BLU-JET® by Unverferth

All Terrain
Injection
Liquid Applicator

AT3015

Serial Number D66640100 & Higher

Part No. J0603015

Foreword

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

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

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

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

Pre-Delivery Checklist

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

IMPORTANT

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

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General Hazard Information

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

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

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

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

REMEMBER:

THINK SAFETY

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT!

SIGNAL WORDS

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

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

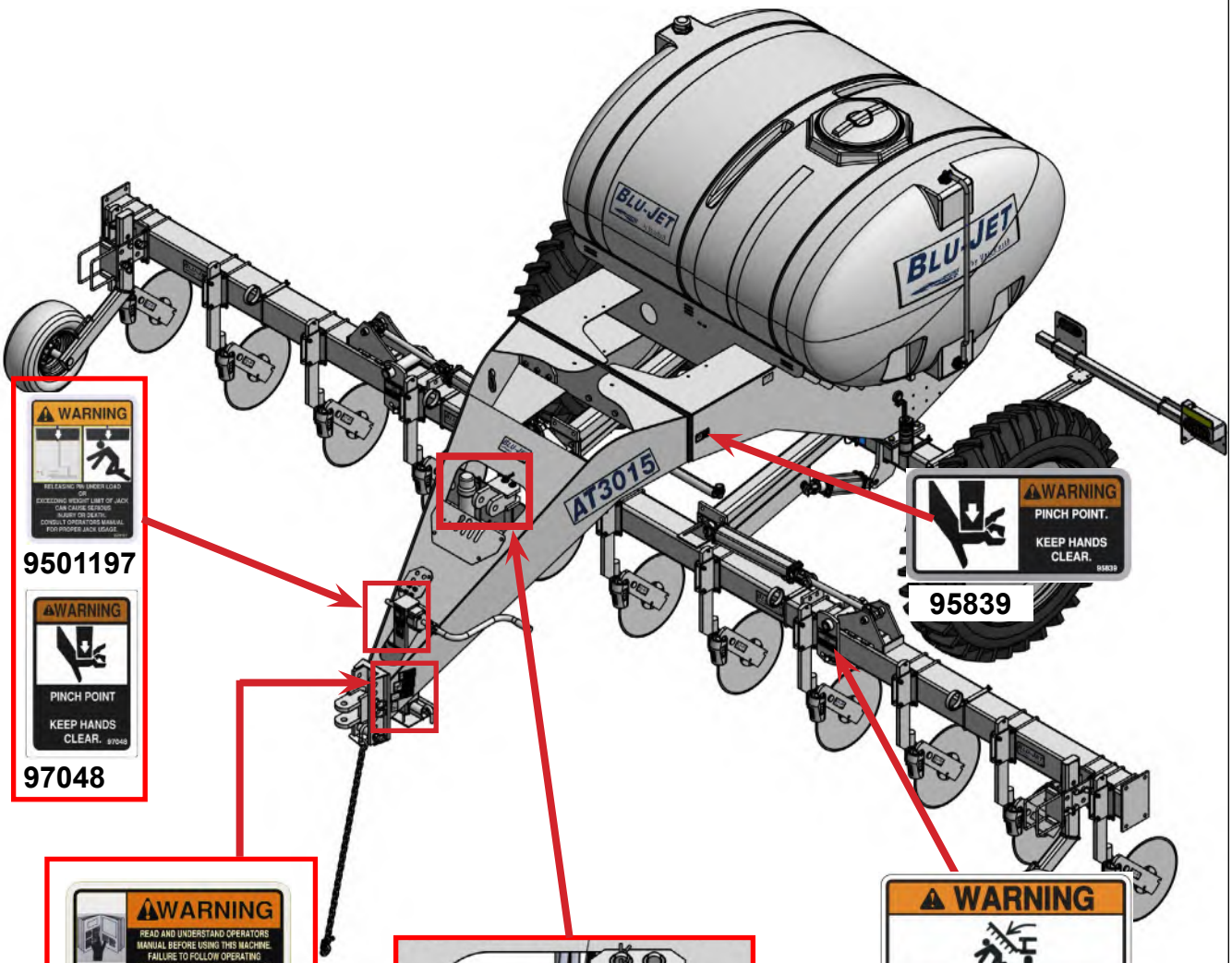
INDICATES AN UNSAFE SITUATION OR ACTION THAT MAY RESULT IN PERSONAL INJURY.

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

Safety Decals

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.**



9501197

97048

95839

97337

97961

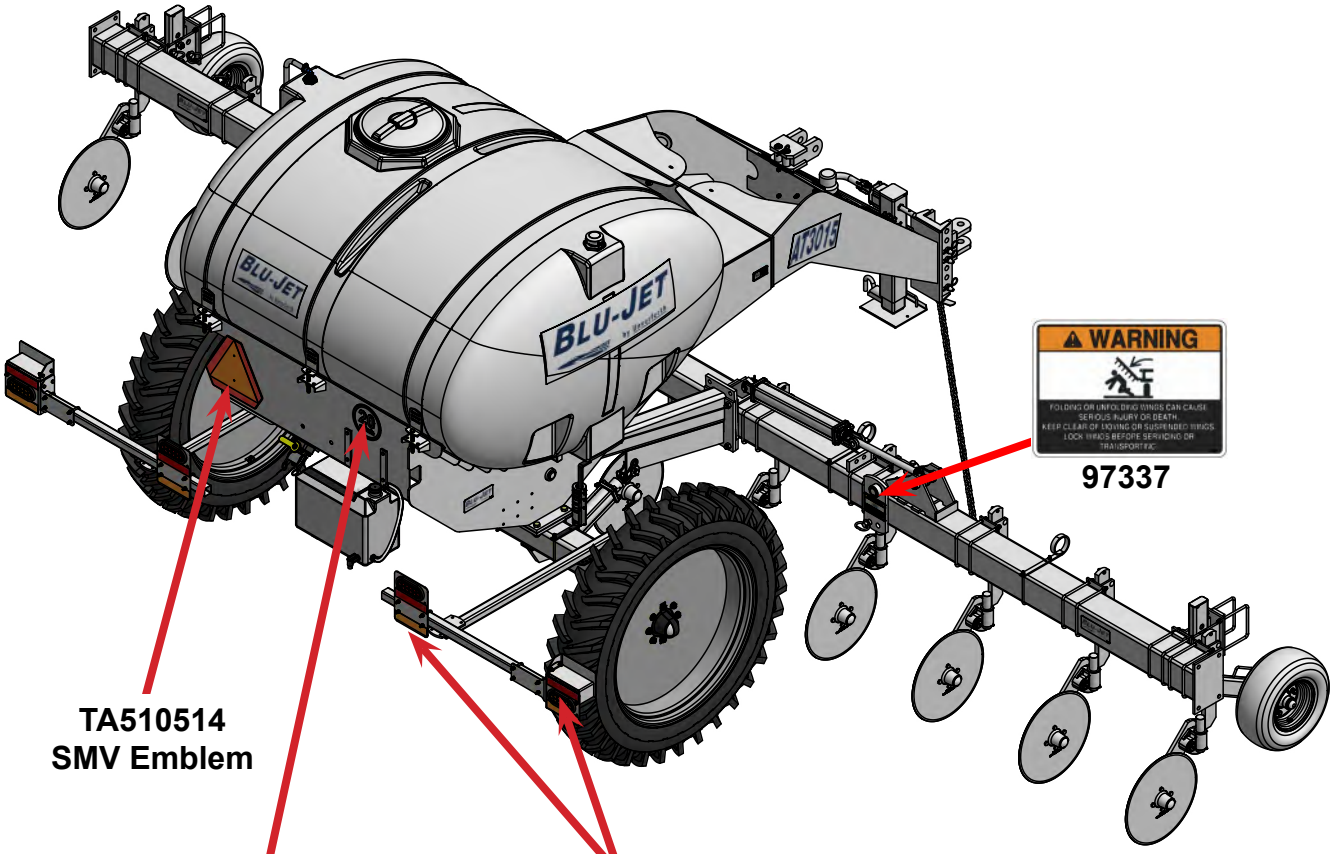
95445

97575

9008715 - Front SIS Decal, 20MPH
9008721 - Front SIS Decal, 30KPH

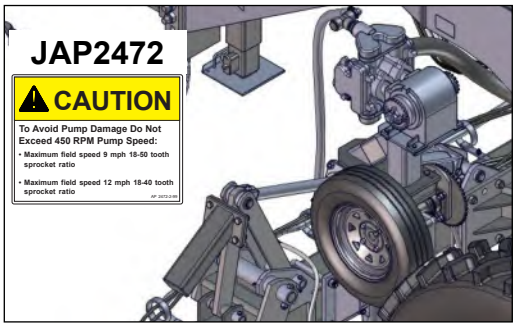
(Continued)

Safety Decals (continued)



9008714 - Rear SIS Decal, 20MPH
9008720 - Rear SIS Decal, 30KPH

9003127 - Reflector “AMBER”
9003126 - Reflector “RED”
9003125 - Decal, Fluorescent, Red-Orange



Following Safety Instructions

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

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

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

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

Before Servicing

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

- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.
- Explosive separation of a tire and rim can cause serious injury or death. Only properly trained personnel should attempt to service a tire and wheel assembly.
- Add sufficient ballast to tractor to maintain steering and braking control at all times. Do not exceed tractor's lift capacity or ballast capacity.
- Hitch applicator to towing vehicle and clear all personnel from the surrounding area before folding and unfolding wings.
- Check all applicator equipment for leaks. Repair any leaks 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 Operating

- Do not stand between towing vehicle and implement during hitching.
- Always make certain everyone and everything is clear of the machine before beginning operation.
- Verify that all safety shields are in place and properly secured.
- Ensure that all applicable safety decals are installed and legible.
- When working around the implement, be careful not to be cut by sharp edges.
- Add sufficient ballast to tractor to maintain steering and braking control at all times. Do not exceed tractor's lift capacity or ballast capacity.
- This applicator is intended to apply only agricultural chemicals. Attempting to apply other liquids may cause equipment damage and introduce unexpected personal hazards.
- Hitch applicator to towing vehicle and clear all personnel from the surrounding area before folding and unfolding wings.
- Residual pressure may exist in applicator plumbing even when unit is not in use. Remove pressure before servicing any plumbing.

During Operation

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

Before Transporting

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

During Transport

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

Pressurized Oil

- Relieve the hydraulic system of all pressure before adjusting or servicing. See hydraulic power unit manual for procedure to relieve pressure.
- High-pressure fluids can penetrate the skin and cause serious injury or death. Use cardboard or wood to detect leaks in the hydraulic system. Seek medical treatment immediately if injured by high-pressure fluids.

- Hydraulic system must be purged of air before operating to prevent serious injury or death.
- Do not bend or strike high-pressure lines. Do not install bent or damaged tubes or hoses.
- Repair all oil leaks. Leaks can cause fires, personal injury, and environmental damage.
- Route hoses and lines carefully to prevent premature failure due to kinking and rubbing against other parts. Make sure that all clamps, guards and shields are installed correctly.
- Check hydraulic hoses and tubes carefully. Replace components as necessary if any of the following conditions are found:
    - 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

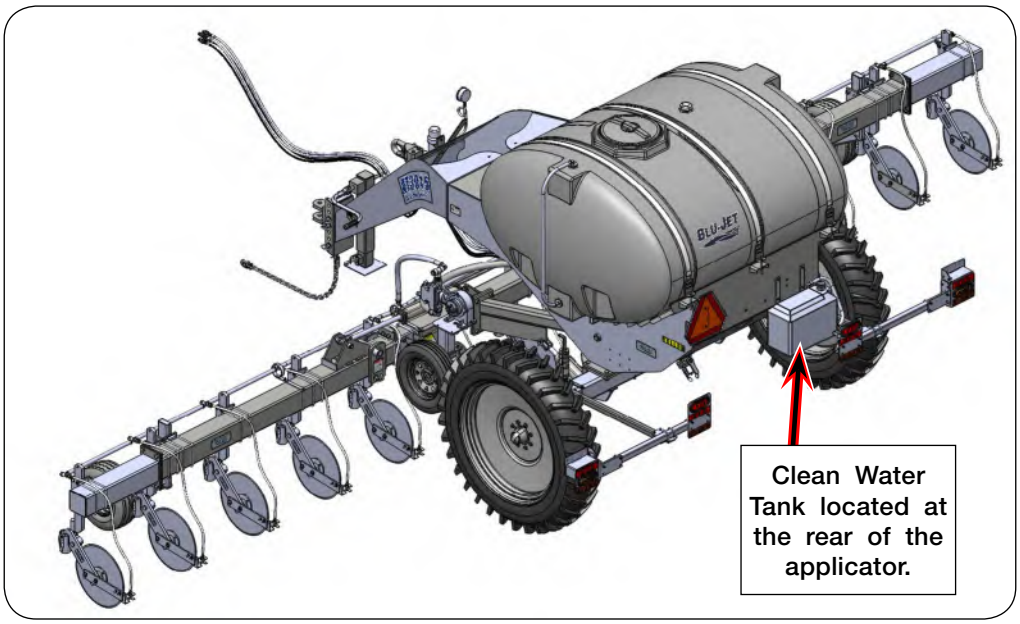
- Always wear personal protective equipment when working with or near chemicals. This equipment includes, but is not limited to: protective eye wear, gloves, shoes, socks, long-sleeved shirt, and long pants. Additional protection may be required for many types of chemicals.
- Seek and receive chemical product training prior to using agricultural chemicals.
- Read and understand the entire label of every chemical being applied with this applicator.
- Avoid breathing applicator mist or vapor.
- 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.
- Dispose of unused chemical in accordance with chemical label directions and local/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.



Clean Water Tank located at the rear of the applicator.

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

Pre-Delivery Checklist

- ☐ Torque wheel nuts as specified in MAINTENANCE section.
- ☐ Check tire pressure as specified in MAINTENANCE section.
- ☐ Axles are adjusted from shipping position to desired operating width.
- ☐ All grease fittings have been lubricated.
- ☐ Check to be sure all safety decals are correctly located and legible. Replace if damaged.
- ☐ Check to be sure all reflective decals are correctly located.
- ☐ Check to be sure SMV emblem is in place and shipping film is removed.
- ☐ Check to be sure 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.

General Setup Information

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

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

⚠ WARNING

- **READ AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW SAFETY SECTION IN THIS MANUAL, IF NECESSARY.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE THE MACHINE IS SECURELY BLOCKED.**
- **MOVING PARTS CAN CRUSH AND CUT. KEEP AWAY FROM MOVING PARTS.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **TIPPING OR MOVEMENT OF THE APPLICATOR CAN CAUSE SERIOUS INJURY OR DEATH. APPLICATOR MUST BE HITCHED TO THE TRACTOR BEFORE OPERATING.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 8,000 LBS. SPECIFIC LOAD RATING FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

IMPORTANT

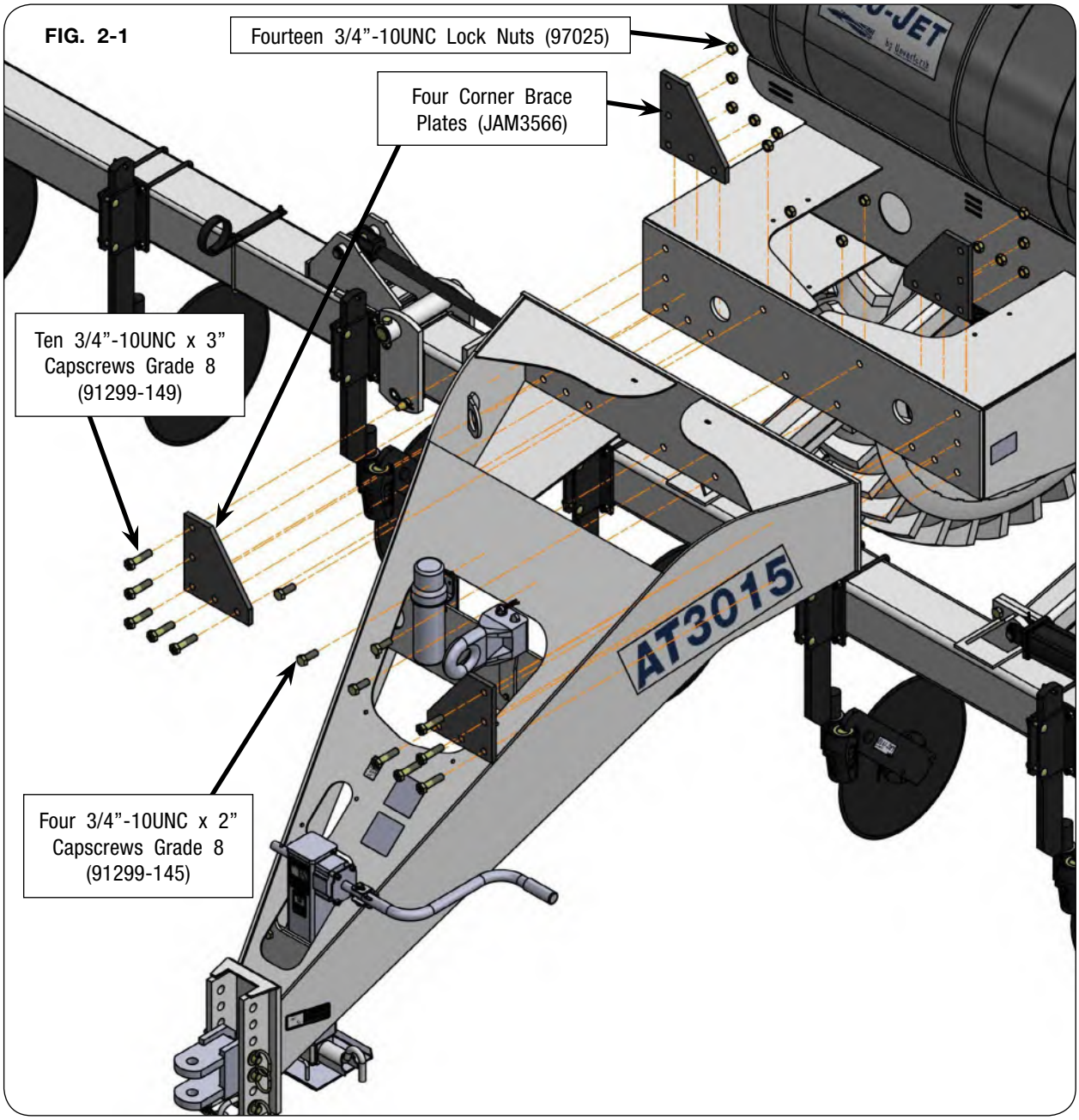
- *The procedures for assembling this unit were intended for two or more people.*

Unloading Applicator from Shipping Trailer

Tongue Assembly to Main Frame Assembly

1. Remove the four 3/4”-10UNC x 2” capscrews, grade 8 (91299-145), ten 3/4”-10UNC x 3” capscrews, grade 8 (91299-149), fourteen 3/4”-10UNC lock nuts (97025), and four corner brace plates (JAM3566) from the tongue assembly. (FIG. 2-1)

FIG. 2-1



2. Using a safe lifting device rated at a minimum of 1,000 lbs., support the tongue assembly. Attach the tongue assembly to main frame with four 3/4”-10UNC x 2” capscrews, grade 8 (91299-145), ten 3/4”-10UNC x 3” capscrews, grade 8 (91299-149), fourteen 3/4”-10UNC lock nuts (97025), and four corner brace plates (JAM3566) (FIG. 2-1). Torque hardware according to “Torque Chart” in MAINTENANCE section.

Unloading Applicator from Shipping Trailer (continued)

3. Route hydraulic hoses through the tongue assembly.

4. Attach the bulkhead plate (JAM3588) to the tongue assembly with two 3/8”-16UNC x 1” capscrews (9390-055) and 3/8”-16UNC lock nuts (9928). (FIG. 2-2)

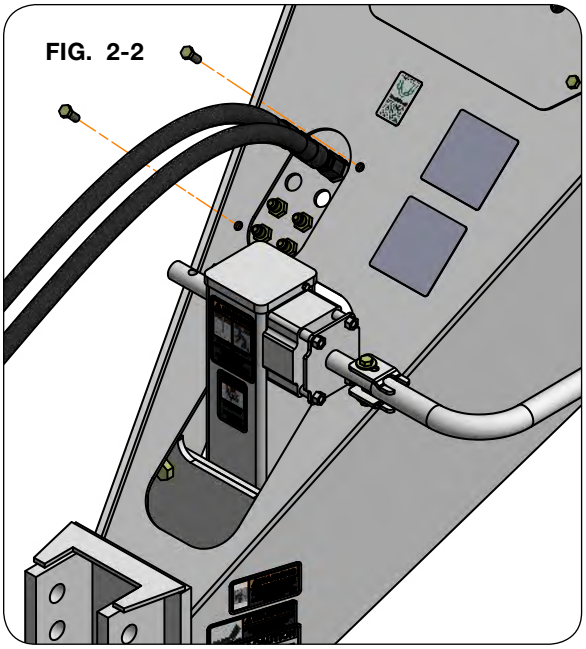


FIG. 2-2

5. Use the chain (96589), 5/16”-18UNC x 1 1/4” capscrews (9390-031), 5/16” flat washers (9405-070), and 5/16”-18UNC lock nuts (9807) to support the hydraulic hoses to the underside of the tongue assembly. (FIG. 2-3)

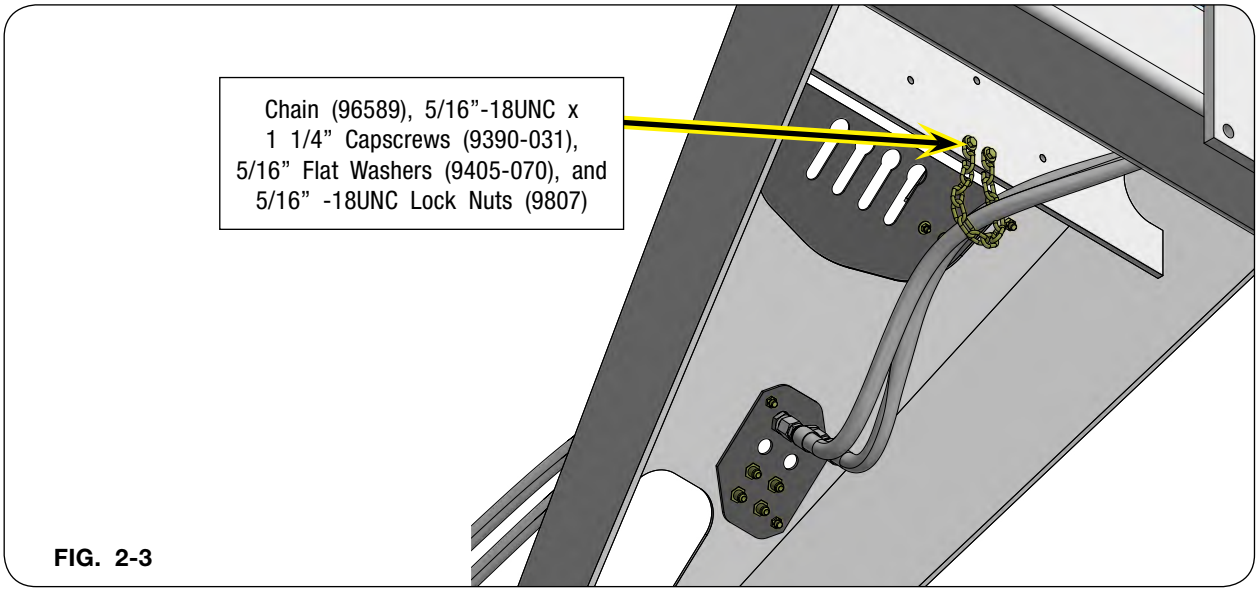


FIG. 2-3

6. Torque hardware according to “Torque Chart” in MAINTENANCE section.

Unloading Applicator from Shipping Trailer (continued)

7. Refer to “Hitching to the Tractor” in OPERATION section. Attach Applicator to the tractor.

8. 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.

9. Raise the toolbar and remove the yellow transport brackets and hardware from the main frame cylinder transport wheels (FIG. 2-4). Insert cylinder 1” Dia. x 4” clevis pins (JBP3497) and 3/16” Dia. x 1 3/4” cotter pins (9391-045).

10. Raise applicator into transport position.

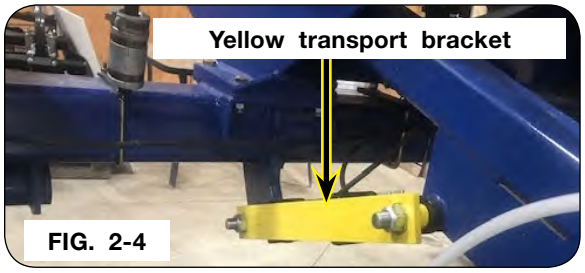


FIG. 2-4

11. Remove the toolbar shipping stands and hardware. (FIG. 2-5)

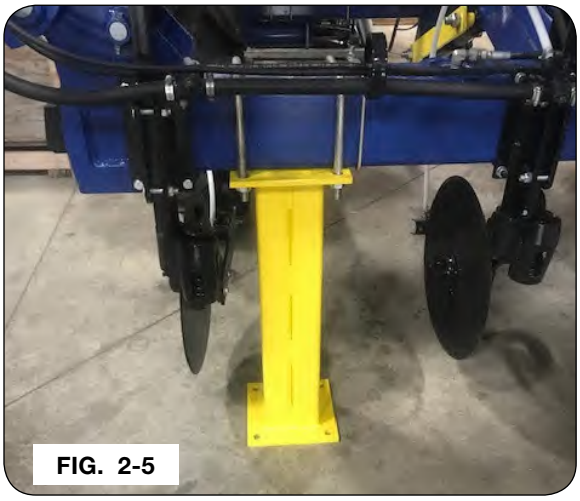


FIG. 2-5

12. With the tractor connected and the applicator raised, pull the applicator from the shipping trailer.

13. Park the unit on a firm, level surface. Unfold the wings and lower the machine onto the transport stops. Set the towing vehicle’s parking brake, shut-off the engine and remove the ignition key.

Pump Drive

1. Lower the toolbar to working position.

2. Using a safe lifting device rated at a minimum of 150 lbs., support the pump drive wheel and axle.

3. Remove the 1/2”-13UNC x 4 1/2” capscrews (9390-112) and 1/2”-13UNC lock nuts (9800) from the pump drive axle mounting plate.

4. Reposition the pump drive wheel so it contacts the left-hand main frame wheel and reinstall the previously removed 1/2”-13UNC x 4 1/2” capscrews (9390-112) and 1/2”-13UNC lock nuts (9800) from the pump drive axle mounting plate.

5. Torque hardware according to “Torque Chart” in MAINTENANCE section.

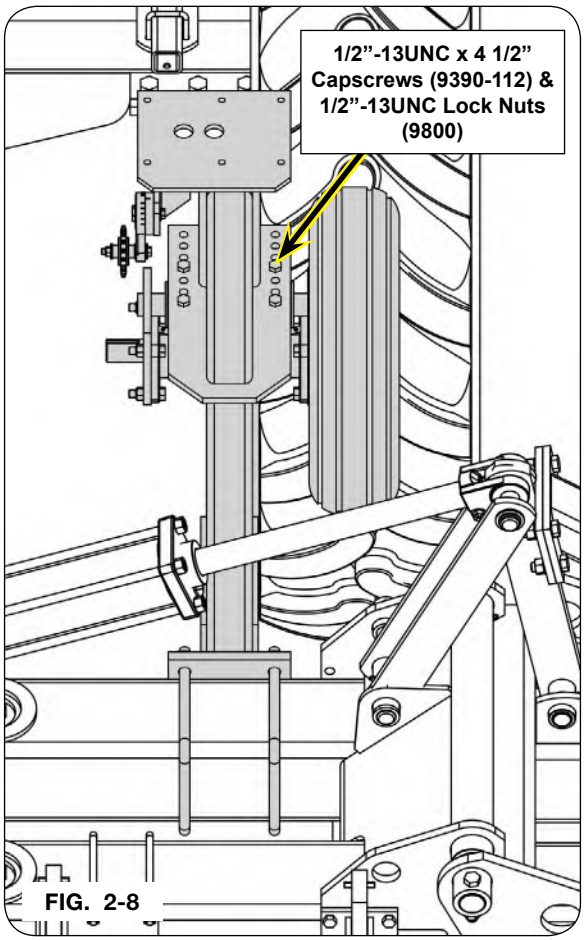


FIG. 2-8

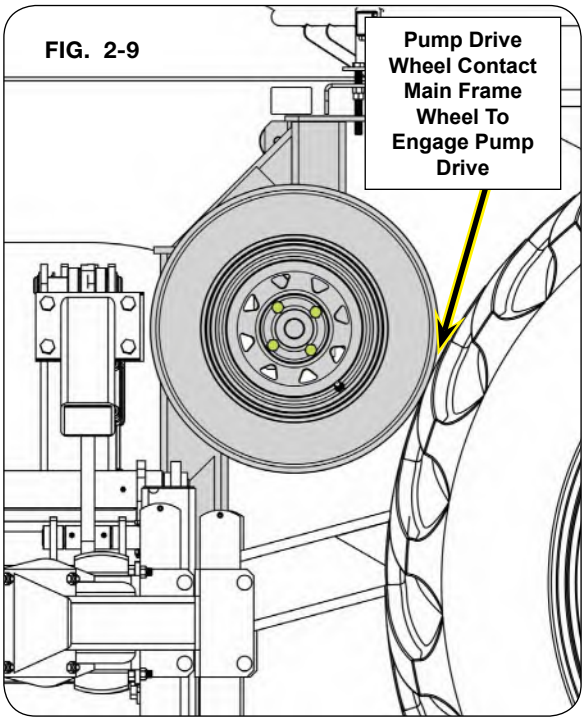


FIG. 2-9

Coulter Assembly

1. Use "Overhead Layouts" in this section to properly position coulter assemblies. Torque hardware according to "Torque Chart" in MAINTENANCE section.

Gauge Wheel Assembly

1. Use "Overhead Layouts" in this section to properly position gauge wheels. Torque hardware according to "Torque Chart" in MAINTENANCE section.

Transport Lighting Assembly

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

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

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

NOTE: Consult "Overhead Layouts" for light kit placement.

SMV Emblem & SIS Decal

The reflective surface of the SMV must face rearward. This may require removal of film protecting the reflective surface or removing and reinstallation of the SMV.

When reinstalling the SMV make sure that it is mounted with the wide part of the SMV at the bottom, FIG. 2-10.

Ensure the SIS decals (one on the front and one on the rear of the applicator) are clean and visible.

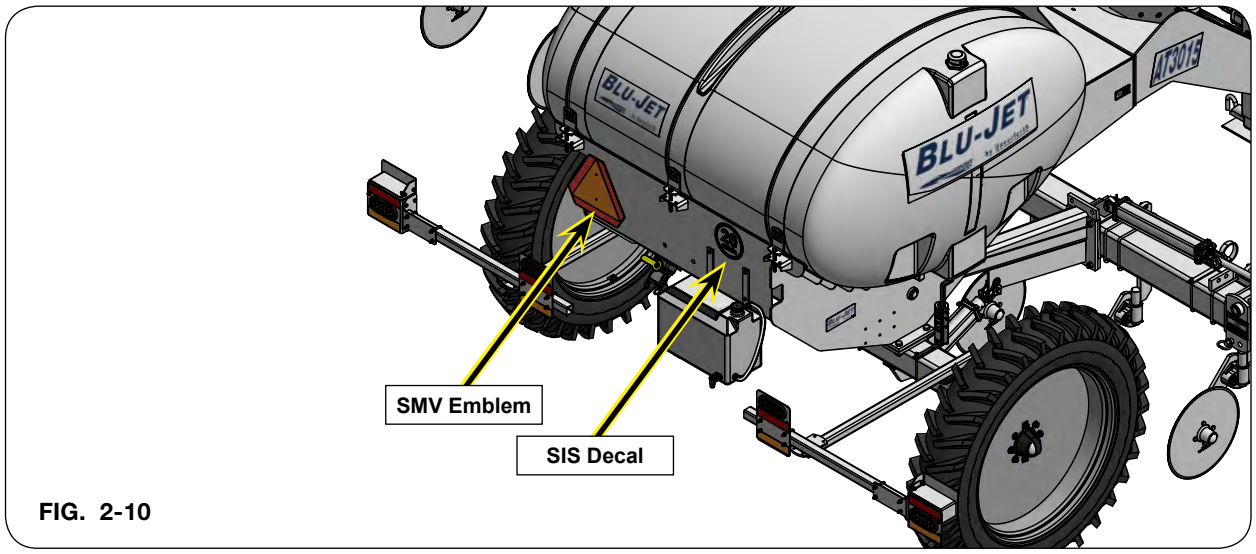
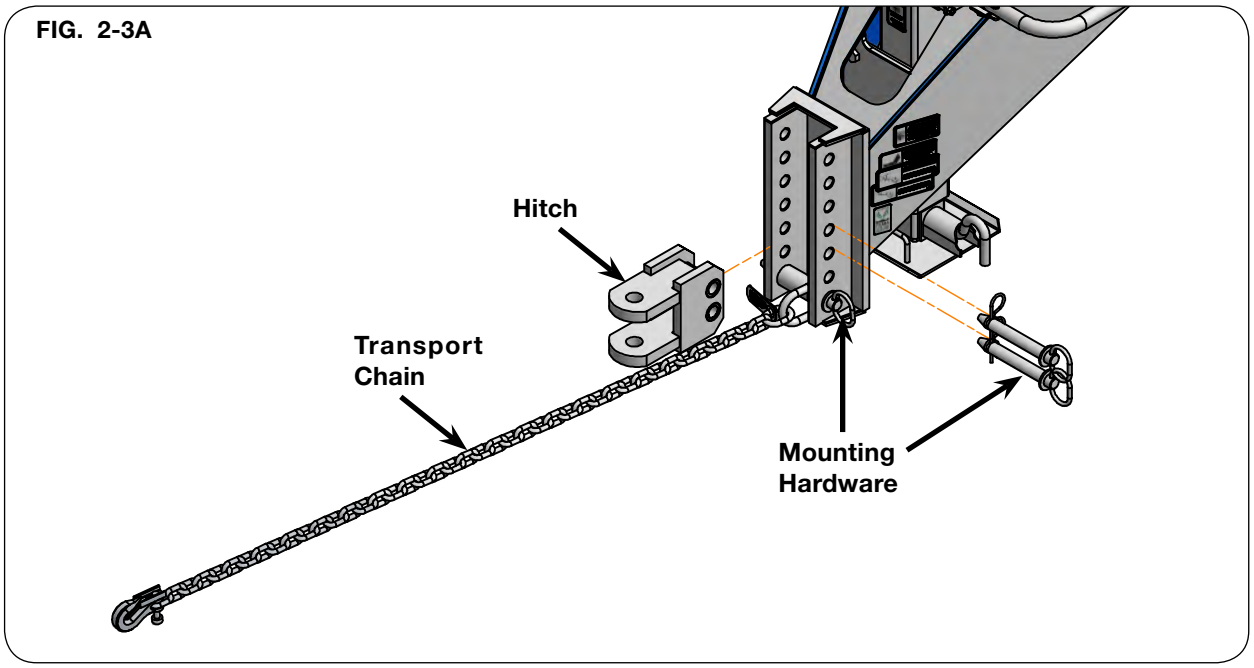


FIG. 2-10

Attaching 18” Hitch Extension Option to Tongue Assembly

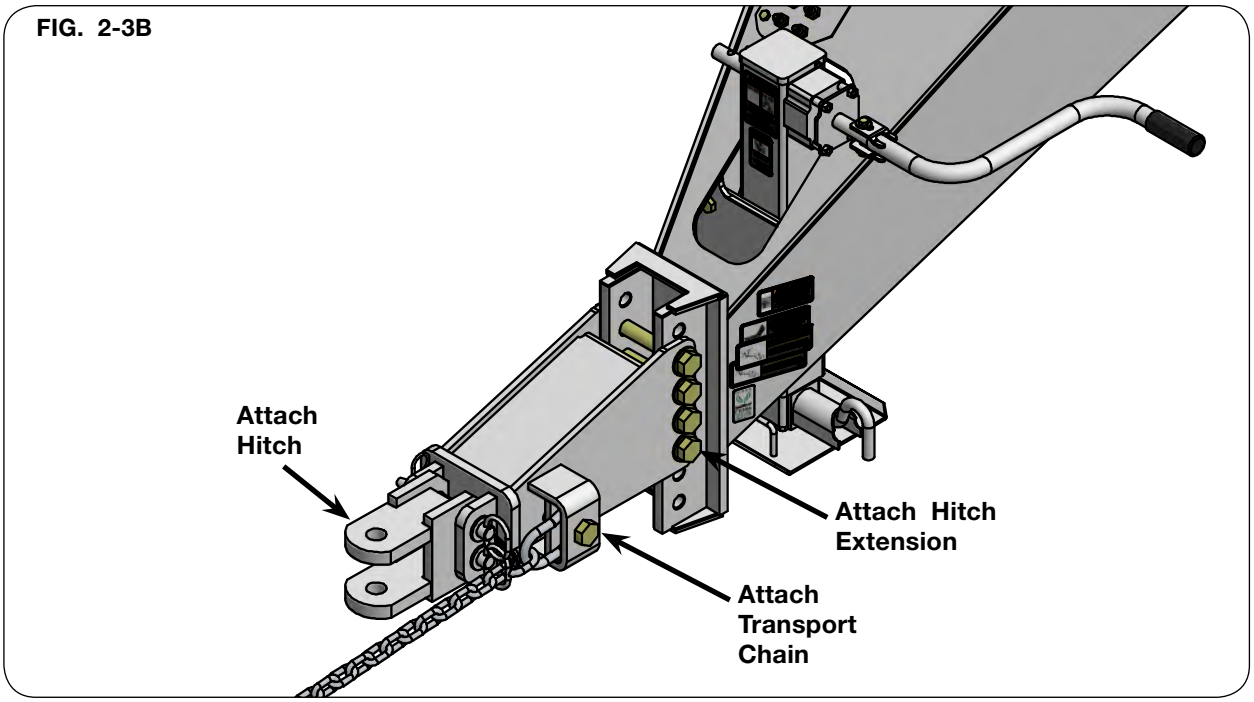
1. Remove and save the hitch, mounting hardware and transport chain. (FIG. 2-3A)

FIG. 2-3A



2. Attach the hitch extension to the tongue assembly with the 1”-8UNC hardware provided. (FIG. 2-3B)

FIG. 2-3B



3. Secure the transport chain to the hitch extension. (FIG. 2-3B)

4. Torque hardware according to “Torque Chart” in MAINTENANCE section.

Pump Set Up — For Units With Centrifugal Pump

For set up of a 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.

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.*

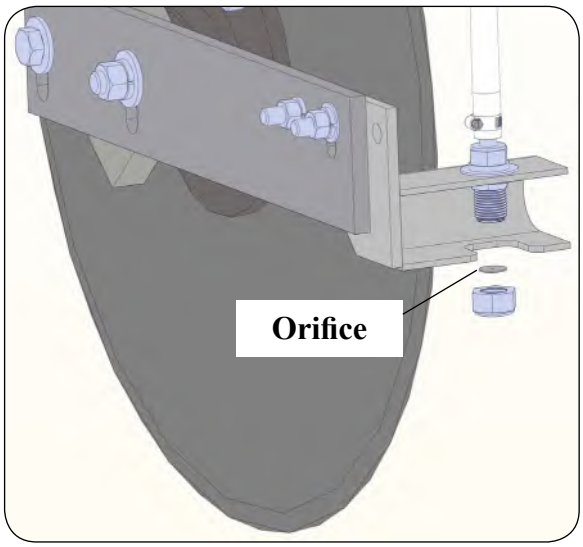
FIG. 2-16

Setting the Pump Pressure (non-PWM Pump)

1. **Adjust circuit flow to minimum setting prior to operating for the first time.**
2. **Turn off section valves and agitation valve if equipped.**
3. **Engage hydraulic lever to RETRACT position.**
4. **Increase the flow in the tractor until the filter inlet or pump pressure is 100 psi.**

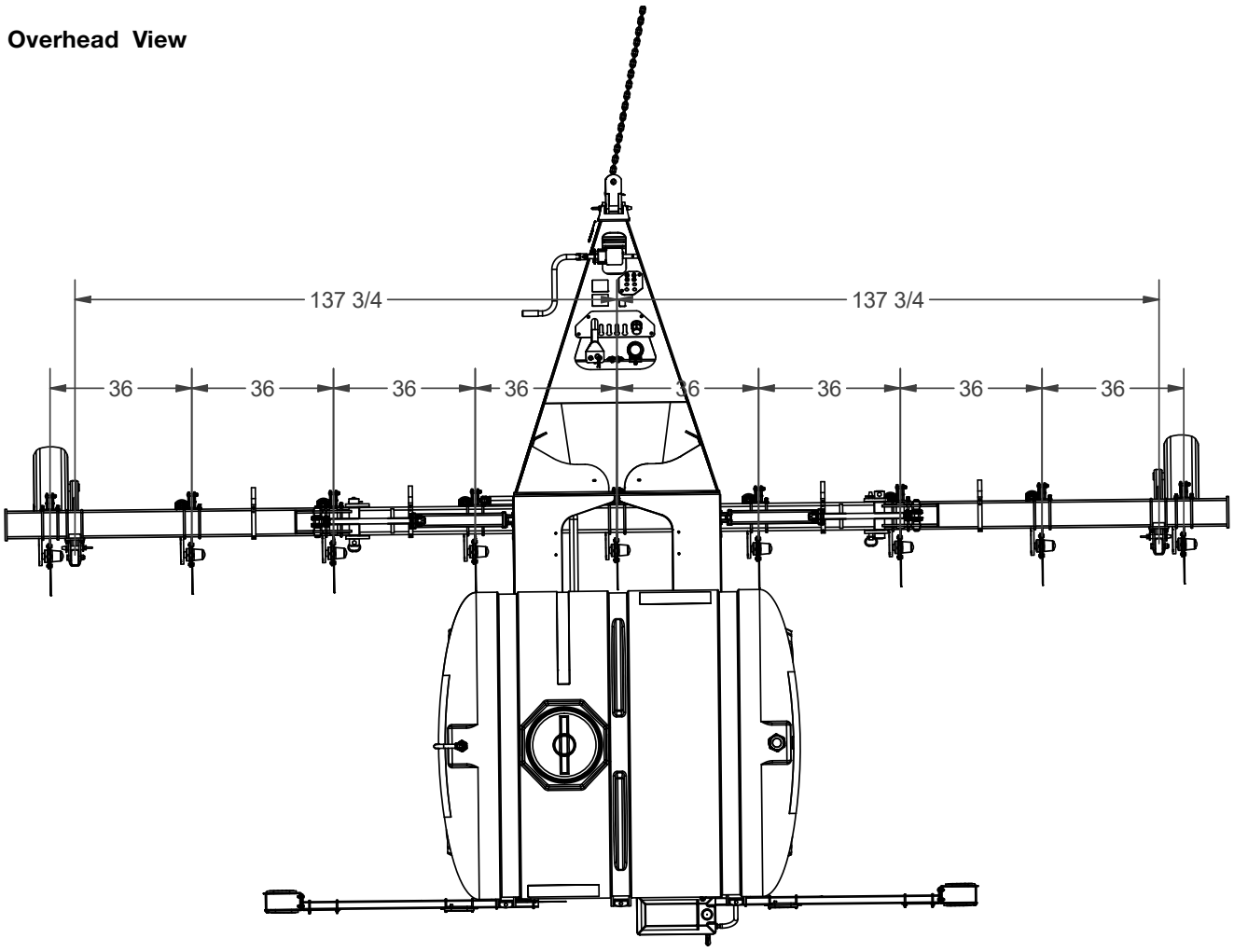
Rate Orifice Installation

1. Consult “Row Spacing Rate Chart” in MAINTENANCE section for orifice size.
2. Remove nozzle nut and insert orifice.
3. Travel a few feet and check blade depth. Adjust gauge wheels or coulters to achieve the 4” depth.
4. Check all nozzles for stream of liquid behind blade.
5. Make adjustment to nozzle assembly so stream is in line with the blade trench.

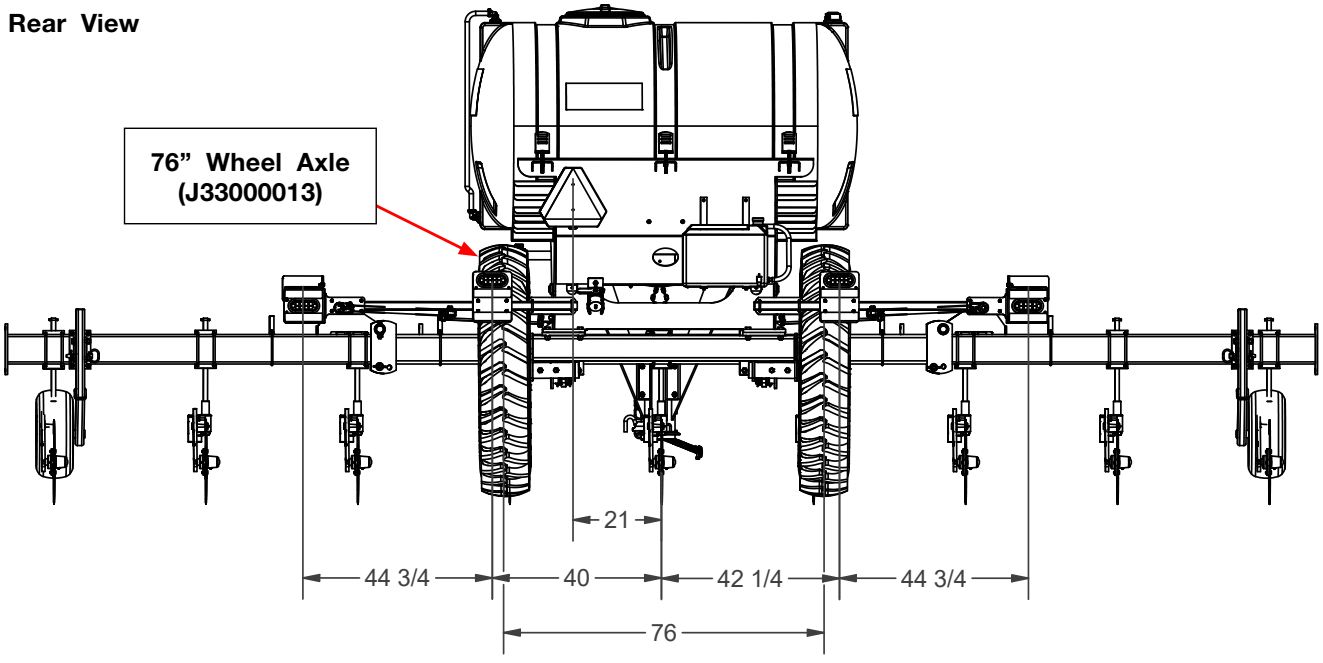


Layout — 9 Row 36” Spacing with Standard Toolbar

Overhead View

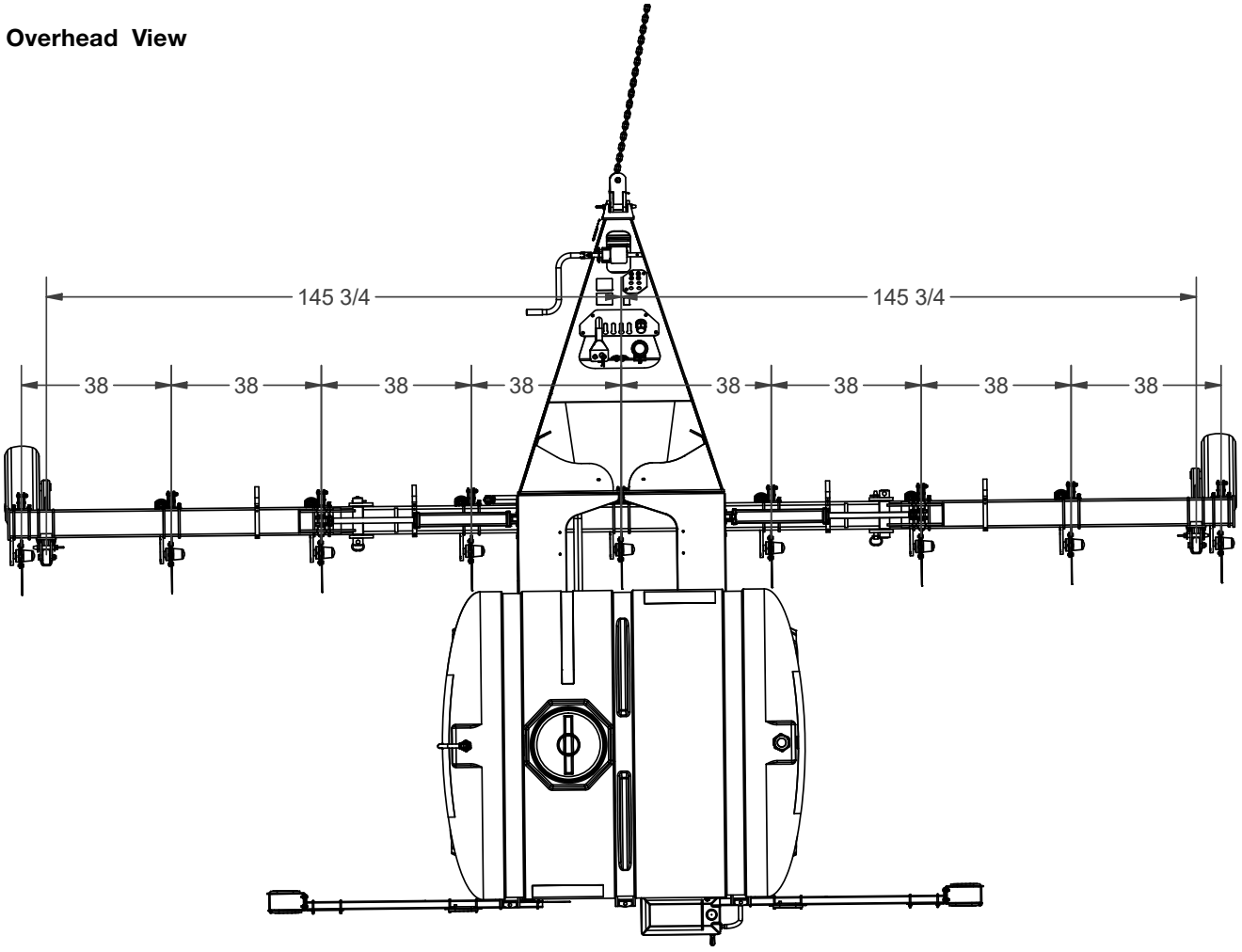


Rear View

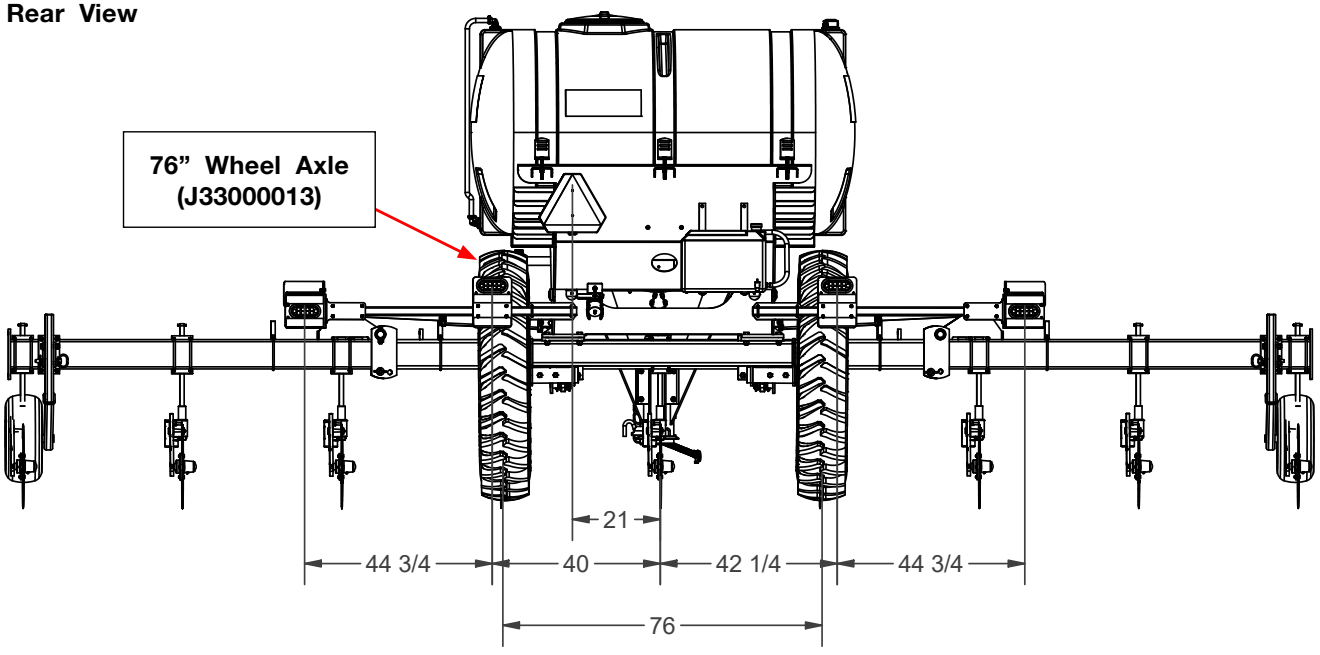


Layout — 9 Row 38” Spacing with Standard Toolbar

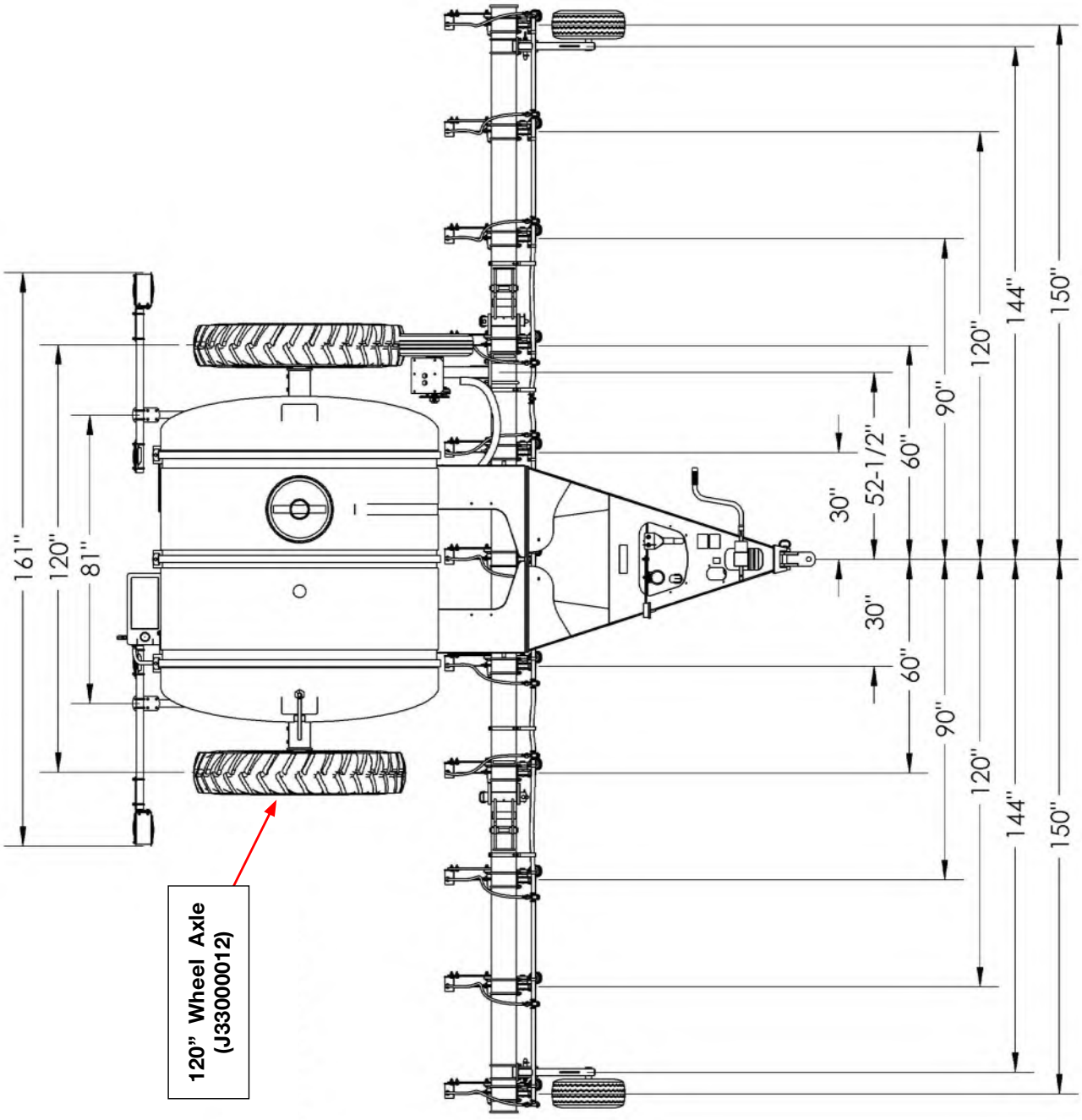
Overhead View



Rear View

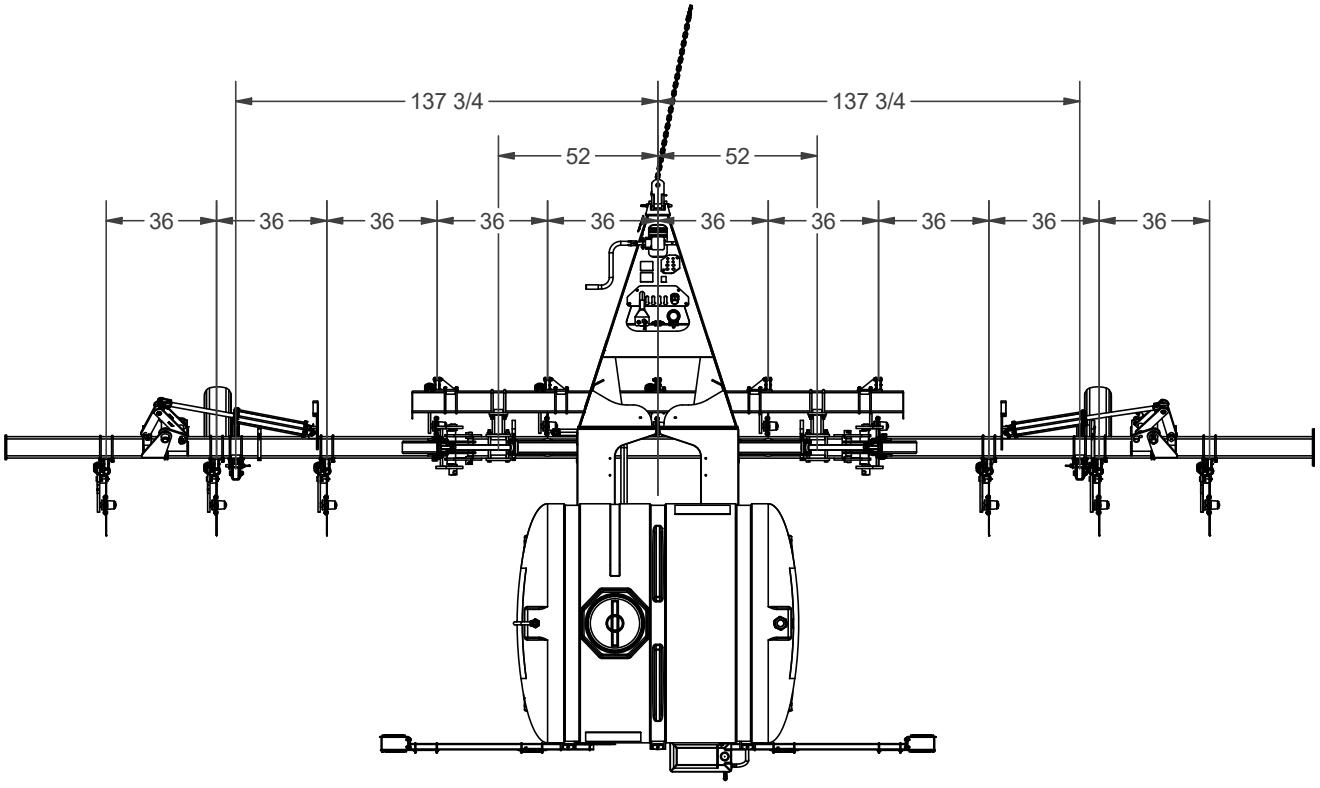


Layout — 11 Row 30” Spacing with Standard Toolbar

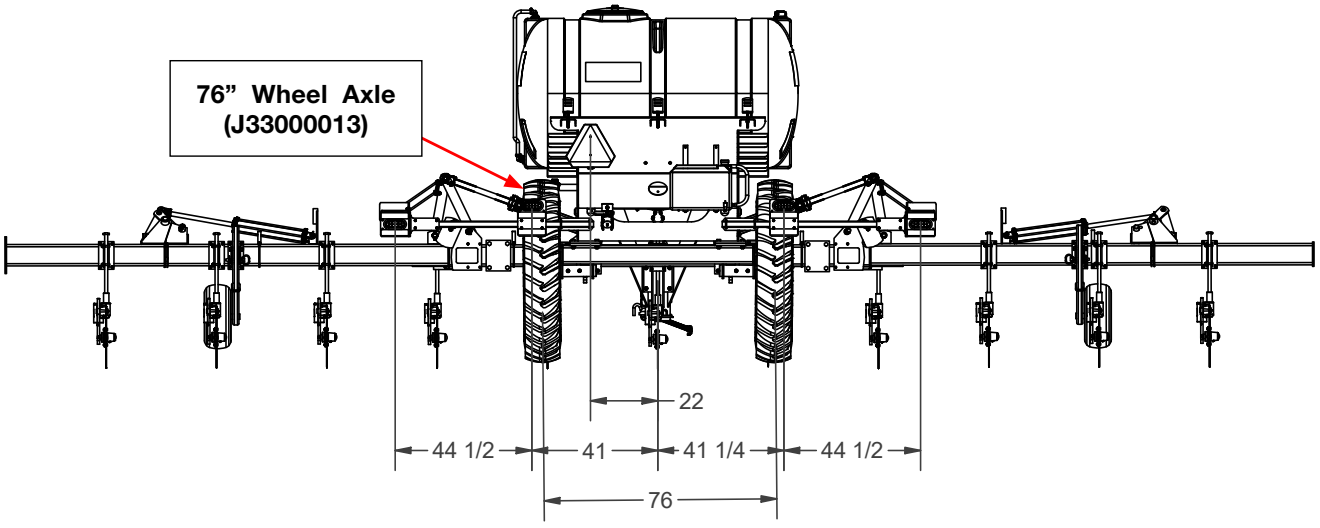


Layout — 11 Row 36” Spacing with Gull Wing Toolbar

Overhead View

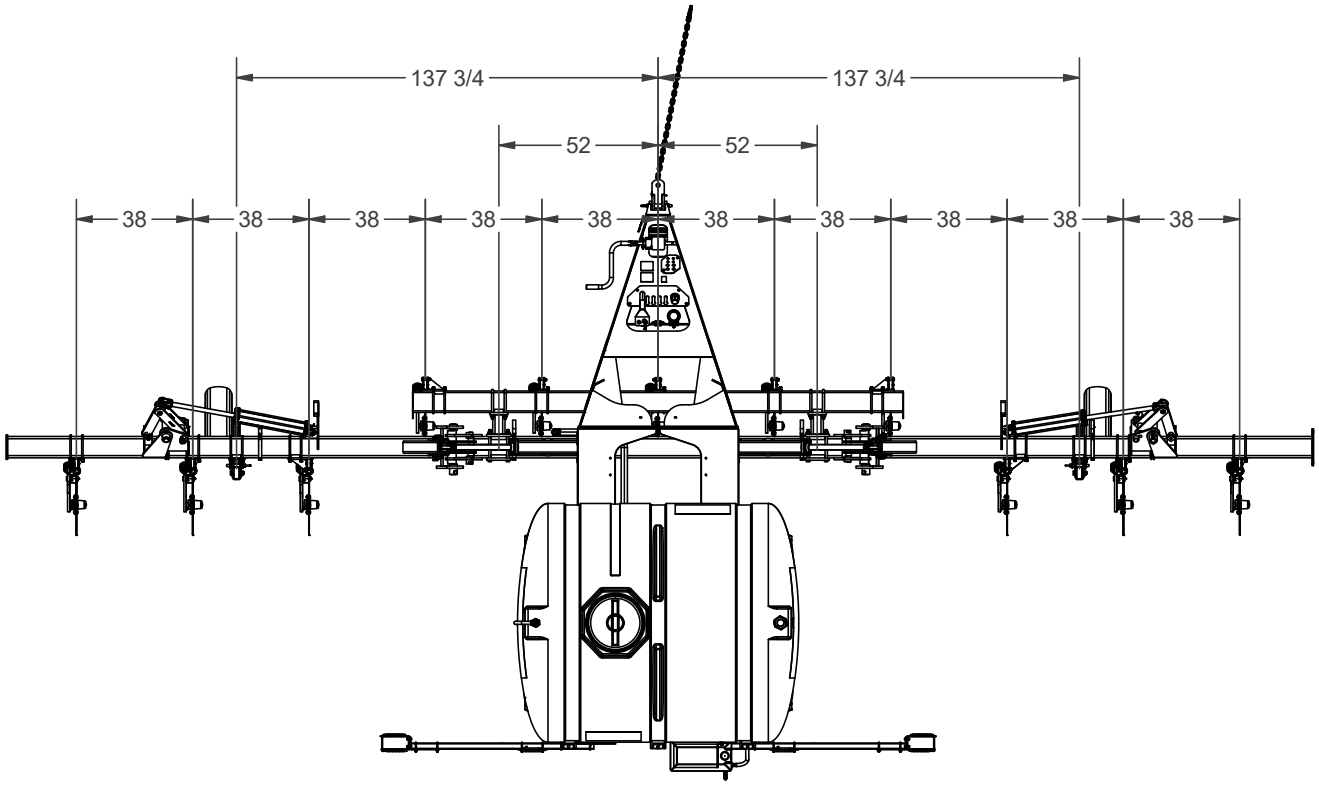


Rear View

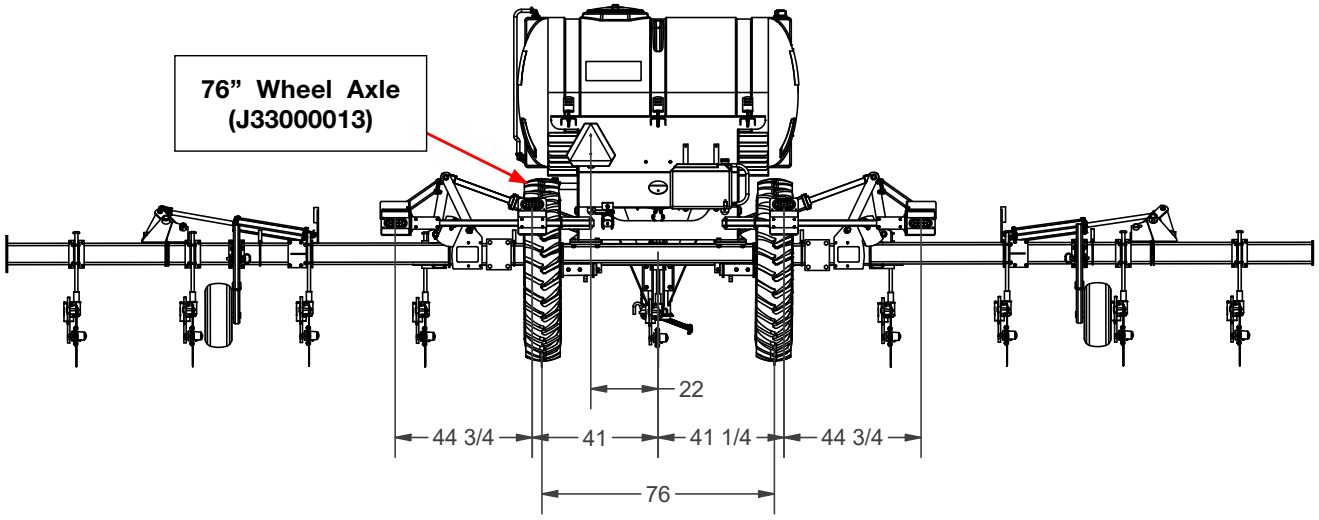


Layout — 11 Row 38” Spacing with Gull Wing Toolbar

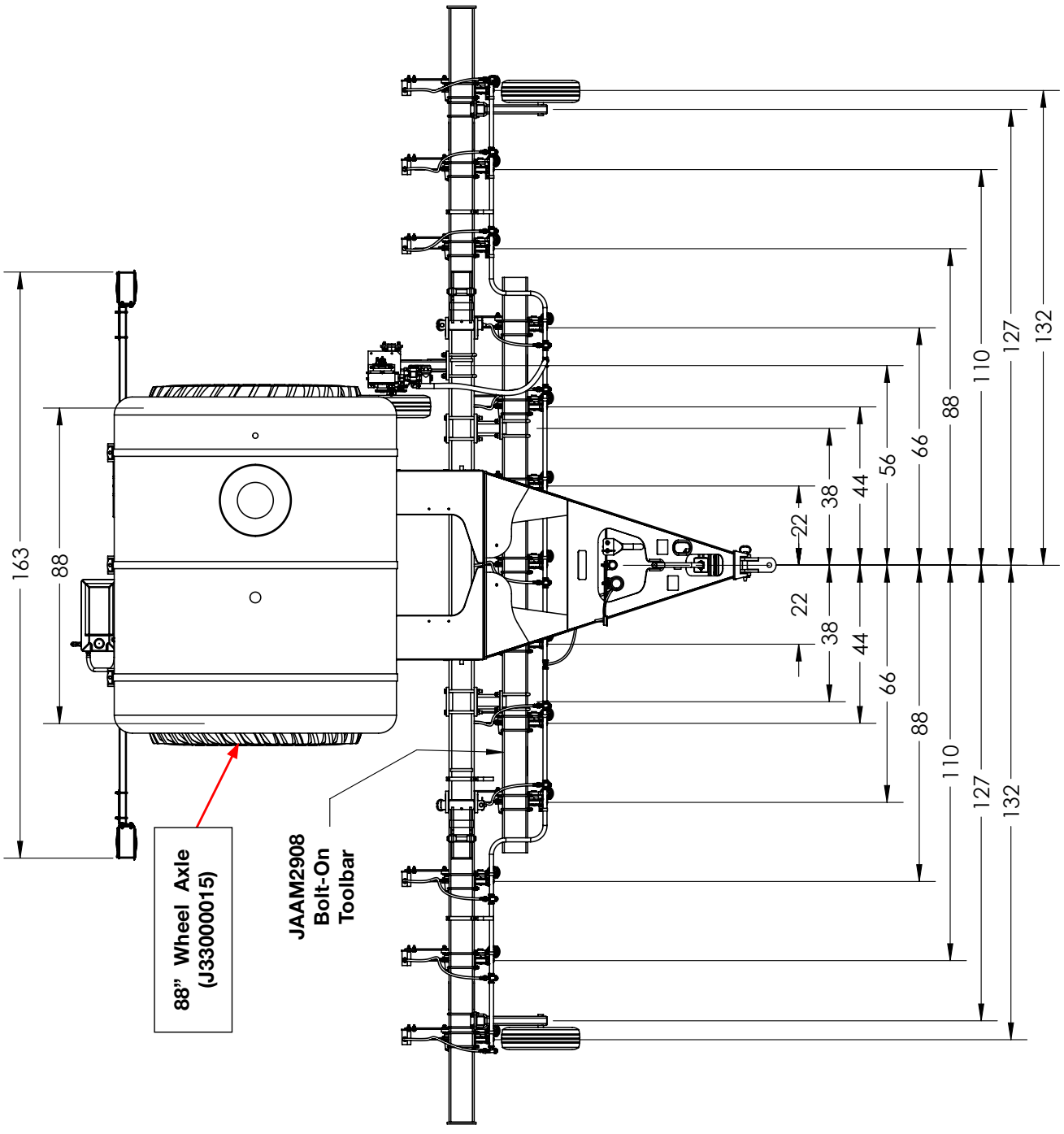
Overhead View



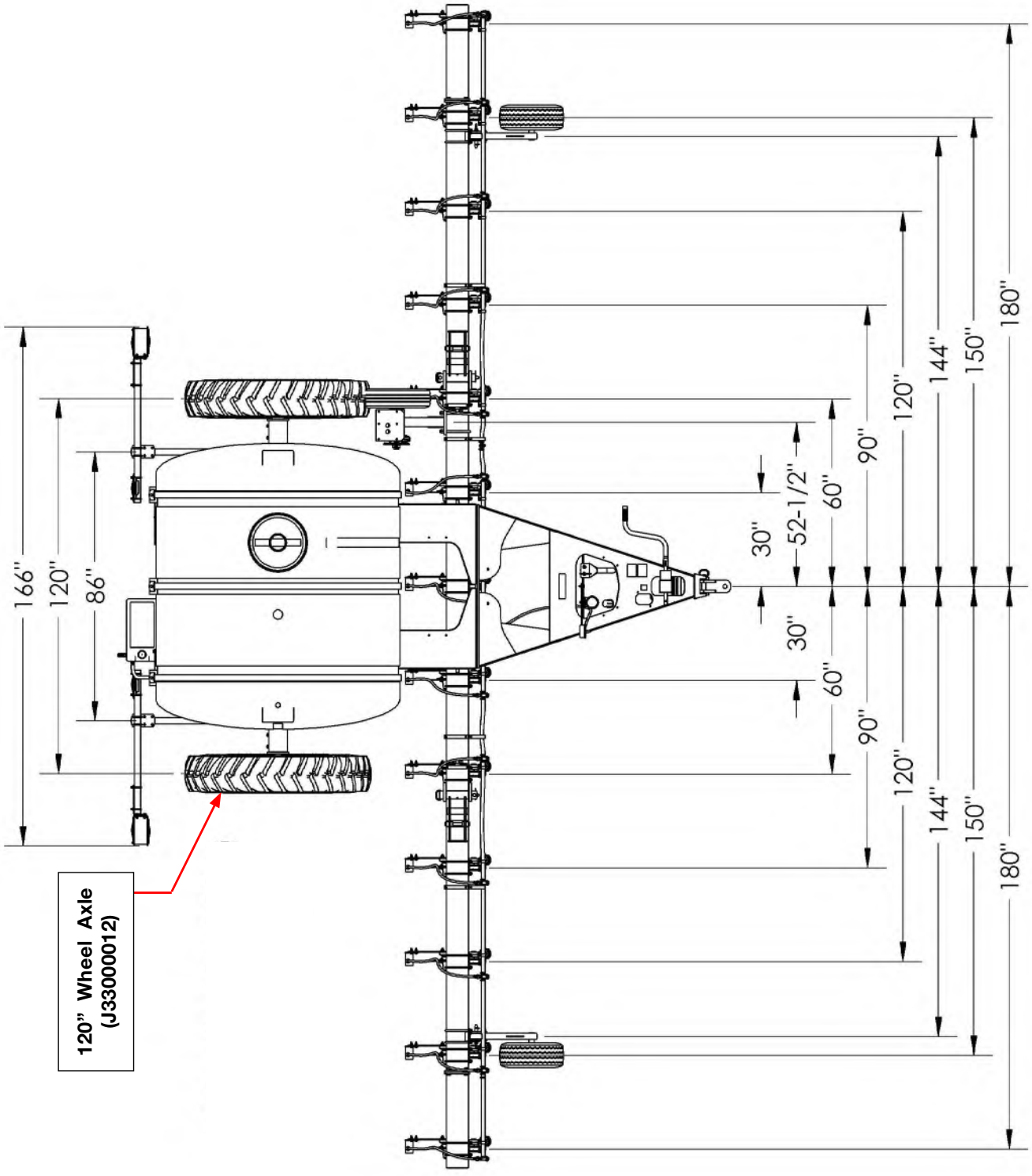
Rear View



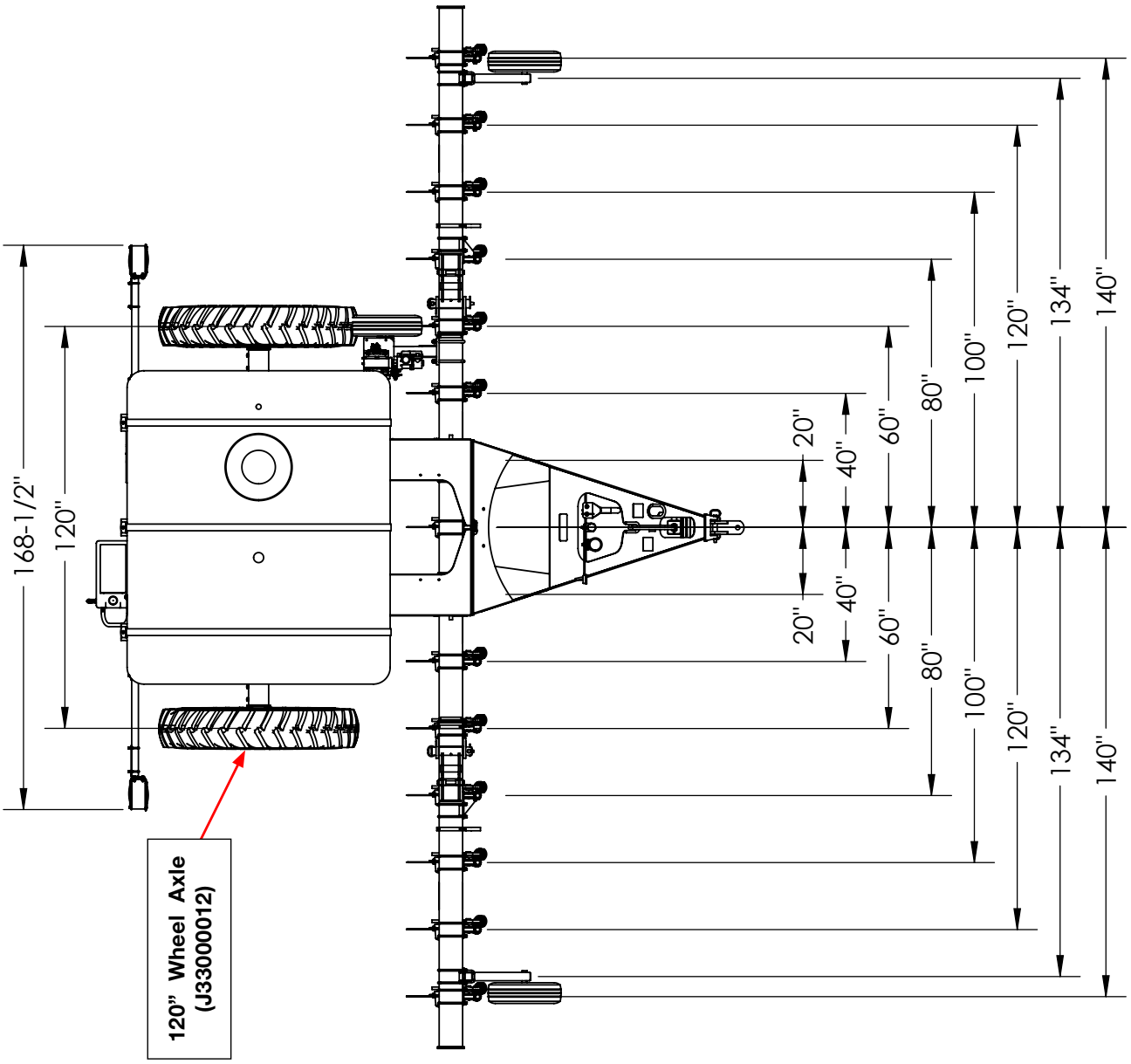
Layout — 13 Row 22” Spacing with Standard Toolbar



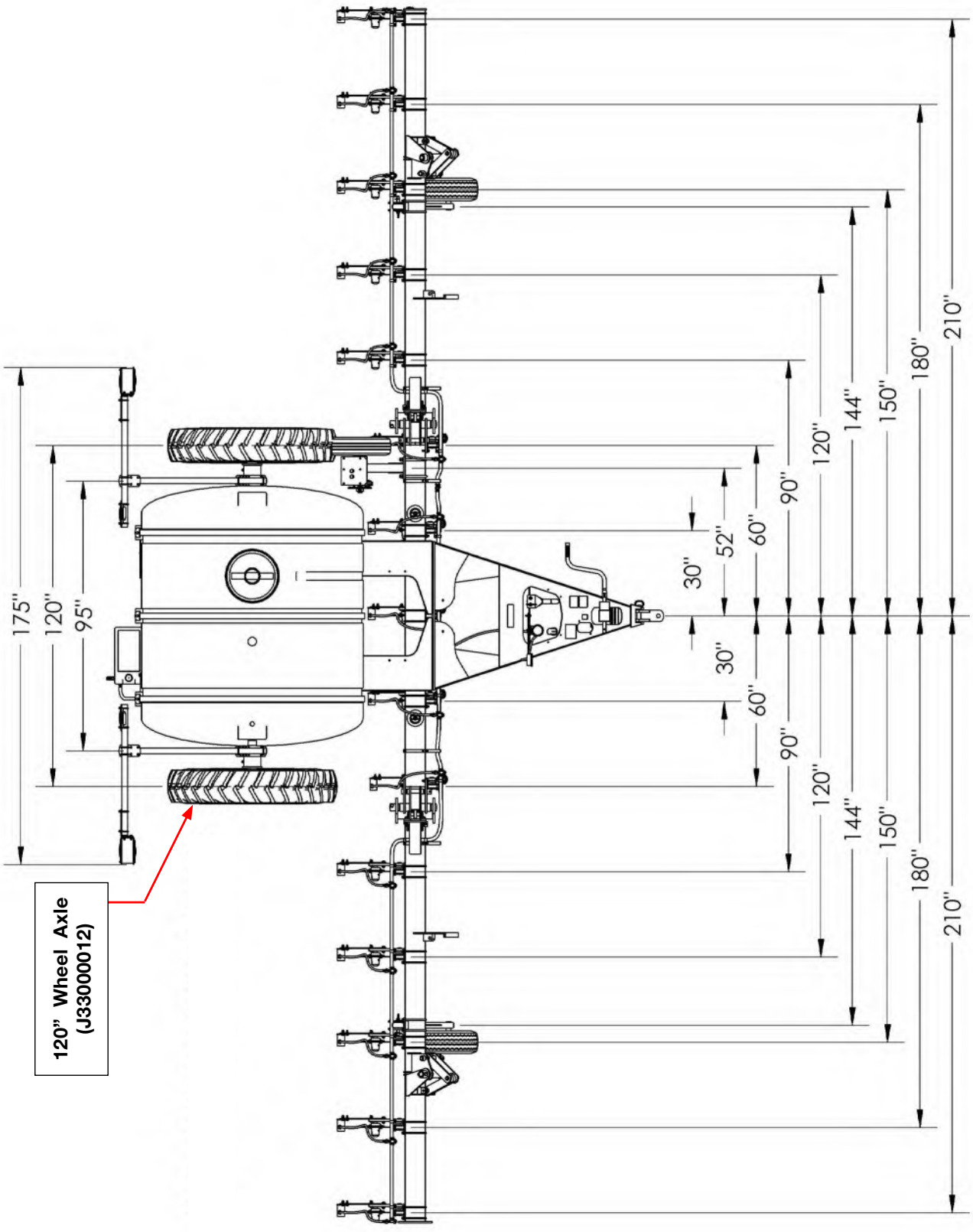
Layout — 13 Row 30” Spacing with Standard Toolbar



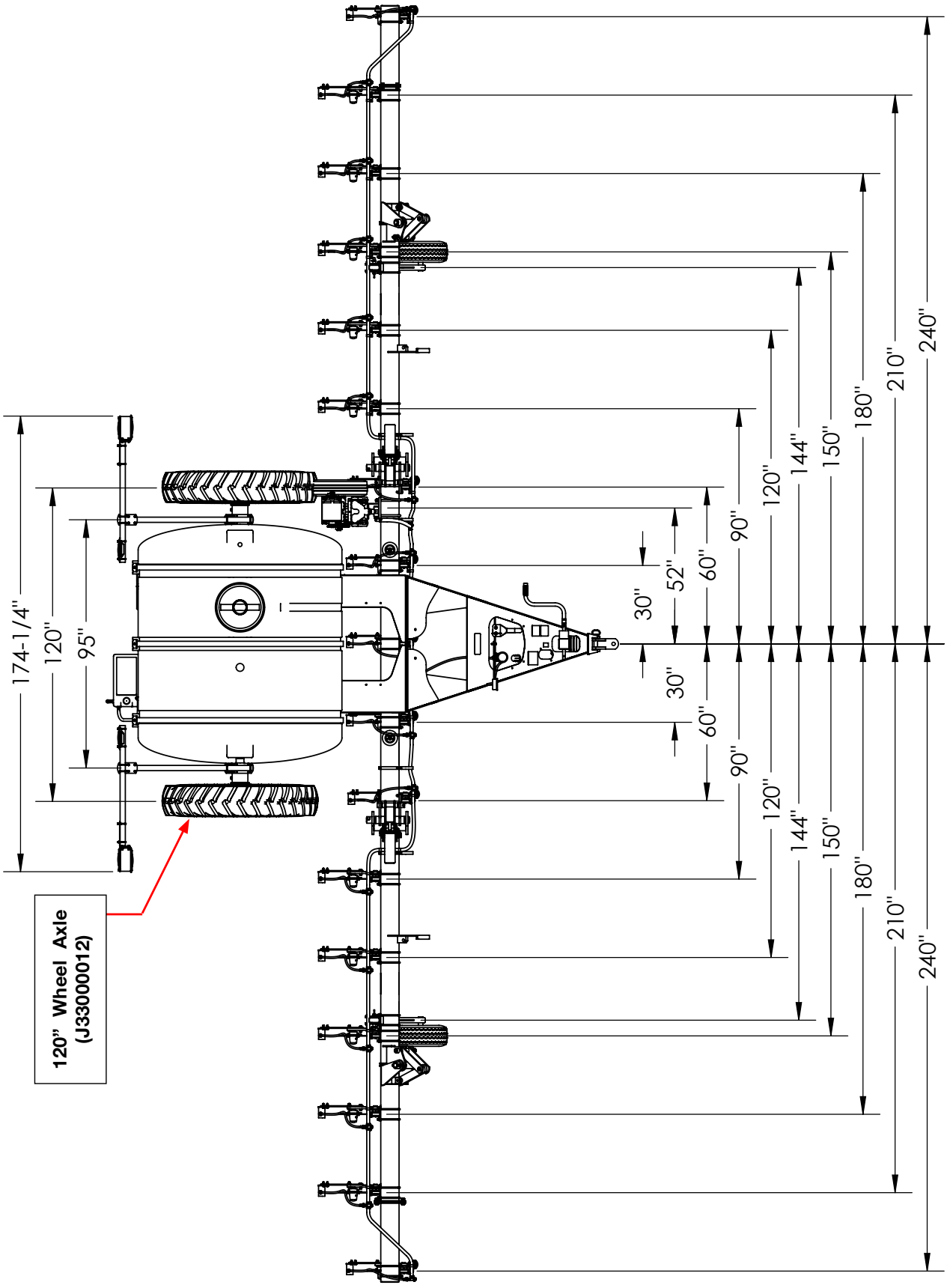
Layout — 15 Row 20” Spacing with Standard Toolbar



Layout — 15 Row 30” Spacing with Gull Wing Toolbar



Layout — 17 Row 30” Spacing with Gull Wing Toolbar



Raven RCM Guide

RCM Set-Up

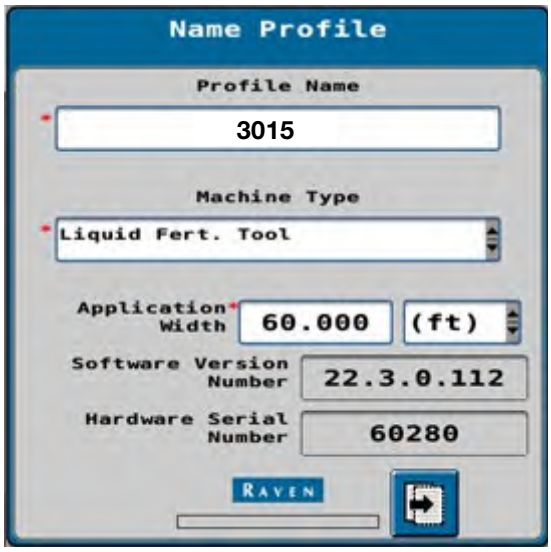
Whenever the tractor is turned off or the ECU for the liquid applicator loses power, the following steps will have to be performed in order for the RCM to function properly right away.

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

1. Attach RCM to ground and 12VDC battery (un-switched) power.
2. On the initial start-up screen, begin by entering the profile name for your liquid fertilizer applicator.
3. Select “Liquid Fert. Tool” as the desired machine type from the drop down menu.
4. Enter the application width of your liquid fertilizer applicator.

NOTE: Highest value for Application Width is 62.5 feet or 750 inches.

5. Press the Next Page icon.



6. Default for ECU box is 1. Touch Number of Products box and enter 1.
7. Press the Next Page icon.

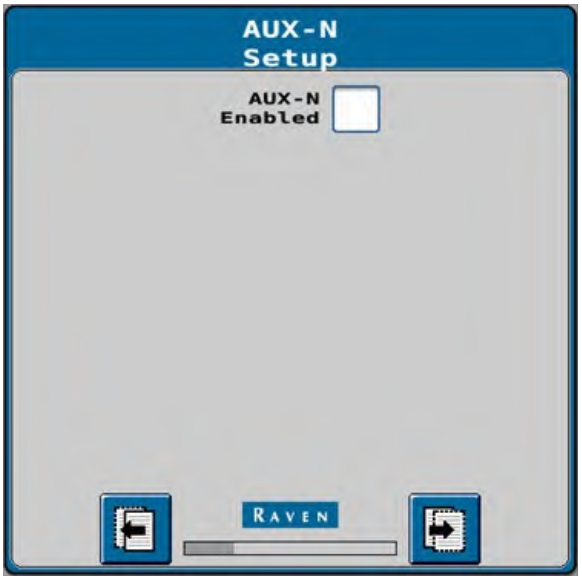
Raven RCM Guide (continued)

8. Under Application Type, select “Liquid (Gal)”.
9. Press the Next Page icon.

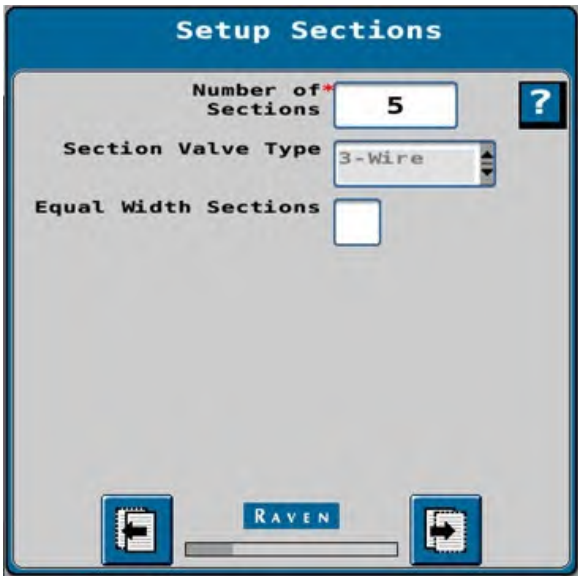
10. Under Application Mode, select “Liquid”.
11. Press the Next Page icon.

Raven RCM Guide (continued)

12. Ensure “AUX-N Enabled” is unchecked.
13. Press the Next Page icon.



14. Enter the number of sections. If applicable, select equal width sections.
15. Press the Next Page icon.

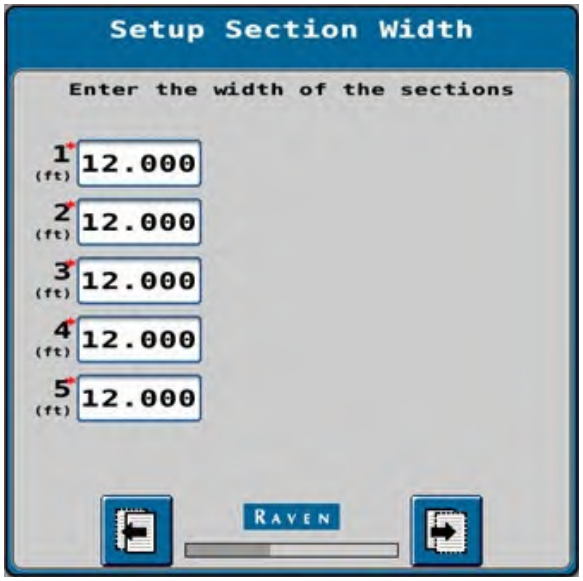


Raven RCM Guide (continued)

16. Verify or enter the widths of the individual sections.

NOTE: If section widths are unknown, simply count the number of rows plumbed into each section and multiply by the row width. Section 1 will start on the left hand side of the machine when facing the machine form the rear.

17. Press the Next Page icon.



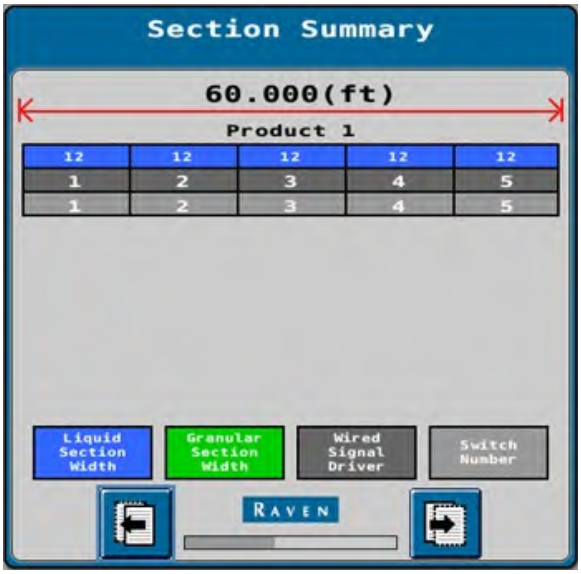
18. Ensure all the boxes are selected as “None”.

19. Press the Next Page icon.

Raven RCM Guide (continued)

20. Review the information on the Section Summary screen.

21. If the information is correct, press the Next Page icon. To make adjustments to the configuration, press Back and adjust settings as needed.



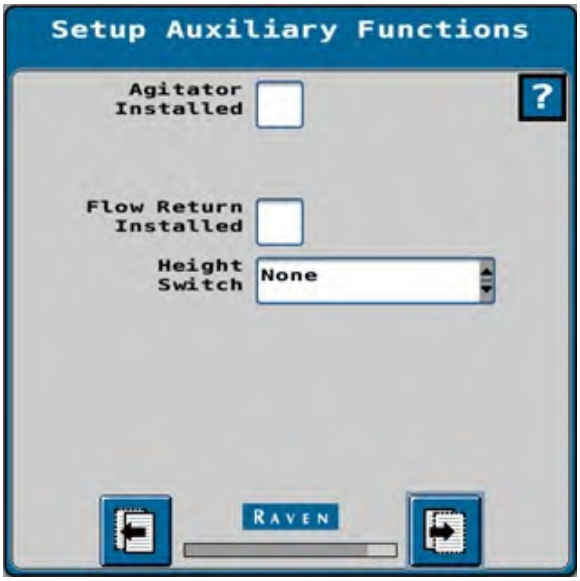
22. Ensure both Pressure Sensors are selected as “None”.

23. Press the Next Page icon.

Raven RCM Guide (continued)

24. Ensure both boxes are unchecked and Height Switch dropdown says “None”.

25. Press the Next Page icon.



26. Select “Standard” for control valve type.

27. Enter the desired Valve Response Rate, Control Deadband, Valve Delay, Valve Advance, and Control Effort.

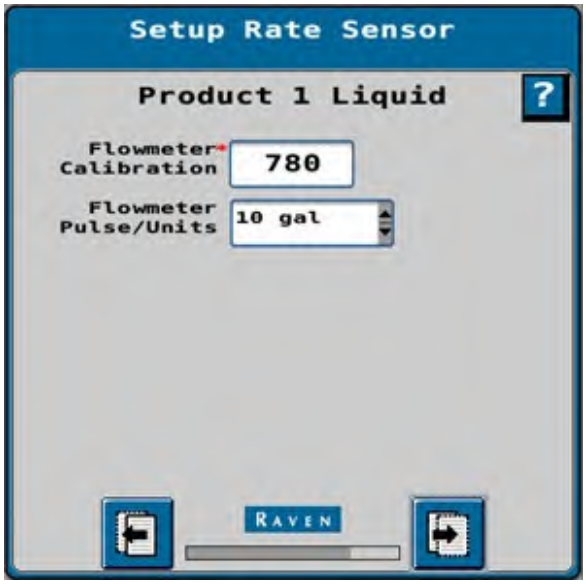
NOTE: The pictured values are suggested starting numbers. You can fine tune these values to best fit your application. The white question mark outlines what happens when adjusting each value.

28. Press the Next Page icon.

Raven RCM Guide (continued)

29. Enter the Flowmeter Calibration number. This is unique to each Flowmeter. Check the tag on your flow meter to find the value. The value represented in the picture below does not necessarily represent the number for your flow meter.

30. Press the Next Page icon.



31. Ensure Tank Fill/Level Sensor is selected as “None”. Enter the Tank Capacity, Current Tank Level, and Low Tank Level values.

32. If desired, select the Alarm? Checkbox to be notified when the tank fill level falls below the low tank level threshold. Max Tank Fill PWM can be left at “100.0”.

33. Press the Next Page icon.

Raven RCM Guide (continued)

34. The Setup Rates page determines the application rates that the RCM will regulate to. Enter any desired three Preset Rate Values which can be selected on the home screen. On the home screen, target rates can be entered as well.

35. Enter Rate Bump value in an increment as desired.

36. For Rate Selection, select “Predefined or Rx”. This enables selection of rate from the preset value choices or from a prescription map that is imported from a Universal Terminal.

37. Check Display Smoothing.

38. Select a decimal shift of “0”.

39. Press the Next Page icon.

40. Enter “20” for Off Rate Alarm and check Alarm? box.

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

41. Enter “5” for minimum flow rate required to maintain spray pattern. This number can be fine-tuned later.

42. Press the Next Page icon.

Raven RCM Guide (continued)

43. No action required on this screen. Shows the setup summary. Make sure all the values are correct.

44. Press the Next Page icon to finish the RCM set-up

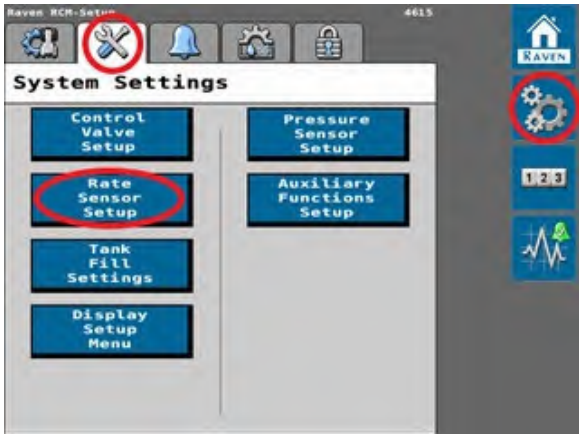
Raven RCM Guide (continued)

Flow Meter Calibration

Flow Meter Calibration can be accomplished by performing a catch test calibration or an Applied Product Calibration. This calibration should only be done if the applied rate differs greatly from the target rate.

Catch Test Calibration

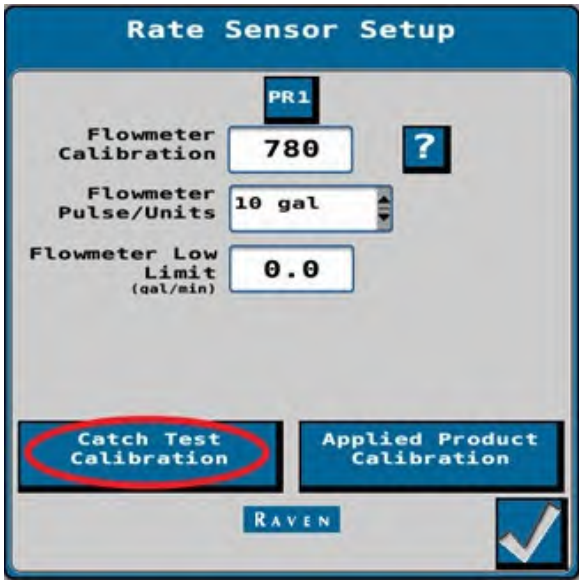
A catch test calibration will calibrate the flow meter by dispensing product through user defined sections into a container without moving the machine. The collected amount is then entered into the display to complete calibration.



1. Navigate to the settings page and select the System Settings tab.

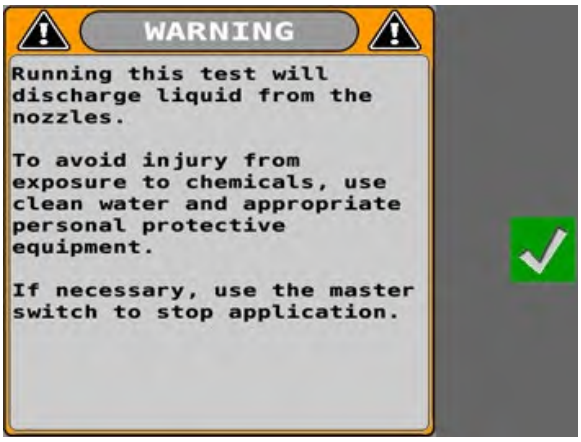
2. Touch the Rate Sensor Setup button.

3. Touch the Catch Test Calibration

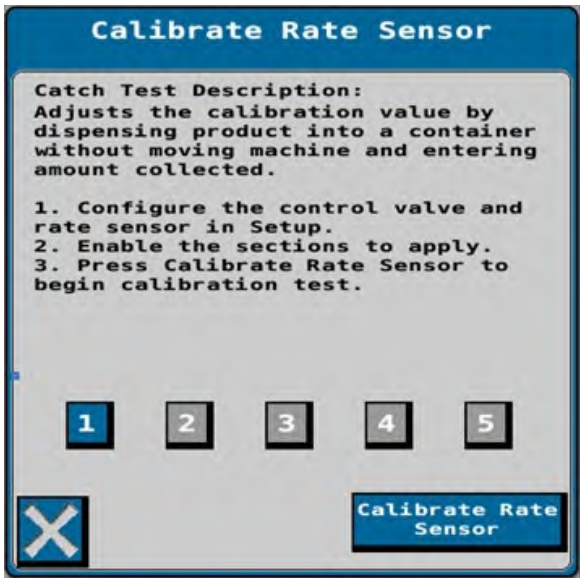


Raven RCM Guide (continued)

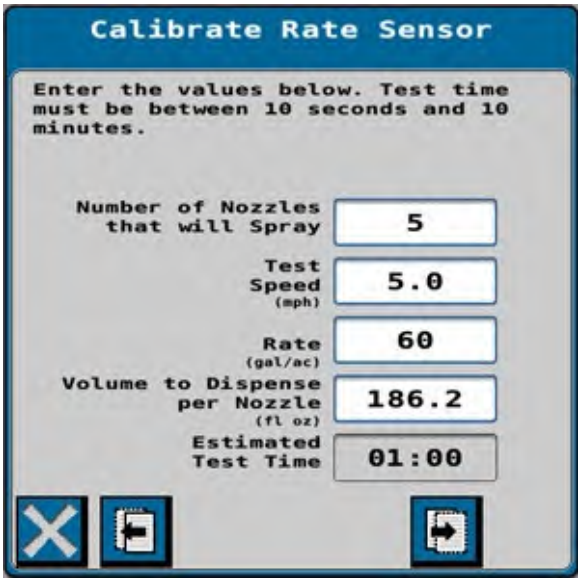
4. A warning message will be displayed. Review the message and touch the Green Checkmark.



5. Select which sections to dispense product through and touch Calibrate Rate Sensor.



6. Enter the number of nozzles in the sections selected that will dispense product into the Number of Nozzles that will Spray. Enter a Test Speed similar to what will be used for field application. Enter the Rate that will be used for field application. Enter the Volume to Dispense per Nozzle. Touch Next Page icon.



NOTE: When choosing how much volume to dispense per nozzle, consider how large of containers you are using to collect the product. It is also important to choose an amount that will have an estimated test time between 10 seconds and 10 minutes. The more product dispensed, the more accurate the test will be.

Raven RCM Guide (continued)

7. Turn the master switch on and then press start to begin the test. Once the test is complete, collect the product and measure how much was dispensed.

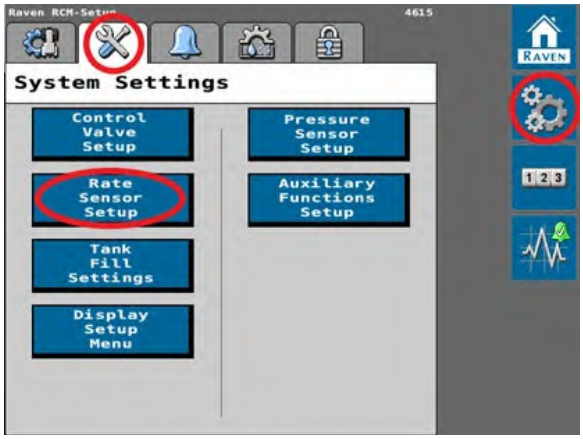
Raven RCM Guide (continued)

Applied Product Calibration

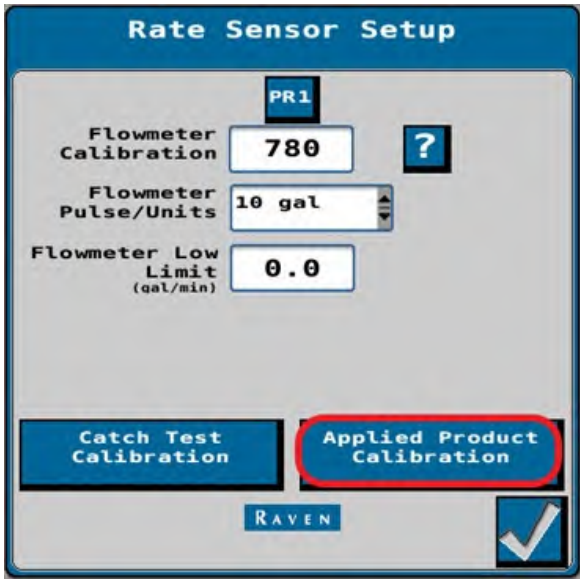
An applied product calibration compares the amount of product that is applied during normal field application to the amount of product the flow meter thinks was applied. This test can be used when time doesn't allow for a full catch test or if calibration of a larger quantity of product is desired.

1. Navigate to the settings page and select the System Settings tab.

2. Touch the Rate Sensor Setup button.

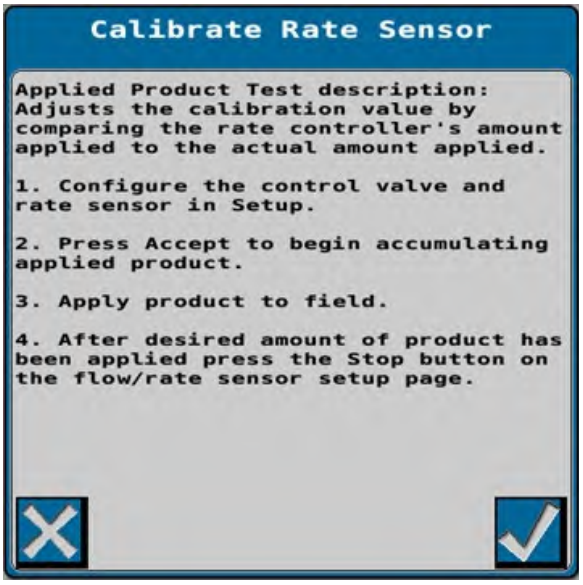


3. Touch the Applied Product Calibration



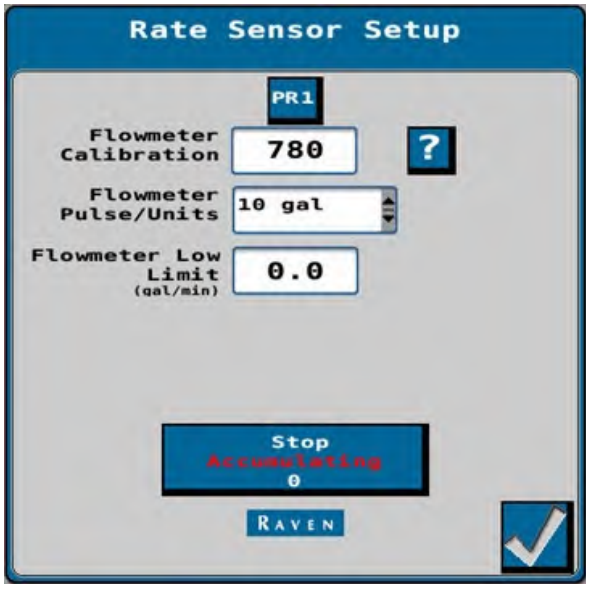
Raven RCM Guide (continued)

4. A message outlining the test procedure will be displayed. Review the instruction and touch the checkmark.



5. Ensure that the applied product is being recorded. A button should be displayed indicating the accumulated total. Once the application is complete, touch the Stop Accumulating button.

6. Follow the on screen steps to complete the applied product calibration.

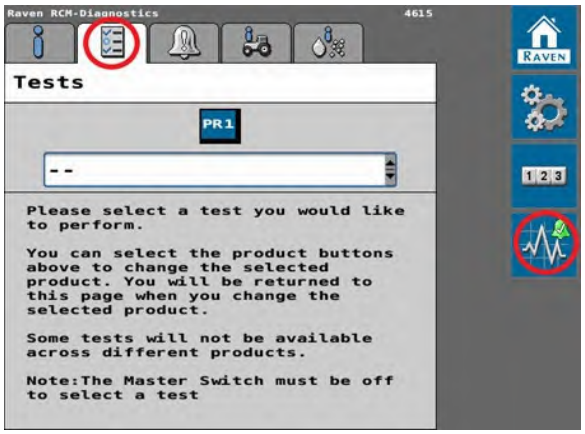


Raven RCM Guide (continued)

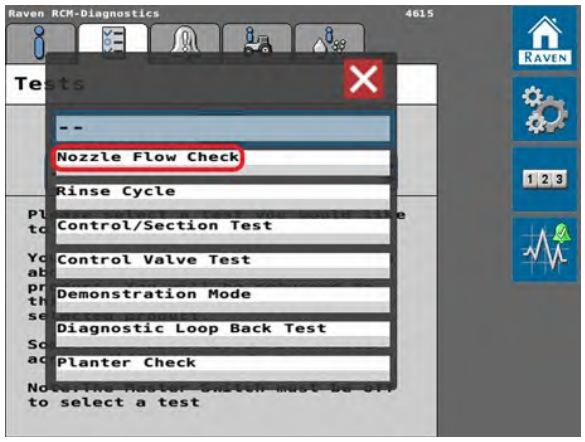
Nozzle Flow Check

An applied product calibration compares the amount of product that is applied during normal A nozzle flow check test allows the operator to check nozzle flow by turning on the pump and valves while remaining stationary. This could be necessary if having issues with nozzle flow.

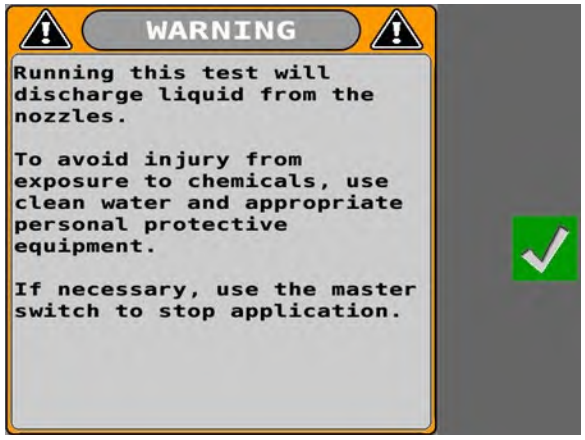
1. Navigate to the Diagnostics page and select the Tests tab.



2. Select “Nozzle Flow Check” from the drop down menu.

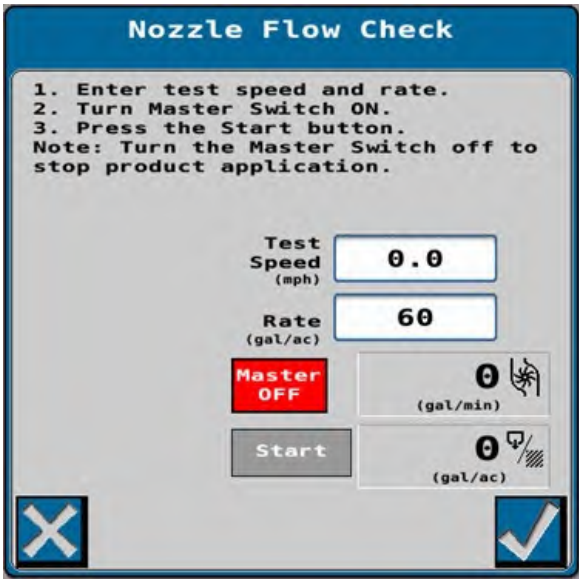


3. Press begin to start the process. A warning alarm will pop up saying that the test will discharge product. Make sure to read the warning carefully. Touch the green checkmark.



Raven RCM Guide (continued)

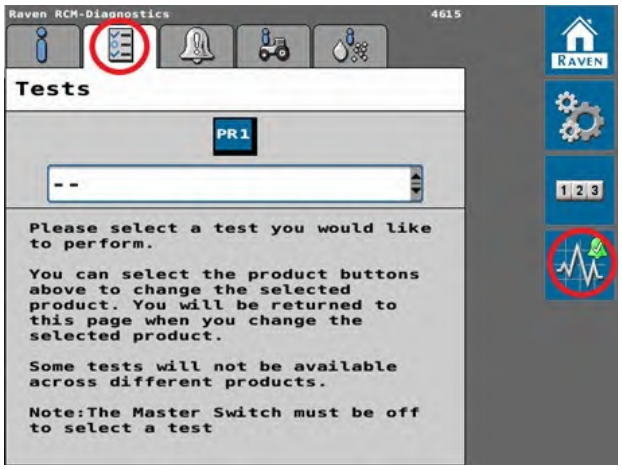
4. Review the step by step instructions. Touch Start to initiate product flow. Complete system inspection as necessary.



Control Section Test

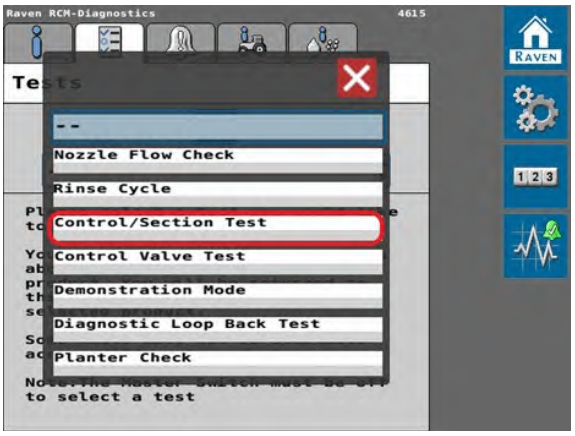
A Control Section Test is used to manually operate each section shut off valves. This test can be used when diagnosing issues with the section control system.

1. Navigate to the Diagnostics page and select the Tests tab.

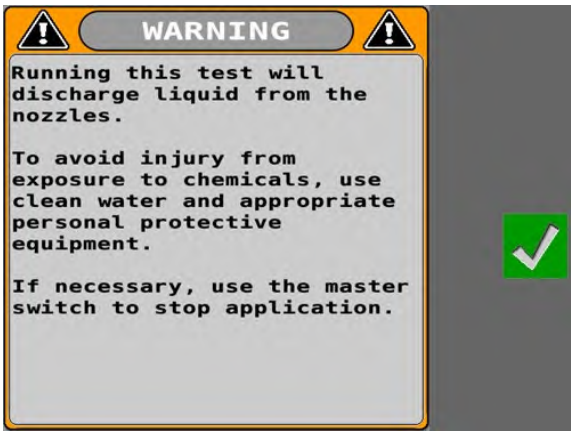


Raven RCM Guide (continued)

2. Select “Control/Section Test” from the drop down menu.



3. Press begin to start the process. A warning alarm will pop up saying that the test will discharge product. Make sure to read the warning carefully. Touch the green checkmark.



4. Review the step by step instructions and then press start. Each section can be toggled on and off by touching the corresponding section button.

Section III
Operation

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 8,500 lbs. unfolded (4800 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. 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 could result in hub or spindle failure. This will cause substantial damage to the applicator.*

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.**

Connect the hitch to the tractor drawbar. Do not attempt to hitch to any other location on the tractor. (FIG. 3-1)

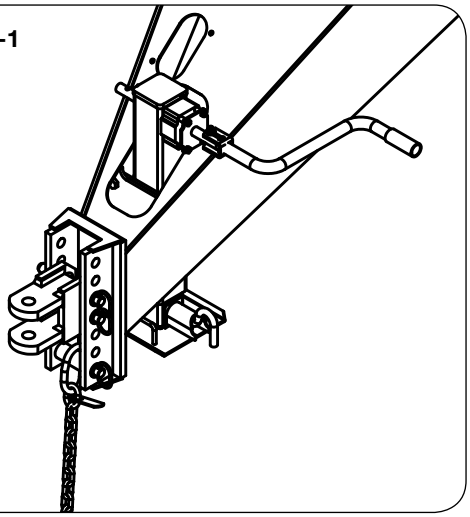
NOTE: Only use the centered position on the drawbar.

The applicator is equipped with a clevis and single tang hitches. Use a hitch pin of the correct diameter.

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

The holes in the hitch and vertical holes in the tongue allow for adjustment so the tank sits level.

FIG. 3-1



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

Always use a transport chain when connecting the applicator directly to a tractor. Make sure the intermediate chain support is in use. DO NOT use the intermediate chain support as the chain attaching point. FIG. 3-2 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. 3-2

⚠ CAUTION

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

Hitching to the Tractor (continued)

Hydraulic Connections

⚠ WARNING

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

⚠ CAUTION

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

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

1. Connect the toolbar hydraulic hoses to the tractor remote couplers. The 3/8" hoses supply oil to the toolbar lift cylinders. The 1/4" hoses supply oil to the wing fold cylinders.

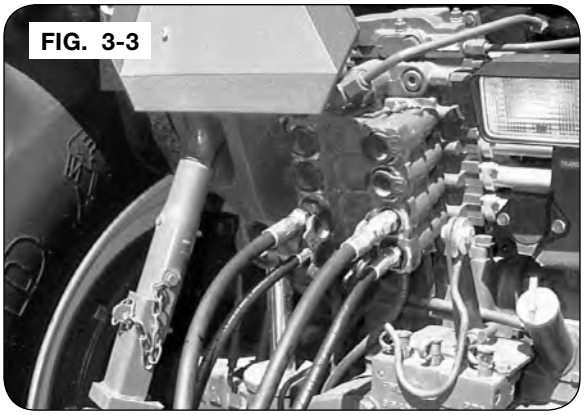
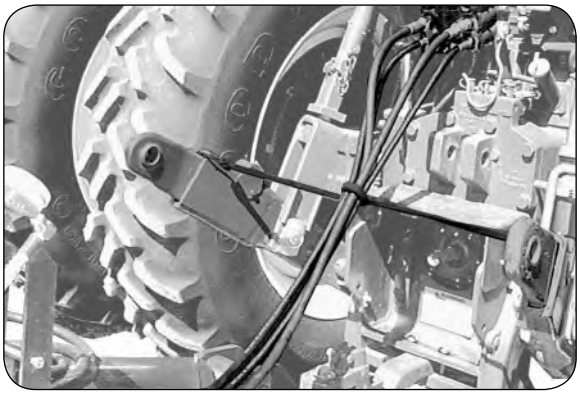


FIG. 3-3

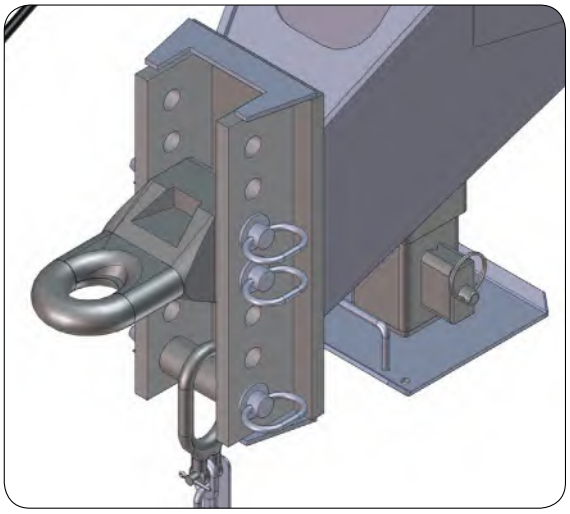
2. It may be necessary to tie the hydraulic hoses up to keep them away from the hitch area. A tarp strap around the hoses and between the two point arms works well.



Hitching to the Tractor (continued)

Leveling Main Frame

1. Before leveling the machine tire pressure should be checked. Inflate mainframe tires to 56 P.S.I. Max. Before beginning operation of this machine the mainframe must be level. Place toolbar on level surface. Adjust the hitch up or down in the tongue connector and connect to tractor.



Electrical Harness Connection

1. Attach 7 pin electrical harness before road transport.

Jack Usage

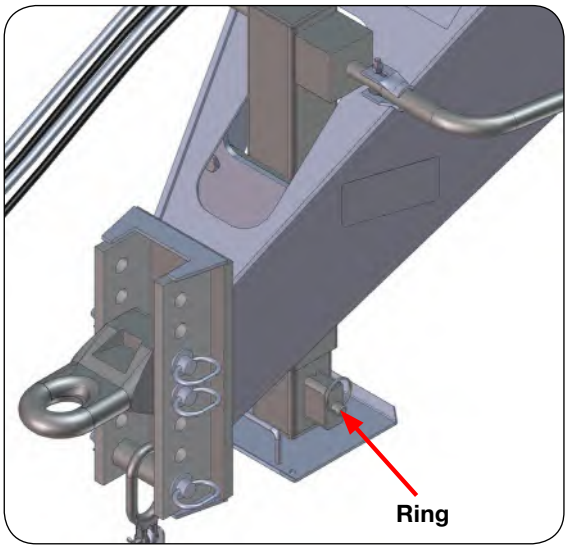
WARNING

- **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 hooked to tractor.

Pull ring on drop leg jack plunger to lower drop leg to contact the ground. Crank jack leg downward to completely remove the hitch weight from tractor drawbar. (FIG. 3-5)

After tractor connection is established, raise jack leg of the jack to highest position to maximize ground clearance. Pull ring on drop leg jack plunger to raise pad.



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.**
- **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. Maximum speed of applicator with tracks should never exceed 15 m.p.h.

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

Secure transport chain to tractor before transporting, see FIG. 3-7. Use good judgment when transporting equipment on highways. 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.

Transporting (continued)

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.**
- **DO NOT EXCEED 10 MPH DURING OFF-HIGHWAY TRAVEL.**

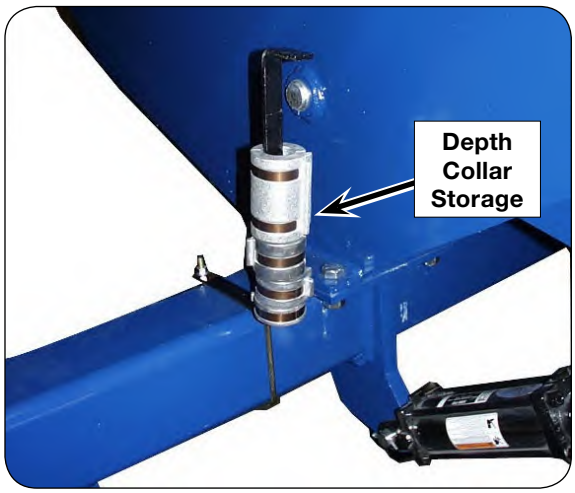
IMPORTANT

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

Depth Collar Depth Control

NOTE: To lock transport height, install all depth collars.

1. Set working depth using 4 1/4" depth collars as a starting depth. Adjust as desired.



Transporting (continued)

Standard Toolbar Wing Lock

WARNING

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

1. Wing lock pin storage.

IMPORTANT

- *Lock wings during operation. Failure do do so could result in damage to wing fold cylinders.*

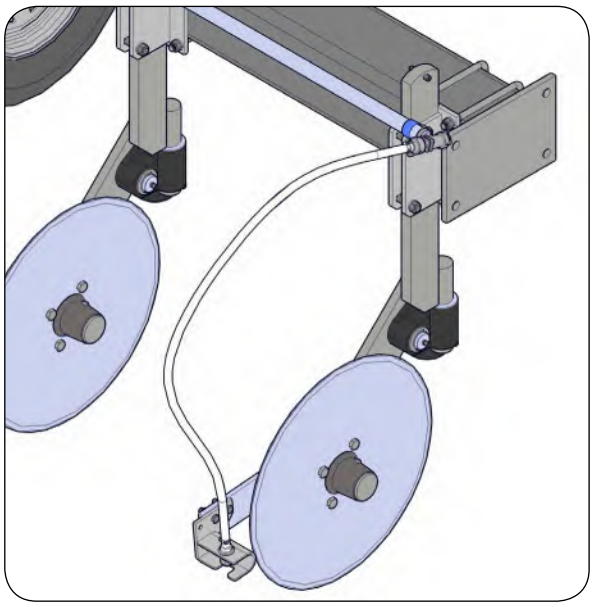
Gull Wing Toolbar Operation

CAUTION

- **PRIMARY WING FOLD HYDRAULICS MUST BE IN FLOAT POSITION WHILE OPERATING IN THE FIELD. THIS ALLOWS THE WINGS TO FLEX UP AND DOWN.**
- **FAILURE TO RUN IN FLOAT WILL RESULT IN DAMAGE TO THE GULL WING CYLINDERS AND LINKAGE.**

Coulter Shank Adjustments

1. Loosen carriage bolts and adjust coulter shanks in flatback until the blade is running at a depth of 4 to 5 inches.



Orifice and Nozzle Installation

⚠ WARNING

- **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.**
- **WASH HANDS AND EXPOSED SKIN IMMEDIATELY AFTER CONTACT WITH SPRAY/FERTILIZER SOLUTION AND APPLICATION EQUIPMENT.**

1. Consult row spacing rate chart for orifice size.
2. Remove nozzle nut and insert orifice.
3. Travel a few meters and check blade depth. Adjust gauge wheels or coulters to achieve the 4” depth.
4. Check all nozzles for stream of liquid behind blade.
5. Make adjustment to nozzle assembly so stream is in line with the blade trench.

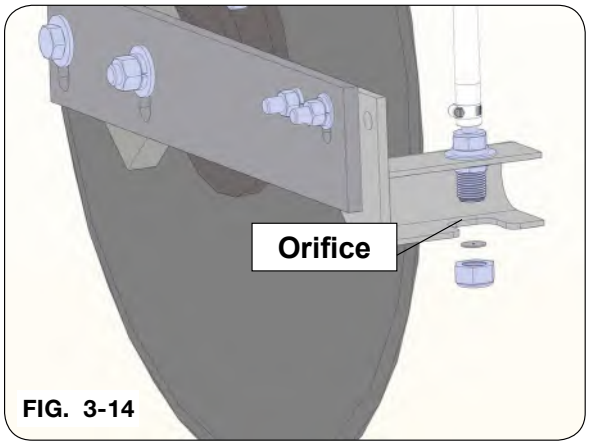


FIG. 3-14

NOTE: Rotate the coulter assembly about the vertical shaft to assure proper hose slack in the hose below the nozzle body to allow for oscillation of the coulter assembly.

Bottom Fill Valve

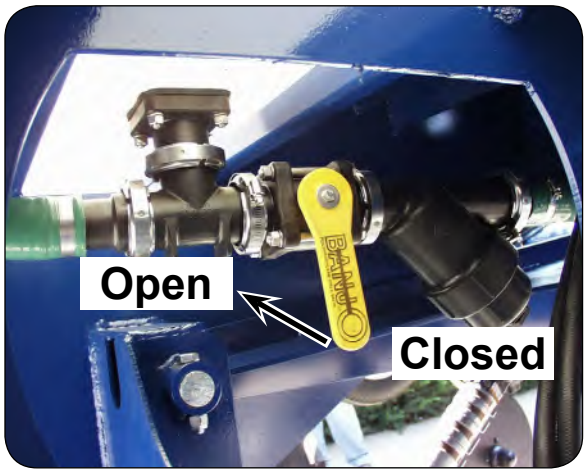
⚠ WARNING

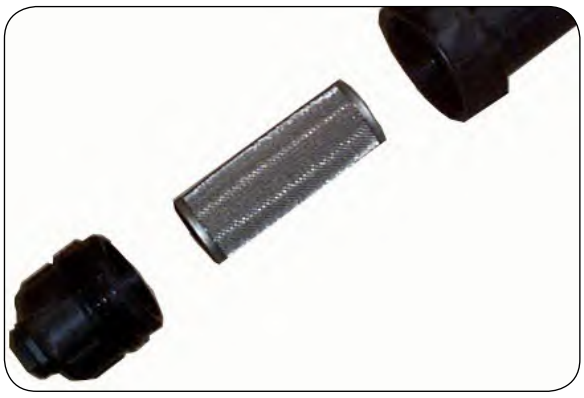
- **ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.**
- **WASH HANDS AND EXPOSED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

⚠ CAUTION

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

1. After the tank is filled open valve before engaging pump.
2. Screen should be checked and cleaned periodically.

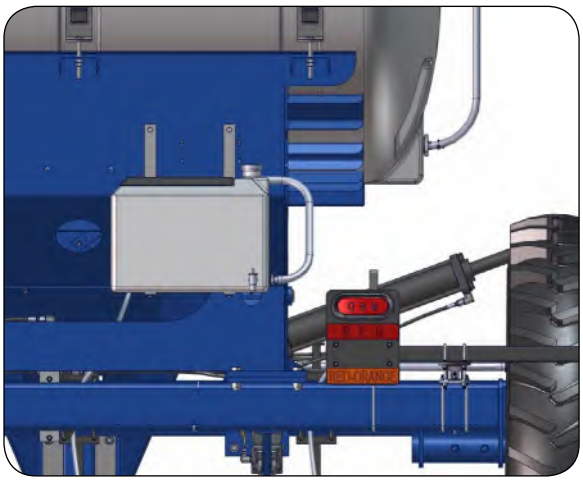




Clean Water Tank

1. Location of nine-gallon emergency water tank/toolbox. Change water daily to provide fresh clean water to flush exposed skin or eyes. Drain water daily in cold temperatures to prevent freezing and bursting tank.

2. In case of exposure to fertilizer, open faucet or pull top end of hose loose to flush exposed part of body. Remove contaminated clothes as soon as possible.



Ground/Positive Contact Pump Drive Set Up

Go to https://johnblue.com/calculators/metering-pumps/ OR use QR code for the John Blue Pump Calculator and instructions.

Drive System Type – Press/Rub Wheel
Pump Type – Piston
John Blue Pump Model – NGP-7055 (Single Piston Pump)
or NGP-9055 (Twin Piston Pump)
Loaded Radius – 10.6”
Drive Sprocket Teeth – 40 or 50

- 40 is the standard drive sprocket (Use 40 tooth unless pump setting exceeds 10 with the desired application rate and ground speed. Then switch to the 50 tooth sprocket)
- 50 is for high rate application

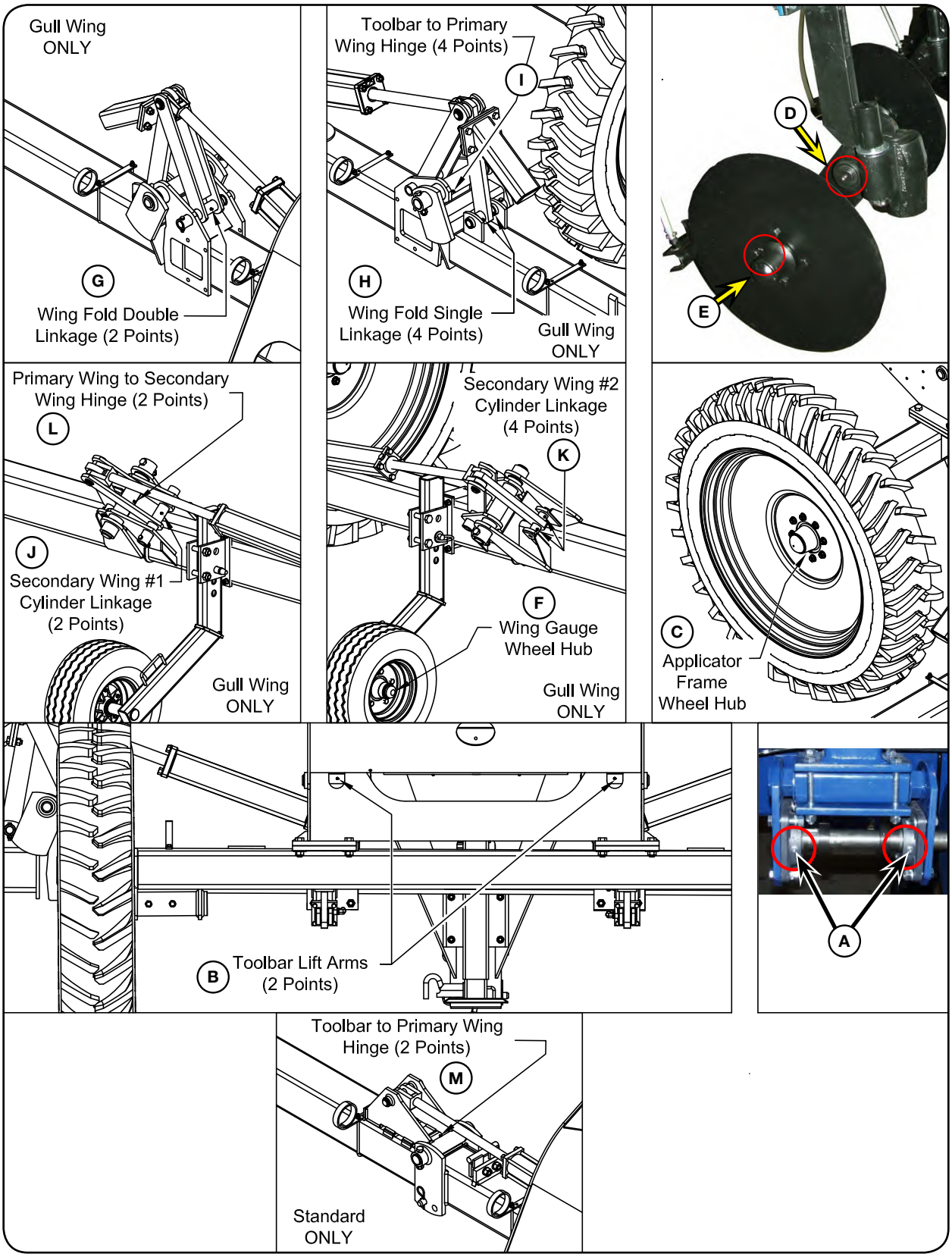
Driven Sprocket Teeth – 18

NOTE: Swath width is the number of rows being applied (Example: A 15 row 30” machine will cover 16 rows.) times the spacing between the rows.

Rows x Spacing = Swath width
16 rows x 30” = 480” (swath width)

Section IV
Maintenance

Lubrication



Lubrication (continued)

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.

Use EP-2 lubricant at the locations described in the chart.

The lubrication locations and recommended schedule are as follows:

ITEM	DESCRIPTION	POINT	QTY.	HOURS
A	Pump Assembly - Pillow Block Bearings	2	2 Shots	Weekly
B	Toolbar Lift Arms	2	2 Shots	Daily
C	Applicator Frame Wheel Hub	2	Repack	Once Every Season
D	Coulter Swivel	2	2 Shots	Weekly
E	Coulter Hub	-	10 Shots	Once Every Season
F	Outer Wing Gauge Wheel Hub	2	Repack	Once Every Season
G	Gull Wing Fold Double Linkage	2	5 Shots	Weekly
H	Gull Wing Fold Single Linkage	4	5 Shots	Weekly
I	Gull Wing Toolbar to Gull Wing Primary Wing Hinge	4	5 Shots	Weekly
J	Gull Wing Secondary Wing #1 Cylinder Linkage	2	3 Shots	Weekly
K	Gull Wing Secondary Wing #2 Cyinder Linkage	4	3 Shots	Weekly
L	Gull Wing Primary Wing to Gull Wing Secondary Wing Hinge	2	10 Shots	Weekly
M	Standard Toolbar to Primary Wing Hinge	2	5 Shots	Weekly

High-Pressure Coulter Injection System Nozzle Calibration Worksheet

Calibration of these systems involves two separate sets of calculations. The first being a procedure of setting rate and the second being a procedure of obtaining system pressure.

FIRST:

These systems utilize a positive-displacement, ground-driven, piston pump to establish the GPA (gallon per acre) rate. Because the pump is ground-driven, this rate will be very consistent provided you do not exceed the pumps capacity or pressure ratings (120 PSI Maximum).

SECOND:

The injection system nozzles are what determine system operation pressure at a particular flow rate and ground speed. Because the system requires nozzle pressure in the 60 PSI to 120 PSI range to inject fertilizer into the soil properly, it becomes necessary to size the nozzle correctly to maintain this 60-120 PSI optimum operating pressure at various speeds. In effect, the operating speed is limited by the range of pressure necessary for proper injection system operation. Remember that nozzle size has no affect on rate, only system operating pressure.

High Pressure Injection System Pump Calibration Work sheet

Step 1: Rate Calculation (gallons per acre)
Actual pounds of nitrogen per acre desired ÷ percent of nitrogen in solution equals pounds of solution per acre
Actual N ÷ % of N = lbs. solution per acre

Examples:
100 lbs. of actual N desired ÷ .28 (% of N in solution) = 357 lbs. per acre
100 lbs. of actual N desired ÷ .32 (% of N in solution) = 312 lbs. per acre

Step 2: Pounds per acre of solution ÷ weight per gallon of solution equal GPA
(GPA= gallons per acre of solution)
lbs. solution per acre ÷ weight per gallon = GPA

Examples:
357 lbs. of 28% N solution ÷ 10.65 lbs. per gallon = 33.5 GPA
312 lbs. of 32% N solution ÷ 11.4 lbs. per gallon = 27.37 GPA

Step 3: Use the John Blue, pump setting, slide-rule chart.
The standard BLU-JET sprocket combination is 18 to 50.

Step 4: Loaded Radius:
We recommend using a loaded radius of 10” for the standard BLU-JET tire drive wheel when used with the John Blue LM 4450 pump.
Add 1/2” to the loaded radius if soil builds up on the small tire in wet conditions.

High-Pressure Coulter Injection System Nozzle Calibration Worksheet

Step 5: Swath width is the number of rows being applied (Example: A 15 row 30" machine will cover 16 rows.) times the spacing between the rows.

$$\text{Rows} \times \text{Spacing} = \text{Swath width}$$

16 rows x 30" = 480" (swath width)

Step 6: Example:

1. Using the chart, align loaded radius (10") with 18 to 50 sprocket combination setting.
2. Using the chart, align swath width (480") with arrow under sprocket ratio.
3. Using the chart, GPA rate (NGP-7055 or NGP-9055 pump) from step 2 above will align with correct pump setting.

Once the correct pump setting has been obtained from the pump calibration work sheet it becomes necessary to select a nozzle size that will result in a system operating pressure that falls within the recommended range of 60 PSI to 120 PSI. It is important to remember that GPA rate will not be affected by changing nozzle sizes. The only way the GPA rate will change is if you change pump settings. A gauge is provided to double check calculations and monitor pressure during operation.

To simplify calibration we supplied a chart based on 28% nitrogen solution in 30" row spacings.

Example: Using the 30" spacing chart, with 7 MPH as the target operating speed and 115 lbs. N/acre as the target rate; you can see that nozzle size 4916-95 will produce 80 PSI @ 7 MPH. Also if you look under the 8 MPH column you will see that this nozzle size will produce 100 PSI.

It is recommended that a mid-range pressure of 80 to 100 PSI is used to allow for speed variances in field operation, if possible.

It is recommended that the stream stabilizer nozzle inserts always be used with these nozzles to improve the solid-stream characteristics of the spray pattern and consequently the injection and over spray reduction characteristics of nozzle. These stainless steel nozzle orifices are commercially available almost everywhere and there are several sizes available between those on our chart if needed. It is recommended that a fine line (80 mesh) stainer be used on extremely low rate applications to prevent plugging nozzles.

30 Inch Spacing Rate Chart

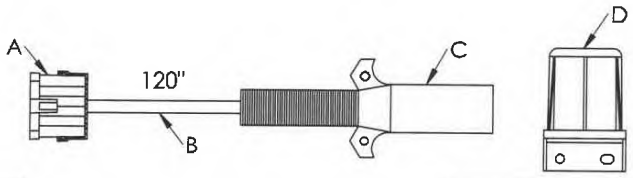
Orifice #	PSI	GPM 10.65 lb./gal 28%	Gallons per Acre 30 Inch Spacing							
			5 mph	6 mph	7 mph	8 mph	9 mph	10 mph	11 mph	12 mph
4916 49	60	0.320	12.7	10.5	9.0	7.9	7.0	6.3	5.8	5.3
	80	0.369	14.6	12.2	10.4	9.1	8.1	7.3	6.6	6.1
	100	0.413	16.3	13.6	11.7	10.2	9.1	8.2	7.4	6.8
	120	0.452	17.9	14.9	12.8	11.2	9.9	8.9	8.1	7.5
4916 57	60	0.432	17.1	14.3	12.2	10.7	9.5	8.6	7.8	7.1
	80	0.499	19.8	16.5	14.1	12.4	11.0	9.9	9.0	8.2
	100	0.558	22.1	18.4	15.8	13.8	12.3	11.1	10.0	9.2
	120	0.612	24.2	20.2	17.3	15.1	13.5	12.1	11.0	10.1
*4916 63	60	0.528	20.9	17.4	14.9	13.1	11.6	10.5	9.5	8.7
	80	0.610	24.2	20.1	17.3	15.1	13.4	12.1	11.0	10.1
	100	0.682	27.0	22.5	19.3	16.9	15.0	13.5	12.3	11.3
	120	0.747	29.6	24.7	21.1	18.5	16.4	14.8	13.4	12.3
*4916 70	60	0.652	25.8	21.5	18.4	16.1	14.3	12.9	11.7	10.8
	80	0.753	29.8	24.9	21.3	18.6	16.6	14.9	13.6	12.4
	100	0.842	33.3	27.8	23.8	20.8	18.5	16.7	15.2	13.9
	120	0.922	36.5	30.4	26.1	22.8	20.3	18.3	16.6	15.2
*4916 78	60	0.810	32.1	26.7	22.9	20.0	17.8	16.0	14.6	13.4
	80	0.935	37.0	30.9	26.4	23.1	20.6	18.5	16.8	15.4
	100	1.045	41.4	34.5	29.6	25.9	23.0	20.7	18.8	17.2
	120	1.145	45.3	37.8	32.4	28.3	25.2	22.7	20.6	18.9
*4916 86	60	0.984	39.0	32.5	27.8	24.4	21.7	19.5	17.7	16.2
	80	1.137	45.0	37.5	32.2	28.1	25.0	22.5	20.5	18.8
	100	1.271	50.3	41.9	35.9	31.5	28.0	25.2	22.9	21.0
	120	1.392	55.1	45.9	39.4	34.5	30.6	27.6	25.1	23.0
*4916 95	60	1.201	47.6	39.6	34.0	29.7	26.4	23.8	21.6	19.8
	80	1.387	54.9	45.8	39.2	34.3	30.5	27.5	25.0	22.9
	100	1.551	61.4	51.2	43.9	38.4	34.1	30.7	27.9	25.6
	120	1.699	67.3	56.1	48.1	42.0	37.4	33.6	30.6	28.0
4916 107	60	1.524	60.3	50.3	43.1	37.7	33.5	30.2	27.4	25.1
	80	1.760	69.7	58.1	49.8	43.5	38.7	34.8	31.7	29.0
	100	1.967	77.9	64.9	55.6	48.7	43.3	39.0	35.4	32.5
	120	2.155	85.3	71.1	61.0	53.3	47.4	42.7	38.8	35.6
4916 120	60	1.917	75.9	63.2	54.2	47.4	42.2	37.9	34.5	31.6
	80	2.213	87.6	73.0	62.6	54.8	48.7	43.8	39.8	36.5
	100	2.474	98.0	81.7	70.0	61.2	54.4	49.0	44.5	40.8
	120	2.710	107.3	89.4	76.7	67.1	59.6	53.7	48.8	44.7

The 4916 series of orifices are available in many sizes falling between those listed on this chart.
*** Standard equipment sizes.**

Schematics

Main Electrical Harness 10' - 5 Wire, 7 Pin & Dust Cap (Part #JAP3142)

A. CONNECTOR: PACKARD, FLAT 6 M-TERMINAL WEATHER-PACK SHROUD
B. CABLE: 5-WIRE 16AWG, (WHT, YEL, RED, GRN, BRN)
C. CONNECTOR: 7 F-TERMINAL PLUG CONFORMING TO SAE STANDARD J560
D. DUST CAP: COLE HERSEE 11750 OR EQUAL, (AP2829)



6 M-TERMINAL WEATHER-PACK SHROUD		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
3	LEFT TURN/FLASHING	YELLOW
4	STOP LAMPS	RED
5	RIGHT TURN/FLASHING	GREEN
6	TAIL LAMPS	BROWN

7 F-TERMINAL PLUG		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
3	LEFT TURN/FLASHING	YELLOW
4	STOP LAMPS	RED
5	RIGHT TURN/FLASHING	GREEN
6	TAIL LAMPS	BROWN

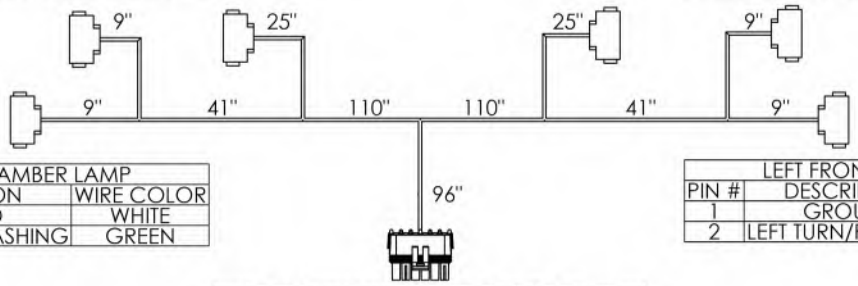
Light Electrical Harness 17' - 5 Wire (Part #JAP3197)

RIGHT REAR RED LAMP		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
2	STOP LAMPS	RED
3	TAIL LAMPS	BROWN

LEFT REAR RED LAMP		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
2	STOP LAMPS	RED
3	TAIL LAMPS	BROWN

RIGHT REAR AMBER LAMP		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
2	RIGHT TURN/FLASHING	GREEN

LEFT REAR AMBER LAMP		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
2	LEFT TURN/FLASHING	YELLOW



RIGHT FRONT AMBER LAMP		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
2	RIGHT TURN/FLASHING	GREEN

LEFT FRONT AMBER LAMP		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
2	LEFT TURN/FLASHING	YELLOW

6 F-TERMINAL WEATHER-PACK TOWER		
PIN #	DESCRIPTION	WIRE COLOR
1	GROUND	WHITE
2	(OPEN)	
3	LEFT TURN/FLASHING	YELLOW
4	STOP LAMPS	RED
5	RIGHT TURN/FLASHING	GREEN
6	TAIL LAMPS	BROWN

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 10,000 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.**

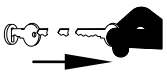
⚠ CAUTION

- **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 implement to tractor. Park on a firm, level surface. Set the tractor's parking brake, shut off engine and remove key.



2. Use a safe lifting device rated at 10,000 lbs. to support the weight of your implement. Place the safe lifting device under the axle closest to the tire.
3. Use a 500 lbs. safe lifting device to support the wheel and tire during removal.
4. If only removing 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. 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 lifting device rated for 150 lbs., remove the old spindle. Coat spindle shaft with anti-seize lubricant prior to installation. Reuse bolt and lock nut to retain spindle to axle. Torque 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 inward to 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 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/slotted nut while spinning the hub until hub stops rotating. Turn castle nut counterclockwise until the hole in the spindle aligns with the next notch in castle nut. Hub should spin smoothly with minimal 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. 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 Wheels and Tires section of this manual.

9. Raise implement, remove lifting device and lower tire to the ground.

Wheels and Tires

Wheel Nut Torque Requirements

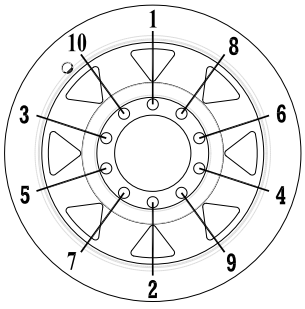
⚠ CAUTION

- **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.**

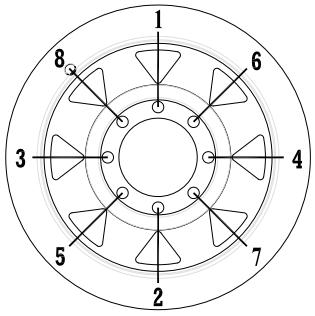
Failure to check torque before first load may damage wheel nut/bolt seats. Once seats are damaged, it will become impossible to keep nuts/bolts tight. Tighten nuts/bolts to applicable torque value shown in table. Start all nuts/bolts by hand to prevent cross threading. Torque nuts/bolts in the recommended sequence as shown in Diagram 1.

WHEEL HARDWARE	
SIZE	**FOOT-POUNDS**
1/2”-20(UNF) Grade 5	75 Ft.-Lbs.
5/8”-18(UNF) Grade 5	165 Ft.-Lbs.
5/8”-18(UNF) Grade 8	175 Ft.-Lbs.
3/4”-16(UNF) Grade 8	365 Ft.-Lbs.

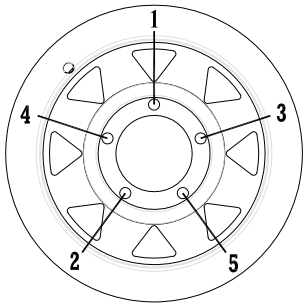
Diagram 1



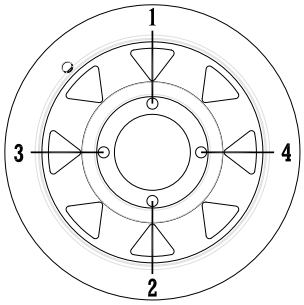
10 Bolt



8 Bolt



5 Bolt



4 Bolt

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 Blu-Jet Liquid Applicators

Tire Make	Tire Size	Load Index / Ply Rating	Max PSI
Mitas	VF380/90R46 R-1	173D	64
Goodyear	320/90R46 R-1	159D	64
Goodyear	12.4x38 R-1	14-Ply	56
Carlisle	20.5x8.0B10	F-Ply	35
	145/12	Load Range D	65

(All tire pressures in psi)

Tire Warranty

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty. Following are phone numbers and Websites for your convenience:

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

Continental/Mitas
www.mitas-tires.com
Phone 704-542-3422
Fax 704-542-3474

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

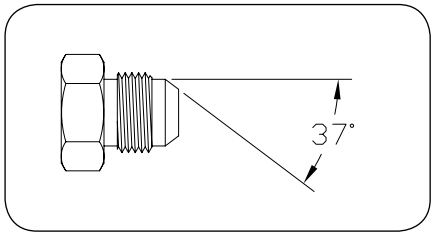
IMPORTANT

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

Hydraulic Fittings – Torque and Installation

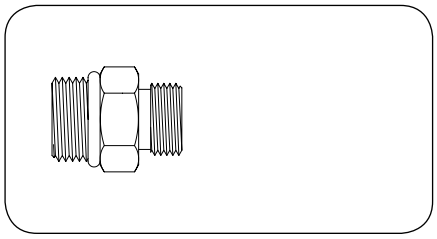
SAE Flare Connection (J. I. C.)

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. Back off jam nut and washer to expose smooth surface for O-ring seal.
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.

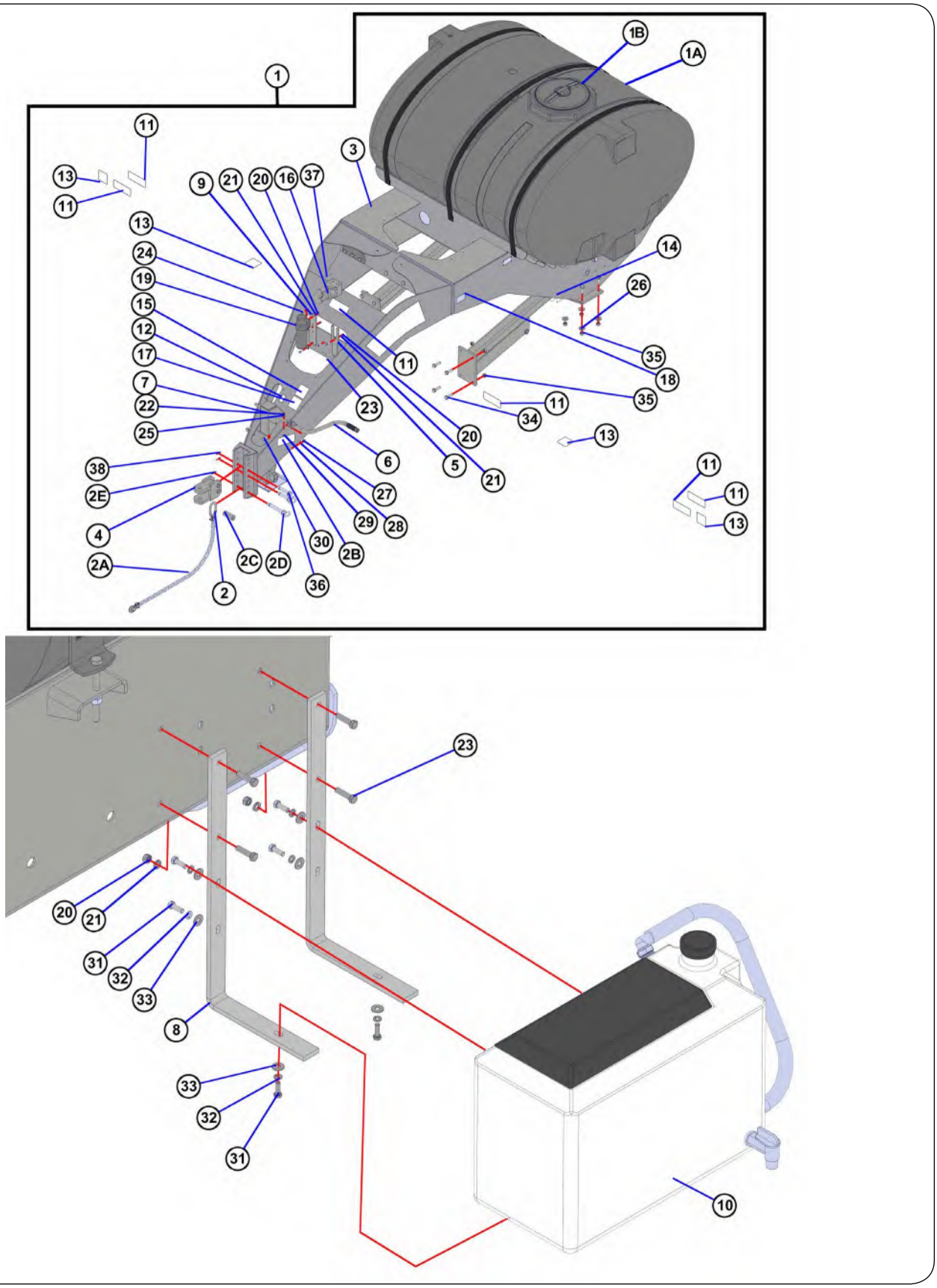


Section V
Parts

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

Main Frame & Clean Water Tank Components

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



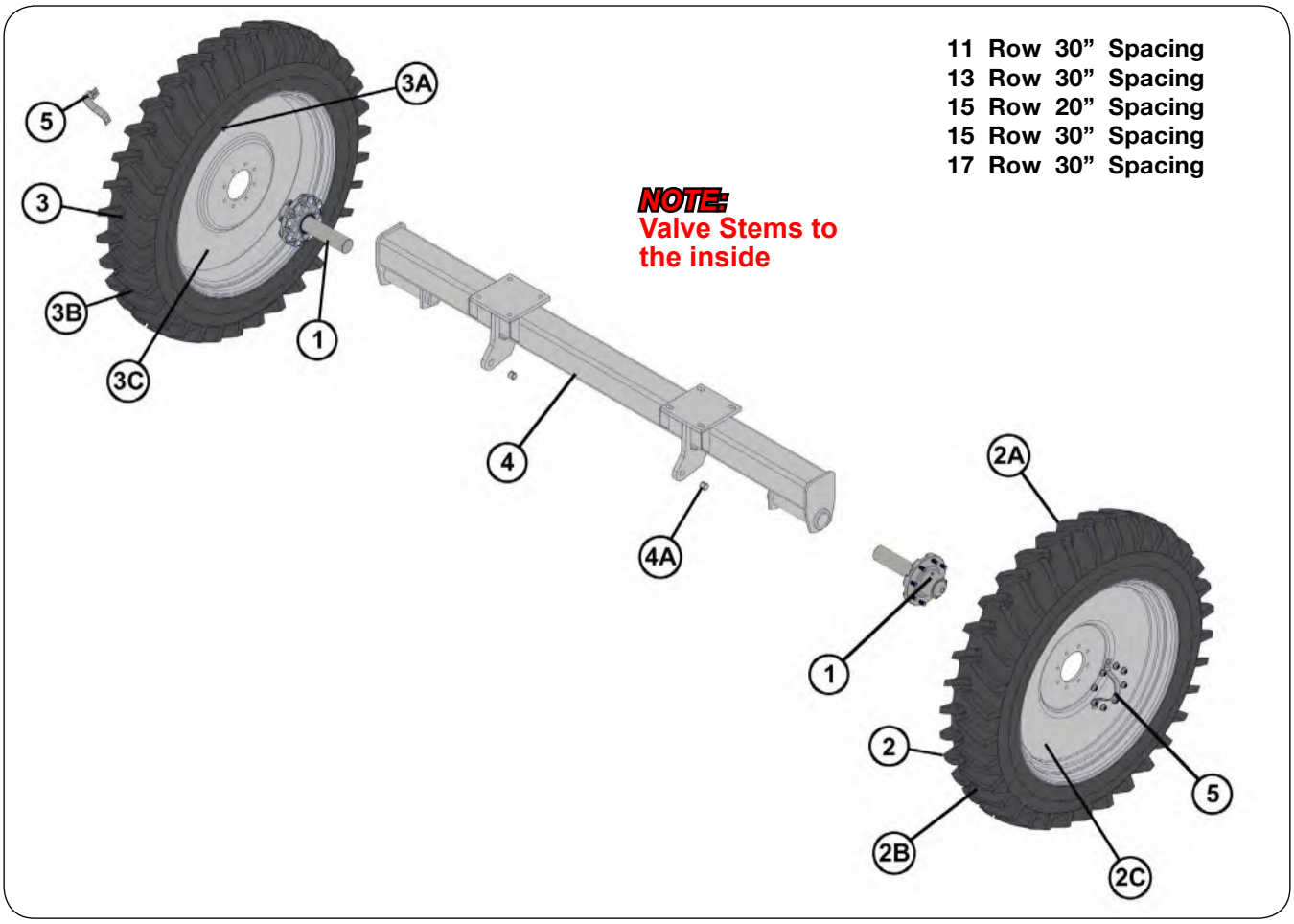
Main Frame & Clean Water Tank Components

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

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	J33000004	Main Frame Assembly	Includes Items 1A, 2-38
1A	1	JAP3203	Tank 1000 Gallon Elliptical with Lid (Gray)	Includes 1B
1B	1	JAP2476	Tank Lid	
2	1	JAAM2422	Transport Chain Kit, 20,000#	Includes Items 2A-2E
2A	1	9003278	Transport Chain, 20,200#	
2B	1	97575	Decal, Transport Chain	
2C	1	JBM3498	Transport Chain Bushing	
2D	1	93950	Hitch Pin, 1" Dia. x 8" w/ .177" Dia. Hairpin	
2E	1	9391-045	Cotter Pin, 3/16" Dia. x 1 3/4"	
3	1	JAAM2648	Assembly, AT3000 Cart W/ Tank, For Shipping	
4	1	JAM2144	Hitch, Clevis	
5	1	JAM2145	Hitch Storage Mounting Bracket, 6"	
6	1	JAP3214	Crank w/Grip, 90 Degree	
7	1	JAM3582	Jack, 12SWDL 2-Speed, w/ Mounting Plate	
8	2	JAM4421	Tank Mounting Bracket, 9 Gallon	
9	1	JAM7640	Manual Holder Mounting Bracket	
10	1	JAP2137	Clean Water Tank, 9 Gallon	
11	9	JAP2215	Decal, BLU-JET, 3 x 8	
12	1	91605	Decal, FEMA	
13	4	97337	Decal, WARNING (Folding/Unfolding Wings)	
14	2	JAP2283-1	Hose Retainer, 6 x 6, W/Plastic Caps	
15	1	JAP2483	Decal, DANGER (Falling From Equipment)	
16	1	JAP2850	PERFECT Hitch, CAT III, Black	
17	1	JAP2914	Decal, WARNING (High-Pressure Fluid)	
18	2	JAP2969	Decal, WARNING (Pinch Point)	
19	1	900552	Manual Holder	
20	10	9394-006	Hex Nut, 3/8"-16UNC	
21	10	9404-021	Lock Washer, 3/8"	
22	1	902875	Lock Nut/Center, 3/8"-16UNC	
23	9	9390-057	Capscrew, 3/8"-16UNC x 1 1/2", G5	
24	1	9390-055	Capscrew, 3/8"-16UNC x 1", G5	
25	2	9405-076	Flat Washer, 3/8" USS	
26	4	9405-106	Flat Washer, 3/4" USS	
27	4	9394-014	Hex Nut, 5/8"-11UNC	
28	4	9404-029	Lock Washer, 5/8"	
29	1	9390-061	Capscrew, 3/8"-16UNC x 2 1/2", G5	
30	4	9390-122	Capscrew, 5/8"-11UNC x 1 1/2", G5	
31	6	9390-030	Capscrew, 5/16"-18UNC x 1", G5	
32	6	9404-019	Lock Washer, 5/16"	
33	6	9405-070	Flat Washer, 5/16" USS	
34	16	91299-147	Capscrew, 3/4"-10UNC x 2 1/2", G8	
35	16	97025	Lock Nut/Top, 3/4"-10UNC	
36	2	93950	Hitch Pin, 1" Dia. x 8" w/ .177" Dia. Hairpin	
37	1	JBP3500	Hair Clip Pin, 3/16" Dia.	
38	2	9391-045	Cotter Pin, 3/16" Dia. x 1 3/4"	

Wheel Axle, 120” Wheel Spacing (J33000012)

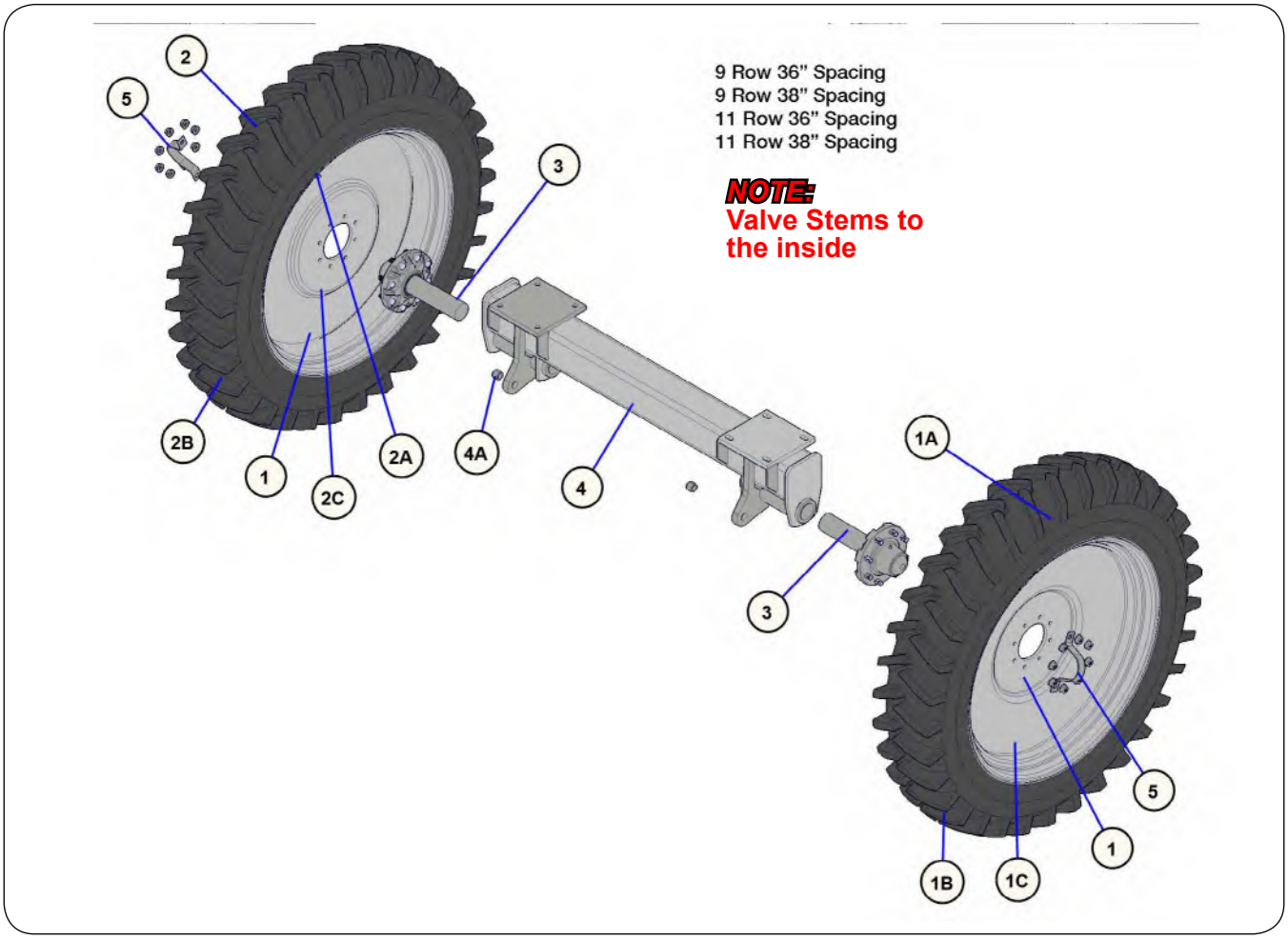
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	2	JAAM2800-1	Hub & Spindle Assembly, 608 Hub, 8 Bolt 2 3/4” Dia. x 16” Spindle, W/ Flange Lock Nut	
2	1	111272SM	Wheel & Tire Assembly, TL12.4B38 R-1	
2A	1	93300	Valve Stem, Metal	
2B	1	N/A	Tire, 12.4 x 38, 14 Ply R-1	
2C	1	111138SM	Wheel, 10 x 38, 8 Bolt	
3	1	111272SM	Wheel & Tire Assembly, TL12.4B38 R-1	
3A	1	93300	Valve Stem, Metal	
3B	1	N/A	Tire, 12.4 x 38, 14 Ply R-1	
3C	1	111138SM	Wheel, 10 x 38, 8 Bolt	
4	1	JAM3522BB	Axle, AT3000, Narrow Row, 120" Wheel Spacing	
4A	2	91268	Tension Bushing, 1 1/4” OD x 1” ID x 1”	
5	2	JAM4597	Hub Cap Strap	

Wheel Axle, 76" Wheel Spacing (J33000013)

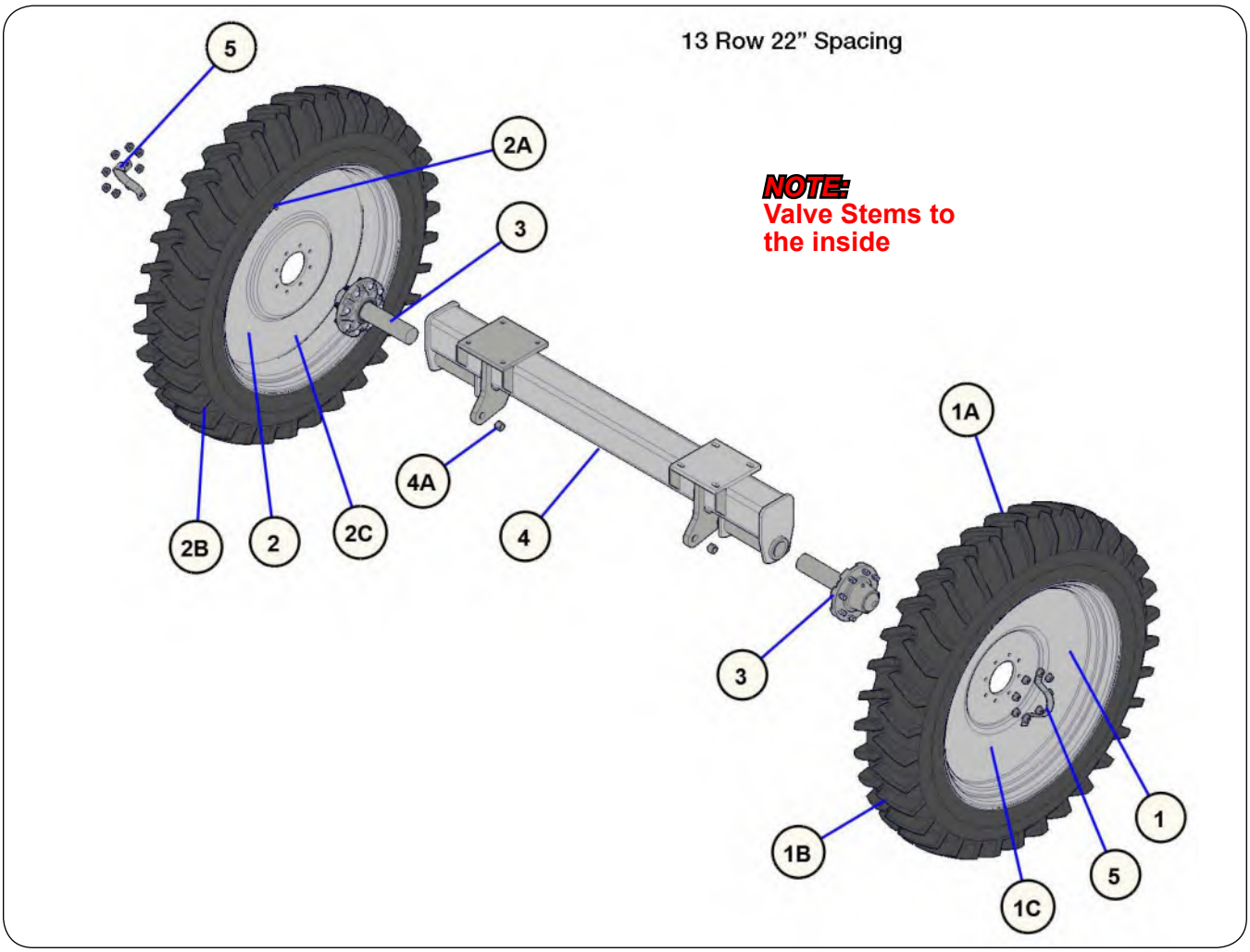
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	111272SM	Wheel & Tire Assembly, TL12.4B38 R-1	
1A	1	93300	Valve Stem, Metal	
1B	1	N/A	Tire, 12.4 x 38, 14 Ply R-1	
1C	1	111138SM	Wheel, 10 x 38, 8 Bolt	
2	1	111272SM	Wheel & Tire Assembly, TL12.4B38 R-1	
2A	1	93300	Valve Stem, Metal	
2B	1	N/A	Tire, 12.4 x 38, 14 Ply R-1	
2C	1	111138SM	Wheel, 10 x 38, 8 Bolt	
3	2	JAAM2800-1	Hub & Spindle Assembly, 608 Hub, 8 Bolt 2 3/4" Dia. x 16" Spindle, W/ Flange Lock Nut	
4	1	JAM3530BB	Axle, AT3000, WIDE Row, 76" Wheel Spacing	
4A	2	91268	Tension Bushing, 1 1/4" OD x 1" ID x 1"	
5	2	JAM4597	Hub Cap Strap	

Wheel Axle, 88” Wheel Spacing (J33000015)

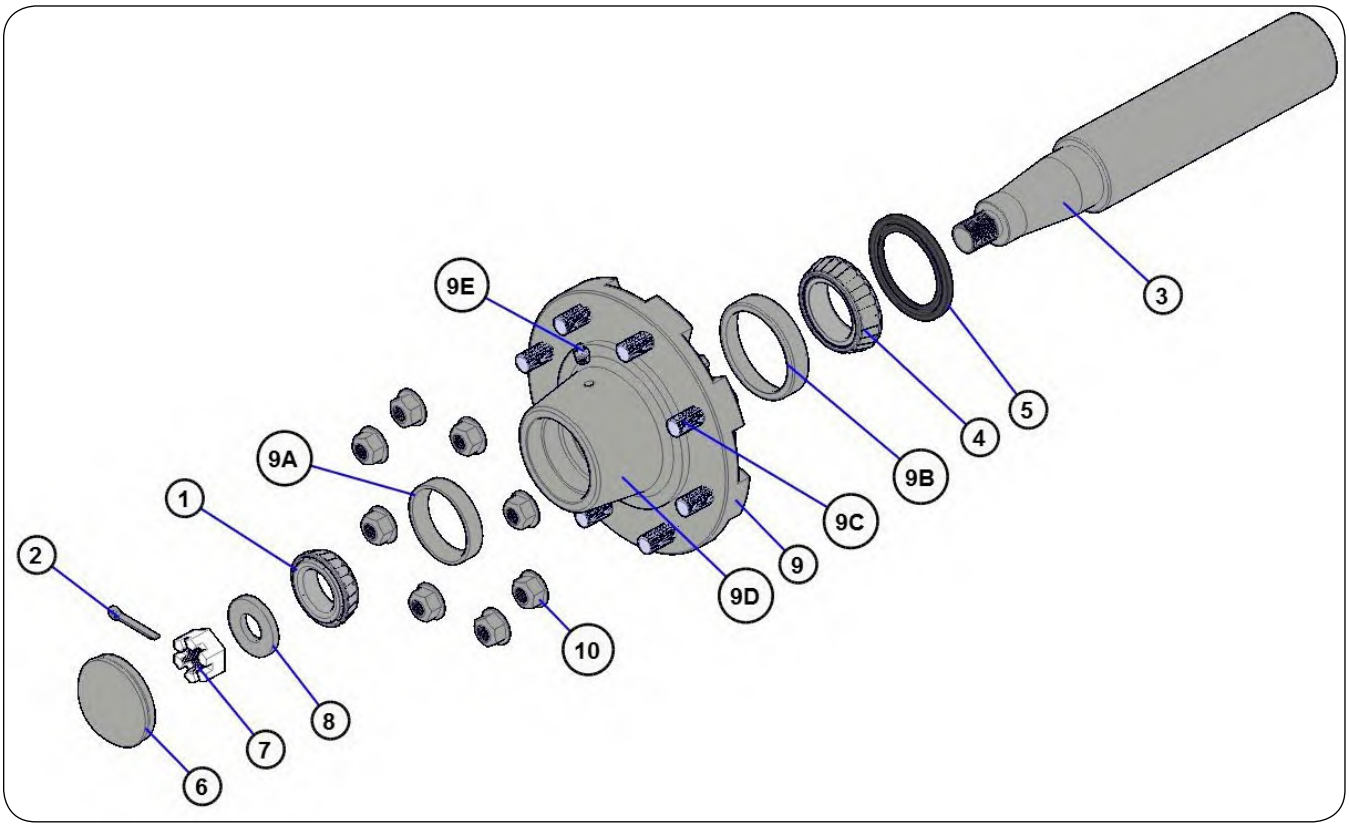
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	111272SM	Wheel & Tire Assembly, TL12.4B38 R-1	
1A	1	93300	Valve Stem, Metal	
1B	1	N/A	Tire, 12.4 x 38, 14 Ply R-1	
1C	1	111138SM	Wheel, 10 x 38, 8 Bolt	
2	1	111272SM	Wheel & Tire Assembly, TL12.4B38 R-1	
2A	1	93300	Valve Stem, Metal	
2B	1	N/A	Tire, 12.4 x 38, 14 Ply R-1	
2C	1	111138SM	Wheel, 10 x 38, 8 Bolt	
3	2	JAAM2800-1	Hub & Spindle Assembly, 608 Hub, 8 Bolt 2 3/4” Dia. x 16” Spindle, W/ Flange Lock Nut	
4	1	JAM3561	Axle, AT3000, 88” Wheel Spacing	
4A	2	91268	Tension Bushing, 1 1/4” OD x 1” ID x 1”	
5	2	JAM4597	Hub Cap Strap	

Hub and Spindle Components (JAAM2800-1)

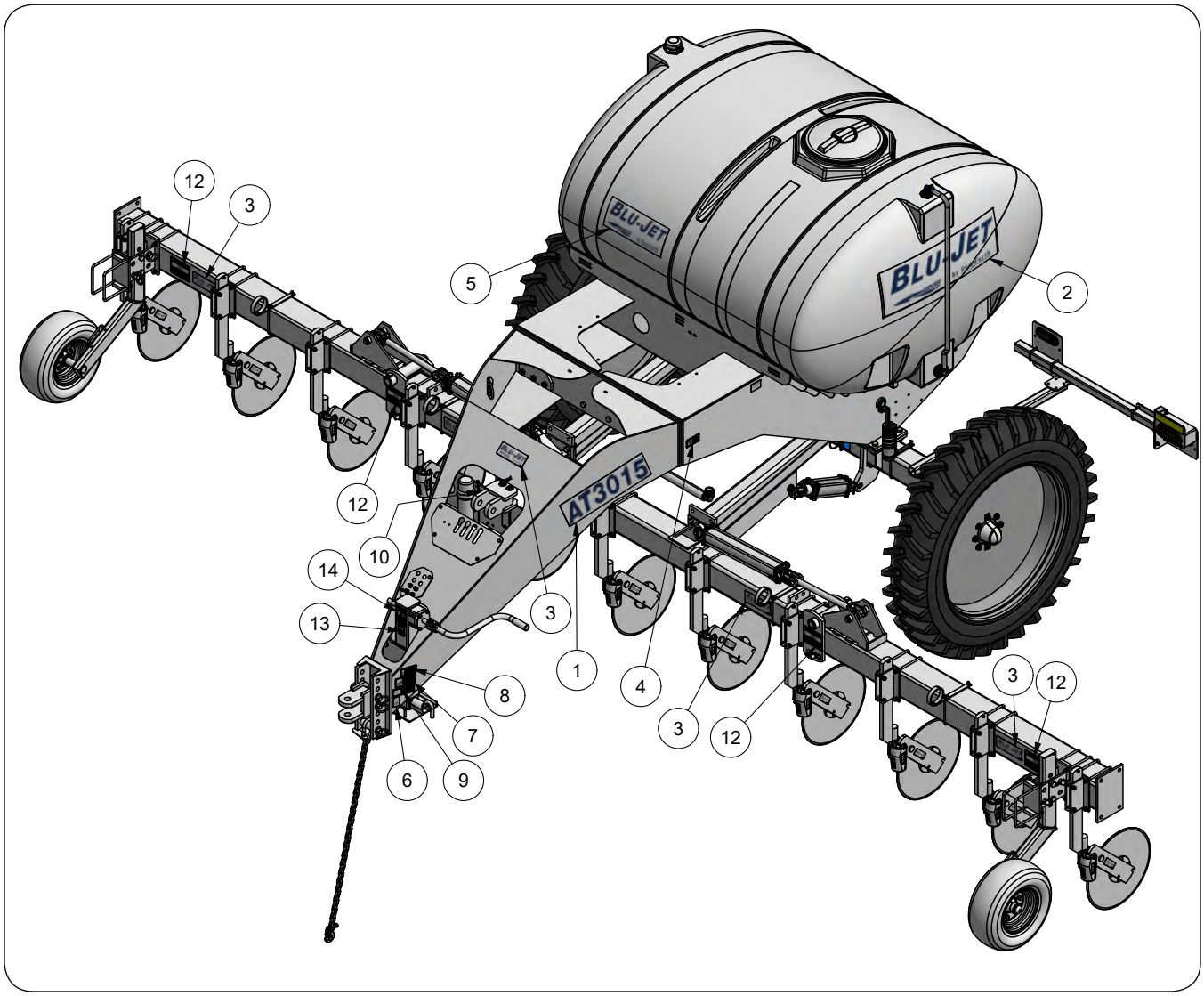
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	9247	Bearing Cone, LM501349	
2	1	TA37809	Cotter Pin, 7/32" Dia. x 1 3/4"	
3	1	JAP2171	Spindle, 2 3/4" Dia. x 16"	
4	1	92610	Bearing Cone, JLM506849	
5	1	92612	Grease Seal, CR27394	
6	1	9442B	Hub Cap, 1609	
7	1	9393-020	Slotted Nut, 1"-14UNS	
8	1	9448	Flat/Spindle Washer, 2.13 OD x 1.06" ID x .25	
9	1	91854	Hub 8 Bolt Subassembly w/Cups & Studs	
9A	1	9349	Bearing Cup, LM501310	
9B	1	91809	Bearing Cup, JLM506810	
9C	8	9007746	Stud Bolt, 5/8"-18UNF x 2 1/4", G5	
9D	1	N/A	Hub, 8 Bolt, 608	
9E	1	100028	Grease Zerk, 1/8" NPT	
10	8	9002237	Flange Nut, 5/8"-18UNF, G8	

Decals

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



Decals

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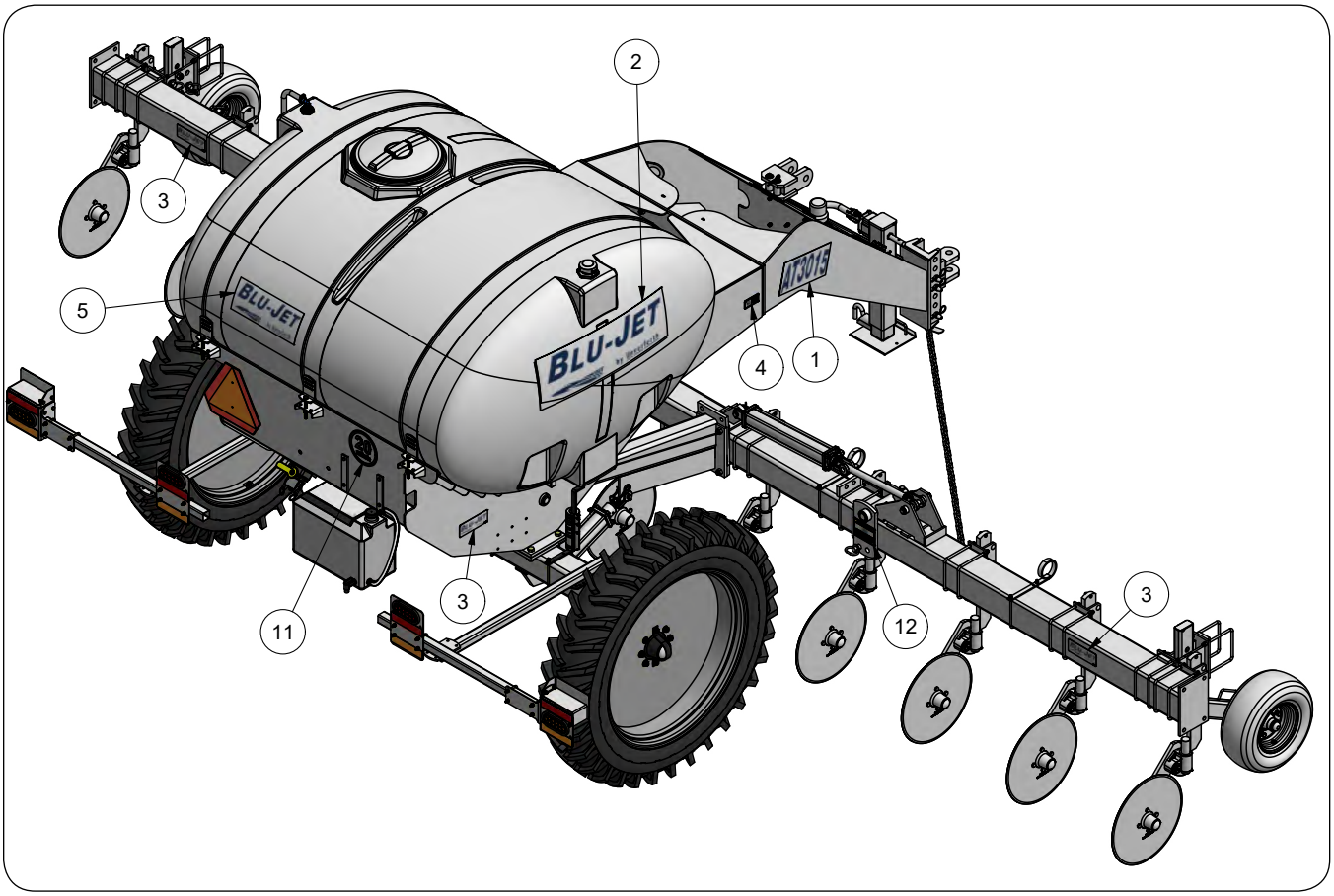
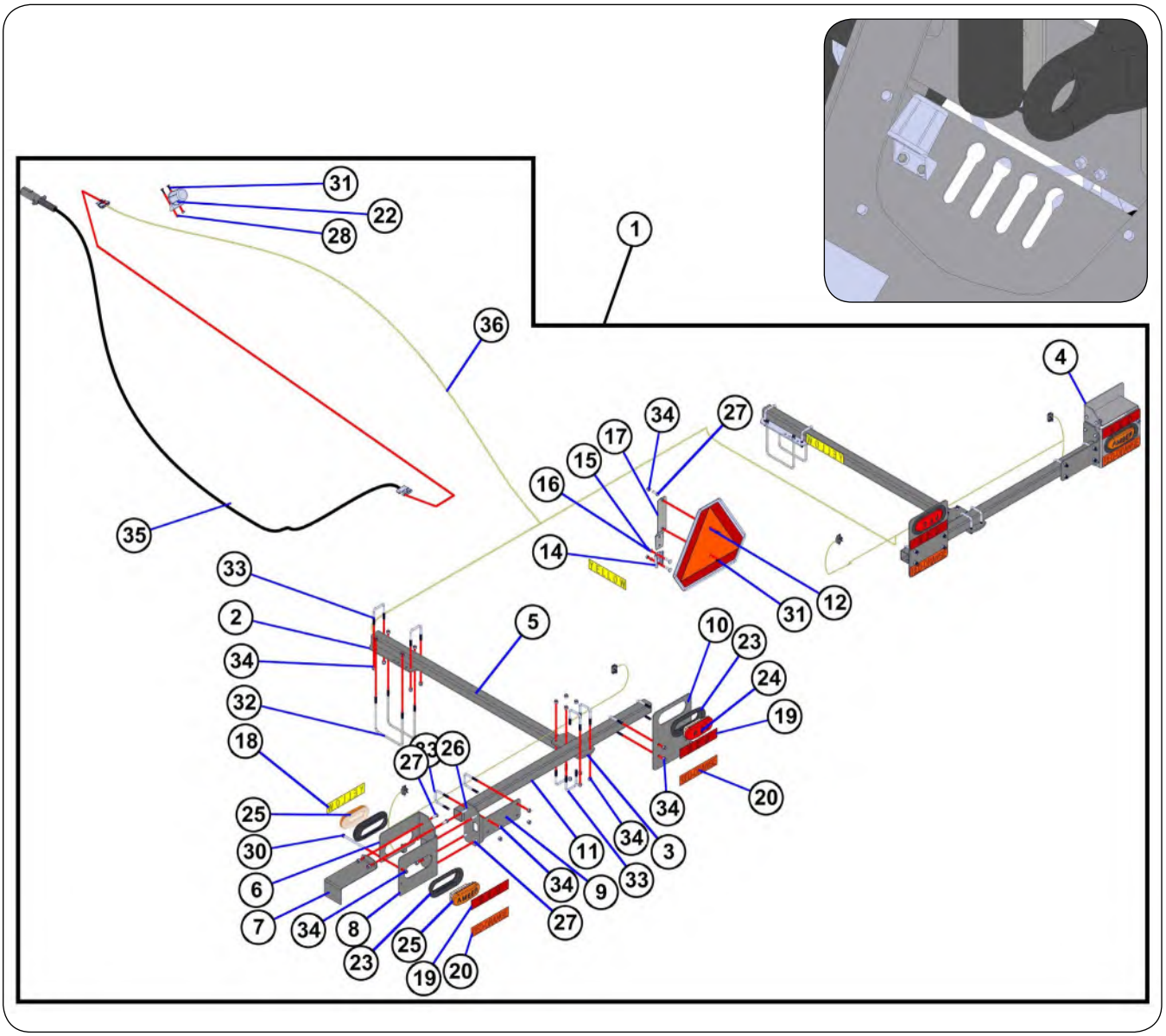
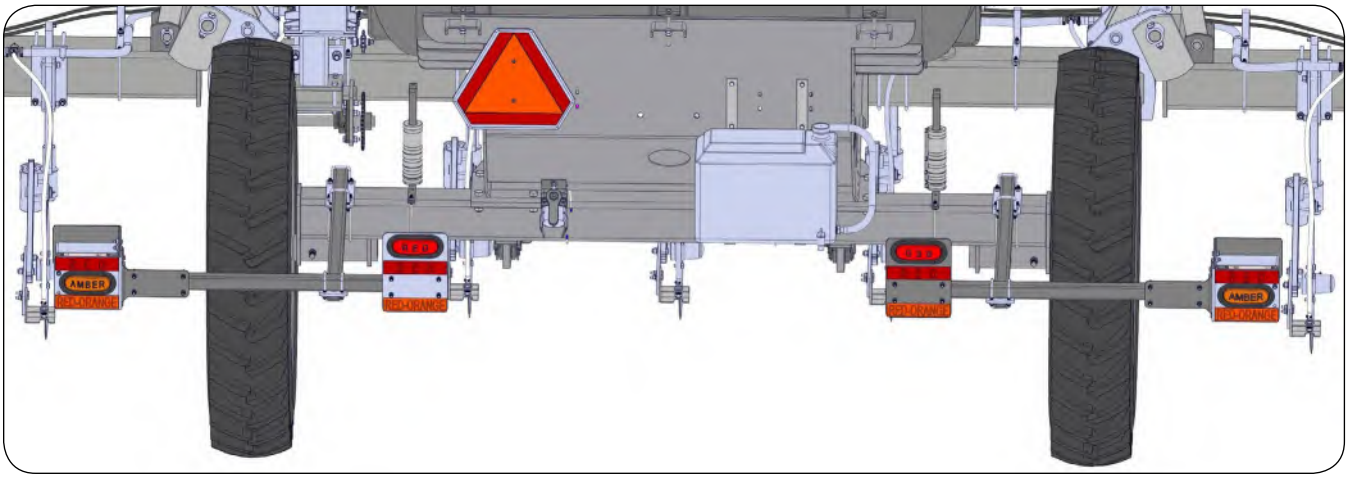


ITEM	PART NUMBER	DESCRIPTION	QTY
1	JAP2580	Decal, AT3015	2
2	JAP2575	Decal, Blu-Jet “By Unverferth”	2
3	JAP2215	Decal, BLU-JET By Unverferth	3
4	95839	Decal, WARNING (Pinch Point)	2
5	JAP2583	Decal, Tank Graphic “Blu-Jet”	2
6	91605	Decal, FEMA	1
7	95445	Decal, WARNING (High-Pressure Fluid...)	1
8	97961	Decal, WARNING (Read and Understand...)	1
9	97575	Decal, CAUTION (Transport Chain)	2
10	9008715	Front SIS Decal, 20MPH	1
	9008721	Front SIS Decal, 30KPH	1
11	9008714	Rear SIS Decal, 20MPH	1
	9008720	Rear SIS Decal, 30KPH	1
12	97337	Decal, WARNING (Folding or Unfolding Wings...)	6
13	97048	Decal, WARNING (Pinch Point)	3
14	9501197	Decal, WARNING “Gooseneck Jack”	1

Light Kit Components

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





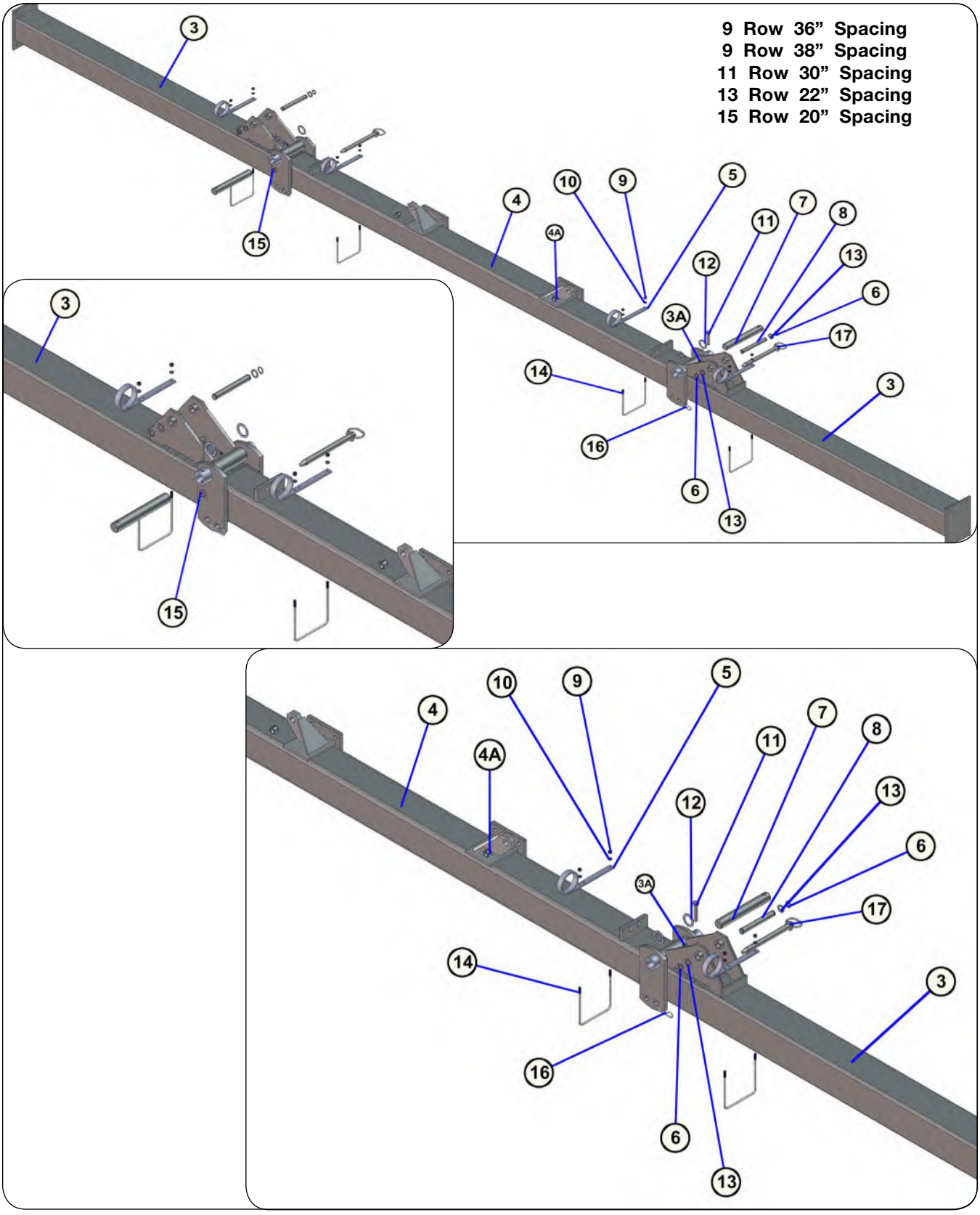
Light Kit Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY		NOTES
			11 Row 30" 13 Row 30" 15 Row 20" 15 Row 30" 17 Row 30"	9 Row 36" 9 Row 38" 11 Row 36" 11 Row 38" 13 Row 22"	
1	J41000048	Lighting Kit, AT Liquid Applicator	1	0	
	J41000049	Lighting Kit, AT Liquid Applicator	0	1	
2	JAM3408	Light Post Mounting Plate	2	0	
3	JAM3410	Mounting Plate, Light Post	2	0	
4	JAM3415	Light Bracket, Front, Left-Hand	1	1	
5	JAM3416	Light Bracket Tube (2" x 2" x 48")	2	0	
	JAM3434	Light Bracket Tube (2" x 2" x 36 1/2")	0	2	
6	JAM3417	Light Bracket, Front, Right-Hand	1	1	
7	JAM3418	Light Bracket Shield	2	2	
8	JAM3421	Side Mount Light Bracket	2	2	
9	JAM3422	Mounting Side Mount Light Bracket	2	2	
10	JAM3429	Light Mount Plate	2	2	
11	JAM3432	Light Bracket Tube (2" x 2" x 46")	2	0	
	JAM3433	Light Bracket Tube (2" x 2" x 59 3/4")	0	2	
12	TA510514	SMV Sign	1	1	
14	TA510515	SMV Mounting Socket	1	1	
15	9394-004	Hex Nut, 5/16"-18UNC	2	2	
16	9404-019	Lock Washer, 5/16"	2	2	
17	TA510516	SMV Mounting Spade	1	1	
18	9003127	Decal, Reflector, Yellow, 2" x 9"	4	4	
19	9003126	Decal, Reflector, Red, 2" x 9"	4	4	
20	9003125	Decal, Fluorescent, Red-Orange, 2 x 9	4	4	
21	JAP2824	Electrical Harness, 10' Main, 7 Pin	1		
22	9001968	Dust Cap, Electrical Harness, Cole Hersee 11750 Or Equivalent	1	1	
23	97182	Grommet, Oval, MODEL 60	6	6	
24	902217	Lamp, LED, Oval, Stop Turn & Tail, Red	2	2	
25	JAP4415	Lamp, LED, Oval, Turn Signal, Amber, LED	4	4	
26	9390-057	Capscrew, 3/8"-16UNC x 1 1/2", G5	4	4	
27	9390-055	Capscrew, 3/8"-16UNC x 1", G5	9	9	
28	9394-002	Hex Nut, 1/4"-20UNC	4	4	
29	9405-064	Flat Washer, 1/4" USS	2	2	
30	9390-069	Capscrew, 3/8"-16UNC x 5", G5	2	2	
31	9390-003	Capscrew, 1/4"-20UNC x 3/4", G5	4	4	
32	JBP3351	U-Bolt, 3/8"-16UNC x 7, 6 7/16 CC	4	0	
	JBP3362	U-Bolt, 3/8"-16UNC x 4, 3 7/16 CC	0	6	
33	JBP3736	U-Bolt, 3/8"-16UNC x 2"W x 3"L	20	8	
34	9398-012	Elastic Lock Nut, 3/8"-16UNC	63	43	
35	JAP3142	Electrical Harness, 10' Main 5-Wire, 7 Pin	1	1	
36	JAP3197	Electrical Harness, 17' 2 Post, 5 Wire	1	1	

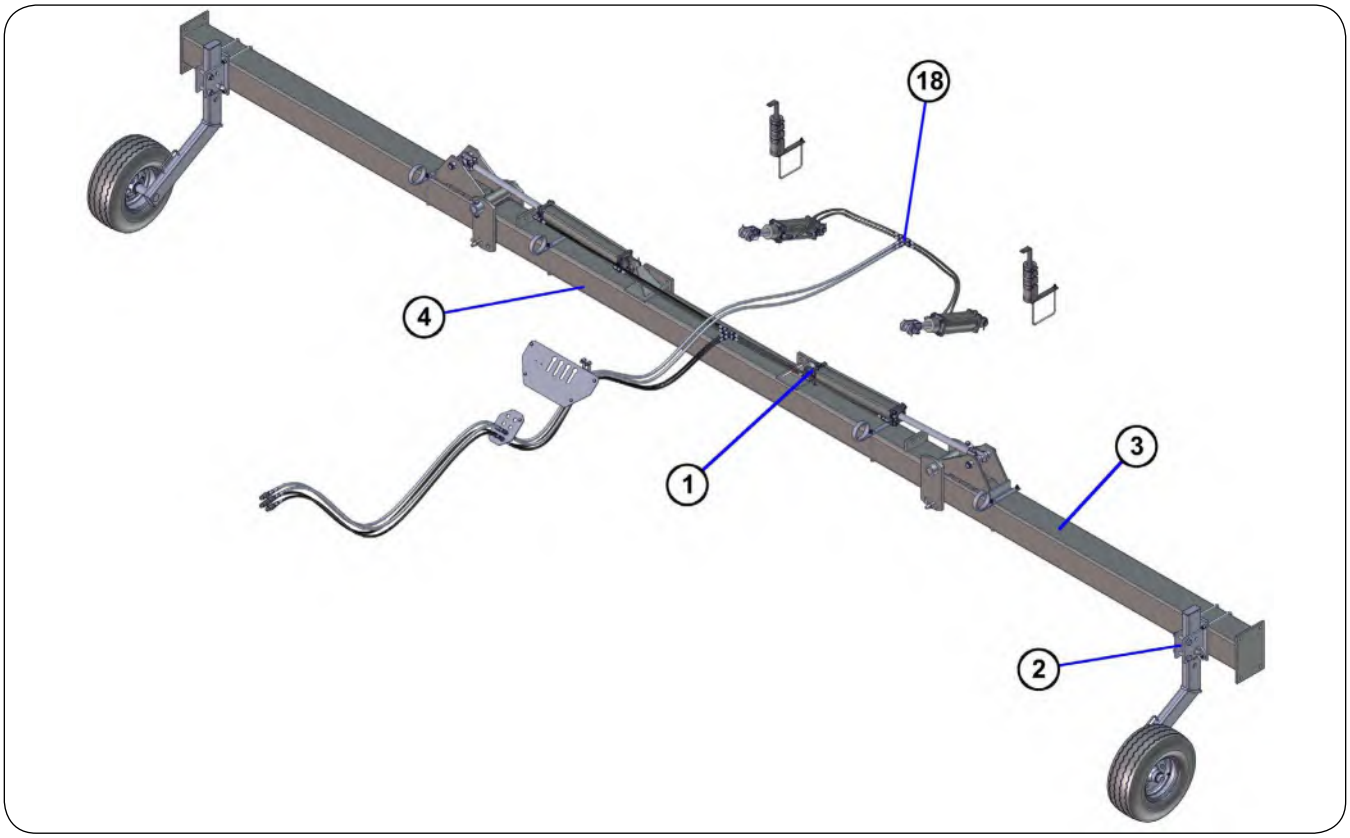
Standard Toolbar 26’ Components (J33000003)

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



Standard Toolbar 26' Components (J33000003)

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

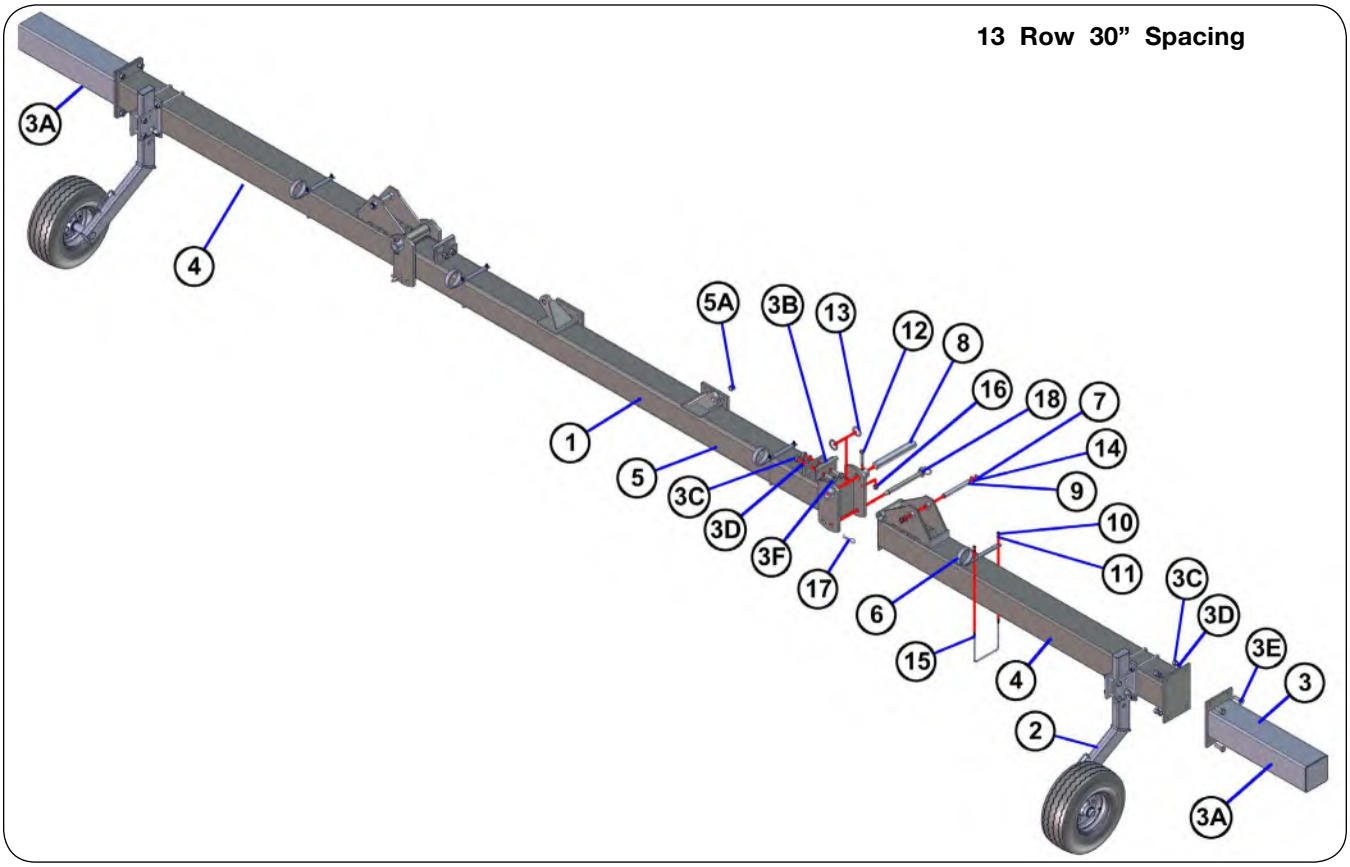


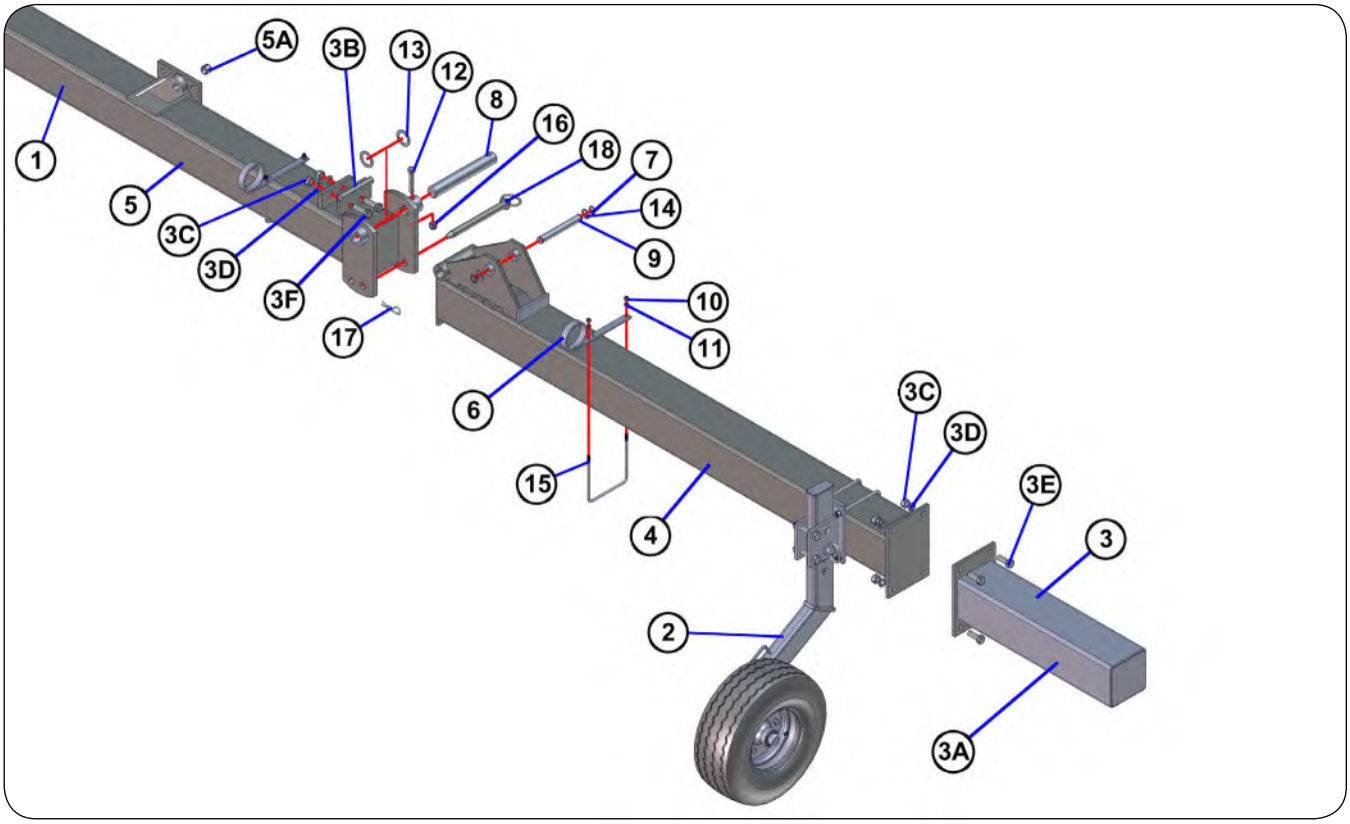
ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	J33000003	AT3000 Standard Toolbar, 26'	
2	2	J33000144	Gauge Wheel, Vertical Pin Adjust, Angled, Narrow	
3	2	JAM3520BB	Wing Weldment, Standard Toolbar, AT3000, 7'-5"	
3A	2	91160	Grease Zerk, 1/4"-28	
4	1	JAM3523BB	Toolbar Frame Center Section, AT3000	
4A	2	91268	Tension Bushing, 1 1/4" OD x 1" ID x 1"	
5	4	JAM4015	Hose Retainer, Closed Loop, 6" & 7" Mounting	
6	4	91192	Retaining Ring, 1"	
7	2	JBM3485	Pin, 1 3/4" Dia. x 12 1/8", Plated	
8	2	JBM3725	Pin, 1" Dia. x 7 1/2"	
9	8	9928	Lock Nut/Top, 3/8"-16UNC	
10	N/A	N/A	Lock Washer, 3/8"	
11	2	9390-130	Capscrew, 5/8"-11UNC x 3 1/2", G5	
12	4	JBP3205	Machinery Bushing, 2 1/2" OD x 1 3/4" ID, 10 GA.	
13	4	JBP3215	Machinery Bushing, 1 1/2" OD x 1" ID, 14 GA.	
14	4	JBP3335	U-Bolt, 3/8"-16UNC x 7"W x 8"L	
15	2	9398-019	Elastic Lock Nut, 5/8"-11UNC	
16	2	JBP3500	Pin, Hair Clip, 3/16"	
17	2	JBP3510	Pin, 1" Dia. x 10"	
18	1	JPKG00168	Package, Hydraulic Kit, Standard AT3015	

Standard Toolbar 31’ Components (J33000007)

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

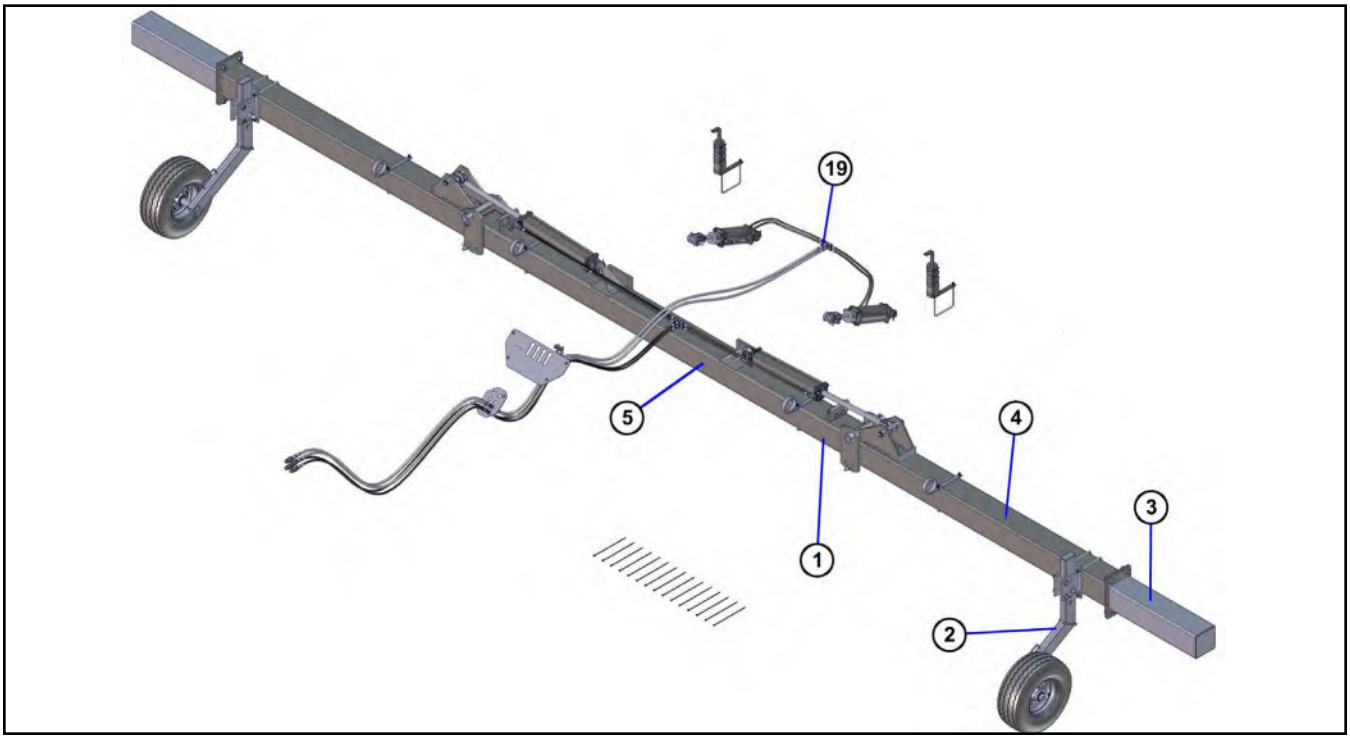
13 Row 30” Spacing





Standard Toolbar 31' Components (J33000007)

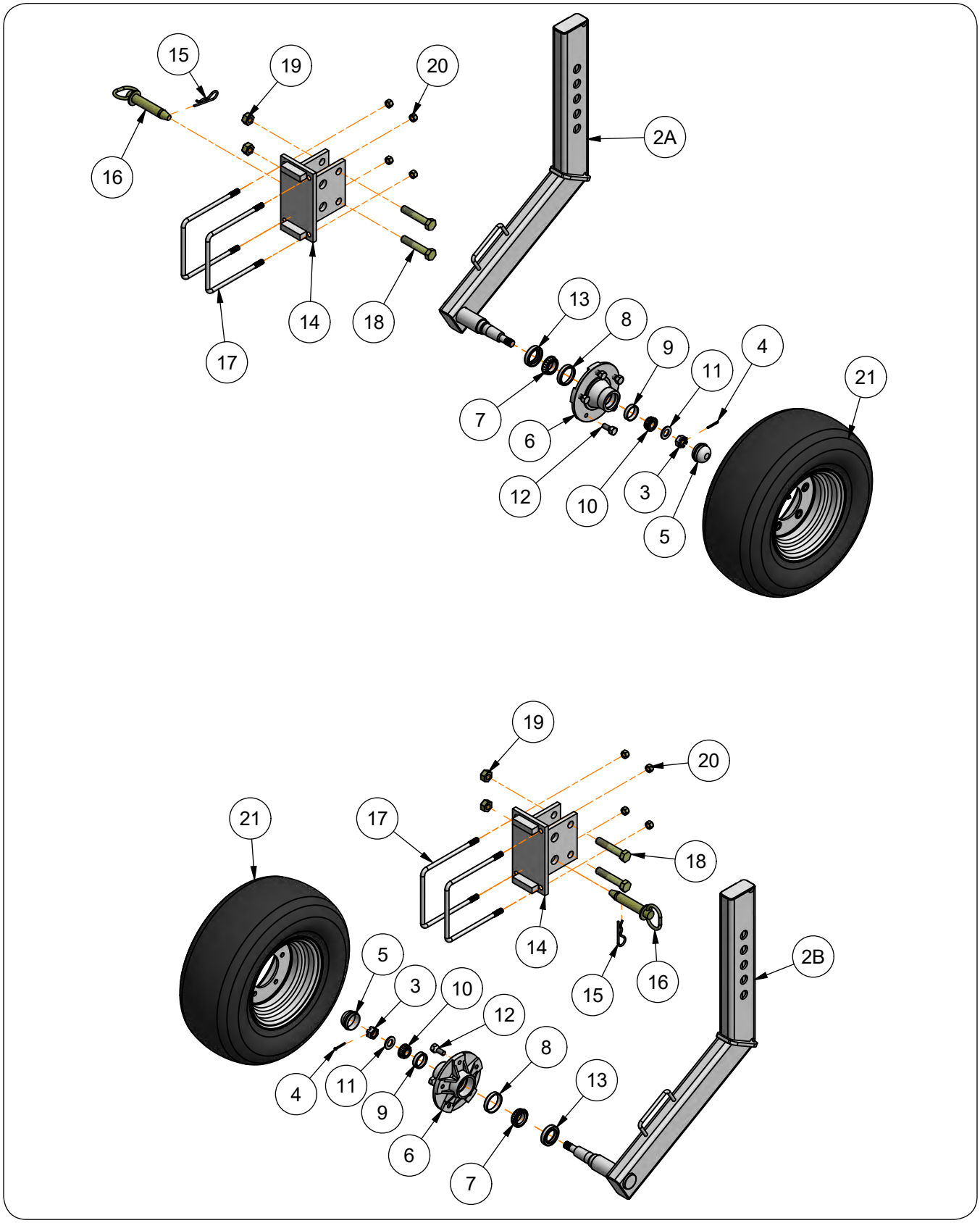
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	J33000007	AT3000 Standard Toolbar, 31'	
2	2	J33000144	Gauge Wheel, Vertical Pin Adjust, Angled, Narrow	
3	1	JAAM2732BB	Wing Extension Kit 30", AT3000 Standard Toolbar	
3A	2	JAM3533BB	Wing Extension 30"	
3B	2	JAM3562	Wing Stop Extension	
3C	12	9802	Lock Nut/Top, 3/4"-10UNC	
3D	N/A	N/A	Lock Washer, 3/4"	
3E	8	9390-145	Capscrew, 3/4"-10UNC x 2", G5	
3F	4	9390-147	Capscrew, 3/4"-10UNC x 2 1/2", G5	
4	2	JAM3520BB	Wing Weldment, Standard Toolbar, AT3000, 7'-5"	
4A	2	91160	Grease Zerk, 1/4"-28	
5	1	JAM3523BB	Toolbar Frame Center Section, AT3000	
5A	2	91268	Tension Bushing, 1 1/4" OD x 1" ID x 1"	
6	4	JAM4015	Hose Retainer, Closed Loop, 6" & 7" Mounting	
7	4	91192	Retaining Ring, 1"	
8	2	JBM3485	Pin, 1 3/4" Dia. x 12 1/8"	
9	2	JBM3725	Pin, 1" Dia. x 7 1/2"	
10	8	9928	Lock Nut/Top, 3/8"-16UNC	
11	N/A	N/A	Lock Washer, 3/8"	
12	2	9390-130	Capscrew, 5/8"-11UNC x 3 1/2", G5	
13	4	JBP3205	Machinery Bushing, 2 1/2" OD x 1 3/4" ID, 10 GA.	
14	4	JBP3215	Machinery Bushing, 1 1/2" OD x 1" ID, 14 GA.	
15	4	JBP3335	U-Bolt, 3/8"-16UNC x 7"W x 8"L	
16	2	9398-019	Elastic Lock Nut, 5/8"-11UNC	
17	2	JBP3500	Pin, Hair Clip, 3/16"	
18	2	JBP3510	Hitch Pin, 1" Dia. x 10"	
19	1	JPKG00168	Package, Hydraulic Kit, Standard AT3015	

Gauge Wheel Legs RH/LH Pair, Vertical Pin Adjust

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

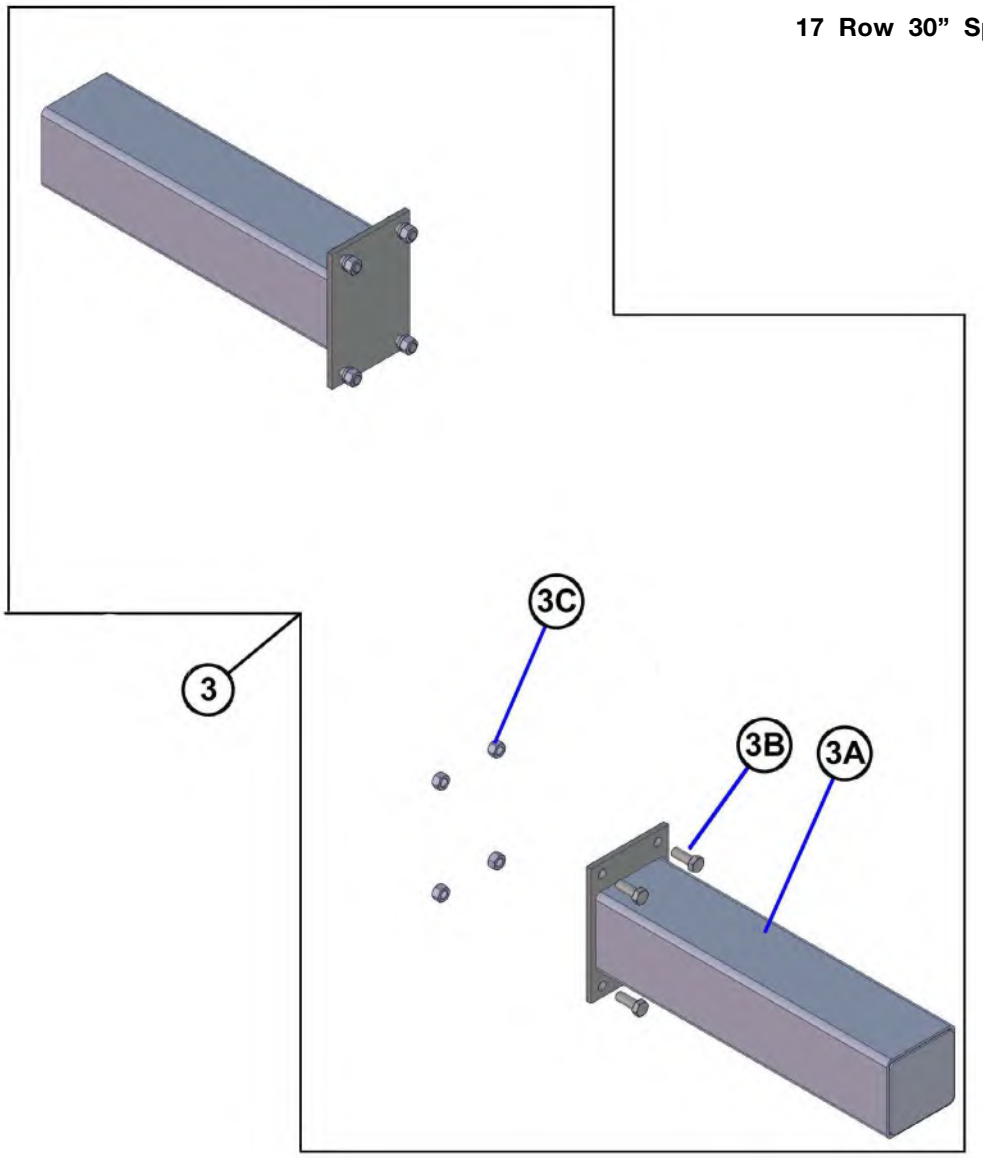


Gauge Wheel Legs RH/LH Pair, Vertical Pin Adjust

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1A	JAM3585	Gauge Wheel Leg LH Assembly	1	Includes Items 2A, 3-13
1B	JAM3586	Gauge Wheel Leg RH Assembly	1	Includes Items 2B, 3-13
2A	JEM7675	Gauge Wheel Leg Weldment LH	1	
2B	JEM7676	Gauge Wheel Leg Weldment RH	1	
3	9393-016	Slotted Nut, 3/4”-16UNF G2	1	
4	9391-034	Cotter Pin 5/32” Dia. x 1 1/4”	1	
5	9787	Hub Cap	1	
6	9503449B	Hub 5 Bolt Assembly Complete (Model 511)	1	Includes Items 7-13
7	9165	Bearing Cone 1.2500” Bore (LM67048)	1	
8	9345	Bearing Cup 2.328” OD (LM67010)	1	
9	9784	Bearing Cup 1.780” OD (LM11910)	1	
10	9789	Bearing Cone 0.75” ID (LM11949)	1	
11	91050	Flat Washer 1.469” OD x 0.812” ID	1	
12	91829	Wheel Bolt, 1/2”-20UNF x 1 5/8” G5	5	
13	JAP2747	Seal, 2.328” OD x 1.500” ID Double Lip with Garter Spring	1	
14	JAM3587	Gauge Wheel Bracket Weldment Mounting 2” Wide	2	
15	JBP3500	Hairpin Cotter, 0.172” Dia. x 3 1/2”	2	
16	JBP3475	Hitch Pin, 1” Dia. x 4”	2	
17	JBP3356	U-Bolt, 1/2”-13UNC x 8 1/4”, 7 9/16” C/C G5	4	
18	9390-153	Capscrew, 3/4”-10UNC x 4” G5	4	
19	96732	Lock Nut/Center, 3/4”-10UNC	4	
20	9800	Lock Nut/Top, 1/2”-13UNC	8	
21	9503258SM	Wheel & Tire Assembly, 6 x 10 Wheel, TL20.5x8.0B10CA	2	

30” Wing Extension Kit Components (JAAM2642)

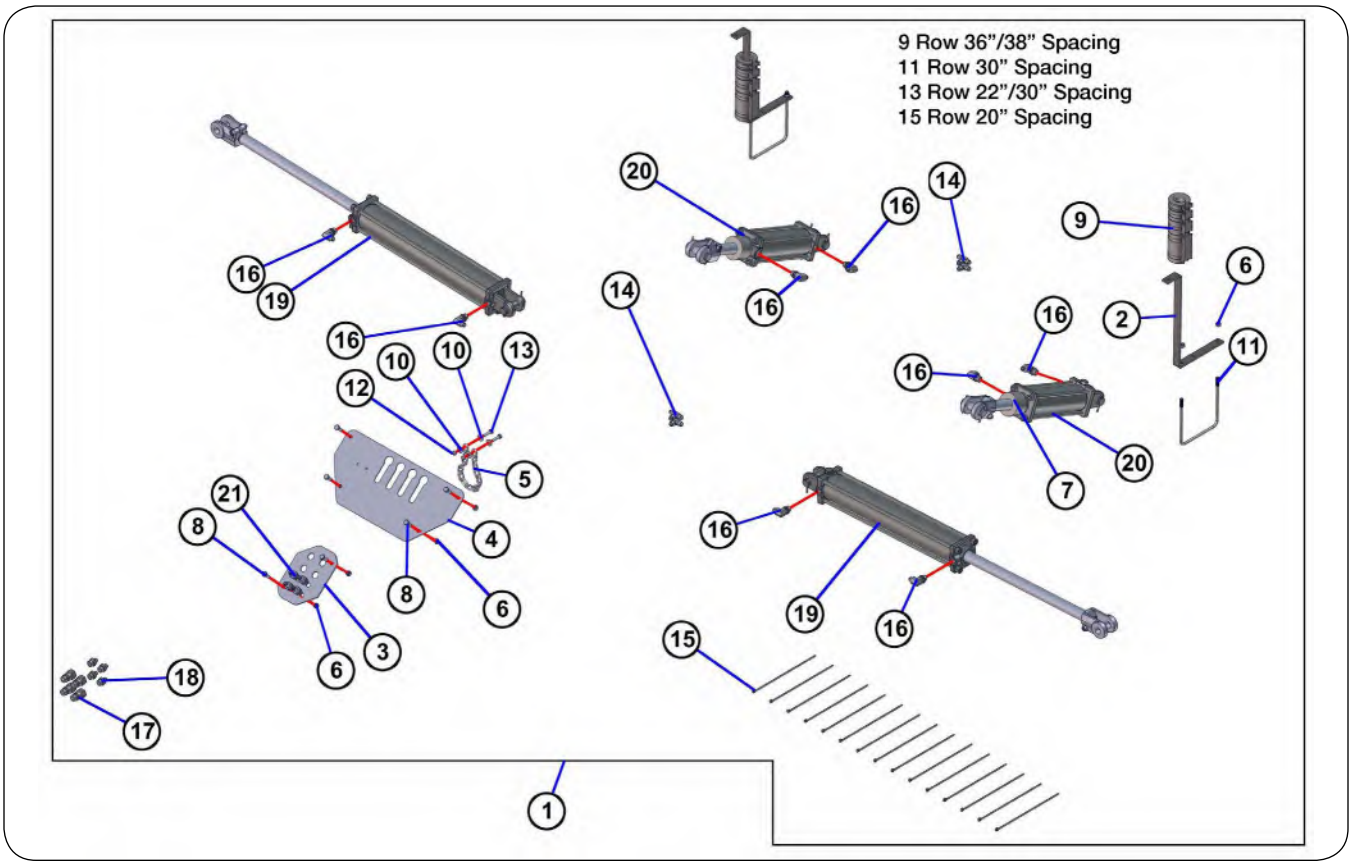
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
3	1	JAAM2642	Wing Extension Kit 30”	
3A	2	JAM3533BB	Wing, Extension 30”	
3B	8	9390-145	Capscrew, 3/4”-10UNC x 2”, G5	
3C	8	9802	Lock Nut/Top, 3/4”-10UNC	

Standard Hydraulic Components (JPKG00168)

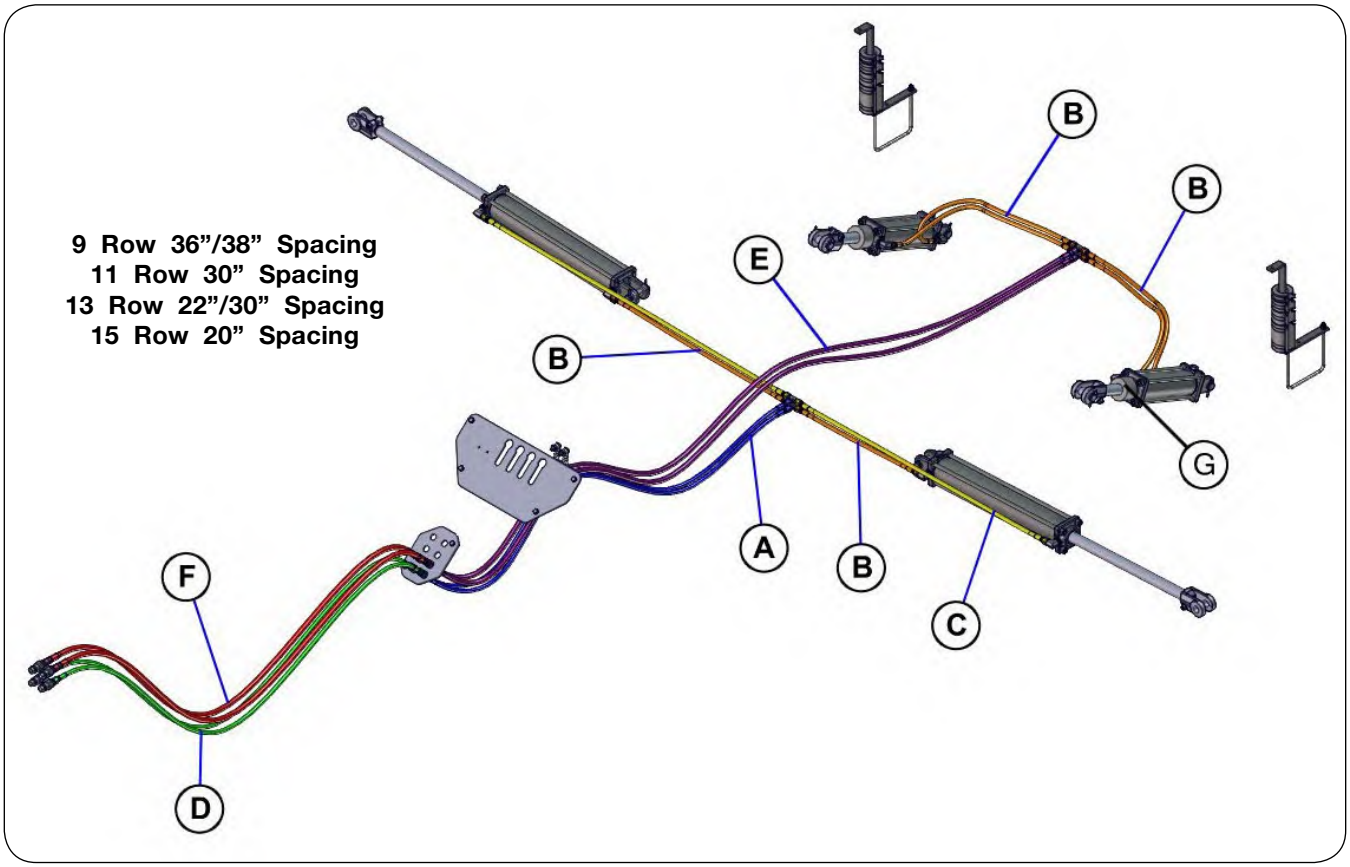
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	JPKG00168	Package, Hydraulic Kit, Standard AT3015	Includes Hoses
2	2	JAM2090	Bracket, Depth Collar & Lockup Storage	
3	1	JAM3588	Bulkhead Plate, AT3	
4	1	JAM3589	Utility Plate	
5	1	96589	Chain, Hose Holder, 3/16" x 15 Links, Plated	
6	10	9928	Lock Nut/Top, 3/8"-16UNC	
7	2	JEM7236	Hydraulic Cylinder Spacer	
8	6	9390-055	Capscrew, 3/8"-16UNC x 1", G5	
9	2	JBP3076	Depth Collar Set, 1 1/4" to 1 1/2", Winged	
10	4	9405-070	Flat Washer, 5/16" USS	
11	2	JBP3351	U-Bolt, 3/8"-16UNC x 7, 6 7/16 CC	
12	2	9807	Lock Nut/Top, 5/16"-18UNF	
13	2	9390-031	Capscrew, 5/16"-18UNC x 1 1/4, G5	
14	4	9875	Tee, 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	
15	15	9003735	Cable Tie 11-3/8" Standard	
16	8	9874	90° Elbow, 9/16-18 JIC Male x 3/4-16 O-Ring Male	
17	4	91383	Male Tip Coupling, 3/4-16 O-Ring Female	
18	4	92927	Adapter, 9/16-18 JIC Male x 3/4-16 O-Ring Male	
19	2	JDP4492	Cylinder, Hydraulic, 3 x 20, Side Ported, B300200ABAAA03B	
20	2	JDP4656	Cylinder, Hydraulic, 3 x 8, 3000 PSI, Side Port, A300080BBAAA07A	
21	4	95192	Bulkhead Union, 9/16-18 JIC Male x 9/16-18 JIC Male	

Standard Hydraulic Hoses Included With Kit (JPKG00168)

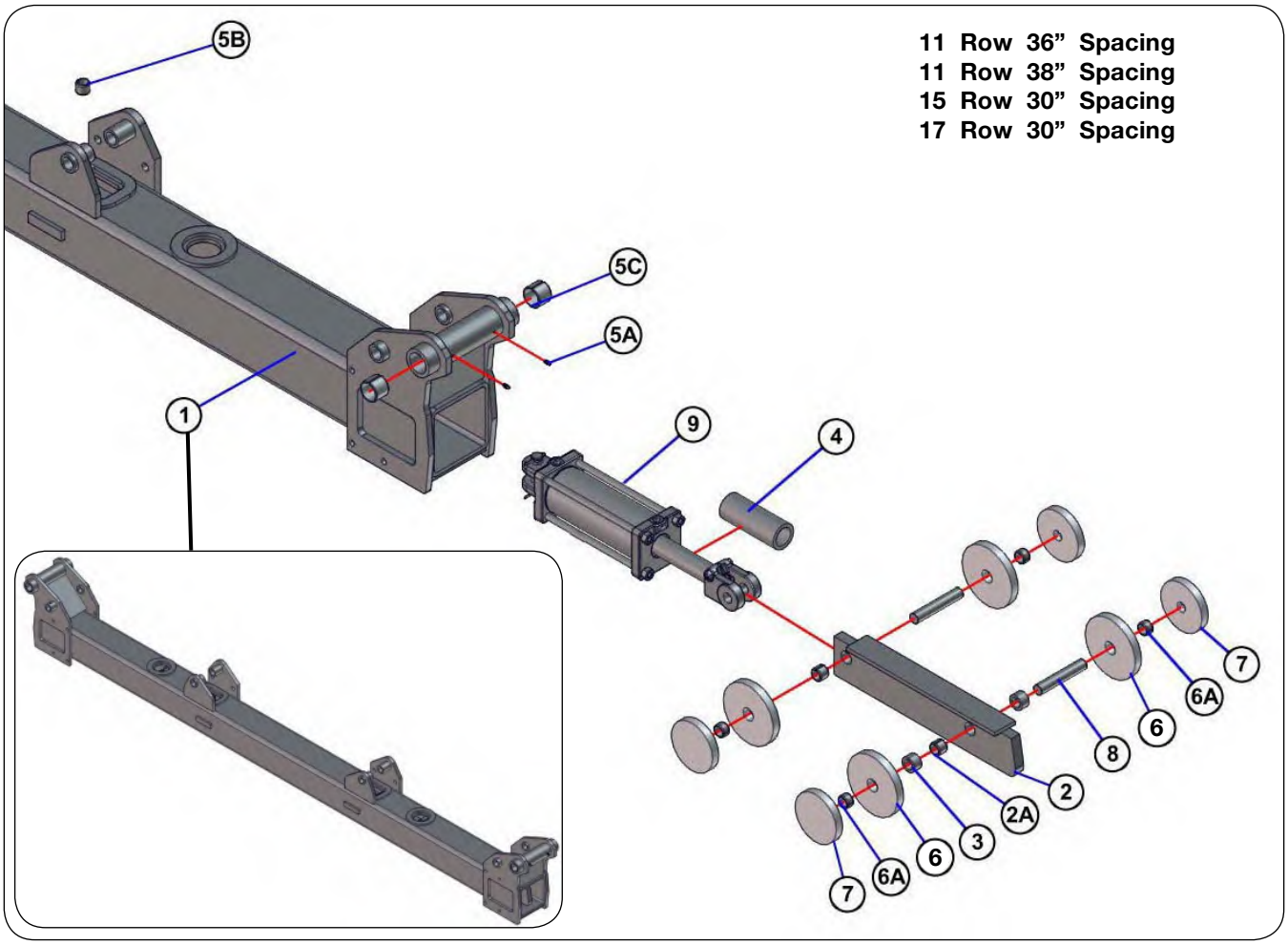
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
A	2	JDP5043	Hydraulic Hose, 1/4” x 72” (9/16-18 JIC Female x 9/16-18 JIC Female)	
B	6	JDP5111	Hydraulic Hose, 1/4” x 30” (9/16-18 JIC Female x 9/16-18 JIC Female)	
C	2	JDP5263	Hydraulic Hose, 1/4” x 54” (9/16-18 JIC Female x 9/16-18 JIC Female)	
D	2	JDP5152	Hydraulic Hose, 1/4” x 84” (9/16-18 JIC Female x 9/16-18 JIC Female)	
E	2	JDP5311	Hydraulic Hose, 3/8” x 134” (9/16-18 JIC Female x 9/16-18 JIC Female)	
F	2	JDP5348	Hydraulic Hose, 3/8” x 84” (9/16-18 JIC Female x 9/16-18 JIC Female)	
G	2	JEM7236	Hydraulic Cylinder Spacer	

Gull Wing Center (JAAM2916)

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



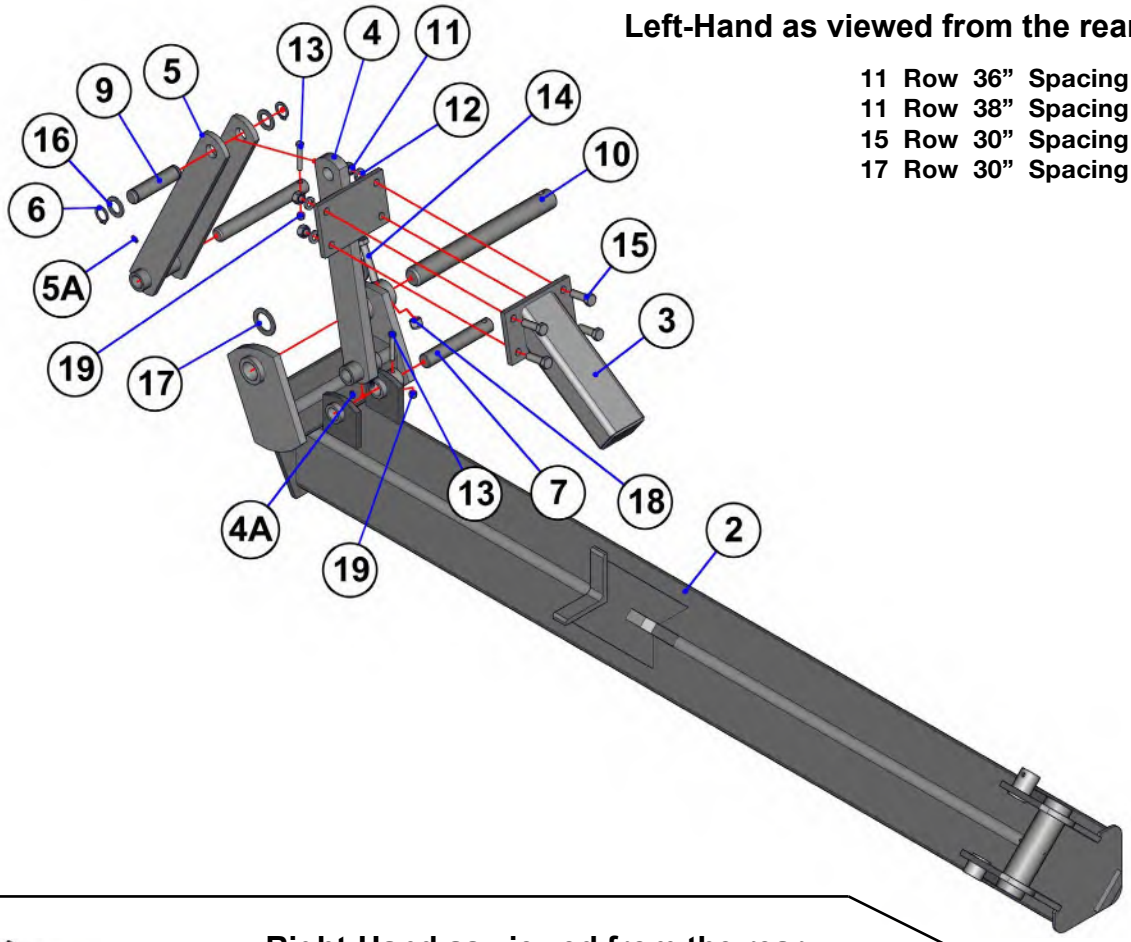
ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	JAAM2916	Gull Wing Center Section Frame Assembly, AT Liquid	
2	2	JAM3539	Gull Wing Linkage, AT Liquid Toolbar	
2A	4	91268	Tension Bushing, 1 1/4" OD x 1" ID x 1"	
3	4	JAM3540	Bushing, 1 1/2" OD x 1.020" ID x 7/8"	
4	2	JAM3541	Depth Collar, 2 1/2" OD x 1.813" ID x 6 1/2"	
5	1	JAM3584	Gull Wing Frame Center Section, AT Liquid	
5A	4	91160	Grease Zerk, 1/4"-28	
5B	2	91268	Tension Bushing, 1 1/4" OD x 1" ID x 1"	
5C	4	JBP3538	Tension Bushing, 2" OD x 1 3/4" ID x 1 1/2"	
6	8	JAM4410	Roller Assembly, AT4000	
6A	8	95122	Tension Bushing, 1 1/4" OD x 1" ID x 3/4"	
7	8	JAP2385	Roller, 5" Dia., Internal Cylinder Fold	
8	4	JBM3492	Pin, 1" Dia. x 5 1/2"	
9	2	JDP4490	Hydraulic Cylinder, 4 x 8, Side Ported, A400080BBACB07E	

Gull Wing Primary Wings (JPKG00176)

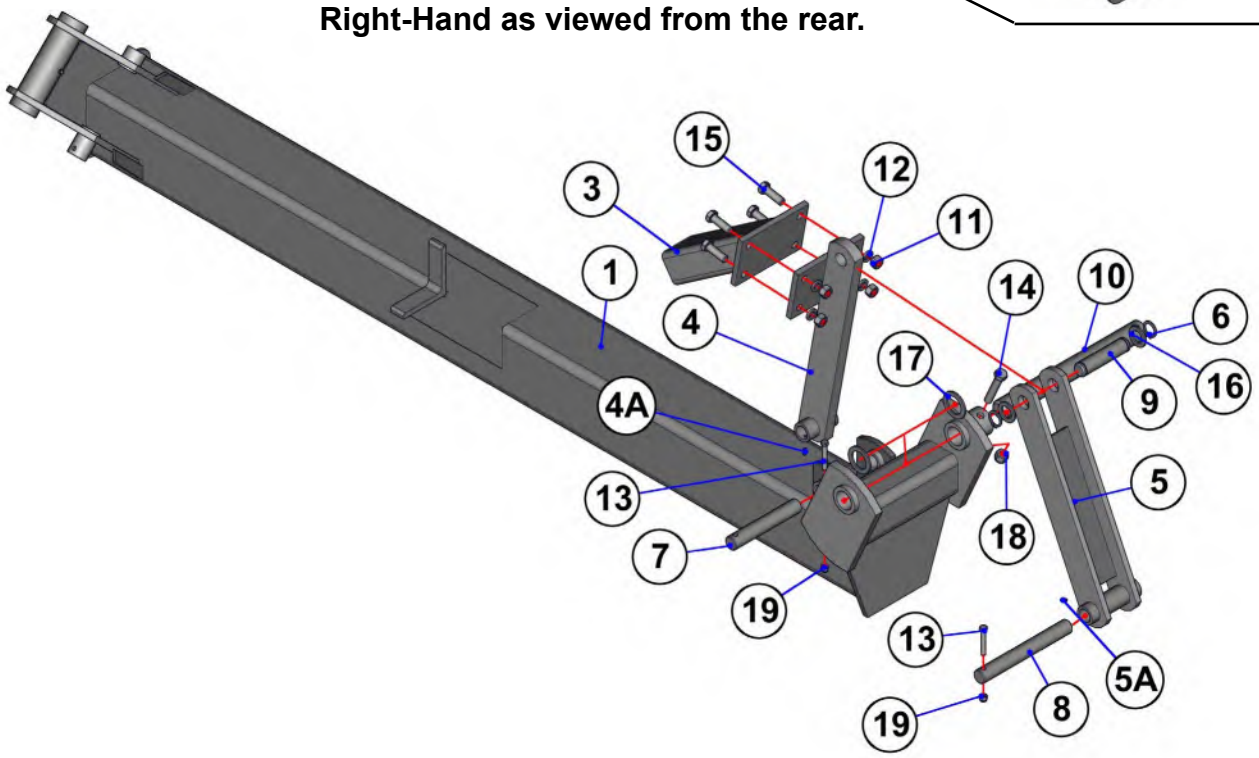
Please visit www.unverferth.com/parts/ for the most current parts listing.

Left-Hand as viewed from the rear.

11 Row 36" Spacing
11 Row 38" Spacing
15 Row 30" Spacing
17 Row 30" Spacing



Right-Hand as viewed from the rear.



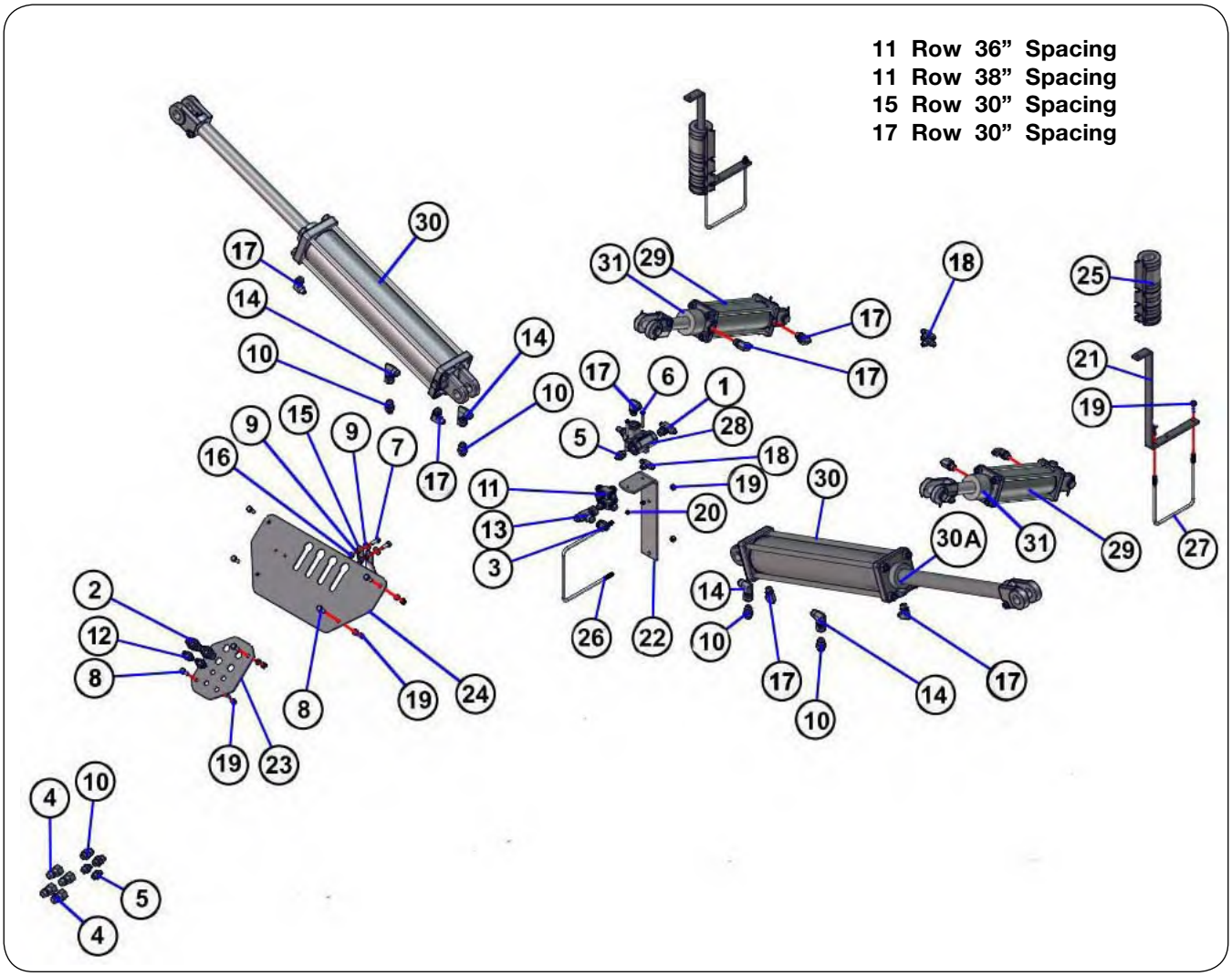
Gull Wing Primary Wings (JPKG00176)

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

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	JAM3534	Primary Wing, Right-Hand, Gull Wing Toolbar	
2	1	JAM3535	Primary Wing, Left-Hand, Gull Wing Toolbar	
3	2	JAM3542	Wing Stop	
4	2	JAM3653	Wing Fold Linkage, Single, 19", With Wing Stop Mount	Includes 4A
4A	4	91160	Grease Zerk, 1/4"-28	
5	2	JAM3654	Wing Fold Linkage, Double, 19"	Includes 5A
5A	2	91160	Grease Zerk, 1/4"-28	
6	4	JAP2711	Snap Ring, 1-1/4 External, Heavy Duty	
7	2	JBM3465	Pin, 1 1/4" Dia. x 7 3/4"	
8	2	JBM3486	Pin, 1 1/4" Dia. x 10 7/16"	
9	2	JBM3548	Pin, 1 1/4" Dia. x 4 3/4"	
10	2	JBM3664	Pin, 1 3/4" Dia. x 16 9/16"	
11	8	9394-014	Hex Nut, 5/8"-11UNC	
12	8	9404-029	Lock Washer, 5/8"	
13	4	9390-061	Capscrew, 3/8"-16UNC x 2 1/2", G5	
14	2	9390-130	Capscrew, 5/8"-11UNC x 3 1/2", G5	
15	8	9390-124	Capscrew, 5/8"-11UNC x 2", G5	
16	4	JBP3192	Machinery Bushing, 1 7/8" OD x 1 1/4" ID x 10 GA.	
17	4	JBP3205	Machinery Bushing, 2 1/2" OD x 1 3/4" ID x 10 GA.	
18	2	9398-019	Elastic Lock Nut, 5/8"-11UNC	
19	4	9398-012	Elastic Lock Nut, 3/8"-16UNC	

Gull Wing Hydraulic Components (JPKG00177)

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



Gull Wing Hydraulic Components (JPKG00177)

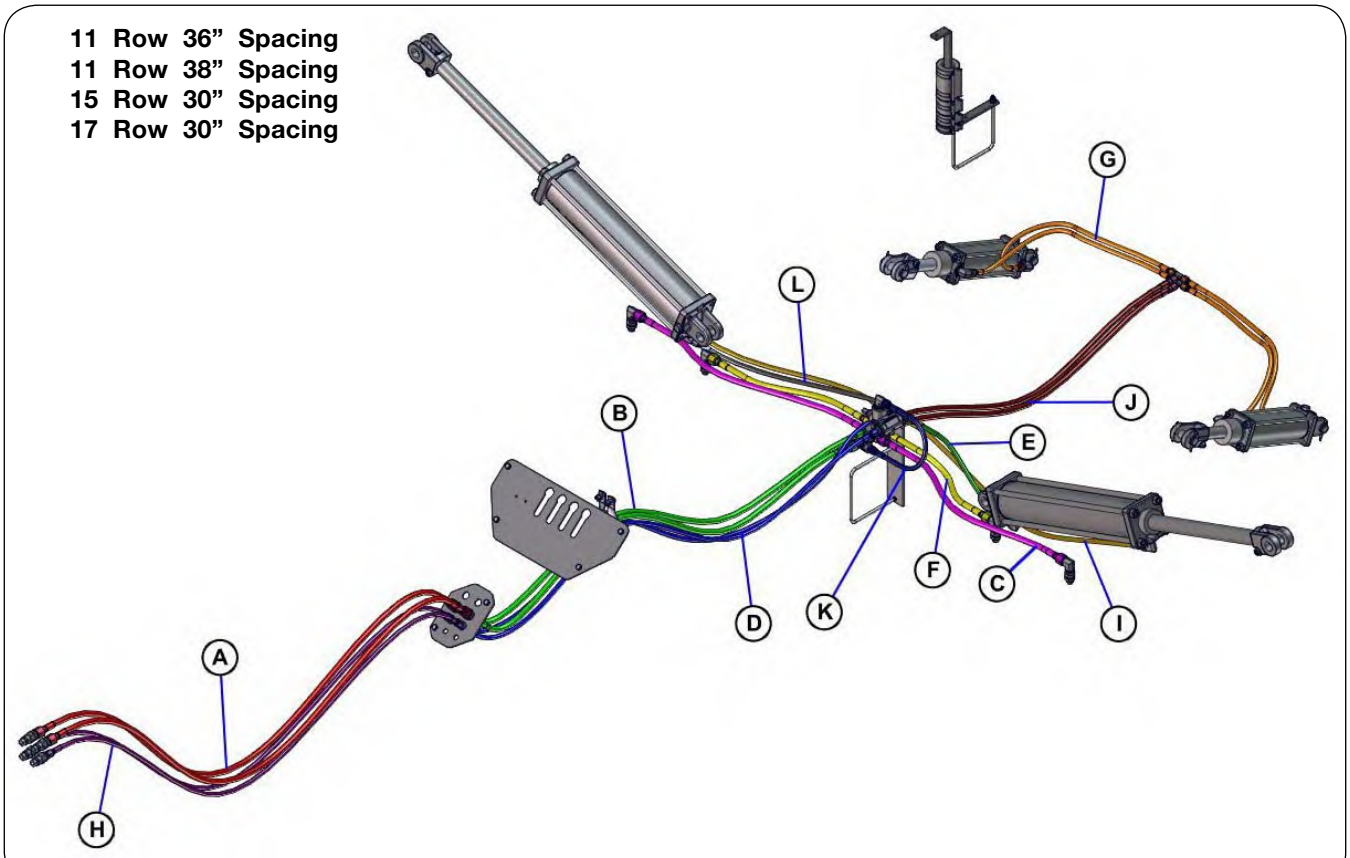
Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
	-	JPKG00177	Package, HydraulicS Kit, AT Liquid Gull Wing Toolbar	
1	1	9002274	Tee, 9/16-18 JIC Male x 9/16-18 JIC Male x 3/4-16 O-Ring Male	
2	2	9005789	Bulkhead Union W/ Nut, 7/8-14 JIC Male x 7/8-14 JIC Male	
3	1	901102	Reducer, 7/8-14 JIC Female x 9/16-18 JIC Male, 2406-10-6	
4	4	91383	Male Tip Coupling, 3/4-16 O-Ring Female	
5	3	92927	Adapter, 9/16-18 JIC Male x 3/4-16 O-Ring Male	
6	2	9390-009	Capscrew, 1/4"-20UNC x 2", G5	
7	2	9390-031	Capscrew, 5/16"-18UNC x 1 1/4" G5	
8	8	9390-055	Capscrew, 3/8"-16UNC x 1", G5	
9	4	9405-070	Flat Washer, 5/16" USS	
10	6	9503026	Adapter, 7/8-14 JIC Male x 3/4-16 O-Ring Male	
11	2	9503036	Cross, 7/8-14 JIC Male x 7/8-14 JIC Male x 7/8-14 JIC Male x 7/8-14 JIC Male	
12	2	95192	Bulkhead Union, 9/16-18 JIC Male x 9/16-18 JIC Male	
13	1	95478	Tee, 7/8-14 JIC Male x 7/8-14 JIC Female x 7/8-14 JIC Male	
14	4	96559	90° Elbow, 7/8-14 JIC Male x 7/8-14 JIC Female, 6500-10	
15	1	96589	Chain	
16	2	9807	Lock Nut/Top, 5/16"-18UNC	
17	9	9874	90° Elbow, 9/16-18 JIC Male x 3/4-16 O-Ring Male	
18	3	9875	Tee, 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	
19	12	9928	Lock Nut/Top, 3/8"-16UNC	
20	2	9936	Lock Nut/Top, 1/4"-20UNC	
21	2	JAM2090	Bracket, Depth Collar & Lockup Storage	
22	1	JAM3544	Bracket, Relief Valve Mounting, AT Liquid	
23	1	JAM3588	Bulkhead Plate, AT3	
24	1	JAM3589	Utility Plate	
25	2	JBP3076	Depth Collar Set, 1 1/4" TO 1 1/2", Winged	
26	1	JBP3335	U-Bolt, 3/8"-16UNC x 7W x 8L	
27	2	JBP3351	U-Bolt, 3/8"-16UNC x 6W x 7L	
28	1	JDP4563	Relief Valve, RV-5H, PRINCE, 1500-3000 PSI	
29	2	JDP4656	Cylinder, Hydraulic, 3 x 8, 3000 PSI, Side Port, A300080BBAAA07A	
30	2	JDP4762-1	Cylinder, Hydraulic, 4 x 20, W/1-1/4 Ends & Spacer	
31	2	JEM7236	Hydraulic Cylinder Spacer	

Gull Wing Hydraulic Hoses Included With Kit (JPKG00177)

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

11 Row 36” Spacing
11 Row 38” Spacing
15 Row 30” Spacing
17 Row 30” Spacing

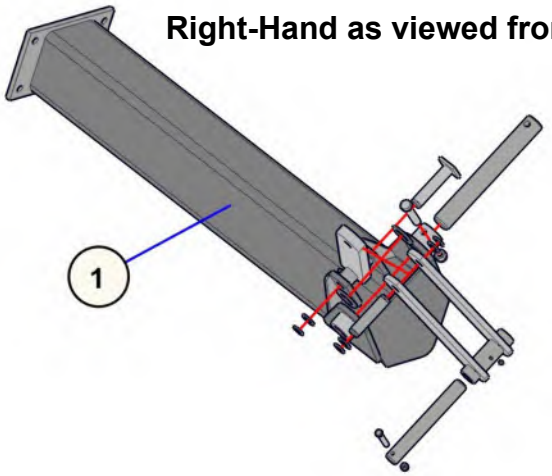


ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
A	2	JDP5007	Hydraulic Hose, 3/8” x 84” (7/8-14 JIC Female x 7/8-14 JIC Female)	
B	2	JDP5013	Hydraulic Hose, 3/8” x 72” (7/8-14 JIC Female x 7/8-14 JIC Female)	
C	2	JDP5028	Hydraulic Hose, 3/8” x 36” (7/8-14 JIC Female x 7/8-14 JIC Female)	
D	2	JDP5043	Hydraulic Hose, 1/4” x 72” (9/16-18 JIC Female x 9/16-18 JIC Female)	
E	1	JDP5060	Hydraulic Hose, 1/4” x 24” (9/16-18 JIC Female x 9/16-18 JIC Female)	
F	2	JDP5064	Hydraulic Hose, 3/8” x 24” (7/8-14 JIC Female x 7/8-14 JIC Female)	
G	4	JDP5111	Hydraulic Hose, 1/4” x 30” (9/16-18 JIC Female x 9/16-18 JIC Female)	
H	2	JDP5152	Hydraulic Hose, 1/4” x 84” (9/16-18 JIC Female x 9/16-18 JIC Female)	
I	2	JDP5241	Hydraulic Hose, 1/4” x 52” (9/16-18 JIC Female x 9/16-18 JIC Female)	
J	2	JDP5255	Hydraulic Hose, 3/8” x 56” (7/8-14 JIC Female x 9/16-18 JIC Female)	
K	1	JDP5266	Hydraulic Hose, 1/4” x 18” (9/16-18 JIC Female x 9/16-18 JIC Female)	
L	1	JDP5267	Hydraulic Hose, 1/4” x 32” (9/16-18 JIC Female x 9/16-18 JIC Female)	

Secondary Gull Wing With Hardware (JPKG00175)

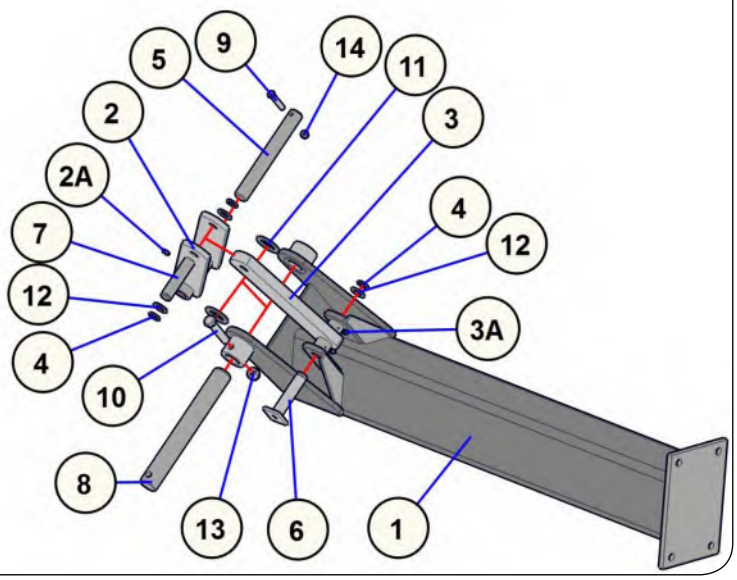
Please visit www.unverferth.com/parts/ for the most current parts listing.

Right-Hand as viewed from the rear.



11 Row 36” Spacing
11 Row 38” Spacing
15 Row 30” Spacing
17 Row 30” Spacing

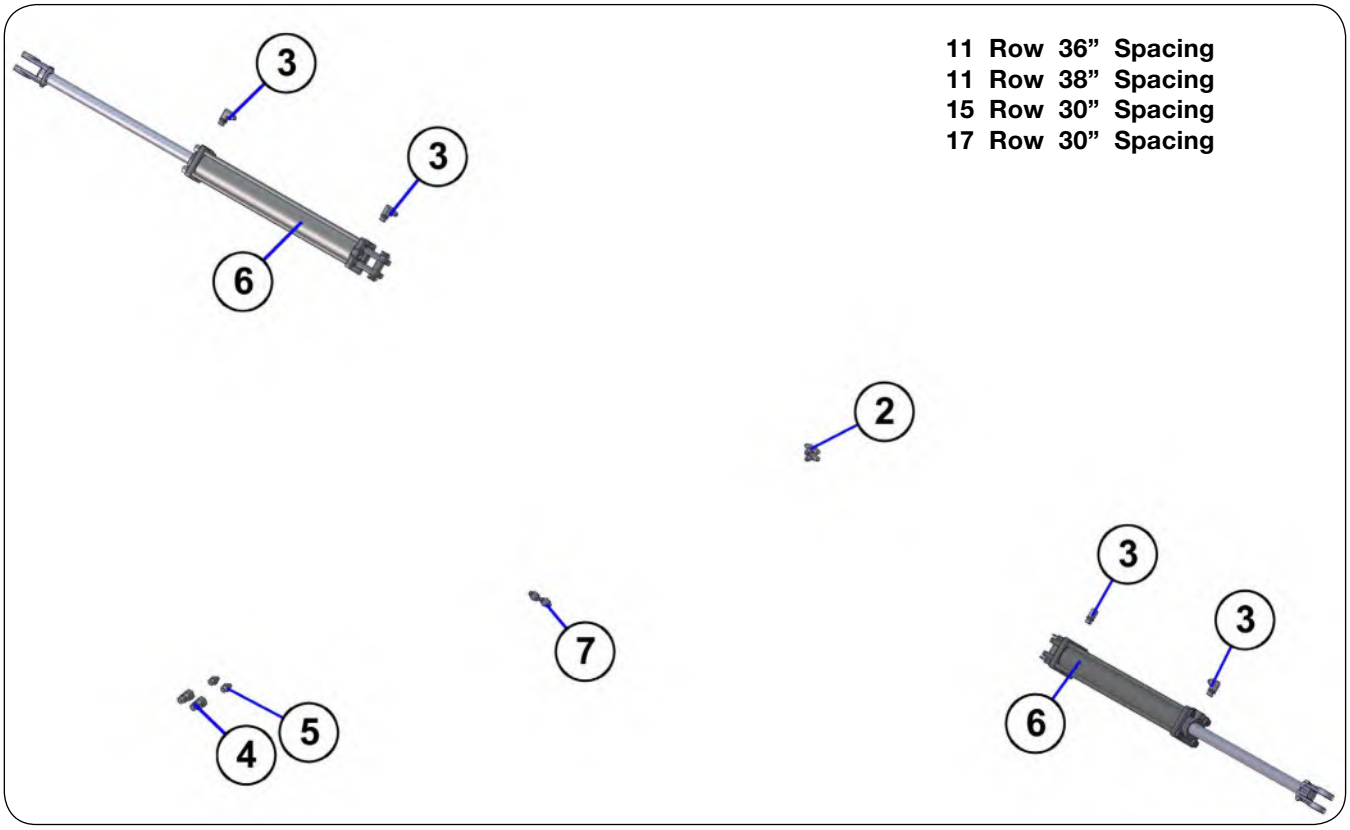
Left-Hand as viewed from the rear.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	2	JAM3532	Wing, Secondary, Gull Wing Toolbar, AT Liquid	
2	2	JAM4515	Linkage, Secondary Wing Cylinder #1	
2A	2	91160	Grease Zerk, 1/4”-28	
3	2	JAM4516	Linkage, Secondary Wing Cylinder, #2	
3A	4	91160	Grease Zerk, 1/4”-28	
4	6	91192	Retaining Ring, 1”	
5	2	JBM3486	Pin, 1 1/4” Dia. x 10 7/16”	
6	2	JBM3542	Pin, 1” Dia. x 4 5/8” With Anti-Rotation Head	
7	2	JBM3543	Pin, 1” Dia. x 4 5/16”	
8	2	JBM3570	Pin, 1 3/4” Dia. x 14”	
9	2	9390-061	Capscrew, 3/8”-16UNC x 2 1/2”, G5	
10	2	9390-130	Capscrew, 5/8”-11UNC x 3 1/2”, G5	
11	4	JBP3205	Machinery Bushing, 2 1/2” OD x 1 3/4” ID, 10 GA.	
12	6	JBP3215	Machinery Bushing, 1 1/2” OD x 1” ID, 14 GA.	
13	2	9398-019	Elastic Lock Nut, 5/8”-11UNC	
14	2	9398-012	Elastic Lock Nut, 3/8”-16UNC	

Secondary Gull Wing Hydraulic Kit Components (JPKG00178)

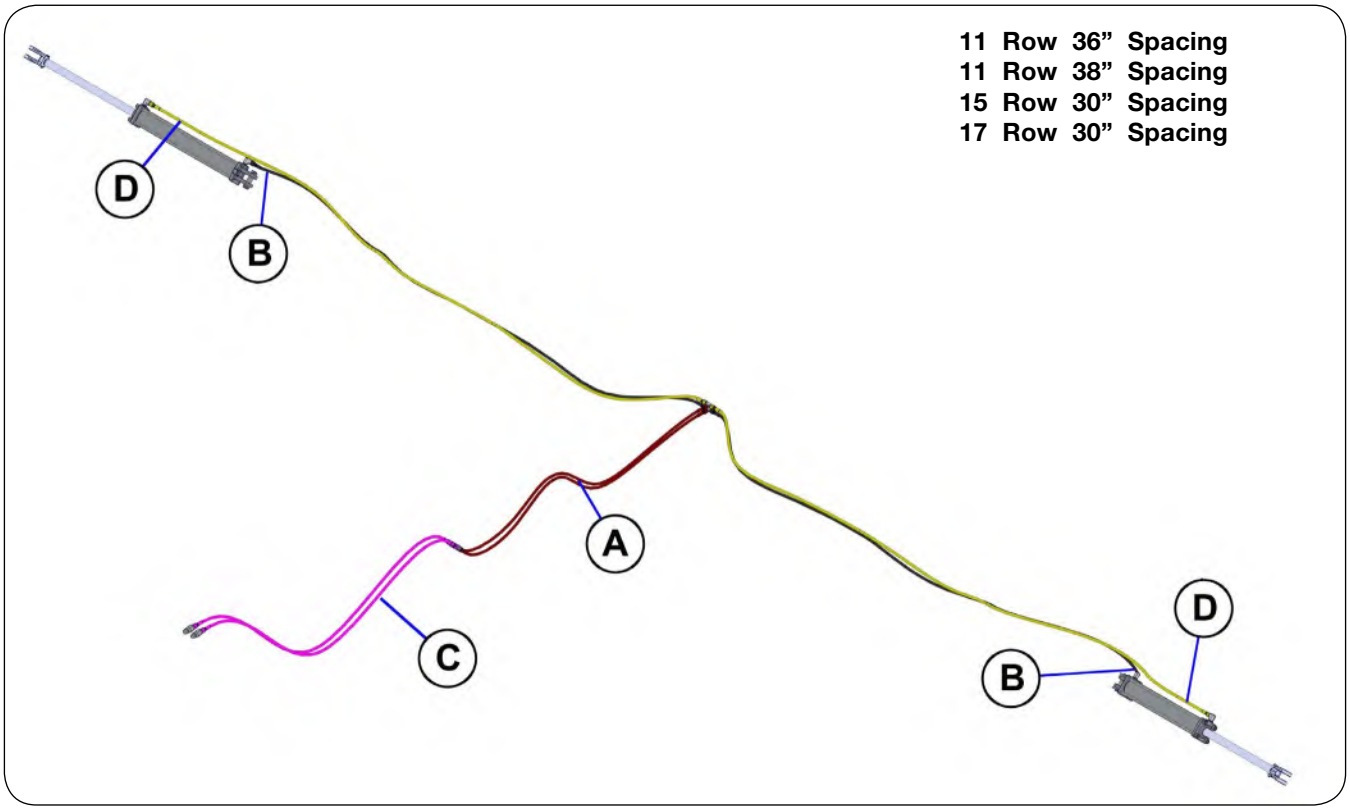
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	JPKG00178	Package, HydraulicS Kit, AT Liquid Secondary Wing Kit	
2	2	9875	Tee, 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	
3	4	9874	90° Elbow, 9/16-18 JIC Male x 3/4-16 O-Ring Male	
4	2	91383	Male Tip Coupling, 3/4-16 O-Ring Female	
5	2	92927	Adapter, 9/16-18 JIC Male x 3/4-16 O-Ring Male	
6	2	JDP4492	Hydraulic Cylinder, 3 x 20, Side Ported, B300200ABAAA03B	
7	2	95192	Bulkhead Union, 9/16-18 JIC Male x 9/16-18 JIC Male	

Secondary Gull Wing Hydraulic Hoses Included With Kit (JPKG00178)

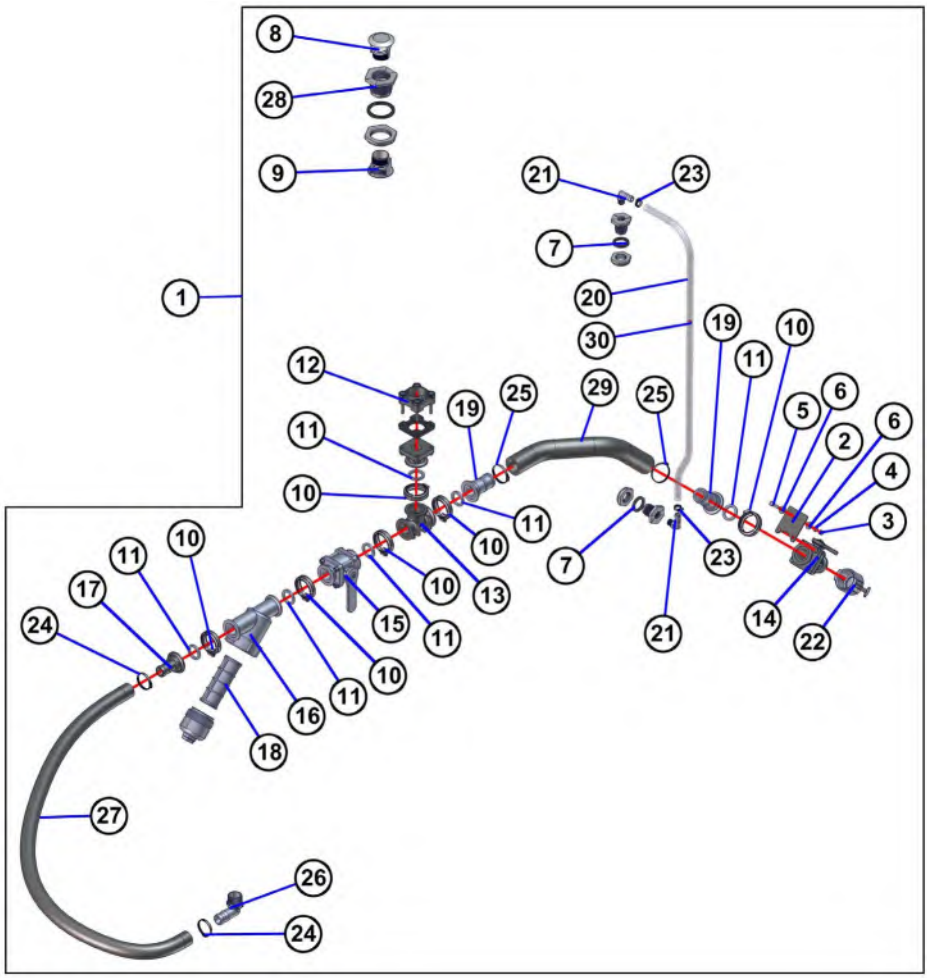
Please visit www.unverferth.com/parts/ for the most current parts listing.

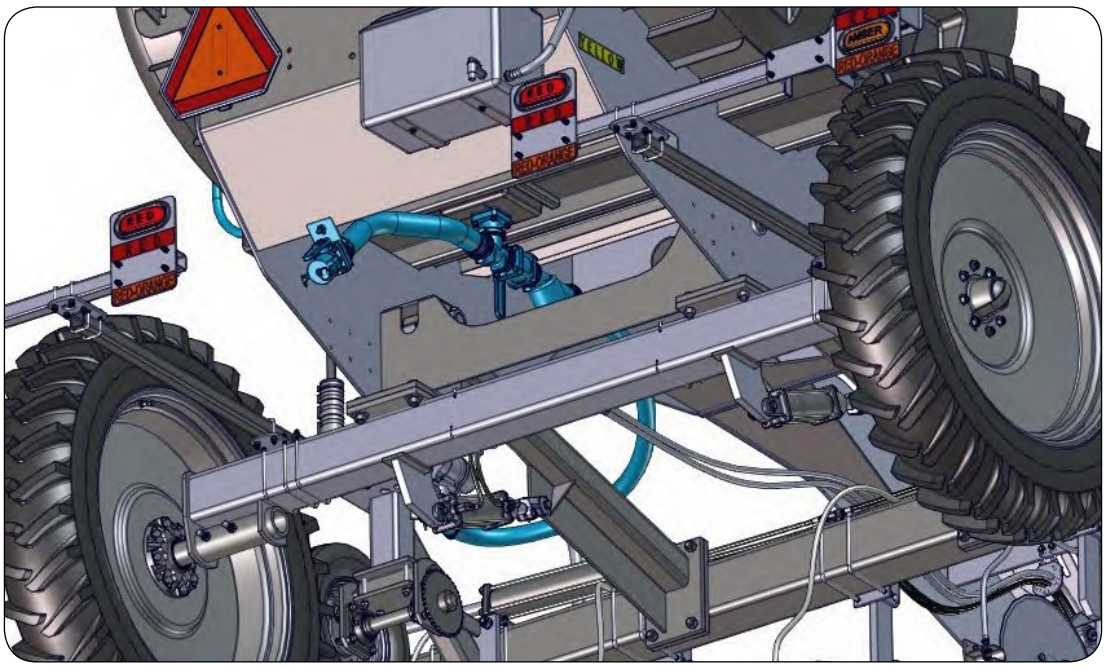


ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
A	2	JDP5043	Hydraulic Hose, 1/4” x 72” (9/16-18 JIC Female x 9/16-18 JIC Female)	
B	2	JDP5072	Hydraulic Hose, 1/4” x 120” (9/16-18 JIC Female x 9/16-18 JIC Female)	
C	2	JDP5152	Hydraulic Hose, 1/4” x 84” (9/16-18 JIC Female x 9/16-18 JIC Female)	
D	2	JDP5268	Hydraulic Hose, 1/4” x 144” (9/16-18 JIC Female x 9/16-18 JIC Female)	

Bottom Fill Plumbing Kit, 1 Pump, 2” Fill (J33000108)

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





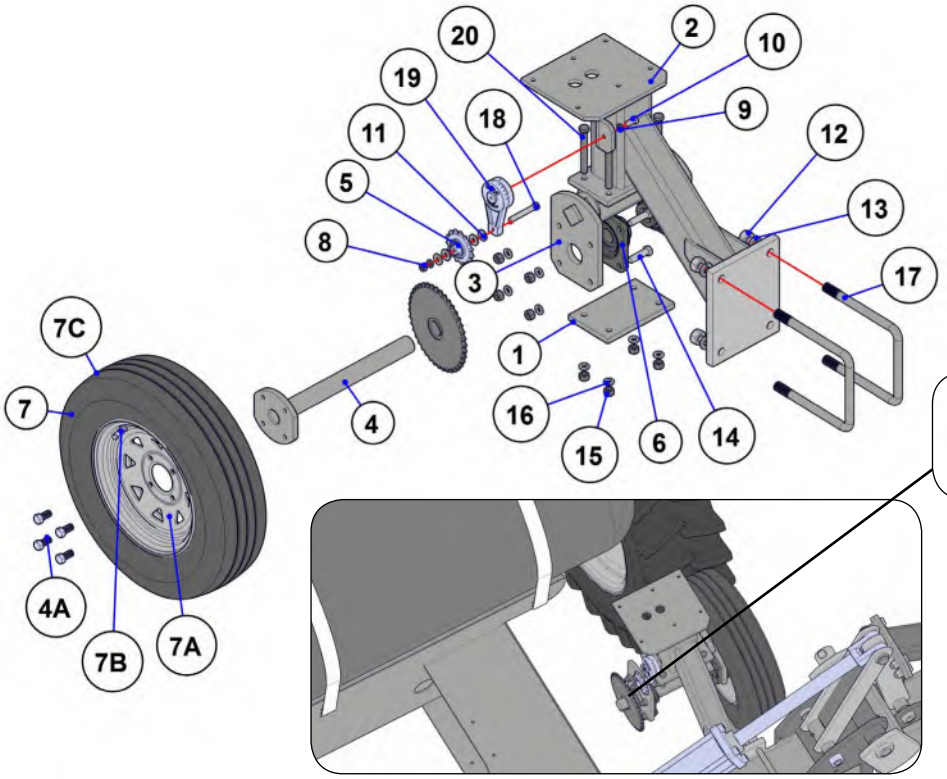
Bottom Fill Plumbing Kit, 1 Pump, 2” Fill (J33000108)

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

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	J33000108	Bottom Fill Plumbing Kit, AT3015 Tank, 1 Pump, 2”Fill	
2	1	JAM4827	Bracket, Fill Valve Support Plate	
3	1	9394-006	Hex Nut, 3/8”-16UNC	
4	1	9404-021	Lock Washer, 3/8”	
5	1	9390-057	Capscrew, 3/8”-16UNC x 1 1/2”, G5	
6	2	9405-076	Flat Washer, 3/8” USS	
7	2	900043	Tank Outlet Fitting 1/2” FPT, FITS 1 3/8” HOLE	
8	1	JCP2042	Hooded Vent, 2” MPT Poly W/Screen	
9	1	TA815074	Hooded Vent, 2” MPT Poly WO/Screen	
10	6	TA815025	Clamp, 2” Worm Screw, Flange	
11	6	TA811944	Gasket, EPDM, 2 Flange, 3/4 Bulkhead, 150G	
12	1	TA815075	Tank Outlet Fitting, 2” FlangeD	
13	1	TA815007	Tee, 2 Flange	
14	1	TA815047	Valve, Ball, 2- 1 1/2” Port- 2” Male Adapter	
15	1	TA815045	Valve, Ball, 2” - 1 1/2” Port	
16	1	JCP2050	Strainer, 2” Flange, Line	
17	1	TA815015	Hose Barb, 2 Flange x 1 1/2 Hose	
18	1	TA811983	Strainer Screen, 30 Mesh, LS230	
19	2	TA815016	Hose Barb, 2” Flange x 2” Hose	
20	1	TA806558	Hose, Site Gauge, 3/4”	
21	2	TA814957	Elbow, 90*, 1/2”MP x 3/4” Hose Barb, Poly	
22	1	TA811500	Cap, 2” 200 Cap	
23	2	TA800912	Hose Clamp, Worm Gear, 1/2” - 1” Tubing, SS	
24	2	TA800916	Hose Clamp, Worm Gear, 1-1/4” - 2” Tubing, SS	
25	2	TA800922	Hose Clamp, Worm Gear, 2” - 2-1/2” Tubing, SS	
26	1	TA814975	Elbow, 90*, 1 1/2”MP x 1 1/2”HB, Poly	
27	1	TA806325	Hose, EPDM Rubber, 1 1/2”, 150#	
28	1	TA805428	Tank Outlet Fitting, 2” Fits 3” Hole	
29	1	TA806332	Hose, EPDM Rubber, 2”, Reinforced, 100#	
30	1	JCP2684	Sight Gauge Ball, BLUE	

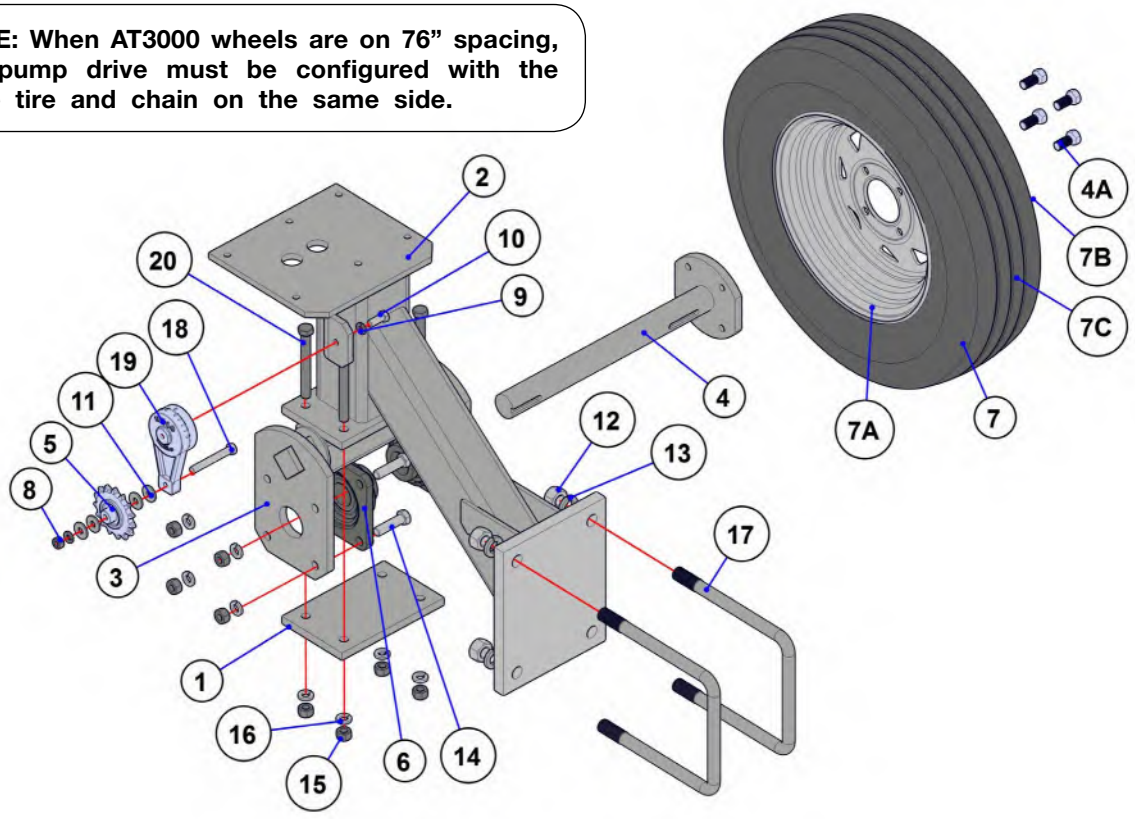
Pump Drive Components

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



NOTE: Sprocket location for standard and Gull Wing centers section.

NOTE: When AT3000 wheels are on 76” spacing, the pump drive must be configured with the drive tire and chain on the same side.



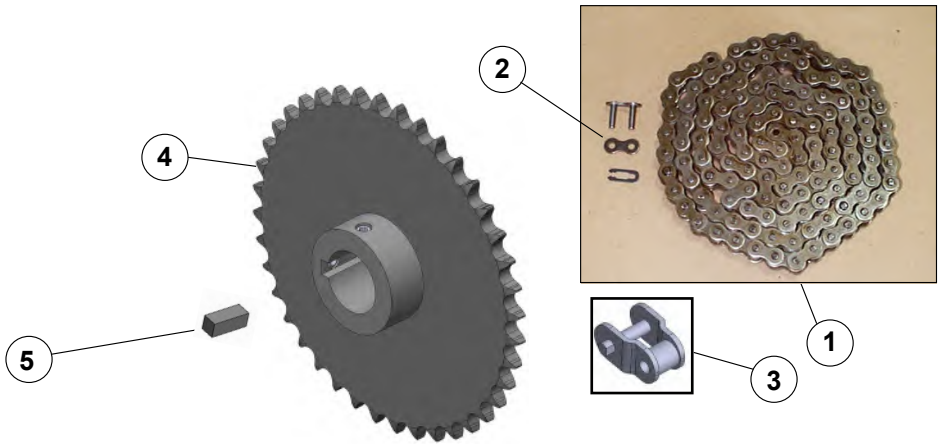
Pump Drive Components

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

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	JAM3513	Backing Plate, AT3000 Pump Drive	
2	1	JAM3514	Pump Mounting, AT3000	
3	1	JAM3515	Axle Mount, AT3000 Pump Drive	
4	1	JAM3516	Pump Drive Wheel Mount	
4A	4	91829	Wheel Bolt, 1/2”-20UNF x 1 5/8”	
5	1	JAP2382	Sprocket, Idler, 15T #50 Chain, With Clevis Adapter	
6	2	JAP2697	Bearing, 1 1/2”, Square 4 Bolt Flange & Lock Collar	
7	1	9503374ACW	Wheel & Tire Assembly (4x12, ST145/12LRD) 4-Bolt	
7A	1	N/A	4 x 12 Implement Wheel	
7B	1	9002500	Valve Stem, Metal	
7C	1	9503375	Tire, ST145/12CA LRD, Radial D Range	
8	1	9928	Lock Nut/Top, 3/8”-16UNC	
9	1	9404-021	Lock Washer, 3/8”	
10	1	9390-055	Capscrew, 3/8”-16UNC x 1”, G5	
11	4	9405-076	Flat Washer, 3/8” USS	
12	4	9802	Lock Nut/Top, 3/4”-10UNC	
13	N/A	N/A	Lock Washer, 3/4”	
14	8	9390-103	Capscrew, 1/2”-13UNC x 2”, G5, Plated	
15	12	9800	Hex Nut, 1/2”-13UNC	
16	N/A	N/A	Lock Washer, 1/2”	
17	2	JBP3058	U-Bolt, 3/4”-10UNC x 7”W x 9”L	
18	1	9390-063	Capscrew, 3/8”-16UNC x 3”, G5	
19	1	JBP3239	Tensioner, RT1002	
20	4	9390-112	Capscrew, 1/2”-13UNC x 4 1/2”, G5	

Pump Drive Kit

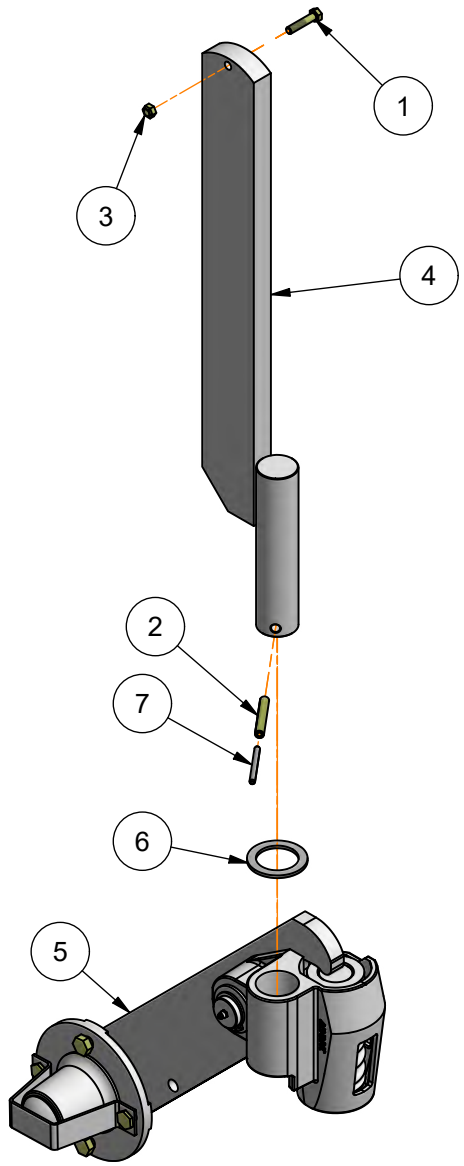
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NUMBER	QTY	DESCRIPTION	NOTES
1	JAP2111	1	Chain, Roller, Stainless Steel, #50, 63.36”	
2	JAP2112	1	#50 Stainless Connector Link	
3	JAP2113	1	#50 Stainless 1/2” Link	
4	JAP2392	1	Sprocket, 5040 x w/Hub, 1-1/2” RND Bore, 3/8” Key, 40 Tooth	Standard Rate
	JAP2369	1	Sprocket, 5050 x w/Hub 1 1/2” RND Bore, 3/8” Key, 50 Tooth	High Rate
5	JBM3526	1	Key, 3/8” x 3/8” x 1”	

Super 1200 Coulter & 23” Shank Components (JAAM2730)

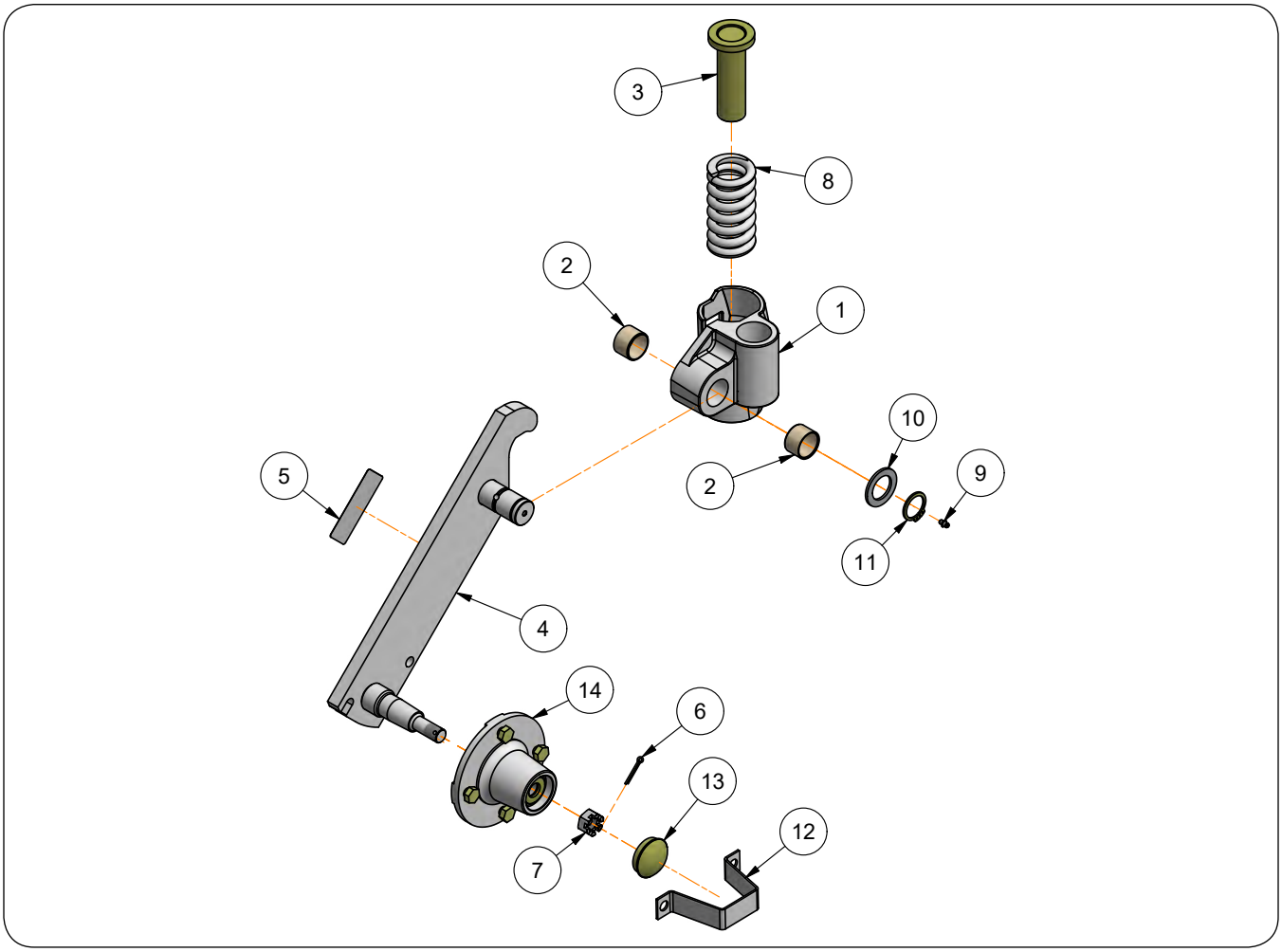
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	JAAM2730	Super 1200 Coulter & 23” Shank, 1 Row	1	Includes Items 1-7
1	9390-032	Capscrew, 5/16”-18UNC x 1 1/2”	1	
2	9392-182	Roll Pin, 3/8” Dia. x 2 1/2”	1	
3	9807	Lock Nut/Top, 5/16”-18UNC	1	
4	JAM4424	Coulter Shank, 23”	1	
5	JAM2799	Coulter Arm w/Hub & Knee Casting Assembly	1	
6	JBP3466	Machinery Bushing, 2-1/2” x 1-3/4”X 10 Gauge, Stainless Steel	1	
7	JBP3534	Roll, Pin, 7/32” Dia. x 2 1/2”	1	

Coulter Arm, Hub & Knee Components (JAM2799)

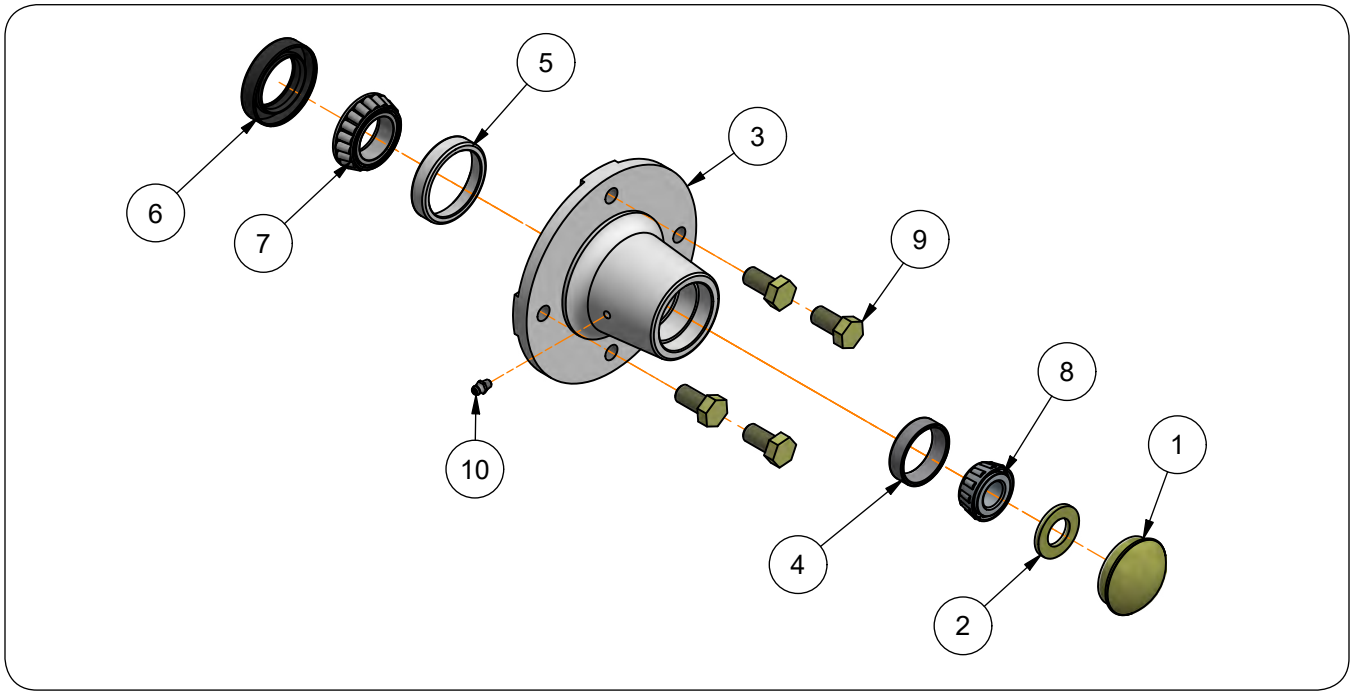
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
		JAM2799	Coulter Arm Assembly With Hub & Knee Casting, HD	Includes Items 1-14
1	1	JAM2743B	Casting, Coulter Knee, HD, Machined With Bushings	
2	2	JAP2274	Bushing, 1 17/32" OD x 1 3/8" ID" x 1" OAL	
3	1	JAM2796PL	Spring Cap & Guide, HD Coulter	
4	1	JAM2797	Coulter Arm, HD w/Decal	Includes Item 5
5	1	JAP2216	Decal, BLU-JET, Small, 1 1/2" x 4"	
6	1	9391-034	Pin, Cotter, 5/32" Dia. x 1 1/2"	
7	1	9393-016	Nut, Spindle, 3/4"-16UNC	
8	1	JAP2881B	Compression Spring, 2.472" OD x 5.875" OAL, .468 Wire Dia.	
9	1	91160	Grease Zerk, 1/4"-28	
10	1	JBP3404	Machinery Bushing, 2 1/8" OD x 1 3/8" ID x 10 GA.	
11	1	91575	Retaining Ring, 1 3/8" Dia.	
12	1	46842B	Strap	
13	1	90024	Hub Cap	
14	1	JAP2707	Hub Assembly with Hub Cap	Includes Item 13

Hub Assembly, 4-Bolt Components (JAP2707)

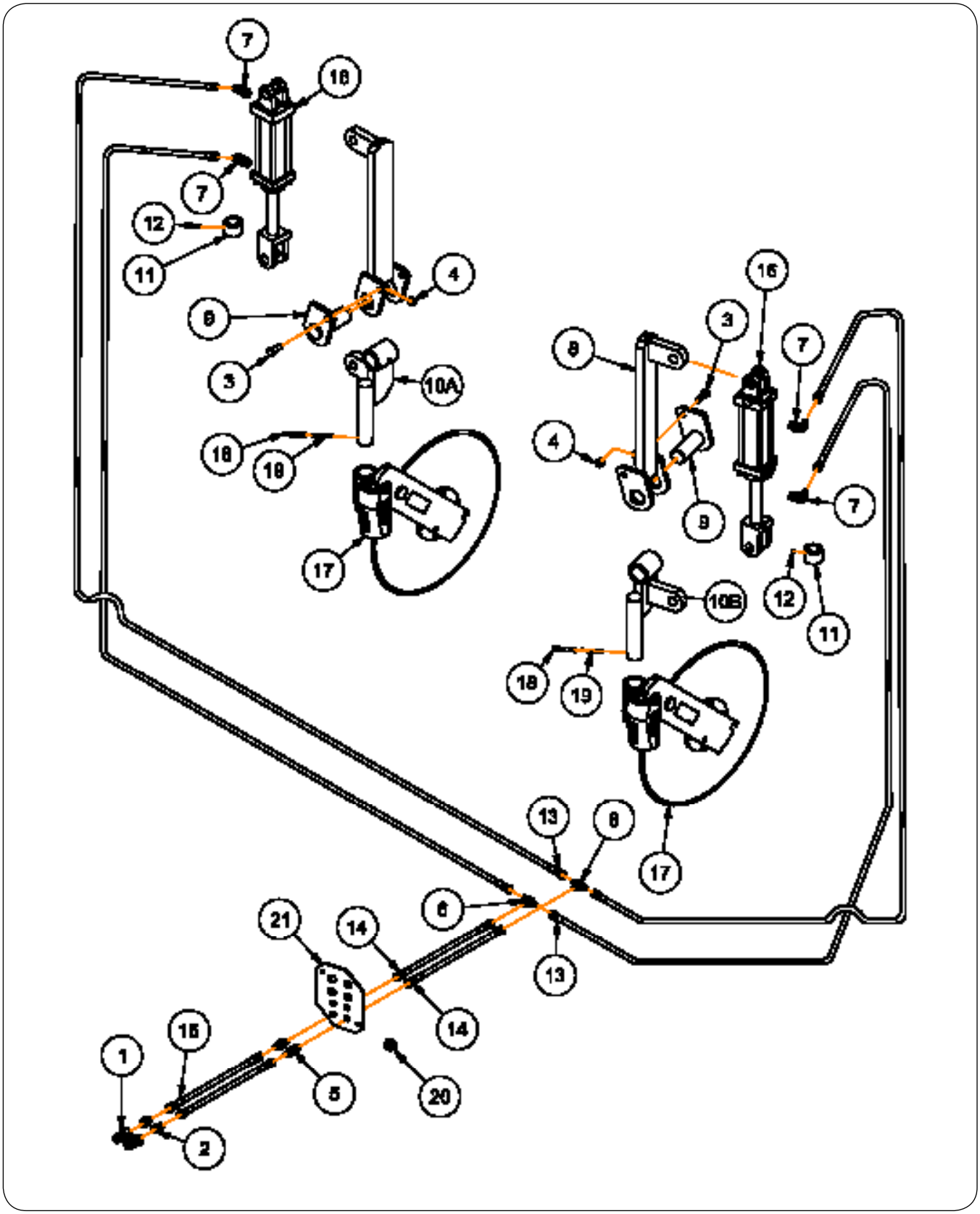
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
	1	JAP2707	Hub Assembly, 4 Bolt	
1	1	90024	Hub Cap, 1610	
2	1	9405-103	Flat Washer, 3/4" SAE	
3	1	JAP2706-1	Hub W/ Cups, 4 Bolt, 5" BC, 3.62" Pilot, W/Zerk Hole	
4	1	9784	Bearing Cup, LM11910	
5	1	9345	Bearing Cup, LM67010	
6	1	JAP2747	Grease Seal, 15235TB	
7	1	9165	Bearing Cone, LM67048	
8	1	9789	Bearing Cone, LM11949	
9	4	9390-323	Capscrew, 1/2"-20UNF x 1", G5	
10	1	91160	Grease Zerk, 1/4"-28	

Narrow Fold Transport Coulter Option (43691)
(Single Tube Toolbar)

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



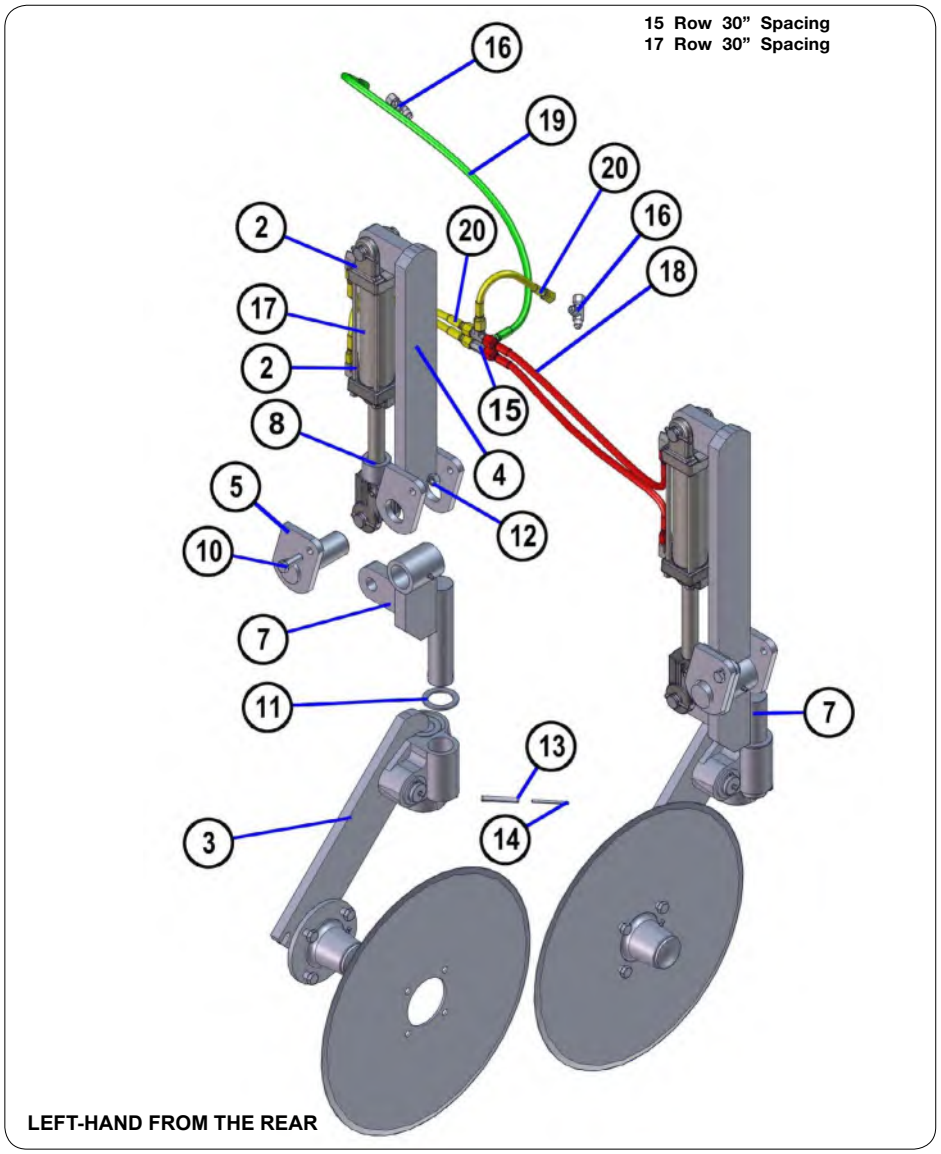
Narrow Fold Transport Coulter Option (43691)
(Single Tube Toolbar)

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

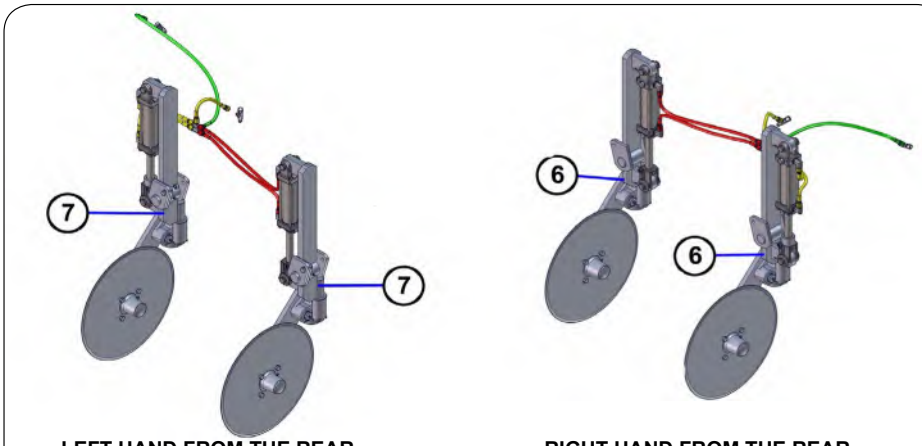
ITEM	PART NUMBER	DESCRIPTION	QTY
	43691	Narrow Fold Transport Coulter Option (1 Pair) Includes Items 1-16	-
1	91383	Male Tip Coupling, 3/4-16 O-Ring Female	2
2	92927	Adapter, 9/16-18 JIC Male x 3/4-16 O-Ring Male	2
3	9390-101	Capscrew, 1/2"-13UNC x 1 1/2" G5	2
4	94981	Lock Nut/Center, 1/2"-13UNC	2
5	95192	Bulkhead Union, 9/16-18 JIC Male x 9/16-18 JIC Male	2
6	9875	Tee, 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	2
7	JAAM2111	90° Elbow, 9/16-18 JIC Male x 3/4-10 O-Ring Male w/1/8" Restrictor	4
8	JAM3620	Folding Coulter Shank Weldment	2
9	JAM3621	Pin, Folding Coulter Shank	2
10A	JAM3622	Coulter Mounting Weldment #1, Folding Coulter Shank	1
10B	JAM3623	Coulter Mounting Weldment #2, Folding Coulter Shank	1
11	JAM3680	Spacer/Tube 2" OD x 1.250" ID x 1 1/2"	2
12	9399-057	Set Screw, 1/4"-20UNC x 1/4" Cup Point/Hex Socket	1
13	JDP5038	Hydraulic Hose, 1/4" x 108" (9/16-18 JIC Female x 9/16-18 JIC Female)	4
14	JDP5043	Hydraulic Hose, 1/4" x 72" (9/16-18 JIC Female x 9/16-18 JIC Female)	2
15	JDP5152	Hydraulic Hose, 1/4" x 84" (9/16-18 JIC Female x 9/16-18 JIC Female)	2
16	JDP4553	Hydraulic Cylinder, 2 x 6	2
17	JAM2799	Coulter Arm Assembly w/Hub & Knee Casting	2
18	9392-182	Roll Pin, 3/8" Dia. x 2 1/2"	2
19	JBP3534	Roll Pin, 7/32" Dia. x 2 1/2"	2
20	9405-.088	Flat Washer, 1/2"	4
21	JAM3588	Hose Plate	1

Narrow Fold Transport Coulter Option (43679)
(Single Tube Toolbar)

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



LEFT-HAND FROM THE REAR



LEFT-HAND FROM THE REAR

RIGHT-HAND FROM THE REAR

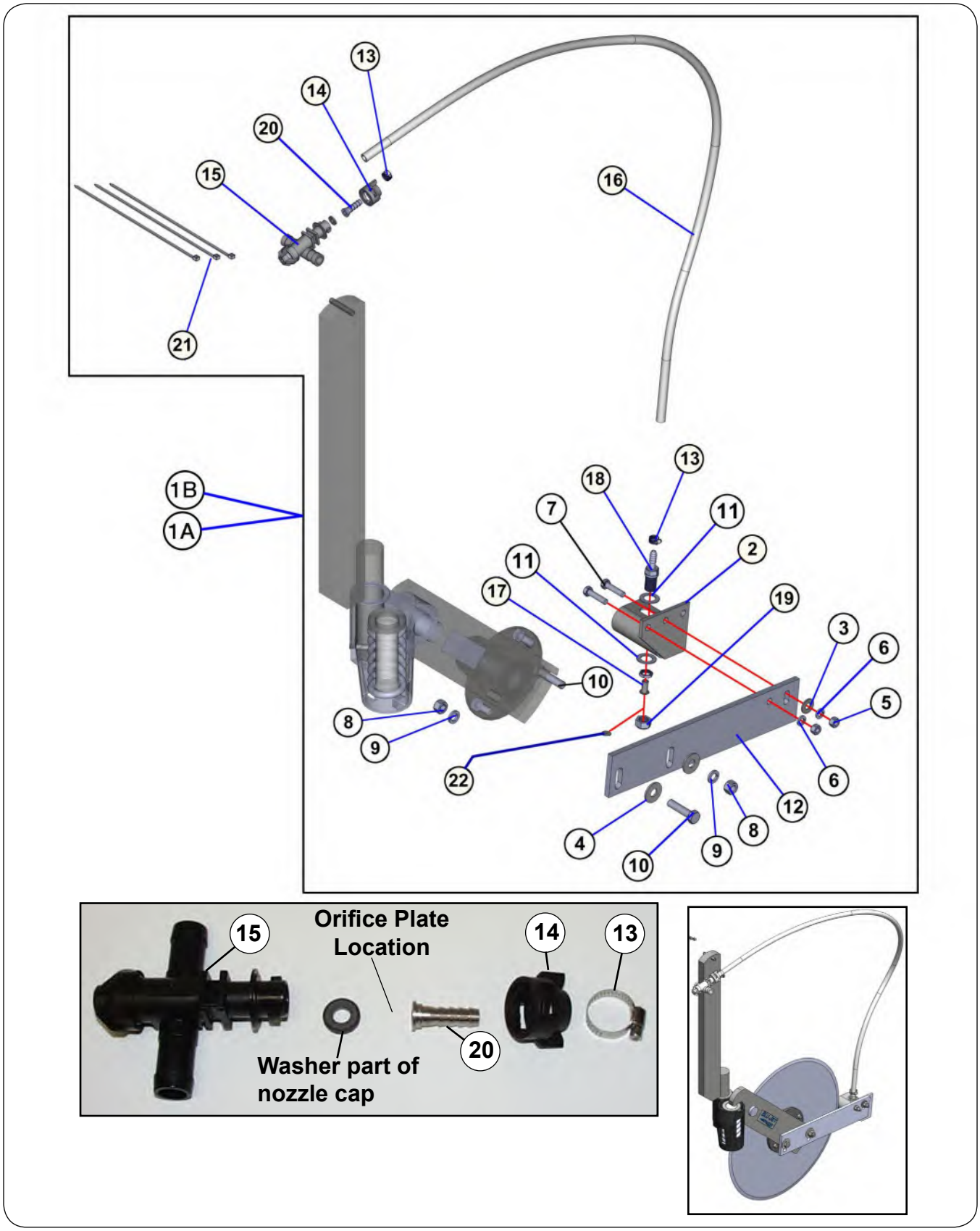
Narrow Fold Transport Coulter Option (43679)
(Single Tube Toolbar)

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

ITEM	PART NUMBER	DESCRIPTION	QTY
1	43679	Narrow Fold Transport Coulter Option (2 Pair) Includes Items 2, 4-8, 10, 12, 15-20	-
2	JAAM2111	90° Elbow, 9/16-18 JIC Male x 3/4-10 O-Ring Male w/1/8" Restrictor	8
3	JAM2799	Coulter Arm Assembly w/Hub & Knee Casting	4
4	JAM3620	Folding Coulter Shank Weldment	4
5	JAM3621	Pin, Folding Coulter Shank	4
6	JAM3622	Coulter Mounting Weldment #1, Folding Coulter Shank	2
7	JAM3623	Coulter Mounting Weldment #2, Folding Coulter Shank	2
8	JAM3680	Spacer/Tube 2" OD x 1.250" ID x 1 1/2"	2
9	JAP2840	Coulter Blade 20" Dia. Smooth	4
10	9390-101	Capscrew, 1/2"-13UNC x 1 1/2" G5	4
11	JBP3205	Machinery Bushing, 2 1/2" OD x 1 3/4" ID	4
12	94981	Lock Nut/Center, 1/2"-13UNC	4
13	9392-182	Roll Pin, 3/8" Dia. x 2 1/2"	4
14	JBP3534	Roll Pin, 7/32" Dia. x 2 1/2"	4
15	9875	Tee, 9/16-18 JIC Male x 9/16-18 JIC Male x 9/16-18 JIC Male	4
16	91465	Tee, 9/16-18 JIC Male x 9/16-18 JIC Female x 9/16-18 JIC Male	4
17	JDP4553	Hydraulic Cylinder, 2 x 6	4
18	JDP5060	Hydraulic Hose, 1/4" x 24" (9/16-18 JIC Female x 9/16-18 JIC Female)	4
19	JDP5138	Hydraulic Hose, 1/4" x 33" (9/16-18 JIC Female x 9/16-18 JIC Female)	2
20	JDP5239	Hydraulic Hose, 1/4" x 12" (9/16-18 JIC Female x 9/16-18 JIC Female)	6

Jetstream Liquid Assembly Components
Tee-Jet Check (JAAM3353); Low Rate (JAAM3355)

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



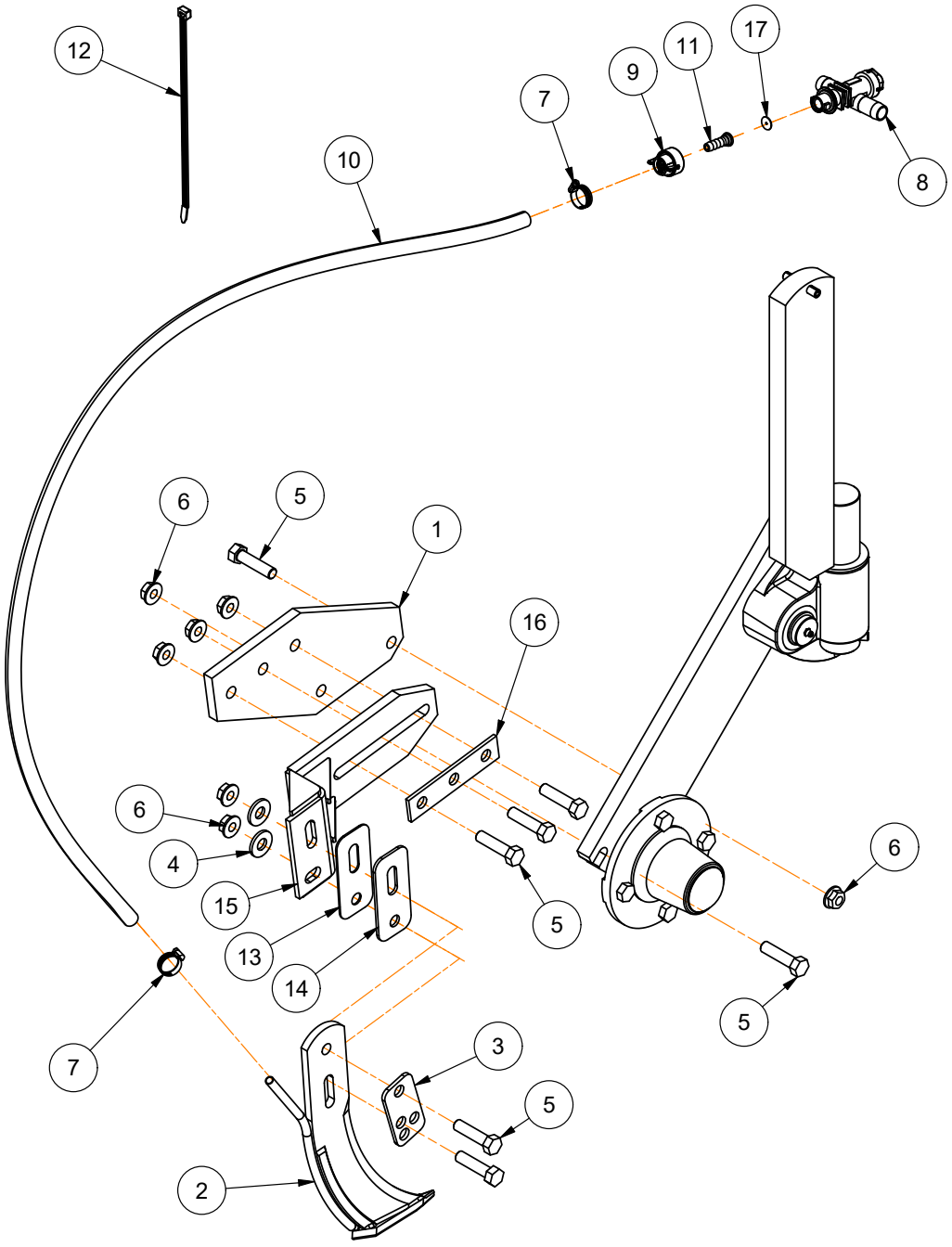
Jetstream Liquid Assembly Components
Tee-Jet Check (JAAM3353); Low Rate (JAAM3355)

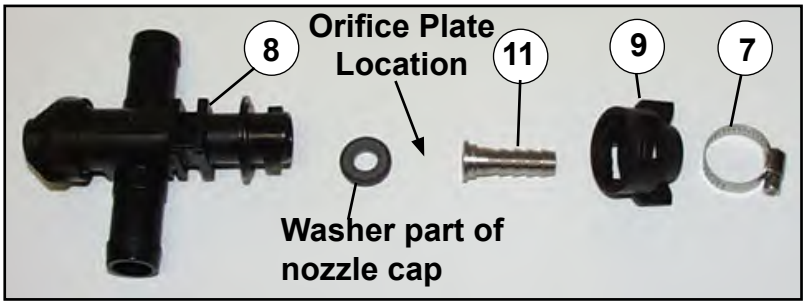
Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1A	1	JAAM3353	Jetstream Liquid Assembly Tee-Jet Check, 1 Row	Includes Items 2-24 & 30-31
1B	1	JAAM3355	Jetstream Liquid Assembly, LOW RATE	Includes Items 2-29
2	1	JAM3627	Nozzle Mount, Jetstream, AT3000/ AT4000/ AT4600	
3	1	9405-076	Flat Washer, 3/8" USS	
4	2	9405-088	Flat Washer, 1/2" USS	
5	2	900901-006	Hex Nut, 3/8"-16UNC (Stainless Steel)	
6	2	900903-021	Lock Washer, 3/8" (Stainless Steel)	
7	2	900900-057	Capscrew, 3/8"-16UNC x 1 1/2" (Stainless Steel)	
8	2	900901-010	Hex Nut, 1/2"-13UNC, (Stainless Steel)	
9	2	900903-025	Lock Washer, 1/2" (Stainless Steel)	
10	2	900900-103	Capscrew, 1/2"-13UNC x 2" (Stainless Steel)	
11	2	JBP3461	Flat Washer, 5/8" (Stainless Steel)	
12	1	JCM2305	Jetstream Mounting Arm	
13	2	TA800902	Hose Clamp, Worm Gear, 1/4" - 5/8" Tubing	Stainless Steel
14	1	TA881008	Nozzle Cap, 25608-1-NYR	
15	1	TA886025	Diaphragm Check Valve, Double Shank, 3/4 Hose	
16	1	TA806200	Hose, EVA, N 3/8" Braid Jetstream	
17	1	JCP2537	Stream Stabilizer-Stainless Steel Jetstream	
18	1	JCP2578	Nozzle BODY, Straight With Nut, 3/8" Hose	Stainless Steel
19	1	JCP2589	Nozzle Cap, Stainless Steel	
20	1	JCP5046	Hose Barb Insert, 3/8", Stainless Steel	
21	3	9003735	Cable Tie 11-3/8" Standard	
22	1	TA862032	Orifice Plate #4916-63 Jetstream	
	1	TA862036	Orifice Plate #4916-70 Jetstream	
	1	JCP2543	Orifice Plate #4916-78 Jetstream	
	1	JCP2559	Orifice Plate #4916-30 Jetstream	
	1	JCP2557	Orifice Plate #4916-35 Jetstream	
	1	TA862017	Orifice Plate #4916-40 Jetstream	
	1	TA862024	Orifice Plate #4916-49 Jetstream	
	1	TA862029	Orifice Plate #4916-57 Jetstream	
	1	JCP2544	Orifice Plate #4916-86 Jetstream	
	1	JCP2545	Orifice Plate #4916-95 Jetstream	

Jetstream Coulter Knife Assembly Components (JAAM3356)

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





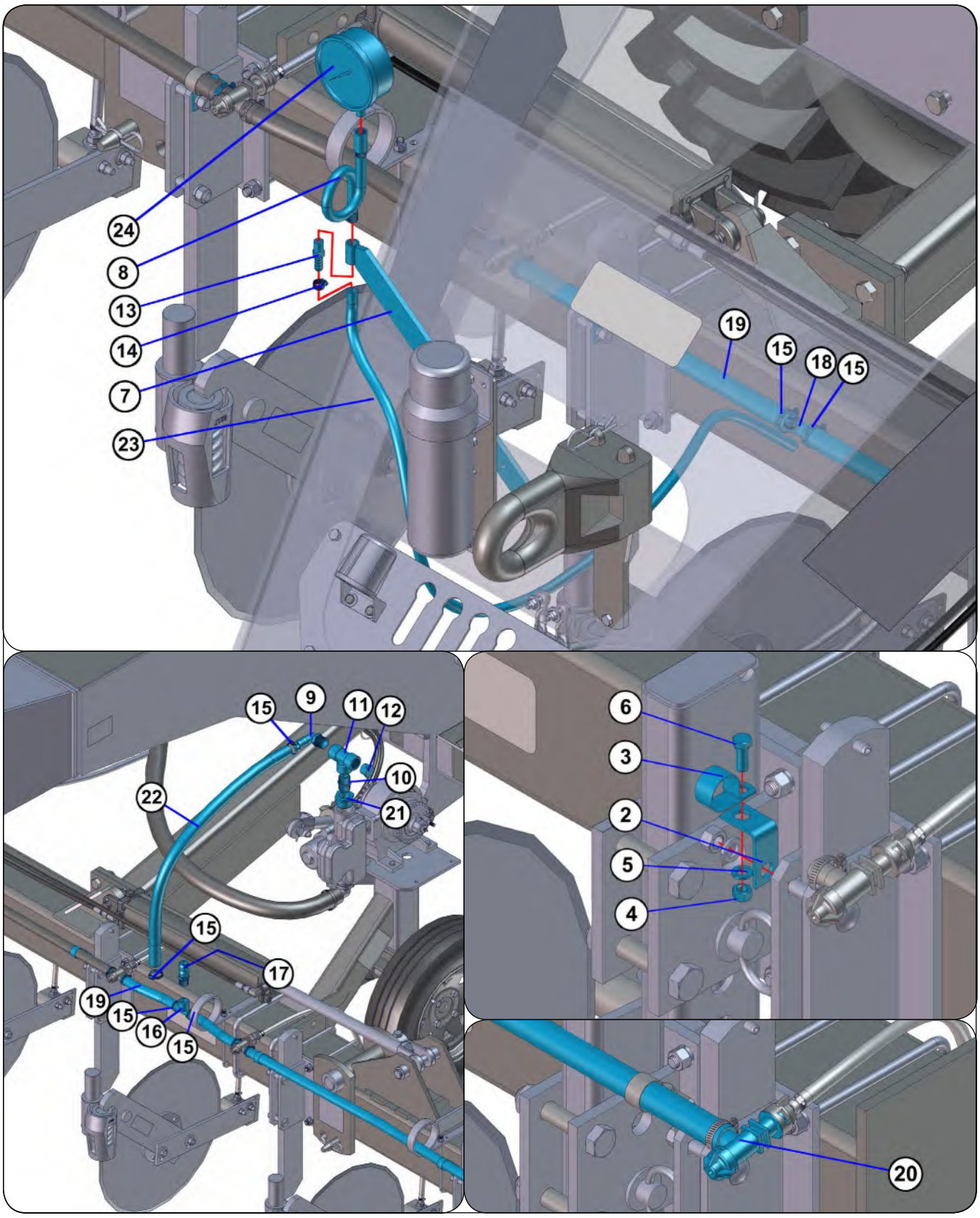
Jetstream Coulter Knife Assembly Components (JAAM3356)

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

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
	1	JAAM3356	Coulter Knife Assembly, W/Knife, Tee-Jet Check	Includes Items 1-17
1	1	JAM3324	Adapter Plate, Coulter Knife	
2	1	67923	Liquid Fertlizer Knife 3/8" Extra Thin	
3	1	JAM3591	Washer, Coulter Knife	
4	4	JAP2422	Machinery Bushing, 1.25 OD x 9/16 ID x .135	
5	4	9390-103	Capscrew, 1/2"-13UNC x 2", G5	
6	6	9003397	Lock Nut/Top, 1/2"-13UNC	
7	2	TA800902	Hose Clamp, Worm Gear, 1/4" - 5/8" Tubing, SS	
8	1	TA886025	Nozzle Body/Single QJ 3/4" Tee	
9	1	9007736	Quick Nozzle Cap Assembly	
10	1	44279	Hose, 3/8" x 60", EPDM Rubber	
11	1	JCP5046	Hose Barb Insert, 3/8, Stainless Steel	
12	3	9003735	Cable Tie 11" Standard	
13	1	44579	Shim Plate, 14GA.	
14	1	44580	Shim Plate, 10GA.	
15	1	44826B	Knife Holder Weldment Mounting Arm	
16	1	44637B	Backing Plate	
17	1	JCP2544	Orifice Plate #4916-86 Jetstream	
	1	JCP2545	Orifice Plate #4916-95 Jetstream	
	1	TA862052	Orifice Plate #4916-110 Jetstream	
	1	TA862054	Orifice Plate #4916-120 Jetstream	
	1	JCP2571	Orifice Plate #4916-136 Jetstream	

Manifold Liquid Injection Assembly (Standard Toolbar) 11 Row 30" Spacing (J44000159)

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



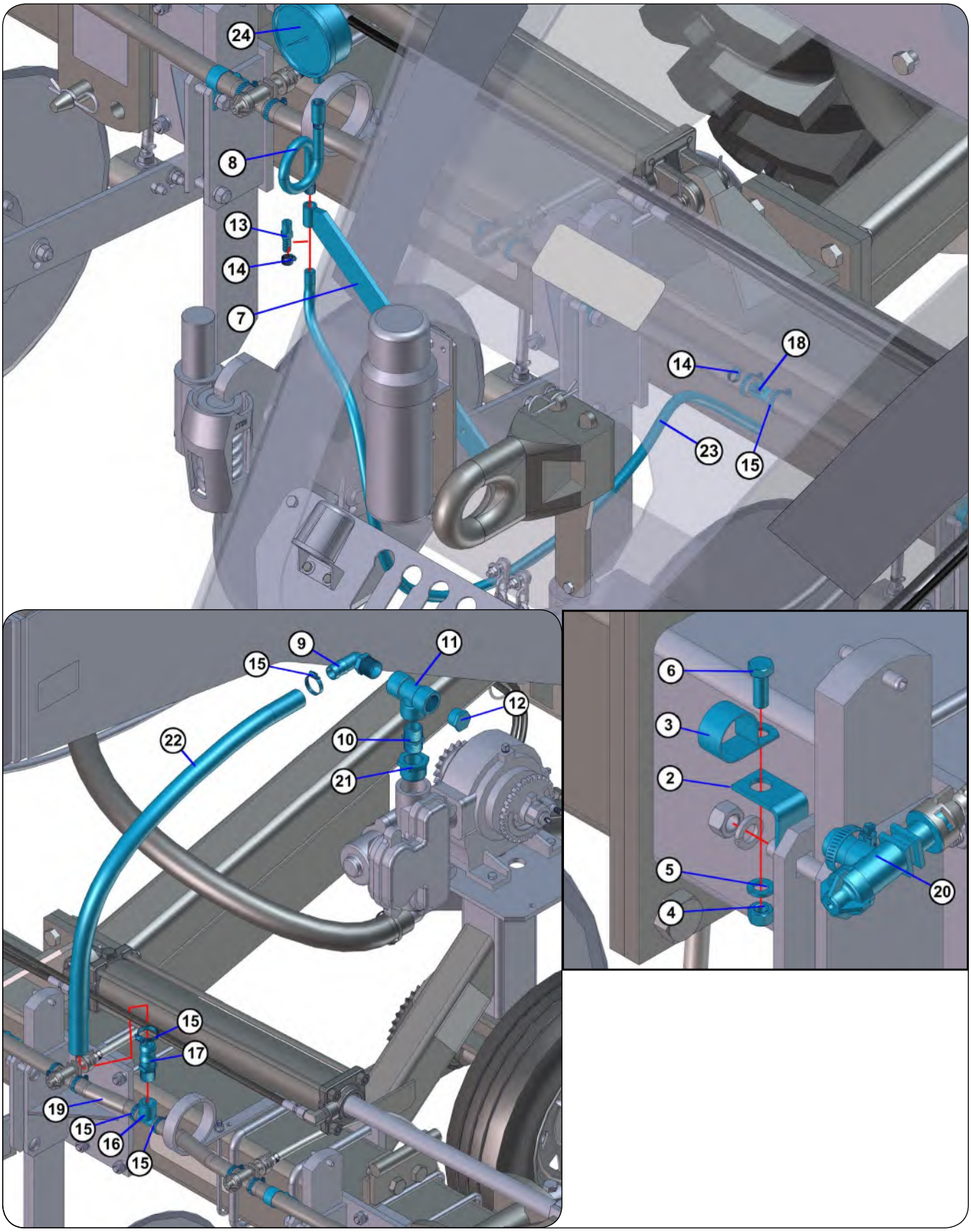
Manifold Liquid Injection Assembly (Standard Toolbar) 11 Row 30" Spacing (J44000159)

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

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	J44000159	Manifold Assembly, AT3015, 3/4" EPDM Hose, 11 Row	
2	11	JAM3628	Bracket, Mounting, Liquid Trunk Line	
3	11	9008246	1 1/4" Hose Support Clamp, 3/8" Bolt	
4	11	900901-006	Hex Nut, 3/8"-16UNC (Stainless Steel)	
5	11	900903-021	Lock Washer, 3/8" (Stainless Steel)	
6	11	900900-055	Capscrew, 3/8"-16UNC x 1" (Stainless Steel)	
7	1	JCM2221	NH3 Gauge Holder, Tongue Mount	
8	1	JCP1999	Gauge Protector, Pigtail	
9	1	TA814966	Elbow, 90°, 1"MP x 1"HB, Poly	
10	1	TA814610	Nipple, Close, 1" Poly	
11	1	TA814782	Tee, 1" FP, Poly	
12	1	TA814752	Plug, 1" PIPE, Poly	
13	1	JCP2308	Hose Barb	
14	2	TA800902	Hose Clamp, Worm Gear, 1/4" - 5/8" Tubing, SS	
15	26	TA800912	Hose Clamp, Worm Gear, 1/2" - 1" Tubing, SS	
16	1	TA810494	Tee, 3/4FP-3/4HB-3/4HB, Poly TTF121212PP	
17	1	TA814863	Hose Barb, 3/4"MP x 1HB, Poly, TA101216PP	
18	1	JCP2470	Tee, 3/8HB-3/4HB-3/4HB, Nylon, TT961212	
19	11	TA806250	Hose, EPDM Rubber, 3/4", 200#	
20	2	TA886010	Diaphragm Check Valve, Single Shank, 3/4 Hose	
21	1	TA814661	Reducer Bushing 1-1/2"MP x 1"FP, Poly	
22	1	TA806275	Hose, EPDM Rubber, 1", 200	
23	1	TA806200	Hose, EVA, 3/8" Braid Jetstream	
24	1	JCP2575	Gauge, 0-160 PSI, 4" Case, 1/4"MPT, Liquid Filled, SS	

Manifold Liquid Injection Assembly (Standard Toolbar) 13 Row 30" Spacing (J44000161)

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



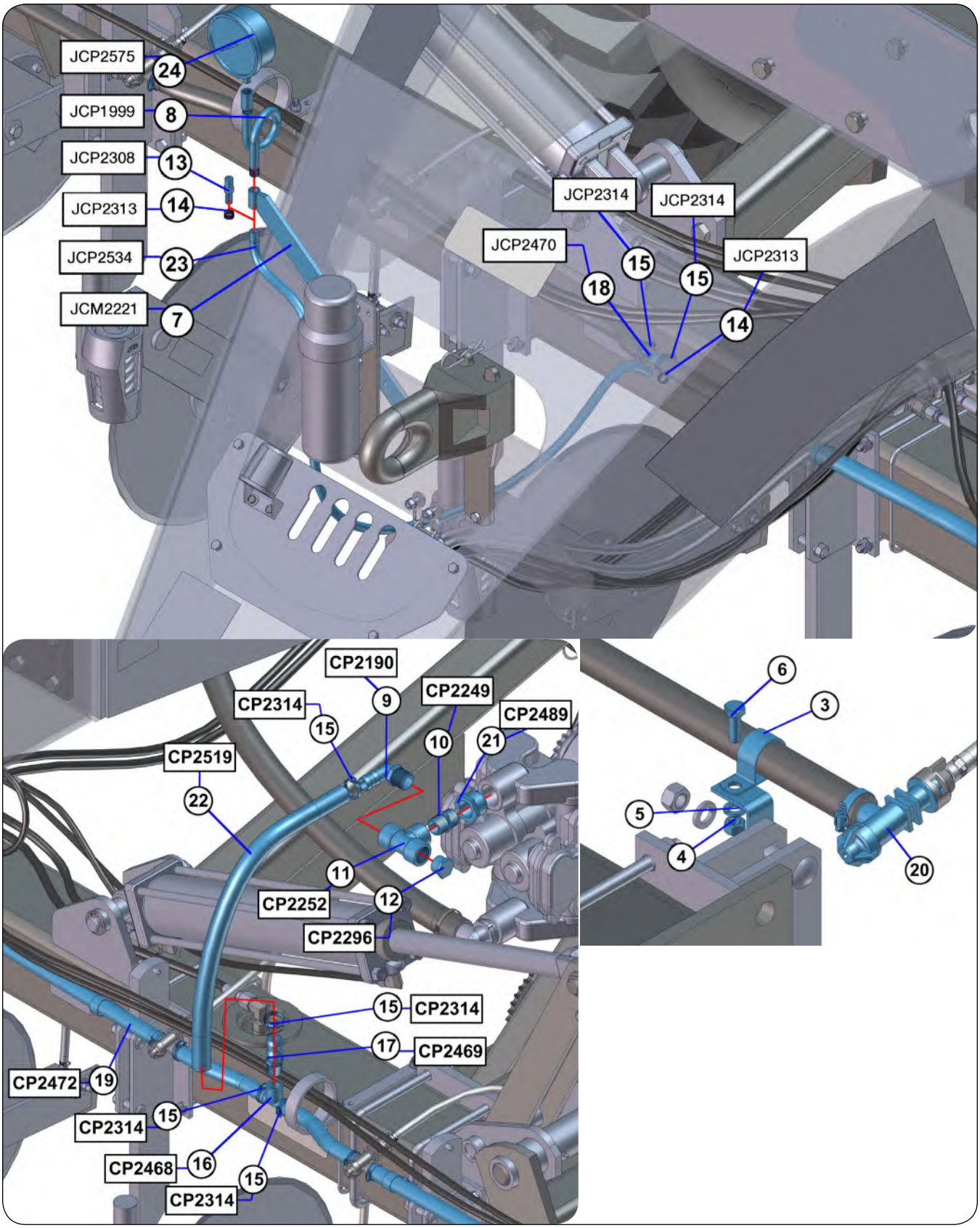
Manifold Liquid Injection Assembly (Standard Toolbar) 13 Row 30" Spacing (J44000161)

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

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	J44000161	Manifold Assembly, AT4000, 3/4" EPDM Hose, 13 Row
2	13	JAM3628	Bracket, Mounting, Liquid Trunk Line
3	13	9008246	1 1/4" Hose Support Clamp, 3/8" Bolt
4	13	900901-006	Hex Nut, 3/8"-16UNC (Stainless Steel)
5	13	900903-021	Lock Washer, 3/8" (Stainless Steel)
6	13	900900-055	Capscrew, 3/8"-16UNC x 1" (Stainless Steel)
7	1	JCM2221	NH3 Gauge Holder, Tongue Mount
8	1	JCP1999	Gauge Protector, Pigtail
9	1	TA814966	90° Hose Barb Poly, 1"-11 1/2 NPTF Male x 1" Hose Shank
10	1	TA814610	Nipple, Close, 1" Poly
11	1	TA814782	Tee, 1"-11 1/2 NPTF Female x 1"-11 1/2 NPTF Female x 1"-11 1/2 NPTF Female
12	1	TA814752	Plug Poly, 1"-11 1/2 NPTF Male
13	1	JCP2308	Hose Barb, 1/4" NPT Male x 3/8" Hose (Stainless Steel)
14	2	TA800902	Hose Clamp, Worm Gear, 1/4" - 5/8" Tubing (Stainless Steel)
15	30	TA800912	Hose Clamp, Worm Gear, 1/2" - 1" Tubing (Stainless Steel)
16	1	TA810494	Tee, 3/4" MPT x 3/4" Hose Barb
17	1	ta814863	Hose Barb, 1" 3/4-14 ANS Blunt Start Taper Pipe
18	1	JCP2470	Tee, 3/8HB-3/4HB-3/4HB, Nylon, TT961212
19	14	TA806250	Hose, EPDM Rubber, 3/4", 200#
20	2	TA886010	Diaphragm Check Valve, Single Shank, 3/4 Hose
21	1	TA814661	Reducer Bushing 1 1/2"MP x 1"FP, Poly
22	1	TA806275	Hose, EPDM Rubber, 1", 200
23	1	TA806200	Hose, EVA,N 3/8" Braid Jetstream
24	1	JCP2575	Gauge, 0-160 PSI, 4" Case, 1/4" MPT, Liquid FillED, SS

Manifold Liquid Injection Assembly (Gull Wing Toolbar) 15 Row 30" Spacing (J33000109)

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



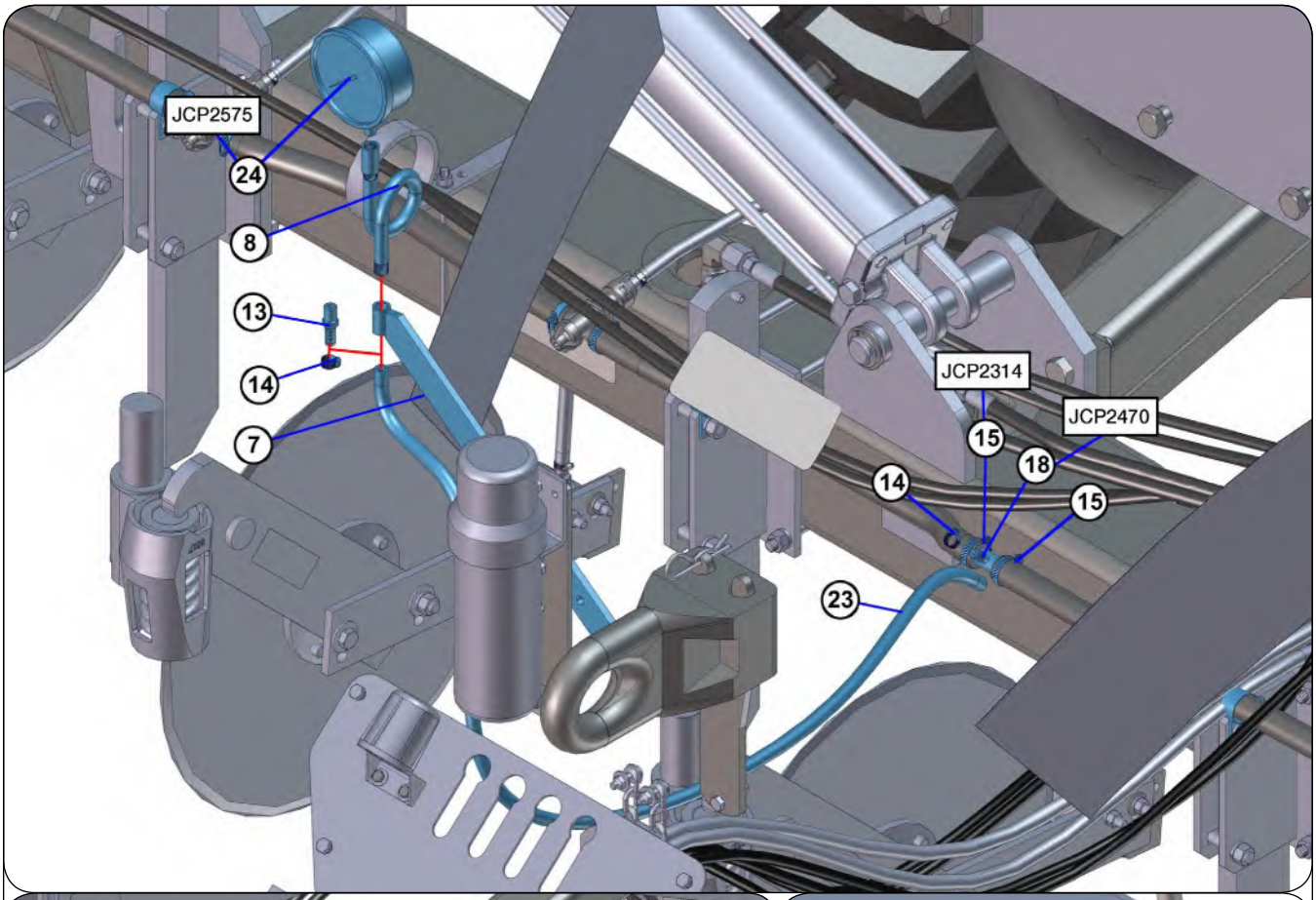
Manifold Liquid Injection Assembly (Gull Wing Toolbar) 15 Row 30” Spacing (J33000109)

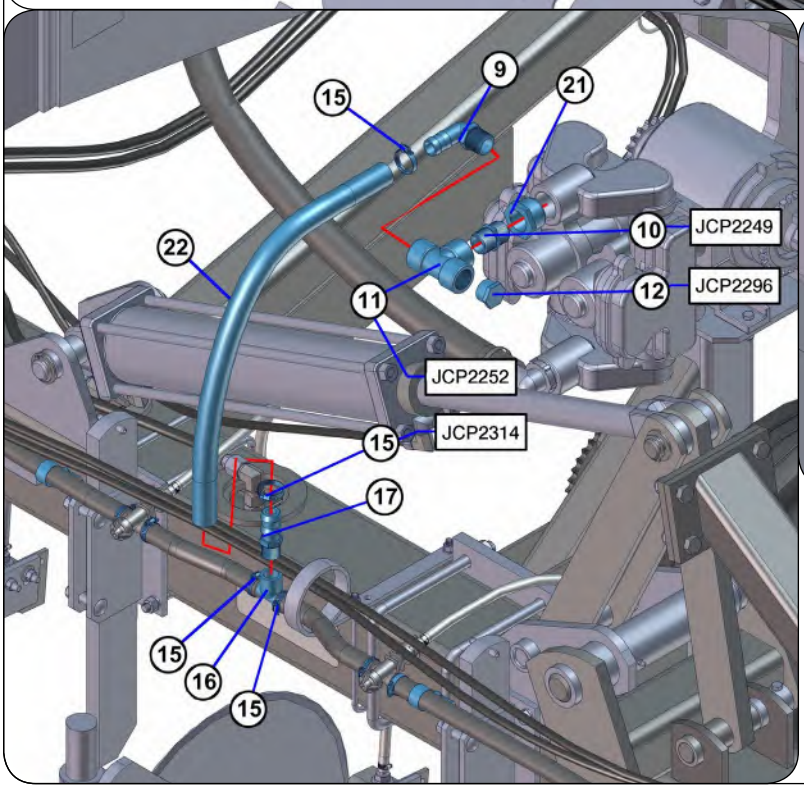
Please visit www.unverferth.com/parts/ for the most current parts listing.

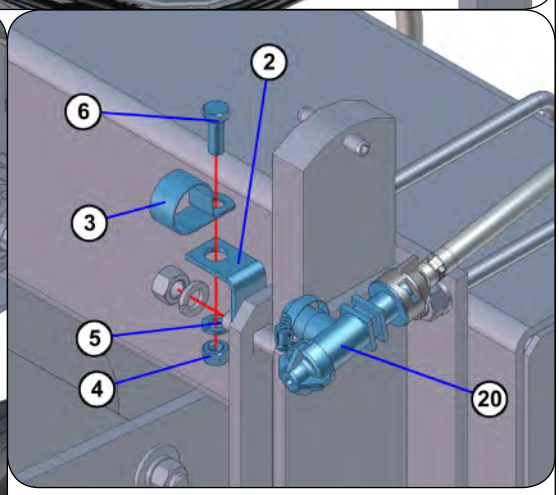
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	J33000109	Manifold Assembly, AT3000, 3/4” EPDM Hose, 15 Row
2	15	JAM3628	Mounting Bracket Liquid Trunk Line
3	15	9008246	1-1/4” Hose Support Clamp, 3/8” Bolt
4	15	900901-006	Hex Nut, 3/8”-16UNC (Stainless Steel)
5	15	900903-021	Lock Washer, 3/8” (Stainless Steel)
6	15	900900-055	Capscrew, 3/8”-16UNC x 1” (Stainless Steel)
7	1	JCM2221	NH3 Gauge Holder, Tongue Mount
8	1	JCP1999	Gauge Protector, Pigtail
9	1	TA814966	90° Hose Barb Elbow, 1”-11 1/2 NPTF Male x 1” Hose Shank
10	1	TA814610	Nipple, Close, 1” Poly
11	1	TA814782	Tee Poly, 1”-11 1/2 NPTF Female x 1”-11 1/2 NPTF Female x 1”-11 1/2 NPTF Female
12	1	TA814752	Plug Poly, 1”-11 1/2 NPTF Male
13	1	JCP2308	Hose Barb, 1/4” NPT Male x 3/8” Hose (Stainless Steel)
14	2	TA800902	Hose Clamp, Worm Gear, 1/4” - 5/8” Tubing, SS
15	34	TA800912	Hose Clamp, Worm Gear, 1/2” - 1” Tubing, SS
16	1	TA810494	Tee, 3/4FP-3/4HB-3/4HB, Poly TTF121212PP
17	1	TA814863	Hose Barb, 3/4”MP x 1HB, Poly, TA101216PP
18	1	JCP2470	Tee, 3/8HB-3/4HB-3/4HB, Nylon, TT961212
19	16	TA806250	Hose, 3/4” Dia. EPDM, 150 PSI
20	2	TA886010	Diaphragm Check Valve, Single Shank, 3/4 Hose
21	1	TA814661	Reducer Bushing 1-1/2”MP x 1”FP, Poly
22	1	TA806275	Hose, EPDM Rubber, 1”, 200
23	1	TA806200	Hose, EVA,N 3/8” Braid Jetstream
24	1	JCP2575	Gauge, 0-160 PSI, 4” Case, 1/4”MPT, Liquid FilIED, SS

Manifold Liquid Injection Assembly (Gull Wing Toolbar) 17 Row 30" Spacing (J33000117)

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







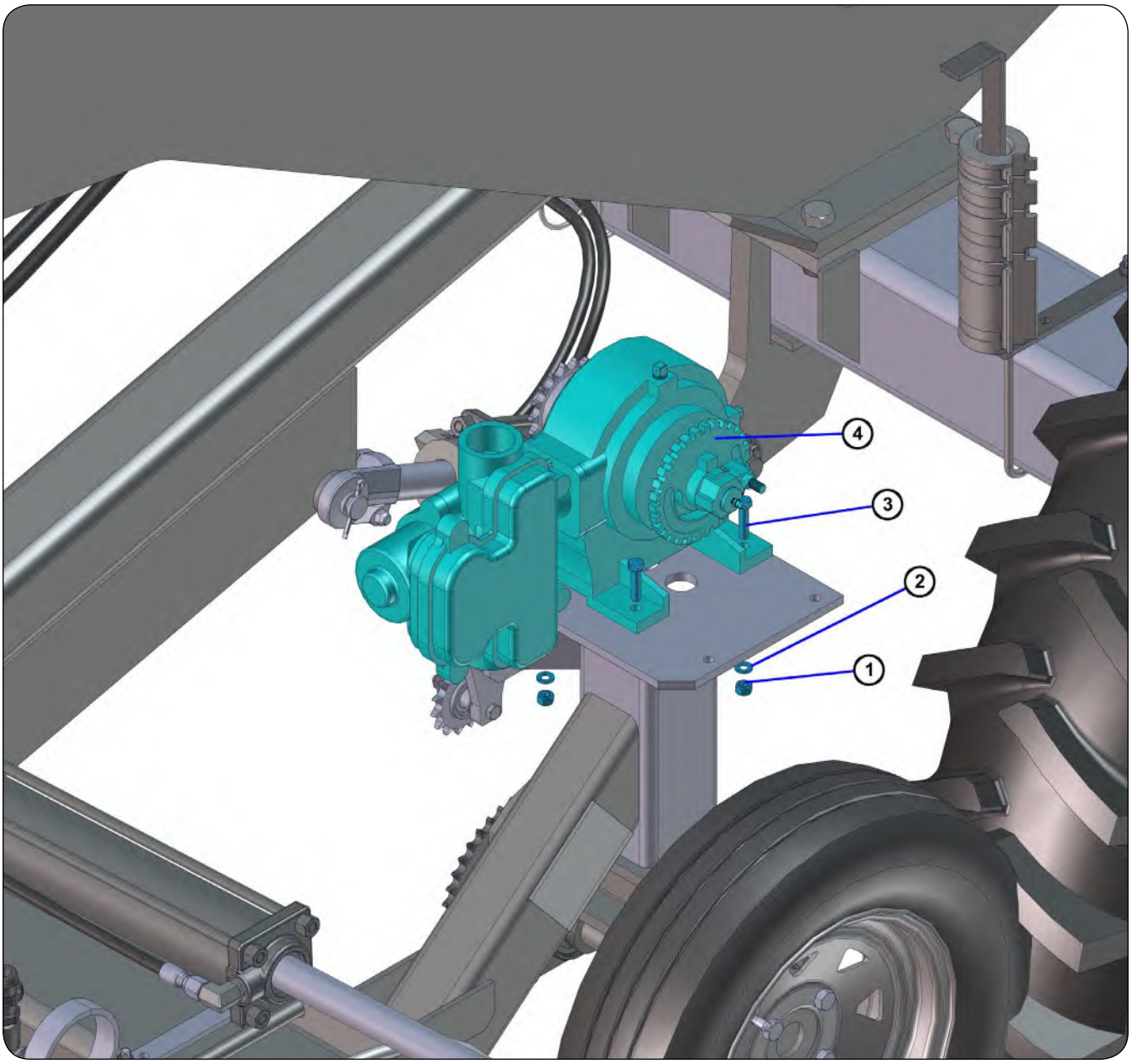
Manifold Liquid Injection Assembly (Gull Wing Toolbar) 17 Row 30” Spacing (J33000117)

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

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	J33000117	Manifold Assembly, AT3015, 3/4” EPDM Hose, 17 Row	
2	17	JAM3628	Bracket, Mounting, Liquid Trunk Line	
3	17	9008246	1 1/4” Hose Support Clamp, 3/8” Bolt	
4	17	900901-006	Hex Nut, 3/8”-16UNC (Stainless Steel)	
5	17	900903-021	Lock Washer, 3/8” (Stainless Steel)	
6	17	900900-055	Capscrew, 3/8”-16UNC x 1” (Stainless Steel)	
7	1	JCM2221	NH3 Gauge Holder, Tongue Mount	
8	1	JCP1999	Gauge Protector, Pigtail	
9	1	TA814966	90° Hose Barb Elbow, 1”-11 1/2 NPTF Male x 1” Hose Shank	
10	1	TA814610	Nipple, Close, 1” Poly	
11	1	TA814782	Tee, 1” FP, Poly	
12	1	TA814752	Plug, 1” PIPE, Poly	
13	1	JCP2308	Hose Barb 1/4” NPT Male x 3/8” Hose (Stainless Steel)	
14	2	TA800902	Hose Clamp, Worm Gear, 1/4” - 5/8” Tubing, SS	
15	38	TA800912	Hose Clamp, Worm Gear, 1/2” - 1” Tubing, SS	
16	1	TA810494	Tee, 3/4FP-3/4HB-3/4HB, Poly TTF121212PP	
17	1	TA814863	Hose Barb, 3/4”MP x 1HB, Poly, TA101216PP	
18	1	JCP2470	Tee, 3/8HB-3/4HB-3/4HB, Nylon, TT961212	
19	18	TA806250	Hose, EPDM Rubber, 3/4”, 200#	
20	2	TA886010	Diaphragm Check Valve, Single Shank, 3/4 Hose	
21	1	TA814661	Reducer Bushing 1-1/2”MP x 1”FP, Poly	
22	1	TA806275	Hose, EPDM Rubber, 1”, 200	
23	1	TA806200	Hose, EVA,N 3/8” Braid Jetstream	
24	1	JCP2575	Gauge, 0-160 PSI, 4” Case, 1/4”MPT, Liquid FillED, SS	

Single Piston Pump, NGP-7055, 34.2 Gallon (JCP2568)

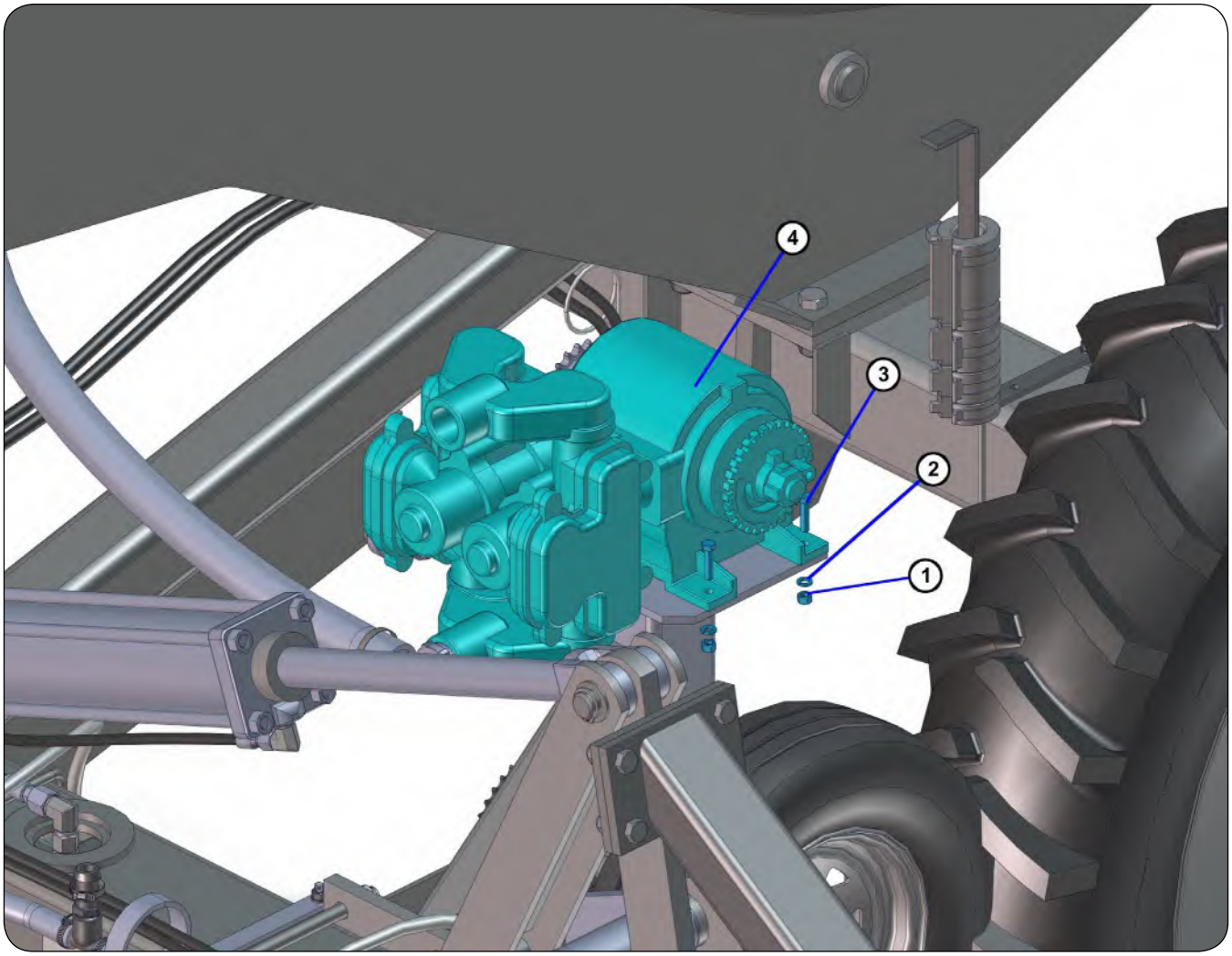
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	9394-006	Hex Nut, 3/8”-16UNC
2	4	9404-021	Lock Washer, 3/8”
3	4	9390-057	Capscrew, 3/8”-16UNC x 1 1/2”, G5
4	1	JCP2568	Pump, Single PISTON, NGP-7055, 34.2 GALLON
		9503890	Pump, Single PISTON, NGP-7055-S-BLK, 34.2 GALLON (Stainless Steel)

Twin Piston Pump, NGP-9055, 68.4 Gallon (JCP2569)

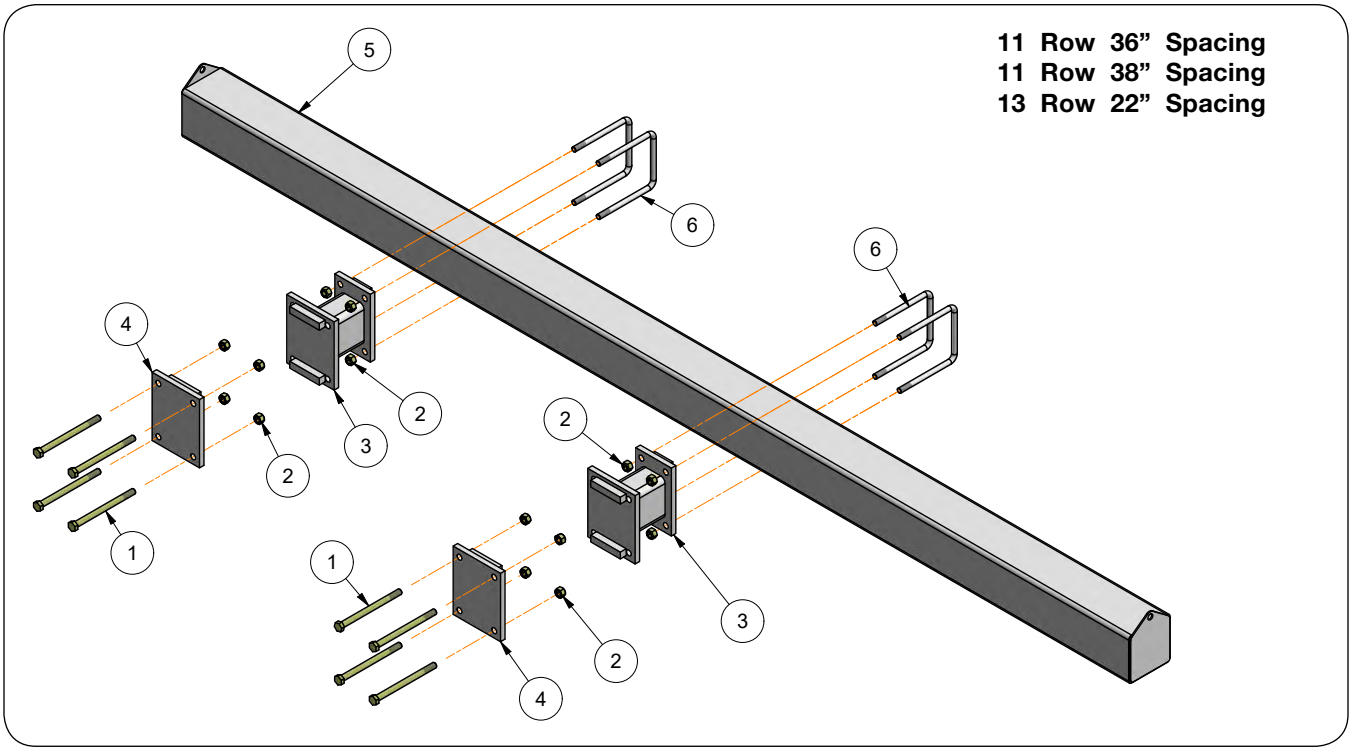
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	9394-006	Hex Nut, 3/8”-16UNC
2	4	9404-021	Lock Washer, 3/8”
3	4	9390-057	Capscrew, 3/8”-16UNC x 1 1/2”, G5
4	1	JCP2569	Pump, TWIN PISTON, NGP-9055, 68.4 GALLON
		9503891	Pump, TWIN PISTON, NGP-9055-S-BLK, 68.4 GALLON (Stainless Steel)

Bolt-On Coulter Bar (JAAM2908)

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

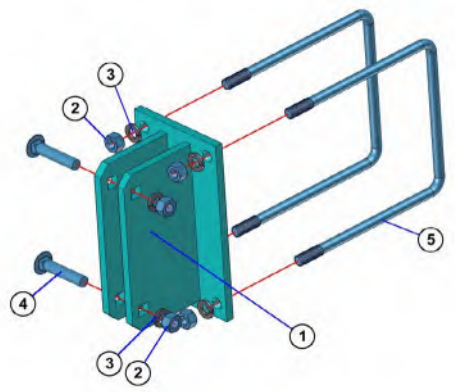


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	JAAM2908	Bolt-On Coulter Bar Assembly	-	
1	9390-450	Capscrew, 3/4"-10UNC x 10" G5	8	
2	9802	Lock Nut, 3/4"-10UNC	16	
3	JAM3577	Mounting Bracket	2	
4	JAM3578	Backing Plate	2	
5	JAM3581	Bolt-On Toolbar Weldment	1	
6	JBP3058	U-Bolt, 3/4"-10UNC x 9", 7 13/16" C/C G5	4	

Coulter Flatback 7” x 7” Centered Assembly (JAAM2821)

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

9 Row 36”/38” Spacing
11 Row 30”/36”/38” Spacing
13 Row 22”/30” Spacing
15 Row 20”/30” Spacing
17 Row 30” Spacing

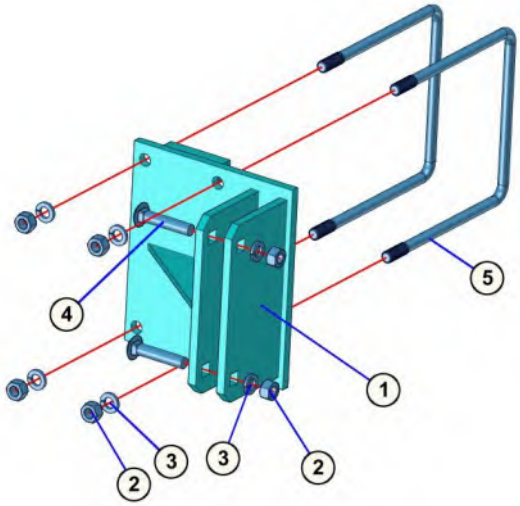


ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	JAM4425	Bracket, Flatback, 7” x 7”, Centered	
2	6	9394-010	Hex Nut, 1/2”-13UNC	
3	6	9404-025	Lock Washer, 1/2”	
4	2	9388-108	Carriage Bolt, 1/2”-13UNC x 2 1/2”, G5	
5	2	JBP3356	U-Bolt, 1/2”-13UNC x 7”W x 8 1/4”L	

Coulter Flatback 7” x 7” Offset Assembly (JAAM2822)

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

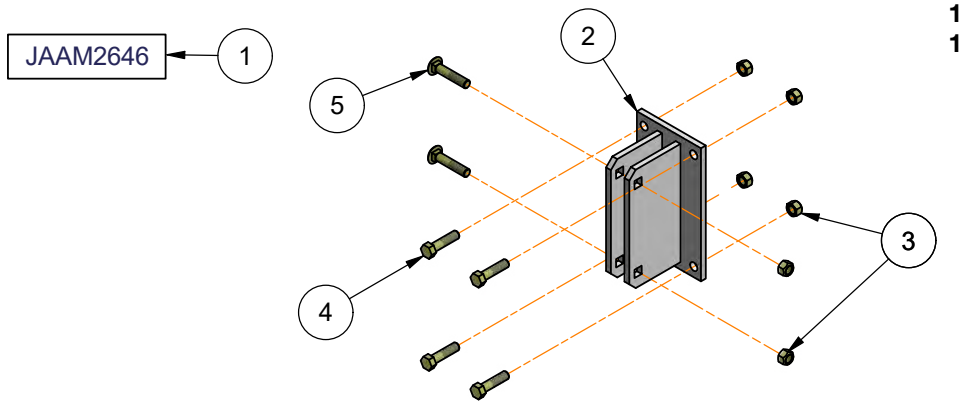
11 Row 36”/38” Spacing
15 Row 20” Spacing



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	JAM4425	Bracket, Flatback, 7” x 7”, Centered	
2	6	9394-010	Hex Nut, 1/2”-13UNC	
3	6	9404-025	Lock Washer, 1/2”	
4	2	9388-108	Carriage Bolt, 1/2”-13UNC x 2 1/2”, G5	
5	2	JBP3356	U-Bolt, 1/2”-13UNC x 7”W x 8 1/4”L	

Coulter Flatback Centered Mounting Bracket (JAAM2646)

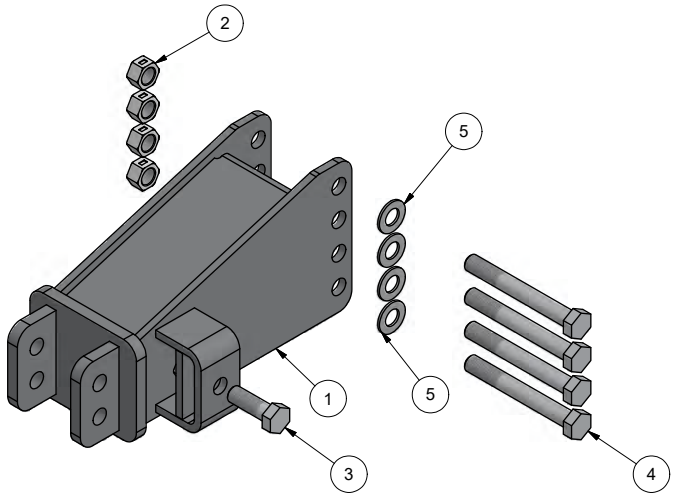
Please visit www.unverferth.com/parts/ for the most current parts listing.



15 Row 30" Spacing
17 Row 30" Spacing

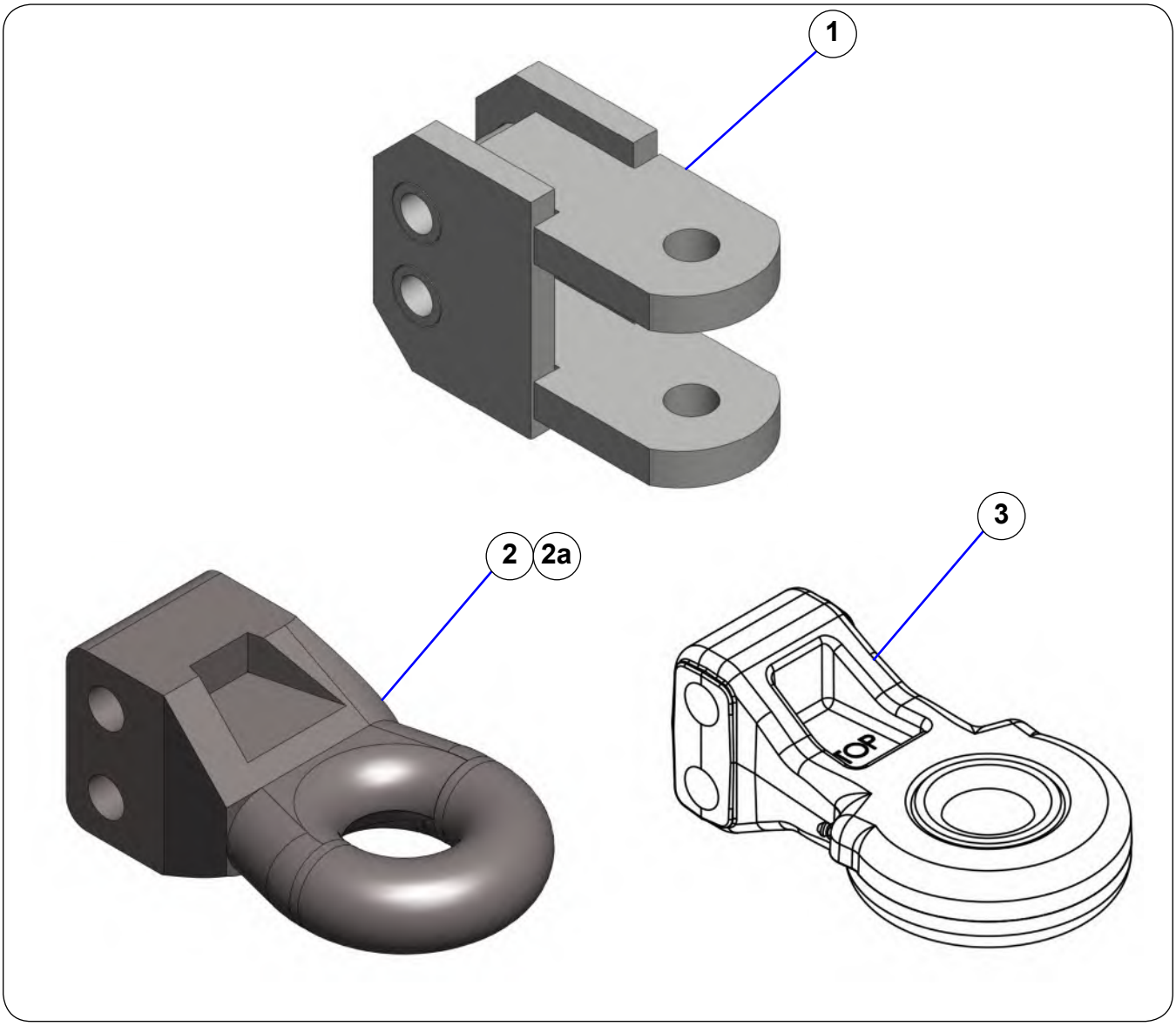
ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	JAAM2646	Coulter Flatback Centered Mounting Bracket Assembly	1	Includes Items 2-5
2	JAM4425	Coulter Flatback Centered Mounting Bracket Weldment	1	
3	9800	Lock Nut, 1/2"-13UNC	6	
4	9390-103	Capscrew, 1/2"-13UNC x 2" G5	4	
5	9388-108	Carriage Bolt, 1/2"-13UNC x 2 1/2" G5	2	

18" Hitch Extension Option (45764BB)



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	410887BB	Hitch Extension Weldment	1	
2	92199	Lock Nut/Center, 1"-8UNC	5	
3	9390-187	Capscrew, 1"-8UNC x 3"	1	
4	9390-199	Capscrew, 1"-8UNC x 8"	4	
5	9405-116	Flat Washer, 1" SAE	4	

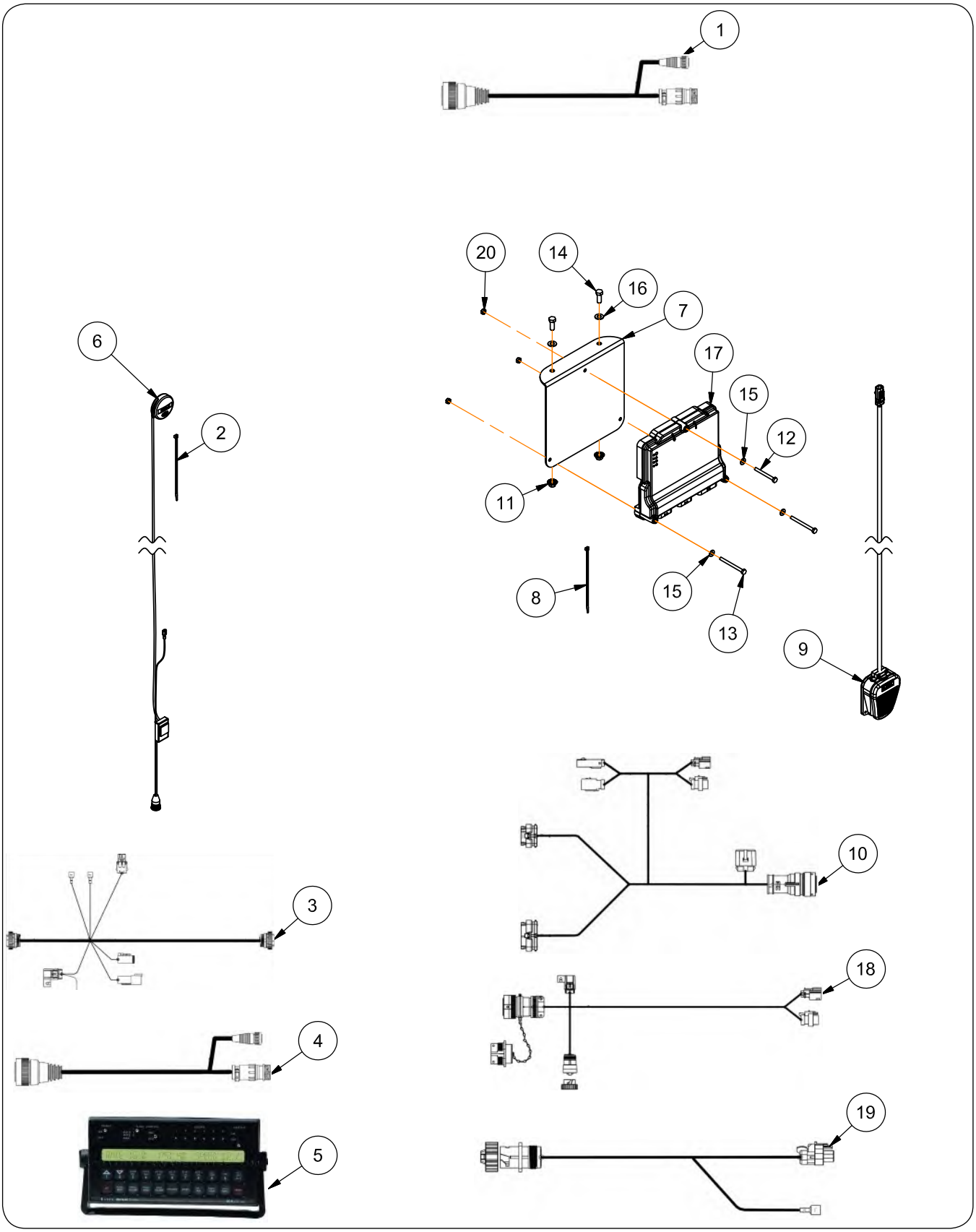
Hitches



ITEM	QTY	PART NUMBER	DESCRIPTION	NOTES
1.	1	JAM2144	Clevis Hitch	
2.	1	JAP2864	CATEGORY 4 Heat Treated Cast Wheatland Hitch 250-400+ HP 2” Pin	
2a.	1	JAP2850	CATEGORY 3 Heat Treated Cast Wheatland Hitch 110-250 HP 1 1/2” Pin	
3	1	JAP3232	CATEGORY 4 Ball Swivel Hitch, 2” Pin	

Controller Components

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



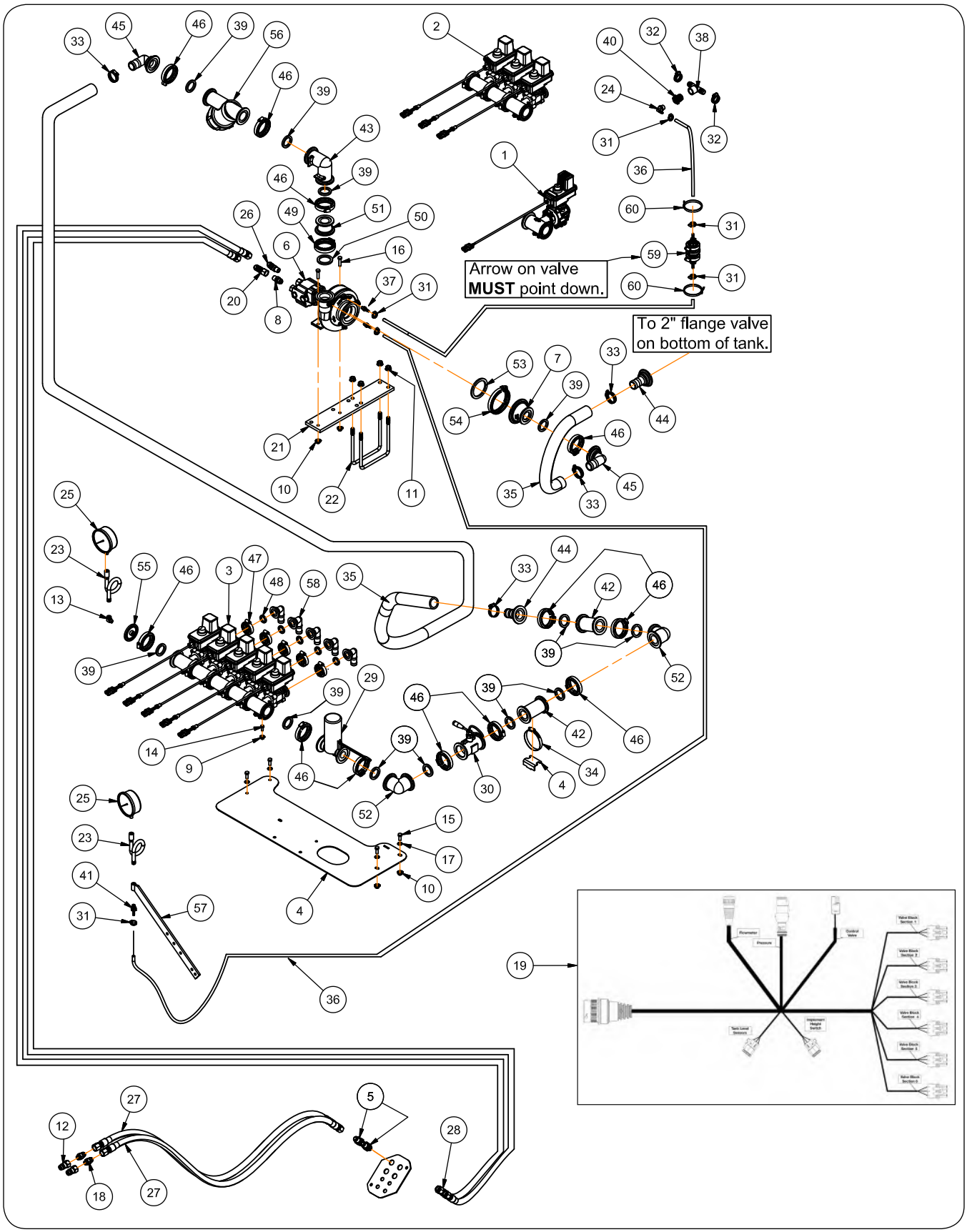
Controller Components

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

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	9503471	Wire Harness 30 Ft. 16-Pin Console to 47-Pin Connector	1	Less Rate Controller
2	9000106	Cable Tie 7 1/2"	6	Raven 450 Controller
3	9007549	Console Harness (450 Controller)	1	
4	9503471	Wire Harness 30 Ft. 16-Pin Console to 47-Pin Connector	1	
5	TA720315	Control Console, Raven SCS 450	1	
6	TA723025	Astro GPS Speed Sensor w/3-Pin Raven Conxall	1	
7	44440B	Mounting Bracket Plate	1	ISOBUS Controller
8	9000106	Cable Tie 7 1/2"	6	
9	9005916	Foot Switch, ISO Node w/Harness	1	
10	9008095	Wire Harness, RCM ECU 47 Pin Rate	1	
11	91263	Nut/Large Flange, 3/8"-16UNC	2	
12	9390-011	Capscrew, 1/4"-20UNC x 2 1/2" G5	1	
13	9390-013	Capscrew, 1/4"-20UNC x 3" G5	2	
14	9390-055	Capscrew, 3/8"-16UNC x 1" G5	2	
15	9405-062	Flat Washer, 1/4" SAE	3	
16	9405-074	Flat Washer, 3/8" SAE	2	
17	9503386	Rate Control Module NH3	1	
18	9503387	Wire Harness, 12 Ft. Adapter 9-Pin IBIC to Gen 1, Hitch Cable	1	
19	9503390	Wire Harness, Foot Switch 23 Ft.	1	
20	9936	Lock Nut, 1/4"-20UNC	3	

ACE 205 Variable Rate Pump

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



ACE 205 Variable Rate Pump

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

ITEM	PART NUMBER	DESCRIPTION	QTY			NOTES
			1 Section	3 Section	5 Section	
1	9503464	Ball Valve Flanged Single 490 Series	1	-	-	See "Ball Valve Components"
2	TA854833	Ball Valve Flanged 450 BEC (3-Section)	-	1	-	
3	TA854835	Ball Valve Flanged 450 BEC (5-Section)	-	-	1	
4	44804BB	Valve Mounting Bracket	1	1	1	
5	9005789	Union, Bulkhead 7/8"-14UNF	2	2	2	
6	9005841	ACE 205 Hydraulic Pump	1	1	1	
7	9007201	Reducer Coupler, 3" Flange x 2" Flange	1	1	1	
8	9123	Adapter, 7/8"-14 JIC Male x 1/2"-14 NPTF Male	1	1	1	
9	91257	Large Flange Hex Nut, 5/16"-18UNC	1	2	2	
10	91263	Large Flange Nut, 3/8"-16UNC	6	6	6	
11	91267	Flange Nut, 1/2"-13UNC	4	4	4	
12	91383	Male Tip Coupling 3/4"-16	2	2	2	
13	91432	90° Elbow, 1/4-18 NPTF Male x 1/4-18 NPTF Female	1	1	1	
14	9390-028	Capscrew, 5/16"-18UNC x 3/4" G5	1	2	2	
15	9390-055	Capscrew, 3/8"-16UNC x 1" G5	4	4	4	
16	9390-057	Capscrew, 3/8"-16UNC x 1 1/2" G5	2	2	2	
17	9405-074	Flat Washer, 3/8" SAE	4	4	4	
18	9503026	Adapter, 7/8"-14 JIC Male x 3/4"-16 O-Ring Male	2	2	2	
19	9503472	Wire Harness 6 Ft. Flow Cable	1	1	1	
20	96559	90° Elbow, 7/8"-14 JIC Male x 7/8"-14 JIC Female	1	1	1	
21	JAM3672	Centrifugal Pump Mounting Plate	1	1	1	
22	JBP3357	U-Bolt, 1/2"-13UNC x 7 1/4", 6 9/16" C/C G5	2	2	2	
23	JCP1999	Pigtail Gauge Protector	1	1	1	
24	JCP2085	90° Elbow, 1/2"-14 NPT Male x 1/4" Hose Barb	1	1	1	
25	JCP2575	Gauge 4" Liquid Filled (SS)	1	1	1	
26	JDP4016	90° Elbow, 7/16"-14 JIC Male x 1/2"-14 NPTF Male	1	1	1	
27	JDP5281	Hose, 5/8" Dia. x 84" (2 Wire)	2	2	2	
28	JDP5353	Hose, 5/8" Dia. x 132" (2 Wire)	2	2	2	
29	TA720258	Flow Control Valve 1"	1	1	1	
30	TA720365	Flow Meter Complete	1	1	1	
31	TA800902	Hose Clamp 7/8", M-6 (SS)	6	6	6	
32	TA800912	Hose Clamp 13/16" - 1 1/2" (SS)	2	2	2	
33	TA800916	Hose Clamp SC-24 (SS)	2	2	2	

(continued on next page)

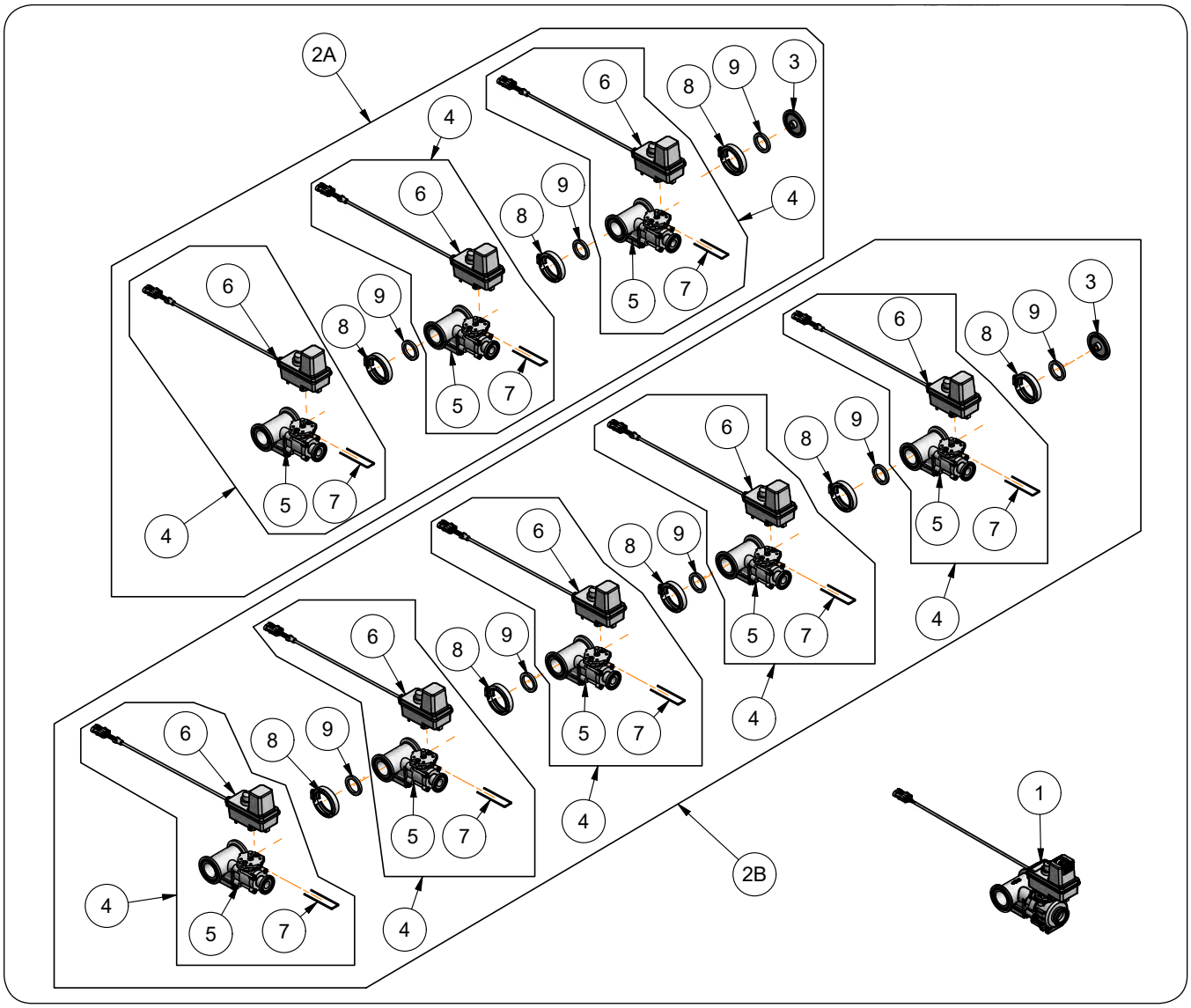
ACE 205 Variable Rate Pump (continued)

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

ITEM	PART NUMBER	DESCRIPTION	QTY			NOTES
			1 Section	3 Section	5 Section	
34	TA800926	Worm Drive Hose Clamp (1 3/4" - 3 3/4") (SS)	1	1	1	
35	TA806325	Hose, 1 1/2" EPDM, 200 PSI	5 Ft.	5 Ft.	5 Ft.	
36	TA806420	14 1/4" EVA Hose	26 Ft.	26 Ft.	26 Ft.	
37	TA810040	Hose Barb, 1/8" MPT x 1/4" Hose Shank	2	2	2	
38	TA810494	Tee, 3/4"-14 NPT Female x 3/4" Hose Barb x 3/4" Hose Barb	1	1	1	
39	TA811944	Gasket, 2 3/16" OD x 1 5/8" ID x .25"	11	10	10	
40	TA814653	Reducer Bushing Poly, 3/4-14 NPTF Male x 1/2-14 NPTF Female	1	1	1	
41	TA814845	Hose Barb, 1/4-18 MPT x 1/4" Hose Shank	1	1	1	
42	TA815003	Coupling Poly, 2" Flange x 2" Flange	2	2	2	
43	TA815004	90° Elbow, 2" Flange x 2" Flange	1	1	1	
44	TA815015	Hose Barb, 2" Flange x 1 1/2" Hose Shank	1	1	1	
45	TA815020	90° Elbow, 2" Flange x 1 1/2" Hose Barb	2	2	2	
46	TA815025	2" Worm Screw Flange Clamp	11	10	10	
47	TA815026	Flange Clamp 1" Worm Screw	1	3	5	
48	TA815029	Gasket/Seal 1 3/8" x 1" x 1/4"	1	3	5	
49	TA816000	Clamp 2" Full Port Flange	1	1	1	
50	TA816001	Gasket 2" Full Port Flange	1	1	1	
51	TA816007	Reducer Coupling, 2" Full Flange x 2" Std Flange	1	1	1	
52	TA816017	90° Elbow, 2" Flange x 2" Flange	2	2	2	
53	TA816038	Gasket, 3"	1	1	1	
54	TA816039	Clamp Worm Screw, 3" Flange	1	1	1	
55	TA883114	Plug, 2" Flanged w/ 1/4" FPT Gauge Port	1	1	1	
56	JCP2050	Line Strainer "Y" (Less Screen)	1	1	1	
	TA811983	30 Mesh Screen	1	1	1	
57	JCM2221	Gauge Holder Weldment	1	1	1	
58	TA815018	90° Elbow, 1" Flange x 1" Hose Barb	1	-	-	
	TA815017	90° Elbow, 1" Flange x 3/4" Hose Barb	-	3	5	
59	46003	Air Vent Assembly	1	1	1	
60	9000104	Cable Tie, 21 1/2"	2	2	2	

Ball Valve Components

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



ITEM	PART NUMBER	DESCRIPTION	QTY			NOTES
			1 Section	3 Section	5 Section	
1	9503464	Ball Valve Flanged Single 490 Series	1	-	-	
2A	TA854833	Ball Valve Flanged 450 BEC (3-Section)	-	1	-	Includes Items 3-9
2B	TA854835	Ball Valve Flanged 450 BEC (5-Section)	-	-	1	Includes Items 3-9
3	TA883114	Plug, 2" Flanged w/ 1/4" FPT Gauge Port	-	1	1	
4	TA854831	Ball Valve, Flanged 440/450 Single	-	3	5	Includes Items 5-7
5	901998	Ball Valve Assembly	-	1	1	
6	TA854874	Shutoff Ball Valve Motor Head	-	1	1	
7	TA854875	Retainer Clip	-	1	1	
8	TA815025	Worm Screw Flange Clamp 2"	-	3	5	
9	TA811944	Gasket, 2 3/16" OD x 1 5/8" ID	-	3	5	

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