

**Hemisphere**  
GPS



# Outback AutoMate

## User Guide

Part No. 875-0190-000 Rev. B1



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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Hemisphere GPS Precision GPS Applications

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6,111,549	6,397,147	6,469,663	6,501,346	6,539,303
6,549,091	6,631,916	6,711,501	6,744,404	6,865,465
6,876,920	7,142,956	7,162,348	7,277,792	7,292,185
7,292,186	7,373,231	7,400,956	7,400,294	7,388,539
7,429,952	7,437,230	7,460,942		

Other U.S. and foreign patents pending.

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Contact your local dealer for technical assistance. To find the authorized dealer near you, call or write us at:

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Hemisphere GPS is committed to the quality and continuous improvement of our products and services. We urge you to provide Hemisphere GPS with any feedback regarding this guide by writing to the following email address: DocFeedback@hemispheregps.com

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In this user guide, you will see the heading, **Warning**, and the safety alert symbol. They indicate a hazardous situation that, if not avoided, could result in death or serious injury. The safety messages will provide information to identify a hazard associated with potential injury, and tell you how to avoid it.

You will find some safety messages at the beginning of this user guide. They apply when ever the Outback AutoMate™ is being used during tractor operation. Other safety messages are located at the beginning of a section for a specific topic (e.g. installation and removal). In other instances, a warning may appear within the text of a particular procedure.

**Read and understand the Outback AutoMate User Guide and all of the safety information before installing, operating, or performing maintenance or service on the Outback AutoMate. If you install the Outback Guidance® system, such as an Outback S3™ or Outback Sts™, make sure to read and understand the guidance system's user documentation. Do not allow anyone to operate without instruction. If you have a question or need assistance. If you have a question or need assistance, contact your local dealer or call Hemisphere GPS at 1-800-247-3808.**

Keep this user guide and all related safety information with the manuals for your tractor and other implements.



1:





## **Chapter 1: Introducing AutoMate**



## 1: Introducing AutoMate

**C**ongratulations on your purchase of the Outback AutoMate™ automatic section control system. The AutoMate system provides automatic control of ten spray booms or eight pneumatic or up to four electric planter sections by turning on and turning off sections based on pre-defined spray/plant zones and/or previous coverage. AutoMate is designed to work with Outback Guidance® system to provide a complete automatic section control solution. AutoMate is engineered to meet these needs while operating in the rugged agricultural environment. A user friendly front panel display makes configuring and operating the system easy.

The AutoMate system consists of four components.

- AutoMate controller
- AutoMate receiver cable
- Rate controller/planter specific interface kit
- Outback Guidance System, GPS receiver (not included)

All four components are required to have a fully operational AutoMate System.

The GPS receiver provides the exact position of the vehicle while the AutoMate continually monitors the information from the antenna to create an as-applied map of activity. If the machine enters a previously sprayed/planted area, AutoMate will turn those sections off.





## **Chapter 2: Installing AutoMate**

Mounting the AutoMate

Powering the Console

Connecting the GPS Receiver

Connecting the Interface Cable





**Warning:** Read and understand the AutoMate Installation Kit instructions and all of the safety information before installing, operating, or performing maintenance or service on the Outback AutoMate. If you have a question or need assistance, contact your local dealer or call Hemisphere GPS at 1-800-247-3808.

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## Mounting the AutoMate

Mount the AutoMate controller using the elongated holes in the enclosure flanges and the provided support screws. Tighten the support screws securely to prevent the AutoMate from jarring or bouncing.

Be sure to mount the AutoMate console within easy reach of the driver. Also consider how cables will be routed to connect to AutoMate's back panel when choosing a location.

## Powering the Console



**Warning:** To avoid burns or electric shock injury when installing or removing the Outback AutoMate, do not touch parts of the tractor that are heated or electrically energized.

---

The AutoMate controller is typically powered through the rate controller. The AutoMate will power up when you turn the rate controller on.

Connect the 4-pin power connector from the rate controller interface cable to the 4-pin port on the back of AutoMate.

---

**Note:** The interface cables provided for some rate controllers will not contain an integrated power cable for the AutoMate console. For these applications, a separate power cable will be supplied to directly connect to a 12 VDC power source. See the rate controller specific interface installation guide for details.

---



## Connecting the GPS Receiver

AutoMate must receive a GPS signal from a GPS receiver in order to calculate where the sprayer or planter is located. Any GPS receiver that supplies the standard NMEA GPS strings at a minimum of 4 Hz can be used.

Connect the supplied GPS Interface Cable (part number 750-3002) to the round connector labeled DGPS on the back of AutoMate. Connect the 9-pin connector on the other end of the GPS Interface Cable (part number 750-3002) to the matching connector on the GPS receiver.

## Connecting the Interface Cable

The AutoMate interfaces to the boom valves through the rate controller specific interface kit. The rate controller interface connects in parallel with the rate controller harness. See the rate controller specific interface guide for details. Connect the large round connector from the rate controller interface cable to the large circular connector on the back of the AutoMate marked "Control."

The AutoMate also interfaces with the Tru-Count air and electric planter controllers through the equipment specific interface kit. Connect one end of the interface cable directly to the electric clutches or the six pin connectors of any air system. The 12 pin round connector will be connected to the power cable, which in turn is connected to the AutoMate controller. See the planter controller specific user guide for details.

## Master Switch

The rate controller's master switch is typically used to enable or disable AutoMate's application activity. The master switch must be turned on in order for AutoMate to automatically control section ON/OFF status. Certain rate controller models do not allow for direct connection of the master switch to the AutoMate. For these rate controllers, the AutoMate can be setup to provide a soft switch to enable or disable automatic section control. (See "Master Switch Screen" on page 54. for more information on how to configure the soft master switch feature.) The whisker switch provided with planter interface kits is connected to the



## 2: Installing AutoMate

interface cable, which will act as the master switch when the planter is raised and lowered.

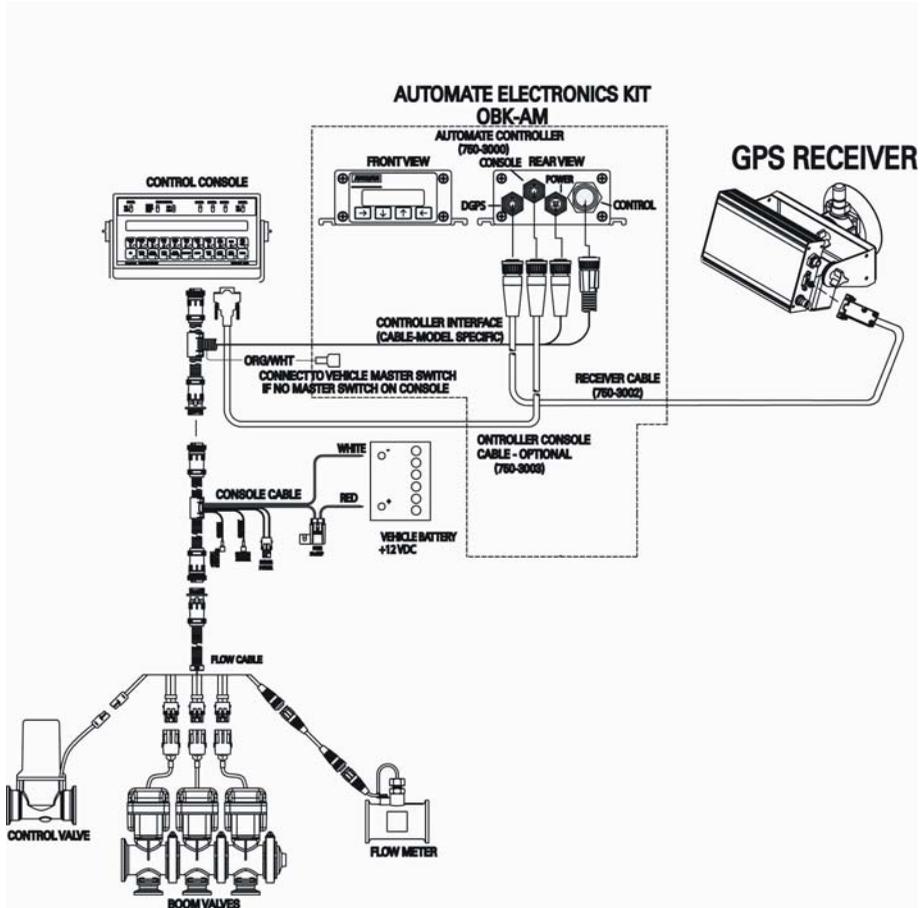


Figure 2-1: AutoMate system (typical install schematic for sprayers)





## **Chapter 3: Configuring AutoMate**

Introducing the Display

Using the Menu Map

Section Configuration Menu

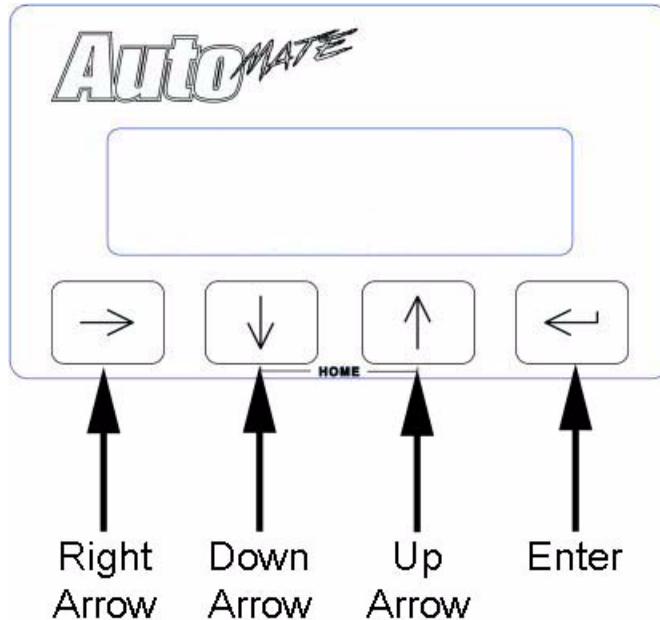
Controller Configuration Menu

System Configuration Menu



## Introducing the Display

Gently peel away the protective film covering the front panel display. The front panel display allows you to configure the AutoMate settings, section settings, AutoMate control, and to run a job with or without field boundary and no plant/no-spray zones. The keypad arrows are used to navigate through the display and configuration menus.



## Using the Menu Map

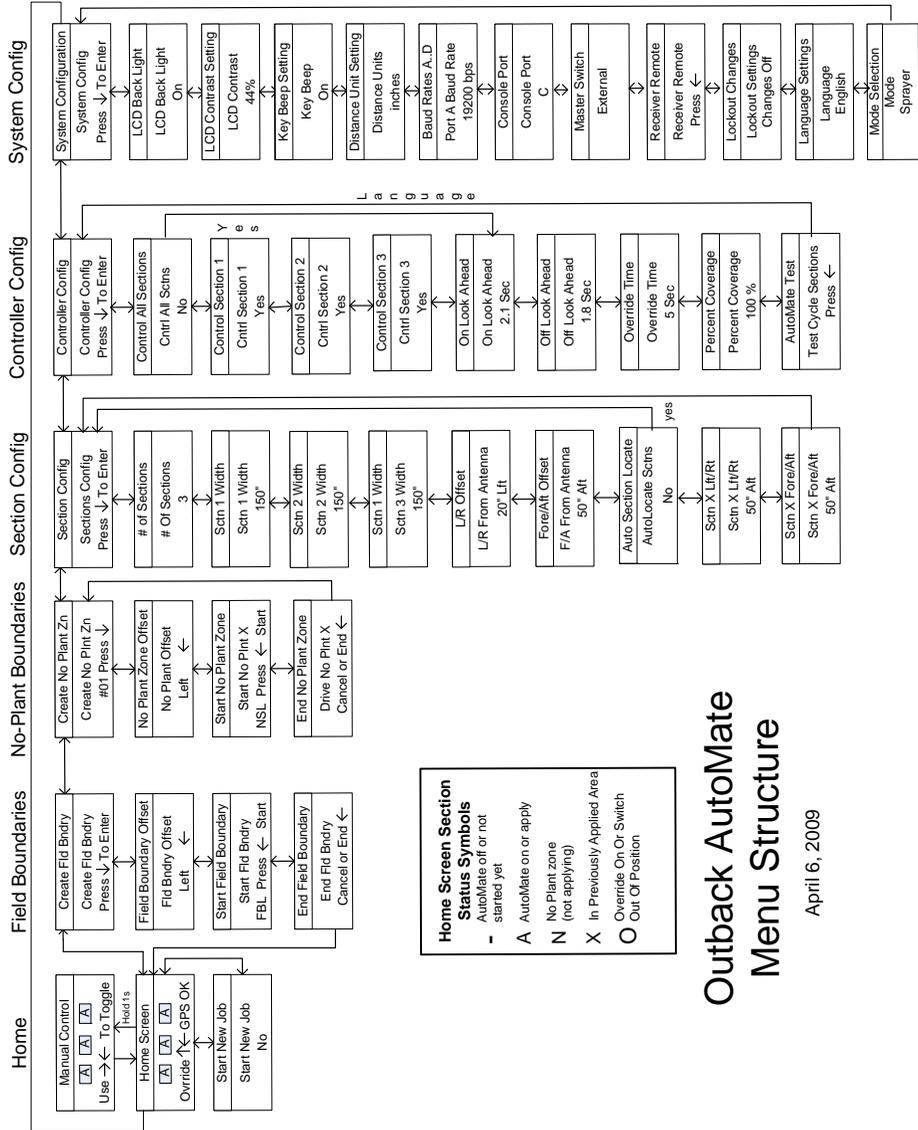
The menu map shows all the menu screens you can navigate to using the arrows buttons on the display.

---

**Note:** To return to the home screen from any other menu screen, press the Up and Down Arrows at the same time.

---



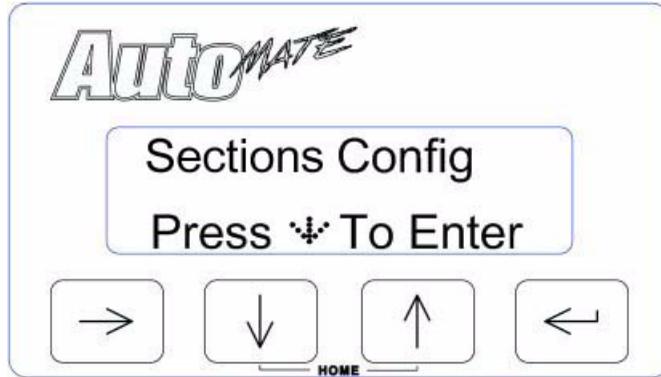


# Outback AutoMate Menu Structure

April 6, 2009



## Section Configuration Menu



Using the Section Configuration menu, you can set the size and orientation of the individual application sections. The following screens can be access through the Section Configuration menu:

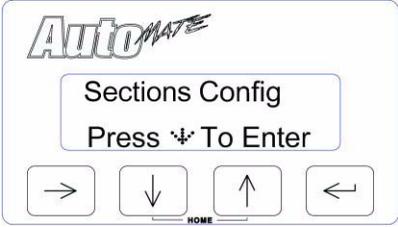
- Number of Sections Screen
- Section Width Screens
- Left/Right Section Offset Screen
- Fore/Aft Section Offset Screen
- AutoLocate Sections Screen
- Individual L/R Section Offset Screen
- Individual F/A section Offset Screen



## Number of Sections Screen

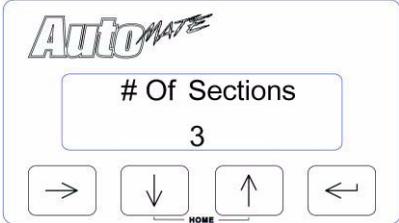
Using the Number of Sections screen, you can enter the number of sections you will be using for the application.

**Note:** AutoMate will only display options for Section Width, Individual Section Offset (L/R and F/A), and Individual Control Section screens based on the value programmed on this screen.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Section Configuration screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 3-1: Section Configuration Screen</b></p> </div>	
<p>2. Press the Down Arrow button to enter the Number of Sections screen.</p>	



### 3: Configuring AutoMate

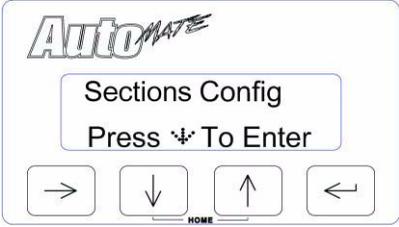
Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-2: Number of Sections Screen</b></p>
<p>3. Press the Enter button to begin editing the number of sections. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow buttons to increase or decrease the number of sections displayed.</p> <p>The system accommodates up to 10 sprayer sections, or up to 8 pneumatic or 4 electric planter sections.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	



### Section Width Screens

Using the Section Width screens, you set the width of each individual section in inches or centimeters. The number of individual section width screens you can access depends on the number of sections you set on the Number Of Sections screen.

See “Distance Unit Screen ” on page 48 for more information setting the type of the units the AutoMate controller displays (Inches or Centimeters.)

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Section Configuration screen appears.</p>	
 <p><b>Figure 3-3: Section Configuration Screen</b></p>	
<p>2. Press the Down Arrow button two times to enter the Section Width screens</p> <p><i>OR</i></p> <p>From the Number of Sections screen, press the Down Arrow button once to enter the Section Width screens.</p>	 x 2



### 3: Configuring AutoMate

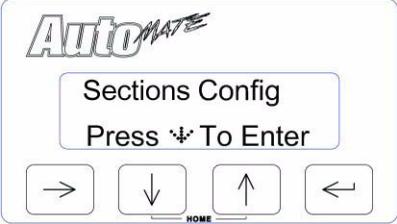
Step	Screen Item (when applicable)
<div data-bbox="525 293 924 516" style="text-align: center;">  <p><b>Figure 3-4: Section Width Screen</b></p> </div>	
<p>3. Press the Enter button to begin editing the width for this individual section. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the width.</p>	 or 
<p>5. Use the Right Arrow button to move between digits.</p> <hr/> <p><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow button.</p> <hr/>	
<p>6. Press the Enter button to finish editing.</p>	
<p>7. Press the Down Arrow button to access the next individual Section Width screen.</p>	



### Left/Right Section Offset Screen

Using the Left/Right Section Offset screen, you can enter the left and right offset of each section. To measure the left or right offset, measure the distance from the center line of the GPS antenna to the center line of all the sections. See "Section Location" on page 69 for a diagram to help you determine offset.

**Note:** If the GPS antenna is centered in relationship to the center of all sections, the AutoMate will be set to "0.0 cm Left" or "0.0" Left".

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Section Configuration screen appears.</p>	
 <p><b>Figure 3-5: Section Configuration Screen</b></p>	
<p>2. Press the Down Arrow button three times to enter the L/R Section Offset screen.</p> <p><i>OR</i></p> <p>From the last Section X Width screen, press the Down Arrow button once to enter the L/R Section Offset screen.</p>	 x3



### 3: Configuring AutoMate

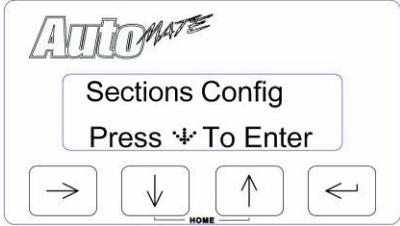
Step	Screen Item (when applicable)
	 <p data-bbox="516 548 935 573"><b>Figure 3-6: L/R Section Offset Screen</b></p>
<p data-bbox="348 597 821 675">3. Press the Enter button to begin editing the L/R Section Offset. The number will begin blinking to indicate edit mode.</p>	
<p data-bbox="348 703 794 751">4. Use the Up or Down Arrow button to increase or decrease the offset.</p>	 or 
<p data-bbox="348 792 787 841">5. Use the Right Arrow button to move between digits and Lft/Rt selection.</p> <hr/> <p data-bbox="348 878 825 956"><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow button.</p> <hr/>	
<p data-bbox="348 1003 817 1027">6. Press the Enter button to finish editing.</p>	



### Fore/Aft Section Offset Screen

Use the F/A Section Offset screen to enter whether the sections are located in front of (Fore) or behind (Aft) the GPS antenna.

To measure the fore or aft offset, measure the distance from the center line of the GPS antenna to the center line of all the sections. See “Section Location” on page 69 for a diagram to help you determine offset.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Sections Configuration screen appears.</p>	
 <p><b>Figure 3-7: Section Configuration Screen</b></p>	
<p>2. Press the Down Arrow four times to enter the F/A Section Offset screen.</p> <p><i>OR</i></p> <p>From the L/R Section Offset screen, press the Down Arrow button once to enter the F/A Section Offset screen.</p>	 x4



### 3: Configuring AutoMate

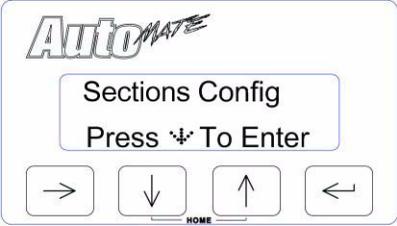
Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-8: F/A Section Offset Screen</b></p>
<p>3. Press the Enter button to begin editing the F/A Section Offset. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the offset.</p>	 or 
<p>5. Use the Right Arrow button to move between digits and Fore/Aft selection.</p> <hr/> <p><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow button.</p> <hr/>	
<p>6. Press the Enter button to finish editing.</p>	



### AutoLocate Sections Screen

The AutoLocate Sections screen enables you to automatically set the location of all sections with respect to the GPS Antenna.

The AutoLocate Sections feature assumes that all sections are located end to end with no overlap or skip. Do not use this feature if there is a special application where one or more section sections are staggered or overlap each other.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Section Configuration screen appears.</p>	
 <p><b>Figure 3-9: Section Configuration Screen</b></p>	
<p>2. Press the Down Arrow button five times to enter the AutoLocate Sections screen.</p> <p><i>OR</i></p> <p>From the F/A Section Offset screen, press the Down Arrow once to enter the AutoLocate Sections Offset screen.</p>	 x5



### 3: Configuring AutoMate

Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-10: AutoLocate Sections Screen</b></p>
<p>3. Press the Enter button to begin editing the AutoLocate Sections screen. The value will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between Yes and No.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	

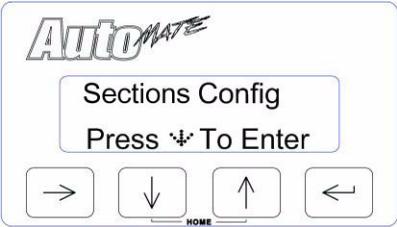


### Individual L/R Section Offset Screen

Using the Section X Lft/Rt Offset Screen, you can enter the left or right offset of each individual section in relation to the GPS antenna.

To measure the left or right offset, measure the distance from the GPS antenna (left or right) to the center of each individual section.

**Note:** The Section X Lft/Rt Offset screen is only available if the AutoLocate feature is not activated.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Section Configuration screen appears.</p>	
 <p><b>Figure 3-11: Section Configuration Screen</b></p>	
<p>2. Press the Down Arrow button six times to enter the Section X Lft/Rt Offset screen.</p> <p><i>OR</i></p> <p>From the AutLocate Section screen, press the Down Arrow once to enter the Section X Lft/Rt Offset screen.</p>	 x6



Step	Screen Item (when applicable)
<div style="text-align: center;">  <p><b>Figure 3-12: Section X Lft/Rt Offset Screen</b></p> </div>	
<p>3. Press the Enter button to begin editing the Section X Lft/Rt Offset. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the offset.</p>	 or 
<p>5. Use the Right Arrow button to move between digits and Lft/Rt selection.</p> <hr/> <p><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow.</p>	
<p>6. Press the Enter button to finish editing.</p>	
<p>7. Press the Down Arrow button to access the next individual section Offset screen.</p> <p>The number of individual section screens you can access depends on the number of sections set on the Number Of Sections screen.</p>	

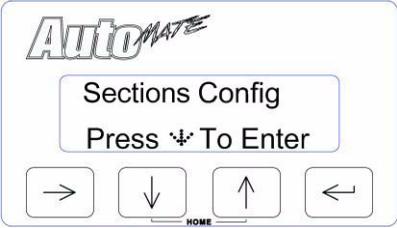


### Individual F/A section Offset Screen

Using the Section X Lft/Rt Offset Screen, you can enter the left or right offset of each individual section in relation to the GPS antenna.

To measure the left or right offset, measure the distance from the GPS antenna (left or right) to the center of each individual section.

**Note:** The Section X Lft/Rt Offset screen is only available if the AutoLocate feature is not activated.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Section Configuration screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 3-13: Section Configuration Screen</b></p> </div>	
<p>2. Press the Down Arrow button seven times to enter the section X Fore/Aft Offset screen.</p> <p><i>OR</i></p> <p>From the Section X Lft/Rt Offset screen, press the Down Arrow button once.</p>	 x7



Step	Screen Item (when applicable)
<div data-bbox="525 293 924 521" style="border: 1px solid black; padding: 10px; text-align: center;"> </div> <p data-bbox="467 550 982 574" style="text-align: center;"><b>Figure 3-14: Section X Fore/Aft Offset Screen</b></p>	
<p data-bbox="348 599 811 704">3. Press the Enter button to begin editing the Section X Fore/Aft Offset. The number will begin blinking to indicate edit mode.</p>	<div data-bbox="852 607 924 662" style="border: 1px solid black; padding: 2px; text-align: center;"> </div>
<p data-bbox="348 732 794 781">4. Use the Up or Down Arrow button to increase or decrease the offset.</p>	<div data-bbox="852 740 924 792" style="border: 1px solid black; padding: 2px; text-align: center;"> </div> <p data-bbox="924 769 946 792" style="text-align: center;">or</p> <div data-bbox="955 740 1028 792" style="border: 1px solid black; padding: 2px; text-align: center;"> </div>
<p data-bbox="348 821 803 870">5. Use the Right Arrow button to move between digits and Fore/Aft selection.</p> <hr/> <p data-bbox="348 906 830 954"><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow.</p>	<div data-bbox="852 829 924 881" style="border: 1px solid black; padding: 2px; text-align: center;"> </div>
<p data-bbox="348 1005 817 1029">6. Press the Enter button to finish editing.</p>	<div data-bbox="852 1013 924 1065" style="border: 1px solid black; padding: 2px; text-align: center;"> </div>
<p data-bbox="348 1094 821 1170">7. Press the Down Arrow button to access the next individual Section X Fore/Aft Offset screen.</p> <p data-bbox="348 1187 807 1292">The number of individual section screens you can access depends on the number of sections set on the Number Of Sections screen.</p>	<div data-bbox="852 1099 924 1151" style="border: 1px solid black; padding: 2px; text-align: center;"> </div>



## Controller Configuration Menu



The Controller Configuration menu enables you to set up AutoMate control parameters for the job. Under most conditions, these settings will be set and not changed. The following screens are available from the Controller Configuration menu:

- Control All Sections Screen
- Control Section X Screen
- On Look Ahead Screen
- Off Look Ahead Screen
- Override Time Screen
- Percent Coverage Screen
- Test Cycle Sections Screen



## Control All Sections Screen

**Note:** If you are using Fence Row Nozzles, you will want to set the Control All Sections setting to No. Fence Row Nozzles must be controlled individually using the Control Section X screens. (See “Control Section X Screen ” on page 30 for more information).

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Controller Config screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 3-15: Controller Configuration Screen</b></p> </div>	
<p>2. Press the Down Arrow button once to enter the Control All Sections screen.</p>	
<div style="text-align: center;">  <p><b>Figure 3-16: Control All Sections</b></p> </div>	



<b>Step</b>	<b>Screen Item (when applicable)</b>
3. Press the Enter button to begin editing the Cntrl All Sections setting. The setting will begin blinking to indicate edit mode.	
4. Use the Up or Down Arrow button to toggle between the Yes and No settings. The default setting is Yes.	 or 
5. Press the Enter button to finish editing.	



### Control Section X Screen

The Control Section X screen will appear automatically if No is selected in the Control All Sections screen.

The Control Section X screen enables you to individually enable AutoMate to control for section.

**Note:** Fence Row Nozzles are considered the first and last sections. For example, if you have six sections including Fence Row Nozzles, you use the Control Section X screen to set sections 1 and 6 to No. Sections 2 through 5 are set to Yes.

The exception to this would be if the fence row nozzles are not included on the joystick, but rather on a separate panel. In this case, all sections are set to Yes as AutoMate would not interface with these fence row sections.

Step	Screen Item (when applicable)
 <p style="text-align: center;"><b>Figure 3-17: Control Section X Screen</b></p>	
<p>1. Press the Enter button to begin editing the Cntrl Sctn X setting. The setting will begin blinking to indicate edit mode.</p>	
<p>2. Use the Up or Down Arrow button to toggle between the Yes and No settings.</p>	 or 



<b>Step</b>	<b>Screen Item (when applicable)</b>
3. Press the Enter button to finish editing.	
4. Press the Down Arrow button to access the next individual Control Section X screen.  The number of individual section screens you can access depends on the number of sections set on the Number Of Sections screen.	



### On Look Ahead Screen

AutoMate’s On Look Ahead feature enables you to pre-program the amount of time the systems turns on the sections before entering a spray/plant zone. AutoMate uses the current GPS positions, the as-applied record, factoring in the speed of travel and the programmed look ahead time to calculate when to turn the section valves on and off. These look ahead times compensate for delays in the system including the time it takes for valves to open and close, and for pressure to build.

The default time is 0.1 second. The time cannot be set to zero.

If the Cntrl All Sections feature is set to No, AutoMate will automatically display the On Look Ahead screen after the last Cntrl Section X screen.

If the Cntrl All Section is set to Yes, you can reach the On Look Ahead screen by navigating the menu, as described in steps 1 through 3.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Controller Config screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 3-18: Controller Configuration Screen</b></p> </div>	
<p>2. Press the Down Arrow button twice to enter the On Look Ahead screen.</p>	 x2



Step	Screen Item (when applicable)
<div style="text-align: center;">  </div> <p style="text-align: center;"><b>Figure 3-19: On Look Ahead Screen</b></p>	
<p>3. Press the Enter button to begin editing the Look Ahead value. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the value.</p>	 or 
<p>5. Use the Right Arrow button to move between digits.</p> <hr/> <p><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow button.</p>	
<p>6. Press the Enter button to finish editing.</p>	

**Note:** The On and Off Look Ahead times will vary by implement and may need to be adjusted after a few test trials.

If the AutoMate is leaving a skip exiting a previously applied area, you increase the On Look Ahead time according.



### Off Look Ahead Screen

AutoMate’s Off Look Ahead feature enables you to pre-program the amount of time the systems turns off the sections before entering a no-spray/no-plant zone. AutoMate uses the current GPS positions, the as-applied record, factoring in the speed of travel and the programmed look ahead time to calculate when to turn the section valves on and off. These look ahead times compensate for delays in the system including the time it takes for valves to open and close, and for pressure to build.

The default time is 0.1 second. The time cannot be set to zero.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Controller Config screen appears.</p>	
 <p><b>Figure 3-20: Controller Configuration Screen</b></p>	
<p>2. Press the Down Arrow button three times to enter the Off Look Ahead screen.</p> <p><i>OR</i></p> <p>From the On Look Ahead screen, press the Down Arrow button once to enter the Off Look Ahead screen.</p>	 x3



Step	Screen Item (when applicable)
 <p><b>Figure 3-21: On Look Ahead Screen</b></p>	
<p>3. Press the Enter button to begin editing the Off Look Ahead value. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the value.</p>	 or 
<p>5. Use the Right Arrow button to move between digits.</p> <hr/> <p><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow button.</p>	
<p>6. Press the Enter button to finish editing.</p>	

**Note:** The On and Off Look Ahead times will vary by implement and may need to be adjusted after a few test trials.

If the AutoMate is leaving a skip entering a previously applied area, decrease the Off Look Ahead time accordingly.



### Override Time Screen

AutoMate provides you with the ability to momentarily override the AutoMate control. This feature is useful if you need to double up coverage on an area of a field. It allows the section valves to open before driving ahead. The amount of time for the override can be pre-defined depending on the requirements of the specific application.

The Override Time screen displays the amount of time, in seconds, that the sections will be turned on and override the AutoMate feature. To use the Override feature once the override time has been set, return to the Home Screen and press the Up Arrow button. All sections will begin to spray and continue for the designated override time.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Controller Config screen appears.</p>	
 <p><b>Figure 3-22: Controller Configuration Screen</b></p>	
<p>2. Press the Down Arrow button four times to enter the Override Time screen.</p> <p><i>OR</i></p> <p>From the Off Look Ahead screen, press the Down Arrow button once to enter the Override Time screen.</p>	 x4



Step	Screen Item (when applicable)
 <p><b>Figure 3-23: Override Time Screen</b></p>	
<p>3. Press the Enter button to begin editing the Override Time value. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the value. The default time is 5 seconds.</p>	 or 
<p>5. Use the Right Arrow button to move between digits.</p> <hr/> <p><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow button.</p> <hr/>	
<p>6. Press the Enter button to finish editing.</p>	



### Percent Coverage Screen

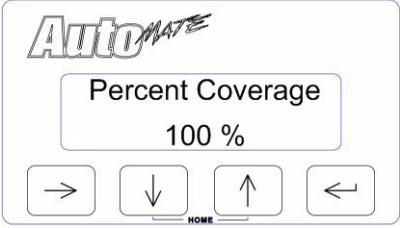
Using AutoMate, you have the ability to pre-define the amount of coverage you apply. For applications that require complete coverage, you set the coverage to 100%. For applications that should not have any overlap, the percentage should be set lower.

AutoMate defines the percent coverage is the amount of the section that must enter a previously applied area before AutoMate will turn it off. For example, if the percent coverage is set to 75%, then 75% of a given section must enter an applied area before shutting off, potentially leaving a skip of 25%.

AutoMate allows a percent coverage range of 5% to 100%, with changes made in 5% increments.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Controller Config screen appears.</p>	
 <p><b>Figure 3-24: Controller Configuration Screen</b></p>	
<p>2. Press the Down Arrow button four times to enter the Percent Coverage screen.</p> <p><i>OR</i></p> <p>From the Override Time screen, press the Down Arrow button once to enter the Percent Coverage screen.</p>	 x4



Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-25: Percent Coverage Screen</b></p>
<p>3. Press the Enter button to begin editing the Percent Coverage value. The number will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the value. The default percentage is 100%.</p>	 or 
<p>5. Use the Right Arrow button to move between digits.</p> <hr/> <p><b>Tip:</b> To wrap the cursor back around to the first digit, continue pressing the Right Arrow button.</p> <hr/>	
<p>6. Press the Enter button to finish editing.</p>	



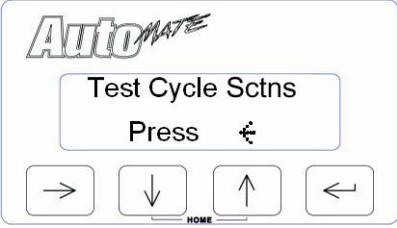
### Test Cycle Sections Screen

Using AutoMates’s Test Cycle Sections feature, you can test your sections to ensure that the valves and other components are functioning properly before starting a job. The Test Cycle Sections feature will turn on each section individually for 4 seconds, and cycle through each section.

To complete the boom cycle test, the Master Switch must be on. See “Master Switch Screen” on page 54 for instructions on setting up the Master Switch to use the Enter button. Change the Master Switch setting back to External once the test is complete.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the Controller Config screen appears.</p>	
 <p><b>Figure 3-26: Controller Configuration Screen</b></p>	
<p>2. Press the Down Arrow button five times to enter the Test Cycle Sections screen.</p> <p><i>OR</i></p> <p>From the Percent Coverage screen, press the Down Arrow button once to enter the Test Cycle Sections screen.</p>	 x5



Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-27: Test Cycle Sections Screen</b></p>
<p>3. Press the Enter button to cycle test the sections.</p> <p>The first section will turn on for 4 seconds and then turn off. Then the next section will turn on for 4 seconds and then off. This process will continue until every section has been cycled on and off. Do not navigate to another menu until the process is finished.</p>	



## System Configuration Menu



The System Configuration menu allow you to adjust controller settings, such as lighting and unit measurement display. The following screens are available from the System Configuration menu:

- LCD Back Light Screen
- LCD Contrast Screen
- Key Beep Screen
- Distance Unit Screen
- Baud Rate Screens
- Console Port Screen
- Master Switch Screen
- Receiver Remote Screen
- Lockout Settings Screen
- Language Setting Screen
- Mode Selection Screen



## LCD Back Light Screen

The LCD Back Light screen enables you to increase the brightness of the LCD screen. Adjusting this setting will improve readability during varying light conditions.

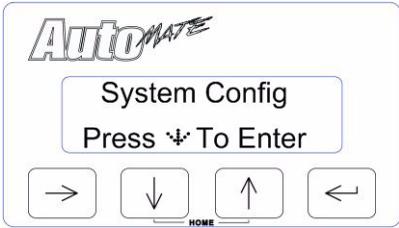
Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 3-28: System Configuration Screen</b></p> </div>	
<p>2. Press the Down Arrow button once to enter the LCD Back Light screen.</p>	
<div style="text-align: center;">  <p><b>Figure 3-29: LCD Back Light Screen</b></p> </div>	



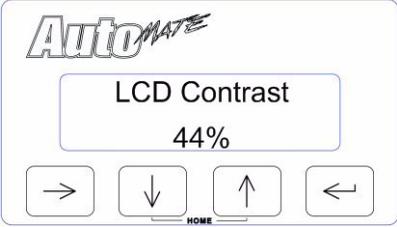
Step	Screen Item (when applicable)
3. Press the Enter button to begin editing the LCD Back Light setting. The setting will begin blinking to indicate edit mode.	
4. Use the Up or Down Arrow button to toggle between the On and Off settings.	 or 
5. Press the Enter button to finish editing.	

### LCD Contrast Screen

The LCD Contrast screen enables you to adjust the contrast of the LCD screen. Adjusting this setting will improve readability during varying light conditions.

Step	Screen Item (when applicable)
1. From the Home screen press the Right Arrow button until the System Config screen appears.	
<div style="text-align: center;">  </div> <p data-bbox="485 1224 964 1248"><b>Figure 3-30: System Configuration Screen</b></p>	

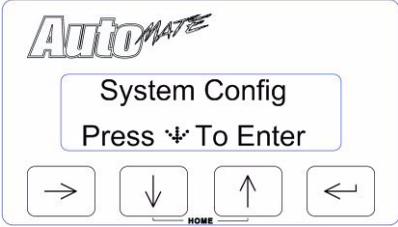


Step	Screen Item (when applicable)
<p>2. Press the Down Arrow button twice to enter the LCD Contrast screen.</p> <p><i>OR</i></p> <p>From the LCD Back Light screen, press the Down Arrow button once to enter the LCD Contrast screen.</p>	 x2
 <p><b>Figure 3-31: LCD Contrast Screen</b></p>	
<p>3. Press the Enter button to begin editing the LCD Contrast setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to increase or decrease the contrast percentage.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	



### Key Beep Screen

The Key Beep Setting screen enables you to activate or deactivate button beeps and audible alarms.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 3-32: System Configuration Screen</b></p> </div>	
<p>2. Press the Down Arrow button three times to enter the Key Beep screen.</p> <p><i>OR</i></p> <p>From the LCD Contrast screen, press the Down Arrow button once to enter the Key Beep screen.</p>	 X3

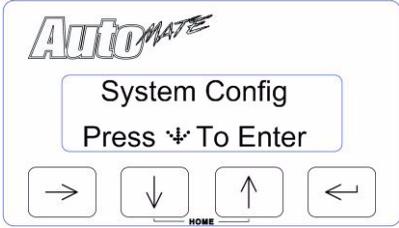


Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-33: Key Beep Screen</b></p>
<p>3. Press the Enter button to begin editing the Key Beep setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between the On and Off settings.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	



### Distance Unit Screen

The Distance Unit screen enables you to set the distance measurement to display in either US or metric units. The distance can be set to either Inches (in) or Centimeters (cm).

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
 <p><b>Figure 3-34: System Configuration Screen</b></p>	
<p>2. Press the Down Arrow button four times to enter the Distance Units screen.</p> <p><i>OR</i></p> <p>From the Key Beep screen, press the Down Arrow button once to enter the Distance Units screen.</p>	 X4

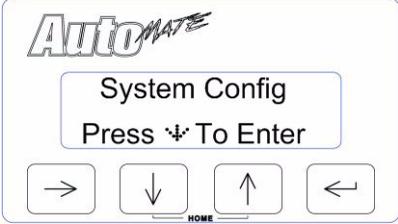


Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-35: Key Beep Screen</b></p>
<p>3. Press the Enter button to begin editing the Distance Units setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between the Inches and CM settings.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	

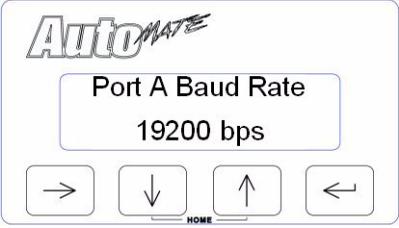


### Baud Rate Screens

The Baud Rate screens enables you to edit the baud rate for ports A through D. Port B is normally connected to the GPS receiver through the connector labeled DGPS. Port C is normally connected to the console through the connector labeled CONSOLE. The port C baud rate is only editable if the Console Port setting is set to NONE. See “Console Port Screen” on page 52 for more information.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
 <p><b>Figure 3-36: System Configuration Screen</b></p>	
<p>2. Press the Down Arrow button five times to enter the Port A Baud Rate screen.</p> <p><i>OR</i></p> <p>From the Distance Units screen, press the Down Arrow button once to enter the Port A Baud Rate screen.</p>	 X5
<p><b>Note:</b> To select another port (B, C, or D) continue pressing the Down Arrow button after the Port A Baud Rate screen appears.</p>	



Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-37: Port A Baud Rate Screen</b></p>
<p>3. Press the Enter button to begin editing the Port A Baud Rate setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between the baud rates (4800, 9600, 19200, 38400, 57600, and 115200).</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	

**Note:** If the message “Console Port!” flashes when you try to enter the edit mode, you must first set the console port to NONE on the Console Port screen. See “Console Port Screen ” on page 52 for more information.



### Console Port Screen

The Console Port screen allows you to change or disable the port that communicates with a rate controller console via the optional console cable (sold separately).

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
 <p><b>Figure 3-38: System Configuration Screen</b></p>	
<p>2. Press the Down Arrow button nine times to enter the Console Port screen.</p> <p><i>OR</i></p> <p>From the Port D Baud Rate screen, press the Down Arrow button once to enter the Console Port screen.</p>	 X9



Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-39: Console Port Screen</b></p>
<p>3. Press the Enter button to begin editing the Console Port setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between Ports A, B, C, D or NONE. The default is NONE</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	



### Master Switch Screen

The rate controller’s master switch is usually used to enable or disable AutoMate’s application activity. However, certain controllers are not designed to allow AutoMate to use their Master Switch. In these situations, the Master Switch screen allows you to configure a “soft switch” to enable or disable AutoMate’s automatic section control.

For planter section control, a whisker switch assembly is provided with the AutoMate planter interface kit. The whisker switch will be the master enabling and disabling application activity when the planter is lowered and raised.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
 <p><b>Figure 3-40: System Configuration Screen</b></p>	
<p>2. Press the Down Arrow button ten times to enter the Master Switch screen.</p> <p><i>OR</i></p> <p>From the Console Port screen, press the Down Arrow button once to enter the Master Switch screen.</p>	 X10



Step	Screen Item (when applicable)
<div data-bbox="623 293 1022 516" style="text-align: center;"> </div> <p data-bbox="628 565 1018 589" style="text-align: center;"><b>Figure 3-41: Master Switch Screen</b></p>	
<p data-bbox="444 613 915 719">3. Press the Enter button to begin editing the Master Switch setting. The setting will begin blinking to indicate edit mode.</p>	<div data-bbox="948 623 1022 678" style="text-align: center;"> </div>
<p data-bbox="444 747 915 824">4. Use the Up or Down Arrow button to toggle between External or Enter Button. The default is External.</p> <hr/> <p data-bbox="444 862 915 967"><b>Note:</b> When the Master Switch is set to Enter Button, you can enable AutoMate from the Home screen by pressing the Enter button.</p> <p data-bbox="444 1000 915 1052">When in the planting mode, make sure the Master Switch is set to External.</p> <hr/>	<div data-bbox="948 753 1119 808" style="text-align: center;">  or  </div>
<p data-bbox="444 1096 915 1120">5. Press the Enter button to finish editing.</p>	<div data-bbox="948 1105 1022 1161" style="text-align: center;"> </div>



### Receiver Remote Screen

The Receiver Remote screen enables you to configure any receiver that supports a remote front panel. This screen will only be available when AutoMate is connected to a receiver with a remote front panel.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
 <p><b>Figure 3-42: System Configuration Screen</b></p>	
<p>2. Press the Down Arrow button eleven times to enter the Receiver Remote screen.</p> <p><i>OR</i></p> <p>From the Master Switch screen, press the Down Arrow button once to enter the Master Switch screen.</p>	 X11



Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-43: Receiver Remote Screen</b></p>
<p>3. Press the Enter button to enable the Remote Receiver feature. If the attached receiver supports remote front panel mode then its home screen will display within 5 seconds.</p>	
<p>4. Press the Up or Down Arrow buttons at the same time to exit the remote front panel mode.</p>	 and 

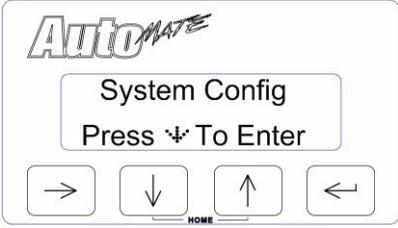


### Lockout Settings Screen

The Lockout Setting screen enables you to lock the controller settings. When the Lockout feature is activated, the setting values cannot be changed in the controller. A small lock symbol will appear on all screens that are locked.



**Note:** Hemisphere GPS recommends activating the Lockout feature, once you have completed configuring the controller.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
 <p><b>Figure 3-44: System Configuration Screen</b></p>	
<p>2. Press the Down Arrow button twelve times to enter the Lockout Setting screen.</p> <p><i>OR</i></p> <p>From the Receiver Remote screen, press the Down Arrow button once to enter the Lockout Setting screen.</p>	 X12

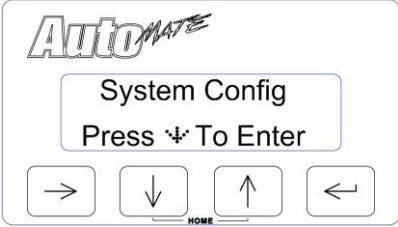


Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-45: Lockout Settings Screen</b></p>
<p>3. Press the Enter button to begin editing the Lockout setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between Changes On and Changes Off.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	



### Language Setting Screen

The Language Setting screen enables you to select the language the controller displays.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 3-46: System Configuration Screen</b></p> </div>	
<p>2. Press the Down Arrow button thirteen times to enter the Language Setting screen.</p> <p><i>OR</i></p> <p>From the Lockout Setting screen, press the Down Arrow button once to enter the Language Setting screen.</p>	 X13

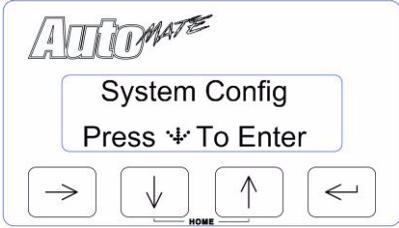


Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-47: Language Settings Screen</b></p>
<p>3. Press the Enter button to begin editing the Language setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between English, Spanish, Portuguese, Italian, Swedish, Danish, Polish, Finnish, French, and German.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	

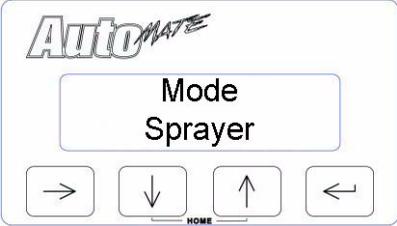


### Mode Selection Screen

The Mode Selection screen enables you to select the application mode for AutoMate. You can set it for a sprayer, pneumatic (Pneum.) planter, or to electric (Elec.) planter.

Step	Screen Item (when applicable)
<p>1. From the Home screen press the Right Arrow button until the System Config screen appears.</p>	
 <p><b>Figure 3-48: System Configuration Screen</b></p>	
<p>2. Press the Down Arrow button fourteen times to enter the Mode Setting screen.</p> <p><i>OR</i></p> <p>From the Language Setting screen, press the Down Arrow button once to enter the Mode Selection screen.</p>	 X14



Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 3-49: Mode Selection Screen</b></p>
<p>3. Press the Enter button to begin editing the Mode Selection setting. The setting will begin blinking to indicate edit mode.</p>	
<p>4. Use the Up or Down Arrow button to toggle between Sprayer, Pneum. Planter, and Elec. Planter.</p>	 or 
<p>5. Press the Enter button to finish editing.</p>	



### 3: Configuring AutoMate





## **Chapter 4: General Operation**

Introducing the Home Display Screen

Starting Up for the First Time

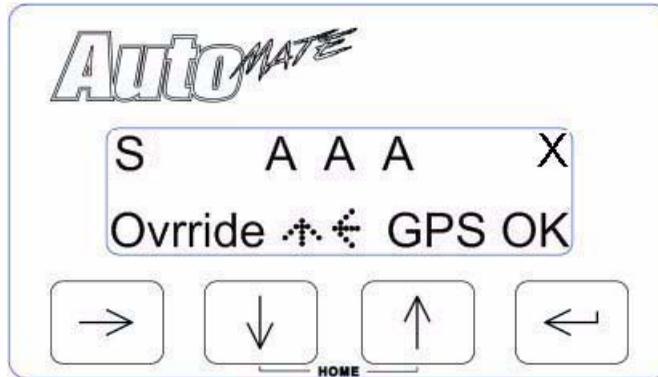
Managing AutoMate Jobs

Manually Controlling Sections

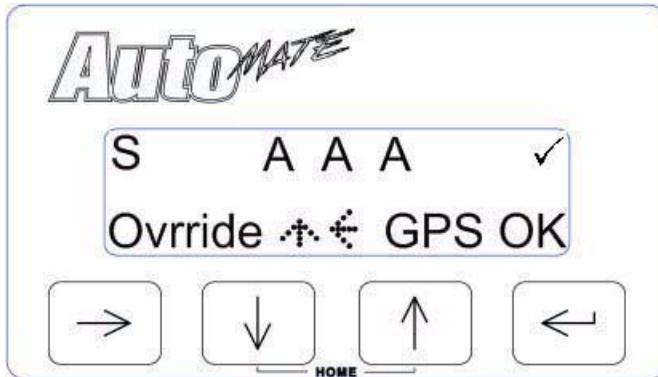


## Introducing the Home Display Screen

If AutoMate is operating normally and without warnings, the front panel will display:



The X in the upper right of the display indicates that the Master Switch is in the Off position. The S or P in the upper left corner of the display indicates the current application mode (spraying or planting).



When the Master Switch is toggled On, a check mark appears. (See "Master Switch Screen" on page 54 for information on the Master Switch feature.)



AutoMate will not control any sections unless a check mark is displayed in the upper right corner of the Home screen.

## Starting Up for the First Time

Before beginning the first operation, the AutoMate needs to be installed and configured for the sprayer or planter. Check that the following steps have been completed to properly set up AutoMate. This ensures that AutoMate is configured properly for successful operation.

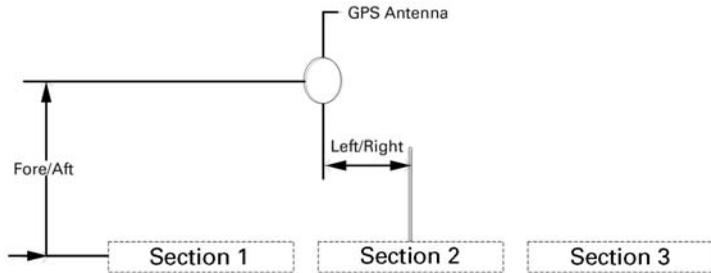
Steps:
<p>1. Set up your GPS receiver system to output a GPS signal to AutoMate.</p> <p>Your receiver must send AutoMate GGA position and VTG speed messages. Your receiver's message output rate should be 5 Hz or more. An output rate of 10 Hz is recommended. Please refer to your GPS receiver's user manual for detailed instructions on setting message outputs and speeds.</p> <hr/> <p><b>Note:</b> In order to facilitate proper communication between the GPS receiver and the AutoMate, the baud rates of the two devices must match. Hemisphere GPS recommends using the default baud rate of 19200 to communicate with the AutoMate. Refer to the GPS receiver operator's manual to set the NMEA message output baud rate to 19200.</p> <p>AutoMate's Port B is the DGPS port. The baud rate of Port B must match the baud rate of the GPS receiver output. Please See "Baud Rate Screens " on page 50.</p> <hr/>
<p>2. Set up the rate controller.</p> <p>The AutoMate controller will configure the appropriate data rates from the rate controller.</p>



<b>Steps:</b>	
3.	Select the operation mode.  AutoMate enables you to perform either a spray operation or a planting operation. See "Mode Selection Screen " on page 62 for more information.
4.	Select the distance units.  Using the AutoMate System Configuration menus, set the distance measurement to either inches or centimeters. (See "Distance Unit Screen " on page 48 for more information.)
5.	Configure the section widths.  Use the AutoMate Section Configuration menus to set up the number of sections and the width of each section. (See "Section Width Screens " on page 15 for more information.)
6.	Orient the sections relative to the GPS antenna.  Use the AutoMate Section Configuration menus to enter the location of the center of the section with respect to the GPS Antenna. (See "Left/Right Section Offset Screen " on page 17 and "Fore/Aft Section Offset Screen " on page 19 for more information.)  To measure the offset from the antenna (left/right), measure the distance of the GPS antenna left or right to the center line of all the sections.  To measure the fore or aft distance, measure the distance of the GPS antenna either in front or behind each boom section.
<b>Note:</b> If the GPS antenna is centered in relationship to the center of all the sections, the AutoMate will be set to 0.0 cm Left or 0.0" Left.	



**Steps:**



**Figure 4-1: Section Location**

7. Configure the section locations.

If this is a standard configuration, use the AutoLocate feature to configure the location of each section with respect to the GPS antenna. See "AutoLocate Sections Screen " on page 21 for more information.

If a custom configuration is used, use the optional section configuration screens to set the location of each section with respect to the GPS Antenna. (See "Individual L/R Section Offset Screen " on page 23 and "Individual F/A section Offset Screen " on page 25 for more information.)

8. Select the sections to be controlled.

Use the Controller Configuration menus to select which sections will be controlled by AutoMate. The default setting is that all sections are controlled by AutoMate. (See "Control All Sections Screen" on page 28 for more information.)



<b>Steps:</b>	
9.	<p>Set the look ahead times.</p> <p>Use the Controller Configuration menus to set the turn on and turn off look ahead times. The default look ahead time is 0.1 second. Look ahead times should be set in relationship to the speed of the application. (See "On Look Ahead Screen" on page 32 and "Off Look Ahead Screen" on page 34 for more information.)</p>
10.	<p>Set the override time.</p> <p>Use the Controller Configuration menus to set the override time. This feature enables you to override the AutoMate control. This is most often used when starting from a full stop position or to reapply over a previously sprayed area. (See "Override Time Screen " on page 36 for more information.)</p>
11.	<p>Select the percentage of coverage.</p> <p>Use the Controller Configuration menus to set the percentage coverage. The default setting is 100 percent. (See "Percent Coverage Screen " on page 29 for more information.)</p>
12.	<p>Test cycle the sections.</p> <p>Use the Test Cycle Sections option to ensure the valves, clutches, and other components are functioning properly before heading to the field. (See "Test Cycle Sections Screen" on page 40 for more information.)</p>



## Managing AutoMate Jobs

The AutoMate provides several type of jobs. These include:

- Standard job
- Job with field boundary
- Job with no-spray/no plant zones
- Job with field boundary and no-spray/no plant zones

### Starting a New (Standard) Job

The easiest way to use AutoMate is to simply start a job and begin your application. AutoMate will generate an as-applied record of activity. If entering an area that has already been applied, AutoMate will automatically turn off the section or sections that have entered the previously applied area.

Step	Screen Item (when applicable)
1. From the Home screen press the Down Arrow button until the Start New Job screen appears.	
<div style="text-align: center;">  <p><b>Figure 4-2: Start New Job Screen</b></p> </div>	
2. Press the Enter button to begin editing the setting. The setting will begin blinking to indicate edit mode.	



#### 4: General Operation

Step	Screen Item (when applicable)
3. Use the Up or Down Arrow button to toggle between Yes and No.	 or 
4. Press the Enter button to finish editing.	

---

**Note:** It is important to start a new job in AutoMate before each new application, field or job change. If a new job is not started, then there is the potential for AutoMate memory to fill up before the job is complete. If this occurs, prior as-applied data will be lost.

---

AutoMate will begin applying in a job as soon as all the following criteria are met:

- Master switch is ON
- Ground speed is detected (sprayer mode only)
- AutoMate recognizes that sections are in an unapplied area

### Creating a Job with Field Boundary

If concerned about applying product outside the field boundary, create a no-spray/no-plant boundary. You can create a field boundary whenever you are starting a job. Using the Create Field Boundary feature, make an initial spray pass around the boundary of the field. AutoMate will monitor the location of the sections and record a field boundary. Once the field boundary is created, AutoMate will automatically create a no-spray/no-plant zone of at least three section widths around the boundary of the field. AutoMate will turn off any section that enters the no-spray zone outside the field boundary.



## Field Boundary Menu



The Create Field Boundary menu enables you to create or replace a no-spray/no plant field boundary while making the first pass around the field. The following screens are available from the Field Boundary menu:

- Field Boundary Offset screen
- Start Field Boundary screen
- End Field Boundary screen

### Field Boundary Offset Screen

The Field Boundary Offset screen displays the orientation of the field boundary with respect to the sections. If Left is selected, then the field boundary will be made at the end of the left section. If Right is selected, then the field boundary will be made at the end of the right section. If



#### 4: General Operation

Center is selected then the boundary will be made at the center of the section.

Step	Screen Item (when applicable)
1. From the Home screen press the Right Arrow button until the Create Field Boundary screen appears.	
<div style="text-align: center;">    <div style="border: 1px solid black; padding: 5px; display: inline-block;">             Create Fld Bndry              Press ↓ To Enter           </div>   <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px 10px;">→</div> <div style="border: 1px solid black; padding: 2px 10px;">↓</div> <div style="border: 1px solid black; padding: 2px 10px;">↑</div> <div style="border: 1px solid black; padding: 2px 10px;">←</div> </div>   <p><b>Figure 4-3: Create Field Boundary Screen</b></p> </div>	
2. Press the Down Arrow button to enter the Create Field Boundary menu.	
3. Press the Down Arrow button once more to enter the Field Boundary Offset screen.	
<div style="text-align: center;">    <div style="border: 1px solid black; padding: 5px; display: inline-block;">             Fld Bndry Offset              Left ←           </div>   <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px 10px;">→</div> <div style="border: 1px solid black; padding: 2px 10px;">↓</div> <div style="border: 1px solid black; padding: 2px 10px;">↑</div> <div style="border: 1px solid black; padding: 2px 10px;">←</div> </div>   <p><b>Figure 4-4: Field Boundary Offset Screen</b></p> </div>	



Step	Screen Item (when applicable)
4. Press the Enter button to begin editing the Field Boundary Offset setting. The setting will begin blinking to indicate edit mode.	
5. Use the Up or Down Arrow button to toggle between the Left, Right, and Center.	 or 
6. Press the Enter button to finish editing.	

### Start Field Boundary Screen

The lower left corner of the Start Field Boundary screen shows the orientation of the field boundary with respect to the sections. “FBL” indicates it is at the end of the left section. “FBR” indicates the end of the right section. Make sure the correct field boundary offset for the direction the vehicle will be traveling around the field.

Step	Screen Item (when applicable)
1. From the Home screen press the Right Arrow button until the Create Field Boundary screen appears.	
 <p><b>Figure 4-5: Create Field Boundary Screen</b></p>	



#### 4: General Operation

Step	Screen Item (when applicable)
2. Press the Down Arrow button to enter the Create Field Boundary menu.	
3. Press the Down Arrow button twice more to enter the Start Field Boundary screen.  <i>OR</i>  From the Field Boundary Offset screen, press the Down Arrow button once to enter the Start Field Boundary screen.	 x2
 <p><b>Figure 4-6: Start Field Boundary Screen</b></p>	
4. Press the Enter button to begin recording the field boundary.	

#### End Field Boundary Screen

The End Field Boundary screen will automatically display after you begin recording the field boundary. The End Field Boundary screen



enables you to mark the end of the field boundary or cancel the operation.

Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 4-7: End Field Boundary Screen</b></p>
<p>5. Press the Enter button to finish recording the field boundary. The menu will flash the message "End".</p>	
<p>6. Use the Up or Down Arrow button to toggle between the options of End and Cancel.</p>	 or 
<p>7. Press the Enter button to apply the selected option.</p>	

**Note:** If the vehicle does not completely come back to the starting point of the field boundary before ending the field boundary, AutoMate will close the field boundary by generating a line from the starting point to the end point. The area outside this field boundary will now become a no-spray/no-plant zone.

### Creating a Job with No-Spray/No-Plant Zones

Some fields may have areas that contain critical features that should not receive an application. This may include waterways, well heads and other no-spray/no-plant areas. AutoMate allows the creation of up to



eight no-spray/no-plant zones within a job. Simply select the no-spray/no-plant zone boundary menus and follow the menu instructions. Once the AutoMate has been instructed to create a no-spray/no-plant zone, drive around the no-spray/no-plant zone while making an application. AutoMate will create a no-spray/no-plant zone within the area that you just applied around. As the field is applied, AutoMate will turn off any sections that enter the no-spray/no-plant zones.

### No Spray/No-Plant Zone Menus



The No-Spray/No-Plant Zone menu enables you to define up to eight areas that will not be sprayed or planted. The following screens are available from the No-Spray/No-Plant Zone menu:

- No-Spray/No-Plant Zone Offset
- Start No-Spray/No-Plant Zone
- End No-Spray/No-Plant Zone

### No-Spray/No-Plant Zone Offset Screen

The No-Spray/No-Plant Offset screen displays the orientation of the no-spray/no-plant zone with respect to the sections. If Left is selected, then the no-spray/no-plant zone will be made at the end of the left section. If Right is selected, then the no-spray/no-plant zone will be made at the



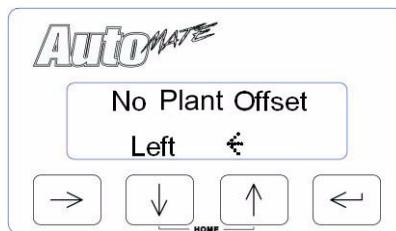
end of the right section. If Center is selected then the no-spray/no-plant zone will be made at the center of the sections.

Step	Screen Item (when applicable)
1. From the Home screen press the Right Arrow button until the Create No Plant Zone screen appears.	



**Figure 4-8: Create No-Spray/No-Plant Zone Screen**

2. Press the Down Arrow button to enter the Create No-Spray/No-Plant Zone menu.	
3. Press the Down Arrow button once more to enter the No-Spray/No-Plant Zone Offset screen.	



**Figure 4-9: No Spray/Plant Offset Screen**



Step	Screen Item (when applicable)
4. Press the Enter button to begin editing the No-Spray/No-Plant Offset setting. The setting will begin blinking to indicate edit mode.	
5. Use the Up or Down Arrow button to toggle between the Left, Right, and Center.	 or 
6. Press the Enter button to finish editing.	

### Start No-Spray/No-Plant Zone Screen

The lower left hand corner of the Start No Plnt X screen shows the orientation of the no-spray/no-plant zone with respect to the sections. "NSL" indicates the end of the left section is used. "NSR" indicates the end of the right section is used. Make sure to select the correct no-spray/no-plant zone offset for the direction the vehicle will be traveling around the no-spray/no-plant zone.

---

**Note:** The X in the example will be a number 1 for the first zone and will step up for each additional zone. A maximum of eight no-spray/no-plant zones can be created for a job.

---

Step	Screen Item (when applicable)
1. From the Home screen press the Right Arrow button until the Create No Plant Zone screen appears.	



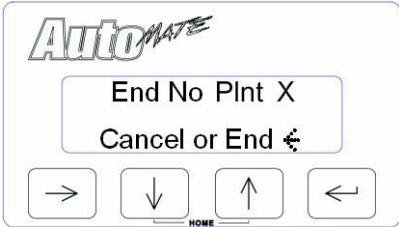
Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 4-10: Create No-Spray/No-Plant Zone Screen</b></p>
<p>2. Press the Down Arrow button to enter the Create No-Spray/No-Plant Zone menu.</p>	
<p>3. Press the Down Arrow button twice more to enter the Start No-Spray/No-Plant Zone screen.</p> <p><i>OR</i></p> <p>From the No-Spray/No-Plant Offset screen, press the Down Arrow button once to enter the Start No-Spray/No-Plant Zone screen.</p>	
	 <p style="text-align: center;"><b>Figure 4-11: Start No-Spray/No-Plant Zone Screen</b></p>



Step	Screen Item (when applicable)
4. Press the Enter button to begin recording the no-spray/no-plant zone.	

**End No-Spray/No-Plant Zone Screen**

The End No-Spray/No-Plant Zone screen will automatically display after you begin recording the no-spray/no-plant zone. The End No-Spray/No-Plant Zone screen enables you to mark the end of the no-spray/no-plant zone or cancel the operation.

Step	Screen Item (when applicable)
<div style="text-align: center;">  <p><b>Figure 4-12: End No-Spray/No-Plant Zone Screen</b></p> </div>	
5. Press the Enter button to finish recording the no-spray/no-plant zone. The menu will flash the message "End".	
6. Use the Up or Down Arrow button to toggle between the options of End and Cancel.	 or 
7. Press the Enter button to apply the selected option.	



---

**Note:** If the vehicle does not completely come back to the starting point of the no-spray/no-plant zone before ending, AutoMate will close the no-spray/no-plant zone by generating a line from the starting point to the end point. The area inside this boundary will now become a no-spray/no-plant zone.

---

### **Creating a Job with Field Boundary and No-Spray Zones**

For complete AutoMate control, you can generate both a field boundary and up to eight no-spray/no-plant zones for a job. Simply begin by defining a field boundary using the Create Field Boundary menus. See “Field Boundary Menu” on page 73. Then define the no-spray/no-plant zones using the Create No-Spray/No-Plant menus. See “No Spray/No-Plant Zone Menus” on page 78. AutoMate will create an as-applied record which includes a no-spray/no-plant field boundary and up to eight no-spray/no-plant zones within the field boundary.

### **Manually Controlling Sections**

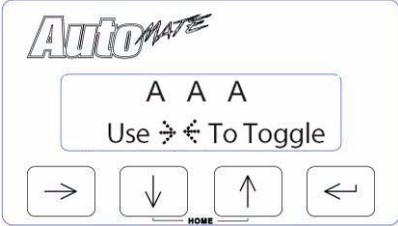
The AutoMate enables you to manually turn each section on or off in sequence using the Arrow keys on the front panel display. This is particularly useful when you want to prevent automatically making an application to undesired areas when making a boundary pass during a job. Also, the manual section control enables you to manually double apply specific areas such as corners that may need extra product coverage.

#### **Manually Control the Left Sections**

<b>Step</b>	<b>Screen Item (when applicable)</b>
1. From the Home screen press and hold the Up Arrow button to activate the Manual Control feature. The Manual Control Screen appears.	

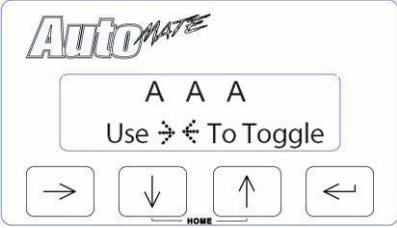


4: General Operation

Step	Screen Item (when applicable)
	 <p style="text-align: center;"><b>Figure 4-13: Manual Control Screen</b></p>
<p>2. Press the Right Arrow button to activate the far left section.</p>	
<p>3. Press the Right Arrow button again to activate the next section in from the far left.</p> <p>Continue pressing the Right Arrow button until you have activated each section on the left side.</p>	
<p>4. Press the Enter button to deactivate each section.</p>	
<p>5. Press the Up and Down Arrow buttons at the same time to return to the Home screen and place all sections back under automatic control.</p>	 and 



## Manually Control the Right Sections

Step	Screen Item (when applicable)
<p>1. From the Home screen press and hold the Up Arrow button to activate the Manual Control feature. The Manual Control Screen appears.</p>	
<div style="text-align: center;">  <p><b>Figure 4-14: Manual Control Screen</b></p> </div>	
<p>2. Press the Enter button to activate the far right section.</p>	
<p>3. Press the Enter button again to activate the next section in from the far right.</p> <p>Continue pressing the Enter button until you have activated each section on the right side.</p>	
<p>4. Press the Right Arrow button to deactivate each section.</p>	
<p>5. Press the Up and Down Arrow buttons at the same time to return to the Home screen and place all sections back under automatic control.</p>	 and 



#### 4: General Operation

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**Note:** Any sections placed under manual control while the vehicle is not in motion will be forced OFF when you start moving.

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## **Chapter 5: Troubleshooting**

Checking the System  
Understanding Error Messages  
Diagnosing Mechanical Problems



If a problem is encountered while using AutoMate, it might be for a variety of reasons. This section lists some of the common problems encountered and how to solve them.

## Checking the System

### Check the Installation

Check the connections to the AutoMate.

- Power connection: Make sure the power cable is secure on the back of the AutoMate controller.
- GPS receiver connection: Make sure the GPS connection is secure on the back of the AutoMate controller and to the GPS receiver.
- Control connection: Make sure the control cable is securely installed according to the rate controller's specific interface installation instructions.

### Check for Power

Make sure power is being supplied to the AutoMate. If the rate controller console has a power switch, make sure it is turned on. If the console and AutoMate power is supplied from switched power, make sure the power key or power switch is turned on and there is a solid 12 VDC connection.

### Check for GPS Reception

Make sure there is power to the GPS receiver. Make sure the GPS receiver is functioning and is in a position away from buildings, trees, and other obstructions so the antenna can receive unobstructed satellite signals.

### Check for GPS Communications

Check the AutoMate screen for any GPS communications errors. If an error is displayed, troubleshoot the GPS communications issue.



## Understanding Error Messages

When AutoMate is not working properly, the Home screen will display an error message associated with the problem. The table below lists the possible error messages that could display on the home screen, as well as how to correct them.

Error Message	Problem	Solution
NO GPS	AutoMate does not detect a GPS signal	<p>This is normal on startup. Wait at least 5 minutes before trying anything else.</p> <p>Make sure that the GPS receiver is turned on and receiving a signal.</p> <p>Make sure that the port setting for AutoMate and the GPS receiver match.</p> <p>Make sure that the GPS receiver is outputting GGA and VTG messages at 5 Hz or greater. 10 Hz is the recommended output rate.</p> <p>Make sure the DGPS cable is connected to the DGPS port on the console.</p>
NO DIF	Differential GPS has not been detected	<p>This is normal on startup. Wait 5 minutes.</p> <p>Check the GPS receiver to make sure it has the differential correction function.</p> <p>Contact manufacturer for additional information.</p>
Lo Mem LoDMem	Less than 20% of memory left	Finish job and start new job.
Flash?	An error has occurred writing to the flash drive.	If this problem persists then the unit will need to be returned for repair.
NoCons	AutoMate cannot communicate with the console.	<p>Check console data cable.</p> <p>If console does not support serial communication then set AutoMate console port to NONE through System Config menus.</p>



<b>Error Message</b>	<b>Problem</b>	<b>Solution</b>
Dashes	Master switch in off position.	Turn on master switch.
O in section position	Section switch out of position Override Enabled	Turn all console or machine section switches to the off position. Override should time out.

## Diagnosing Mechanical Problems

Mechanical problems with the vehicle can cause the AutoMate to not work properly. Before starting to troubleshoot the system, trace all wires to make sure that they are connected to the proper ports and connectors. Many potential problems can be avoided by making sure that all wires are properly connected.

The following table lists some common problems and the corrective action needed to fix the problem.

<b>Mechanical Problem</b>	<b>Solution</b>
AutoMate will not power up.	<ol style="list-style-type: none"> <li>1. Turn the key to the On position.</li> <li>2. Turn the product controller power switch on.</li> <li>3. Check the fuses.</li> <li>4. Check the battery connections.</li> <li>5. Test for +12VDC using a voltmeter.</li> <li>6. Replace AutoMate.</li> </ol>
AutoMate displays only half of the screen.	<ol style="list-style-type: none"> <li>1. Unplug the power cable from the back of the controller and then reattach it and power up.</li> <li>2. Replace AutoMate.</li> </ol>
AutoMate Arrow keys do not function.	<ol style="list-style-type: none"> <li>1. Unplug the power cable from the back of the AutoMate and then reattach it and power up.</li> <li>2. Replace AutoMate.</li> </ol>



<b>Mechanical Problem</b>	<b>Solution</b>
<p>Cannot enter or change the initial settings on AutoMate.</p>	<ol style="list-style-type: none"> <li>1. Turn off the power to AutoMate and then turn it back on.</li> <li>2. Verify that the Lockout Setting is Off.</li> <li>3. Replace AutoMate.</li> </ol>



## 5: Troubleshooting





## **Chapter 6: End User License Agreement**



## **HEMISPHERE GPS END USER LICENSE AGREEMENT**

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