ENVIZIO plus

Swath: 1
MPH: 10
Acres: 0.3

0.0

RAVEN

ENVIZIO PLUS

Congratulations on your purchase of the Envizio Plus guidance system! This system is the ultimate guidance solution, featuring numerous guidance patterns, LED combined with on-screen guidance, datalogging, and much more.
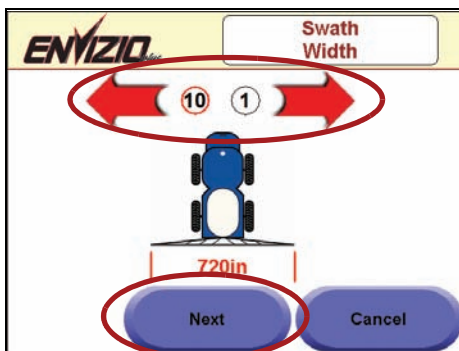
Initial Start-up

Upon initial start-up of your Envizio Plus system, you will be prompted to set two configuration settings. Once these two settings are made, the Envizio Plus is ready for use. You will not be prompted again for these two settings, only the very first time you power-on the system. After that, if you wish to change these settings, you may do so via the Configuration Pages, which you will learn about later in this manual.

Starting the Envizio Plus System

1. Press the Power switch to power-on the Envizio Plus system.

2. The first initial start-up screen, Swath Width, displays. Touch either the **'10' or the '1'** and then the **right or the left red arrow** to either increase or decrease the swath width by increments of 10 or 1. After you have set the desired number, touch '**Next**'.

3. The second initial start-up screen, Antenna Position, displays. Touch either the **'10' or the '1'** and then the **right or the left red arrow** or the **up or down red arrow** to either increase or decrease the antenna position in increments of 10 or 1. After you have set the desired number, touch '**OK**'.
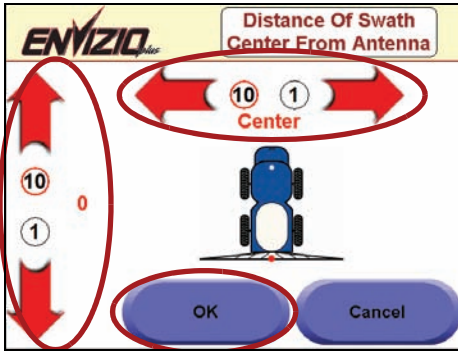

Helpful Hints:
- Normally the antenna position is set in reference to the application location.
- If you touch 'Cancel' on either of the two configuration screens above, you will be prompted again to set these the next time you power-on the Envizio Plus system.
- This is the overall boom width for guidance. To configure individual booms, see the configuration section.

4. The Home Screen will display and you can begin guidance.

2

Home Screen Areas
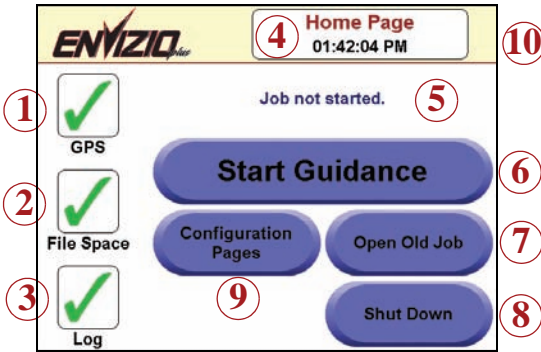
1. **GPS Status** - Shows a green check mark if GPS is detected, a red 'X' if not. Touch the icon to view the GPS Status screen and the 'Auto Detect' setting. May also show a yellow caution.

2. **File Space Status** - Shows the internal memory remaining, as well as the memory status of the USB storage device, if attached. A green check mark appears if the memory space is OK, a yellow warning if memory is low, and a red 'X' if there is no memory available. Touch the icon to show the remaining memory available.

3. **Log Status**- A green check mark indicates that the log status is 'On' and that a coverage map will be saved to the internal memory. A red 'X' indicates that the job will not be logged. Touch the icon to turn the log on or off.

4. **Screen Name and Time** - Shows the current screen name and time. **Note:** The time is only available if the Envizio Plus system is receiving RMC or ZDA NMEA messages.

5. **Job Status** - Shows the current status of the job as well as the job name that is displayed (if a job is started).

6. **Start Guidance** - Starts any new job. Touch the 'Start Guidance' button to start a new job.

7. **Open Old Job**- Opens a previous or existing job. Touch the 'Open Old Job' button to view and select existing jobs.

8. **Shut Down** - Shuts down the system. Touch the 'Shut Down' button to shut down the system.

9. **Configuration Pages** - Touch the 'Configuration Pages' button to show and/or change configuration settings for Swath Configuration, Antenna Position, Lightbar Configuration, Boom Control, Screen Background, File Management, Program Updates, Time Zone Settings, Display Units, Brightness Settings, Language Settings, Demo Mode, Guidance Page Smoothing, and TM1 Tilt Sensor.

10. **Software Version** - Shows the current software version of the Envizio Plus system.

Status Symbols

The following symbols can appear on the Home screen, and refer to the status of the GPS, File space, or Log files.

Icon Name	Description
✓	**Green Check Mark:** This part of the system is normal/enabled and all operating conditions are met.
⚠	**Yellow Caution:** This part of the system is receiving a warning. Operation can proceed with caution. Touch this icon to view the system warning.
✗	**Red 'X':** The system is experiencing a problem in this area or the user has elected to not use this function. This problem may need to be corrected before proceeding with operation. Touch this icon to view the system problem.

Job Screen Features and Areas

Swath: 1
MPH: 5.8
Applied: 0.1

0.0
Distance To Line

Swath Number or Mode

Speed, Course Over Ground (COG), or Rates (if using a Raven console. (touch to toggle)

Coverage Area

A-B Line

Green indicates that the booms are on and coverage is being logged

Switch to this guidance pattern

Swath: LAST
COG: 182°
Applied: 1.5

2.1R
Distance To Line
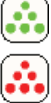
Guidance Line

Swath: 1
Rate 1: Rt 5.5 Ra 5.7
Applied: 0.1

0.0

Touch to enable the AccuBoom override if using a CAN system

Screen Icons

The following screen icons appear on the Guidance screen.

Icon Name	Description
	Menu Button: Shows the current menu options for the job when you touch the icon.
	Straight A-B Pattern: Allows you to switch to the Straight A-B pattern from the pattern you are presently running by touching the icon.
	Last Pass Pattern: Allows you to switch to the Last Pass pattern from the pattern you are presently running by touching the icon.
	Pivot Pattern: Allows you to switch to the Pivot pattern from the pattern you are presently running by touching the icon.
	Zoom Out: Allows you to zoom out from the field or area by touching the icon.
	Zoom In: Allows you to zoom in on the field or area by touching the icon.
	Boom Sense Icon: This icon shows the status of the boom, with green being 'On' and red being 'Off'.
	Vehicle Icon: The tip of the arrow represents the antenna position of the vehicle and where it is in reference to the swath line, field, etc. If your boom sense configuration is set to 'Touch Vehicle Arrow', you must touch this icon to turn the coverage map on and off.

Icon Name	Description
	SmarTrax Icon: This icon shows the status of the SmarTrax system, with green being system 'On' and the red X being system 'Off'.
	Autoboom Icons: Autoboom is on and both booms are on. Autoboom is on, the left boom is on, the right boom is off. Autoboom is on, the left boom is off, the right boom is on. Autoboom is on, but both booms are off. Autoboom is off and both booms are off.
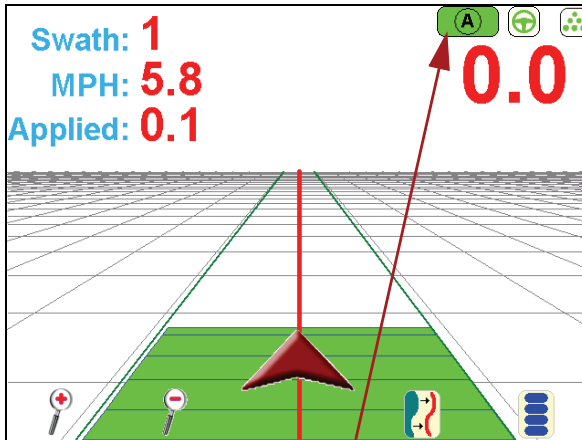
Touch the Autoboom icon to display the Autoboom Configuration page

Starting Guidance

1. From the Home Screen, touch **'Start Guidance'**.
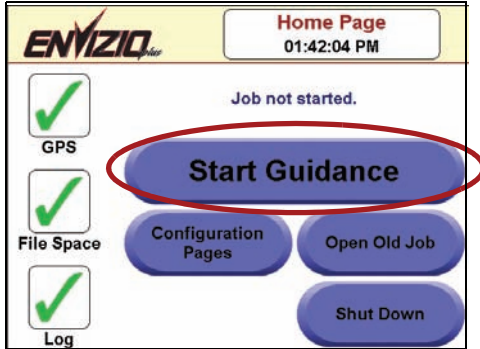
2. Touch **one** of the three available **patterns** (see the table below for pattern descriptions).
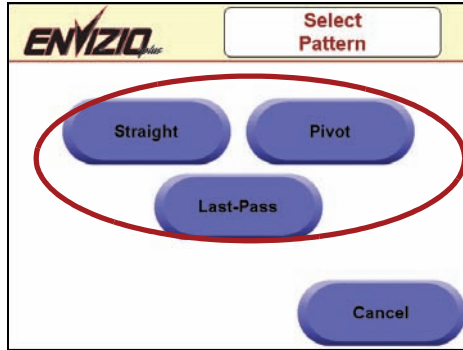
Pattern	Description
Straight	A straight A-B line pattern for parallel guidance.
Pivot	A 360 degree (or circle) pattern.
Last Pass	Guidance based on the last nearest pass driven.

Helpful Hints: The Envizio Plus system will allow you to save up to 100 A-B Lines. See the 'Saving an A-B Line' section for more information.

3. Press **OK** to proceed with the system generated file name, or touch 'Change Name' to type in a name for the file.
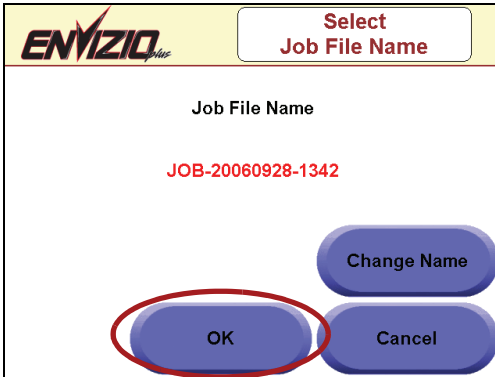
Helpful Hints:
- The default file name contains the date and time as received by GPS. This will only appear if the Log status is 'On'. If you forgot to turn the Log status 'On', you can go back to the Home screen and turn it on at anytime during the job. You will then be prompted to name the file.
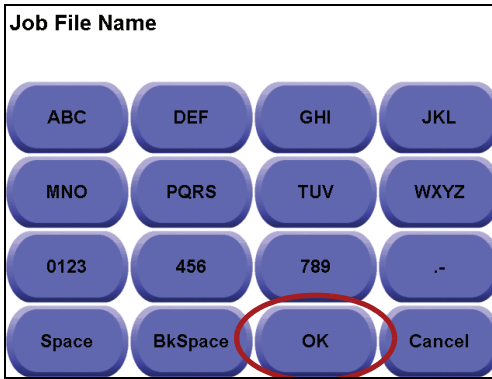- If you choose to type your own name for the file, you can use the touch pad to type the letters of the file name. The keypad letters (shown below) work similar to that of a telephone. For example, touch the 'ABC' button once for 'A', three times for the 'C', and so on. Once you have typed in the name, touch **OK**.

4. If you are using a CAN system, the Start Job Options screen displays. Select if you will be using AccuBoom (and if using a spray zone map) or AutoBoom for the job, then press **OK** to start the job.
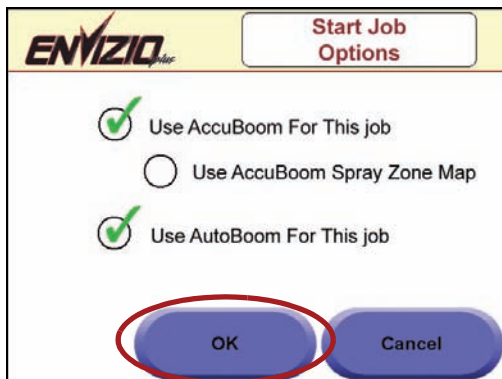
5. The Using AutoBoom screen appears. Press **OK** to review your AutoBoom settings.
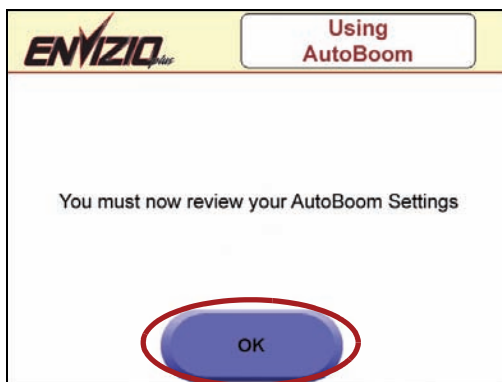
6. The AutoBoom Setup screen displays. Select the desired settings and press **Done** when finished.
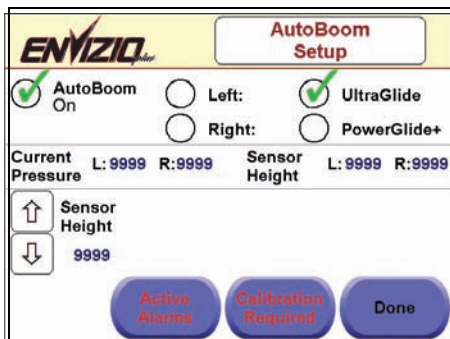
Setting the A-B Line Pattern

1. If you chose the Straight pattern, you will now need to set the A-B Line. When you are ready to set Point A, touch the green 'Set A' box on the screen.
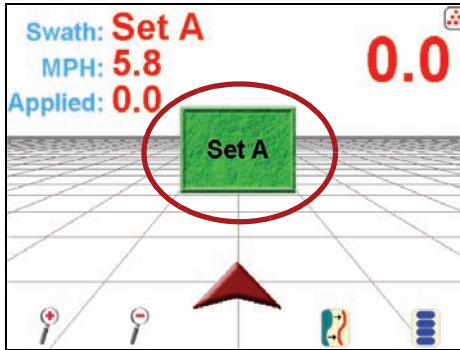
2. Next you will need to set Point B. Touch the green 'Set B' box on the screen to set Point B.
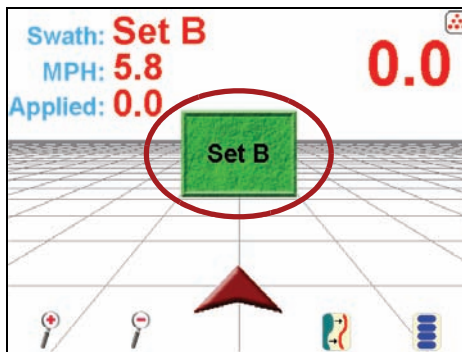
3. Once you have the A-B line set, parallel guidance will be based on this initial line.
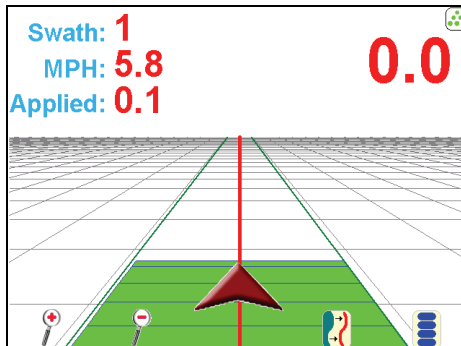
Setting an A-B Line by Heading

1. Touch the Speed/Course Over Ground area to change the setting to 'COG'.
2. Touch the green 'Set A' box on the screen to set Point A.
3. Touch the **Menu** button.
4. Touch **A-B Functions**.
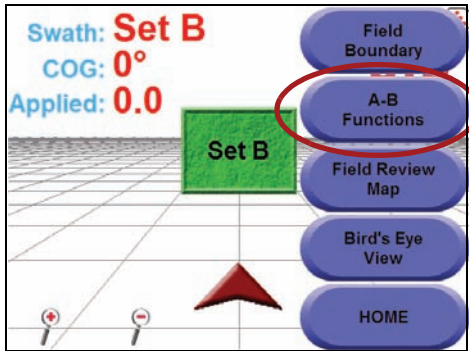
5. Touch '**Set B Using Heading**'.
6. **Enter the heading** for the A-B Line and touch **OK**. When setting the heading, remember that 0 degrees is North, 90 degrees is East, 180 degrees is South, and 270 degrees is West.
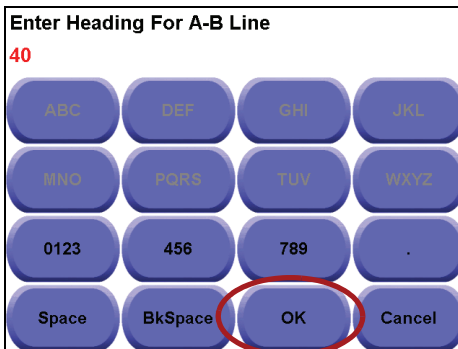
7. The new A-B Line is set using the heading you entered.
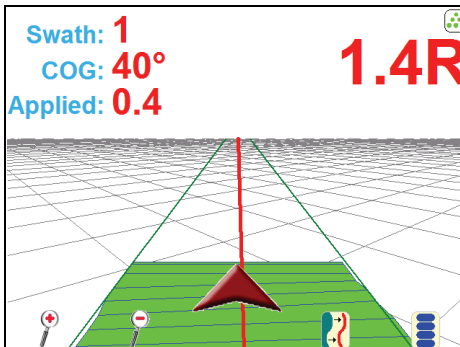
Setting the Last Pass Pattern

1. From the Home screen, select '**Start Guidance**'. Then select '**Last Pass**' as your pattern.
2. Touch **OK** to proceed with the system generated file name, or touch 'Change Name' to type in a name for the file.
3. If you are using a CAN system, the Start Job Options screen displays. Select if you will be using AccuBoom (and if using a spray zone map) or AutoBoom for the job, then press **OK** to start the job.
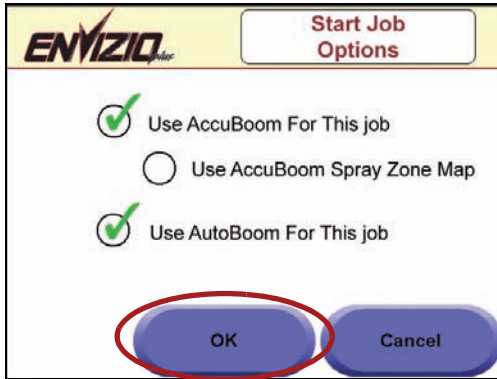
4. The Using AutoBoom screen appears. Press **OK** to review your AutoBoom settings.

5. The AutoBoom Setup screen displays. Select the desired settings and press **Done** when finished.
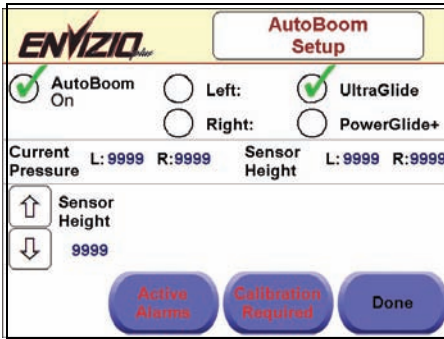

6. Since you have chosen the Last Pass pattern, you will not have to set an A-B Line and you can immediately start applying your product.
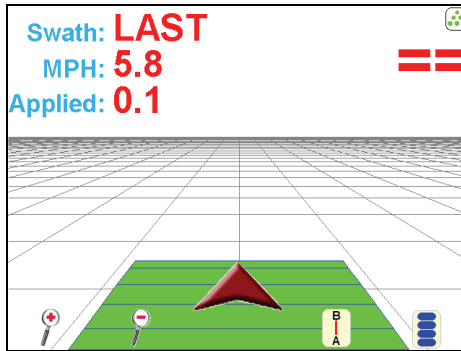
Remember: Coverage (or boom) must be on in order to get guidance. Guidance is based on the nearest 'covered' area.

7. When you get to the end of your pass and turn the vehicle, Envizio Plus will detect the nearest area that you mapped and use this as your guidance on the next swath line.
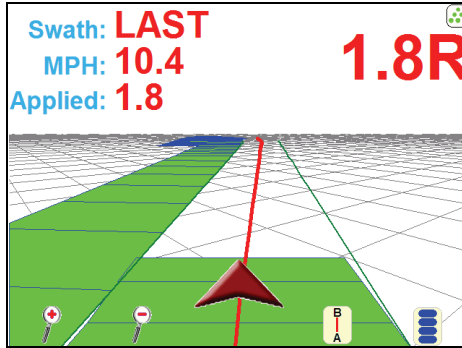
Setting the Pivot Pattern

1. From the Home screen, touch '**Start Guidance**'. Then select '**Pivot**' as your pattern.

2. Touch '**OK'** to proceed with the system generated file name, or touch 'Change Name' to type in a name for the file.

3. If you are using a CAN system, the Start Job Options screen displays. Select if you will be using AccuBoom (and if using a spray zone map) or AutoBoom for the job, then press **OK** to start the job.
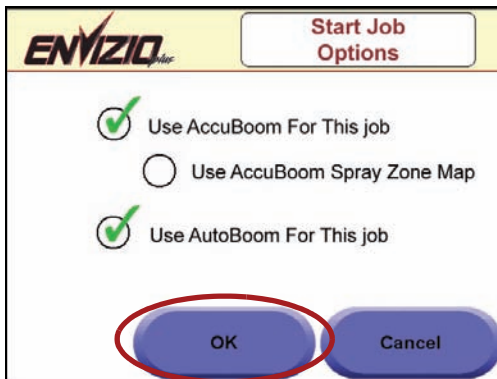
4. The Using AutoBoom screen appears. Press **OK** to review your AutoBoom settings.

5. The AutoBoom Setup screen displays. Select the desired settings and press **Done** when finished.
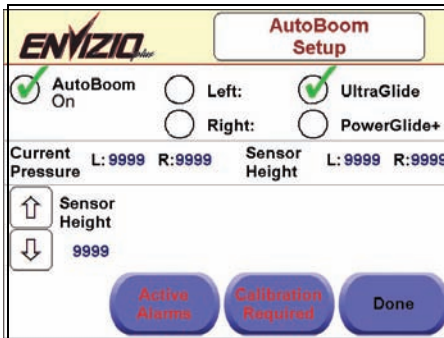
6. You will now need to set Point A so that the system knows where the starting point in your circle is located. When you are ready to set Point A, touch the green '**Set A**' box on the screen.
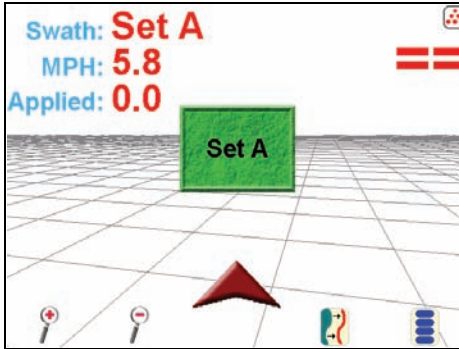
Important: Currently, this pattern does not require that a complete pivot pass be driven in order to generate guidance, but the further you drive before setting Point B, the more accurate the guidance will be.

7. You will now need to set Point B. When you are ready to set Point B, touch the green '**Set B'** box on the screen.
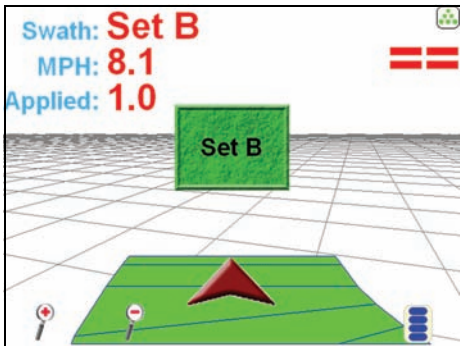
8. The guidance lines will now display to the inside of the circle or arc that you just set.

Using AccuBoom

The AccuBoom feature provides automatic spray control of your booms. With this feature, you can set up spray/no spray zones in your field. You must have a CAN AccuBoom kit installed in order to use this feature. See the **Configuration Pages** for more information on how to use and configure this feature.

Using Autoboom

The Autoboom feature provides automatic boom height control of your booms. With this feature, you can set your booms so that they automatically adjust to the correct height in your field. You must have a CAN Autoboom kit installed in order to use this feature. See the **Configuration Pages** for more information on how to use and configure this feature.

Using a Raven Console

If you are using a Raven console to data log information with the Envizio Plus system, you have the capability to view rate information on the guidance screen. If you press the MPH area two times, the rate information will appear and display up to five different rates. The guidance area will also appear 'painted' to show your rates in the different areas, according to what is being logged by your Raven console. See the **Job Screen Features and Areas** section for more information on this feature.

Remember: If serial console is selected, the console you are using **MUST** have a serial port. If a CAN console is selected, then it **DOES NOT** need to have a serial port.

Using a Raven CAN Console

If you are using a Raven console to data log information with the Envizio Plus system, you have the capability to view rate information on the guidance screen. If you press the MPH area two times, the rate information will appear and display up to five different rates. The guidance area will also appear 'painted' to show your rates in the different areas, according to what is being logged by your Raven console. See the **Job Screen Features and Areas** section for more information on this feature.

Opening Old Jobs

By touching the '**Open Old Job**' button, you can choose from jobs that are stored on the system's internal memory.

Helpful Hints: To open a job stored on external memory (USB storage device), you must first '**Load Jobs from External Memory**'. See the **Job File Management** section for more information.

1. From the Home Screen, select '**Open Old Job**'.
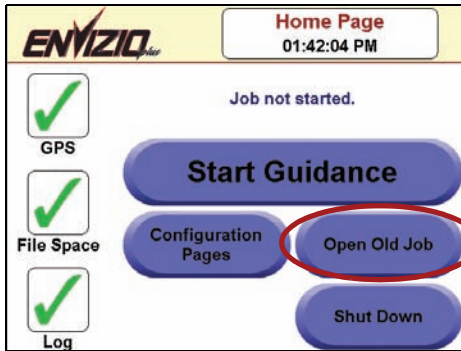
2. The 'Select Log File' screen displays. **Choose the job** you wish to open and touch **OK**, or touch Cancel to go back to the Home screen.
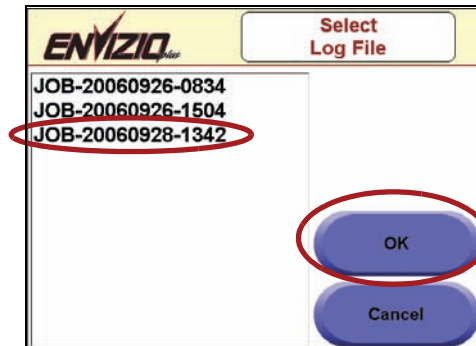
3. The job opens. You can now continue with the job.

Helpful Hint: You will not be able to open previous jobs that were saved prior to Envizio Plus firmware.

A-B Lines

Saving an A-B Line

After you set an A-B line, you can save it to memory for later use. To save an A-B line:

1. After you have set the A-B line, touch the **menu button**.
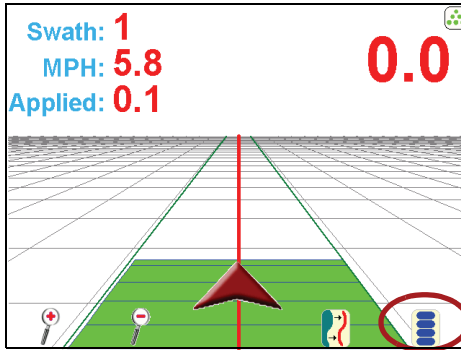
2. Touch the '**A-B Functions**' button.
3. Three options display. Touch '**Save A-B**'.
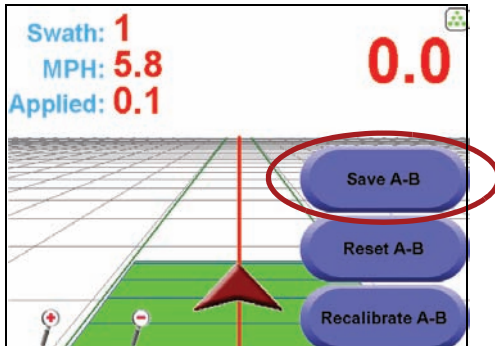
4. The 'Save A-B Line' screen displays. Press **OK** to keep the default name the system has given this line, or touch '**Change Description**' to type in your own name for the line and then touch **OK**.
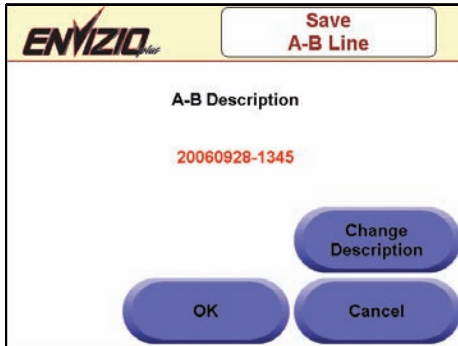
5. The line is now saved and can be used at a later time.

Loading an A-B Line

If you have a saved A-B line, you can open it for use at a later time. To load a saved A-B line:

1. After you have either started a new straight job, reset an A-B line, or loaded a previous job, touch the '**Menu button**'.
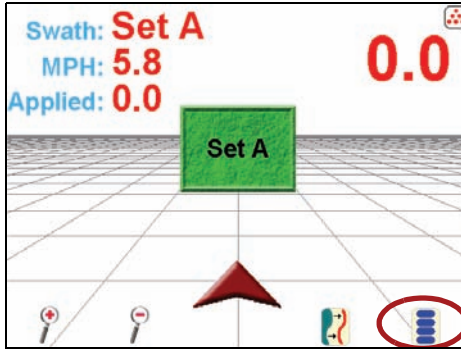
2. Touch the '**A-B Functions**' button.
3. Touch '**Load A-B Line**'.
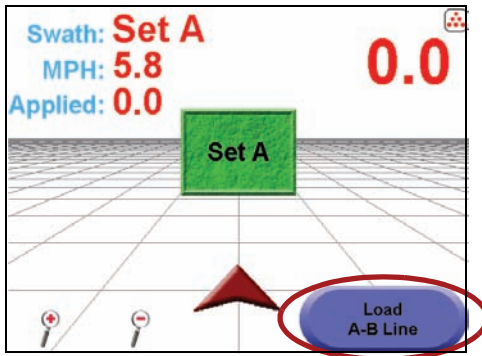
4. The 'Load A-B Line' screen displays. Select a **saved A-B** line from the list and touch **OK**.
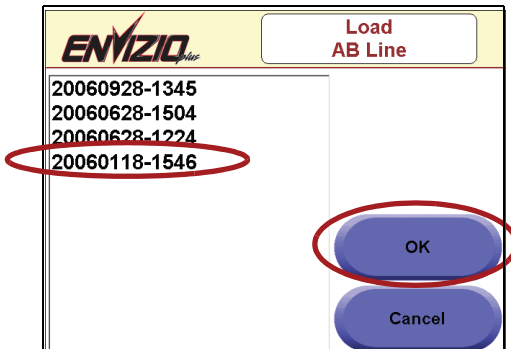
5. The A-B Line is now loaded for the current job.

Configuration Pages

From the Configuration Pages screen, you can configure many components of the Envizio Plus system. To get to the Configuration Pages screen, touch the '**Configuration Pages**' button on the Home screen.
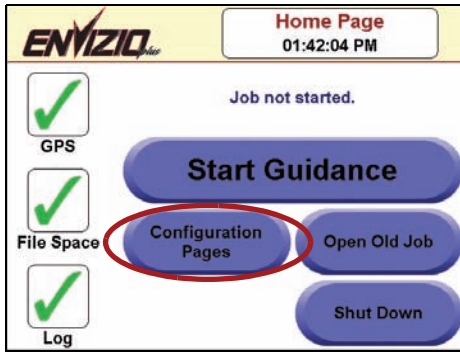
There are five Configuration Pages with different options. To get to each of the Configuration options, navigate through the Configuration Pages by touching the '**Next**' button. When you would like to configure an option, touch the option. Below is a list of configuration options that appear on each page:

Configuration Page 1	**Configuration Page 2**
Swath Configuration	Boom Control
Boom Configuration	Navigation Screen Background
Lightbar Configuration	File Management

Configuration Page 3	**Configuration Page 4**
Install Program Update	Adjust Brightness
Timezone Settings	Select Language
Display Units	Demo Mode

Configuration Page 5
Guidance Page Smoothing
TM1 Tilt Sensor

Swath Configuration

Use this screen to change/set the swath width:

1. From the 'Configuration Page 1', touch the '**Swath Configuration**' button.

2. The 'Swath Width' screen displays. Press either the **'10' or the '1'** and then the **right or the left red arrow** to either increase or decrease the swath width by increments of 10 or 1. After you have set the desired number, touch **'Next'**.
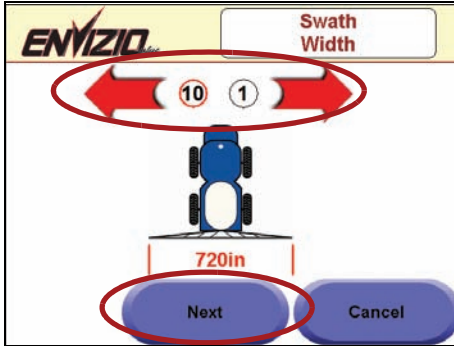
3. The Antenna Position screen displays. Use the red arrows to set the position of the antenna and press '**OK**' when finished.
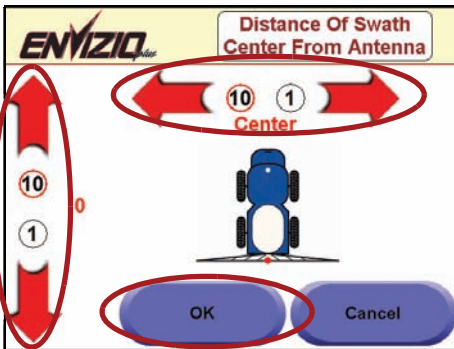
Boom Configuration

Use this screen to change/set the number of booms. This position should be set in relation to the application point (left/right and fore/aft).

1. From the 'Configuration Page 1' screen, touch the '**Boom Configuration**' button. The 'Boom Configuration' screen displays, showing the current boom setup. Press **Next.**
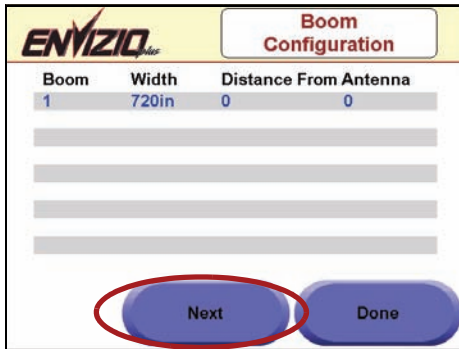
2. Use the red arrows to **select the number of booms**. Press **Next**.
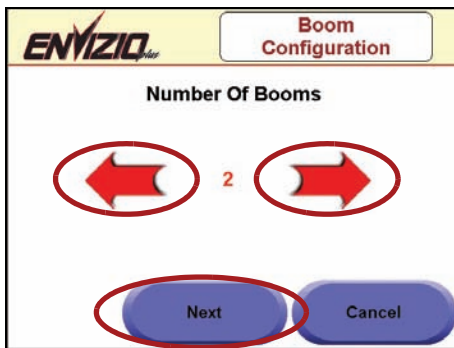
3. To auto configure the boom widths, press **Yes**.
4. The Auto Config Boom Widths screen displays. To adjust the width to something other than what they were auto-configured to, press **Yes**.
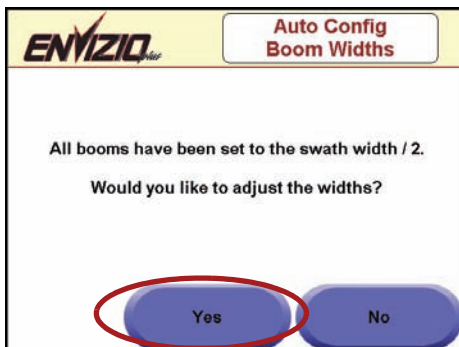
5. Use the red arrows to set the width for each boom, pressing **Next** to move to the next boom.

6. To auto configure boom locations, press **Yes**.
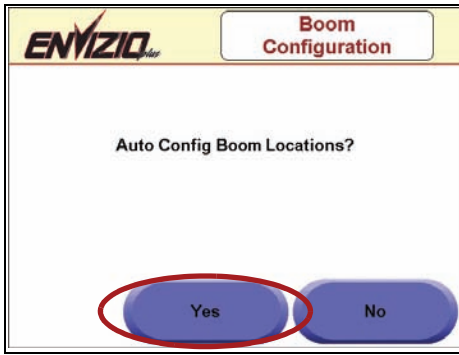
7. The Auto Config Boom Locations screen displays. To adjust the boom locations to something that they were auto-configured to, press **Yes**.
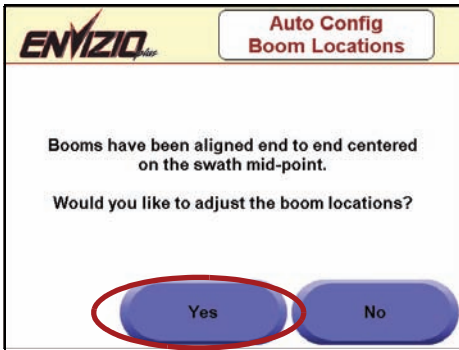
8. Use the red arrows to set the antenna distance for each boom, pressing **Next** to move to the next boom.
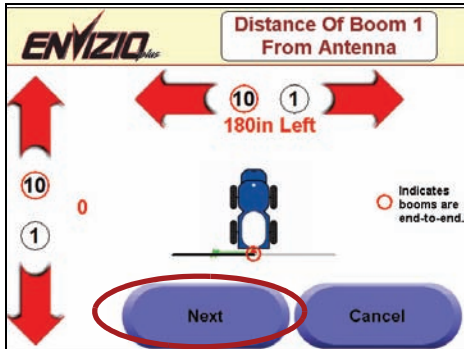
9. When all the booms have been configured, Configuration Page 1 displays, showing your new settings.

Lightbar Configuration

This screen allows you to configure the lightbar setup, as well as enable an external lightbar and the tilt sensor.

1. From the 'Configuration Page 1' screen, touch the '**Lightbar Configuration**' button.

2. The 'Lightbar Configuration' screen displays.
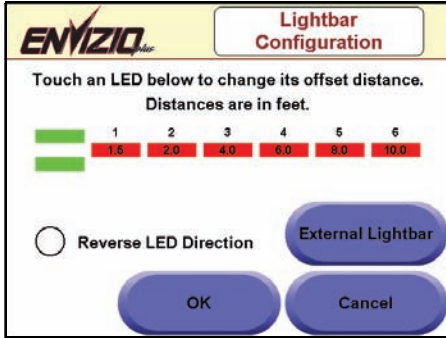
3. To change the offset distance for an LED, touch the **LED number** (or the bar below it) and a box will appear around that number, along with arrows underneath it. Press the **right or left arrow** to increase or decrease the offset amount. Press **OK** when you are done setting the offsets.
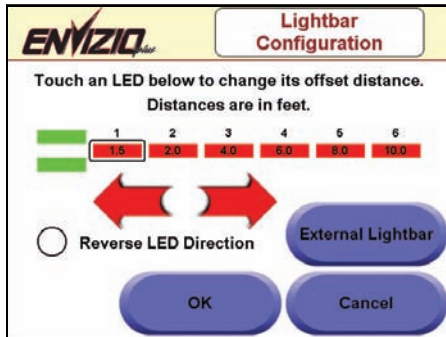
Helpful Hint: Selecting the "Reverse LED Direction" option will reverse the on-board and external lightbar LED's, so that you will need to turn away from the LED's instead of towards them.

Enabling the External Lightbar

1. Touch the '**External Lightbar**' button. Since an external lightbar has more LEDs than the on-screen lightbar, additional LEDs will display.

2. A button to turn the external lightbar on or off as well as a button to enable/disable the tilt function displays.

3. Touch the '**Enable External Lightbar**' button.
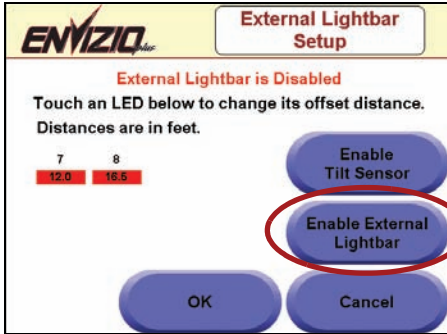
4. The external lightbar is now enabled. You must now go back to the Home screen before enabling the tilt sensor. To do this, touch **OK twice**, then **Done**.

Setting Up the Tilt Function

Important: You must enable the external lightbar before enabling the tilt sensor and you must have a Raven lightbar with tilt compensation in order for this option to function. The external lightbar must have the tilt function activated and the 'TLT' output messages turned to 'On' before enabling the tilt sensor via the Envizio Plus system. For information on lightbar setup, please see the lightbar operator's manual.

To enable the tilt sensor:

1. From the 'External Lightbar Setup' screen, touch the '**Enable Tilt Sensor**' button.
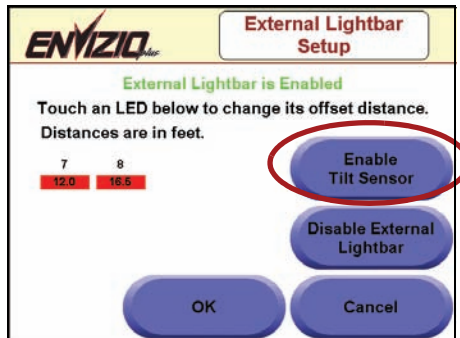
2. You will have to wait until the system stabilizes the tilt. This should take about 25-30 seconds.
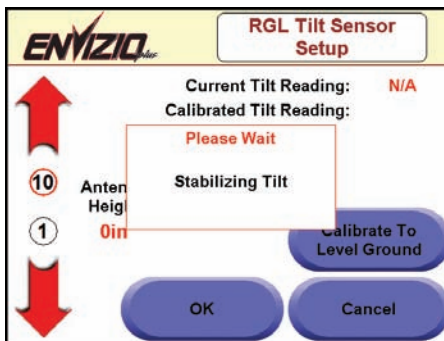
3. After the message goes away, **set your antenna height** (in inches) by touching the **red up or down arrows** and either the **1 or 10** for increments. Once you have the antenna height set and you are on level ground, touch the '**Calibrate to Level Ground**' button.

4. The Current Tilt Reading and the Calibrated Tilt Reading may now indicate different numbers (unless your tilt was originally zero).
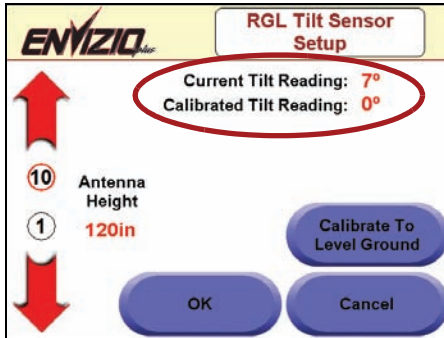
5. Touch **OK**. Touch **OK** again to exit the External Lightbar setup. Now touch **OK** again to exit Lightbar Setup. 'Configuration Page 1' displays. Touch **Done** to return to the Home screen.

Boom Control

This screen allows you to set the boom controls, including AccuBoom, Autoboom, and the boom sense setting.

1. From the 'Configuration Page 1' screen, touch the '**Next**' button. The 'Configuration Page 2' screen displays.

2. Touch the '**Boom Control**' button.
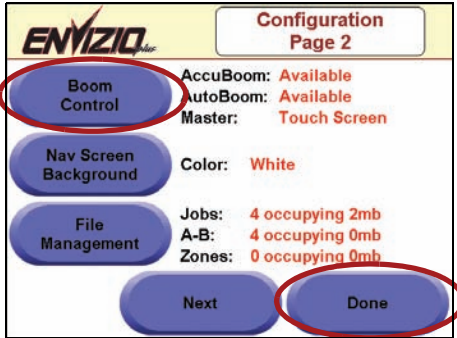
3. The 'Boom Control Setup' screen displays. **Touch one of the available options to configure** (AccuBoom, Autoboom, or Boom Sense) or touch 'Done' to return to the 'Configuration Page 2' screen.
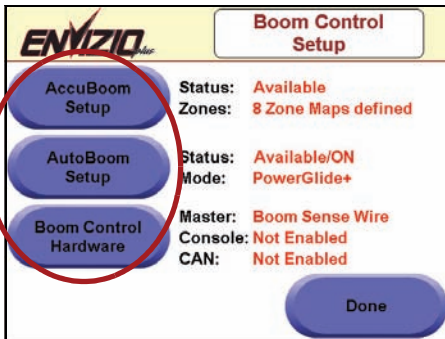
AccuBoom Setup

To setup the Accuboom control, touch the 'AccuBoom Setup' button. The Accuboom Setup screen displays. **Touch the right or left arrows** to adjust the timing for the different features. These features are defined as follows:

- **Turn Off Percent** - The percentage of the boom that is over a previously applied area before it turns off. It is recommened that this number be less than 90%, otherwise the boom may turn on when not desired.

- **Turn On Look Ahead Seconds** - When the boom is off, this is the time (in seconds) that it takes the boom to actually start applying when turned on.

- **Turn Off Look Ahead Seconds** - When the boom is on, this is the time (in seconds) that it takes the boom to stop applying when turned off.

- **On-Override Seconds** - The time the boom will stay on when the override is pressed from the guidance page.
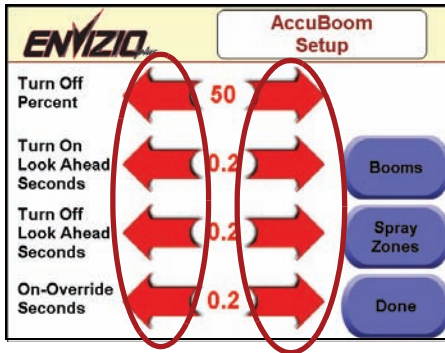
1. Touch the '**Booms**' button to display the AccuBoom Boom Selection Screen. From this screen, you can choose which booms you want to control with AccuBoom.
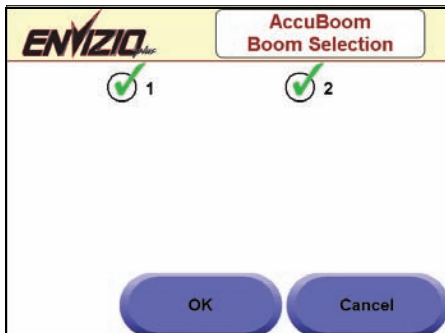
2. Touch the '**Spray Zones**' button to display the AccuBoom Spray Zones Screen. From this screen, you can create, modify, and delete spray zone maps.

Creating a New Zone Map (with Field Boundary and Spray Zones)

1. Press **Create New Zone Map**.
2. **Type in a name** for the spray zone map and press **OK**.
3. Press the **Menu Button** in the lower right corner of the screen and then press **Field Boundary,** then **Record Field Boundary**.
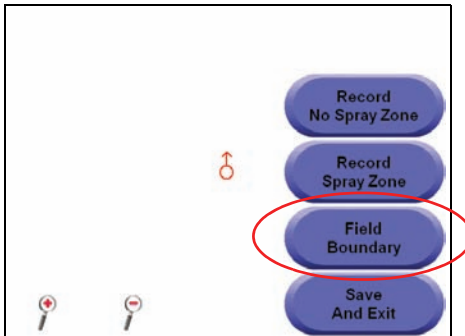
4. Select the Recording Reference Point and press **OK**.
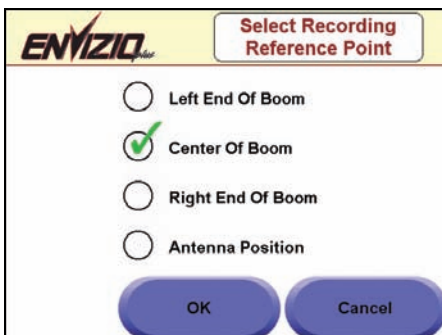
5. Begin recording the field boundary. When you are finished, press the **Menu** button and select **End Recording**.

6. The field boundary will appear on the screen.
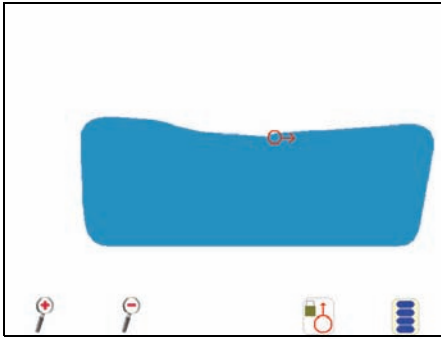
7. Press the **Menu** button and select **Record No Spray Zone**.
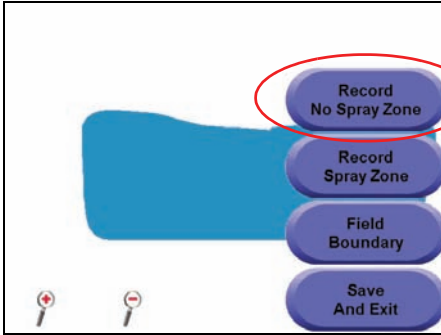
8. Begin recording the no-spray zone. When you are finished, press the **Menu** button and select **End Recording**.
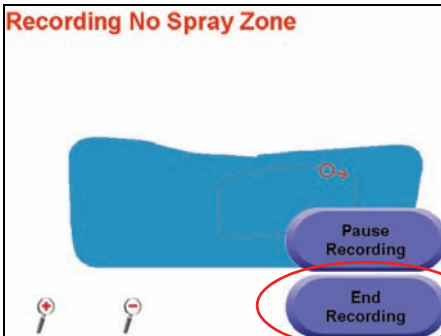
9. The no-spray zone will appear on the screen, along with the field boundary.
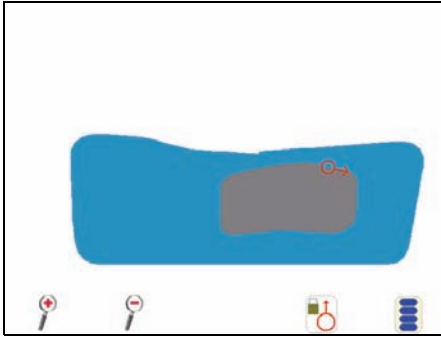
10. Press the **Menu** button and select **Record Spray Zone**.
11. Select the Recording Reference Point and press **OK**.
12. Begin recording the spray zone. When you are finished, press the **Menu** button and select **End Recording**. The spray zone will appear on the screen, along with the field boundary.
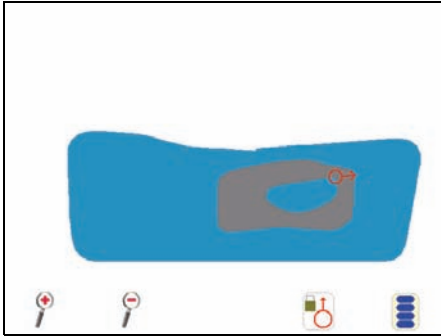
13. Press the **Menu** button and select **Save and Exit** to save and close the map.

Helpful Hint: After saving, a 3 boom width No Spray Zone will be added around the boundary.

Boom Control Hardware

This button allows you to change or set the boom control hardware.
There are six selections for the boom control hardware setup: **Boom Sense Wire, On-Screen Vehicle Arrow, AccuBoom Master Switch, Raven Console, CAN System, and Boom Node/CAN Console**.

1. **Boom Sense Wire** - will turn the coverage on or off automatically when you turn the master switch on or off, when the master switch is wired to the Envizio master switch wire.
2. **On-Screen Vehicle Arrow** - will turn the coverage map on or off when you touch the vehicle arrow icon on the screen.
3. **AccuBoom Master Switch** -   will show coverage based on the AccuBoom master switch when the master switch is physically connected to the AccuBoom master switch wire.
4. **Raven Serial Console** - selecting this will use your existing Raven console to get your applied rates. **MUST HAVE A MASTER SWITCH CONNECTED AND BOOM SWITCHES OFF**.
5. **CAN System** - selecting this will allow the system to use the AccuBoom and/or Autoboom control. **THIS MUST BE ENABLED PRIOR TO USING ACCUBOOM OR AUTOBOOM.**
6. **Boom Node/CAN Console** - select this option when using an Envizio Plus with a SCS 4000 Series console on a CAN system to data log rate from the CAN bus system. **ALL BOOMS MUST BE ON IN ORDER FOR ACCUBOOM TO WORK.**

Helpful Hints:
- You must have the boom sense wire connected to a +12 VDC signal source (+12 VDC = map painting is 'On', 0 VDC = map painting is 'Off').
- You can only select either the Boom Sense Wire **OR** On-screen Vehicle Arrow option, not both.

Navigation Screen Background

This function allows you to change/set the background color of the screen.

1. From the 'Configuration Page 1' screen, touch the '**Next**' button. The 'Configuration Page 2' screen displays.

2. There are two choices for the navigation screen background: white or black. Touch the '**Nav Screen Background**' button to toggle between the two settings. Touch **Done** when you are finished with this setup.
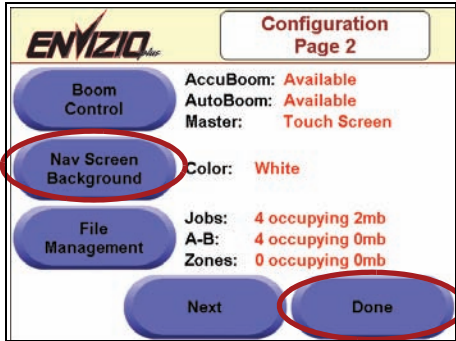
File Management

This function allows you to change/set the file management setup. This includes loading jobs to and from internal and external memory, as well as deleting jobs.

1. From the 'Configuration Page 1' screen, touch the '**Next**' button. The 'Configuration Page 2' screen displays.

2. Touch the '**File Management**' button.
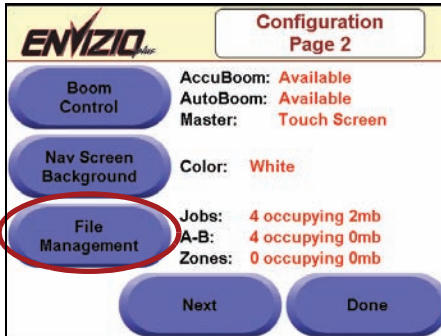
Helpful Hint: You cannot enter this configuration while a job is in progress. You must close or end the job before accessing this screen.

3. The 'File Management' screen displays. Choose one of the options available or touch 'Cancel' to return to the 'Configuration Page 2' screen.
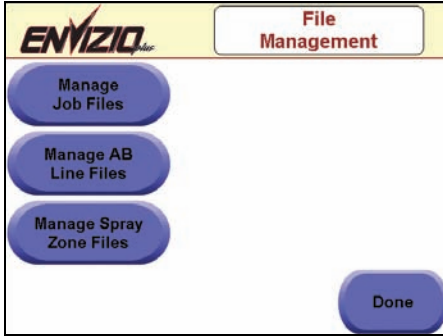
Touch the **Manage Job Files** button to display the Job File Management screen. Choose one of the options available or touch 'Done' to return to the 'File Management' screen.
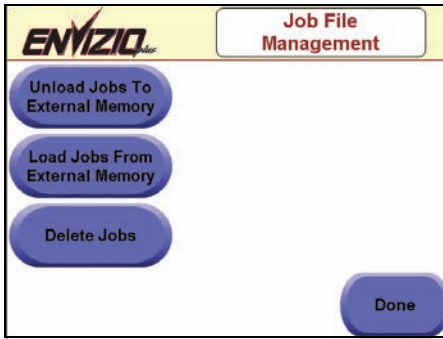
The chart below shows the Job File Management options and their function:

Button	Function
Unload Jobs to External Memory	Lists all jobs saved on internal memory. Choose which jobs you wish to save to external memory.
Load Jobs From External Memory	Lists all jobs available on external memory. Choose which jobs you wish to save to internal memory.
Delete Jobs	Lists all jobs available on internal memory. Choose which jobs you wish to delete from internal memory.
Done	Cancels Job File Management. Returns you to File Management screen.

Touch the **Manage AB Line Files** button to display the 'AB Line File Management' screen. Choose one of the options available or touch 'Done' to return to the 'File Management' screen.
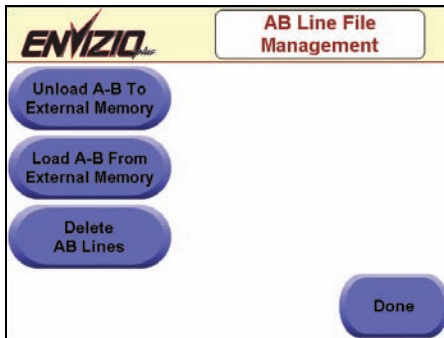
The chart below shows the AB Line File Management options and their function:

Button	Function
Unload A-B To External Memory	Lists all A-B lines saved on internal memory. Choose which A-B lines you wish to save to external memory.
Load A-B From External Memory	Lists all A-B lines available on external memory. Choose which A-B lines you wish to save to internal memory.
Delete AB Lines	Lists all A-B Lines saved to internal memory. Choose which A-B line you want to delete.
Done	Cancels AB Line File Management. Returns you to File Management screen.

Touch the **Manage Spray Zone Files** button to display the 'Spray Zone File Management' screen. Choose one of the options available or touch 'Done' to return to the 'File Management' screen.
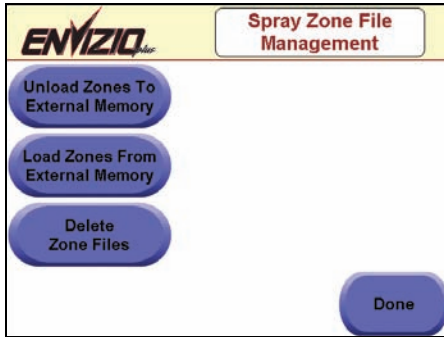
The chart below shows the Spray Zone File Management options and their function:

Button	Function
Unload Zones To External Memory	Lists all spray zones saved on internal memory. Choose which spray zones you wish to save to external memory.
Load Zones From External Memory	Lists all spray zones available on external memory. Choose which spray zones you wish to save to internal memory.
Delete Zone Files	Lists all spray zones saved to internal memory. Choose which spray zones you want to delete.
Done	Cancels Spray Zone File Management. Returns you to File Management screen.

Install Program Update

This function allows you to update the software for the Envizio Plus system. This may be done whenever there is a new software version available. You must have the software update stored on a USB storage device prior to beginning the update. To do this, copy or download the update to the root directory of the USB storage device. To find the latest Envizio Plus software updates, visit **http://www.ravenprecision.com/us/Support/Software/** or contact your Raven distributor or a Raven Technical Service Representative.

1. Connect the USB storage device to one of the Envizio Plus USB ports shown below.

2 USB Ports, one on the side and one underneath by the power cable connection

2. From the 'Configuration Page 1' screen, touch the '**Next**' button. From the 'Configuration Page 2' screen, touch the '**Next**' button. The 'Configuration Page 3' screen displays.

3. If the USB storage device is being detected, you will see '**Installer: \Hard Disk\installer.exe**', beside the 'Install Program Update' button. Touch the '**Install Program Update**' button if you would like to update the software.

Helpful Hint: If you see '**Installer: None Found**', your USB storage device is not being detected, or no update is available. Try pulling out the device and then re-inserting it. After you see that the device has been found, continue with step 3 above. You can view the current Envizio Plus software version on the Home screen.

4. The update will automatically install. You will be prompted to re-start your Envizio Plus system. Power off the system via the power switch, then power-on again. Your update is now installed.

TimeZone Settings

This function allows you to set how you wish to configure the Daylight Savings Time and Timezone settings for the Envizio Plus system. For the Daylight Savings Time setting, your choices are 'Off' or 'Auto'. When you choose 'Auto', Envizio Plus automatically takes into account Daylight Savings Time and correctly computes the correct time. You also have 2 choices for the Timezone setting: 'Manual' or 'Auto'. When you choose 'Manual', you are prompted to type in the number of hours your time is off of GMT. When you choose 'Auto', the Envizio Plus system automatically uses GPS information to determine this. It is recommended that you use the 'Automatic' mode for this setting, as well as for Daylight Savings Time.

1. From the 'Configuration Page 1' screen, touch the '**Next**' button. From the 'Configuration Page 2' screen, touch the '**Next**' button. The 'Configuration Page 3' screen displays.

2. Touch the '**Timezone Settings**' button.
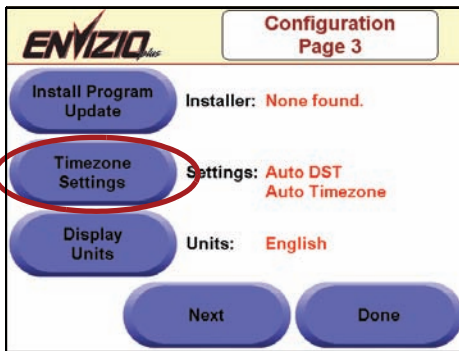
3. The Timezone Settings page displays. Touch either the '**Daylight Savings Time**' button or the '**Timezone**' button to toggle between the

two choices for each. Touch **OK** when you are finished with these settings.
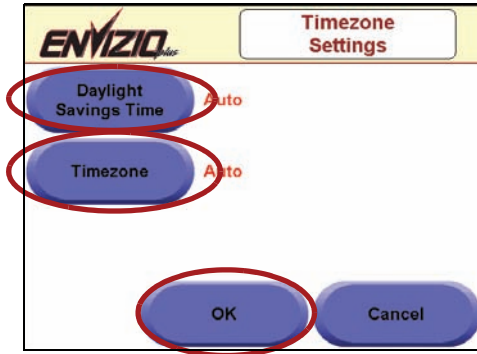
4. Touch **Done** when you are finished with this setup.

Display Units

This function allows you to set the units in which the measurements display for the Envizio Plus system. Your choices are 'English' or 'Metric'. This button is a toggle button that will switch between the two settings.

1. From the 'Configuration Page 1' screen, touch the '**Next**' button. From the 'Configuration Page 2' screen, touch the '**Next**' button. The 'Configuration Page 3' screen displays.
2. Touch the '**Display Units**' button until the desired unit of measurement displays, either English or Metric.
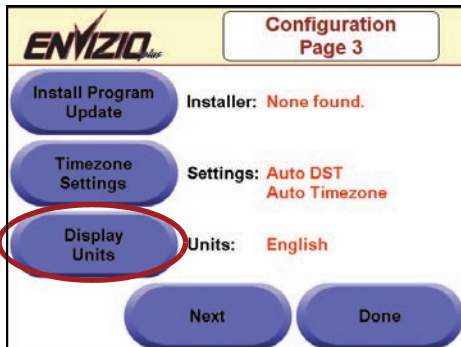
3. Touch **Done** when you are finished with this setup.

Adjust Brightness

This function allows you set the screen brightness for the Envizio Plus system screen, the lightbar, and the external lightbar.

1. From the 'Configuration Page 1' screen, touch the '**Next**' button. From the 'Configuration Page 2' screen, touch the '**Next**' button. The 'Configuration Page 3' screen displays. Touch the '**Next**' button. The 'Configuration Page 4' displays.

2. Touch the '**Adjust Brightness**' button.
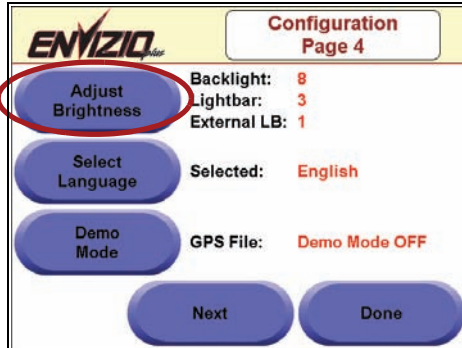
3. The 'Brightness Settings' screen displays. From this screen you can set the brightness for the backlight of the Envizio Plus display screen, the Envizio Plus lightbar, and an external lightbar. Touch the **right arrow** for each of these to increase the brightness, or touch the **left arrow** to decrease it. Touch '**Done**' when you are finished adjusting the brightness settings.
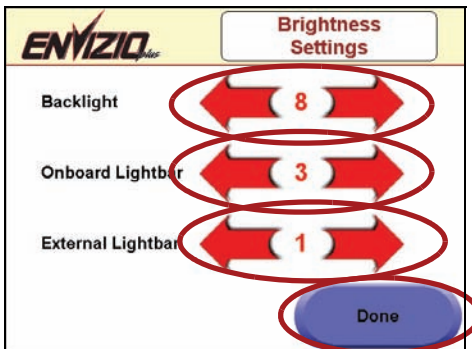
4. Touch '**Done'** again when you are finished with this setup page.

Select Language

This function allows you to set the display language for the Envizio Plus system.
Currently, the options are English, Spanish, or Portuguese.

1. From the Configuration Page 1 screen, touch the '**Next**'
    button. From the Configuration Page 2 screen, touch the '**Next**'
    button. The Configuration Page 3 screen displays. Touch the '**Next**'
    button. The Configuration Page 4 displays.
2. Touch the '**Select Language**' button until the desired language
    displays, either English, Spanish, or Portugese.
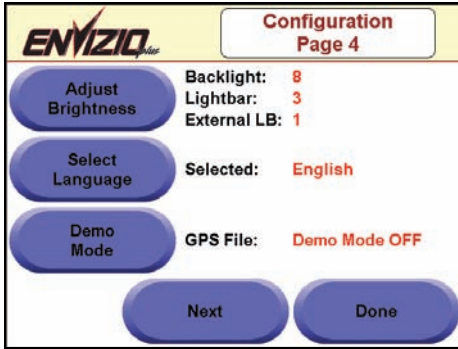
3. Touch '**Done**' when you are finished with this setup page.

Demo Mode

This function allows you to set a 'demo' mode for the Envizio Plus system.
This mode allows you to run a demo of the Envizio Plus system without
requiring DGPS input. The demo file is a built-in part of the Envizio Plus
software, so no uploading is necessary.

1. From the Configuration Page 1 screen, touch the '**Next**'
    button. From the Configuration Page 2 screen, touch the '**Next**'
    button. The Configuration Page 3 screen displays. Touch the '**Next**'
    button. The Configuration Page 4 displays.

2. Touch the '**Demo Mode**' button. Touching this button will toggle between the demo file stored on internal memory and 'Demo Mode OFF'.
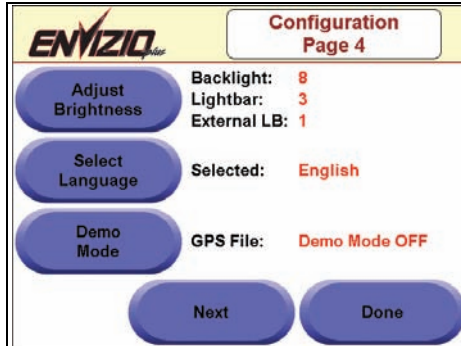
3. Touch '**Done'** when you are finished with this setup page.

Important: You must power off the Envizio Plus system after changing the demo mode configuration for it to take effect. After you power off, you can then power-on the system and resume normal operation.

Helpful Hint: While in the demo mode, the GPS Status icon on the Home screen will display a green check mark if the system is receiving simulated GPS from the demo file.

Guidance Page Smoothing

The Guidance Page Smoothing feature helps to smooth GPS coordinates when driving in rough or uneven terrain, resulting in better on-screen imaging for course over ground simulation. The default for this feature is LOW. This feature has settings for the low, medium, high, or off settings. The low setting will offer slight smoothing of your course over ground, the medium setting will offer moderate smoothing, the high setting will offer aggressive smoothing, and the off setting will turn this feature off.

1. From the Configuration Page 1 screen, touch the '**Next**' button.
    From the Configuration Page 2 screen, touch the '**Next**' button.
    The Configuration Page 3 screen displays. Touch the '**Next**' button.
    The Configuration Page 4 displays. Touch the **'Next'** button.
    The Configuration Page 5 displays.
2. The default for Guidance Page Smoothing is set to 'LOW'. To change the setting for this feature, **continue to step #3** below. If you wish to leave this setting as it is, touch '**Done**'.
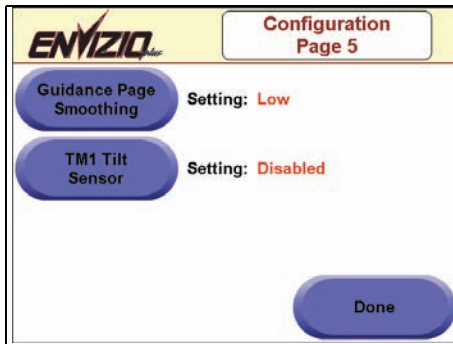
3. Touch the '**Guidance Page Smoothing**' button. The Guidance Page Motion Smoothing screen displays.
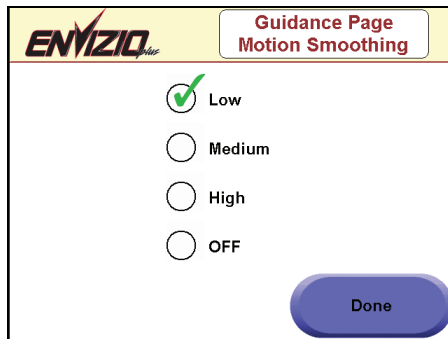
4. **Touch the circle for the smoothing option** that you prefer.
5. Once you are finished selecting your smoothing option, touch the '**Done**' button. Your setting will now appear next to the Guidance Page Smoothing button on Configuration Page 5.

TM1 Tilt Sensor

The TM1 Tilt Sensor is the configuration screen for the Raven external tilt sensor that can be installed externally.

1. From the Configuration Page 1 screen, touch the '**Next**' button until Configuration Page 5 displays.
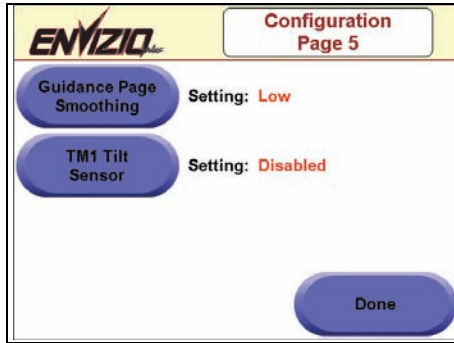
2. From the TM1 Tilt Sensor Setup screen, you can enable the tilt sensor, adjust the polarity, perform calibration, and adjust antenna height.
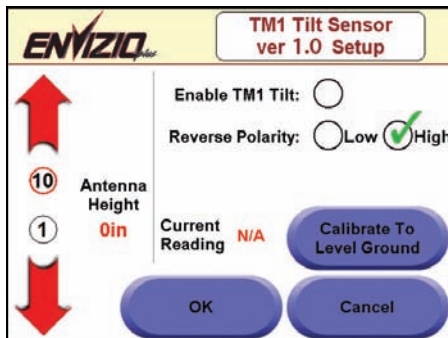
Shut Down

> **Important:** The instructions below are the recommended method for 'shutting down' or 'powering off' the Envizio Plus system. 'Shutting down' or 'powering off' any other way may not close or save system files properly, which may result in corrupt files.

By touching the '**Shut Down**' button, you can shut down the Envizio Plus system.

1. From the Home Screen, select **Shut Down**.
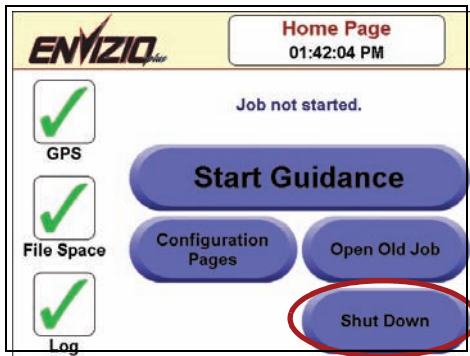
2. The Shut Down screen displays. Touch '**Yes**' to shut down the system.
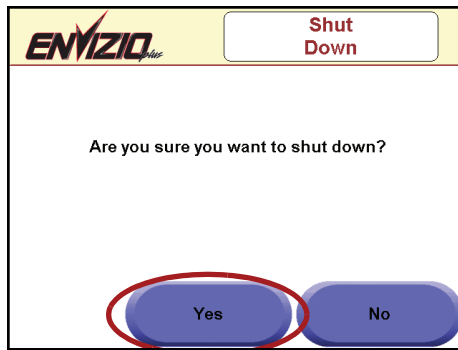
3. A message displays that it is now ok to turn off the system via the power switch on the side of the system.

Birds Eye View

The 'Birds Eye View' screen displays an overhead view of your vehicle and swathing pattern for the job you are working on.

1. While in a job, touch the '**Menu'** button. The menu button expands. Touch the '**Birds Eye View**' button.
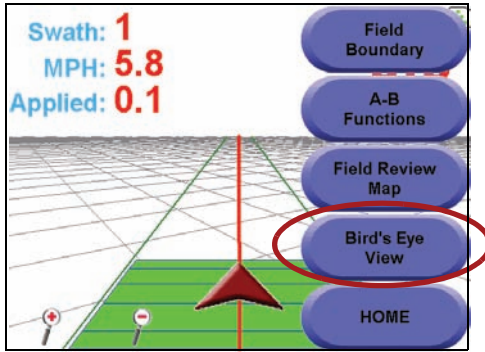
2. The 'Birds Eye View' screen displays, showing the field and vehicle from an overhead view.
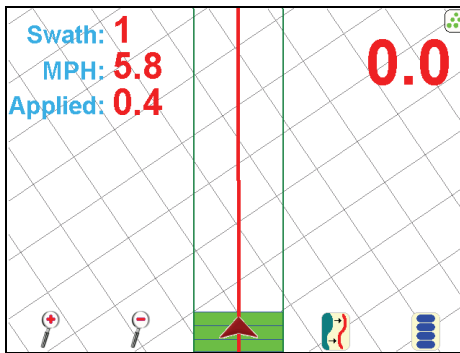
Helpful Hints: To change back to the default view (called the Down Field View), touch the '**Menu**' button again, then select **'Down Field View'** .

Field Review Map

The 'Field Review Map' screen displays a view showing the entire field that you are working on, as well as a coverage map for your job.

1. While in a job, touch the '**Menu**' button. The menu button expands. Touch the '**Field Review Map**' button.
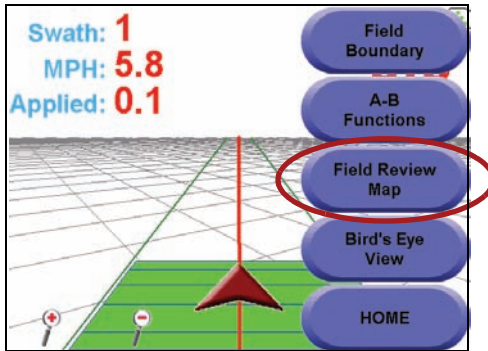
2. The 'Field Review Map' displays, showing the entire field and your coverage.
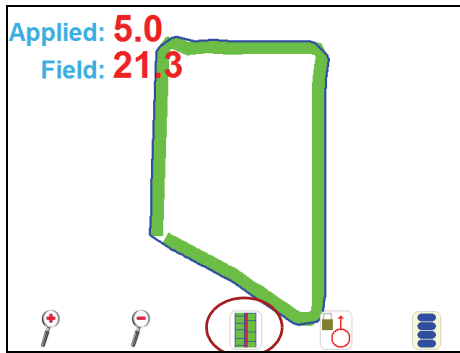
Helpful Hints:
- You can touch the 'Overlap' button to 're-paint' the field map showing the overlap areas in red.
- To change back to the guidance view, touch the '**Menu**' button, then select **'Return to Guidance'**.
- Modifying a Spray or No Spray Zone, including a field boundary, can be done within a job from the Field Review Map if "AccuBoom" and "Use a Spray Zone Map" is selected when starting the job.

Field Boundary

The 'Field Boundary' option is available for calculating field acres and also viewing the boundary at a later time.

Remember: This feature is not available in the Guidance pages if AccuBoom is being used with a Spray/No Spray Zone map. However, if you are using AccuBoom, a field boundary can be created by going into the Modify Spray/No Spray Zone pages.

Recording a Field Boundary

1. While in a job, touch the '**Menu'** button. The menu button expands. Touch the '**Field Boundary**' button.
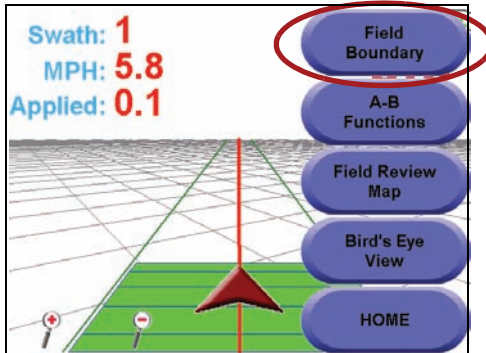
2. Touch '**Record Field Boundary**'. A red box with 'Boundary Rec' appears, indicating that the system is recording the boundary.
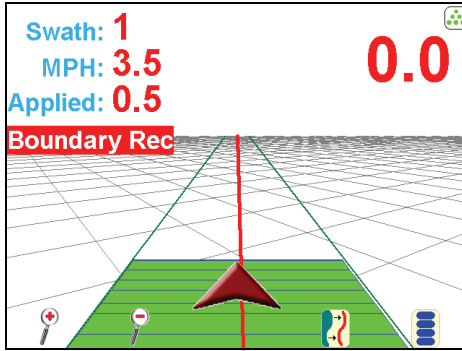
Helpful Hint: The on-screen painting does not have to be on to make a field boundary as it did in previous versions.

3. When you have driven to the end of the boundary for the field, touch the '**Menu**' button, '**Field Boundary**', then '**End Boundary**,' as shown below.
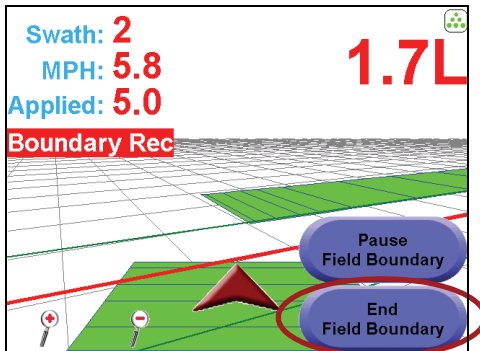
4. The Field Boundary will be saved as same name as the job.

Loading a Field Boundary

1. While in a job, touch the '**Menu**' button. The menu button expands.
   Touch the '**Field Boundary**' button.
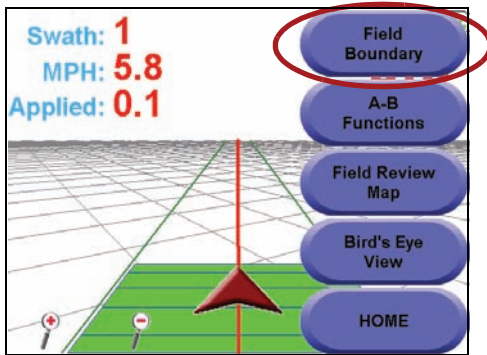
2. Touch '**Load Field Boundary**'. The 'Select Field Boundary' screen
   displays. **Choose a field boundary** (based on the job name) and touch
   OK.
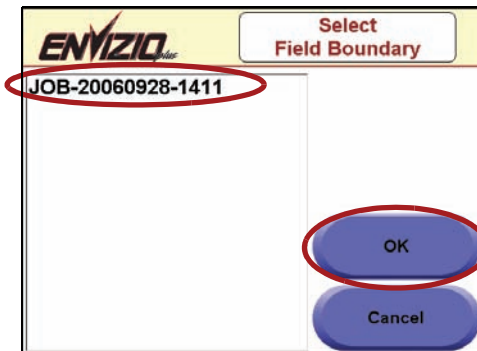
3. To view the field boundary, touch the '**Menu**' button, then '**Field Map Review**'. The boundary will display in blue, with a red symbol indicating where your vehicle is.

Applied: 0.4
Field: 2.7

Shows the total acreage of the field boundary

Overlap icon

Pan/Vehicle Lock icon
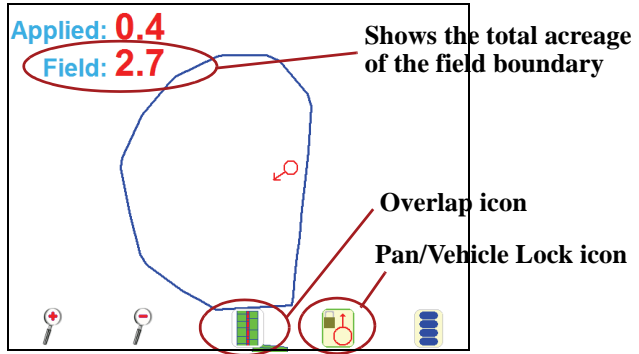
Helpful Hints:
- You may need to touch the '**Pan/Vehicle Lock**' icon to bring the boundary into view. This will continually show the vehicle position on the screen, even if the vehicle moves away from the field map.
- You can touch the '**Overlap**' icon to 're-paint' the field map showing the overlap areas in red.
- The 'Field' area shows the total acreage of the field boundary.
- To change back to the guidance view (called the Down Field View), touch the '**Menu'** button, then select **'Return to Guidance**' .

Auto Save Feature

Each time the booms are turned off (Envizio Plus stops painting), either by touching the 'Vehicle Arrow' or turning off the master boom switch (if the boom sense is set to 'Wired'), the current job will automatically save. If you do not have the 'Log' feature turned 'On', the last job you were running will save as 'Last Un-named Job'.

System Memory

Internal Memory

If the internal memory of the system gets below 20 MB, you will see the yellow caution sign appear in the File Space area of the Home screen.

If you have less than 10 MB, you will not be permitted to start a new job. To free up memory, you will need to either unload jobs to external memory (a USB storage device) or delete jobs from the internal memory. See the **Job File Management** section for more information on unloading or deleting jobs.

USB Storage Device

Raven recommends using a USB storage device with at least 128 MB of memory. These can be purchased at many retail locations.

Envizio Plus LEDs and System Operation

The built-in lightbar and LEDs on the front of the Envizio Plus system show guidance as well as system operation.

Lightbar LEDs

The built-in lightbar shows system guidance similar to that of an external lightbar. Whichever side the lights are illuminated on, that is the direction you should steer. Each light that is illuminated represents a distance off-line. See the table below for these default distances, starting from closest to the line going outward.

Remember: The values below are default values and can be changed in the Lightbar Setup Configuration screen.

1 LED	1 foot from the line
2 LEDs	2 feet from the line
3 LEDs	4 feet from the line
4 LEDs	6 feet from the line
5 LEDs	8 feet from the line
6 LEDs	10 feet from the line

System Operation LEDs

Besides use as the built-in lightbar, some of the LEDs illuminate to show system operation functions, as detailed below.

- If the lower center green LED is illuminated, DGPS is being received.

- If the upper center green LED is illuminated, the system is online.

- If the two outside red LEDs are illuminated, an optional SmarTrax system is engaged.

System Diagrams

ENVIZIO PLUS KIT

MOUNTING HARDWARE INCLUDED:
103-0001-014: 3" DOUBLE SOCKET ARM
103-0001-015: 2.5" DIA. BASE

ENVIZIO CONSOLE
063-0172-789

ENVIZIO CONSOLE CABLE
115-0171-595

AUXILIARY POWER
OUTPUT 3AMPS MAX.

EXT LB

DGPS

CAN

BOOM SENSE

Boom Sense

Aux Power Output

EXT LB

DGPS or SmarTrax

CAN System
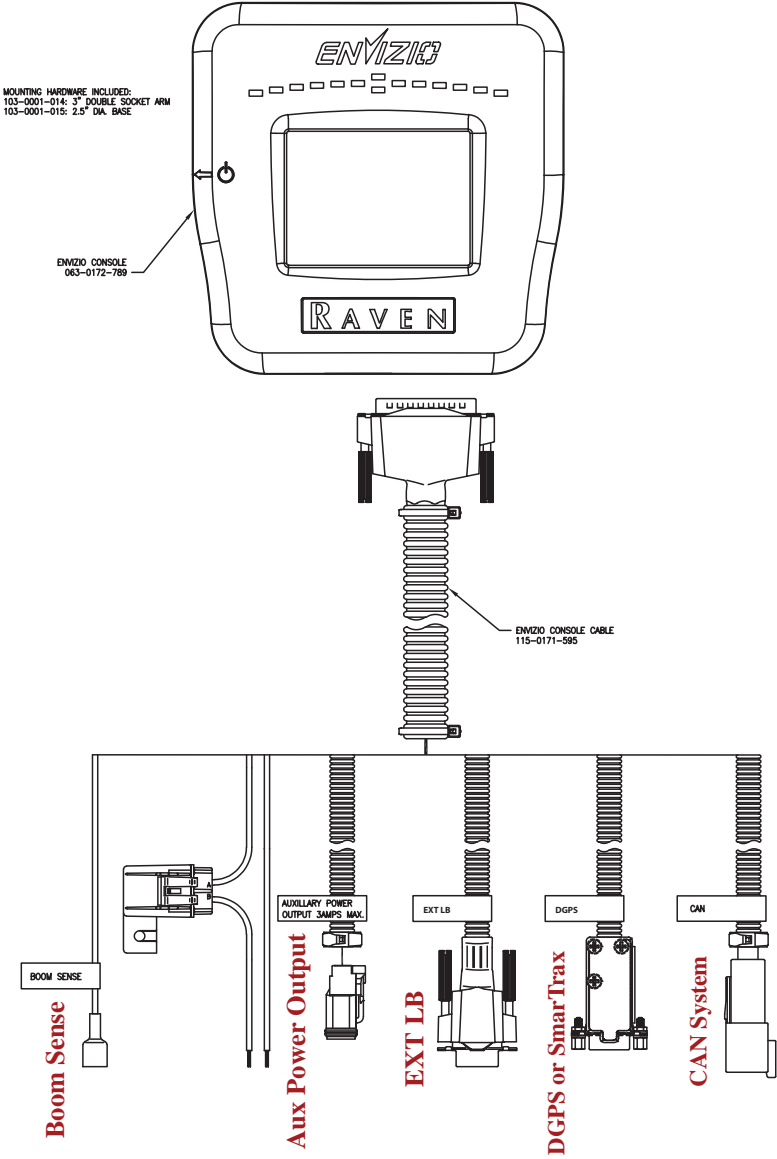
External Lightbar Cables:

P/N	Description	Comments
115-0171-394	Lightbar - wireless	Also need 115-0171-629 cable
063-0171-953	Lightbar	Also need 115-0171-629 cable
115-0171-401	Lightbar - wireless	
063-0171-954	Lightbar	
115-0171-628	Lightbar - wireless	

DGPS Cables:

P/N	Description
115-0171-361	Invicta 115
115-0171-272 115-0171-119	Invicta 210/310 RPR 410 SmarTrax Controller
115-0171-350	RPR 100G

Misc Parts:

P/N	Description
524-0002-063	RS-232 USB to Serial Adapter

System Hardware

Bottom View

Power Cable
Connection

USB Port

Right Side View

USB Port

Left Side View

Power Switch

Fan and Filter

Troubleshooting

See the table below for possible errors and solutions while using the Envizio Plus:

GPS Errors

Error	Possible Solution(s)
Could not find GPS. Make sure the GPS is connected and powered up then go to the GPS status page and select Auto-Detect.	Go to the GPS Status screen by touching the GPS icon from the Home screen. Touch Auto-Detect, then OK. If you have a green check mark, you are receiving DGPS signal, a yellow caution means all conditions have not been met. A red X means you are not receiving signal.

Miscellaneous Errors

Error	Possible Solution(s)
SmarTrax Alarm	Refer to the SmarTrax manual for more information.

The touchscreen isn't responding to your touch.	Power off, wait a few seconds and power on. When the Envizio Plus start-up screen displays, touch below the Envizio Plus logo to re-calibrate the touchscreen. Follow the instructions on the screen and touch the calibration mark everywhere it appears on the screen. When the system is finished with the re-calibration, the Home screen displays and the system is ready for operation.
The Envizio Plus does not start when powered on.	Ensure that you have +12 VDC to the Envizio Plus system. If the Envizio Plus turns on, but does not start-up properly and has a partially blank screen, you will need to ensure that voltage to the Envizio Plus system is at least +9.5 VDC and no greater than +15 VDC.

Maintenance

Filter

The filter should be checked and cleaned periodically to prevent system overheating. To clean the filter, remove the filter cover, then remove debris or dirt from the filter. Replace the filter and the cover.

RAVEN INDUSTRIES

LIMITED WARRANTY

WHAT IS COVERED?

This warranty covers all defects in workmanship or materials in your Raven Flow Control Product under normal use, maintenance, and service.

HOW LONG IS THE COVERAGE PERIOD?

This warranty coverage runs for 12 months from the purchase date of your Raven Flow Control Product. This warranty coverage applies only to the original owner and is not transferrable.

HOW CAN YOU GET SERVICE?

Bring the defective part, and proof of date of purchase, to your local dealer. If your dealer agrees with the warranty claim, he will send the part, and proof of purchase to his distributor or to Raven for final approval.

WHAT WILL RAVEN INDUSTRIES DO?

When our inspection proves the warranty claim, we will, at our option, repair or replace the defective part and pay for return freight.

WHAT DOES THIS WARRANTY NOT COVER?

Raven Industries will not assume any expense or liability for repairs made outside our plant without written consent. We are not responsible for damage to any associated equipment or product and will not be liable for loss of profit or other special damages. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person is authorized to assume for us any liability. Damages caused by normal wear and tear, mis-use, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.

RAVEN ✳PRECISION
Solutions

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P.O. Box 5107　　　　　　　　**www.ravenprecision.com**
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