






# EZ-Boom™ System for the EZ-Guide® 500 Lightbar Quick Reference Card





## STEP 1. CONNECTING THE EZ-BOOM SYSTEM

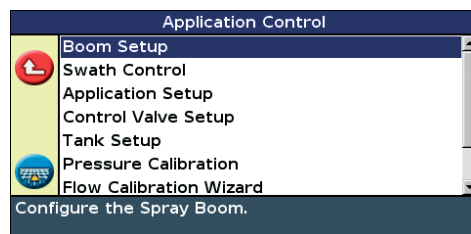
For information on connecting the EZ-Boom system to the lightbar, refer to the EZ-Boom Automated Application Control System Cabling Guide.

## STEP 2. SETTING THE LIGHTBAR TO ADVANCED MODE

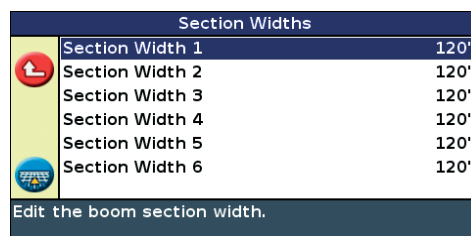
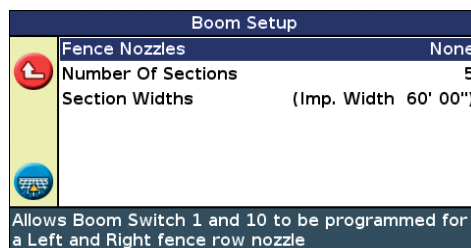
1. From the main guidance screen, press  one or more times until you select the  icon and then press . The Configuration screen appears.
2. Select User Mode and then press . The User Mode screen appears.
3. Select Advanced and then press . The main guidance screen reappears in Advanced mode.

## STEP 3. CONFIGURING THE BOOM

1. From the main guidance screen, select the  icon and then press . The Configuration screen appears.
2. Select Application Control and then press . The Application Control screen appears.
3. Select Boom Setup and then press . The Boom Setup screen appears.
4. Configure the following settings:



Setting	Description
Fence Nozzles	Fence nozzles are spray sections at the far end of the boom that point out to the sides to cover any fence lines. On the EZ-Boom controller, Switch 1 controls the left fence nozzle, and the first switch after the boom section switches controls the right nozzle. Fence nozzles are always manually controlled. They must be activated with the corresponding switch. With two fence nozzles, the system supports up to eight boom sections. You can disable both fence nozzles, enable either the left or right fence nozzle, or enable both.
Number Of Sections	Enter the number of boom sections on your spray boom (not counting fence nozzles). You can select up to 10 boom sections, or up to eight if you have both fence nozzles enabled.
Section Widths	Set each section width. The system sets the default widths. They are calculated by dividing the Implement Width value by the Number Of Sections value. Adjust each section width in order as necessary. As you adjust each section width, the later section widths adjust so the specified implement width is maintained. Section 1 is the section that is the furthest to the left when you stand behind the vehicle. On the EZ-Boom controller, the switch that is furthest to the left controls section 1.



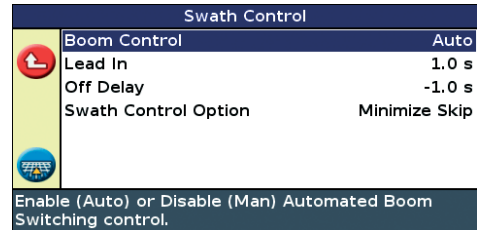
Note: Set the implement width and overlap/skip when you create a new field.

5. Press  to exit the Boom Setup screen.

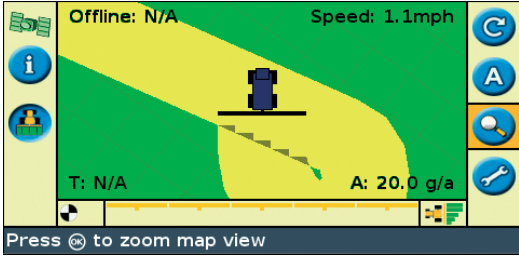
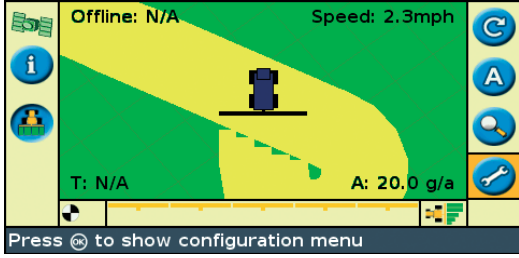
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## STEP 4. CONFIGURING AUTOMATIC BOOM SWITCHING

1. From the Application Control screen, select Swath Control and then press . The Swath Control screen appears.



2. Configure the following settings:

Setting	Description
Boom Control	<ul style="list-style-type: none"> <li>Auto = Automatic boom control.</li> <li>Manual = Manual boom switching – go to Step 3.</li> </ul>
Lead In	This is the number of seconds before leaving a sprayed area and entering an unsprayed area that the boom sections will turn on.
Off Delay	This is the number of seconds before or after you enter a previously sprayed area that you want the boom sections to turn off. For example, if you want the boom sections to turn off 1 second before you cross into a headland, set the Off Delay time to -1.0 seconds.
Swath Control Option	<p>These settings apply when you drive onto an area that has been partially sprayed before:</p> <ul style="list-style-type: none"> <li>Minimize Skip = Turns off spray sections when they are over any fully covered areas, so you may get some overlap.</li> </ul>  <ul style="list-style-type: none"> <li>Minimize Overlap = Turns off spray as soon as you reach any covered area, but may leave some uncovered ground.</li> </ul> 

3. Press to exit the Swath Control screen.

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## STEP 5. CONFIGURING APPLICATION

- From the Application Control screen, select Application Setup. The Application Setup screen appears.

Application Setup		
	Rate Control	On
	Rate 1	20.0 gal/a
	Rate 2	18.0 gal/a
	Allowable Error	2%
	Minimum Flow	12.4 gal/m
	Rate Increment	1.0 gal/a
Enable or Disable Rate Control.		

- Configure the following options:

Setting	Description
Rate Control	If you want the EZ-Boom system to control boom switching only, set Rate Control to Off: <ul style="list-style-type: none"> <li>If you set the Rate Control option to Off, the Off When Stopped option appears.</li> <li>If you set the Rate Control option to On, the Rate 1, Rate 2, Allowable Error, Minimum Flow, and Rate Increment options appear.</li> </ul>
Off	Off When Stopped: If the vehicle is a clutch-operated planter, select No so you can continue planting even when stopped. Otherwise, select Yes.
Rate Control = On	Rate 1: This is the volume that the sprayer supplies when the Rate switch is set to 1.
	Rate 2: This is the volume that the sprayer supplies when the Rate switch is set to 2.
	Allowable Error: This is the percentage of acceptable Rate 1 or Rate 2 error before the flow control valve adjusts.
	Rate Increment: When the Rate switch is in the Rate 1 or Rate 2 position, the current application rate increases or decreases by this amount each time you press the Rate adjustment (inc/dec) switch. When the Rate switch is in the Manual position, Rate Increment does not apply. The Rate adjustment (inc/dec) switch directly activates the valve; hold the switch up to increase or down to decrease.

- Press to exit the Application Setup screen.

## STEP 6. CONFIGURING THE FLOW CONTROL VALVE

- From the Application Control screen, select Control Valve Setup. The Control Valve Setup screen appears.
- Set the following settings:

Setting	Description
Type	The flow control valve type: <ul style="list-style-type: none"> <li>If you select Inline Servo, Bypass Valve, or Pump Servo, the Response 1, Response 2, Threshold, and Close on Zero Flow options appear.</li> <li>If you select PWM or Grounded PWM, the Close on Zero Flow, Frequency, Gain, and Zero Flow Offset options appear.</li> </ul>
Inline/Bypass/Pump	Response 1: The desired adjustment speed of the valve when the application rate is outside the threshold.
	Response 2: The desired adjustment speed of the valve when the application rate is within the threshold.
	Threshold: The point at which the application rate is close enough to the target rate for the application speed of the valve to switch from Response 1 to Response 2.
All	Close on Zero Flow: How the valve responds when there is no flow.
PWM	Frequency: The valve's operating frequency.
	Gain: The adjustment speed of the valve.
	Zero Flow Offset: The shut-off point of the PWM valve.

Control Valve Setup		
	Type	Inline Servo
	Response 1	100%
	Response 2	24%
	Threshold	3
	Close on Zero Flow	No
Select Control Valve type.		

Control Valve Setup		
	Type	PWM
	Close on Zero Flow	No
	Frequency	100 Hz
	Gain	100
	Zero Flow Offset	30%
Select Control Valve type.		

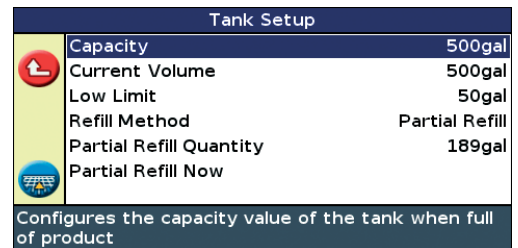
- Press to exit the Control Valve Setup screen.


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## STEP 7. CONFIGURING THE TANK

1. From the Application Control screen, select Tank Setup. The Tank Setup screen appears.
2. Configure the following options:

Setting	Description
Capacity	The capacity of the tank when full.
Current Volume	The amount currently in the spray tank. This amount decreases as you use the spray solution.
Low Limit	When the volume reaches this level, a warning appears.
Tank Refill Method	The method that you will use to fill the tank: <ul style="list-style-type: none"> <li>• Partial Refill = If you add a specific amount of solution to the tank. (If you select Partial Refill, the Partial Refill Quantity option appears).</li> <li>• Refill = If you fill the tank to capacity.</li> </ul>
Partial Refill Quantity	The amount that you add when you partially fill the tank.






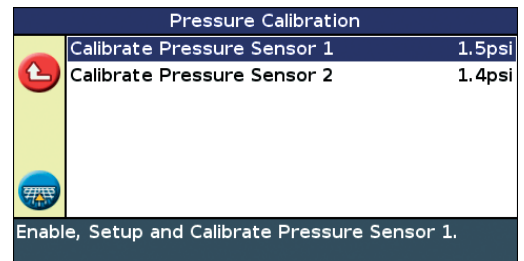
3. Press  to exit the Tank Setup screen.



## STEP 8. CALIBRATING THE PRESSURE





If your sprayer has a pressure transducer fitted, you can use it to display pressure information on the EZ-Boom information tab. To calibrate the pressure, ensure that the transducer is connected to the correct input on the EZ-Boom system (refer to the EZ-Boom system pinout information in the EZ-Boom Automated Application Control System Troubleshooting Guide) and then follow the steps below. If you want pressure information to appear on the EZ-Boom information tab and there is not already a pressure transducer on the sprayer, install one.

Note - The system operates correctly without a pressure transducer.

1. From the Application Control screen, select Pressure Calibration. The Pressure Calibration screen appears.
2. Select Calibrate Pressure Sensor 1 and then press . The Calibration Wizard: Pressure Sensor 1 warning screen appears.
3. Press  as you read through the screen and then press . The Pressure Sensor State screen appears.
4. Configure the following settings:



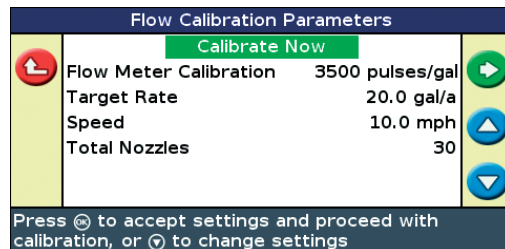
Setting	Description
Pressure Sensor State	Off = There is not a pressure sensor – go to Step 8. On = There is a pressure sensor.
 Slope	The relationship between pressure and the output of the sensor. Slope is measured in mV/kPa or mV/psi.
 Set Point	The actual pressure at the time of calibration. This is usually established from your sprayer's pressure gauge.

5. Select Calibrate Now and then press . The Pressure Sensor 1 Calibration Status screen appears.
6. Press  as you read through the screen and then press . The Slope and Set Point values are sent to the EZ-Boom controller. The Pressure Calibration screen reappears. The first pressure sensor is calibrated. If the sprayer has a second pressure sensor, select Calibrate Pressure Sensor 2 and then repeat steps 3 through 5 above.
7. After calibrating, ensure that the pressure values are correct. If the sprayer has a pressure gauge fitted, use it to verify that the calibration is correct and that the EZ-Boom information tab shows the correct pressure when spraying.
8. Press  to exit the Pressure Calibration screen.

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## STEP 9. CALIBRATING THE FLOW METER

1. From the Application Control screen, select Flow Calibration Wizard. The Flow Calibration warning screen appears.
2. Read the information screens and then press **OK**. The Flow Calibration Parameters screen appears.
3. Select Flow Meter Calibration and then press **OK**. The Flow Meter Calibration screen appears.
4. Enter the flow meter calibration number. You can find the number on the flow meter, or by contacting the flow meter manufacturer. The number you enter will be either pulses per gallon (US) or pulses per litre (metric).  
For a Raven flow meter, enter the calibration number as it is written on the tag. For other brands of flow meter, add a 0 to the number when you enter it (for example, if the number is 75, enter 750).

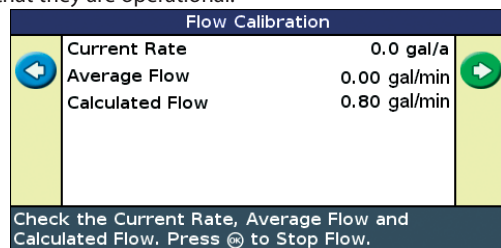


5. Do one of the following:
  - To exit the screen and use the flow meter calibration number, press **Back**. The system is now configured.
  - To fine tune the calibration, adjust the following settings:

Setting	Description
Target Rate	Set the expected application rate.
Speed	Set the expected vehicle speed.
Total Nozzles	Specify the number of boom nozzles that will be turned on during the calibration. Do not count the fence nozzles.

Note - Turn on all the boom nozzles (but not the fence nozzles), and make sure that they are operational.

6. Select Calibrate Now and then press **OK**. The Flow Calibration screen appears.
7. Read the information and then press **OK**. The flow begins.
8. Perform the calibration:
  - a. Measure the volume from 3 nozzles separately for a total of 1 minute.
  - b. Press **OK** to stop the flow.
  - c. Calculate the volume per minute per nozzle of your sprayer. To do this, divide the total volume measured by the number of nozzles that you took measurements from.
  - d. In the Measured Flow field, set the actual volume that you calculated in Step 8c. The system calculates the difference between the measured flow/nozzle and the averaged flow/nozzle. The Calibration Complete screen appears. The flowmeter calibration is adjusted.
  - e. Press **OK**. The Application Control screen reappears.
9. Press **Back** to exit. The system is now configured.



For more information, refer to the EZ-Boom Automated Application Control System Getting Started Guide.

## LIGHTBAR INFORMATION

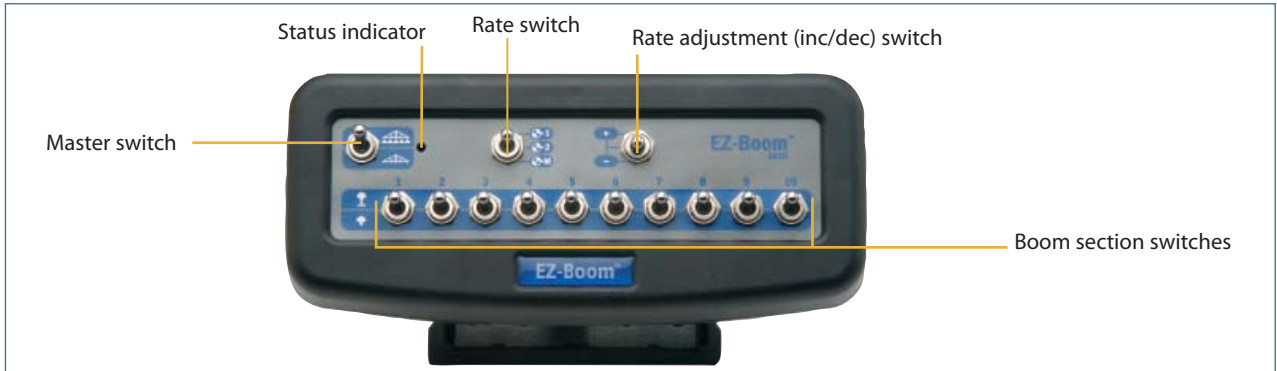
To view diagnostics information, select Configuration / Status / Fault history / EZ-Boom Fault History and Configuration / Application Control / About EZ-Boom. This information may be useful for troubleshooting or if you need support help.

Note: Listed faults are not necessarily still active.


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## PARTS OF THE CONTROLLER

This figure shows the front panel of the EZ-Boom™ automated application control system:



## OPERATION

When the EZ-Boom system is connected to the EZ-Guide® 500 lightbar guidance system, the EZ-Boom quick settings icon  appears among the fast keys on the left of the lightbar display. The EZ-Boom quick settings icon provides quick-access to some of the most common EZ-Boom system settings. The sprayer bar at the base of the screen indicates the state of the spray sections:

The image shows the EZ-Boom quick settings screen. It displays various data points and controls. The top status bar shows 'Offline: < 0' 01"', 'Speed: 6.7 mph', and a steering wheel icon. The main display area shows 'Tank Volume: 500 g', 'Applied Volume: 0 g', 'Applied Area: 0.68 a', 'Area to Empty: N/A', 'Current Flow: 0.00 g/m', 'Pressure 1: 0.0 psi', and 'Pressure 2: 0.0 psi'. The bottom section shows 'T: 150 gal/a' and 'A: 20.0 gal/a'. The sprayer bar at the bottom indicates the state of the spray sections: 'The boom section is currently spraying', 'The boom section is on, but not spraying', and 'The boom section is disabled (the switch is off)'. A fence nozzle is enabled. The screen also features an EZ-Boom information tab, an EZ-Boom quick settings icon, a target rate to be applied, a rate switch position, and a color-coded automatic/manual boom switching indicator.

## CONFIGURATION PROCESS

To configure the EZ-Boom system, complete the following steps:

Step	Action
1	Install and connect the hardware.
2	Set the lightbar to Advanced mode.
3	Configure the boom.
4	Configure automatic boom switching.
5	Configure application.

Step	Action
6	Configure the flow control valve.
7	Configure the tank.
8	Calibrate the pressure sensor (if fitted).
9	Calibrate the flow meter.

AG LEADER PART NUMBER - 2005901

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