

# GUIDEMATE

## OPERATION MANUAL



GuideMate

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## **IMPORTANT**

*The Compaq iPAQ is not covered under Raven Industries' warranty policy. Any issues with non-Raven manufactured products must be handled according to the product manufacturer's policies and guidelines.*



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## INTRODUCTION

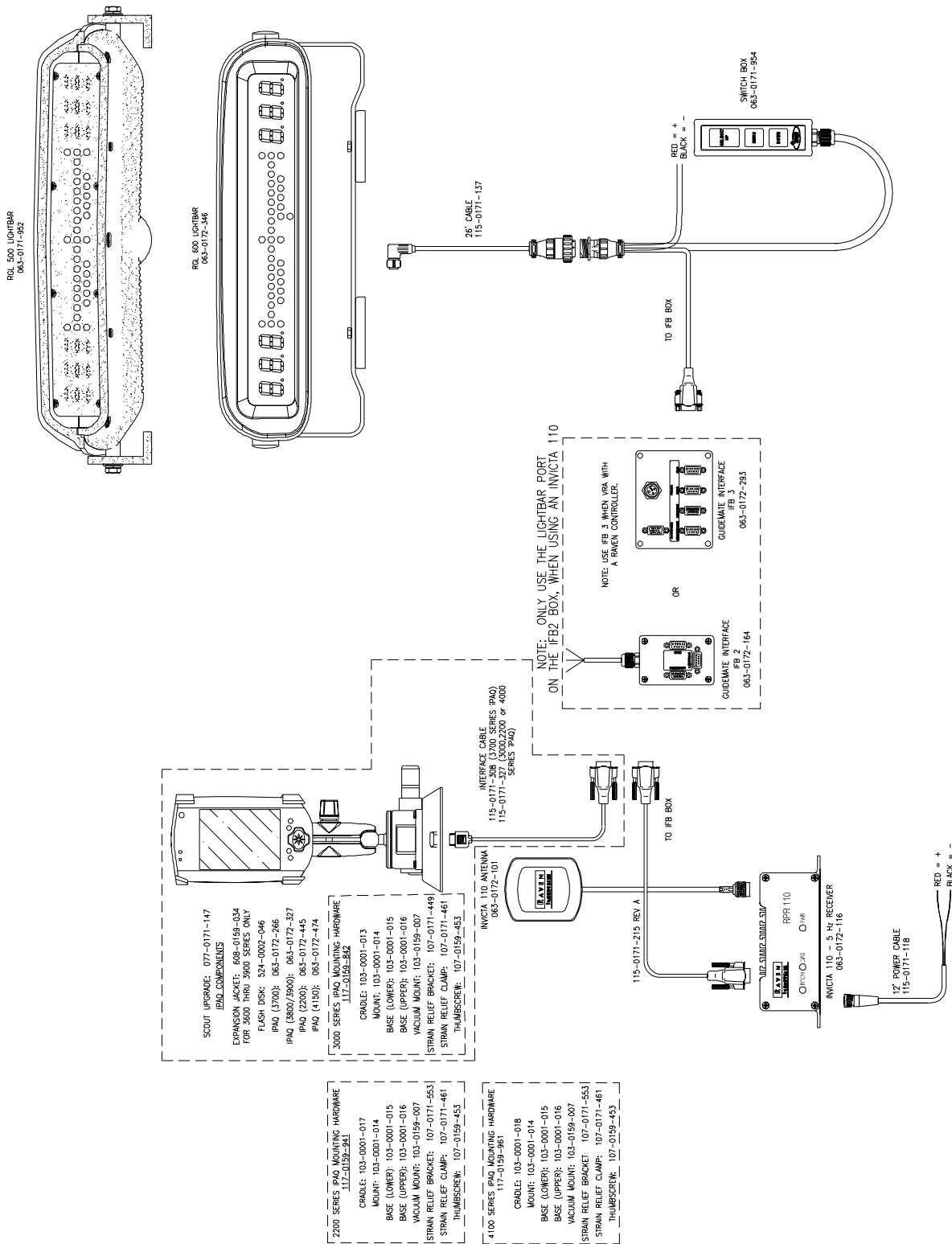
Thank you for your purchase of the GuideMate Mobile Navigation Technology system. GuideMate provides guidance control and display for swathing applications. GuideMate receives position, speed over ground (SOG), and course over ground (COG) from a DGPS receiver. GuideMate then compares the COG and position to the desired swath pattern, and produces a guidance display.

GuideMate (GM) along with SiteMate (SM) Features:

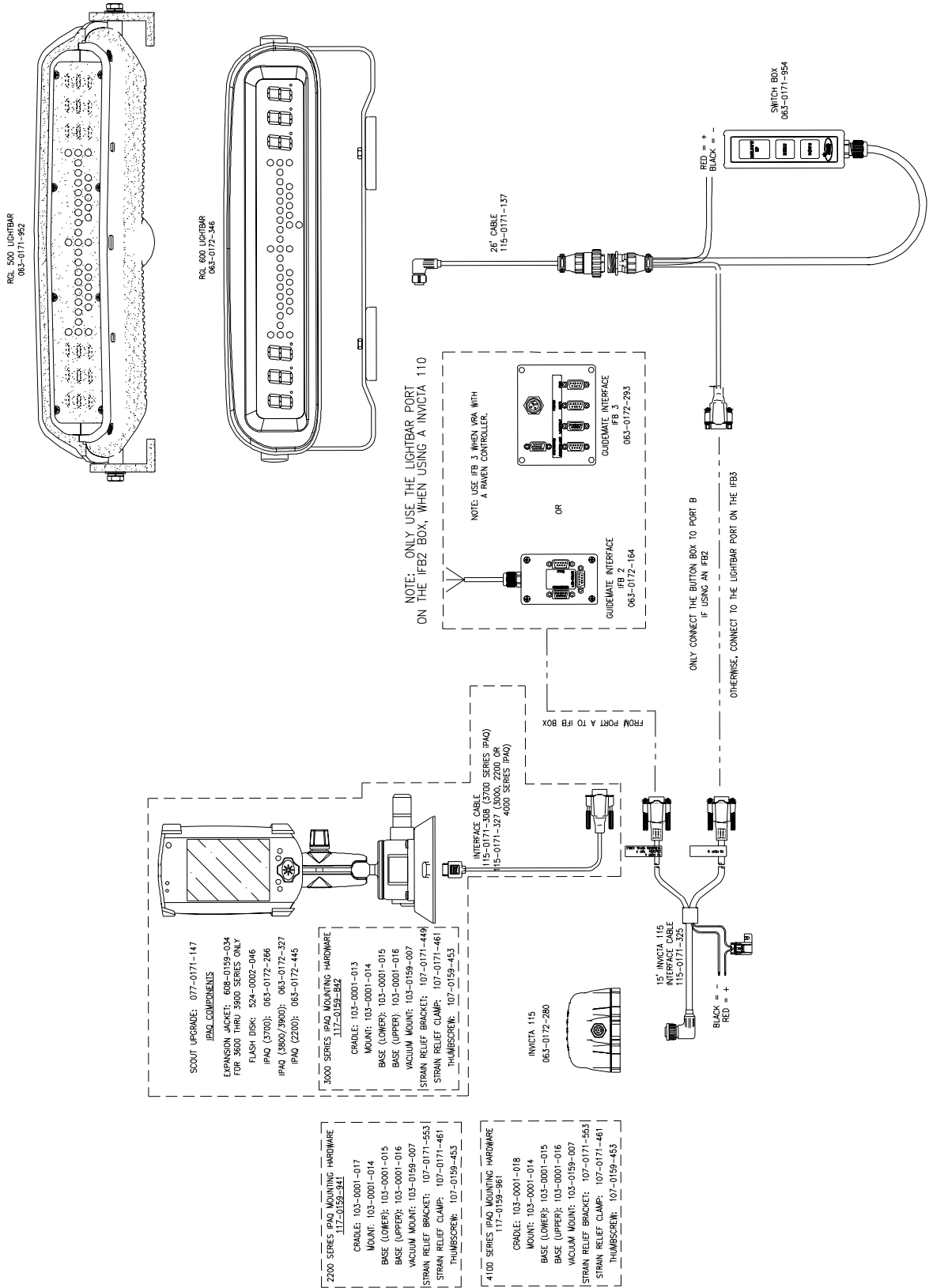
- ◆ Advanced navigation with “driver friendly” on-screen steering graphics, acreage calculations, and numerous driving patterns (straight A-B, multiple contour modes, multiple headland modes, spiral, etc.).
- ◆ Moving map display shows application accuracy while in the field.
- ◆ Acreage calculator during guidance mode.
- ◆ Records vehicle’s path for later printout of an Application Report, using a desktop program like Raven Office.
- ◆ Pan and zoom features show close up view to detect gaps and over-spray conditions.
- ◆ Can be retrofit to Raven guidance systems.
- ◆ With the added Sitemate Scout software (p/n 077-0171-147), you can easily create maps of field boundaries, weed areas, tile lines, spray paths, soil sample locations, or anything else you may need.
- ◆ All data saved in industry standard ArcView Shape Files.

# APPLICATION DRAWINGS AND PARTS LIST

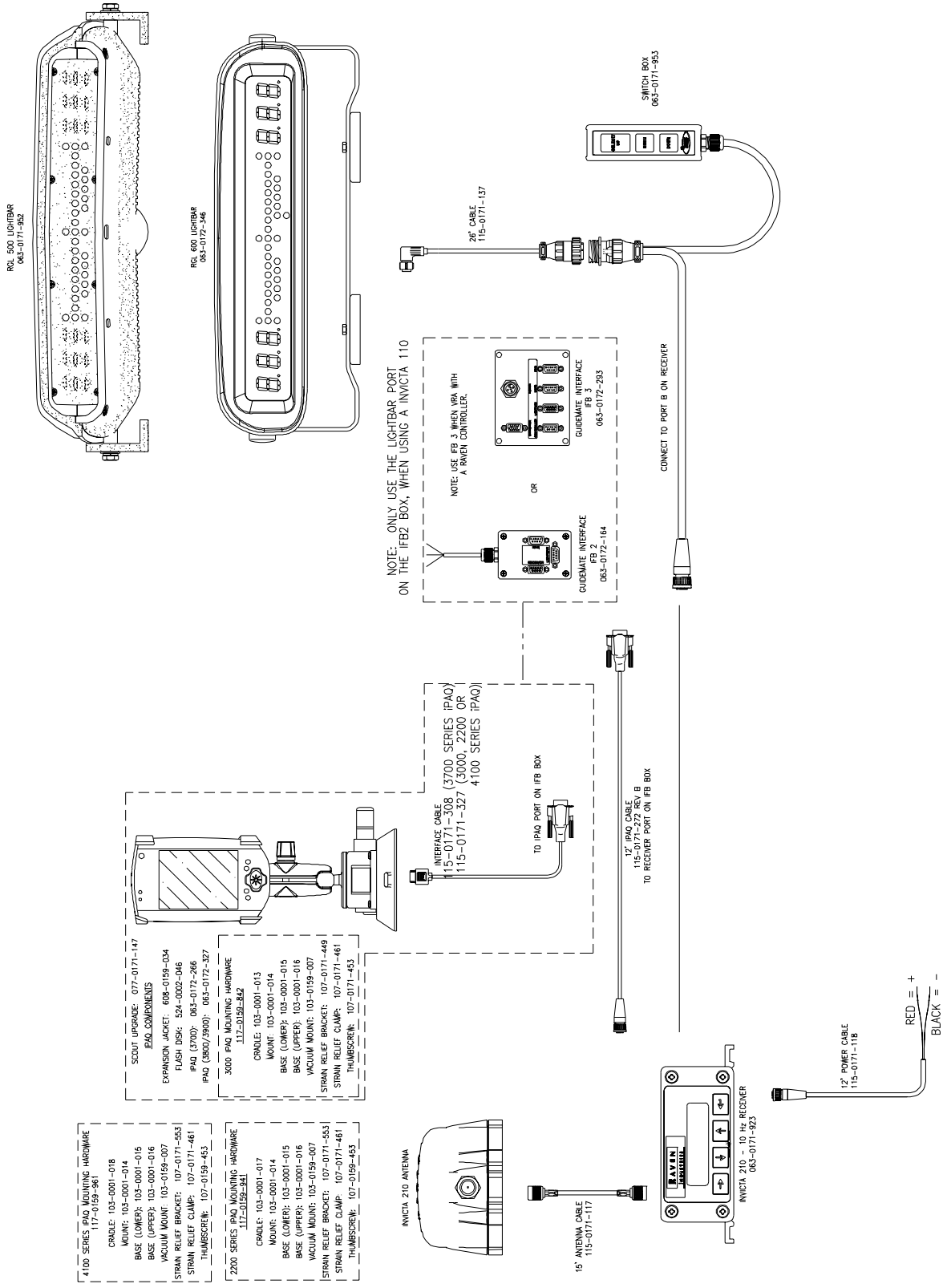
## IPAQ GUIDEMATE/RGL 500 OR 600/INVICTA 110 SYSTEM



# IPAQ GUIDEMATE/RGL 500 OR 600/INVICTA 115 SYSTEM



# IPAQ GUIDEMATE/RGL 500 OR 600/INVICTA 210/310 SYSTEM





## GETTING STARTED

NOTE: There are frequent IPAQ model changes, due to supply factors from HP. Though every attempt has been made to have these instructions as comprehensive as possible, it may be necessary to reference the IPAQ user manual for some instructions.

- 1) Refer to the "Getting Started" Compaq iPAQ manual for **turning on the battery** on the iPAQ, as well as other general information concerning the operation and features of the iPAQ.
- 2) Insert the Compact Flash (CF) or Secure Digital (SD) card into the iPAQ. Depending on the iPAQ model, an Expansion Sleeve may be included in the kit.  
**NOTE: if expansion sleeve and/or Compact Flashcard or Secure Digital is not available, user must install software to the iPAQ's memory.**
- 3) Guidemate (GM) and Sitemate (SM) should be installed on the iPAQ. To start the program, go to Start, Programs and press on the Sitemate icon → continue to the "Software Registration Process". If GM and SM software have not been pre-loaded → continue to the "Software Installation Process".

## RE-SETTING THE IPAQ:

If at anytime the software "locks-up" and the iPAQ will not respond to any of the buttons → use the stylus and press the soft reset button.



SOFT RESET BUTTON



SOFT RESET BUTTON



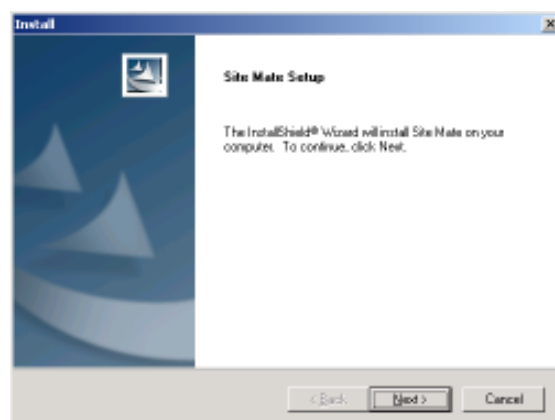
SOFT RESET BUTTON

# SOFTWARE INSTALLATION PROCESS

(Skip this procedure if the software has been pre-loaded onto the Compact Flashcard or Secure Digital Card.)

**Note: ActiveSync needs to be loaded and operation BEFORE attempting to complet this task. Please refer to the IPAQ information for instruction on this procedure. Any problems that occur while loading ActiveSync, please refer to the information regarding support through Microsoft.**

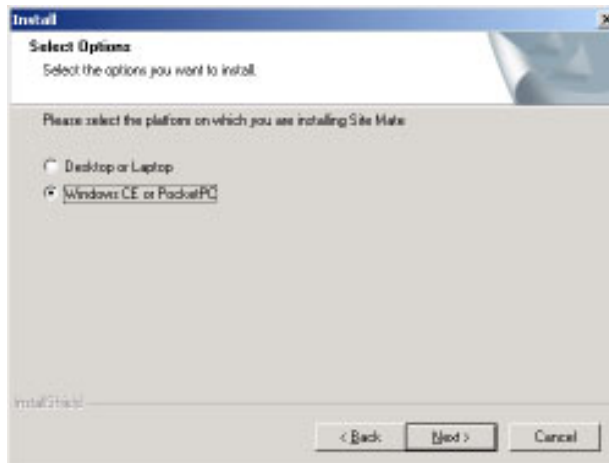
- 1) Insert FarmWorks installation CD.
- 2) Click on "Install SiteMate".



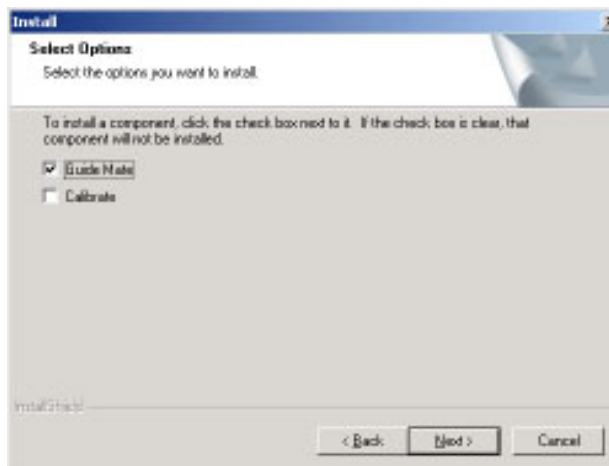
- a) Simply depress the "Next" button to proceed.



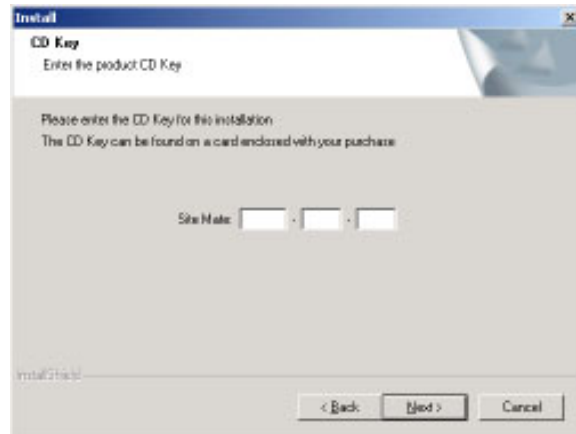
b) Read through the License information and press on the “Yes” button to continue.



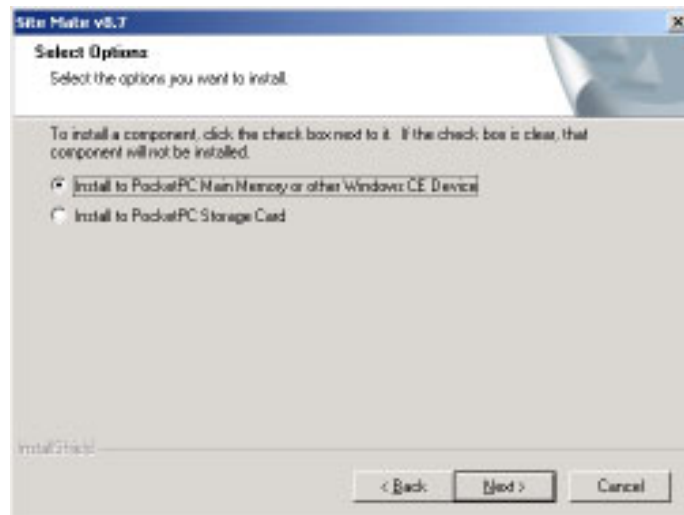
c) Select the Windows CE or PocketPC option and select “Next”.



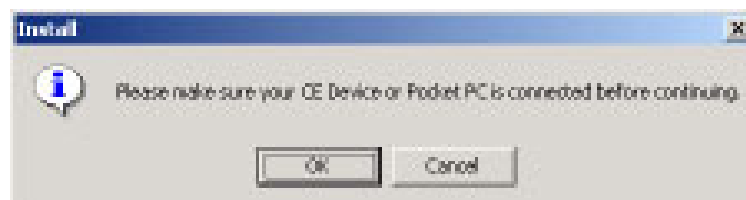
d) Be sure to place a check mark in the Guidemate Option and press “Next”.



- e) Type in the Sitemate CD key in the area provided. This should be located on the informational sheet provided. The Guidemate key will be needed in the same fashion on the next screen.



- f) Select the location for your software to be loaded.  
g) Click "OK" and the procedure will start.



- 3) Follow instructions for "Software Registration Process".

# SOFTWARE REGISTRATION PROCESS

**GuideMate and SiteMate software must be installed before the registration process can begin.**

- 1) Turn iPAQ power on.
- 2) Click the "Start" button and then select "Programs".
- 3) Click on the "GuideMate" icon.
- 4) An "Invalid Registration" message will appear. Press "OK" to continue.
- 5) The Registration Information screen will now be present with tabs for both SiteMate and GuideMate.
- 6) Note Machine ID # along with SiteMate and GuideMate CD Keys.
- 7) Goto [www.farmworks.com/register](http://www.farmworks.com/register) and select "Farm Site Mate" and "GuideMate".
- 8) Enter Machine ID #, SiteMate and GuideMate CD Keys, and then select "submit".
- 9) Enter name, mailing address, phone #, and e-mail address into registration screen and select "submit registration".
- 10) Registration #'s for both GuideMate and SiteMate will be e-mailed after registration information is submitted.
- 11) Enter Registration #'s into both the SiteMate and GuideMate tabs.
- 12) Click the "OK" button located at the top right corner.
- 13) SiteMate screen will now be present. Click on the "File" button located at the bottom left corner and then choose "Exit". This will close the SiteMate program and return to the iPAQ's "Programs" screen.
- 14) Click on the "GuideMate" icon to launch both GuideMate and SiteMate software (after a job is started using GM, SM will automatically operate). Choose the "SiteMate" icon from the "Programs" screen if it is desired for only SM to operate without GM (i.e. boundary mapping or soil sampling).



# FIRST USE QUICK START GUIDE

NOTE: It is recommended to read all of the instructions, if not familiar with this product. This section is to provide a user a quick walk through of using Guidemate.

1. Attach the receiver, IPAQ and any other equipment being used per the installation instructions for each of the devices.
2. Power up all of the devices. If this is the initial startup of a Raven receiver, the operator needs to let the receiver have a clear view of the sky for 10 to 15 minutes. This allows it adequate time to download information from the GPS satellites.

3. Press the Start button and then depress the “Programs” option, from the drop down list.



4. Find the Guidemate icon inside of the “Program Group” and use the stylus to select it.



5. Sitemate and Guidemate will now open. First, Sitemate will load and then the main Guidemate screen. Be sure to allow the IPAQ to get to the Guidemate Screen BEFORE tapping on the screen with the stylus.



6. This is the initial Guidemate Screen.

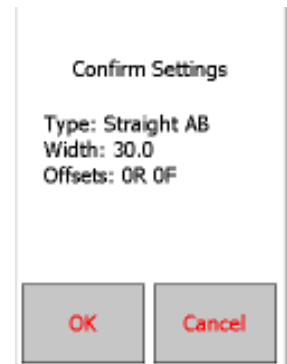
7. Go through the settings section of the iPAQ and configure the Guidemate program for such things as, boom width, swath pattern, IFB setup, etc. To become more familiar with this terminology, please refer to the “Settings” section that will explain the different settings.

8. Once all of the configuration has been completed, press the “Start Job” button and continue through the following screens.



9. Either accept the default name for the file or rename. The default name is the date and time combined.

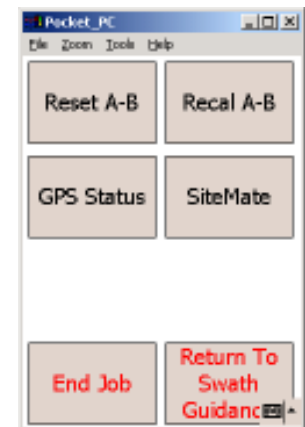
10. Press the “Start Job” button. Press OK, if this information is correct or cancel, if it is not.



11. Set the reference points to begin the guidance procedure. (Refer to “Swath Pattern” section for detailed instructions for each pattern option).



12. Continue the procedure of applying to the field. Once the job is completed, press anywhere on the white area on the Guidemate screen to be able to select the “End Job” button.



For a more detailed explanation of all of the features and what they do, continue to go through this manual.



# GUIDEMATE HOME SCREEN

The X.XX indicates version of GuideMate firmware and whether or not GPS is being received. It also has 4 additional buttons on the screen.

“**GPS Status**” button indicates detailed DGPS information and Auto GPS Setup feature.

“**Start Job**” button will initiate starting a new job or open an existing job.

“**Settings**” button will allow user to select swath patterns, boom widths, boom offsets, boom status, along with other selection options.

“**End Program**” button will close GuideMate program.

## GPS STATUS

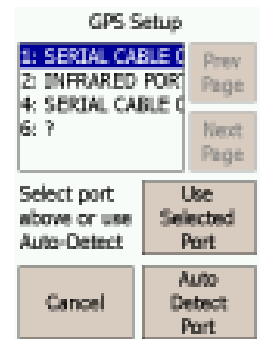
Detailed DGPS information from receiver.

Lat:	Latitude location point.
Lon:	Longitude location point.
Elevation:	Displays feet above sea level.
Satellites:	Displays the # of GPS satellites that are being tracked.
Dif:	Indicates if a Correction signal is present.
Dif Age:	Age of data or # of seconds between differential correction signals.
HDOP:	Horizontal Dilution of Precision (accuracy ratio).
GGA:10hz VTG:10hz	Indicates which NMEA messages are present along with their respective update frequency (ex: 10 Hz = 10 times per second).



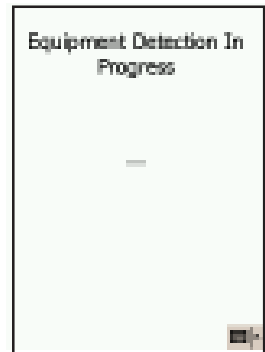
“**Auto GPS Setup**” – Allows user to configure a Raven receiver or automatically set the baud rate on GM to the same baud rate of an external receiver (**Note: Raven receiver must be at software version 4.07 or higher before the “Auto GPS Setup” for a Raven Invicta can be performed**).

- GM will attempt to communicate with a receiver by scanning each port while scrolling through baud rates of 4800, 9600, 19200, 38400, and 57600. GM will adjust to the same baud rate of the receiver. **Note: At next start-up, GM will default back to the baud rate set during its last operational mode.**



### Auto GPS Setup Raven Receiver:

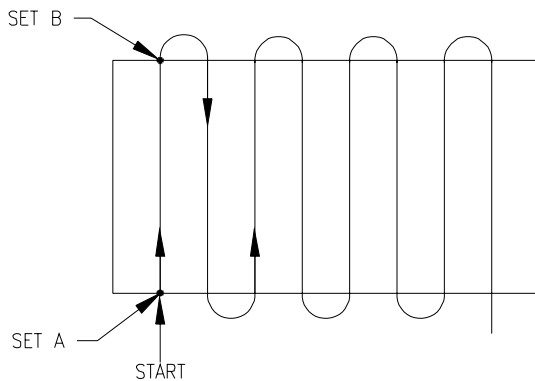
- GM will initially establish communication with the Raven receiver. GM will then temporarily re-configure the Raven receiver for optimum communication settings for use with an external Raven lightbar. Both receiver output ports (port A and port B) will be set to a 19200 baud rate along with NMEA messages GGA and VTG activated at a 5Hz update rate. Forward A to B and Forward B to A will also be set on the receiver (this is required in order for GM to control an external Raven lightbar). The settings for the configuration of the receiver are not saved in the receiver. After removing power from the receiver and then re-powering, the receiver will default back to its original settings prior to the Auto GPS Setup configuration. **Note: If this option is chosen, GM will automatically perform the auto GPS setup for a Raven receiver each time GM is started.**
- In the event of a failure, the “Auto GPS Setup Failed” screen will appear. This is an indication that GM could not establish communication with a DGPS receiver.



# SETTINGS

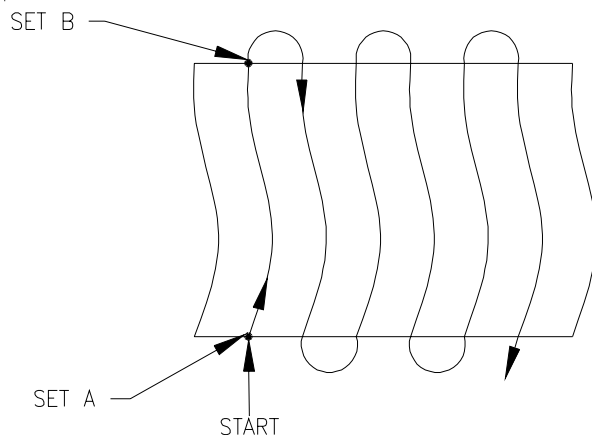
**Swath Pattern:** Press “Swath Pattern” button to scroll through the available options. Swath options are listed below:

- **Straight AB:** Guidance for straight back and forth swathing based on the first pass (two button presses required on first pass, no swath to swath button presses after the first pass). Press the “Set A” button to begin Swath # 1. Continue to drive to the end of Swath #1 then press “Set B”. Swath # 2 will be assigned according to the direction turned after the “Set B” button is pressed. All consecutive swaths will be based on the original A-B points.



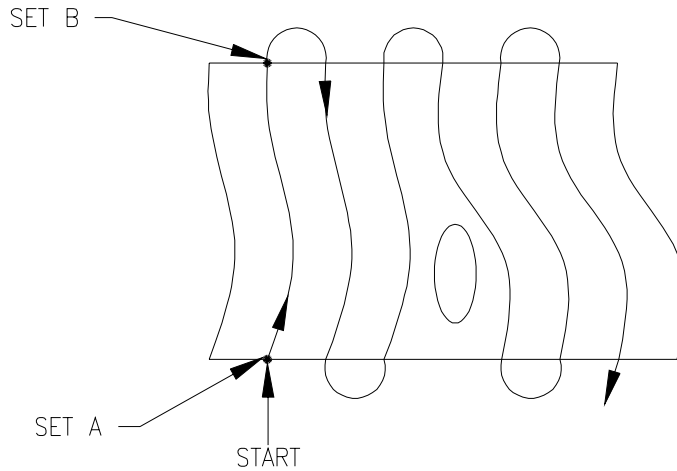
Swath Pattern	Straight AB
Boom Width	40.0 ft
Flags	0 of 8 Set
Return To Main Menu	More Settings

- **Contour Fixed:** Guidance for curved swath patterns based from the first pass (two button presses required on first pass, no swath to swath button presses after the first pass). Press the “Set A” button to begin Swath #1. Continue to drive the contoured swath and press “Set B” at the end of swath #1. All consecutive swaths will be based on the contour pattern of the first pass.

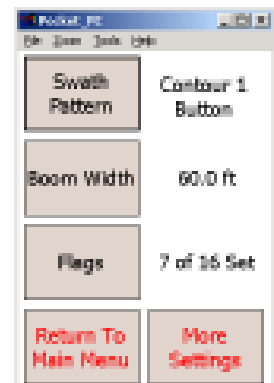
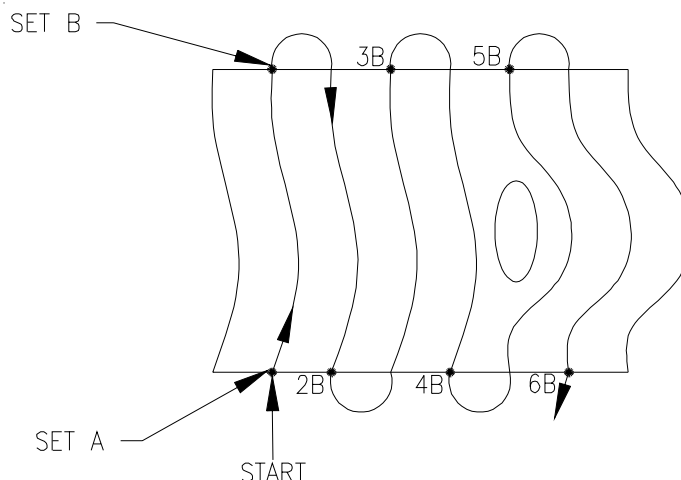


Swath Pattern	Contour Fixed
Boom Width	60.0 ft
Flags	7 of 16 Set
Return To Main Menu	More Settings

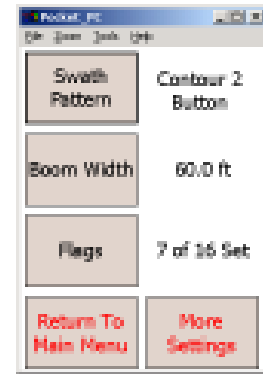
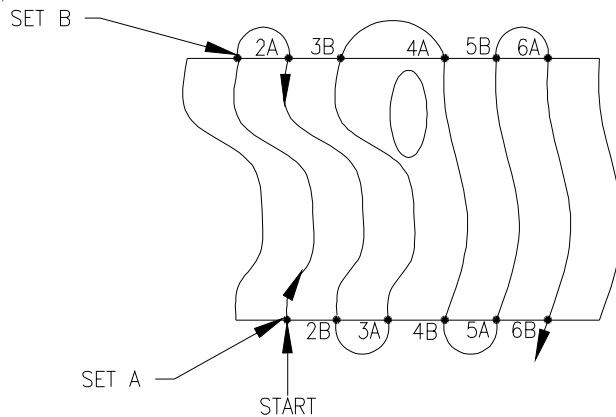
- Contour 0 Button:** Guidance for curved swath patterns based from the last pass driven (two button presses required on the first pass, no swath to swath button presses after the first pass). Press the “Set A” button to begin Swath #1. Continue to drive the contoured swath and press “Set B” at the end of swath #1. All consecutive swaths will be based on the last pass driven.



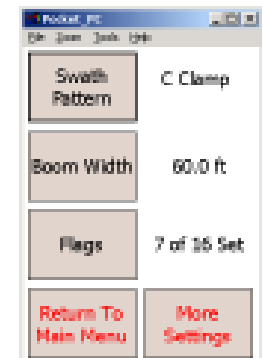
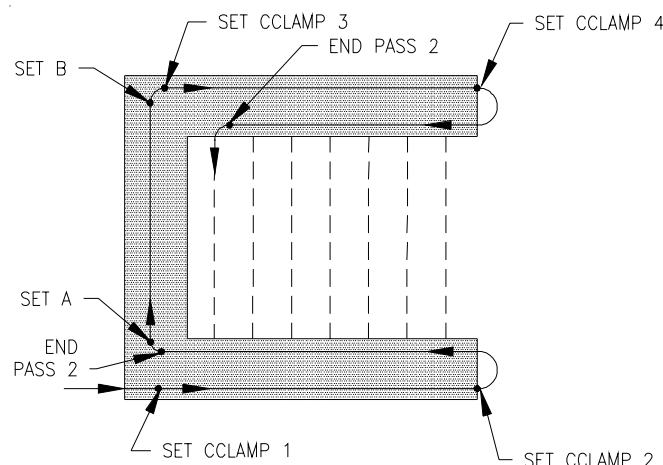
- Contour 1 Button:** Guidance for curved swath patterns based from the last pass driven (two button presses required on the first pass, then one button press at the end of each consecutive pass). Press the “Set A” button to begin Swath #1. Continue to drive the contoured swath and press “Set B” at the end of swath #1. Swath #2 will be based on the path driven in swath #1. At the end of Swath #2 press the “Set 2B” button. Swath #3 will be based on the path driven in Swath #2. Continue these steps for each consecutive swath.



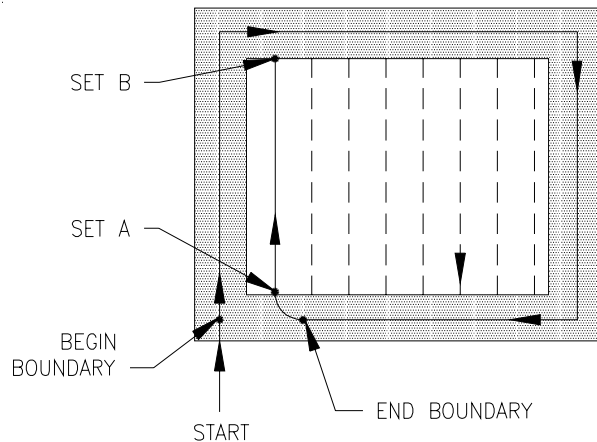
- Contour 2 Button:** Guidance for curved swath patterns based from the last pass driven (two button presses required on each pass). Press the “Set A” button to begin Swath #1. Continue to drive the contoured swath and press “Set B” at the end of swath #1. Swath #2 will be based on the path driven in Swath #1. Press “Set 2A” at the beginning of Swath #2. At the end of Swath #2 press the “Set 2B” button. Swath #3 will be based on the path driven in Swath #2. Continue these steps for each consecutive swath.



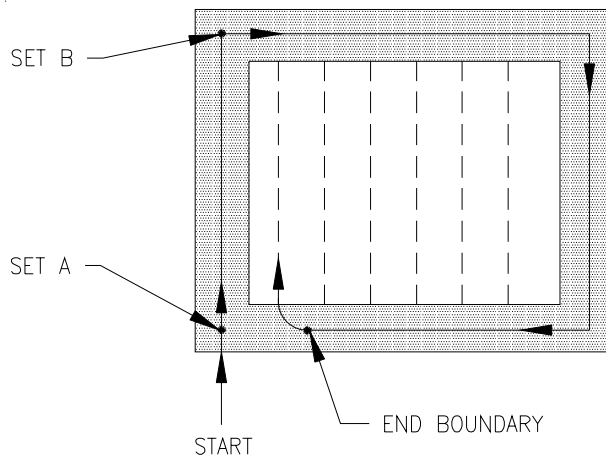
- C Clamp:** Straight pattern swathing with a double headland area on two opposite sides of the field. Enter field in direction of double headland. Press “Set CClamp 1” and drive to the end of the 1<sup>st</sup> headland pass and press “Set CClamp 2”. Turn back towards the next headland pass and GM will give guidance based on the 1<sup>st</sup> pass. Press “End Pass 2” at the end of the 1<sup>st</sup> double headland. Then turn towards the direction in which A-B guidance is desired. Swath #1 starts after “Set A” is pressed. Continue to the end of Swath #1 and press “Set B” (guidance through the field will be based on the original A-B points). Turn towards the next headland area and press “Set CClamp 3”. Continue to drive to the end of the headland pass and press “Set CClamp 4”. Turn back towards the 2<sup>nd</sup> pass for the double headlands and GM will provide guidance down this pass. At the end of the 2<sup>nd</sup> double headland area press “End Pass 2”. Then turn towards Swath #2, GM will provide guidance based on the original A-B points. GM will give a “distance to headland” countdown when approaching or leaving the headland areas.



- Headlands Separate:** Guidance based on straight A-B swathing with a headland area around the boundary of the field (the A-B points can be marked either within or outside of the headland area). Press “Begin Boundary” to start the headland perimeter. Continue to drive around the perimeter of the field (GM will automatically record the path that is driven for the headland area). Press “End Boundary” at the point when the headland boundary is complete or GM will automatically end the boundary once its position is within one boom width from the beginning boundary point. Press the “Set A” and “Set B” buttons to mark the A-B line to provide guidance for consecutive swaths through the field. GM will give a “distance to headland” countdown when approaching or leaving the headland areas.

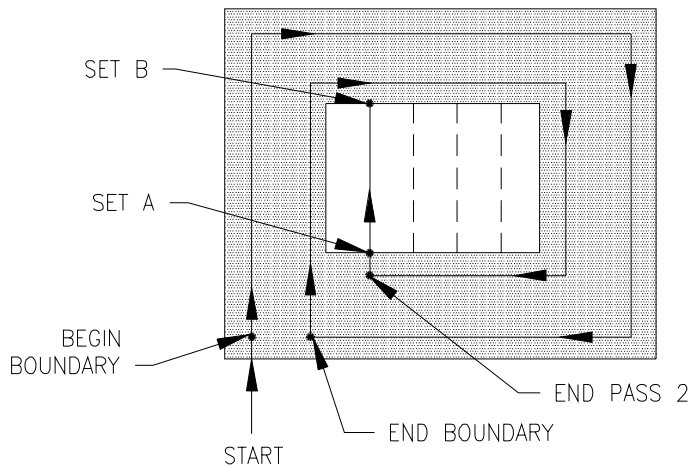


- Headlands Combined:** Guidance based on straight A-B swathing with a headland area around the boundary of the field (the A-B points are marked within the headlands area). Swath #1 (and beginning boundary) begins after “Set A” is pressed. Continue to drive to the end of Swath #1 then press “Set B”. Then continue to drive the boundary of the field (GM will automatically record the path that is driven for the headland area). Press “End Boundary” at the point when the headland boundary is complete or GM will automatically end the boundary once its position is within one boom width from the beginning “Set A” point. Guidance for consecutive swaths will be based on the original A-B points that were set. GM will give a “distance to headland” countdown when approaching or leaving the headland areas.



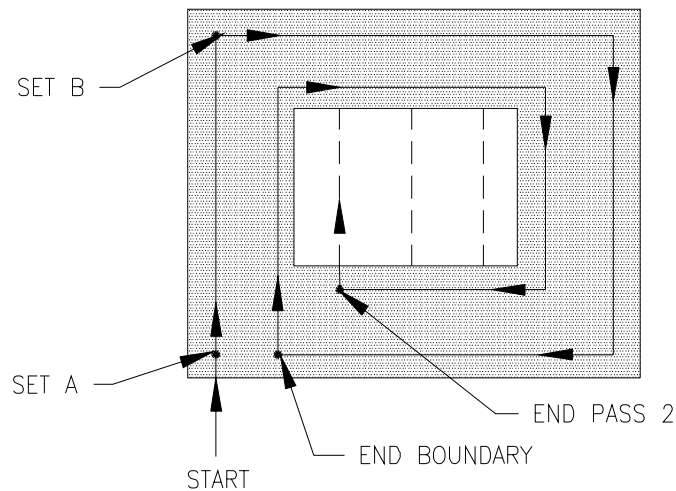
- Headlands\*2 Separate:** Guidance based on straight A-B swathing with a double headland area around the boundary of the field (the A-B points can be marked either within or outside of the headland area). Press “Begin Boundary” to start the headland perimeter. Continue to drive around the perimeter of the field (GM will automatically record the path that is driven for the headland area). Press “End Boundary” at the point when the headland boundary is complete or GM will automatically end the boundary once its position is within one boom width from the beginning boundary point. GM will then provide guidance for the 2<sup>nd</sup> headland boundary. Continue to drive the boundary and press “End Pass 2” for ending the 2<sup>nd</sup> headland pass or GM will automatically “End Pass 2” once its position is within one boom width from the beginning of the 2<sup>nd</sup> boundary. Press the “Set A” and “Set B” buttons to mark the A-B line. Guidance for consecutive swaths will be based on the original A-B points. GM will give a “distance to headland” countdown when approaching or leaving the headland areas.

Swath Pattern	Headlands*2 Separate
Boom Width	30.0 ft
Flags	0 of 16 Set
Return To Main Menu	More Settings



- **Headlands\*2 Combined:** Guidance based on straight A-B swathing with a double headland area around the boundary of the field (the A-B points are marked within the 1<sup>st</sup> headlands area). Swath #1 (and beginning boundary) begins after “Set A” is pressed. Continue to drive to the end of Swath #1 then press “Set B”. Then continue to drive the boundary of the field (GM will automatically record the path that is driven for the headland area). Press “End Boundary” at the point where the headland boundary is complete or GM will automatically end the boundary once its position is within one boom width from the beginning “Set A” point. GM will give guidance for the 2<sup>nd</sup> headland boundary. Continue to drive the 2<sup>nd</sup> boundary and press “End Pass 2” at the end of the 2<sup>nd</sup> headland area or GM will automatically “End Pass 2” once its position is within one boom width from the beginning of the 2<sup>nd</sup> boundary. Guidance for consecutive swaths will be based on the original A-B points that were set. GM will give a “distance to headland” countdown when approaching or leaving the headland areas.

Swath Pattern	Headlands*2 Combined
Boom Width	30.0 ft
Flags	0 of 16 Set
Return To Main Menu	More Settings





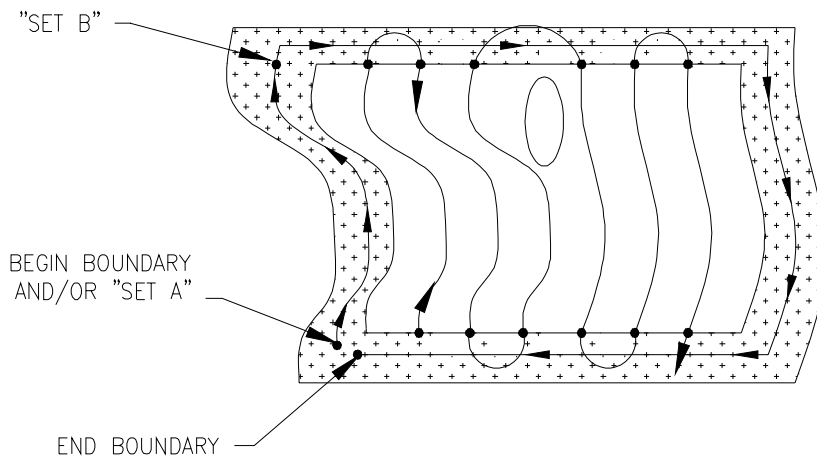
- Headlands with Contour:** Guidance is based on 0 button contour swathing with a double headland area around the boundary of the field (the A-B points can be marked either within or outside the headlands area). Press the “Begin Boundary” to start the headland perimeter. Continue to drive around the perimeter of the field (Guidemate will automatically record the path that is driven for the headland area). Press “End Boundary” when the first boundary pass is complete (GM will automatically “End Boundary” if its position is within one boom width from the “Begin Boundary” point). Guidance for curved swath patterns based from the last pass driven (two button presses required on the first pass, no swath to swath button presses after the first pass). Press the “Set A” button to begin Swath #1. Continue to drive the contoured swath and press “Set B” at the end of swath #1. All consecutive swaths will be based on the last pass driven.

Swath Pattern	Headlands Contour
Boom Width	30.0 ft
Flags	0 of 16 Set
Return To Main Menu	More Settings

There is an option to set another B point, when in the guidance mode. This option only needs to be used IF STOPPING SHORT of the headland boundary. If driving to the outside of the headland boundary, the guidance system will advance automatically.

### ENABLE SNAP

The enable snap option on the screen is a feature only found in the Headlands with contour and Headlands2 with contour. The enable snap button **MUST** be depressed before any guidance will be provided for the pass to pass. When the headlands are completed, press the Enable snap button.



- Headlands\*2 with Contour:** Guidance is based on 0 button contour swathing with a double headland area around the boundary of the field (the A-B points can be marked either within or outside the headlands area). Press the “Begin Boundary” to start the headland perimeter of the field. Continue to drive around the perimeter of the field (Guidemate will automatically record the path that is driven for the headland area). The A-B points can be done as the perimeter is being established. Guidance for the established A-B line will be used until the operator clears that line. **There can be multiple lines** established in a field. Clear the old line by pressing anywhere on the screen, while in guidance. Select the option “Reset A-B”. Depress the “Return to Guidance” button and the user can set a new A and B point. This option allows the operator flexibility in fields that have many erratic shapes.
 

NOTE: The cleared A-B line can NOT be brought back; new A-B reference points must be set in order for guidance to continue

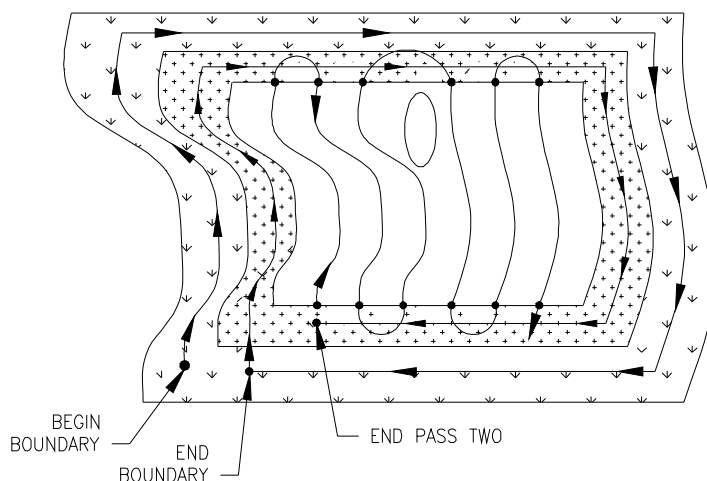
Swath Pattern	Headlands*2 Contour
Boom Width	30.0 ft
Flags	0 of 16 Set
Return To Main Menu	More Settings

Upon completion of the second headland, press the End Pass 2 button in order to close the second pass. Depending on where the A/B line was established, the Enable Snap option will need to be depressed to obtain the pass to pass guidance.

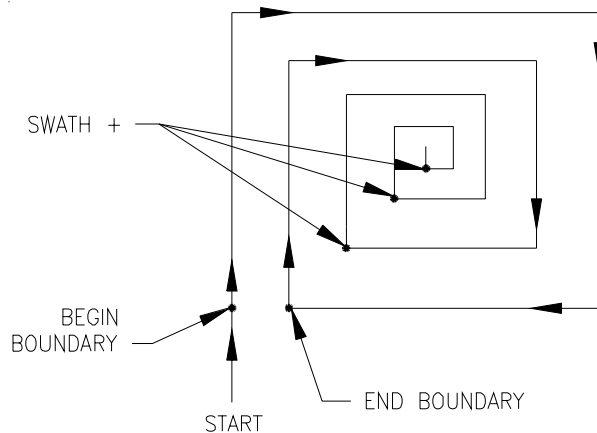
There is an option to set another B point when in the guidance mode. This option only needs to be used IF STOPPING SHORT of the headland boundary. If driving to the outside of the headland boundary, the guidance system will advance automatically.

### ENABLE SNAP

The enable snap option on the screen is a feature only found in the Headlands with contour and Headlands2 with contour. The Enable snap button **MUST** be depressed before any guidance will be provided for the pass to pass. When the headlands are completed, press the Enable snap button.

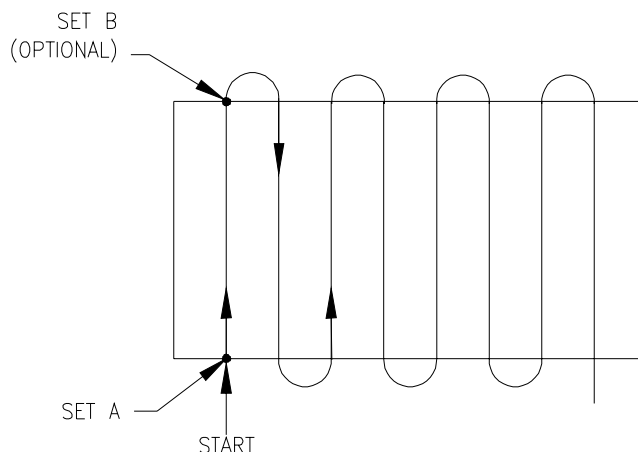


- Spiral:** Guidance based on an outside boundary that continues to work towards the center of a field. Swath #1 begins after “Begin Boundary” is pressed. Continue to drive around the boundary of the field (GM will automatically record the path driven for the boundary area). Press “End Boundary” when the first boundary pass is complete (GM will automatically “End Boundary” if its position is within one boom width from the “Begin Boundary” point). Guidance for Swath 2 will be one swath width to the inside of the original boundary. “Swath +” and “Swath -” buttons will be present after the boundary has been closed. If “Swath +” is pressed guidance will be given to the next swath towards the inside of the field. If “Swath -” is pressed guidance will be given to the next swath towards the outside of the field. When at the end of Swath #2, user must press “Swath +” in order to initiate guidance for Swath #3, etc.



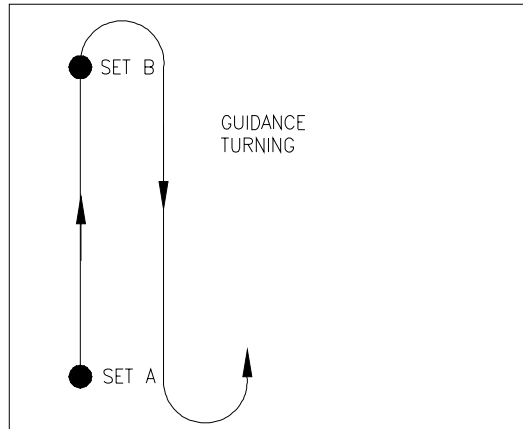
Swath Pattern	Spiral
Boom Width	30.0 ft
Flags	0 of 16 Set
Return To Main Menu	More Settings

- One Step:** Guidance for straight back and forth swathing, with guidance on the initial pass. While moving in the direction of the reference swath, press the “Set A” button. This sets the Start mark to the current position and the End mark ahead by four swath widths in the direction of the present Course over Ground. Guidance and offset indicators are shown immediately. Continue driving the reference swath. If offset errors are showing, press the “Set B” button to reset the End Mark. At the end of the reference swath, turn toward the second swath and continue Snap-to Swath.



Swath Pattern	One Step
Boom Width	30.0 ft
Flags	0 of 16 Set
Return To Main Menu	More Settings

- **Seed:** Seed Swathing is much like Snap, except that the operator has the option to press the “recal” button to correct for drift error. Press the “Set A: button to begin Swath #1. Continue to drive to the end of Swath #1, then press “Set B”. Guidance will be based on the original A-B points until the “recal” feature has been used.



Swath Pattern	Seed
Boom Width	30.0 ft
Flags	0 of 16 Set
<a href="#">Return To Main Menu</a>	<a href="#">More Settings</a>

**Boom Width:** Displays the total boom width in feet (meters).

- Press “Boom Width” button to either enter a new boom width or change the current boom width setting.



**Flags:** Displays # of flag points (8 available) that have been pre-set. The Flag points can be set during swath guidance by pressing the “Flags” button from the GM guidance screen. Then choose the desired flag from the pre-set choices. The flag points will be saved while the flag name is displayed on the guidance screen (color of the flag name will be red). To discontinue recording flag points press the flag name that is displayed. **Note: the SM as-applied map will not show the flags as they are marked. In order to see the flags on the map, user must open all layers of the file using desktop shapefile viewing software.**

Press “Flags” button to enter set-up screen. From the “Flags” set-up screen the following button options will be available:

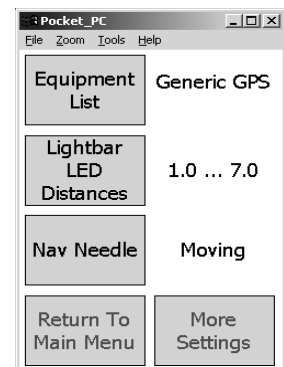
- **Next** – Allows user to scroll through the 8 different flag names.
- **Change Flag Name** – Allows user to create or change the name of a flag.
- **Delete** – Will delete the flag name that is currently displayed.
- **OK** – Saves any changes made and will return to the settings menu.
- **Cancel** – Does not save changes and will return to the settings menu.



## Equipment List:

This is a new section added to GM. The equipment list allows the configuration of the IFB2, IFB3, GPS, etc. Be sure to know the different components to the system, as this will make configuration of this section easier. **NOTE: The IPAQ will be checking on the communications frequently during this setup, so be sure to allow the IPAQ the necessary time before pressing on the screen or resetting.**

There are 3 components that need to be identified. They include the Serial Interface Box (IFB), GPS and Lightbar. The following section will assist in the configuration of these settings.



## Serial Interface Box:

- ◆ None - Leave setting if the IFB2 or IFB3 are not present. This setting has a default setting of Manual use Up key for the boom sense and “On Screen” buttons for setting the waypoints in GM.
- ◆ IFB2 - The boom sense will allow options for Manual use Up key, Normal or Inverted (refer to the Boom Status section for which of these options to select) and “On Screen” buttons for setting the waypoints in GM.
- ◆ IFB3 - The boom sense will allow options for Manual use Up key or Spray Controller. The Waypoint options are on-screen buttons or Switchbox for the waypoints. Only use the Switchbox option if there is a waypoint switchbox present.

Serial Interface Box	None
GPS	Generic GPS
Lightbar	On-Screen
OK	

## GPS:

- ◆ Generic GPS - Only use this selection when not using a Raven receiver.
- ◆ Raven GPS - Use this setting with all Raven receivers except the 100s.

Serial Interface Box	None
GPS	Raven GPS
Lightbar	On-Screen
OK	

**Lightbar:** press this button to scroll through the Lightbar options.

- “On-Screen”: Directional LED’s (similar to an external lightbar) will be displayed on the GuideMate guidance screen. (GM will not control the display of an external lightbar.)
- “External”: Directional LED’s will be displayed on an external Lightbar only (not on the GM guidance screen). (GM will control the external lightbar display, as well as set the swath guidance points.) **Note: GuideMate Interface box (IFB2) is required, as well as forward messaging on Raven receiver.**
- “External and On-Screen”: GuideMate will control the display of an external Lightbar, as well as display directional LED’s on the GM guidance screen. **Note: GuideMate Interface box (IFB2) is required, as well as forward messaging on Raven receiver.**
- “No Lightbar”: Directional LED’s will not be present on the GM guidance screen, and GM will not control the display of an external lightbar.

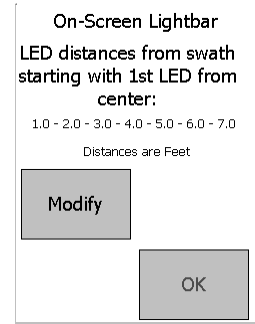
Lightbar	External and On-Screen
Lightbar LED Distances	1.0 ... 7.0
Nav Needle	Moving
Return To Main Menu	More Settings

**Lightbar LED Distances:** Allows user to modify the distances that correspond to the LED's that are displayed on the GM guidance screen (this does not effect the LED's on an external lightbar). Default settings are "1.0 ... 7.0" (each LED will represent 1 foot).

Press the "Lightbar LED Distances" button to display the distance that each LED represents. Press the "Modify" button to change the LED distance values. Seven distance values (each separated by a dash) must be entered. See example below:

1.0 - 2.0 - 3.0 - 4.0 - 5.0 - 6.0 - 7.0

Press "OK" to save any changes and/or return to the settings menu.



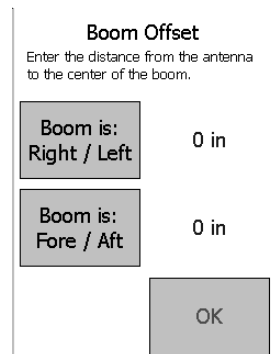
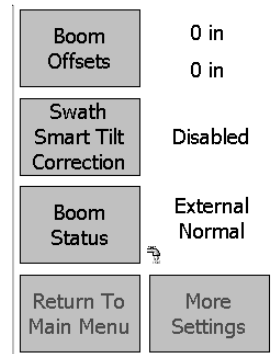
**Nav Needle:** Allows user to change the navigation needle setting to either "Moving" or "Stationary".

- "Moving" – Course Direction Indicator (CDI) will move/turn corresponding to the direction being driven. The "swath" line remains vertical on guidance screen (the swath line will move either towards the CDI or away from the CDI according to user's position in relation to the center of the swath).
- Stationary – CDI will always remain in a vertical position. Direction changes will cause the "swath" line to move on the guidance screen in relation to the CDI's position.

**Boom Offsets:** Displays center of boom location in relation to the mounted antenna's location in inches (cm).

Press the "Boom Offsets" button to make changes to the settings.

- Press "Boom is: Right / Left" to set the distance of the center of the boom in relation to the antenna's location across the direction of the machine movement. If the center of the boom is to the left of the antenna, the measurement will be a negative number and require a minus sign.
- Press "Boom is: Fore / Aft" to set the distance of the boom in relation to the antenna's position along the direction of machine movement. If the center of the boom is behind the antenna (or Aft), the measurement will be a negative number and require a minus sign.



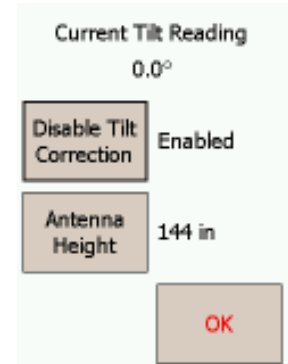
Press "OK" to return to settings menu.



**Swath Smart Tilt Correction:** Displays status of tilt correction (either “Disabled” or “Enabled”). **Note: To activate this feature GM must be used with an external Raven tilt lightbar (the lightbar must have the tilt compensation hardware).**

Press “Swath Smart Tilt Correction” to enter tilt set-up screen.

- “Current Tilt Reading” - Will display angle of tilt in degrees.
- “Calibrate To Level Ground” – Press this button after the external tilt lightbar is in a level position (0.0 degrees).
- “Antenna Height” – Press this button to enter the antenna height in inches (cm) in relation to ground level.
- “Disable Tilt Correction” – Press this button to disable tilt correction feature and return to settings menu.
- Press “OK” to return to settings menu.



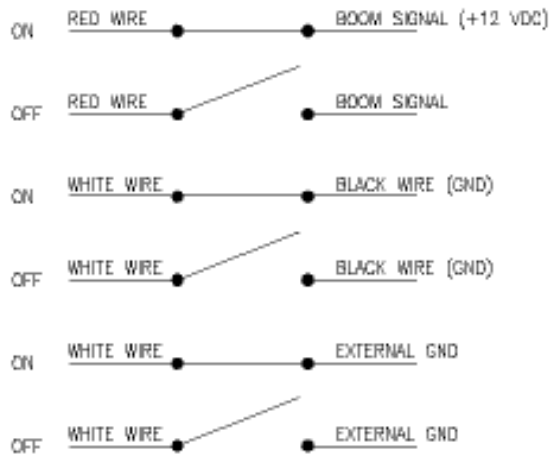
**Note: The external tilt lightbar must also be calibrated using its remote “button box”. Please refer to the Raven lightbar user manual for calibration instructions.**

**Boom Status:** Displays the control mode options in which GM and SM will recognize boom status. Press the “Boom Status” button to scroll through the choices.

- “External Normal”: boom status can be controlled by connecting the single boom sense line (red wire) on interface cable to an external boom input line (+12VDC = boom on, 0VDC = boom off). **Note: if using with a Raven console, connect the red wire to the orange/white wire from the Raven console cable.** Or boom status can be controlled by using the two boom sense lines (black = Grd & white = signal) on interface box (if white signal wire is grounded à boom = on; if white signal wire is not grounded à boom = off). See wiring diagram below. **Note: if faucet with water is displayed on guidance screen GM and SM recognize that the boom status is on. Also, if CDI is red à boom status is off, if CDI is dark green à boom status is on.**

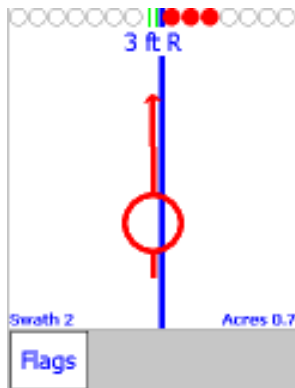


\* EXTERNAL SW=NORMAL

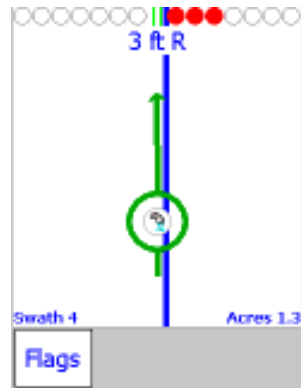


- “External Inverted”: Boom Status control is opposite of “External Normal” wiring options (opposite of the wiring diagram above).

“Manual: Use UpKey”: Boom status control is activated by using the UpKey on the PDA itself [press UpKey once to turn boom on (CDI will be dark green), press UpKey again to turn boom off (CDI will be red)]. Please see pictures below. **Note: while in the “Manual: Use UpKey” mode boom status can only be changed from the GuideMate guidance screen (boom status cannot be changed while viewing the SiteMate map).**



**BOOM OFF**



**BOOM ON**

**Remove Old Job Files:** Displays current # of saved jobs.

Press “Remove Old Job Files” to enter the options screen. Then press “Continue” to select the number of days of job history to keep. The older job files will be deleted.

**Units:** Displays current mode, either “English” or “Metric”.

- Press the “Units” button to change modes.

**Language:** Displays the language in which GM software is displayed.

- Press the “Language” button to scroll through the choices.  
**Note: English will be the only choice available. Subsequent software releases will have multiple languages to choose from.**



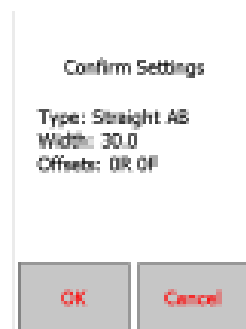
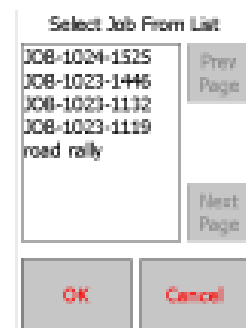
## START JOB

- “**New Job Name**”: allows user to assign a new job name.
- “**Open Existing Job**”: allows user to select a previous job from the displayed list.
- “**Cancel**”: return to GuideMate home screen.
- “**Start Job**”: enters into “Confirm Settings” screen. If user does not assign a “New Job Name”, GM will assign a job name using the current date and time that is set on the iPAQ.

“Confirm Settings” screen will display the following:

- ✓ Pattern (current swath pattern selected)
- ✓ Width (current boom width programmed)
- ✓ Offsets (current boom offsets programmed)

Press “OK” to start a new guidance job. **Please see the “Swath Pattern” descriptions within the “Settings” section for swathing instructions.**



While in the GM guidance screen press the Flags button to access pre-set flags and/or the “Mark/Return” feature.

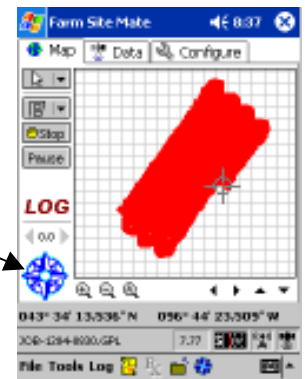
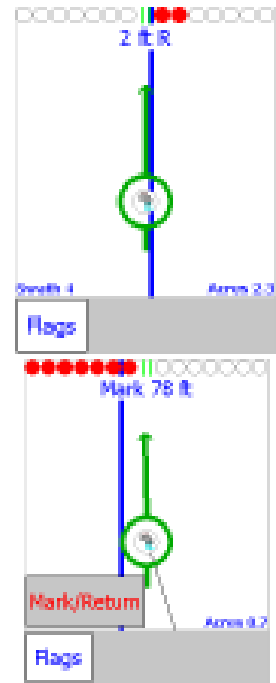
**Mark/Return** – After the “Mark/Return” button is pressed, GM will display distance back to the marked point, as well as show a line on the GM guidance screen to assist with returning to where the original point was marked. Press the “Mark/Return” button a second time to clear the “Mark/Return” mode.

Once in the guidance mode of GM, user can press anywhere on the guidance screen to return to the GM options screen. Please find below the available buttons displayed on the GM options screen:

- **“Reset A-B”** – Allows user to clear current A-B guidance points and re-set new A-B points without closing the current job. After A-B points are cleared, return to swath guidance screen and set new A-B points for continued guidance.
- **“Recal A-B”** – Allows user to adjust the A-B line reference and all successive swaths to this adjusted point. User must determine the precise corrected position of the current swath line and position the machine to that point. Then press ”Recal A-B” then “Continue” to adjust the A-B line reference.
- **“GPS Status”** – Allows user to view DGPS information. (see “GPS STATUS” section for additional details).
- **“SiteMate”** – Allows user to enter the SiteMate software (for viewing as-applied maps, etc.). Please see the FarmWorks SiteMate user’s guide for additional details.

From SiteMate, click on the GuideMate icon (blue star located on the left portion of screen near the bottom) to return to the GuideMate options screen.

**Note: SiteMate coverage is active if on the left side of SM screen “LOG” is bold.**



- **“Lightbar Brightness”** – Allows user to adjust the display screen brightness of an external lightbar.
  - “Preset 1 (Night)” – automatically sets the brightness of the external lightbar for nighttime operation.
  - “Preset 2 (Day)” – automatically sets the brightness of the external lightbar for daytime operation.
  - “Dimmer” and “Brighter” buttons allow user to manually adjust the brightness of an external lightbar. Continue to press either the “Dimmer” or the “Brighter” button until an acceptable level of brightness is displayed.
- **“End Job”** – Allows user to close current guidance job and return to the GuideMate Home screen.
- **“Return To Swath Guidance”** – Allows user to enter guidance screen with the Course Direction Indicator (CDI).



## END PROGRAM

Will exit the GuideMate software program. Press the “End Program” button to close.

