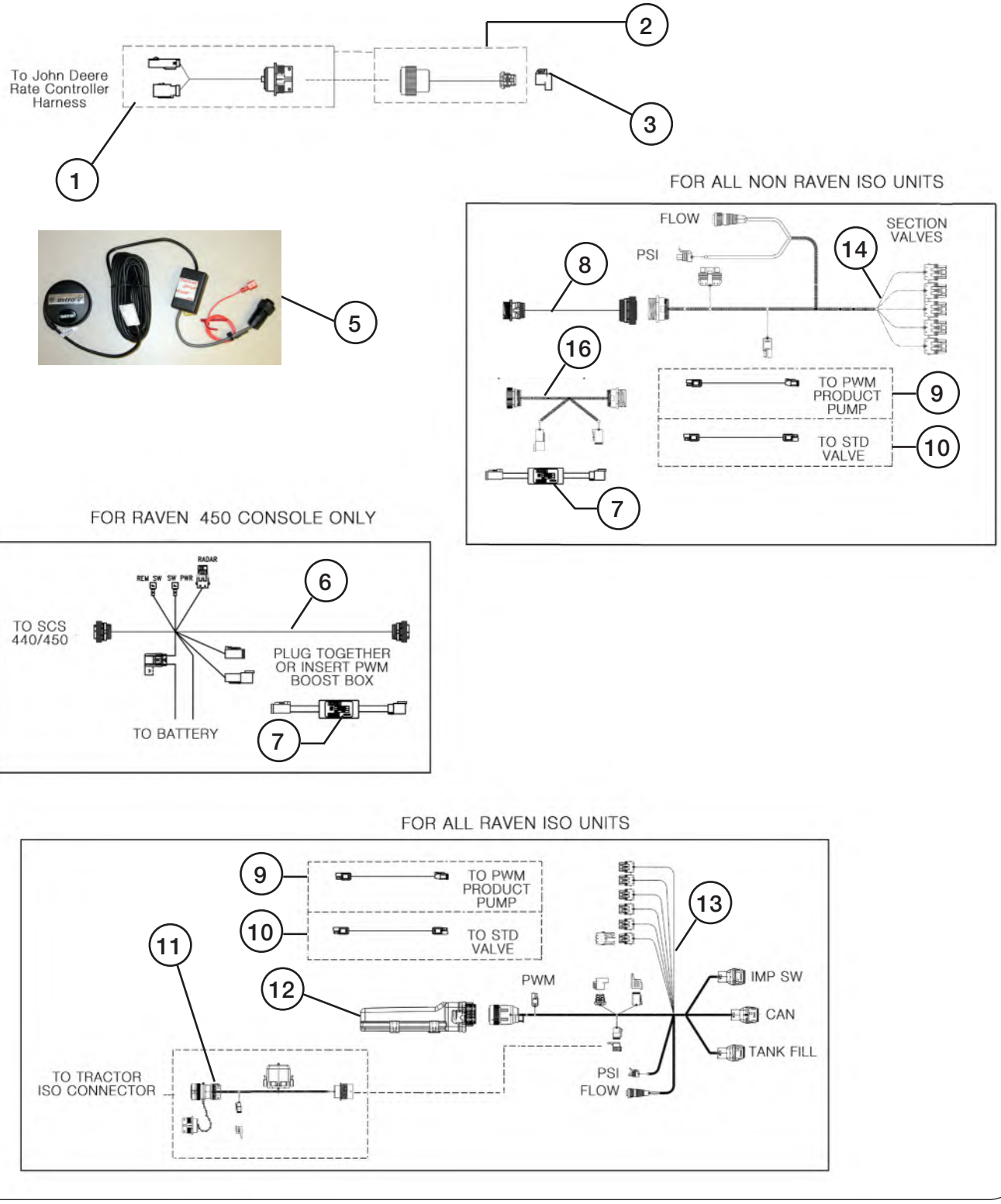
Main Electrical Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	252303B	Bracket-Light, RH	1	
2	252304B	Bracket-Light, LH	1	
3	268678B	Plate-Light Guard	2	
4	411148G	Mount Bracket Weldment =GREEN=	1	
	411148R	Mount Bracket Weldment =RED=		
5	9007719	Light Wire Harness	1	
6	92450	Plug 7-Way	1	
7	411852B	Tube- Light	2	
8	9003125	Fluorescent Orange Decal	2	
9	9003126	Red Reflector Decal	2	
10	9003127	Reflector 2 x 9 =Amber=	4	
11	9003397	Locking Flange Nut	16	
12	9005142	Lamp-Amber, Led Double Face	2	
13	9006282	Light-Tail/Turn, Red (Led)	2	
14	91262	Flange Screw 3/8X1	2	
15	91263	Nut/Large Flange 3/8-16	2	
16	9390-005	Capscrew 1/4"-20UNC x 1" Gr.5	2	
17	9390-016	Capscrew 1/4"-20UNC x 3 3/4" Gr.5	4	Grade 5
18	9390-112	Capscrew 1/2X4 1/2 Unc	6	Grade 5
19	903172-350	Screw #10-32X1 1/4 UNF Pan Head Phillips	4	
20	9405-064	Flat Washer 1/4 Uss	6	
21	9405-088	Flat Washer 1/2 Uss	10	
22	301213	Work Light W/Switch Replacement Kit	1	
23	97189	Hex Nut/Lrg Flg 1/4-20Unc	12	
24	9830-016	Hex Nut #10-32 Unf	4	Grade 2
25	TA510514	Emblem-Smv (Certified)	1	
26	413862B	SIS Bracket =Black=	1	
27	9008714	Decal, Rear SIS 20 MPH	1	

Console Electrical Components

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



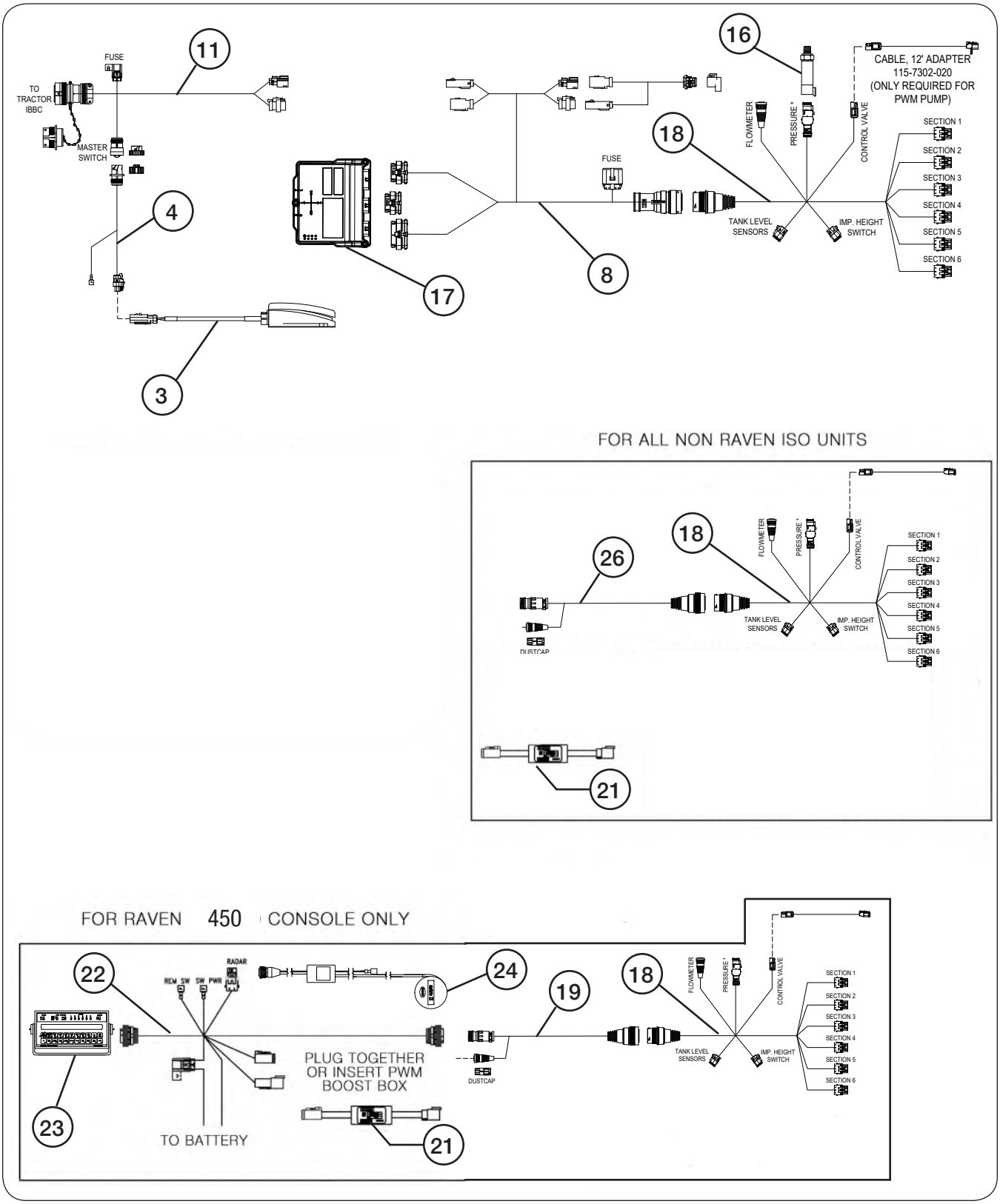
Console Electrical Components

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

ITEM	PART NUMBER	DESCRIPTION	NOTES
1	9006743	John Deere ISO to Raven ISO Adapter Cable	
2	9006744	Raven ISO to ISO Terminator Cable	
3	9005921	Terminator Powell	
4	TA720315	Control Console (Raven SCS 450) (NOT SHOWN)	
5	TA723025	Astro GPS Speed Sensor	
6	9007549	Console Harness (450 Controller)	For SN B41940099 & Lower
7	9007550	Boost Box Harness	For SN B41940100 & Higher For PWM Pump
			For SN B41940099 & Lower For 450 Control Console
8	9009175	37 Pin to 47 Pin Adapter Cable	For SN B41940100 & Higher
	9006739	16 Pin to 37 Pin Adapter Cable	For SN B41940099 & Lower
9	9007429	12’ PWM Extension Harness (Trailer Plug to Deutsch) (9306 & 205 Pumps)	
10	9007424	10’ Extension Harness (2 Pin Trailer Plug) (750 Pump)	
11	9007109	12’ Tractor ISO Extension Adapter Harness (9 Pin ISO to 19 Pin Deutsch)	
12	9007668	ISO Single Product Node	
13	9007834	Product Flow & Rate Harness (For Use with ISO Raven Rate Controller)	
14	9503472	Product Flow Cable (For Use with Non-ISO Raven Rate Controller)	For SN B41940100 & Higher
	9007835	Product Flow & Rate Harness (For Use with Non-ISO Raven Rate Controller)	For SN B41940099 & Lower
15	9000106	Cable Tie 7 1/2” (NOT SHOWN)	
16	9007697	Boost Box Tee Cable	For SN B41940099 & Lower

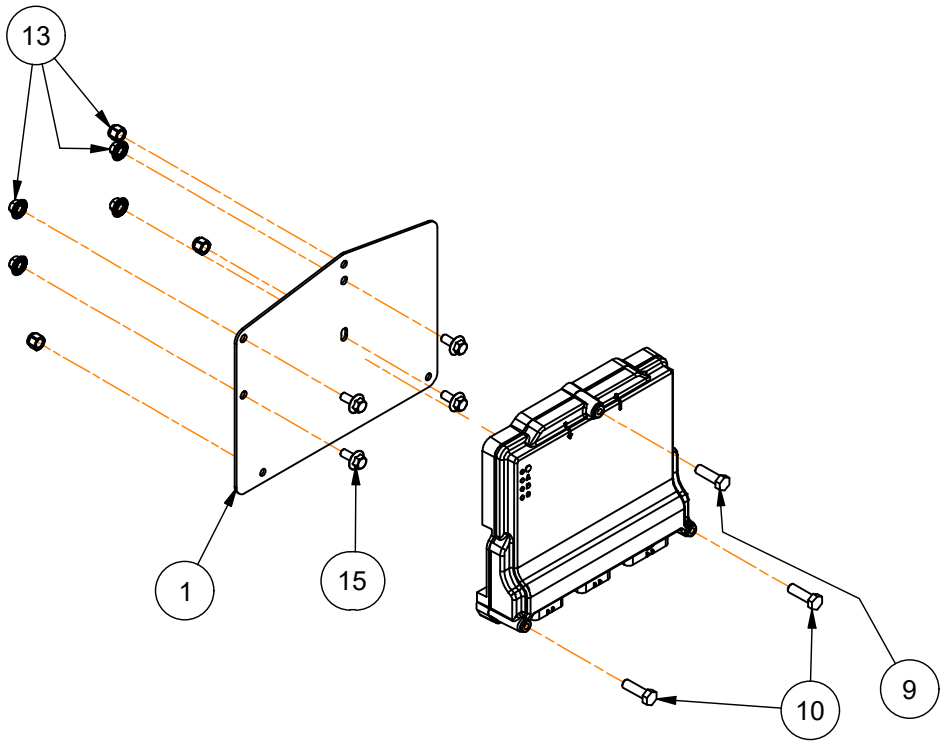
Rate Control Module (RCM) Electrical Components

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



Rate Control Module (RCM) Electrical Components

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



Rate Control Module (RCM) Electrical Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY.	NOTES
1	415120B	Node Mount Plate =Black=	1	
2	9000106	Cable Tie (Not Shown)	12	
3	9005916	Foot Switch ISO Note w/Harness	1	
4	9503390	Switch Extension Cable 23 FT	1	
5	9006885	Panel Nut (Size 24)	1	Not Shown
6	9006886	Lock Washer Connector (Size 24)	1	Not Shown
8	9008095	RAVEN CONTROL MODULE CABLE	1	
9	900900-011	Capscrew 1/4"-20UNC x 2 1/2" (SS)	1	
10	900900-013	Capscrew 1/4"-20UNC x 3" (SS)	2	
11	9503387	GEN 1 ISO TO IBIC HITCH - 12 FT CABLE	1	
13	900905-007	ELASTIC STOP NUT 1/4"-20 UNC (SS)	7	
15	9008010	BUTTON HEAD SOCKET CAPSCREW 1/4"-20UNC x 3/4" (SS)	4	
16	9503299	PRESSURE TRANSDUCER	1	
17	9503386	RATE CONTROL MODULE	1	
18	9503472	WIRE HARNESS 6 FT FLOW CABLE 6 SECTION	1	
19	9503471	WIRE HARNESS 30 FT, 16-PIN CONSOLE	1	
21	9007550	Boost Box Harness	1	
22	9007549	Console Control Harness	1	
23	TA720315	SCS Control Console	1	
24	TA723025	GPS Speed Sensor	1	
25	411878	Nutrimax Quick Reference Guide	1	Not Shown
26	9009175	Rate Harness 360" - 47 to 37 Pin	1	

Notes

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