

Farm King

OPERATOR AND PARTS MANUAL

Fertilizer Applicator

Model 1860 and 2460



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Manufacturer’s Statement: For technical reasons, Buhler Industries Inc. reserves the right to modify machinery design and specifications provided herein without any preliminary notice. Information provided herein is of descriptive nature. Performance quality may depend on soil fertility, applied agricultural techniques, weather conditions and other factors.

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WARRANTY REGISTRATION FORM

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer Name:

Dealer Name:

Customer Address:

Dealer Address:

City:

Prov / State:

City:

Prov / State:

Postal / Zip Code:

Phone:

Postal / Zip Code:

Phone:

Fertilizer Applicator Model:

Serial Number:

Delivery Date:

I have thoroughly instructed the buyer on the above described equipment which review included the Operator and Parts Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Dealer Inspection Report

- Toolbar Moves Up / Down Freely
- Inner And Outer Wings Fold / Extend Freely
- Wheel Bolts Are Tight
- Monitors Function Correctly
- Hydraulic & Application Hoses And Fittings Tight
- All Fasteners Are Tight
- Lubricate Machine
- Check Tire Pressure

Safety

- All Lights And Reflectors Installed
- All Lights And Reflectors Cleaned And Working
- Safety Chain On Hitch
- All Decals Installed
- Guards And Shields Installed And Secure
- Review Operating And Safety Instructions
- Check For Hydraulic Leaks

Date:

Dealer Rep. Signature:

The above equipment and Operator And Parts Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date:

Customer / Owner's Signature:

Remove this Warranty Registration Form from the Operator And Parts Manual. Make two copies of the form. Send original Warranty Registration Form to Farm King. Give one copy to the customer and the dealer will keep one copy.

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INTRODUCTION

This Operator And Parts Manual was written to give the owner / operator instructions on the safe operation, maintenance and part identification of the Farm King equipment. **READ AND UNDERSTAND THIS OPERATOR AND PARTS MANUAL BEFORE OPERATING YOUR FARM KING EQUIPMENT.** If you have any questions, see your Farm King dealer. This manual may illustrate options and accessories not installed on your Farm King equipment.

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OWNER'S INFORMATION

Thank you for your decision to purchase a Farm King 1860 / 2460 Fertilizer Applicator. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator And Parts Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and / or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator And Parts Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

Farm King is continually working to improve its products. Farm King reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Farm King makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Farm King assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

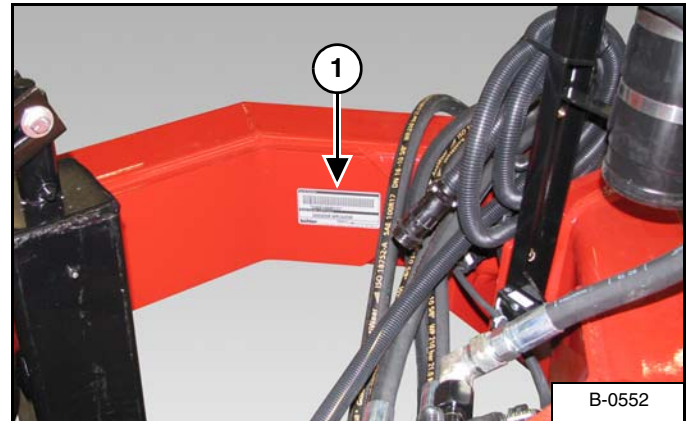
Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Farm King Dealer if you need assistance, information, or additional copies of the manual. Visit our website at www.farm-king.com for a complete list of dealers in your area.

The directions left, right, front and rear, as mentioned throughout this manual, are as viewed by the operator sitting in the tractor seat while towing the applicator.

Serial Number Location

Please enter the model and serial number in the space provided for easy reference.

Figure 1



Model Number: _____

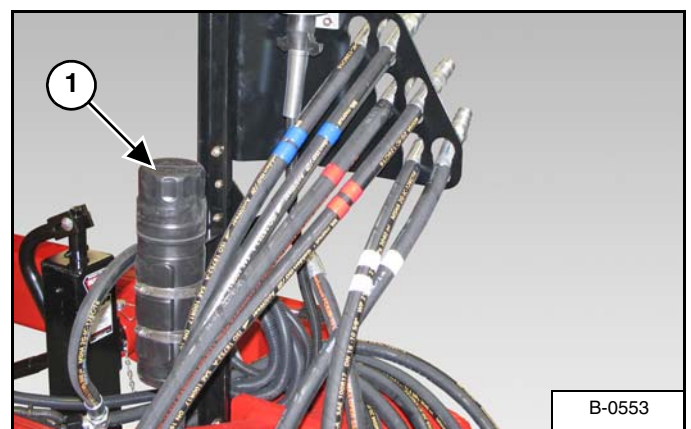
Serial Number: _____

The serial number plate (Item 1) [Figure 1] is located on the lower left hitch frame, forward of the jack.

Always use your serial number when requesting information or when ordering parts.

Manual Storage

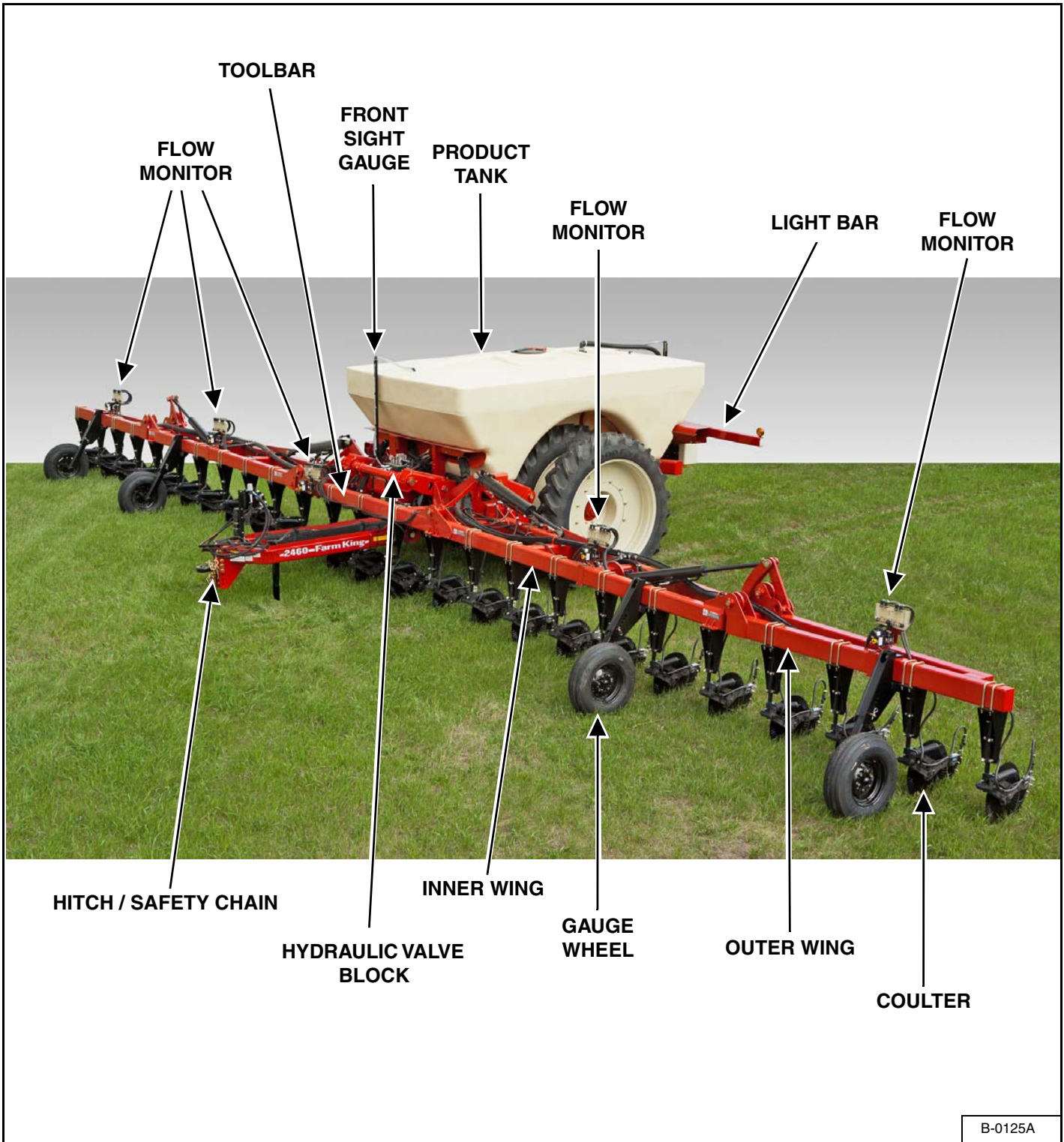
Figure 2



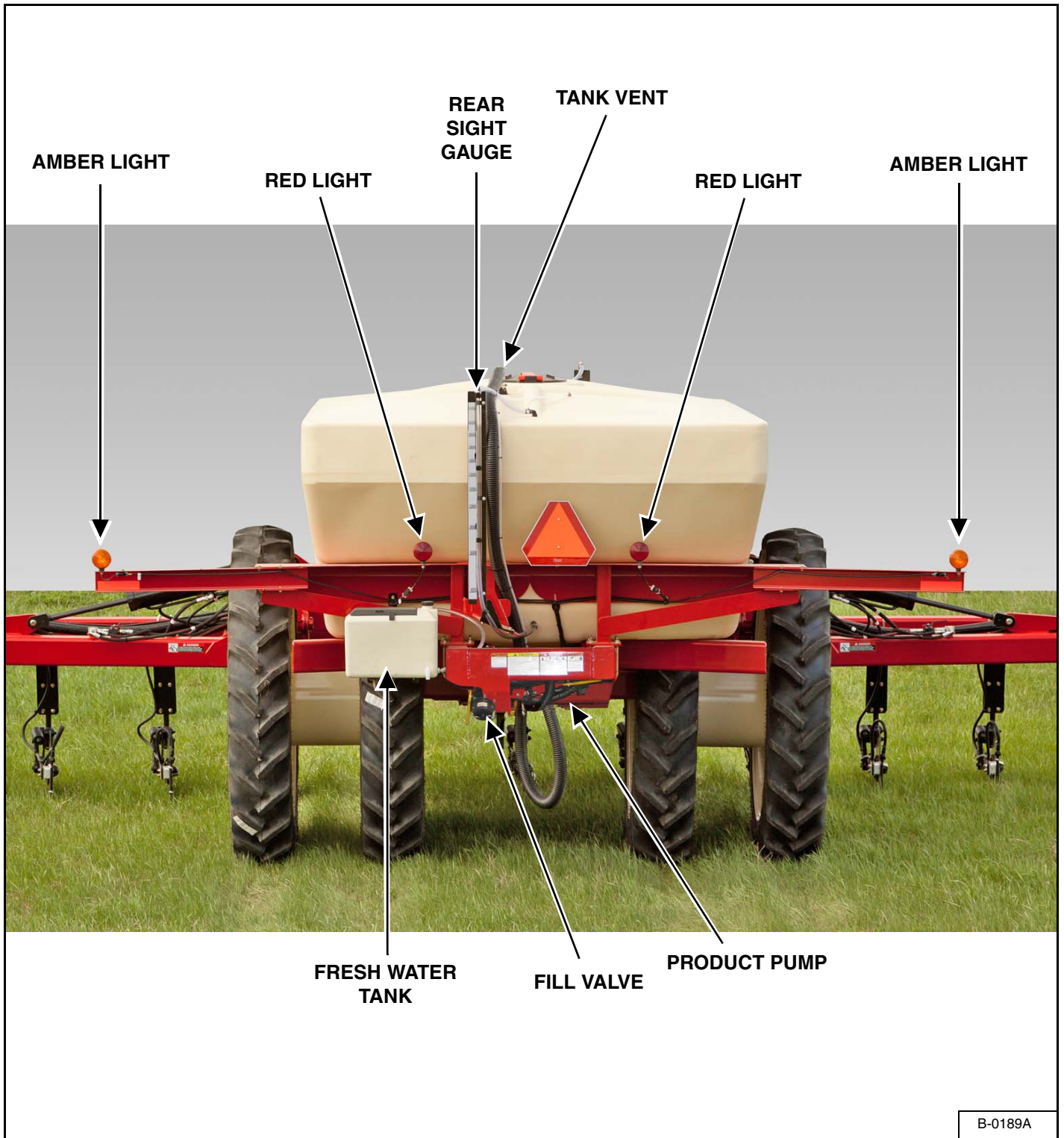
The operator and parts manual and other documents can be stored in the canister (Item 1) [Figure 2] located behind the hitch on the front of the fertilizer applicator.

EQUIPMENT IDENTIFICATION

Component Location



Component Location



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SAFETY INSTRUCTIONS

Safe Operation Is The Operator’s Responsibility

	<p>Safety Alert Symbol</p>
<p>This symbol with a warning statement means: “Warning, be alert! Your safety is involved!” Carefully read the message that follows.</p>	



CAUTION

The signal word **CAUTION** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



DANGER

The signal word **DANGER** on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

The signal word **WARNING** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.

Safe Operation Needs A Qualified Operator



WARNING

Operators must have instructions before operating the machine. Untrained operators can cause injury or death.

For an operator to be qualified, he or she must not use drugs or alcohol which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

A Qualified Operator Must Do The Following:

Understand the Written Instructions, Rules and Regulations

- The written instructions from Farm King include the Warranty Registration, Dealer Inspection Report, Operator And Parts Manual and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer’s work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.

Have Training with Actual Operation

- Operator training must consist of a demonstration and verbal instruction. This training is given by the machine owner prior to operation.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine safely under all conditions of the work area. Always fasten seat belt before operating.

Know the Work Conditions

- Clear working area of all bystanders, especially small children and all obstacles that might be hooked or snagged, causing injury or damage.
- Know the location of any overhead or underground power lines. Call local utilities and have all underground power lines marked prior to operation.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service.

Use Safety Rules

- Read and follow instructions in this manual and the tractor's Operators Manual before operating.
- Read chemical manufacturers warnings, instructions and Procedures before starting and follow them exactly.
- Under no circumstances should young children be allowed to work with this equipment.
- This equipment is dangerous to children and persons unfamiliar with its operation.
- If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
- Check for overhead and / or underground lines before operating equipment (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the equipment is securely fastened to the tractor / towing vehicle.
- Make sure all the machine controls are in the NEUTRAL position before starting the machine.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator And Parts Manual.
- When learning to operate the equipment, do it at a slow rate in an area clear of bystanders, especially small children.
- DO NOT permit personnel to be in the work area when operating the equipment.
- The equipment must be used ONLY on approved tractors / transport vehicles.
- DO NOT modify the equipment in any way. Unauthorized modification may impair the function and / or safety and could affect the life of the equipment.
- Stop tractor engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or filling.
- DO NOT make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.
- Keep hands, feet, hair and clothing away from all moving parts.

Transport Safety

- Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- Do not transport with fluid in the tank.
- Close lock valves in hydraulic transport and work circuits before transporting.
- Always install transport locks, pins or brackets before transporting.
- Always yield to oncoming traffic in all situations and move to the side of the road so any following traffic may pass.
- Always enter curves or drive up or down hills at a low speed and at a gradual steering angle.
- Never allow riders on either tractor or equipment.
- Keep tractor / towing vehicle in a lower gear at all times when traveling down steep grades.
- Maintain proper brake settings at all times (if equipped).

Machine Requirements And Capabilities

- Fasten seat belt securely. If equipped with a foldable Roll-Over Protective Structure (ROPS), only fasten seat belt when ROPS is up and locked. DO NOT wear seat belt if ROPS is down.
- Machine's three-point hitch must be equipped with sway bars or chains.
- Stop the machine and engage the parking brake. Install blocks in front of and behind the rear tires of the machine. Install blocks underneath and support the equipment securely before working under raised equipment.
- Keep bystanders clear of moving parts and the work area. Keep children away.
- Use increased caution on slopes and near banks and ditches to prevent overturn.
- Make certain that the Slow Moving Vehicle (SMV) emblem is installed so that it is visible and legible. When transporting the equipment, use the flashing warning lights (if equipped) and follow all local regulations.
- Operate this equipment with a machine equipped with an approved Roll-Over Protective Structure (ROPS). Always wear seat belt when the ROPS is up. Serious injury or death could result from falling off the machine.
- Before leaving the operator's position:
 1. Always park on a flat level surface.
 2. Place all controls in neutral.
 3. Engage the parking brake.
 4. Stop engine.
 5. Wait for all moving parts to stop.
- Carry passengers only in designated seating areas. Never allow riders on the machine or equipment. Falling off can result in serious injury or death.
- Start the equipment only when properly seated in the operator's seat. Starting a machine in gear can result in serious injury or death.
- Operate the machine and equipment from the operator's position only.
- The parking brake must be engaged before leaving the operator's seat. Rollaway can occur because the transmission may not prevent machine movement.

FIRE PREVENTION



Maintenance

The machine and some equipment have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard.

The operator's area, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.

All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Operation

The Farm King machine must be in good operating condition before use.

Check all of the items listed on the service schedule under the 8 hour column. (See "SERVICE SCHEDULE" on page 64.)

Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.

Starting

Do not use ether or starting fluids on any engine that has glow plugs. These starting aids can cause explosion and injure you or bystanders.

Use the procedure in the tractor's operator's manual for connecting the battery and for jump starting.

Electrical



Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.

Battery gas can explode and cause serious injury. Do not jump start or charge a frozen or damaged battery. Keep any open flames or sparks away from batteries. Do not smoke in battery charging area.

Hydraulic System

Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

Fueling



Stop the engine and let it cool before adding fuel. No smoking! Do not refuel a machine near open flames or sparks. Fill the fuel tank outdoors.

Spark Arrester Exhaust System

The spark arrester exhaust system is designed to control the emission of hot particles from the engine and exhaust system, but the muffler and the exhaust gases are still hot.

Check the spark arrester exhaust system regularly to make sure it is maintained and working properly. Use the procedure in the machine's Operator And Parts Manual for cleaning the spark arrester muffler (if equipped).

Welding And Grinding

Always clean the machine and equipment, disconnect the battery, and disconnect the wiring from the machine controls before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the machine when welding.

Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.

Dust generated from repairing nonmetallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

Fire Extinguishers

Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

Rules For Safe Use Of Chemicals



CHEMICAL HAZARD

To prevent serious injury or death:

WEAR PERSONAL PROTECTIVE EQUIPMENT

- Do not allow chemical or solution to touch skin. Some chemicals can be absorbed through the skin.
- Wear rubber gloves and protective gear at all times.

DON'T BREATHE VAPOR

- Avoid chemical splash and vapor. Keep others away.
- Do not breathe vapor.
- Wear proper respirator when working with chemicals.
- Chemicals can be toxic.

DON'T INGEST CHEMICAL

- If in eyes or mouth, read manufacturer's instructions and follow them exactly.
- Seek immediate medical attention.
- A poison control number is usually inside the front cover of your telephone book.

-
- Always read the label before using chemicals. Follow instructions from chemical manufacturer on how to select, use and handle each chemical. Note protection information each time before opening the container.
 - Verbal warnings must be given if written warnings cannot be understood by workers.

- Do not spill chemicals on skin or clothing. If chemicals are spilled, remove contaminated clothing immediately and wash skin (and clothing) thoroughly with soap and water. Wash hands and face with soap and water and change clothing after spraying. Wash clothing each day before reuse.
- The product tank and system should be emptied of chemical mixture and flushed with clean water before servicing the spray system or spray components. Clean machine of all chemical residue before servicing.
- Keep all chemical lines, fittings and couplers tight and free of leaks before starting and operating.
- Rinse the applicator off before leaving the fertilized field. Never contaminate the farmyard or drainage system with applicator rinse.
- Avoid inhaling chemicals. When directed on the label, wear protective clothing, face shield or goggles.
- Never smoke while applying or handling chemicals.
- Cover food and water containers when applying chemicals around livestock or pet areas.
- If symptoms of illness occurs during or shortly after chemical application, call a physician or go to a hospital immediately.
- Follow label directions and advise to keep residues on edible portions of plants within the limits permitted by law.
- Keep chemicals out of the reach of children, pets and unauthorized personnel. Store them outside of the home, away from food and feed and lock them in a secure area.
- Keep bystanders away from spray drift.
- Always store chemicals in original containers and keep them tightly closed. Never keep them in anything but the original container. Read labels for hazards about chemical reaction with certain types of metals.
- Always dispose of empty containers according to manufacturer's directions.

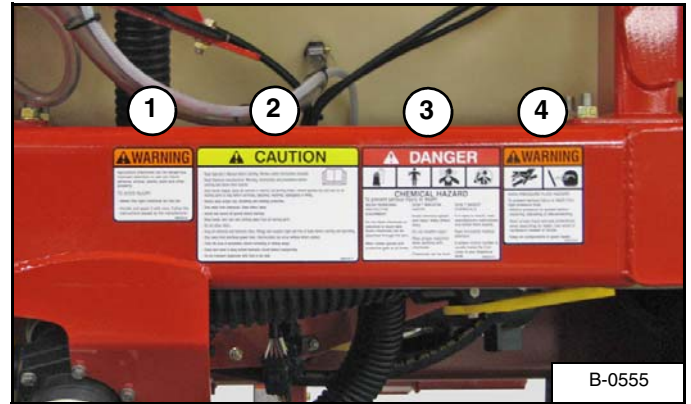
SAFETY SIGNS (DECALS)

Follow the instructions on all the signs (decals) that are on the equipment. Replace any damaged signs (decals) and be sure they are in the correct locations. Equipment signs are available from your Farm King equipment dealer.

Front Left Side Of Hitch



Rear Of Chassis Frame (Rear Of Machine)



1

p/n 88664875

3

p/n 88665017

1

p/n 88665016

2

p/n 88664875

2

p/n 88664962

3

p/n 88665018

4

p/n 88664936

Pivot Points On Wings (Front and Back)



B-0135

1



p/n 002439

Hose Storage Plate



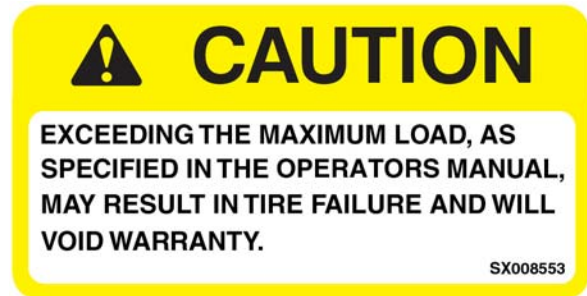
B-0574

1



p/n 88664935

2



p/n SX008553

EQUIPMENT DECALS AND SIGNS

NOTE: All safety related decals are shown in the Safety Signs Section. (See "SAFETY SIGNS (DECALS)" on page 21.)

Check and replace any worn, torn, hard to read or missing decals on your equipment.

Part Number 88664871 (Left Side)



Part Number 88664872 (Right Side)



Part Number 88664873 (Left Side)



Part Number 88664874 (Right Side)



Part Number SX17 - 5910B (Amber)



Part Number SX17 - 5915B (Red)



Part Number SX17 - 5920B (Day Orange)

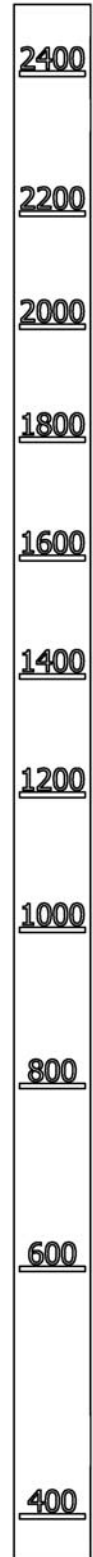
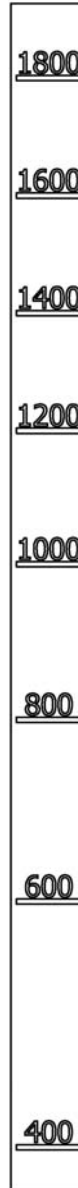


Part Number JD5403



Part Number 88665331

Part Number 88665330



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COMPONENT INSTALLATION

Preparing For Assembly



1860 and 2460 fertilizer applicators are shipped without some components installed due to transporting height and width restrictions.

- Using the packing list, locate and count the individual components and verify that you have received the correct number of each component.
- Check all the components for damage. If any components are damaged or missing, contact your Farm King dealer.



AVOID INJURY OR DEATH

Before moving the tractor, look in all directions and make sure no bystanders, especially small children are in the work area. Do not allow anyone between the tractor and the equipment when backing up to the equipment for connecting.

Connect the fertilizer applicator to the tractor. (See “Connecting The Fertilizer Applicator To The Tractor” on page 42.)

Move the tractor, fertilizer applicator and coulters to an area large enough that will allow the toolbar and wings to be fully extended and sufficient clearance for forklift access.



AVOID INJURY OR DEATH

Before you leave the operator’s position:

- Always park on a flat level surface.
- Place all controls in NEUTRAL.
- Engage the park brake.
- Stop the engine and remove the key.
- Wait for all moving parts to stop.

Park the tractor / equipment on a flat level surface.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator’s position.



AVOID INJURY OR DEATH

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material is present.
- Engine is running.
- Tools are being used.

⚠ WARNING



HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death from high pressure fluid:

- Relieve pressure on system before repairing or adjusting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

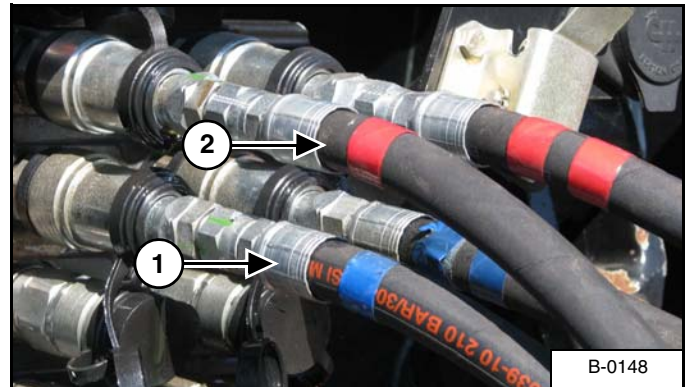
! IMPORTANT

- Contain and dispose of any oil leakage in an environmentally safe manner.
- Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the system.

NOTE: Make sure the quick couplers are fully engaged. If the quick couplers do not fully engage, check to see that the couplers are the same size and type.

NOTE: Hydraulic hoses marked with two colored markers (tape) is the pressure line. Hydraulic hoses marked with single colored marker (tape) is the return line.

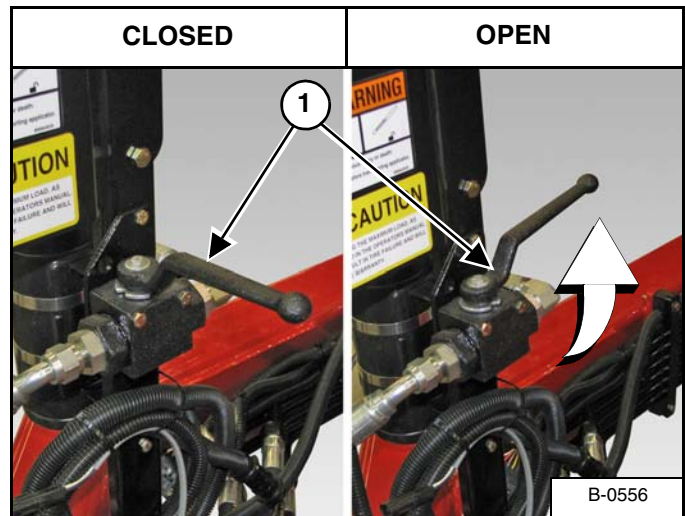
Figure 3



Connect the Blue (Work Circuit) and Red (Transport Circuit) marked hydraulic hoses (Items 1 & 2) [Figure 3].

NOTE: Do not connect the hydraulic hoses with White (pump) markings. Doing so could result in damage to the components.

Figure 4



Open the Transport Circuit valve (Item 1) [Figure 4] on the center of the hitch. Rotate the lever 1/4 turn counterclockwise.

Move to the operator’s seat and start the engine. (See “Entering And Leaving The Operator’s Position” on page 41.)

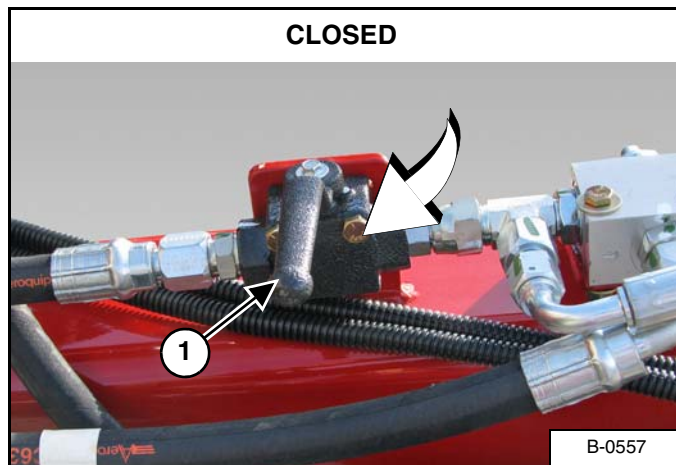
Engage the tractor hydraulics. (See the tractor’s operator’s manual for the correct procedure.)

Set hydraulic flow to 6 - 15 gpm.

Unfold the wings with “Transport Circuit” (hydraulic hoses with the “Red” markers). (See “Fold And Unfold Wings” on page 46.)

Stop the engine, wait for all moving parts to stop and leave the operator's position.

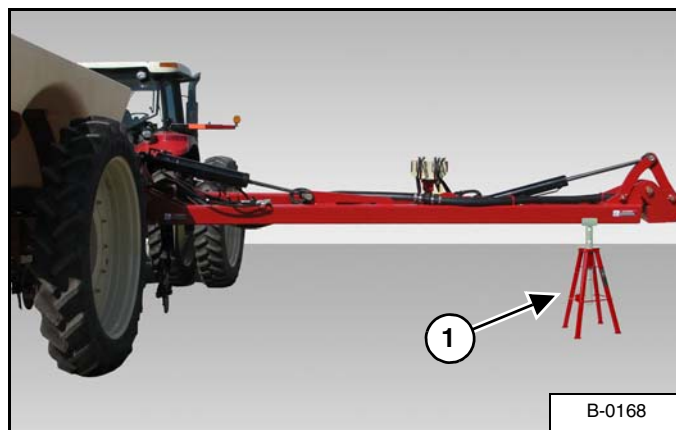
Figure 5



With wing transport lock valves (Item 1) [Figure 5] closed, lower the toolbar with the “Work Circuit” (hydraulic hoses with the “Blue” markers), until the center coulters are nearly contacting the ground.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position. (See “Entering And Leaving The Operator's Position” on page 41.)

Figure 6

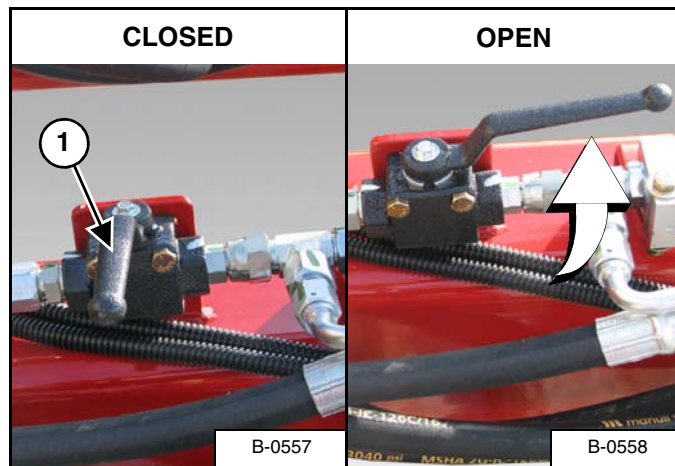


Place jack stands (Item 1) [Figure 6] under the wing(s) frame to support the wing(s) during assembly (both sides).

NOTE: Always use jack stands that are in good condition and of adequate size to support the fertilizer applicator wing(s).

NOTE: Verify that the jack stands are adjusted high enough to support the wing(s) and keep the installed coulters above the ground to prevent coulters damage.

Figure 7



Slowly rotate the Work Circuit valve lever (Item 1) [Figure 7] 1/4 turn counterclockwise to open the valve and allow the wing to settle onto the stand (Item 1) [Figure 6].

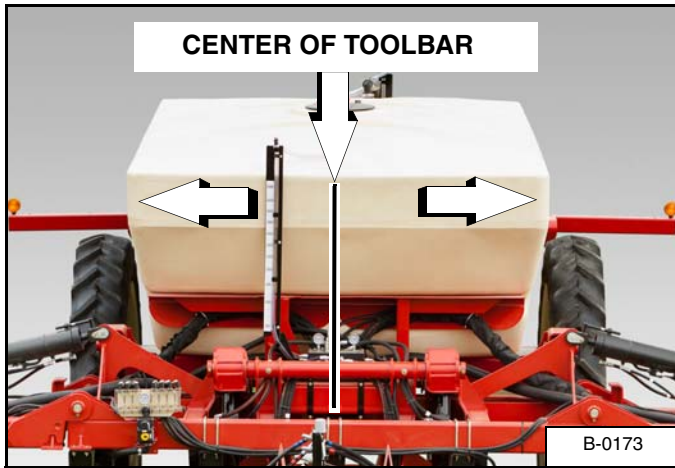
NOTE: As the wing transport valve is being opened, oil will be transferred back to the main lift cylinders. The tractor may need to be started and the toolbar lowered a few times to lower and level the toolbar onto the stands.

Slowly rotate the opposite Work Circuit valve lever 1/4 turn counterclockwise to open the valve and allow the opposite wing to settle onto the second stand.

Move to the operator's seat and start the engine. (See “Entering And Leaving The Operator's Position” on page 41.)

Engage the tractor hydraulics. (See the tractor's operator's manual for the correct procedure.)

Figure 8



Locate the center of the toolbar. Measure out from the center of the toolbar and place a mark at the desired spacing (38", 30", 22", 20") [Figure 8].

! IMPORTANT

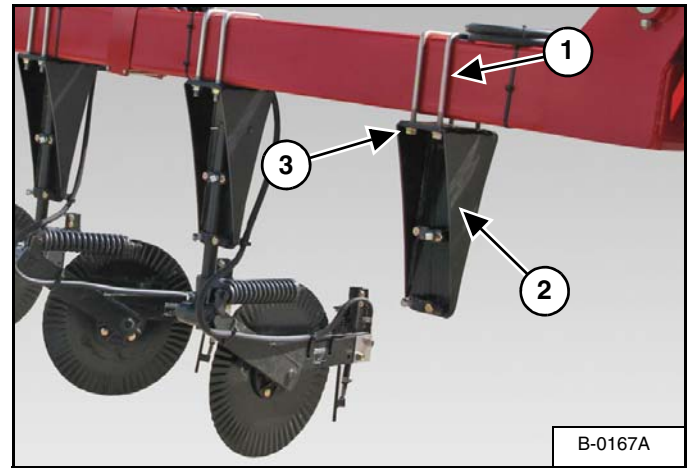
When installing the coulters and gauge wheels, the toolbar and wings must be level and supported.

Coulter Installation

! IMPORTANT

Coulter installation may require two people.

Figure 9



Make sure clamp casting assemblies are installed on coulters mounts before installing to bar.

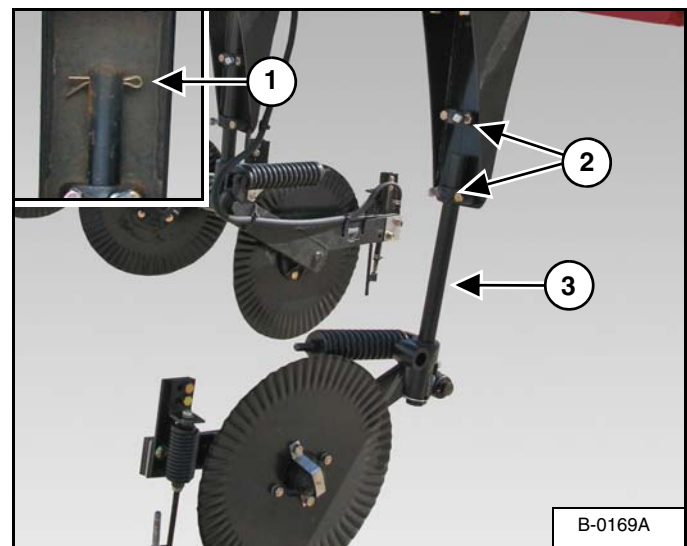
To install clamp casting assembly, install two clamp castings on the coulters mount.

Install two 1/2" by 2 1/2" bolts and 1/2" nuts through the upper clamp and mount.

Install two 1/2" by 3" bolts and 1/2" nuts through the lower clamp and mount.

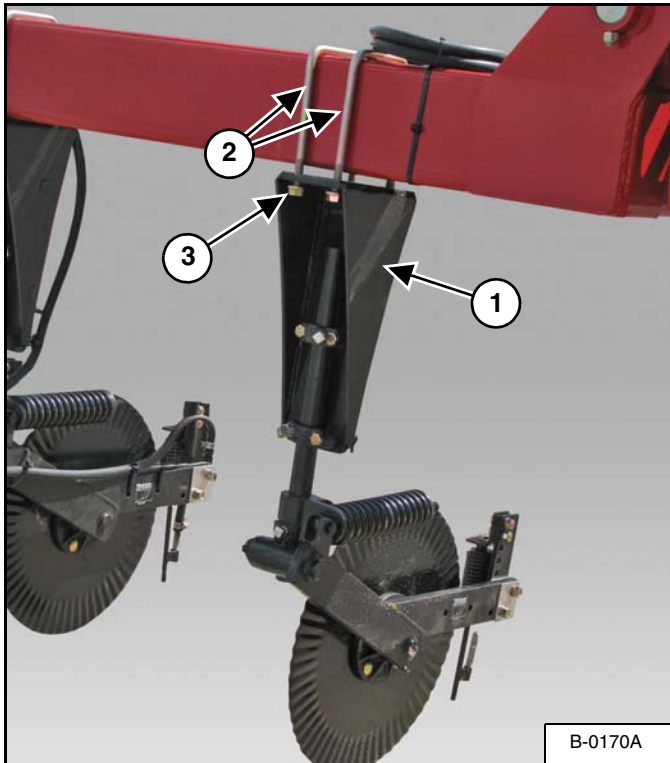
Install two u-bolts (Item 1) over the toolbar at each marked location (38" 30", 22", 20"). Align coulters mount (Item 2) with the u-bolts. Install lock nuts (Item 3) [Figure 9] onto the u-bolts. Tighten lock nuts.

Figure 10



Remove cotter pin (Item 1). Loosen the two clamp set screws (Item 2), then slide the shaft (Item 3) [Figure 10] of the coulters assembly up, into the clamps.

Figure 11



Raise the couler assembly and rotate 180° [Figure 11] to the rear.

Adjust the couler mount (Item 1) and u-bolts (Item 2) [Figure 11] left / right and center the assembly on the marked location to maintain the required spacing.

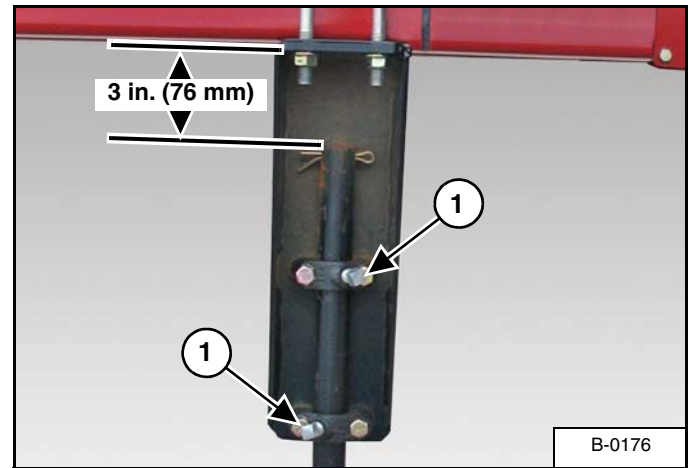
Tighten the four lock nuts (Item 3) [Figure 11] to securely fasten the couler mount to the toolbar.

NOTE: Do not overtighten the lock nuts / u-bolts. Overtightening may cause structural damage to the wing frame.

Continue installing the remaining coulers at each marked location on the wings.

Setting Couler Height

Figure 12



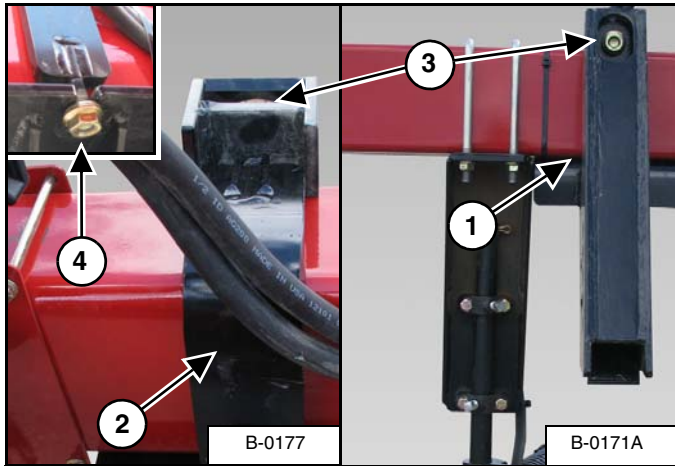
Loosen the set screws (Item 1) [Figure 12], lower the couler shaft until the top of the shaft is 3" (76 mm) down from the mounting bracket. Align the couler front to back and tighten the set screws.

Set swivel block and tighten set screw.

Gauge Wheel Installation

NOTE: Install the gauge wheels on the inward side and up against the second to last coultter assembly on the inner and outer wings (both sides).

Figure 13



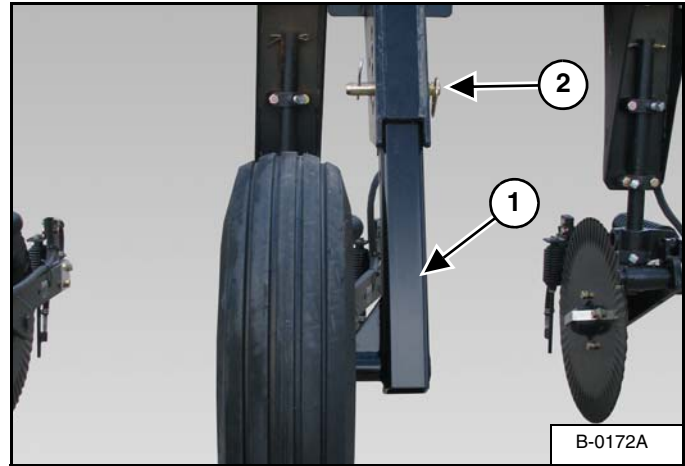
Place the gauge wheel mount (Item 1) [Figure 13] on the front of the toolbar / wing.

Install mounting bracket (Item 2) into the top hole (Item 3) and slot (Item 4) [Figure 13] on the gauge wheel mount (from the back side of the toolbar / wing).

Install lock nuts on the two mounting bracket studs. Verify that the gauge wheel mount is against the coultter assembly. Tighten the two lock nuts to secure the gauge wheel mount to the toolbar / wing.

Mount with the tires on the outside of mounting frame.

Figure 14



Adjust gauge wheel assembly until the wheel is in front of coultter assembly. Slide the gauge wheel (Item 1) into the gauge wheel mount to the desired height and install hitch pin (Item 2) [Figure 14] and retaining pin.

Start with the top hole on the gauge wheel and the middle hole on the mount with a 3" clearance between the shank and the mount of the coultter assembly.

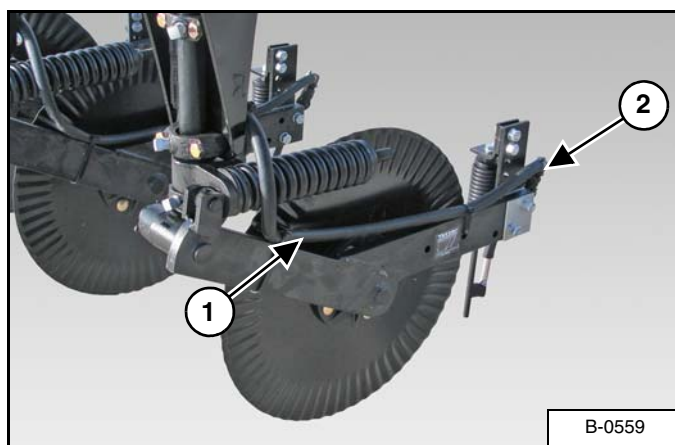
Continue installing the remaining gauge wheels at each designated location on the toolbar / wings.

Supply Hose Installation

! IMPORTANT

Review the supply line routing on the installed coulters or main toolbar before attaching lines to inner wing coulters.

Figure 15

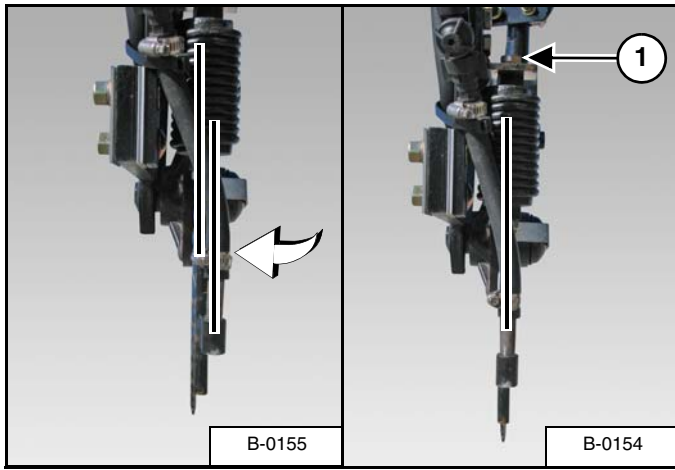


Route the supply hose (Item 1) [Figure 15] behind the coulter assembly, down to the knife / injector. Fasten in place with cable ties.

Apply petroleum jelly to fittings and install hose onto the adapter (Item 2) [Figure 15] and secure in place with hose clamp.

Coulter Injector Alignment

Figure 16

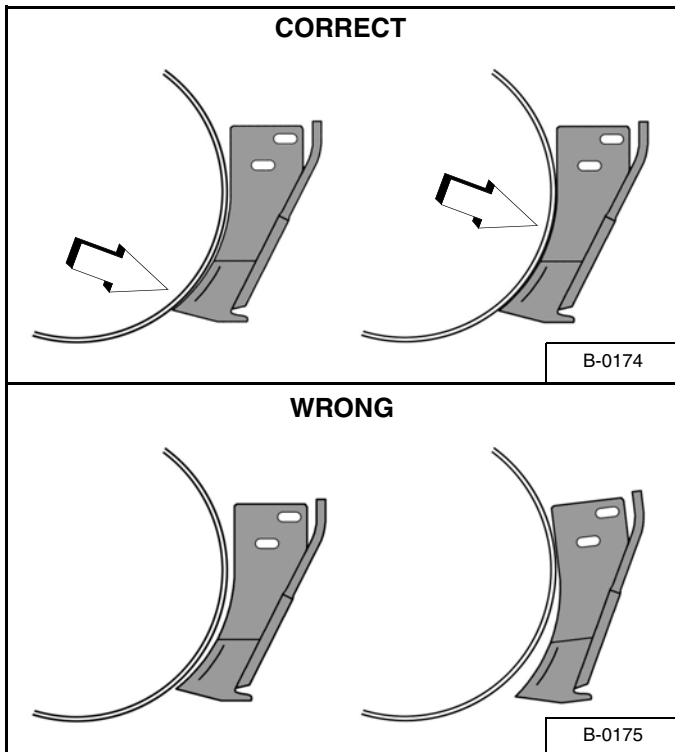


Loosen bolt (Item 1) [Figure 16] and align the injector with coulter blade. Tighten bolt.

Loosen bolt (Item 1) [Figure 16] and align the knife with coulter blade. Tighten bolt.

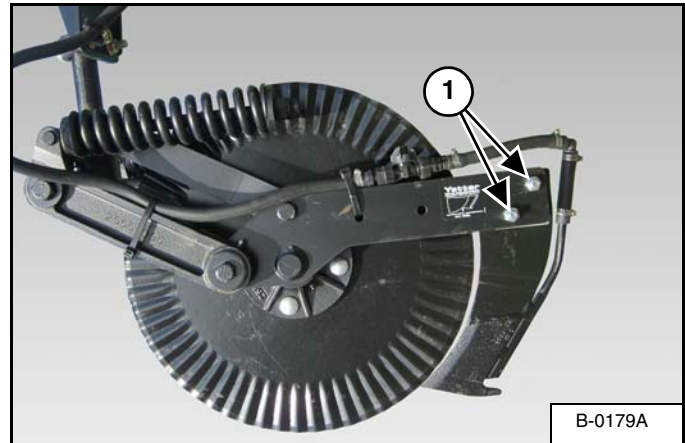
Coulter Knife Alignment

Figure 17



Knives should rub slightly on blade at bottom of knife (CORRECT) [Figure 17].

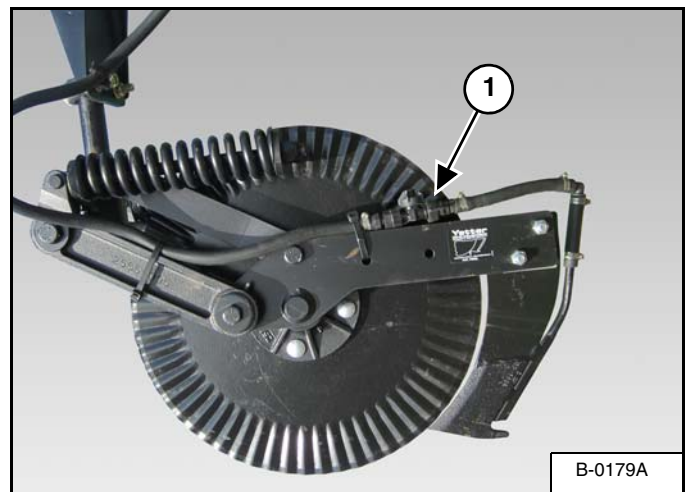
Figure 18



Loosen the two bolts (Item 1) [Figure 18] and adjust knife to rub slightly on blade. Tighten bolts.

Orifice Installation (Coulter / Knives)

Figure 19



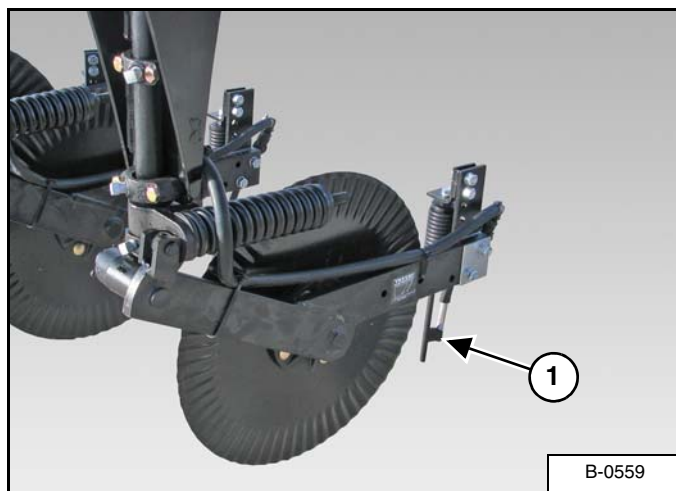
Loosen hose fitting by 1/4 turn (Item 1) [Figure 19] and disconnect.

Install orifice between hose fitting and diaphragm check valve, for the desired application rate and travel speed.

Connect and tighten hose fitting by 1/4 turn back on to the check valve.

Tip Installation (Coulters / Injectors)

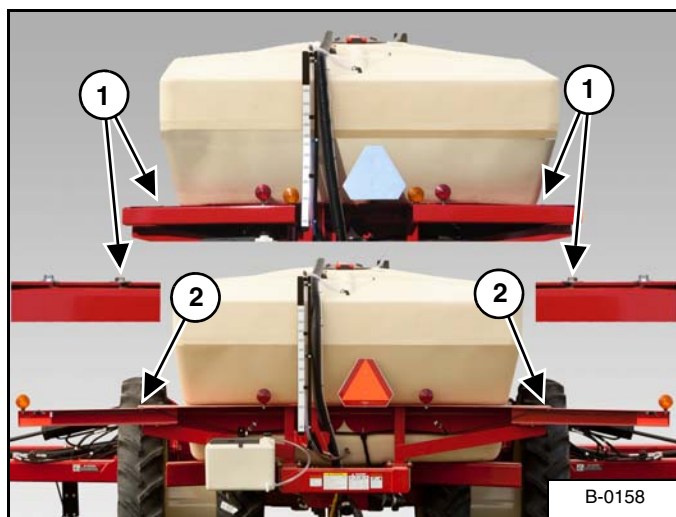
Figure 20



Install spray tip, I.E. TeeJet StreamJet tip into female threads located at the bottom of the assembly (Item 1) [Figure 20].

Extending The Rear Light Bar

Figure 21



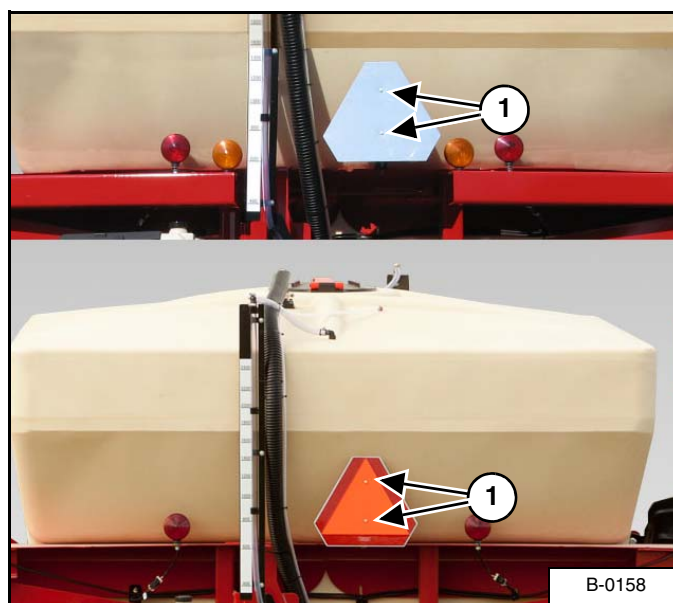
Loosen the inner bolt (Item 1) [Figure 21] with a 9/16 wrench (both light bars).

Fully swing the light bar out. The inner bolt (Item 1) will align with a slot (Item 2) [Figure 21] on the outer end of the rear tank support (both ends).

Tighten bolts, securing the light bars in the operation / transporting position.

Slow Moving Vehicle Sign Installation

Figure 22



Remove the two bolts (Item 1) [Figure 22] and slow moving vehicle sign.

Rotate the slow moving vehicle sign 180°, align mounting holes and install bolts to secure the slow moving vehicle sign in the operation position.

Spray Controller Console Installation

Install the spray controller console in the cab of the tractor according to the manufacturers specifications. (See the spray controller Installation and Operator's manual for the correct procedure.)

Review the spray controller operator's manual provided with fertilizer applicator for calibration and operating instructions before operating the fertilizer applicator.

Mount speed device to unit. Connect input to controller and calibrate.

Calibrate the system for the speed and rate desired. (See the spray controller Operator's manual for the correct procedure.)

(See "NOZZLE SELECTION" on page 182.) and (See "NOZZLE SPECIFICATIONS" on page 183.) for additional information.

Farm King



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Farm King



GENERAL INFORMATION

Pre - Operation Checklist

Before operating the fertilizer applicator for the first time and each time thereafter, check the following items:



AVOID INJURY OR DEATH

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

-
1. Lubricate the equipment per the schedule outline in the Maintenance Section. (See “SERVICE SCHEDULE” on page 64.)
 2. Check the fertilizer applicator hitch for damaged, loose or missing parts. Repair as needed before operation.
 3. Check the coulters and gauge wheels.
 4. Check condition of all chemical / fertilizer components for pinching, crimps or leaks. Re-align as required. Tighten fittings to correct leaks or replace components. Straighten lines to eliminate pinching or crimps.

NOTE: Do not operate with leaks.

5. Make sure that all guards and shields are in place, secured and functioning as designed.



Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.

-
6. Check condition of all hydraulic components for leaks. Repair as required.

NOTE: Do not operate with hydraulic leaks.

7. Check that all electrical connections are tight.
8. Check and tighten all wheel bolts to 420 ft.-lb. torque.
9. Check tire pressure. Inflate per manufacturer’s specification.

Break - In Checklist

Check and tighten all wheel bolts to their specified torque (420 ft.-lb.) after transporting for five (5) miles (11km).

Check the following mechanical items after 1 hour of operation and again after 10 hours of operation:

1. Check that all electrical connections are tight.

Figure 23



2. Check the fertilizer applicator hitch for damaged, loose or missing parts [Figure 23]. Repair as needed before operation.
3. Check condition of all hydraulic components for leaks. Repair as required.

4. Check condition of all chemical / fertilizer components for pinching, crimps or leaks. Re-align as required. Tighten fittings to correct leaks or replace components. Straighten lines to eliminate pinching or crimps.
5. Check for loose fasteners and hardware. Tighten as required.
6. Check wheel bolts for tightness. Tighten to 420 ft.-lb. torque.
7. Clean screen in-line strainer.
8. Check the coulters and gauge wheels. Remove any twine, wire or other material that has become entangled.
9. Check condition of all hydraulic components for leaks. Tighten fittings to correct leaks or replace components. Do not operate with hydraulic leaks.
10. Check tire pressure. Inflate per manufacturer's specification.

Tractor Requirements

The 1860 and 2460 fertilizer applicators will require a MFWD (Mechanical Front Wheel Drive) tractor (minimum 250 hp), three auxiliary hydraulic functions, category IV rated drawbar and a 7-pin electrical connection.

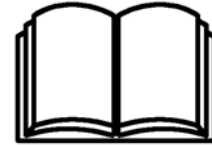


Operate only on a pressure compensated, load sensing or flow compensated closed center pump system. Use of an open center tractor hydraulic system will result in the hydraulic flow continuously bypassing the relief valve resulting in an increase in engine horse power requirement to turn the pump at the relief valve pressure. This will overheat the oil and the tractor very quickly.



Some older model tractors may have a detented valve that will kick out when system pressure is achieved. This valve must be over-riden. The valve must remain in detented position during field operations. Maintaining pressure will allow the system to keep the applicator functioning as desired.

Entering And Leaving The Operator's Position



Follow the instructions in your tractor's operation manual for the correct procedure.

Entering The Operator's Position

Move to the operator's position, start the engine and release the parking brake.

Leaving The Operator's Position



AVOID INJURY OR DEATH

Before you leave the operator's position:

- Always park on a flat level surface.
- Place all controls in NEUTRAL.
- Engage the park brake.
- Stop the engine and remove the key.
- Wait for all moving parts to stop.

Park the tractor / equipment on a flat level surface.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

INITIAL SET-UP

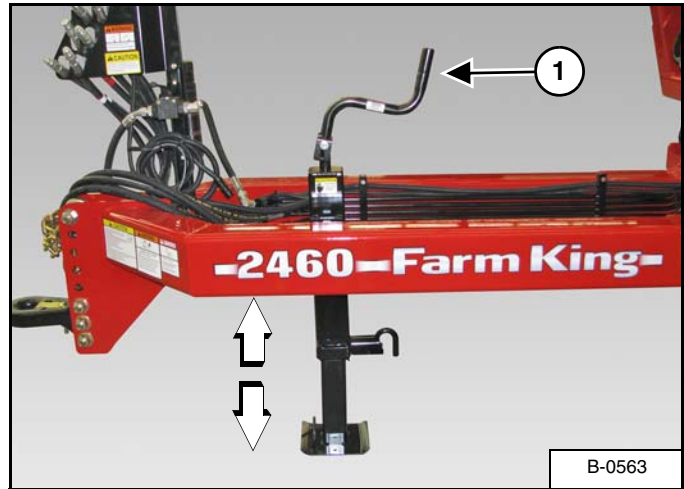
Connecting The Fertilizer Applicator To The Tractor

Always inspect the tractor’s drawbar and fertilizer applicator hitch before connecting. See the tractor’s owner’s manual.

Enter the operator’s position. (See “Entering The Operator’s Position” on page 41.)

Move the tractor into position in front of the fertilizer applicator.

Figure 24



Turn the jack handle (Item 1) [Figure 24] clockwise to raise the hitch or counterclockwise to lower the hitch.

Lower or raise the fertilizer applicator hitch until aligned with the tractor’s drawbar.

Move to the operator’s seat, start the engine and release the parking brake.

Move the tractor backwards, aligning the drawbar hitch pin hole with the fertilizer applicator hitch pin hole(s).

Stop the tractor and leave operator’s position.



AVOID INJURY OR DEATH

Before moving the tractor, look in all directions and make sure no bystanders, especially small children are in the work area. Do not allow anyone between the tractor and the equipment when backing up to the equipment for connecting.

Move the tractor backwards, aligning the drawbar with the fertilizer applicator hitch.

NOTE: The jack may need to be lowered or raised for proper alignment of the drawbar and hitch.

If the fertilizer applicator hitch needs to be adjusted, stop the tractor when drawbar is just in front of the fertilizer applicator hitch.

Leave the operator’s position. (See “Leaving The Operator’s Position” on page 41.)



AVOID INJURY OR DEATH

Keep fingers and hands out of pinch points when connecting and disconnecting equipment.

NOTE: Always use a hitch pin of adequate size and strength and a retaining pin with a locking device.

Figure 25

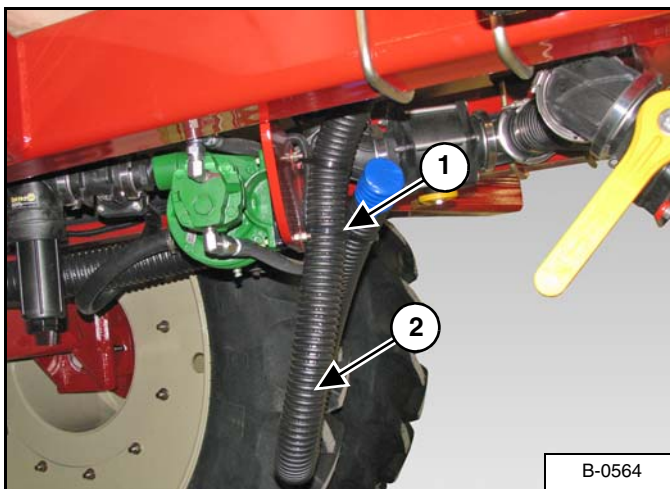


Install the hitch pin (Item 1) [Figure 25] and retaining pin to securely fasten the fertilizer applicator hitch to the tractor drawbar.

Attach the safety chain (Item 2) [Figure 25] around the drawbar.

Product Tank Vent Length

Figure 26



Remove cable tie (Item 1), pull the 2" vent hose (Item 2) [Figure 26] towards the ground. Cut the hose, just above ground level.

Connecting Hydraulic Hoses



HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death from high pressure fluid:

- Relieve pressure on system before repairing or adjusting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.



- Contain and dispose of any oil leakage in an environmentally safe manner.
- Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the system.

NOTE: Make sure the quick couplers are fully engaged. If the quick couplers do not fully engage, check to see that the couplers are the same size and type.

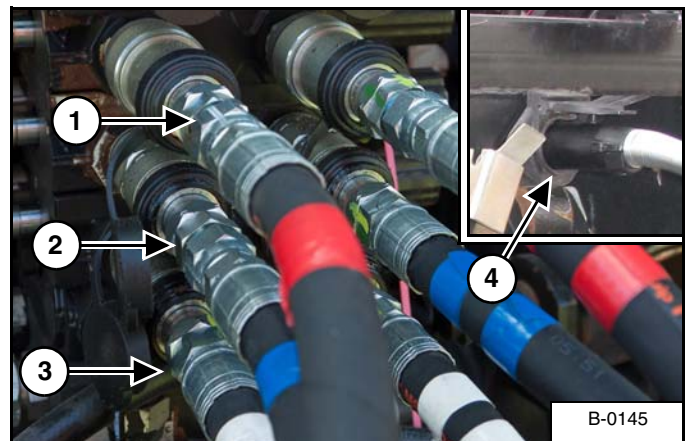
NOTE: Hydraulic hoses marked with two colored markers (tape) is the pressure line. Hydraulic hoses marked with a single marker (tape) is the return line.



The tractor's hydraulic flow to the Transport and Work Circuits (hydraulic hoses marked with Red and Blue tape) will need to be reduced to approximately 6 - 15 gpm (23 - 57 l) to prevent exceeding system specifications, erratic hydraulic functionality and possible component failure.

To Connect:

Figure 27



Push coupler into female coupler on the tractor until they are fully engaged and locked [Figure 27].

1. Transport Circuit (Red Tape): Wing Fold / Unfold (Item 1).
2. Work Circuit (Blue Tape): Toolbar Raise / Lower (Item 2).
3. Pump Circuit (White Tape): Liquid Product Pump (Item 3).

To Disconnect:



AVOID BURNS

Hydraulic fluid, tubes, fittings and quick couplers can get hot when running equipment. Be careful when connecting and disconnecting quick couplers.

Release pressure and pull the male coupler out to disconnect.

Connecting Electrical Harness

Connect the fertilizer applicator's 7 pin electrical harness (Item 4) [Figure 27] to the tractor's electrical system.

Lower jack until weight of equipment is resting on tractor drawbar. Pull lock pin on jack and rotate to storage position and secure with lock pin.

NOTE: Jack needs to be raised, stowed, and fully retracted to avoid interference with the center coulter during raising/lowering field operations

FERTILIZER APPLICATOR OPERATION

Leveling The Fertilizer Applicator



The fertilizer applicator frame must be adjusted down or up until the fertilizer applicator is parallel with the ground prior to operation.

Lower the toolbar. (See "Lower And Raise The Toolbar" on page 48.)

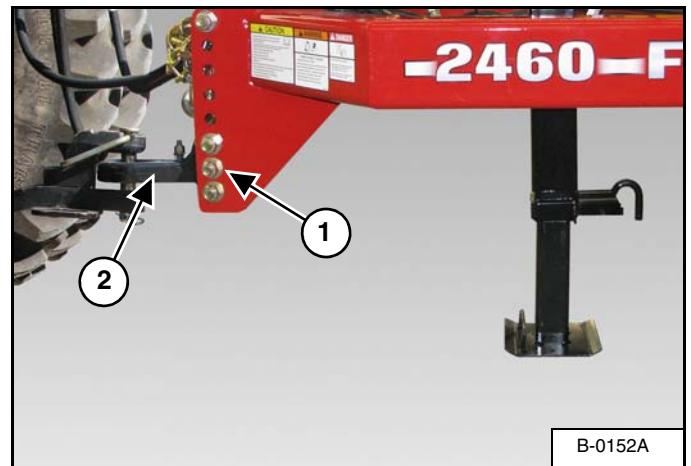
NOTE: The wings and toolbar should be in the operating position before leveling the fertilizer applicator frame.

Figure 28



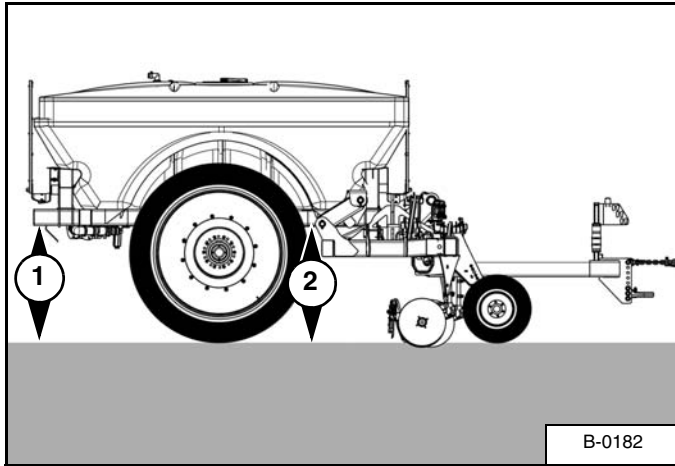
With the fertilizer applicator attached to the tractor, lower the jack from the transport position. Raise the jack until the weight of the fertilizer applicator is on the jack. This will allow the clevis mounting bolts to be loosened and moved for leveling [Figure 28] (if required).

Figure 29



Loosen the three clevis mounting bolts (Item 1) [Figure 29].

Figure 30



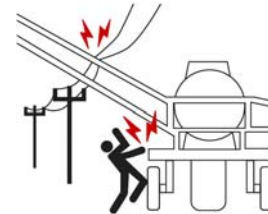
Measure the distance (Items 1 & 2) [Figure 30] from the ground to the bottom of the fertilizer applicator frame in the two locations shown.

NOTE: The two measurements should be approximately the same when the frame is level.

Raise or lower the jack until the fertilizer applicator frame is parallel with the ground. Raise or lower the clevis (Item 2) [Figure 29] and align the closest clevis mounting holes with frame. Install the three bolts.

Tighten the three clevis mounting bolts to the correct torque and raise the jack into the storage position.

Fold And Unfold Wings



ELECTROCUTION HAZARD

To prevent serious injury or death from electrocution:

- Be aware of overhead powerlines.
- Keep away from powerlines when transporting or folding or unfolding wings.
- Electrocution can occur without direct contact.



To avoid serious injury or death, keep everyone clear of machine when folding or extending wings.



AVOID INJURY OR DEATH

Before operating the fertilizer applicator, look in all directions and make sure no bystanders, especially small children are in the work area.



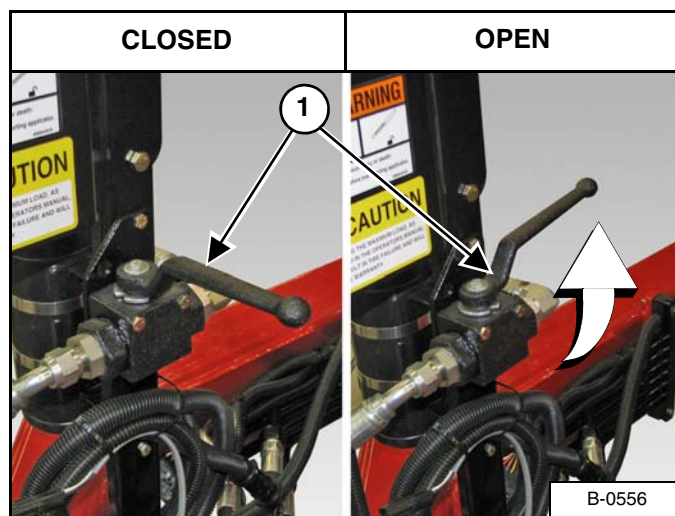
Never attempt to fold / unfold the wings unless the toolbar is in the FULLY RAISED FIELD position. Failure to comply may result in severe equipment damage.

Move to the operator's seat and start the engine. (See "Entering And Leaving The Operator's Position" on page 41.)

Adjust the tractor's hydraulic flow to the "Transport Circuit" and "Work" Circuits to 6 - 15 gpm flow. Engage the tractor hydraulics. (See the tractor's operator's manual for the correct procedure.)

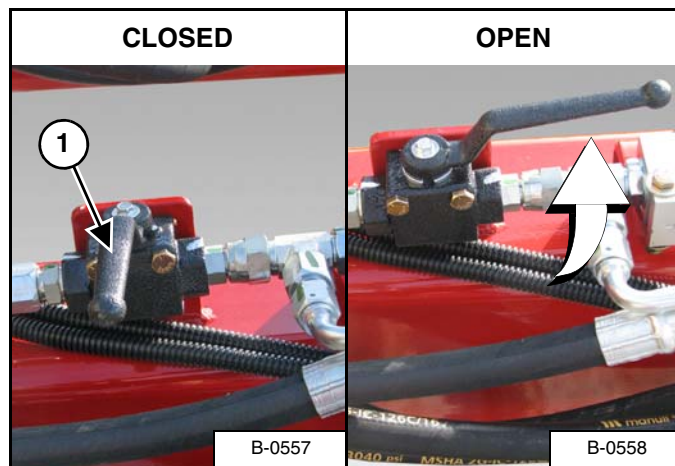
Unfold the wings with the "Transport Circuit" (hydraulic hoses with the "Red" markers), until the wings are fully extended.

Figure 31



Open the Transport Circuit valve (Item 1) [Figure 31] on the center of the hitch. Rotate the lever 1/4 turn counterclockwise to open the valve.

Figure 32



Rotate the Work Circuit valve levers (Item 1) [Figure 32] (on the left and right inner wings) 1/4 turn counterclockwise to open the valve.

Lower And Raise The Toolbar



AVOID INJURY OR DEATH

Before operating the fertilizer applicator, look in all directions and make sure no bystanders, especially small children, are in the work area.



Always have the tractor / fertilizer applicator moving forward at a minimum of 3 mph when lowering the toolbar to minimize the side load on the coulters when they contact the ground.

NOTE: Jack needs to be raised, stowed, and fully retracted to avoid interference with the center coulters during raising / lowering field operations

Lower the toolbar with the "Work Circuit" (hydraulic hoses with the "Blue" markers), until the center coulters are contacting the ground.



Never attempt to fold / unfold the wings unless the toolbar is in the FULLY RAISED FIELD position. Failure to comply may result in severe equipment damage.

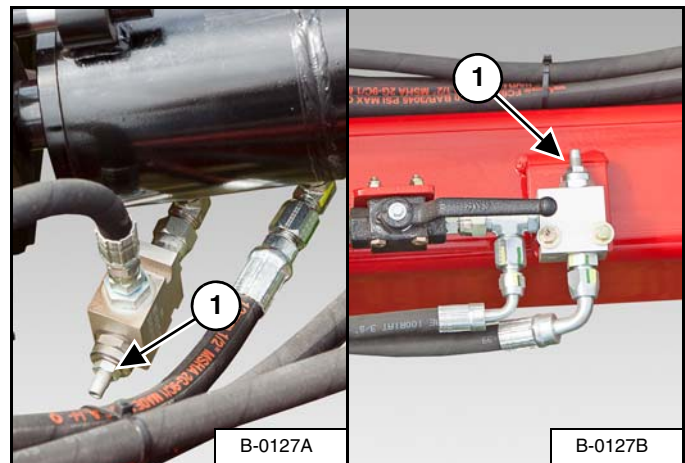
Adjusting Toolbar Lowering Speed



Adjustments to the toolbar's rate of drop needs to be made in field conditions, at field speeds. Adjustments need to be made to all four (4) flow control valves located at each of the short stroke cylinders (one on each inner wing, one on each outer wing). Flow control valve in Figure 33 may not require adjustment, the other four will.

Flow control valve is set from the factory 1-1/2 turn open from "finger tight". FR12-23A-12T-N; 20 gpm; 5 turns clockwise to close.

Figure 33



NOTE: Adjust speed in 1/4 turn increments.



Initial adjustment for the rate of drop on the wings may take several attempts. It will be helpful to have a second person to witness the drop rate and make adjustments. Start with the inner wings and finish with the outer wings. Ultimately, all sections -- center, inner, and outer wings, will contact the ground simultaneously when the hydraulic control is activated with full "lowering" force, not managed manually by the operator.



IMPORTANT

Failure to adjust toolbar to engage soil simultaneously by all sections May result in premature failure of toolbar.

Decreasing Speed

Loosen jam nut and turn the adjustment screw (Item 1) **[Figure 33]** clockwise to decrease flow and speed. Adjust in 1/4 or 1/8 turns.

Tighten jam nut.

Increasing Speed

Loosen jam nut and turn the adjustment screw (Item 1) **[Figure 33]** counterclockwise to increase flow and speed. Adjust in 1/4 or 1/8 turns.

Tighten jam nut.

NOTE: The adjustment of these control valves will not affect the speed of raising the toolbar.

Wing Loading



IMPORTANT

Check the soil conditions to determine the amount of down force or load required on each wing to keep the coulters at a consistent depth.

Enter the operator's position, start the engine and release the parking brake.

Move the tractor and fertilizer applicator to a level area in the field.

Unfold the wings with the "Transport Circuit", until the wings are fully extended.

Move the tractor and fertilizer applicator forward and using the "Work Circuit", fully lower the toolbar.

Press the "Work Circuit" control and place the circuit into the detent position to extend the short stroke of the wing cylinders and apply constant down-load on each wing section.



WARNING

AVOID INJURY OR DEATH

Before you leave the operator's position:

- **Always park on a flat level surface.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Stop the engine and remove the key.**
- **Wait for all moving parts to stop.**

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

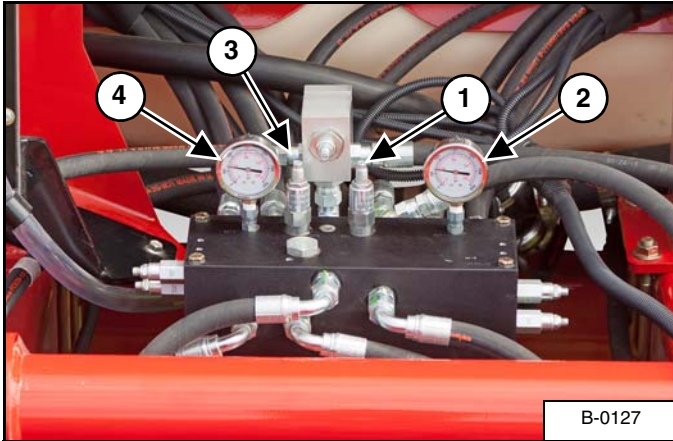
Verify that the coulters are at the desired depth and that the correct amount of down-load has been applied.

NOTE: If the down-load pressure needs to be increased or decreased, use the pressure relief valves on the center of the toolbar to adjust the pressure. (See "Adjusting Wing Down-Load" on page 50.)

Adjusting Wing Down-Load

NOTE: Use the relief valves and gauges to set wing down-load to provide consistent application depth of 2" to 3" (50 - 75 mm).

Figure 34



NOTE: Adjust down-load pressure as required, taking note of the ground pressure being exerted by the wing gauge wheels.

NOTE: Adjust down-load pressure with "Work" Circuit in the "detent" position.

Inner Wings

Loosen jam nut and turn the adjustment screw (Item 1) [Figure 34] clockwise to increase pressure and down-load. Turn counterclockwise to decrease pressure and down-load.

Monitor the inner wing gauge (Item 2) [Figure 34] while adjusting down-load pressure.

Tighten jam nut.

Outer Wings

Loosen jam nut and turn the adjustment screw (Item 3) [Figure 34] clockwise to increase pressure and down-load. Turn counterclockwise to decrease pressure and down-load.

Monitor the outer wing gauge (Item 4) [Figure 34] while adjusting pressure and down-load.

Tighten jam nut.

Adjusting Coulter Depth



It is recommended that the coulters are set so the injectors or knives place the fertilizer 2” to 3” (50 - 75 mm) below the soil surface.

Enter the operator’s position, start the engine and release the parking brake.

Move the tractor and fertilizer applicator to a level area in the field.

Engage the tractor hydraulics. (See the tractor’s operator’s manual for the correct procedure.)

Unfold and fully extend the wings. (See “Fold And Unfold Wings” on page 46.)



Always have the tractor moving forward at a minimum of 3 mph or more when lowering the toolbar to prevent damage to the coulters.

Move the tractor and fertilizer applicator forward and fully lower the toolbar. (See “Lower And Raise The Toolbar” on page 48.)

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator’s position.

Verify that the coulters, injectors or knives are approximately 2” to 3” below the soil surface.

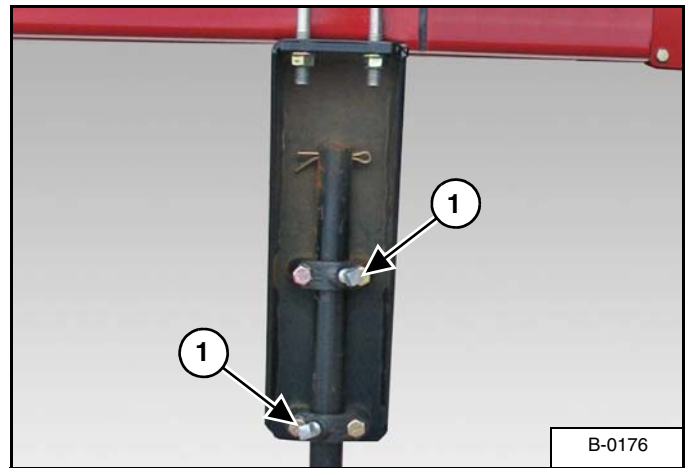
NOTE: If the coulter assemblies need to be adjusted, the toolbar will need to be raised to relieve the pressure to allow for adjustment up or down.

Enter the operator’s position, start the engine, engage the tractor hydraulics and raise the toolbar (if required).

Leave the operator’s position (if required).

Coulter Adjustment

Figure 35

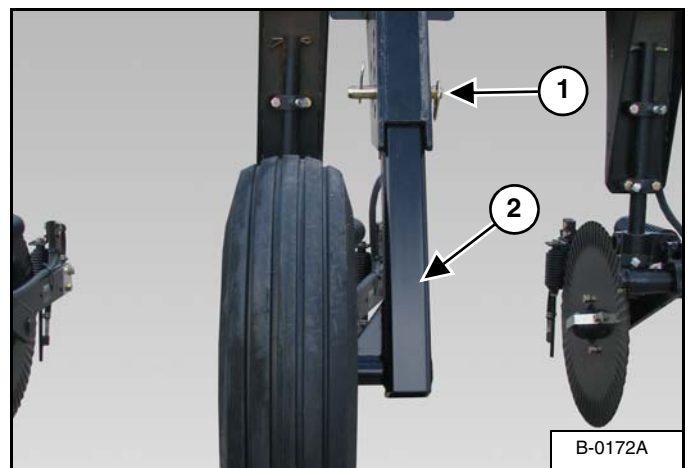


Loosen set screws (Item 1) [Figure 35] and move the coulter assembly up or down to the desired depth. Tighten the set screws.

Adjust individual coulters as needed to obtain the desired depth.

Gauge Wheel Adjustment

Figure 36

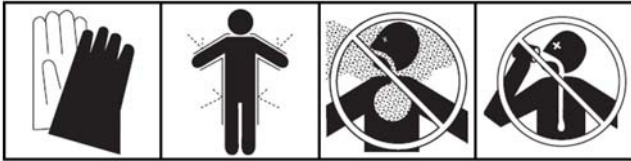


Remove pin (Item 1) and move the gauge wheel assembly (Item 2) [Figure 36] up or down to the desired height. Install the pin.

Adjust individual gauge wheels as needed to obtain the desired height.

NOTE: Adjust all gauge wheel assemblies to the same setting.

Filling The Product Tank



CHEMICAL HAZARD

To prevent serious injury or death:

WEAR PERSONAL PROTECTIVE EQUIPMENT

- Do not allow chemical or solution to touch skin. Some chemicals can be absorbed through the skin.
- Wear rubber gloves and protective gear at all times.

DON'T BREATHE VAPOR

- Avoid chemical splash and vapor. Keep others away.
- Do not breathe vapor.
- Wear proper respirator when working with chemicals.
- Chemicals can be toxic.

DON'T INGEST CHEMICAL

- If in eyes or mouth, read manufacturer's instructions and follow them exactly.
- Seek immediate medical attention.
- A poison control number is usually inside the front cover of your telephone book.



Do not spill chemicals on skin or clothing. If chemicals are spilled, remove contaminated clothing immediately and wash skin (and clothing) thoroughly with soap and water. Wash hands and face with soap and water and change clothing after spraying.



Always read the label before using chemicals. Follow the instructions from the chemical manufacturer on how to select, use and handle each chemical. Note protection information each time before opening the container.

Park the tractor / equipment on a flat level surface.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position. (See "Entering And Leaving The Operator's Position" on page 41.)

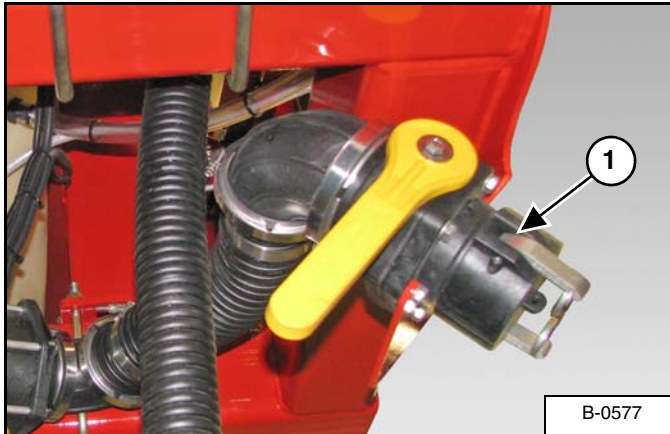


Add chemical solution to the product tank according to the manufacturer's recommendations.



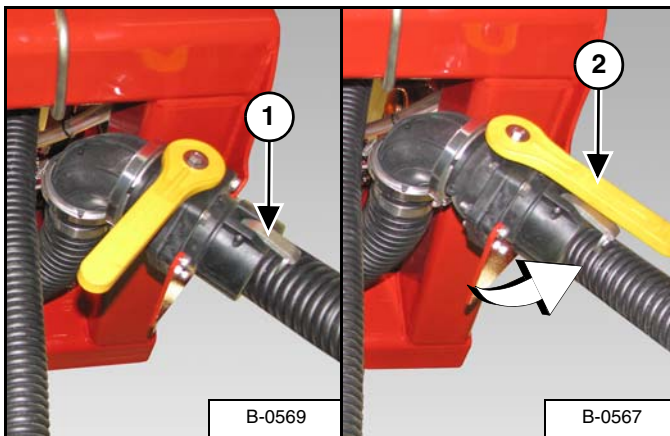
Some items have been partially disassembled and/or removed to prevent damage to the tank, pump, and other components caused by freezing temperatures. Please install/assemble prior to first use.

Figure 37



Remove fill cap (Item 1) [Figure 37].

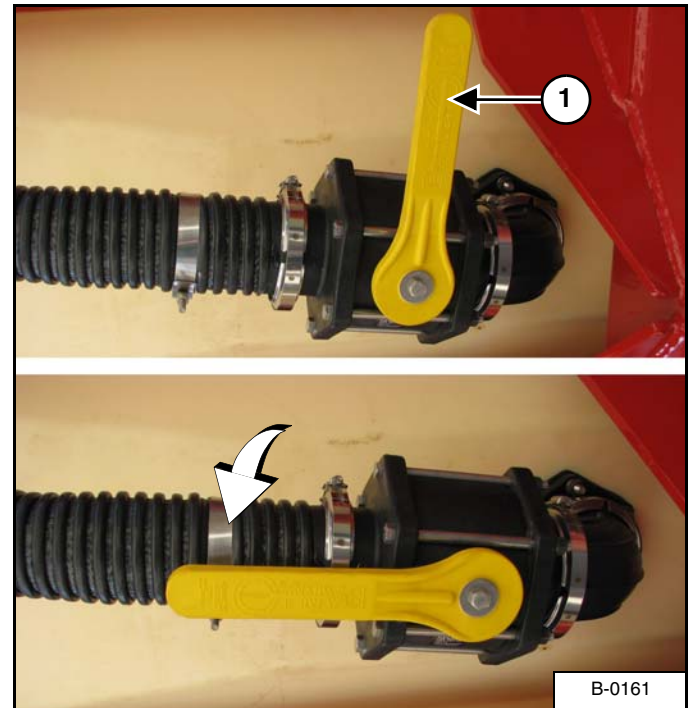
Figure 38



Install the fill hose (Item 1) [Figure 38].

Open fill valve (Item 2) [Figure 38].

Figure 39



Open tank valve (Item 1) [Figure 39].

Fill the product tank to the desired level.

Monitor the rear sight gauge while filling the product tank. Do not over-fill.

Once the product tank has been filled to the desired level, close the tank valve and the fill valve and disconnect the fill hose.

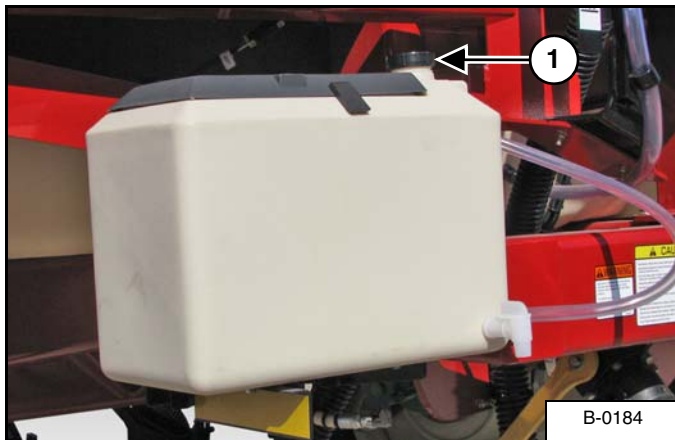
Install fill cap (Item 1) [Figure 37].

Filling Fresh Water Tank



Always use clean, fresh water when filling the fresh water tank.

Figure 40



Remove fill cap (Item 1) [Figure 40].

Fill fresh water tank with clean fresh water daily (Do not allow tank to run low on fresh water). Install fill cap.

NOTE: Use water from fresh water tank to clean, rinse or wash anything that has become contaminated.

FIELD OPERATION

Pre-Operation

Move the tractor and fertilizer applicator to a level area in the field. (See "TRANSPORTING" on page 58.)

Engage the tractor hydraulics. (See the tractor's operator's manual for the correct procedure.)



Never attempt to fold / unfold the wings unless the toolbar is in the FULLY RAISED FIELD position. Failure to comply may result in severe equipment damage.

Unfold and fully extend the wings. (See "Fold And Unfold Wings" on page 46.)



Always have the tractor moving forward at a minimum of 3 mph or more when lowering the toolbar to prevent damage to the coulters.

Move the tractor and fertilizer applicator forward and fully lower the toolbar. (See "Lower And Raise The Toolbar" on page 48.)

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

Verify that the coulters, injectors or knives are approximately 2" to 3" below the soil surface.

Adjust coulters as needed to obtain the desired depth. (See "Adjusting Coulters" on page 51.)

Adjust wing down-load as needed to maintain the desired depth. (See "Adjusting Wing Down-Load" on page 50.)

Adjust toolbar speed (if required). (See "Adjusting Toolbar Lowering Speed" on page 48.)

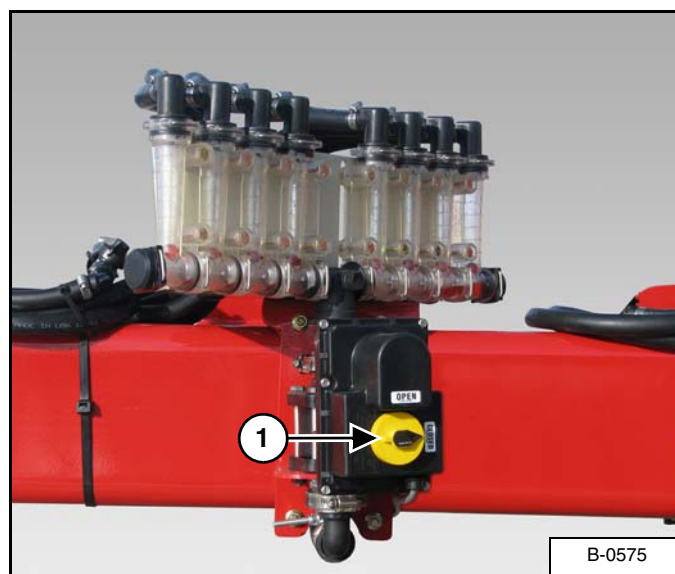
Spray System Test

! IMPORTANT

Review the spray controller operator’s manual and be familiar with spray controller calibration and operation before starting.

Dry Test

Figure 41



Enter the operator’s position and turn the tractor ignition switch to the “ON” position (Do Not start engine.)

Turn the spray controller “ON”.

Press wing section switches on the controller, one at a time and operate each of the five manifold valves (Item 1) [Figure 41].

Verify that each manifold valve fully opens and closes. Also verify that the correct switch on the controller is operating the correct section manifold valve.

Wet Test

Add approximately 300 gallons of clean water to the product tank. (See “Filling The Product Tank” on page 52.)

Inspect the system for leaks. Repair as needed before operating fertilizer applicator.

Verify that there is liquid in the pump vent line.

! IMPORTANT

The pump must be filled with liquid during operation to cool the seals. Without liquid to cool the seals, pump failure will occur immediately.

NOTE: Maximum hydraulic flow for the pump is 11 gpm. Start with 5 gpm hydraulic flow and increase / decrease as needed.

Enter the operator’s position, start the engine.

Engage the tractor hydraulics. (See the tractor’s operator’s manual for the correct procedure.)

Turn the spray controller “ON”.

Place the spray controller in “TEST” mode.

Turn all five wing section switches “ON”.

Verify that the pump is flooded and vent line is filled with fluid.

Engage product pump hydraulic circuit (White markers) and place into “detent” position. (See the tractor’s operator’s manual for the correct procedure.)

Operate the product pump for one minute to flush debris from supply lines (If required). Always turn off the pump by moving the hydraulic control to the “float” position.

Determine targeted GPM flow rate.

Select and install properly sized orifices / tips. Perform a “nozzle output check test” to verify application rate.

Inspect spray system components for leaks, loose fittings and possible pinch points. Tighten loose fittings.

Drain system and clean the line strainer screen.

NOTE: Cover spray monitors daily to prevent UV damage to components.

Operating The Fertilizer Applicator

Adjust toolbar lower / raise speed (If required). (See “Adjusting Toolbar Lowering Speed” on page 48.)



IDEAL OPERATION - Use the tractor's hydraulics to lower and raise the toolbar. To lower, simply move the tractor's hydraulic control to the detent position. To raise, hold the control until the toolbar is fully raised.

Enter the operator's position, start the engine and release the parking brake.

Engage the tractor hydraulics. (See the tractor's operator's manual for the correct procedure.)

Figure 42



Fully raise the toolbar [Figure 42].

Move the tractor and fertilizer applicator to the starting area in the field.

Align the tractor and fertilizer applicator with field / rows.



Always have the tractor moving forward at a minimum of 3 mph or more when lowering the toolbar to prevent damage to the coulters.

Drive the tractor and fertilizer applicator forward, towards the starting point.

As the front tires of the tractor make contact with the field / rows (starting point), fully lower the toolbar by placing the “Work Circuit” switch directly into detent.

NOTE: Placing the “Work Circuit” switch into detent will maintain constant down pressure during the application process.

Engage the product pump and turn on the sectional control valves using the spray controller to start application process.

As the tractor approaches the end of the field / rows, turn the sectional control valves “Off” and fully raise the toolbar.



PREVENT COULTER DAMAGE

Always fully raise the toolbar before turning the tractor and fertilizer applicator and when moving the tractor and fertilizer applicator to starting point in the field.

Align the tractor and fertilizer applicator with next application area.

As the front tires of the tractor make contact with the field / rows (next application area), fully lower the toolbar and place the “Work Circuit” switch into detent.

Continue the application process until the desired area / field is complete.



Always flush product tank and system with clean water before leaving the application area / field.

Stop the tractor and fertilizer applicator on a level surface in the field.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

Clean the product tank. (See "Cleaning The Product Tank" on page 67.)

Ensure that the toolbar is in the fully raised position. Place the toolbar and wings in the transport position. (See "TRANSPORTING" on page 58.)

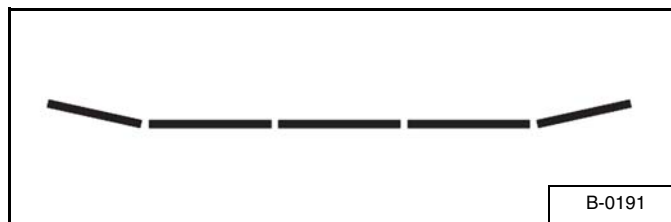
Operating Guidelines

- Toolbar level, across all sections when engaged on level ground.
- Gauge wheels on wings should carry the weight of wing.
 Increase down pressure if wheel appears to be floating.
 Decrease down pressure if wheel appears to be pushing.
- Changes in air temperature, hydraulic oil temperature and field conditions (soil type, moisture, crop, etc.) may affect operating performance of hydraulic functions and require adjustments.
- Wing Load adjustments.
 Adjust outer wing down-load pressure first.



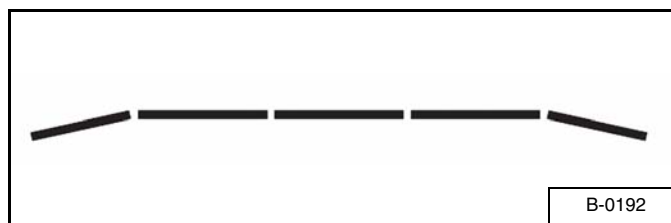
Failure to adjust toolbar to engage soil simultaneously by all sections May result in premature failure of toolbar.

Figure 43



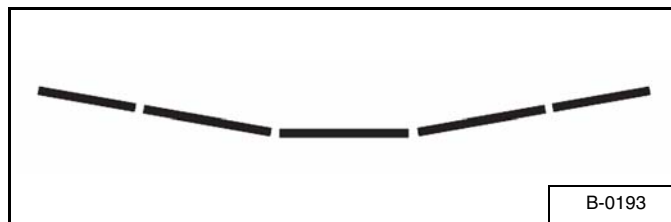
If boom profile looks like outer wings are riding high, increase outer wing down-load pressure [Figure 43]. (See "Adjusting Wing Down-Load" on page 50.)

Figure 44



If boom profile looks like outer wings are riding low, decrease outer wing down-load pressure [Figure 44]. (See "Adjusting Wing Down-Load" on page 50.)

Figure 45



If boom profile looks like inner wings are riding high, increase inner wing down-load pressure [Figure 45]. (See "Adjusting Wing Down-Load" on page 50.)

Figure 46



If boom profile looks like inner wings are riding low, decrease inner wing down-load pressure [Figure 46]. (See "Adjusting Wing Down-Load" on page 50.)

TRANSPORTING

Requirements

Always comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.



Never exceed 20 mph (32 kph).



Use of an unapproved hitch or tractor / tow vehicle can result in loss of control, leading to serious injury or death.

Tractor / tow vehicle and hitch must have the rated capacity to tow equipment.

Verify that the tractor / tow vehicle is approved for transporting the equipment and that the equipment is securely attached to the tractor / tow vehicle.

Verify safety chain is installed and properly connected before transporting equipment.

Verify 7 pin electrical harness is connected and safety lights are working properly.

Verify that the SMV (Slow Moving Vehicle) emblem, all lights and reflectors are clean and visible.

Enter the operator's position, start the engine and release the parking brake.

Engage the tractor hydraulics. (See the tractor's operator's manual for the correct procedure.)

Figure 47

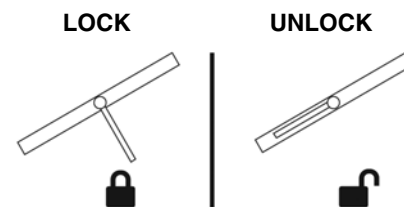


Lift the toolbar into the fully raised field position [Figure 47]. (See "Lower And Raise The Toolbar" on page 48.)



Never attempt to fold / unfold the wings unless the toolbar is in the FULLY RAISED FIELD position. Failure to comply may result in severe equipment damage.

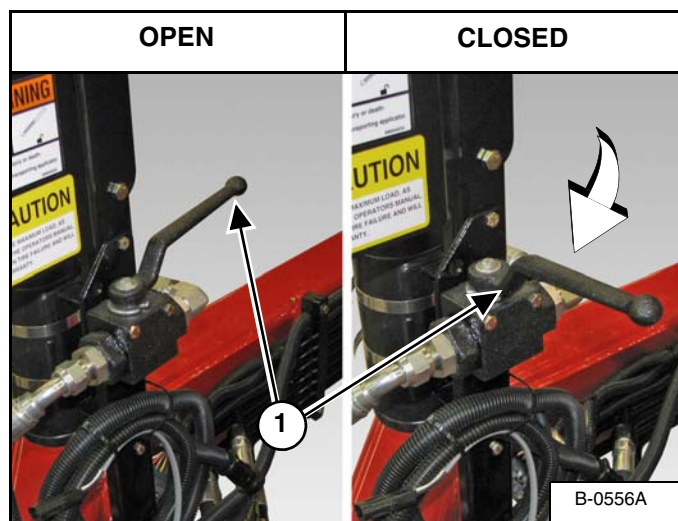
Fold wings. (See "Fold And Unfold Wings" on page 46.)



PREVENT SERIOUS INJURY OR DEATH

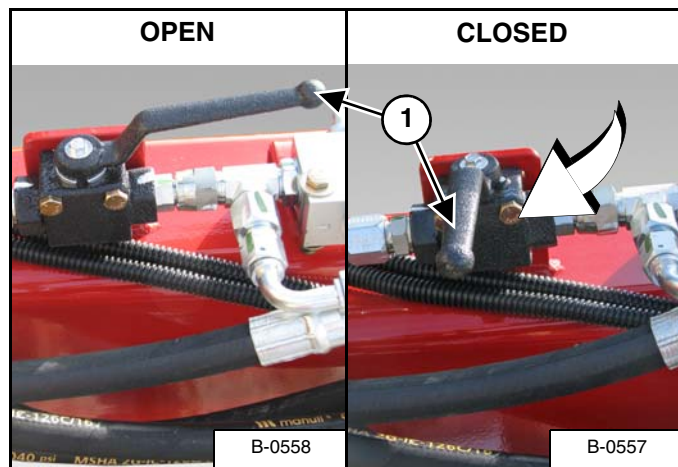
Close (Lock) the Transport and Work Circuit valves before transporting fertilizer applicator.

Figure 48



Close the Transport Circuit valve (Item 1) [Figure 48].

Figure 49



Close the Work Circuit valves (Item 1) [Figure 49].



Do not move or transport the fertilizer applicator unless Transport and Work Circuit valves are in the closed (locked) position.

Transporting Guidelines



AVOID SERIOUS INJURY OR DEATH

DO NOT transport a loaded fertilizer applicator on public roadways. Excess weight will greatly increase tractor stopping distance and may cause the operator to lose control of the tractor or tow

The ratio of the tractor / tow vehicle weight to the loaded equipment weight plays an important role in defining acceptable travel speed.

TRAVEL SPEED - Acceptable travel speed.

WEIGHT RATIO - Weight of fully equipped or loaded implement(s) relative to weight of tractor / tow vehicle.

TRAVEL SPEED	WEIGHT RATIO
Up to 20 mph (32 kph)	1 to 1 (or less)
Up to 10 mph (16 kph)	2 to 1 (or less)
DO NOT TOW	More than 2 to 1

Farm King



MAINTENANCE

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Farm King



TROUBLESHOOTING

Chart



Instructions are necessary before operating or servicing equipment. Read and understand the Operator And Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

NOTE: If a problem is encountered that is difficult to solve, even after having read through this troubleshooting section, please call your local Farm King dealer. Before you call, please have this Operator And Parts Manual and the serial number of your machine at hand.

PROBLEM	CAUSE	CORRECTION
Wings will not extend.	Lock valve is closed.	Open lock valve (located on hitch).
Applicator will not turn on.	No power.	Connect power line to 12 volt power source in tractor cab.
	Line valve is closed.	Open line valve.
	Filter screen is plugged.	Remove filter and clean screen.
Flow monitor ball gauges not even.	Orifice / tip plugged.	Remove and clean or replace orifice.
	Diaphragm check valve plugged.	Remove and clean or replace diaphragm check valve.
	Filter screen is plugged.	Remove filter and clean screen.
	Spray line loose or disconnected.	Check spray line connections.
	Spray line cut or damaged.	Repair or replace spray line.
Coulter does not penetrate the ground.	Down-load pressure too low.	Increase down-load pressure to the inner or outer wing as needed.
	Gauge wheel is set too low.	Raise gauge wheel(s) as needed.
Coulter penetrates too far into the ground.	Down-load pressure too high.	Decrease down-load pressure to the inner or outer wing as needed.
	Gauge wheel is set too high.	Lower gauge wheel(s) as needed.
Wings shutter / chatter when folded/ unfolded.	Hydraulic flow too high.	Lower hydraulic flow to transport circuit to 6 - 15 gpm.
Toolbar shutter/chatter when raised.	Hydraulic flow too high.	Lower hydraulic flow to work circuit to 6 - 15 gpm.

SERVICE SCHEDULE

Maintenance Intervals

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the Fertilizer Applicator.



Instructions are necessary before operating or servicing equipment. Read and understand the Operator and Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

#	DESCRIPTION	SERVICE PROCEDURES						
		Winterize	Clean	Lube	Change	Cover	Drain	Locations
Daily Maintenance (or every 8 hours)								
1	Fresh Water Tank				•		•	
2	Coulter Lower Parallel Arm			•				
3	Coulter Pivots			•				
4	Spray Monitor					•		
Weekly (or every 50 hours)								
4	Line Strainer Screen		•					
5	Outer Wing Ball Joints			•				
Every 250 hours								
6	Wheel Bearings (Running gear and gauge wheels)			•				
7	Coulter Hub Bearings			•				
Annually (or every 500 hours)								
8	Product Tank		•					
9	Machine	•	•					
10	Spray Monitor	•	•			•		

LUBRICATION

Recommendations

Always use a good quality multi-purpose / lithium base grease when lubricating the equipment.



Do not over-grease bearings. Greasing too often can damage seals and lead to premature bearing failure.



Only sealed bushings are used on the applicator. Do not over-grease.

- Always use a hand-held grease gun.
- Clean fitting before greasing, to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If fittings will not take grease, remove and clean thoroughly. Replace fitting if necessary.

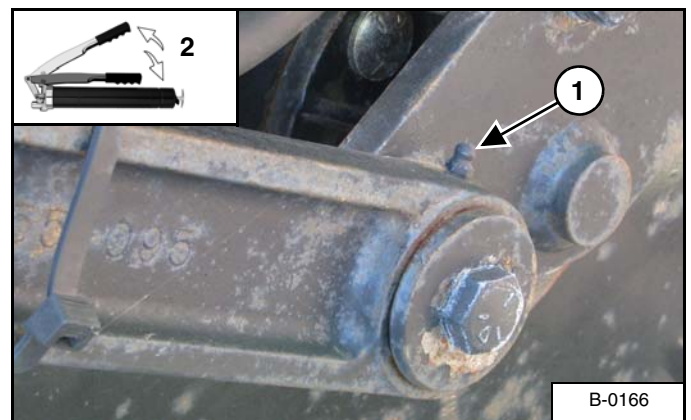
Locations



Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

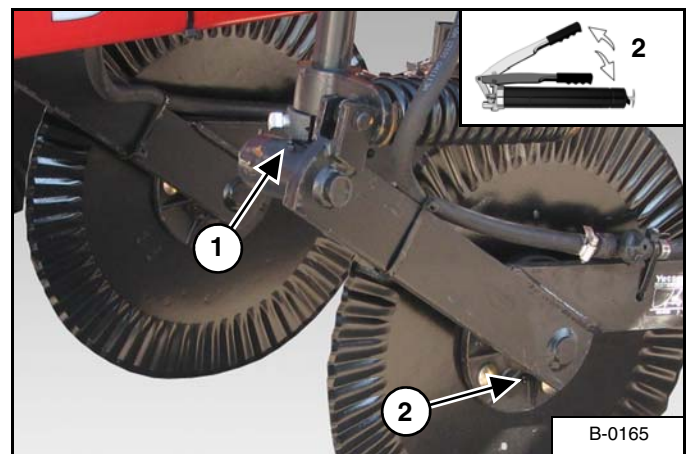
Lubricate the following grease locations EVERY 8 HOURS:

Figure 50



Apply two pumps of grease to the coultter lower parallel arm (Item 1) [Figure 50].

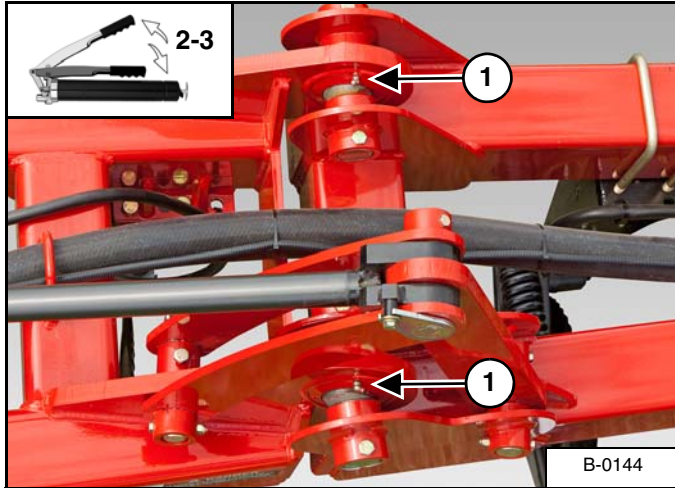
Figure 51



Apply two pumps of grease to the coultter pivots (Item 1) and to the pressed hub assembly (Item 2) [Figure 51].

Lubricate the following grease locations EVERY 50 HOURS:

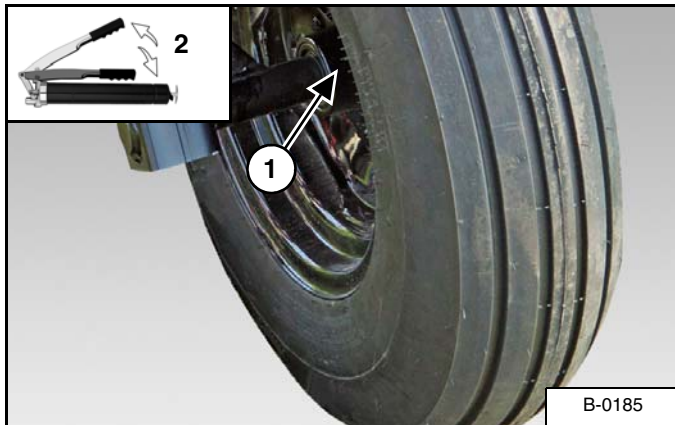
Figure 52



Apply two - three pumps of grease to the wing fold ball joints (Item 1) [Figure 52] on the outer wing hinge points.

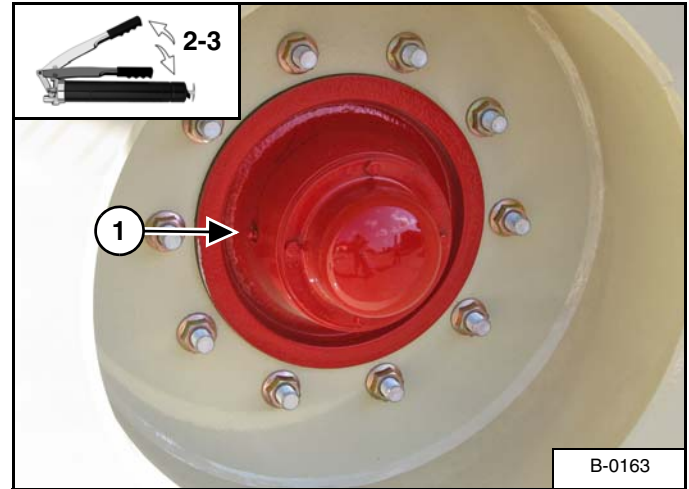
Lubricate the following grease locations EVERY 250 HOURS:

Figure 53



Apply two pumps of grease to the gauge wheel hubs (Item 1) [Figure 53].

Figure 54



Apply two - three pumps of grease to the running wheel bearings (Item 1) [Figure 54].

CLEANING



CHEMICAL HAZARD

To prevent serious injury or death:

WEAR PERSONAL PROTECTIVE EQUIPMENT

- Do not allow chemical or solution to touch skin. Some chemicals can be absorbed through the skin.
- Wear rubber gloves and protective gear at all times.

DON'T BREATHE VAPOR

- Avoid chemical splash and vapor. Keep others away.
- Do not breathe vapor.
- Wear proper respirator when working with chemicals.
- Chemicals can be toxic.

DON'T INGEST CHEMICAL

- If in eyes or mouth, read manufacturer's instructions and follow them exactly.
- Seek immediate medical attention.
- A poison control number is usually inside the front cover of your telephone book.



The tank and system must be emptied of chemical mixture and flushed with clean water before servicing the spray system or spraying components.



Do not spill chemicals on skin or clothing. If chemicals are spilled, remove contaminated clothing immediately and wash skin (and clothing) thoroughly with soap and water. Wash hands and face with soap and water and change clothing after spraying.



Rinse and clean any exterior surfaces and components immediately if any liquid fertilizer spills or leaks occur.

Cleaning The Product Tank

Fill product tank approximately half full, with clean water. (See "Filling The Product Tank" on page 52.)

Engage product pump and flush out through the nozzles.

Add a proper cleaning agent and fill product tank approximately half full one more time.

Engage product pump and flush out through the nozzles.

Fill product tank approximately half full, with clean water, engage product pump and flush out through the nozzles for the final rinse.

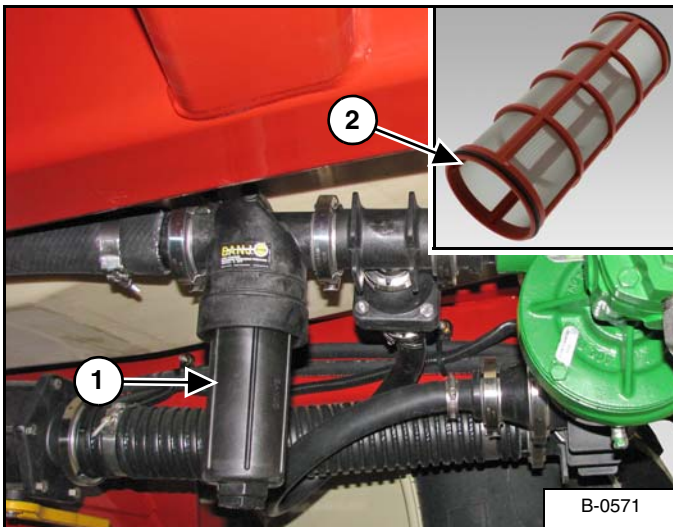
Cleaning The Line Strainer Screen

Clean the line strainer screen every 50 hours of operation.



The tank and system must be emptied of chemical mixture and flushed with clean water before servicing the spray system or spraying components.

Figure 55



Loosen and remove the line strainer canister (Item 1) [Figure 55] by hand (do not use a wrench).

Remove screen (Item 2) [Figure 55] and clean from the inside with clean water.

Inspect the screen for holes or tears. If the screen is damaged, replace the screen.

Install screen and line strainer canister. Hand tighten the line strainer canister (do not use a wrench).

Cleaning The Fertilizer Applicator

Clean and rinse all exterior surfaces and components with clean water and cleaning agent to prevent corrosion.

SAFETY SIGN (DECAL) INSTALLATION

Procedure



When replacing safety signs (decals), the temperature must be above 10° C (50° F).

- Remove all portions of the damaged safety sign (decal).
- Thoroughly clean the area with adhesive remover and glass cleaner. Remove all adhesive residue.
- Allow the area to dry completely before installing the new safety sign (decal).
- Position the safety sign (decal) in the correct location. Remove a small portion of the backing paper on the safety sign (decal).
- Press on the safety sign (decal) where the backing paper has been removed.
- Slowly remove the remaining backing paper, pressing on the safety sign (decal) as the backing paper is removed.
- Using the backing paper, pressing firmly, move the backing paper over the entire safety sign (decal) area.

NOTE: Small air pockets can be pierced with a pin and smoothed out using the piece of the backing paper.

STORAGE AND RETURN TO SERVICE

Storage

Sometimes it may be necessary to store your Farm King fertilizer applicator for an extended period of time. Below is a list of items to perform before storage.



IMPORTANT

DO NOT permit children to play on or around the stored machine.

- Fill product tank approximately half full, with clean water and flush out toolbar / wings. Repeat three times.
 - Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud, debris or residue.
 - Remove orifices and / or spray tips from the coulters assembly. Wash thoroughly. Apply a thin layer of grease to coulters blades/knives and exposed cylinder shafts to prevent rust.
 - Winterize with RV antifreeze.
 - Lubricate all bushings to remove any water residue from washing.
 - Remove any material that has become entangled around any moving part.
 - Raise and fold the toolbar and wings into their fully up and retracted configuration.
 - Install mechanical wing lock system to prevent wings from drifting outward during storage.
 - Close the three valves in the wing lock hydraulic circuits.
 - Clean, flush, drain and cover spray monitors with an opaque material (lawn / leaf garbage bag) to protect from UV damage.
 - Place hydraulic hoses and 7-pin connector in the storage brackets.
 - Inspect the hitch and all welds on the equipment for wear and damage.
 - Check for loose hardware, missing guards, or damaged parts.
 - Check for damaged or missing safety signs (decals). Replace if necessary.
- Replace worn or damaged parts.
 - Touch up all paint nicks and scratches to prevent rusting.
 - Place the equipment in a dry protected shelter.
- NOTE: If a dry protected shelter is not available, cover with a waterproof tarp and tie down securely.**
- Support the jack / frame with planks if required.

Return To Service

After the Farm King fertilizer applicator has been in storage, it is necessary to follow a list of items to return the equipment to service.

- Be sure all shields and guards are in place.
- Lubricate the equipment.
- Connect to a tractor and operate equipment, verify all functions operate correctly.
- Check for leaks. Repair as needed.

Farm King



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24 Row - 30" Spacing (60 Ft) 23 Coulters	125
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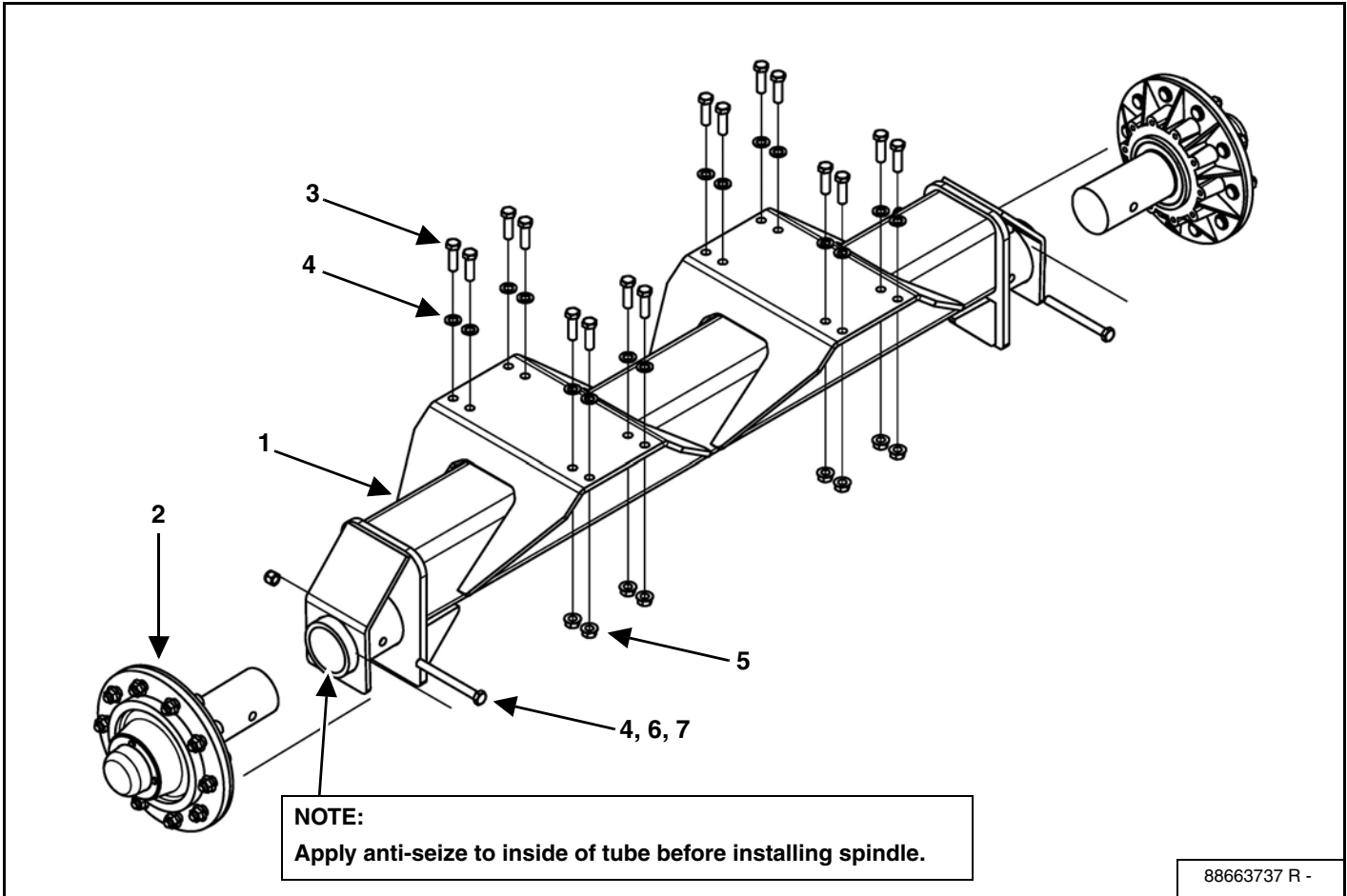
GENERAL PARTS INFORMATION

The parts identification section list descriptions, part numbers and quantities for all North America Base Model 1860 and 2460 fertilizer applicators. Contact your Farm King dealer for additional fertilizer applicator parts information.



AXLE GROUP (SHORT) (20", 22", 30" ROW SPACINGS)

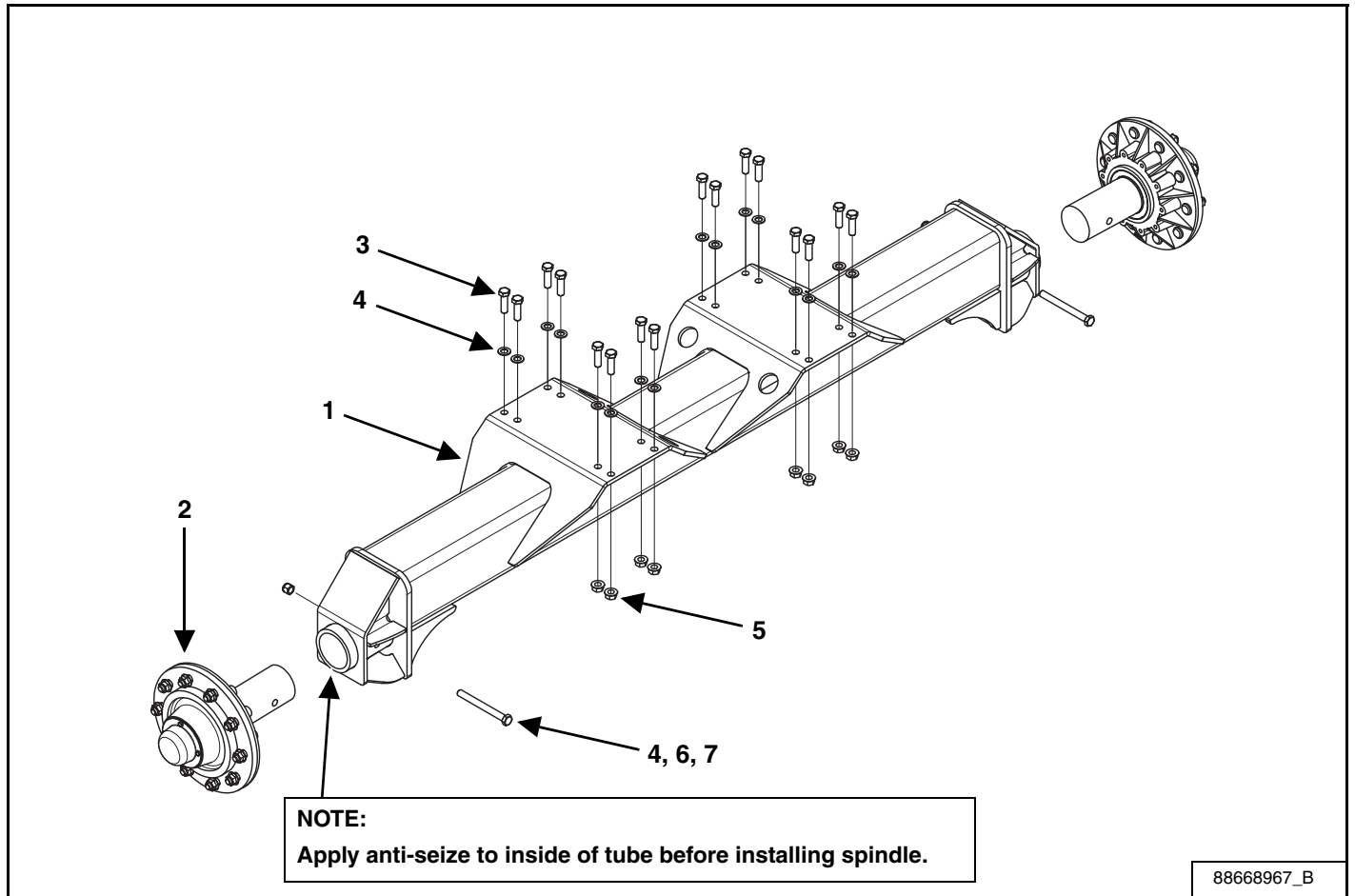
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663910	AXLE WELDMENT, GREEN	1
	88663909	AXLE WELDMENT, RED	1
2	88664705	HUB & SPINDLE ASSEMBLY 25K GREEN	2
	88664704	HUB & SPINDLE ASSEMBLY 25K RED	2
3	09706701	CSHH G5 P 0.75" x 2.50"	16
4	SXFW-075-SAE-YZ	FLATWASHER, 3/4 YLLW ZINC	18
5	88663904	NUT FLG, TP LCK, 3/4-10 GR5YZ	16
6	88664694	CSHH G8P 0.75" x 7.50"	2
7	88660492	LOCKNUT, 3/4" NI GR5 YZ	2

AXLE GROUP (LONG) 38" ROW SPACING (ONLY)

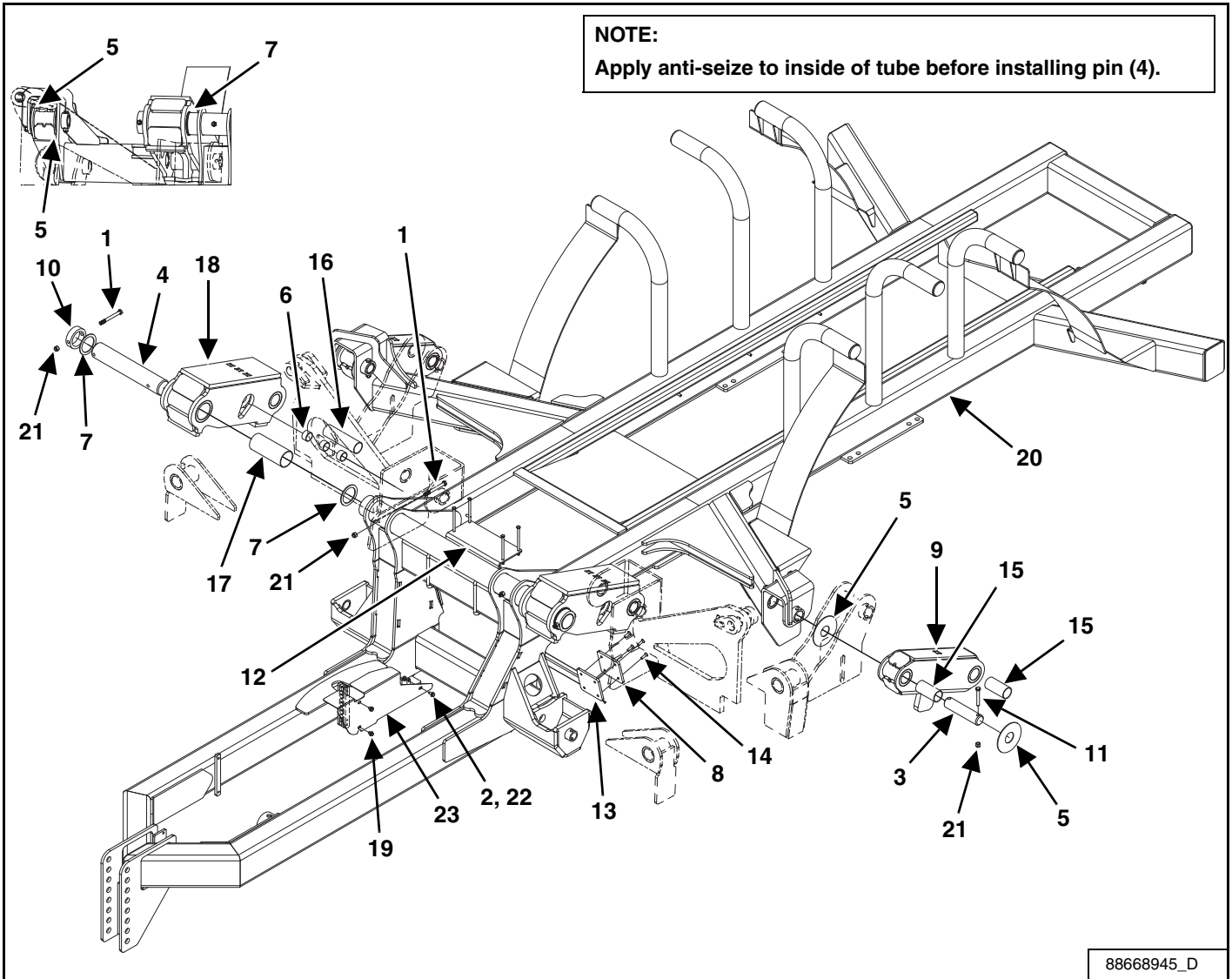
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88668860	AXLE WELDMENT, GREEN	1
	88668861	AXLE WELDMENT, RED	1
2	88664705	HUB & SPINDLE ASSEMBLY 25K GREEN	2
	88664704	HUB & SPINDLE ASSEMBLY 25K RED	2
3	09706701	CSHH G5 P 0.75" x 2.50"	16
4	SXFW-075-SAE-YZ	FLATWASHER, 3/4 YLLW ZINC	18
5	88663904	NUT FLG, TP LCK, 3/4-10 GR5YZ	16
6	88664694	CSHH G8P 0.75" x 7.50"	2
7	88660492	LOCKNUT, 3/4" NI GR5 YZ	2

FRAME GROUP

1860 & 2460 Green Models

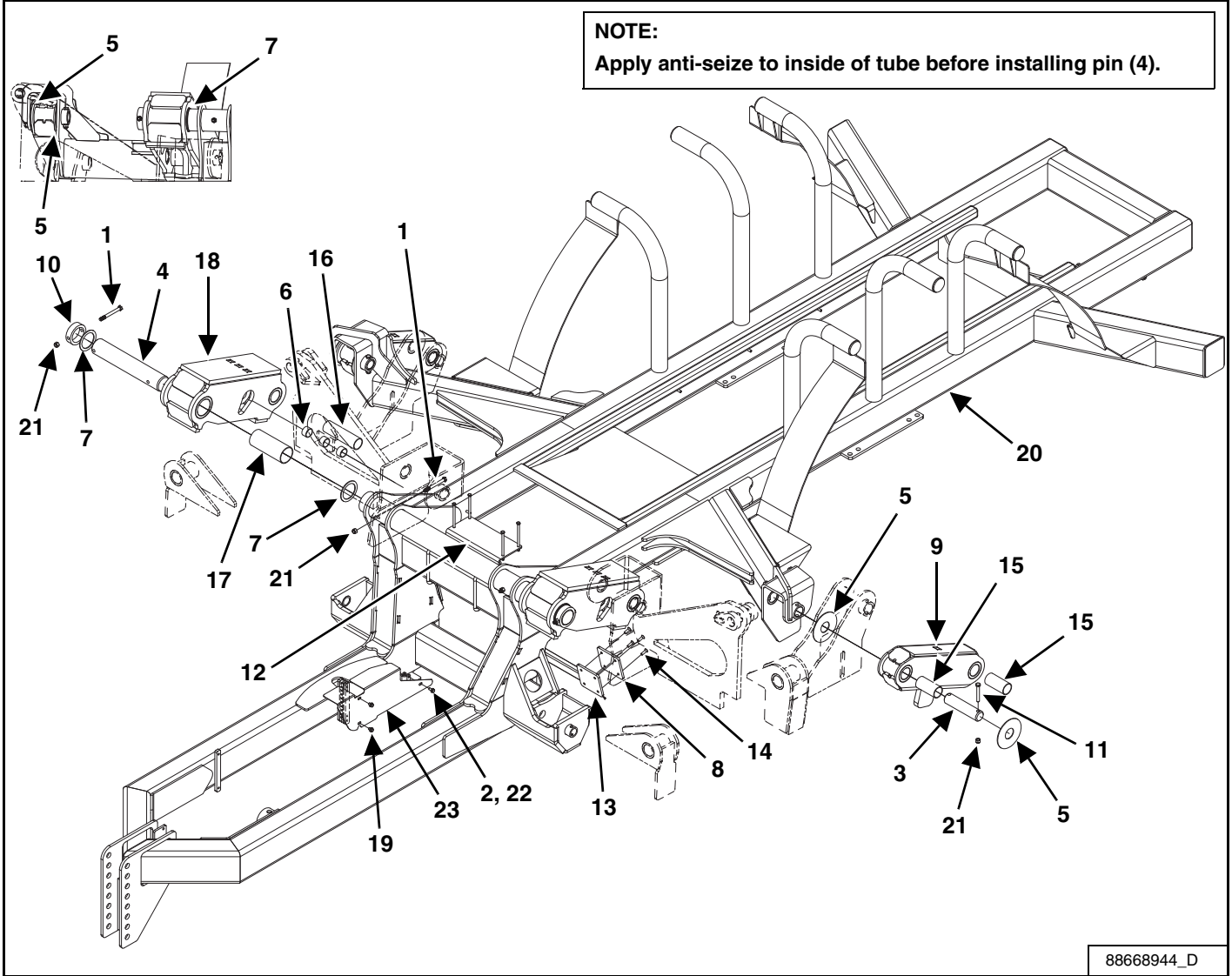


88668945_D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087997	CSHH G5 P .50x5.00 86505344	4
2	88662048	CSFL G8 P 3/8 X 0.75 86505611	1
3	88663612	PIN - HINGE INNER WING	2
4	88663670	PIN - LIFT ARM FRONT TOP	2
5	88663730	WASHER - THRUST TOOLBAR	4
6	88663760	BUSHING - CYLINDER CLEVIS	6
7	88663765	WASHER - THRUST LIFT ARM	4
8	88663793	STOP - TOOLBAR	2
9	88663884	WLDT - REAR LIFT ARM GREEN	2
10	88663890	COLLAR - FRONT LIFT ARM	2
11	SXBH0503505YZ	CSHH G5P .50X3.50	4
12	88667247	ASSY - HYD VALVE MOUNT	1
13	88667852	PLT, SPACER TOOLBAR STOP	2
14	88667854	SCREW FH CS P .375X1.25	8
15	88667971	BUSHING; TOOLBAR 2	4
16	88667972	BUSHING; FRONT LIFT ARM REAR 2	2
17	88667973	BUSHING; FRONT LIFT ARM FRT 2	2
18	88668788	WLDT; FRONT LIFT ARM, GRN	2
19	88668821	BOLT, FLG; 3/8X.50 G5 YZ	2
20	88668953	WLDT - MAIN FRAME - GRN	1
21	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	8
22	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8-16 UNC G8YZ	1
23	88668982	SHEET, SHIELD, HYD TUBE, GRN	1

FRAME GROUP (CONT'D)

1860 & 2460 Red Models

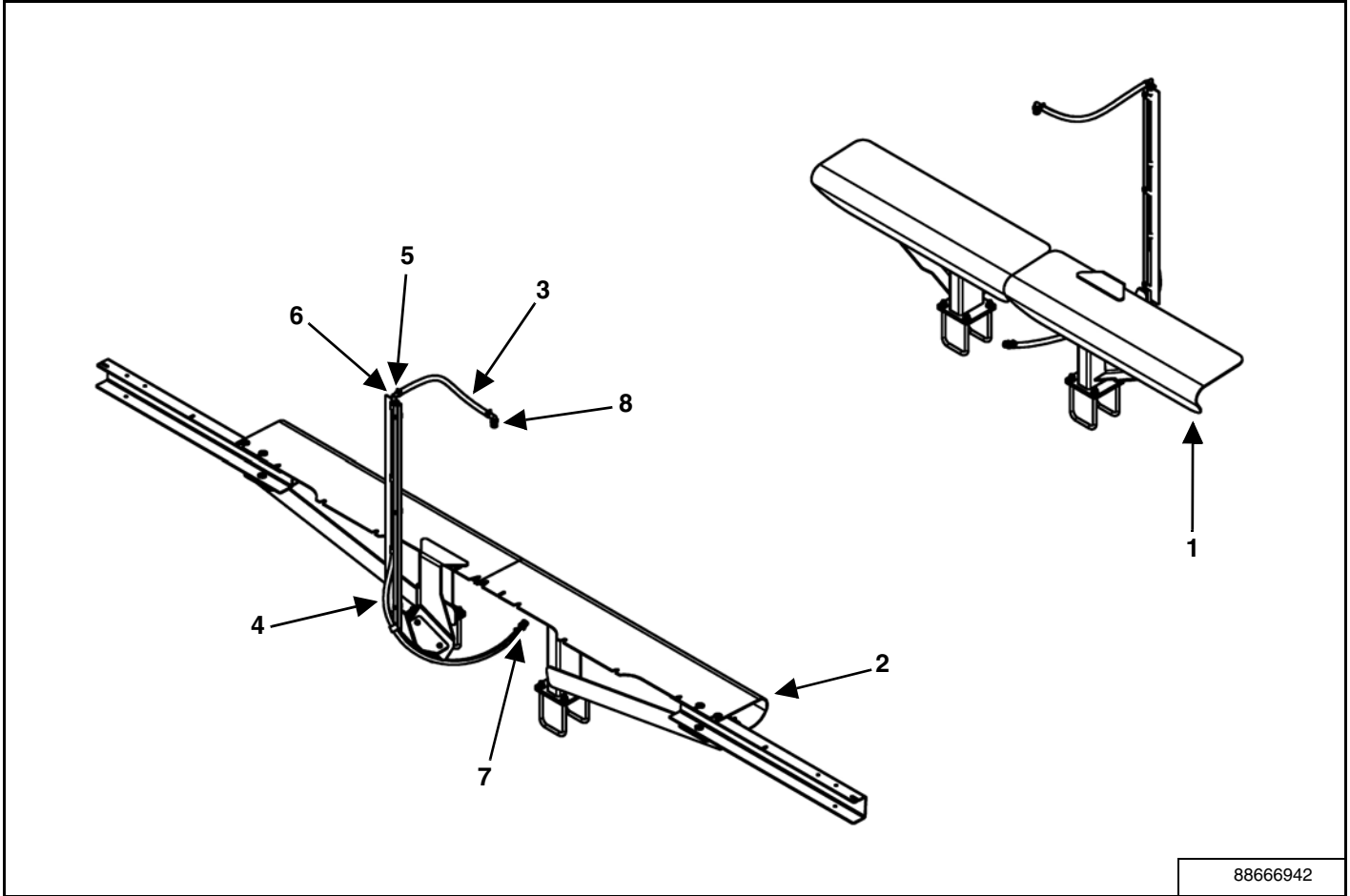


88668944_D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087997	CSHH G5 P .50x5.00 86505344	4
2	88662048	CSFL G8 P 3/8 X 0.75 86505611	1
3	88663612	PIN - HINGE INNER WING	2
4	88663670	PIN - LIFT ARM FRONT TOP	2
5	88663730	WASHER - THRUST TOOLBAR	4
6	88663760	BUSHING - CYLINDER CLEVIS	6
7	88663765	WASHER - THRUST LIFT ARM	4
8	88663793	STOP - TOOLBAR	2
9	88663883	WLDT - REAR LIFT ARM RED	2
10	88663889	COLLAR - FRONT LIFT ARM	2
11	SXBH0503505YZ	CSHH G5P .50X3.50	4
12	88667247	ASSY - HYD VALVE MOUNT	1
13	88667852	PLT, SPACER TOOLBAR STOP	2
14	88667854	SCREW FH CS P .375X1.25	8
15	88667971	BUSHING; TOOLBAR 2	4
16	88667972	BUSHING; FRONT LIFT ARM REAR 2	2
17	88667973	BUSHING; FRONT LIFT ARM FRT 2	2
18	88668787	WLDT; FRONT LIFT ARM, RED	2
19	88668821	BOLT, FLG; 3/8X.50 G5 YZ	2
20	88668952	WLDT - MAIN FRAME	1
21	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	8
22	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8-16 UNC G8YZ	1
23	88668983	SHEET, SHIELD, HYD TUBE, RED	1

TANK SUPPORT GROUP

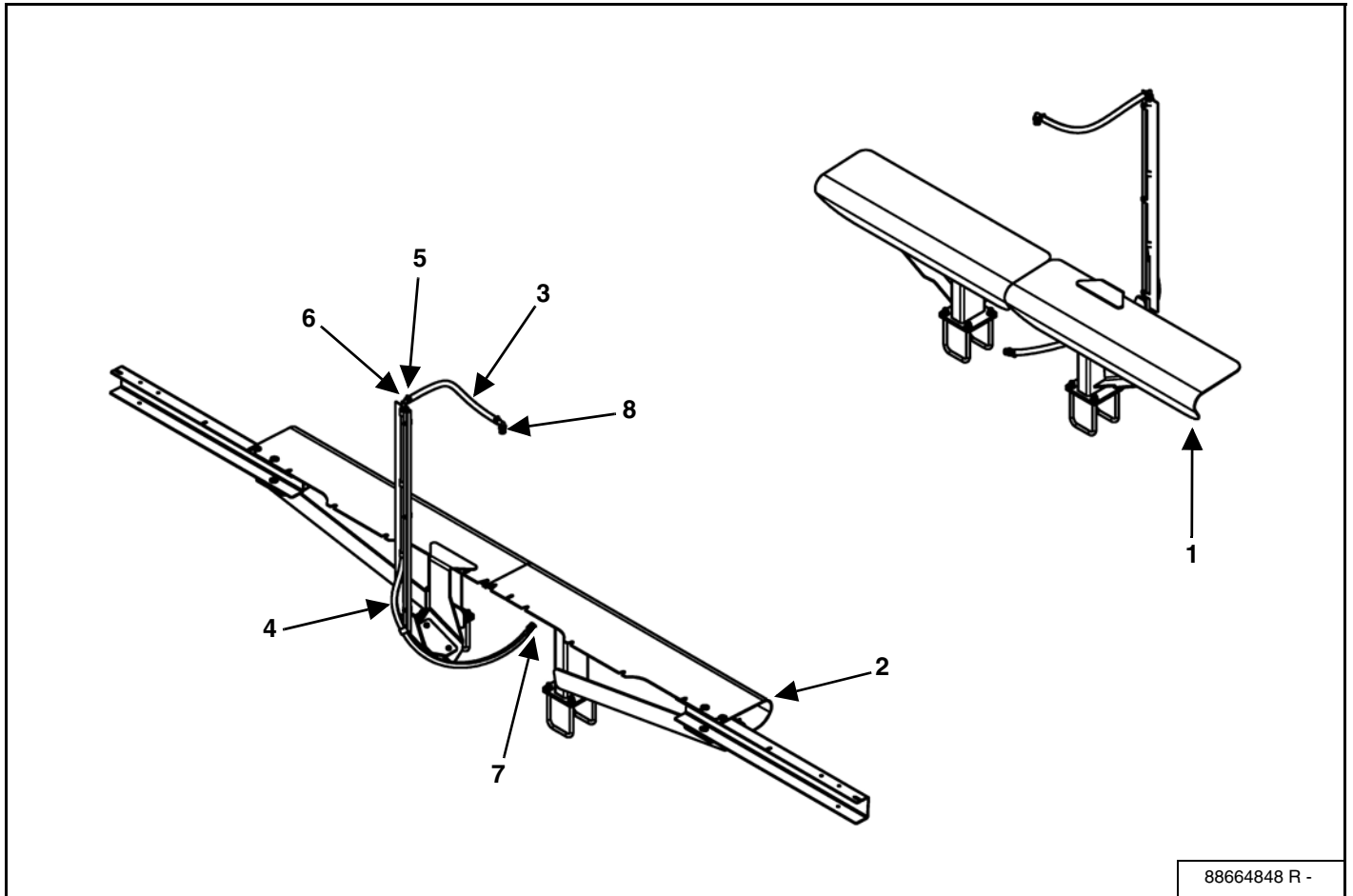
1860 & 2460 Green Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666946	TANK SUPPORT ASSEMBLY FRONT, GREEN	1
2	88666943	TANK SUPPORT ASSEMBLY REAR, GREEN	1
3	88664857	HOSE SIGHT 3/4"	2
4	88666958	HOSE SIGHT 3/4"	2
5	SX12J	CLAMP, 3/4" HOSE WORM SCREW	8
6	SX3EL34HB	HOSE FITTING, 5/8" ELHB x 5/8" HB	2
7	SXHB-075	HOSE BARB, 3/4" MPT x 3/4" HB POLY	2
8	SXHB-075-90	HOSE BARB, 3/4" MPT x 3/4" HB	2

TANK SUPPORT GROUP (CONT'D)

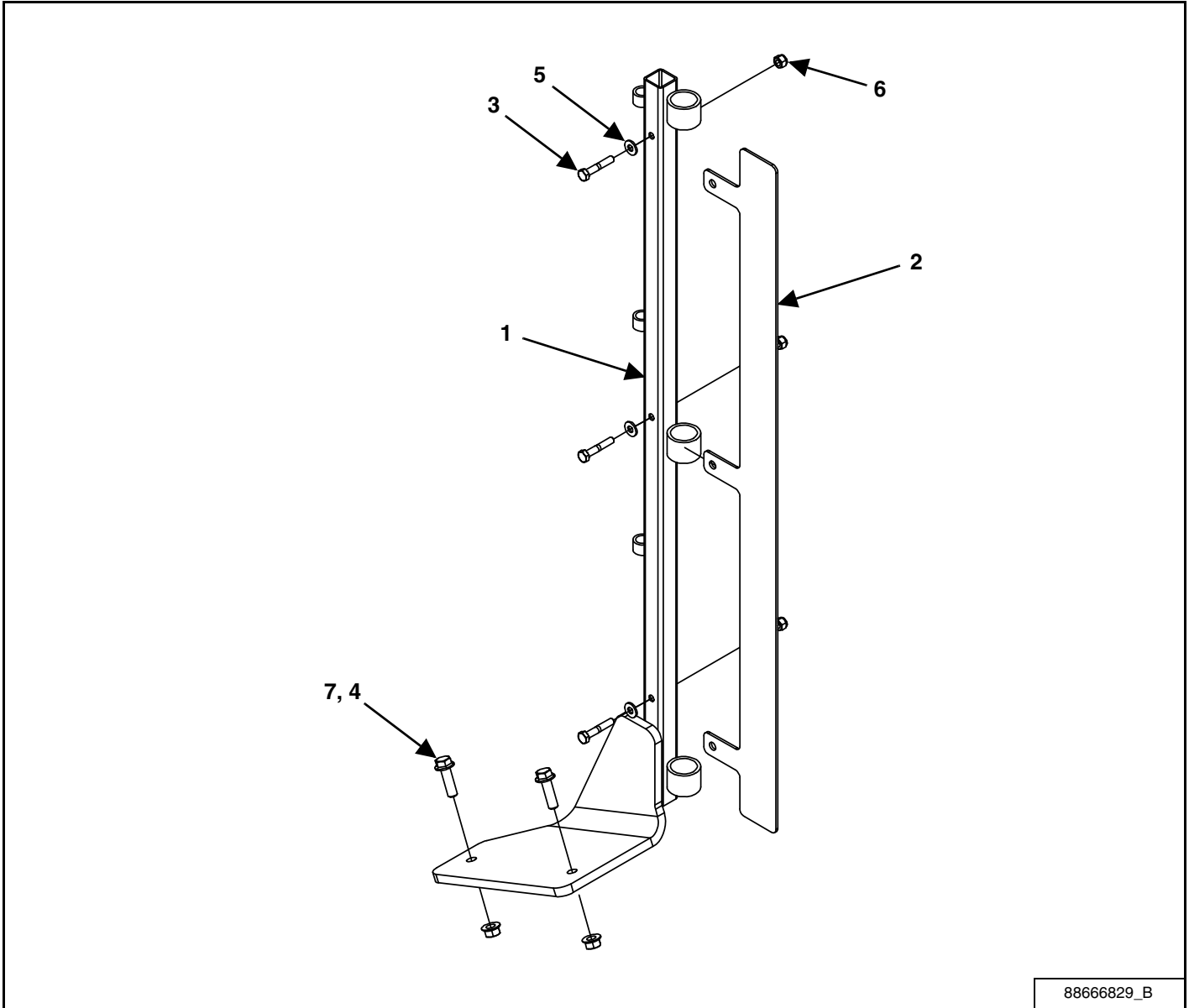
1860 & 2460 Red Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666944	TANK SUPPORT ASSEMBLY FRONT, RED	1
2	88666945	TANK SUPPORT ASSEMBLY REAR, RED	1
3	88664857	HOSE SIGHT 3/4"	2
4	88666958	HOSE SIGHT 3/4"	2
5	SX12J	CLAMP, 3/4" HOSE WORM SCREW	8
6	SX3EL34HB	HOSE FITTING, 5/8" ELHB x 5/8" HB	2
7	SXHB-075	HOSE BARB, 3/4" MPT x 3/4" HB POLY	2
8	SXHB-075-90	HOSE BARB, 3/4" MPT x 3/4" HB	2

SIGHT GAUGE ASSEMBLY

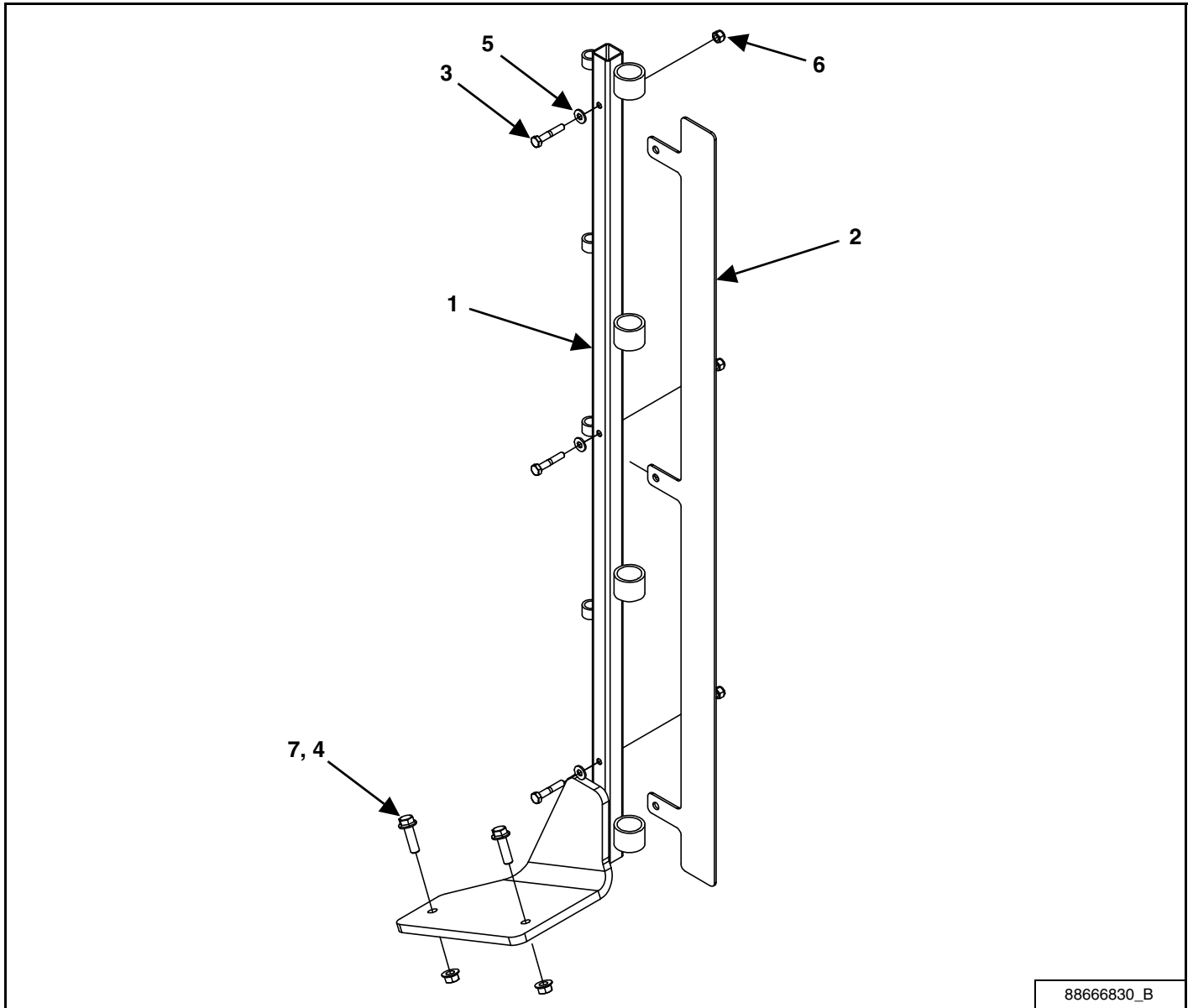
1860 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666827	WLD, SIGHT GAUGE	1
2	88666825	PLT, SIGHT GAUGE, DECAL 1860	1
3	SXBH-025-150-5	BOLT; 1/4 X 1 1/4 GRD 5 ZINC	3
4	SXBHF0381258YZ	BOLT; FLG, 3/8X1.25 GR8 YLLWZN	2
5	SXFW-025-YZ	FLATWASHER; 1/4 ZINC PLATED	3
6	SXLN-025-NIYZ	LOCKNUT; 1/4" NYLON INSERT	3
7	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8 GR8-YZ	2

SIGHT GAUGE ASSEMBLY (CONT'D)

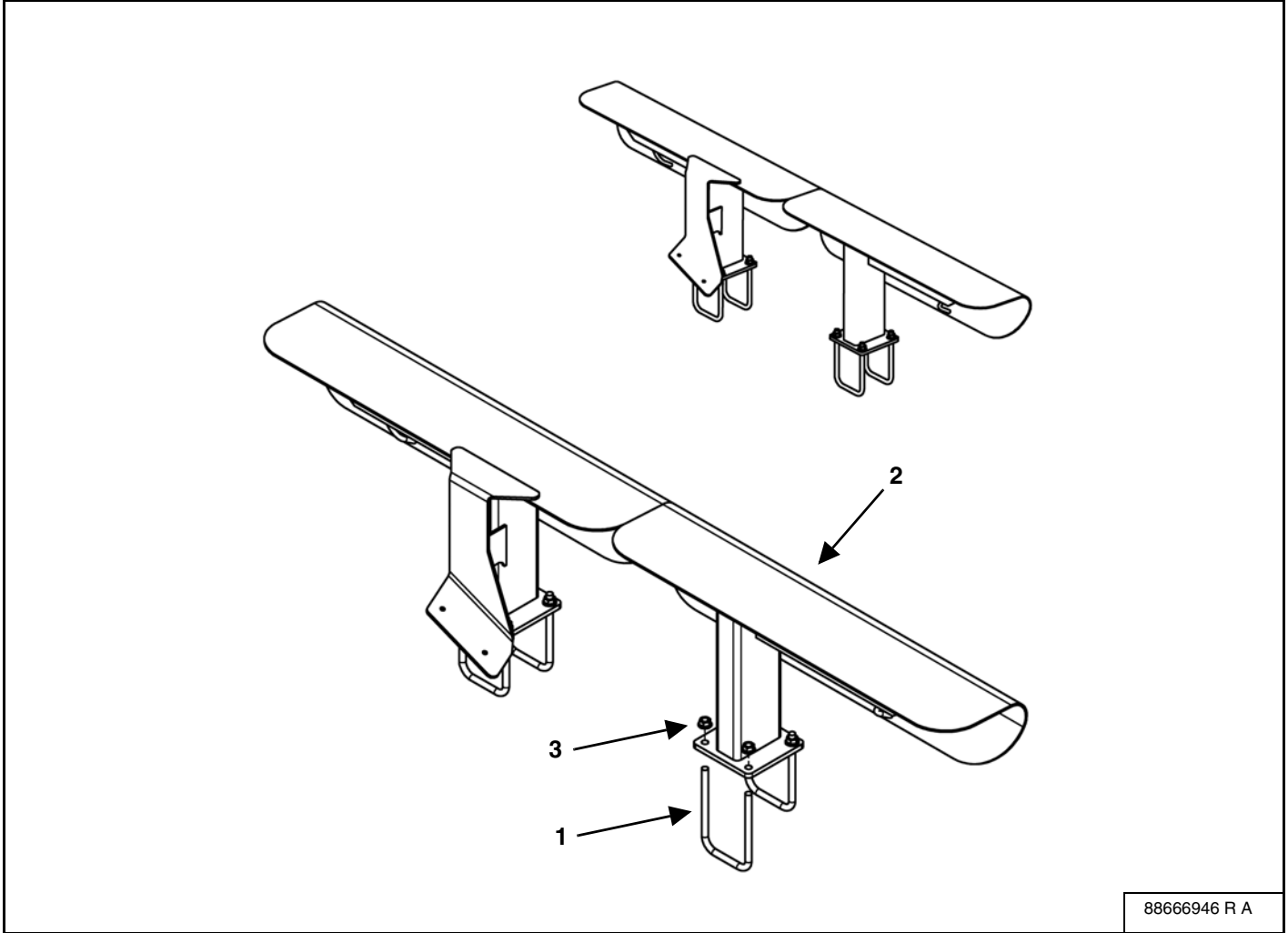
2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666828	WLDT, SIGHT GAUGE	1
2	88666826	PLT, SIGHT GAUGE, DECAL 2460	1
3	SXBH-025-150-5	BOLT; 1/4 X 1 1/4 GRD 5 ZINC	3
4	SXBHF0381258YZ	BOLT; FLG, 3/8X1.25 GR8 YLLWZN	2
5	SXFW-025-YZ	FLATWASHER; 1/4 ZINC PLATED	3
6	SXLN-025-NIYZ	LOCKNUT; 1/4" NYLON INSERT	3
7	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8 GR8-YZ	2

TANK SUPPORT FRONT

1860 & 2460 Green Models

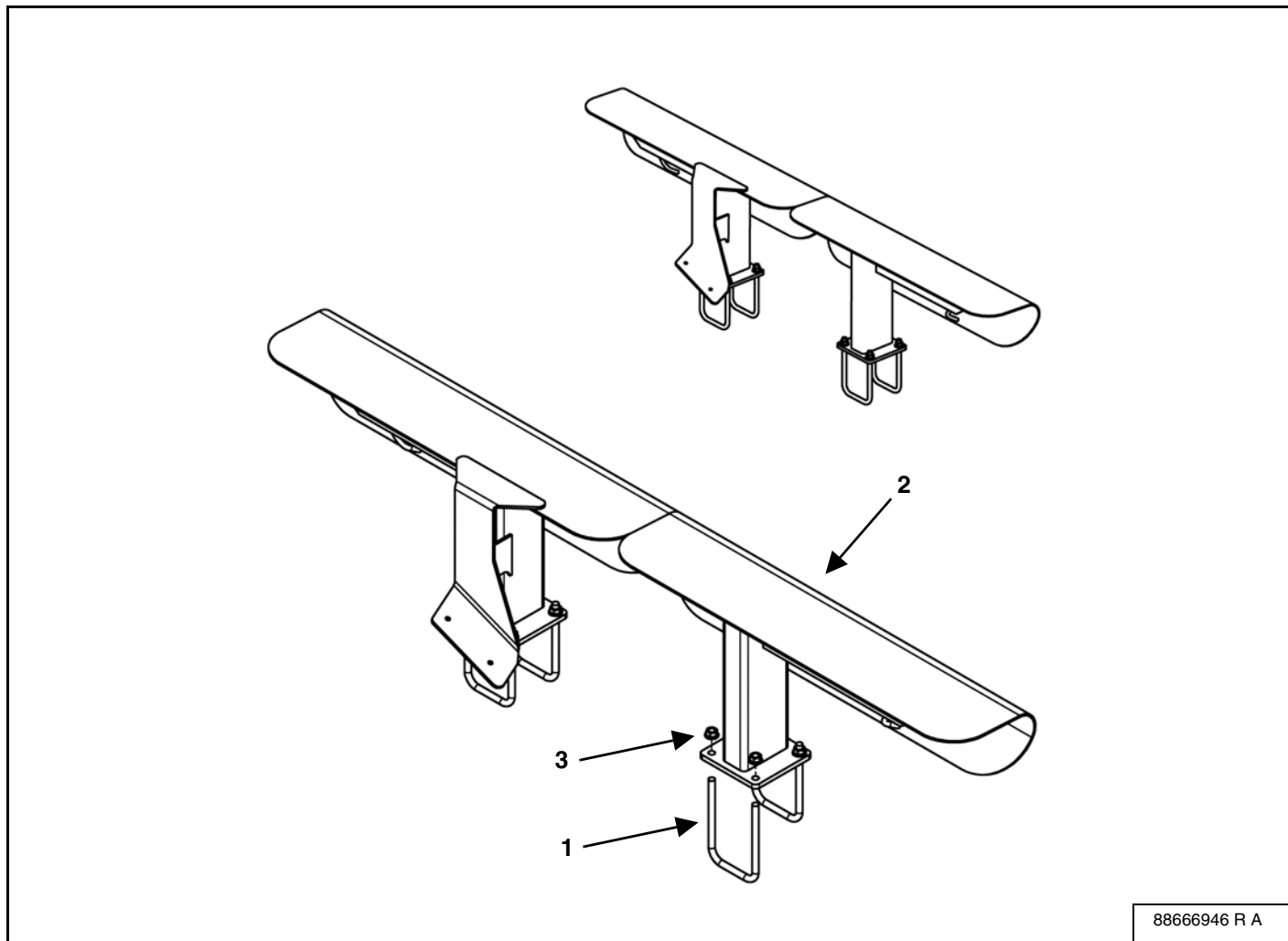


88666946 R A

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663622	U-BOLT, 0.63 x 5.13 x 8.63 LG	4
2	88667243	TANK SUPPORT FRONT, GREEN WELDMENT	1
3	SXNTFTL062118Y	NUT FLG, TP LCK, 5/8" GR8 YZ	8

TANK SUPPORT FRONT (CONT'D)

1860 & 2460 Red Models

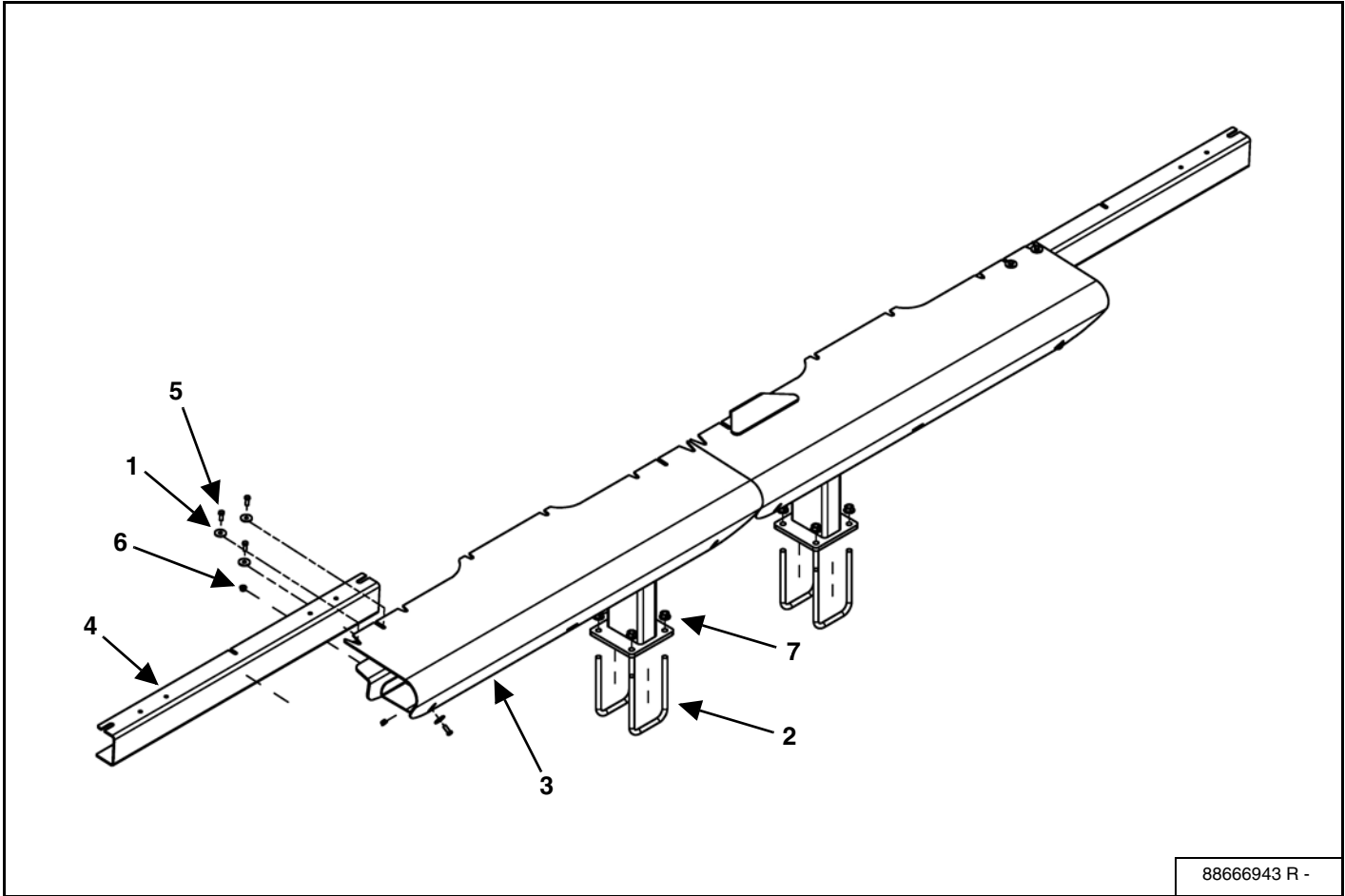


88666946 R A

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663622	U-BOLT, 0.63 x 5.13 x 8.63 LG	4
2	88667242	TANK SUPPORT FRONT, RED WELDMENT	1
3	SXNTFTL062118Y	NUT FLG, TP LCK, 5/8" GR8 YZ	8

TANK SUPPORT REAR

1860 & 2460 Green Models

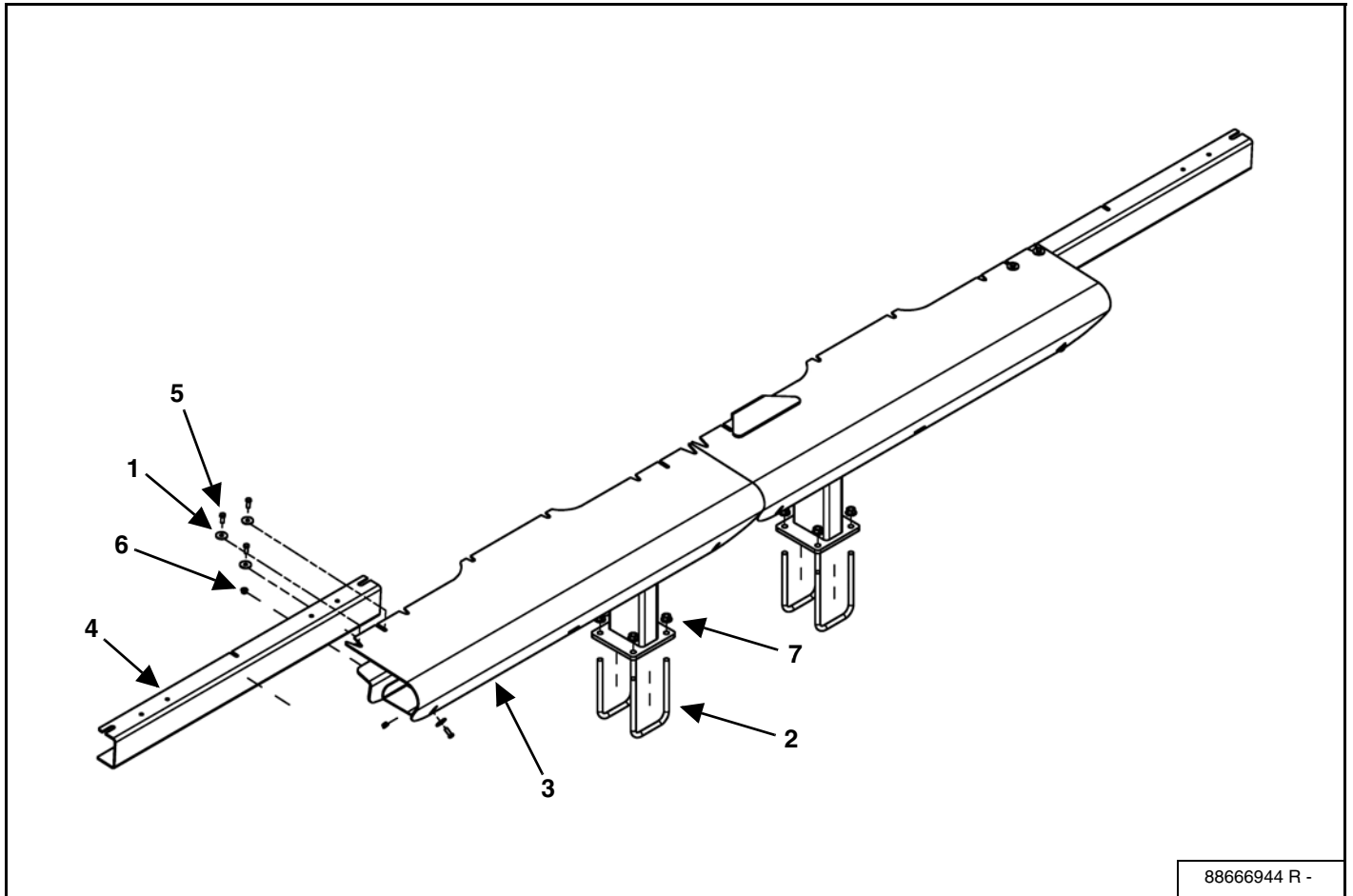


88666943 R -

ITEM	PART NUMBER	DESCRIPTION	QTY
1	86505938	WASHER P, 0.406" ID, 1.375" OD, 0.083"	8
2	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	4
3	88663906	TANK SUPPORT REAR - GREEN WELDMENT	1
4	88664833	BRACKET, LIGHT BAR, GREEN	2
5	SXBH0381005YZ	BOLT, 3/8" x 1" YZ	8
6	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8" GR8 YZ	8
7	SXNTFTL062118Y	NUT FLG, TP LCK, 5/8" GR8 YZ	8
NS	SX21294	MOUNT, CABLE TIE HEAVY DUTY	8

TANK SUPPORT REAR (CONT'D)

1860 & 2460 Red Models

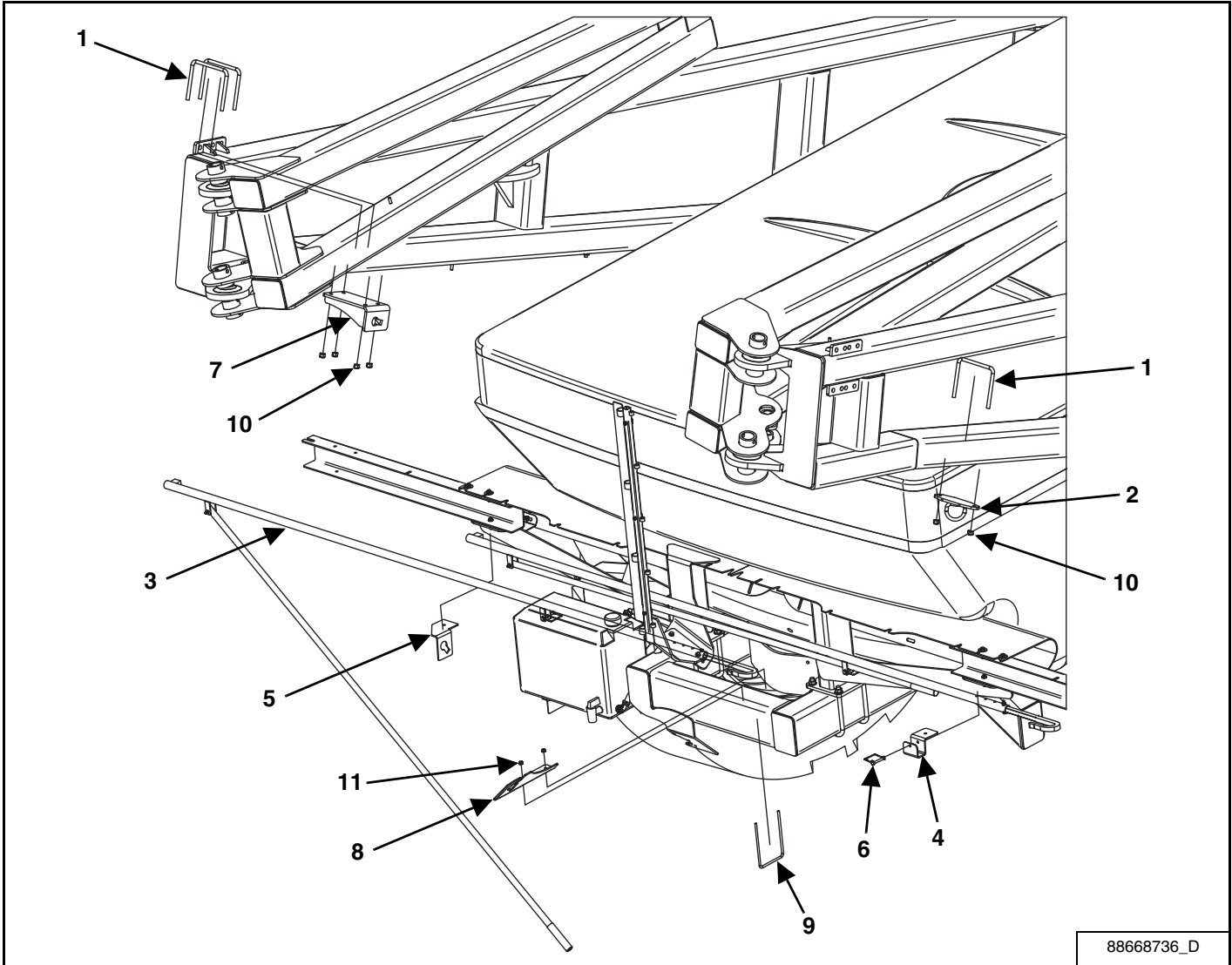


88666944 R -

ITEM	PART NUMBER	DESCRIPTION	QTY
1	86505938	WASHER P, 0.406" ID, 1.375" OD, 0.083"	8
2	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	4
3	88663905	TANK SUPPORT REAR - RED WELDMENT	1
4	88664831	BRACKET, LIGHT BAR, RED	2
5	88664854	SIGHT GAUGE ASSEMBLY	1
6	SX21294	MOUNT, CABLE TIE HEAVY DUTY	8
7	SXBH0381005YZ	BOLT, 3/8" x 1" YZ	8
8	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8" GR8 YZ	8
9	SXNTFTL062118Y	NUT FLG, TP LCK, 5/8" GR8 YZ	8

MECHANICAL WING LOCK SYSTEM

1860 & 2460 Models

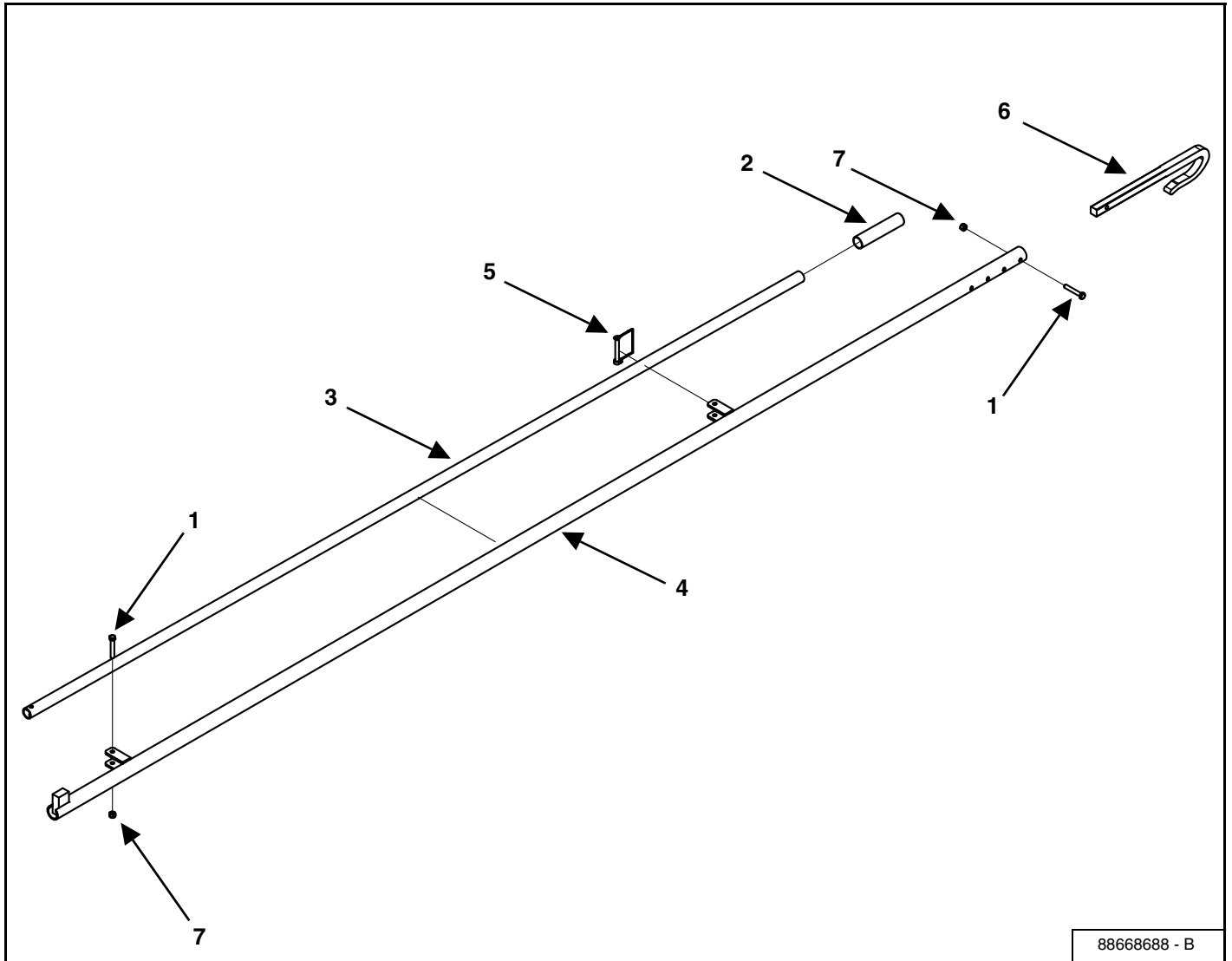


88668736_D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88667248	U-BOLT, 1/2X7.56X6.50 GR5 YZ	3
2	88668686	WELDMENT; D RING	1
3	88668688	ASSY; TOOLBAR LATCH HOOK SUB.	1
4	88668876	PLATE; HOOK	1
5	88668877	PLATE; KEYHOLE	1
6	88668883	PIN; LINCH PIN, 5/16X2 1/2" YZ	1
7	88668918	WLDT; KEYHOLE	1
8	88668941	PLT; HANDLE MOUNT	1
9	88668942	U-BOLT, 5/16 X 5.38 X 8.00 LG	1
10	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	6
11	SXNTFTL031188Y	NUT; 5/16-18 FLG GR8	2

TOOLBAR LATCH HOOK SUBASSEMBLY

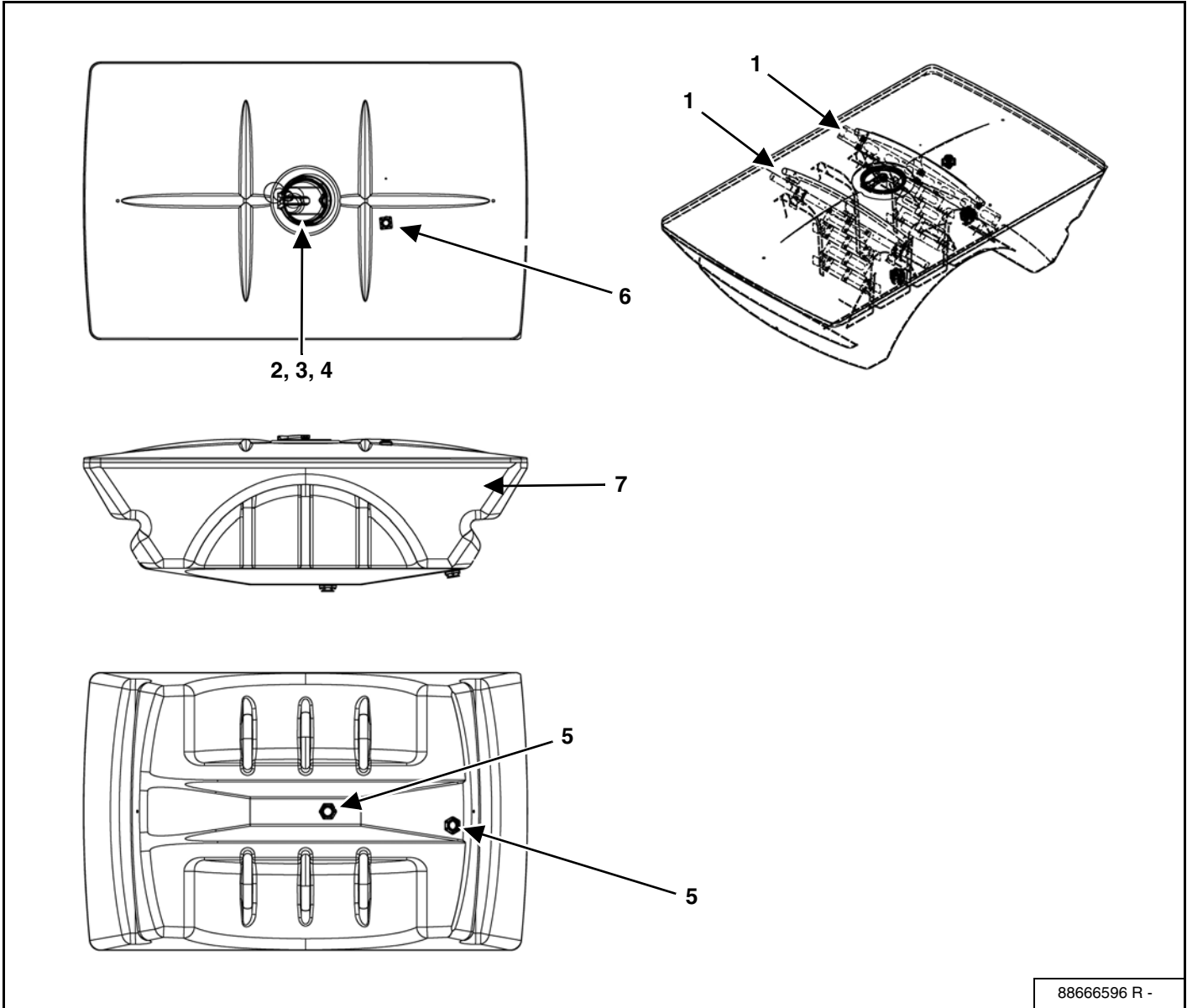
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	09636711	BOLT, 5/16" UNC x 2" LG CSHH GR 5	2
2	88665135	HANDLE RUBBER SLIP - ON 1" DIA	1
3	88668689	HANDLE STICK TUBE	1
4	88668690	TOOLBAR LATCH HOOK WELDMENT	1
5	88668883	LINCH PIN, 5/16" x 2-1/2" YZ	1
6	-	SHEPHERDS HOOK, PLT	1
7	SXLN-031-NIYZ	LOCKNUT, 5/16" NYLON INSERT YZ	2

TANK ASSEMBLY

1860 Models

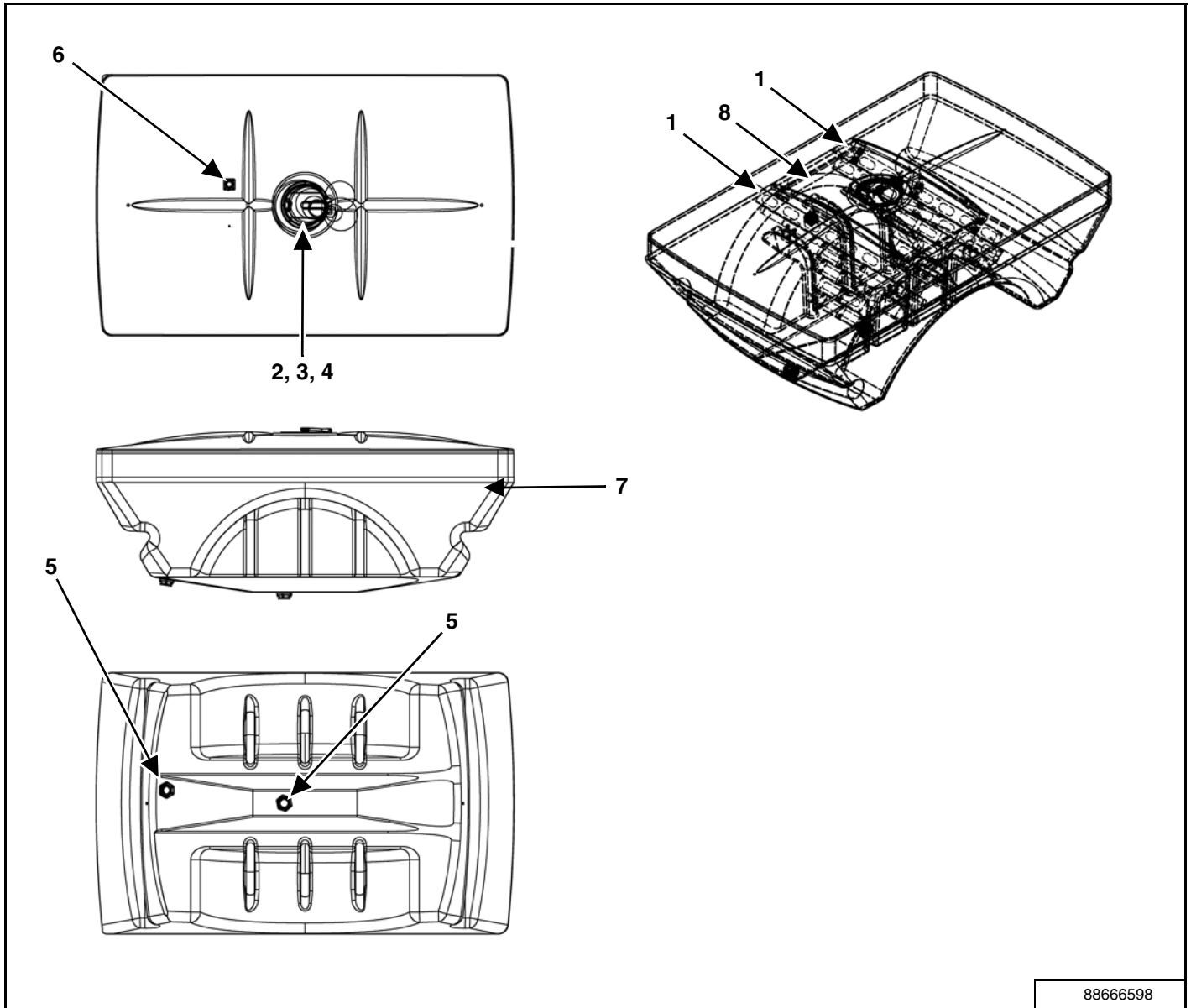


88666596 R -

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666618	TANK Baffle ASSEMBLY 1800	2
2	88664553	LID TANK 16" POLY	1
3	88664555	STSTPH#10-24 x 0.625 86505618	8
4	88664554	GASKET LID TANK 16" POLY	1
5	SXMBF300BD	BULKHEAD, 3", BOLT, FLANGED, BD	2
6	SXMBF220	MANIFOLD, 2" FP FLG, 2" FPT	1
7	88663650	TANK - 1800 GAL CREAM	1

TANK ASSEMBLY (CONT'D)

2460 Models

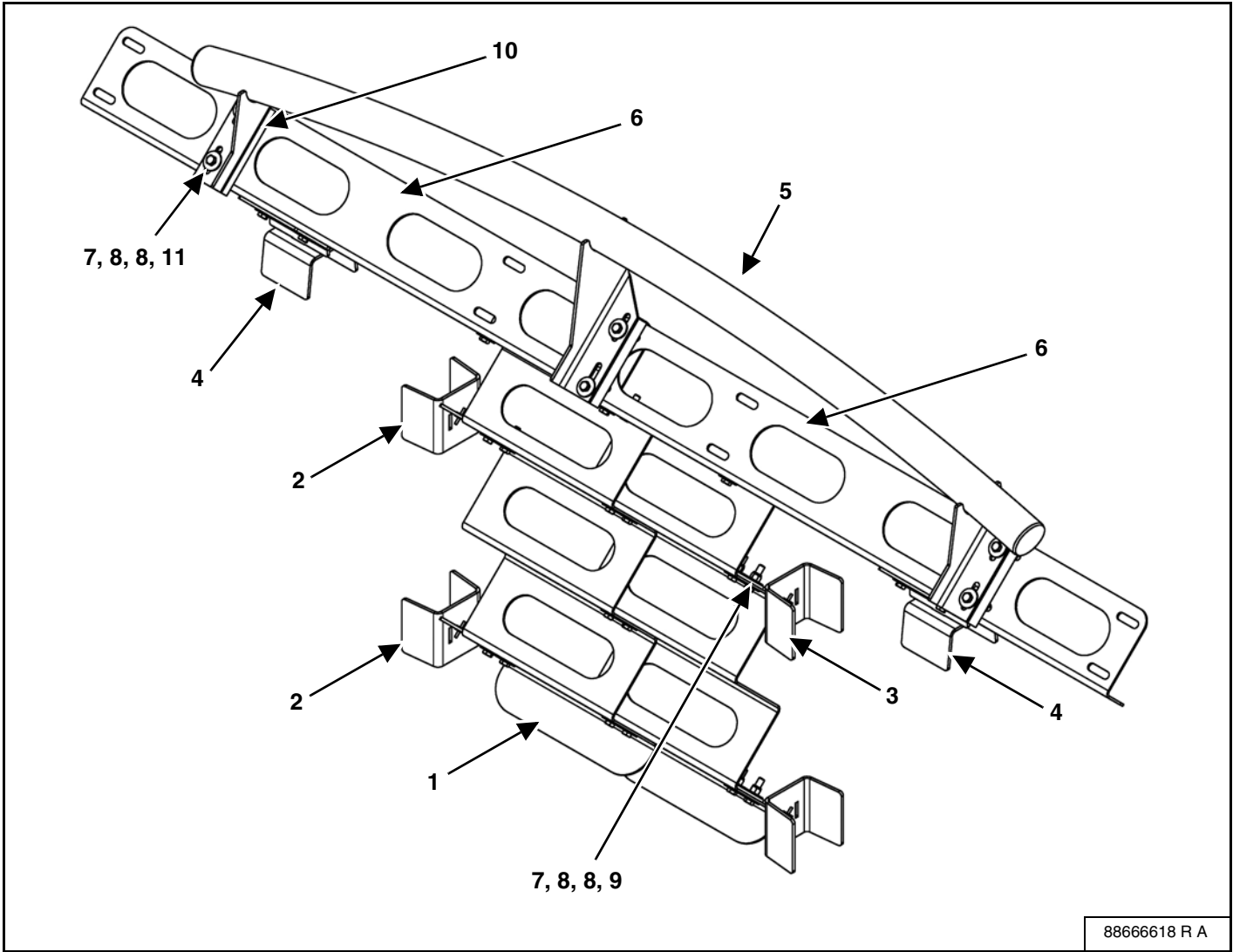


ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666617	TANK BAFFLE ASSEMBLY 2400	2
2	88664553	LID TANK 16" POLY	1
3	88664555	STSTPH#10-24 x 0.625" 86505618	8
4	88664554	GASKET LID TANK 16" POLY	1
5	SXMBF300BD	BULKHEAD, 3", BOLT, FLANGED, BD	2
6	SXMBF220	MANIFOLD, 2" FP FLG, 2" FPT	1
7	88663652	TANK - 2400 GAL CREAM	1
8	88666502	PLATE, BAFFLE SUPPORT	2

TANK BAFFLE GROUP

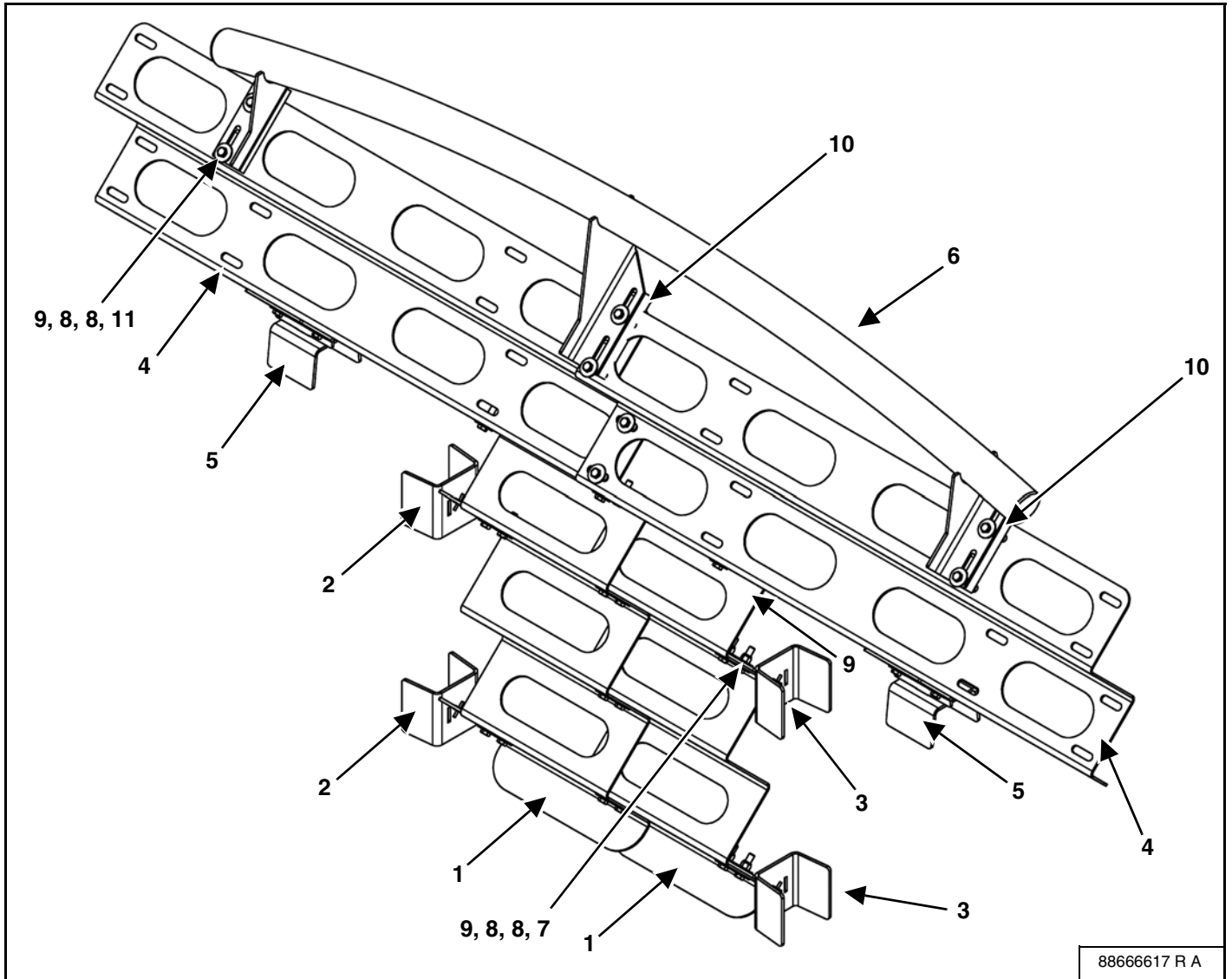
TANK BAFFLE GROUP (CONT'D)

1860 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663784	BRACKET, BAFFLE LOWER SECT	2
2	88663787	BAFFLE CHANNEL LH WELDMENT	2
3	88663788	BAFFLE CHANNEL RH WELDMENT	2
4	88663802	RIB ADJUSTMENT WELDMENT	2
5	88663809	TANK RIB WELDMENT	1
6	88663789	BRACKET, UPPER BAFFLE 1800	2
7	88663814	LOCKNUT, 3/8" NYLON INSERT SS	28
8	88663813	WASHER, FENDER 3/8" STAINLESS	56
9	88663812	BOLT, 3/8" x 1.50" UNC SS	28
10	88666501	BAFFLE SPACER PLATE	3
11	88667240	BOLT, 3/8" x 2 1/2" UNC SS	6

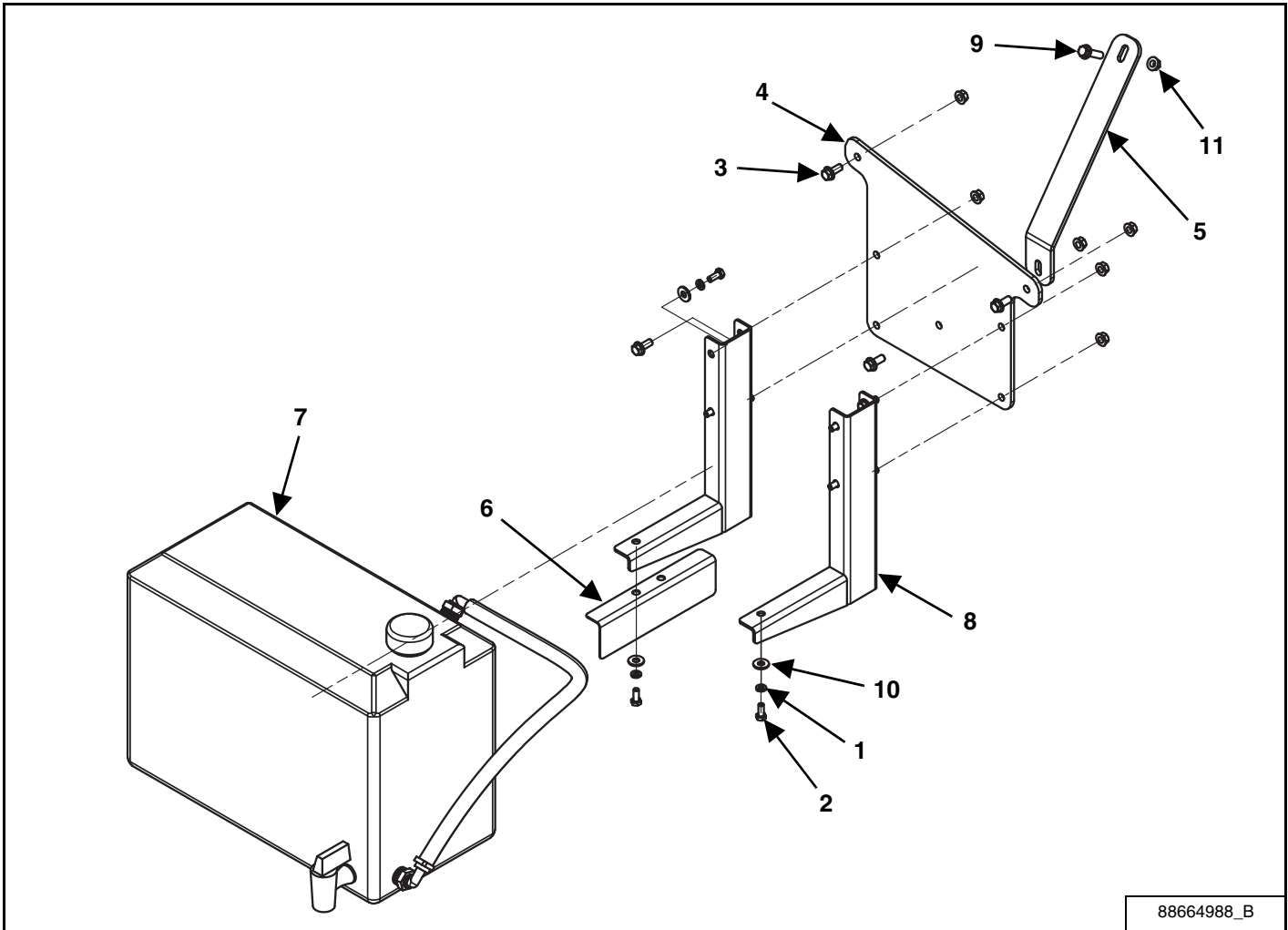
2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663784	BRACKET, BAFFLE LOWER SECT	2
2	88663787	BAFFLE CHANNEL LH WELDMENT	2
3	88663788	BAFFLE CHANNEL RH WELDMENT	2
4	88663790	BRACKET, UPPER BAFFLE 2400	2
5	88663802	RIB ADJUSTMENT WELDMENT	2
6	88663809	TANK RIB WELDMENT	1
7	88663812	BOLT, 3/8" x 1.50" UNC SS	24
8	88663813	WASHER, FENDER 3/8" STAINLESS	60
9	88663814	LOCKNUT, 3/8" NYLON INSERT SS	30
10	88666501	BAFFLE SPACER PLATE,	3
11	88667240	BOLT, 3/8" x 2 1/2" UNC SS	6

HAND / EYE WASH GROUP

1860 & 2460 Models

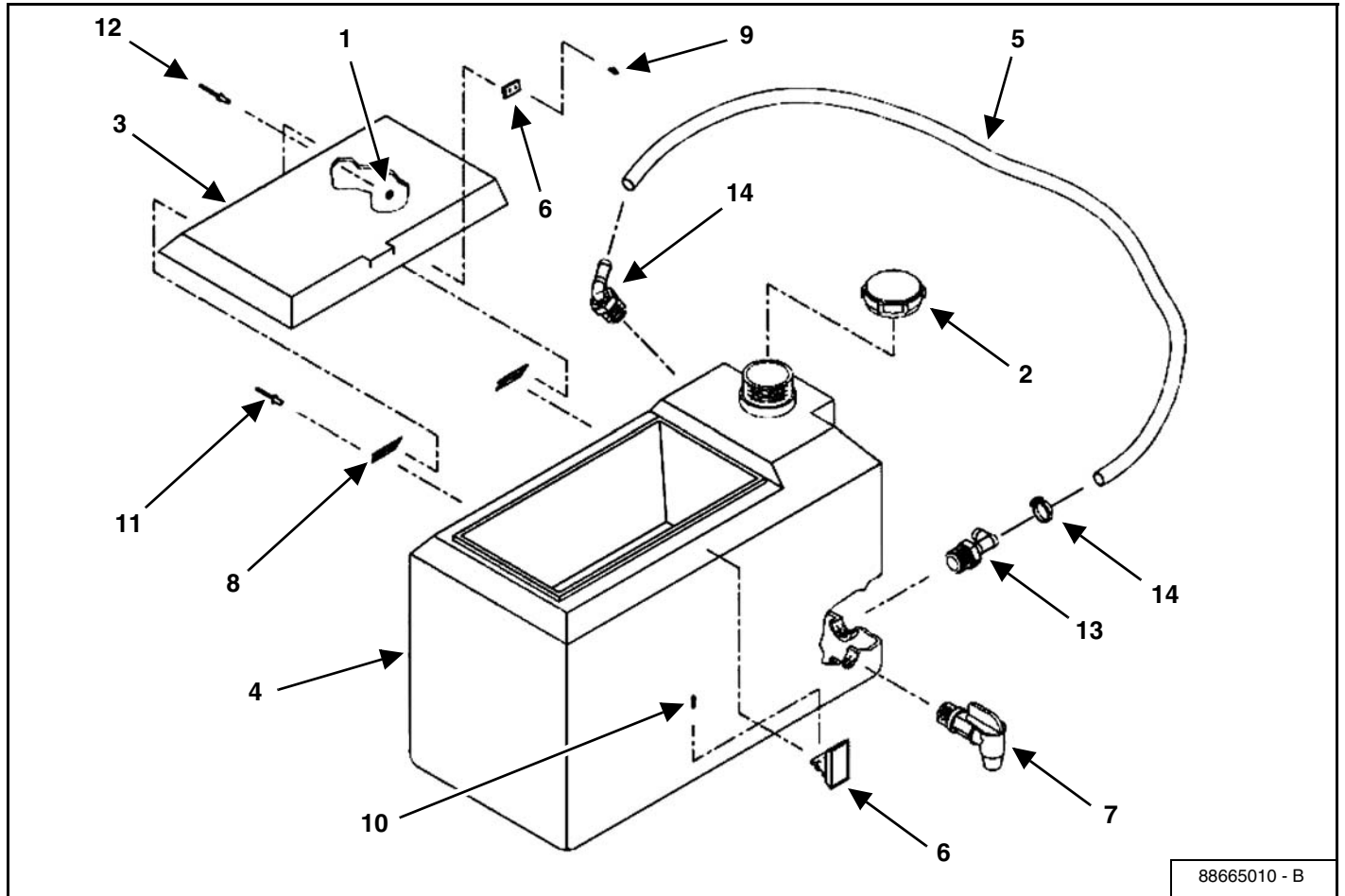


88664988_B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00080681	WASHER LOCK 0.31 PL	6
2	00087872	BOLT HEX 0.31 X 0.75GR5 PL	6
3	88662129	BOLT, FLANGE; 3/8 X 1.00 GRADE 5	7
4	88664963	PLATE MNT HAND TANK	1
5	88664964	PLATE BRKT HAND TANK	1
6	88664965	SHEET MNT DECAL	1
7	88665010	ASSY TANK HAND EYE RINSE - CRM	1
8	SX014666	WLDMT; BRKT, 9 GAL. TANK	2
9	SXBHF0381508YZ	BOLT; FLG, 3/8X1.50 GR8 YLLWZN	1
10	SXFW-031-YZ	WASHER, FLAT, 5/16 YZ	6
11	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8-16 UNC G8YZ	8

HAND / EYE WASH TANK ASSEMBLY (CREAM)

1860 & 2460 Models

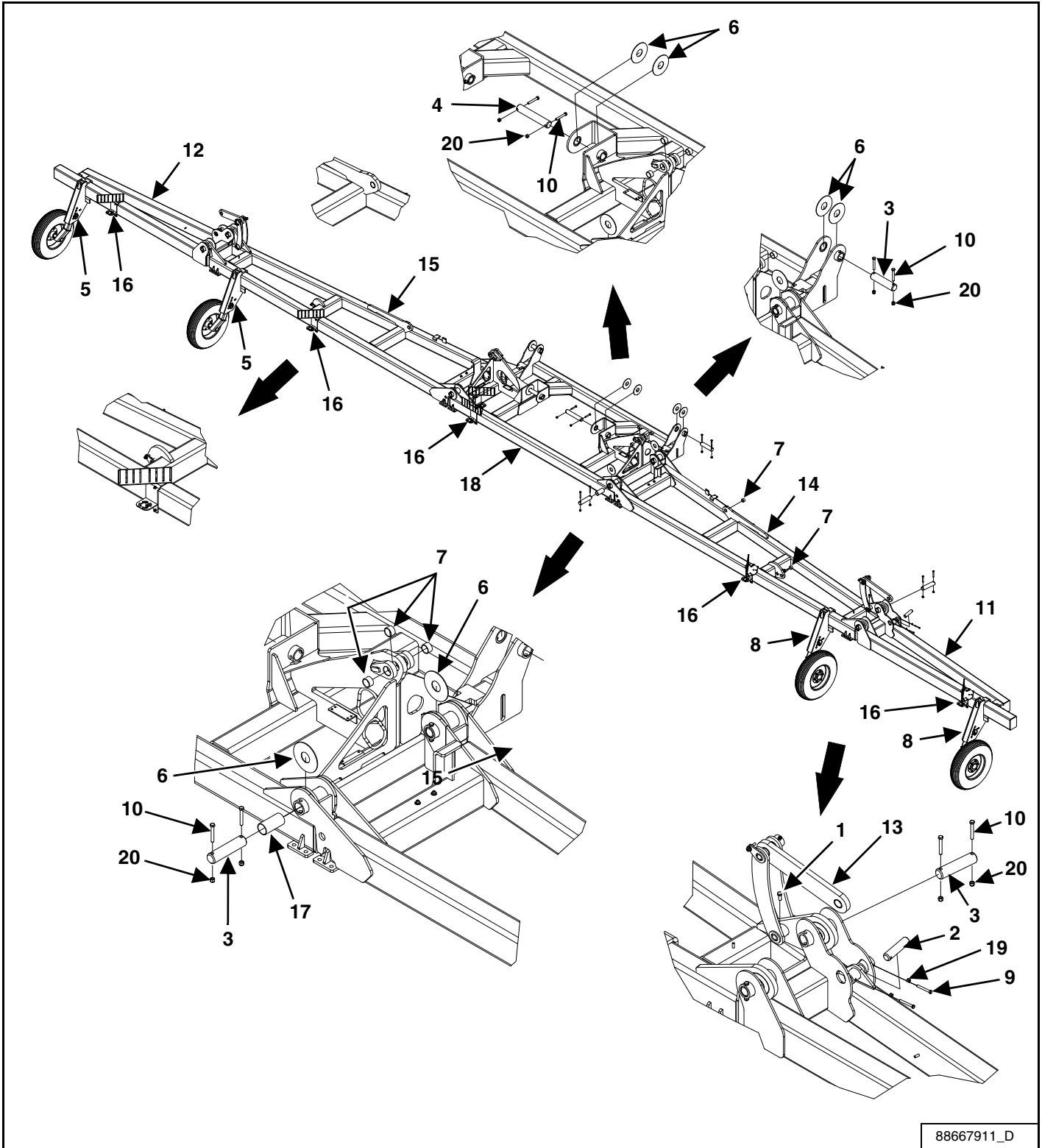


88665010 - B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88664993	RIVET WASHER, 3/8" OD x 3/16" ID	4
2	88664994	COVER, 9 GA TANK SCREW CAP	1
3	88664995	LID, 9 GAL TANK MOLDED	1
4	88665008	TANK, 9 GAL BUHLER CREAM	1
5	88665019	HOSE, 1/2" ID x 1/8" WALL SIGHT	1
6	88664997	LATCH, 07-10-201-12 LIVING BLK	1
7	88664998	SPIGOT, MATURAL 3/4"	1
8	88664999	HINGE, BUTT H03-30200-171 ZINC	2
9	88665000	RIVET, AB4-6A	2
10	88665001	RIVET, DRIVE 1/8" x 0.359 - 0.391	2
11	88665002	RIVET; 3/16" x AD64 - AH CLOSED	4
12	88665003	RIVET; 3/16" x 0.440 LG DOMEHEAD	4
13	88665005	HOSE FITTING, 3/4" MPT x 1/2" HB	2
14	88665006	CLAMP, SPEEDY FITS 1/2" HOSE	1

TOOLBAR GROUP (60 FT.)

1860 & 2460 Green Models

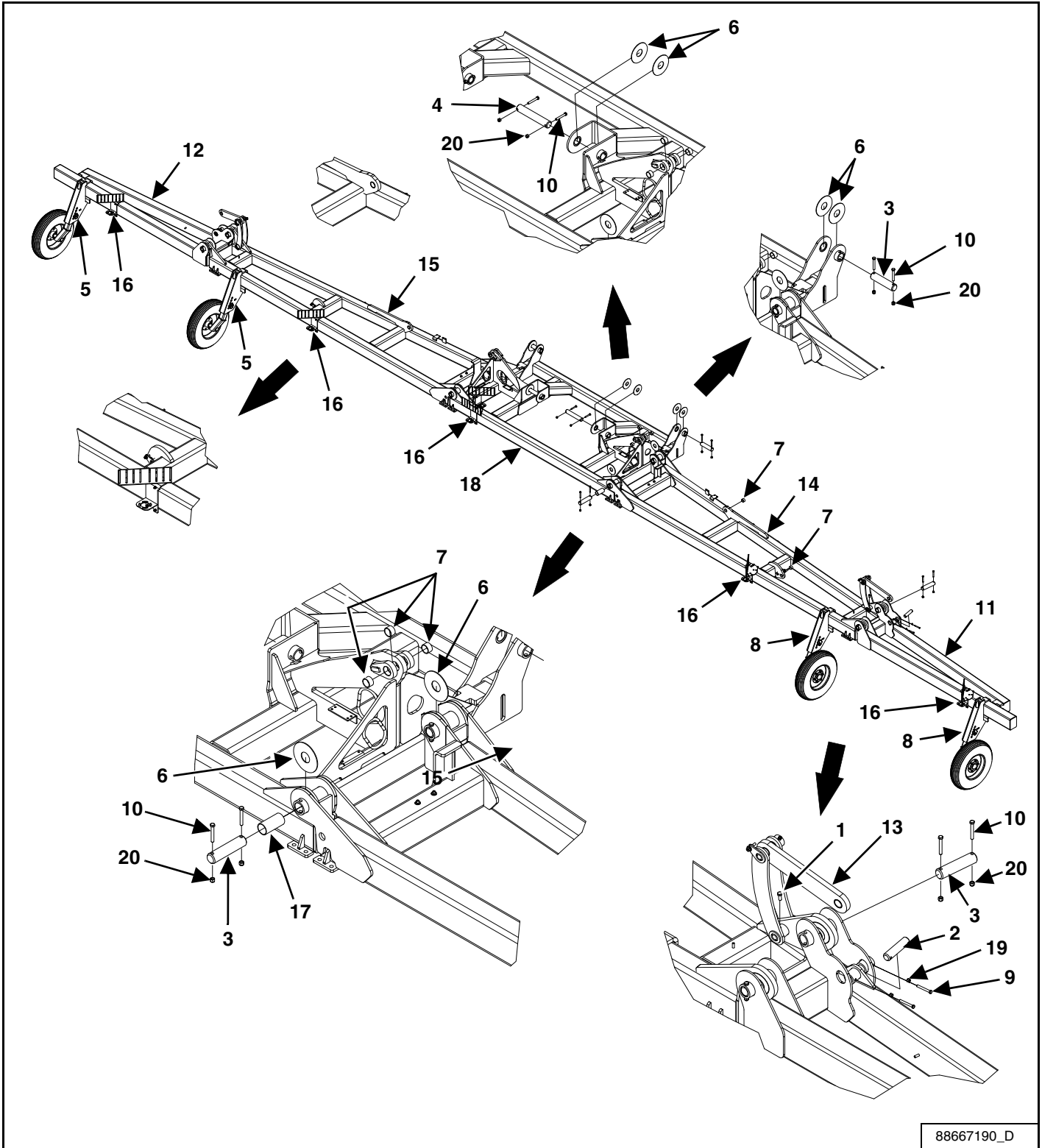


88667911_D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087670	BOLT HEX 0.50 X 1.25GR5 PL	2
2	88663610	PIN - LINKAGE OUTER WING	2
3	88663612	PIN - HINGE INNER WING	10
4	88663666	PIN - LIFT ARM FRONT BOTTOM	2
5	88669326	ASSY, GAUGE WHEEL RH	2
6	88663730	WASHER - THRUST TOOLBAR	12
7	88663760	BUSHING - CYLINDER CLEVIS	10
8	88669325	ASSY, GAUGE WHEEL LH	2
9	88663895	CSHH G5P .38X3.00	4
10	88663898	CSHH G5P .50X3.50	24
11	88663918	WLDT - OUTER WING LH GRN	1
12	88663920	WLDT - OUTER WING RH GRN	1
13	88663930	ASSY - FOLD LINKAGE GRN	2
14	88667175	WLDT - INNER WING LH GRN	1
15	88667177	WLDT - INNER WING RH GRN	1
16	88667910	ASSY; RED BALL MNT GR/CR	5
17	88667971	BUSHING; TOOLBAR 2	4
18	88668908	WLDT; TOOLBAR CENTER SEC. GRN	1
19	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	4
20	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	24

TOOLBAR GROUP (60 FT.) (CONT'D)

1860 & 2460 Red Models

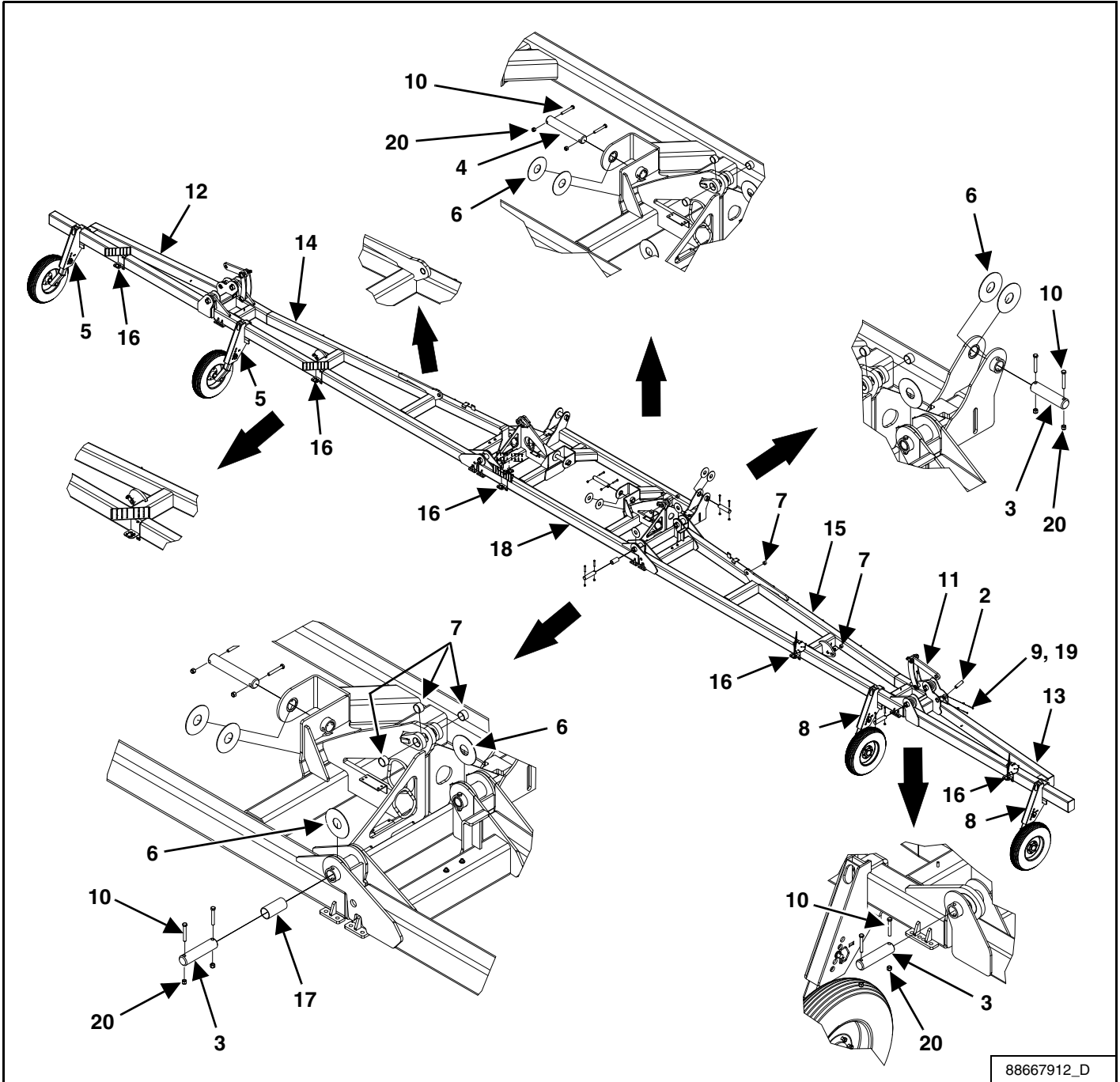


88667190_D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087670	BOLT HEX 0.50 X 1.25GR5 PL	2
2	88663610	PIN - LINKAGE OUTER WING	2
3	88663612	PIN - HINGE INNER WING	10
4	88663666	PIN - LIFT ARM FRONT BOTTOM	2
5	88669326	ASSY, GAUGE WHEEL RH	2
6	88663730	WASHER - THRUST TOOLBAR	12
7	88663760	BUSHING - CYLINDER CLEVIS	10
8	88669325	ASSY, GAUGE WHEEL LH	2
9	88663895	CSHH G5P .38X3.00	4
10	88663898	CSHH G5P .50X3.50	24
11	88663917	WLDT - OUTER WING LH RED	1
12	88663919	WLDT - OUTER WING RH RED	1
13	88663696	ASSY - FOLD LINKAGE RED	2
14	88667174	WLDT - INNER WING LH RED	1
15	88667176	WLDT - INNER WING RH RED	1
16	88666573	ASSY - RED BALL MNT RED	5
17	88667971	BUSHING; TOOLBAR 2	4
18	88668907	WLDT; TOOLBAR CENTER SEC. RED	1
19	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	4
20	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	24

TOOLBAR GROUP (66 FT.)

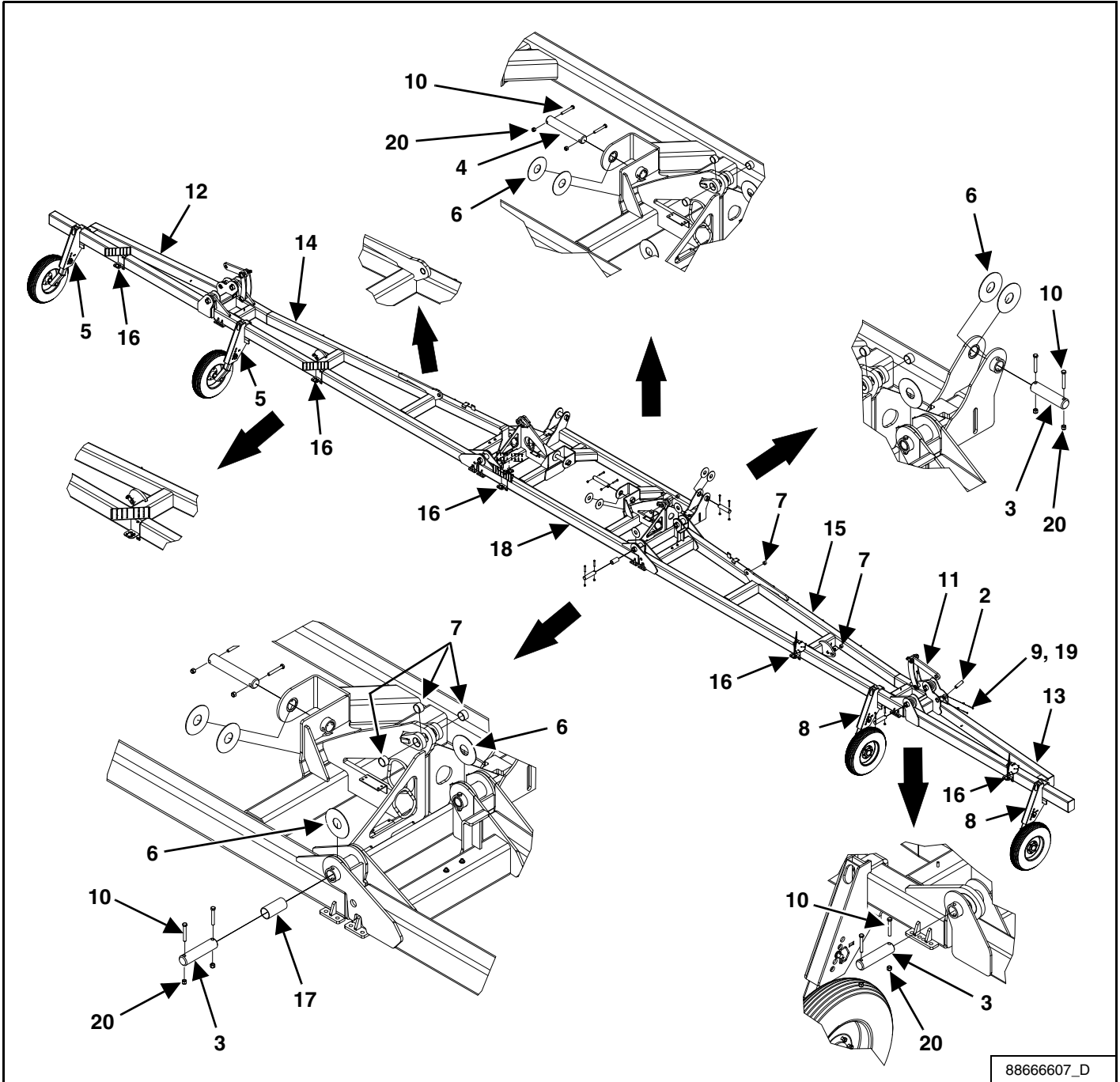
1860 & 2460 Green Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087670	BOLT HEX 0.50 X 1.25GR5 PL	2
2	88663610	PIN - LINKAGE OUTER WING	2
3	88663612	PIN - HINGE INNER WING	10
4	88663666	PIN - LIFT ARM FRONT BOTTOM	2
5	88669326	ASSY, GAUGE WHEEL RH	2
6	88663730	WASHER - THRUST TOOLBAR	12
7	88663760	BUSHING - CYLINDER CLEVIS	10
8	88669325	ASSY, GAUGE WHEEL LH	2
9	88663895	CSHH G5P .38X3.00	4
10	88663898	CSHH G5P .50X3.50	24
11	88663930	ASSY - FOLD LINKAGE GRN	2
12	88666547	WLDT - 66FT OUTER WING RH GRN	1
13	88666548	WLDT - 66FT OUTER WING LH GRN	1
14	88666549	WLDT - 66FT INNER WING RH GRN	1
15	88666550	WLDT - 66FT INNER WING LH GRN	1
16	88667910	ASSY; RED BALL MNT GR/CR	5
17	88667971	BUSHING; TOOLBAR 2	4
18	88668908	WLDT; TOOLBAR CENTER SEC. GRN	1
19	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	4
20	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	24

TOOLBAR GROUP (66 FT.) (CONT'D)

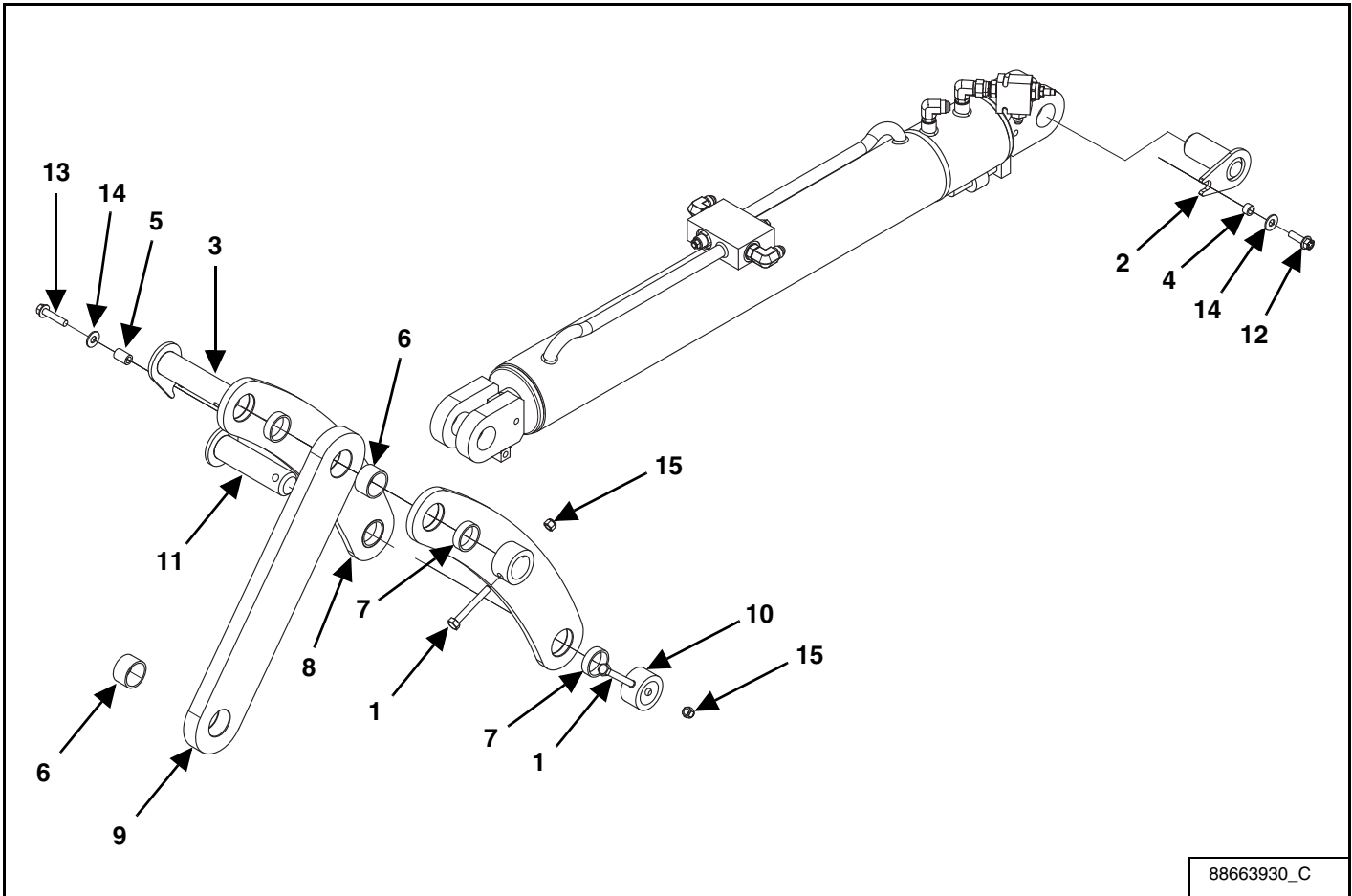
1860 & 2460 Red Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087670	BOLT HEX 0.50 X 1.25GR5 PL	2
2	88663610	PIN - LINKAGE OUTER WING	2
3	88663612	PIN - HINGE INNER WING	10
4	88663666	PIN - LIFT ARM FRONT BOTTOM	2
5	88669326	ASSY, GAUGE WHEEL RH	2
6	88663730	WASHER - THRUST TOOLBAR	12
7	88663760	BUSHING - CYLINDER CLEVIS	10
8	88669325	ASSY, GAUGE WHEEL LH	2
9	88663895	CSHH G5P .38X3.00	4
10	88663898	CSHH G5P .50X3.50	24
11	88663696	ASSY - FOLD LINKAGE RED	2
12	88666540	WLDT - 66FT OUTER WING RH RED	1
13	88666541	WLDT - 66FT OUTER WING LH RED	1
14	88666542	WLDT - 66FT INNER WING RH RED	1
15	88666543	WLDT - 66FT INNER WING LH RED	1
16	88666573	ASSY - RED BALL MNT RED	5
17	88667971	BUSHING; TOOLBAR 2	4
18	88668907	WLDT; TOOLBAR CENTER SEC. RED	1
19	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	4
20	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	24

FOLD LINKAGE GROUP

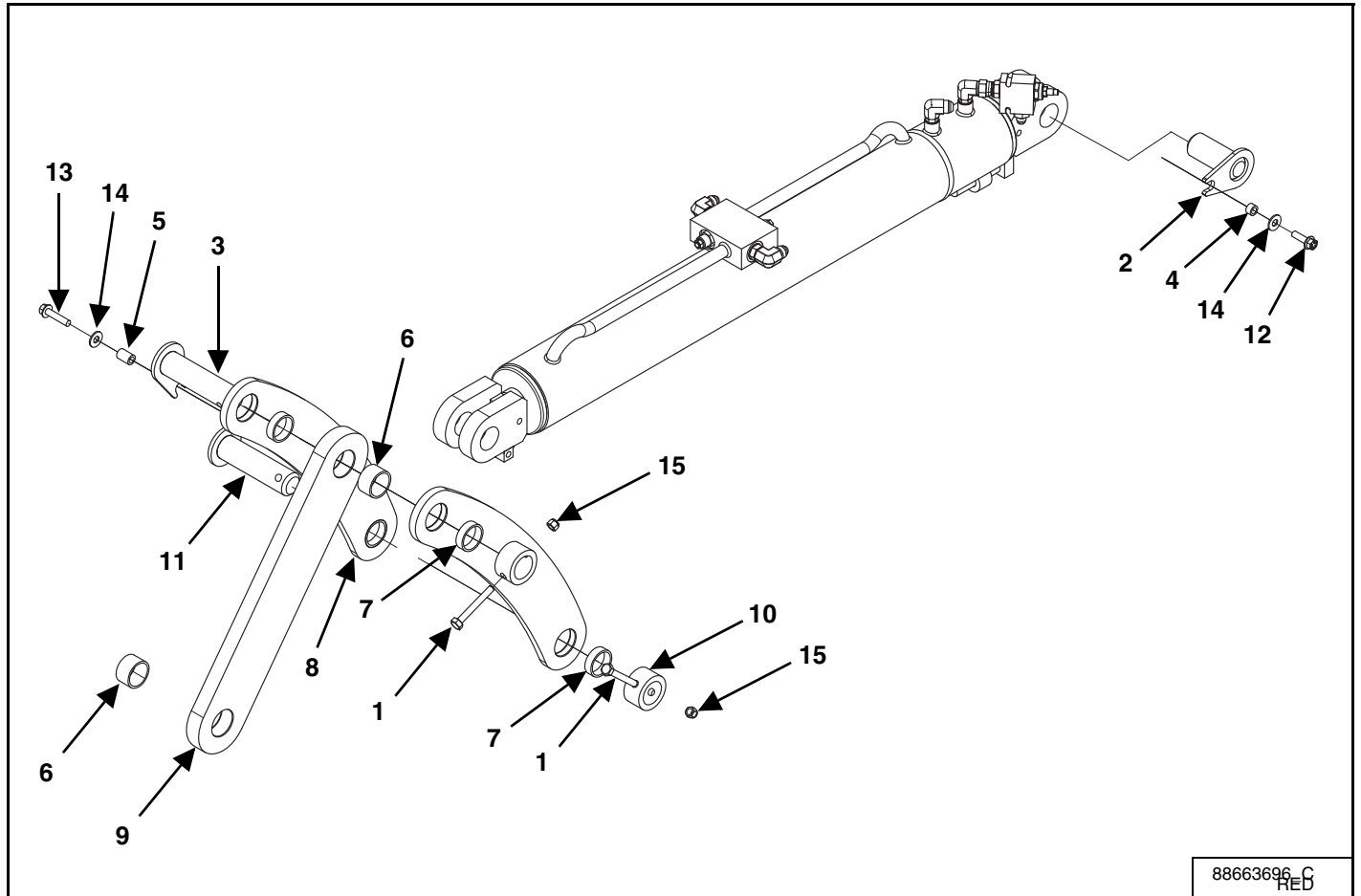
1860 & 2460 Green Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	00280260	CSHH G8 P 3/8X3.0 86505346	2
2	88663669	WLDT - FLAG AND PIN	1
3	88663679	WLDT - FLAG AND PIN LINKAGE	1
4	88663680	BUSHING - FLAG	1
5	88663681	BUSHING - FLAG LINKAGE	1
6	88663760	BUSHING - CYLINDER CLEVIS	2
7	88663761	BUSHING - FOLD LINKAGE	4
8	88663921	BRACKET - LINK DRIVER GRN	2
9	88663923	BRACKET - LINK COUPLER GRN	1
10	88663927	COLLAR - LINKAGE GRN	2
11	88666831	WLDT - PIN W/RD HEAD	1
12	SXBHF0381258YZ	BOLT;FLG,3/8X1.25 GR8 YLLW ZN	1
13	SXBHF0381758YZ	BOLT;FLG,3/8X1.75 GR8 YLLW ZN	1
14	SXFW-038YZ	FLATWASHER; 3/8 GRADE 5	2
15	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	2

FOLD LINKAGE GROUP (CONT'D)

1860 & 2460 Red Models

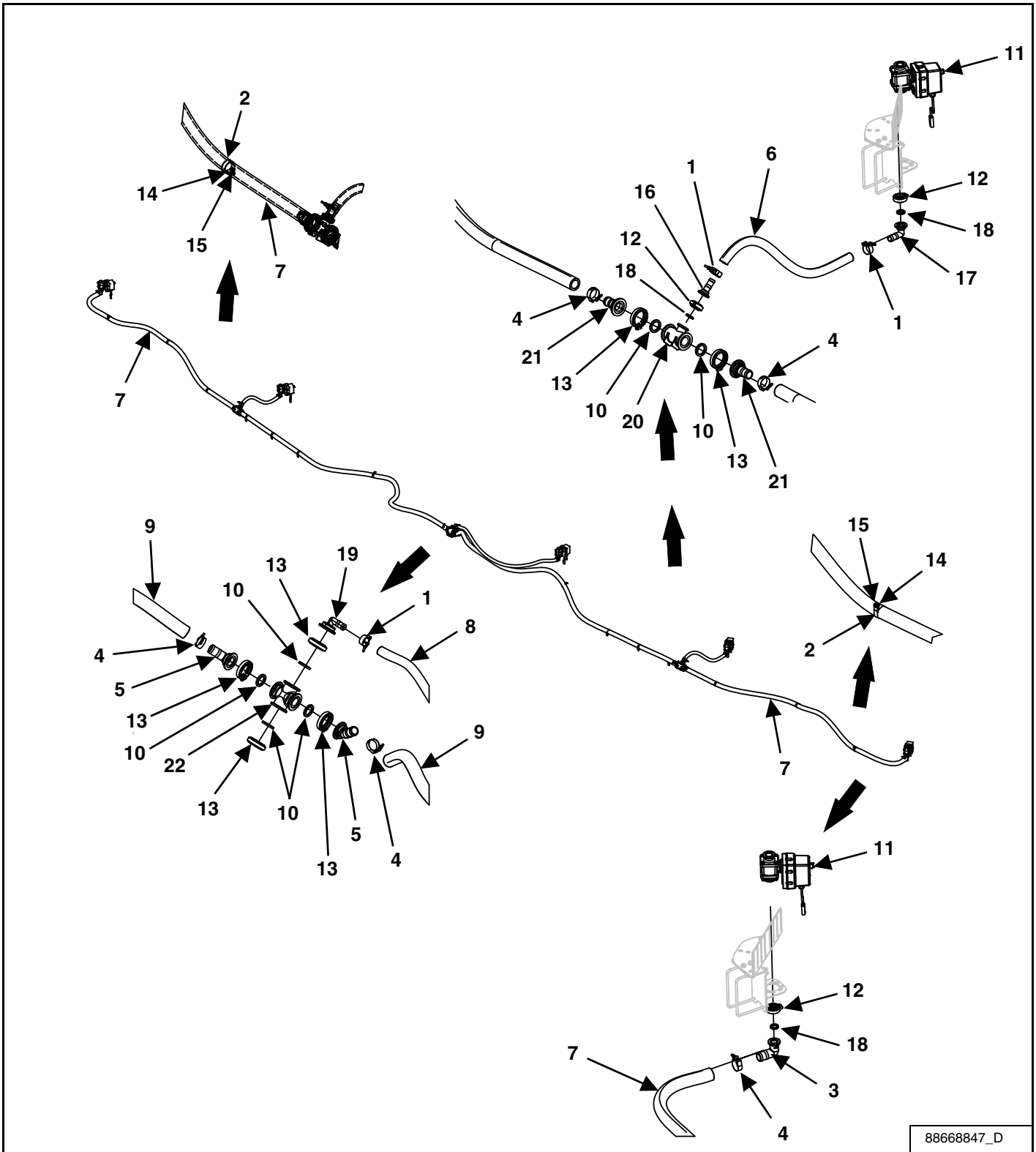


88663696 C
RED

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00280260	CSHH G8 P 3/8X3.0 86505346	2
2	88663669	WLDT - FLAG AND PIN	1
3	88663679	WLDT - FLAG AND PIN LINKAGE	1
4	88663680	BUSHING - FLAG	1
5	88663681	BUSHING - FLAG LINKAGE	1
6	88663760	BUSHING - CYLINDER CLEVIS	2
7	88663761	BUSHING - FOLD LINKAGE	4
8	88663911	BRACKET - LINK DRIVER RED	2
9	88663922	BRACKET - LINK COUPLER RED	1
10	88663926	COLLAR - LINKAGE RED	2
11	88666831	WLDT - PIN W/RD HEAD	1
12	SXBHF0381258YZ	BOLT;FLG,3/8X1.25 GR8 YLLW ZN	1
13	SXBHF0381758YZ	BOLT;FLG,3/8X1.75 GR8 YLLW ZN	1
14	SXFW-038YZ	FLATWASHER; 3/8 GRADE 5	2
15	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	2

PRODUCT PLUMBING GROUP (60 FT.)

1860 & 2460 Models

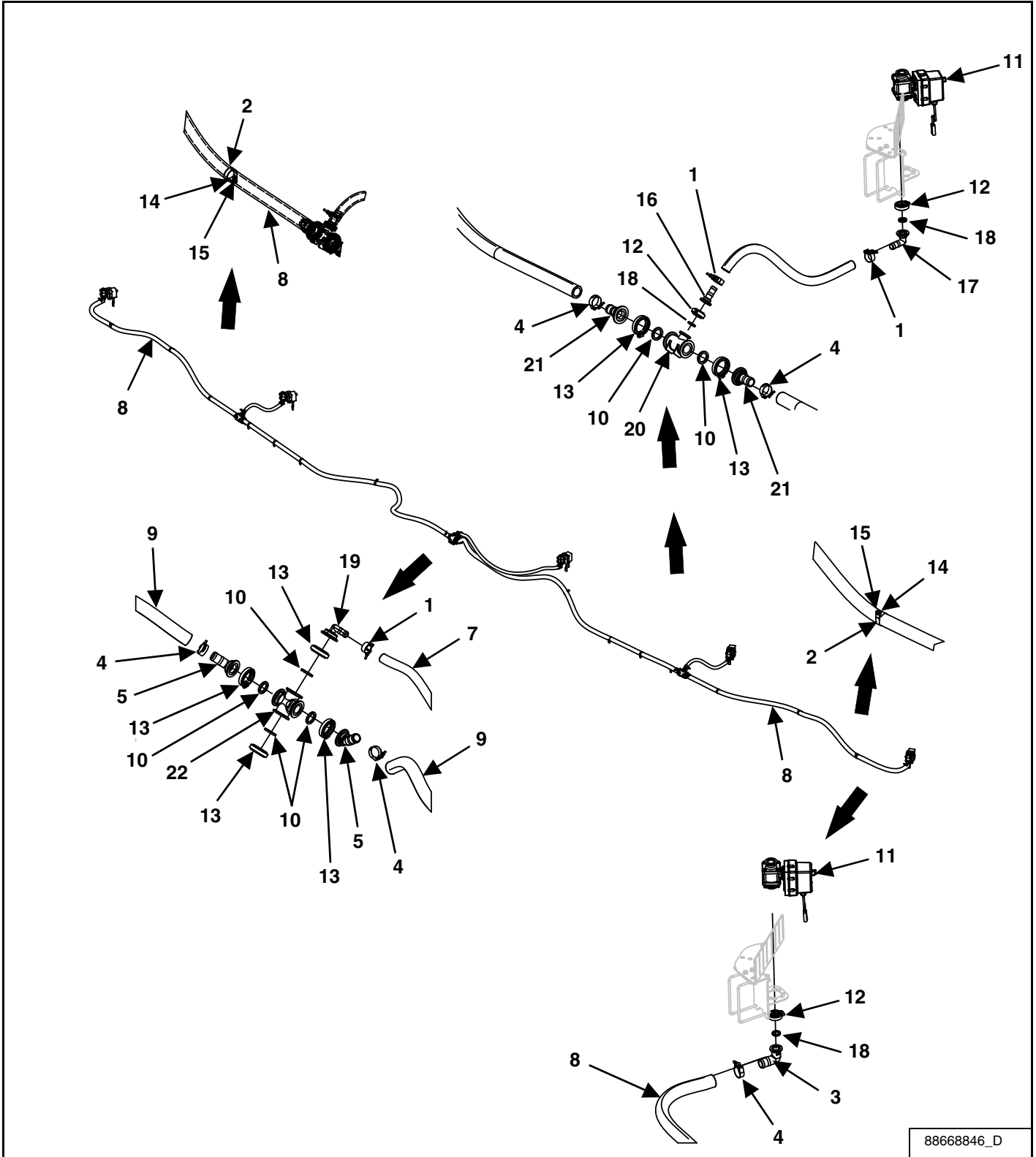


88668847_D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88664761	CLAMP; T-BOLT 1.38" - 1.62"	6
2	88665526	CLIP; INSUL 2" CLOSED	14
3	88667008	1" MANIFOLD X 1 1/2" HB 90	2
4	88667021	CLAMP; T-BOLT 1 1/2" 1.81/2.06	8
5	88667948	2" FLANGE X 1-1/2", BARB, 45 DEG	2
6	88664862	HOSE, PRODUCT, 1"	2
7	88667054	HOSE, PRODUCT, 1.5"	2
8	88667058	HOSE, PRODUCT, 1"	1
9	88668904	HOSE, PRODUCT, 1.5"	2
10	SX150G	GASKET; FOR 2" FLANGED VALVE	8
11	SX2123683	MANIFOLD 1-VALVE ASSY, 1" FLGE	5
12	SXFC100BJ	CLAMP; 1"	7
13	SXFC200BJ	CLAMP, 2" BANJO	8
14	SXFW-038YZ	FLATWASHER; 3/8 GRADE 5	6
15	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	6
16	SXM100BRB	HOSE BARB; 1" X 1" STRAIGHT	2
17	SXM100BRB90	HOSE BARB; 1" FLANGE ELBOW	3
18	SXM100G	GASKET; FOR 1" FLANGED VALVE	7
19	SXM200100BRB90	HOSE BARB; 2"X1 ELBOW 90DG	1
20	SXM200100TEE	TEE; 2" X 1" TEE	2
21	SXM200150BRB	HOSE BARB, 2" FLG X 1 1/2 HB	4
22	SXM200CR	CROSS; 2" STANDARD PORT FLG	1

PRODUCT PLUMBING GROUP (66 FT.)

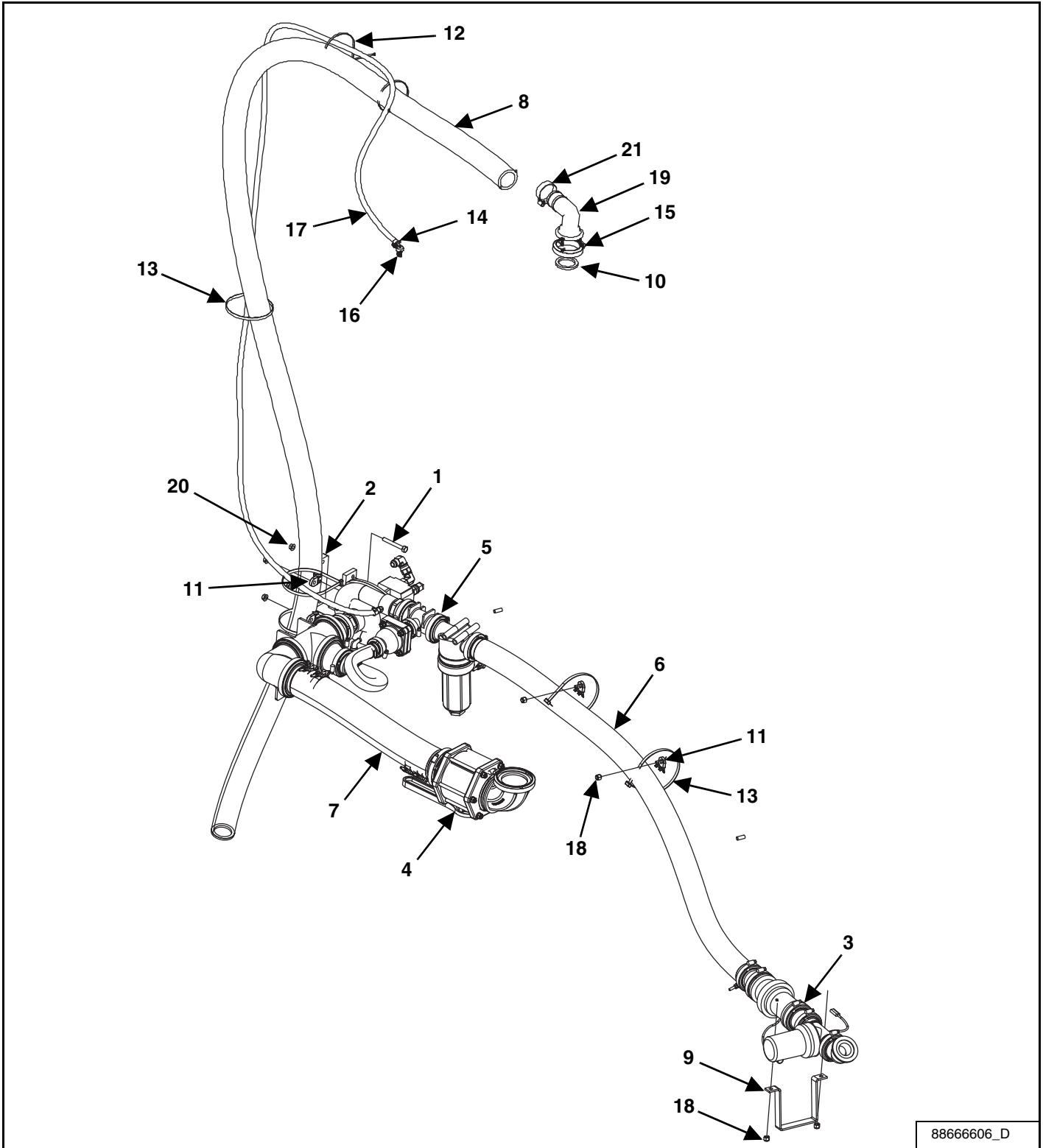
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88664761	CLAMP; T-BOLT 1.38" - 1.62"	6
2	88665526	CLIP; INSUL 2" CLOSED	16
3	88667008	1" MANIFOLD X 1 1/2" HB 90	2
4	88667021	CLAMP; T-BOLT 1 1/2" 1.81/2.06	8
5	88667948	2" FLANGE X 1-1/2", BARB, 45 DEG	2
6	88664862	HOSE, PRODUCT, 1"	2
7	88667058	HOSE, PRODUCT, 1"	1
8	88667066	HOSE, PRODUCT, 1.5"	2
9	88668901	HOSE, PRODUCT, 1.5"	2
10	SX150G	GASKET; FOR 2" FLANGED VALVE	8
11	SX2123683	MANIFOLD 1-VALVE ASSY, 1" FLGE	5
12	SXFC100BJ	CLAMP; 1"	7
13	SXFC200BJ	CLAMP, 2" BANJO	8
14	SXFW-038YZ	FLATWASHER; 3/8 GRADE 5	6
15	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	6
16	SXM100BRB	HOSE BARB; 1" X 1" STRAIGHT	2
17	SXM100BRB90	HOSE BARB; 1" FLANGE ELBOW	3
18	SXM100G	GASKET; FOR 1" FLANGED VALVE	7
19	SXM200100BRB90	HOSE BARB; 2"X1 ELBOW 90DG	1
20	SXM200100TEE	TEE; 2" X 1" TEE	2
21	SXM200150BRB	HOSE BARB, 2" FLG X 1 1/2 HB	4
22	SXM200CR	CROSS; 2" STANDARD PORT FLG	1

PRODUCT PUMP GROUP

1860 & 2460 Models

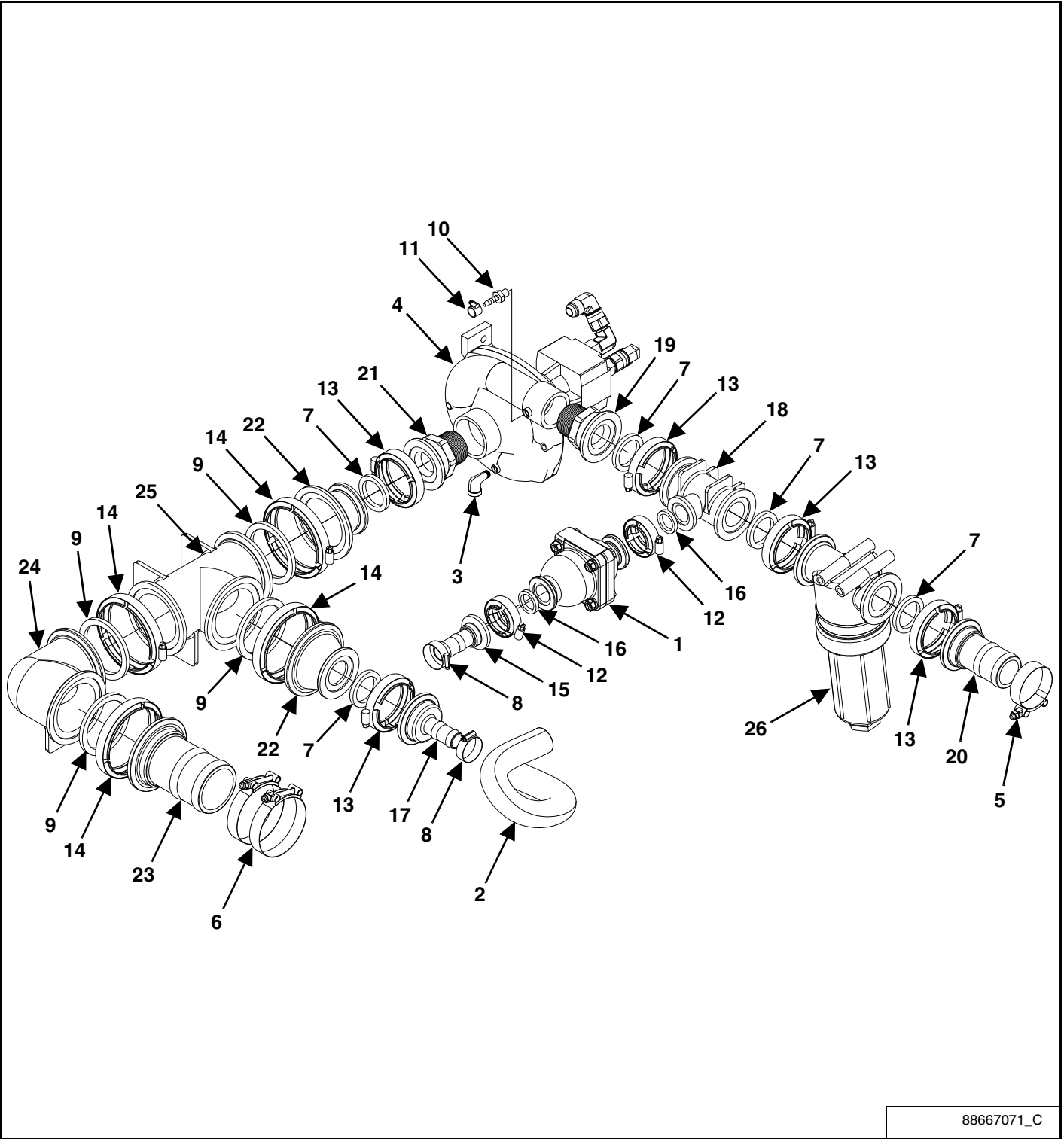


8866606_D

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00280260	CSHH G8 P 3/8X3.0 86505346	2
2	88663702	PLT - SPACER PUMP	1
3	88664681	ASSY; MANIFOLD PRODUCT FWD	1
4	88667070	MANIFOLD, SUMP	1
5	88667071	MANIFOLD, PUMP	1
6	88667072	HOSE, PRODUCT, 2"	1
7	88667073	HOSE, PRODUCT, SC, 3"	1
8	88667074	HOSE, PRODUCT, SC, 2"	1
9	88668924	BAR; PRODUCT STRAP	1
10	SX200G	GASKET; 2" COUPLING EPDM	1
11	SX21294	MOUNT, CABLE TIE HEAVY DUTY	4
12	SX3NS12	STRAP; 11 1/4 BLA21	2
13	SX3NS21	STRAP; BLACK 21 1/2"	5
14	SX4JM	CLAMP; 1/4" X 1/2 STAINLESS	1
15	SXFC220	CLAMP; 2"SERIES WORM SCREW	1
16	SXHB-025-90	HOSE BARB ELL; 1-4MPT X 1/4HB	1
17	SXK3150-025	HOSE; 1/4 VINYL REINFORC CLR	130
18	SXLN-038-NIYZ	LOCKNUT; 3/8" NYLON INSERT YZ	4
19	SXM220BRB90	MANIFOLD; 2"FLG X 2" HB	1
20	SXNTFTL038168YZ	NUT FLG, TP LCK, 3/8-16 UNC G8YZ	4
21	SXTBC256	CLAMP; T-BOLT 2 11/32-25/8	1

PUMP MANIFOLD GROUP

1860 & 2460 Models

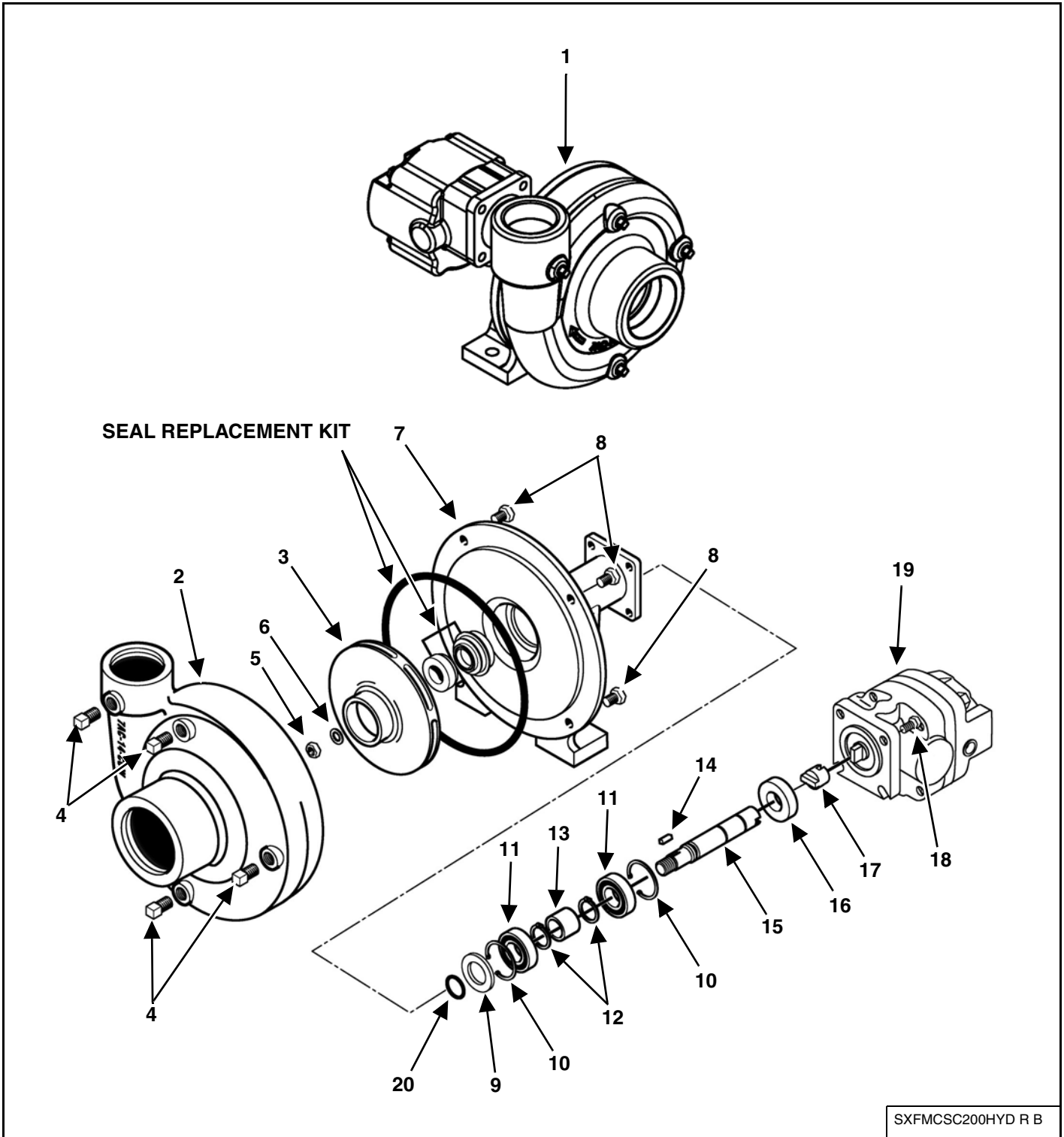


88667071_C

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88661393	1" PRESSURE SPIKE VALVE, 100 PSI	1
2	88664864	HOSE, PRODUCT, 1"	1
3	88665312	ELBOW; 90 DEG, 1/8" STREET MALE & FEMALE	1
4	88667226	ASSY - PRODUCT PUMP	1
5	88669452	CLAMP; T-BOLT 2.38"-2.69"	1
6	88669453	CLAMP; T-BOLT 3.50"-3.81"	2
7	SX150G	GASKET; FOR 2" FLANGED VALVE	5
8	SX20J	CLAMP; 1-1/4" x 1/2 STAINLESS	2
9	SX300G	GASKET, 3" BANJO	4
10	SX3A1814	HOSEBARB; 1/8 X 1/4, POLY	1
11	SX4JM	CLAMP; 1/4" x 1/2" STAINLESS	1
12	SXFC100BJ	CLAMP; 1"	2
13	SXFC200	COUPLING; 2" X 2" FPT, NYLON	5
14	SXFC300BJ	CLAMP, 3" BANJO	4
15	SXM100BRB	HOSE BARB; 1" X 1" STRAIGHT	1
16	SXM100G	GASKET; FOR 1" FLANGED VALVE	2
17	SXM200100BRB	HOSE BARB; 2"X1 " STRAIGHT	1
18	SXM200100TEE	TEE; 2" X 1" TEE	1
19	SXM200150MPT	MANIFOLD, 2" FLG, 1 1/2 MPT	1
20	SXM200BRB	HOSE BARB, 2" FLG X 2" HB	1
21	SXM200MPT	MANIFOLD, 2" FLG, 2 MPT	1
22	SXM300200CPG	MANIFOLD FITTING; 3" X 2" FULL	2
23	SXM300BRB	HOSE BARB; 3"FLGX3"HB,POLY	1
24	SXM300CPG90	MANIFOLD ELBOW; 3"X3" FLANGE90	1
25	SXM300TEE	TEE; 3" FLANGED	1
26	SXMLST150-HB	STRAINER; 2"T-HEAD&BODY,FLGED	1

PRODUCT PUMP ASSEMBLY

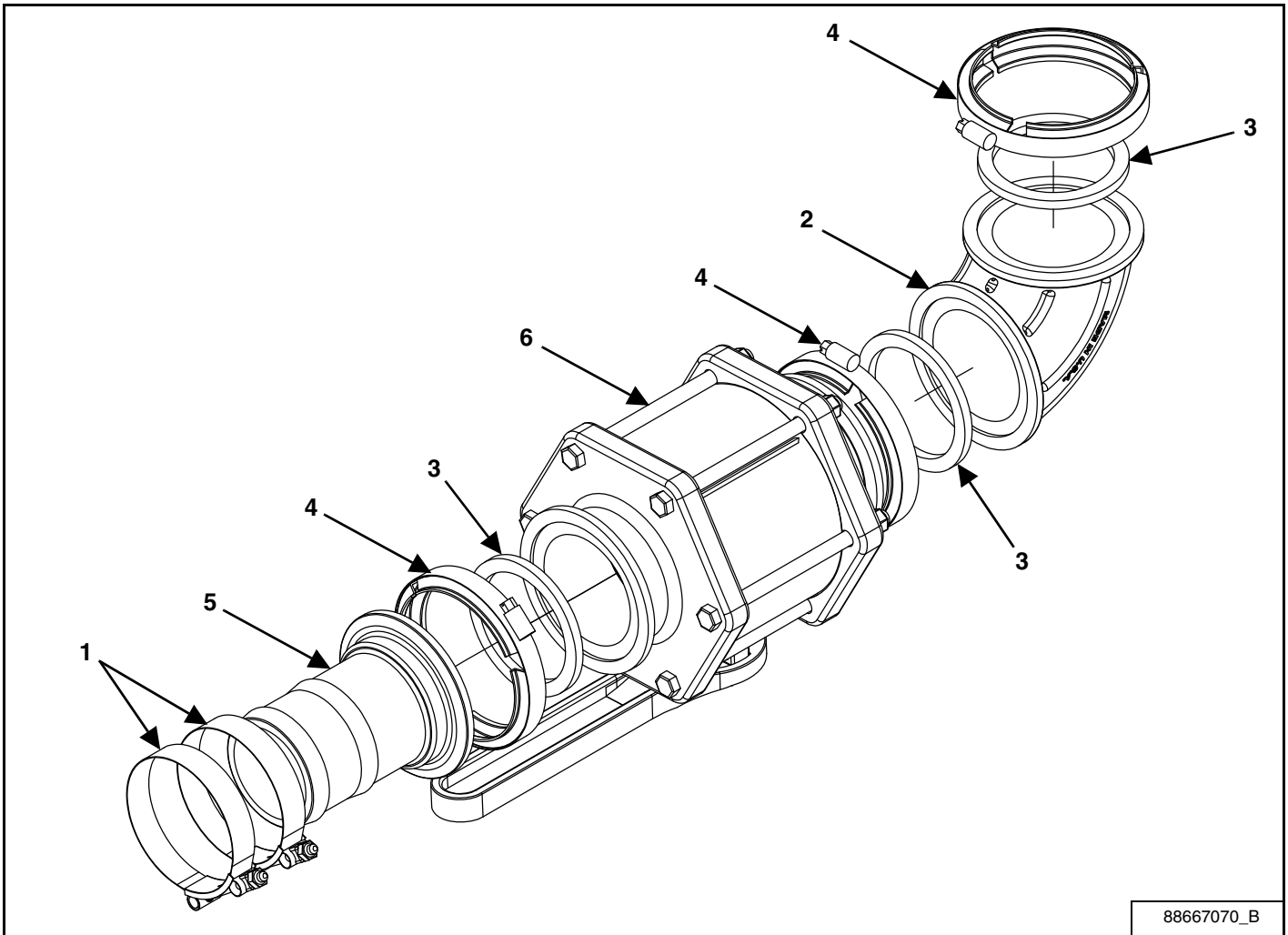
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663854	PRODUCT PUMP, ASSEMBLY	1
	88661313	SEAL REPLACEMENT KIT	1
	88661316	HYDRAULIC SEAL REPAIR KIT	1
2	88661314	VOLUTE, CAST IRON, 2"	1
3	88661315	VALOX IMPELLER 2"	1
THE FOLLOWING PARTS ARE FOR IDENTIFICATION PURPOSES ONLY			
4		PIPE PLUG	4
		PIPE PLUG, SS (OPTIONAL)	
5		NUT, 3/8" NF	1
6		WASHER, 3/8" STAR, SS	1
7		MOUNTING FRAME	1
8		SCREW, 3/8" NC x 3/4"	4
		SCREW, 3/8" NC x 3/4" SS (OPTIONAL)	
9		SLINGER	1
10		SNAP RING, INTERNAL	2
11		BALL BEARNIG	2
12		SNAP RING, EXTERNAL	2
13		SPACER	1
14		KEY, 1/8" x 1/8" x 13/16"	1
15		SHAFT, EXTENDED KEYWAY, TANG, SS	1
		SHAFT, 5/8" DIAMETER, KEYWAY, TANG SLOT, SS (OPTIONAL)	
16		SEAL	1
17		COUPLING	1
18		MOTOR TO PUMP SCREW, 5/16" UNC x 3/4"	4
19		HYDRAULIC MOTOR	1
20		O-RING, SHAFT SEAL	1

SUMP MANIFOLD GROUP

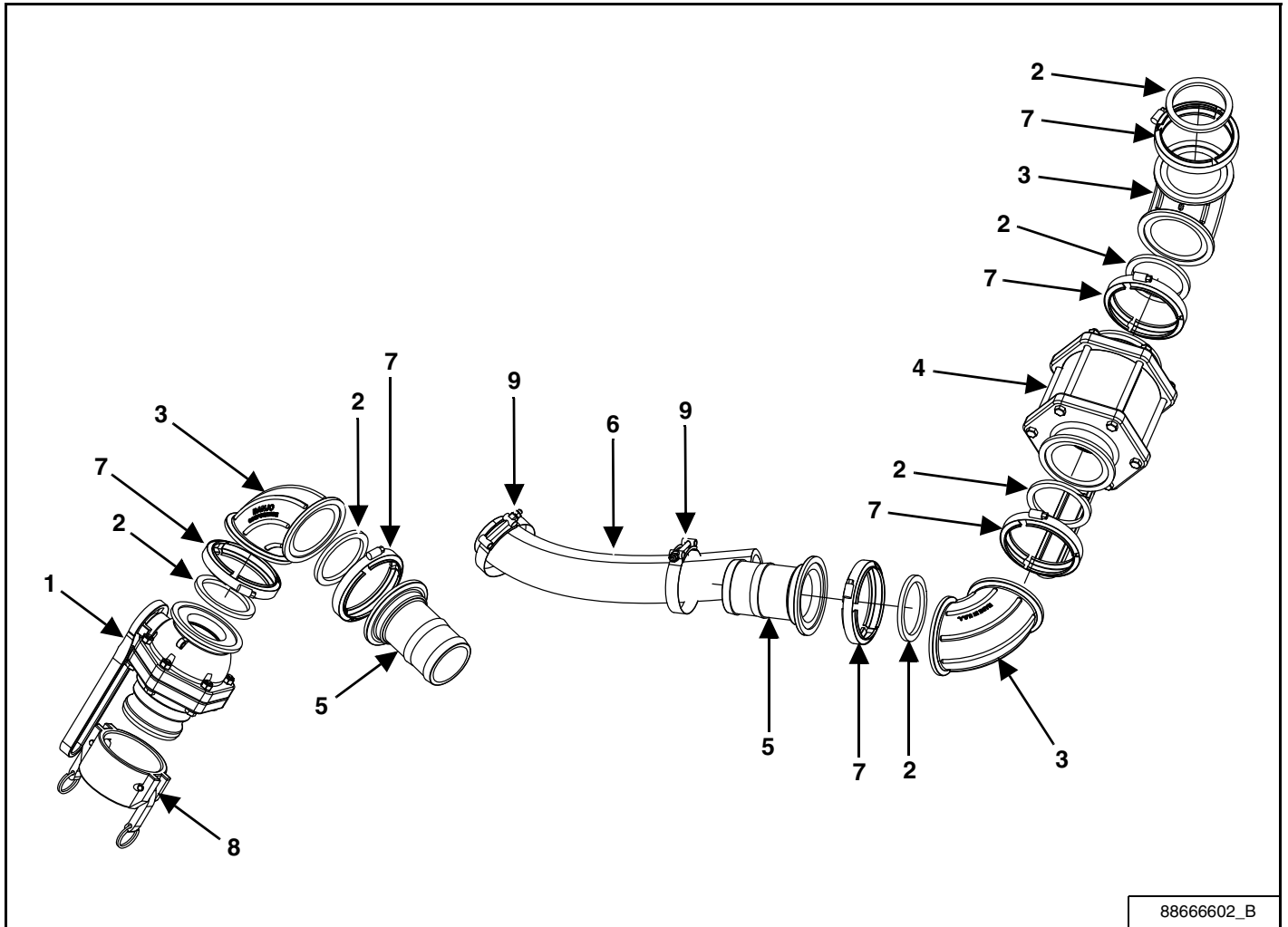
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88669453	CLAMP; T-BOLT 3.50"-3.81"	2
2	88661663	3" FLANGE X FLANGE SWEEP 90	1
3	SX300G	GASKET, 3" BANJO	3
4	SXFC300BJ	CLAMP, 3" BANJO	3
5	SXM300BRB	HOSE BARB; 3"FLGX3"HB,POLY	1
6	SXMV300CF	VALVE; 3"FLGX3"FLG,BALL VALVE	1

QUICK FILL GROUP

1860 & 2460 Models

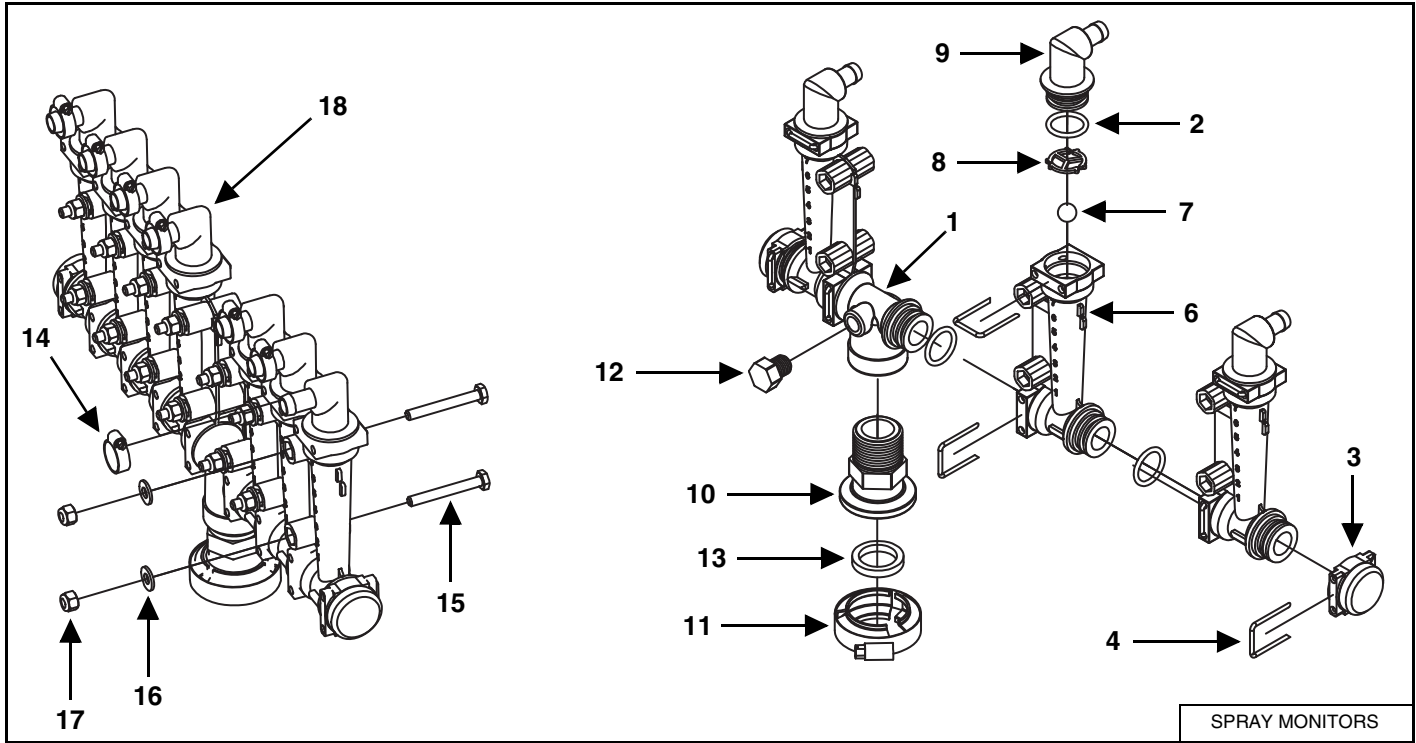


8866602_B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SXMVSF300	VALVE; 3" FLG X3" M. ADAPT	1
2	SX300G	GASKET, 3" BANJO	6
3	88661663	3" FLANGE X FLANGE SWEEP 90	3
4	SXMV300CF	VALVE; 3"FLGX3"FLG,BALL VALVE	1
5	SXM300BRB	HOSE BARB; 3"FLGX3"HB,POLY	2
6	88667043	HOSE, PRODCUT, SC, 3.0"	1
7	SXFC300BJ	CLAMP, 3" BANJO	6
8	SX300CAP	COUPLING; 3" CAM LEVER CAP	1
9	88669453	CLAMP; T-BOLT 3.50"-3.81"	2

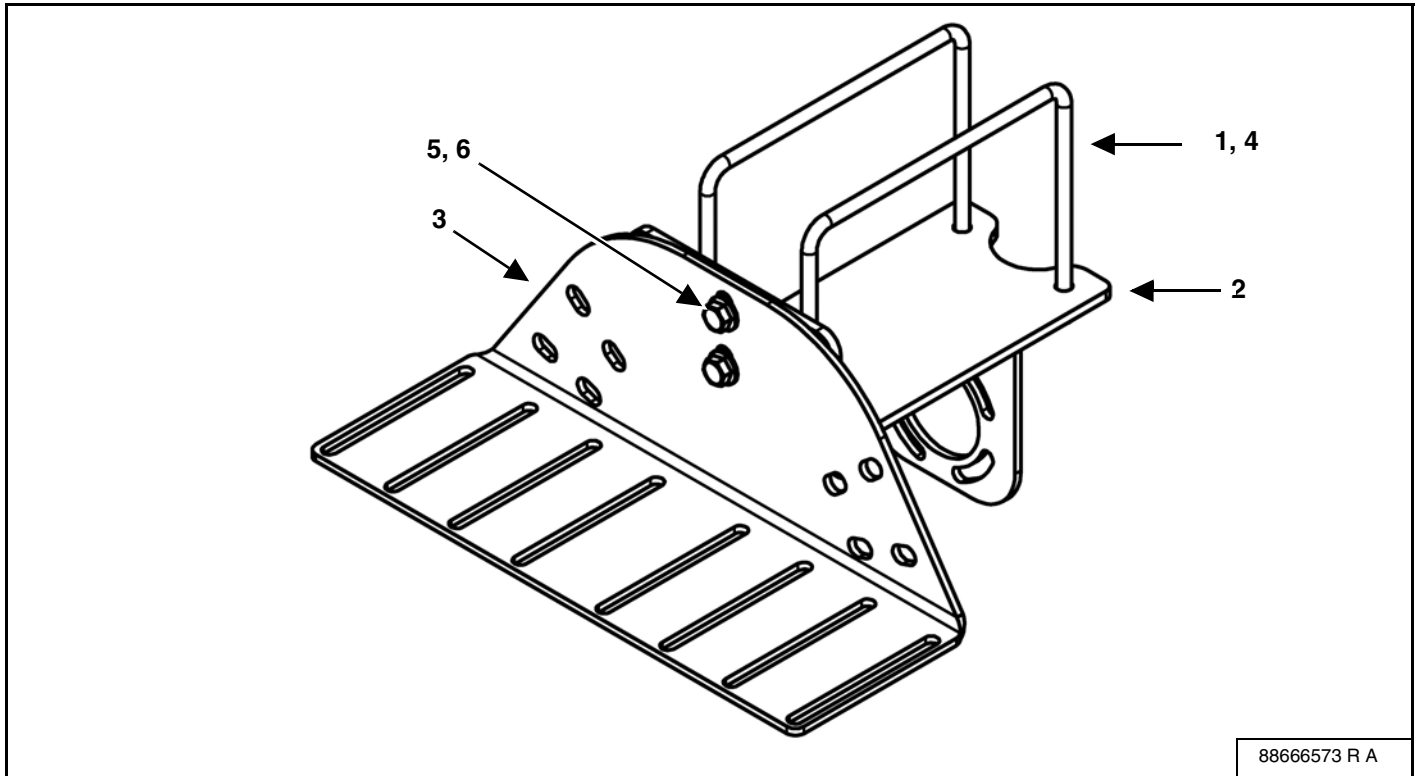
TOOLBAR PLUMBING GROUP

Spray Monitors (1860 & 2460 Models)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	SX007306	TEE, MONITOR W/GAUGE PORT	1
2	SX002140	MONITOR, O-RING, BUNA	8
3	SX002138	MONITOR, CAP, PLUG	2
4	SX002037	MONITOR, U-PIN, SINGLE	8
5	SXSS316-200	BALL, STAINLESS STEEL MONITOR (Not Shown)	3
6	SX002139	MONITOR, SINGLE COLUMN	3
7	SX8165105	MONITOR, BALL, RED GLASS	3
8	SX002137	MONITOR, FLOAT STOP, SINGLE	3
9	SX002135	MONITOR, 1/2" HOSE BARB	3
10	SXM100MPT	MANIFOLD, 1" x 1" MALE THREAD	1
11	SXFC100BJ	CLAMP, 1"	1
12	SX3F14	PLUG, 1/4" POLY, HEX	1
13	SXM100G	GASKET, FOR 1" FLANGED VALVE	1
14	SX6JM	CLAMP, 3/4" HOSE WORM SCREW	AS REQ.
15	SXBH0252005YZ	BOLT, 1/4" x 2" BOLTS GRADE 5	AS REQ.
16	SXFW-025-YZ	FLATWASHER, 1/4" ZINC PLATED	AS REQ.
17	SXLN-025-NIYZ	LOCKNUT, 1/4" NYLOCK INSERT	AS REQ.
18	88668887	ASSY, MONITOR, 3 COLUMN	AS REQ.
	88664836	ASSY, MONITOR, 4 COLUMN	AS REQ.
	88664835	ASSY, MONITOR, 5 COLUMN	AS REQ.
	88664838	ASSY, MONITOR, 6 COLUMN	AS REQ.
	88664834	ASSY, MONITOR, 7 COLUMN	AS REQ.
	88664837	ASSY, MONITOR, 8 COLUMN	AS REQ.

TOOLBAR PLUMBING GROUP (CONT'D)



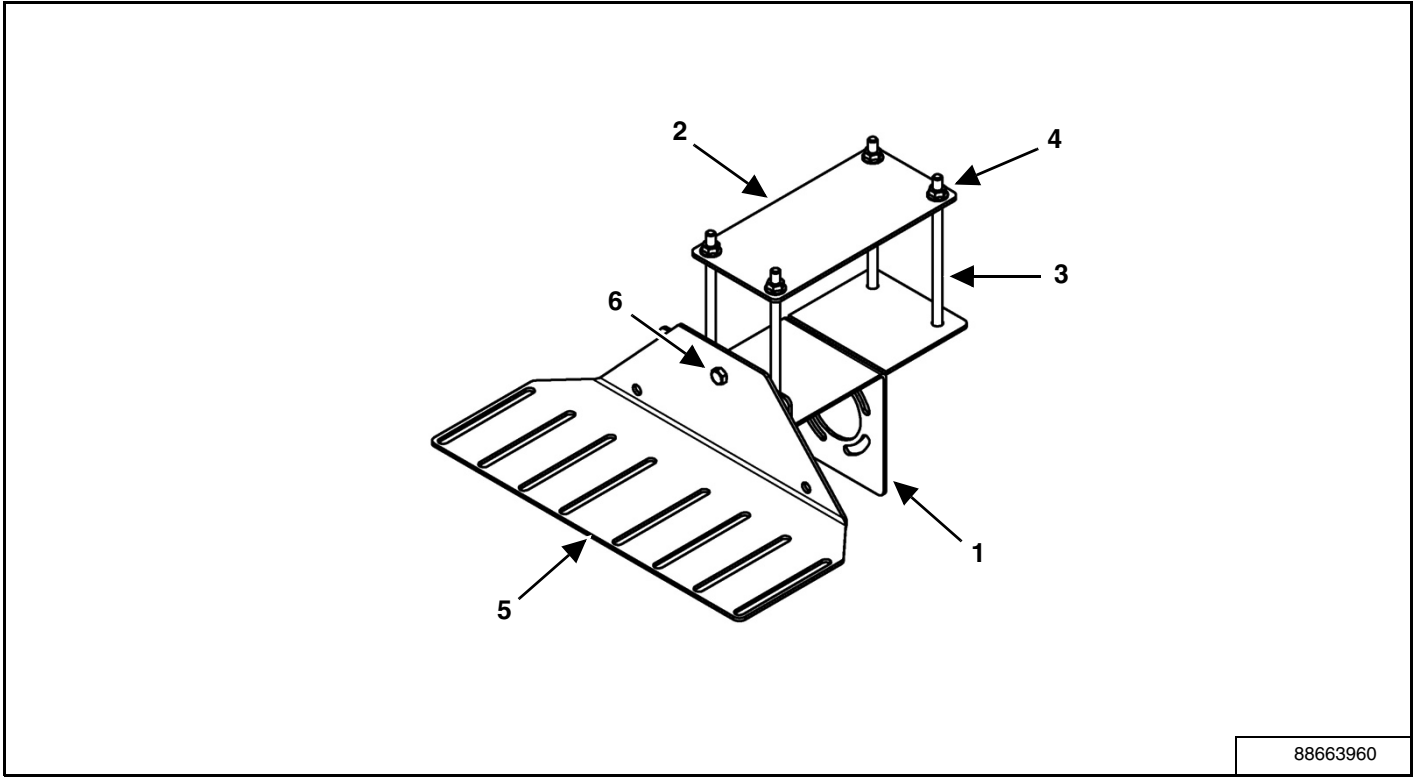
Spray Monitor Mount Assembly (Red Models)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SXNTFTL031188Y	NUT, FLG TP LCK 5/16-18 GR8 YZ	4
2	88667236	BALL VALVE MOUNT WELDMENT - RED	1
3	88666569	BALL GAUGE MOUNT BRACKET - CREAM	1
4	88666506	U-BOLT, 5/16" x 7 1/2" x 6" LG	2
5	88662129	BOLT, 3/8" x 1" FLANGE GR 5	2
6	SXNTFTL038168YZ	NUT, 3/8" -16 UNC FLG TP LCK G8YZ	2

Spray Monitor Mount Assembly (Green Models)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SXNTFTL031188Y	NUT, FLG TP LCK 5/16-18 GR8 YZ	4
2	88667237	BALL VALVE MOUNT WELDMENT - GREEN	1
3	88666569	BALL GAUGE MOUNT BRACKET - CREAM	1
4	88666506	U-BOLT, 5/16" x 7 1/2" x 6" LG	2
5	88662129	BOLT, 3/8" x 1" FLANGE GR 5	2
6	SXNTFTL038168YZ	NUT, 3/8" -16 UNC FLG TP LCK G8YZ	2

TOOLBAR PLUMBING GROUP (CONT'D)



88663960

Spray Monitor Mount Assembly (Green Models)

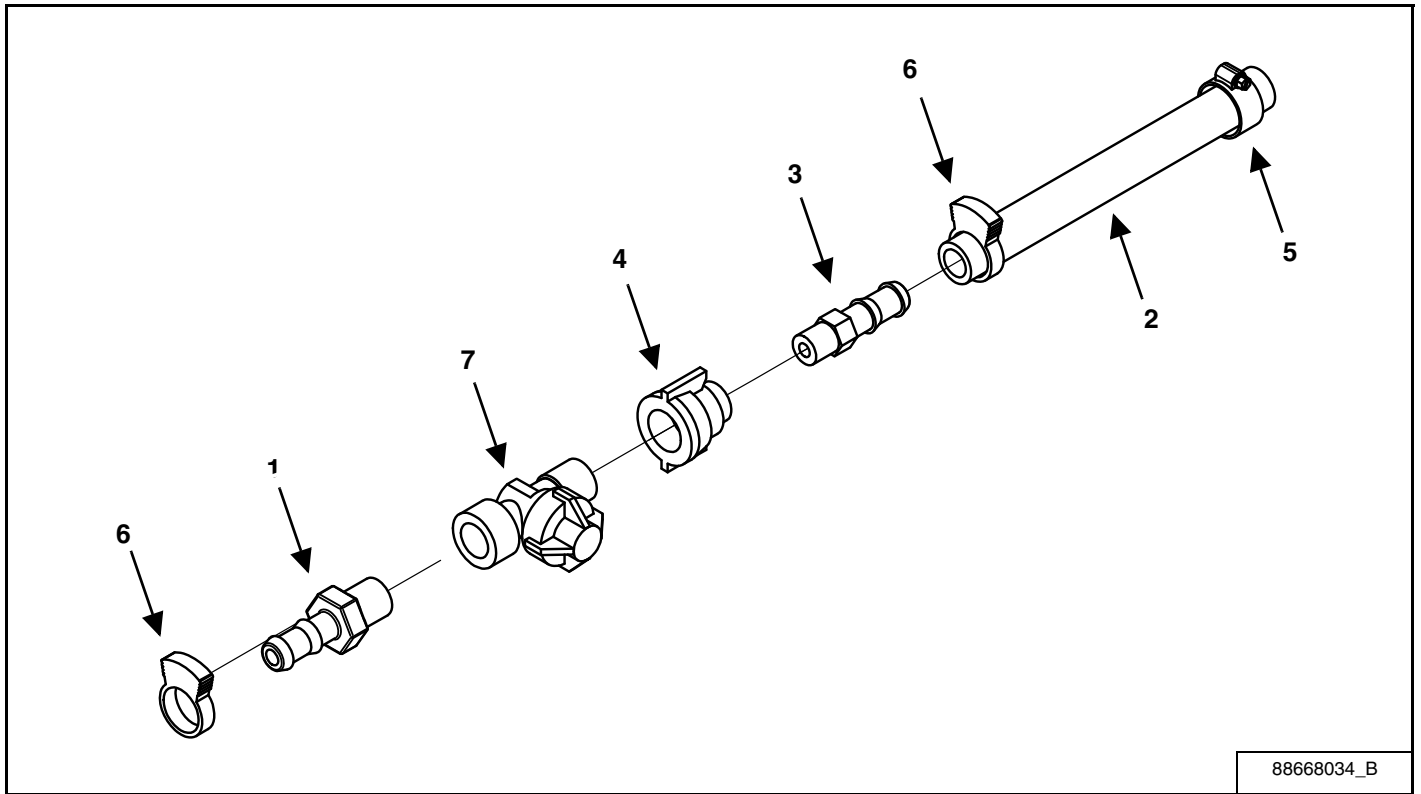
ITEM	PART NUMBER	DESCRIPTION	QTY
1	88665041	CENTER BALL VALVE MOUNT WELDMENT - GREEN	1
2	886633925	VALVE SECTION FRONT MOUNTING PLATE - GREEN	1
3	88663733	CSHH G5P 0.31" x 6.00"	1
4	SXBH0311005YZ	NUT, FLG TP LCK 5/16-18 GR8 YZ	1
5	88665272	BALL MOUNT GAUGE BRACKET - CREAM	4
6	SXNTFTL031188Y	BOLT, 5/16" x 1" HEX BOLT	5

Spray Monitor Mount Assembly (Red Models)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88665040	CENTER BALL VALVE MOUNT WELDMENT - RED	1
2	88663924	VALVE SECTION FRONT MOUNTING PLATE - RED	1
3	88663733	CSHH G5P 0.31" x 6.00"	1
4	SXNTFTL031188Y	NUT, FLG TP LCK 5/16-18 GR8 YZ	1
5	88665272	BALL MOUNT GAUGE BRACKET - CREAM	4
6	SXBH0311005YZ	BOLT, 5/16" x 1" HEX BOLT	5

TOOLBAR PLUMBING GROUP (CONT'D)

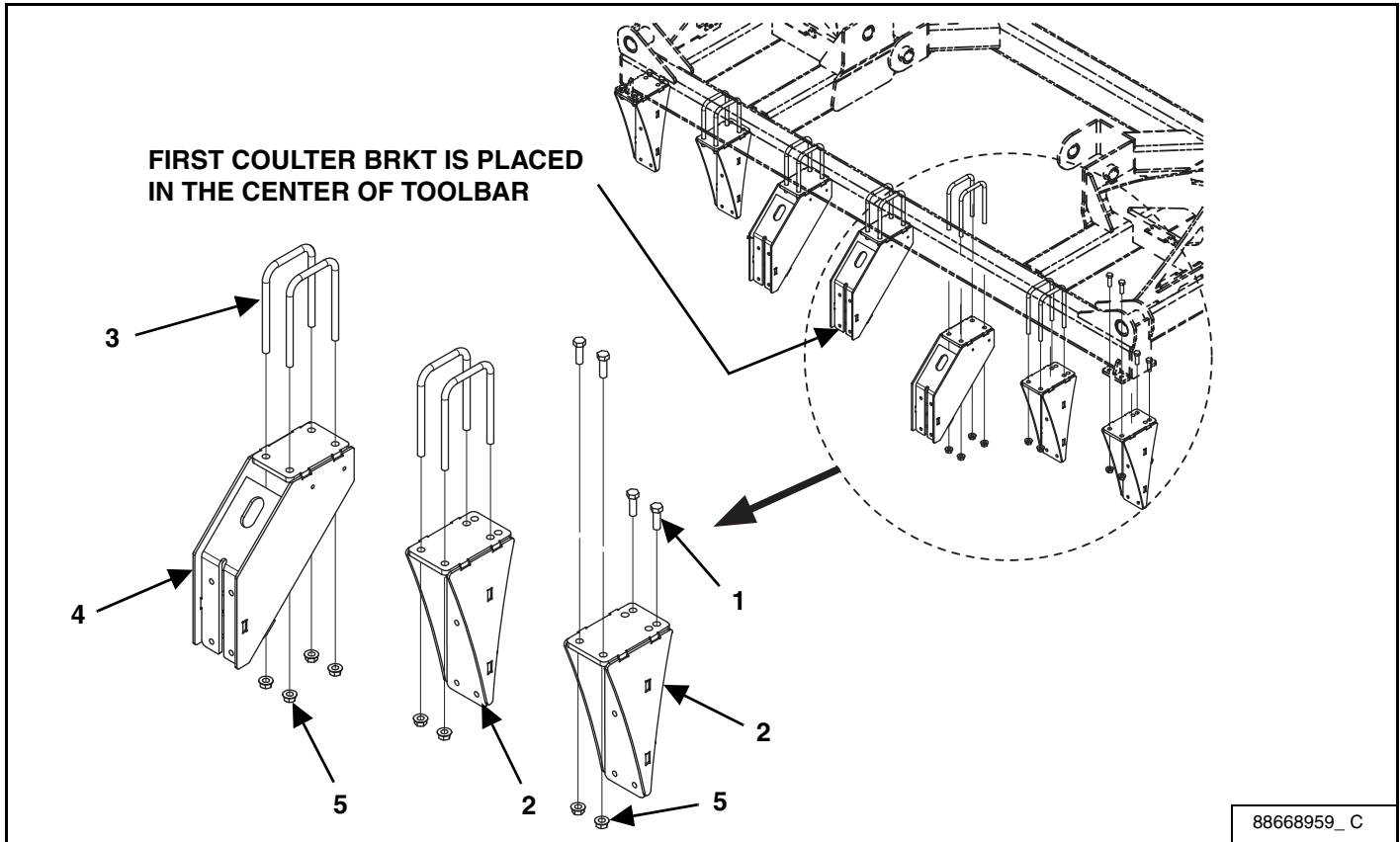
Injector & Knife Components



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88661128	HOSE BARB, 11/16" MPST x 1/2" HB	AS REQ.
2	SX000812	HOSE, 1/2" 150# EPDM	AS REQ.
3	SX3A1412G	HOSE FITTING, 1/4" MPT x 1/2" HB	AS REQ.
4	SX402910	CAP & GASKET, QT 1/4" THRD, BLK	AS REQ.
5	SX8J	CLAMP, 1/2" x 1/2" STAINLESS	AS REQ.
6	SXH	CLAMP, SPEEDY, FITS 1/2" HOSE	AS REQ.
7	SXQJT8360-NYB	DIAPHRAGM, CHECK VALVE	AS REQ.

COULTER BRACKET GROUP

1860 & 2460 Models



88668959_C

36 Row - 20" Spacing (60 Ft) 37 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	16
2	88663575	COULTER BRACKET, WELDMENT	34
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	66
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	148

36 Row - 20" Spacing (60 Ft) 35 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	12
2	88663575	COULTER BRACKET, WELDMENT	32
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	62
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	140

32 Row - 22" Spacing (60 Ft) 33 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	16
2	88663575	COULTER BRACKET, WELDMENT	30
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	58
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	132

32 Row - 22" Spacing (60 Ft) 31 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	16
2	88663575	COULTER BRACKET, WELDMENT	28
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	54
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	124

24 Row - 30" Spacing (60 Ft) 25 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	16
2	88663575	COULTER BRACKET, WELDMENT	22
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	42
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	100

24 Row - 30" Spacing (60 Ft) 23 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	16
2	88663575	COULTER BRACKET, WELDMENT	20
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	38
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	92

36 Row - 22" Spacing (66 Ft) 37 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	16
2	88663575	COULTER BRACKET, WELDMENT	34
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	66
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	148

36 Row - 22" Spacing (66 Ft) 35 Coulters

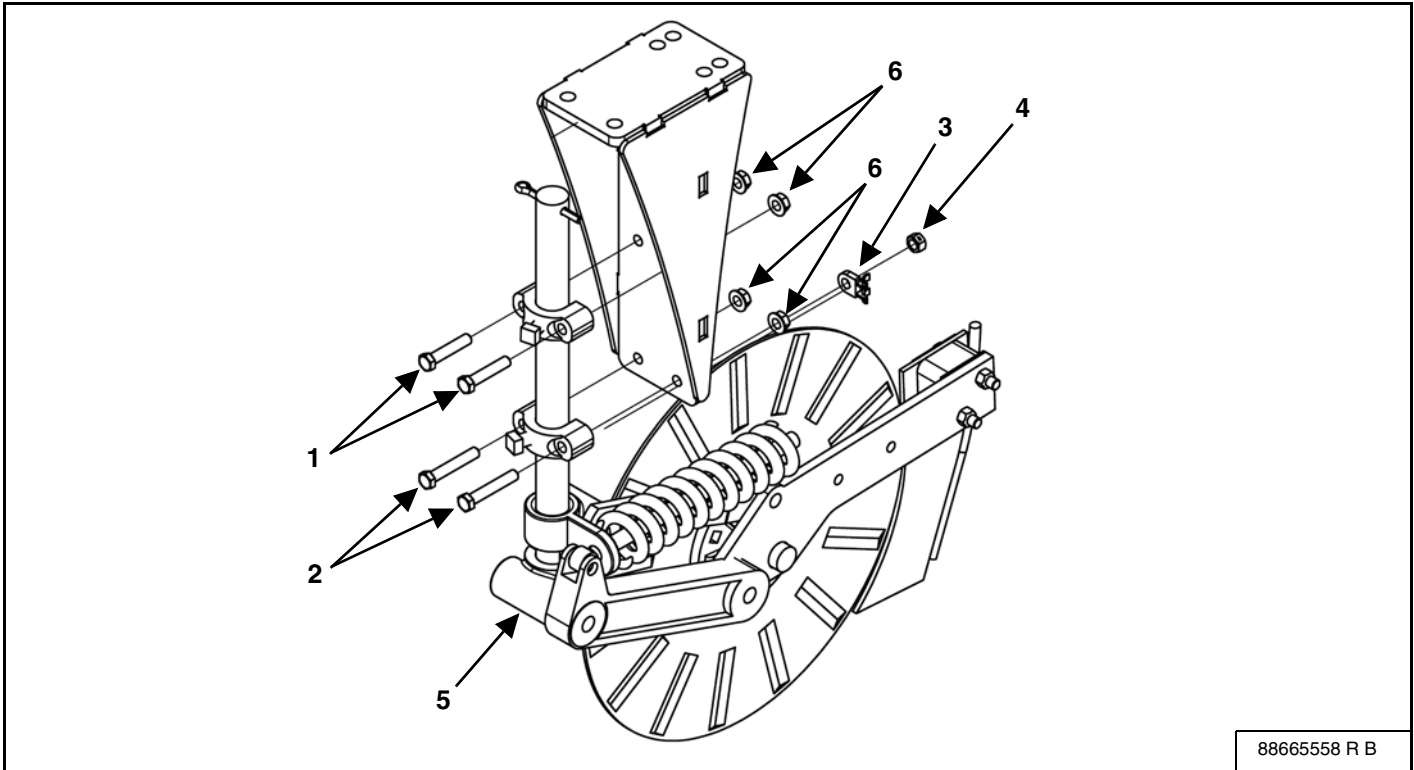
ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012111	CSHH G5P 0.62" x 2.00"	12
2	88663575	COULTER BRACKET, WELDMENT	32
3	88663622	U-BOLT, 0.63" x 5.13" x 8.63" LG	62
4	88668765	WLDT; CENTER COULTER BRK	3
5	SXNTFTL062118Y	NUT, 5/8-11 FLG, GR8	140

18 Row - 38" Spacing (60 Ft) 19 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663575	WLDT - COULTER BRACKET	16
2	88663622	U-BOLT - .63 X 5.13 X 8.63 LG	38
3	88668765	WLDT; CENTER COULTER BRK	3
4	SXNTFTL062118Y	NUT: 5/8-11 FLG, GR8	76

COULTER W / KNIFE GROUP

1860 & 2460 Models



36 Row - 20" Spacing (60 Ft) 37 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	74
2	88663897	CSHH G5P 0.50" x 3.00"	74
3	88664852	MOUNT, CABLE TIE HD 1/2"	37
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	37
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	37
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13 GR8	148

36 Row - 20" Spacing (60 Ft) 35 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	70
2	88663897	CSHH G5P 0.50" x 3.00"	70
3	88664852	MOUNT, CABLE TIE HD 1/2"	35
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	35
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	35
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	140

32 Row - 22" Spacing (60 Ft) 33 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	66
2	88663897	CSHH G5P 0.50" x 3.00"	66
3	88664852	MOUNT, CABLE TIE HD 1/2"	33
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	33
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	33
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	132

32 Row - 22" Spacing (60 Ft) 31 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	62
2	88663897	CSHH G5P 0.50" x 3.00"	62
3	88664852	MOUNT, CABLE TIE HD 1/2"	31
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	31
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	31
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	124

24 Row - 30" Spacing (60 Ft) 25 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	50
2	88663897	CSHH G5P 0.50" x 3.00"	50
3	88664852	MOUNT, CABLE TIE HD 1/2"	25
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	25
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	25
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	100

24 Row - 30" Spacing (60 Ft) 23 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	46
2	88663897	CSHH G5P 0.50" x 3.00"	46
3	88664852	MOUNT, CABLE TIE HD 1/2"	23
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	23
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	23
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	92

36 Row - 22" Spacing (66 Ft) 37 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	74
2	88663897	CSHH G5P 0.50" x 3.00"	74
3	88664852	MOUNT, CABLE TIE HD 1/2"	37
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	37
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	37
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	148

36 Row - 22" Spacing (66 Ft) 35 Coulters

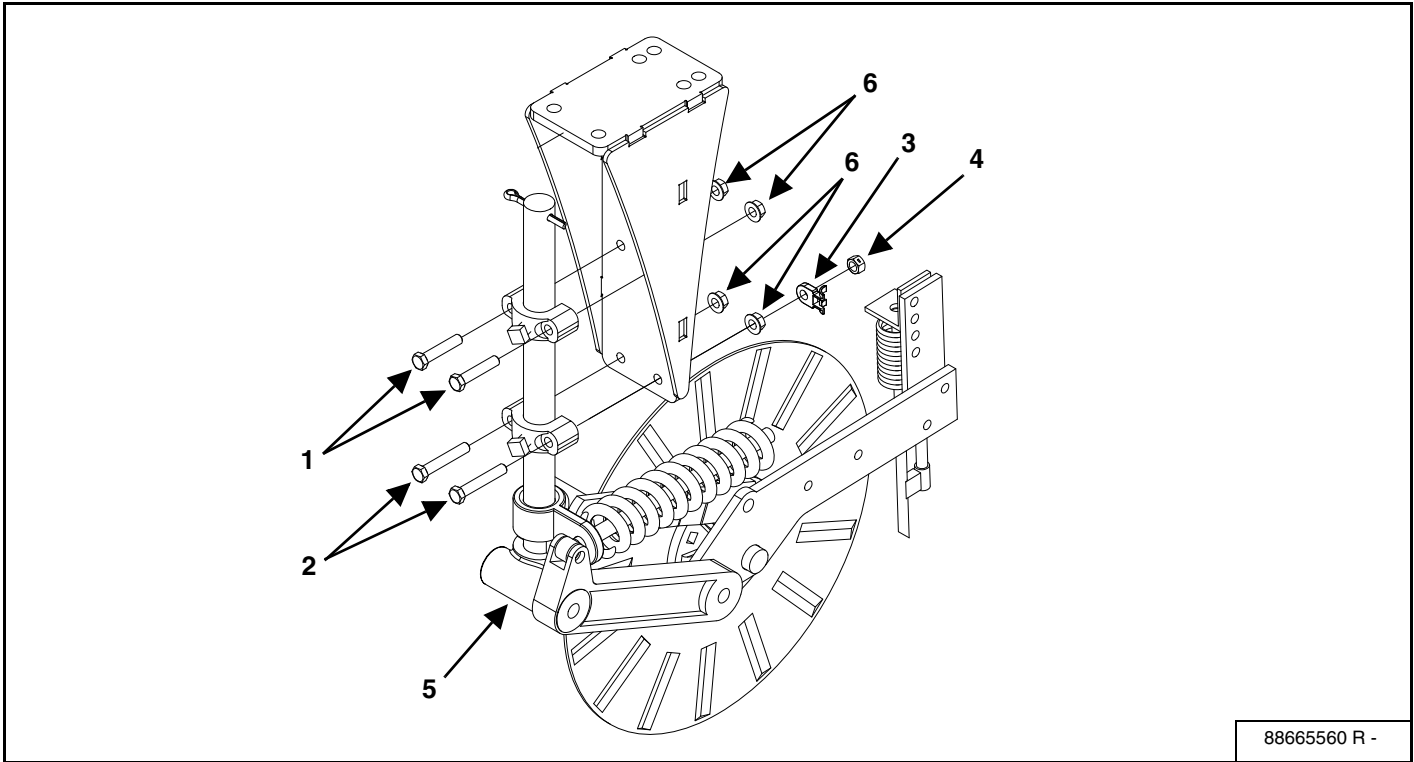
ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	70
2	88663897	CSHH G5P 0.50" x 3.00"	70
3	88664852	MOUNT, CABLE TIE HD 1/2"	35
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	35
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	35
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	140

18 Row - 38" Spacing (60 Ft) 19 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	38
2	88663897	CSHH G5P 0.50" x 3.00"	38
3	88664852	MOUNT, CABLE TIE HD 1/2"	19
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	19
5	88664856	COULTER KNIFE MODIFIED, ASSEMBLY	19
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	76

COULTER W / INJECT GROUP

1860 & 2460 Models



36 Row - 20" Spacing (60 Ft) 37 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	74
2	88663897	CSHH G5P 0.50" x 3.00"	74
3	88664852	MOUNT, CABLE TIE HD 1/2"	37
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	37
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	37
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	148

36 Row - 20" Spacing (60 Ft) 35 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	70
2	88663897	CSHH G5P 0.50" x 3.00"	70
3	88664852	MOUNT, CABLE TIE HD 1/2"	35
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	35
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	35
6	SXNTFTL050138Y	NUT, FLG TP LCK, 1/2"-13	140

32 Row - 22" Spacing (60 Ft) 33 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	66
2	88663897	CSHH G5P 0.50" x 3.00"	66
3	88664852	MOUNT, CABLE TIE HD 1/2"	33
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	33
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	33
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	132

32 Row - 22" Spacing (60 Ft) 31 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	62
2	88663897	CSHH G5P 0.50" x 3.00"	62
3	88664852	MOUNT, CABLE TIE HD 1/2"	31
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	31
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	31
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	124

24 Row - 30" Spacing (60 Ft) 25 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	50
2	88663897	CSHH G5P 0.50" x 3.00"	50
3	88664852	MOUNT, CABLE TIE HD 1/2"	25
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	25
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	25
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	100

24 Row - 30" Spacing (60 Ft) 23 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	46
2	88663897	CSHH G5P 0.50" x 3.00"	46
3	88664852	MOUNT, CABLE TIE HD 1/2"	23
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	23
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	23
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	92

36 Row - 22" Spacing (66 Ft) 37 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	74
2	88663897	CSHH G5P 0.50" x 3.00"	74
3	88664852	MOUNT, CABLE TIE HD 1/2"	37
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	37
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	37
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	148

36 Row - 22" Spacing (66 Ft) 35 Coulters

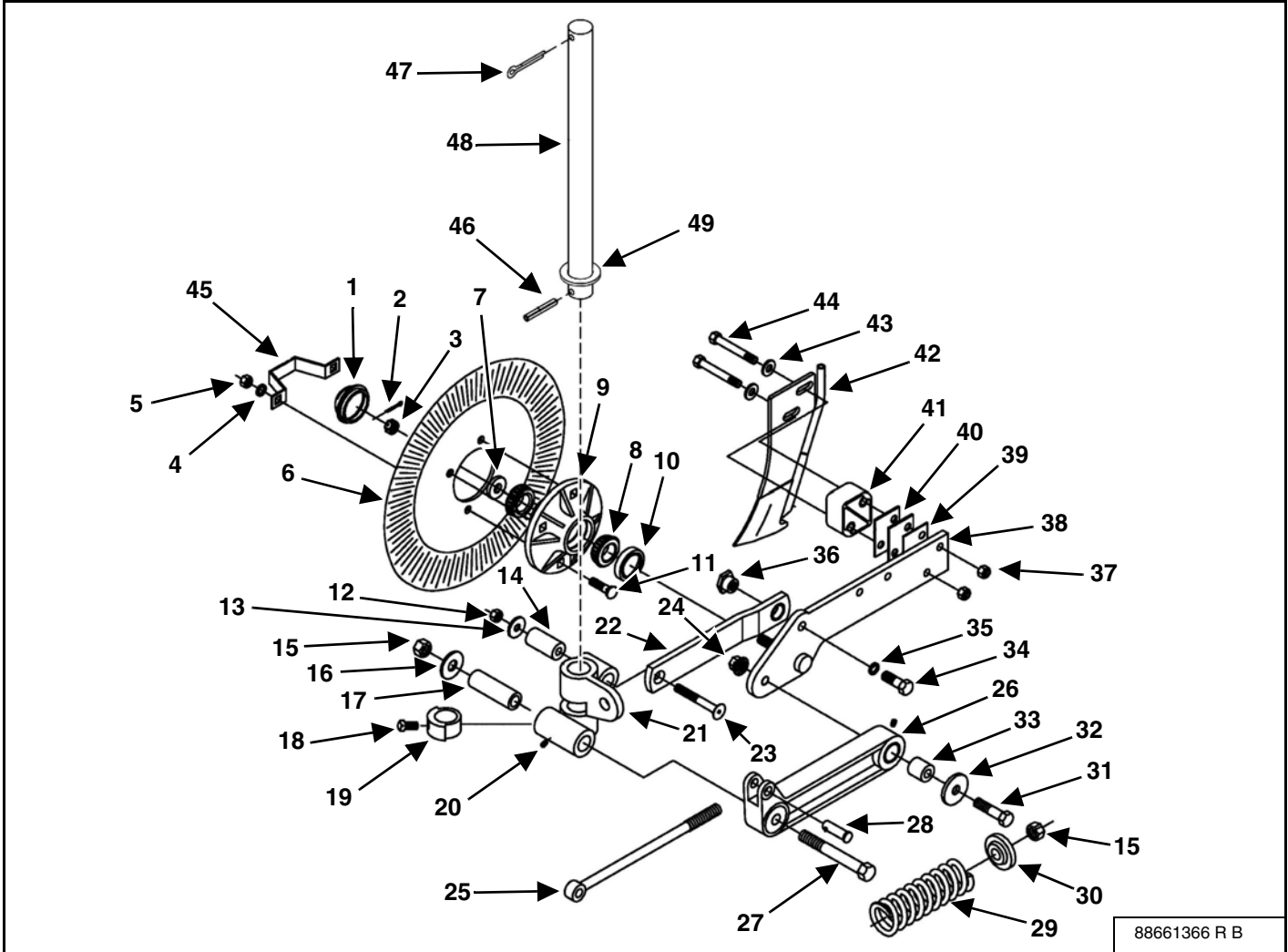
ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	70
2	88663897	CSHH G5P 0.50" x 3.00"	70
3	88664852	MOUNT, CABLE TIE HD 1/2"	35
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	35
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	35
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	140

18 Row - 38" Spacing (60 Ft) 19 Coulters

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P 0.50" x 2.50" 86505344	38
2	88663897	CSHH G5P 0.50" x 3.00"	38
3	88664852	MOUNT, CABLE TIE HD 1/2"	19
4	88664853	LOCKNUT, 1/2" CENTERLOCK YZ	19
5	88664855	COULTER INJECTOR MODIFIED, ASSEMBLY	19
6	SXNTFTL050138Y	NUT FLG, TP LCK, 1/2"-13	76

COULTER ASSEMBLY (STRAIGHT)

RH W / Knife

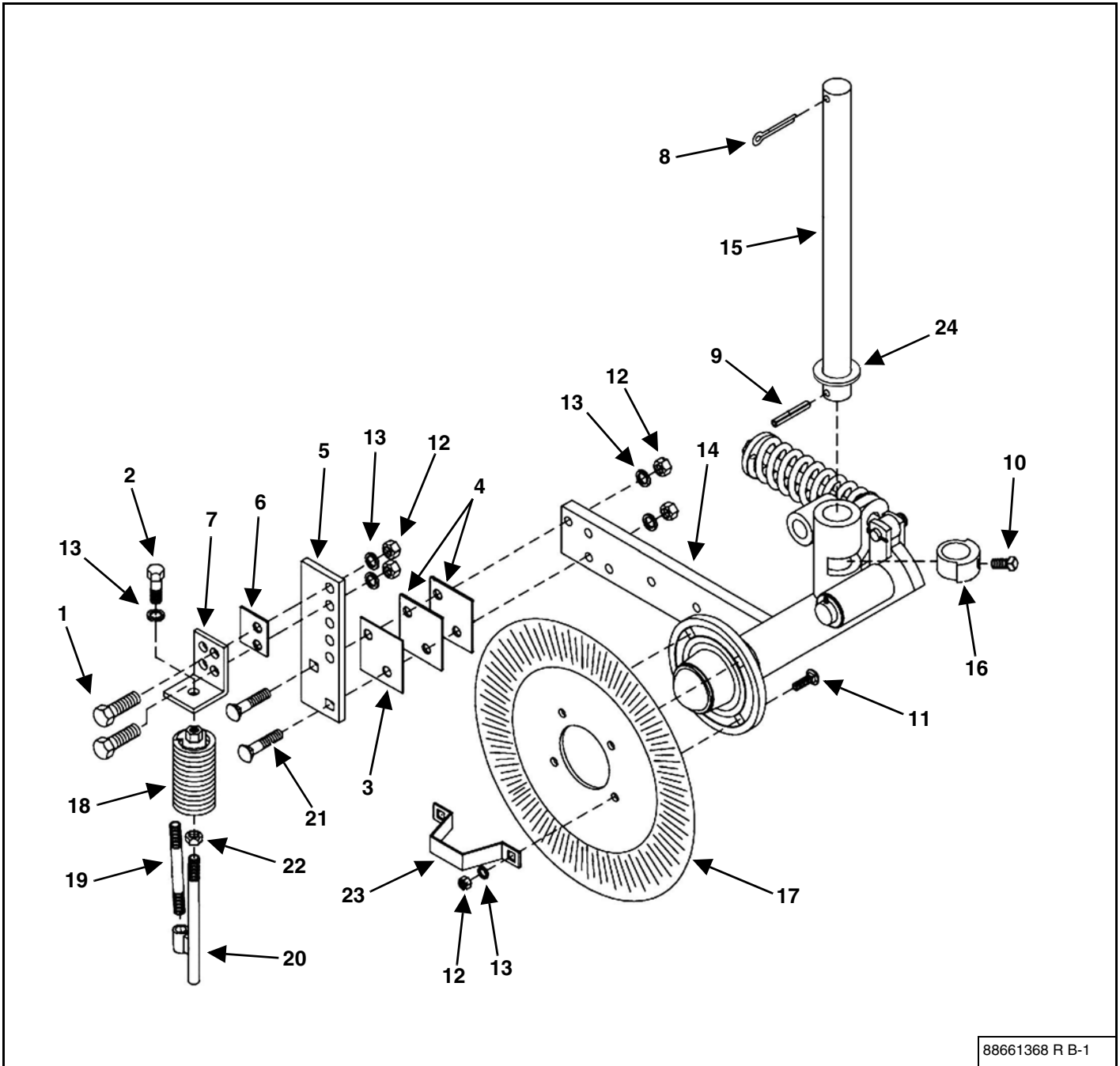


ITEM	PART NUMBER	DESCRIPTION	QTY
1	SX2570-375	HUB CAP	1
2	88664879	1/8" x 1 1/4" COTTER PIN, BLACK	1
3	88664880	5/8"-18 SLOTTED HEX NUT BLK	4
4	88664881	1/2" MED LOCKWASHER ZP	4
5	88664882	1/2"-13 HEX NUT ZP	4
6	88661371	RIPPLE BLADE 20"	1
7	88664883	5/8" FLATWASHER, 1/4" +/- 0.010 THICK	1
8	SX2550-027	CONE, LM67048	2
9	88664884	HUB PRESSED ASSY	1
	SX2550-029	CUP (PRE-ASSY W/9) LM67010	2
10	88664885	TRIPLE LIP SEAL, NTI #1812-4	1
11	88664886	1/2"-13 x 1 1/4" CAR BOLT GR5 ZP	4
12	88664887	1/2"-13 LOCK HEX NUT ZP	1

ITEM	PART NUMBER	DESCRIPTION	QTY
13	88664888	1/2" ID x 1 1/2" OD x 10 GA MA BU ZP	1
14	88664889	PIVOT SLEEVE	1
15	88664890	3/4"-10 LOCK HEX NUT ZP	2
16	SXFW-075-SAE-YZ	3/4" STANDARD FLATWASHER ZP	1
17	88664891	PIVOT SLEEVE	1
18	88664892	5/8"-11 x 1" SQ. HCPSS GR5 ZP	1
19	SX2975-303	LOCKING COLLAR, 2975	1
20	88664893	1/4"-28 ZERK STRAIGHT SELF-TAP	3
21	88664894	COULTER PIVOT, RH (SHOWN)	1
22	88664896	UPPER COULTER ARM ASSY	1
	88664897	1" ID x 1 1/4" OD x 1/2" BRNZ BUSH	1
23	88664898	1/2"-13 x 4" HSFHCS	1
24	88664899	5/8"-11 WHIZLOCK HEX NUT ZP	1
25	88664900	SPRING ROD, 13 1/2"	1
26	SX2995-110	LOWER COULTER ARM ASSY	1
	88664901	ARM BRNZ BUSHING, 2995	1
27	88664902	3/4"-10 x 6" HHCS G5 ZP	1
28	88664903	5/8" x 1 3/4" SLIC PIN YYD	1
29	SX2550-795	SPRING, 0.562 WIRE x 11" LONG	1
30	88664904	SPRING BUSHING PAINTED, 2975	1
31	88664905	5/8"-11 x 2 1/2" HHCS GR5 ZP	1
32	88664906	21/32" ID x 2 1/4" OD x 1/4" MA BU	1
33	88664907	LOWER ARM PIVOT	1
34	88664908	5/8"-18 x 1 1/2" HHCS GR5 ZP	1
35	88664909	5/8" MED LOCKWASHER ZP	1
36	88664910	UPPER ARM PIVOT/WASHER ZP	1
37	88664911	1/2"-13 HEX NIF, LOCK NUT ZP	2
38	SX2996-205	RH KNIFE ARM/SPINDLE WA, 2996	1
39	88664913	KNIFE SHIM 16 GA ZP	1
40	88664914	KNIFE SHIM, 1/8" ZP	1
41	SX2995-309	SPACER BLOCK, 1.531"	1
42	SX2996-200	LIQUID FERTILIZER KNIFE WA, 20"	1
43	88664915	1/2" FLAT WASHER, HARDENED PC	2
44	88664916	1/2"-13 x 3 1/2" HHCS GR8 ZDP	2
45	88664920	HUB CAP RETAINER	1
46	88664918	ROLL PIN FOR SHANK	1
47	88664919	COTTER PIN FOR SHANK	1
48	88661373	SHANK, 1 1/2" x 27-1/8	1
49	88664859	BUSHING; MACH 1.50 ID x 2.25 OD YZ	1
	88664917	CRITICAL ADJUSTMENT DECAL (NOT SHOWN)	1

COULTER ASSEMBLY (STRAIGHT) (CONT'D)

RH W / Injector

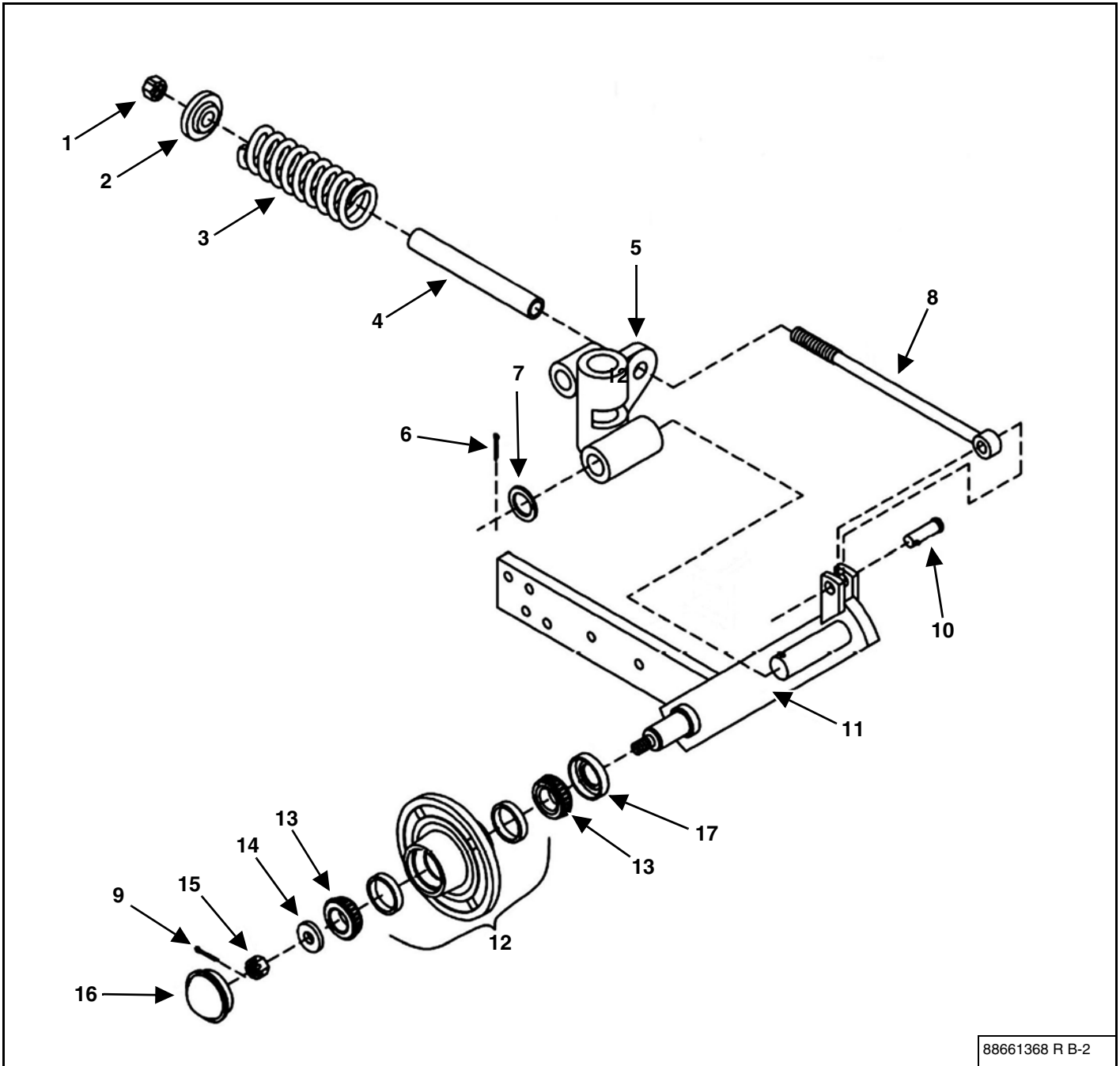


88661368 R B-1

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00012008	1/2"-13 x 1 1/2" HHCS GR5 ZP	2
2	00012071	1/2"-13 x 1" HHCS GR5 ZP	2
3	88664913	KNIFE SHIM, 16 GA. ZP	1
4	88664914	KNIFE SHIM, 1/8" ZP	2
5	88664922	ADJUSTMENT PLATE, INJECTOR	2
6	SX2995-320	SPACER, INJECTOR	1
7	SX2995-301	INJECTOR MOUNT PLATE	1
8	88664919	5/16" x 2-1/2" COTTER PIN ZP	1
9	88664918	3/8" x 2-1/2" ROLL PIN ZP	1
10	88664892	5/8"-11 x 1" SQ HCPSS GR5 ZP	1
11	88664886	1/2"-13 x 1 1/4" CAR BOLT GR5	4
12	88664882	1/2"-13 HEX NUT ZP	8
13	88664881	1/2" MED LOCKWASHER ZP	9
14	88664923	GEN III COULTER ARM ASSY (W/INJECT)	1
15	88661373	SHANK, 1 1/2" x 27-1/8	1
16	SX2975-303	2975 LOCKING COLLAR	1
17	88661371	.157" x 20" RIPPLE BLADE	1
18	SX2995-131	SPRING INJECTOR ASSEMBLY	1
19	88664924	3" NIPPLE, 1/4 NPT SS	1
20	88664925	INJECTOR ROD W A 1/2"-13	1
21	88664926	1/2"-13 x 2" CAR BOLT GR5 ZP	2
22	88664927	1/2"-13 JAM HEX NUT ZP	1
23	88664920	HUB CAP RETAINER	1
24	88664859	BUSHING; MACH 1.50 ID x 2.25 OD YZ	1

COULTER ARM ASSEMBLY

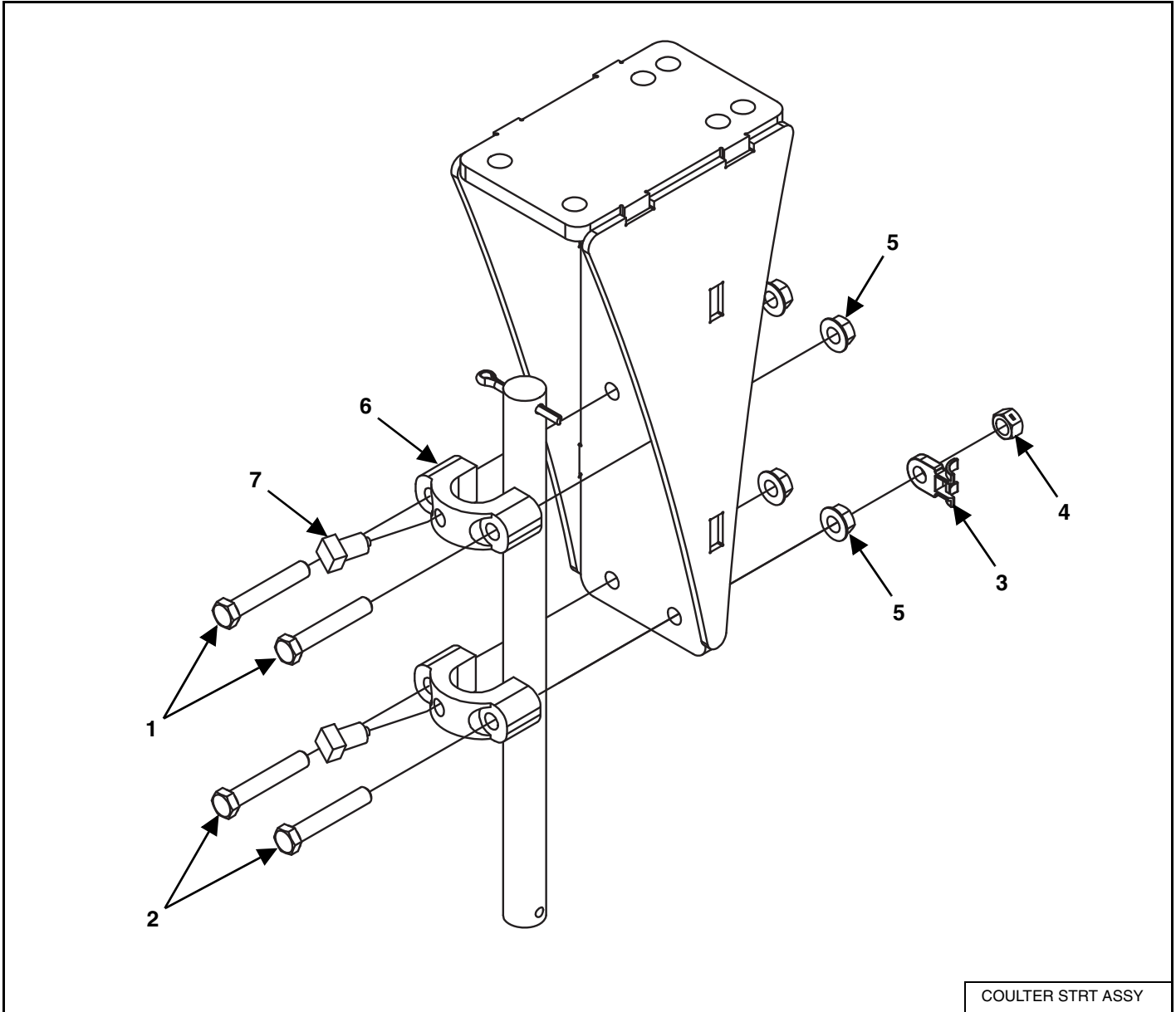
RH W / Injector



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88664927	1/2"-13 JAM HEX NUT ZP	1
2	88664904	2975 SPRING BUSHING PAINTED	1
3	SX2550-795	SPRING, 0.562" WIRE x 11" LONG	1
4	88667464	10" POLY HELPER SPRING	1
5	88664929	COULTER PIVOT, RH (SHOWN)	1
	88664895	COULTER PIVOT, LH	1
6	812435	1/4" x 1 3/4" COTTER PIN ZYD	1
7	88667463	1 17/64" ID x 1 7/8" OD x 14GA MB	1
8	88664900	SPRING ROD, 13-1/2"	1
9	88664879	1/8" x 1 1/4" COTTER PIN BLACK	1
10	88664903	5/8" x 1 3/4" SLIC PIN ZYD	1
11	88664932	GEN III W / KNIFE ARM WA RH (SHOWN)	1
12	88664884	HUB PRESSED ASSEMBLY	1
	88664893	1/4"-28 ZERK STRAIGHT SELF-TAP	1
	SX2550-029	CUP, LM67010	2
	88664934	PLOW COULTER HUB CASTING	1
13	SX2550-027	CONE, LM67048	2
14	88664883	5/8" FLATWASHER, 1/4" +/- 0.010 THICK	1
15	88664880	5/8"-18 SLOTTED HEX NUT, BLACK	1
16	SX2570-375	HUB CAP, WILTON #909902	1
17	88664885	TRIPLE LIP SEAL, NTI #1812-4	1

COULTER MOUNTING ASSEMBLY

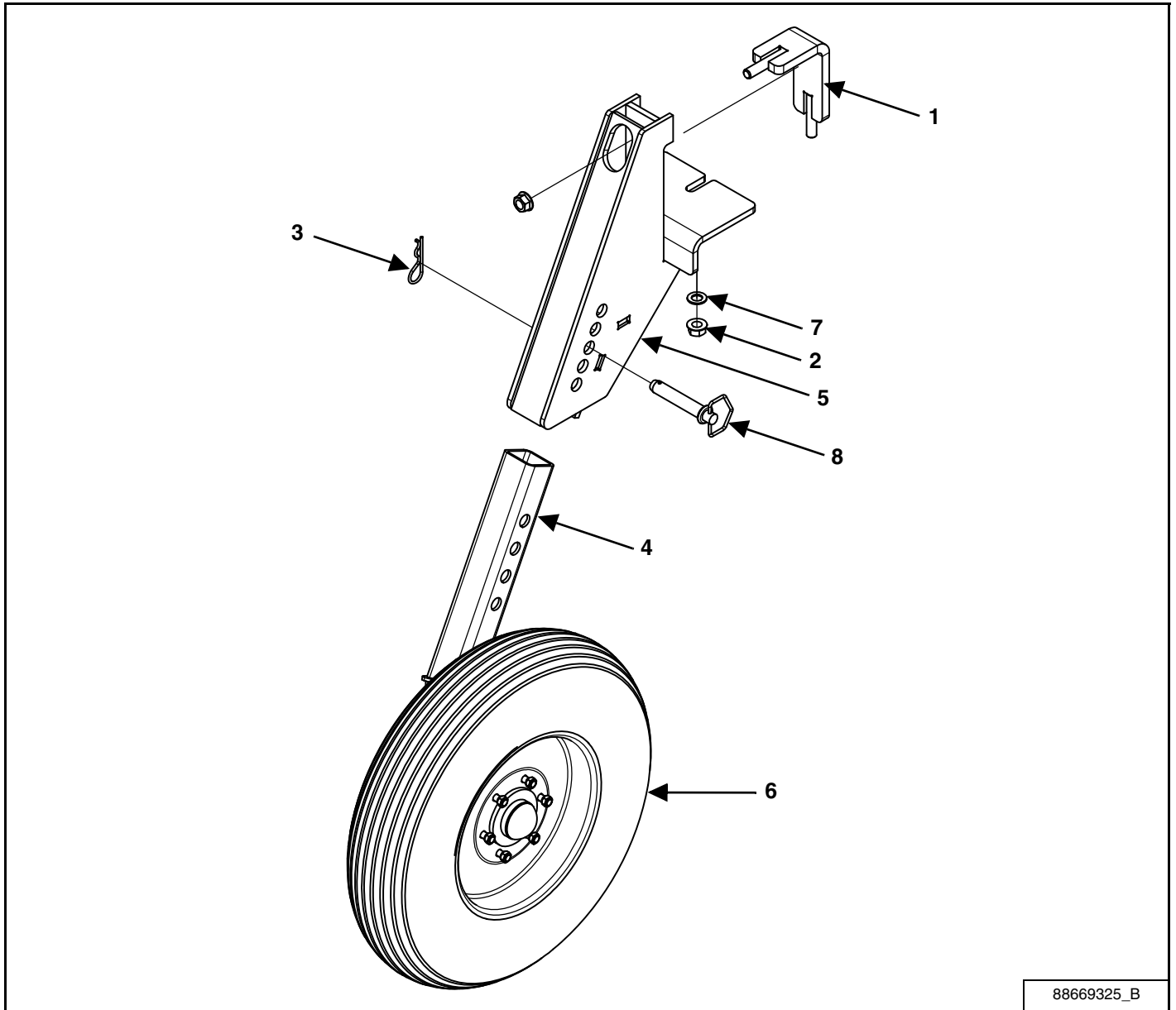
RH W / Injector & RH W / Knife



ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087972	CSHH G5 P .50x2.50	2
2	88663897	CSHH G5 P .50x3.00	2
3	88664852	MOUNT, CABLE TIE HD 1/2"	1
4	88664853	LOCKNUT; 1/2" CENTERLOCK YZ	1
5	SXNTFTL050138Y	NUT; FLG TP LCK 1/2-13 GR8-YZ	4
6	SX2990-360	CLAMP CASTING, DRILLED	2
7	88664892	5/8"-11 x 1" SQ. HCPSS GR5 ZP	2

GAUGE WHEEL GROUP LH

1860 & 2460 Models

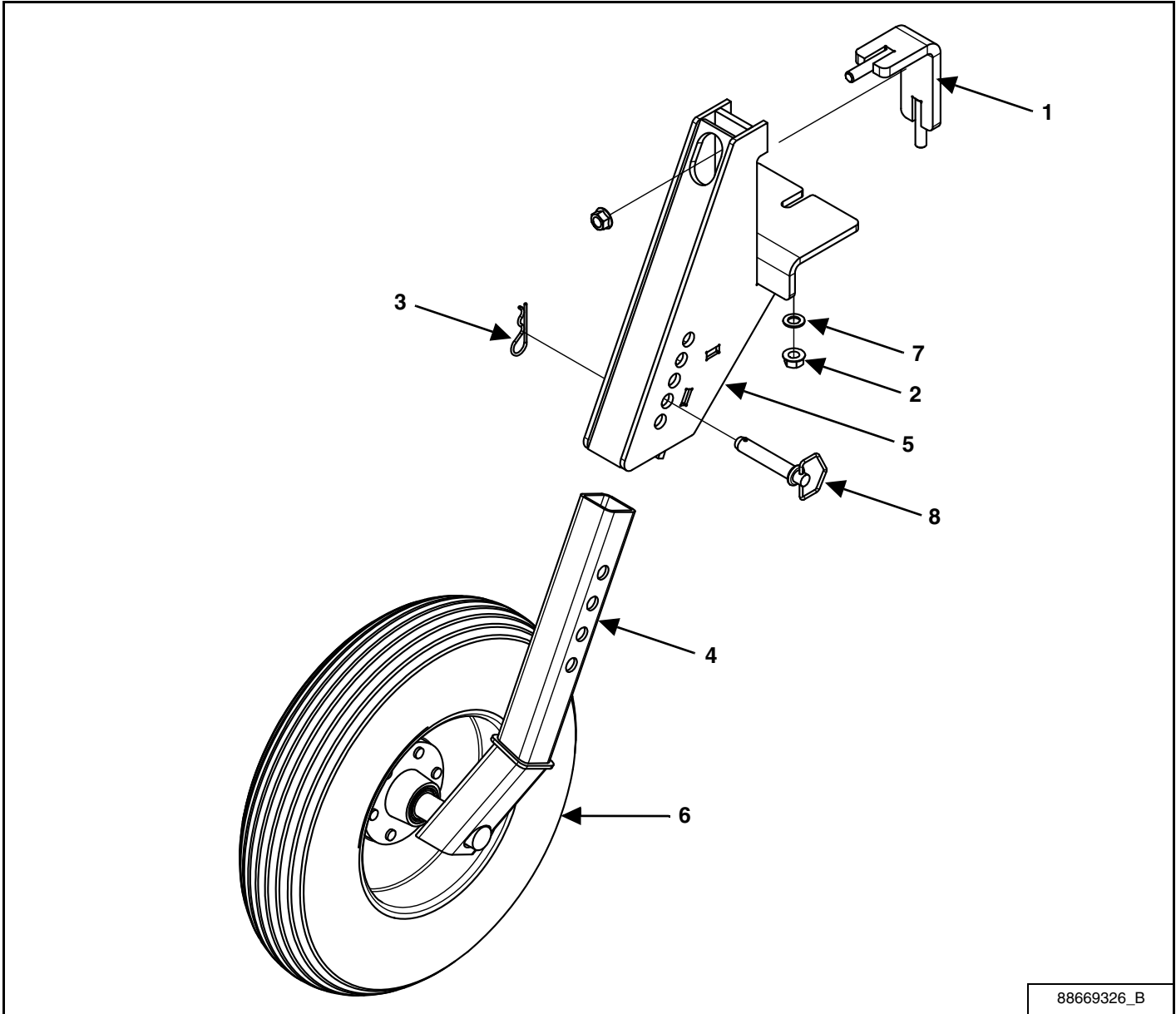


88669325_B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663771	WLDT - GAUGE WHEEL SUBWLDT	1
2	88663952	NUT FLG, TP LCK, 3/4-10 GR5YZ	2
3	88668005	PIN CLIP; .177 X 3-3/4 ZINC	1
4	88669331	ASSY, GAUGE WHEEL TUBE	1
5	88669400	WLDT, GAUGE WHEEL	1
6	SX011506B	TIRE & WHEEL ASSY, 7.6-15SL	1
7	SXFW-075-SAE-YZ	FLATWASHER; SAE 3/4" YLLWZN	1
8	SXPHI-100-525	PIN; HITCH, 1" X 5 1/4"	1

GAUGE WHEEL GROUP RH

1860 & 2460 Models

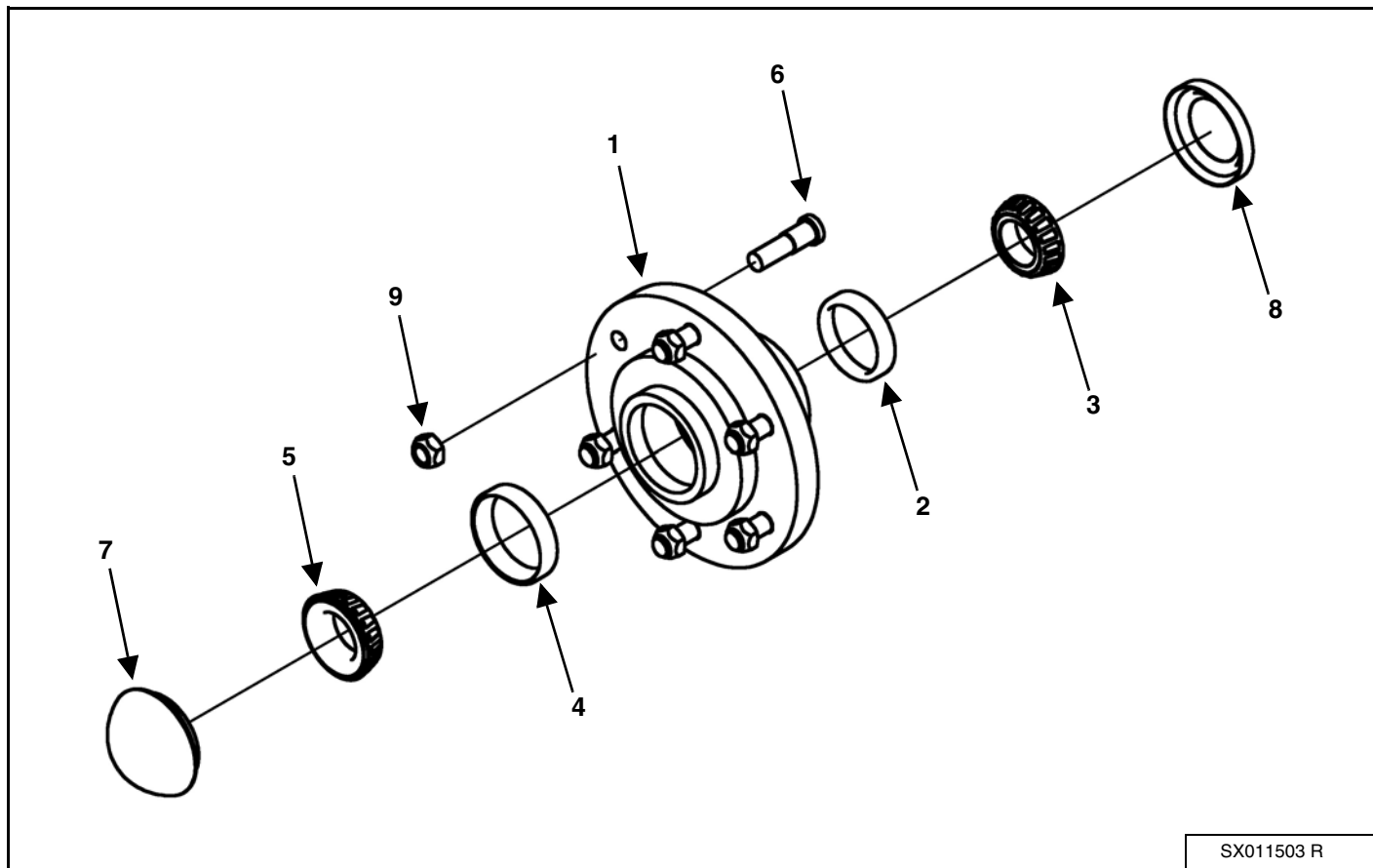


88669326_B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663771	WLDT - GAUGE WHEEL SUBWLDT	1
2	88663952	NUT FLG, TP LCK, 3/4-10 GR5YZ	2
3	88668005	PIN CLIP; .177 X 3-3/4 ZINC	1
4	88669331	ASSY, GAUGE WHEEL TUBE	1
5	88669400	WLDT, GAUGE WHEEL	1
6	SX011506B	TIRE & WHEEL ASSY, 7.6-15SL	1
7	SXFW-075-SAE-YZ	FLATWASHER; SAE 3/4" YLLWZN	1
8	SXPHI-100-525	PIN; HITCH, 1" X 5 1/4"	1

GAUGE WHEEL HUB

1860 & 2460 Models

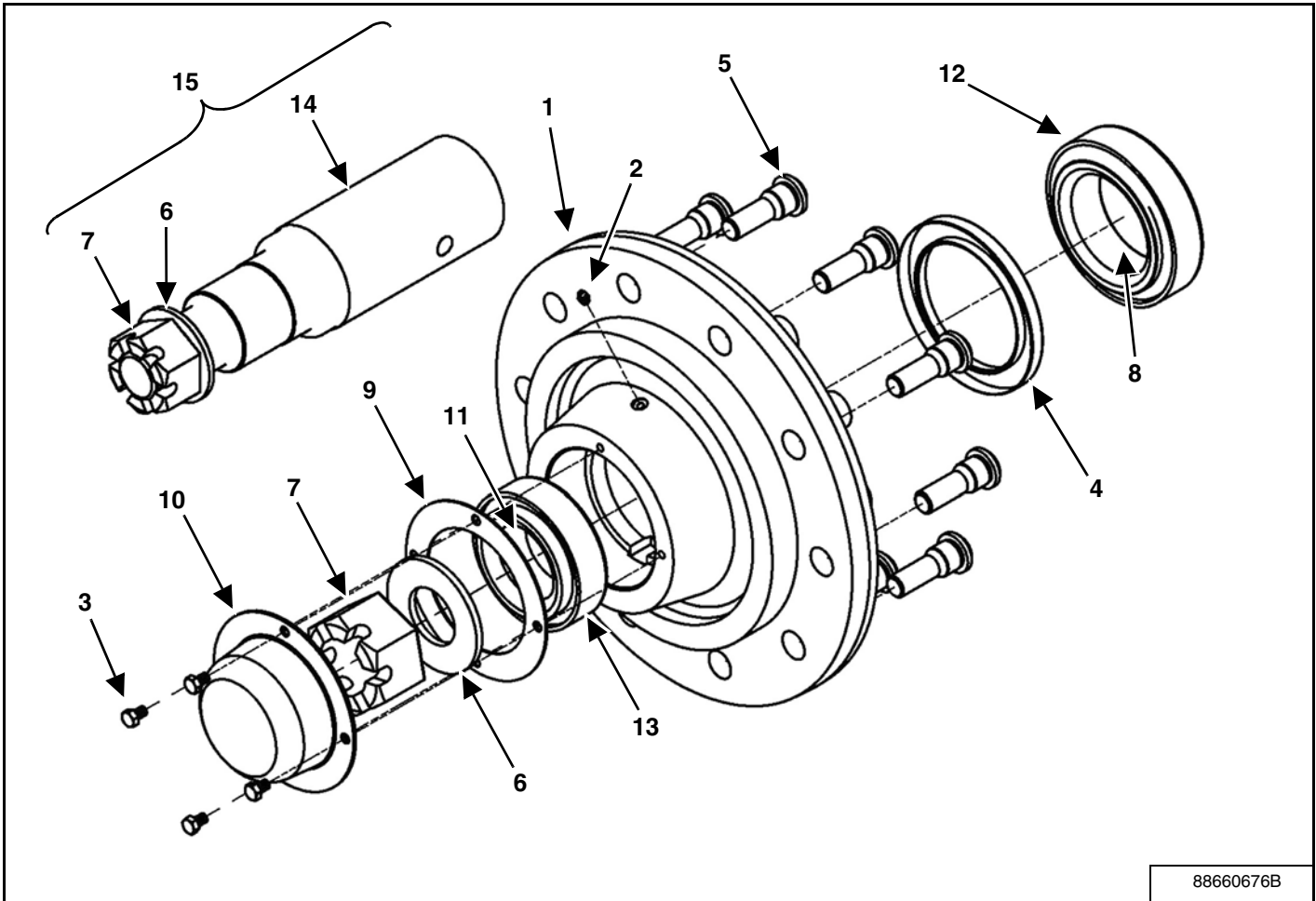


SX011503 R

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88665707	HUB W/CUPS	1
2	88665708	OUTER CUP	1
3	88665709	OUTER CONE	1
4	88665710	INNER CUP	1
5	88665711	INNER CONE	1
6	88665712	STUD	6
7	88665713	CAP, HUB	1
8	88665714	GREASE SEAL	1
9	88665715	NUT	6

HUB ASSEMBLY

1860 & 2460 Models

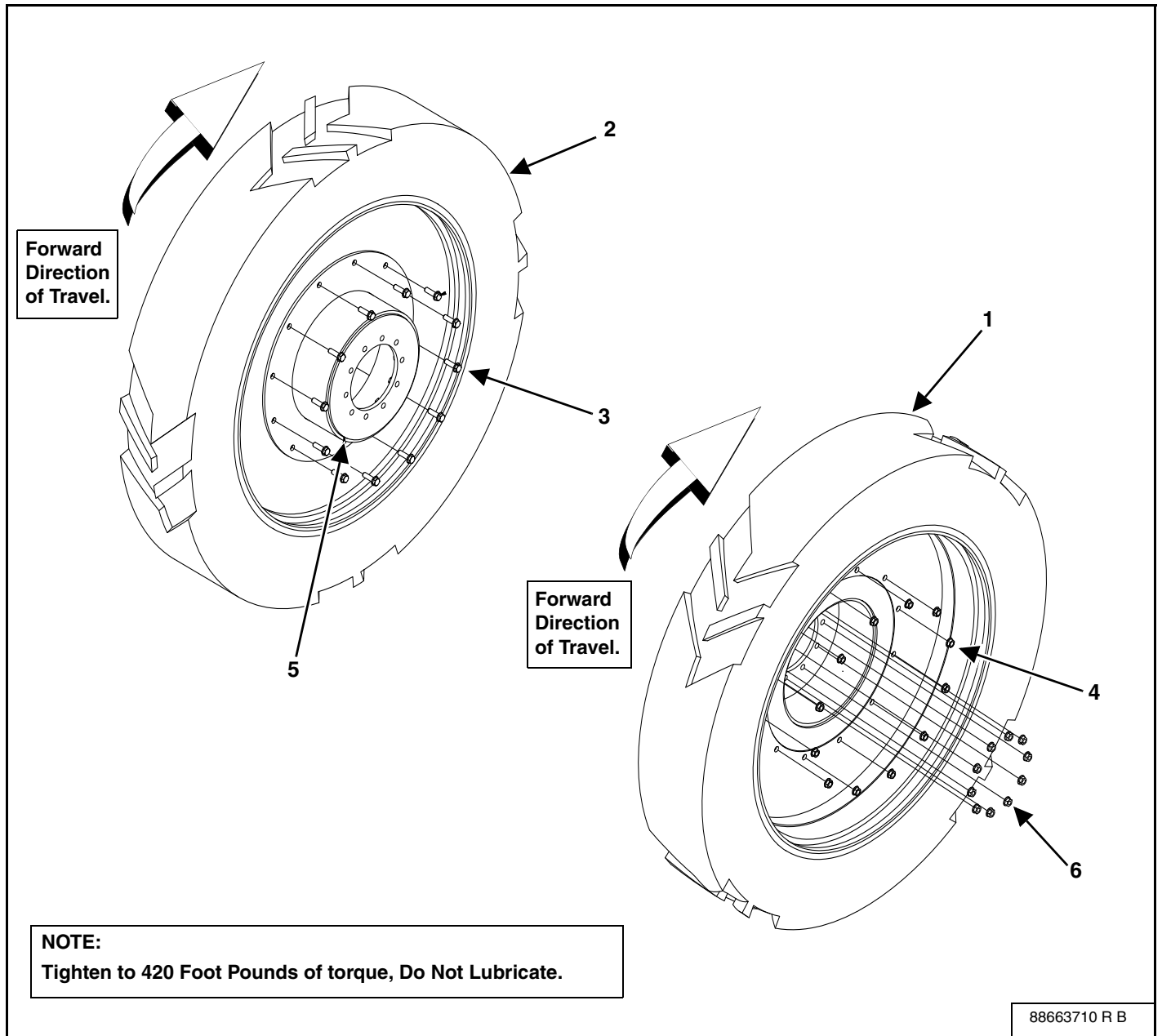


88660676B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88660662	HUB, 10 BOLT, 13.19" BC	1
2	88660661	FITTING GREASE	1
3	88660663	BOLT, HUBCAP	4
4	88660664	SEAL, GREASE	1
5	88660665	STUD, WHEEL	10
6	88660666	WASHER	1
7	88660667	NUT, CASTLE	1
8	88660668	INNER CONE	1
9	88660669	GASKET	1
10	88660670	CAP, HUB	1
11	88661532	OUTER CONE	1
12	88666341	INNER CUP	1
13	88666342	OUTER CUP	1
14	88661542	SPINDLE	1
15	88665597	SPINDLE, ASSEMBLY (Includes Items 7, 6, 14)	1

TIRE / WHEEL SINGLE 380 / 90 R54

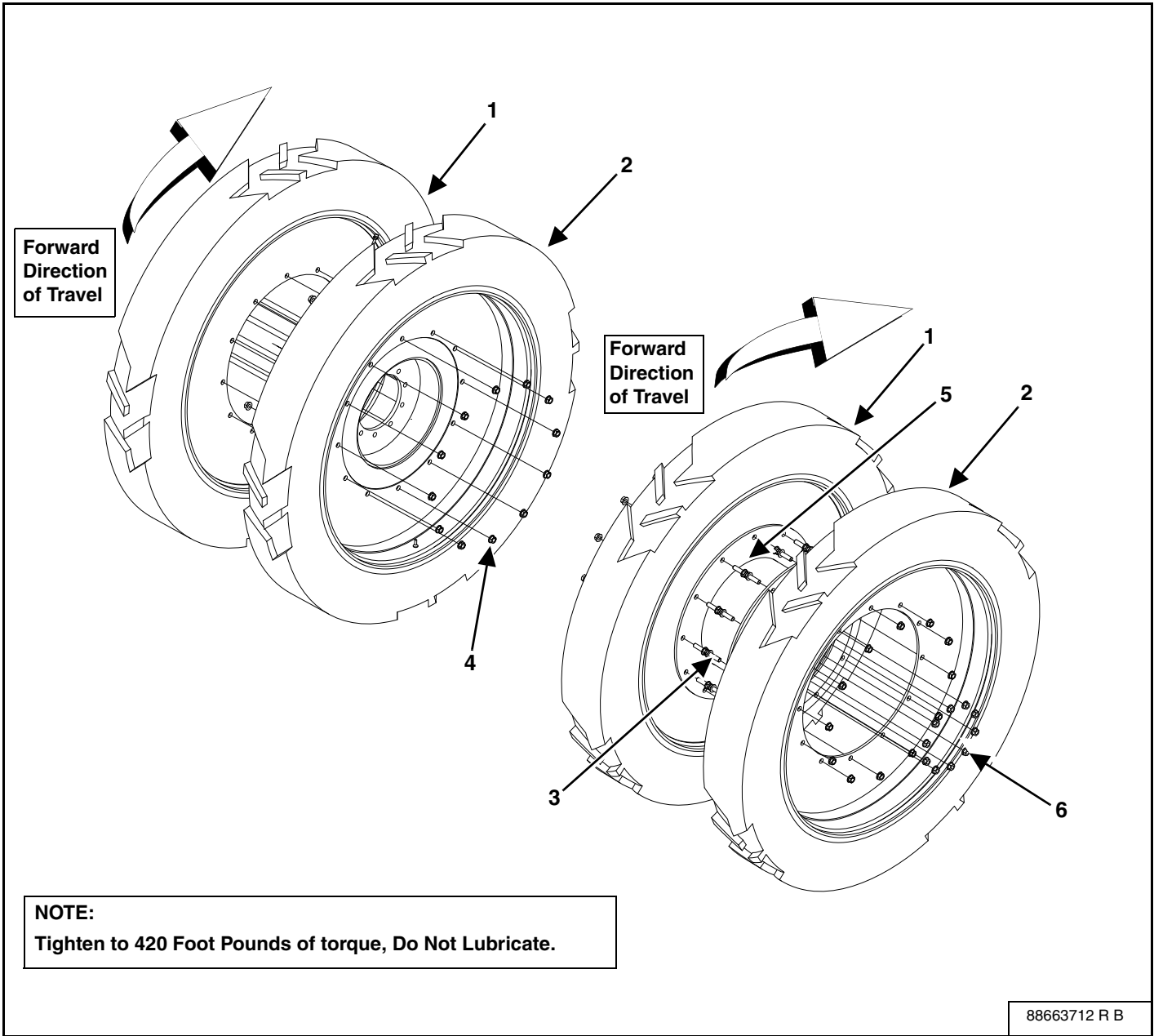
120" Spacing (Cream)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663740	TIRE 380/90 R54 LHI RHO, ASSEMBLY	1
2	88663739	TIRE 380/90 R54 LHO RHI, ASSEMBLY	1
3	88663734	CSFL G8 P 0.75" x 2.50" NF YZ	24
4	88663735	NUT, FLG TP LCK 3/4"-16 GR8 YZ	24
5	88663863	HUB SPACER 30 INCH SINGLE, WELDMNT	2
6	SX913571	NUT, WHEEL 3/4-16 FLANGED	20

TIRE / WHEEL STRADDLE DUAL 320 / 90 R54

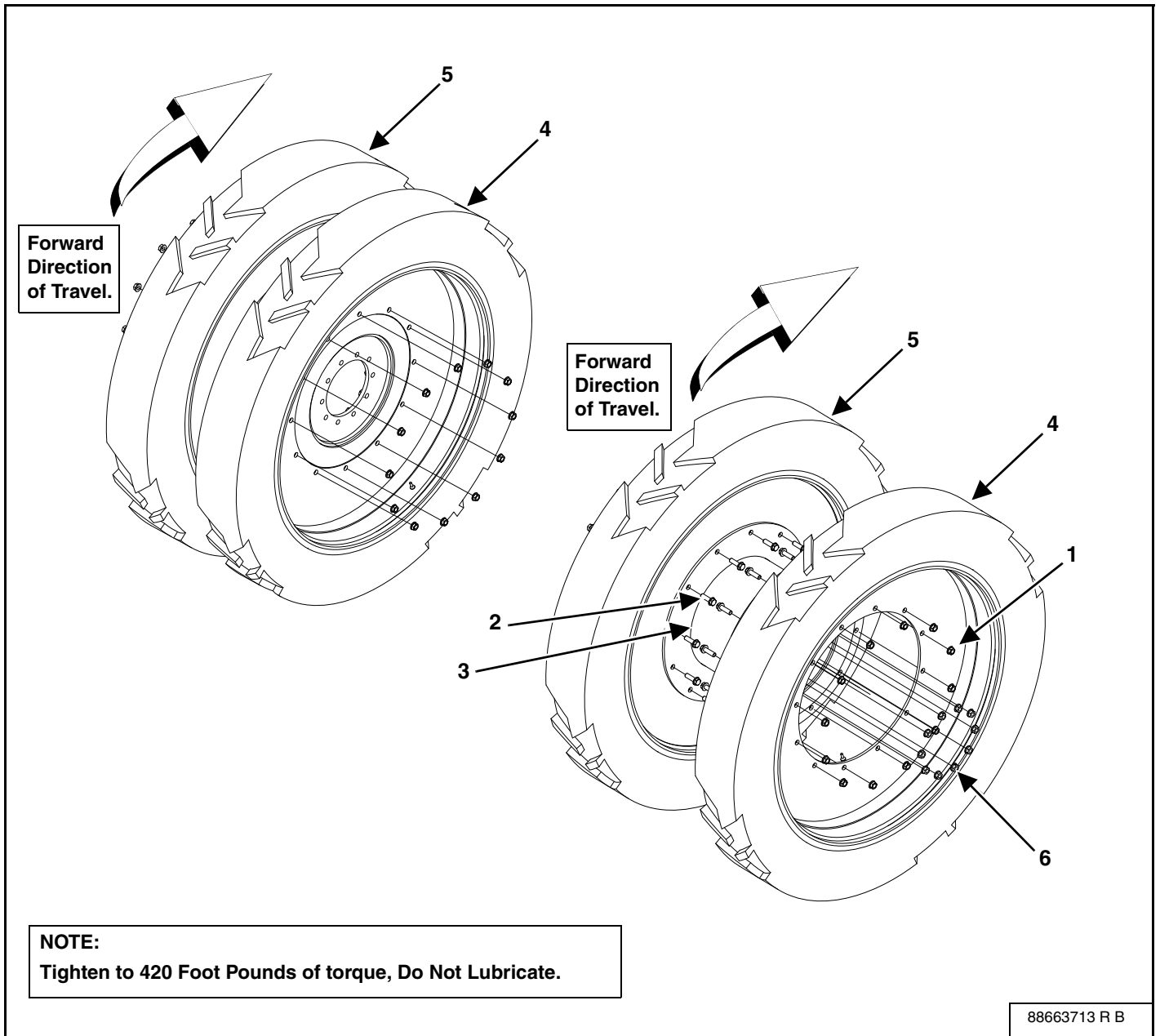
20" Spacing (Cream)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663743	TIRE 320/90 R54 LHO RHI, ASSEMBLY	2
2	88663744	TIRE 320/90 R54 LHI RHO, ASSEMBLY	2
3	88663734	CSFL G8 P 0.75" x 2.50" NF YZ	48
4	88663735	NUT, FLG TP LCK 3/4"-16 GR8 YZ	48
5	88663866	HUB SPACER 20 INCH, WELDMNT	2
6	SX913571	NUT, WHEEL 3/4-16 FLANGED	20

TIRE / WHEEL DUAL 320 / 90 R54

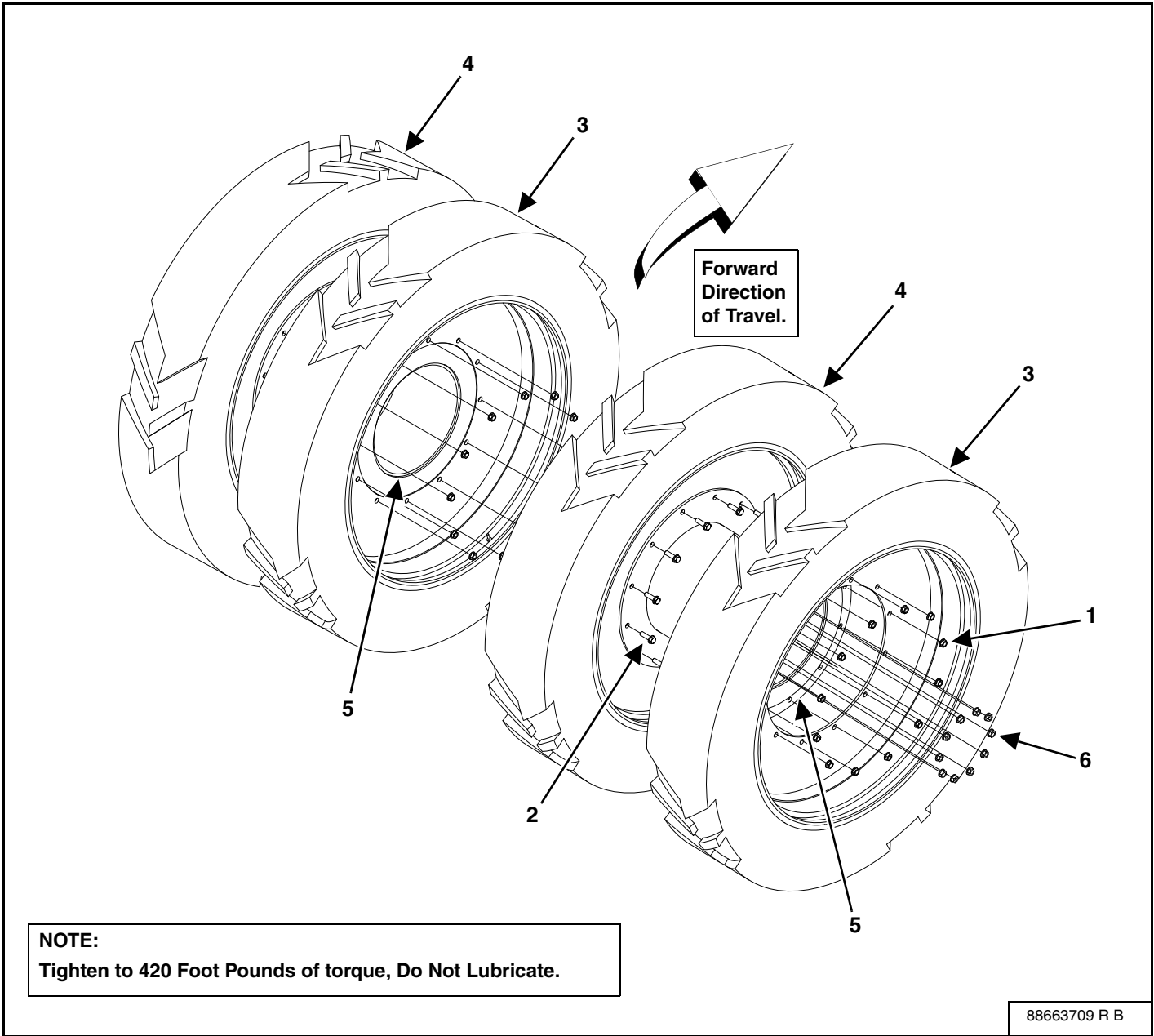
22" Spacing (Cream)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663735	NUT, FLG TP LCK 3/4"-16 GR8 YZ	48
2	88663734	CSFL G8 P 0.75" x 2.50" NF YZ	48
3	88663867	HUB SPACER 22 INCH SINGLE, WELDMENT	2
4	88663744	TIRE 320/90 R54 LHI RHO, ASSEMBLY	2
5	88663743	TIRE 320/90 R54 LHO RHI, ASSEMBLY	2
6	SX913571	NUT, WHEEL 3/4-16 FLANGED	20

TIRE / WHEEL DUAL 380 / 90 R54

30" Spacing (Cream)



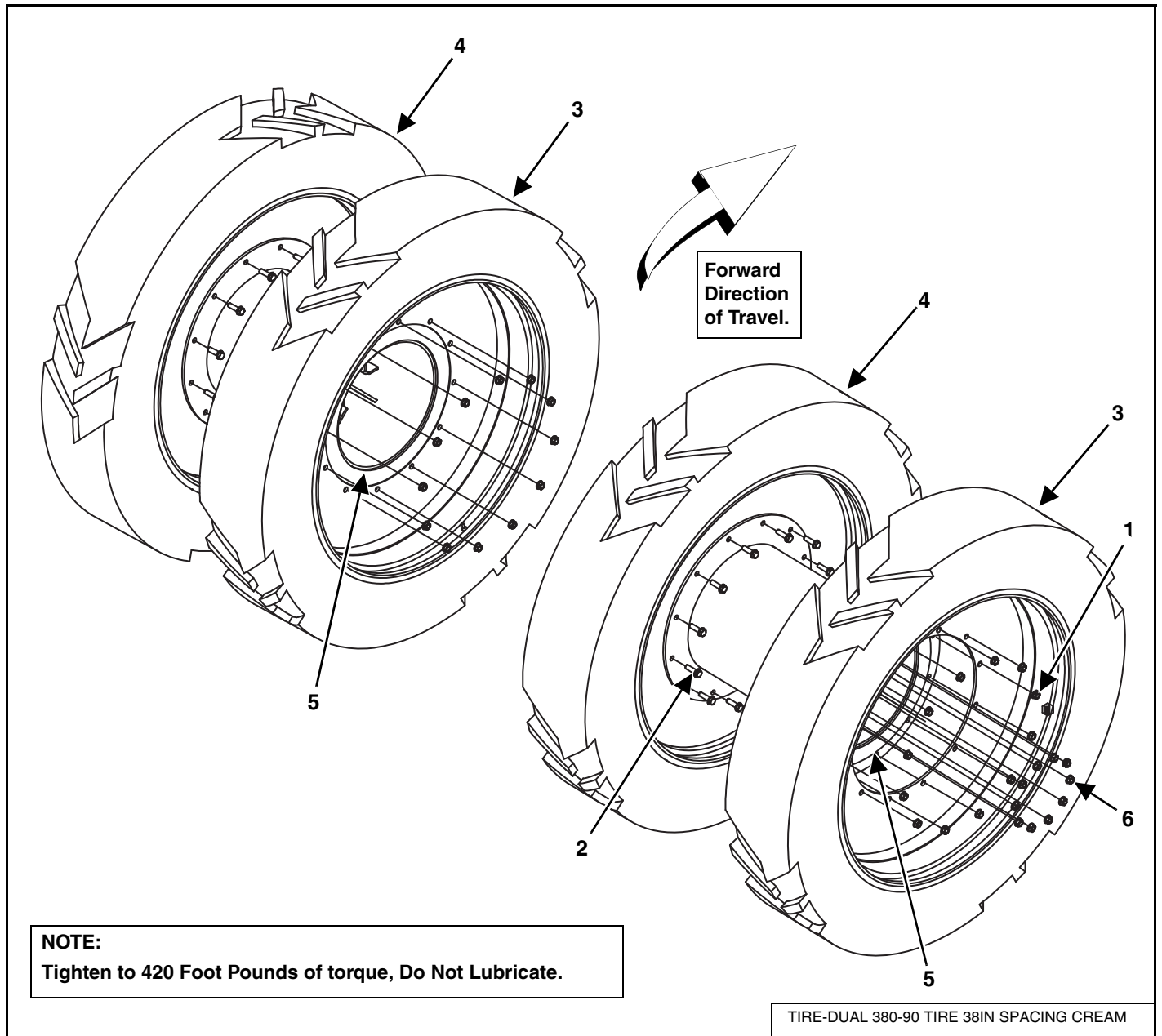
NOTE:
Tighten to 420 Foot Pounds of torque, Do Not Lubricate.

88663709 R B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663735	NUT, FLG TP LCK 3/4"-16 GR8 YZ	48
2	88663734	CSFL G8 P 0.75" x 2.50" NF YZ	48
3	88663740	TIRE 380/90 R54 LHI RHO, ASSEMBLY	2
4	88663739	TIRE 380/90 R54 LHO RHI, ASSEMBLY	2
5	88663861	HUB SPACER 30 INCH, WELDMENT	2
6	SX913571	NUT, WHEEL 3/4-16 FLANGED	20

TIRE / WHEEL DUAL 380 / 90 R54

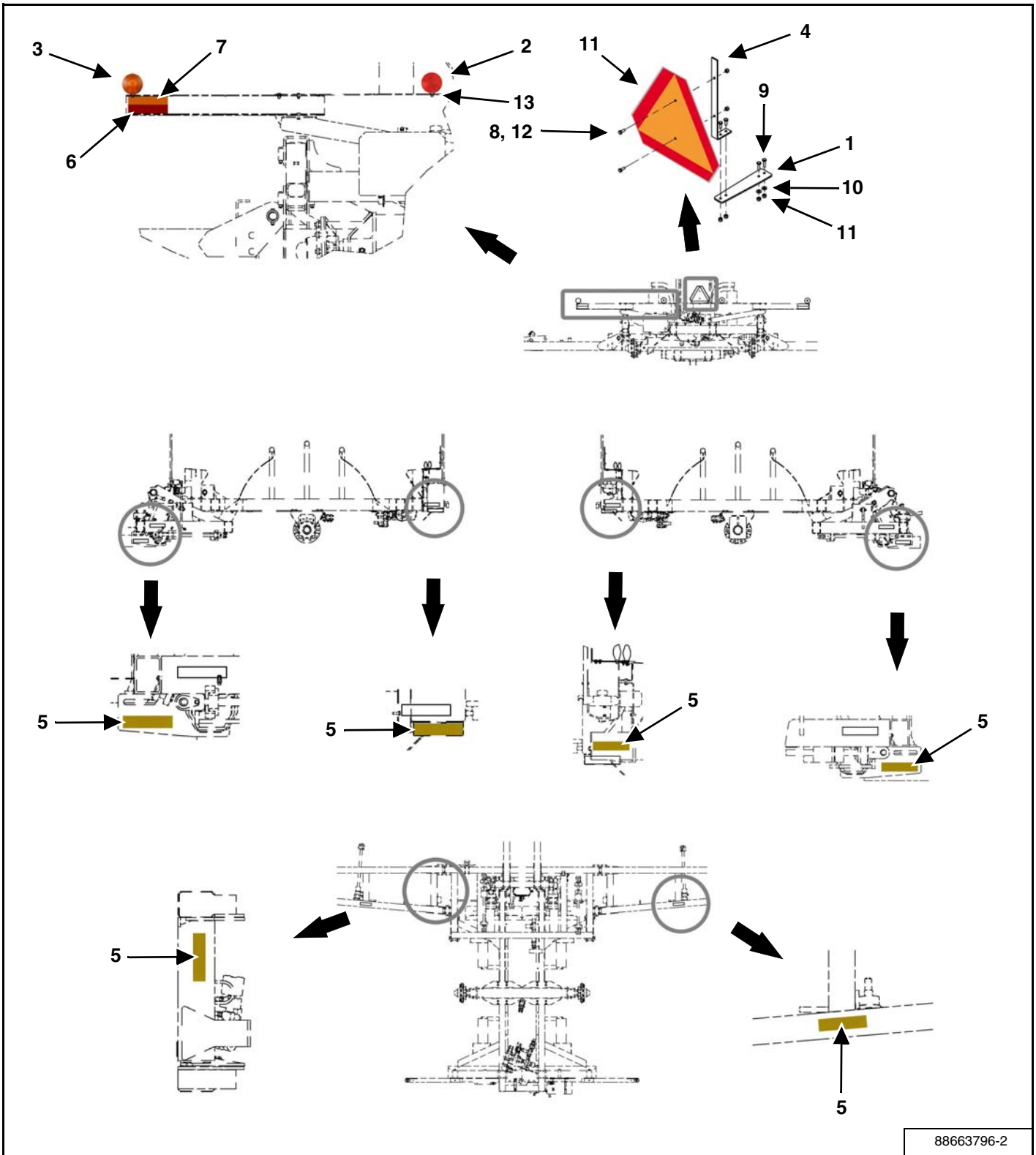
38" Spacing (Cream)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663735	NUT, FLG TP LCK 3/4"-16 GR8 YZ	48
2	88663734	CSFL G8 P 0.75" x 2.50" NF YZ	48
3	88663740	TIRE 380/90 R54 LHI RHO, ASSEMBLY	2
4	88663739	TIRE 380/90 R54 LHO RHI, ASSEMBLY	2
5	88663863	HUB SPACER 38 INCH, WELDMENT	2
6	SX913571	NUT, WHEEL 3/4-16 FLANGED	20

LIGHTING MARKING GROUP

1860 & 2460 Models

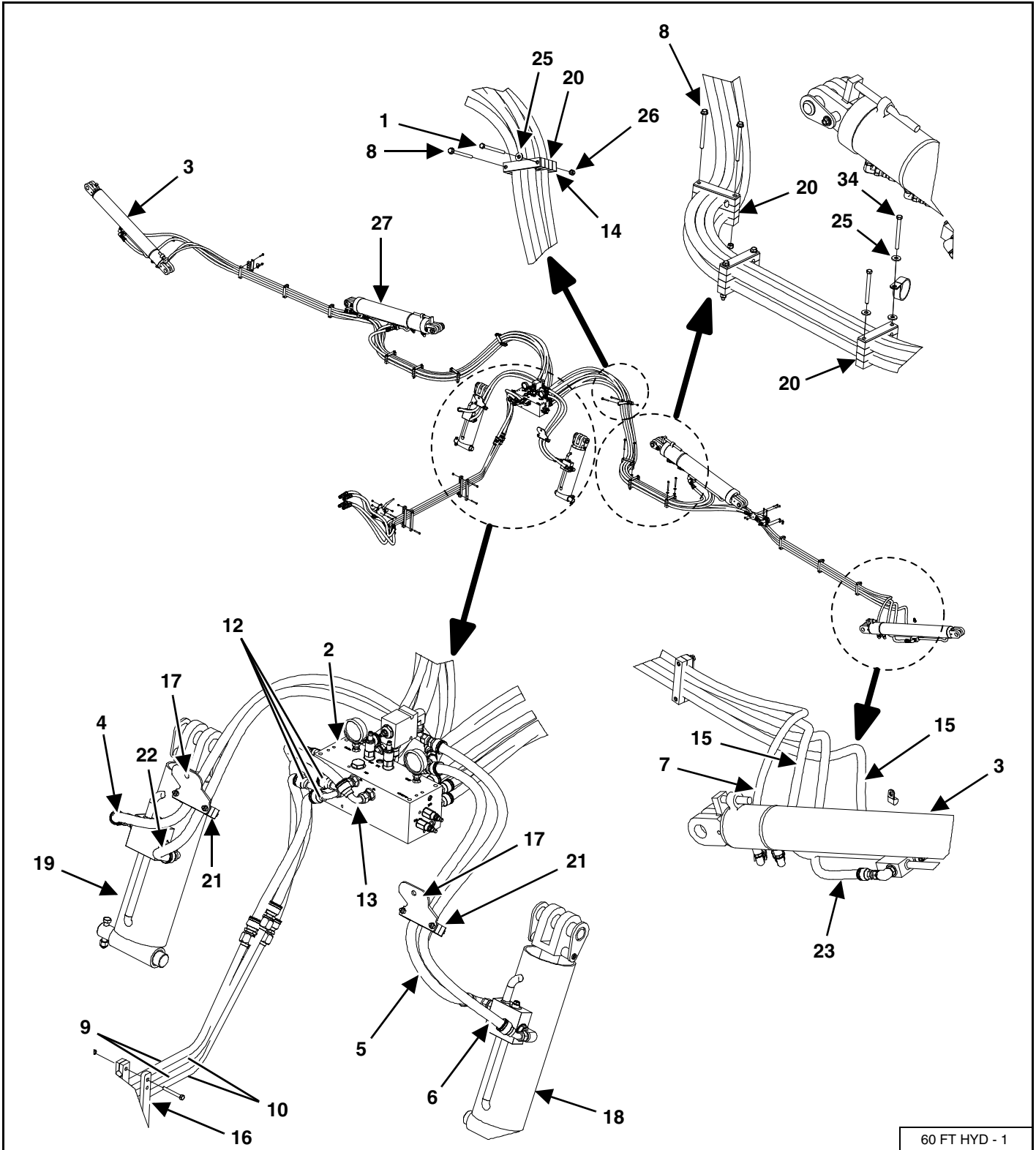


88663796-2

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88664979	BRACKET SMV	1
2	SX004560	LAMP, TURN/TAIL	2
3	SX004561	LAMP, FLASH/WARN TAIL, AMBER	2
4	SX013588	MOUNT, SMV	1
5	SX17-5910	DECAL, REFLECT AMBER, 2" x 9"	8
6	SX17-5915	DECAL, REFLECT RED, 2" x 9"	2
7	SX17-5920	DECAL, DAY ORANGE, 2" x 9"	2
8	SXBH0250758YZ	BOLT, 1/4" x 3/4" GR 8	4
9	SXBH-025-100-5-YZ	BOLT, 1/4" x 1" GR 5	2
10	SXFW-025-YZ	FLATWASHER, 1/4" ZINC PLATED	2
11	SXJD5403	SIGN, SMV	1
12	SXLN-025-NIYZ	LOCKNUT, 1/4" NYLOCK INSERT	6
13	SXFW-050-YZ	FLATWASHER, 1/2"	2

HYDRAULIC GROUP (60 FT)

1860 & 2460 Models

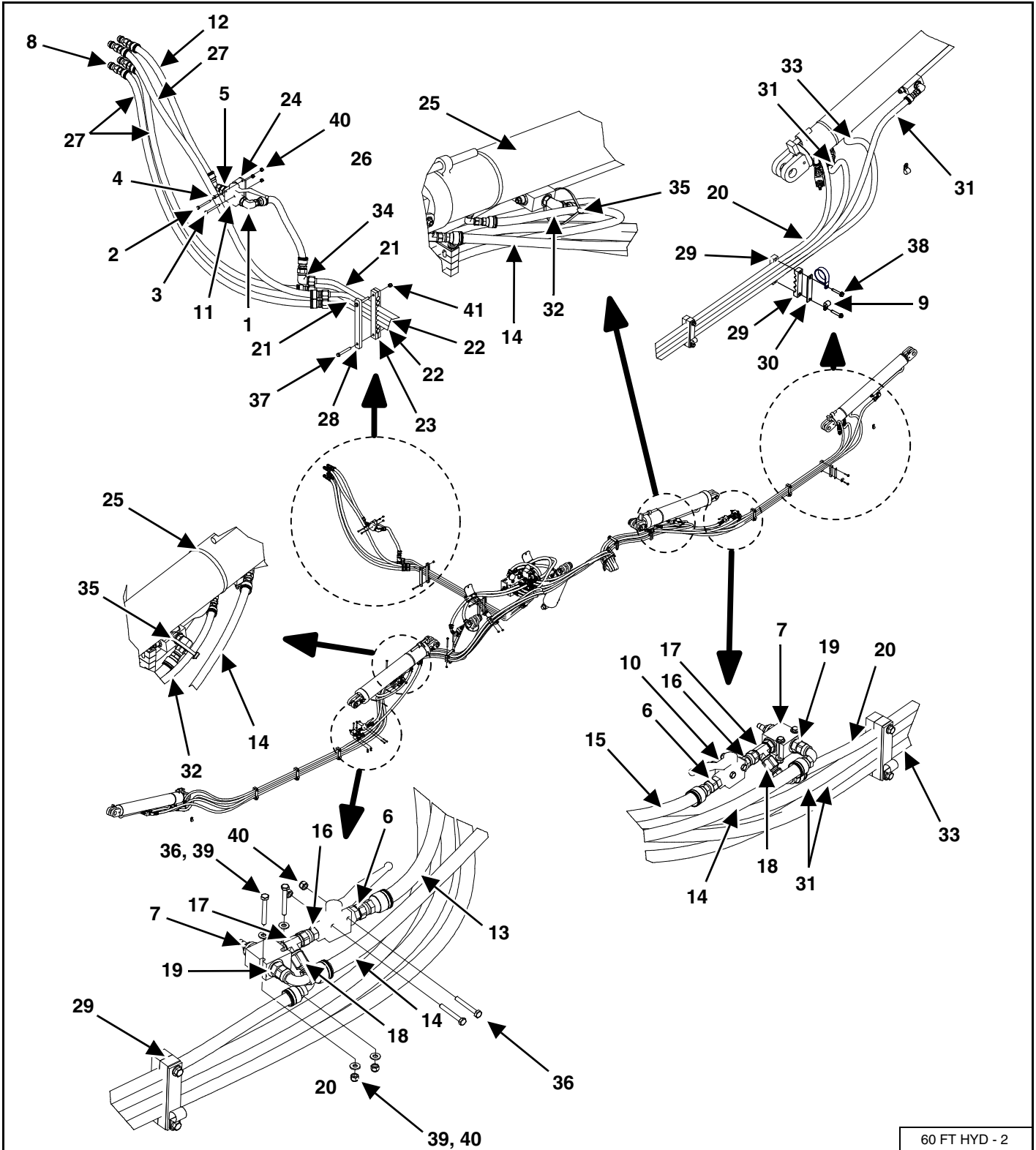


60 FT HYD - 1

ITEM	PART NUMBER	DESCRIPTION	QTY
1	86523038	BOLT, 5/16" x 4-1/4" HEX GR 5 YZ	2
2	88663768	HYDRAULIC BLOCK ASSEMBLY	1
3	88663773	OUTER FOLD CYLINDER	2
4	88665081	HOSE ASSEMBLY, 10 HYD 58.0" LG 45	1
5	88665082	HOSE ASSEMBLY, 10 HYD 43.0" LG EL	1
6	88665083	HOSE ASSEMBLY, 10 HYD 51.0" LG 45	1
7	88665540	HOSE ASSEMBLY, 6 HYD 91.00" LG EL	2
8	88665599	BOLT, 0.31" x 4" CSFL G5 PL 86505611	10
9	88666554	HYDRAULIC STEEL SHORT LINE	2
10	88666555	HYDRAULIC STEEL LONG LINE	2
11	88666631	INNER WING FOLD CYLINDER	2
12	88667061	HOSE ASSEMBLY, 10 HYD 30-1/2" LG EL	3
13	88667062	HOSE ASSEMBLY, 10 HYD 36-1/2" LG EL	1
14	88667120	PLATE, CLAMP HYD	8
15	88667219	HOSE ASSEMBLY, 8 HYD 251.0" LG	4
16	88668762	PLATE, HYD - LINES MOUNT	1
17	88668763	PLATE, HOSE CLAMP	2
18	88668831	LH MAIN LIFT CYLINDER	1
19	88668832	RH MAIN LIFT CYLINDER	1
20	88668916	8 HOLE PLASTIC HOSE ASSEMBLY	8
21	88668917	2 HOLE PLASTIC HOSE ASSEMBLY	2
22	88668974	HOSE ASSEMBLY, 10 HYD 48-1/2" LG EL	1
23	88668978	HOSE ASSEMBLY, 8 HYD 258.0" LG	2
24	SXBH0313505YZ	BOLT, 5/16" x 3-1/2" GR 5	4
25	SXFW-031-YZ	FLAT WASHER, 5/16" YZ	8
26	SXLN-031-NIYZ	LOCKNUT, 5/16" NYLON INSERT YZ	16
27	SXBH0313505YZ	BOLT, 5/16" x 3-1/2" GR 5	4

HYDRAULIC GROUP (60 FT) (CONT'D)

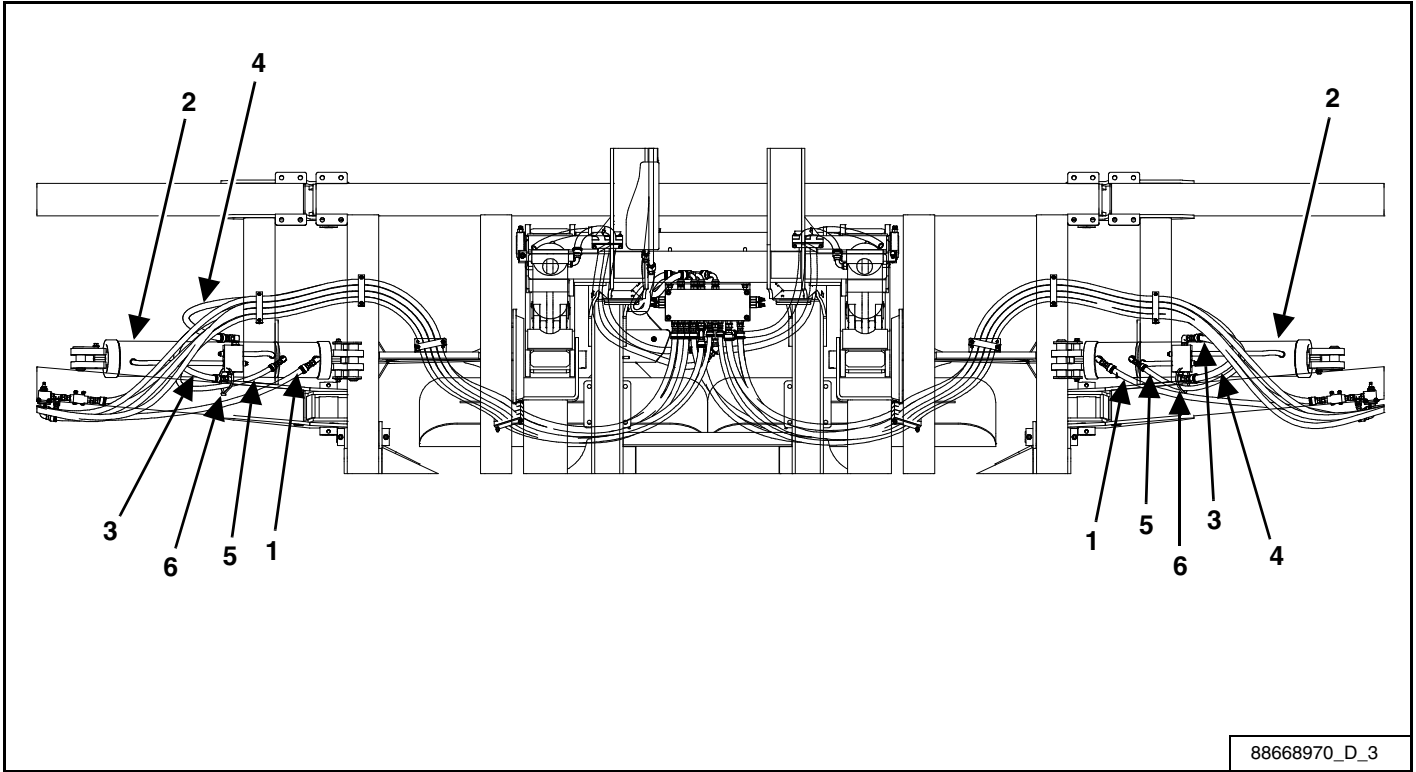
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	00084570	90 DEGREE ELBOW	1
2	00087845	BOLT, 1/4" x 2-1/2" HEX GR 5	1
3	00280566	BOLT, 1/4" x 2-3/4" HEX GR 5 YZ	1
4	09707580	BOLT, 1/4" x 3/4" HEX GR 5 PL	1
5	86507102	STRAIGHT HYDAULIC ADAPTER, 12 MORB - 10 MJIC	1
6	86509028	STRAIGHT HYDAULIC ADAPTER, 6 MORB - 8 MJIC	2
7	88663800	VALVE - FLOW REG. P.C.	2
8	88663859	HYDAULIC QUICK DISCONNECT, CNCTR	4
9	88664585	CUSHIONED P-CLIP, 5/8" W / 0.406 HOLE	8
10	88664930	HYDAULIC BALL VALVE, 6 COATED	2
11	88664931	HYDAULIC BALL VALVE, 12 COATED	1
12	88665065	HOSE ASSEMBLY, 10 HYD 77.0" LG 45	1
13	88665074	HOSE ASSEMBLY, 8 HYD 140.0" LG	1
14	88665075	HOSE ASSEMBLY, 8 HYD 48.0" LG EL	2
15	88665076	HOSE ASSEMBLY, 8 HYD 140.0" LG EL	1
16	88665147	STRAIGHT HYDAULIC ADAPTER, 6 MORB x 8 FJX	2
17	88665148	TEE FITTING, 8 MORB x 8 MJ x 8 MJ	2
18	88665151	STRAIGHT HYDAULIC ADAPTER, 8 FJIC x 6 MJIC	2
19	88665160	STRAIGHT HYDAULIC ADAPTER, 8 MORB x 8 MJIC	2
20	88665540	HOSE ASSEMBLY, 6 HYD 91.00" LG EL	2
21	88666554	HYDRAULIC STEEL SHORT LINE	2
22	88666555	HYDRAULIC STEEL LONG LINE	2
23	88666556	CLAMP - HARD LINE PLASTIC	2
24	88666613	VALVE MOUNTING PLATE	1
25	88666631	INNER WING FOLD CYLINDER	2
26	88667059	HOSE ASSEMBLY, 10 HYD 21.0" LG	1
27	88667060	HOSE ASSEMBLY, 10 HYD 84.0" LG	3
28	88667101	PLT - HYD LINES MOUNT BLACK	1
29	88667111	CLAMP; PLASTIC HOSE 4 HOLE	12
30	88667120	PLT; CLAMP HYD	8
31	88667219	HOSE ASSEMBLY, 8 HYD 251.0" LG	4
32	88668975	HOSE ASSEMBLY, 6 HYD 155.0" LG	2
33	88668978	HOSE ASSEMBLY, 8 HYD 258.0" LG	2
34	SX018117	90° ELBOW, 12 FJ x 12 MJ	1
35	SX3NS21	STRAP, BLACK 21-1/2"	2
36	SXBH0252005YZ	BOLT, 1/4" x 2" GR 5	8
37	SXBH0312505YZ	BOLT, 5/16" x 2-1/2" GR 5 YZ	4
38	SXBHF0311758YZ	BOLT, 5/16" x 1-3/4" FLG GR8 YLLX ZN	12
39	SXFW-025-YZ	FLATWASHER, 1/4" ZINC PLATED	8
40	SXLN-025-NIYZ	LOCKNUT, 1/4" NYLON INSERT	11
41	SXLN-031-NIYZ	LOCKNUT, 5/16" NYLON INSERT YZ	16

HYDRAULIC GROUP (60 FT) (CONT'D)

1860 & 2460 Models

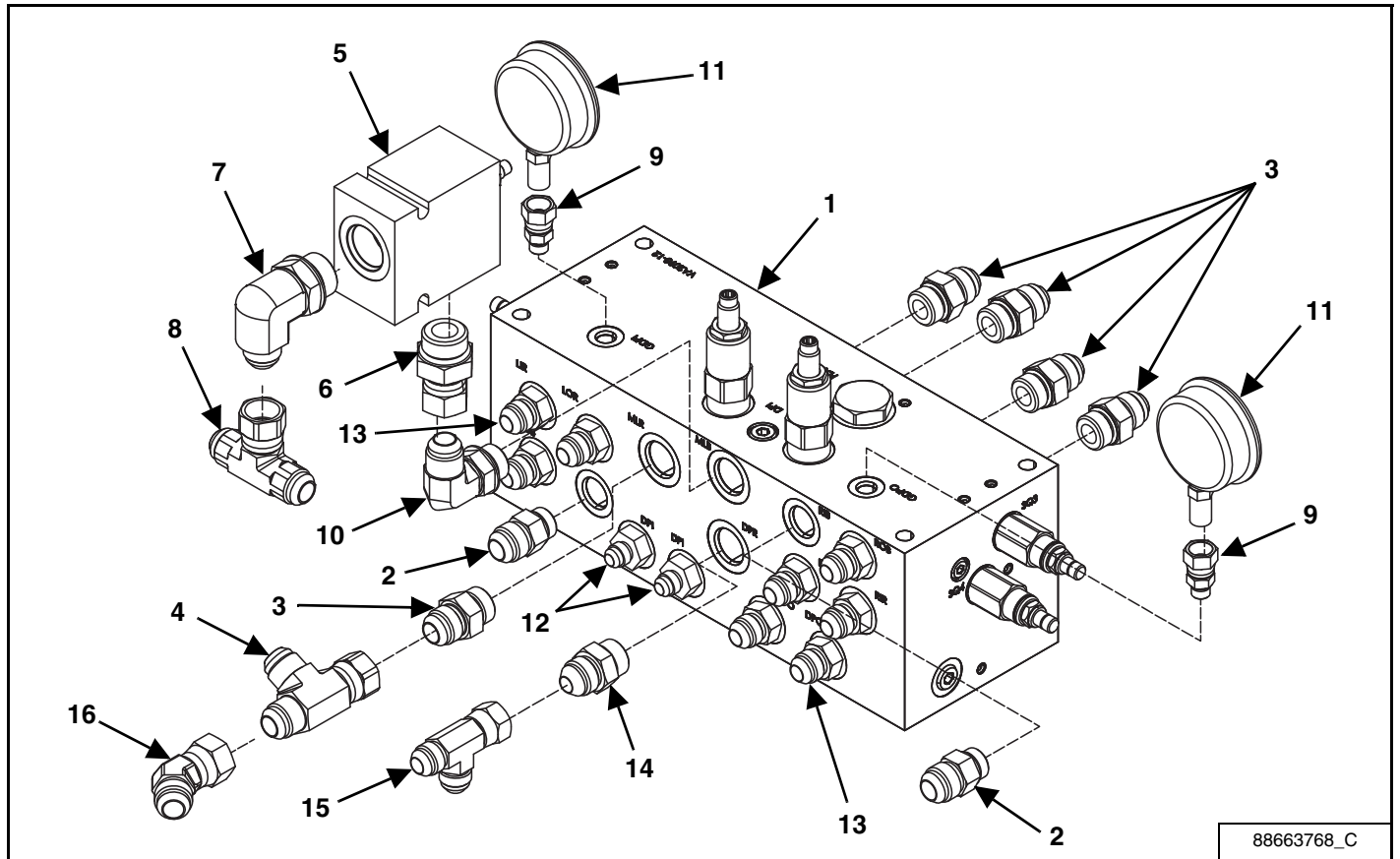


88668970_D_3

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88665075	HOSE ASSEMBLY, 8 HYD 48.0" LG EL	2
2	88666631	INNER WING FOLD CYLINDER	2
3	88667149	HOSE ASSEMBLY, 88 HYD 145.0" LG	2
4	88667151	HOSE ASSEMBLY, 810 HYD 163.0" LG	2
5	88668975	HOSE ASSEMBLY, 86 HYD 155.0" LG	2
6	SX3NS21	STRAP, BLACK 21-1/2"	2

CONTROL VALVE

1860 & 2460 Models

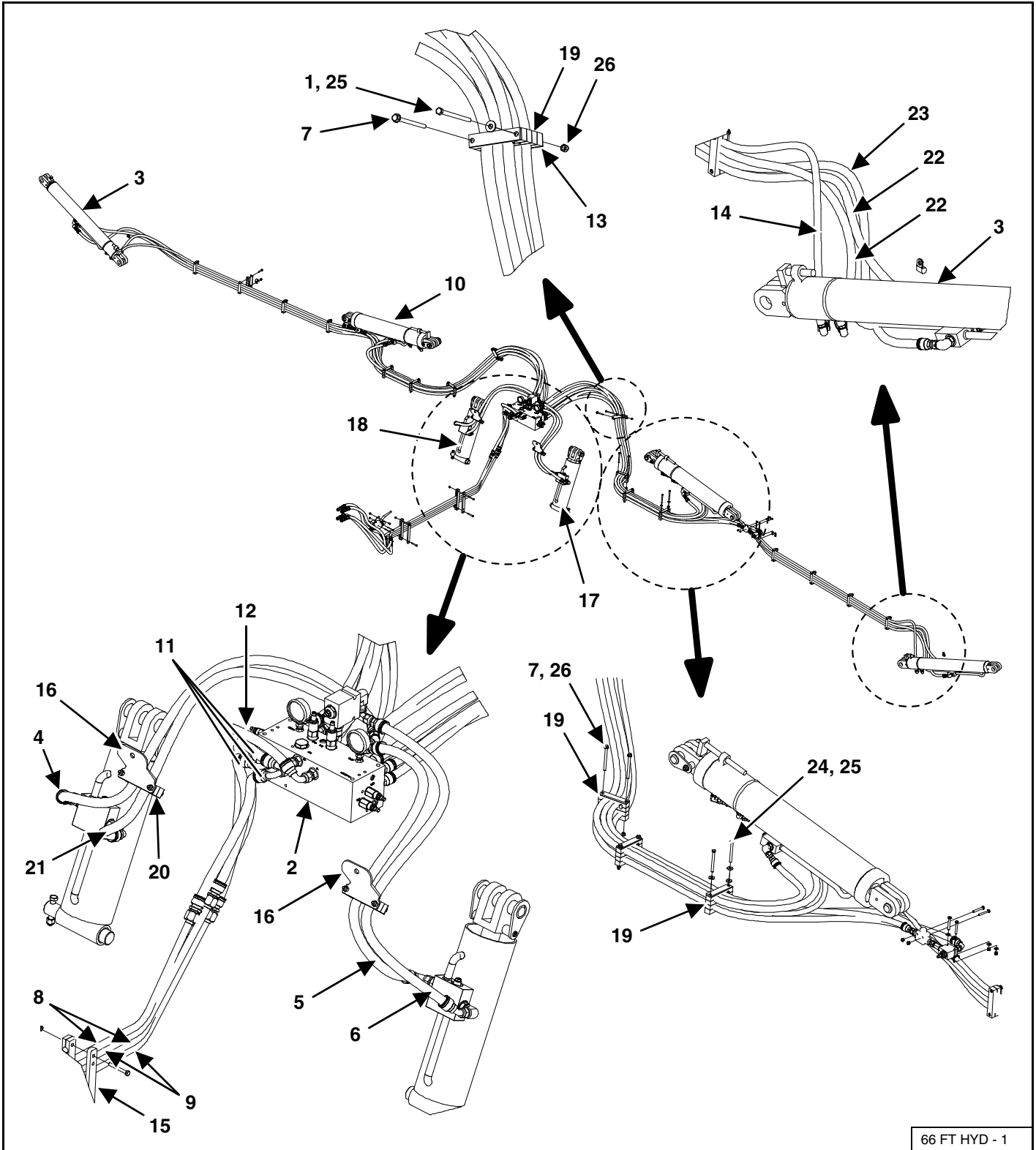


88663768_C

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663613	VALVE - HYD 60' APPLICATOR	1
2	88663807	HYD ADAPTER; 10 MJIC X 8 MORB	2
3	88663808	HYD ADAPTER; 10 MJIC X 10 MORB	5
4	88663951	HYD RUN TEE-10MJIC -10MJIC -10FJX	1
5	88664758	VLV, HYD; FLOW REG. W/BODY	1
6	88664759	ADPTR, SRGHT; -12ORB-10FJIC	1
7	88664760	ADAPTR, ELBOW-90; -12ORB-10MJIC	1
8	88665156	RUN TEE; -10MJ -10MJ -10FJ	1
9	88665157	FEMALE SWIVEL; -4 MORB, 1/4 NPT	2
10	88665158	ELBOW; 90 DEG, -10 MORB, -10 MJIC	1
11	88665155	GAUGE; 3000 PSI, GLYCERINE FILLED	2
12	SX6400-6-8	HYD ADAPTER; 3/8JIC&3/4ORB MAL	2
13	SX6400-8	ADPTR, STRGHT; -08MJIC-08ORB	8
14	SX016832	ADPTR,STRGHT;-10ORB-08MJIC	1
15	SX6602-8	ADPTR, RUN TEE; -08 MJIC-08FJX-08MJIC	1
16	86512960	ADPER JIC SWIVEL ELBOW 45 -10	1

HYDRAULIC GROUP (66 FT)

1860 & 2460 Models

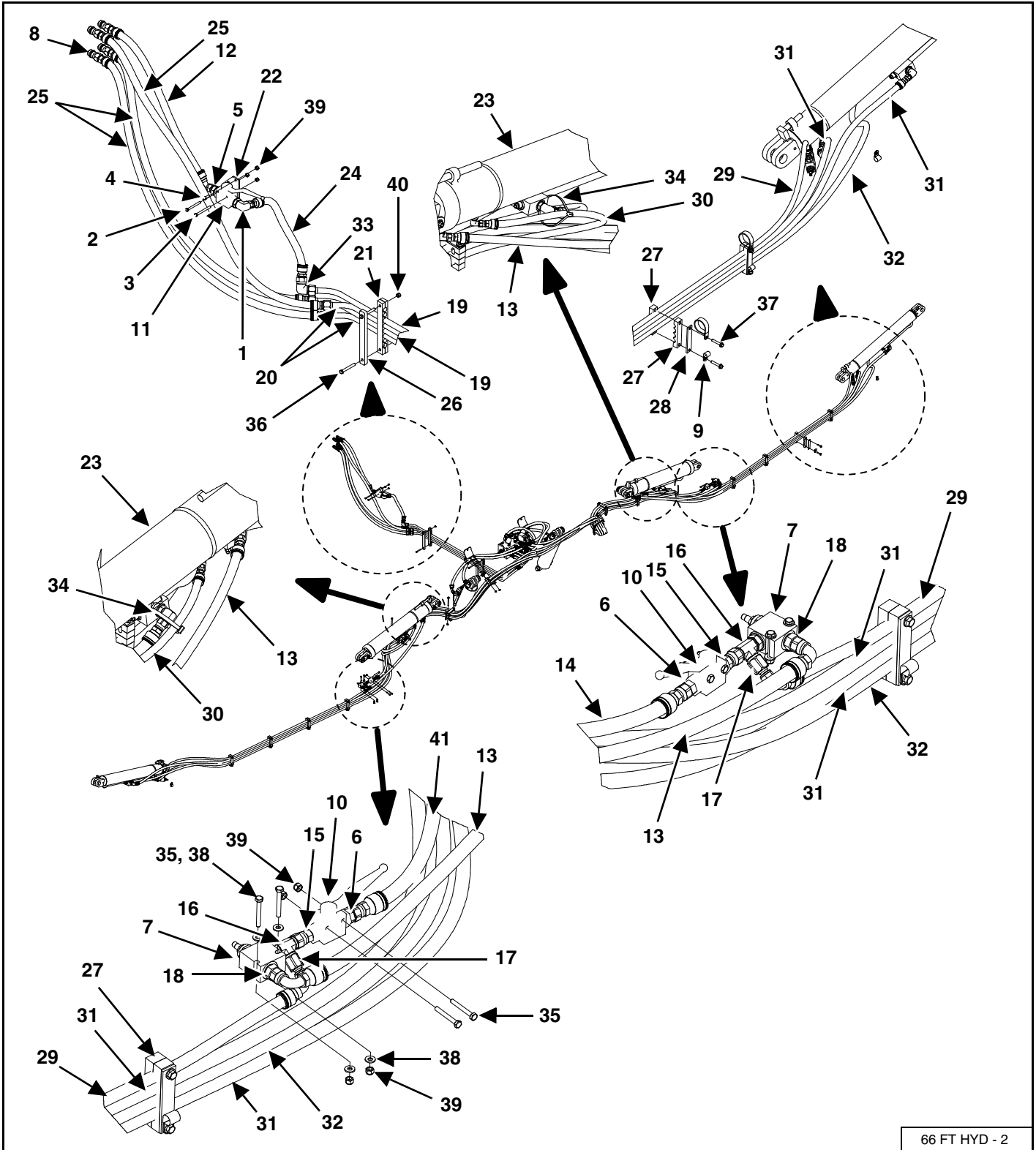


66 FT HYD - 1

ITEM	PART NUMBER	DESCRIPTION	QTY
1	86523038	BOLT, 5/16" x 4-1/4" HEX GR 5 YZ	2
2	88663768	HYDRAULIC BLOCK ASSEMBLY	1
3	88663773	OUTER FOLD CYLINDER	2
4	88665081	HOSE ASSEMBLY, 10 HYD 58.0" LG 45	1
5	88665082	HOSE ASSEMBLY, 10 HYD 43.0" LG EL	1
6	88665083	HOSE ASSEMBLY, 10 HYD 51.0" LG 45	1
7	88665599	BOLT, 0.31" x 4.00" CSFL GR 5 PL 86505611	10
8	88666554	HYDRAULIC STEEL SHORT LINE	2
9	88666555	HYDRAULIC STEEL LONG LINE	2
10	88666631	INNER WING FOLD CYLINDER	2
11	88667061	HOSE ASSEMBLY, 10 HYD 30-1/2" LG EL	3
12	88667062	HOSE ASSEMBLY, 10 HYD 36-1/2" LG EL	1
13	88667120	HYDRAULIC CLAMP PLATE	10
14	88667150	HOSE ASSEMBLY, 6 HYD 115.0" LG EL	2
15	88668762	HYDRAULIC - LINES MOUNTING PLATE	1
16	88668763	HOSE CLAMP PLATE	2
17	88668831	LH MAIN LIFT CYLINDER	1
18	88668832	RH MAIN LIFT CYLINDER	1
19	88668916	PLASTIC HOSE 8 HOLE ASSEMBLY	8
20	88668917	PLASTIC HOSE 2 HOLE ASSEMBLY	2
21	88668974	HOSE ASSEMBLY, 10 HYD 48-1/2" LG EL	1
22	88668976	HOSE ASSEMBLY, 8 HYD 275.0" LG	4
23	88668977	HOSE ASSEMBLY, 8 HYD 281.0" LG	2
24	SXBH0313505YZ	BOLT, 5/16" x 3-1/2" GR 5	4
25	SXFW-031-YZ	FLAT WASHER, 5/16" YZ	8
26	SXLN-031-NIYZ	LOCKNUT, 5/16" NYLON INSERT YZ	16

HYDRAULIC GROUP (66 FT) (CONT'D)

1860 & 2460 Models

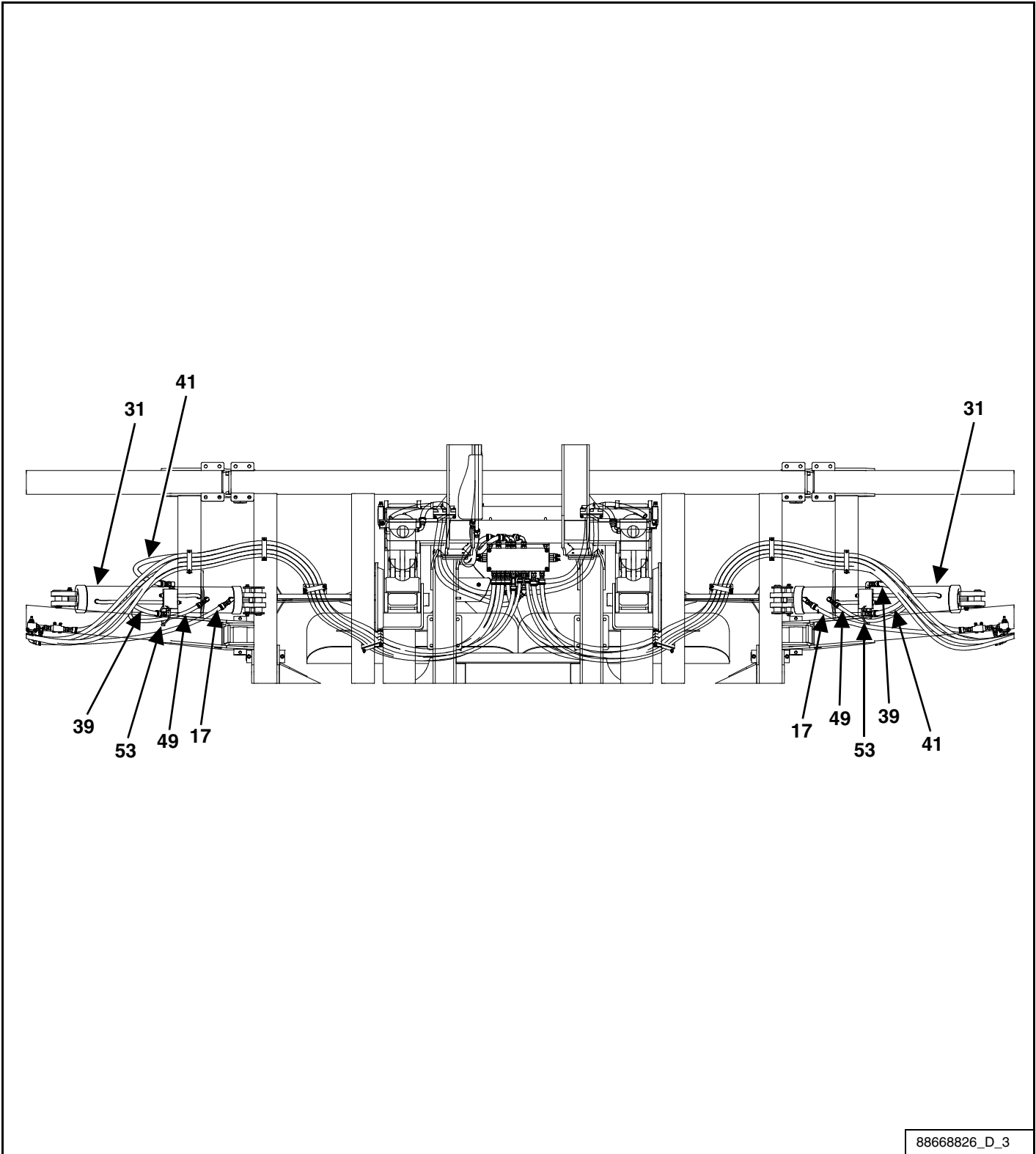


66 FT HYD - 2

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00084570	90 DEGREE ELBOW	1
2	00087845	BOLT, 1/4" x 2-1/2" HEX GR 5	1
3	00280566	BOLT, 1/4" x 2-3/4" HEX GR 5 YZ	1
4	09707580	BOLT, 1/4" x 3/4" HEX GR 5 PL	1
5	86507102	STRAIGHT ADAPTER, 12 MORB - 10 MJIC	1
6	86509028	STRAIGHT ADAPTER, 6 MORB - 8 MJIC	2
7	88663800	VALVE - FLOW REG. P.C.	2
8	88663859	HYDRAULIC QUICK DISCONNECT, CNCTR	4
9	88664585	CUSHIONED P-CLIP, 5/8" W / 0.406 HOLE	10
10	88664930	BALL VALVE, HYD COATED 6	2
11	88664931	BALL VALVE, HYD COATED 12	1
12	88665065	HOSE ASSEMBLY, 10 77.0" LG 45°	1
13	88665075	HOSE ASSEMBLY, 8 HYD 48.0" LG EL	2
14	88665076	HOSE ASSEMBLY, 8 HYD 140.0" LG EL	1
15	88665147	STRAIGHT ADAPTER, 6 MORB - 8 FJX	2
16	88665148	TEE FITTING, 8 MORB x 8 MJ x 8 MJ	2
17	88665151	STRAIGHT ADAPTER, 8 FJIC - 6MJIC	2
18	88665160	STRAIGHT ADAPTER, 8 MORB - 8MJIC	2
19	88666554	HYDRAULIC STEEL SHORT LINE	2
20	88666555	HYDRAULIC STEEL LONG LINE	2
21	88666556	CLAMP - HARD LINE PLASTIC	2
22	88666613	VALVE MOUNTING PLATE	1
23	88666631	INNER WING FOLD CYLINDER	2
24	88667059	HOSE ASSEMBLY, 10 21.0" LG	1
25	88667060	HOSE ASSEMBLY, 10 HYD 84.0" LG	3
26	88667101	PLATE - HYD LINES MOUNT BLACK	1
27	88667111	PLASTIC HOSE 4 HOLE CLAMP	16
28	88667120	HYDRAULIC CLAMP PLATE	10
29	88667150	HOSE ASSEMBLY, 6 HYD 115.0" LG EL	2
30	88668975	HOSE ASSEMBLY, 6 HYD 155.0" LG	2
31	88668976	HOSE ASSEMBLY, 8 HYD 275.0" LG	4
32	88668977	HOSE ASSEMBLY, 8 HYD 281.0" LG	2
33	SX018117	90° ELBOW, 12 FJ - 12 MJ	1
34	SX3NS21	STRAP; BLACK 21-1/2"	2
35	SXBH0252005YZ	BOLT, 1/4" x 2" GR 5	8
36	SXBH0312505YZ	BOLT, 5/16" x 2-1/2" GR 5 YZ	4
37	SXBHF0311758YZ	BOLT, 5/16" x 1-3/4" FLG GR 8 YLL X ZN	16
38	SXFW-025-YZ	FLATWASHER 1/4" ZINC PLATED	8
39	SXLN-025-NIYZ	LOCKNUT, 1/4" NYLON INSERT	11
40	SXLN-031-NIYZ	LOCKNUT, 5/16" NYLON INSERT YZ	16
41	88665074	HOSE ASSEMBLY, 8 HYD 140.0" LG	1

HYDRAULIC GROUP (66 FT) (CONT'D)

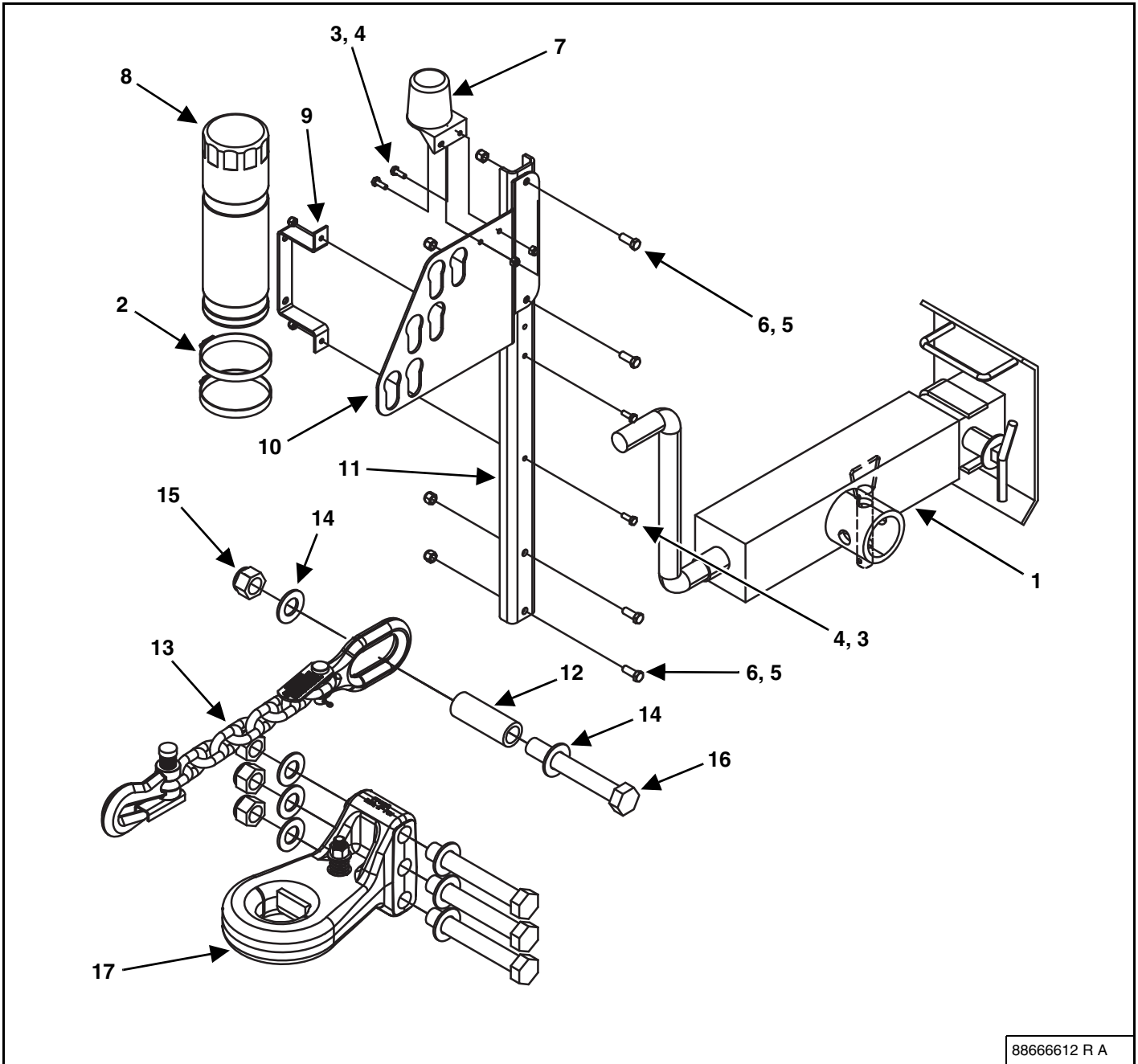
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
17	88665075	HOSE ASSY -8 HYD 48.0 LG EL	2
31	88666631	ASSY - INNER WING FOLD CYL	2
39	88667149	HOSE ASSY -8 HYD 145.0 LG	2
41	88667151	HOSE ASSY -10 HYD 163.0 LG	2
49	88668975	HOSE ASSY -6 HYD 155.0 LG	2
53	SX3NS21	STRAP; BLACK 21 1/2"	2

HITCH GROUP

1860 & 2460 Models

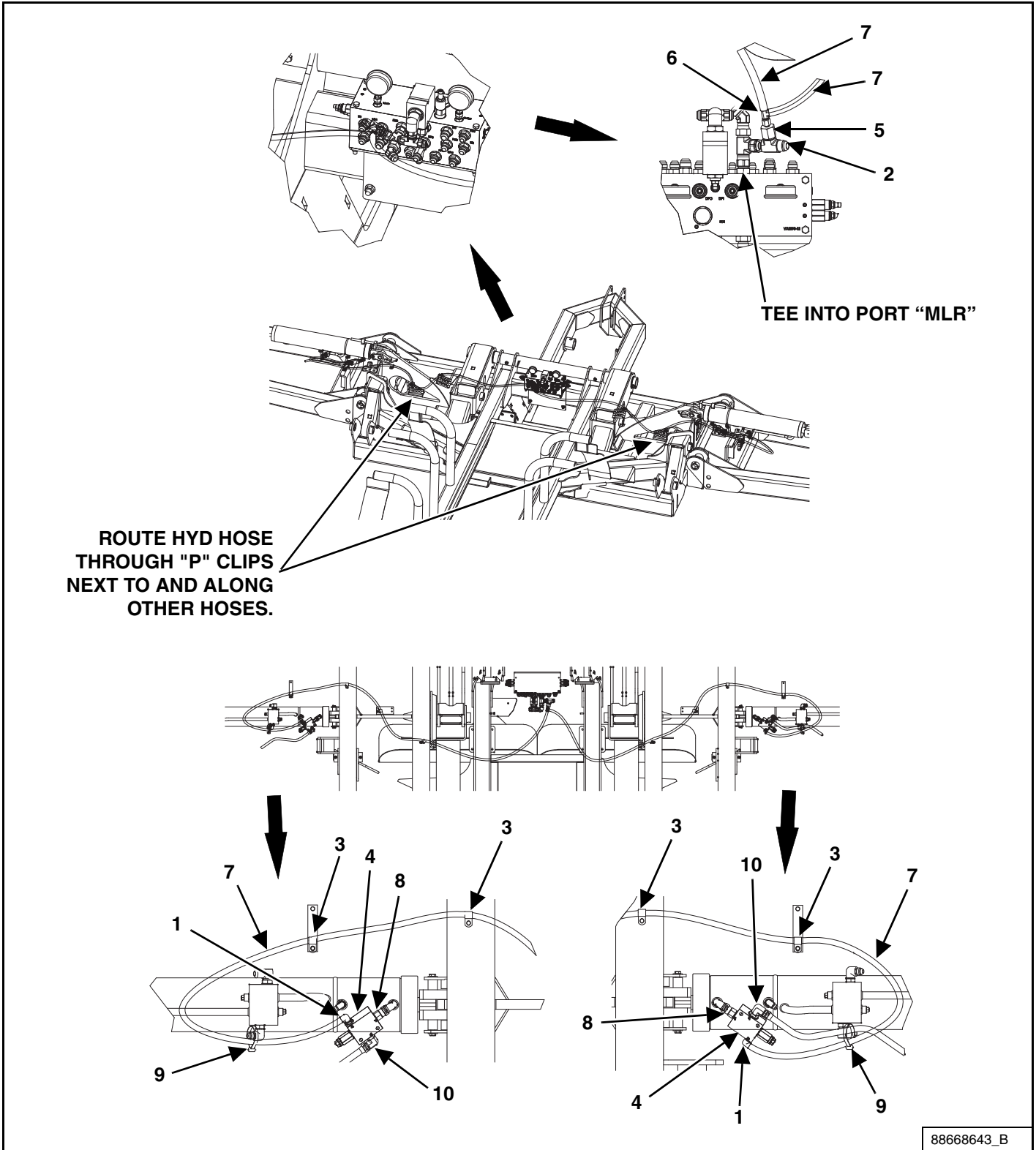


88666612 R A

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666482	JACK, 5 TON TW	1
2	SX64J	CLAMP, HOSE 4" WORM SCREW	2
3	SXLN-025-NIYZ	LOCKNUT, 1/4" NYLOCK INSERT	4
4	SXBH0250758YZ	BOLT, 1/4" x 3/4" GR 8	4
5	SXLN-038-NIYZ	LOCKNUT, 3/8" NYL INS NC YZ	4
6	SXBH0381005YZ	BOLT, 3/8" x 1" YLLW ZN	4
7	88660521	HOLDER, ELECTRICAL PLUG	1
8	SX013049	TUBE, MANUAL STORAGE	1
9	SX006069	MOUNT, STRAINER FLANGED	1
10	88664974	RACK, HYDRAULIC HOSE	1
11	88666610	CHANNEL, FORMED MANUAL	1
12	88663962	TUBE, SAFETY CHAIN	1
13	88660499	CHAIN, AG SAFETY, 41,000 LB	1
14	SXFW-100-SAE-YZ	WASHER, 1" SAE FLAT, YLLW ZN	8
15	SXLN-100-NI-YZ	LOCKNUT, 1" NYLON INSERT	4
16	09602223	CSHH G5 P 1" x 7"	4
17	88661392	HITCH, PINTLE CAT. 4 - 5 CROSSOVER	1

COUNTER BALANCE VALVE ASSEMBLY

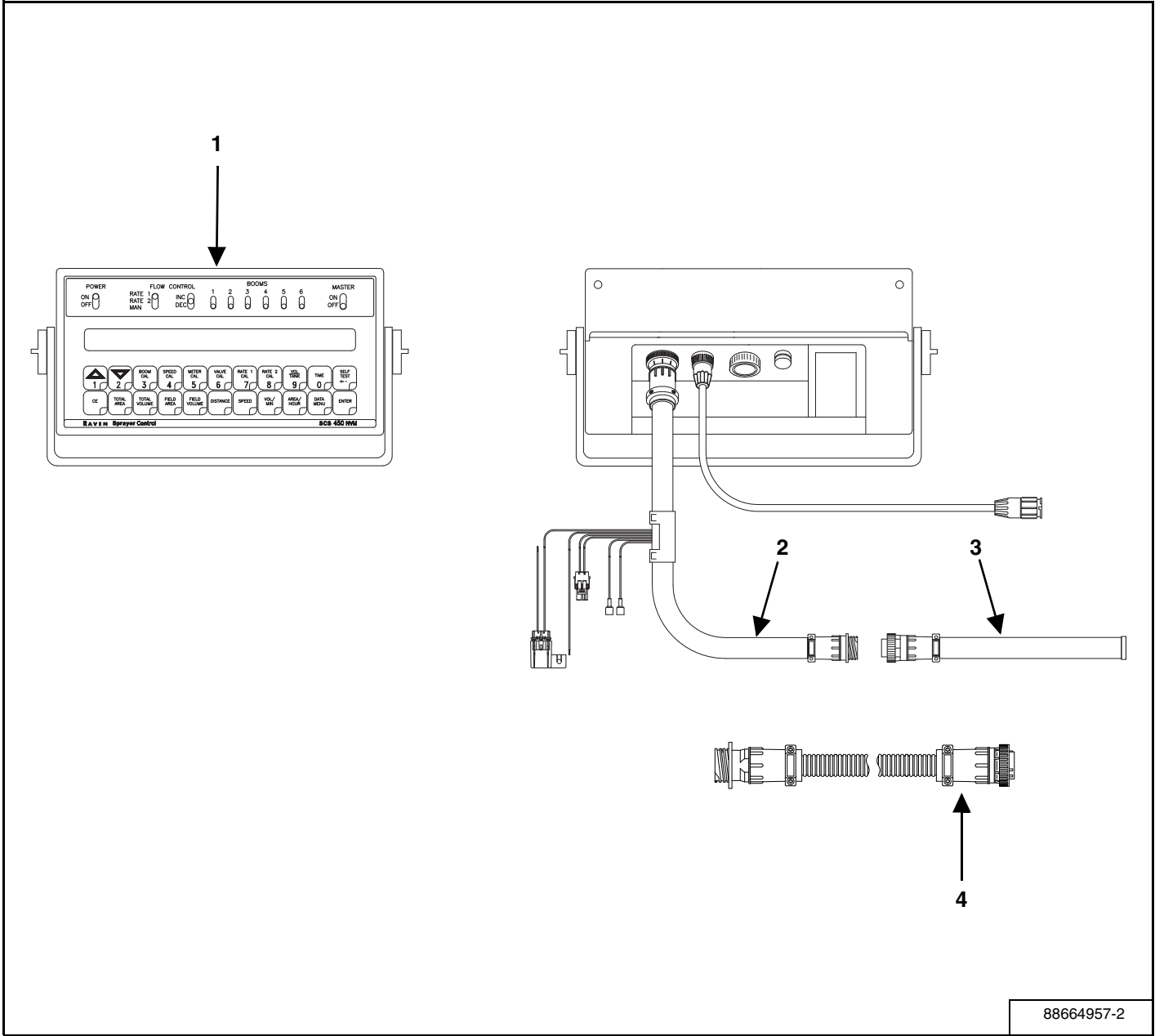
20" & 22" Spacing (Only) (1860 & 2460 Models)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	86512934	ELBOW 90 7/16 MJIC X 9/16 MORB	2
2	88663951	HYD RUN TEE-10MJIC -10MJIC -10FJX	1
3	88664585	P-CLIP CUSHIONED 5/8 W/ .406 HOLE	8
4	88668644	COUNTER BALANCE VALVE	2
5	88668645	ADPTR, STRGHT -10FJIC-04MJIC	1
6	88668646	HYD RUN TEE -4FJIC-4MJIC-4MJIC	1
7	88668647	HOSE ASSY; -04 HYD 164.0" LG	2
8	SX018597	ADPTR, HYD; -08ORB-08FJIC	2
9	SX3NS21	STRAP; BLACK 21 1/2"	2
10	SX6801-8	HYD FITTING; 3/4MO X 1/2 JIC EL	2

RAVEN 450

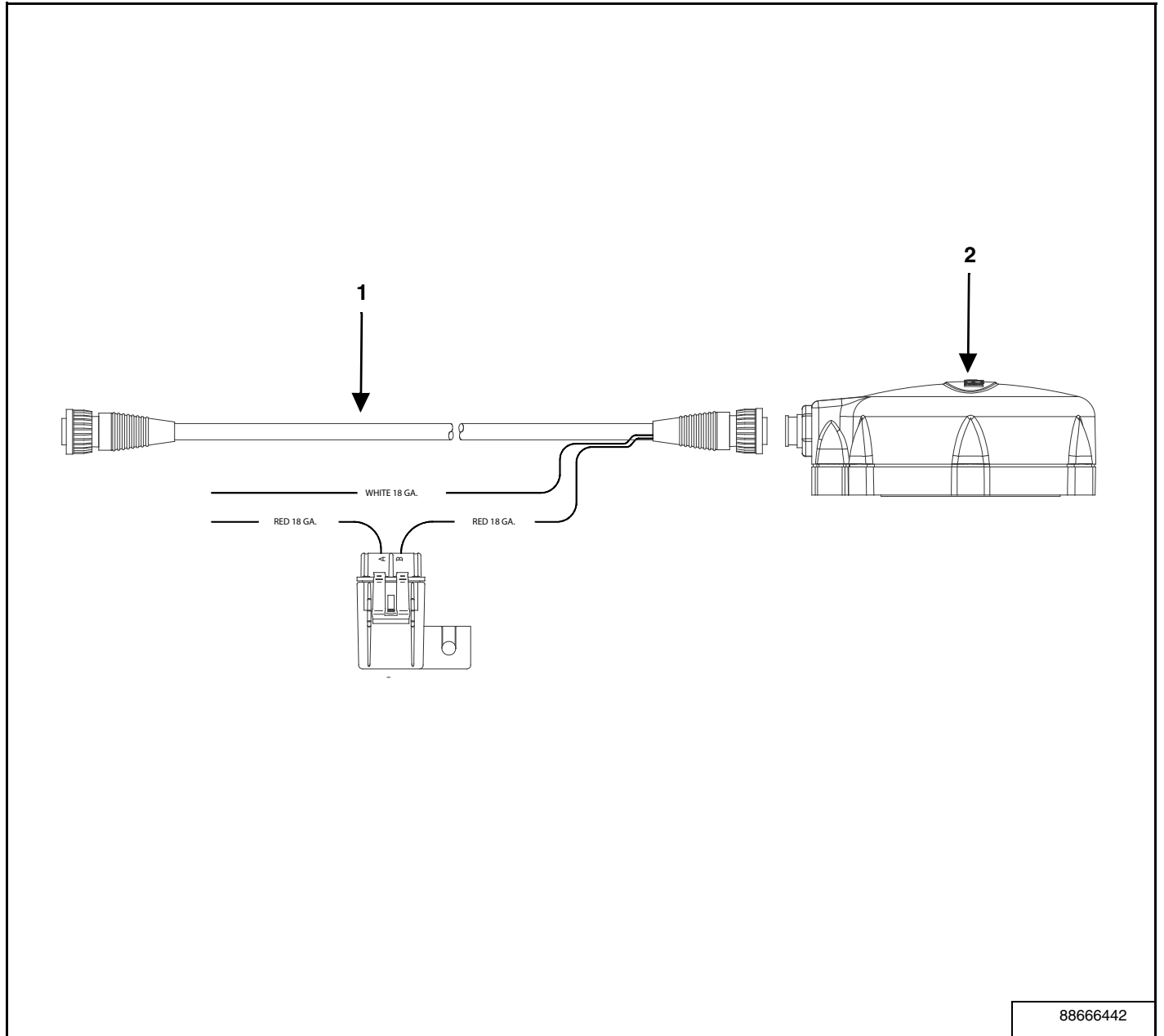
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	SX063-0171-220	CONSOLE ASSY, 450 W/SERIAL PORT	1
2	SX115-0171-085	CABLE, RAVEN 450 CONTROL CABLE	1
3	88664958	CABLE, FLOW CONTROL 43 FT 6 SECT	1
4	88668923	16' - 7 BOOM CABLE	1

RAVEN PHOENIX 10 GPS (OPTIONAL)

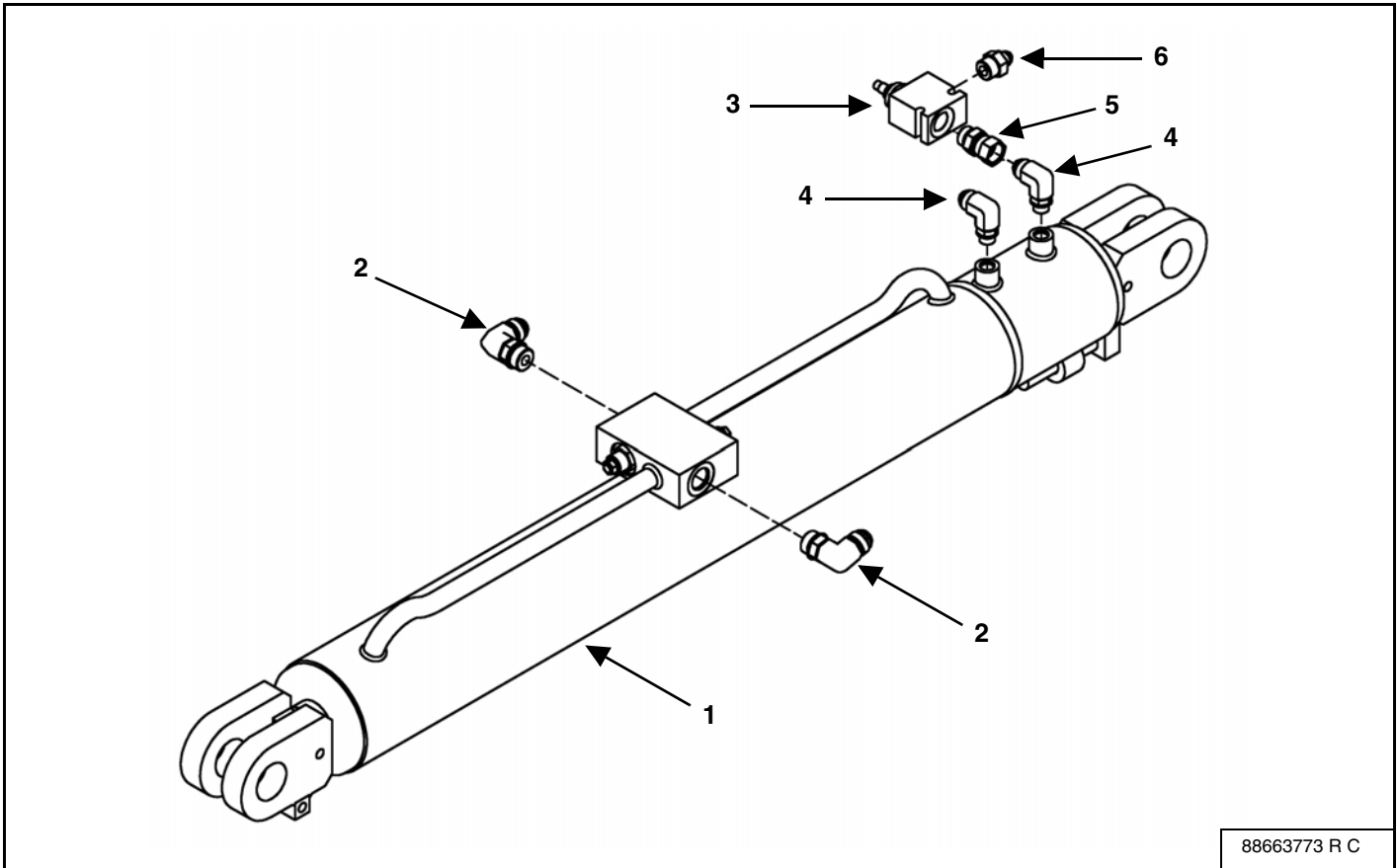
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666443	PHOENIX 10 RECEIVER	1
2	88666444	RECEIVER CABLE	1

OUTER WING CYLINDER

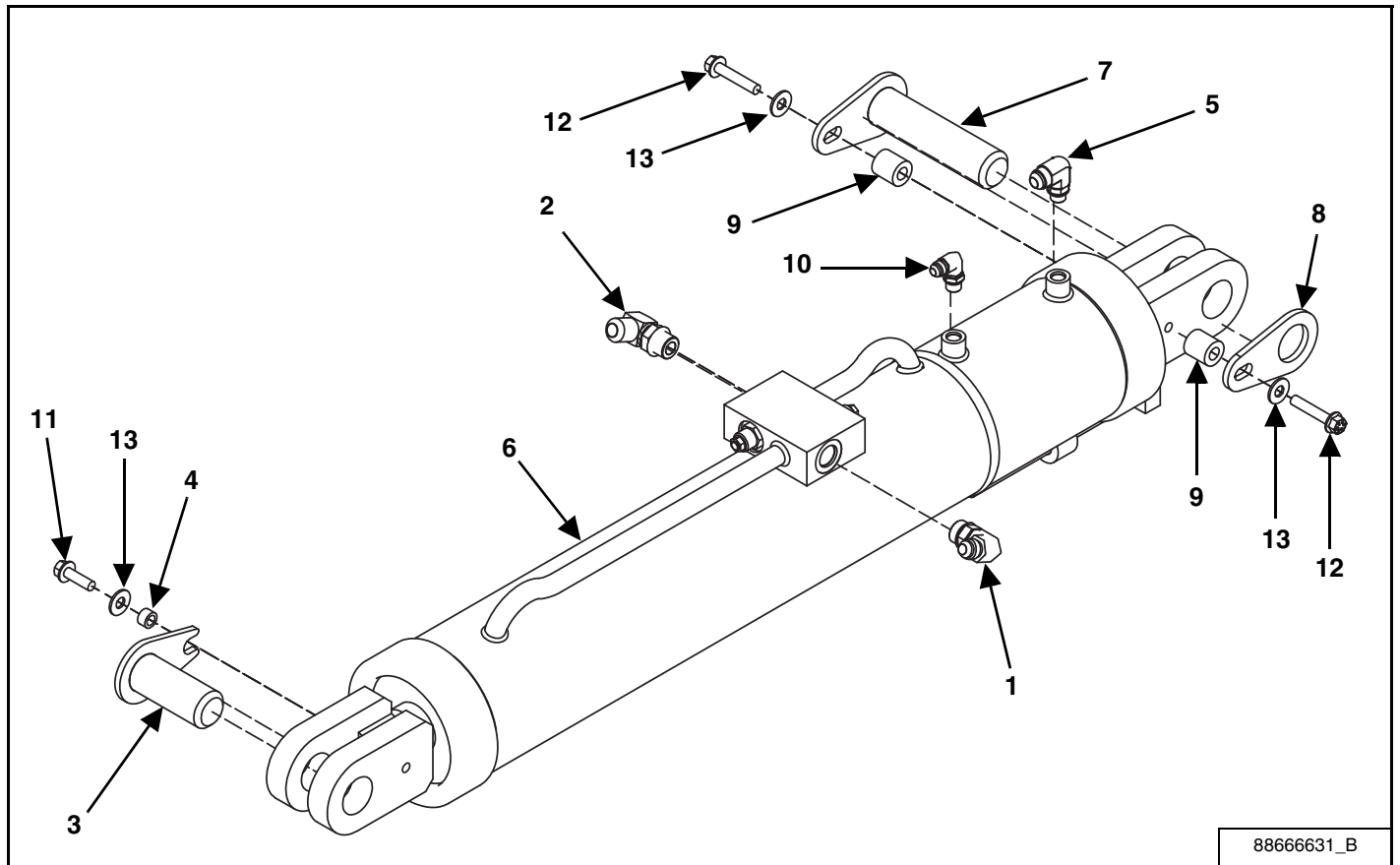
1860 & 2460 Models



ITEM	PART NUMBER	DESCRIPTION	QTY
1	88663501	OUTER WING LIFT CYLINDER	1
2	09617891	90° ELBOW, 37D - OR x 8-10 86512105	2
3	88663800	FLOW REGULATOR VALVE, P.C.	1
4	88664827	90° ADAPTER, 08 MJIC x 06 ORB	2
5	88664828	STRAIGHT ADAPTER, 08 FJX x 08 ORB	1
6	SX6400-6-8	MALE ADAPTER, 3/8" JIC x 3/4" ORB	1

INNER WING CYLINDER

1860 & 2460 Models

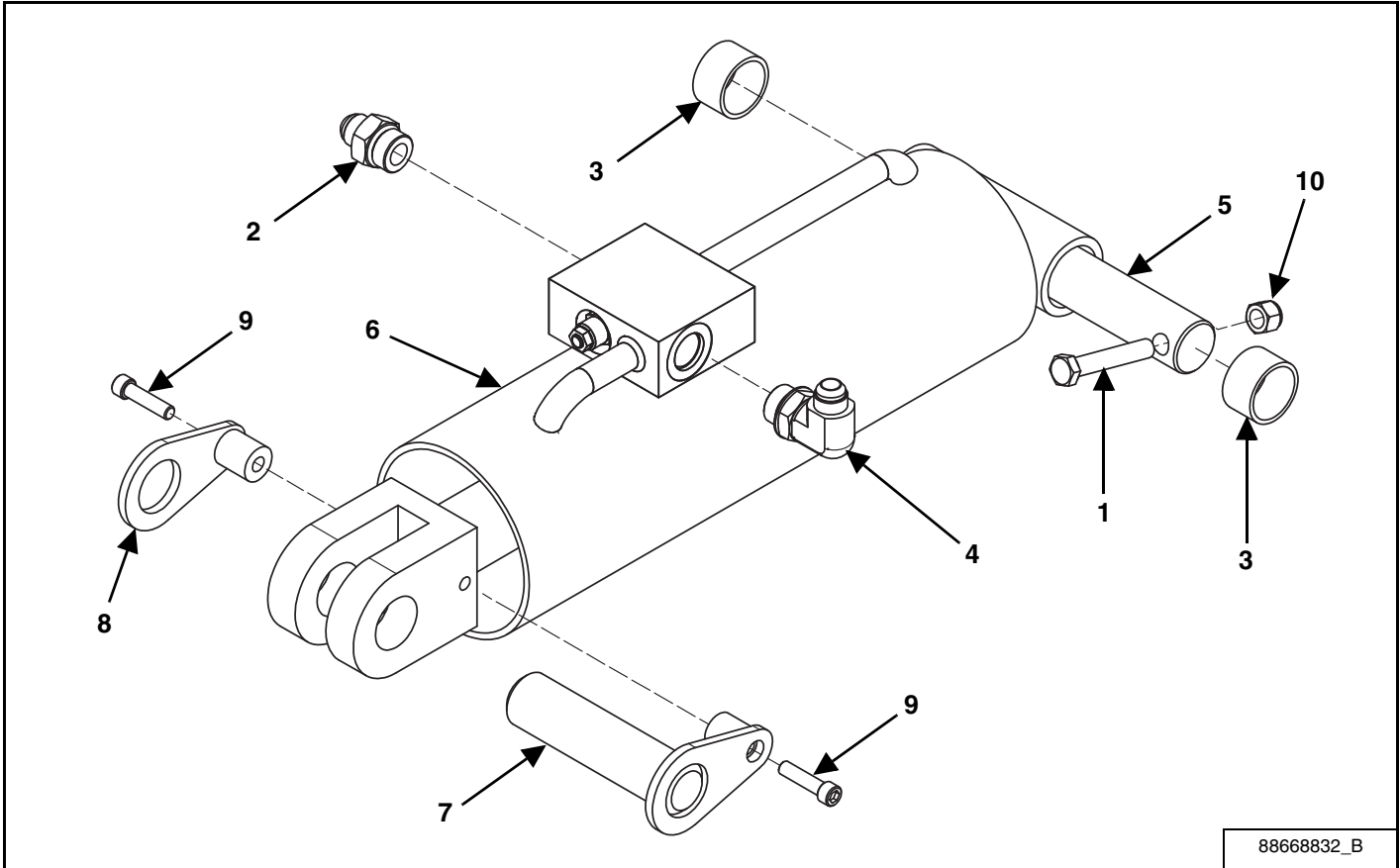


88666631_B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	09617891	90ELB 37D-OR 8-10 86512105	1
2	164910	ELBOW 90 7/8 MJIC X 7/8 ORB	1
3	88663669	WLDT - FLAG AND PIN	1
4	88663680	BUSHING - FLAG	1
5	88664827	ADPTR; 90 ELB-08MJIC-06ORB	1
6	88666508	CYL - HYD, INNER WING LIFT	1
7	88666632	WLDT - FLAG AND LONG PIN	1
8	88666635	PLT - INNER FOLD CYLINDER	1
9	88666636	BUSHING - STANDOFF FLAG	2
10	SX6801-6	ADPTR, ELBOW 90; -06MJIC-06ORB	1
11	SXBHF0381258YZ	BOLT;FLG,3/8X1.25 GR8 YLLW ZN	1
12	SXBHF0382008YZ	BOLT;FLG, 3/8X2.00 GR8 YLLW ZN	2
13	SXFW-038YZ	FLATWASHER; 3/8 GRADE 5	3

MAIN LIFT CYLINDER (RH)

1860 & 2460 Models

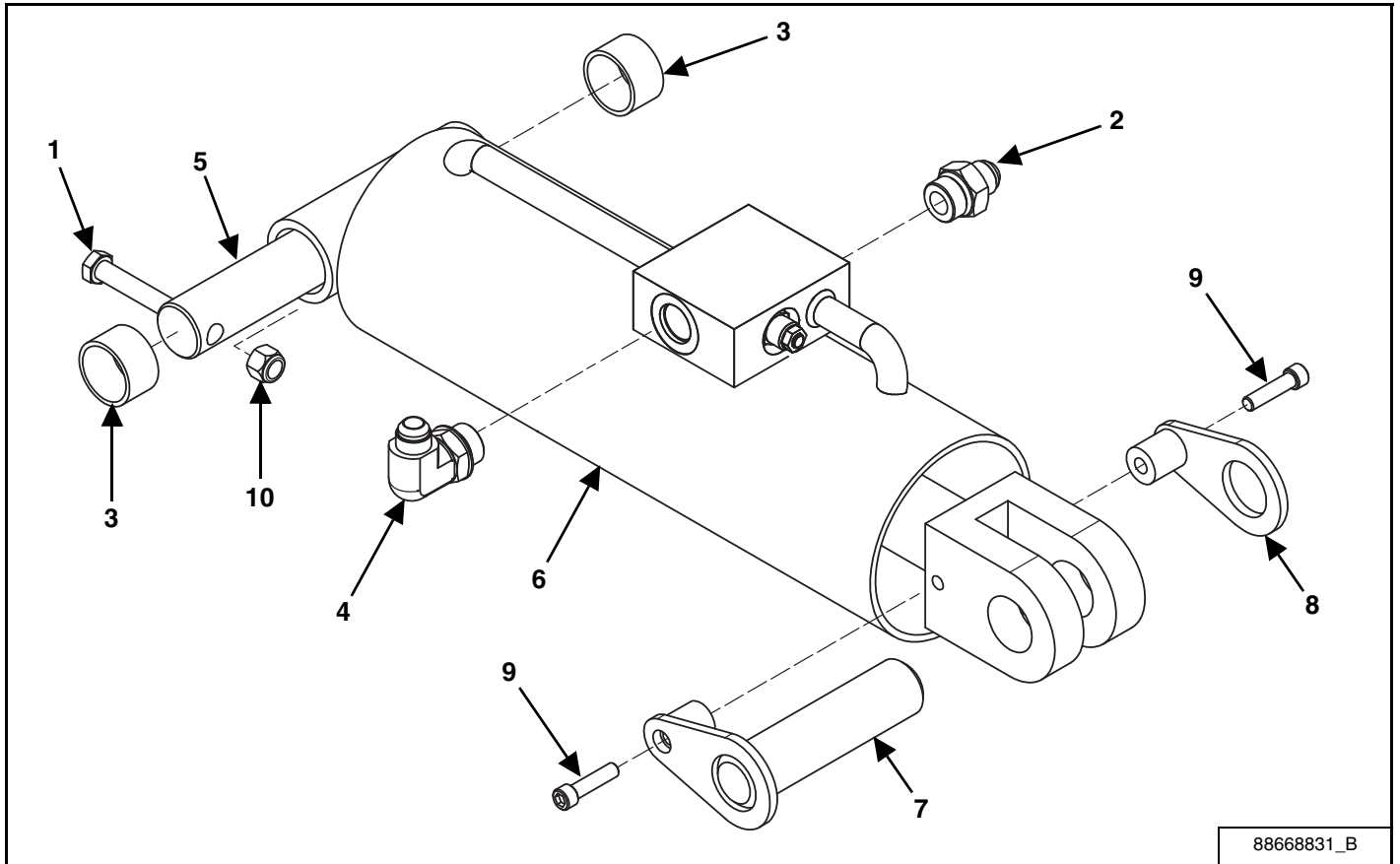


88668832_B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087339	BOLT, HEX; 1/2 X 3 G5 YZ	1
2	86507102	ADPTR HYD; STRT-12MORB-10MJIC	1
3	88663760	BUSHING - CYLINDER CLEVIS	2
4	88664811	ADPTR; 90 DEG-10MJIC-12ORB	1
5	88666528	PIN - LIFT CYL BASE	1
6	88666529	CYLINDER - 5 IN MAIN LIFT	1
7	88668794	WLDT; FLAG AND PIN	1
8	88668795	WLDT; FLAG PIN CAP	1
9	88668798	SOCKET HEAD C. S. .375 X 1.50	2
10	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	1

MAIN LIFT CYLINDER (LH)

1860 & 2460 Models



88668831_B

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00087339	BOLT, HEX; 1/2 X 3 G5 YZ	1
2	86507102	ADPTR HYD; STRT-12MORB-10MJIC	1
3	88663760	BUSHING - CYLINDER CLEVIS	2
4	88664811	ADPTR; 90 DEG-10MJIC-12ORB	1
5	88666528	PIN - LIFT CYL BASE	1
6	88666529	CYLINDER - 5 IN MAIN LIFT	1
7	88668794	WLDT; FLAG AND PIN	1
8	88668795	WLDT; FLAG PIN CAP	1
9	88668798	SOCKET HEAD C. S. .375 X 1.50	2
10	SXLN-050-NI-YZ	LOCKNUT; 1/2" NYLON INSERT YZ	1

Farm King



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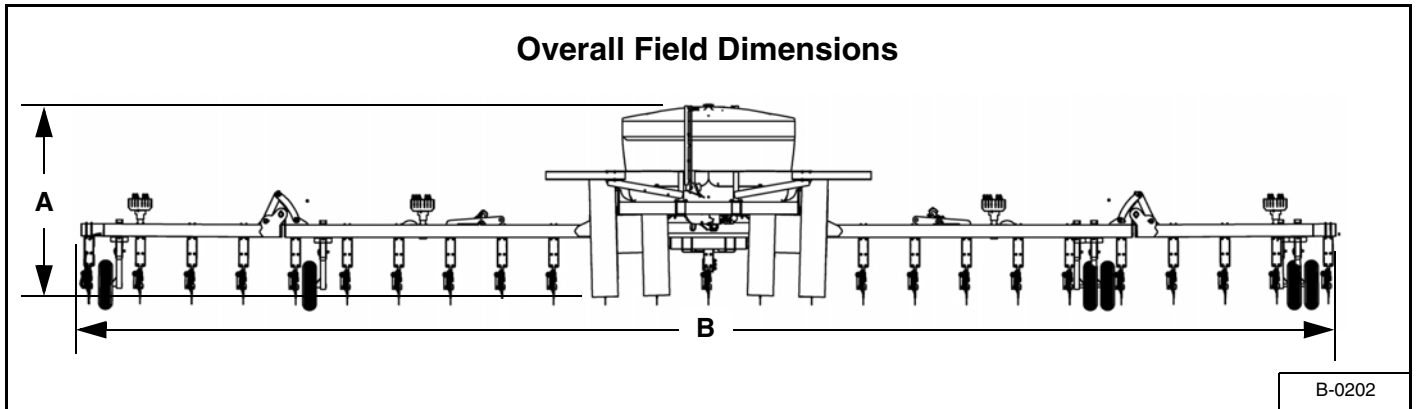
NOZZLE SPECIFICATIONS183

Farm King



SPECIFICATIONS

Dimensions



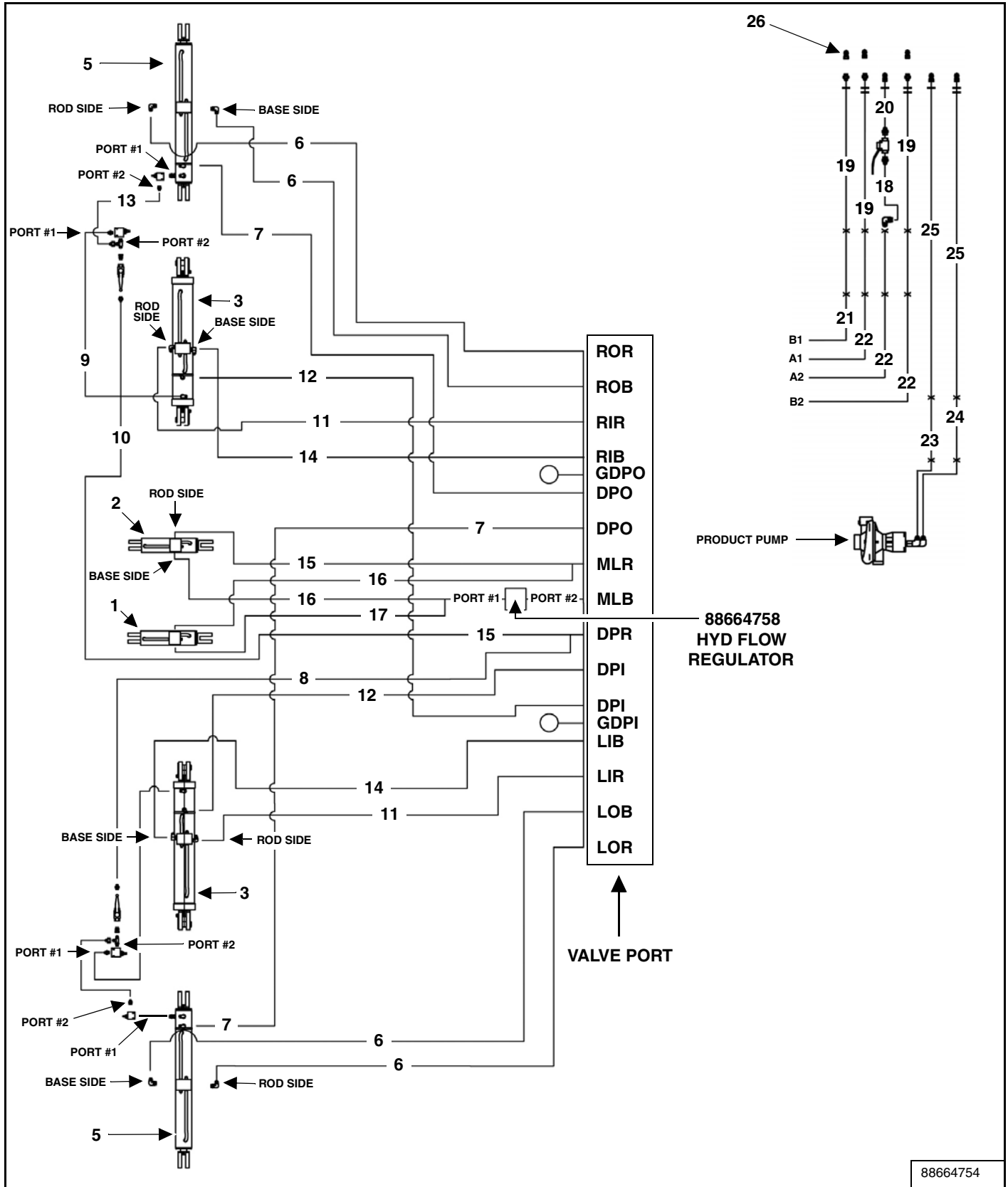
DESCRIPTION	1860	2460
Overall Field Height (A)	9 ft. 3 in.	9 ft. 3 in.
Overall Field Width (B)	60 ft. 9 in. / 66 ft. 9 in.	60 ft. 9 in. / 66 ft. 9 in.
Transport Width	18 ft. 6 in.	18 ft. 6 in.
Transport Height	14 ft. 8 in.	14 ft. 8 in.
Transport Length	24 ft. 3 in.	24 ft. 3 in.
Pin To Axle	15 ft. 5 in.	15 ft. 5 in.
Empty Weight (25 / 30", duals)	20,100 lbs.	
Tongue Weight (transport)	1,520 lbs.	
Tongue Weight (field position, fully raised)	5,380 lbs.	

NOTE: Dimensions are approximate measurements.

Performance

DESCRIPTION	1860	2460
Product Tank	1800 U.S. gal.	2400 U.S. gal.
Fresh Water Safety Tank	9 U.S. gal.	9 U.S. gal.
Plumbing	Ace Hydraulic Driven Centrifugal Pump Kit • 5 Section Control Valves Raven 450	
Toolbar	Available in 24/30 in. (25), 32/22 in. (33), 36/20 in. (37), 36/22 in. (37), 18/38 in. (19) widths	
Coulters	20 in. Ripple, Spring - Cushioned (Knives or Injectors)	
Gauge Wheels	4	4
Tires	Dual Tire 380 / 90R54 Single Tire / Rim 380 / 90R54	Dual Tire 380 / 90R54
Wheel Spacing	60 in. / 120 in., 76 in. / 152 in., 80 in. / 120 in., 88 in. / 132 in. Duals, 120 in. Single on 1860 only	
Ground Clearance	36 in. in field operation, 54 in. on turn rows	
Electrical Harness	7 - Pin	7 - Pin

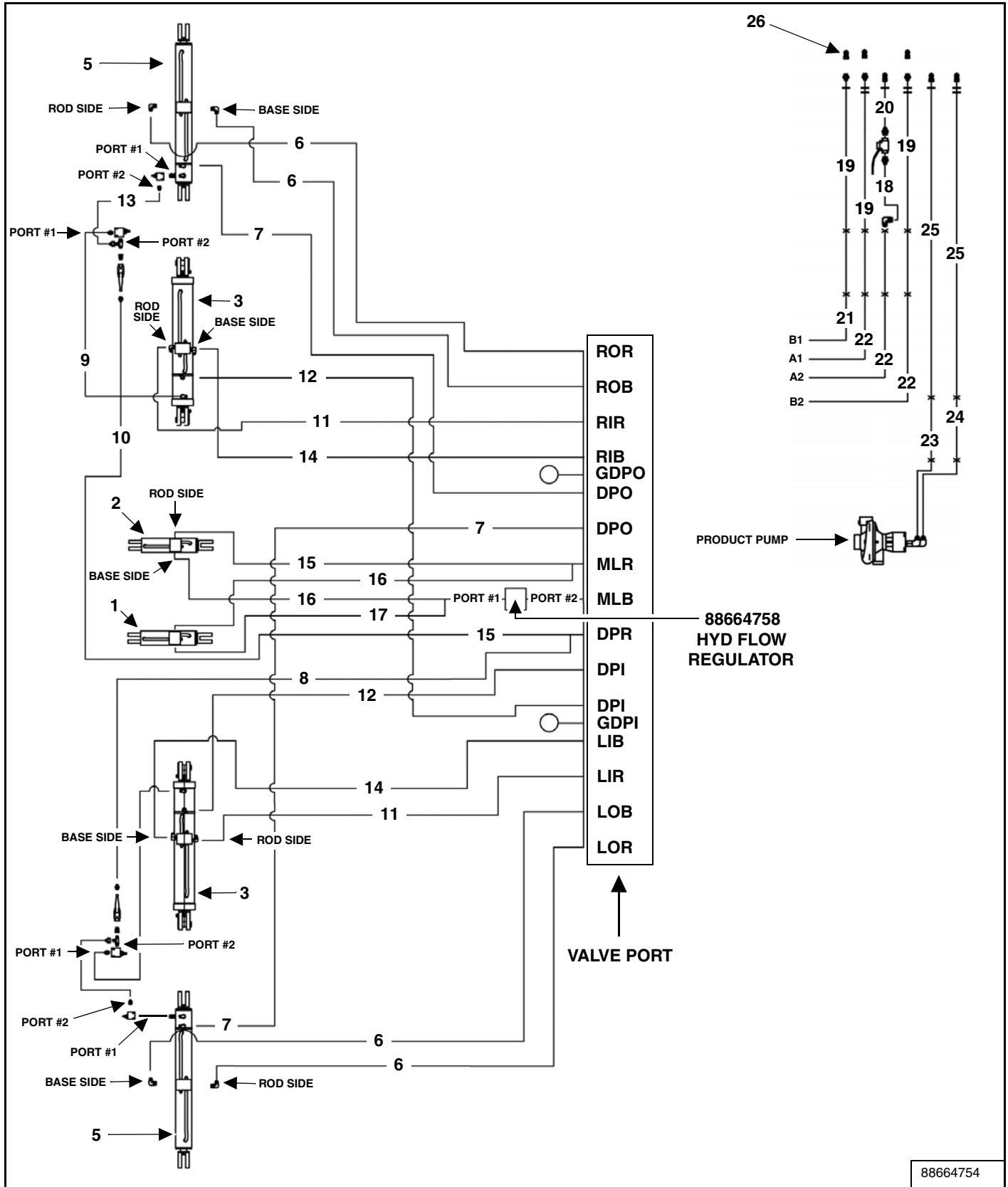
HYDRAULIC DIAGRAM (60 FT)



88664754

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666530	LH MAIN LIFT CYLINDER	1
2	88666531	RH MAIN LIFT CYLINDER	1
3	88666631	INNER WING FOLD CYLINDER	2
4	88663768	HYDRAULIC VALVE (Not Shown)	1
5	88663773	OUTER WING FOLD CYLINDER	2
6	88667219	HYDRAULIC HOSE, #8 x 251" LG	4
7	88665073	HYDRAULIC HOSE, #8 x 235" LG	2
8	88665074	HYDRAULIC HOSE, #8 x 140" LG	1
9	88665075	HYDRAULIC HOSE, #8 x 48" LG EL	2
10	88665076	HYDRAULIC HOSE, #8 x 140" LG EL	1
11	88667149	HYDRAULIC HOSE, #8 x 145" LG	2
12	88665078	HYDRAULIC HOSE, #6 x 137" LG	2
13	88665540	HYDRAULIC HOSE, #6 x 91" LG EL	2
14	88667151	HYDRAULIC HOSE, #10 x 163" LG	2
15	88665081	HYDRAULIC HOSE, #10 x 58" LG 45	1
16	88665082	HYDRAULIC HOSE, #10 x 43" LG EL	2
17	88665083	HYDRAULIC HOSE, #10 x 51" LG 45	1
18	88667059	HYDRAULIC HOSE, #10 x 21" LG	1
19	88667060	HYDRAULIC HOSE, #10 x 84" LG	3
20	88665065	HYDRAULIC HOSE, #10 x 77" LG 45	1
21	88667062	HYDRAULIC HOSE, #10 x 36.5" LG EL	1
22	88667061	HYDRAULIC HOSE, #10 x 30.5" LG EL	3
23	88666555	HYDRAULIC STEEL LONG LINE	2
24	88666554	HYDRAULIC STEEL SHORT LINE	2
25	88663840	HOSE ASSEMBLY, 5/8 x 324"	2
26	88663859	CNCTR, HYD QUICK DISCONNECT	4

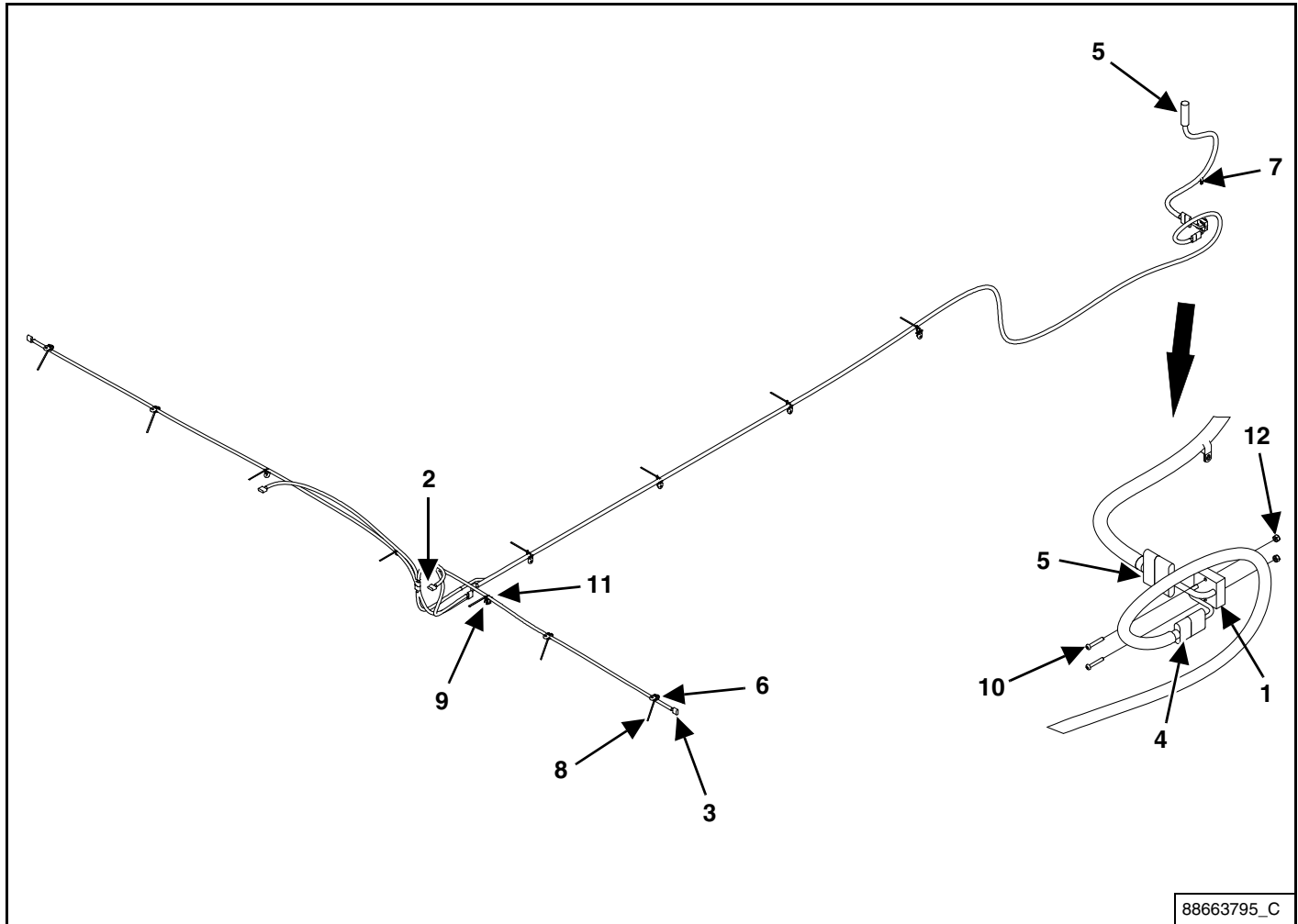
HYDRAULIC DIAGRAM (66 FT)



88664754

ITEM	PART NUMBER	DESCRIPTION	QTY
1	88666530	LH MAIN LIFT CYLINDER	1
2	88666531	RH MAIN LIFT CYLINDER	1
3	88666631	INNER WING FOLD CYLINDER	2
4	88663768	HYDRAULIC VALVE (Not Shown)	1
5	88663773	OUTER WING FOLD CYLINDER	2
6	88667147	HYDRAULIC HOSE, #8 x 274" LG	4
7	88667148	HYDRAULIC HOSE, #8 x 259" LG	2
8	88665074	HYDRAULIC HOSE,#8 x 140" LG	1
9	88665075	HYDRAULIC HOSE, #8 x 48" LG EL	2
10	88665076	HYDRAULIC HOSE, #8 x 140" LG EL	1
11	88667149	HYDRAULIC HOSE, #8 x 145" LG	2
12	88665078	HYDRAULIC HOSE, #6 x 137" LG	2
13	88667150	HYDRAULIC HOSE, #6 x 115" LG EL	2
14	88667151	HYDRAULIC HOSE, #10 x 163" LG	2
15	88665081	HYDRAULIC HOSE, #10 x 58" LG 45	1
16	88665082	HYDRAULIC HOSE, #10 x 43" LG EL	2
17	88665083	HYDRAULIC HOSE, #10 x 51" LG 45	1
18	88667059	HYDRAULIC HOSE, #10 x 21" LG	1
19	88667060	HYDRAULIC HOSE, #10 x 84" LG	3
20	88665065	HYDRAULIC HOSE, #10 x 77" LG 45	1
21	88667062	HYDRAULIC HOSE, #10 x 36.5" LG EL	1
22	88667061	HYDRAULIC HOSE, #10 x 30.5" LG EL	3
23	88666555	HYDRAULIC STEEL LONG LINE	2
24	88666554	HYDRAULIC STEEL SHORT LINE	2
25	88663840	HOSE ASSEMBLY, 5/8 x 324"	2
26	88663859	CNCTR, HYD QUICK DISCONNECT	4

7 PIN ELECTRICAL HARNESS DIAGRAM



88663795_C

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SX006978	MODULE; TURN SIGNAL (PWI)	1
2	88665110	HARNESS; RED LIGHT	1
3	88665111	HARNESS; AMBER LIGHT	1
4	88665112	HARNESS; FRONT TO REAR	1
5	SX014612	HARNESS; TRACTOR/IMPLEMENT	1
6	SX21294	MOUNT, CABLE TIE HEAVY DUTY	10
7	SX25510	CLIP; INSUL; 0.625 CLOSED; 0.281 HOLE	1
8	SX3NS12	STRAP; 11 1/4 BLA21	11
9	SXBHF0381008YZ	BOLT; FLG,3/8X1.00 GR8 YLLW ZN	1
10	SXBM-10-24-125	BOLT; MACH. 10-24 X 1.25"	2
11	SXLN-038-NIYZ	LOCKNUT; 3/8, NYL INS. NC. YZ	4
12	SXLN-10-24-NI	LOCKNUT; 10/24 NYLON INSERT	2

HARDWARE TORQUE VALUES

Metric Chart

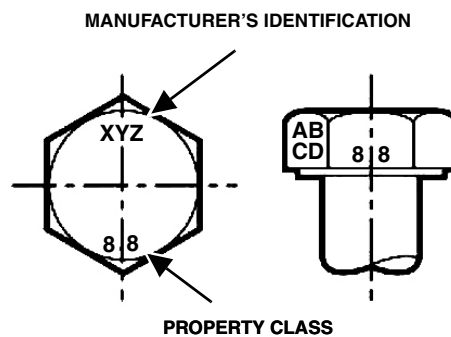
NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.

Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch* or foot pounds) for normal assembly applications.**

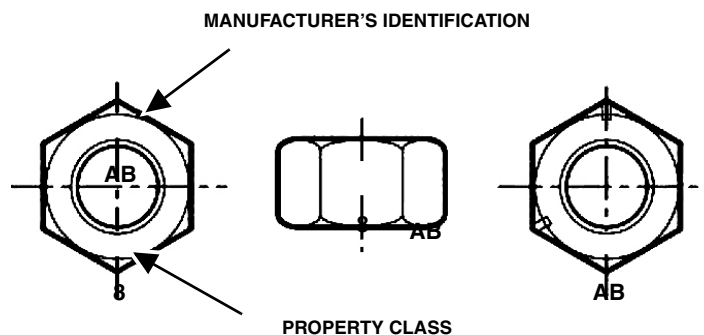
Nominal Size	Class 5.8		Class 8.8		Class 10.9		Lock nuts
	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	CL.8 w/ CL. 8.8 Bolt
M4	1.7 (15*)	2.2 (19*)	2.6 (23*)	3.4 (30*)	3.7 (33*)	4.8 (42*)	1.8 (16*)
M6	5.8 (51*)	7.6 (67*)	8.9 (79*)	12 (102*)	13 (115*)	17 (150*)	6.3 (56*)
M8	14 (124*)	18 (159*)	22 (195*)	28 (248*)	31 (274*)	40 (354*)	15 (133*)
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	30 (22)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	53 (39)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	131 (97)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	265 (195)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	458 (338)

NOTE: Torque values shown with * are inch pounds.

Identification of Hex Cap Screws and Carriage Bolts - Classes 5 and up



Identification of Hex Nuts and Lock Nuts - Classes 5 and up



HARDWARE TORQUE VALUES (CONT'D)

Imperial Chart

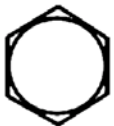
NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.

Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch* or foot pounds) for normal assembly applications.**

Nominal Size	SAE Grade 5		SAE Grade 8		LOCK NUTS			
	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	Grade W / Gr. 5 Bolt	Grade W / Gr. 8 Bolt
1/4	6.2 (55*)	8.1 (72*)	9.7 (86*)	12.6 (112*)	13.6 (121*)	17.7 (157*)	6.9 (61*)	9.8 (86*)
5/16	13 (115*)	17 (149*)	20 (178*)	26 (229*)	28 (250*)	37 (324*)	14 (125*)	20 (176*)
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	26 (19)	35 (26)
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	41 (30)	57 (42)
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	61 (45)	88 (64)
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	88 (65)	125 (92)
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	122 (90)	172 (127)
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	217 (160)	306 (226)
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	350 (258)	494 (364)
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	523 (386)	739 (545)

NOTE: Torque values shown with * are inch pounds.

Identification of Hex Cap Screws and Carriage Bolts



SAE GRADE 2 BOLTS



SAE GRADE 5 BOLTS



SAE GRADE 8 BOLTS



SAE GRADE 2 NUTS

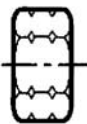


SAE GRADE 2 NUTS



SAE GRADE 2 NUTS

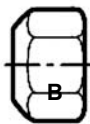
Identification of Hex Nuts and Lock Nuts



Grade A - No Notches

Grade B - One Circumferential Notch

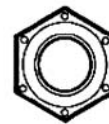
Grade C - One Circumferential Notches



Grade A - No Mark

Grade B - Letter B

Grade C - Letter C



Grade A - No Marks

Grade B - Three Marks

Grade C - Six Marks

(Marks not always located at corners)

HYDRAULIC CONNECTION SPECIFICATIONS

O-Ring Fitting (Straight Thread)

Lubricate the O-ring before installing the fitting. Loosen the jam nut and install the fitting. Tighten the jam nut until the washer is tight against the surface.

O-ring Face Seal Connection

Figure 56

O-ring Face Seal Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4"	9/16" - 18	13 (18)
3/8"	11/16" - 16	22 (30)
1/2"	13/16" - 16	40 (54)
5/8"	1" - 14	60 (81)
3/4"	1-3/16" - 12	84 (114)
7/8"	1-3/16" - 12	98 (133)
1"	1-7/16" - 12	118 (160)
1-1/4"	1-11/16" - 12	154 (209)
1-1/2"	2" - 12	163 (221)

When the fitting is tightened, you can feel when the fitting is tight to eliminate leakage caused by under or over torqued fittings. Use petroleum jelly to hold the O-ring in position until the fittings are assembled [Figure 56].

Flare Fitting

Figure 57

Flare Fitting Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4"	7/16" - 20	13 (18)
5/16"	1/2" - 20	17 (23)
3/8"	9/16" - 18	22 (30)
1/2"	3/4" - 16	40 (54)
5/8"	7/8" - 14	60 (81)
3/4"	1-1/16" - 12	84 (114)
7/8"	1-3/16" - 12	98 (133)
1"	1-5/16" - 12	118 (160)
1-1/4"	1-5/8" - 12	154 (209)
1-1/2"	1-7/8" - 12	163 (221)
2"	2-1/2" - 12	252 (342)

Tighten until the nut makes contact with the seat. Use the chart [Figure 57] to find the correct tightness needed.

NOTE: If the fitting leaks, disconnect and inspect the seat area for damage.

Port Seal (O-ring Boss) Fitting

Figure 58

Port Seal And O-ring Boss Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4"	7/16" - 20	13 (18)
3/8"	9/16" - 18	22 (30)
1/2"	3/4" - 16	40 (54)
5/8"	7/8" - 14	60 (81)
3/4"	1-1/16" - 12	84 (114)
7/8"	1-3/16" - 12	98 (133)
1"	1-5/16" - 12	118 (160)
1-1/8"	1-7/16" - 12	154 (209)
1-1/4"	1-5/8" - 12	163 (221)

NOTE: Port seal and nut, washer and O-ring (O-ring Boss) fittings use the same tightening torque valve chart [Figure 58].

If a torque wrench cannot be used, use the following method.

Tighten the nut until it just makes metal to metal contact, you can feel the resistance.

Tighten the nut with a wrench no more than one hex flat maximum.

Do not over tighten the port seal fitting.

NOTE: If a torque wrench cannot be used, use the hex flat tightening method as an approximate guideline.

NOTE: Port seal fittings are not recommended in all applications. Use O-ring boss fittings in these applications.

Tubelines And Hoses

Replace any tubelines that are bent or flattened. They will restrict flow, which will slow hydraulic action and cause heat.

Replace hoses which show signs of wear, damage or weather cracked rubber.

Always use two wrenches when loosening and tightening hose or tubeline fittings.

NOZZLE SELECTION

Use the following formula to convert pounds per acre to gallons per minute (gpm):

$$\frac{\text{Total lb. per acre}}{\text{of nitrogen}} = \frac{\text{Target lb. per acre}}{\text{Percent of nitrogen}}$$

$$\frac{\text{Total lb. per acre}}{\text{Pound per gallon}} = \text{GPA}$$

EXAMPLE - The desired output is 100 lbs of nitrogen per acre. In order to get 100 lbs of nitrogen you need to apply 357 lbs of 28% nitrogen solution per acre. 357 lbs per acre of a solution that weighs 10.65 lbs per gallon equals 33.53 gallons per acre (GPA). Select a nozzle that will provide 33.53 GPA at your desired system pressure.

$$\frac{\text{Total lb. per acre: 357}}{\text{of nitrogen}} = \frac{100}{0.28}$$

$$\frac{357}{10.65} = 33.53 \text{ GPA}$$

Density Correction Chart

WEIGHT OF SOLUTION PER GALLON	EXAMPLE	SPECIFIC GRAVITY	CONVERSION FACTOR
7.00 lb.		0.84	0.92
8.00 lb.		0.96	0.98
8.34 lb.	Water	1.00	1.00
9.00 lb.		1.08	1.04
10.00 lb.		1.20	1.10
10.65 lb.	28% Nitrogen	1.28	1.13
11.00 lb.	7 - 27 - 7 Fertilizer	1.32	1.15
11.06 lb.	32% Nitrogen	1.33	1.15
11.40 lb.	10 - 34 - 0 Fertilizer	1.37	1.17
11.50 lb.	12 - 0 - 0 - 26 Fertilizer	1.38	1.17
11.60 lb.	11 - 37 - 0 Fertilizer	1.43	1.20
12.00 lb.		1.44	1.20
14.00 lb.		1.68	1.30

Additional Useful Formula:

$$\frac{\text{GPM}}{\text{(per nozzle)}} = \frac{\text{GPA} \times \text{MPH} \times \text{W}}{5940}$$

$$\text{GPA} = \frac{\text{GPM (per nozzle)} \times 5940}{\text{MPH} \times \text{W}}$$

$$\text{MPH} = \frac{\text{Distance in feet} \times 60}{\text{Time in seconds} \times 88}$$

W = Nozzle spacing in inches

Spacing Correction Chart

NOZZLE SPACING	CONVERSION FACTOR	GPA Target Conversion Factor = Corrected GPA
22 in.	1.36	
36 in.	0.83	
38 in.	0.79	

NOTE: For nozzle spacing not shown, use this formula: Conversion Factor = $\frac{\text{Nozzle spacing in table}}{\text{Your nozzle spacing}}$

NOZZLE SPECIFICATIONS

NOZZLE*	PSI	GPM (Per Nozzle)	GPA AT 30" NOZZLE SPACING**			
			4 MPH	6 MPH	8 MPH	10 MPH
H1/4U - SS0004	10	0.20	9.9	6.6	5.0	4.0
	20	0.28	13.9	9.2	6.9	5.5
	30	0.35	17.3	11.6	8.7	6.9
	40	0.40	19.8	13.2	9.9	7.9
H1/4U - SS0006	10	0.30	14.9	9.9	7.4	5.9
	20	0.42	20.8	13.9	10.4	8.3
	30	0.52	25.7	17.2	12.9	10.3
	40	0.60	29.7	19.8	14.9	11.9
H1/4U - SS0008	10	0.40	19.8	13.2	9.9	7.9
	20	0.57	28.2	18.8	14.1	11.3
	30	0.69	34.2	22.8	17.1	13.7
	40	0.80	39.6	26.4	19.8	15.8
H1/4U - SS0010	10	0.50	24.8	16.5	12.4	9.9
	20	0.71	35.1	23.4	17.6	14.1
	30	0.87	43.1	28.7	21.5	17.2
	40	1.00	49.5	33.0	24.8	19.8
H1/4U - SS0015	10	0.75	37.1	24.8	18.6	14.9
	20	1.06	52.5	35.0	26.2	21.0
	30	1.30	64.4	42.9	32.2	25.7
	40	1.50	74.3	49.5	37.1	29.7
H1/4U - SS0020	10	1.00	49.5	33.0	24.8	19.8
	20	1.41	69.8	46.5	34.9	27.9
	30	1.73	85.6	57.1	42.8	34.3
	40	2.00	99.0	66.0	49.5	39.6
H1/4U - SS0030	10	1.50	74.3	49.5	37.1	29.7
	20	2.12	104.9	70.0	52.5	42.0
	30	2.60	128.7	85.8	64.4	51.5
	40	3.00	148.5	99.0	74.3	59.4
H1/4U - SS0040	10	2.50	123.8	82.5	61.9	49.5
	20	3.54	175.2	116.8	87.6	70.1
	30	4.53	224.2	149.5	112.1	89.7
	40	5.00	247.5	165.0	123.8	99.0
H1/4U - SS0050	10	3.00	148.5	99.0	74.3	59.4
	20	4.24	209.9	139.9	104.9	84.0
	30	5.20	257.4	171.6	128.7	103.0
	40	6.00	297.0	198.0	148.9	84.0
H1/4U - SS0060	10	3.00	148.5	99.0	74.3	59.4
	20	4.24	209.9	139.9	104.9	84.0
	30	5.20	257.4	171.6	128.7	103.0
	40	6.00	297.0	198.0	148.9	84.0

* Nozzle or tip (TP). Tip used with the standard TeeJet® cap. Nozzles are threaded with BSPT threads.

** Use the conversion factor for other nozzle spacings.

Farm King



WARRANTY

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WARRANTY

Farm King

Limited Warranty

BASE LIMITED WARRANTY

Farm King provides this warranty only to original retail purchasers of its products. Farm King warrants to such purchasers that all Farm King manufactured parts and components used and serviced as provided for in the Operator's Manual shall be free from defects in materials and workmanship for a period following delivery to the original retail purchaser of one (1) year. This limited warranty applies only to those parts and components manufactured by Farm King. Parts and components manufactured by others are subject to their manufacturer's warranties, if any.

Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Parts must be returned through the selling representative and the buyer must prepay transportation charges.

Farm King will not be responsible for repairs or replacements that are necessitated, in whole or part, by the use of parts not manufactured by or obtained from Farm King. Under no circumstances are component parts warranted against normal wear and tear. There is no warranty on product pump seals, product pump bearings, rubber product hoses, pressure gauges, or other components that require replacement as part of normal maintenance.

REPAIR PARTS LIMITED WARRANTY

Farm King warrants genuine Farm King replacement parts purchased after the expiration of the Farm King Limited Warranty, and used and serviced as provided for in the Operator's Manual, to be free from defects in materials or workmanship for a period of thirty (30) days from the invoice date for the parts. Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Such parts must be shipped to the Farm King factory at the purchaser's expense.

WHAT IS NOT COVERED

Under no circumstances does this limited warranty cover any components or parts that have been subject to the following: negligence; alteration or modification not approved by Farm King; misuse; improper storage; lack of reasonable and proper maintenance, service, or repair; normal wear; damage from failure to follow operating instructions; accident; and/or repairs that have been made with parts other than those manufactured, supplied, and or authorized by Farm King.

AUTHORIZED DEALER AND LABOR COSTS

Repairs eligible for labor under this limited warranty must be made by Farm King or an authorized Farm King dealer. Farm King retains the exclusive discretion to determine whether it will pay labor costs for warranty repairs or replacements, and the amount of such costs that it will pay and the time in which the repairs will be made. If Farm King determines that it will pay labor costs for warranty work, it will do so by issuing a credit to the dealer's or distributor's account. Farm King will not approve or pay invoices sent for repairs that Farm King has not previously approved. Warranty service does not extend the original term of this limited warranty.

Farm King

Limited Warranty

WARRANTY REQUIREMENTS

To be covered by warranty, each new product must be registered with Farm King within thirty (30) days of delivery to original retail purchaser. If the customer decides to purchase replacement components before the warranty disposition of such components is determined, Farm King will bill the customer for such components and then credit the replacement invoice for those components later determined to be covered by this limited warranty. Any such replacement components that are determined not be covered by this limited warranty will be subject to the terms of the invoice and shall be paid for by the purchaser.

EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY WARRANTIES, REPRESENTATIONS, OR PROMISES, EXPRESS OR IMPLIED, AS TO THE QUALITY, PERFORMANCE, OR FREEDOM FROM DEFECT OF THE COMPONENTS AND PARTS COVERED BY THIS WARRANTY AND NOT SPECIFICALLY PROVIDED FOR HEREIN.

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ON ITS PRODUCTS COVERED HEREIN, AND DISCLAIMS ANY RELIANCE BY THE PURCHASER ON FARM KING'S SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS FOR ANY PARTICULAR PURPOSE. THE PURCHASER'S ONLY AND EXCLUSIVE REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON FARM KING'S PRODUCTS ARE THOSE SET FORTH HEREIN. IN NO EVENT SHALL FARM KING BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BY WAY OF EXAMPLE ONLY AND NOT LIMITATION, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE, OR COST OF REPLACEMENT OF RENTAL EQUIPMENT). IN NO EVENT SHALL FARM KING'S CONTRACT OR WARRANTY LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. (Note that some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you.) This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Farm King neither assumes nor authorizes any person or entity, including its selling representatives, to assume any other obligations or liability in connections with the sale of covered equipment, or to make any other warranties, representations, or promises, express or implied, as to the quality, performance, or freedom from defect of the components and parts covered herein. No one is authorized to alter, modify, or enlarge this limited warranty, or its exclusions, limitations and reservations.

Corrections of defects and improper workmanship in the manner, and for the applicable time periods, provided for herein shall constitute fulfillment of all responsibilities of Farm King to the purchaser, and Farm King shall not be liable in negligence, contract, or on any other basis with respect to the subject equipment.

This limited warranty is subject to any existing conditions of supply which may directly affect Farm King's ability to obtain materials or manufacturer replacement parts.

Buhler Industries Inc. reserves the right to make improvements in design or changes in specifications to its products at anytime, without incurring any obligation to owners of units previously sold.

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www.farm-king.com

Farm King

2500 Airport Drive SW
Willmar, MN USA 56201
Toll Free: 1-888-FK-80001
E-mail: info@buhler.com
www.farm-king.com

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