

MATRIX[®] PRO GS

U S E R M A N U A L

MATRIX[®] PRO 840GS



MATRIX[®] PRO 570GS

TeeJet[®]
TECHNOLOGIES

A Subsidiary of  Spraying Systems Co.[®]

GETTING STARTED

#1 Turn Power On





Press the POWER button  to power on the console.

#2 Home Screen


Once the power up sequence has completed, the Home screen will appear with the option to start a new job or continue an existing job.

#3 Go To Unit Setup

1. Press UNIT SETUP bottom tab .

The Configuration  options will be displayed first. Data Management , Console Setting  and Tools  can be accessed through the side tab keys.

Cultural Setup

2. Press CONSOLE side tab .

3. Press **Cultural**.

Culture is used to configure Units, Language and Time Zone settings.


GPS Setup

1. Press CONFIGURATION side tab .

2. Press **GPS**.

GPS is used to configure GPS Type, GPS Port and PRN as well as to view GPS status information.


Implement Setup

1. Press CONFIGURATION side tab .

2. Press **Implement**.

Implement Setup is used to establish the various settings associated with straight mode, spreader mode or staggered mode. Settings will vary depending on if a SmartCable or Section Driver Module (SDM) is present.





AutoSteer Setup

1. Press CONFIGURATION side tab .


2. Press **AutoSteer**.

When a Steering Control Module (SCM) is present, Assisted/Auto Steering options will be available. For detailed setup instructions, refer to your specific assisted/auto steering installation manual.

#4 Go To Guidance Screen

1. Press VEHICLE VIEW GUIDANCE tab , FIELD VIEW GUIDANCE tab  or REALVIEW GUIDANCE tab .
2. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.

Choose a Guidance Mode

- ▶ Straight AB 
- ▶ Curved AB 
- ▶ Circle Pivot 
- ▶ Last Pass 
- ▶ NextRow 

Mark A and B Points

To establish a AB guideline.

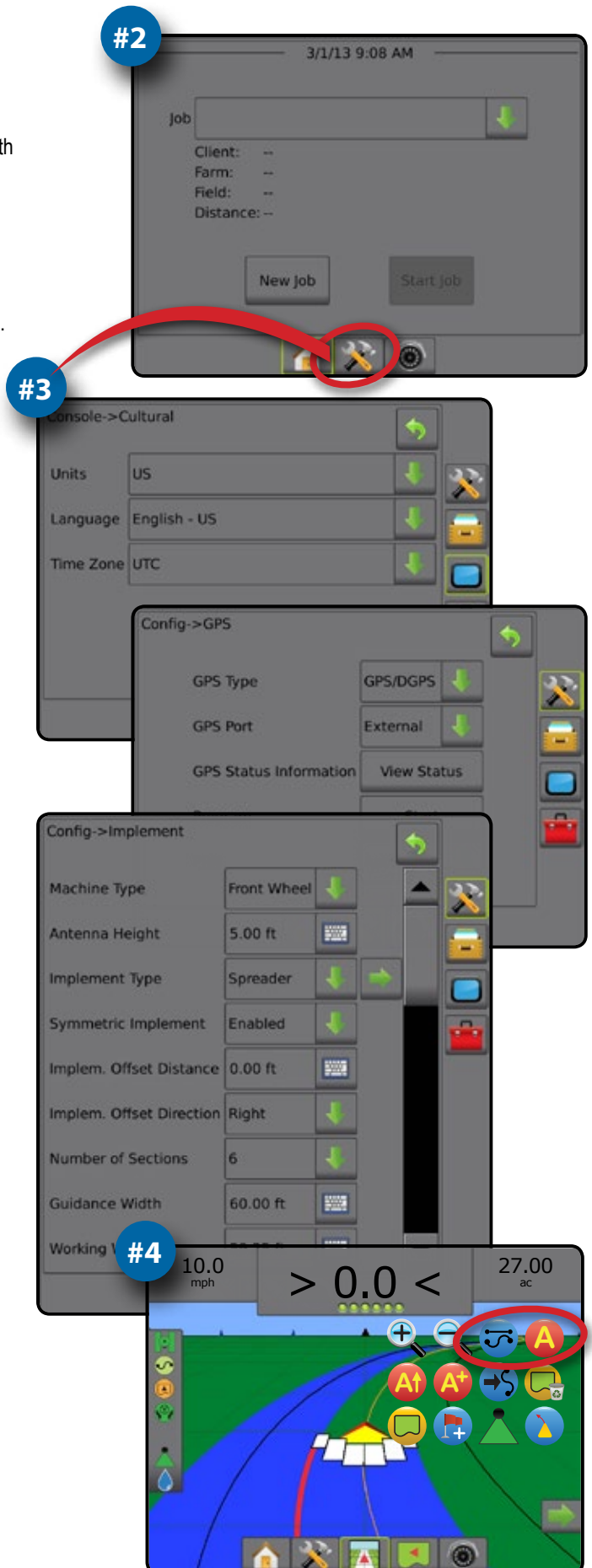


Table of Contents

CHAPTER 1 - SYSTEM OVERVIEW 1

Product Upgrades Available 1

SYSTEM COMPONENTS 1

Matrix Pro 570GS Console 1

Matrix Pro 840GS Console 2

RealView® Camera 2

Additional Information 2

 Power On 2

 Power Off 2

 Start Up Sequence 2

 Recommended Antenna Installation 2

CONFIGURATIONS 3

CHAPTER 2 – INTRODUCTION 4

BASIC SCREEN USE 4

 Bottom Tab Keys 4

 Unavailable Options When Job is Active 4

 Console Screen Colors 5

 Warnings and Information Pop-ups 6

 Setup Option Information 6

 Drop Down Menu Selections 6

 Scrolling Screens 6

 Keyboard Entry Screen 6

UNIT SETUP MODE MENU OPTIONS 7

CHAPTER 3 – JOBS / HOME SCREEN 8

SIMPLE MODE 9

 New Job 9

 Continue Job 9

 Close Job 9

ADVANCED MODE 9

 New Job 9

 Start Job 9

 Close Job 9

CHAPTER 4 – FULL SCREEN VIDEO VIEW 10

CHAPTER 5 - SYSTEM SETUP 11

OVERVIEW 11

Unavailable Options When Job is Active 12

CONFIGURATION 12

 Implement 13






 Implement Type 13

 Single Section Setup 13

 SmartCable or Section Driver Module Setup 14

OVERVIEW
INTRODUCTION
HOME
FULL SCREEN
SETUP
GUIDANCE
GPS
IMPLEMENT
DROPLET MONITOR

OVERVIEW
INTRODUCTION
HOME
FULL SCREEN
SETUP
GUIDANCE
GPS
IMPLEMENT
DROPLET MONITOR

Lightbar.....	15
AutoSteer.....	15
<i>Assisted/Auto Steering Unavailable.....</i>	16
Tilt Correction.....	16
<i>Field Level Unavailable.....</i>	16
<i>Tilt Correction Unavailable.....</i>	16
GPS.....	17
<i>PRN Not Shown.....</i>	17
Video.....	17
<i>Video Setup Unavailable.....</i>	17
Sensors.....	18
<i>Sensors Unavailable.....</i>	18
Pressure Sensor.....	18
Droplet Size Monitor.....	19
<i>Droplet Size Monitor Unavailable.....</i>	19
 DATA MANAGEMENT	20
Job Data.....	20
<i>Job Data Unavailable.....</i>	20
Transfer.....	21
Manage.....	21
Reports.....	22
Options.....	22
Machine Settings.....	23
Transfer.....	24
Manage.....	24
Machine Settings Availability.....	25
 CONSOLE	26
Display.....	26
Cultural.....	27
Audio Volume.....	27
Demo Mode.....	28
About.....	28
 TOOLS	29
CHAPTER 6 – GUIDANCE	30
Navigation Screens Options.....	31
GUIDANCE BAR	32
Selectable Information.....	32
Navigation Activity & Boom Status.....	32
STATUS BAR	33
Status/Information Screens.....	33
 NAVIGATION SCREENS	35
Vehicle View.....	36
Field View.....	37
RealView Guidance.....	38
 GUIDANCE MODES	39

Straight AB Guidance	39
Curved AB Guidance	39
Circle Pivot Guidance	39
Last Pass Guidance	39
NextRow Guidance	39
No Guidance	39

GUIDELINES 40

Curved Lookahead Guideline	40
Marking A and B Points	40
A+ Nudge Feature	41
Next Guideline Feature	42
Last Pass Guidelines	42
NextRow Guidelines	43
Azimuth Degree	43

 **APPLICATION BOUNDARY 44**

 **RETURN TO POINT 46**

Marking a Return Point	46
Delete the Return Point	46
Guidance to a Return Point	46

 **BOOMPILOT 47**

Single Section	47
Console Only	47
With Optional Speed/Sense Cable Switch	47
Using the Speed/Sense Cable Switch	47
Using the Console	47
SmartCable or Section Driver Module	48
Console Only	48
Rate Controller or Switchbox	48
Rate Controller with Internal Section Driver Module	48
Speed/Sense Cable Switch	48

 **ZOOM IN/OUT 49**

Vehicle View	49
Field View	49

 **PAN MODE 49**

 **REALVIEW SPECIFIC OPTIONS 50**

RealView Setup Options	51
------------------------------	----

CHAPTER 7 - GPS 52

GPS	52
GPS Type	53
GPS Port	53
External Receiver Minimum Configuration Requirements	53
GPS Status Information on Guidance Screens	54
GGA Requirements	54
Programming Receiver	55

PRN	55
<i>Alternate PRN</i>	55
<i>PRN Not Shown</i>	55

CHAPTER 8 - IMPLEMENT SETUP 56

Implement Type	56
BASIC SCREEN USE	57
SINGLE SECTION SETUP	58
Straight Implement Type.....	59
TeeJet Spreader Implement Type	59
OEM Spreader Implement Type.....	60
SMARTCABLE OR SECTION DRIVER MODULE SETUP	61
Straight Implement Type.....	62
TeeJet Spreader Implement Type	63
OEM Spreader Implement Type.....	64
Staggered Implement Type.....	65
IMPLEMENT OFFSET DISTANCE ADJUSTMENT	67
GPS Offset Adjustment Calculation	67
Implement Offset Adjustment.....	68
FACTORY SETTINGS & RANGES	69
Single Section	69
SmartCable or Section Driver Module	69

CHAPTER 9 - DROPLET SIZE MONITOR 71

DROPLET SIZE MONITOR SETUP	71
Pressure Sensor	71
Droplet Size Monitor	72
<i>Droplet Size Monitor Unavailable</i>	72
Enable/Disable Droplet Size Monitor	72
Tip Preset	73
Current Tip.....	73
DROPLET SIZE MONITOR OPERATION	74
<i>Droplet Size Chart</i>	74
Guidance Bar	74



Safety Information

TeeJet Technologies is not responsible for damage or physical harm caused by failure to adhere to the following safety requirements.

As the operator of the vehicle, you are responsible for its safe operation.

The Matrix Pro GS in combination with any assisted/auto steering device is not designed to replace the vehicle's operator.

Do not leave a vehicle while the Matrix Pro GS is engaged.

Be sure that the area around the vehicle is clear of people and obstacles before and during engagement.

The Matrix Pro GS is designed to support and improve efficiency while working in the field. The driver has full responsibility for the quality and work related results.

Disengage or remove any assisted/auto steering device before operating on public roads.

CHAPTER 1 - SYSTEM OVERVIEW

The Matrix Pro GS allows the management of multiple connected modules plus GPS mapping, Guidance, FieldPilot®, BoomPilot® and data collection in a single console using CAN bus technology. This replaces multiple consoles in the cab with one robust system.

Product Upgrades Available

- FieldPilot® auto steering
- UniPilot® assisted steering
- BoomPilot® automated boom section control
- Tilt Gyro Module
- Video Selection Modules for up to 8 cameras
- External GPS receiver or antenna upgrades
- Fieldware® Link enhanced data organization application
- Pressure Sensor Interface Kit for Droplet Size Monitor

SYSTEM COMPONENTS

Matrix Pro 570GS Console

The Matrix Pro 570GS is designed to provide years of service under typical agricultural operating conditions. A tight fitting enclosure, combined with rubber covers for all connectors mean that typical dusty environments will not cause operational problems. While occasional splashing of water will not damage the unit, the Matrix Pro 570GS is not designed for direct exposure to rain. Take care not to operate the Matrix Pro GS in wet conditions.

Figure 1-1: Matrix Pro 570GS Console Front and Back



Matrix Pro 840GS Console

The Matrix Pro 840GS is designed to provide years of service under typical agricultural operating conditions. A tight fitting enclosure, combined with rubber covers for all connectors mean that typical dusty environments will not cause operational problems. While occasional splashing of water will not damage the unit, the Matrix Pro 840GS is not designed for direct exposure to rain. Take care not to operate the Matrix Pro GS in wet conditions.

Figure 1-2: Matrix Pro 840GS Console Front and Back



RealView® Camera


The TeeJet Technologies RealView camera allows video images to be displayed on the Matrix Pro GS screen. The camera can be pointed forward to enable RealView guidance over video, or it can be positioned to view other operational aspects of your equipment. The camera is equipped with a flexible RAM mount, integral sun shade and provides infrared illumination, allowing clear video images even in dark conditions.

Additional Information


All changes are saved automatically.

The console needs to be cycled off and back on when changing or attaching equipment to the Matrix Pro GS system.

Power On

Press the POWER button  to power on the console. Upon power up, the Matrix Pro GS will begin its Start Up Sequence.

Power Off

Press and briefly hold the POWER button  until a confirmation screen acknowledges shut down mode.

WARNING! Wait 30 seconds before restarting the console after powering off.

Start Up Sequence

The console takes approximately 40 seconds to power up. During this time a series of screens will be displayed, LEDs will power on and off and brightness levels will fluctuate. Once the power up sequence has completed, the Home screen will appear.

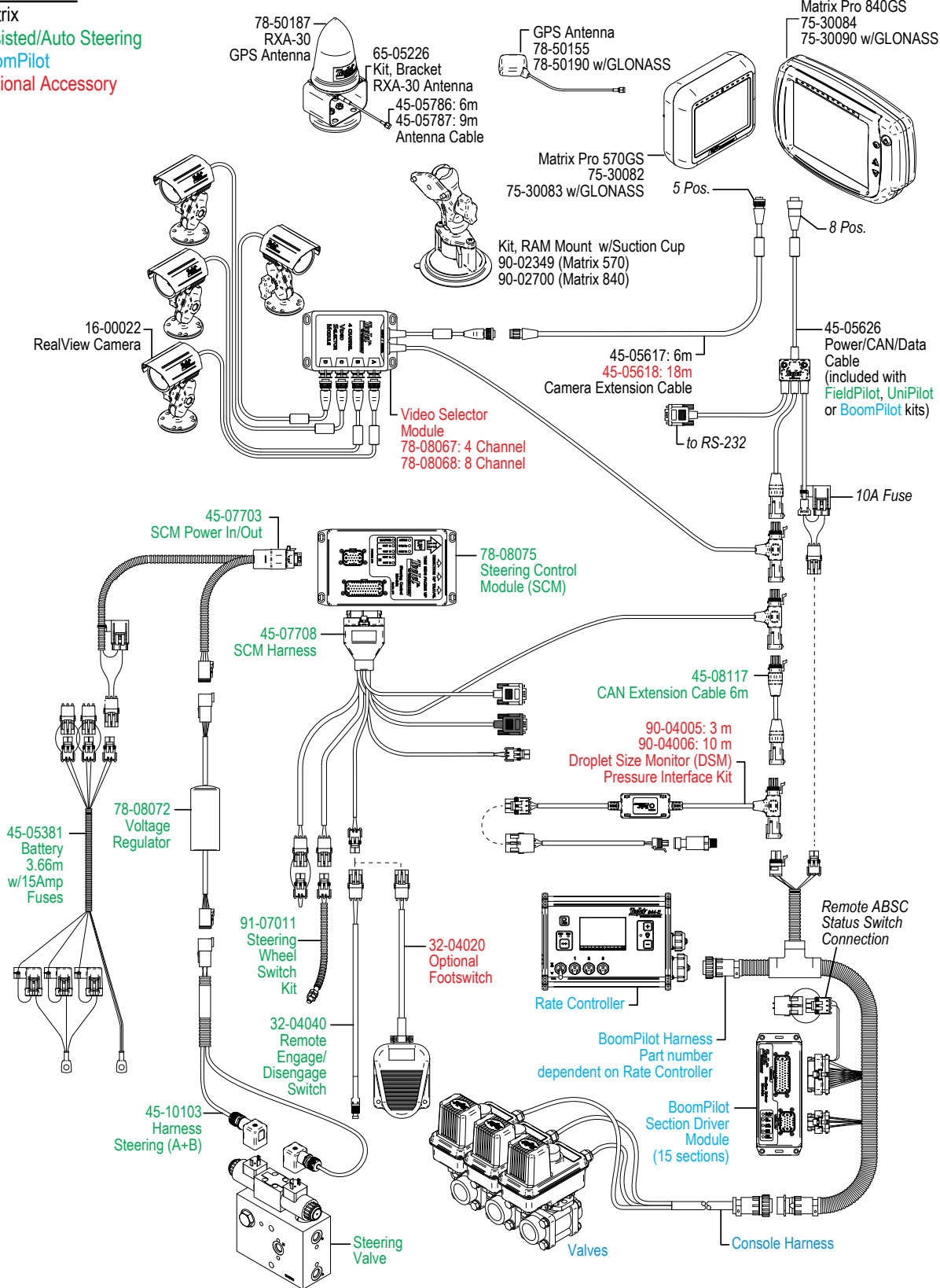
Recommended Antenna Installation

The GPS antenna should be mounted as far forward as possible on top of the cab on a metal surface of at least 10 cm square.

CONFIGURATIONS

The following diagram is reflective of typical Matrix Pro GS configurations. Due to the variety of possible configurations, this should be used for reference purposes only.

Figure 1-3: Matrix Pro GS w/VSM & Multiple RealView Cameras, FieldPilot and BoomPilot



CHAPTER 2 – INTRODUCTION

The Matrix Pro GS can be used as a simple current job system or advanced multi-job system. Regardless of which mode the console is in, the basic screen functions are the same.






- Bottom Tabs and Side Tabs access the various screens and sub-screens
- Warnings and Information Pop-ups inform of console activities and details on setup or guidance functions
- Setup options can easily be set using the drop down menus or keyboard entry screens

To quickly find a setup feature, see the Unit Setup Mode Menu Structure chart.

BASIC SCREEN USE

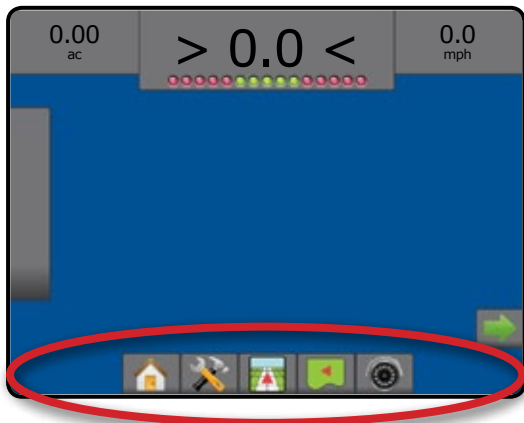
Bottom Tab Keys

The bottom tab keys are always available on screen. These keys give access to jobs, setup options and navigation.

-  Home/Job Screen
-  Unit Setup
-  Vehicle View Guidance
-  Field View Guidance
-  RealView Guidance or RealView Camera Full Screen Video View

NOTE: RealView Guidance options are only available with a camera installed on the system.

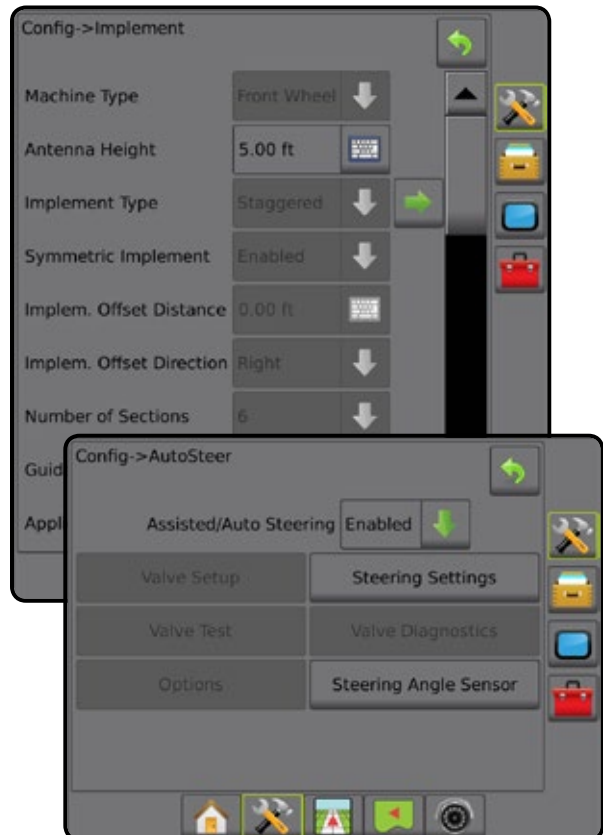
Figure 2-1: Bottom Tab Keys



Unavailable Options When Job is Active

When a job is active some setup options are unavailable. See the Unit Setup Mode Menu Structure Chart for indication of which options are not accessible.

Figure 2-2: Examples of Unavailable Options



Console Screen Colors



The console is available in six color schemes. From the Unit Setup Bottom Key, press CONSOLE side tab  and enter the **Display** options. Press DOWN arrow  to access the Color Scheme options to select color mode.

Figure 2-3: Color Schemes

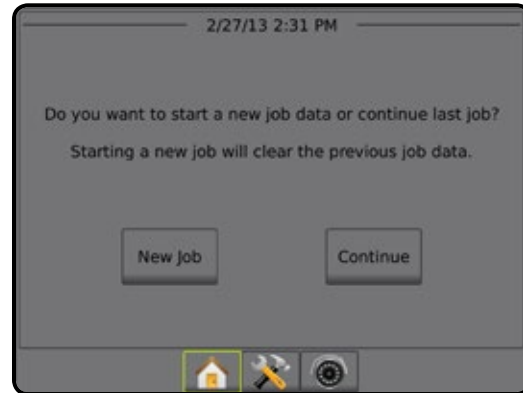


Simple or Advanced Mode

To change between simple mode and advanced mode, see the configuration chapter under Data Management – Options.

In simple mode, only one job will be available at a time. Only bounded area and coverage areas are displayed on the home screen. Only the current job is available for saving in Reports. Use with Fieldware Link is not available.

Figure 2-4: Simple Mode Home Screen



In advanced mode, more than one job will be available at any time. Client, farm, field and job names; bounded and coverage areas; and distance from selected job are displayed on the home screen. Of the names, only the job name can be entered using the console. All saved jobs can be made into a PDF, SHP or KML file in Data->Reports. With Fieldware Link, a user can input client, farm and field data as well as duplicate/edit jobs for reuse of boundaries and guidelines. Client, Farm and Field information can only be inputted using Fieldware Link.

Figure 2-5: Advanced Mode Home Screen



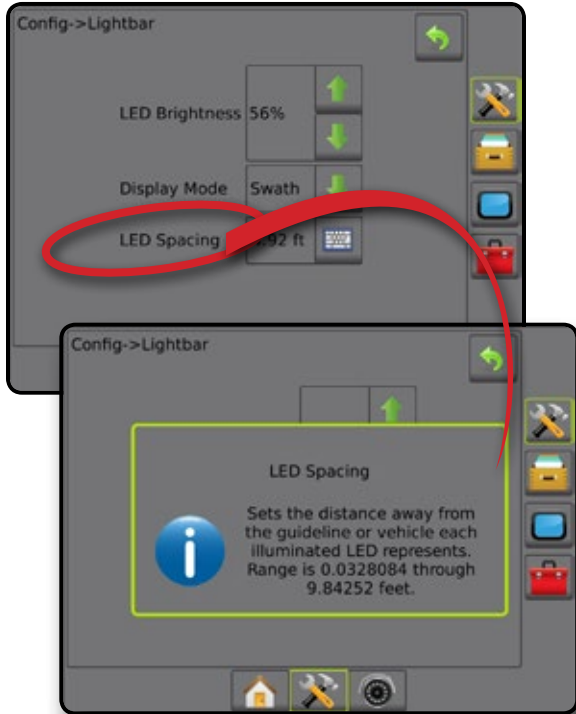
Warnings and Information Pop-ups

A pop-up warning or information box will be displayed for approximately five (5) seconds. To remove the information box, tap anywhere on the screen.

Setup Option Information

Press the option's icon or option's name of any menu item to display a definition and range values of that item. To remove the information box, press anywhere on the screen.

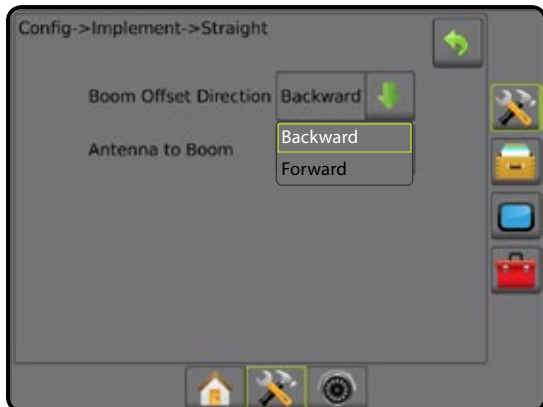
Figure 2-6: Example of Information Text Box



Drop Down Menu Selections

Press DOWN arrow to access the options. Use the UP/DOWN arrows or slide bar if necessary to scroll through the extended list. Select the appropriate option. To close the list without selecting an option, tap anywhere on the screen outside the drop down menu.

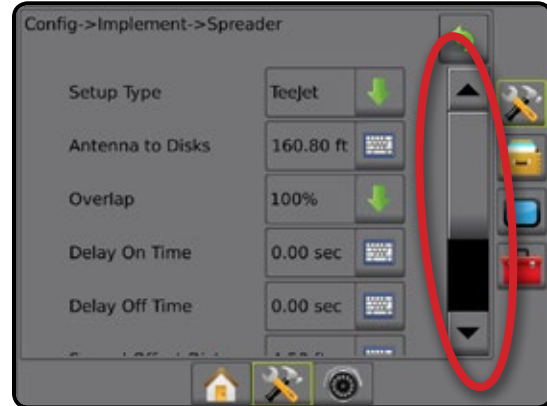
Figure 2-7: Example of Drop Down Menu



Scrolling Screens

Some screens have more information or options that are visible beyond the current screen. Use the UP/DOWN arrows or slide bar to access additional options or information not currently visible on the screen.

Figure 2-8: Example of Scrolling Screen

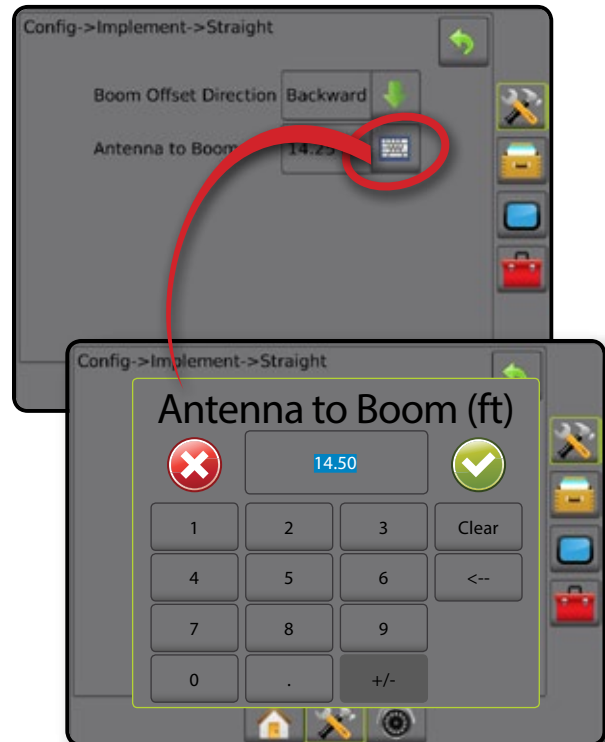


Keyboard Entry Screen

Press the KEYPAD icon . Use the numeric keypad to enter a value.

Press the ACCEPT icon to save the settings or the CANCEL icon to leave the keypad without saving.

Figure 2-9: Example of Keyboard



UNIT SETUP MODE MENU OPTIONS

🔧 Configuration (page 12)			
	Machine Type	✗	
	GPS Antenna Height	✗	
	Implement Type	✗	
	Symmetric Implement Layout	✗	
-	Implement Offset Distance	✗	
	Implement Offset Direction	✗	
	Number of Implement Sections	✗	
	Guidance Width	✗	
	Application/Working Width	✗	
	Applied Area Alarm	✓	
	Implement	Boom Offset Direction	✗
		Antenna to Boom Distance	✗
		Overlap	✓
		Delay On/Off Times	✓
-	Setup Type: TeeJet	✗	
	• Antenna to Disks Distance	✗	
	• Overlap	✓	
	• Delay On/Off Times	✓	
	• Spread Offset Distance	✗	
	• Section Offsets	✗	
	• Section Lengths	✗	
	-	Setup Type: OEM	✗
		• Antenna to Disks Distance	✗
		• Start/Stop Distance	✗
• Section Start/Stop Offsets		✗	
Staggered Mode	Section 1 Offset Direction	✗	
	Antenna to Section 1	✗	
	Overlap	✓	
	Delay On/Off Times	✓	
	Section Offsets	✗	
-	Enabled/Disabled	✓	
	Valve Setup	Valve Type	✗
		Valve Frequency	✗
		Minimum Duty Cycle Left/ Right	✗
		Maximum Duty Cycle	✗
	Steering Settings	Coarse Steering Adjustment	✓
		Fine Steering Adjustment	✓
		Deadband	✓
		Lookahead	✓
	Valve Test		✗
Valve Diagnostics		✗	
-	Options	Steering Wheel Sensor	✗
	Steering Angle Sensor	Enable	✗
		Sensor Calibration	✓
	On Line Calibration	✓	
Tilt Correction	Enabled/Disabled	✓	
	Field Level	✓	
Lightbar	LED Brightness	✓	
	Display Mode	✓	
	LED Spacing	✓	
GPS	GPS Type	✗	
	GPS Port	✗	
	GPS Status Information	✓	
	Program Receiver	✗	
	PRN	✗	

🔧 Configuration (page 12)			
Video	- Cameras	✓	
Sensors	- Pressure:	Maximum Pressure Rating	✓
		Low Pressure Alarm	✓
		High Pressure Alarm	✓
Droplet Size Monitor	- Enabled/Disabled Tip Selection	✓	

📁 Data Management (page 20)			
Job Data	- Transfer	Export	✗
		Import	✗
		Delete	✗
-	Manage	New	✗
		Copy	✗
		Delete	✗
Reports	-	Save PDF	✗
		Save KML	✗
		Save SHP	✗
		Save All Types	✗
Options	- Job Mode		✗
-	Transfer	Export	✓
		Import	✓
		Delete	✓
Machine Settings	-	New	✓
		Copy	✓
		Delete	✓
		Save	✓
		Load	✓

📺 Console Settings (page 26)			
Display	-	User Interface Color Scheme	✗
		LCD Brightness	✓
		Screenshot	✓
		Screen Calibrate	✓
Cultural	-	Units	✓
		Language	✓
		Time Zone	✓
Audio Volume	- Audio Volume		✓
Demo Mode	- Start		✓
About	-	System Information	✓
		QR Code - direct link to User Manual	✓
		Save System Info	✓

🔧 Tools (page 29)			
Extras	-	Calculator	✓
		Units Converter	✓

✓ Available during an active job

✗ Not Available during an active job

CHAPTER 3 – JOBS / HOME SCREEN

Once the power up sequence has completed, the Home screen will appear with the option to start a new job or continue an existing job. The console must have GPS before starting or continuing a job.

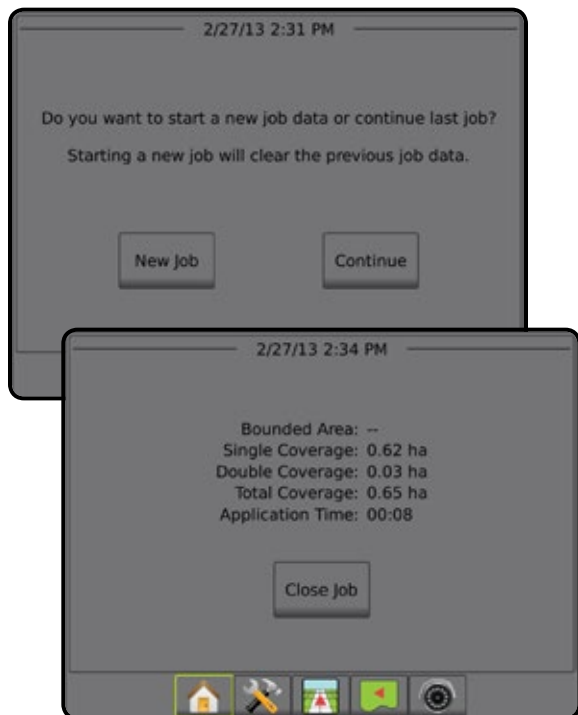
Setup for the specific machine and its components must be completed before starting a job. Once a job is active, some setup options are not available to be changed. See the Unit Setup Mode Menu Structure chart in the introduction chapter for details.

To change between simple mode and advanced mode, see the configuration chapter under Data Management → Options.

Simple Mode

In simple mode, only one job will be available at a time. Only bounded area, coverage areas and application time are displayed on the home screen. Only the current job is available for saving in Reports. Use with Fieldware Link is not available.

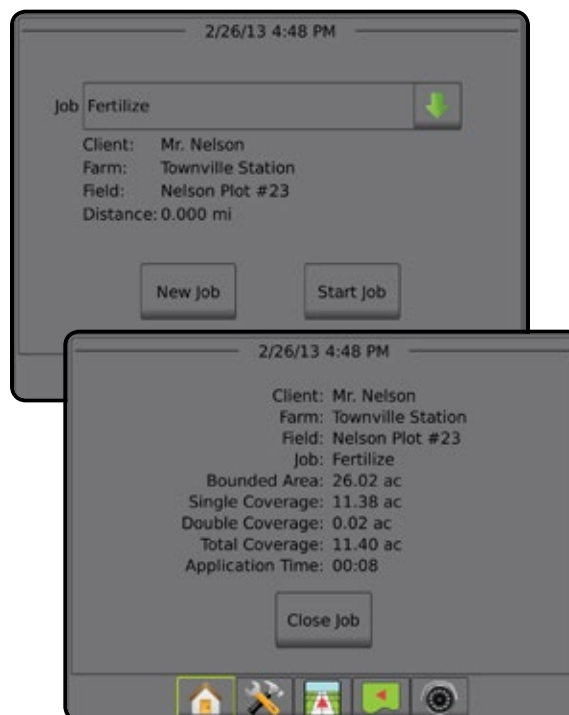
Figure 3-1: Simple Mode Home Screen



Advanced Mode

In advanced mode, more than one job will be available at any time. Client, farm, field and job names; bounded and coverage areas; application time; and distance from selected job are displayed on the home screen. Of the names, only the job name can be entered using the console. All saved jobs can be made into a PDF, SHP or KML file in Data->Reports. With Fieldware Link, a user can input client, farm and field data as well as duplicate/edit jobs for reuse of boundaries and guidelines. Client, Farm and Field information can only be inputted using Fieldware Link.

Figure 3-2: Advanced Mode Home Screen



SIMPLE MODE


Once the power up sequence has completed, the Home screen will appear with the option to start a new job or continue an existing job.

The console must have GPS before starting or continuing a job.

New Job

Starting a new job will clear the previous job data.

To start a New Job:


1. On the Home screen , press **New Job**.

The console will jump to Vehicle View.

Continue Job

The Continue button is not available when the current job is more than two (2) UTM Zones away.

To continue the existing job:

1. On the Home screen , press **Continue**.

The console will jump to Vehicle View and begin providing navigation information.

Close Job

To close a job:

1. On the Home screen , press **Close Job**.

To create a report of the job when closing a job:

1. Insert a USB drive into the USB port of the console.

2. On the Home screen , press **Close Job**.

3. Select:

- ▶ Yes – to create a report of the last job
- ▶ No – to return to the Home screen without saving

ADVANCED MODE


Once the power up sequence has completed, the Home screen will appear with the option to start a new job or continue an existing job.

The console must have GPS before starting or continuing a job.

New Job

Starting a new job will clear the previous job data.

To start a New Job:

1. On the Home screen , press **New Job**.

2. Press:

- ▶ Yes – to automatically generate a name
- ▶ No – to enter a name using the on screen keyboard

Client, farm and field information are inputted using Fieldware Link.



The console will jump to Vehicle View.

Start Job

The Matrix Pro is programd with a field finder tool to assist the user in finding the job closest to the vehicle's location. With GPS acquired, the job pick list will be updated every ten seconds. During this update, the list of jobs is sorted by distance and the closest two jobs are displayed on the top of the list. The remaining jobs are listed beneath these.

The Start Job button is not available and the Distance will show "Out of Range" when the current job is more than two (2) UTM Zones away. The Distance will show "No Data" when the current job has no recorded information.

To continue the existing job:

1. On the Home screen , press DOWN arrow  to access the list of jobs saved in the console.
2. Select the job name to be started/continued.
3. Press **Start Job**.

The console will jump to Vehicle View and begin providing navigation information.

Close Job

To close a job:

1. On the Home screen , press **Close Job**.

To create a report of the job when closing a job:

1. Insert a USB drive into the USB port of the console.

2. On the Home screen , press **Close Job**.



3. Select:

- ▶ Yes – to create a report of the last job
- ▶ No – to return to the Home screen without saving


CHAPTER 4 – FULL SCREEN VIDEO VIEW

RealView Full Screen Video View allows live video input to be displayed. View video feed(s) and setup cameras without GPS available. Options for RealView Guidance are not available on this screen.

If a Video Selection Module (VSM) is installed on the system, two (2) video options are available:

- ▶ Single Camera View  – one (1) of up to eight (8) camera inputs can be selected to change the view of the video input.
- ▶ Split Camera View  – one (1) of two (2) sets of four (4) camera inputs (A/B/C/D or E/F/G/H) can be selected to divide the screen into four separate video feeds.

Also available is:

- ▶ RealView Camera Snapshot  – saves a still photo of the current view on the screen to a USB drive


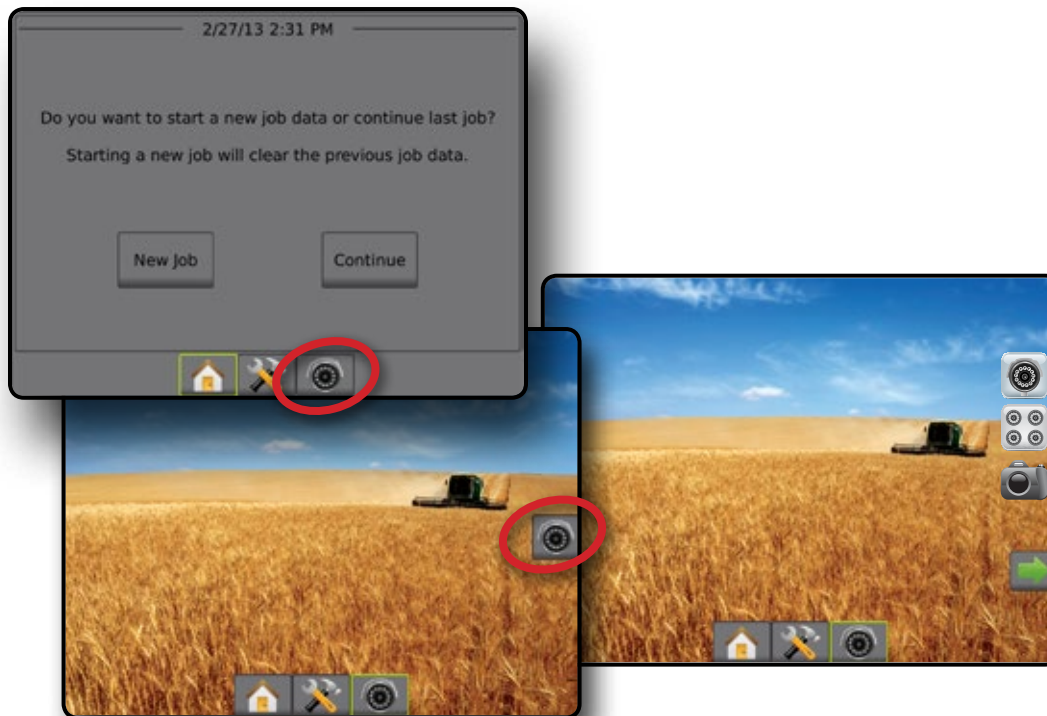
1. Press REALVIEW CAMERA FULL SCREEN VIDEO VIEW bottom tab .

Figure 4-1: RealView Camera Full Screen Video View



CHAPTER 5 - SYSTEM SETUP

System Setup is used to configure the console, the machine and its implements. Four side tabs access options for Machine/Implement Configuration, Data Management, Console Settings and Tools.

OVERVIEW

Four side tabs access setup options for:



Machine/Implement Configuration

- Implement (Straight, Spreader, Staggered)
- Lightbar
- Auto Steer (Valve Setup, Steering Settings, Valve Test, Valve Diagnostics, Steering Wheel Sensor, Steering Angle Sensor)
- Tilt Correction
- GPS
- Video Configuration
- Sensors (Pressure Monitor)
- Droplet Size Monitor



Data Management

- Job Data (Transfer, Manage)
- Reports
- Options: Job Mode
- Machine Settings (Transfer, Manage)



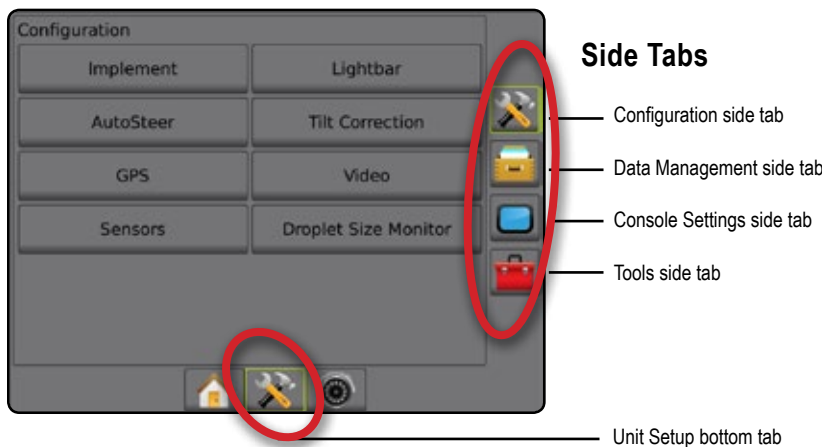
Console Settings

- Display
- Cultural
- Audio Volume
- Demo Mode
- About System Information



Tools (Calculator, Units Converter)

Figure 5-1: Setup Options



Unavailable Options When Job is Active

When a job is active some setup options are unavailable. See the Unit Setup Mode Menu Structure Chart for indication of which options are not accessible.

Figure 5-2: Examples of Unavailable Options



CONFIGURATION

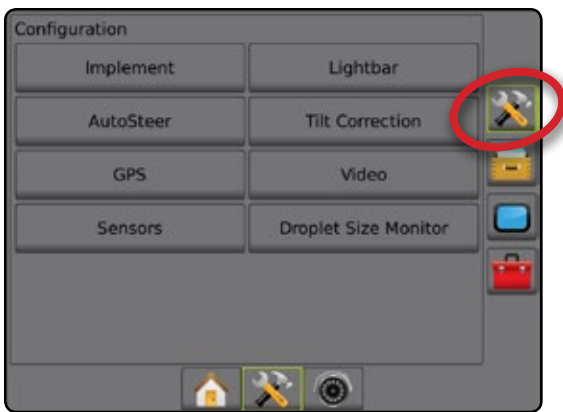
Configuration is used to configure the Implement, Lightbar, AutoSteer, Tilt Correction, GPS, Video, Sensors and Droplet Size Monitor.

NOTE: Feature availability will vary depending on the devices available on the Matrix Pro GS system.

1. Press UNIT SETUP bottom tab
2. Press CONFIGURATION side tab
3. Select from:
 - ▶ Implement – used to establish machine type, GPS antenna height, implement type, symmetric implement layout, implement offset distance/direction, number of implement sections, guidance width, application/working width and applied area alarm times.
 - In Straight Mode – boom offset direction, antenna to boom distance, overlap percentage, implement delay on time and implement delay off time
 - In Spreader Mode: TeeJet – antenna to disks distance, overlap percentage, implement delay on time, implement delay off time, spread offset distance, section offset distances and section lengths
 - In Spreader Mode: OEM – antenna to disks distance, start distance, stop distance, section start offsets and section stop offsets
 - In Staggered Mode – section 1 offset direction, antenna to section 1 distance, overlap percentage, implement delay on time, implement delay off time and section offsets
 - ▶ Lightbar – used to establish LED brightness, display mode and LED spacing
 - ▶ AutoSteer – used to enable/disable assisted/auto steering as well as establish valve setup settings, steering settings and steering angle sensor settings; and perform valve tests, or valve diagnostics

- ▶ Tilt Correction – used to enable/disable and calibrate the tilt gyro module, allowing for tilt correction for application on hilly or sloped terrain
- ▶ GPS – used to establish the GPS type, port and PRN as well as to view GPS status information
- ▶ Video – used to set up individual cameras
- ▶ Sensor – used to establish pressure sensor settings
- ▶ Droplet Size Monitor – used to enable/disable and set up preset and current tips

Figure 5-3: Configuration Options



Implement

Implement Setup is used to establish the various settings associated with straight mode, spreader mode or staggered mode. For detailed setup instructions, refer to the Implement chapter in this manual.

Settings will vary depending on if a SmartCable or Section Driver Module (SDM) is present.

Implement Type

Implement type selects the type of application pattern that most closely represents your system.

- In Straight Mode – the boom sections have no length and are on a line a fixed distance from antenna
- In Spreader Mode – a virtual line is created in line with the delivery disks from which the application section or sections can vary in length and can be at different distances from the line
- In Staggered Mode – a virtual line is created in line with Section 1 from which the application section or sections have no length and can be at different distances from antenna

Figure 5-4: Implement Type - Straight

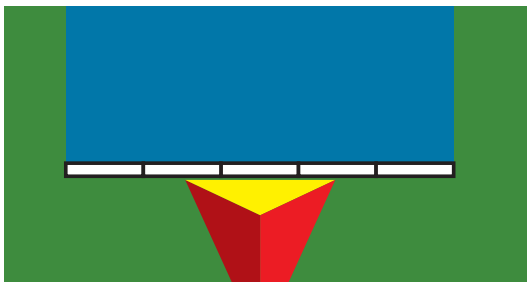


Figure 5-5: Implement Type - Spreader

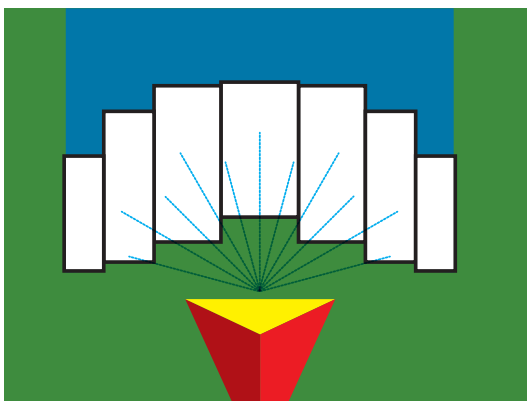


Figure 5-6: Implement Type - Staggered



Single Section Setup

Single Section Setup is used when a SmartCable or Section Driver Module (SDM) is not on the system. The entire boom or delivery area is considered to be one section.

NOTE: If a SmartCable or Section Driver Module (SDM) is present, refer to "SmartCable or Section Driver Module Setup" to view setup steps.



1. Press CONFIGURATION side tab .
2. Press **Implement**.
3. Select from:
 - ▶ Machine Type – used to select the type of machine that most closely represents your machine.
 - ▶ GPS Antenna Height – used to measure the height of the antenna from the ground
 - ▶ Implement Type – used to select the layout of the sections for the applied product location.
 - ▶ Implement Offset Distance – used to enter the distance from the centerline of the machine to the center of the implement
 - ▶ Implement Offset Direction – used to enter the direction from the centerline of the machine to the center of the implement while facing in the machine's forward direction
 - ▶ Guidance Width – used to enter the distance between the guidelines
 - ▶ Application Width [Straight Implement Type] – used to enter the total width of the implement
 - ▶ Working Width [Spreader Implement Type] – used to enter the total width of the implement
 - ▶ Applied Area Alarm – used to establish an alert to signal when exiting or entering an applied area
4. Press NEXT PAGE arrow  to set up the selected specific implement type's options.

Figure 5-7: Implement



SmartCable or Section Driver Module Setup

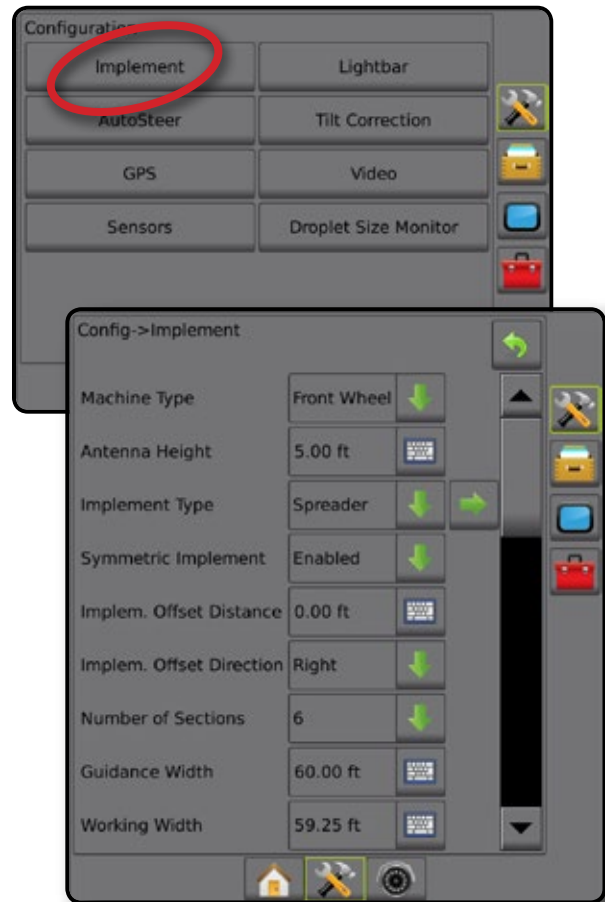
SmartCable or Section Driver Module Setup is used when a SmartCable or Section Driver Module (SDM) is on the system. The boom or delivery area can be entered as up to 15 sections. Each section can vary in width and in spreader mode, can vary in length. Additional options available with a SDM include Application Overlap, Application Delay and Staggered Mode.

NOTE: If a SmartCable or Section Driver Module (SDM) is not present, refer to "Single Section Setup" to view setup steps.

1. Press CONFIGURATION side tab
2. Press **Implement**.
3. Select from:
 - ▶ Machine Type – used to select the type of machine that most closely represents your machine.
 - ▶ GPS Antenna Height – used to measure the height of the antenna from the ground
 - ▶ Implement Type – used to select the layout of the sections for the applied product location.
 - ▶ Symmetric Implement Layout – used to establish if sections are paired and therefore share the same width, offset and length values

- ▶ Implement Offset Distance – used to enter the distance from the centerline of the machine to the center of the implement
 - ▶ Implement Offset Direction – used to enter the direction from the centerline of the machine to the center of the implement while facing in the machine's forward direction
 - ▶ Number of Implement Sections – used to select the number of implement sections
 - ▶ Guidance Width – used to enter the distance between the guidelines
 - ▶ Application Width [Straight Boom Type or Staggered Boom Type] – used to enter the total width of all sections of the implement
 - ▶ Working Width [Spreader Boom Type] – used to enter the total width of all sections of the implement
4. Press NEXT PAGE arrow to set up the selected specific implement type's options.

Figure 5-8: Implement



Lightbar

Lightbar Setup is used to configure LED Brightness, Display Mode and LED Spacing.




1. Press CONFIGURATION side tab .
2. Press **Lightbar**.
3. Select from:
 - ▶ LED Brightness – used to adjust the brightness of the LEDs
 - ▶ Display Mode – used to determine whether the lightbar represents the swath or vehicle. When set to "Swath", the LEDs represent guideline location and the moving LED represents the vehicle. When set to "Vehicle", the center LED represents vehicle location and the moving LED represents the guideline.
 - ▶ LED Spacing – used to set the distance away from the guideline or vehicle each illuminated LED represents
4. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

Figure 5-9: Lightbar



AutoSteer

When a Steering Control Module (SCM) is present, Assisted/Auto Steering options will be available. For detailed setup instructions, refer to your specific assisted/auto steering installation manual.

NOTE: An update of your SCM software may be required when upgrading to a Matrix Pro GS from previous Matrix systems. To view version of software information, see the Console->About screen.

AutoSteer setup is used to Enable/Disable Assisted/Auto Steering and configure Valve Setup, Steering Settings, Valve Test, Valve Diagnostics and Steering Angle Sensor.




1. Press CONFIGURATION side tab .
2. Press **AutoSteer**.
3. Select if assisted/auto steering is enabled or disabled.
4. When enabled, select from:
 - ▶ Valve Setup – used to configure Valve Type, Valve Frequency, Minimum Duty Cycle Left/Right and Maximum Duty Cycle
 - ▶ Steering Settings – used to establish Coarse Steering Adjustment, Fine Steering Adjustment, Deadband and Lookahead
 - ▶ Valve Test – used to verify if steering is directed correctly
 - ▶ Valve Diagnostics – used to test the valves to see if they are connected properly
 - ▶ Options: Steering Wheel Sensor – used to select whether the steering disengage sensor is magnetic or pressure sensor based
 - ▶ Steering Angle Sensor – used to establish and calibrate the Steering Angle Sensor (SAS) as the primary feedback sensor for auto steering.
5. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

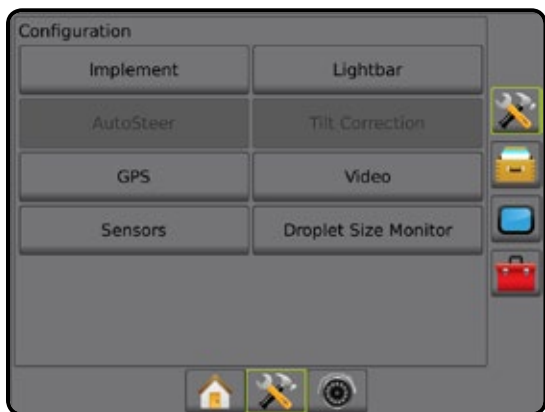
Figure 5-10: AutoSteer



Assisted/Auto Steering Unavailable

If an assisted/auto steering system is not installed, setup options will not be available.




Figure 5-11: Assisted/Auto Steering Not Detected



Tilt Correction

When a Steering Control Module (SCM) or Tilt Gyro Module (TGM) is present, Tilt Correction options will be available. For detailed setup instructions, refer to your specific assisted/auto steering installation manual or tilt setup bulletin.

The Tilt Correction function corrects the GPS signal to compensate for errors in the GPS position while operating on sloped terrain.

1. Press CONFIGURATION side tab .
2. Press **Tilt Correction**.
3. Select if Tilt Correction is enabled or disabled.
4. When enabled, select **Field Level** to calibrate tilt correction.
5. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

NOTE: If FieldPilot or UniPilot is being used, a Tilt Gyro Module is built into the system.

NOTE: Antenna Height must be entered prior to Tilt Calibration.

Figure 5-12: Tilt Correction



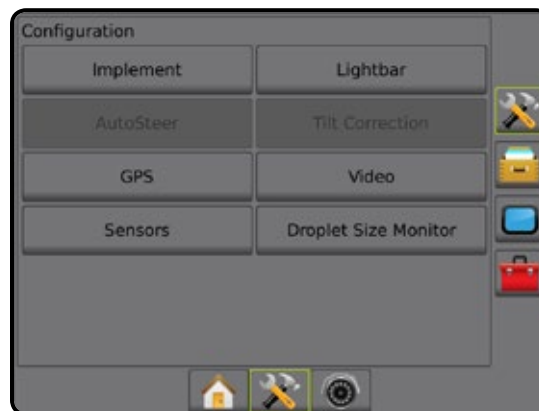
Field Level Unavailable

If the vehicle is in motion, the field level option will not be available. Vehicle must be stopped for at least 10 seconds to begin to calibrate tilt correction.

Tilt Correction Unavailable

If a TGM or SCM is not connected, setup options will not be available.

Figure 5-13: Tilt Correction Not Detected



GPS

GPS is used to configure GPS Type, GPS Port and PRN as well as to view GPS status information. For detailed setup instructions, refer to the GPS chapter in this manual.

NOTE: These settings are required for assisted/auto steering and tilt sensor operation, as well as proper implement operation.




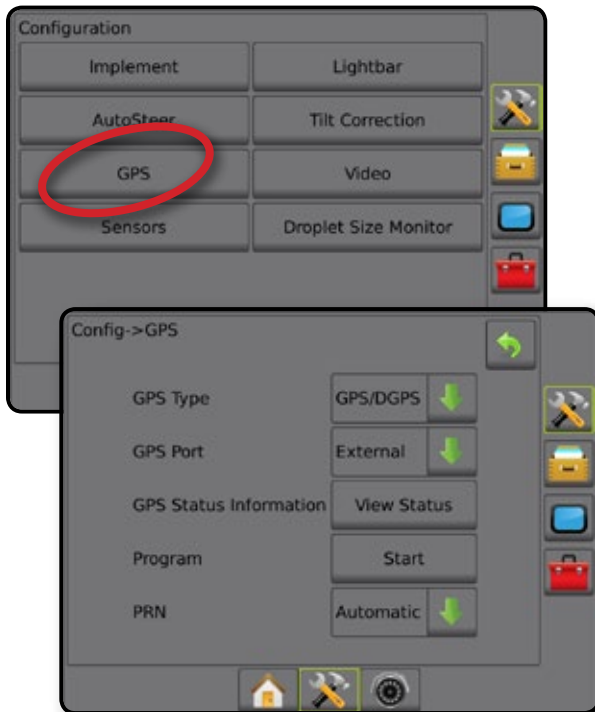
1. Press CONFIGURATION side tab .
2. Press **GPS**.
3. Select from:
 - ▶ GPS Type – select GPS source transmissions
 - ▶ GPS Port – sets (D)GPS communication port
 - ▶ GPS Status – displays information regarding GGAVTG (Data Rates), Number of Satellites, HDOP, PRN, GGA Quality, GPS Receiver, Receiver Version and UTM Zone
 - ▶ Program – allows direct programming of the GPS receiver through a command line interface
 - ▶ PRN – selects the SBAS PRN that will provide GNSS differential correction data. Set to **Automatic** for automatic PRN selection.
 - ▶ Alternate PRN – when PRN is not automatic, a second alternate SBAS PRN will provide a second set of GNSS differential correction data.
4. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

Figure 5-14: GPS




PRN Not Shown

When GPS Type is set to "GPS+GLONASS", PRN options are not available, nor shown on screen.

Video

Video Setup is used to set up a single directly connected camera or individual cameras while using an Eight (8) Channel or Four (4) Channel Video Selector Module (VSM). Up to 8 cameras can be configured if a VSM is installed.

1. Press CONFIGURATION side tab .
2. Press **Video**.
3. Select the appropriate check box(es):
 - ▶ Reverse – **ABC**
 - ▶ Upside Down – **VBC**



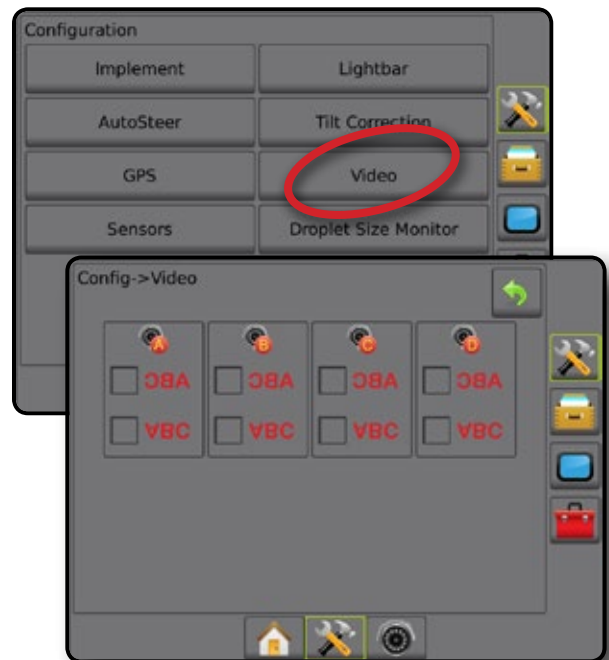
For normal video view **ABC** un-check all check boxes.
4. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

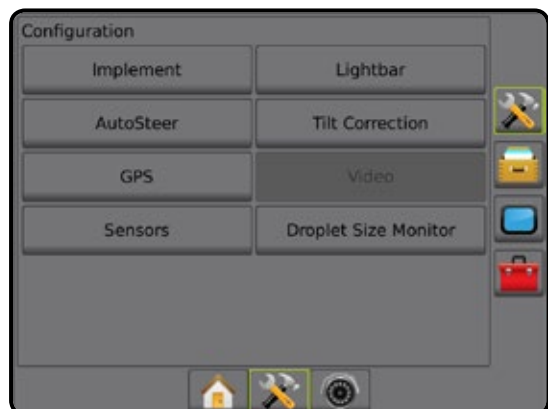
Figure 5-15: Video with 4 Channel VSM



Video Setup Unavailable

If a camera or VSM is not connected, setup options will not be available.

Figure 5-16: Video Unavailable



Sensors

When a sensor is present on the system, options to setup and configure the sensor will be available.


1. Press CONFIGURATION side tab .
2. Press **Sensors**.

Figure 5-17: Sensors



The Pressure Sensor Interface Kit is recognized on the CAN bus as an Input/Output Module (IOM)

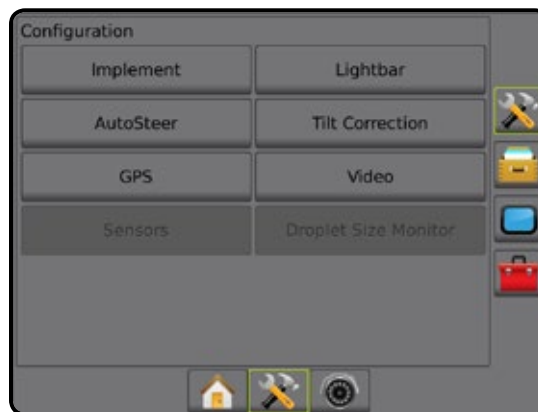
Figure 5-18: Input/Output Module



Sensors Unavailable

If a Pressure Sensor Interface Kit is not installed, setup options will not be available.

Figure 5-19: Pressure Sensor Interface Kit Not Detected



Pressure Sensor

When a Pressure Sensor Interface Kit is present, Pressure Sensor options are used to enter the sensor manufacturer's maximum pressure rating and set high and low user determined pressure alarms.

NOTE: If a Pressure Sensor Interface Kit is being used, the Droplet Size Monitor will be available.




1. Press CONFIGURATION side tab .
2. Press **Sensors**.
3. Press **Pressure Sensor**.
4. Select from:
 - ▶ Maximum Pressure Rating – used to establish the maximum pressure rating of the pressure sensor as recommended by the manufacturer
 - ▶ Low Pressure Alarm– used to enter the user determined low pressure point at which the alarm will sound
 - ▶ High Pressure Alarm– used to enter the user determined high pressure point at which the alarm will sound
5. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

Figure 5-20: Pressure Sensor

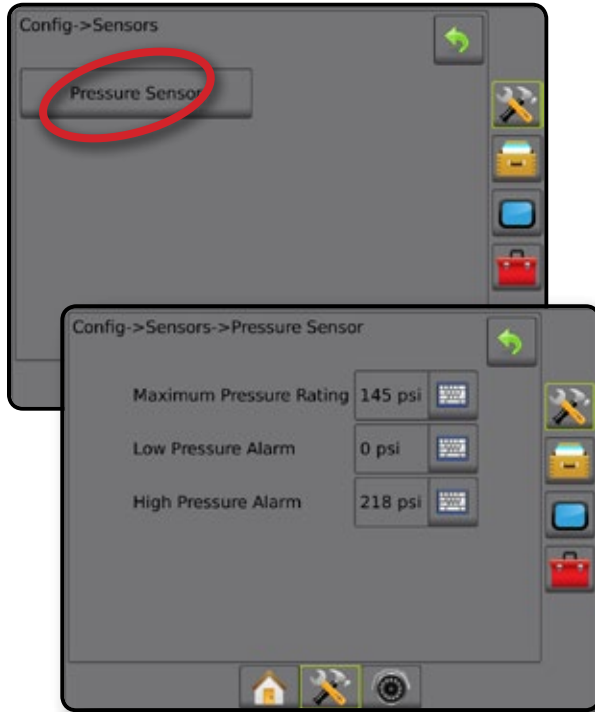
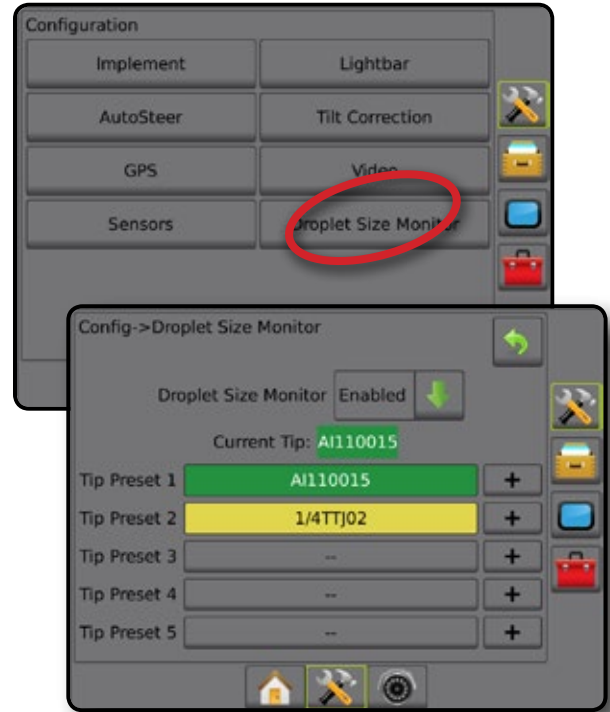





Figure 5-21: Droplet Size Monitor



Droplet Size Monitor

When a Pressure Sensor Interface Kit is present, Droplet Size Monitor is used to enable/disable the Droplet Size Monitor (DSM), preset up to five (5) tips and select the current tip.

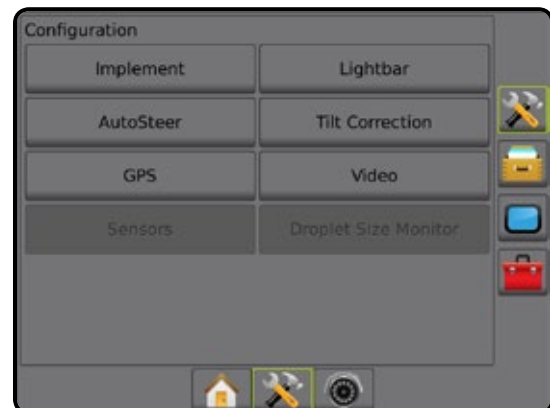
For detailed setup instructions, refer to the Droplet Size Monitor chapter in this manual.

1. Press CONFIGURATION side tab .
2. Press **Droplet Size Monitor**.
3. Select if droplet size monitor is enabled or disabled.
4. When enabled, select from:
 - ▶ Tip Presets – selects up to five (5) tips for quick recall
 - ▶ Current Tip – selects the current tip for determining droplet size information
5. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

Droplet Size Monitor Unavailable

If a Pressure Sensor Interface Kit is not installed, setup options will not be available.

Figure 5-22: Pressure Sensor Interface Kit Not Detected



DATA MANAGEMENT

Data Management allows for transfer and management of job data; reporting of job data; changing of job mode; and transfer and management of machine settings.



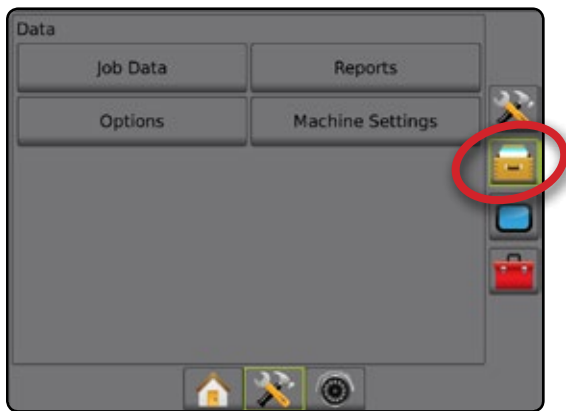
1. Press UNIT SETUP bottom tab .
2. Press DATA MANAGEMENT side tab .
3. Select from:
 - ▶ Job Data – in advanced job mode, used to transfer job information (delete, import, export) and manage job information (create a new job, delete a job or copy a job's Guideline Data, Boundary Data and/or Applied Data to a new job)
 - ▶ Reports – used to create job reports and save them to a USB drive
 - ▶ Options – used to select simple job mode or advanced job mode
 - ▶ Machine Settings – used to transfer machine settings (delete, import, export) and manage machine setting (create a new machine setting, copy a machine setting, a delete machine setting, save the current machine setting to the selected file or load the selected file's machine setting)

Figure 5-23: Data Management Options



Job Data

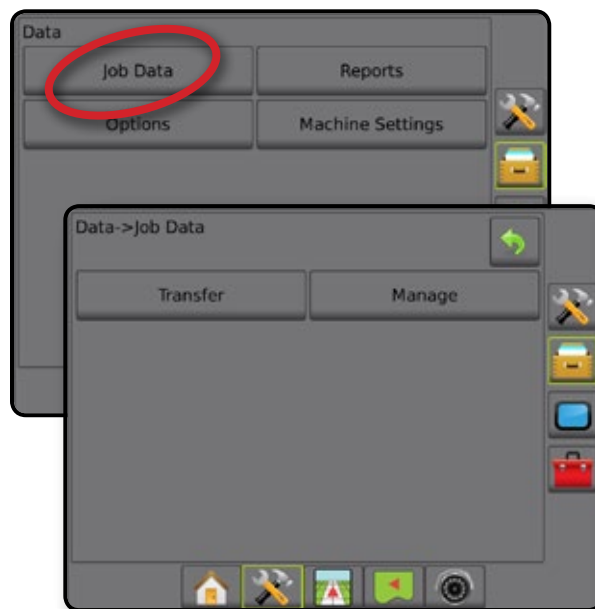
When in advanced job mode, job data options are used to transfer job information (delete, import, export) and manage job information (create a new job, delete a job or copy a job's Guideline Data, Boundary Data and/or Applied Data to a new job).

Job Data includes:

- Job name
- Client, Farm and Field names
- Boundary
- Coverage Area
- Guidelines

1. Press DATA MANAGEMENT side tab .
2. Press **Job Data**.

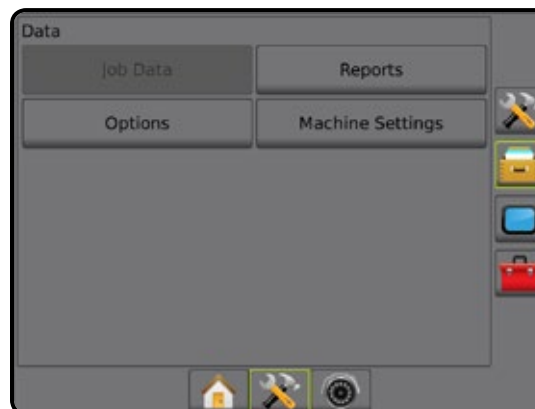
Figure 5-24: Job Data



Job Data Unavailable

When in simple job mode, job data options will not be available.

Figure 5-25: Job Data Unavailable



Transfer

When in advanced job mode, the job data transfer screen allows the transfer of selected jobs to or from a USB drive as well as deleting jobs.

Jobs transferred to a USB storage device can be opened and updated using Fieldware Link. In Fieldware Link a user can input client, farm and field data as well as copy/edit jobs for reuse of boundaries and guidelines. From Fieldware Link, jobs can be ported back to a USB storage device to be moved back onto the console internal storage for use.

NOTE: When a job is active/started, Transfer options are not available for selection. Stop the current job to enable the function.

Jobs transferred to a storage device are removed from the console and are no longer available for use.




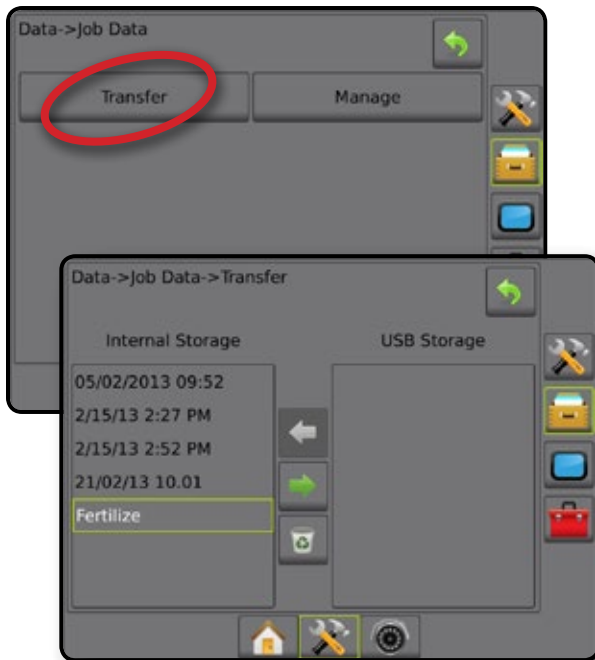
1. Press DATA MANAGEMENT side tab .
2. Press **Job Data**.
3. Press **Transfer**.
4. Select from:
 - ▶ Move Job Data to USB Storage – used to move job data from internal storage to USB storage
 - ▶ Move Job Data to Internal Storage – used to move job data from USB storage to internal storage
 - ▶ Delete Job Data – used to delete job data from internal storage or USB storage
5. Press RETURN arrow  or DATA MANAGEMENT side tab  to return to the main Data Management screen.

Figure 5-26: Job Data - Transfer



Manage

When in advanced job mode, the job data manage screen allows the creation of a new empty job and copying of a selected job's Guideline Data, Boundary Data and/or Applied Data to a new job as well as deleting a selected job.

NOTE: When a job is active/started, Manage options are not available for selection. Stop the current job to enable the function.




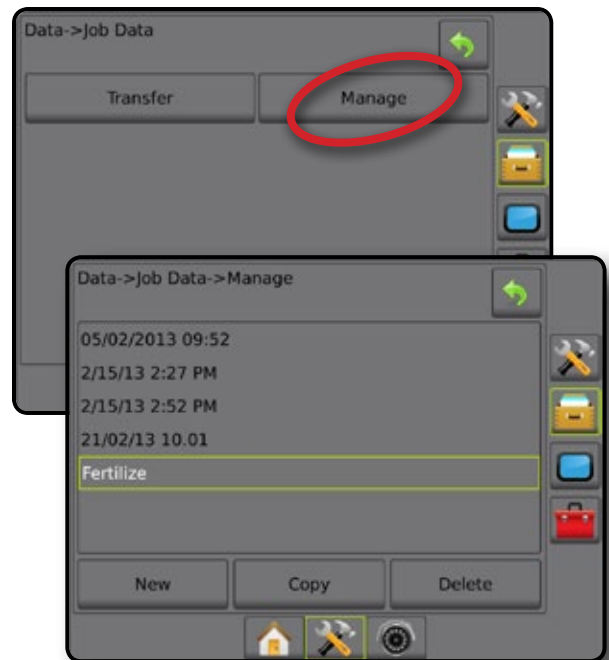
1. Press DATA MANAGEMENT side tab .
2. Press **Job Data**.
3. Press **Manage**.
4. Select from:
 - ▶ Create New Job – used to create a new empty job with no associated Guideline Data, Boundary Data and/or Applied Data
 - ▶ Copy Job Data – used to copy the selected job's Guideline Data, Boundary Data and/or Applied Data into a new job
 - ▶ Delete Job Data from Internal Storage – used to delete job data from internal storage
5. Press RETURN arrow  or DATA MANAGEMENT side tab  to return to the main Data Management screen.

Figure 5-27: Job Data - Manage










Reports

Reports is used to create job reports and save them to a USB drive.

NOTE: If Simple Job Mode is selected in the Options page, only the current job can be saved.

When a job is active/started, Reports are not available for selection. Stop the current job to enable the function.

When closing a job with a USB drive in the console, you get the option to create a report on the current job.

1. Press DATA MANAGEMENT side tab .
2. Press **Reports**.
3. Insert USB drive into the console.
4. Select the job to be saved
5. Select:
 - ▶ PDF  – report for print
 - ▶ KML  – Google Earth Map
 - ▶ SHP  – ESRI shape data
 - ▶ ALL  – all available file types
6. Press RETURN arrow  or DATA MANAGEMENT side tab  to return to the main Data Management screen.





NOTE: The file icons     or buttons are not available for selection (grayed out) until a USB drive is inserted properly.

Figure 5-28: Reports - Advanced Job Mode

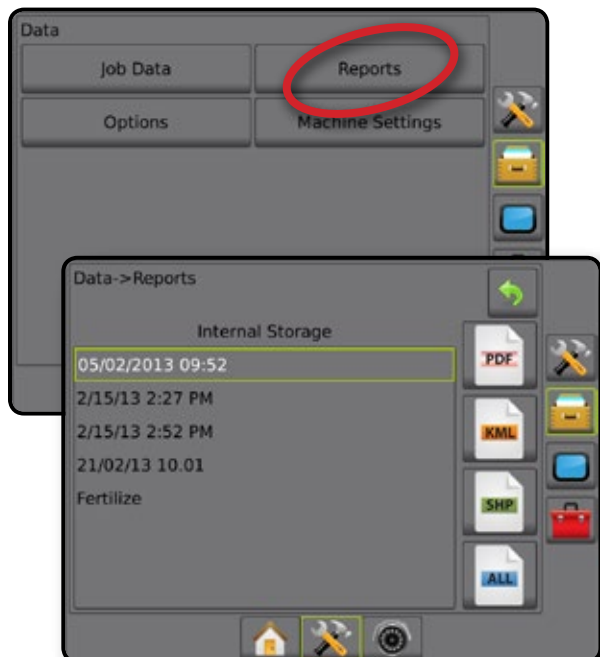
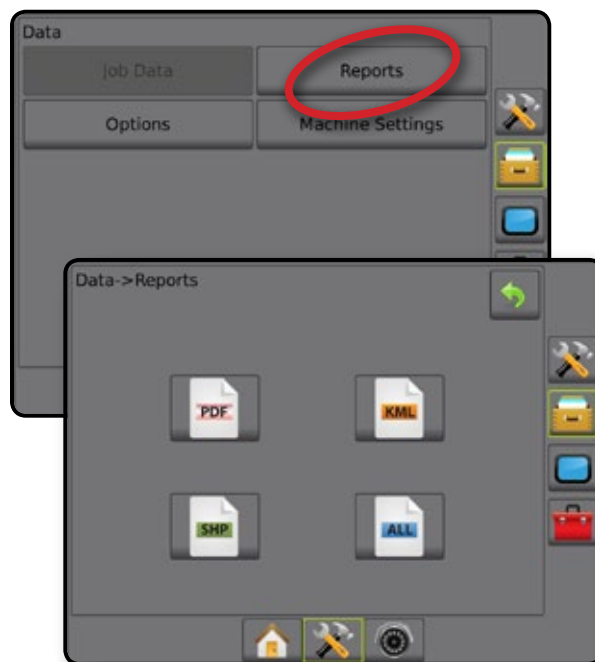


Figure 5-29: Reports - Simple Job Mode





Options

Options allows the operator to select between Simple or Advanced Job Mode.

NOTE: When a job is active/started, changing the Job Mode is not available. Stop the current job to enable the function.

WARNING! Changing job modes deletes all internal job data.

1. Press DATA MANAGEMENT side tab .
2. Press **Options**.
3. Press DOWN arrow  to access the list of options.
4. Select:
 - ▶ Simple – only bounded area and coverage areas are displayed on the home screen. Only the current job is available for saving in Reports. Use with Fieldware Link is not available.
 - ▶ Advanced – Client, farm, field and job names; bounded and coverage areas; and distance from selected job are displayed on the home screen. Of the names, only the job name can be entered using the console. All saved jobs can be made into a PDF, SHP or KML file in Data->Reports. With Fieldware Link, a user can input client, farm and field data as well as duplicate/edit jobs for reuse of boundaries and guidelines. Client, Farm and Field information can only be inputted using Fieldware Link.

5. "Changing job modes requires deleting all job data. Do you wish to change modes?"

Press:

- ▶ Yes – to make the change
- ▶ No – to keep the current setting



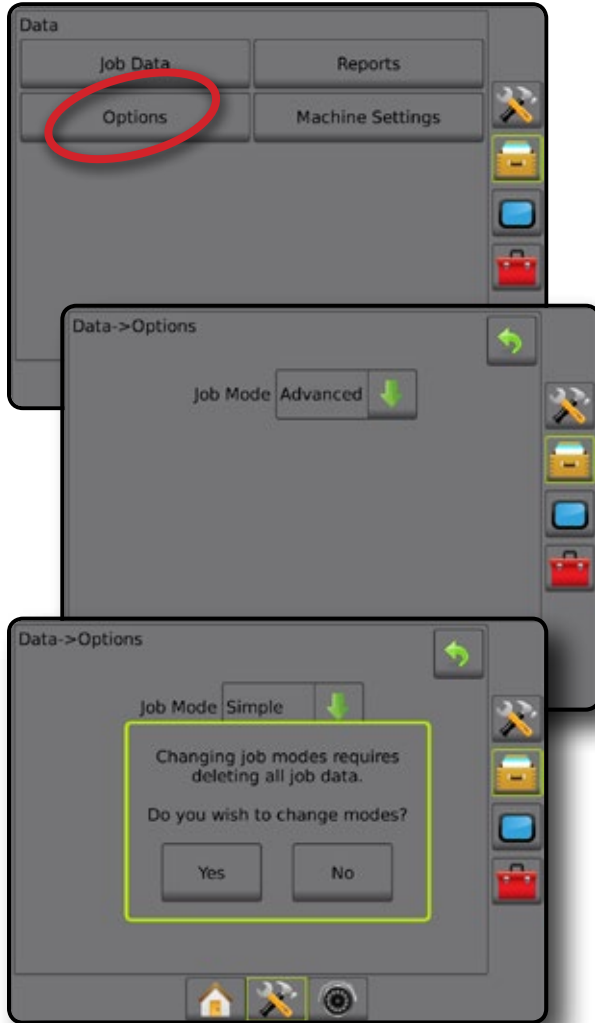
6. Press RETURN arrow  or DATA MANAGEMENT side tab  to return to the main Data Management screen.

Figure 5-30: Options - Change Job Mode



Machine Settings

Machine Settings is used to transfer profiles for machine settings (delete, import, export) and manage profiles for machine settings (create a new profile, copy or delete a profile, save the current profile to the selected profile or load the selected profile's machine settings).

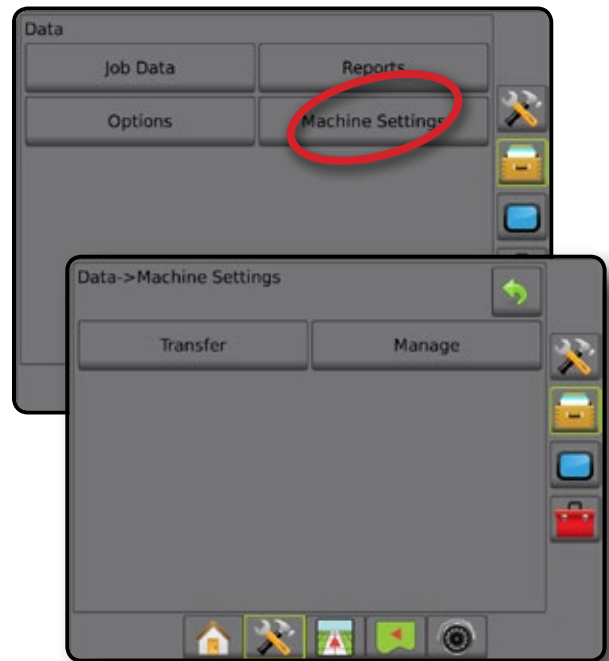
Machine Settings include:

- Implement settings
- AutoSteer settings
- Tilt enabled/disabled

NOTE: Not all settings are saved as part of the machine settings. See the setting availability chart for details.

1. Press DATA MANAGEMENT side tab .
2. Press **Machine Settings**.

Figure 5-31: Machine Settings



Transfer

The machine settings transfer screen allows the transfer of selected machine settings to or from a USB drive as well as deleting machine settings.

Machine settings transferred to a USB storage device can be opened and updated using Fieldware Link. From Fieldware Link, machine settings can be ported back to a USB storage device to be moved back onto the console internal storage for use.

NOTE: Not all settings saved as part of the machine settings are available to be edited in Fieldware Link. See the setting availability chart for details.

Machine settings transferred to a storage device are removed from the console and are no longer available for use.




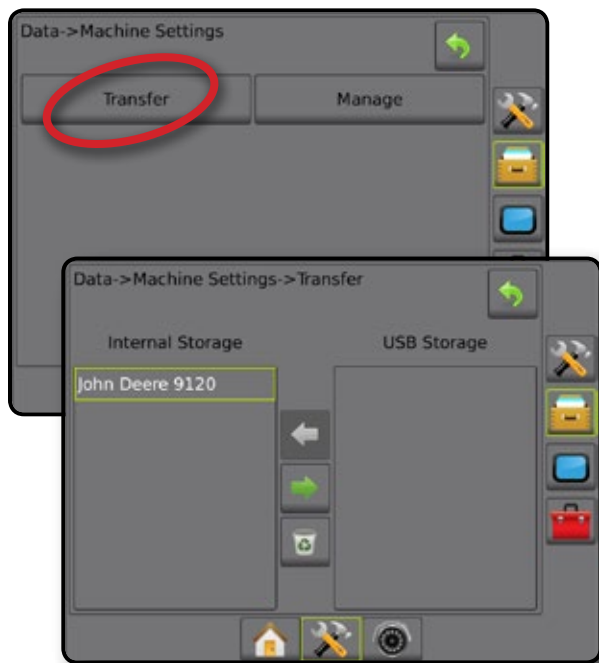
1. Press DATA MANAGEMENT side tab .
2. Press **Machine Settings**.
3. Press **Transfer**.
4. Select from:
 - ▶ Move Machine Settings to USB Storage – used to move machine settings from internal storage to USB storage
 - ▶ Move Machine Settings to Internal Storage – used to move machine settings from USB storage to internal storage
 - ▶ Delete Machine Settings – used to delete machine settings from internal storage or USB storage
5. Press RETURN arrow  or DATA MANAGEMENT side tab  to return to the main Data Management screen.

Figure 5-32: Machine Settings - Transfer



Manage

The machine settings manage screen allows the creation of a new empty machine settings, the copying of a selected machine settings to a new machine settings, the deletion of a selected machine settings, the saving of the current machine settings to the selected machine settings or the loading of the selected machine settings to the current settings.




1. Press DATA MANAGEMENT side tab .
2. Press **Machine Settings**.
3. Press **Manage**.
4. Select from:
 - ▶ Create New Machine Settings – used to create a new machine setting with no associated implement information
 - ▶ Copy Machine Settings – used to copy the selected machine settings into a new machine settings
 - ▶ Delete Machine Settings from Internal Storage – used to delete the selected machine settings from internal storage
 - ▶ Save Machine Settings – used to save the current machine settings to the selected machine settings
 - ▶ Load Machine Settings – used to load the selected machine settings to the current settings
5. Press RETURN arrow  or DATA MANAGEMENT side tab  to return to the main Data Management screen.

Figure 5-33: Machine Settings - Manage



Machine Settings Availability

Setting	Can be edited in		Saved to exported profile in			
	Matrix Pro GS	FieldWare Link	Matrix Pro GS	FieldWare Link		
Machine Type	✓	✗	✓	Retained from Matrix Pro GS		
GPS Antenna Height	✓	✓	✓	✓		
Implement Type	✓	✓	✓	✓		
Symmetric Implement Layout	✓	✗	✗	✗		
Implement Offset Distance	✓	✓	✓	✓		
Implement Offset Direction	✓	✓	✓	✓		
Number of Implement Sections	✓	✓	✓	✓		
Guidance Width	✓	✓	✓	✓		
Application/Working Width	✓	✓	✓	✓		
Applied Area Alarm	✓	✗	✗	✗		
Implement	Straight Mode	Boom Offset Direction	✓	✓	✓	
		Antenna to Boom Distance	✓	✓	✓	
		Overlap	✓	✓	✓	
		Delay On/Off Times	✓	✓	✓	
	Spreader Mode	Setup Type: TeeJet	✓	✓	✓	
		Antenna to Disks Distance	✓	✓	✓	
		Overlap	✓	✓	✓	
		Delay On/Off Times	✓	✓	✓	
		Spread Offset Distance	✓	✓	✓	
		Section Offsets	✓	✓	✓	
	Staggered Mode	Section Lengths	✓	✓	✓	
		Setup Type: OEM	✓	✓	✓	
		Antenna to Disks Distance	✓	✓	✓	
		Start/Stop Distance	✓	✓	✓	
	Staggered Mode	Section Start/Stop Offsets	✓	✓	✓	
		Section 1 Offset Direction	✓	✓	✓	
Antenna to Section 1		✓	✓	✓		
Overlap		✓	✓	✓		
Staggered Mode	Delay On/Off Times	✓	✓	✓		
	Section Offsets	✓	✓	✓		
	Machine Settings	✗	✓	✗	✗	
	Product	✗	✓	✗	✗	
AutoSteer	Enabled/Disabled	✓	✗	✓	Retained from Matrix Pro GS	
	Valve Setup	Valve Type	✓	✗	✓	Retained from Matrix Pro GS
		Valve Frequency	✓	✗	✓	
		Minimum Duty Cycle Left/Right	✓	✗	✓	
		Maximum Duty Cycle	✓	✗	✓	
	Steering Settings	Coarse Steering Adjustment	✓	✗	✓	Retained from Matrix Pro GS
		Fine Steering Adjustment	✓	✗	✓	
		Deadband	✓	✗	✓	
	Steering Settings	Lookahead	✓	✗	✓	Retained from Matrix Pro GS
		Valve Test	✓	✗	✓	
	Valve Diagnostics	✓	✗	✓	Retained from Matrix Pro GS	
	Options	Steering Wheel Sensor	✓	✗	✓	Retained from Matrix Pro GS
Angle Sensor	Steering Enable	✓	✗	✓	Retained from Matrix Pro GS	
	Sensor Calibration	✓	✗	✓		
	On Line Calibration	✓	✗	✓		
Tilt Correction	Enabled/Disabled	✓	✗	✓	Retained from Matrix Pro GS	
	Field Level	✓	✗	✓		

continued...

Setting	Can be edited in		Saved to exported profile in	
	Matrix Pro GS	FieldWare Link	Matrix Pro GS	FieldWare Link
Lightbar	✓	✗	✗	✗
GPS	✓	✗	✗	✗
Video	✓	✗	✗	✗
Sensors	<ul style="list-style-type: none"> Pressure: <ul style="list-style-type: none"> Maximum pressure rating Low pressure alarm High pressure alarm 	✓	✗	✗
		✓	✗	✗
		✓	✗	✗
Droplet size monitor	<ul style="list-style-type: none"> Enabled/disabled Nozzle selection 	✓	✗	✗
		✓	✗	✗

CONSOLE

Console Setup is used to configure the display and cultural settings. Information about other devices attached to the system can be found in the About section.



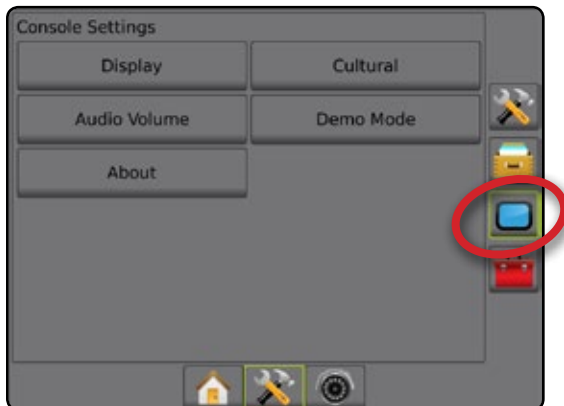
1. Press UNIT SETUP bottom tab .
2. Press CONSOLE side tab .
3. Select from:
 - ▶ Display – used to configure color scheme and LCD brightness, establish screenshot availability and calibrate the touchscreen
 - ▶ Cultural – used to configure units, language and time zone settings
 - ▶ Audio Volume – used to adjust the volume level of the audio speaker
 - ▶ Demo mode – used to start playback of simulated GPS data.
 - ▶ About – used to display the system software version as well as the software versions of modules connected to the CAN bus and display QR code for direct link to user manuals

Figure 5-34: Console Options



Display

Display is used to configure color scheme and LCD brightness, establish screenshot availability and calibrate the touchscreen.




1. Press CONSOLE side tab .
2. Press **Display**.
3. Select from:
 - ▶ Color Scheme – used to change the background and text colors on the display
 - ▶ Brightness – used to adjust the brightness of the console display
 - ▶ Screenshot – used to allow screen images to be saved to a USB drive
 - ▶ Calibrate – used to force a touch screen calibration
4. Press RETURN arrow  or CONSOLE side tab  to return to the main Console Settings screen.

Figure 5-35: Display Options



Cultural

Culture is used to configure units, language and time zone settings.




1. Press CONSOLE side tab .
2. Press **Cultural**.
3. Select from:
 - ▶ Units – used to define the system measurements
 - ▶ Language – used to define the system language
 - ▶ Time Zone – used to establish the local time zone
4. Press RETURN arrow  or CONSOLE side tab  to return to the main Console Settings screen.

Figure 5-36: Cultural Options



Audio Volume

Audio Volume adjusts the volume level of the audio speaker.






1. Press CONSOLE side tab .
2. Press **Audio Volume**.
3. Press:
 - ▶ UP arrow  to increase the sound
 - ▶ DOWN arrow  to soften the sound
4. Press RETURN arrow  or CONSOLE side tab  to return to the main Console Settings screen.

Figure 5-37: Audio Volume Options



Demo Mode

Demo mode is used to start the playback of a simulated GPS signal.

NOTE: This tool will disable incoming GPS positions and begin playing back simulated data. A console restart is necessary in order to restore real GPS.




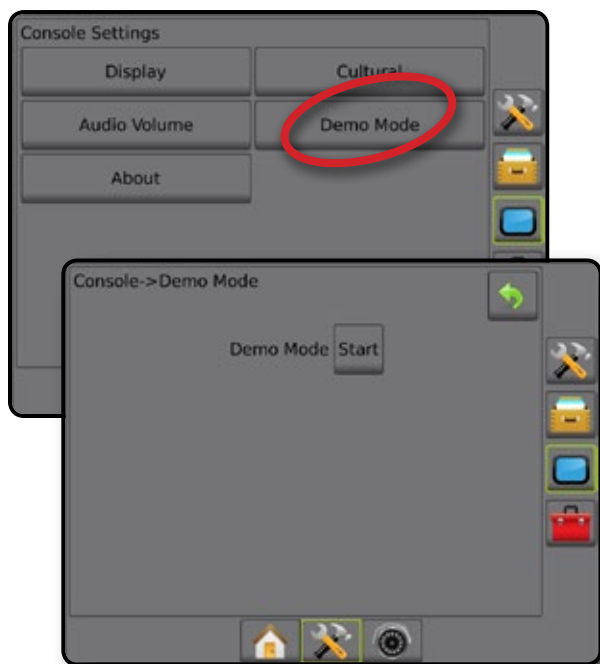
1. Press CONSOLE side tab .
2. Press **Demo Mode**.
3. Press **Start**.
4. Press RETURN arrow  or CONSOLE side tab  to return to the main Console Settings screen.




Figure 5-38: Demo Mode Options



About

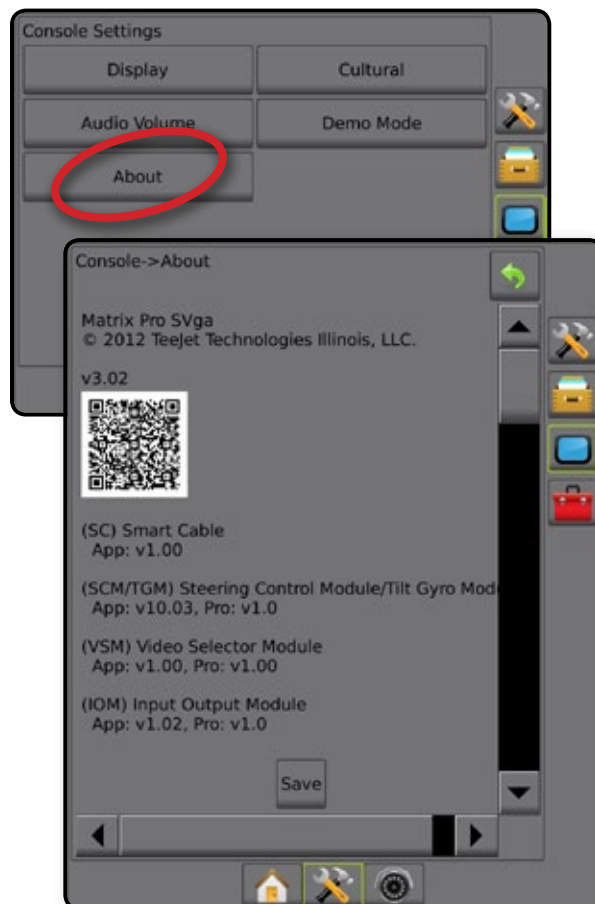
About/Save screen displays the system software version as well as the software versions of modules connected to the CAN bus and displays QR code for direct link to user manuals.

To aid when troubleshooting problems in the field, an end user can use the Save button to download a text file containing current software information to a USB drive, then e-mail the file to support personnel.

1. Press CONSOLE side tab .
 2. Press **About** to view data including:
 - ◀ Unit Model Number
 - ◀ Software Version
 - ◀ QR Code – direct link to Matrix Pro GS User Manuals page at www.teejet.com
 - ◀ Connected Modules
- OR
- Press **Save** to save the About information to a USB Drive
“Saved version information to USB drive” will confirm save.
3. Press RETURN arrow  or CONSOLE side tab  to return to the main Console Settings screen.

*NOTE: The **Save** option is not available for selection (grayed out) until a USB drive is inserted properly.*

Figure 5-39: About Options



 TOOLS

The Tool menu allows the operator to do various calculations on a regular calculator or on a unit converter. The unit converter calculates various measurements based on area, length or volume.



1. Press UNIT SETUP bottom tab .
2. Press TOOLS side tab .
3. Press **Extras**.
4. Select from:
 - ▶ Calculator – used to perform mathematical calculations
 - ▶ Units Converter– used to perform unit conversions for area, length and volume

Figure 5-40: Tools

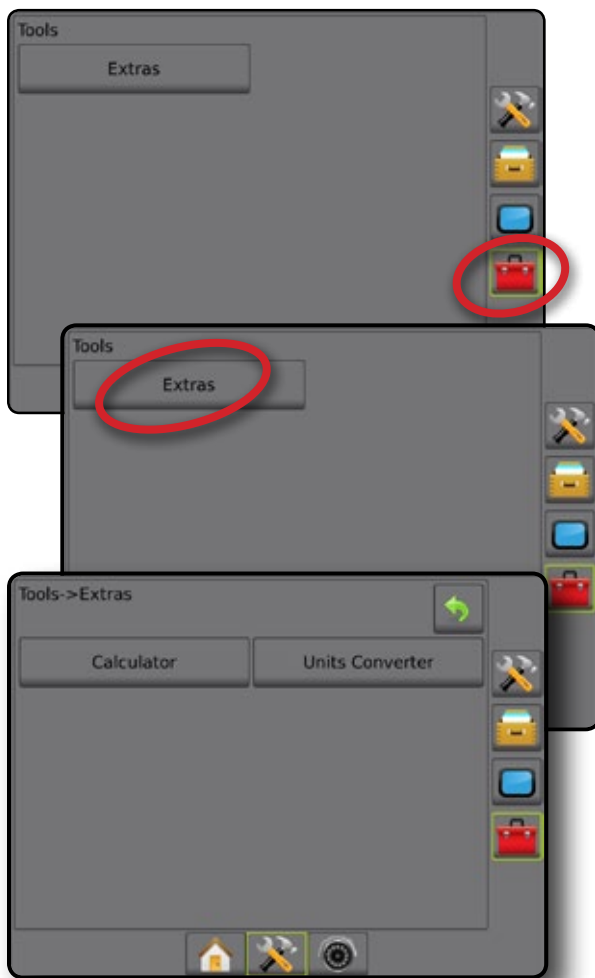


Figure 5-41: Calculator

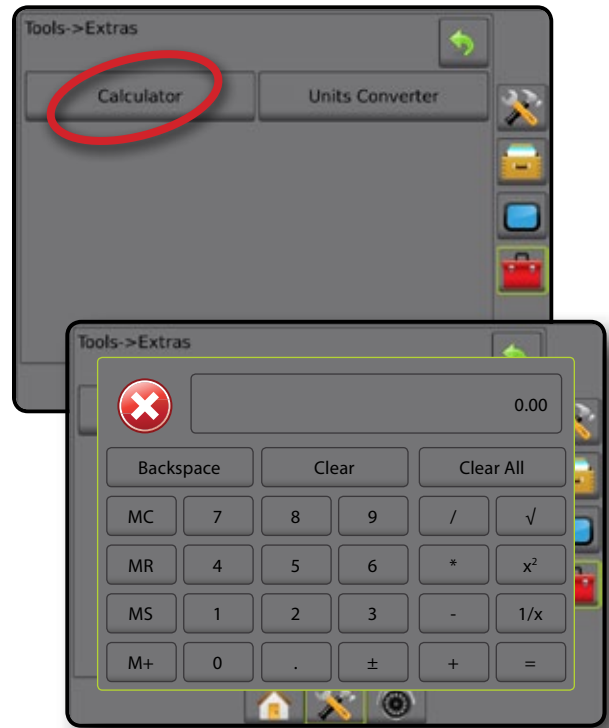
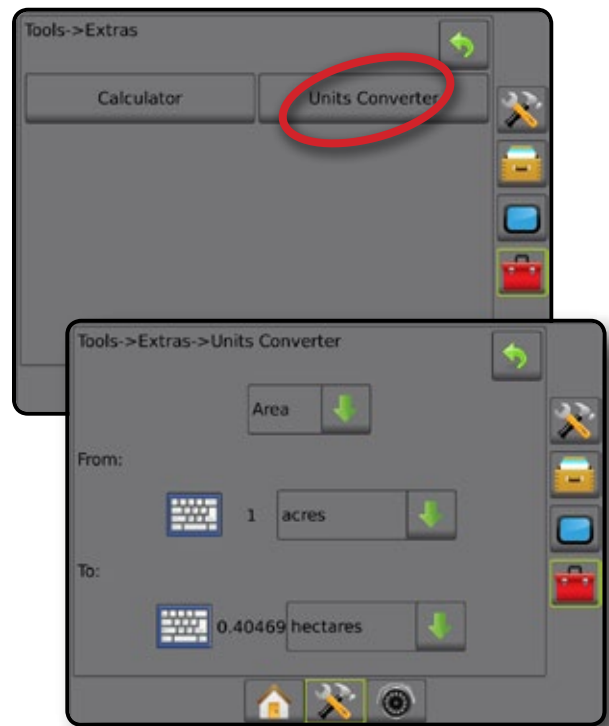


Figure 5-42: Units Converter

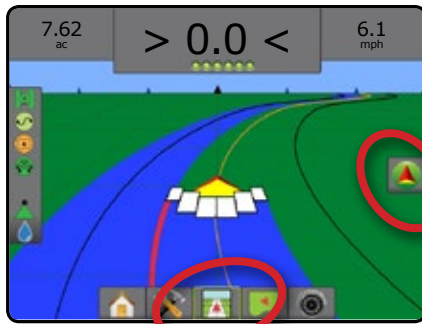


CHAPTER 6 – GUIDANCE

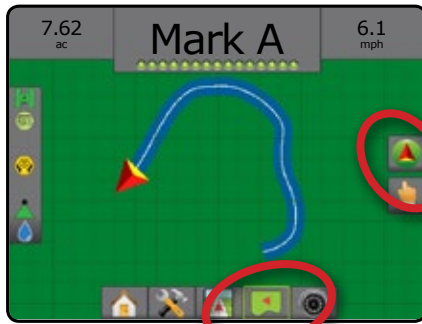
The Matrix Pro GS allows product application and vehicle guidance to be performed simultaneously. Once Unit Setup is complete, guidance can begin. Five guidance modes allow the operator to optimize the field work: Straight AB (→), Curved AB (↷), Circle Pivot (⊙), Last Pass (↶) and NextRow (↓). Additional optimization can be accomplished with Boundary Application (🗨), Curved Lookahead (↻), Return to Point (📍) guidance and RealView Guidance Over Video (📹).

Three guidance screens assist in keeping the user informed.

Vehicle View Guidance creates a computer-generated image of the vehicle position displayed in the application area



Field View Guidance creates a computer-generated image of the vehicle position and application area from an aerial perspective.



RealView Guidance allows live video input to be displayed instead of a computer-generated image.



To choose a Guidance Mode:

1. Press NAVIGATION AND GUIDANCE OPTIONS tab (📍) to display navigation options.
2. Press GUIDANCE MODE icon (↷).
3. Select from:
 - ▶ Straight AB Guidance (→)
 - ▶ Curved AB Guidance (↷)
 - ▶ Circle Pivot Guidance (⊙)
 - ▶ Last Pass Guidance (↶)
 - ▶ NextRow Guidance (↓)

Figure 6-1: Choose a Guidance Mode



Navigation Screens Options

Navigation and Guidance Options

Guidelines	
	Mark A – marks the first point of the guideline.
	Mark B – marks the end point of the guideline. Grayed = minimum distance has not been travelled.
	Cancel Mark A – cancels the Mark A process. Reverts to previous AB guideline (when established).
	NextRow Mark B – marks the end point of the row.
	Azimuth Degree – establishes a straight guideline measured by degrees clockwise from a north base line. North = 0, East = 90, South = 180, West = 270.
	A+ Nudge – shifts the existing guideline to the vehicle's current position.
	Next Straight AB or Azimuth Degree Guideline – shows the next straight guideline saved in the current job.
	Next Curved AB Guideline – shows the next Curved AB guideline saved in the current job.
	Next Circle Pivot Guideline – shows the next Circle Pivot AB guideline saved in the current job.
	Curved Lookahead – provides an indication of where the current steering will take the vehicle using a 'pointer' as guidance.

Return to Point	
	Mark Point – establishes a point at the vehicle location. Grayed = GPS is unavailable.
	Return to Point Guidance – provides distance and guidance back to an established point.
	Delete Point – deletes the Marked Point.
	Cancel Guidance – hides the distance and guidance back to the Marked Point.

Boundaries	
	Mark Boundary – establishes application area and determines no apply zones. While creating an external or initial boundary, the boundary line will be to the exterior of the outer most boom section. While creating an interior or additional boundary, the boundary line will be to the interior of the inner most boom section. Grayed = GPS is unavailable.
	Finish Boundary – finalizes boundary process. Boundaries can also be closed by travelling to within a swath width of the starting point. Grayed = minimum distance has not been travelled.
	Cancel Boundary – cancels the new mark boundary process. Reverts to previous boundary (when established).
	Delete Boundary – deletes all established boundaries from current job.

BoomPilot	
	Single Section – turns all booms on or off. Grayed = GPS is unavailable.
	SmartCable/SDM – selects BoomPilot mode. Grayed = GPS is unavailable.

RealView Guidance Options	
	Video Camera Select – selects one of up to eight camera views if a Video Selection Module (VSM) is attached.
	Split Camera View – selects one of two sets of four camera inputs (A/B/C/D or E/F/G/H) to divide the screen into four separate video feeds.
	Guidance Over Video Setup – access to turn on Guidance Over Video or Steering Angle and adjust guidelines.
	Guidance Over Video – places three-dimensional guidelines over the video feed for navigational assistance.
	Steering Angle – displays the direction in which the steering wheel needs to be adjusted.
	Up & Down Icons – used to adjust the guidance lines and horizon line to match the camera's view.
	Camera Image Capture – saves a still photo of the current view on the screen to a USB drive.

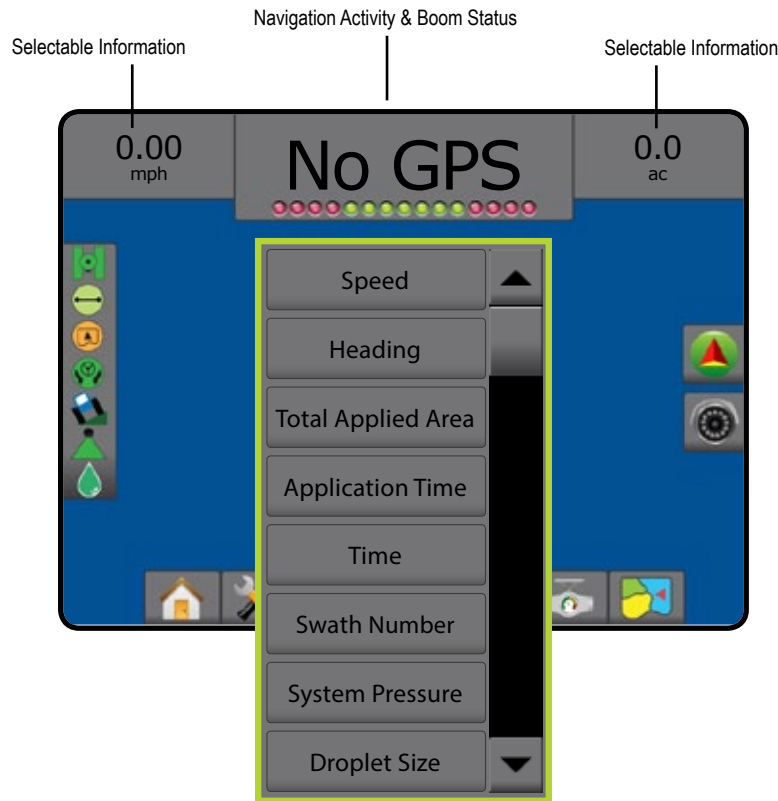
Screen Options	
Zoom In/Out	
	Icons – to be used on the Matrix Pro 570GS
	Buttons – to be used on the Matrix Pro 840GS
	Vehicle View – icons or buttons adjust the vehicle's view or perspective to the horizon from vehicle view to bird's eye view.
	Field View – icons or buttons increase/decrease the area displayed on the screen.

Pan	
	Arrows – allows operator to focus on specific map areas without moving the vehicle. Move the view in the corresponding direction.
	World View – extends screen view to the widest area available.

GUIDANCE BAR

The Guidance bar keeps you informed of your choice of selectable information (Current Speed, Heading, Total Applied Area, Current Time, Swath Number, Current System Pressure and Current Droplet Size), Navigation Activity (Cross Track Error (feet or meters), Current Activity and GPS Status) and Boom Status.

Figure 6-2: Guidance Bar Example



Selectable Information

Speed – displays the current speed of travel

Heading – displays the course of travel based clockwise from a north base line. North = 0, East = 90, South = 180, West = 270.

Total Applied Area – displays the total accumulated area that has had application applied including double coverage areas

Application Time – displays the total time application is active during the current job.

Time – displays the current time based on the selected time zone

Swath Number – displays the current swath number in reference to the initial guidance line. Number will be shown as a positive number when the vehicle is to the right of the AB baseline or a negative number when the vehicle is to the left of the AB baseline

System Pressure – displays the current system pressure (available only when a pressure sensor is on the system)

Droplet Size – displays the current tip droplet size (available only when a pressure sensor is on the system)

Navigation Activity & Boom Status

GPS Status – displays “No GPS” when GPS is unavailable or “Slow GPS” when GPS is receiving GGA data at less than 5Hz.

Cross Track Error – displays the distance from your desired guideline.

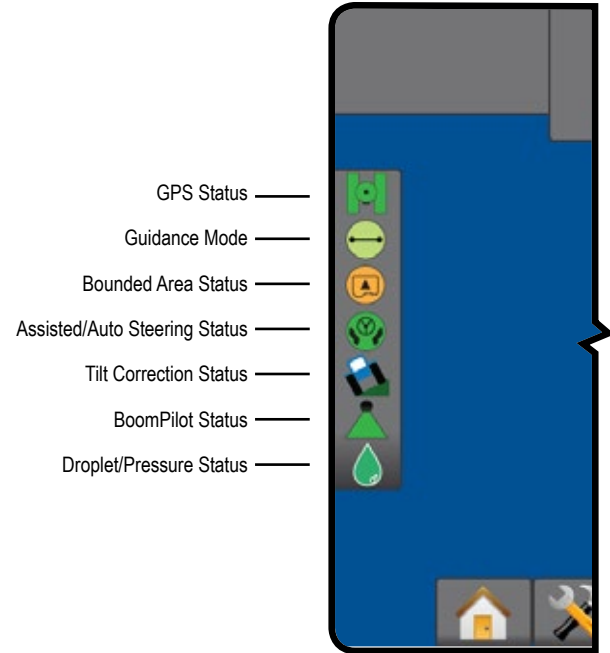
Current Activity – displays activities such as mark an A or B point, approaching the end of a row, indicating to turn now and distance to return to a marked point.

Boom Status – one dot is displayed for each boom section program. A green dot indicates the section is active, a red dot indicates the section is not currently active.

STATUS BAR

The Status Bar provides information on GPS status, guidance mode, boundary area, assisted/auto steering engagement, tilt correction information, implement control status and droplet size information.

Figure 6-3: Status Bar



Assisted/Auto Steering Status

- Green = engaged, actively steering
- Yellow = enabled, all conditions have been met to allow for assisted/auto steering
- Red = disabled, all conditions have not been met to allow for assisted/auto steering.
- No icon = no assisted/auto steering system installed

Tilt Correction Status

- Colored = engaged, actively applying tilt correction
- Red = disabled
- No icon = no tilt gyro module installed on system or tilt is associated with assisted/auto steering system

BoomPilot Status

- Red = off/manual
- Green = automatic
- Yellow = all on
- No icon = single boom section (no SmartCable or SDM installed on system)

Droplet/Pressure Status

- Colored = engaged. The color of the droplet is directly associated with the current droplet size. Color options include:
- Crossed Out = disabled
- No icon = no Pressure Sensor Interface Kit is installed

GPS Status

- Red = no GPS
- Yellow = GPS only
- Green = DGPS, WAAS/RTK, GLONASS
- Orange = Glide/ClearPath

Guidance Mode

- Straight AB Guidance
- Curved AB Guidance
- Circle Pivot Guidance
- Last Pass Guidance
- NextRow Guidance
- No icon = no Guidance

Bounded Area Status

- Outside Boundary = currently traveling outside bounded area
- Inside Boundary = currently traveling inside bounded area
- No icon = no boundary established

Status/Information Screens

GPS Status

GPS Status displays information regarding data rates, number of satellites in view, and satellite quality and ID.

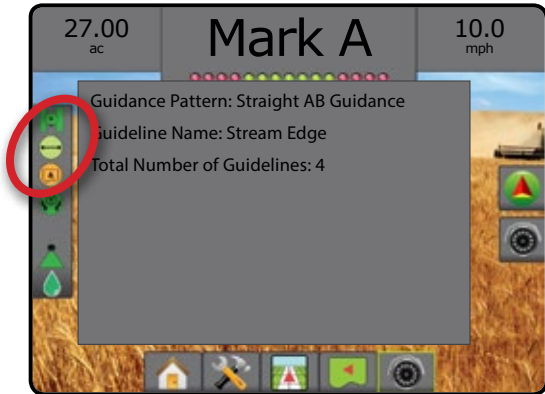
- Press GPS STATUS icon :



Guidance Mode Status

Guidance Mode Status displays information regarding the pattern of guidance, name of the current guideline and how many guidelines are saved in the console.

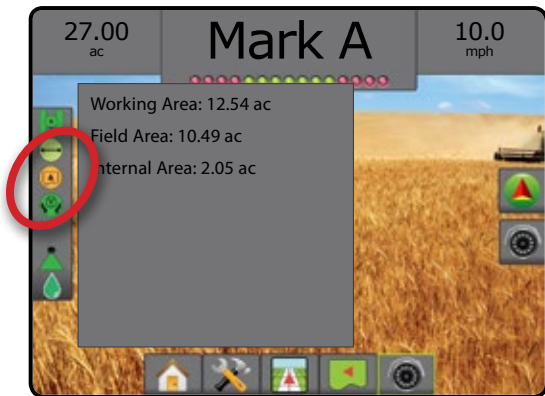
1. Press GUIDANCE MODE icon     .



Bounded Area Status

Bounded Area Status displays information regarding the areas in the current boundaries.

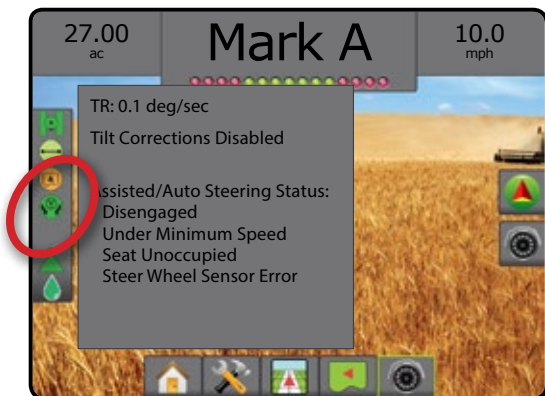
1. Press BOUNDED AREA icon  .



Assisted/Auto Steering Status



Assisted/Auto Steering Status displays information regarding the current status of the assisted/auto steering system including tilt status.

1. Press ASSISTED/AUTO STEERING STATUS icon   .



Tilt Correction Status

Tilt Correction Status displays information regarding the current status of the tilt correction system.

1. Press TILT CORRECTION STATUS icon  .



BoomPilot Status

BoomPilot Status displays information regarding the current status of the BoomPilot system.

1. Press BOOMPILOT STATUS icon   .



Droplet/Pressure Status

Droplet/Pressure Status displays information regarding the current status of the droplet size and system pressure.

1. Press DROPLET/PRESSURE STATUS icon





NAVIGATION SCREENS

Matrix Pro GS guidance and navigation can be accessed from the Vehicle View screen, Field View screen or RealView screen.



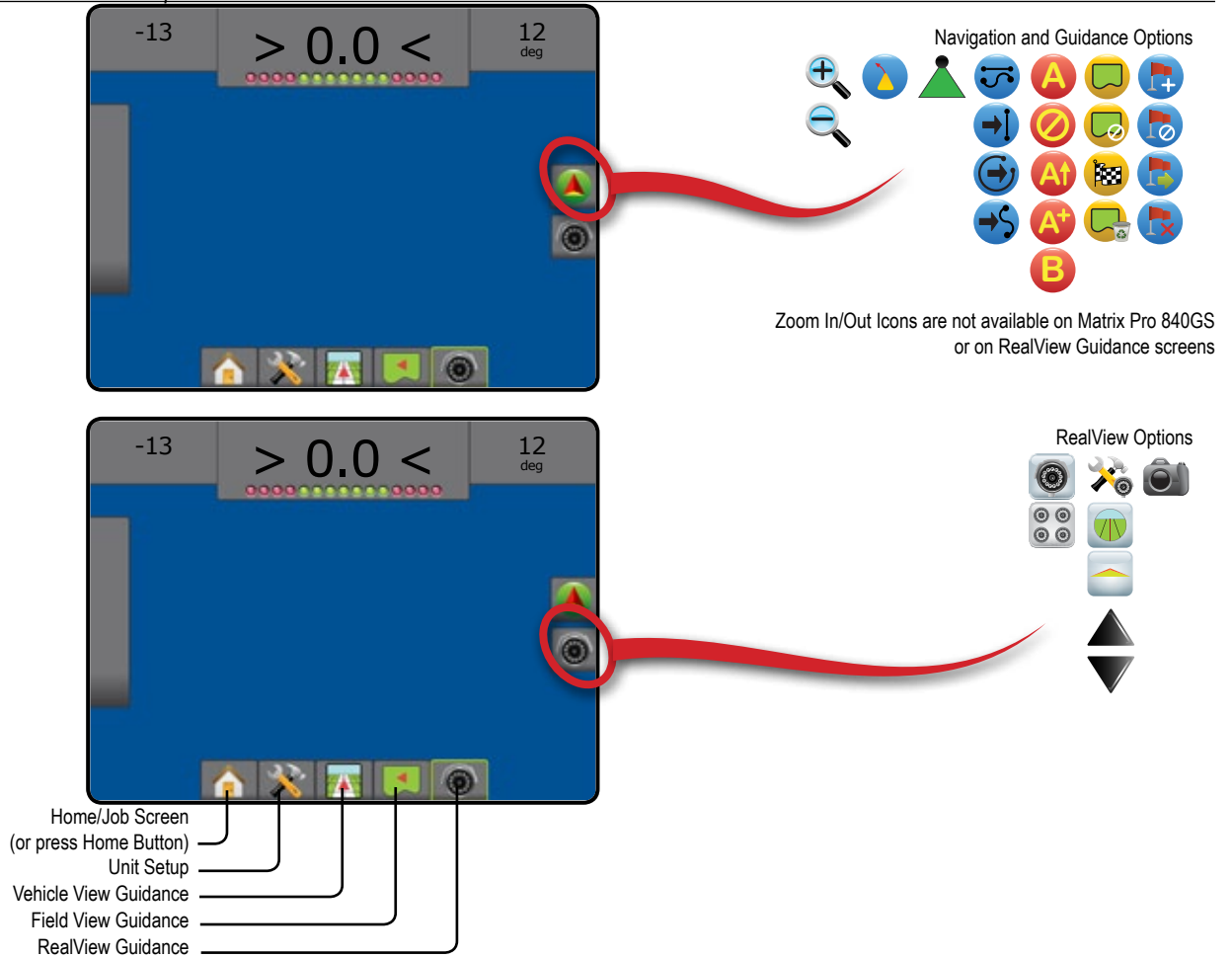
- Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options
- Press REALVIEW OPTIONS tab  to display camera setup and guidance options

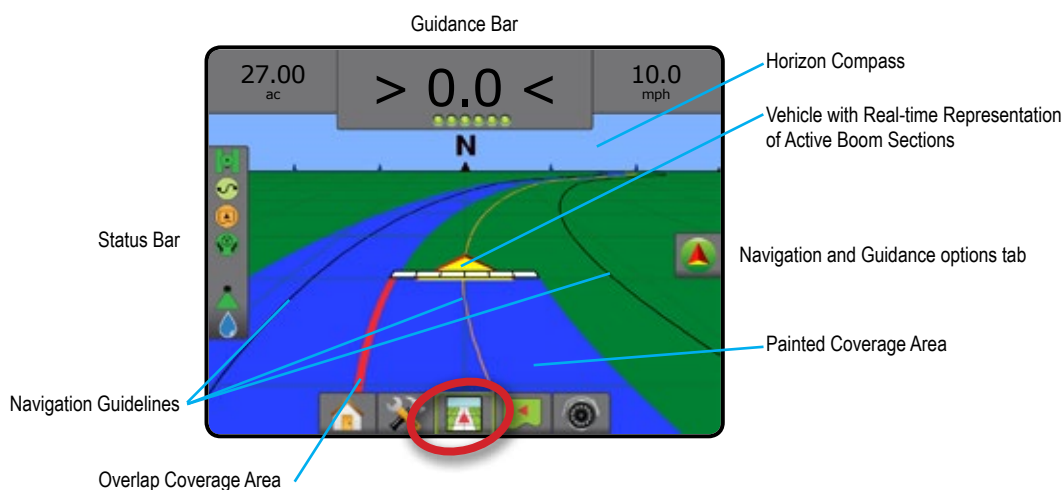
Figure 6-4: Guidance Screen Options



Vehicle View

Vehicle View creates a computer-generated image of the vehicle position displayed in the application area. From this screen all setup and navigation options can be accessed via the tab on the right side of the screen.

Figure 6-5: Vehicle View



On Screen Guidance

- Guidelines
 - ◀ Orange – active guidance line
 - ◀ Black (multiple) – adjacent guidance lines
 - ◀ Black – boundary line
- Points – markers for established points
 - ◀ Red Point – Return to Point
 - ◀ Blue Point – Mark A
 - ◀ Green Point – Mark B
- Horizon Compass – general heading can be displayed on horizon (when zoomed in)
- Coverage Area – illustrates applied area and overlap:
 - ◀ Blue – one application
 - ◀ Red – two or more applications

- Zoom In/Out & Perspective – adjusts the vehicle's view or perspective to the horizon from vehicle view to bird's eye view.
- Boom Sections
 - ◀ Black boxes – inactive booms
 - ◀ White boxes – active booms

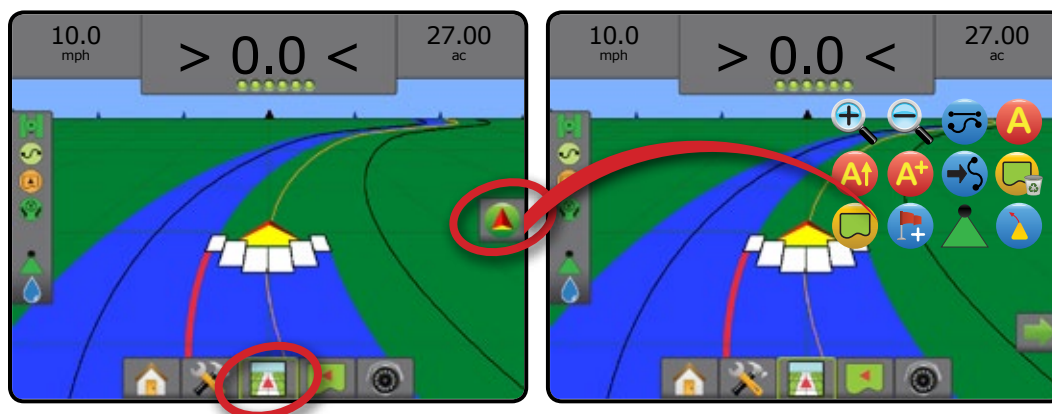
Matrix Pro 840GS Console Button Assistance

- Zoom In/Out & Perspective – the Up/Down buttons adjust the vehicle's view or perspective to the horizon from vehicle view to bird's eye view.
- Home/Job Screen – the Home button accesses the Home/Job screen.

To access the Vehicle View screen:

1. Press VEHICLE VIEW GUIDANCE tab

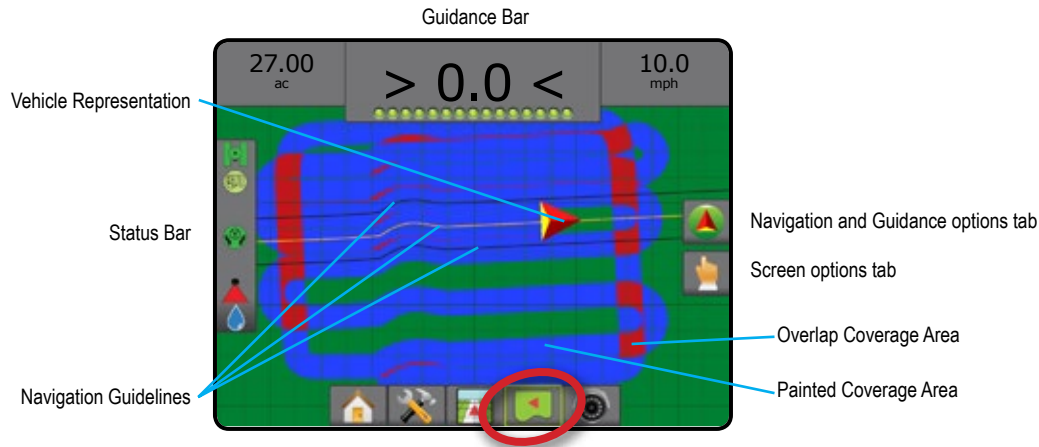
Figure 6-6: Vehicle View w/ Common Icons Shown



Field View

Field View creates a computer-generated image of the vehicle position and application area from an aerial perspective. From this screen all setup and navigation options and pan mode can be accessed via the option tabs on the right side of the screen.

Figure 6-7: Field View



On Screen Guidance

- Guidelines
 - ◀ Orange – active guidance line
 - ◀ Black (multiple) – adjacent guidance lines
 - ◀ Black – boundary line
- Points – markers for established points
 - ◀ Red Point – Return to Point
 - ◀ Blue Point – Mark A
 - ◀ Green Point – Mark B
- Coverage Area – illustrates applied area and overlap:
 - ◀ Blue – one application
 - ◀ Red – two or more applications

- Pan – adjust the map's visible area without moving the vehicle.
- Zoom In/Out – adjust the map's visible area.

Matrix Pro 840GS Console Button Assistance

- Zoom In/Out – the Up/Down buttons ▲ ▼ adjust the map's visible area.
- Home/Job Screen – the Home button 🏠 accesses the Home/Job screen.

To access the Field View screen:

1. Press FIELD VIEW GUIDANCE tab .

Figure 6-8: Field View w/ Common Icons Shown



RealView Guidance

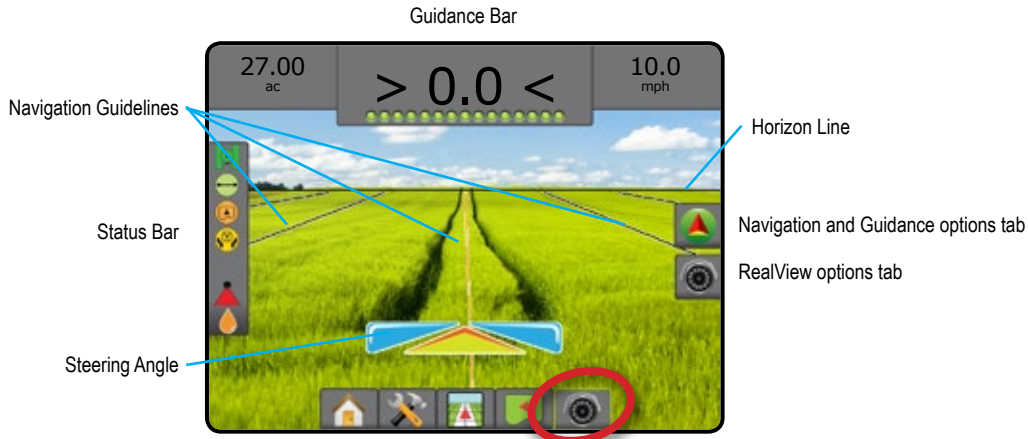
RealView Guidance allows live video input to be displayed instead of a computer-generated image. From this screen all setup and navigation options can be accessed via the tabs on the right side of the screen.

If a Video Selection Module (VSM) is installed on the system, two video options are available:

- One Camera View – one of up to eight camera inputs can be selected to change the view of the video input.
- Split Camera View – one of two sets of four camera inputs (A/B/C/D or E/F/G/H) can be selected to divide the screen into four separate video feeds.

From this screen guidance over video and steering angle modes can be accessed via the icon tabs on right side of the screen.

Figure 6-9: RealView Guidance



On Screen Guidance

- Guidelines
 - ◀ Orange – active guidance line
 - ◀ Black (multiple) – adjacent guidance lines
- ◀ Horizontal Black Line – adjustable horizon line


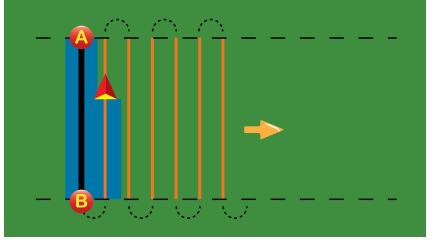

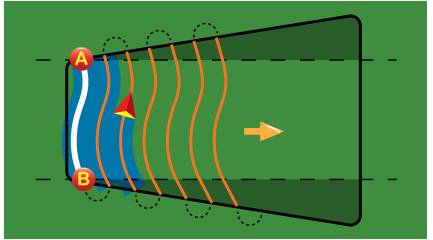

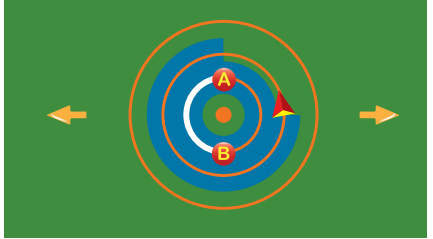

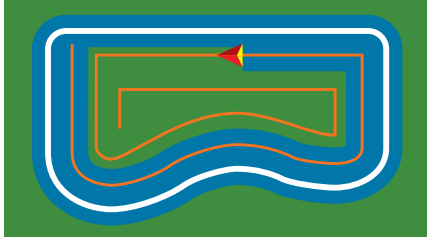

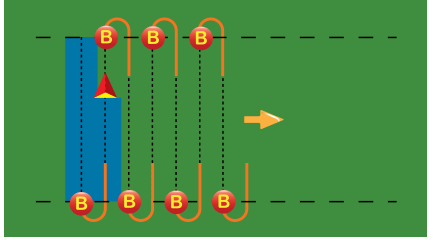

To access the RealView screen:

1. Press REALVIEW GUIDANCE tab


Figure 6-10: Real View w/ Common Icons Shown






15 GUIDANCE MODES

	<p>Straight AB Guidance</p> <p>Straight AB Guidance provides straight line guidance based on A and B reference points. The original A and B point are used to calculate all other parallel guidelines.</p> <p><i>NOTE: Offset to adjacent guidelines will be calculated using the guidance width, which is encoded in Unit Setup in the Implement options.</i></p>	
	<p>Curved AB Guidance</p> <p>Curved AB Guidance provides guidance along curved lines based on an initial AB reference line. This initial baseline is used to calculate all other guidelines.</p> <p><i>NOTE: Curved guidance is recommended not to exceed 30° within the AB guideline.</i></p> <p><i>Offset to adjacent guidelines will be calculated using the guidance width, which is encoded in Unit Setup in the Implement options.</i></p> <p><i>HINT: While working in a bounded area, the guidance pattern extending beyond the established AB points will be straight line guidance.</i></p>	
	<p>Circle Pivot Guidance</p> <p>Circle Pivot Guidance provides guidance around a central location that radiates inward or outward based on an initial AB reference line. This initial baseline is used to calculate all other guidelines.</p> <p>It is used for product application in a center pivot field while being guided along a circular guideline that matches a center pivot irrigation system radius.</p> <p><i>NOTE: Offset to adjacent guidelines will be calculated using the guidance width, which is encoded in Unit Setup in the Implement options.</i></p>	
	<p>Last Pass Guidance</p> <p>Last Pass Guidance offers true last pass navigation. The console will automatically detect the nearest applied area and establish parallel guideline based on that area.</p> <p><i>NOTE: If a boundary is established but no application occurred during the boundary process, guidance will not initiate.</i></p>	
	<p>NextRow Guidance</p> <p>NextRow Guidance indicates where the NextRow is located and provides guidance at row ends to the next adjacent row. When the operator marks the end of the row and begins turning to the next row, a Straight AB guidance line is provided in the next row. When the vehicle is in the NextRow, guidance is turned off.</p> <p><i>NOTE: Offset to NextRow will be calculated using the guidance width, which is encoded in Unit Setup in the Implement options.</i></p> <p><i>The NextRow Guidance does not support skipping rows.</i></p>	
	<p>No Guidance</p> <p>No Guidance turns off guidance.</p> <p><i>NOTE: No Guidance Mode does not delete established guide lines or points from the console. To delete established/saved data from the console, please refer to the Data Management section under Unit Setup.</i></p>	

GUIDELINES


Curved Lookahead  indicates what direction the vehicle will take when steering in any given direction.

AB guidelines, Azimuth guidelines, next pass guidelines and NextRow guidelines are each available depending on the current guidance mode. Up to 25 established guidelines can be stored in the console per job. Switching from one guidance mode to another will change the current available guidelines.



Multiple guidelines can be created in each guidance mode. If more than one guideline is saved in a single guidance mode, the Next Guideline feature will become available. By pressing the Next Guideline    option, the vehicle will be directed to the next guideline saved in the console.

A user can duplicate and edit jobs for reuse of boundaries and guidelines for different applications over the same field using Fieldware Link or the Data->Job Data->Manage option.

Curved Lookahead Guideline

 The curved lookahead guideline provides an indication of where the current steering will take the vehicle using a 'pointer' as guidance. The Curved Lookahead option is available in all guidance modes.

To activate the Curved Lookahead guideline:



1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Select CURVED LOOKAHEAD icon 

The pointer will be visible on the navigation screen.



Figure 6-11: Curved Lookahead








To remove the Curved Lookahead guideline:

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Select CURVED LOOKAHEAD icon 

Marking A and B Points


  To establish an AB guideline:

1. Drive to the desired location of Point A .
2. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
3. **While the vehicle is in motion**, press MARK A icon .
4. Drive to the desired location of Point B .
5. Press MARK B icon  to establish the AB line.
6. "Would you like to name this guideline?"

Press:

- ▶ Yes – to enter a name and save the guideline in the console
- ▶ No – to automatically generate a name and save the guideline in the console

The console will begin providing navigation information.

NOTE: The MARK B Icon  is not available for selection (grayed out) until the minimum distance is travelled (9.84 feet / 3.0 meters in Straight or Curved guidance, 164.04 feet / 50.0 meters in Circle Pivot guidance).

NOTE: It is not necessary to drive the entire circumference of the center pivot in order to initiate Circle Pivot Guidance.


Use CANCEL MARK icon  to cancel the Mark A command and revert to the previous guideline (when established).

Figure 6-12: Mark A Point

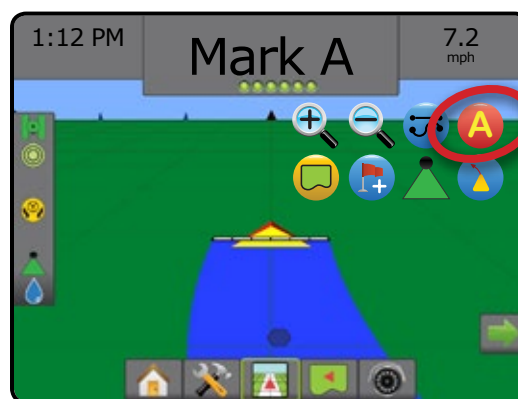


Figure 6-13: Mark B Point

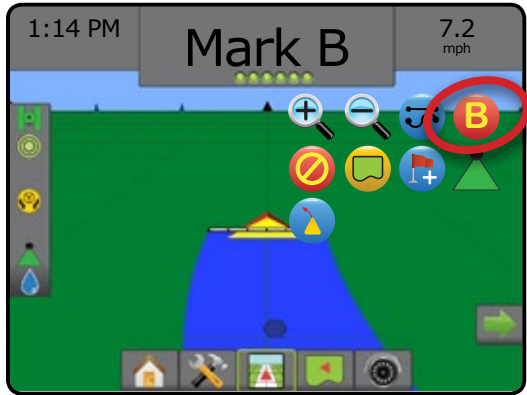
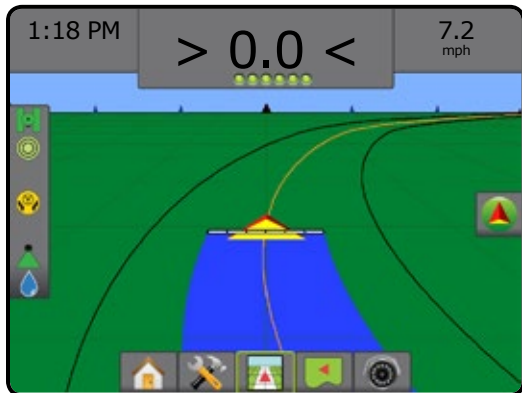


Figure 6-14: Save Guideline



Figure 6-15: Follow Guidance



A+ Nudge Feature

The A+ Nudge feature allows the current guideline to be shifted to the vehicle's current location.

To adjust the guideline:



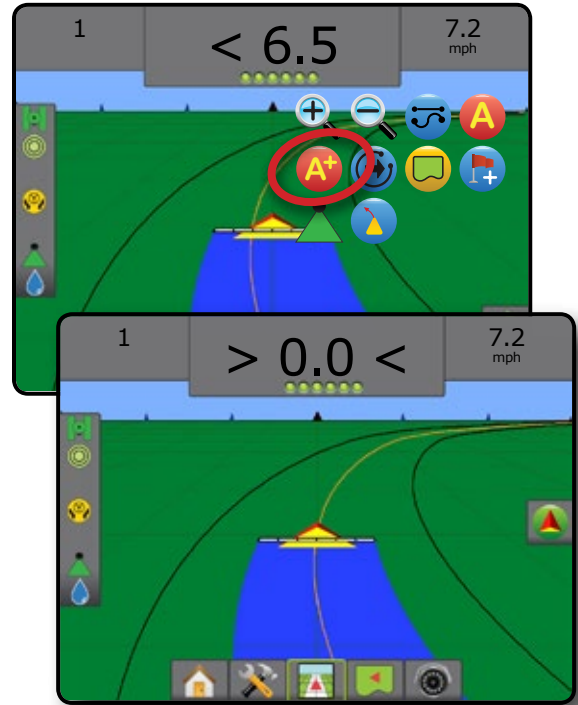

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press A+ NUDGE icon .



Figure 6-16: A+ Nudge



Next Guideline Feature

If more than one guideline is saved, the Next Guideline feature will become available. By pressing the Next Guideline  option, the vehicle will be directed to the next guideline saved in the console.

To change to other available guidelines:

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press NEXT GUIDELINE icon .


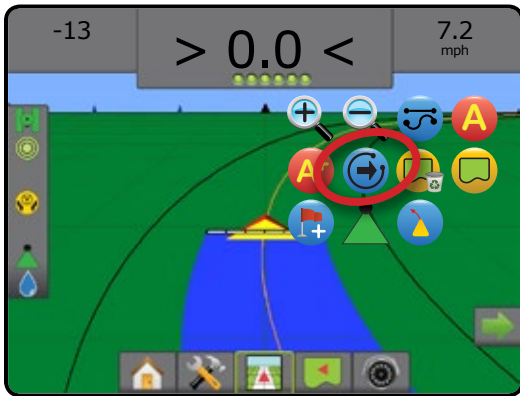
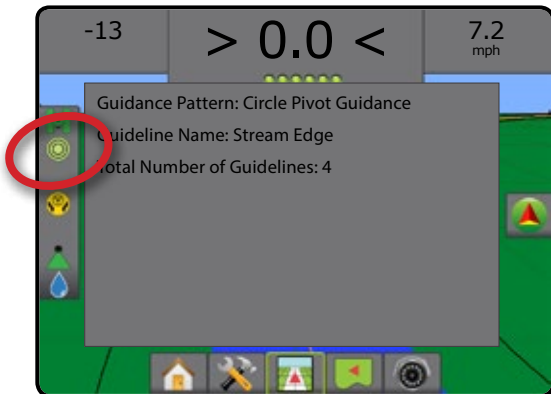
Toggle between all guidelines by pressing the NEXT GUIDELINE icon  again.

Figure 6-17: Next Guideline




To view which guideline is active, press the Guidance Mode icon on the Status Bar.

Figure 6-18: View Which Guideline is Active



Last Pass Guidelines

 Last Pass Guidance offers true last pass navigation. The console will automatically detect the nearest applied area and establish parallel guideline based on that area.

To activate Last Pass guidelines:

1. Drive to a desired location to apply the first pass.
2. Travel next to the applied area.
3. The console will begin providing navigation information.

NOTE: If a boundary is established but no application occurred during the boundary process, guidance will not initiate.

Figure 6-19: Apply First Pass

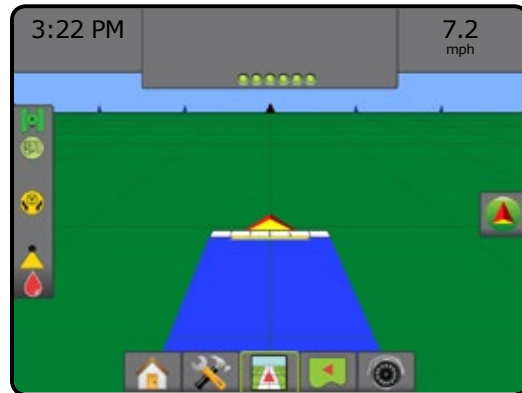
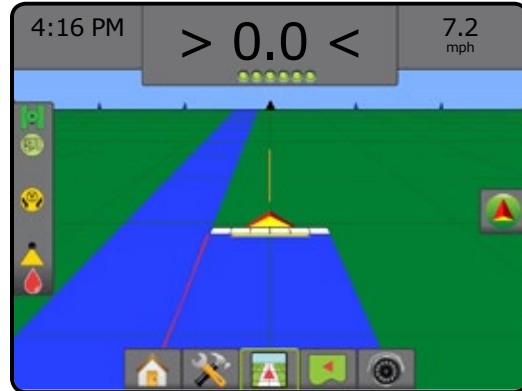



Figure 6-20: Follow Guidance






NextRow Guidelines

 NextRow Guidance indicates where the next row is located based on the programd guidance width and provides guidance at user marked row ends to the next adjacent row. When the operator signals the end of the row, a Straight AB line will be established in the current row and guidance is provided to the NextRow. When the vehicle is in the NextRow, guidance is turned off.

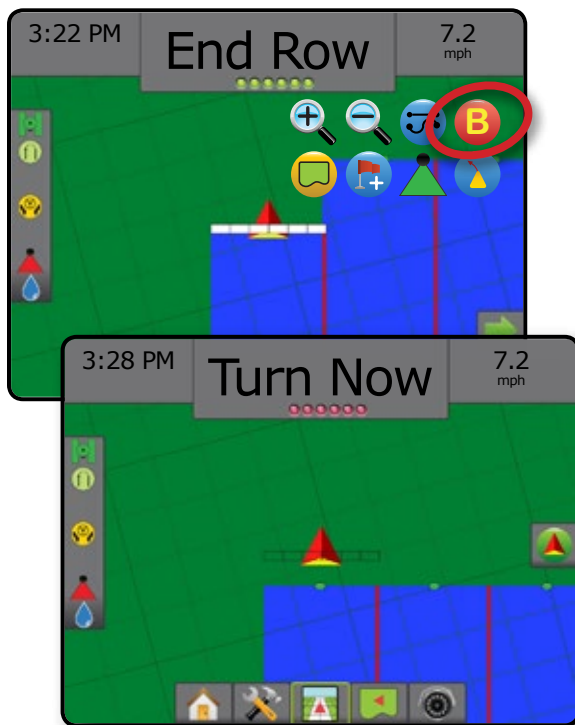
NOTE: Offset to NextRow will be calculated using the guidance width, which is established in Unit Setup under Implement Setup.

To activate NextRow guidelines:


1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. At the end of a row (while driving a straight line) press MARK B icon .
 - ◀The end of the row will be marked with a green point .
3. Turn toward the next row.
4. Based on that direction turned, guidance will be provided for the next adjacent row.
 - ◀When the vehicle is in the row, the guideline is removed
5. Repeat at the end of the next row.

NOTE: The NextRow Guidance feature does not support skipping rows.

Figure 6-21: Mark End of Row







Azimuth Degree

 An azimuth is defined as a horizontal angle measured clockwise from a north base line. When using an azimuth, the point from which the azimuth originates is the center of an imaginary circle. This circle is divided into 360°. North = 0, East = 90, South = 180, West = 270.

An azimuth degree can be entered to determine the exact location of the vehicle. When a navigation mode is selected, the azimuth degree can be entered.

To establish an Azimuth Degree guideline:

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press AZIMUTH icon  to enter azimuth degree.
3. Use the entry screen to establish the Azimuth degree.
4. Press:
 - ▶ Accept  to save the settings
 - ▶ Cancel  to leave the keypad without saving
5. "Would you like to name this guideline?"
 - Press:
 - ▶ Yes – to enter a name and save the guideline
 - ▶ No – to automatically generate a name

The console will begin providing navigation information.

To establish additional azimuth guidelines, follow the same steps as the initial azimuth guideline.

Figure 6-22: Azimuth Guidance







APPLICATION BOUNDARY

Application boundaries establish areas where application is and is not applied while using ABSC or BoomPilot. Boundaries can be established in all guidance modes. One exterior boundary and up to five (5) interior boundaries can be stored at one time.



Using Data->Job Data->Manage or with Fieldware Link, a user can duplicate and edit jobs for reuse of boundaries and guidelines for different applications over the same field.

To establish an exterior application boundary:

1. Drive to a desired location at the perimeter of the field/ application area.
2. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
3. While the vehicle is in motion, press BOUNDARY icon .
4. Travel the perimeter of the field/area.
5. Finish boundary:
 - ▶ Travel to within one swath width of the starting point. The boundary will close automatically (the white guideline will turn black)
 - ▶ Press BOUNDARY FINISH icon . A straight line will complete the boundary between your current location and the starting point
6. Press:
 - ▶ Save – to save the boundary
 - ▶ Delete – to delete the boundary

NOTE: On the external or initial boundary, the BOUNDARY FINISH icon  is not available for selection (grayed out) until the minimum distance is travelled (five-times the swath width).

If mapping a boundary with one or more booms folded in and turned off, it is necessary to maintain this boom configuration for the duration of the boundary pass. Any changes made to the number of booms turned on, and therefore the width of the machine after the boundary mapping process has started, will result in the application mapping the boundary at the outer edge of all the programmed booms – not necessarily those turned on at any given point in time during the boundary pass.

When mapping a boundary with some booms turned off, it is necessary to turn BoomPilot to Manual mode  and turn ON the Master and Boom switches for all booms that will be used during the Boundary pass. Once the boundary pass is complete the Boom switches can be turned OFF, Master switch remains ON, BoomPilot can be returned to Automatic mode  and automatic boom section control can then be used.


Note: If a boundary is mapped with some booms folded as described above, it may be necessary to use the A+ NUDGE icon  on the guideline over to the correct position for subsequent passes in the field.

Figure 6-23: Boundary in Progress



Figure 6-24: Finish Boundary – Straight line to starting point

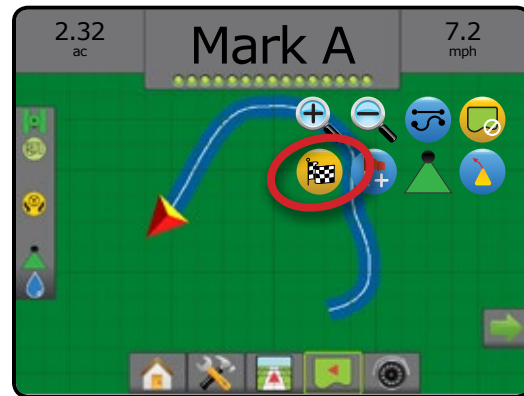
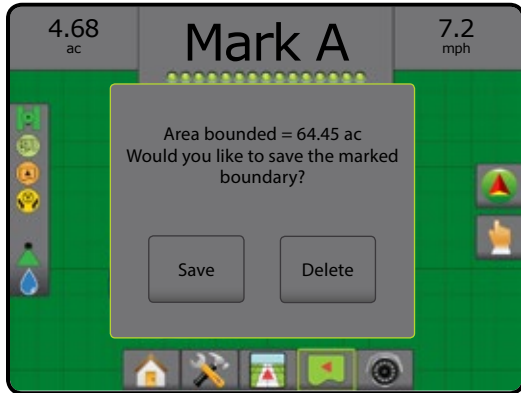



Figure 6-25: Finish Boundary – Travel to starting point



Figure 6-26: Save Boundary



Use CANCEL BOUNDARY icon  to cancel the new field boundary process and revert to the previous boundary (when established).

To establish one or more interior boundaries, follow the same steps as the initial boundary.

Figure 6-27: Add Interior Boundary



While creating an external or initial boundary, the boundary line will be to the exterior of the outer most boom section. While creating an interior or additional boundary, the boundary line will be to the interior of the inner most boom section.

Use DELETE BOUNDARY icon  to delete all field boundaries for the current job.

Figure 6-28: Finish Boundary – Travel to starting point





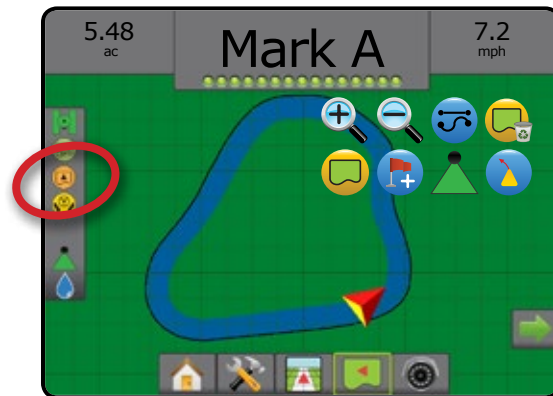
In correspondence to your current location, the IN BOUNDARY icon  or OUT BOUNDARY icon  is displayed on the Status Bar once the boundary is established.

Figure 6-29: Finish Boundary – Travel to starting point



RETURN TO POINT

Return to Point provides guidance back to an established point in Vehicle View and Field View. In Vehicle View an arrow directs the vehicle back to the established point. In Field View only the point is displayed.

A return point is job specific and will remain active in the active job until canceled.

Marking a Return Point

To mark a return point:




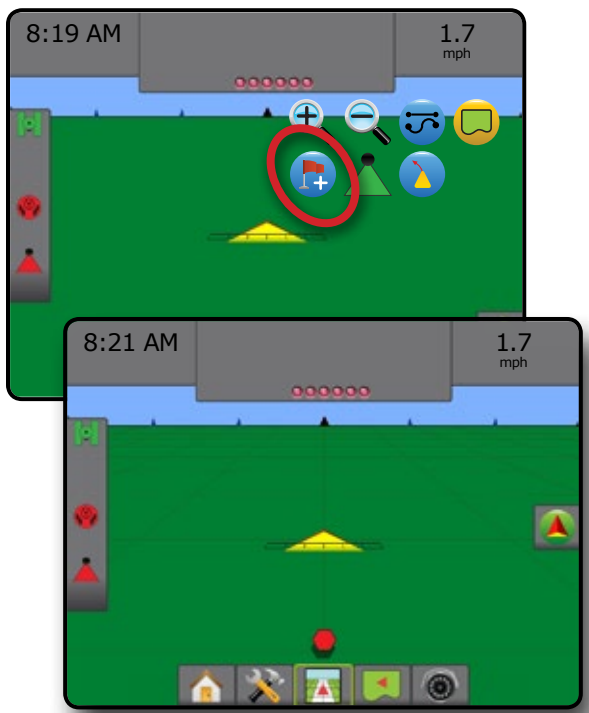


1. Drive to the desired location of Return Point .
2. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
3. Press ADD POINT icon .

Figure 6-30: Return Point Established – Vehicle View



Delete the Return Point

To delete the established return point:

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press the DELETE POINT icon .



Delete Point icon is not available while return to point guidance is active.

Figure 6-31: Delete Point




Guidance to a Return Point

To show distance and guidance to the established return point:

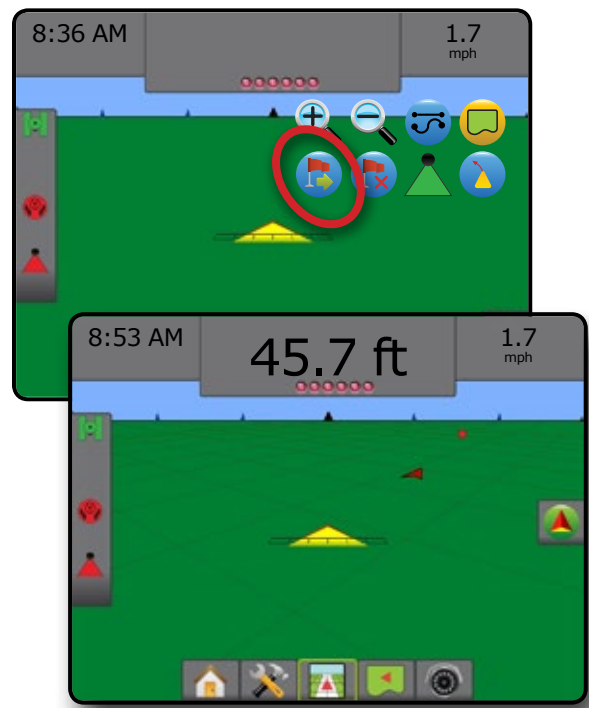
1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press the RETURN TO POINT GUIDANCE icon .

The console will begin providing the distance information on the Guidance Bar from the vehicle to the established point.

Use CANCEL RETURN TO POINT GUIDANCE icon  to hide distance and guidance to the established point.

Guidance cannot be calculated when “?” appears in the guidance bar.

Figure 6-32: Return to Point Guidance – Vehicle View



 BOOMPILOT



Single Section


If a SmartCable or Section Driver Module (SDM) is not present, BoomPilot is used to turn all booms on or off. Only one Boom Section width will be illustrated and the Status Bar will have no icon.

NOTE: If a SmartCable or Section Driver Module (SDM) is present, please refer to SmartCable or SDM Section for more information.

Console Only

To switch application off or on using the console:

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press BOOMPILOT icon .

NOTE: GPS is unavailable when the BOOMPILOT icon is grey .

In areas where application is not desired:

- ◀ Press BOOMPILOT icon .


Press the BOOMPILOT icon  again to resume application.

Figure 6-33: All booms off/on – No SDM



With Optional Speed/Sense Cable Switch

BoomPilot can be overridden by using an optional Speed/Sense Cable Switch.

NOTE: If the Speed/Sense Cable Switch is in the “on” position, the entire section will be activated and the BOOMPILOT icon  will have no affect.

Using the Speed/Sense Cable Switch

To switch application on using the Speed/Sense Cable Switch:



1. Turn Speed/Sense Cable Switch to the “on” position.


To switch application off using the Speed/Sense Cable Switch:

1. Turn Speed/Sense Cable Switch to the “off” position.

Using the Console


To control application using the console:

1. Speed/Sense Cable Switch should remain in the “off” position.
2. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
3. Press BOOMPILOT icon .




NOTE: GPS is unavailable when the BOOMPILOT icon is grey .

In areas where application is not desired:

1. Press BOOMPILOT icon .

To resume application, press the BOOMPILOT icon  again.

SmartCable or Section Driver Module

If a SmartCable or Section Driver Module (SDM) is present, BoomPilot is used to set automatic section control to off/manual , automatic  or all on .

NOTE: If a SmartCable or Section Driver Module (SDM) is not present, please refer to Single section to view example.



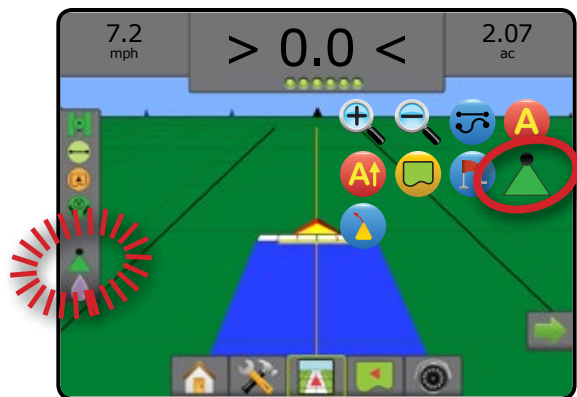



GPS is unavailable when the BOOMPILOT icon is grey  BoomPilot status bar icon will be off/manual .

Figure 6-34: Automatic to all sections on mode






Console Only

To switch BoomPilot to automatic :




1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press BOOMPILOT icon .
 - ◀Automatic – status bar icon will change to green 

In areas where application is not desired:



1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press BOOMPILOT icon .
 - ◀Off/Manual – status bar icon will change to red 




Press the BOOMPILOT icon  again to resume application.

To turn all sections on :





1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press and hold BOOMPILOT icon .
 - ◀All On – Status Bar Icon will change to yellow 

Rate Controller or Switchbox

To switch BoomPilot between off/manual  and automatic  when a rate controller or switchbox is on the system:


1. Turn the rate controller master switch to the “On” position. The individual boom section switches should remain in the “Off” position.
2. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
3. Press BOOMPILOT icon .
 - ◀Automatic – status bar icon will change to green 

In areas where application is not desired:

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
 2. Press BOOMPILOT icon .
 - ◀Off/Manual – status bar icon will change to red 
- Press the BOOMPILOT icon  again to resume application.




OR

1. Manually turn “off” the rate controller master switch to shut off the booms.

◀Off/Manual – status bar icon will change to red 

Turn the master switch “on” to resume application.

To turn all sections on :

1. Press NAVIGATION AND GUIDANCE OPTIONS tab  to display navigation options.
2. Press and hold BOOMPILOT icon .
 - ◀All On – status bar icon will change to yellow 



Rate Controller with Internal Section Driver Module

When using a rate controller with an internal section driver module, both the master switch and the boom section switches need to be in the “On” position..

Speed/Sense Cable Switch

When installed, Speed/Sense Cable Switch should remain in the “off” position for all setup options.

Matrix Pro GS BoomPilot Switch Configuration

BoomPilot (ABSC) System	Rate Controller		RC with Internal SDM		Work Switch	Spray Icon
	Master	Boom Switches	Master	Boom Switches		
Automatic Mode	On	Off	On	On	Off	
Manual Mode	On	On	On	On	Off	

 ZOOM IN/OUT

Vehicle View

Zoom In/Out & Perspective is used to adjust the vehicle's view or perspective to the horizon from vehicle view to bird's eye view.





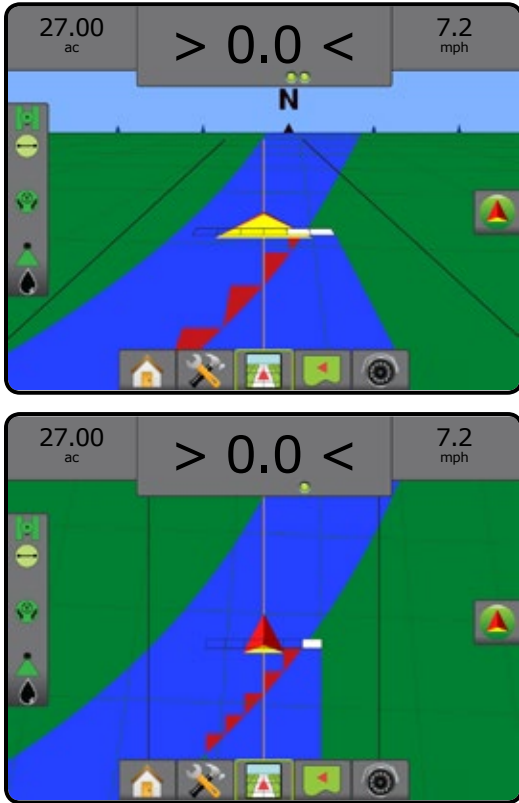




- Zoom in   will adjust view to vehicle view displaying a compass on the horizon
- Zoom out   will adjust view to bird's eye view

Figure 6-35: Zoom In to Zoom Out



Field View







Zoom In/Out is used to adjust the map's visible area.

- Zoom in   will decrease the amount of map area visible
- Zoom out   will increase the amount of map area visible

 PAN MODE

While in Field View Guidance, the pan mode allows the screen to be positioned manually as desired. The off-center position on the screen will be retained until the World icon is pressed.

To enter pan mode and pan across the screen:

1. Press SCREEN OPTIONS tab .
2. Press
 - ▶ AND DRAG SCREEN in the corresponding direction to move the view on screen.
 - ▶ ARROWS     in the corresponding direction to move the view on screen (down, left, right, up).
 - ▶ WORLD VIEW icon  to center vehicle on screen and extend the screen view to the widest area available.

NOTE: Press & hold ARROWS     to quickly adjust settings.

To close Pan Mode options:


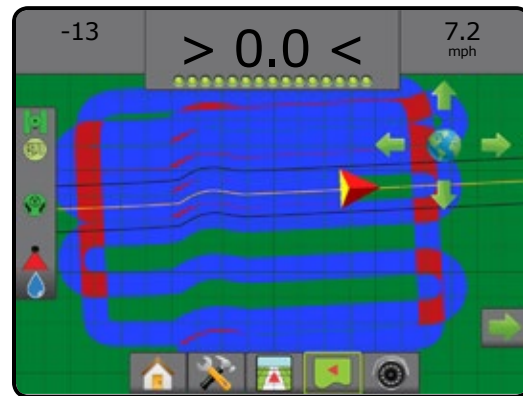
1. Press CLOSE OPTIONS tab .



Figure 6-36: Pan Mode




REALVIEW SPECIFIC OPTIONS

RealView Guidance allows live video input to be displayed instead of a computer-generated image.

If a Video Selection Module (VSM) is installed on the system, two (2) video options are available:

- ▶ **Single Camera View**  – one (1) of up to eight (8) camera inputs can be selected to change the view of the video input.
- ▶ **Split Camera View**  – one (1) of two (2) sets of four (4) camera inputs (A/B/C/D or E/F/G/H) can be selected to divide the screen into four separate video feeds.

Also available is:

- ▶ **RealView Camera Image Capture**  – saves a still photo of the current view on the screen to a USB drive

RealView Guidance options also include guidance over video, a steering angle indicator and camera image capture.

Figure 6-37: RealView Options

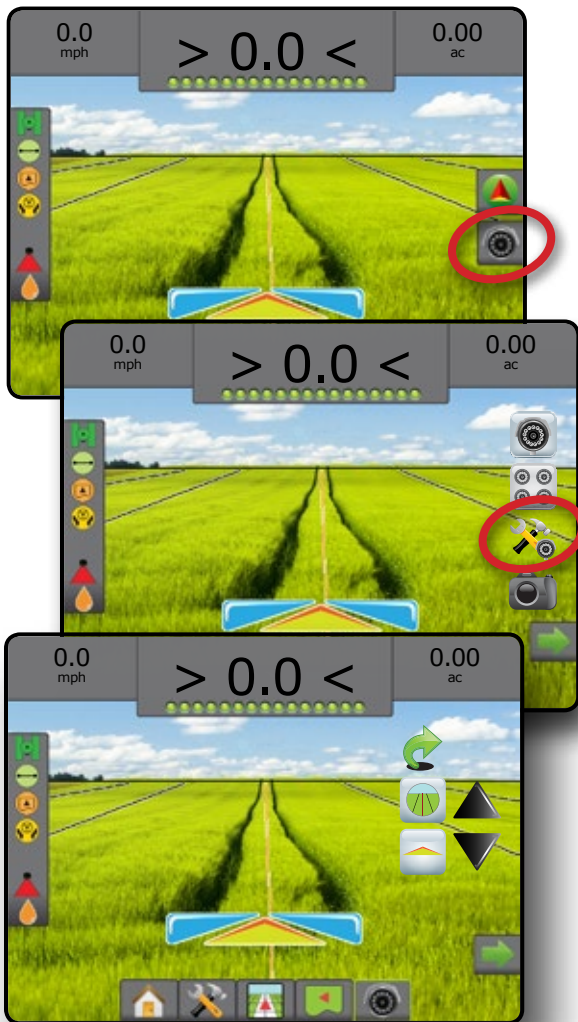



Figure 6-38: Single Camera Selection



Figure 6-39: Select Split View



RealView Setup Options

 RealView setup options accesses additional guidance tools including guidance over video and a steering angle indicator.

To access RealView options:







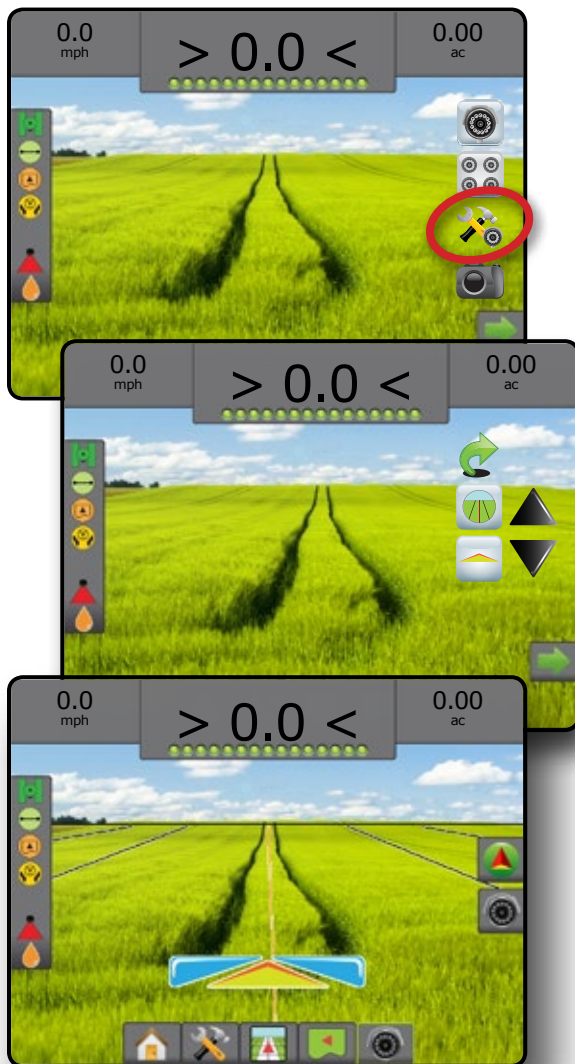
1. Press REALVIEW OPTIONS tab  to display RealView options
2. Press REALVIEW GUIDANCE OPTIONS icon .
3. Select from:
 - ▶ Guidance Over Video  – places three dimensional guidelines over the video feed for navigation assistance
 - ▶ Steering Angle Indicator  – displays the direction in which the steering wheel needs to be adjusted
 - ▶ Horizon Line Adjustment   – adjusts the on screen horizon line up or down

Figure 6-40: RealView Setup Options



CHAPTER 7 - GPS

GPS is used to configure GPS Type, GPS Port and PRN as well as to view GPS status information.

GPS

NOTE: These settings are required for assisted/auto steering and tilt sensor operation, as well as proper implement operation.




1. Press CONFIGURATION side tab .
2. Press **GPS**.
3. Select from:
 - ▶ GPS Type – sets to accept GPS source transmissions
 - ▶ GPS Port – sets (D)GPS communication port
 - ▶ GPS Status Information – displays information regarding GGA/VTG (Data Rates), Number of Satellites, HDOP, PRN, GGA Quality, GPS Receiver, Receiver Version and UTM Zone
 - ▶ Program – allows direct programming of the GPS receiver through a command line interface
 - ▶ PRN – selects the SBAS PRN that will provide GNSS differential correction data
 - ▶ Alternate PRN – when PRN is not automatic, a second alternate SBAS PRN will provide a second set of GNSS differential correction data
4. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

Figure 7-1: GPS



GPS Type

GPS Type can be customized to accept GPS source transmissions (only uncorrected signals), DGPS source transmissions (only differentially corrected signals) or both types of signals.


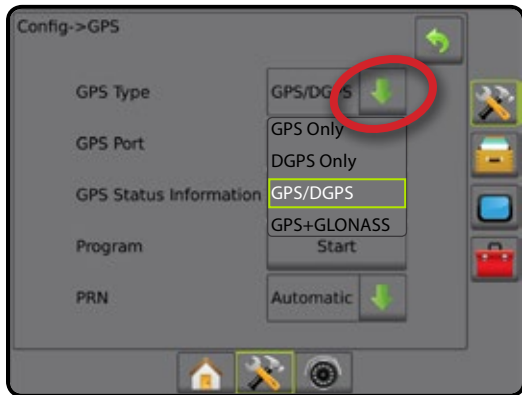
1. Press DOWN arrow  to access the list of options.
2. Select:
 - ▶ GPS Only – uncorrected signals
 - ▶ DGPS Only – differentially corrected signals
 - ▶ GPS/DGPS – either type of signal
 - ▶ GPS+GLONASS – uncorrected signals from both the GPS and GLONASS systems


Figure 7-2: GPS Type



NOTE: When "GPS+GLONASS" is selected, PRN is not available, nor shown on screen.

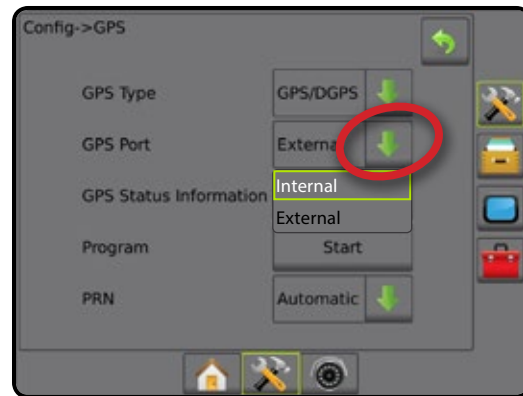
GPS Port

The COM port can be set to "Internal" to use the internal (D)GPS (if equipped) and transmit out, or "External" to receive external (D)GPS data.

1. Press DOWN arrow  to access the list of options.
2. Select:
 - ▶ Internal – use the internal (D)GPS (if equipped) and transmit out
 - ▶ External – receive external (D)GPS data

NOTE: Working with GPS signals such as Omnistar HP/XP or RTK will require GPS port to be set to External.

Figure 7-3: GPS Port



External Receiver Minimum Configuration Requirements

Before the Matrix will connect and work with an external GPS receiver, these minimum configuration requirements must be met.

Serial Port Settings

Baud rate:	19,200
Data Bits:	8
Parity:	None
Stop Bits:	1

Serial Port connection requirements

Male 9 pin RS-232 serial cable

NOTE: May require Null modem adapter depending on pin out of receiver.

NMEA Strings

GGA	5 Hz
Optional VTG	5 Hz, 2 Hz, Off
ZDA	0.2 Hz

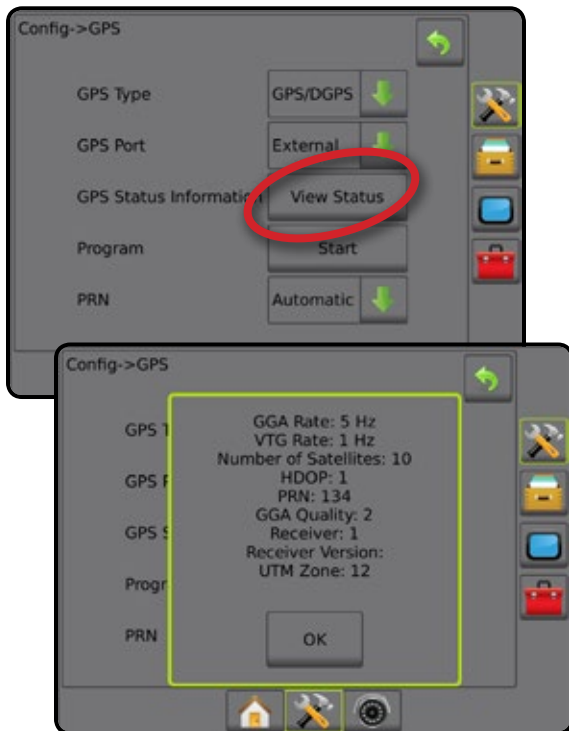
GPS Status Information

GPS Status displays a snapshot of the current GPS status information.

1. Press **View Status**.
2. View data including:
 - ◀GGA/VTG Data Rates – the number of GPS positions per second.
 - ◀Number of Satellites – the number of GPS satellites in view (minimum of 4 are required for DGPS)
 - ◀HDOP – a measure of satellite geometry strength in the horizontal plane. A HDOP value of less than 2 is preferred.
 - ◀PRN – the current DGPS satellite ID
 - ◀GGA Quality – the current quality indicator of the GPS signal (see GGA chart)
 - ◀Receiver – the current indicator of the receiver
 - ◀Receiver Version – the software version installed on the receiver
 - ◀UTM Zone – zone where currently located
3. Press **OK** to return to GPS setup screen


NOTE: If GPS is not available, all entries will be "Invalid"

Figure 7-4: GPS Status Information



GPS Status Information on Guidance Screens

GPS Status displays information regarding data rates, number of satellites in view, and satellite quality and ID.

1. Press GPS STATUS icon :



GGA Requirements

GGA Quality required to be able to work with various types of signal can vary. See table below for requirements.

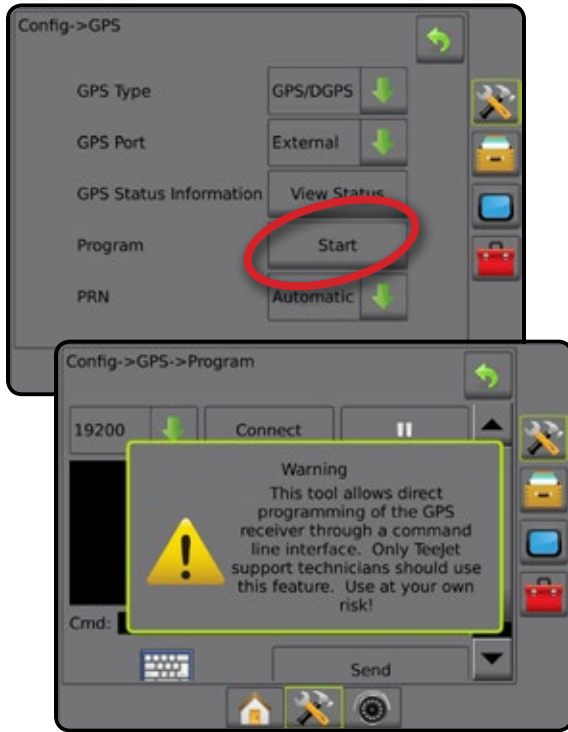
Service	Indicator	Accuracy
GPS only	1	<3 m
WAAS/EGNOS/Beacon	2	<1 m
RTK	4	4 cm
Omnistar HP/XP	5	10 cm
Glide/ClearPath	9	<1 m

Programming Receiver

Program allows direct programming of the GPS receiver through a command line interface. Only TeeJet support technicians should use this feature. Use at your own risk!

1. Press **Start**.
2. Adjust programming as required.

Figure 7-5: Programming Receiver

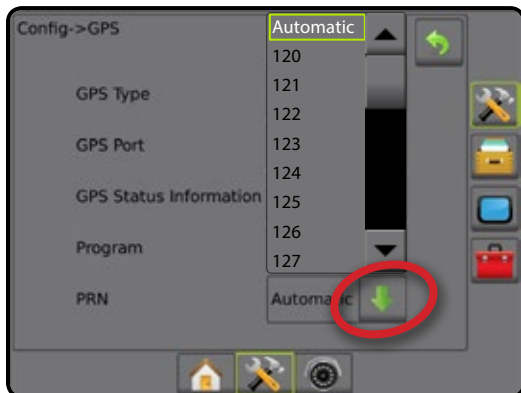


PRN

PRN selects the SBAS PRN that will provide GNSS differential correction data.

1. Press DOWN arrow ↓ to access the list of options.
2. Select:
 - ▶ Automatic – automatic PRN selection
 - ▶ Number – contact your local dealer for the number associated with your operating location

Figure 7-6: PRN

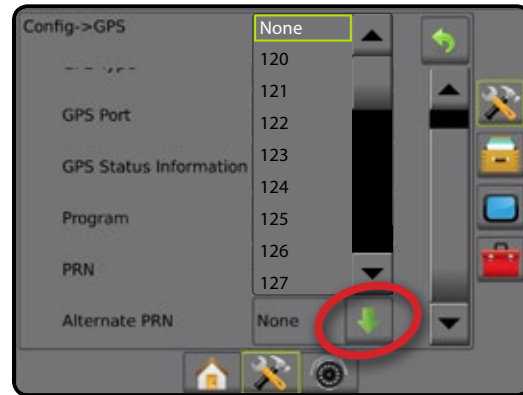


Alternate PRN

When PRN is not automatic, a second alternate SBAS PRN will provide a second set of GNSS differential correction data.

1. Press DOWN arrow ↓ to access the list of options.
2. Select:
 - ▶ None – no alternate PRN number
 - ▶ Number – contact your local dealer for the number associated with your operating location

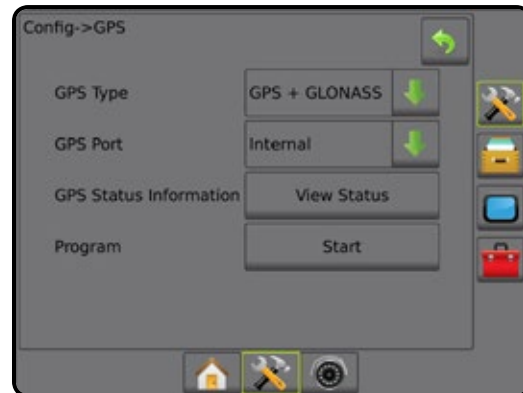
Figure 7-7: Alternate PRN



PRN Not Shown

When GPS Type is set to "GPS+GLONASS", PRN options are not available, nor shown on screen.

Figure 7-8: PRN



CHAPTER 8 - IMPLEMENT SETUP

Implement Setup is used to establish the various settings associated with straight mode, spreader mode or staggered mode. Settings will vary depending on if a SmartCable or Section Driver Module (SDM) is present.

Implement Type

Implement Type selects the type of application pattern that most closely represents your system.

- In Straight Mode – the boom sections have no length and are on a line a fixed distance from antenna
- In Spreader Mode – a virtual line is created in line with the delivery disks from which the application section or sections can vary in length and can be at different distances from the line
- In Staggered Mode – a virtual line is created in line with Section 1 from which the application section or sections have no length and can be at different distances from antenna

Figure 8-1: Implement Type - Straight

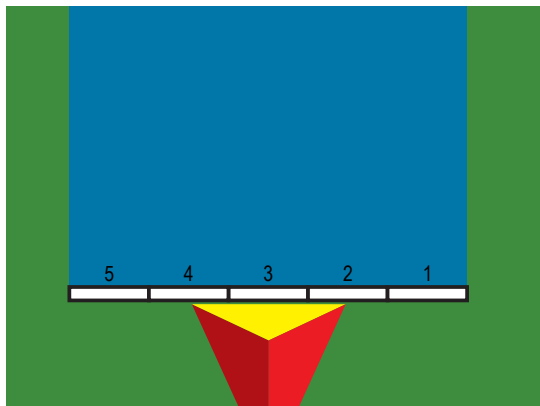


Figure 8-3: Implement Type - Staggered

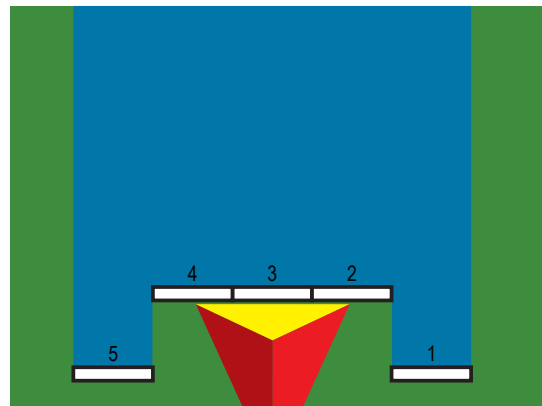
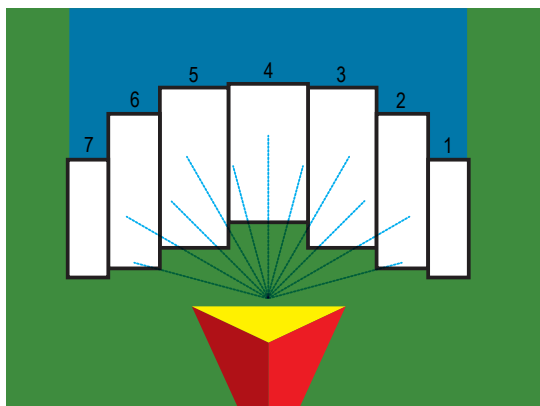


Figure 8-2: Implement Type - Spreader



Section Numbers

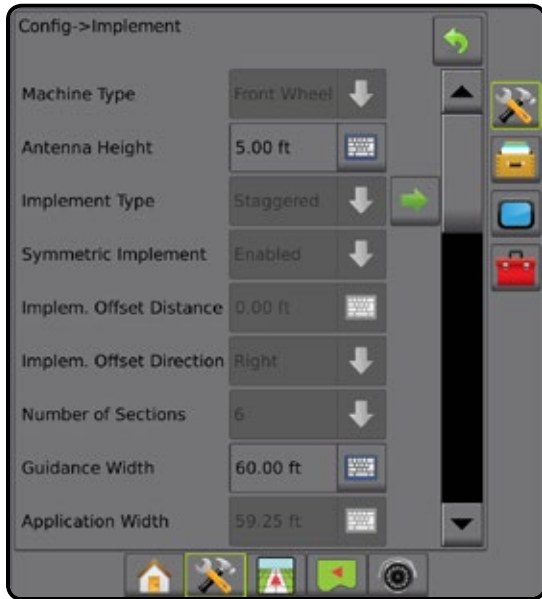
Sections are numbered from left to right while facing in the machine's forward direction.

BASIC SCREEN USE

Unavailable Options When Job is Active

When a job is active some setup options are unavailable. See the Unit Setup Mode Menu Structure Chart for indication of which options are not accessible.

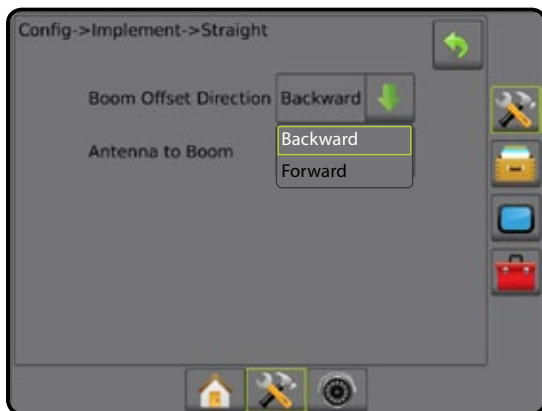
Figure 8-4: Examples of Unavailable Options



Drop Down Menu Selections

Press DOWN arrow ↓ to access the options. Use the UP/DOWN arrows ▲ ▼ or slide bar if necessary to scroll through the extended list. Select the appropriate option. To close the list without selecting an option, tap anywhere on the screen outside the drop down menu.

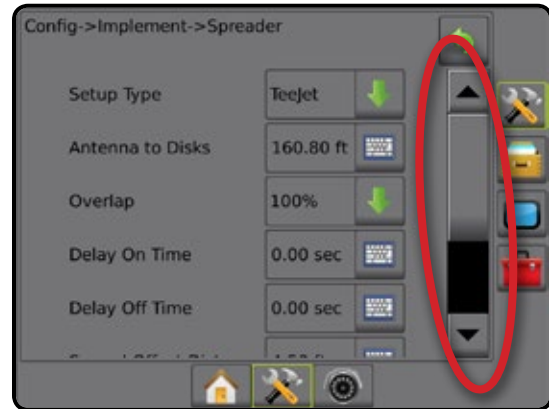
Figure 8-5: Example of Drop Down Menu



Scrolling Screens

Some screens have more information or options that are visible beyond the current screen. Use the UP/DOWN arrows ▲ ▼ or slide bar to access additional options or information not currently visible on the screen.

Figure 8-6: Example of Scrolling Screen

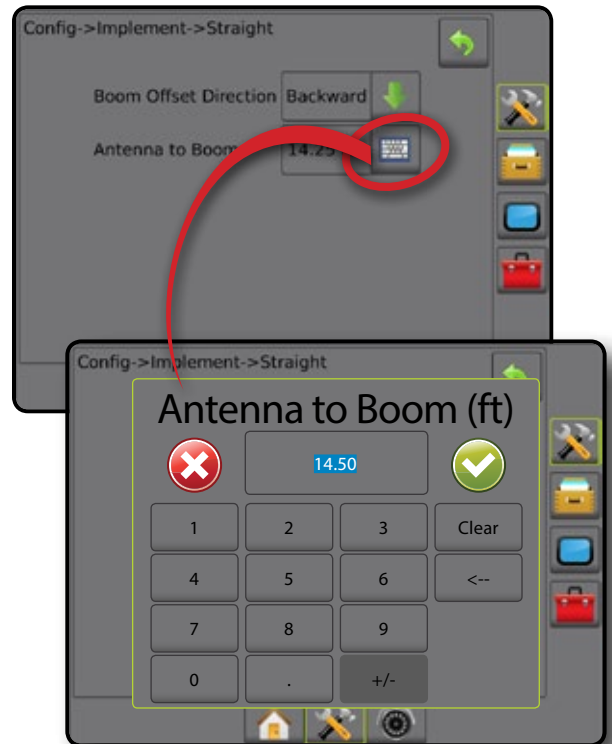


Keyboard Entry Screen

Press the KEYPAD icon [Keypad icon]. Use the numeric keypad to enter a value.

Press the ACCEPT icon [Accept icon] to save the settings or the CANCEL icon [Cancel icon] to leave the keypad without saving.


Figure 8-7: Example of Keyboard



SINGLE SECTION SETUP

Single Section Setup is used when a SmartCable or Section Driver Module (SDM) is not on the system. The entire boom or delivery area is considered to be one section.

NOTE: If a SmartCable or Section Driver Module (SDM) is present, refer to "SmartCable or Section Driver Module Setup" to view setup steps.

1. Press CONFIGURATION side tab .
2. Press **Implement**.
3. Select from:
 - ▶ Machine Type – used to select the type of machine that most closely represents your machine.
 - ▶ GPS Antenna Height – used to measure the height of the antenna from the ground. Range is 0.0 to 32.81 feet / 0.0 to 10.0 meters.
 - ▶ Implement Type – used to select the layout of the sections for the applied product location.
 - ▶ Implement Offset Distance ❶ – used to enter the distance from the centerline of the machine to the center of the implement. Range is 0 to 32.8 feet / 0 to 10.0 meters.


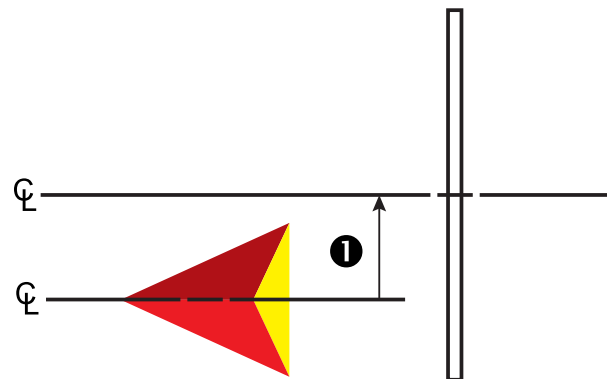
NOTE: For detailed setup instructions, refer to the Implement Offset section of this chapter.
 - ▶ Implement Offset Direction ❶ – used to enter the direction from the centerline of the machine to the center of the implement while facing in the machine's forward direction
 - ▶ Guidance Width – used to enter the distance between the guidelines. Range is 3.28 to 246.06 feet / 1.0 to 75.0 meters.
 - ▶ Application Width [Straight Implement Type] – used to enter the total width of the implement.
 - ▶ Working Width [Spreader Implement Type] – used to enter the total width of the implement.
 - ▶ Applied Area Alarm – used to establish an alert to signal when exiting or entering an applied area
 - ▶ Applied Alert Exit Time – when Applied Area Alarm is enabled, used to set the amount of time before exiting an applied area at which the alarm will sound. Range is 0 to 10 seconds.
 - ▶ Applied Alert Entry Time – when Applied Area Alarm is enabled, used to set the amount of time before entering an applied area at which the alarm will sound. Range is 0 to 10 seconds.
4. Press NEXT PAGE arrow  to set up the selected specific implement type's options.




Figure 8-8: Implement – Single Section



Figure 8-9: Implement Offset Distance and Direction



Straight Implement Type

1. Select **Straight** implement type on Implement screen.
2. Press NEXT PAGE arrow .
3. Select from:
 - ▶ Boom Offset Direction – used to select whether the boom is located in front of or behind the GPS antenna as the vehicle moves in a forward direction
 - ▶ Antenna to Boom Distance **1** – used to enter the distance from the GPS antenna to the boom. Range is 0.0 to 164.04 feet / 0.0 to 50.0 meters.
4. Press RETURN arrow  to return to the Implement screen or CONFIGURATION side tab  to return to the main Configuration screen.

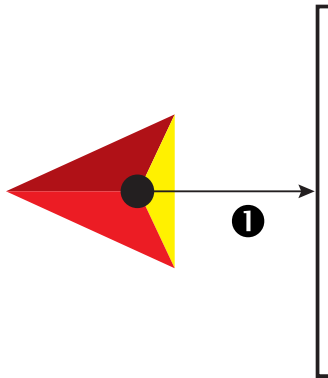
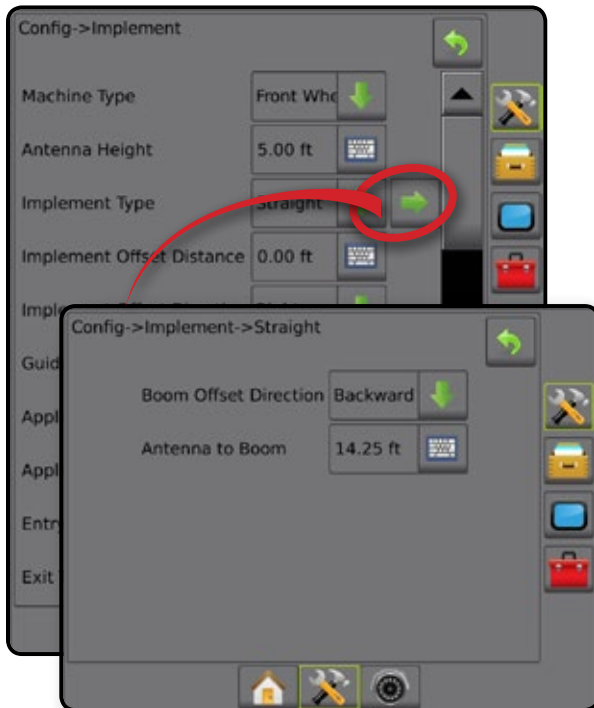





Figure 8-10: Implement Setup Options in Straight Mode



TeeJet Spreader Implement Type

1. Select **Spreader** implement type on Implement screen.
2. Press NEXT PAGE arrow .
3. Select from:
 - ▶ Setup Type – used to select **TeeJet** spreader type
 - ▶ Antenna to Disks **1** – used to enter the distance from the GPS antenna to the delivery disks or dispersal mechanism. Range is 0.0 to 164.04 feet / 0.0 to 50.0 meters.
 - ▶ Spread Offset Distance **2** – used to enter the offset distance from the disks, or dispersal mechanism, to where product initially hits the ground. Range is 0.0 to 246.06 feet / 0.0 to 75.0 meters.
 - ▶ Spread Length **3** – used to enter the length of application for the section. Range is 0.0 to 246.06 feet / 0.0 to 75.0 meters.
4. Press RETURN arrow  to return to the Implement screen or CONFIGURATION side tab  to return to the main Configuration screen.

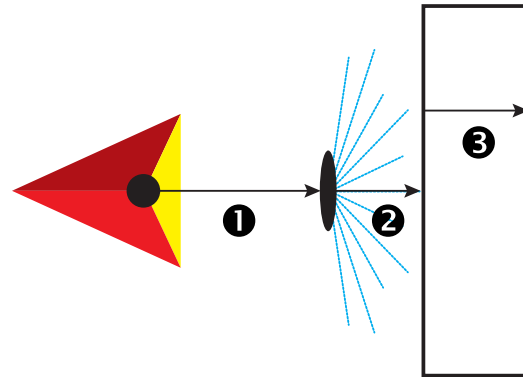
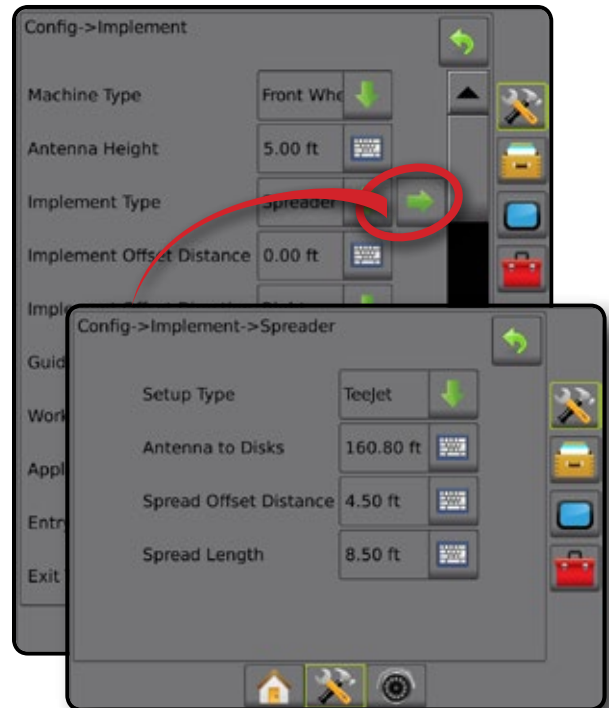


Figure 8-11: Implement Setup Options in TeeJet Spreader Mode



OEM Spreader Implement Type




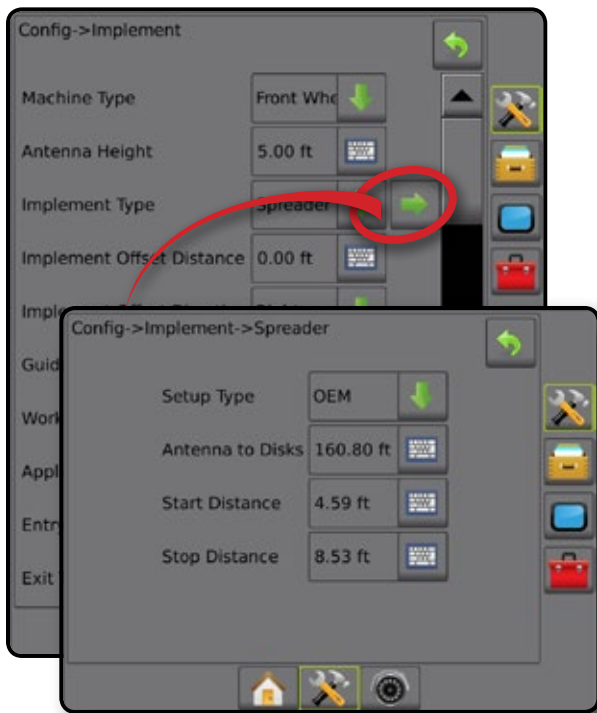
1. Select **Spreader** implement type on Implement screen.
2. Press NEXT PAGE arrow .
3. Select from:
 - ▶ Setup Type – used to select **OEM** spreader type
 - ▶ Antenna to Disks – used to enter the distance from the GPS antenna to the delivery disks or dispersal mechanism. Range is 0.0 to 164.04 feet / 0.0 to 50.0 meters.
 - ▶ Start Distance – used to set the start distance when exiting an applied area. Consult spreader manufacturer for value.
 - ▶ Stop Distance– used to set the stop distance when entering an applied area. Consult spreader manufacturer for value.
4. Press RETURN arrow  to return to the Implement screen or CONFIGURATION side tab  to return to the main Configuration screen.


Figure 8-12: Implement Setup Options in OEM Spreader Mode



SMARTCABLE OR SECTION DRIVER MODULE SETUP

SmartCable or Section Driver Module Setup is used when a SmartCable or Section Driver Module (SDM) is on the system. The boom or delivery area can be entered as up to 15 sections. Each section can vary in width and in spreader mode, can vary in length. Additional options available with a SDM include Application Overlap, Application Delay and Staggered Mode.

NOTE: If a SmartCable or Section Driver Module (SDM) is not present, refer to "Single Section Setup" to view setup steps.

1. Press CONFIGURATION side tab .
2. Press **Implement**.
3. Select from:
 - ▶ Machine Type – used to select the type of machine that most closely represents your machine.
 - ▶ GPS Antenna Height – used to measure the height of the antenna from the ground. Range is 0.0 to 32.81 feet / 0.0 to 10.0 meters.
 - ▶ Implement Type – used to select the layout of the sections for the applied product location.
 - ▶ Symmetric Implement Layout – used to establish if sections are paired and therefore share the same width, offset and length values
 - ▶ Implement Offset Distance **1** – used to enter the distance from the centerline of the machine to the center of the implement. Range is 0 to 32.8 feet / 0 to 10.0 meters.

NOTE: For detailed setup instructions, refer to the Implement Offset section of this chapter.

- ▶ Implement Offset Direction **1** – used to enter the direction from the centerline of the machine to the center of the implement while facing in the machine's forward direction
- ▶ Number of Implement Sections – used to select the number of implement sections
- ▶ Guidance Width – used to enter the distance between the guidelines. Range is 3.28 to 246.06 feet / 1.0 to 75.0 meters.
- ▶ Application Width [Straight Implement Type or Staggered Implement Type] – used to enter the total width of all sections of the implement. Each section can be a different width. Sections are numbered from left to right while facing in the machine's forward direction. Range for each section is 0.0 to 246.06 feet / 0.0 to 75.0 meters. Total for all sections must be greater than 3.28 ft / 1.0 meters.
- ▶ Working Width [Spreader Implement Type] – used to enter the total width of all sections of the implement. Each section can be a different width. Sections are numbered from left to right while facing in the machine's forward direction. Range for each section is 0.0 to 246.06 feet / 0.0 to 75.0 meters. Total for all sections must be greater than 3.28 ft / 1.0 meters.


4. Press NEXT PAGE arrow  to set up specific implement options.

Figure 8-13: Implement – SmartCable or Section Driver Module

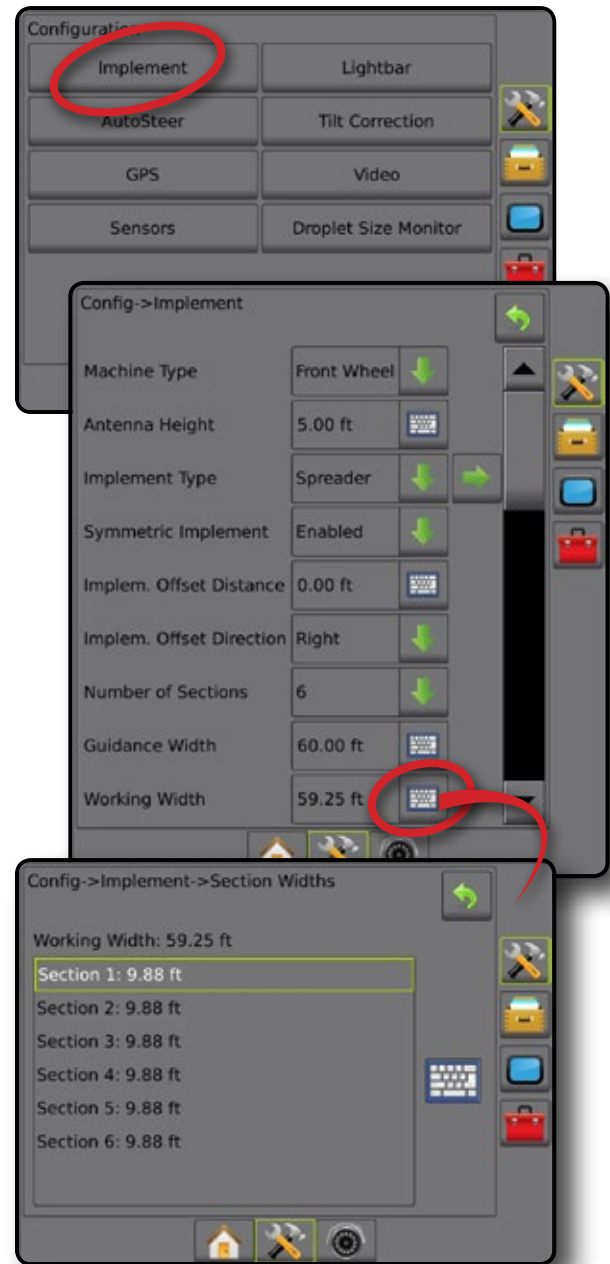
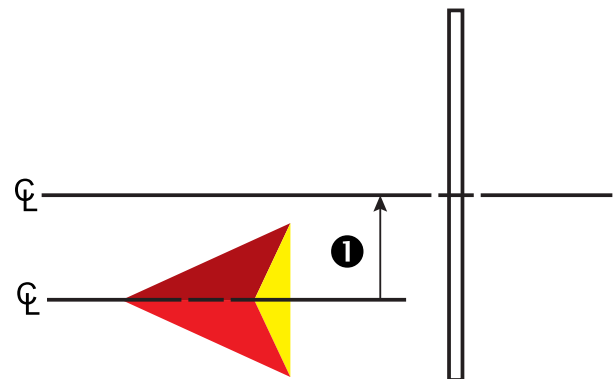





Figure 8-14: Implement Offset Distance and Direction



Straight Implement Type

1. Select **Straight** implement type on Implement screen.
2. Press NEXT PAGE arrow .
3. Select from:
 - ▶ Boom Offset Direction – used to select whether the boom is located in front of or behind the GPS antenna as the vehicle moves in a forward direction
 - ▶ Antenna to Boom Distance **1** – used to enter the distance from the GPS antenna to the boom. Range is 0.0 to 164.04 feet / 0.0 to 50.0 meters.
 - ▶ Overlap – used to select the amount of overlap allowed when the sections are turned on and off while using automatic boom section control
 - ▶ Delay On Time – used to set the time when each section will switch on when entering an area that has not been applied. If the application turns on too soon when entering an unapplied area, decrease the Delay On Time. If the application turns on too late, increase the Delay On Time. Range is 0 to 10 seconds.
 - ▶ Delay Off Time – used to set the time when each section will switch off when entering an area that has been applied. If the application turns off too soon when entering an applied area, decrease the Delay Off Time. If the application turns off too late, increase the Delay Off Time. Range is 0 to 10 seconds.
4. Press RETURN arrow  to return to the Implement screen or CONFIGURATION side tab  to return to the main Configuration screen.

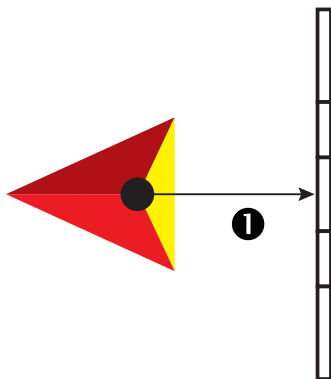


Figure 8-15: Implement Setup Options in Straight Mode

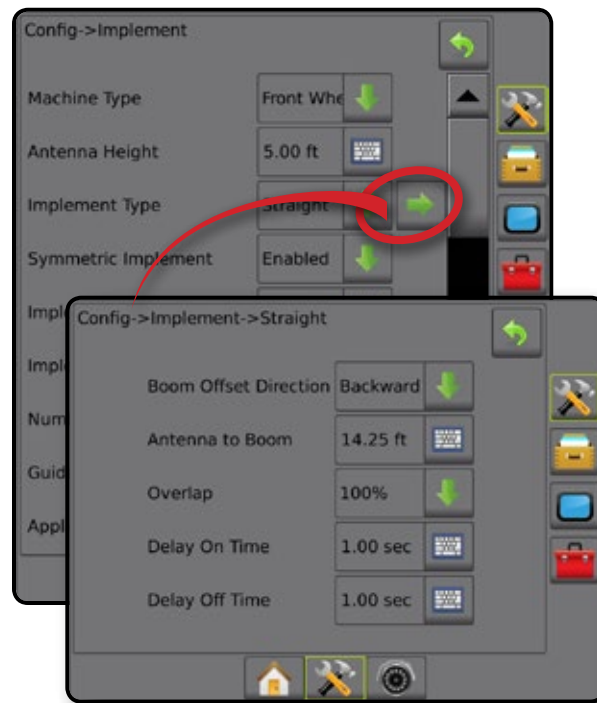
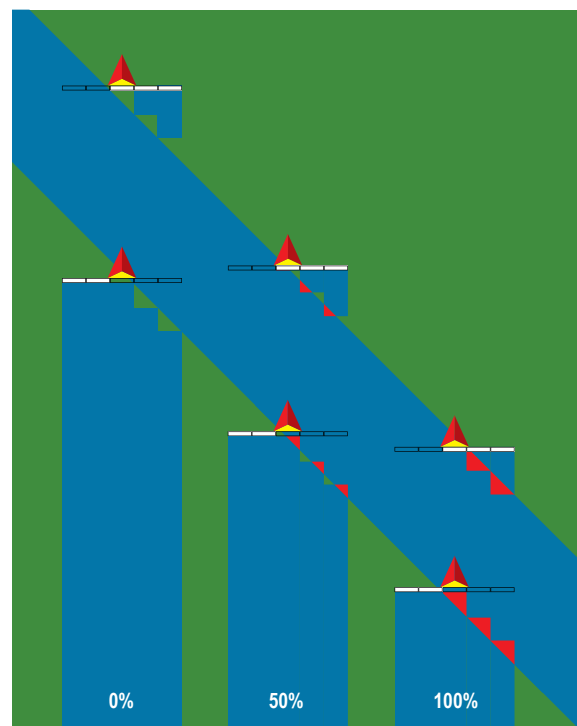





Figure 8-16: Overlap



TeeJet Spreader Implement Type

1. Select **Spreader** implement type on Implement screen.
2. Press NEXT PAGE arrow .
3. Select from:
 - ▶ Setup Type – used to select **TeeJet** spreader type
 - ▶ Antenna to Disks **1** – used to enter the distance from the GPS antenna to the delivery disks or dispersal mechanism. Range is 0.0 to 164.04 feet / 0.0 to 50.0 meters.
 - ▶ Overlap – used to select the amount of overlap allowed when the sections are turned on and off while using automatic boom section control
 - ▶ Delay On Time – used to set the time when each section will switch on when entering an area that has not been applied. If the application turns on too soon when entering an unapplied area, decrease the Delay On Time. If the application turns on too late, increase the Delay On Time. Range is 0 to 10 seconds.
 - ▶ Delay Off Time – used to set the time when each section will switch off when entering an area that has been applied. If the application turns off too soon when entering an applied area, decrease the Delay Off Time. If the application turns off too late, increase the Delay Off Time. Range is 0 to 10 seconds.
 - ▶ Spread Offset Distance **2** – used to enter the offset distance from the disks, or dispersal mechanism, to where product initially hits the ground on Section 1. Range is 0.0 to 246.06 feet / 0.0 to 75.0 meters.
 - ▶ Section Offset **3** – used to enter the offset distance from the leading edge of Section 1 (the Spread Offset line) to the leading edge of each section. Section 1 is always 0.0 feet / meters. All other sections can be a different distances. Sections are numbered from left to right while facing in the machine's forward direction. Range is 0.0 to 246.06 feet / 0.0 to 75.0 meters.
 - ▶ Spread Length **4** – used to enter the length of the application section for each section. Each section can be a different length. Sections are numbered from left to right while facing in the machine's forward direction. Range is 0.0 to 246.06 feet / 0.0 to 75.0 meters.
4. Press RETURN arrow  to return to the Implement screen or CONFIGURATION side tab  to return to the main Configuration screen.

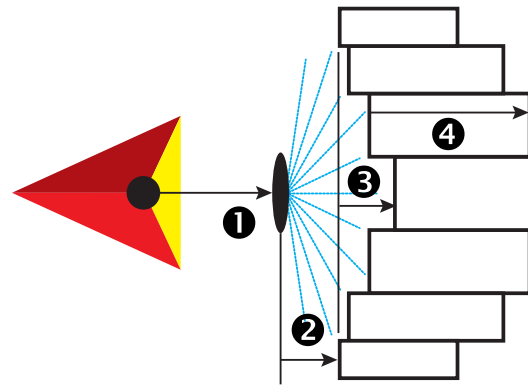


Figure 8-17: Implement Setup Options in TeeJet Spreader Mode

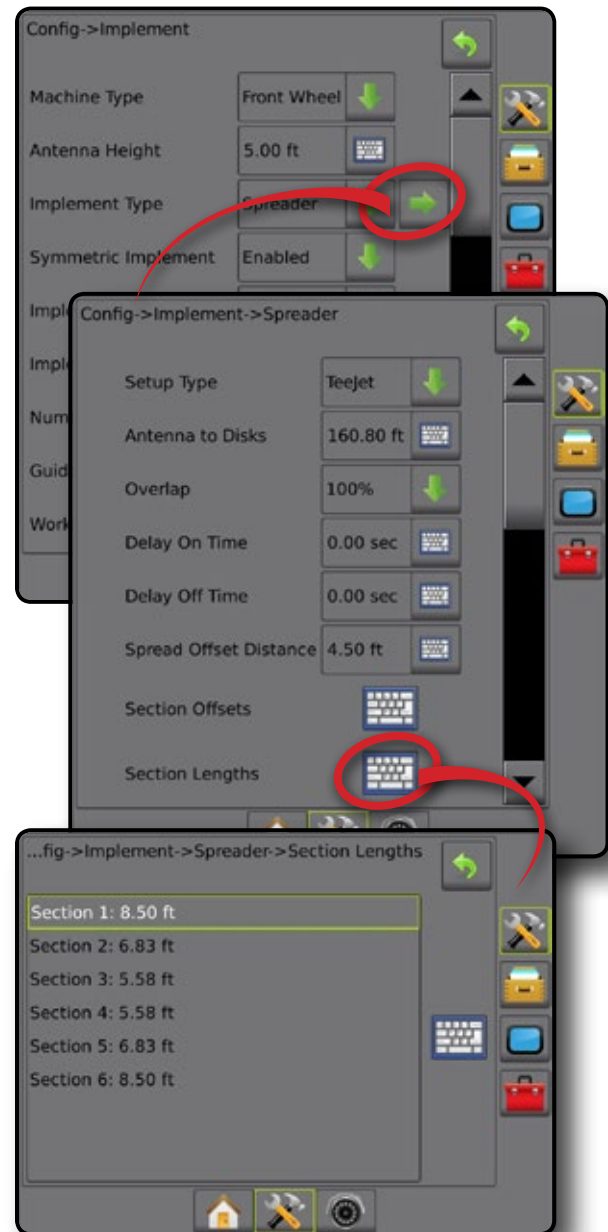
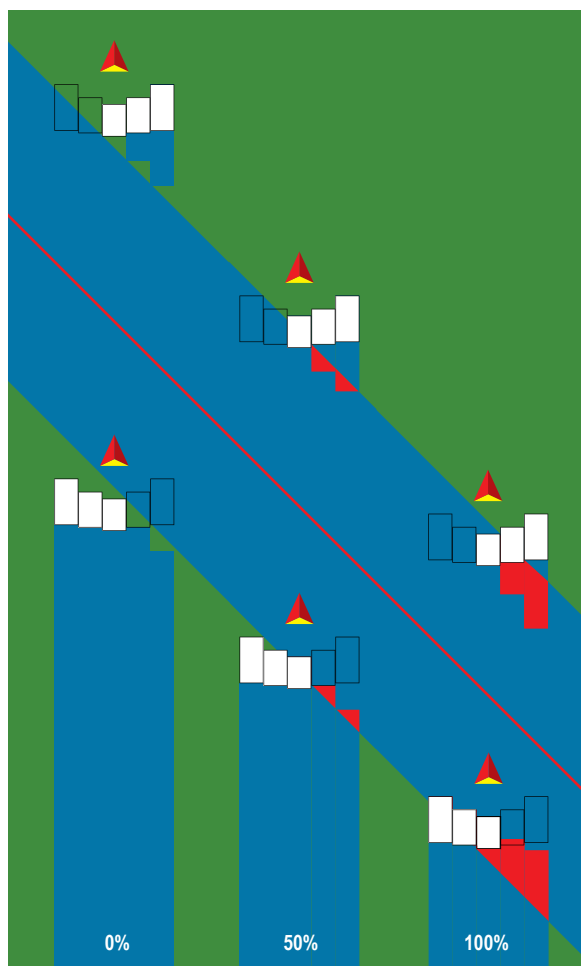



Figure 8-18: Overlap



OEM Spreader Implement Type

1. Select **Spreader** implement type on Implement screen.
2. Press NEXT PAGE arrow .
3. Select from:
 - ▶ Setup Type – used to select **OEM** spreader type
 - ▶ Antenna to Disks – used to enter the distance from the GPS antenna to the delivery disks or dispersal mechanism. Range is 0.0 to 164.04 feet / 0.0 to 50.0 meters.
 - ▶ Start Distance – used to set the start distance when exiting an applied area. Consult spreader manufacturer for value.
 - ▶ Stop Distance – used to set the stop distance when entering an applied area. Consult spreader manufacturer for value.
 - ▶ Section Start Offsets – used to set the offset distance from the leading edge of Section 1 to the leading edge of each section. Section 1 is always 0.0 feet / meters. All other sections can be a different distances. Sections are numbered from left to right while facing in the machine's forward direction. Consult spreader manufacturer for values.
 - ▶ Section Stop Offsets – used to set the offset distance from the leading edge of Section 1 to the trailing edge of each

section. Each section can be a different distances. Sections are numbered from left to right while facing in the machine's forward direction. Consult spreader manufacturer for value.



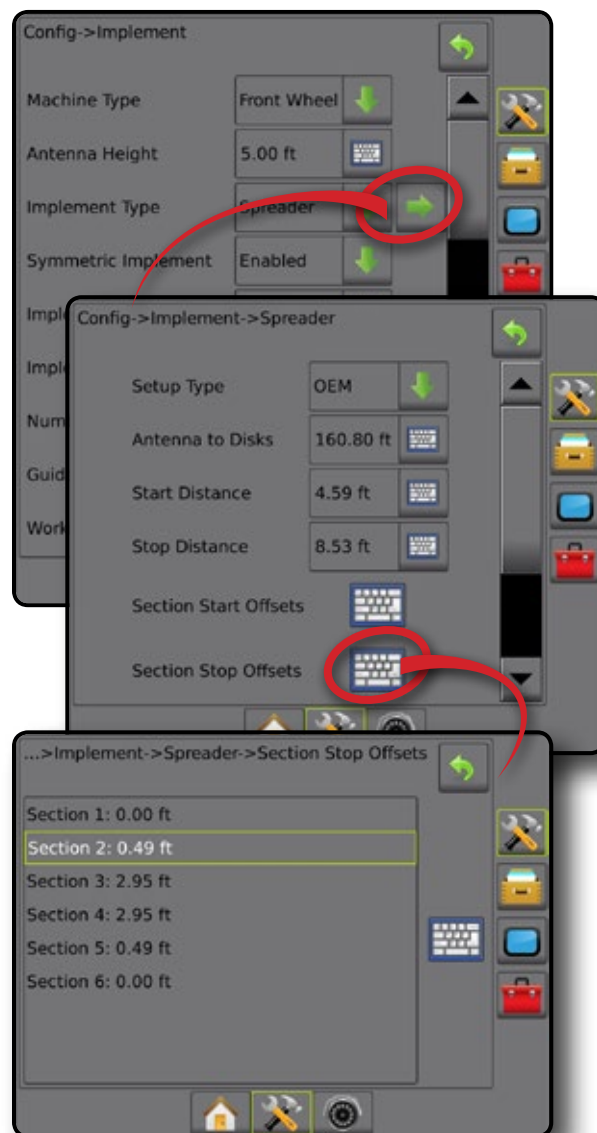



4. Press RETURN arrow  to return to the Implement screen or CONFIGURATION side tab  to return to the main Configuration screen.

Figure 8-19: Implement Setup Options in OEM Spreader Mode



Staggered Implement Type

1. Select **Staggered** implement type on Implement screen.
2. Press NEXT PAGE arrow .
3. Select from:
 - ▶ Section 1 Offset Direction – used to establish if Section 1 (the zero-point of the Section Offsets) is located in front of or behind the GPS antenna as the vehicle moves in a forward direction
 - ▶ Antenna to Section 1 Distance **1** – used to enter the distance from the GPS antenna to Section 1 (the zero-point of the Section Offsets). Range is 0.0 to 164.04 feet / 0.0 to 50.0 meters.
 - ▶ Overlap – used to select the amount of overlap allowed when the sections are turned on and off while using automatic boom section control
 - ▶ Delay On Time – used to set the time when each section will switch on when entering an area that has not been applied. If the application turns on too soon when entering an unapplied area, decrease the Delay On Time. If the application turns on too late, increase the Delay On Time. Range is 0 to 10 seconds.
 - ▶ Delay Off Time – used to set the time when each section will switch off when entering an area that has been applied. If the application turns off too soon when entering an applied area, decrease the Delay Off Time. If the application turns off too late, increase the Delay Off Time. Range is 0 to 10 seconds.
 - ▶ Section Offsets **2** – used to set the offset distance from Section 1 (the Antenna to Section 1 Distance line) to each section. Positive offset value will move the section behind Section 1. Negative offset value will move the section in front of Section 1. Section 1 is always 0 feet / meters. All other sections can be a different distances. Sections are numbered from left to right while facing in the machine's forward direction. Range is -246.06 to 246.06 feet / -75.0 to 75.0 meters.
4. Press RETURN arrow  to return to the Implement screen or CONFIGURATION side tab  to return to the main Configuration screen.

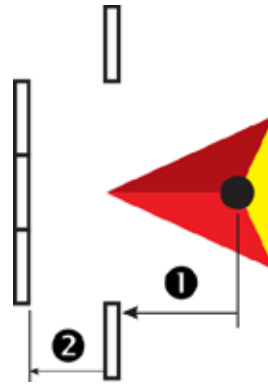


Figure 8-20: Implement Setup Options in Staggered Mode

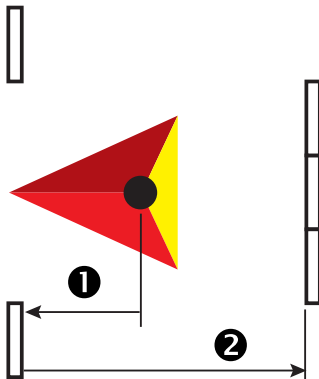
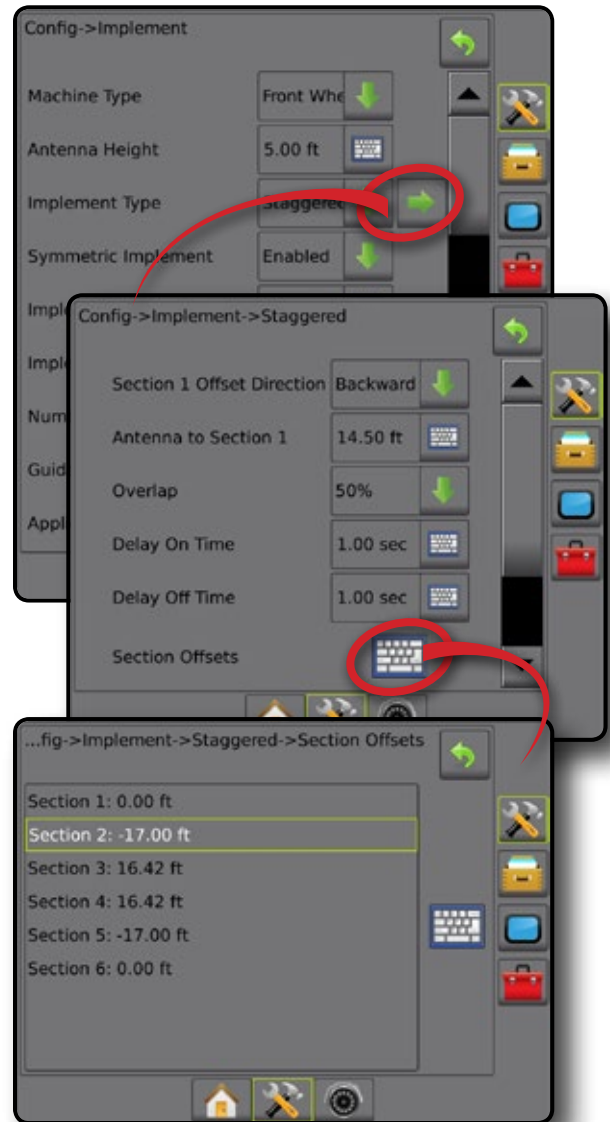
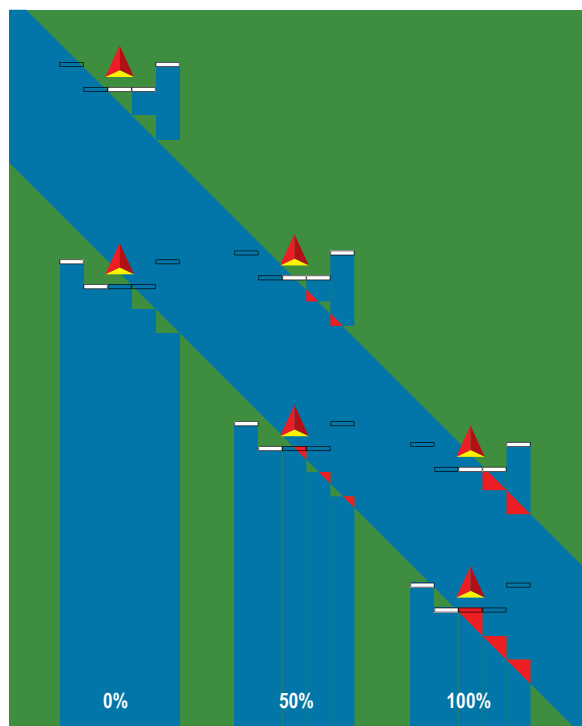


Figure 8-21: Overlap



OVERVIEW

INTRODUCTION

HOME

FULL SCREEN

SETUP

GUIDANCE

GPS

IMPLEMENT

DROPLET MONITOR

IMPLEMENT OFFSET DISTANCE ADJUSTMENT

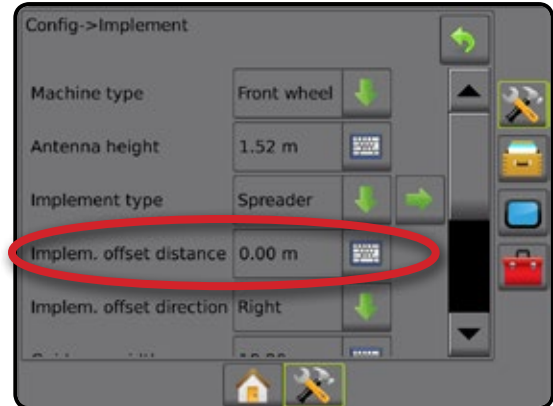
Implement offset distance is used to enter the distance from the centreline of the machine to the centre of the implement. When on-screen mapping shows no overlap or gap, yet field application produces an overlap or gap consistently to only one side in the direction of travel, an adjustment to the implement offset distance should be calculated and made to the implement offset distance value.

If using a self propelled sprayer or spreader, use the GPS Offset Adjustment Calculation to calculate the implement offset distance adjustment.

If using a pull behind or trailed implement, use the Implement Offset Adjustment Calculation to calculate the implement offset distance adjustment.

NOTE: While using assisted/auto steering, if on-screen mapping shows overlaps and gaps, adjustments may need to be made to the assisted/auto steering settings.

Figure 8-22: Implement Offset Distance



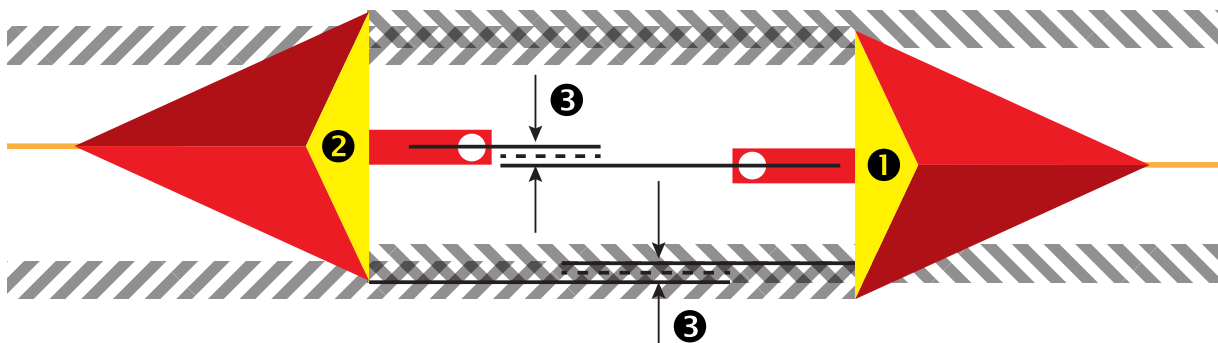
GPS Offset Adjustment Calculation

To calculate a GPS offset adjustment using the same guideline:

1. Create a straight AB line.
2. With assisted/auto steering engaged, drive pass ① at least 100 feet / 30 meters and place flags at the draw bar or next to the machine.
3. Turn around and engage assisted/auto steering on pass ② on the same AB guideline. Place flags at the draw bar or next to the machine, or stop while on the AB guideline next to the flags you placed on pass ①.
4. Measure the difference ③ between the flags of pass ① and pass ②.
5. Divide the measured distance ③ in half. This difference will be the offset adjustment.
6. Increase or decrease the offset distance as needed dependent on where the field application overlap occurs and the current implement offset direction setting.

Field Application Overlap	Current Offset Settings		
	Offset Direction = Left	Offset Direction = Right	Offset Direction = Right Offset Distance = 0 m
To the right of pass ①	Increase distance offset value	Decrease distance offset value	Increase distance offset value
To the left of pass ①	Decrease distance offset value	Increase distance offset value	Change to implement offset direction to left and increase distance offset value

Figure 8-23: GPS Offset Distance



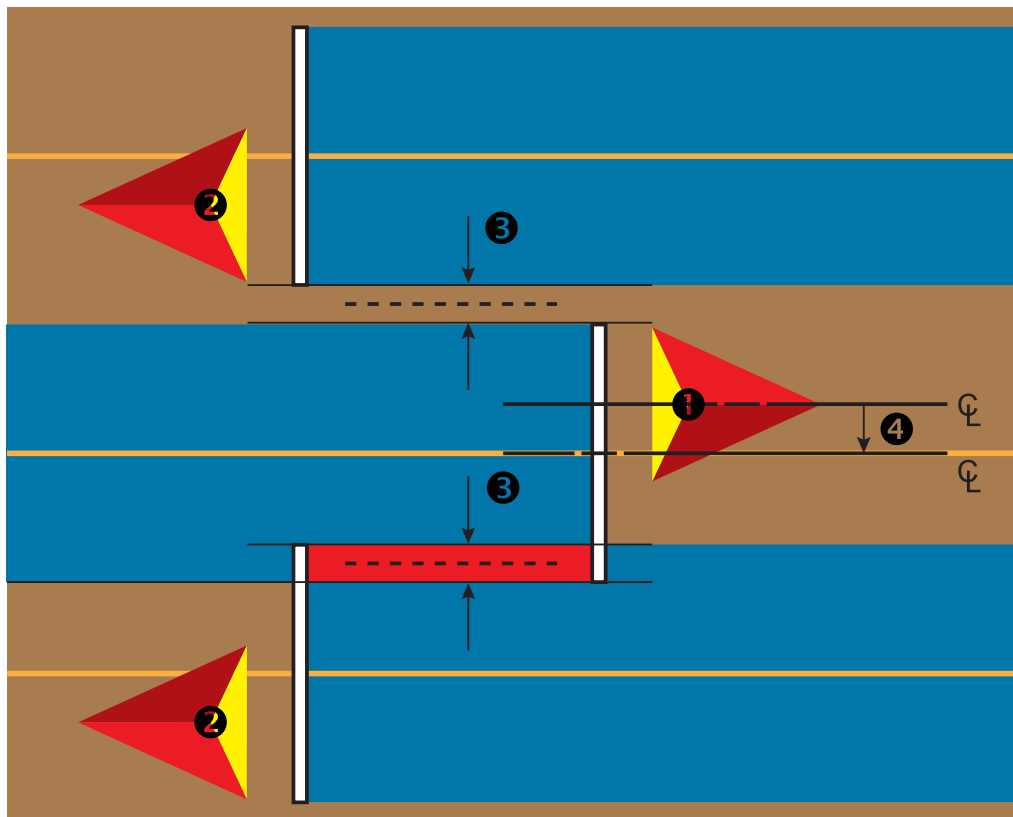
Implement Offset Adjustment

To calculate an implement offset adjustment using adjacent guidelines:

1. Create a straight AB line.
2. With assisted/auto steering engaged, drive pass ① as if you were operating the implement and place flags at the outside edges of the implement.
3. Turn around and engage assisted/auto steering on pass ② on the adjacent AB guideline. Place additional flags at the outside edges of the implement or stop while on the AB guideline next to the flags you placed on pass ①.
4. Measure the difference ③ between the flags of pass ① and pass ②.
5. Divide the measured distance ③ in half. This difference will be the offset adjustment.
6. Increase or decrease the offset distance ④ as needed dependent on where the field application overlap occurs and the current implement offset direction setting.

Field Application	Current Offset Settings		
	Offset Direction = Left	Offset Direction = Right	Offset Direction = Right Offset Distance = 0 m
Overlap on the right of pass ① or Gap on the left of pass ①	Increase distance offset value	Decrease distance offset value	Increase distance offset value
Overlap on the left of pass ① or Gap on the right of pass ①	Decrease distance offset value	Increase distance offset value	Change to implement offset direction to left and increase distance offset value

Figure 8-24: Implement Offset Distance and Direction



FACTORY SETTINGS & RANGES

Single Section

Description	Factory Setting	Range
Machine Type	Front Wheel	
GPS Antenna Height	12.5 ft 3.81 m	0.0 to 32.81 ft 0.0 to 10.0 m
Implement Type	Straight	
Implement Offset Distance	0.0 ft 0.0 m	0.0 to 32.81 ft 0.0 to 10.0 m
Implement Offset Direction	Right	
Guidance Width	60.0 ft 18.288 m	3.28 to 246.06 ft 1.0 to 75.0 m
Application Width / Working Width	12.0 ft 3.6576 m	3.28 to 246.06 ft 1.0 to 75.0 m
Applied Area Alarm	Disabled	
Exit Alarm	0.0 sec	0.0 to 10.0 sec
Entry Alarm	0.0 sec	0.0 to 10.0 sec

Straight Implement Type

Description	Factory Setting	Range
Boom Offset Direction	Backwards	
Antenna to Boom	0.0 ft 0.0 m	0.0 to 164.04 ft 0.0 to 50.0 m

TeeJet Spreader Implement Type

Description	Factory Setting	Range
Setup Type	TeeJet	
Antenna to Disks	0.0 ft 0.0 m	0.0 to 164.04 ft 0.0 to 50.0 m
Spread Offset Distance	0.0 ft 0.0 m	0.0 to 246.06 ft 0.0 to 75.0 m
Spread Length	0.0 ft 0.0 m	0.0 to 246.06 ft 0.0 to 75.0 m

OEM Spreader Implement Type

Description	Factory Setting	Range
Setup Type	OEM	
Antenna to Disks	0.0 ft 0.0 m	0.0 to 164.04 ft 0.0 to 50.0 m
Start Distance	Consult spreader manufacturer for value	
Stop Distance	Consult spreader manufacturer for value	

SmartCable or Section Driver Module

Description	Factory Setting	Range
Machine Type	Front Wheel	
GPS Antenna Height	12.5 ft 3.81 m	0.0 to 32.81 ft 0.0 to 10.0 m
Implement Type	Straight	
Symmetric Implement Layout	Enabled	
Number of Implement Sections	Depends on cable or SDM	
Guidance Width	60.0 ft 18.288 m	3.28 to 246.06 ft 1.0 to 75.0 m
Application Width / Working Width	Total for all sections must be greater than 3.28 ft / 1.0 m.	
Section Width	12.0 ft 3.6576 m	0.0 to 246.06 ft 0.0 to 75.0 m

Straight Implement Type

Description	Factory Setting	Range
Boom Offset Direction	Backwards	
Antenna to Boom	0.0 ft 0.0 m	0.0 to 164.04 ft 0.0 to 50.0 m
Overlap	50%	
Delay On Time	1.0 sec	0.0 to 10.0 sec
Delay Off Time	1.0 sec	0.0 to 10.0 sec

TeeJet Spreader Implement Type

Description	Factory Setting	Range
Setup Type	TeeJet	
Antenna to Disks	0.0 ft 0.0 m	0.0 to 164.04 ft 0.0 to 50.0 m
Overlap	50%	
Delay On Time	0.0 sec	0.0 to 10.0 sec
Delay Off Time	0.0 sec	0.0 to 10.0 sec
Spread Offset Distance	0.0 ft 0.0 m	0.0 to 246.06 ft 0.0 to 75.0 m
Section Offset	0.0 ft 0.0 m	0.0 to 246.06 ft 0.0 to 75.0 m
Spread Length	0.0 ft 0.0 m	0.0 to 246.06 ft 0.0 to 75.0 m

OEM Spreader Implement Type

Description	Factory Setting	Range
Setup Type	OEM	
Antenna to Disks	0.0 ft 0.0 m	0.0 to 164.04 ft 0.0 to 50.0 m
Start Distance	Consult spreader manufacturer for value	
Stop Distance	Consult spreader manufacturer for value	
Section Start Offsets	Consult spreader manufacturer for value	
Section Stop Offsets	Consult spreader manufacturer for value	

Staggered Implement Type

Description	Factory Setting	Range
Section 1 Offset Direction	Backwards	
Antenna to Section 1 Distance	0.0 ft 0.0 m	0.0 to 164.04 ft 0.0 to 50.0 m
Overlap	50%	
Delay On Time	1.0 sec	0.0 to 10.0 sec
Delay Off Time	1.0 sec	0.0 to 10.0 sec
Section Offsets	0.0 ft 0.0 m	-246.1 to 246.1 ft -75.0 to 75.0 m

CHAPTER 9 - DROPLET SIZE MONITOR

Droplet Size Monitor Setup is used to configure and enable the Droplet Size Monitor (DSM). A Pressure Sensor Interface Kit is required to enable the Droplet Size Monitor. The DSM is available on all guidance pages via the status bar.

DROPLET SIZE MONITOR SETUP

Pressure Sensor

When a Pressure Sensor Interface Kit is present, Pressure Sensor options are used to enter the sensor manufacturer's maximum pressure rating and set high and low user determined pressure alarms.

NOTE: If a Pressure Sensor Interface Kit is being used, the Droplet Size Monitor will be available.







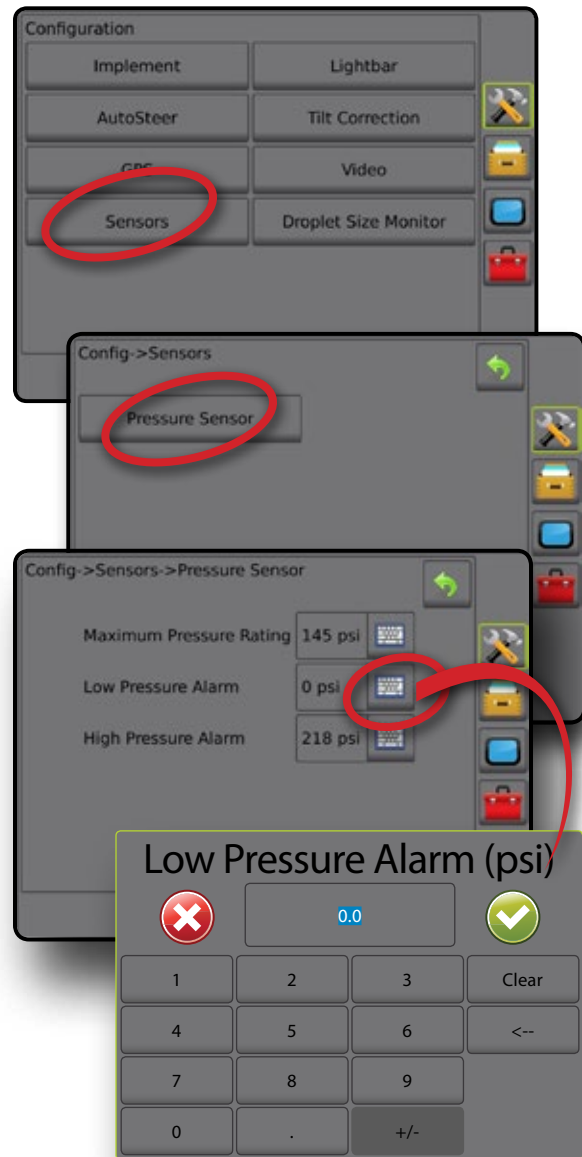
1. Press CONFIGURATION side tab .
2. Press **Sensors**.
3. Press **Pressure Sensor**.
4. Press the KEYPAD icon  to select from:
 - ▶ Maximum Pressure Rating – used to establish the maximum pressure rating of the pressure sensor as recommended by the manufacturer
 - ▶ Low Pressure Alarm– used to enter the user determined low pressure point at which the alarm will sound
 - ▶ High Pressure Alarm– used to enter the user determined high pressure point at which the alarm will sound
5. Use the numeric keypad to enter a value.
6. Press the ACCEPT icon  to save the settings or the CANCEL icon  to leave the keypad without saving.
7. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

Figure 9-1: Pressure Sensor



Droplet Size Monitor

When a Pressure Sensor Interface Kit is present, Droplet Size Monitor is used to enable/disable the Droplet Size Monitor (DSM), preset up to five (5) tips and select the current tip.




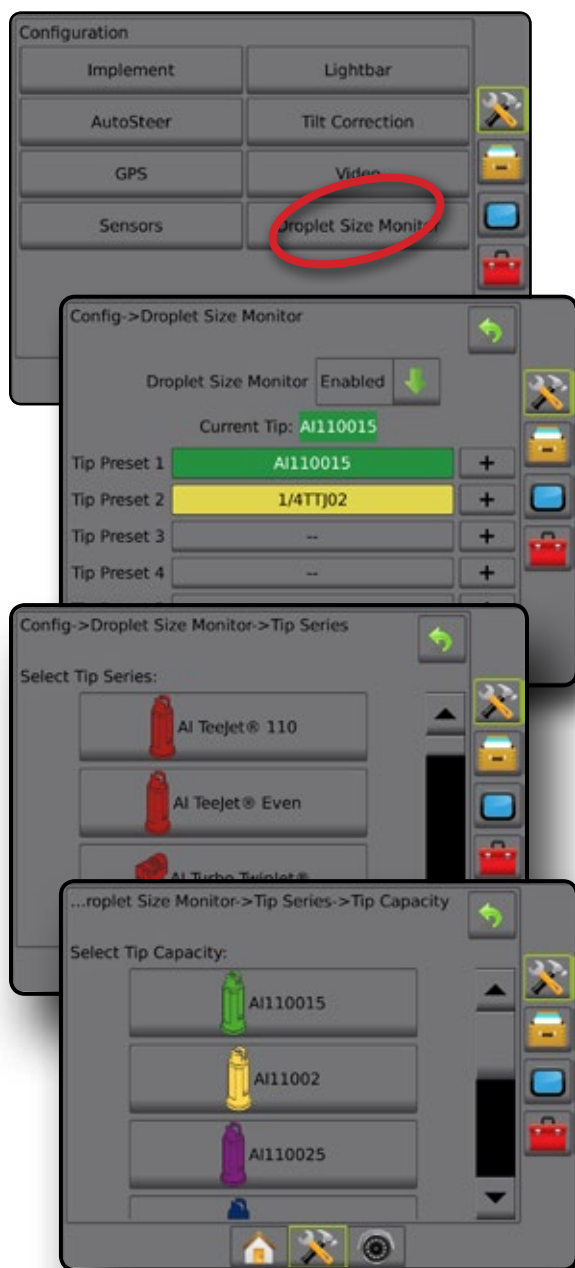
1. Press CONFIGURATION side tab .
2. Press **Droplet Size Monitor**.
3. Select if droplet size monitor is enabled or disabled.
4. When enabled, select from:
 - ▶ Nozzle Presets – selects up to five (5) tips for quick recall
 - ▶ Current Tip – selects the current tip for determining droplet size information
5. Press RETURN arrow  or CONFIGURATION side tab  to return to the main Configuration screen.

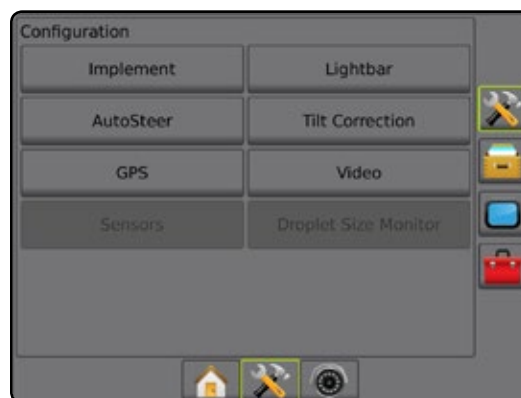
Figure 9-2: Droplet Size Monitor and Tips



Droplet Size Monitor Unavailable


If a Pressure Sensor Interface Kit is not installed, setup options will not be available.

Figure 9-3: Pressure Sensor Interface Kit Not Detected



Enable/Disable Droplet Size Monitor

Set Droplet Size Monitor (DSM) to Enabled or Disabled.

1. Press DOWN arrow  to access the list of options.
2. Select:
 - ▶ Enabled
 - ▶ Disabled

If DSM is set to “Disabled”, all tip capabilities and setup functions will be disabled (options will be grayed out).

Figure 9-4: Disabled and Enabled DSM Options

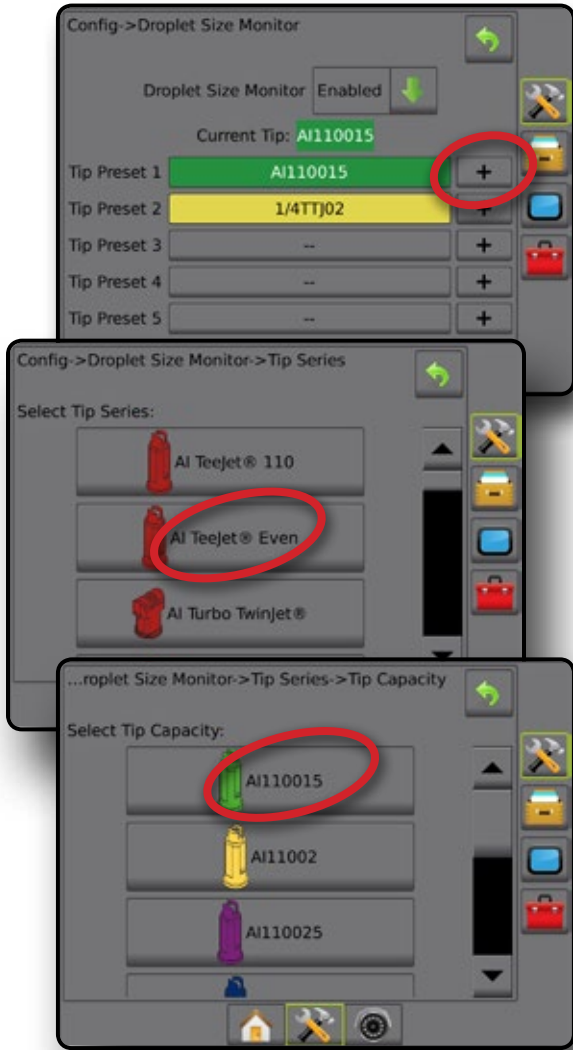


Tip Preset

Tip presets allow saving of up to five tips for quick recall.

1. Press **+**.
2. Select a TeeJet tip series.
3. Select tip capacity.

Figure 9-5: Preset Tip



Current Tip

Current Tip shows the active tip for determining current droplet size information. Tips must be preset to be available for current tip selection.

1. Press desired tip.

Selected tip will be also visible on the Droplet/Pressure Status display from the status bar on the guidance screens.

Figure 9-7: Current Tip

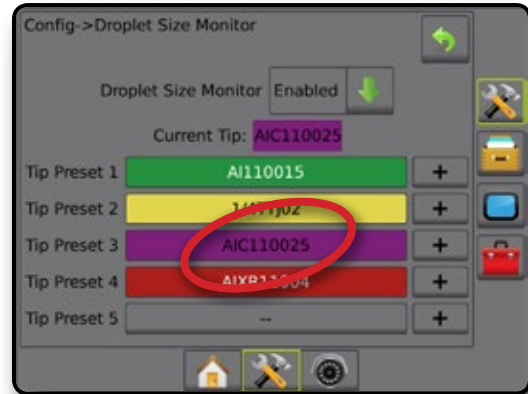
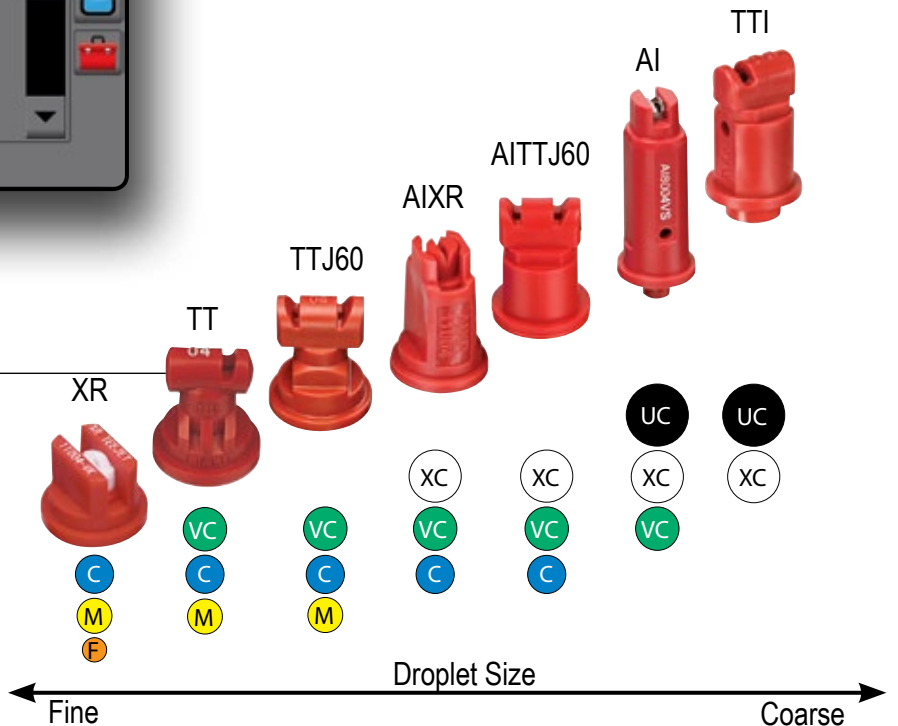


Figure 9-6: Droplet Sizes for Select TeeJet Tips



DROPLET SIZE MONITOR OPERATION

Status Bar

Droplet/Pressure Status displays information regarding the current status of the droplet size and system pressure.


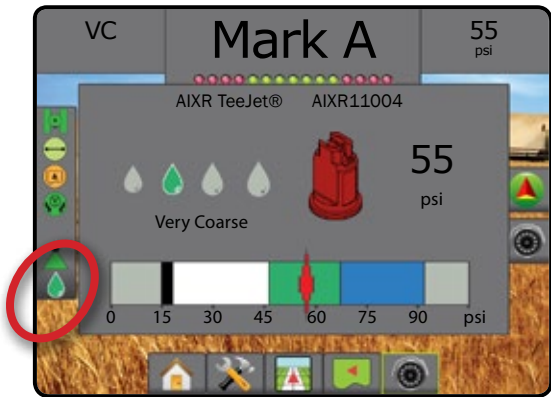



1. Press DROPLET/PRESSURE STATUS icon .
2. Press the screen anywhere to return to the guidance screen.

Figure 9-8: Droplet/Pressure Status



Droplet/Pressure Status

-  Colored = Engaged. The color of the droplet is directly associated with the current droplet size. Color options include: 
-  Crossed Out = Disabled
- No icon = no Pressure Sensor Interface Kit is installed on system

Droplet Size Chart

When choosing a spray tip that produces droplet sizes in one of the eight droplet size classification categories, it is important to remember that a single tip can produce different droplet size classifications at different pressures. A tip might produce medium droplets at low pressures, while producing fine droplets as pressure is increased.

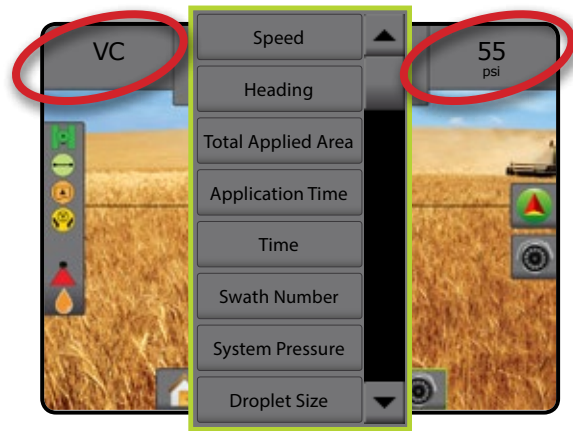
Category	Symbol	Color Code
Extremely Fine	XF	Violet
Very Fine	VF	Red
Fine	F	Orange
Medium	M	Yellow
Coarse	C	Blue
Very Coarse	VC	Green
Extremely Coarse	XC	White
Ultra Coarse	UC	Black

Guidance Bar

The Guidance bar keeps you informed of your choice of selectable information including Current System Pressure and Current Droplet Size.

1. Press SELECTABLE INFORMATION box.
2. Select from:
 - ▶ System Pressure – Displays the current system pressure
 - ▶ Drop Size – Displays the current tip droplet size
3. Press outside the selection box to return to the guidance screen.

Figure 9-9: Guidance Bar Selectable Information



OVERVIEW

INTRODUCTION

HOME

FULL SCREEN

SETUP

GUIDANCE

GPS

IMPLEMENT

DROPLET MONITOR

Unit Specifications

Dimensions	Matrix Pro 570GS	6.36 x 5.87 x 2.3 in 16.15 x 14.91 x 5.84 cm
	Matrix Pro 840GS	10.6 x 7.1 x 2.4 in 27.0 x 18.0 x 6.0 cm
Weight	Matrix Pro 570GS	1.75 lb / 0.794 kg
	Matrix Pro 840GS	2.35 lb / 1.06 kg
Connector	Power/CAN	8 pin Conxall
	Camera	5 pin Conxall
	Speed/Status	8 pin Conxall <i>WARNING! Some original Matrix Consoles have a 4 pin conxall cable connection. The 4-pin and 8-pin cables are NOT interchangeable.</i>
Environmental	Storage	+14°F to +158°F -10°C to +70°C
	Operating	+32°F to +122°F 0°C to +50°C
	Humidity	90% non-condensing
Display	Matrix Pro 570GS	320 x 240 resolution 5.7 in / 14.5 cm
	Matrix Pro 840GS	800 x 600 resolution 8.4 in / 21.3 cm
Input/Output		USB 2.0
Power Requirement		< 9 watts @ 12 VDC

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- External GPS receiver or antenna upgrades
- Fieldware[®] Link enhanced data organization application
- Pressure Sensor Kit for Droplet Size Monitor



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