Read the operator manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

Illustrations may show optional equipment not supplied with standard unit.
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Printed in the United States of America
Important Safety Information

Look for Safety Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to 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.

Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION 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.

Be Familiar with Safety Decals

▲ Read and understand information on safety decals in the Operator’s Manual.

▲ Read all instructions noted on the decals.

Avoid High Pressure Fluids

▲ Escaping fluid under pressure can penetrate the skin, causing serious injury. If hydraulic fluid penetrates the skin under pressure, immediate medical attention is required. See a physician familiar with this type of injury.

▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines.

▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.

▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
Wear Protective Equipment
Great Plains advises all users of chemical pesticides or herbicides to use the following personal safety equipment.

- Waterproof, wide-brimmed hat
- Waterproof apron.
- Face shield, goggles or full face respirator.
- Goggles with side shields or a full face respirator is required if handling or applying dusts, wettable powders, or granules or if being exposed to spray mist.
- Cartridge-type respirator approved for pesticide vapors unless label specifies another type of respirator.
- Waterproof, unlined gloves. Neoprene gloves are recommended.
- Cloth coveralls/outer clothing changed daily; waterproof items if there is a chance of becoming wet with spray
- Waterproof boots or foot coverings
- Do not wear contaminated clothing. Wash protective clothing and equipment with soap and water after each use. Personal clothing must be laundered separately from household articles.
- Clothing contaminated with certain pesticides must be destroyed according to state and local regulations. Read chemical label for specific instructions.
- Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
- Prolonged exposure to loud noise can cause hearing impairment or loss. Wear suitable hearing protection such as earmuffs or earplugs.
- Avoid wearing entertainment headphones while operating machinery. Operating equipment safely requires the full attention of the operator.

Keep Riders Off Machinery
- Riders obstruct the operator’s view. Riders could be struck by foreign objects or thrown from the machine.
- Never allow children to operate equipment.
- Keep all bystanders away from machine during operation.

Use Safety Lights and Devices
- Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
- Use flashing warning lights and turn signals whenever driving on public roads.
- Use tractor lights and lights provided with implement.
Check for Overhead Lines

DANGER
Sprayer booms contacting overhead electrical lines can introduce lethal voltage levels on sprayer and tractor frames. A person touching almost any metal part can complete the circuit to ground, resulting in serious injury or death. At higher voltages, electrocution can occur without direct contact.

▲ Avoid overhead lines during sprayer operations.

Transport Machinery Safely

▲ Maximum transport speed for implement is 20 mph (32 kph). Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

▲ Do not exceed 20 mph (32 kph). Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.

▲ Comply with state and local laws.

▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.

▲ Carry reflectors or flags to mark Front Fold Boom Sprayer in case of breakdown on the road.

▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “Specifications and Capacities” on page 14.

▲ Do not fold or unfold the Front Fold Boom Sprayer while the tractor is moving.

Shutdown and Storage

▲ Fold Front Fold Boom Sprayer, put tractor in park, turn off engine, and remove the key.

▲ Secure Front Fold Boom Sprayer using blocks and supports provided.

▲ Detach and store Front Fold Boom Sprayer in an area where children normally do not play.
Practice Safe Maintenance

▲ Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.
▲ Work in a clean, dry area.
▲ Fold the Front Fold Boom Sprayer, put tractor in park, turn off engine, and remove key before performing maintenance.
▲ Make sure all moving parts have stopped and all system pressure is relieved.
▲ Allow Front Fold Boom Sprayer to cool completely.
▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on Front Fold Boom Sprayer.
▲ Inspect all parts. Make sure parts are in good condition and installed properly.
▲ Remove buildup of grease, oil or debris.
▲ Remove all tools and unused parts from Front Fold Boom Sprayer before operation.

Prepare for Emergencies

▲ Be prepared if a fire starts.
▲ Keep a first aid kit and fire extinguisher handy.
▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.

Tire Safety

▲ Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.
▲ When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.
▲ When removing and installing wheels, use wheel-handling equipment adequate for weight involved.
Safety At All Times

▲ Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.
▲ Be familiar with all Front Fold Boom Sprayer functions.
▲ Operate machinery from the driver’s seat only.
▲ Do not leave Front Fold Boom Sprayer unattended with tractor engine running.
▲ Do not dismount a moving tractor. Dismounting a moving tractor could cause serious injury or death.
▲ Do not stand between the tractor and Front Fold Boom Sprayer during hitching.
▲ Keep hands, feet and clothing away from power-driven parts.
▲ Wear snug-fitting clothing to avoid entanglement with moving parts.
▲ Watch out for wires, trees, etc., when folding and raising Front Fold Boom Sprayer. Make sure all persons are clear of working area.
▲ Do not turn tractor too tightly, causing Front Fold Boom Sprayer to ride up on wheels. This could cause personal injury or equipment damage.
▲ Use only water without pesticides added to calibrate the sprayer. Do not exceed the calibrated sprayer speed and pressure when operating.
▲ When using a PTO pump, be sure that PTO shield is in place on the tractor, PTO coupler bolts are torqued to the correct specification, and torque bar is properly chained to tractor drawbar.
▲ Spray with the boom in the unfolded position only.
▲ The boom has many pinch points during field operation and folding. Keep all bystanders away.
▲ Never use tank for potable water.
Introduction

Great Plains welcomes you to its growing family of new product owners. This Front Fold 3-Point Sprayer has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance and safe operating practices will help you get years of satisfactory use from the machine.

Description of Unit

The 3P-FF600, 3P-FF800, and 3P-FF900 sprayers are capable of spraying at either 60ft or the full 80-90ft depending on your application needs. The level float boom is fully suspended starting with vertical spring suspension in a 46in hydraulic elevator which provides a wide range of boom height adjustment along with gas shocks that provide side-to-side stability.

Intended Usage

Use these booms as part of a pressurized sprayer system to apply liquid pesticides, herbicides or fertilizers to production-agriculture crops only. Do not modify sprayer for use with attachments other than those approved by Great Plains.

Models Covered

3P-FF600-3620 3-Point Sprayer 60 foot 20 inch spacing
3P-FF600-2530 3-Point Sprayer 60 foot 30 inch spacing
3P-FF800-4820 3-Point Sprayer 80 foot 20 inch spacing
3P-FF800-3330 3-Point Sprayer 80 foot 30 inch spacing
3P-FF900-5420 3-Point Sprayer 90 foot 20 inch spacing
3P-FF900-3730 3-Point Sprayer 90 foot 30 inch spacing

Using This Manual

This manual was written to help you assemble and prepare the new machine for the customer. The manual includes instructions for assembly and setup. Read this manual and follow the recommendations for safe, efficient and proper assembly and setup.

An operator’s manual is also provided with the new machine. Read and understand “Important Safety Information” and “Operating Instructions” in the operator’s manual before assembling the machine. As a reference, keep the operator’s manual on hand while assembling.

The information in this manual is current at printing. Some parts may change to assure top performance.

Definitions

The following terms are used throughout this manual.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated.

NOTICE

Paragraphs in this format present a crucial point of information related to the current topic. Read and follow the directions to:
- remain safe,
- avoid serious damage to equipment and
- ensure desired field results.

NOTE:
Paragraphs in this format provide useful information related to the current topic.

Further Assistance

For additional help with understanding these assembly instructions or for any other assembly or setup related questions, please contact our service department at the following address:

Great Plains Service Department
1525 E. North St.
P.O. Box 5060
Salina, KS 67402-5060

Or call us at (800) 270-9302 to speak over the phone with a service representative.

Copies of this machine’s operator manual are available by mail or online. Please visit www.greatplainsag.com and follow the product link for information on your machine.
Assembly

The following headings are step-by-step instructions for assembling the Front Fold 3-Point Sprayer. Begin with Tools Required and Pre-Assembly Checklist to make sure you have all necessary parts and equipment. Then proceed with Unload Sprayer from Truck. Follow each step in order to make the job as quick and safe as possible and produce a properly working machine.

The Front Fold 3-Point Sprayer is shipped via flat bed truck. It is the dealer’s responsibility to unload the sprayer. Unload all equipment before beginning assembly. Do not attempt any assembly work with the Front Fold 3-Point Sprayer on the truck.

Tools Required

• General hand tools

Pre-Assembly Checklist

1. Read and understand “Important Safety Information” on page 1 before assembling.
2. Have at least two people on hand while assembling.
3. Make sure the assembly area is level and free of obstructions (preferably an open concrete area).
4. Have all major components.
5. Have all fasteners and pins shipped with boom.

NOTICE

If a pre-assembled part or fastener is temporarily removed, remember where it goes. Keep the parts separated.

6. Have a copy of the parts manual on hand. If unsure of proper placement or use of any part or fastener, refer to the parts manual.
7. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
8. Check that safety labels and reflectors are correctly located and legible. Replace if necessary. Refer to Safety Decals in the “Important Safety Information” chapter of the operator’s manual.
Unload Sprayer from Truck

1. Using a forklift or tractor, remove sprayer from truck. Do not remove shipping stands until you are ready to assemble sprayer.

2. When ready to assemble, place sprayer in an open, level area. Make sure there is enough overhead and side clearance to fold and unfold assembled boom.

Remove Shipping Straps

Refer to Figure 1

3. Unscrew U-bolts to remove shipping straps which secure upper portion of boom arms to transport bumpers during shipping.

4. After shipping straps are removed, carefully unfold sprayer to field position.

5. Refold sprayer to transport position with transport bumpers resting just below boom arms.

Marker Tank

Refer to Figure 2

6. Mount the marker tank on the right side of the sprayer.
Boom Lock Cable
Refer to Figure 3 and Figure 4

7. Unhook swivel bolt snap from stationary ring.
8. Re-hook swivel bolt snap to ring located in outer boom lock plunger rod.

Outer Jump Nozzle
Refer to Figure 5

This section applies only to the following:
- 3P-FF600 36-nozzles at 20in spacing,
- 3P-FF800 33-nozzles at 30in spacing, and
- 3P-FF900 37-nozzles at 30in spacing.

10. Locate the outer jump nozzle mounting bracket(s) which is/are wire tied to the support frame(s).
11. Undo the wire tie and mount the bracket to the frame gusset using the preexisting holes. Make sure the nozzle is positioned as shown.
Preparation and Setup

Before You Start

Read and understand the owners manual for your sprayer. A basic understanding of how the sprayer works will aid in the assembly, setup and operation of your sprayer.

Perform these checks before setting up your front fold boom.
1. Read and understand “Important Safety Information” on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all grease fittings are in place and lubricated.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged.

Hitching Tractor to Sprayer

**DANGER**

Crushing Hazard:
You may be severely injured or killed by being crushed between the tractor and Front Fold 3-Point Sprayer. Do not stand or place any part of your body between Front Fold 3-Point Sprayer and moving tractor. Stop tractor engine and set park brake before installing the hitch pin.

**DANGER**

Electrocution Hazard:
To prevent serious injury or death from electric shock, keep clear of overhead power lines when transporting, folding or unfolding boom. Boom is not grounded. Electrocution can occur without direct contact.

Refer to the transport dimensions in “Specifications and Capacities” on page 14.
**WARNING**

Be certain that tractor lift capacity is adequate and that tractor is weighted to maintain steering control. Failure to do so may cause loss of vehicle control.

Refer to tractor specifications for tractor lift capacity and see “Specifications and Capacities” on page 14, for required lift capacity. Consult the tractor operator’s manual for tractor weighting recommendations.

**Refer to Figure 6**

5. Determine the pin and spacer orientation needed for the tractor, and securely fasten the hitch pins.

6. Mount the 3-Point Sprayer to a tractor with the correct pin mountings determined from instruction Step 1. Make sure that the sprayer frame is level so that after the boom is assembled, it won’t hit the tractor cab when the boom is folded or raised.

**NOTICE**

The category 4 narrow hitch (CAT IV-N) spacers are not standard parts supplied with the 3-Point Sprayer. Order 501-011S from a Great Plains dealer for the CAT IV-N spacers.

**NOTE:**

Be sure that the top 3-Point link is adjusted correctly so that the frame is level in operating position but will not hit the cab in transport. The tractor 3-Point arms should be adjusted to keep the sprayer level from side to side with lift arm rigid.

---

Figure 6
Pin & Spacer Configuration
Predelivery

1. Have tractor delivered to dealership that will be operating sprayer.
2. Confirm row spacing.
3. Hook sprayer to tractor.
4. Install control switch boxes inside of tractor cab, and route power supplies to the tractor battery.
5. The following equipment must be connected to the tractor’s battery: Raven 440/450 Controller, Fasse Valve Hydraulic Control Box, and Optional Foam Marker Control.
   a. To connect the Raven 440/450 Controller to the tractor battery, see the Raven Installation and Service Manual.
   b. To connect the Fasse Valve Hydraulic Control Box to the tractor battery:
      • Use the 6-foot, two-wire red and black cable to connect hydraulic controls.
      • Connect the red wire from each cable to the positive terminal and the black wire from each cable to the negative terminal.
   c. Use the 6-foot gray cable to connect the optional foam marker control to the tractor battery.
6. Mount radar gun to tractor frame if applicable and route cable up through cab. If using existing radar on tractor, install “Y” cable according to tractor manufacturer’s recommendations.
7. Connect all hydraulic hoses to outlets (refer to tractor operator’s manual for designated outlet if equipped with a hydraulic pump).

The hydraulic motor used on all liquid pumps is a 6 GPM motor. If the tractor used on this sprayer does not have the capabilities to adjust the remotes to this flow, then a hydraulic flow divider kit must be installed so that flow can be controlled and to prevent operating the pump at excessive speeds.

Place a stop in the neutral position for the tractor hydraulics so that the hydraulic lever can only be moved to the float and down positions. Refer to the tractor’s operator manual on information for the neutral stop.

NOTICE

Damage to the pump will occur if the hydraulic lever is returned to the neutral position while the pump is running.

8. Check all hydraulic functions of the boom/elevator.
9. With boom still unfolded, make sure boom locks are adjusted correctly to just clear the stops.
10. Fill sprayer approximately 1/2 full of water. Open tank sump valve and let water circulate throughout the system and check for any leaks.
11. Before installing nozzles, engage pump slowly and circulate water through the system, then turn on boom valves individually to flush out the system.

On sprayers equipped with a hydraulic pump, start out with the hydraulic lever in the float position, and engage the pump by placing the lever in the down position. Make sure the hydraulic flow control valve is set at a minimum flow.
12. After system has been thoroughly flushed, install nozzles and open boom valves again to check nozzle pattern across the boom.
13. Set the dead head pressure of the pump in the following ways depending on how pump is driven.

Hydraulic Drive Pumps

a. To determine the correct flow rate to the hydraulic motor, start out with the hydraulic control valve set at a minimum flow, and the hydraulic lever in the float position.

b. Open up the sprayer control valve to its maximum setting.
   On the Raven 450 monitor, with the power switch on, the rate switch must be placed in the manual position, and the increase/decrease switch must be pushed to increase for 10-12 seconds.

c. Start the tractor and engage the pump by placing the hydraulic lever in the down position. Once the system builds pressure, speed up the tractor to normal operating speed.
   Shut off the boom section switches, and close the agitation valve.

d. The pump is now at deadhead pressure and the hydraulic control valve must be adjusted up until the spray pressure reaches 80 psi maximum. Mark this setting on the hydraulic control valve for future reference.

e. Open up the agitation valve.
Ace Pump Flow Limiter (Option)

Refer to Figure 7

The flow limiter is a hydraulic device designed to shut off the flow of hydraulic oil when a specified flow rate is exceeded. On tractors with load sensing closed center hydraulic systems, this device limits the flow of oil to the Ace motor and prevents failures.

Newer Case-IH, John Deere, New Holland, and CAT tractors have a great potential to run motors beyond their rated speeds. Flows out of the hydraulic valves can exceed 20 GPM while the motors are rated at 4-11 GPM. The flow limiter protects the Ace motor by shutting off on excess hydraulic flow.

The flow limiter should not be used on open center or pressure compensating closed center hydraulic systems. The flow limiter should not be used with a restrictor orifice.

To Install Pump Flow Limiter

1. Install the flow limiter in the inlet port of the Ace motor.
2. Connect the hydraulic hoses so that the pump runs with the hydraulic lever in the lower/retract position. Connect return hose to Low Pressure Return Port, when available.
3. Shut off boom and agitation valves on the sprayer to deadhead the sprayer pump flow.
4. Adjust the flow control on the tractor to minimum flow setting (turtle).
5. Move hydraulic lever to the lower/retract position.

\[ \text{NOTE:} \]
Always shut the pump off in the float position. This eliminates high pressure being trapped in the return line and protects hydraulic seals. Avoid returning the oil to the remote valve; use the Low Pressure Return Port, when available.

6. Adjust the flow control on the tractor until the sprayer system deadhead pressure is within the pump’s operating parameters:
   - If the flow limiter stops the flow of oil to the motor
     a. Move the hydraulic lever to the neutral position. This removes the oil pressure from the flow limiter and allows it to reset.
     b. Adjust the flow control to a lower flow position.
     c. Repeat steps 5 and 6.
7. Set sprayer pressure by opening the agitation valve.
# Appendix - Reference Information

## Specifications and Capacities

<table>
<thead>
<tr>
<th>Specifications</th>
<th>3P-FF600</th>
<th>3P-FF800</th>
<th>3P-FF900</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boom Width</strong></td>
<td>60 foot</td>
<td>60 foot- 80 foot</td>
<td>60 foot - 90 foot</td>
</tr>
<tr>
<td><strong>Nozzle Spacing</strong></td>
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</tr>
<tr>
<td><strong>Number Of Nozzles</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(20-inch spacing)</td>
<td>36</td>
<td>48</td>
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<tr>
<td>(30-inch spacing)</td>
<td>25</td>
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<tr>
<td><strong>Approx. Weight</strong></td>
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<td>5500 lbs</td>
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<td><strong>Working Width</strong></td>
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<tr>
<td><strong>Lift Capacity†</strong></td>
<td>8000 lbs</td>
<td>10,200 lbs</td>
<td>10,300 lbs</td>
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* Behind lower link point
† At 24 inches behind lower lift-arm balls
## Torque Values

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- **a.** in-tpi = nominal thread diameter in inches/threads per inch
- **b.** N-m = newton-meters
- **c.** mm x pitch = nominal thread diameter in mm x thread pitch
- **d.** ft-lb = foot pounds

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.