



Software version 1.07

# CENTERLINE® 230BP

# TABLE OF CONTENTS

CHAPTER 1 - INTRODUCTION.....	3
System Configuration.....	4
Installation - Guidance .....	4
Installation - SmartCable.....	5
CHAPTER 2 - SETUP .....	7
Power Up Sequence .....	7
Area Reset .....	8
Setup Mode.....	8
Initial Setup Screen .....	8
Delay On.....	8
Delay Off.....	9
Overlap .....	9
Number Of Boom Sections.....	9
Boom Section Widths .....	9
Boom Offset Direction .....	10
Boom Offset Distance.....	10
Assisted Steering Setup Mode.....	10
Steering .....	10
Look Ahead.....	11
Aggressiveness .....	11
Valve Gain .....	11
Sensitivity .....	11
Valve Test .....	12
Tilt Gyro Setup Mode .....	12
Tilt Gyro .....	12
Antenna Height.....	13
Level One .....	13
Level Two .....	13
Final Tilt Calibration Screen.....	13
Display Setup Mode.....	13
Display Setup Screen.....	13
Display Brightness.....	13
Display Contrast .....	14
Display Background.....	14
LED Spacing.....	14
COM Port Setup .....	14
GPS Setup.....	14

CHAPTER 3 - OPERATION .....	15
Power Up Sequence .....	15
CL230BP Operation Reference Screens .....	15
Navigation Screen - Mark A-B .....	15
Navigation Screen - Operation .....	16
Guidance Screen - Map Page .....	16
Auto Boom Section Control Screen .....	16
Bounded Area Screen .....	16
Applied Area Screen .....	16
Operation Function Keys .....	17
Operations Screens .....	17
Guidance Operation - Modes .....	17
Headland Circuit Guidance .....	18
Straight A-B Guidance .....	18
Curved A-B Guidance .....	19
Circle Pivot Guidance .....	20
Compass View/Return To Point .....	21
All Booms On Mode .....	21
A+ Nudge Feature .....	21

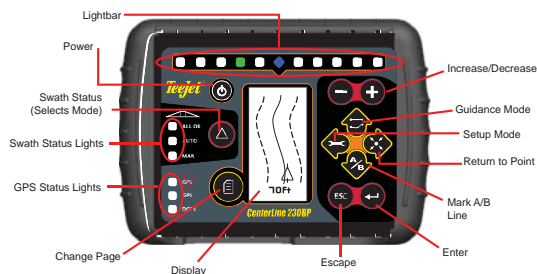
## CHAPTER 1 - INTRODUCTION

This User Guide provides information for software version 1.07.

The CenterLine 230BP software 1.07 provides the following enhancements to the system:

- Applied area now includes only the area under the active boom sections and acre counters will accurately represent applied area. Prior calculations counted all area under the entire boom, regardless of whether individual sections were on or off.
- Unapplied area is now considered “untreated” and can be treated at a later time.
- Boundary area is calculated and displayed as a result of a headland perimeter pass in headland circuit mode. This value is held in memory through the next power cycle and is erased when the user chooses to clear the memory and begin application of a new area.
- When a field boundary is created in headland circuit mode, a “No Spray” zone is created outside of that field boundary. This boundary and “No Spray” zone is held in memory through the next power cycle.
- Area information and as-applied data are now updated and saved with greater frequency.
- Drive Sensitivity (LED spacing on the lightbar) can now be changed in the system Setup menu.
- A section width of “0.0” can now be entered.
- Contrast is now adjustable with the +/- keys during the startup splash screen. Once GPS is attained, the +/- revert back to adjustment of screen Brightness.
- A system setting for “GPS Source” allowing a devoted external source has been added. The default GPS source is the internal GPS receiver.
- DGPS LED activation will now cycle through a 2 minute delay for the purpose of stabilizing DGPS performance. It is recommended guidance mode operation begin after the DGPS LED is active.

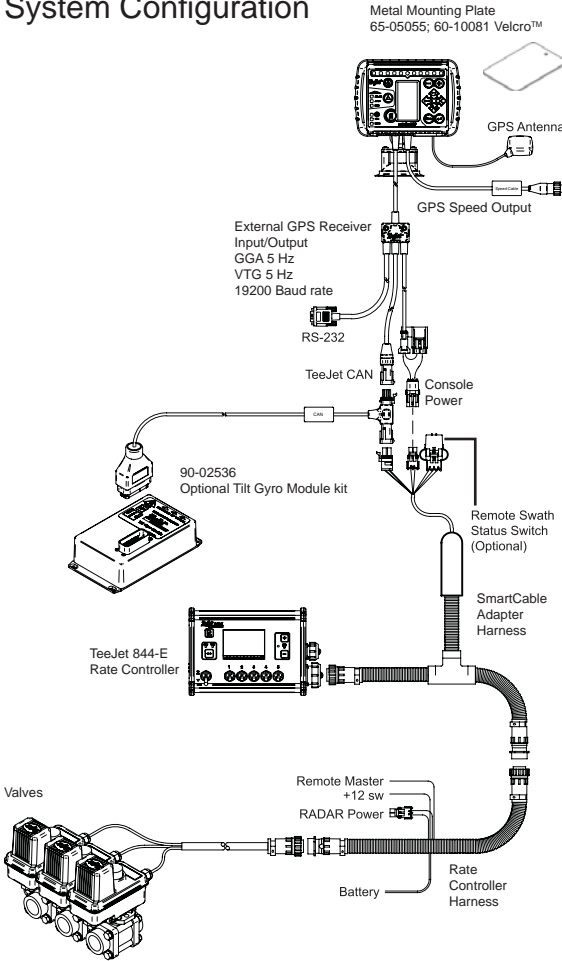
- Tilt Gyro compensation is now available as an upgrade to the CenterLine 230BP. For part numbers and pricing, please consult your regional TeeJet Technologies representative.
- The upgrade includes the support of FieldPilot Assisted Steering. Connection to the SCM is now via CAN. Existing FieldPilot 220 customers upgrading to FieldPilot 230 must arrange to exchange their SCM.



**SMART CABLE** - The Smart Cable is the link between the CL230BP, the existing rate controller, and the boom section valves. It allows the CL230BP to control the boom sections automatically.



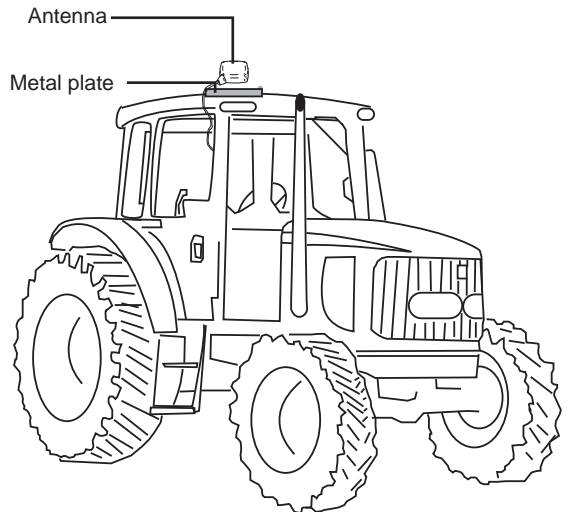
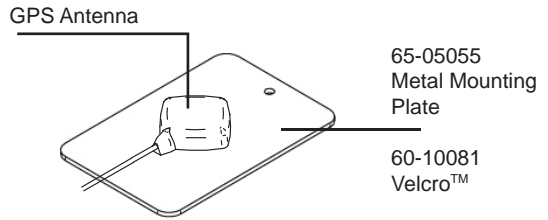
## System Configuration



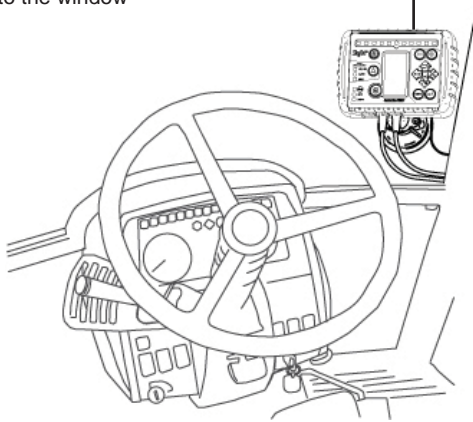
## Installation - Guidance

Position the GPS antenna in the center of the vehicle at the highest point with a clear view of the sky. If the tractor cab is non-metallic, mount the metal plate in the center of the vehicle at the highest point with the Velcro™ strips and place the antenna on the plate. Route the antenna cable carefully to avoid damage and possible electrical interference.

Avoid mounting the antenna close to other electrical installations (air conditioning equipment, radio antennas, etc.). Avoid coiling excess antenna cable - configure it in a “figure 8” shape and keep the cable at least 30 cm (1 ft.) from possible sources of electrical interference.



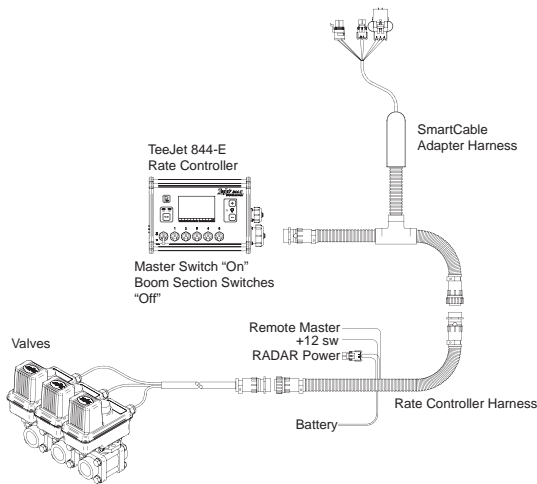
Use the suction cup to mount the console to the window



## Installation - SmartCable

Install the SmartCable between the rate controller and the harness.

The rate controller Master Switch must be set to the "On" position and the individual boom section control switches must be set to the "Off" position.

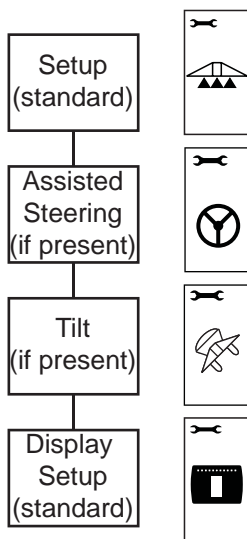




## CHAPTER 2 - SETUP

The CenterLine 230BP is configured to work with Automatic Boom Section Control (ABSC) through the use of a SmartCable or Section Driver Module (SDM). It is also configured to work with Assisted Steering through the use of a Steering Control Module (SCM). A Tilt Gyro Module is available as a standard feature when a SCM is in use. It is also able to be used as an add-on feature if no SCM is present.

Setup Flow Overview:



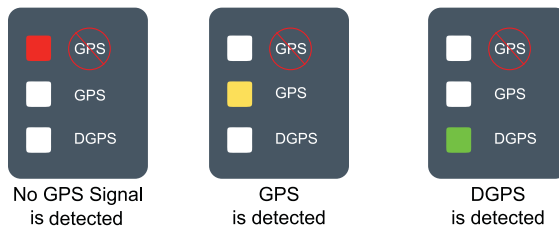
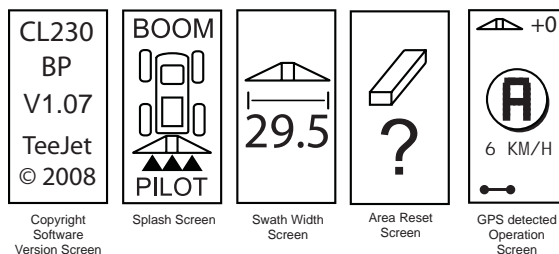
### Power Up Sequence

Before starting the CL230BP, make sure the spray controller is powered up, the Master Switch is set to the “On” position, and the individual boom section switches are turned “Off”.

**NOTE:** For information regarding the use of FieldPilot 230, refer to document # 98-05137 R0.

Power up the system by pressing the Power button. Power down the system by pressing and holding the Power button for approximately four (4) seconds. At power up, the CL230BP will perform the following steps:

- Display copyright and software version screen for three (3) seconds.
- Display the splash screen for two (2) seconds.
- Detect if GPS data are present (this occurs simultaneously within the display screen sequence).
- Display the current swath width for three (3) seconds.
- The Area Reset screen will be displayed.
- The splash screen is displayed until the GPS LED is illuminated or Setup mode is entered. Once the console begins receiving GPS positions, the Operation screen will be displayed.



If the DGPS light is blinking, communication has been established with the GPS source; however, NMEA output rate is too slow. Ensure proper NMEA message settings of 5 Hz GGA in the GPS device. Application cannot occur until proper communication is established.

## Area Reset

At the end of the CL230BP power up sequence, the Area Reset window will be displayed:



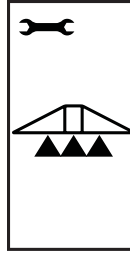
Area Reset retains existing bounded and applied areas and A-B guidelines. This option allows the bounded and applied areas and guidelines to be reset before starting on a new field or continuing an existing field. To reset the bounded and applied areas and guidelines, press the Enter key. If the previous application is being resumed, press the Escape key to continue to Operation or Setup mode. This screen is only available upon CL230BP power up. It cannot be accessed during normal operation.

## Setup Mode

Press the Setup Mode key to enter into CL230BP Setup Mode. The initial CL230BP Setup Mode Screen will be displayed.

- Press the Enter key to save the setting and advance the screen.
- Press the Escape key to exit from Setup Mode without saving any changes.
- After 10 seconds of inactivity, Setup Screens will time out (changes will be saved). The CL230BP will return to Operation Mode.

## INITIAL SETUP SCREEN



This is the initial CL230BP Setup Screen. Press the Enter key to advance to the Delay On screen.

After time out, the screen will go back to Operation Mode. Press the Escape key to exit from Setup Mode without saving any changes.

**NOTE: If a SmartCable or SDM is not connected to the system, Delay On, Delay Off, Overlap, Number of Boom Sections, and Boom Section Width screens will not be displayed.**

## DELAY ON

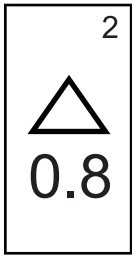


Delay On functions as a “look ahead” for timing the boom section valves to switch on exactly when entering an area that has not been applied. Delay On time is established in seconds and tenths of seconds. If the boom turns on too soon when entering an un-applied area, decrease the Delay On setting. If the boom turns on too late when entering an un-applied area, increase the Delay On setting. Use the Plus and Minus keys to adjust the value. The Delay On Time range is 0.0 - 10.0 seconds. Press the Enter key to accept the changes and advance to the Delay Off setting.

*Setup screens are numbered sequentially for ease of operation.*

**NOTE: To increase the time setting (make On or Off happen sooner), increase Delay On/Off respectively. To decrease the time setting (make On or Off happen later), decrease Delay On/Off respectively.**

## DELAY OFF

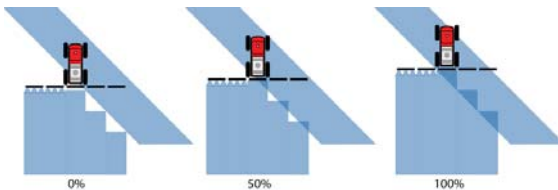


Delay Off functions as a “look ahead” for timing the boom section valves to turn off exactly when entering an area that has been applied. If the boom turns off too soon when entering an applied area, decrease the Delay Off setting. If the boom turns off too late when entering an applied area, increase the Delay Off setting. The delay time is established in seconds and tenths of seconds. Use the Plus **+** and Minus **-** keys to adjust the value. The Delay Off Time range is 0.0 - 10.0 seconds. Press the Enter **↵** key to accept the changes and advance to the Overlap setting.

## OVERLAP



Overlap determines the amount of overlap that is allowed when the boom sections are turned on and off. Select the percent of overlap from three pre-determined settings (0%, 50%, and 100%) using the Plus **+** and Minus **-** keys. Press the Enter **↵** key to accept the changes and advance to the Number of Boom Sections setting.



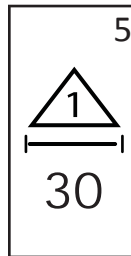
## NUMBER OF BOOM SECTIONS



The number of available boom sections is 1 to 6 or 1 to 15 depending upon which SmartCable is detected. Enter the number of boom sections that are active in the system (1 to 15 sections). Use the Plus **+** and Minus **-** keys to adjust the value. Press the Enter **↵** key to accept the changes and advance to the Boom Section Widths setting.

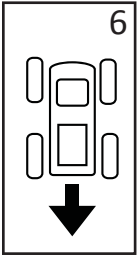
**NOTE: If a SmartCable or SDM is not connected to the system, one Boom Width can be entered. The Boom Width entered should be the total of the entire boom - from 0 cm to 50 m (0 to 1969 inches). The minimum recommended width is 1 m (39 inches).**

## BOOM SECTION WIDTHS



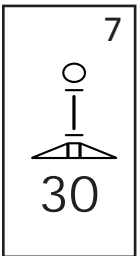
Enter the width for EACH boom section in inches (cm). Use the Plus **+** and Minus **-** keys to adjust the value. Press the Enter **↵** key to advance to the next Boom Section Width setting. When facing forward, the boom sections are ordered from left to right along the boom. The boom section width range is 0 cm to 50 m (0 to 1969 inches). The minimum recommended width is 1 m (39 inches). Press the Enter **↵** key to accept the changes to the last boom section and advance to the Boom Offset Direction setting. Individual boom section widths can be set to different widths.

## BOOM OFFSET DIRECTION



A BACKWARD selection (as shown) indicates the boom is located behind the GPS antenna as the vehicle moves in a forward direction. A FORWARD selection indicates the boom is located in front of the GPS antenna as the vehicle moves in a forward direction. Use the Plus **+** and Minus **-** keys to adjust between Forward or Backward. Press the Enter **↵** key to accept the changes and advance to the Boom Offset Distance setting.

## BOOM OFFSET DISTANCE



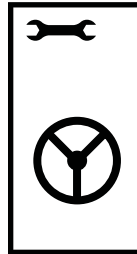
Define the distance from the GPS antenna to the boom in decimal feet (decimal meters). The boom offset distance range is 0 to 50 meters (0 to 164 decimal feet). Use the Plus **+** and Minus **-** keys to change the value. Press the Enter **↵** key to accept the changes.

Once the final setting has been entered and saved, the screen will return to the initial CL230BP Setup Screen. If no additional changes are required, press the Escape **ESC** key to exit to Operation Mode.

## Assisted Steering Setup Mode

**NOTE: If a Steering Control Module (SCM) is not connected to the system, Assisted Steering Setup Mode will not be displayed. Proceed to the next section.**

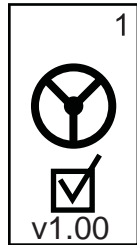
Press the Setup Mode **↵** key until the initial Assisted Steering Setup Mode screen is displayed.



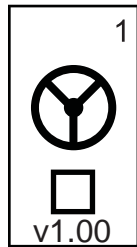
Press the Enter **↵** key to save the setting and advance the screen. Press the Escape **ESC** key to exit from Setup Mode without saving any changes. After 10 seconds of inactivity, Setup Screens will time out (changes will be saved). The CL230BP will return to Operation Mode.

**NOTE: If an SCM is connected to the CL230BP after it is powered on, the connection will not be detected. Power must be cycled.**

## STEERING

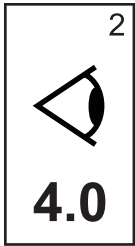


Steering allows the Assisted Steer function to be turned on and off. Use the Plus **+** or Minus **-** keys to toggle the setting to “On” or “Off”. Press the Enter **↵** key to accept the changes and advance to the Look Ahead setting.



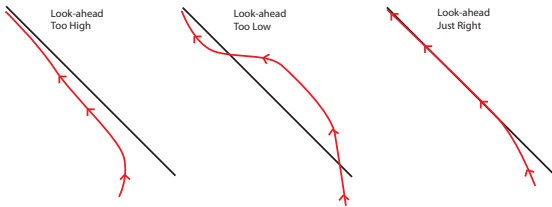
A checked box activates the Steering Control system.

## LOOK AHEAD



In STRAIGHT mode, fine tune the Look Ahead by conducting several approaches to the guideline. If the vehicle is overshooting the guideline when approaching, increase the value. If the vehicle does not overshoot the guideline but instead takes too long to get to the guideline, decrease the Look Ahead value.

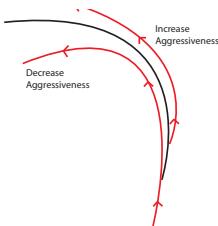
Use the Plus **+** or Minus **-** keys to adjust the value range of 0.0 to 10.0 (default is 4.0 seconds). Press the Enter **↵** key to accept the changes and advance to the Aggressiveness setting.



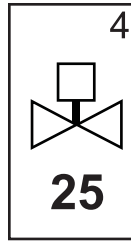
## AGGRESSIVENESS



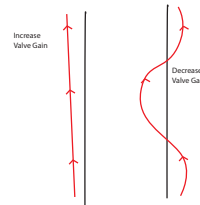
Typically, adjust this value while in CURVED GUIDANCE mode. If the vehicle cuts corners, decrease this value in increments of one. If the vehicle drive outside of corners, increase this value. Use the Plus or **+** Minus **-** keys to increase or decrease the value - range is 1 to 100 (default is 25). Press the Enter **↵** key to accept the changes and advance to the Valve Gain setting.



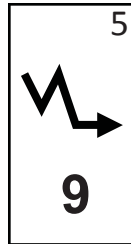
## VALVE GAIN



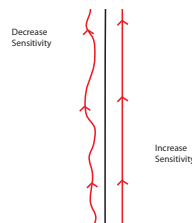
If the vehicle is drifting away from the line or not approaching it fast enough, increase the Valve Gain setting in increments of one. Decrease the value if the vehicle is oscillating rapidly or overshooting the guideline. Use the Plus **+** or Minus **-** keys to increase or decrease the value - range is 1 to 100 (default is 25). Press the Enter **↵** key to accept the changes and advance to the Sensitivity setting.



## SENSITIVITY

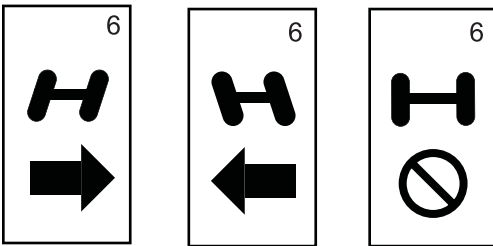


Decrease this value if the steering is too choppy or too responsive. Increase the value if the vehicle remains consistently off the guideline. As the value is decreased, stability will increase but so will a steady state error. Use the Plus **+** or Minus **-** keys to increase or decrease the value - range is 0 to 9 (default is 9). Press the Setup Mode **⏏** key to accept the changes and advance to the Valve Test setting.



## VALVE TEST

Valve Test is used to verify steering is directed correctly and to determine the amount of time required to move the steering wheels from fully left to fully right. Use the Plus or Minus keys to adjust the left, right, and off values. The Plus key turns to the right, the Minus key turns to the left, and pressing either one again will stop the turn. Press the Enter key to accept the changes and advance to the Display Setup Mode.

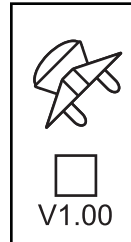


Once the final setting has been entered and saved, the screen will return to the initial CL230BP Assisted Steering Screen. If no additional changes are required, press the Escape key to exit to Operation Mode.

## Tilt Gyro Setup Mode

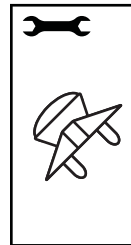
**NOTE:** *If a Steering Control Module (SCM) or a Tilt Gyro Module are not connected to the system, Tilt Compensation Setup Mode will not be displayed. Proceed to the next section.*

**NOTE:** *If a Tilt Gyro Module is connected but an SCM is not, the following screen will be displayed instead of the standard Tilt Gyro screens. The screen will display the software version.*



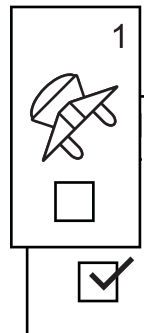
Tilt corrected GPS positions provide improved guidance performance in hilly terrain. To provide accurate tilt correction, the operator must calibrate the Steering Control Module (SCM). The CL230BP will detect if an SCM is connected. If connected, tilt calibration can be performed.

Press the Setup Mode key until the initial Tilt Calibration Setup Mode screen is displayed.



Press the Enter key to save the setting and advance the screen. Press the Escape key to exit from Setup Mode without saving any changes. After 10 seconds of inactivity, Setup Screens will time out (changes will be saved). The CL230BP will return to Operation Mode.

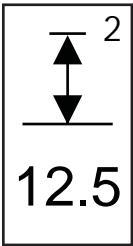
## TILT GYRO



The Tilt Gyro Module allows for tilt correction. A Tilt Correction On/Off page will be displayed. If the page displays an empty checkbox, the Tilt Calibration screens will not be available. If the box is checked, the Tilt Calibration screens will be accessed. If the box is checked and a calibration has already been performed, press the Escape key to avoid performing an additional calibration procedure.

Check/Uncheck the box by using the Plus **+** or Minus **-** keys. The Plus **+** key selects (checks) the box. The Minus **-** key deselects (unchecks) the box. Press the Enter **↵** key to accept the changes and advance to the Antenna Height setting.

## ANTENNA HEIGHT



Measure the height of the antenna from the ground. Enter the antenna height (in meters with one decimal) on the antenna height page using the Plus **+** and Minus **-** keys. Press the Enter **↵** key to accept the changes and advance to the Level One setting.

## LEVEL ONE



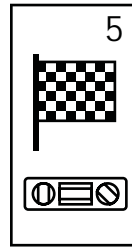
Position the vehicle on a level surface. Press the Enter **↵** key to advance to the next Level screen.

## LEVEL TWO



Turn the vehicle 180 degrees and reposition the vehicle at the same location. Press the Enter **↵** key to record the level position.

## FINAL TILT CALIBRATION SCREEN

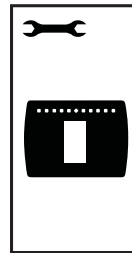


The Final Tilt Calibration Screen will be displayed. This will show that Tilt Calibration has been completed. After 5 seconds the screen will time out and return to the Operation screen.

## Display Setup Mode

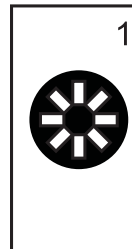
Press the Setup Mode **↵** key until the initial Display Setup Mode screen appears.

## DISPLAY SETUP SCREEN



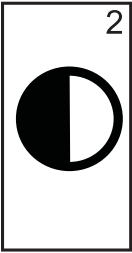
This is the initial Display Setup Screen. Setup screens will time out after 10 seconds of inactivity (changes will be saved). After time out, the screen will go back to Operation Mode. Pressing the Escape **ESC** key will also exit the user from Setup Mode without saving any changes. Press the Enter **↵** key to advance to the Display Brightness setting.

## DISPLAY BRIGHTNESS



The Plus **+** and Minus **-** keys can be used to change the brightness levels of the display screen. Press the keys until the desired brightness is established. Press the Enter **↵** key to advance to the Display Contrast setting.

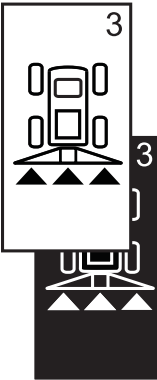
## DISPLAY CONTRAST



The Plus **+** and Minus **-** keys can be used to change the contrast levels of the display's background. Press the Enter **↵** key to advance to the Display Background setting.

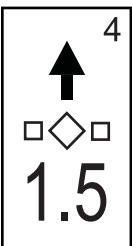
**NOTE:** The Plus **+** and Minus **-** keys control console brightness levels during Operations modes. However, if GPS signal is not being received, the Plus **+** and Minus **-** keys will control the contrast level.

## DISPLAY BACKGROUND



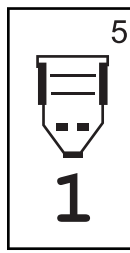
The Plus **+** and Minus **-** keys toggle between light and dark backgrounds. Press the keys until the desired background is established. Press the Enter **↵** key to accept the changes.

## LED SPACING



The distance illustrated by the illuminated LEDs can be customized. The default setting is 30 cm (1 ft.). Use the Plus **+** and Minus **-** keys to adjust the spacing as required for individual preference. Press the Enter **↵** key to accept the changes.

## COM PORT SETUP



The COM Port can be customized to send DGPS data out or accept external DGPS. "0" means the console is accepting external DGPS data. "1" means the console is using internal DGPS and is transmitting out. Use the Plus **+** and Minus **-** keys to toggle the COM Port number. Press the Enter **↵** key to accept the changes.

**NOTE:** Power must be cycled to the console if this setting is changed.

## GPS SETUP



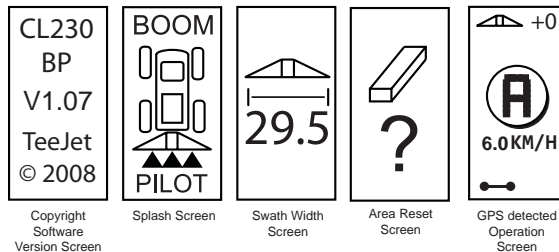
GPS Setup can be customized to accept "ANY" available source transmission (either uncorrected or differential), "GPS" source transmissions (only uncorrected signals), or "DGPS" source transmissions (only differentially corrected signals). Use the Plus **+** key to select "ANY," "GPS," or "DGPS" and the Minus **-** key to revert backward. Press the Enter **↵** key to accept the changes.

**NOTE:** Power must be cycled to the console if this setting is changed.

Once the final setting has been entered, the screen will return to the initial Display Setup Mode screen. If no additional changes are required, press the Escape **ESC** key and exit to Operation Mode or press the Setup Mode **↵** key again to enter into CL230BP Setup Mode.

## CHAPTER 3 - OPERATION

The CenterLine 230BP is configured to work with Automatic Boom Section Control (ABSC) through the use of a SmartCable or Section Driver Module (SDM). It is also configured to work with Assisted Steering through the use of a Steering Control Module (SCM). A Tilt Gyro Module is available as a standard feature when a SCM is in use. It can also be used as an add-on feature if no SCM is present.



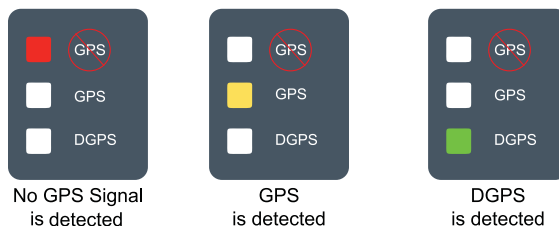
### Power Up Sequence

Power up the system by pressing the Power button.

Power down the system by pressing and holding the Power button approximately four (4) seconds.

At power up, the CL230BP will perform the following steps:

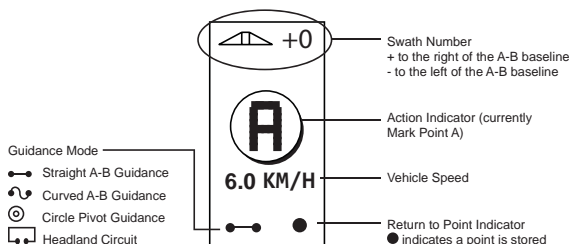
- Display copyright and software version screen for three (3) seconds.
- Display the splash screen for two (2) seconds.
- Detect if GPS data are present (this occurs simultaneously within the display screen sequence).
- Display the current swath width for three (3) seconds.
- The Area Reset screen will be displayed.
- The splash screen is displayed until the (D)GPS LED is illuminated or Setup mode is entered. Once (D)GPS is locked, the Operation screen will be displayed.



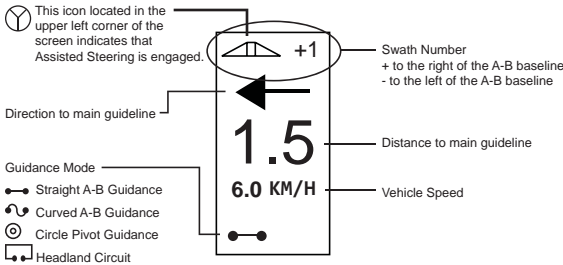
If the DGPS light is flashing, communication has been established with the GPS source; however, NMEA output rate is too slow. Ensure proper NMEA message settings of 5 GGA in the GPS device. Application cannot occur until proper communication is established.

### CL230BP Operation Reference Screens

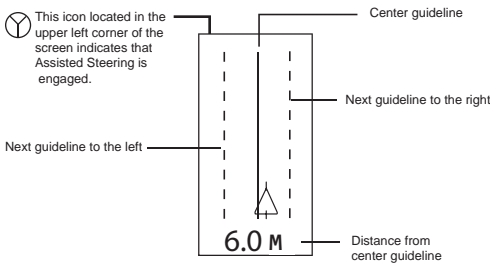
#### Navigation Screen - Mark A-B



## Navigation Screen - Operation

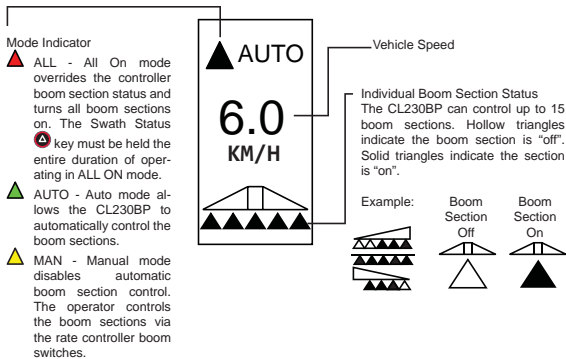


## Guidance Screen - Map Page



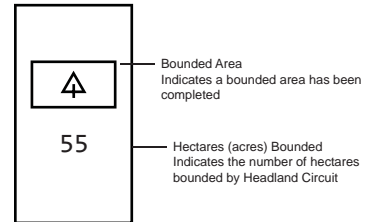
## Auto Boom Section Control Screen

**NOTE: This screen will only be displayed if a SmartCable or SDM are installed in the system.**



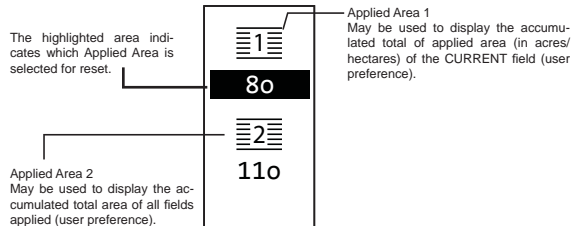
## Bounded Area Screen

**NOTE: If a SmartCable is not connected to the system, the console cannot be placed in "Auto" mode. However, acreage can be bounded.**



## Applied Area Screen

**NOTE: This screen will only be displayed if a SmartCable or SDM are installed in the system.**



To reset an existing area counter, while on the Applied Area Screen, press the Enter key to highlight Applied Area 1. Press and hold the Minus key for approximately 3 seconds to reset the total in Applied Area 1. If the area counter was reset by mistake, press the Plus key again to restore the existing total.

Highlight Applied Area 2 by pressing the Enter key. Press and hold the Minus key for approximately 3 seconds to reset the total in Applied Area 2. If the area counter was reset by mistake, press the Plus key again to restore the existing total. Pressing the Escape key will deselect the highlighted area.

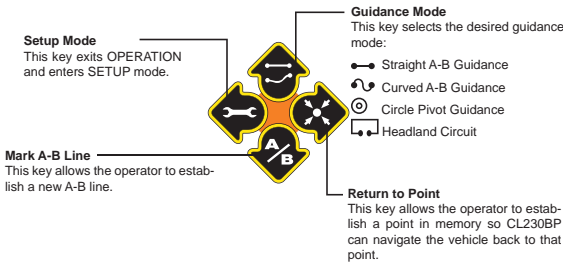
**NOTE: Once the Applied Area Screen is exited, the area reset will become permanent. The restore feature cannot be used after the screen has been exited.**

To exit the Applied Area screen, select the Change Page key. The CL230BP will advance to the Navigation screen.

**NOTE: If the system is not connected to a Smart-Cable, Applied Area will not be accumulated. The Applied Area screen will not be displayed.**

## Operation Function Keys

There are several functions that can be performed during operation. Most of these functions are initiated by the four arrow keys, located on the keypad.

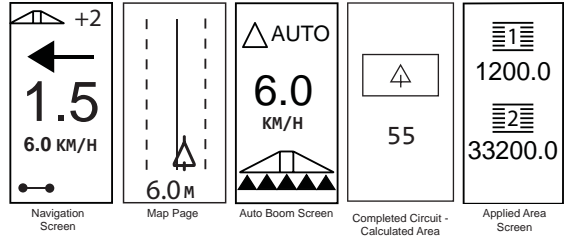


**NOTE: The Plus and Minus keys control console brightness levels during Operations modes. However, if GPS is not being received, the Plus and Minus keys will control the contrast level.**

## Operations Screens

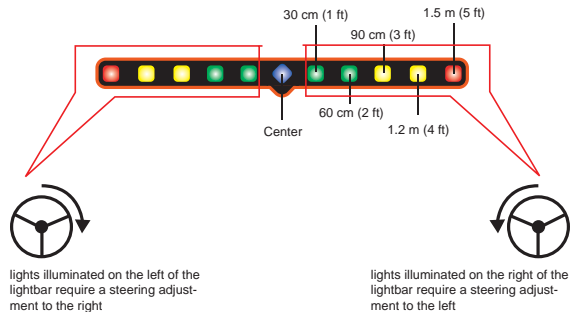
Several screens are displayed during vehicle operation. They are consistent throughout the application and appear as follows.

To change the view of any screen during Operations mode, press the Change Page key.



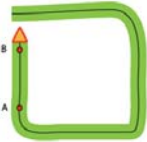
## Guidance Operation - Modes

Guidance capabilities include Straight A-B, Curved A-B, Circle Pivot, and Headland Circuit.




## Headland Circuit Guidance

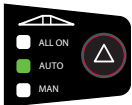
Headland Circuit guidance is used to establish a perimeter around the application area. The CL230BP will collect and store bounded area once the Headland Circuit is closed. The CL230BP will allow two passes around the perimeter of the field - the original perimeter pass and one additional pass. Guidance is applied during the second pass, after the first pass has been completed.





**NOTE: Booms will not operate outside of the bounded area once it is established.**



**NOTE: Steps 1 - 3 are only applicable if a Smart-Cable or SDM are installed on the system.**

1. Turn the controller master switch to the “On” position. The individual boom section switches should remain in the “Off” position.
2. To activate automatic boom section control, press the Swath Status Switch  key until Auto Mode is illuminated on the console.



3. In areas where application is not desired, manually turn “Off” the rate controller master switch to shut off the booms. Turn the master switch “On” to resume application.
4. Use the Guidance Mode  key to select Headland Circuit guidance.

5. Drive to the desired headland location of Point A. With the vehicle in motion, press the Mark A/B  key to establish Point A. Drive around the perimeter of the field. The CL230BP will automatically close the boundary when the vehicle is within one boom width of Point A. The Completed Circuit (hourglass) will be briefly displayed as the perimeter is closed.

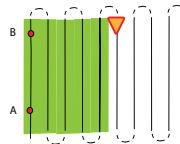
Guidance Points A and B can be established at any time during Headland Circuit mode. These points can be used as reference for Straight or Curved A-B guidance (used during interior application). To mark Points A and B, press the Guidance Mode  key to select either Straight, or Curved A-B mode and mark the points at the desired locations using the Mark A/B  key. The points will be stored for future reference.

The CL230BP will provide navigation information to complete a second headland circuit pass. If Guidance Points A and B were not marked during Headland Circuit, select a new Guidance Mode and establish an A-B line to complete the interior application.

6. Use the Change Page  key to advance the screen views as illustrated above.

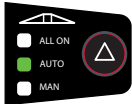
## Straight A-B Guidance

Straight A-B guidance provides straight line guidance based on a reference (A-B) line. The original A-B line is used to calculate all other parallel guidelines.

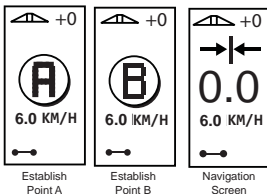


**NOTE: Steps 1 - 3 are only applicable if a Smart-Cable or SDM are installed on the system.**

1. Turn the controller master switch to the “On” position. The individual boom section switches should remain in the “Off” position.
2. To activate automatic boom section control, press the Swath Status Switch key until Auto Mode is illuminated on the console.



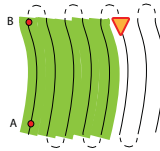
3. In areas where application is not desired, manually turn “Off” the rate controller master switch to shut off the booms. Turn the master switch “On” to resume application.
4. Use the Guidance Mode key to select Straight A-B guidance.
5. Drive to the desired location of Point A. While the vehicle is in motion, press the Mark A/B key to establish Point A. Point B will be displayed on the screen. Drive to the location of Point B and press the Mark A/B key again to establish the A-B line. The CL230BP will immediately begin providing navigation information with the light-bar and Navigation Screen.



6. Use the Change Page key to advance the screen views.

## Curved A-B Guidance

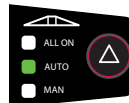
Curved A-B Guidance is similar to Straight A-B Guidance except that the reference line is curved.



**NOTE:** *Curved Guidance is recommended not to exceed 30° within the A-B guideline.*

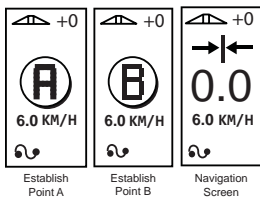
**NOTE:** *Steps 1 - 3 are only applicable if a Smart-Cable or SDM are installed on the system.*

1. Turn the controller master switch to the “On” position. The individual boom section switches should remain in the “Off” position.
2. To activate automatic boom section control, press the Swath Status Switch key until Auto Mode is illuminated on the console.



3. In areas where application is not desired, manually turn “Off” the rate controller master switch to shut off the booms. Turn the master switch “On” to resume application.
4. Use the Guidance Mode key to select Curved A-B guidance.
5. Drive to the desired location of Point A. While the vehicle is in motion, press the Mark A/B key to establish Point A. Point B will be displayed on the screen. Drive to the location of Point B and press the Mark A/B key again to establish the

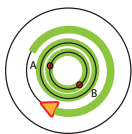
A-B line. The CL230BP will immediately begin providing navigation information with the lightbar and Navigation Screen.




- Use the Change Page  key to advance the screen views.

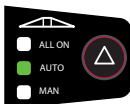
## Circle Pivot Guidance

Circle Pivot guidance provides guidance around a central location that radiates outward.






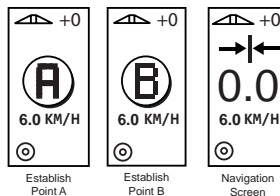
**NOTE:** Steps 1 - 3 are only applicable if a Smart-Cable or SDM are installed on the system.

- Turn the controller master switch to the “On” position. The individual boom section switches should remain in the “Off” position.
- To activate automatic boom section control, press the Swath Status Switch  key until Auto Mode is illuminated on the console.



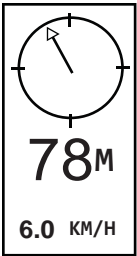
- In areas where application is not desired, manually turn “Off” the rate controller master switch to shut off the booms. Turn the master switch “On” to resume application.


- Use the Guidance Mode  key to select Circle Pivot guidance.
- Drive to the desired location of Point A. With the vehicle in motion, press the Mark A/B  key to establish Point A. Point B will be displayed on the screen. Drive to the location of Point B and press the Mark A/B  key again to establish the A-B line. Point B must be at least 1/2 of the way around the circle to complete the circle pivot. Once Point B has been established, the CL230BP will immediately begin providing navigation information with the lightbar and Navigation Screens.





- Use the Change Page  key to advance the screen views.

## Compass View/Return to Point





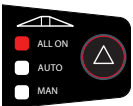
Press the Return to Point  key to establish a point in memory. Normal guidance will continue uninterrupted during this process.

To navigate back to the established point, press the Return to Point  key again. The Compass View screen will be displayed and will provide navigation assistance to return to the established point.



Push the Return to Point  key a third time to erase the stored point and return to the navigation screens.



## All Booms On Mode

The CL230BP provides the option of turning all booms on at the same time, regardless of vehicle position or guidance mode. To turn all booms on, press and hold the Swath Status Switch  key until All On Mode is illuminated on the console. Release the Swath Status Switch  key to turn off the booms.



## A+ Nudge Feature

The A+ Nudge feature allows the existing A-B guideline to be shifted to the vehicle's current location. Press the Mark A/B  key immediately followed by pressing the Plus  key.

Pressing the Minus  key after pressing the Plus  key will abort the nudge feature and the guideline will remain the same.

