



JOHN DEERE

OPERATOR'S MANUAL

90 Gal. Rate Controlled Gator Sprayer

LP68194
Supplier ST48291
04/11/22
English

Introduction

Using Your Operator's Manual

Read this entire operator's manual, especially the safety information, before operating.

This manual is an important part of your machine. Keep all manuals in a convenient location so they can be accessed easily.

Use the safety and operating information in the attachment operator's manual, along with the machine operator's manual, to operate and service the attachment safely and correctly.

If your attachment manual has a section called Preparing the Machine, it means that you will have to do something to your tractor or vehicle before you can install the attachment. The Assembly and Installation sections of this manual provide information to assemble and install the attachment to your tractor or vehicle. Use the Service section to make any needed adjustments and routine service to your attachment.

If you have any questions or concerns with the assembly, installation, or operation of this attachment, see your local John Deere dealer or call the John Deere Customer Contact Center at 1-800-448-9282 for assistance.

Warranty information on this John Deere attachment can be found in the warranty that came with your John Deere tractor or vehicle.

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Product Compatibility

This Sprayer is designed for use with John Deere Gator™ Utility Vehicles XUV835E, XUV835M, XUV835R, XUV865E, XUV865M, and XUV865R.

MY21-newer (all trim levels) require BM26268 (Dash Port Harness) and BUC10811 (CAN Bridge Kit)

MY21-newer E Spec models also require BUC10810 (E Spec Harness)

MY18-MY20 (all trim levels) require BM26268 (Dash Port Harness) and BUC10316 (CAN Bridge Kit)

MY18-MY20 E Spec models also require BM26266 (E Spec Harness)

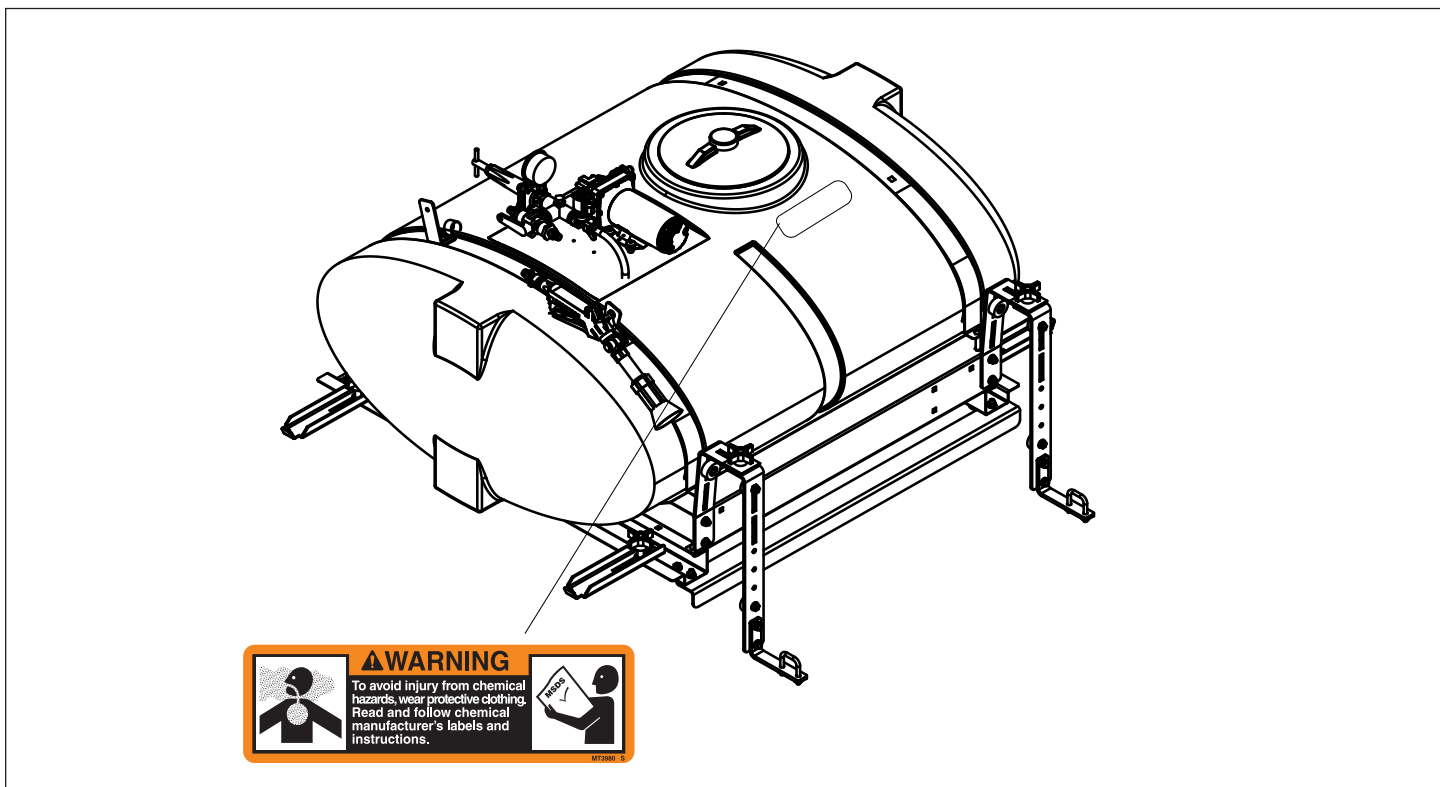
Contact your John Deere dealer for specific utility vehicle compatibility.

Original instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication.

The right is reserved to make changes at any time without notice.

NOTE: Retain these installation instructions with the machine operators manual.

Safety Labels



Safety Labels

Safety Label Location



Understanding The Machine Safety Labels

The machine safety labels shown in this section are placed in important areas on your machine to draw attention to potential safety hazards.

On your machine safety labels, the words **DANGER**, **WARNING**, and **CAUTION** are used with this safety-alert symbol. **DANGER** identifies the most serious hazards.

The operator's manual also explains any potential safety hazards whenever necessary in special messages that are identified with the word, **CAUTION**, and the safety-alert symbol.

Replace missing or damaged safety labels. Use this operator's manual for correct safety label placement.

There can be more safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

French or Spanish Safety Labels and Operator's Manual

Operator's manuals and safety labels with content in French or Spanish are available for this machine through authorized John Deere dealers.

Warning



- To avoid injury from chemical hazards, wear protective clothing. Read and follow chemical manufacturer's labels and instructions.

Safety

Read Safety in Machine Operator's Manual

Read the general safety operating precautions in your machine installation instruction manual for additional safety information.

Operating Safely

- Read the machine and attachment operator's manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the machine and disengage the controls quickly.
- Do not let children or an untrained person operate machine.
- Make any necessary adjustments before you operate. Never attempt to make any adjustments while the engine is running, unless if recommended in adjustment procedure.
- Take all possible precautions when leaving the machine unattended. Shut off the engine before making any repairs, adjustments, or inspections. Lower the attachment, lock the parking brake, stop the engine, and remove the key.
- Look behind machine before you back up. Back up carefully.
- Do not let anyone, especially children, ride on machine or attachment. Riders are subject to injury such as being struck by foreign objects and being thrown off. Riders may also obstruct the operator's view, resulting in the machine being operated in an unsafe manner.
- Use only attachments and accessories approved by the manufacturer of this product.
- If the machine vibrates abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Always refer to the Storage section of the operator's manual for important details if storing this product for a long period of time.
- Keep people and pets out of the work area. Stop machine if anyone enters the area.
- If you hit an object, stop the machine and inspect it. Make repairs before you operate. Keep machine properly maintained and in good working order. Keep All shields and guards in place.
- Always inspect the sprayer completely before and after each use. Before pressurizing the system, check to be sure all fittings and hoses are tightly installed. Be sure guards and shields are in good condition and fastened in place. Make any necessary adjustments before you operate.
- Never use the sprayer during windy conditions.
- Always release pressure in the system before filling, cleaning or servicing the sprayer.

- Do not put nozzle tip or other sprayer parts to your lips to blow out dirt. Use compressed air.
- If the sprayer is mounted to the bed of a utility vehicle, never raise the bed with the sprayer installed. Empty the sprayer and remove it from the bed if you need to raise the bed for any reason.

Parking Safety

1. Stop machine on a level surface, not on a slope.
2. Lock the park brake.
3. Stop the engine.
4. Remove the key.
5. Wait for engine and all moving parts to stop before you leave the operator's seat.

Mix and Handle Chemicals Safely

- It is best to wear full cover clothing and always wear protective goggles and rubber gloves to protect yourself while handling chemicals.
- Follow instructions on chemical container labels.
- Open all chemical containers carefully, using proper tools.
- Open, pour, weigh and mix chemicals in a well-ventilated area.
- Reserve all equipment used for the application of chemicals exclusively for that purpose.
- Prohibit all smoking, drinking and eating food in chemical-handling area.
- It is a good practice to take a soapy shower immediately after using the sprayer to apply chemicals.
- Wash all clothing worn when using chemicals separately in the laundry after spraying is completed.

Read Chemical Container Label.

- Chemicals can be dangerous. Improper selection or use can injure persons, animals, plants, soils or other property. Select the right chemical for the job and handle and apply with care.
- Read the instructions, precautions, and warnings on the container label before opening. Use the product strictly according to label directions for specific applications, in the amounts specified, at the times specified and only when needed.
- Keep the container closed tightly except when preparing the mix.
- Do not remove labels from chemical containers. Store all chemicals in their original containers.
- Do not mix chemicals unless stated on the container label.

Safety

- Store chemicals when not in use according to the container label.

Handle Chemical Products Safely

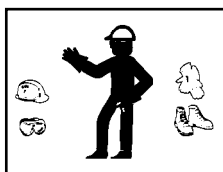
- Direct exposure to hazardous chemicals can cause serious injury.
- Potentially hazardous chemicals used with John Deere equipment include pesticides, herbicides and fungicides.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.
- The MSDS should be obtained from the chemical dealer at the time of the chemical purchase.
- Check the MSDS before beginning any job using a hazardous chemical.
- Know exactly what the risks are and how to do the job safely. Always wear recommended personal protection equipment.

Practice Safe Maintenance

- Only qualified, trained adults should service this machine.
- Understand service procedure before doing work. Keep area clean and dry.
- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Never lubricate, service or adjust the machine or attachment while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.
- Lower any attachment completely to the ground or to an existing attachment mechanical stop before servicing the attachment. Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- Disconnect battery or remove spark plug wire (for gasoline engines) before making any repairs.
- Before servicing machine or attachment, carefully release pressure from any components with stored energy, such as hydraulic components and springs.
- Release hydraulic pressure by lowering attachment or cutting units to the ground or to a mechanical stop and move hydraulic control levers.
- Securely support any machine or attachment elements that must be raised for service work.

- Use jack stands or lock service latches to support components when needed.
- Never run engine unless park brake is locked.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Replace all worn or damaged safety and instruction decals.
- Check all hardware at frequent intervals to be sure the equipment is in safe working condition.
- Do not modify machine or safety devices. Unauthorized modifications to the machine or attachment may impair its function and safety.

Wear Appropriate Clothing



- Wear close fitting clothing and safety equipment appropriate for the job.
- Certain operating conditions may dictate that the operator and any passenger wear appropriate safety equipment while operating the vehicle. Be prepared for any existing and potential conditions before operating machine.
- Local safety or insurance regulations may require additional safety equipment such as eye protection or a hard hat.
- Always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
- Wear proper clothing and safety equipment while handling chemicals or using the sprayer.
- Refer to the MSDS for the chemicals being used to be sure the proper personal protection equipment is being used.

Avoid High Pressure Fluids



- Hydraulic hoses and lines can fail due to physical damage, kinks, age, and exposure.
- Check hoses and lines regularly. Replace damaged hoses and lines.
- Hydraulic fluid connections can loosen due to physical damage and vibration. Check connections regularly. Tighten loose connections.
- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Safety

- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately.

Dispose of Chemicals Properly

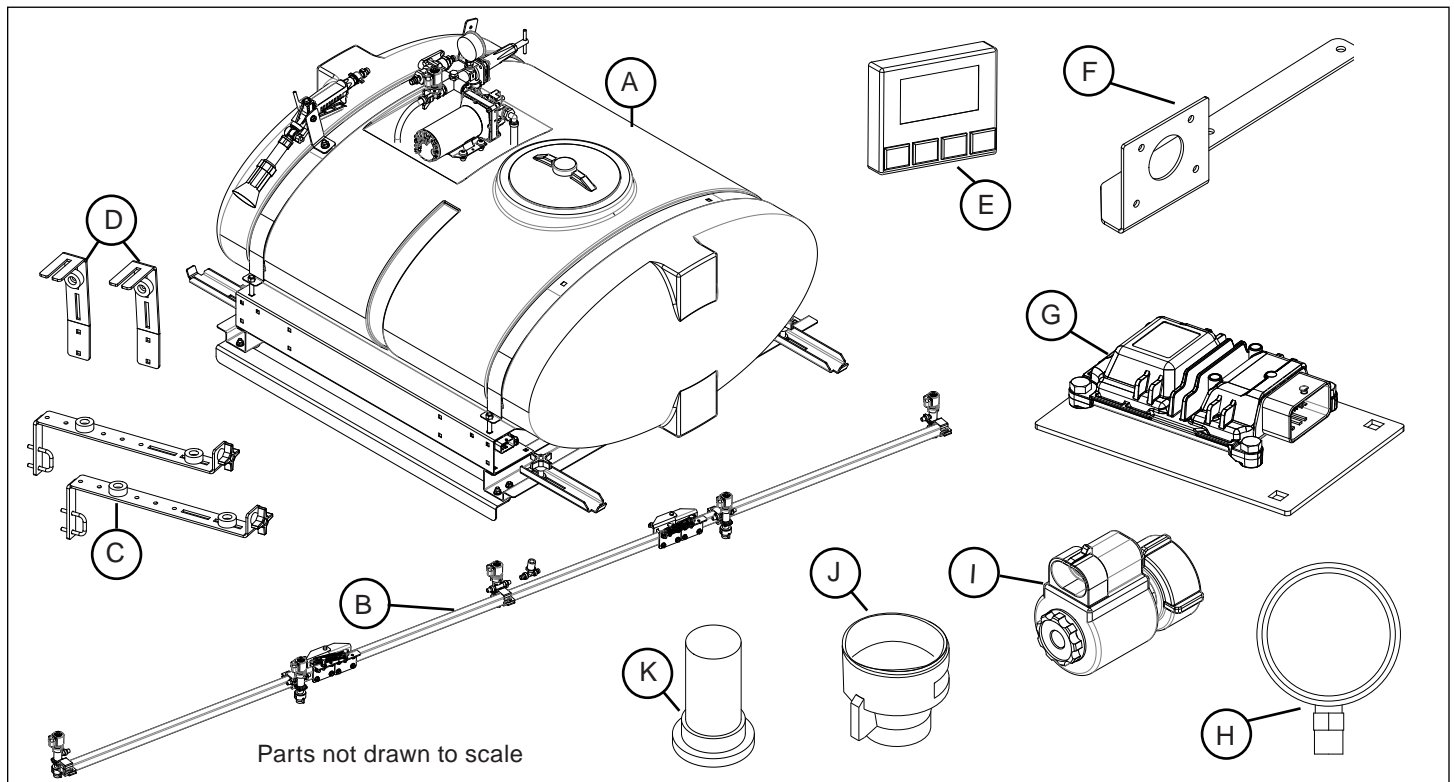
- Proper disposal of excess spray material is very important. If you have excess tank solution, it is best to dilute it with water and apply it to the area you previously treated.
- Never dump solution into a drain or near a lake or stream.
- Chemicals containers should be triple-rinsed, with the rinse water added to the sprayer tank.
- Do not burn empty chemical containers. Dispose of containers at recycling centers.

Handling Waste Product and Chemicals

- Waste products, such as, used oil, fuel, coolant, brake fluid, and batteries, can harm the environment and people:
- Do not use beverage containers for waste fluids - someone may drink from them.
- See your local Recycling Center or authorized dealer to learn how to recycle or get rid of waste products.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the MSDS for that product.

Assembly

Identify Parts and Assemble



Main Components

	Description	Qty
A	Sprayer Assembly	1
B	Sprayer Boom Assembly	1

Components

	Description	Qty
C	Outer Boom Support Assembly	2
D	Inner Boom Support Assembly	2
E	Display	1
F	Display Mounting Plate	1
G	Controller and Mounting Plate	1
H	Pressure Gauge	1
I	Solenoids	6
J	Spray Tips	5
K	Spray Tip Screen	5
	Sprayer Wire Harness	1
	Chassis Wire Harness	1
	Display Wire Harness	1
	M6x25mm Screws	2
	Wire Harness Clip	4
	Cable Ties	10
	5/16" Carriage Bolt	1
	5/16" Flange Nut	1

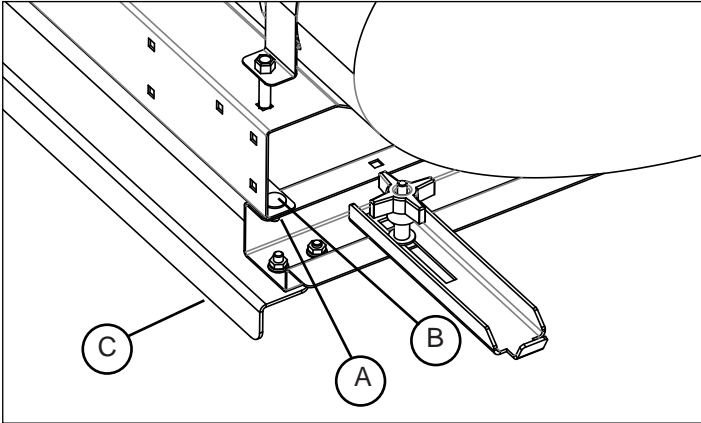
Assembly

Preparing Vehicle

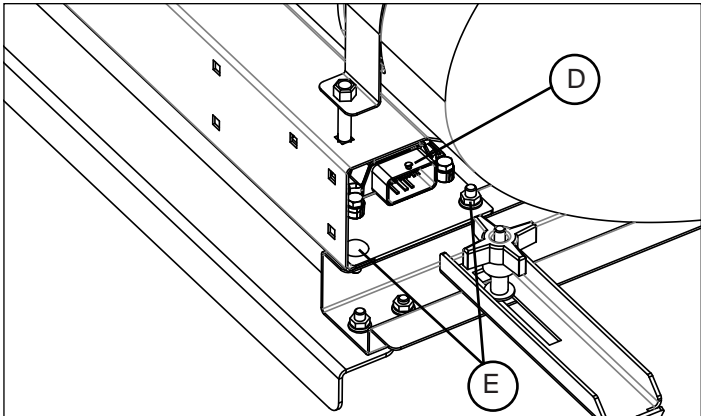
Make sure machine tire pressure is correct for attachment weight. (See your machine operator's manual for the correct pressure.) Filled sprayer weight is 839 lbs.

Assembly

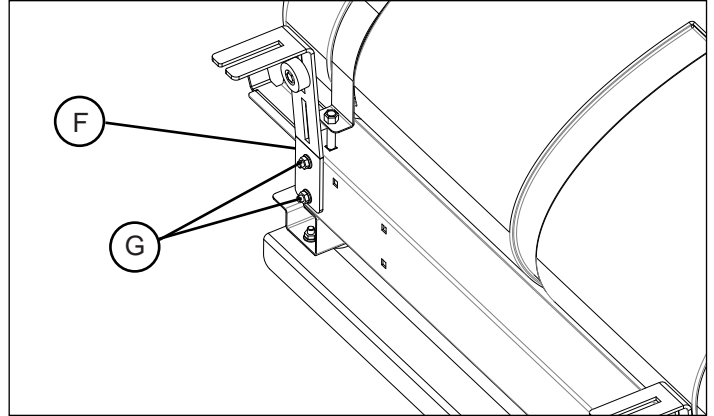
1. Using a 1/2" wrench, remove 5/16" nut (A) and 5/16"x .75" carriage bolt (B) from rear right corner of the sprayer frame. The rear of the sprayer is the side with the angle (C).



2. Slide controller and mounting plate (D) in between the frame and install 5/16"x .75" carriage bolt (E) and 5/16" flange nut into the sprayer frame.

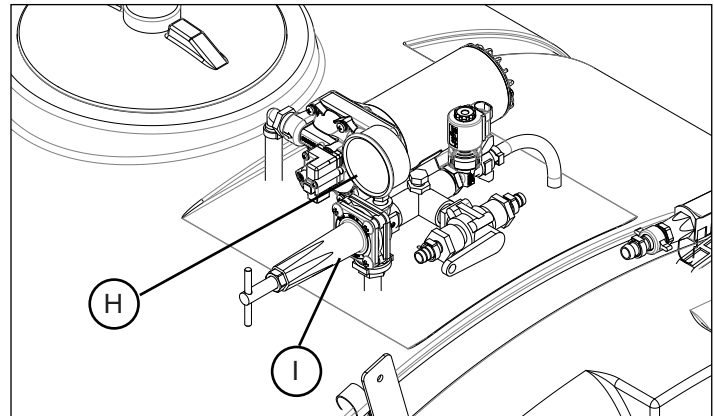


3. Assemble Inner Boom Supports (F) to rear of sprayer assembly using 5/16" carriage bolts (G) and 5/16" flange nuts.



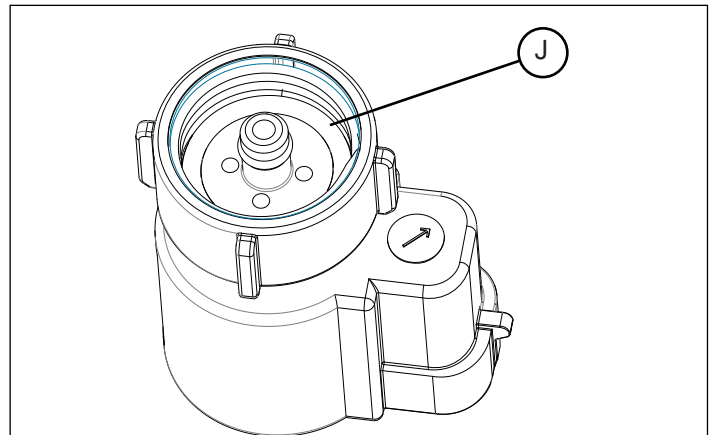
Install Pressure Gauge

1. Install the pressure gauge (H) into the pressure relief valve (I).



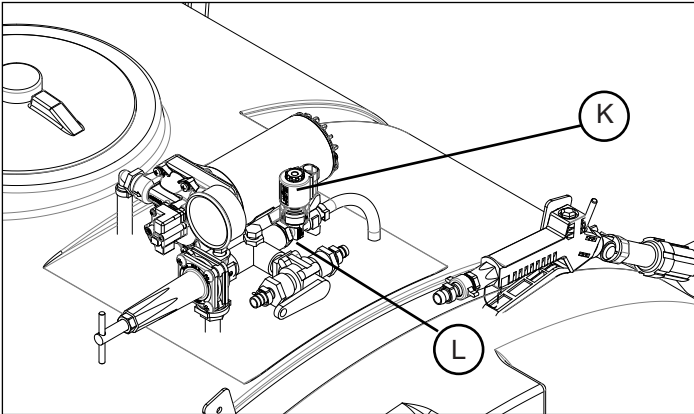
Install Bypass Valve Solenoid

1. Remove the O-ring from the back of the solenoid and install into the screw cap (J).



Assembly

2. Screw solenoid (K) into the bypass valve (L) insuring that the o-ring seats properly.

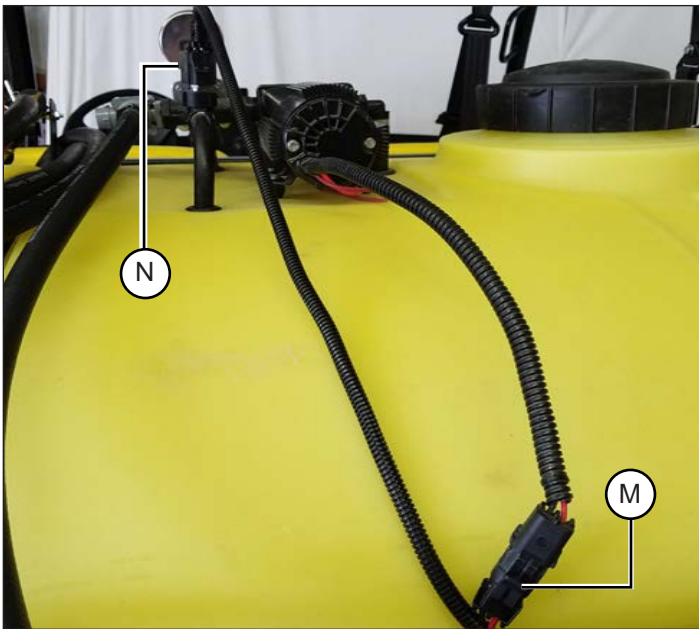


3. Zip tie the sprayer harness (Q) to the right side inner boom support (R).

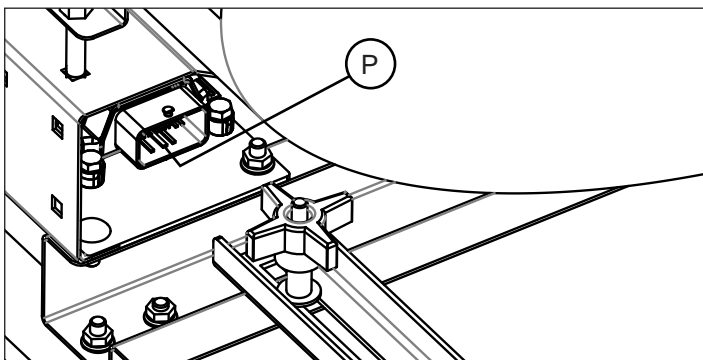


Connect The Sprayer Wire Harness

1. Plug in the pump (M) and the bypass valve (N) to the sprayer harness.



2. Connect the sprayer harness to the controller (P).

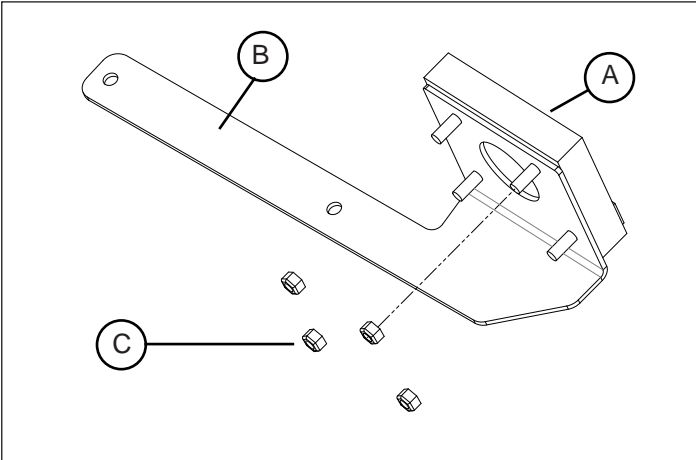


Installation

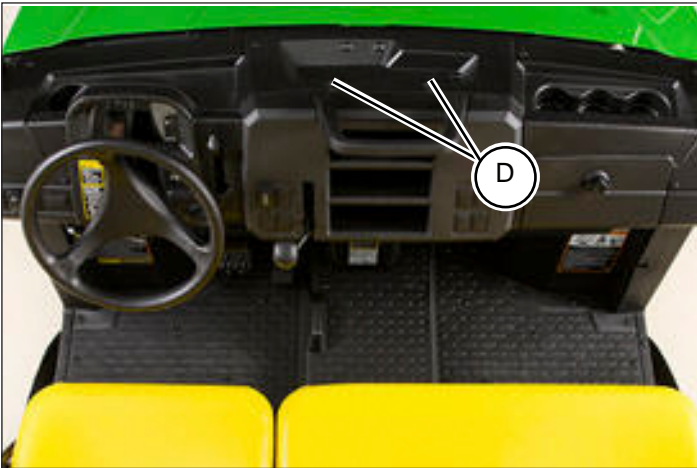
NOTE: CAN Bridge Kit must be programmed with the latest firmware from John Deere prior to installation. Failure to update or install firmware will prevent the sprayer from operating

Installing Display

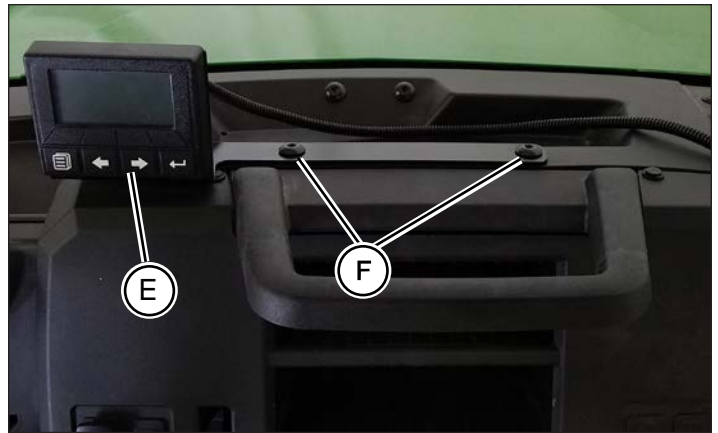
1. Mount display (A) to the bracket (B) using the four M6 nuts (C).



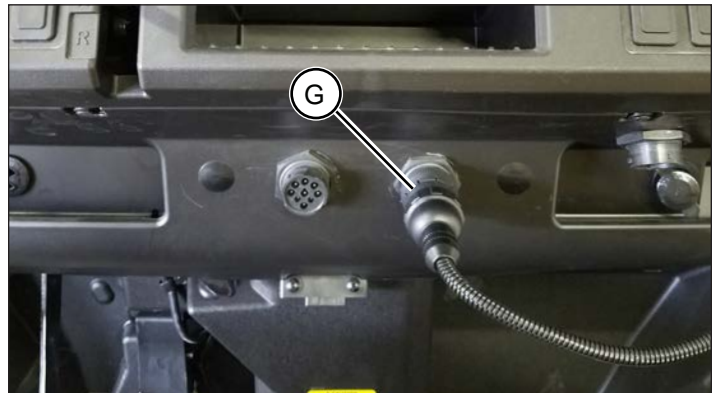
2. Remove the two M6x20 screws (D) from the top center of the dash.



3. Mount the display and bracket (E) with two M6x25 screws (F).

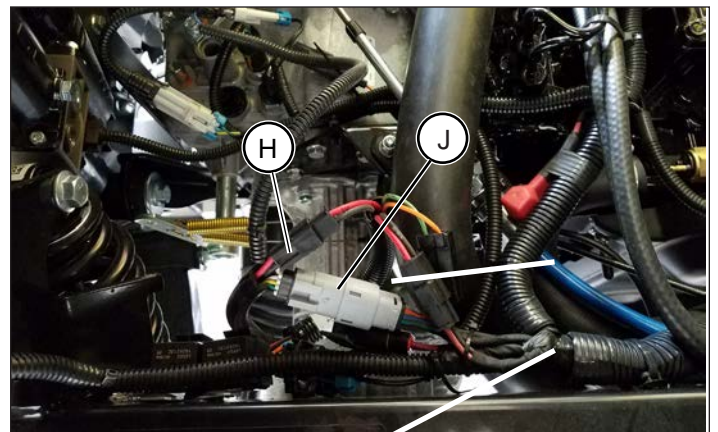


4. Connect the dash harness to the back of the display and the rear dash port plug (G).



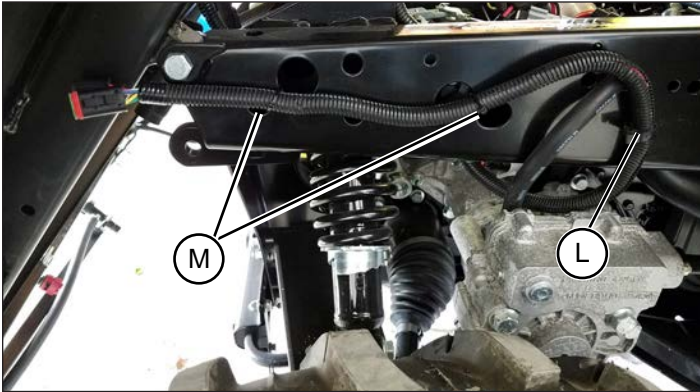
Vehicle Wiring Installation

1. Raise the cargo box.
2. On the inside of the passenger side frame rail, attach the chassis harness to the power plug (H) and data plug (J).



Installation

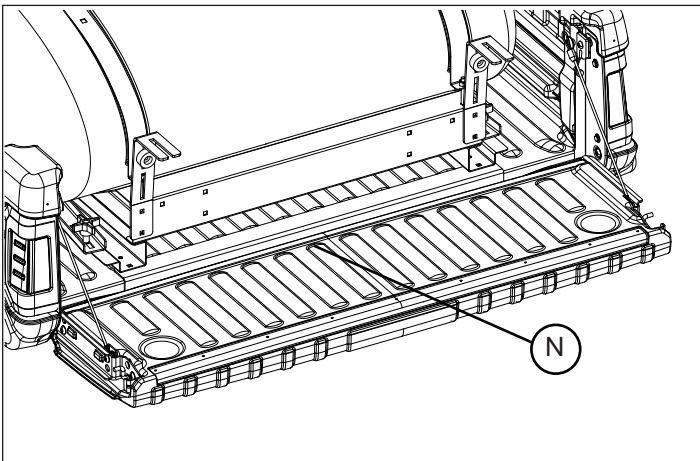
3. Route the chassis harness under the frame and towards the rear of the vehicle frame. Secure the harness using the provided harness clips (L) and cable ties (M).



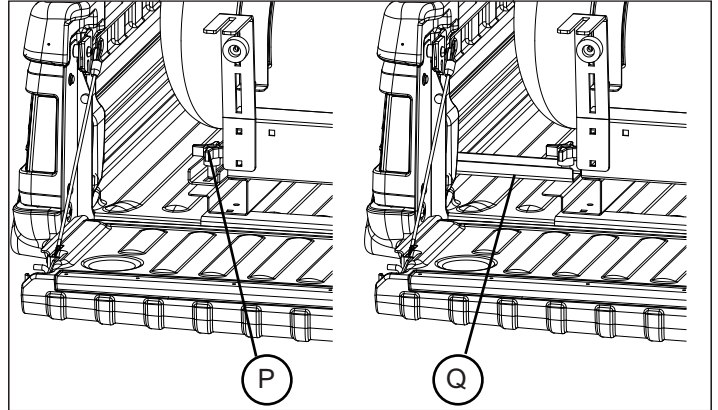
4. Make sure the chassis harness is clear of the rear tire, suspension, exhaust, and the pinch point of the cargo box.
5. Lower the cargo box.

Sprayer Installation

1. Lower tailgate, center sprayer in utility vehicle bed with rear channel lip (N) inserted between bed and tailgate. Be sure lip is tight against bed.



2. Loosen lock knobs (P) at each corner of the frame, rotate and extend locking channel (Q) until lip is under cargo mount anchor and re-tighten lock knobs.



3. Close tailgate.

Connecting Sprayer Wire Harness

1. Route the sprayer harness (R) over the tailgate.



2. Insert the wire harness clip (T) into the cargo box frame as shown.

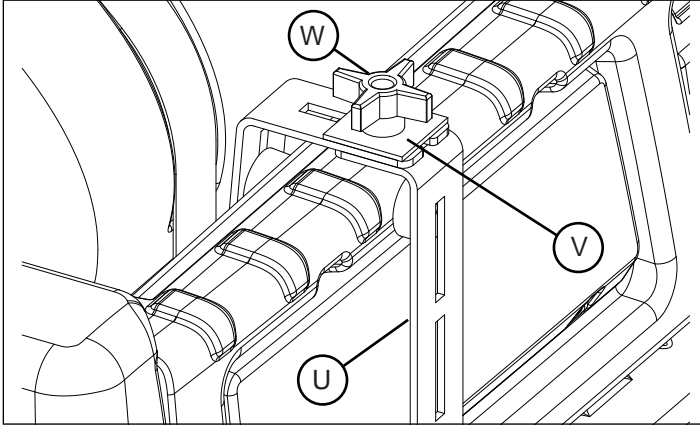


3. Plug sprayer harness into chassis harness. Secure the harness to the underside of the cargo box using the wire harness clip.

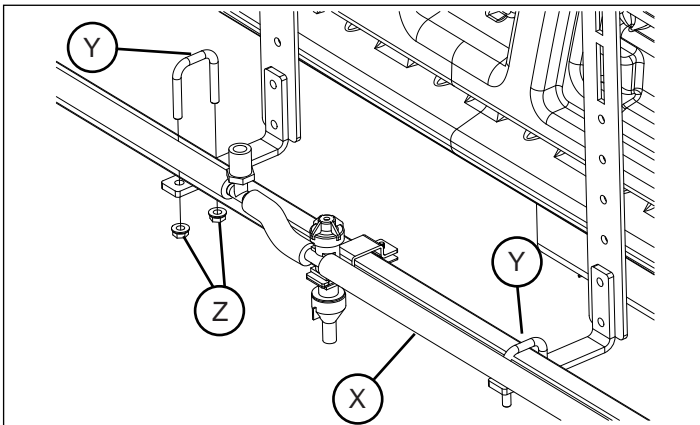
Installation

Mounting The Boom

1. Position the outer boom support (U) below the inner boom support with the square plate (V) on top. Push it as far into the slot as possible and tighten the lock knob(W).



2. Install boom (X) as shown using two U-bolts (Y) and four 5/16" flange nuts (Z).



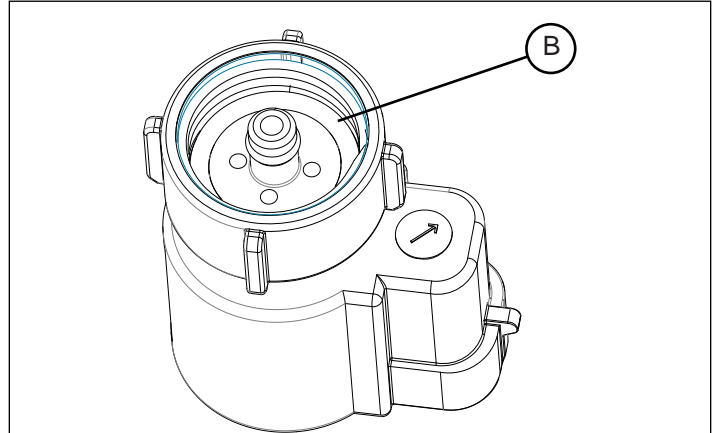
3. Mount the boom harness plug (A) to the right boom by removing the 5/16" flange nut, inserting the mounting tab, and re-tightening the 5/16" flange nut. Connect the sprayer wire harness to the boom harness.



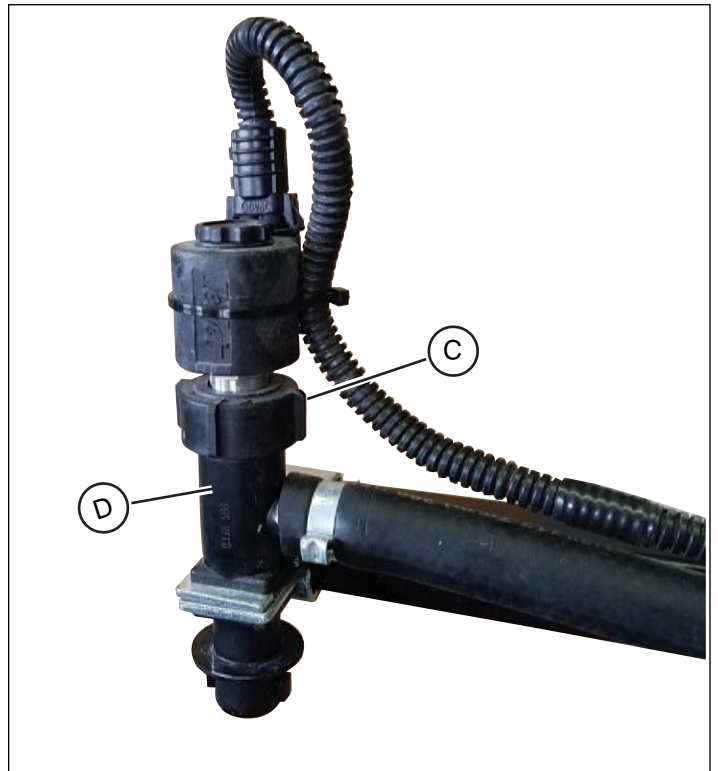
4. Connect the sprayer boom hose to the spray boom T fitting.

Installing Spray Tip Solenoids

1. Remove the O-ring from the back of the solenoid and install into the screw cap (B).



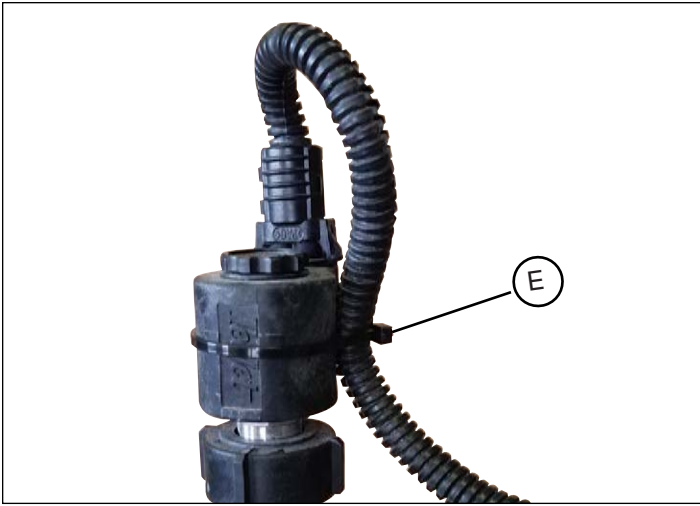
2. Screw solenoid (C) onto the nozzle body (D) insuring that the o-ring seats properly.



3. Plug the boom harness into the solenoid.

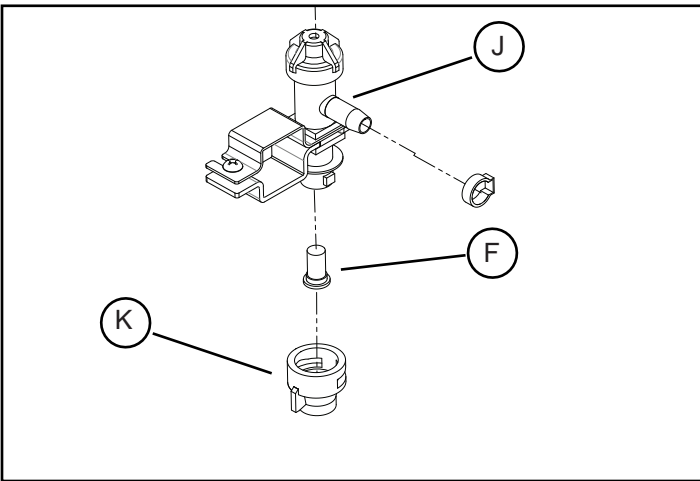
Installation

4. Secure the wire pigtail to the solenoid using a cable tie (E).



Install Spray Tips

1. Insert spray tip screen (F) into the nozzle body (J).



2. Twist spray tip (K) on to the nozzle body.

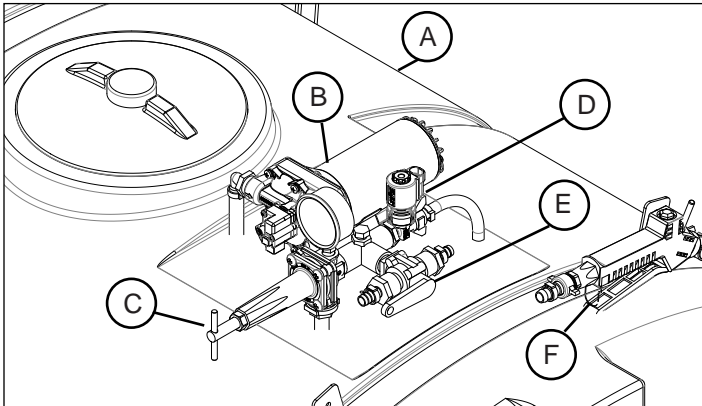
Operation

Vehicle Setup

Operator must verify that the correct tire size is selected in the vehicle settings. Refer to the vehicle operators manual to properly set vehicle tire size.

NOTE: Use of a tire size outside of the available selections or a wrong selection will result in inaccurate application of spray material.

Sprayer Components



	Description
A	Tank
B	Pump
C	Manual Pressure Relief/ Regulator
D	Solenoid Control Bypass Valve
E	Boom or Spray Wand Select Valve
F	Spray Wand

Tank

90-gallon non-potable tank.

Pump

The sprayer is equipped with a 5.3 gpm pump. Flow rate is at open flow (0 psi). The 5.3 gpm pump is sized to supply five (5) 0.6 gpm spray tips (gray color) at or above 40 psi with the regulator fully closed and the vehicle engine running above idle.

This pump is activated by a relay controlled by the sprayer controller.

NOTE: The vehicle engine needs to be running when testing pump flow.

PSI	GPM	Liter/Min	Amps
0	5.3	20.1	6.5
10	4.7	17.8	9.0
20	4.3	16.3	11.8
30	4.1	15.5	12.4
40	3.8	14.4	14.0
50	3.6	13.6	15.4
60	3.4	12.9	17.0

See Troubleshooting Section for more information if the pump is not working properly.

Manual Pressure Relief Valve

The sprayer is equipped with a manual pressure relief valve to set the nominal spray pressure at 100% Duty Cycle.

Solenoid Controlled Bypass Valve

The sprayer is equipped with a solenoid-controlled bypass valve. The bypass valve routes excess flow back to the tank when the spray tip duty cycle is below 100%. This is used to equalize the boom pressure and stabilize operation.

The bypass solenoid valve will click rapidly when the controller is first turned on. This confirms the controller has power. See Troubleshooting Section for more information if sprayer is not working properly.

Sprayer Select Valve

This valve directs fluid to the spray boom or the spray wand. The direction the handle is pointing is the direction of flow.

Spray Boom

The tip spacing is 30" for a total spray width of 150".

The boom features a "break-away" section on either side. This allows the boom to swing back when it contacts an object. Care should still be taken when spraying around stationary objects. The boom does not swing forwards. Damage to boom will occur if boom hits an obstruction when vehicle is traveling in reverse.

PWM Solenoid Valves

The PWM Solenoid valves replace the diaphragm caps typically used on the nozzle bodies. These valves "pulse" (open and close rapidly) to control the spray rate. At faster speeds the valves are open longer; at slower speeds they are open for less time.

Under most circumstances (i.e. in between fully closed and fully open) these valves will click audibly when they are functioning.

Operation

Spray Tips

0.6 gpm (gray) TeeJet XRC spray tips (TeeJet XRC11006-VP) are installed from the factory. Spray tips may be replaced with other sizes and types of tips with the following requirements:

- Tips with 110° spray angle should be used.
- Tips must be compatible with TeeJet ¼-turn (quick-connect) nozzle bodies.
- Air Induction (AI) tips are not compatible with PWM spray systems.
- A twin / dual fan tip cannot be used. It will leave spray material on the vehicle due to the close proximity of the boom.

The sprayer supports the following spray tip sizes

- 0.4 gpm (red)
- 0.5 gpm (brown)
- 0.6 gpm (gray)
- 0.8 gpm (white)

Spray Wand

The sprayer is equipped with a spray wand for manual application away from the vehicle. See Operating Modes for how to use the spray wand.

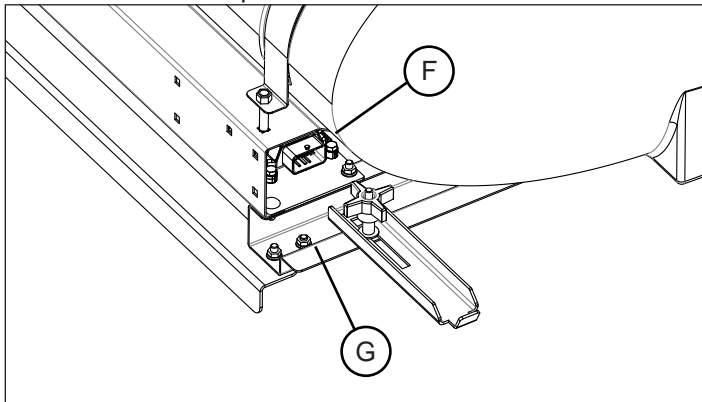
Display

The display is a 4 button display for setting and controlling sprayer functions.

The display will turn on with the key switch. See Troubleshooting section if display does not turn on or if any errors appear. "Connect Attachment Cable" will appear on screen if the sprayer controller is not detected.

Controller

The sprayer controller (F) is located on the right/passenger's side of the rear sprayer frame (G). There are no serviceable components in the controller.



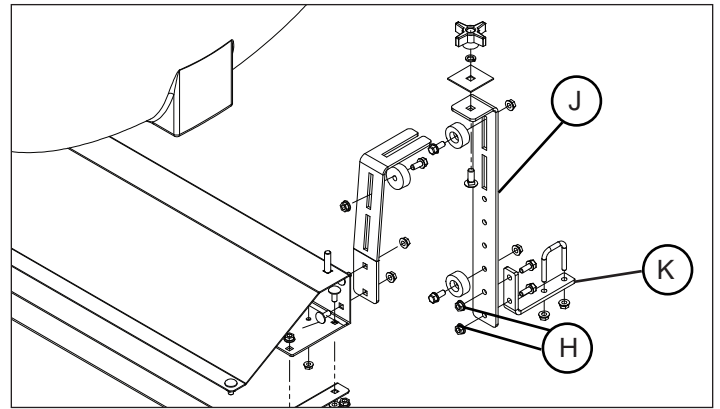
Sprayer Setup

Adjusting Spray Boom Height

The spray boom height should not fall below a minimum spray height of 22 inches to the target. To check the spray boom height, measure from the spray tip to the top of the target. Adjust the spray boom height as necessary to exceed the minimum spray height.

To Adjust the spray boom height:

1. Remove the nuts (H) fastening the outer boom brackets (J) to the angle brackets (K).



2. Raise or lower the boom as needed to adjust the spray boom height.
3. Reinstall bolts and tighten.

Spray boom and Vehicle Speed Range

The sprayer can apply a consistent rate of spray solution between a range of speeds allowing for operators to maneuver around obstacles without over applying spray solution.

The operational speed range of the sprayer is adjusted by increasing or decreasing the desired max speed in the display menu. The user should not exceed the maximum speed during operation to allow for proper application of the spray solution rate. The sprayer can only compensate the application rate of the spray solution when operating at or below the maximum speed that is selected.

Do not exceed the maximum spraying speed.

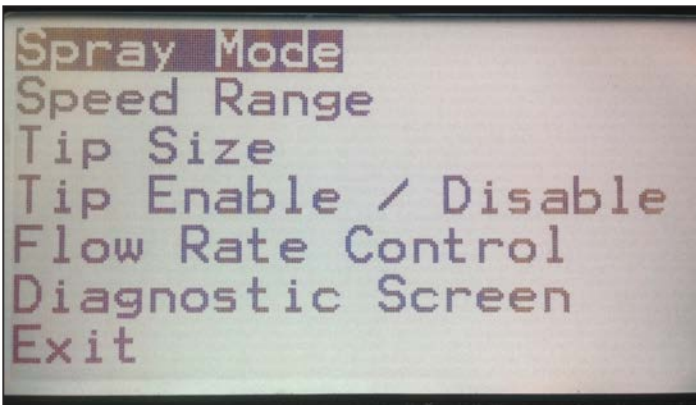
The maximum speed is determined by the spray tip calibration chart. If a different operating speed range is desired, use the spray tip calibration chart to select a new maximum speed in the display menu.

Operation

Using the Display



Menu Structure



Display On Screen Messages

Connect Attachment Cable - This message is displayed when there is open circuit between the controller and the display. Ensure that all harnesses are installed correctly and are fully seated.

Communication Error - This message is displayed when there is a loss of communication with the controller. Power cycle the ignition key. Check all connections.

Lost connection to vehicle - This message is displayed when there is a loss in communication with the vehicle. Check all connections.

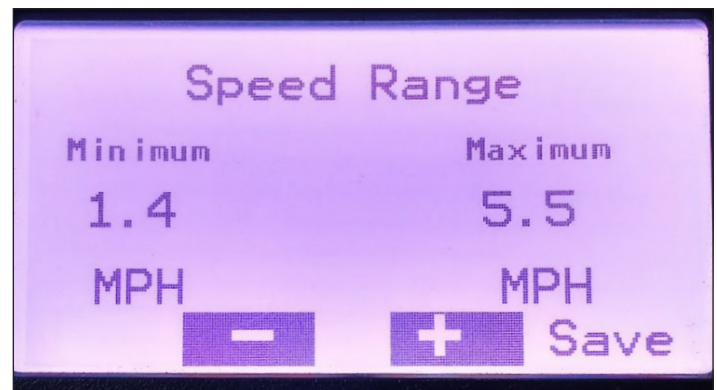
Manual Mode - This message is displayed when operating the sprayer at a fixed flow rate. To return to automatic control press the menu button, then use the arrow keys to select "Flow Rate Control", press enter, use the arrows to select "Auto" press enter.

Setting max speed

1. Using the supplied spray tip calibration chart, determine the maximum spraying speed(mph) based on tip size, spray pressure, and target application rate.
2. Set the max speed on the speed range page using the Dash Display.

Setting/Adjusting Speed Range

3. Press the main menu button.
4. Select "Speed Range".
5. Increase/Decrease the speed range.
6. Press save to exit.



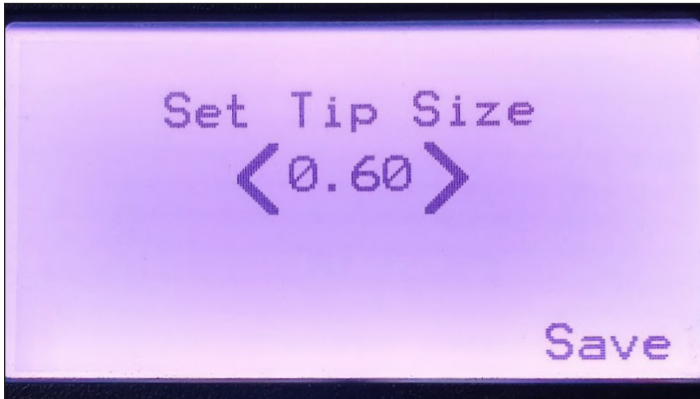
Setting Spray Tip Size

The supplied spray tip size is 0.6 gpm (gray). The sprayer supports the additional following spray tip sizes: 0.4 gpm (Red), 0.5 gpm (Brown) and 0.8 gpm (White). The correct tip size must be selected using the Dash Display for the sprayer calibration to be correct.

Operation

Setting/Adjusting Spray Tip Size

1. Press the main menu button.
2. Select "Tip Size".
3. Increase/Decrease the tip size.
4. Press save to exit.



Enable/Disable Spray Tips

The spray tips can be individually controlled to be enabled or disabled. On the tip enable/disable page of the menu, the user can turn the spray tips on or off.

NOTE: Do not use air induction spray tips with this sprayer.

NOTE: Any time the boom valves or spray tips are enabled/disabled, the sprayer operating pressure must be re-calibrated.

Enabling/Disabling Spray Tips

1. Press the main menu button.
2. Select "Tip Enable/Disable".
3. Use the arrow keys to highlight the tip you want to enable/disable. Spray tip 1 starts on the driver side of the vehicle.
4. Press the enter key to enable or disable the selected spray tip. The spray image will change to indicate if the tip is enabled/disabled.
5. Use the arrow key to highlight save and press the enter key to save and exit.



Flow Rate Control

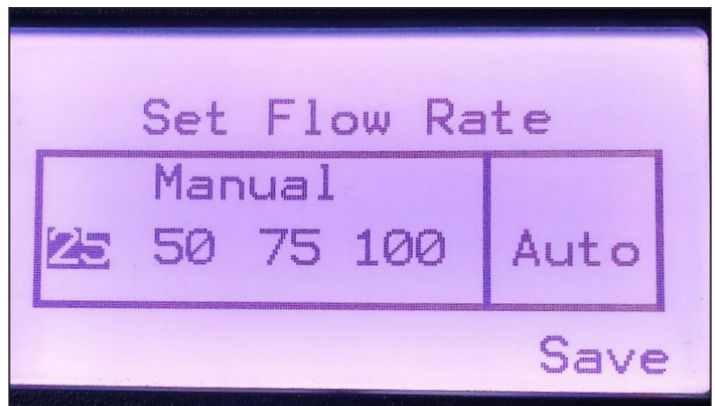
The flow rate can be adjusted based on the sprayer mode and desired application rate. Manual flow rate sets a fixed duty cycle of the spray tips.

NOTE: manual rates will not adjust the application rate based on the vehicle speed.

Auto Flow rate must be used to have the application rate adjusted based on vehicle speed.

Adjusting Flow Rate Control

1. Press the main menu button.
2. Select "Flow Rate Control".
3. Use the arrow keys to highlight the flow rate setting you would like to select.
4. Press the enter key to save and exit.



Adjusting Pressure on Sprayer

Pressure is adjusted by turning the relief valve until the desired pressure is shown on the pressure gauge. Pressure will drop when operating the spray wand or spray boom. It is required to set the pressure during the operation condition to achieve the proper application rates. See Calibrating the Sprayer section.

Operation

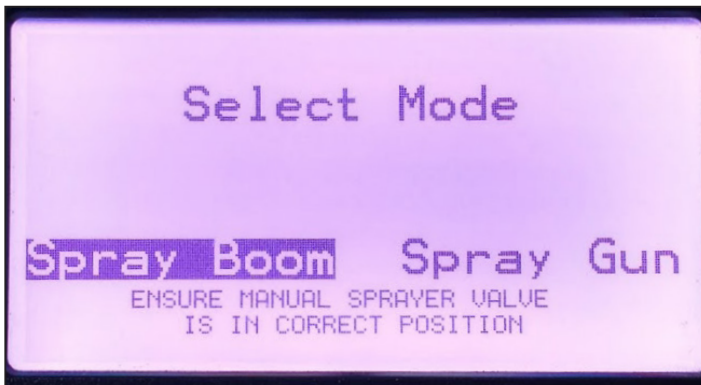
Spraying Modes

Spray mode is used to switch between using the spray boom or the spray wand.

Selecting Wand or Boom Sprayer Mode

1. Press the main menu button.
2. Select "Spray Mode".
3. Select either "Spray Boom" or "Spray Wand".

NOTE: User must also manually adjust the selector valve to direct the flow to the desired spray boom or spray wand.



Sprayer Operation

Boom Spray Pattern

The correct amount of "overlap" between passes is achieved by having the outer spray tip 30" from the location of the outer tip of the previous pass. If done properly, this will cause a slight overlap of spray material. This is normal. Some operators may find it helpful to spray a few passes of water on dry pavement to get a feel for the correct amount of overlap. (The tire tracks from the previous pass can also serve as a rough visual guide).

To spray a given area, one technique is spray around the perimeter at least twice and then spray back-and-forth starting at the longest side of the field.

Filling Sprayer Tank

NOTE: When filling tank, consider area to be sprayed and amount of solution required to complete the task.

IMPORTANT: Avoid damage! Clean any Spills Immediately with clean water prior to operating the sprayer.



CAUTION: Avoid injury! Chemicals can be dangerous. Avoid injury to operator or bystanders:

- Read chemical container label for mixing and handling instructions. A Material Safety Data Sheet (MSDS) should be supplied by the chemical dealer and provides proper safety information.
- Wear proper clothing and safety equipment while handling or applying spray chemicals.
- Wear a full covering of clothing, protective goggles and rubber gloves.
- Prohibit all smoking, drinking, and eating around chemicals.
- When filling tank, never allow end of water hose to contact chemical mixture.

1. Clean area around tank filler cap to prevent tank contamination.
2. Remove tank filler cap and fill tank.
3. Install tank filler cap.

Directing Flow to Spray Boom

Turn the sprayer select valve to direct flow to the spray boom.

Starting And Stopping Sprayer

Operating Spray Boom

To operate the spray boom:

1. Turn the manual spray select valve handle toward the spray boom.
2. Press the main menu button.
3. Select "Spray Mode".
4. Select "Spray Boom".
5. The spray boom can be turned on and off. The spray boom will begin spraying once the vehicle begins to move. If the vehicle comes to a stop the spray boom will stop spraying.

NOTE: Turn off spray boom when turning around to prevent applying spray material twice to the perimeter of area being treated.

Operation

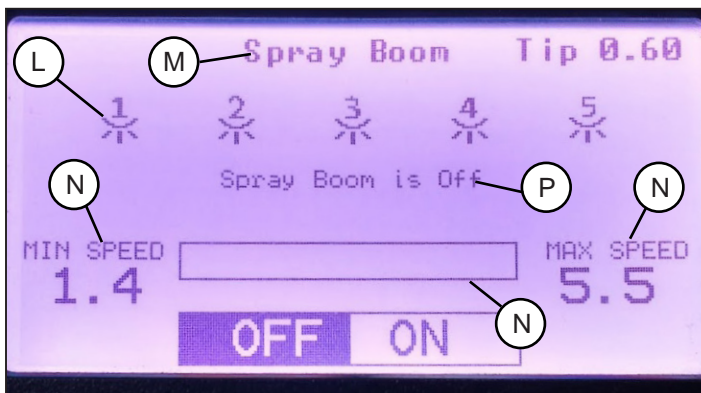
CAUTION: Avoid injury! Standing in a machine while it is moving can result in loss of balance and falling from machine

Never operate machine while standing. For machines that can carry passengers, the passengers must remain seated at all times.



IMPORTANT: Avoid damage! Operate sprayer with transport vehicle running to avoid discharging the battery.

Display Screen



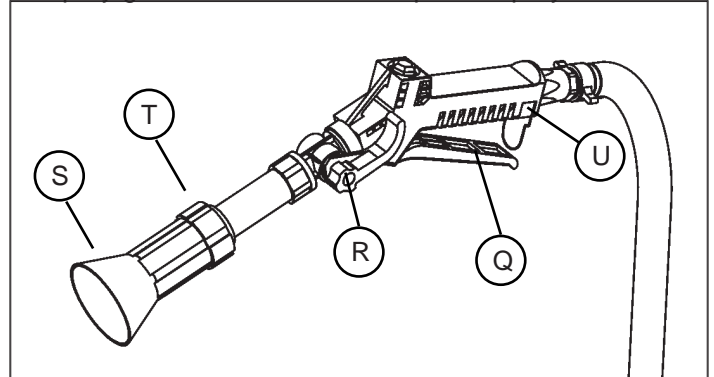
- Tip Status (L)
- Spray Mode (M)
- Min/Max Speed Indication (N)
- Flow Rate (P)

Operating Spray Wand

NOTE: It is not recommended to use spray wand while operating the machine. Turn machine on for spray wand use, but do not maneuver machine unless spray wand and hose are in normal storage position on the tank.

1. Turn the manual spray select valve handle toward the spray wand.
2. Press the main menu button.
3. Select "Spray Mode".
4. Select "Spray Wand".
5. Select "On" to activate spray wand.
6. Squeeze handle (Q) to spray.
7. Adjust spray pattern from cone to stream using lever (R).

8. Spray guard (S) can be adjusted by loosening (T) and sliding spray guard to desired position.
9. Spray guard is intended to keep over-spray off hands.



10. Flip handle lock (U) forward to lock handle in ON position.

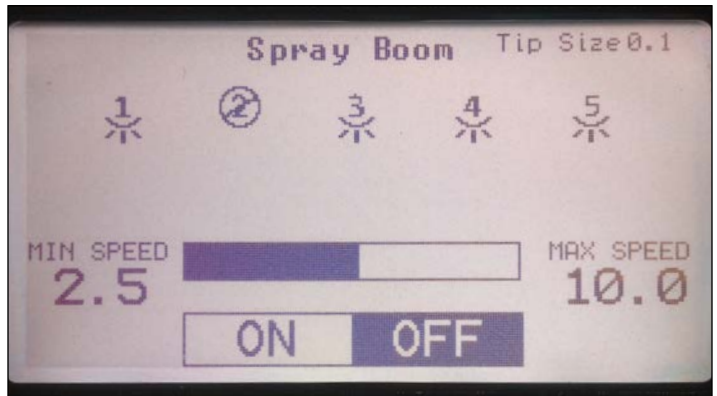
Display Messages during Operation

Under MIN Speed - This message is displayed on the spray boom page when the vehicle is spraying below the optimal range resulting in over application. It is normal for this message to be momentarily displayed when starting and stopping.

Over Max Speed - This message is displayed when the vehicle is spraying above the optimal range which will result in under application.

Tip Malfunction - This message will be displayed when there is a short or open circuit somewhere between the controller and the solenoid valve on the boom.

The tip icons indicate which tip has malfunctioned. See Troubleshooting section for additional information if sprayer is not working properly.



Operation

Bypass valve malfunction - This message is displayed when there is a short or open circuit between the controller and the bypass valve. See Troubleshooting section for additional information if sprayer is not working properly.

Calibration

Using Calibration Chart

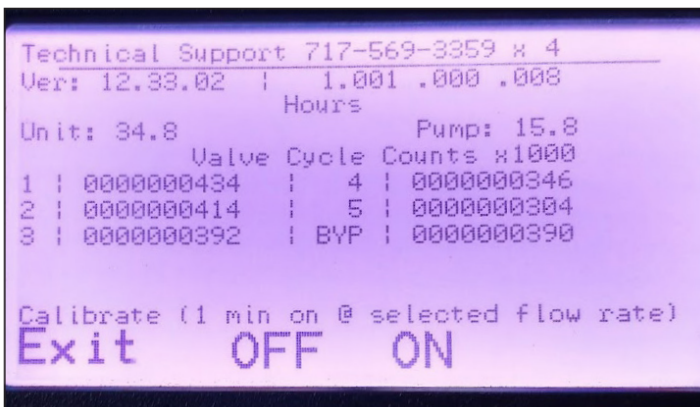
Using the calibration chart on page 21. With your desired gallons per acre (gpa) application rate, 40 psi operating pressure, and tip size to find your operating speed range. Adjust the speed range on the display to match the calibrated value from the spray chart.

Calibrating the Sprayer

NOTE: All calibration needs to be done with clean water. Vehicle needs to be idling during this calibration. Inspect sprayer for worn or broken components before calibrating.

To calibrate the sprayer:

1. Park safely with the vehicle idling in an area where clean water can be sprayed.
2. Adjust the sprayer select valve to direct flow to the spray boom.
3. Enter the diagnostic page in the menu.
4. Start the calibration test.



5. Adjust the relief valve to set the desired pressure. For spray boom operation, set the pressure to 40 psi.
6. Stop the calibration test.

The sprayer is now calibrated. To check the flow rate of the spray tips, see Service: Checking Spray Tips section.

Operation

Spray Tip Calibration Chart

Gallons Per Acre

Tip Size	Gage Pressure (PSI)	Rated GPM	PSI Drop Pressure Drop	Tip Pressure (PSI)	Tip Flow GPM	10 gpa		12 gpa		14 gpa		16 gpa		18 gpa		20 gpa		22 gpa		24 gpa		26 gpa	
						max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa
0.4	40	0.40	4	36	0.39	7.8	4.3	6.5	5.5	4.9	4.3	3.9	3.5	3.2	3.0								
0.5	40	0.50	5	35	0.47	9.4	5.2	7.8	6.7	5.9	5.2	4.7	4.3	3.9	3.6								
0.6	40	0.60	5	35	0.56	11.0	6.1	9.2	7.9	6.9	6.1	5.5	5.0	4.6	4.2								
0.8	30	0.69	6	24	0.61	12.1	6.7	10.1	8.7	7.6	6.7	6.1	5.5	5.1	4.7								

OGallons Per 1000ft²

Tip Size	Gage Pressure (PSI)	Rated GPM	PSI Drop Pressure Drop	Tip Pressure (PSI)	Tip Flow GPM	0.2 gal /1000ft ²		0.3 gal /1000ft ²		0.4 gal /1000ft ²		0.5 gal /1000ft ²		0.6 gal /1000ft ²		0.7 gal /1000ft ²		0.8 gal /1000ft ²		0.9 gal /1000ft ²		1.0 gal /1000ft ²	
						max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa	max mph	gpa
0.4	40	0.40	4	36	0.39	8.9	3.0	5.9	4.4	3.6	3.0	2.5	2.2	2.0	1.8								
0.5	40	0.50	5	35	0.47	10.7	3.6	7.2	5.4	4.3	3.6	3.1	2.7	2.4	2.1								
0.6	40	0.60	5	35	0.56	12.6	4.2	8.4	6.3	5.0	4.2	3.6	3.2	2.8	2.5								
0.8	30	0.69	6	24	0.61	13.9	4.6	9.3	6.9	5.6	4.6	4.0	3.5	3.1	2.8								

Removal and Storage

Draining and Cleaning Sprayer Tank

IMPORTANT: Avoid damage!

- Proper disposal of excess spray is very important. Dilute remaining liquid with water and apply it to area previously treated
- Never dump excess into storm drain or near lake or stream.



CAUTION: Avoid injury! To avoid chemical injury:

- Wear protective clothes, gloves and goggles when handling sprayer.
- Do not store Sprayer with chemicals in tank
- If spray comes in contact with your body, immediately follow directions on chemical container pertaining to spray material.

1. Dilute remaining material with water and apply to the area previously treated.
 - If excess material remains, empty material into an appropriate container for proper disposal using the spray wand and a low pressure setting.
2. Spray all inside surfaces of tank with low pressure garden hose to remove any remaining solution. Rinse several times to make sure sprayer tank is clean and free of chemicals.
3. Run fresh, clean water through pump, sprayer wand, spray boom and all hoses thoroughly after finishing application.
4. Once the tank is empty, wipe inside of sprayer tank with a clean cloth or towel.

NOTE: Leaving chemicals inside the sprayer after application will damage pump diaphragms corrode solenoid and spray tip components.

Be sure to drain hoses and spray wand to prevent damage caused by freezing of liquid in these components.

Lifting Sprayer Safely

- Use caution when lifting the sprayer to help prevent possible injury.
- Always empty tank before attempting to lift.

NOTE: Two people required to remove and install sprayer.

Removing Sprayer

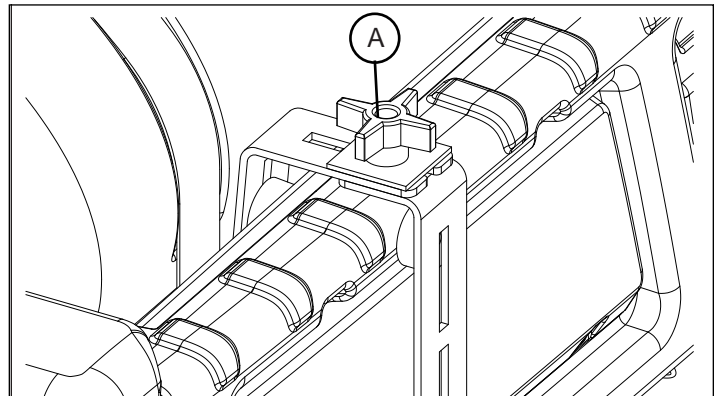
1. Park machine safely. (See Parking Safely in the Safety section.)



CAUTION: Avoid injury! To avoid chemical injury:

- Wear protective clothes, gloves and goggles when handling sprayer.
- Do not store Sprayer with chemicals in tank
- If spray comes in contact with your body, immediately follow directions on chemical container pertaining to spray material.

2. Empty the spray tank. (See Dispose of Chemicals Properly in the Safety section).
3. Disconnect hose to sprayer boom.
4. Disconnect the sprayer boom harness plug.
5. Fold boom.
6. Loosen locking knobs (A) at top of boom support brackets. Remove boom.



7. Disconnect the sprayer wire harness at the rear end of the passenger frame.
8. Unclip the harness from the underside of the cargo bed. Roll up harness and keep with sprayer.
9. Open the cargo box tailgate.
10. Loosen locking knobs at four corners of the sprayer frame. Remove anchor channels from cargo box anchors and rotate 90 degrees and tighten locking knobs.
11. Slide sprayer rearward and remove from the cargo box.

Removal and Storage

Store Sprayer Safely



CAUTION: Avoid injury! To avoid chemical injury:

- **Wear protective clothes, gloves and goggles when handling sprayer.**
- **Do not store Sprayer with chemicals in tank**
- **If spray comes in contact with your body, immediately follow directions on chemical container pertaining to spray material.**

1. Pump all spray material from tank. (See Dispose of Chemicals Properly in the SAFETY section.)
2. Rinse tank, pump, spray wand, spray boom and all hoses thoroughly with fresh clean water.
3. Repeat step 2 several times.
4. Wipe out sump with a clean cloth or towel.
5. Drain spray wand, all hoses and pump filter. Remove spray tips and spray solenoids and drain spray boom.
6. Check sprayer for worn or damaged parts. Replace parts as needed.
7. Tighten loose hardware.
8. Store sprayer in a place where it will not freeze.
9. If unit is to be stored in an unheated environment, run RV Antifreeze or windshield washer through spray wand and nozzles to ensure cold water protection.

Transporting Sprayer Safely

- Use caution when transporting the sprayer to help prevent possible injury.
- Turn off sprayer when transporting.
- When sprayer is filled with liquid, the extra weight on the back of a machine could change the stability of the machine.

Service

Checking Spray Tips

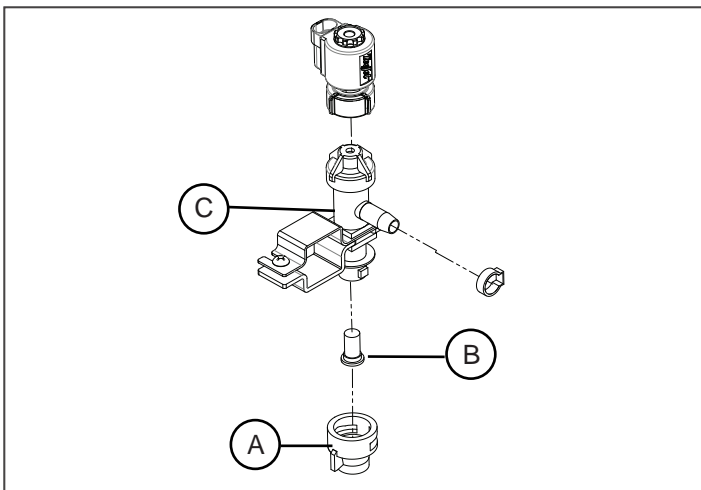
Check the flow rate of the spray nozzles to insure proper performance. You will need a measuring container(s) up to 1 gallon to collect the spray tip output. The calibration test will run for 1 minute. Compare the output of the spray tip to a new spray tip. If the flow rate is 10 percent greater or less than a new spray tip, replace the spray tip with a new one. If more than one spray tip is faulty, replace all spray tips.

Note: All calibrations need to be done with clean water. Vehicle needs to be idling during this calibration.

1. Place a measuring container under each spray tip to collect the water from each spray tip.
2. Press the main menu button.
3. Select "diagnostics page".
4. Press the "Diag On" button to begin the diagnostics test.
5. After 1 minute the sprayer will automatically turn off.
6. Measure the output of the spray tip to the output of a new spray tip.
7. If the volume difference is greater or less than 10%, replace the spray tip.

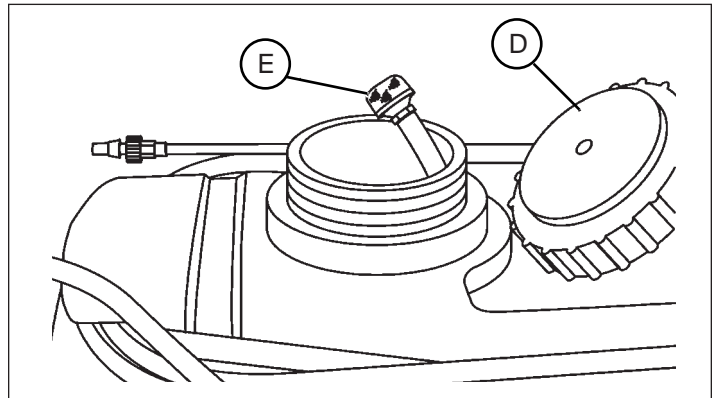
Cleaning Spray Nozzle

1. Remove spray nozzle (A) from spray boom.
2. Remove screen (B) from nozzle body (C) on boom. Replace screen if damaged.
3. Wash screen and spray tip with a non-flammable solvent.
4. Install screen (B) into nozzle body (C) on boom.
5. Install spray nozzle (A) on nozzle body (C).



Cleaning Pump Suction Screen

1. Remove tank lid (D).
2. Locate suction screen (E) inside sprayer tank.



3. If necessary, unscrew suction screen and clean with liquid detergent and warm water.
4. If suction screen was removed, reinstall it onto the suction hose and position the screen into spray tank sump.
5. Install tank lid.

Troubleshooting

Using Troubleshooting Chart

If you are experiencing a problem that is not listed in this chart, see your authorized dealer for service. When you have checked all the possible causes listed and you are still experiencing the problem, see your authorized dealer.

Symptoms	Additional Info	Sprayer Function	Check or Test
Display does not turn on	No text or back-light on display	No Functions	<ul style="list-style-type: none"> Remove front wire harness. Check for +12V at Pins A and J at Rear Connection Attachment point. If no voltage, vehicle has insufficient power or ground connection. If +12V, check for +12V at pins 1 and 2 on display side of connector. If no voltage, replace wire harness. If +12V, display is faulty. Replace display
"Connect attachment" is displayed on screen and bypass solenoid does not click when key is turned on	No power to rear Controller	All outputs and menus disabled	<ul style="list-style-type: none"> Check for +12V at controller pins M1 and M4 Fuse on Gator Harness Gator harness connection Rear attachment connection
"Connect attachment" is displayed on screen and bypass solenoid clicks when key is switched on	No CAN communication between controller and display	All outputs and menus disabled	<ul style="list-style-type: none"> Front attachment connection Rear attachment connection Check continuity from controller pin A2 to rear attachment pin 3 Check continuity from controller pin C2 to rear attachment pin 4
"Lost Connection to Vehicle" is displayed on screen.	Not receiving information from vehicle	All outputs and menus disabled	<ul style="list-style-type: none"> Cycle Ignition key Front attachment connection Rear attachment connection
No vehicle CAN to controller	Display: "No vehicle speed data"	All outputs and menus disabled	<ul style="list-style-type: none"> CAN Bridge not programmed or latest firmware not installed (Contact your local John Deere Dealer) Rear attachment connection Check continuity from controller pin A2 to rear attachment pin 3 Check continuity from controller pin C2 to rear attachment pin 4

Troubleshooting

Symptoms	Additional Info	Sprayer Function	Check or Test
One or more solenoids does not fire at all	If open/short, the circle with slash will display at the appropriate tip	No output at tip, no "clicking"	<ul style="list-style-type: none"> • Enable any disabled spray tips. <p>If error (circle with slash for a tip) shows on screen:</p> <ul style="list-style-type: none"> • Check connection • Unplug harness and check continuity of solenoid. If no continuity, replace solenoid • With solenoid attached, back probe terminals and check for +12V (if solenoid is not attached it is not possible to check properly) <p>If no error:</p> <ul style="list-style-type: none"> • Loosen nut slightly on top of coil. If not fixed, replace solenoid
One or more tips fires intermittently	See "One or more solenoids does not fire at all"		
Pump does not come on (but solenoids "click" when ON is pressed)	Display should show: "Pump malfunction" on main page and diagnostics page if output short or open	Pump on Bypass on Tips off	<ul style="list-style-type: none"> • Check pump relay
Display: "Intermittent CAN Communication" Diagnostics: Log CAN errors			Contact John Deere dealer
Pressure fluctuates as sprayer is operating	Pressure will increase slightly when Engine rpms increase		<p>For small pressure changes:</p> <ul style="list-style-type: none"> • Make sure jam nut is locked on manual regulator Pressure will increase slightly when engine rpms increase (~5 psi difference between idle and 2500 rpm with 0.6 size tips) • For large pressure changes Decrease pressure (40 psi or less) Does bypass valve "click" on start up? If not: <ol style="list-style-type: none"> a. Unplug pump and wire harness connection b. Turn key on e. Go to Spray Boom and press "On" d. With bypass valve attached, check for 12V across bypass valve leads (valve must be attached) • Confirm "Tip Size" accurately match tips used on sprayer • Confirm all tips are functioning <p>Check for plugged spray screens or worn tips (if less tips are desired to be used, disable in Tip Enable/Disable Menu).</p>

Troubleshooting

Troubleshooting Chart For Sprayer Pump

If you are experiencing a problem that is not listed in this chart, see your authorized dealer for service. When you have checked all the possible causes listed and you are still experiencing the problem, see your authorized dealer.

Symptoms	Possible Cause	Check or Test
Pump motor not operating when 12V power is ON	<ul style="list-style-type: none"> • Battery power is low or insufficient • Pump pressure switch is shut off due to upper psi limit <ul style="list-style-type: none"> • Blown fuse • Loose wire connection through either “battery wire harness switch, Wire harness switch or “remote receiver box“. • Pump motor or switch has failed 	<ul style="list-style-type: none"> • Test the sprayer pump with vehicle engine running • Release pressure from hand wand by putting the wand into the tank and squeezing the trigger handle. • Check/replace 15 amp fuse in the “battery wire harness” • Using volt meter check for continuity through wire and harness • Replace the pump assembly
Pump is not pumping while the motor is operating	<ul style="list-style-type: none"> • Battery power supply is low or insufficient • Clogged or dirty suction filter screen. • Trapped air pocket on the discharge of the pump • Air lock in pump head or stuck diaphragm in pump head <ul style="list-style-type: none"> • Pump is bad 	<ul style="list-style-type: none"> • Test the sprayer pump with vehicle engine running. • Release pressure from hand wand by putting the wand tip into the tank and squeezing the trigger handle and hold it for about 30 seconds. • Clean the metal suction screen inside the tank using a soft wire brush. Replace the damaged screen / filter 1/2in Filter (ST43422) • Reach inside the tank and pull the suction hose out through the filler neck. Remove metal suction screen. Gravity fill or force feed suction line with garden hose while pump is running and wand trigger is activated. This will purge any air trapped in the pump head • Replace pump head only;
Pump is not generating pressure while the motor is operating	Recirculation valve is partially / fully open allowing pressure to bypass back into the tank	<ul style="list-style-type: none"> • Check inside to confirm that solution is flowing into the tank and adjust the recirculation valve to redirect flow / pressure into the wand or boom

Troubleshooting

Symptoms	Possible Cause	Check or Test
<p>Pump motor is cycling ON & OFF while the unit has continuous power.</p>	<p>This is a normal pump operation for On-Demand pressure switch pumps and does not harm the pump assembly</p>	
<p>Pump motor is operating and is very hot to the touch</p>	<p>Operation cycle of the pump is longer than 10 minutes</p>	<ul style="list-style-type: none"> • Pump surface temperature could range as specified below (ranges for pump performance at 10amp): -10min of constant operation - 80F–90F -15min of constant operation - 90F–100F -20min of constant operation - 100F–110F

Troubleshooting

Tip Malfunction

Most commonly there is an open circuit when the connector is not properly seated to the solenoid valve body. Remove the connector from the malfunctioning valve and check to make sure the connection is free of debris then reconnect the harness.

Bypass Valve Malfunction

Most commonly there is an open circuit when the connector is not properly seated to the solenoid valve body. Remove the connector from the malfunctioning valve and check to make sure the connection is free of debris then reconnect the harness.

Pump test specification:

The pump should run (5) 0.6 gpm spray tips (gray color) at or above 40 psi with the regulator fully closed and the vehicle engine running slightly above idle (i.e. set park brake, put transmission in neutral and give it a little gas to increase alternator voltage). This is best checked by using the calibration test feature. Pump pressure will be reduced if tips are worn or larger than 0.6 gpm are used.

If this is not achieved, perform the following:

1. Shut off other attachments that are drawing electrical power (lights, etc).
2. Confirm pump suction screen is below water line and is clean.
3. Confirm manual pressure relief valve is fully closed.
 - a. Open lid and check for bubbles coming from hose connected to manual pressure relief valve. Any flow through this hose will affect max pump pressure.
 - b. If manual pressure relief valve hose allows flow with valve completely closed, replace manual pressure relief valve..
4. Remove each tip screen and clean with soapy water and soft brush.
5. Check for worn tips- check each tip at 40 psi. If flow is greater than 10% of supplied chart value, tips need to be replaced.

If pump performance is still low:

1. Replace screens and install a 0.6 gpm spray tip (gray color) on each nozzle body.
2. Set parking brake and place transmission in neutral.
3. Start vehicle.
4. Select "Spray Boom" Mode from main menu.
5. Push Menu button (left-most button), navigate to Flow Rate Control. Set Duty Cycle to 100% (Manual).

Navigate to Tip Enable/Disable Menu and confirm all tips are ON. Exit Menu.

6. Turn sprayer ON (left arrow key).
7. Loosen jam nut and turn regulator clockwise to increase pressure. Turn until regulator adjustment stops.
8. If pressure is at or above 40 psi, test is complete and pump is OK. If not,
 - a. Empty sprayer of any spray material and fill with water.
 - b. Disconnect boom hose and place in 5 gallon bucket.
 - c. Turn vehicle on (park brake on and with transmission in neutral).
 - d. Navigate to "Spray Boom" mode.
 - e. Set rate to Manual, 100% in Flow Rate Control.
 - f. Confirm manual pressure relief valve is tightened against the stop. (Loosen jam nut completely and turn handle clockwise)
 - g. Run sprayer for 30 seconds. Sprayer should output 2 gallons in 25 seconds.
 - h. Reattach boom.
 - i. If output is OK, tips are worn or broken.
9. If pump output is low,
 - a. Set park brake, place transmission in neutral and start vehicle.
 - b. Turn off sprayer (and any additional attachments).
 - c. Check battery voltage with vehicle running. Should be 13.5V Lower voltage will indicate charging system problem. This directly affects pump performance
 - d. Use voltmeter to check voltage at pump, with pump running. If voltage is less than 13.5V:
 - i. Listen to relay when system is turned on. If the relay makes a chattering sound, replace the relay.
 - ii. Turn vehicle on. Check voltage at relay pin 30 (input power). If voltage is lower than 12V, there is a bad connection in the harness. Check connection to vehicle and controller. If problem continues, replace harness.
 - iii. With pump running, check voltage between relay out pins. If voltage is greater than XX volts, replace relay.
10. If voltage is OK at pump connection, pump motor and/or pump head are damaged. Replace pump motor and/or pump head.

Specifications

Sprayer	
Tank	330 L (87 gallon)
Pump	
Type	Electric Diaphragm
Current Draw	18 amp Max
Spray Rate	413 kPa (60 psi)
System Pressure	20 L/min. (5.3 gal./min.)
Suction Hose Strainer	Stainless Steel
Spray Tip Material	Plastic
Sprayer Wand	
Material	Plastic with Brass Alloy
Adjustment	Fan To Stream
PWM Solenoids	
Operation Frequency	10 Hz
Flow rate	0.6 gmp at 5 psi pressure drop
	0.8 gpm at 10 psi pressure drop
Sprayer	
Boom Max Spraying Width	381 cm (150 in)
Weight	
Empty	65 kg (143 lb)
Full	380 kg (839lb)

Getting Quality Service

John Deere Quality Continues with Quality Service

John Deere provides a process to handle your questions or problems, should they arise, to ensure that product quality continues with quality parts and service support.

Follow the steps below to get answers to any questions you may have about your product.

Refer to your attachment and machine operator manuals.

In North America or Canada, call John Deere Special Services at 1-800-448-9282 and provide product serial number (if available) and model number.

Warranty

Limited Warranty for New John Deere Licensed Products

Agri-Fab's sprayers are guaranteed to be free from defects in material and workmanship from the date of purchase for 2 years residential use, 6 months commercial use, provided that the purchaser properly assembles, installs, uses and maintains the products in accordance with this manual. Purchaser's failure to adhere to such requirements will void the warranty. To the extent permitted by applicable law, all other warranties, representations, obligations and conditions, expressed or implied, including but not limited to implied warranties of merchantability, fitness for any particular purpose and non-infringement, are hereby disclaimed and excluded. Any product which does not meet warranty shall, as purchaser's sole and exclusive remedy, be repaired or replaced by Agri-Fab. This warranty is non-transferable.

In addition, our warranty does not cover:

- Labor charges;
- Loss or consequential, incidental or special damages of any kind; and
- Breakage of parts as a result of freezing - fittings, hand wands and pumps may crack if liquid is left inside at freezing temperatures.

This product was manufactured by Agri-Fab, Inc, a John Deere Licensee, located at 809 South Hamilton Street, Sullivan, IL 61951. If you have any questions or concerns with the assembly, installation, or operation of this attachment, see your local John Deere dealer or call Agri-Fab at 1-800-448-9282 for assistance.

