MATRIX® PRO GS

U S E R   M A N U A L

MATRIX®PRO840GS

13.4
km/h

> 0.0 <

45.21
ha

MATRIX®PRO570GS

13.4
km/h

1.7 >

27.65
ac

N

TeeJet
TECHNOLOGIES

A Subsidiary of **Spraying Systems Co.**®

#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 settings 🖥️ 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 ◎.

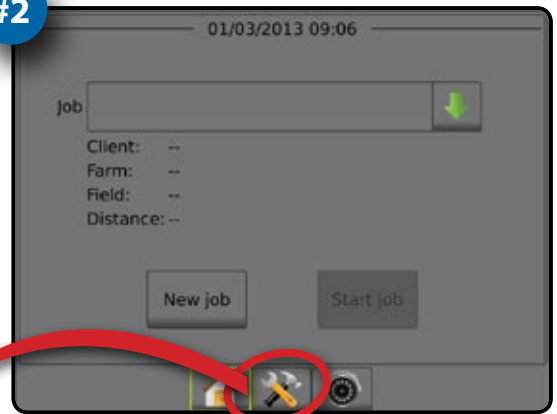2. Press NAVIGATION AND GUIDANCE OPTIONS tab 🔺 to display navigation options.

Choose a guidance mode 〰️

► Straight AB 🚩 ► Last Pass 🔢

► Curved AB 〰️ ► NextRow 🔄

► Circle Pivot ◎

Mark A and B points 🅐 🅑

To establish a AB guideline.

#2

01/03/2013 09:06

Job
Client: --
Farm: --
Field: --
Distance: --

New job | Start job

#3

Console->Cultural

Units | Metric
Language | English - International
Time zone | UTC

Config->GPS

GPS type | GPS/DGPS
GPS port | External
GPS status information | View status

Config->Implement

Machine type | Front wheel
Antenna height | 3.81 m
Implement type | Spreader
Symmetric implement | Enabled
Implem. offset distance | 0.00 m
Implem. offset direction | Right
Number of sections | 6
Guidance width | 18.29 m
Working width | 18.06 m

#4

10.0 km/h > 0.0 < 27.00 ha

MATRIX®PRO 570GS • MATRIX®PRO 840GS

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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.

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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

Front:
- Built in lightbar
- Power button
- USB port with rubber cover
- Bright touch screen
- Standard RAM bracket (assembly required)

Back:
- Speaker
- Power button
- Integrated RAM mount (assembly required)
- USB port with rubber cover
- Recessed connectors
- GPS antenna connection
- Rubber connector covers
- Speed dignal connection
- Camera connection
- Power connection

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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

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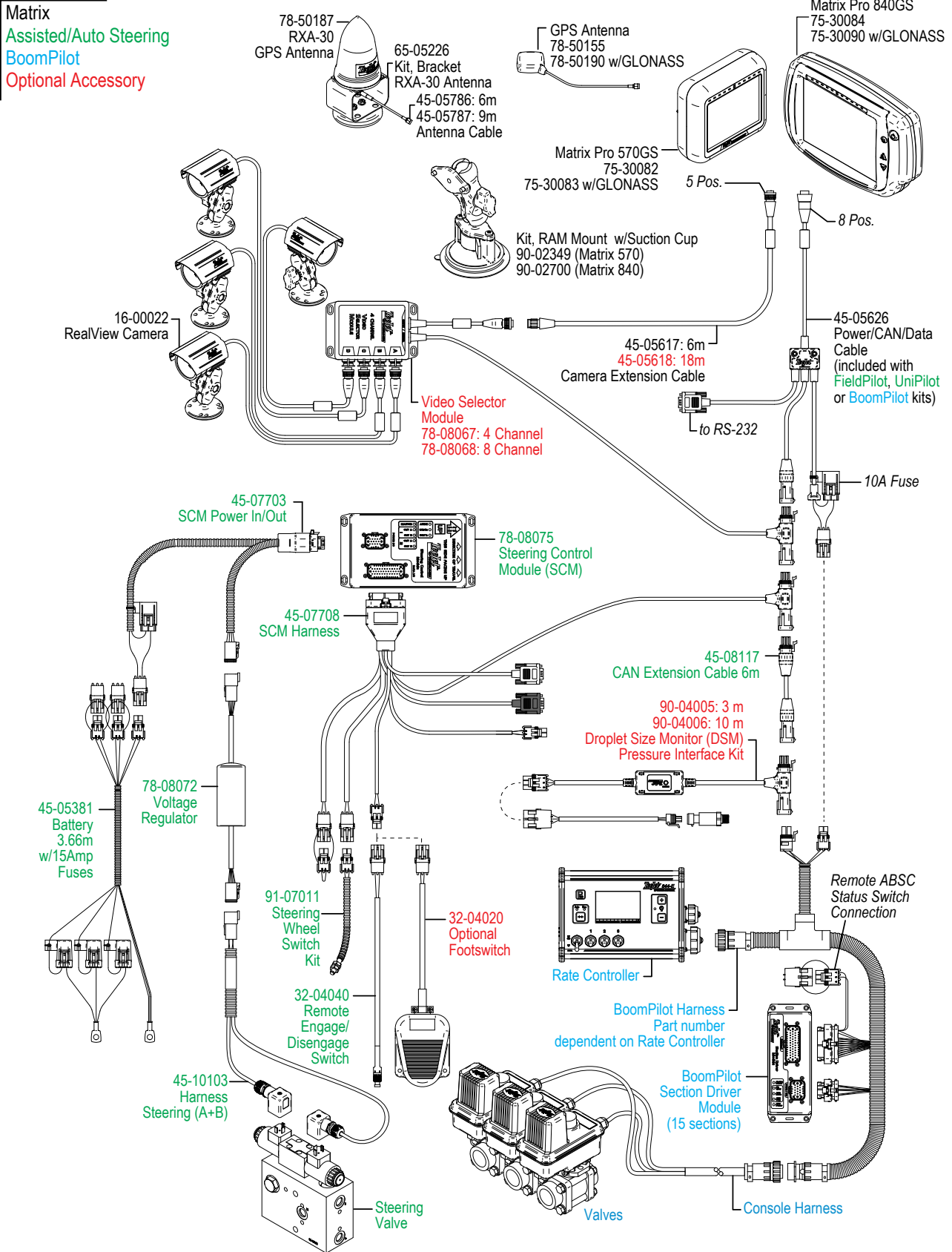
CHAPTER 2 – INTRODUCTION

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
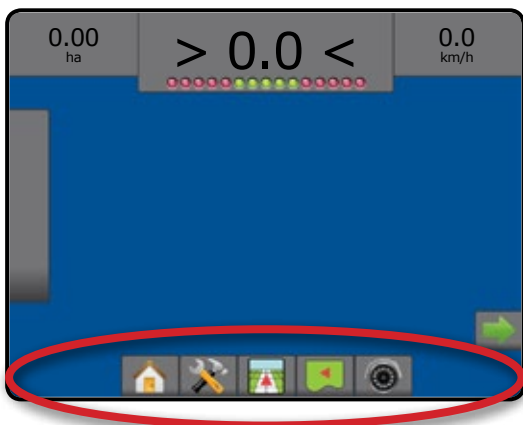
Unavailable options when job is active

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
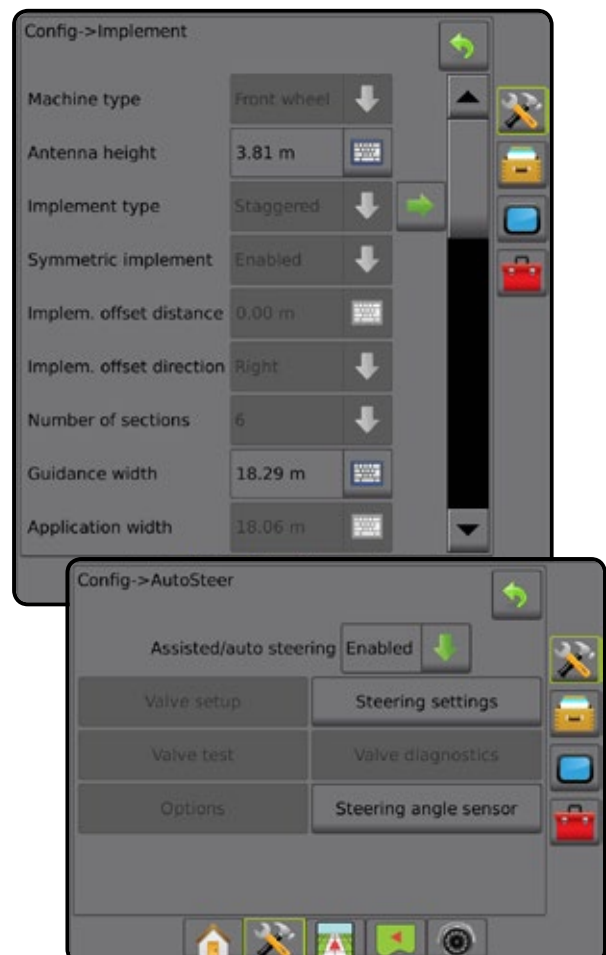
Console screen colours

The console is available in six colour schemes. From the unit setup bottom key, press CONSOLE side tab 🖵 and enter the Display options. Press DOWN arrow ⬇ to access the Colour scheme options to select colour mode.

Figure 2-3: Colour 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
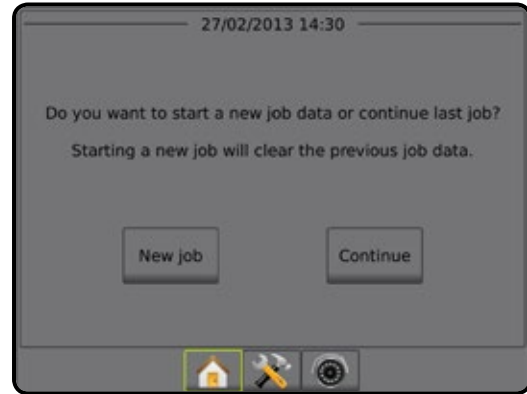
In advanced mode, more than one job will be available at any time. Client, farm, field and job names; bounded and coverage areas; and distance from selected job are displayed on the home screen. Of the names, only the job name can be entered using the console. All saved jobs can be made into a PDF, SHP 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

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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.

Figure 2-6: Information screens

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
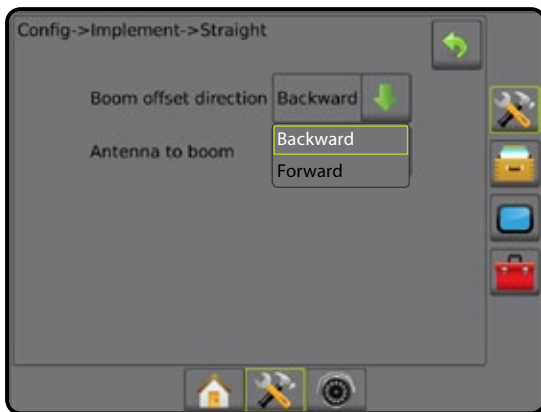
Scrolling screens

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
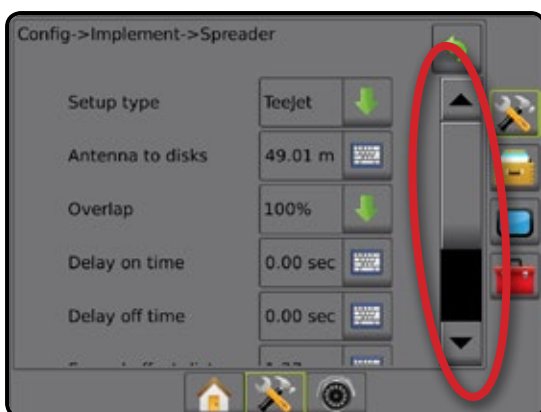
Setup option information

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 2-9: Example of information text box
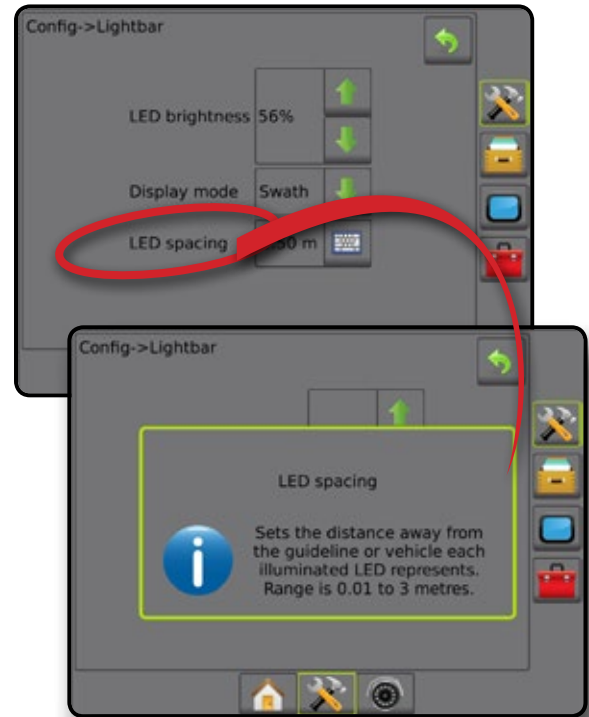
Keyboard entry screen

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 2-10: Example of keyboard

UNIT SETUP MODE MENU OPTIONS

🔧 Configuration (page 12)

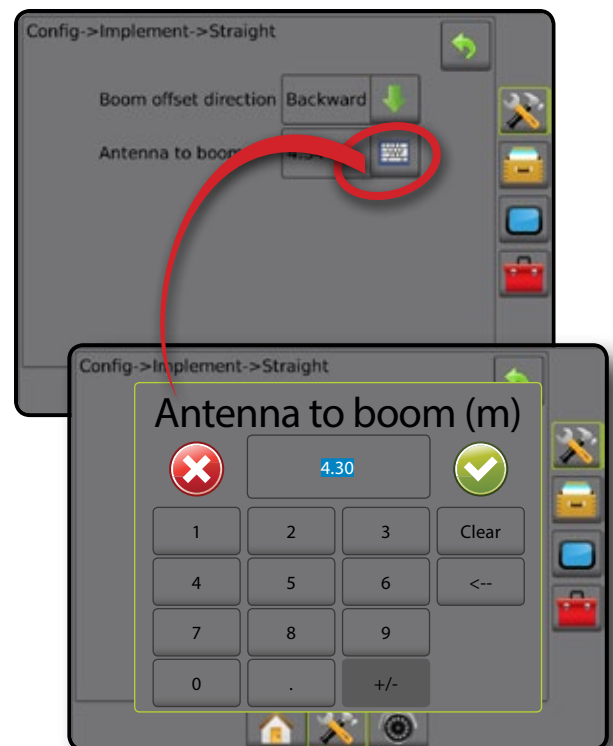| Implement			
		Machine type	✗
		GPS antenna height	✗
		Implement type	✗
		Symmetric implement layout	✗
		Implement offset distance	✗
		Implement offset direction	✗
		Number of implement sections	✗
		Guidance width	✗
		Application/working width	✗
		Applied area alarm	✓
	Straight mode	Boom offset direction	✗
		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	✗
		• 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	✗

AutoSteer			
		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	✓
	Programme Receiver	✗
	PRN	✗

Video	Cameras	✓

🔧 Configuration (page 12)

Sensors	Pressure:	Maximum pressure rating	✓
		Low pressure alarm	✓
		High pressure alarm	✓

Droplet size monitor	Enabled/disabled	
	Nozzle 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	✗

Machine settings	Transfer	Export	✓
		Import	✓
		Delete	✓
	Manage	New	✓
		Copy	✓
		Delete	✓
		Save	✓
		Load	✗

🖥 Console Settings (page 26)

Display	User interface colour 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

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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.
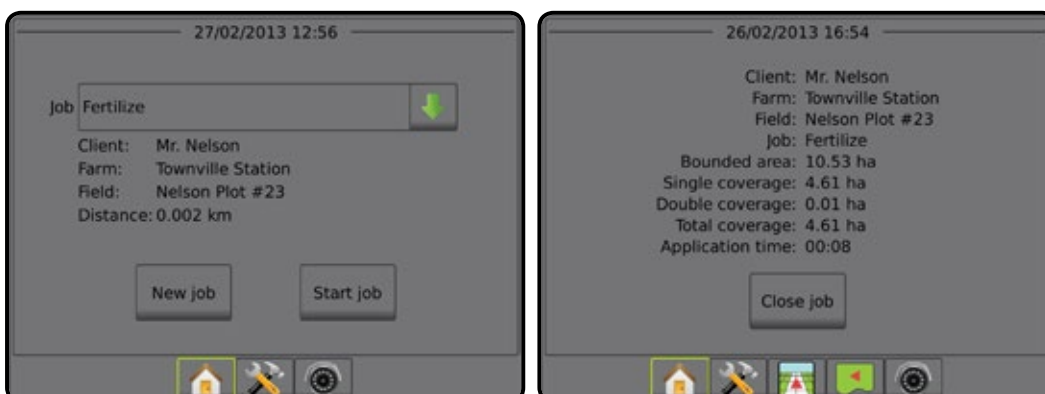
Figure 3-1: Simple mode home screen
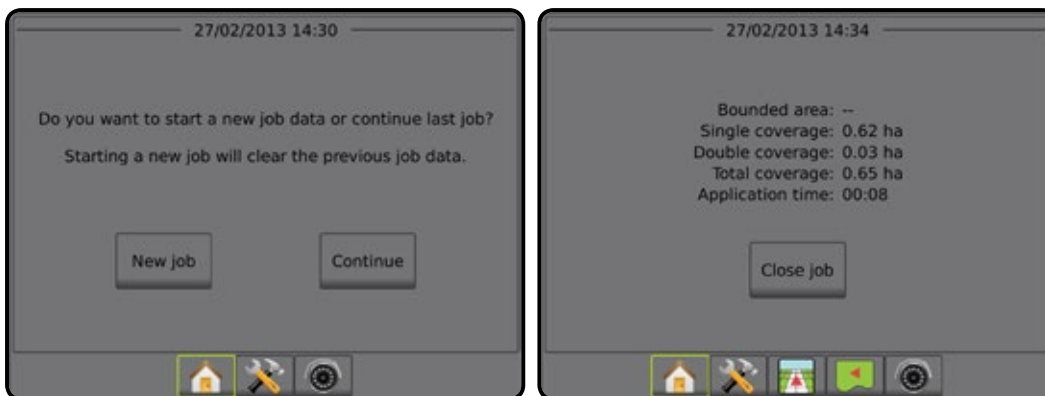
Advanced mode

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 programmed 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

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CHAPTER 4 – FULL SCREEN VIDEO VIEW

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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
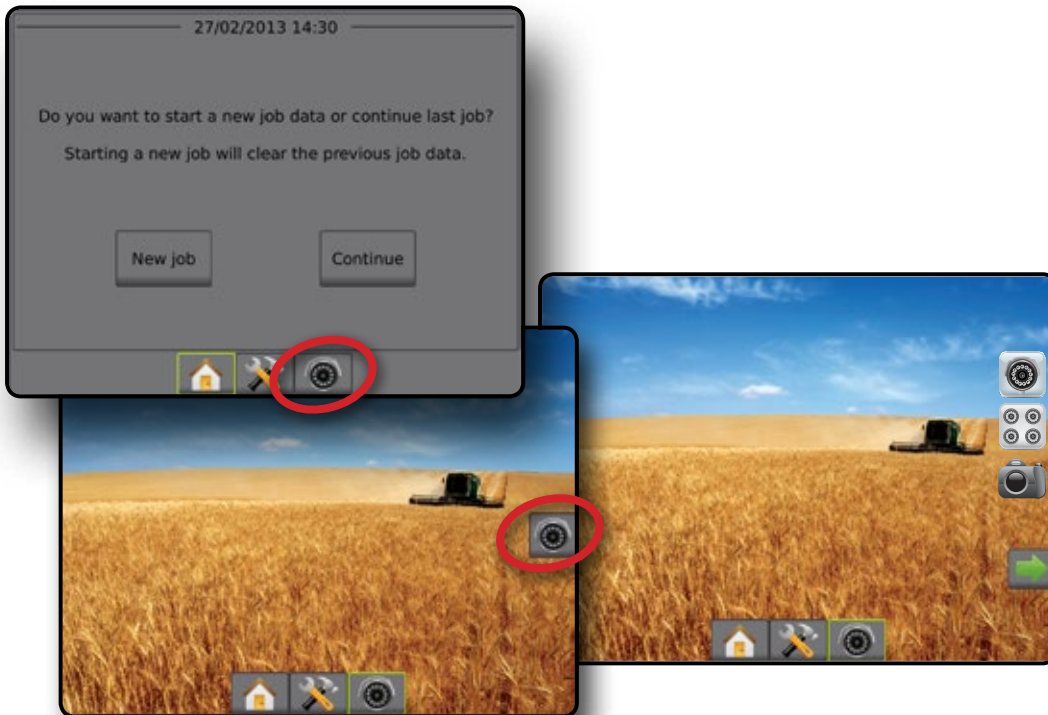
CHAPTER 5 - SYSTEM SETUP

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.

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Four side tabs access setup options for:

Machine/implement configuration

- Implement (straight, spreader, staggered)

- Lightbar

- AutoSteer (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
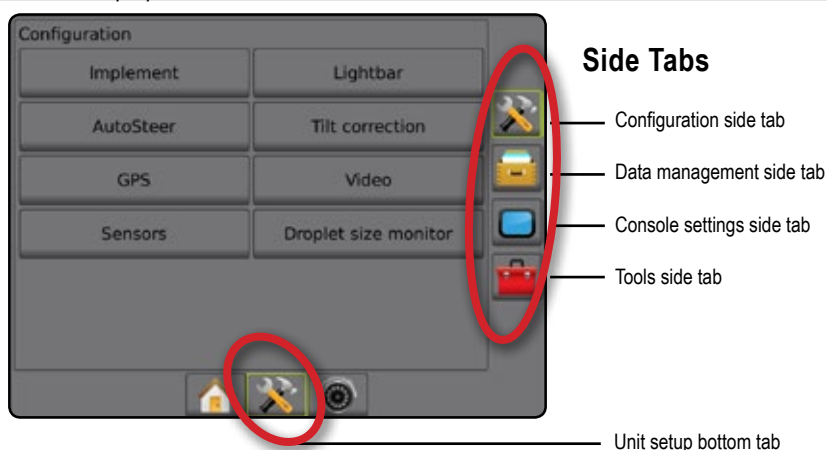
Side Tabs

Configuration side tab

Data management side tab

Console settings side tab

Tools side tab

Unit setup bottom tab

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 nozzles

Figure 5-3: Configuration options
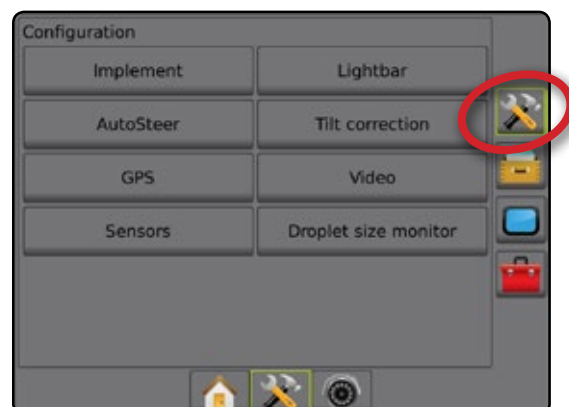
Implement

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
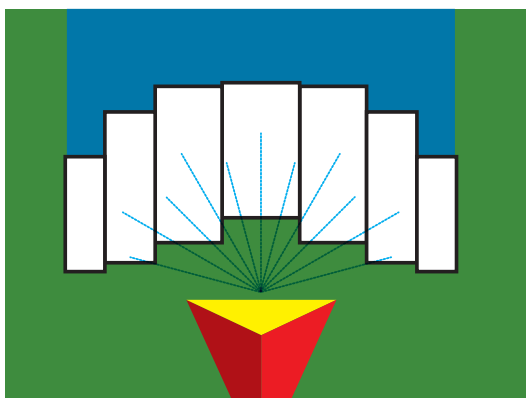
Figure 5-6: Implement type - Staggered

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 centreline of the machine to the centre of the implement
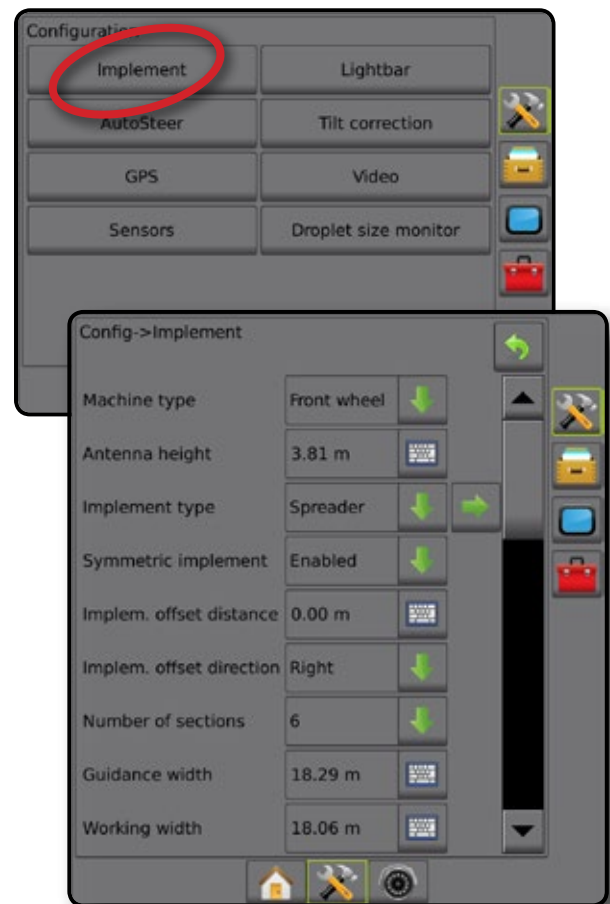   - ► Implement offset direction – direction from the centreline of the machine to the centre of the implement while facing in the machine's forward direction
   - ► Guidance width – used to enter the distance between the guidelines
   - ► Application width [Straight implement type] – used to enter the 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 centreline of the machine to the centre of the implement

- ► Implement offset direction – direction from the centreline of the machine to the centre 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 implement type or Staggered implement type] – used to enter the total width of all sections of the implement
- ► Working width [Spreader implement 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 centre 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.
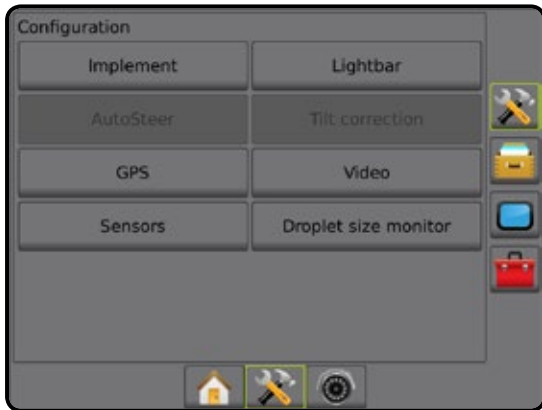
Figure 5-10: AutoSteer

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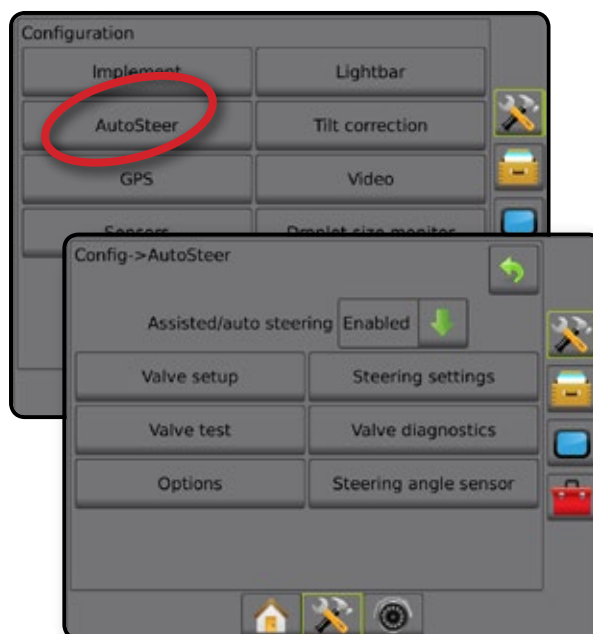
Assisted/auto steering unavailable

If an 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
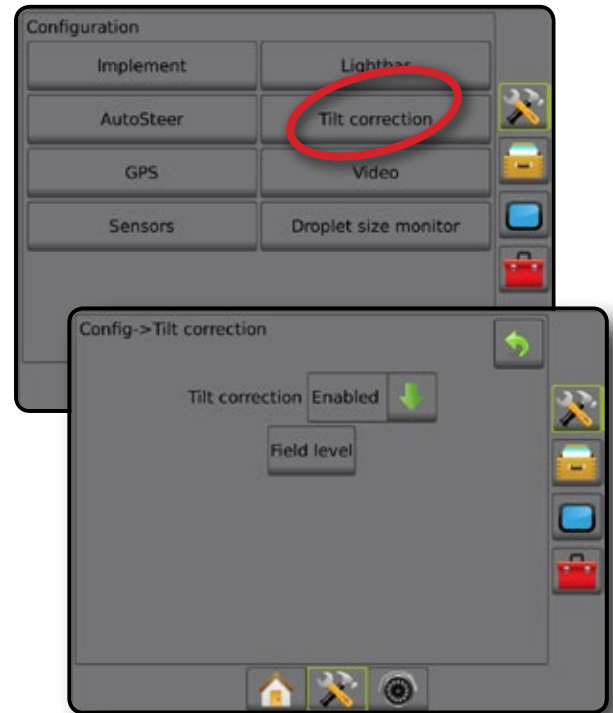
Field level unavailable

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
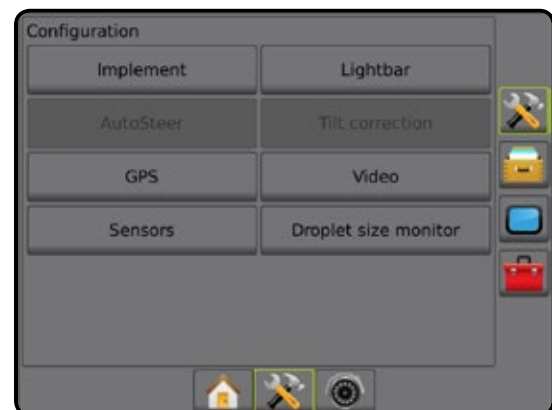
GPS

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 information – displays information regarding GGA/VTG (data rates), number of satellites, HDOP, PRN, GGA quality, GPS receiver, receiver version and UTM zone
   ► Programme – 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
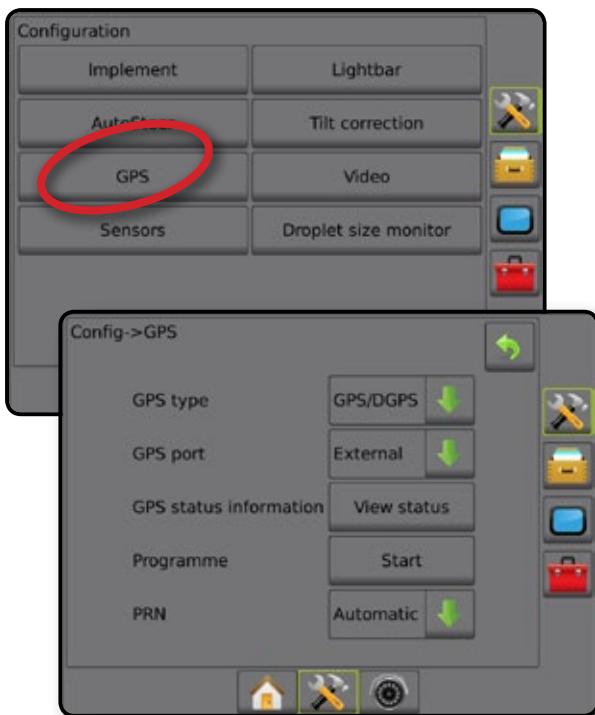
PRN not shown

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 – ABC
   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

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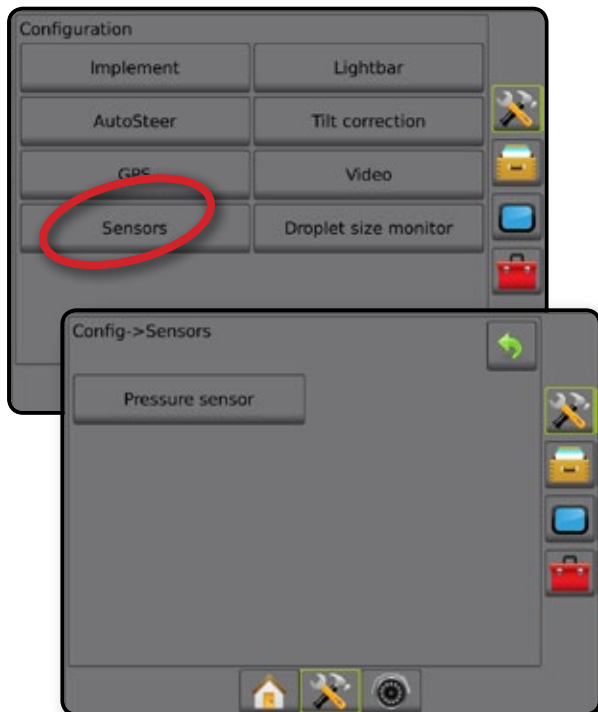FULL SCREEN

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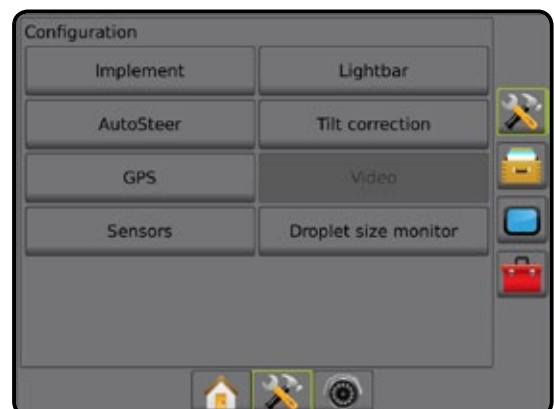
Sensors

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)
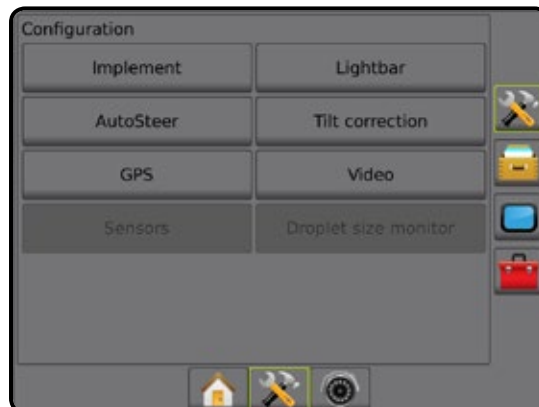
Figure 5-18: Input/Output Module

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 manufacture'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
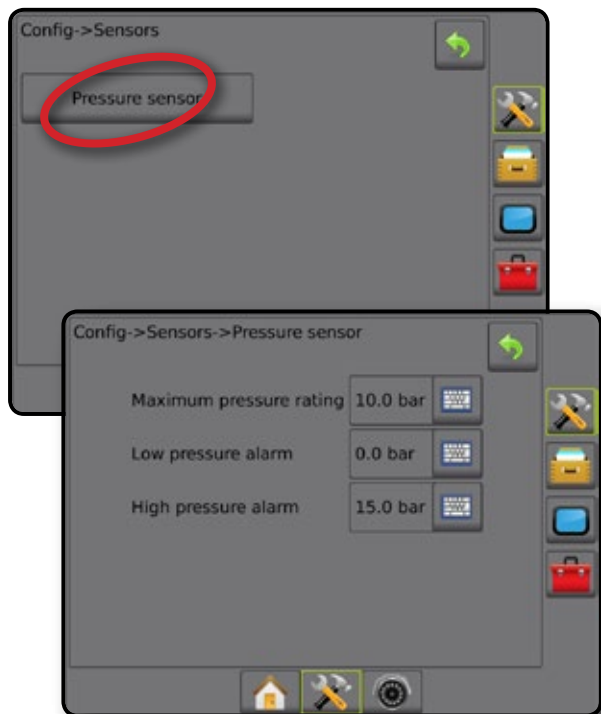
Figure 5-21: Droplet size monitor
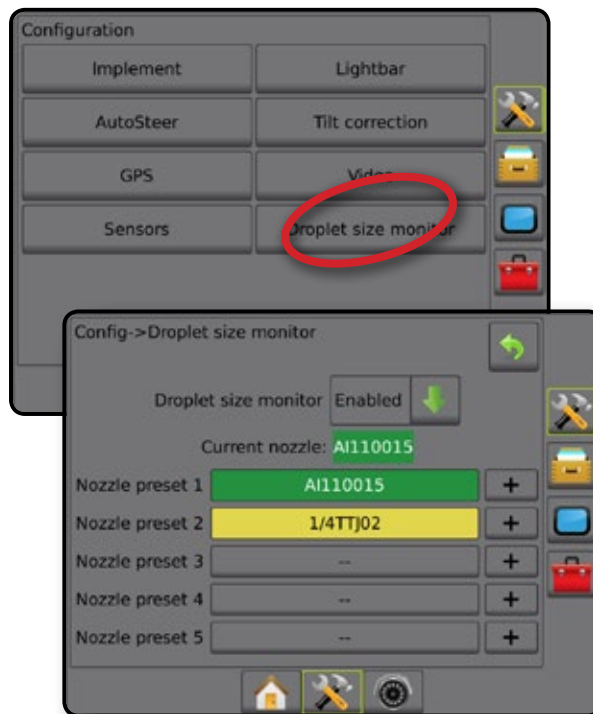
Droplet size monitor

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) nozzles and select the current nozzle.

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:
   ► Nozzle presets – selects up to five (5) nozzles for quick recall
   ► Current nozzle – selects the current nozzle 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
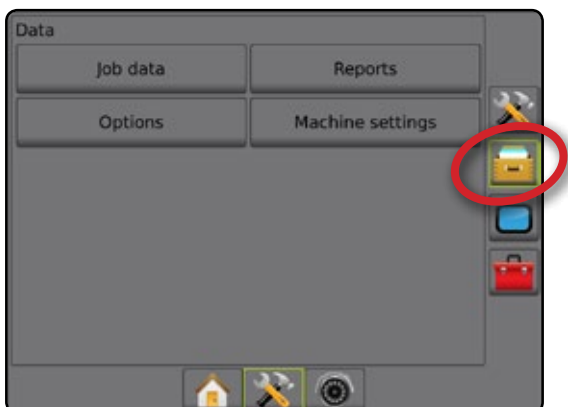
Job data

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
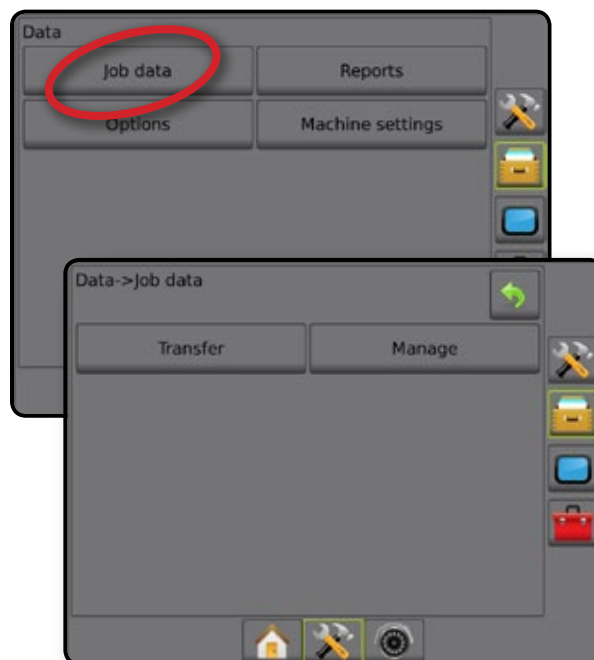
Job data unavailable

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

Figure 5-25: Job data unavailable
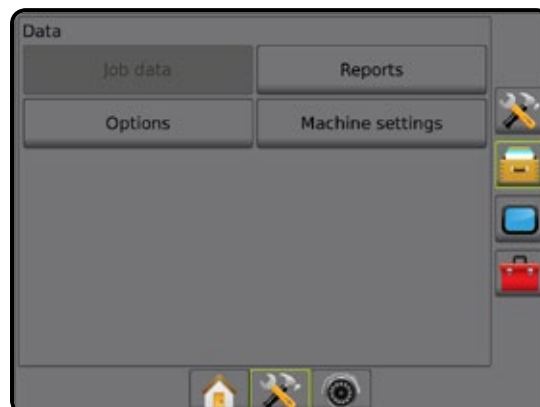
Transfer

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
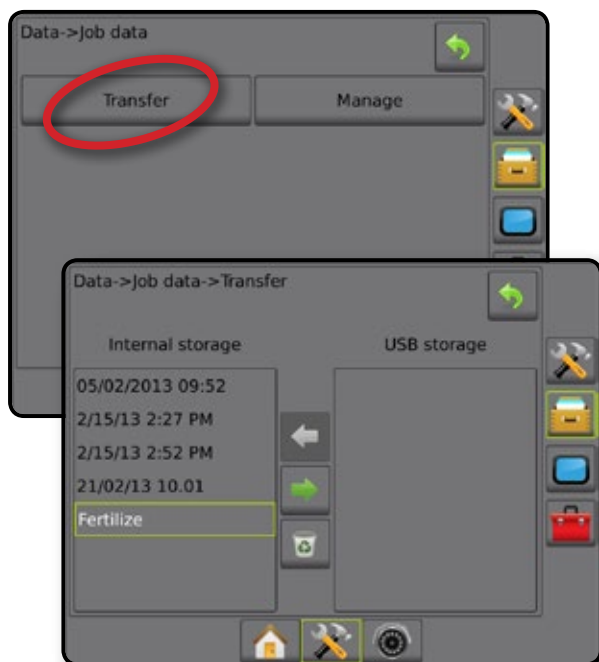
Manage

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
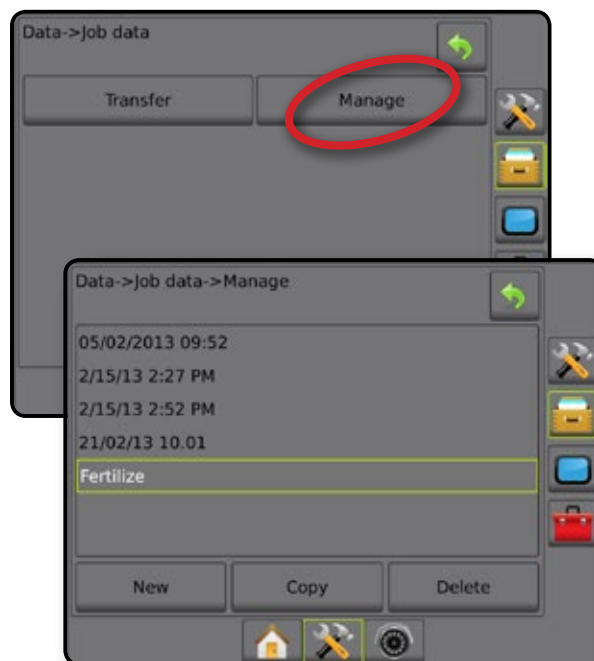
Reports

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 (greyed out) until a USB drive is inserted properly.
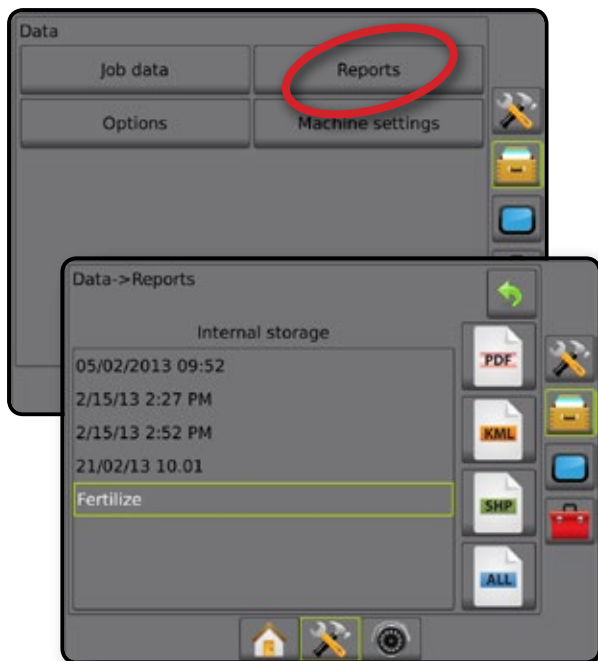
Figure 5-28: Reports - Advanced job mode

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?"
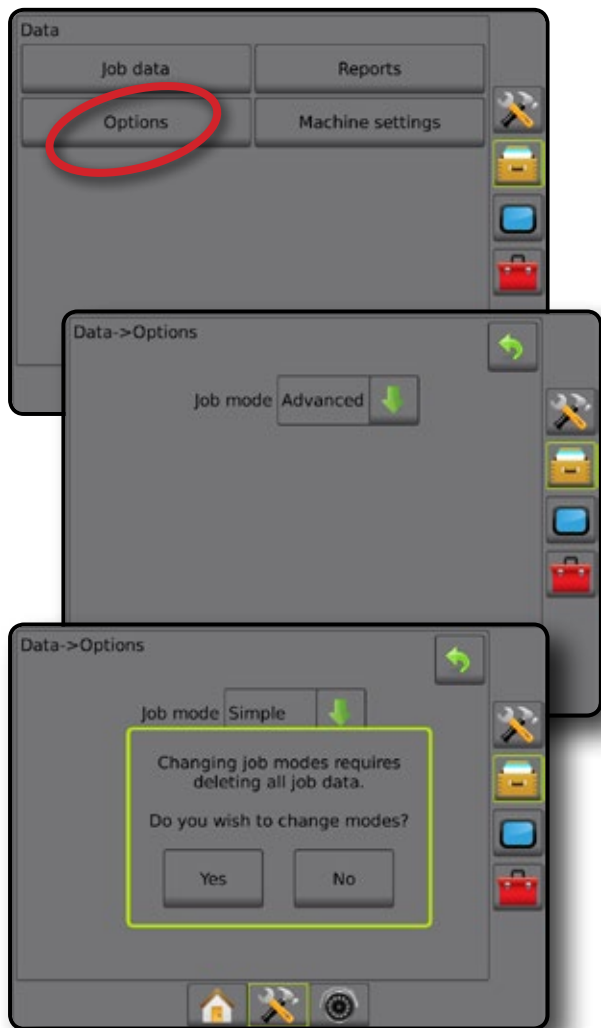   Press:
   ► Yes – to make the change
   ► No – to keep the current setting
6. Press RETURN arrow ↩ or DATA MANAGEMENT side tab 🗄 to return to the main Data Management screen.

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).
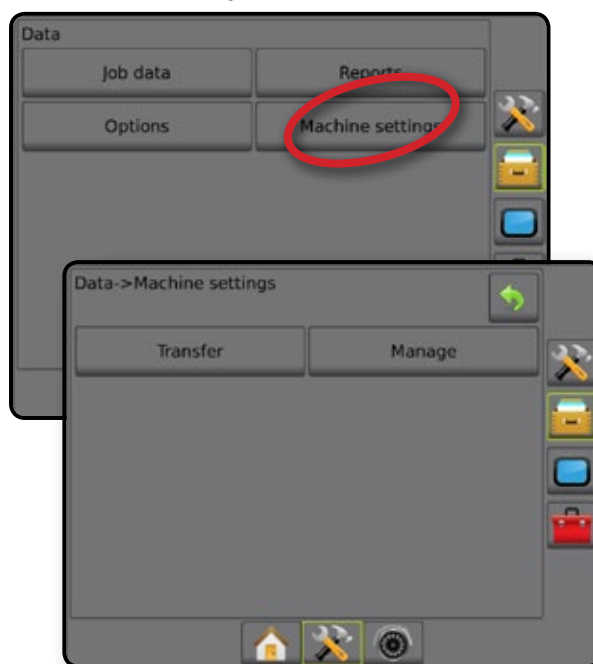
Machine settings include:
- Implement settings
- AutoSteer settings
- Tilt enabled/disabled

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

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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 new machine settings with no associated implement information
   ► Copy machine settings – used to copy the selected machine settings into 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
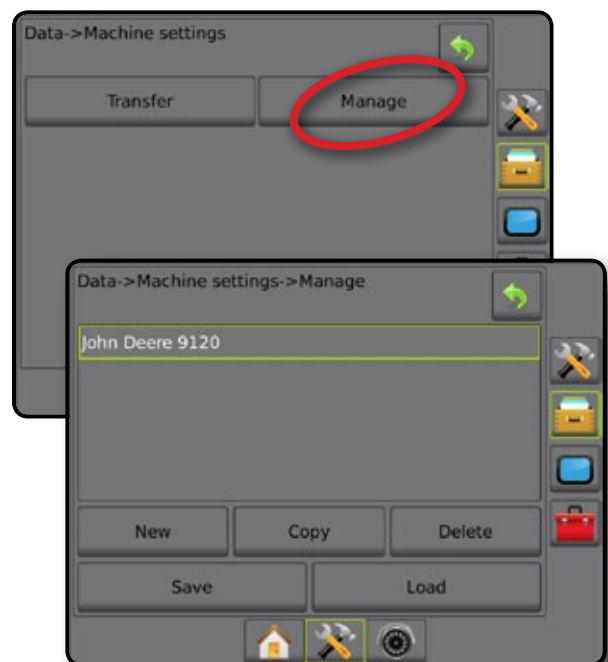
Machine settings availability

Setting		Can be edited in		Saved to exported profile in	
		Matrix Pro GS	FieldWare Link	Matrix Pro GS	FieldWare Link
Implement	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	✓	✗	✗	✗
	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	✓	✓	✓	✓
	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	✓	✓	✓	✓
Application	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	✓	✗	✓	
	Lookahead	✓	✗	✓	
	Valve test	✓	✗	✓	retained from Matrix Pro GS
	Valve diagnostics	✓	✗	✓	retained from Matrix Pro GS
	Options — Steering wheel sensor	✓	✗	✓	retained from Matrix Pro GS
	Steering Angle Sensor — Enable	✓	✗	✓	retained from Matrix Pro GS
	Sensor calibration	✓	✗	✓	
	On line calibration	✓	✗	✓	
Tilt correction	Enabled/disabled	✓	✗	✓	retained from Matrix Pro GS
	Field level	✓	✗	✓	

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			Matrix Pro GS	FieldWare Link	Matrix Pro GS	FieldWare Link
Lightbar			✓	✗	✗	✗
GPS			✓	✗	✗	✗
Video			✓	✗	✗	✗
Sensors	– Pressure:	Maximum pressure rating	✓	✗	✗	✗
		Low pressure alarm	✓	✗	✗	✗
		High pressure alarm	✓	✗	✗	✗
Droplet size monitor	–	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 colour 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
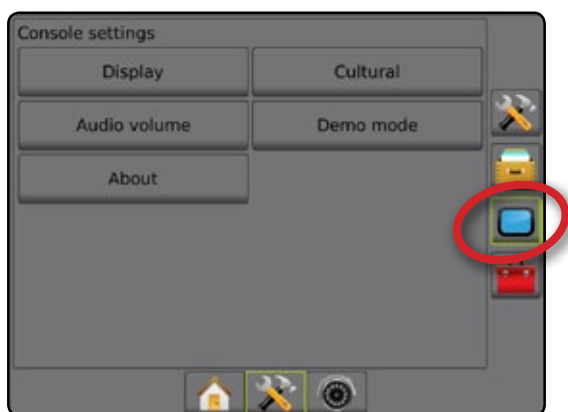
Display

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

1. Press CONSOLE side tab.
2. Press **Display**.
3. Select from:
   - ► Colour scheme – used to change the background and text colours 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

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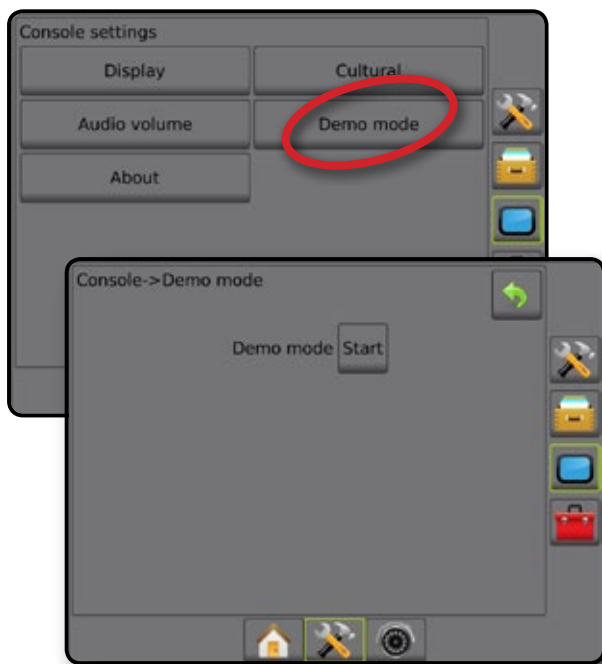
1. Press CONSOLE side tab 🔲.
2. Press Demo mode .
3. Press Start .
4. Press RETURN arrow ↩ or CONSOLE side tab 🔲 to return to the main Console Settings screen.

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 (greyed 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
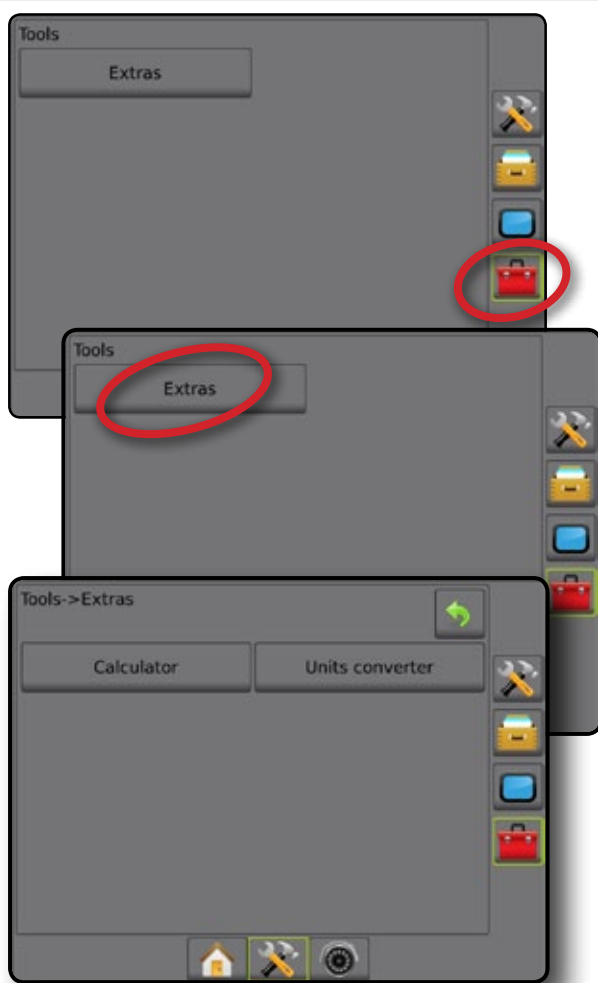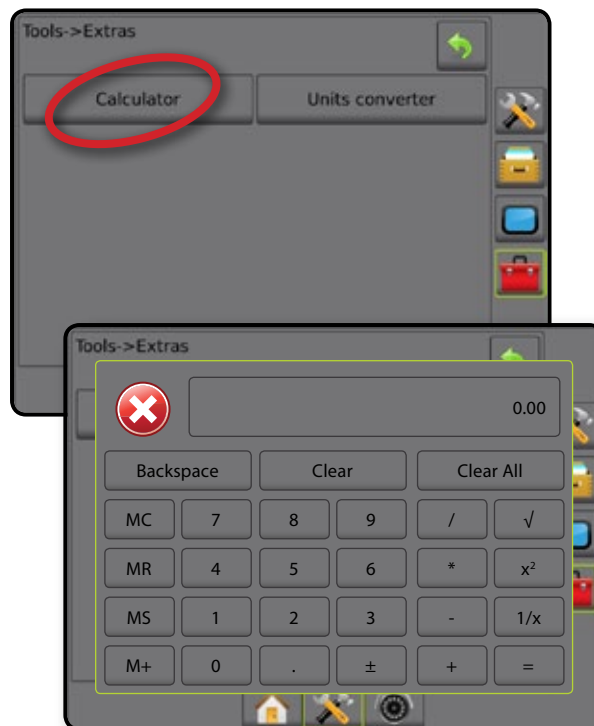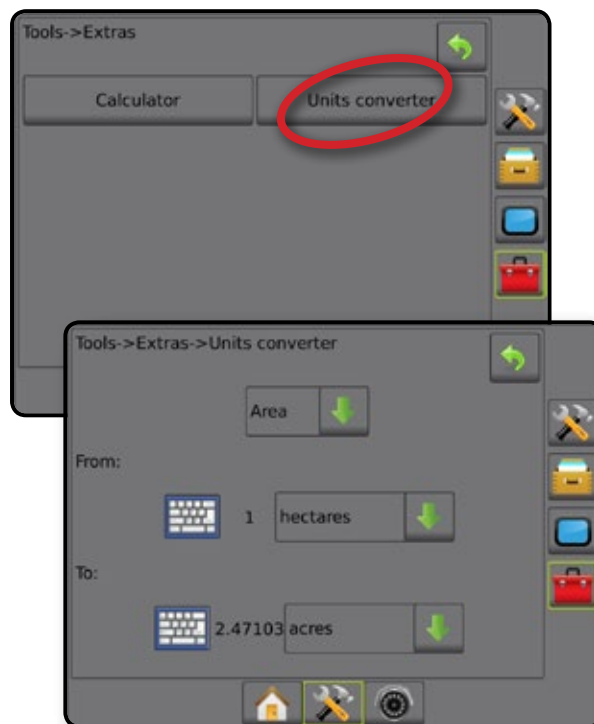
Figure 5-40: Tools

Figure 5-41: Calculator

Figure 5-42: Units converter

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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
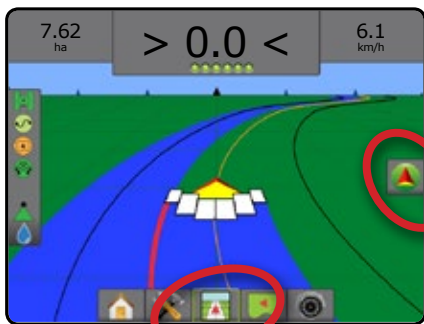
Field view guidance creates a computer-generated image of the vehicle position and application area from an aerial perspective.
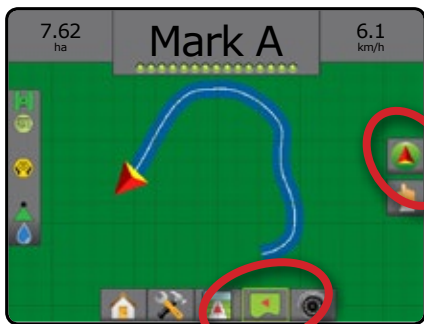
RealView guidance allows live video input to be displayed instead of a computer-generated image.

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

A		Mark A ⬡ – marks the first point of the guideline.
	B	Mark B ⬡ – marks the end point of the guideline. Greyed = minimum distance has not been travelled.
	Ⓢ	Cancel Mark A – cancels the Mark A process. Reverts to previous AB guideline (when established).
B		NextRow Mark B ⬡ – marks the end point of the row.
A↑		Azimuth degree ⬡ – establishes a straight guideline measured by degrees clockwise from a north base line. North = 0, East = 90, South = 180, West = 270.
A+		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.
→S		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. Greyed = 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. Greyed = GPS is unavailable.
	🏁	Finish boundary – finalizes boundary process. Boundaries can also be closed by travelling to within a swath width of the starting point. Greyed = 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 . Greyed = GPS is unavailable.
		SmartCable/SDM – selects BoomPilot mode. Greyed = 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.

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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 [metres], current activity and GPS status) and boom status.

Figure 6-2: Guidance bar example

Navigation activity & Boom status

Selectable information

Selectable information

0.00
km/h

No GPS

0.0
ha

Speed

Heading

Total applied area

Application time

Time

Swath number

System pressure

Droplet size
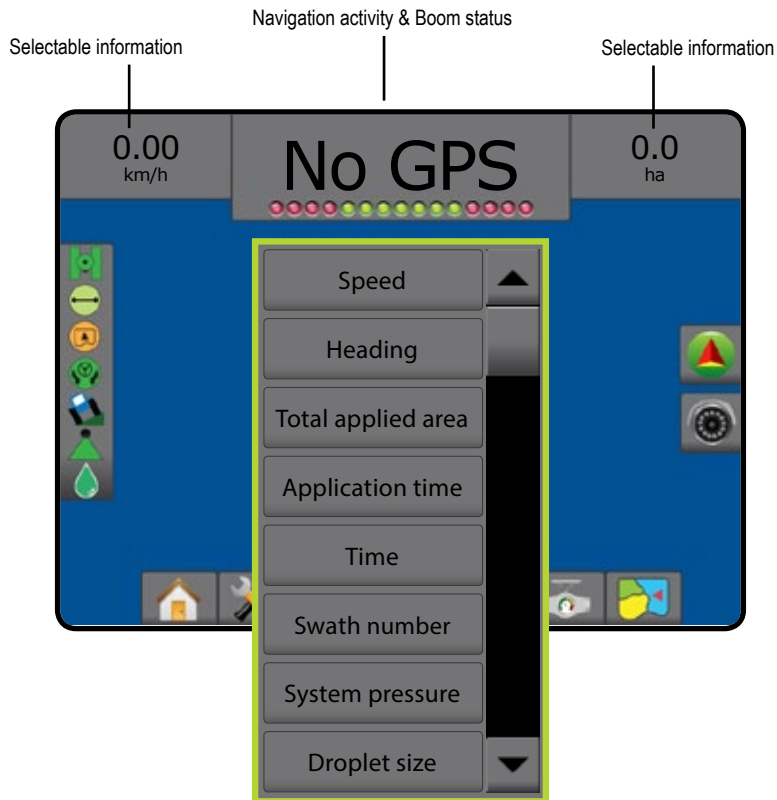
Selectable information

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 nozzle 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 programmed. A green dot indicates the section is active, a red dot indicates the section is not currently active.

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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

GPS status

Guidance mode

Bounded area status

Assisted/auto steering status

Tilt correction status

BoomPilot status

Droplet/pressure status
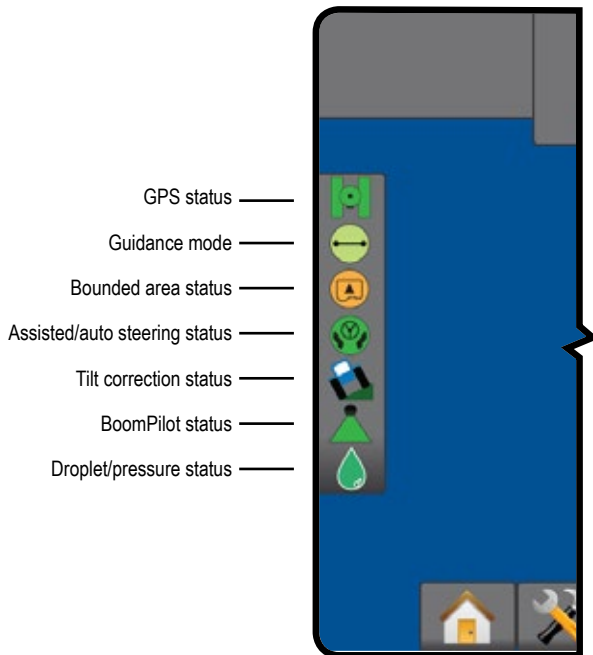
GPS status

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

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

Coloured = 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

Coloured = engaged. The colour of the droplet is directly associated with the current droplet size. Colour options include:

Crossed out = disabled

No icon = no pressure sensor interface kit is installed

Status/information screens

GPS status

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

1. Press GPS STATUS icon :

Figure 6-4: GPS status

27.00 ha	Mark A	10.0 km/h

GGA rate: 5 Hz
VTG rate: 5 Hz
Nummber of satellites: 10
HDOP: 1
PRN: 135
GGA quality: 2
Receiver: 1
Receiver version:
UTM zone: 12

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.

Figure 6-5: Guidance mode status

Guidance pattern: Straight AB guidance
Guideline name: Stream Edge
Total number of guidelines: 4

Bounded area status

Bounded area status displays information regarding the areas in the current boundaries.

1. Press BOUNDED AREA icon.

Figure 6-6: Bounded area status

Working area: 12.54 ha
Field area: 10.49 ha
Internal area: 2.05 ha

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.

Figure 6-7: Assisted/auto steering status

TR: 0.1 deg/sec
Tilt corrections disabled

Assisted/auto steering status:
Disengaged
  Under minimum speed
  Seat unoccupied
  Steer wheel sensor error
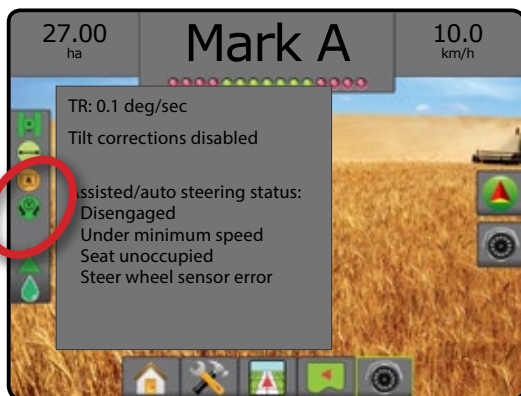
Tilt correction status

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

1. Press TILT CORRECTION STATUS icon.

Figure 6-8: Tilt correction status

Tilt X: 1.3 deg
Tilt Y: 0.2 deg

BoomPilot status

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

1. Press BOOMPILOT STATUS icon.

Figure 6-9: BoomPilot status

Number of sections: 15

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.

Figure 6-10: Droplet/pressure status

AIXR TeeJet®   AIXR11004

3.5 bar

Very coarse

0   1   2   3   4   5   6   7 bar

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 6-11: Guidance screen options

Navigation and guidance options

Zoom in/out icons are not available on Matrix Pro 840GS or on RealView guidance screens

RealView options

Home/job screen
(or press Home button)
Unit setup
Vehicle view guidance
Field view guidance
RealView guidance

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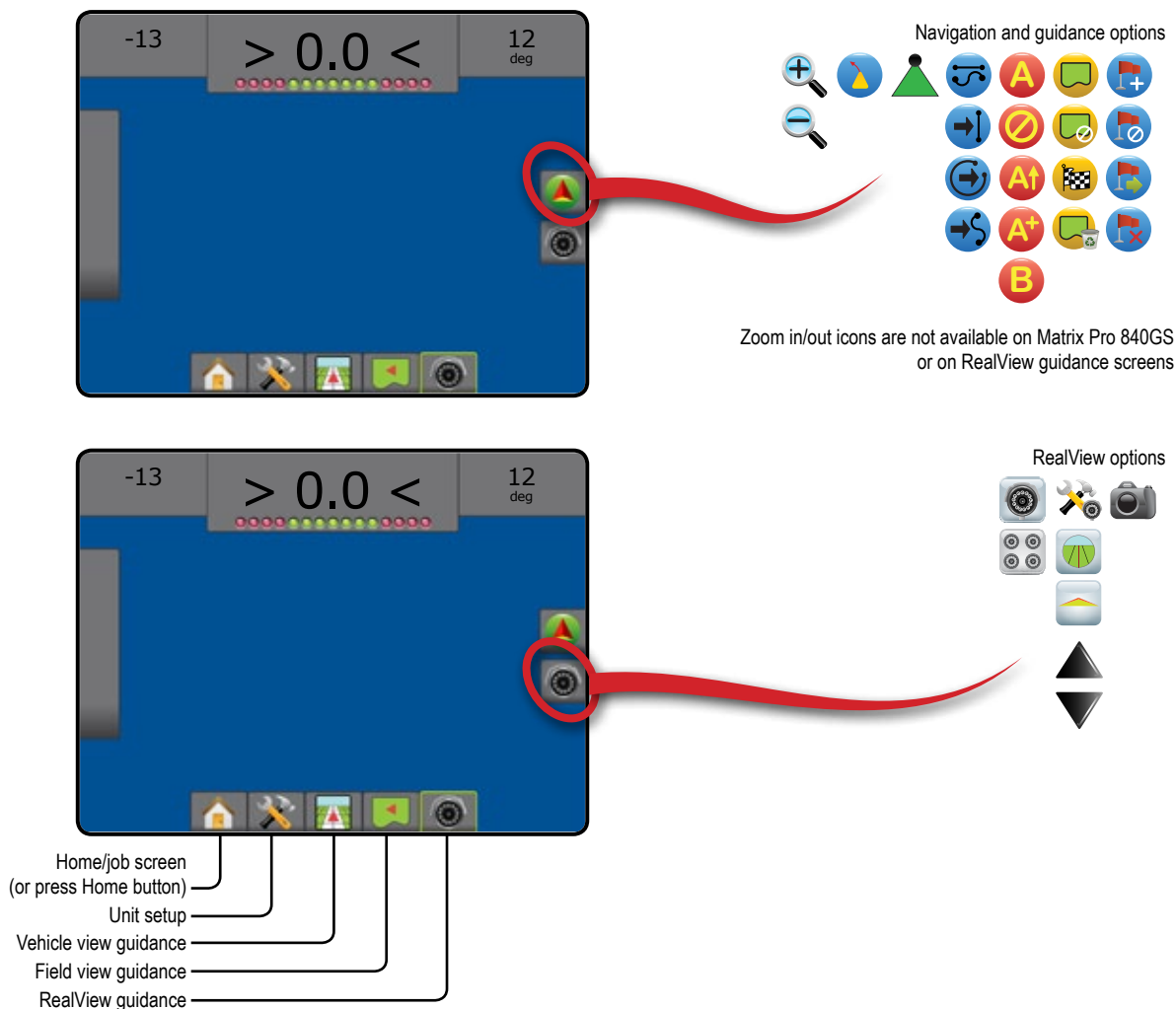
Vehicle view

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 6-12: Vehicle view
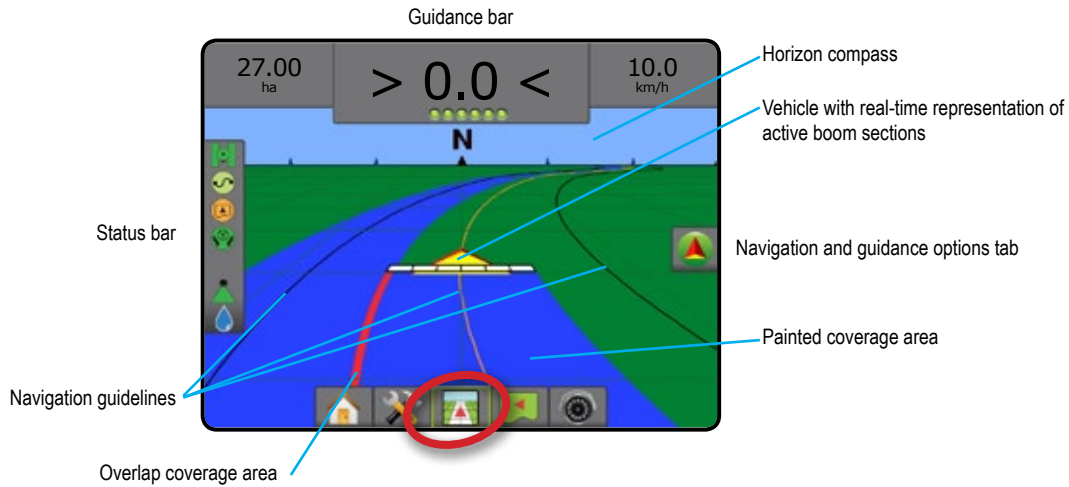
On screen guidance

- 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 6-13: Vehicle view with common icons shown

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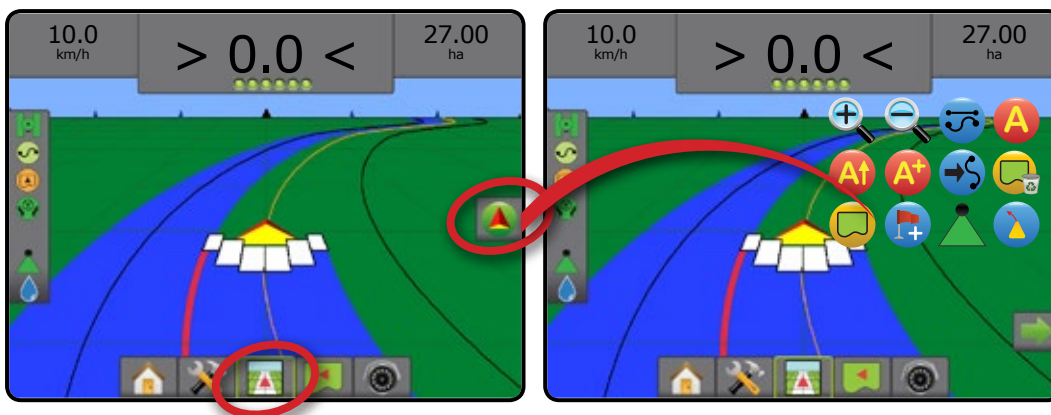
Field view

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 6-14: Field view
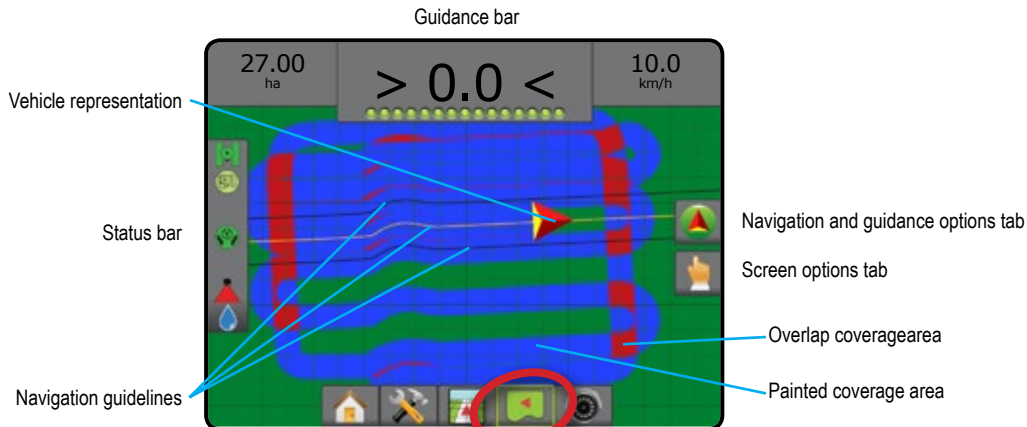
On screen guidance

- 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 6-15: Field view with 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 6-16: RealView guidance
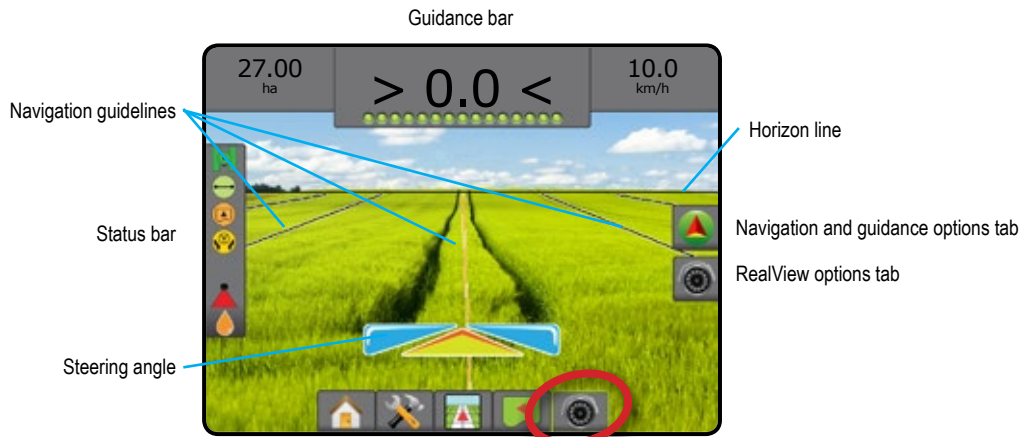
On screen guidance

- 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 6-17: Real View with common icons shown

GUIDANCE MODES

Straight AB guidance
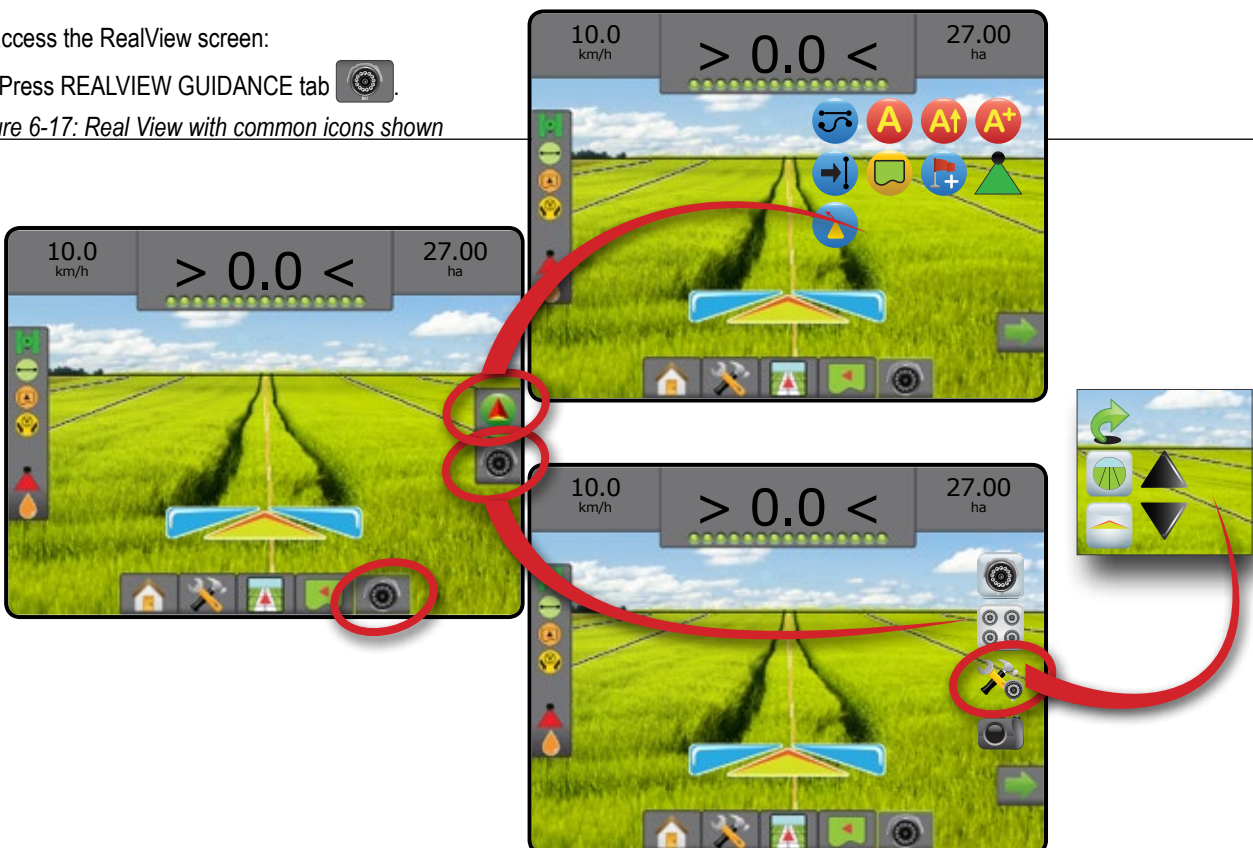
Straight AB guidance provides straight line guidance based on A and B reference points. The original A and B point are used to calculate all other parallel guidelines.

NOTE: Offset to adjacent guidelines will be calculated using the guidance width, which is encoded in Unit setup in the Implement options.

Curved AB guidance

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.

NOTE: Curved guidance is recommended not to exceed 30° within the AB guideline.

Offset to adjacent guidelines will be calculated using the guidance width, which is encoded in Unit setup in the Implement options.

HINT: While working in a bounded area, the guidance pattern extending beyond the established AB points will be straight line guidance.

Circle pivot guidance

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.

It is used for product application in a centre pivot field while being guided along a circular guideline that matches a centre pivot irrigation system radius.

NOTE: Offset to adjacent guidelines will be calculated using the guidance width, which is encoded in Unit setup in the Implement options.

Last pass guidance

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.

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

NextRow guidance

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.

NOTE: Offset to NextRow will be calculated using the guidance width, which is encoded in Unit setup in the Implement options.

The NextRow guidance does not support skipping rows.

No guidance

No guidance turns off guidance.

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.

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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 6-18: 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 (greyed out) until the minimum distance is travelled (3.0 metres in Straight or Curved guidance, 50.0 metres in Circle pivot guidance).

NOTE: It is not necessary to drive the entire circumference of the centre 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 6-19: Mark A point

Figure 6-20: Mark B point

Figure 6-21: Save guideline

Figure 6-22: Follow guidance
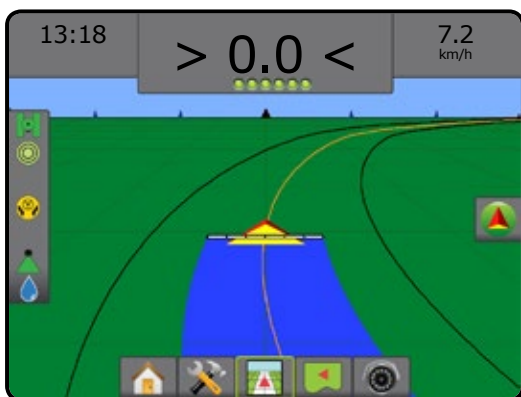
A+ nudge feature

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 6-23: A+ Nudge
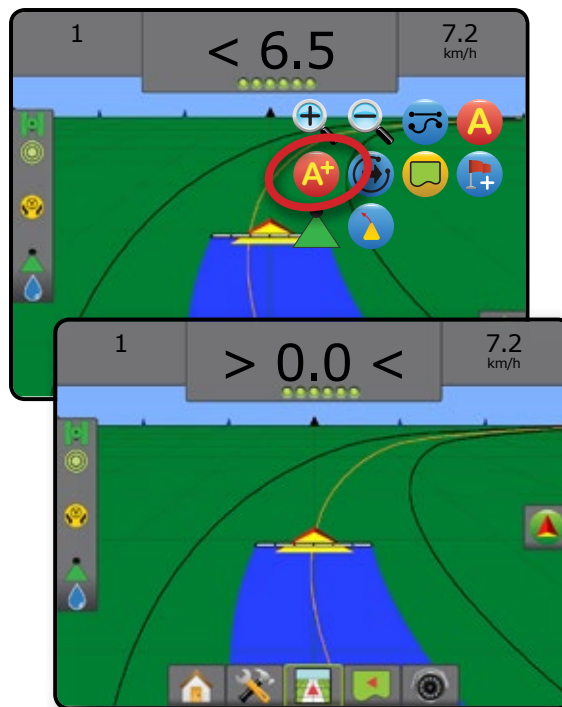
Next guideline feature

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 6-24: Next guideline
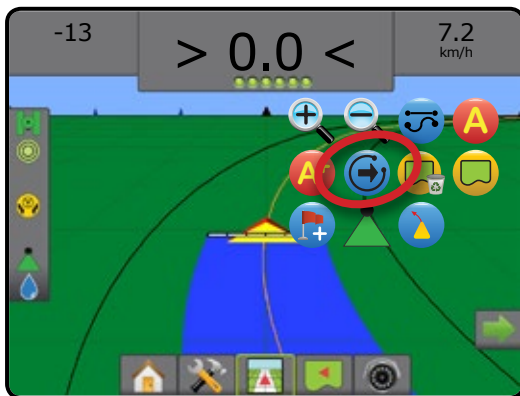
To view which guideline is active, press the Guidance mode icon on the Status bar.

Figure 6-25: View which guideline is active
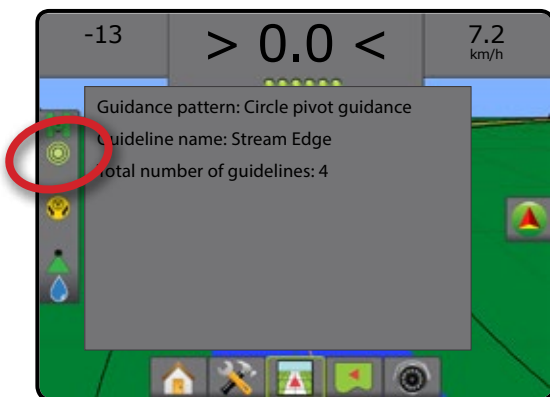
Last pass guidelines

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 6-26: Apply first pass

Figure 6-27: Follow guidance
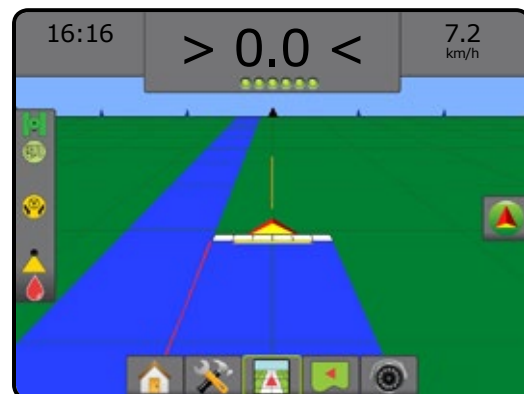
NextRow guidelines

NextRow guidance indicates where the next row is located based on the programmed 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 [icon] to display navigation options.

2. At the end of a row (while driving a straight line) press MARK B icon [B].

   ◄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 6-28: 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 centre 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 [icon] to display navigation options.

2. Press AZIMUTH icon [A↑] 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 6-29: Azimuth guidance

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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 (greyed 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 🔴ᴬ⁺ on the guideline over to the correct position for subsequent passes in the field.

Figure 6-30: Boundary in progress

Figure 6-31: Finish boundary – Straight line to starting point
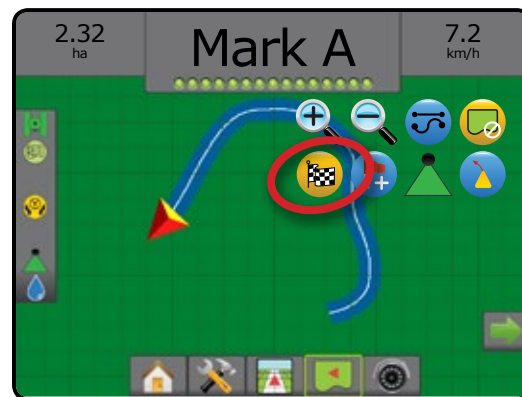
Figure 6-32: Finish boundary – Travel to starting point

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Figure 6-33: Save boundary

Figure 6-36: Finish boundary – Travel to starting point

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 6-34: 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 6-35: Finish boundary – Travel to starting point
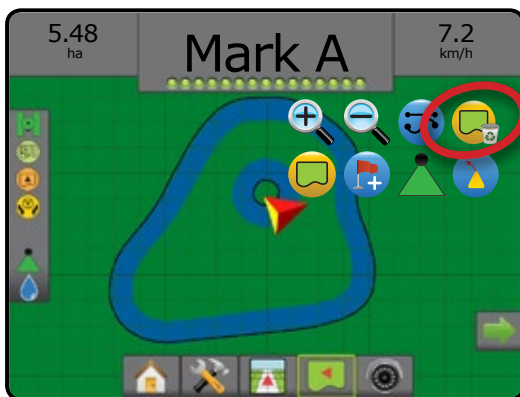
In correspondence to your current location, the IN BOUNDARY icon or OUT BOUNDARY icon is displayed on the status bar once the boundary is established.

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 6-37: Return point established – Vehicle View
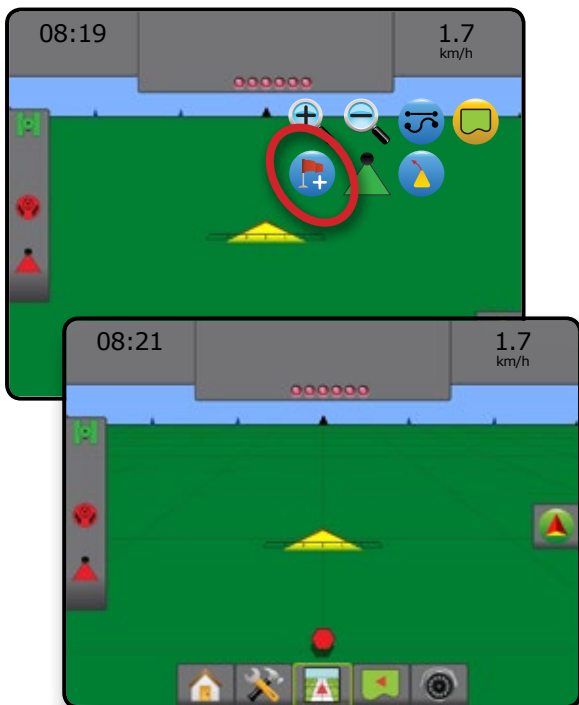
Delete the return point

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 6-38: 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 6-39: Return to point guidance – Vehicle View
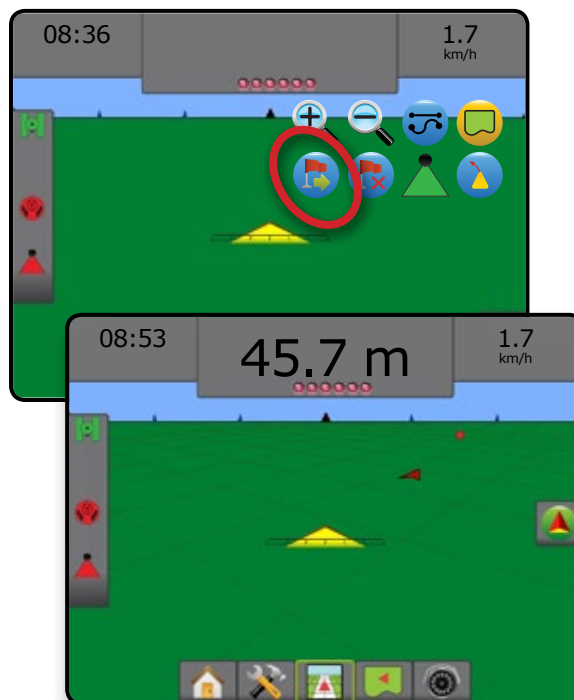
BOOMPILOT

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 6-40: All booms off/on – No SDM

With optional work on/off switch

BoomPilot can be overridden by using an optional work on/off switch.

NOTE: If the work on/off switch is in the "on" position, the entire section will be activated and the BOOMPILOT icon 🔺 will have no affect.

Using the work on/off switch

To switch application on using the work on/off switch:

1. Turn work on/off switch to the "on" position.

To switch application off using the work on/off switch:

1. Turn work on/off switch to the "off" position.

Using the console

To control application using the console:

1. Work on/off 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 6-41: Automatic to all sections on mode
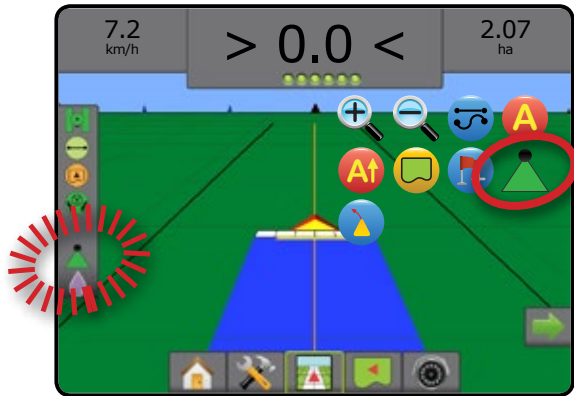
Console only

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 in 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..

Work on/off switch

When installed, work on/off 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 6-42: Zoom in to zoom out
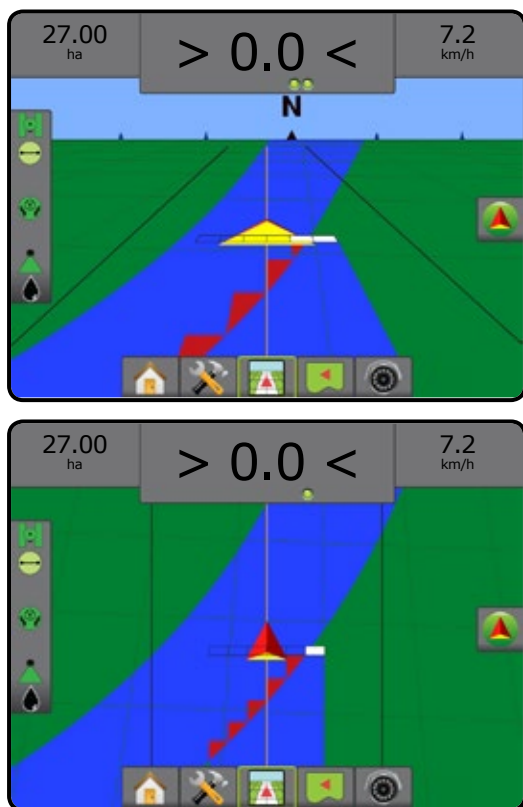
Field view

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-centre 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 centre 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 6-43: Pan mode

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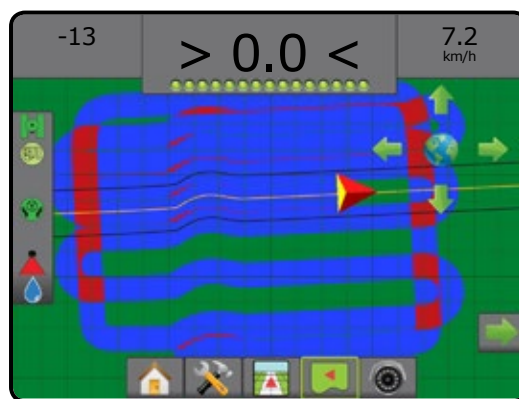
REALVIEW SPECIFIC OPTIONS

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 6-44: RealView options
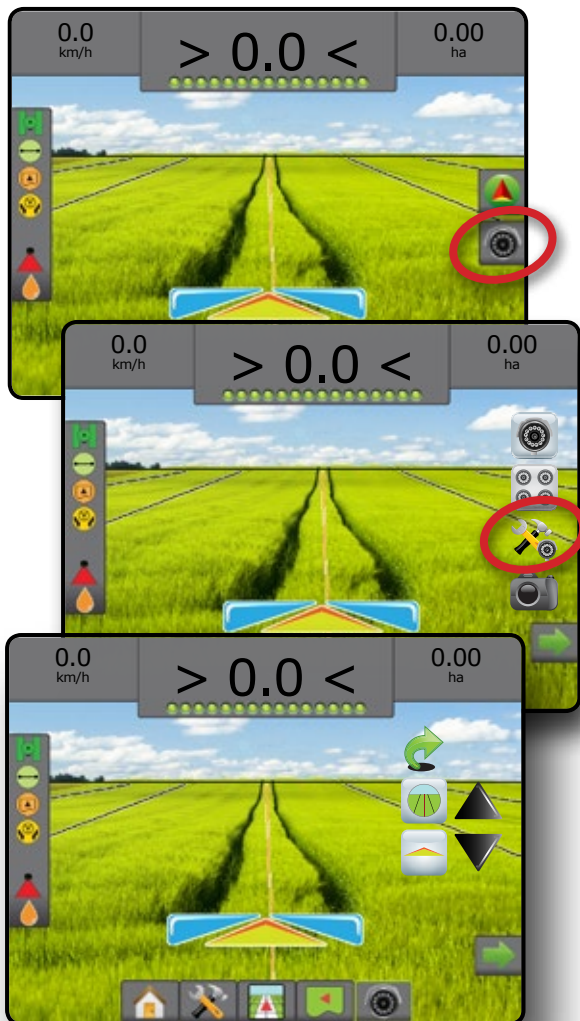
Figure 6-45: Single camera selection

Figure 6-46: 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 6-47: RealView setup options

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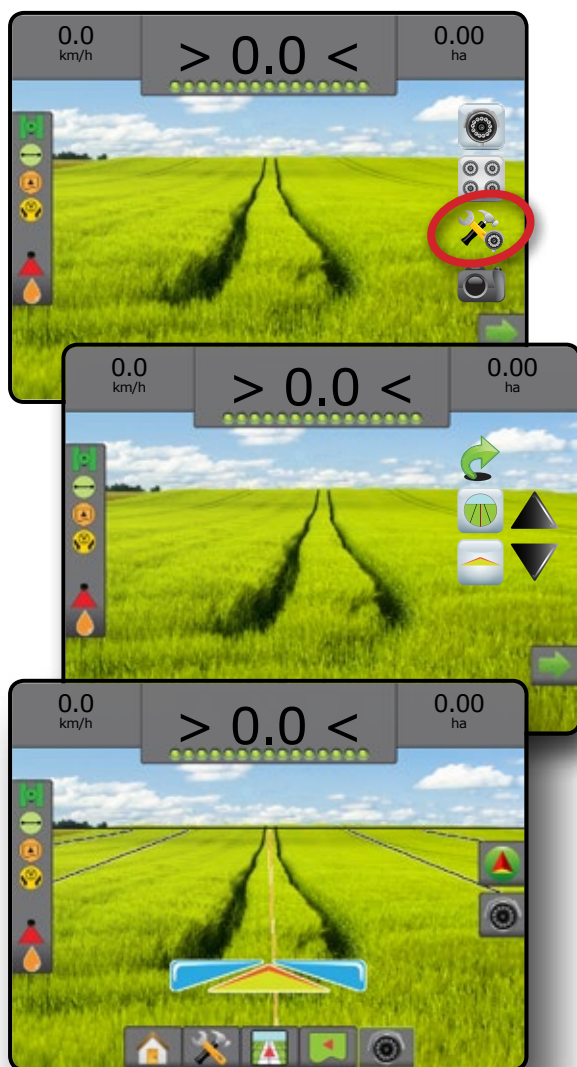
CHAPTER 7 - GPS

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
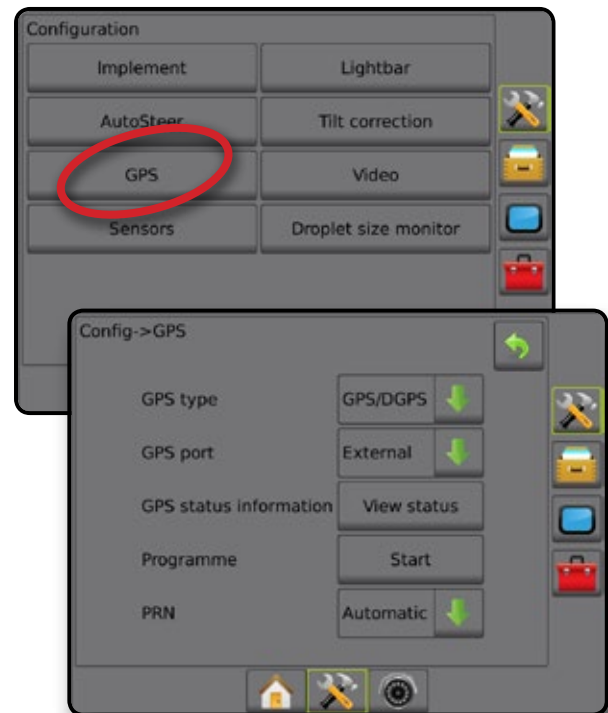
GPS type

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
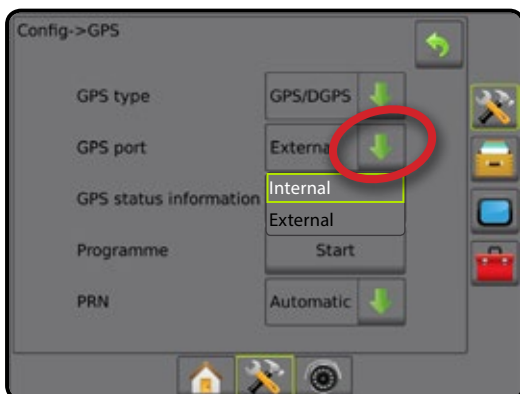
External receiver minimum configuration requirements

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"

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Figure 7-4: GPS status information
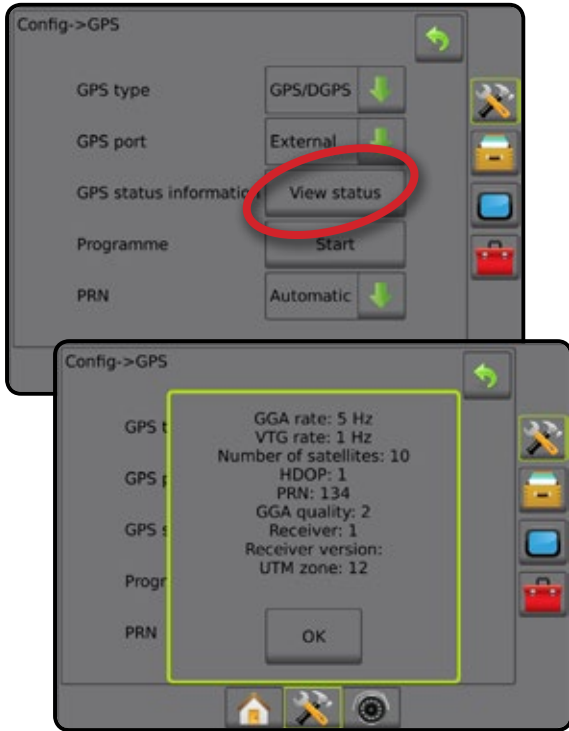
GPS status information on guidance screens

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
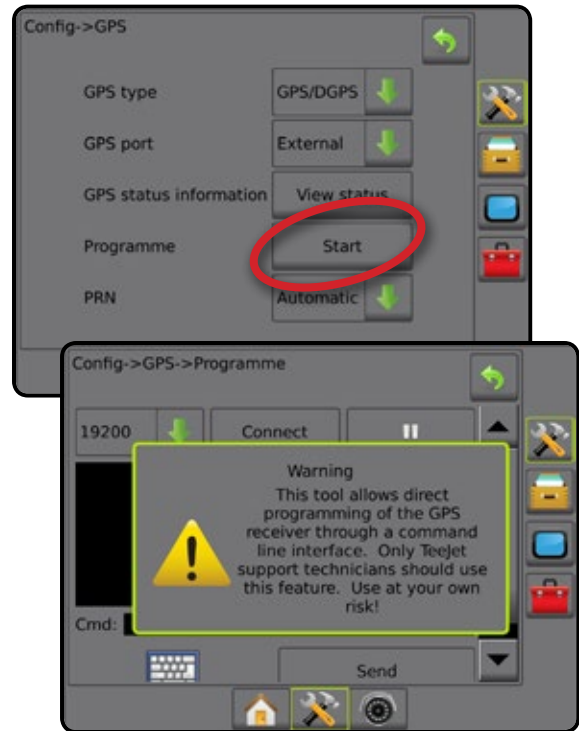
PRN

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
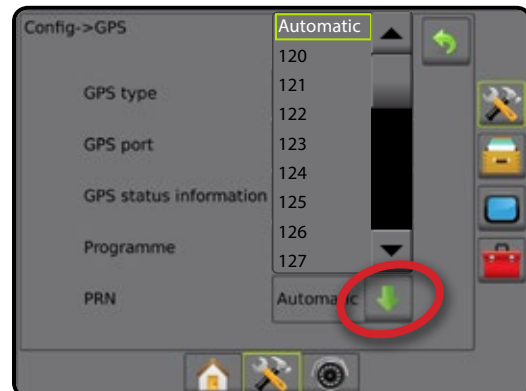
Alternate PRN

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
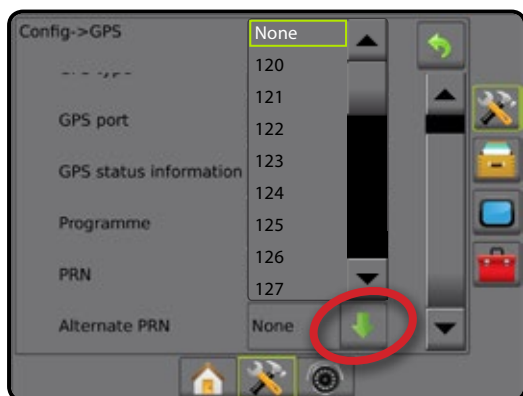
PRN not shown

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 8-2: Implement type - spreader
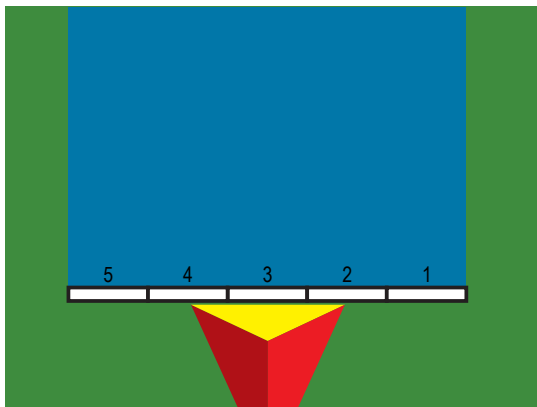
Figure 8-3: Implement type - staggered
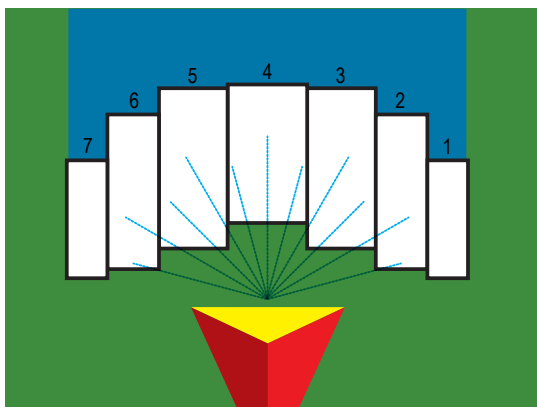
Section numbers

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
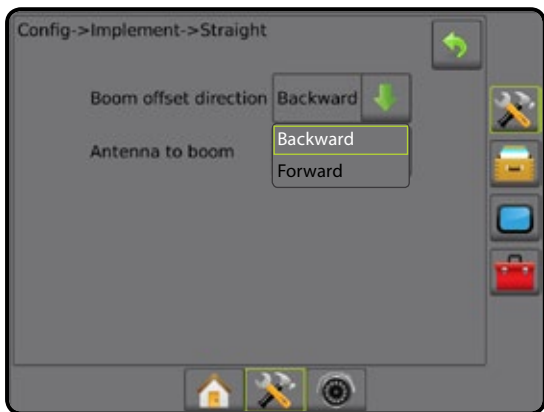
Scrolling screens

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
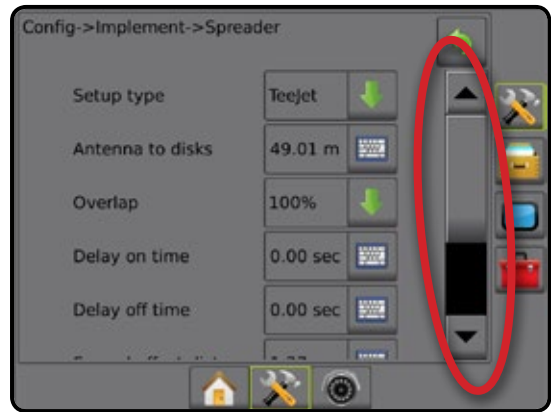
Keyboard entry screen

Press the KEYPAD icon ⌨. 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 8-7: Example of keyboard

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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 10.0 metres.

   ► 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 centreline of the machine to the centre of the implement. Range is 0 to 10.0 metres.

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

   ► Implement offset direction ❶ – direction from the centreline of the machine to the centre of the implement while facing in the machine's forward direction

   ► Guidance width – used to enter the distance between the guidelines. Range is 1.0 to 75.0 metres.

   ► 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
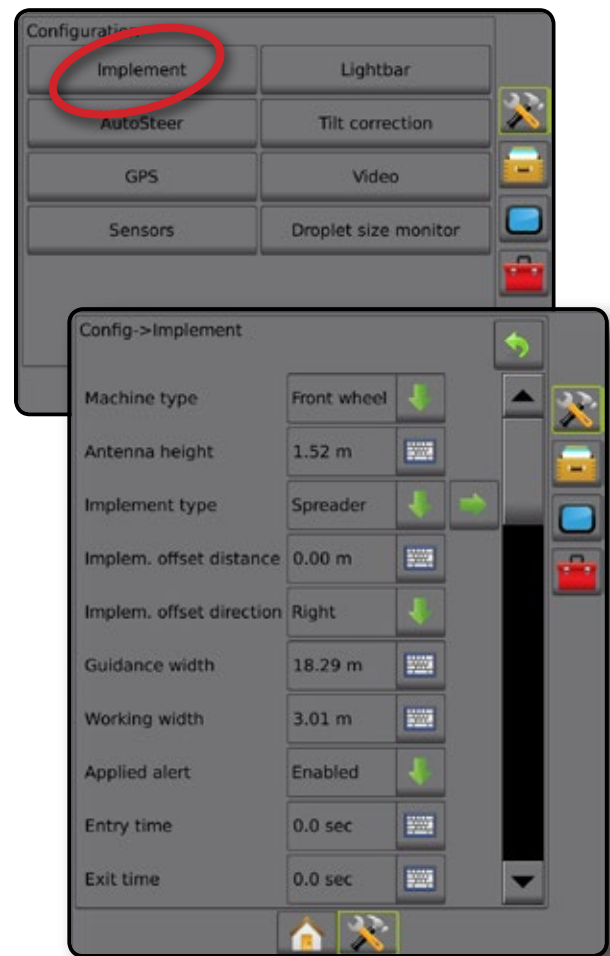
Figure 8-9: Implement offset distance and direction
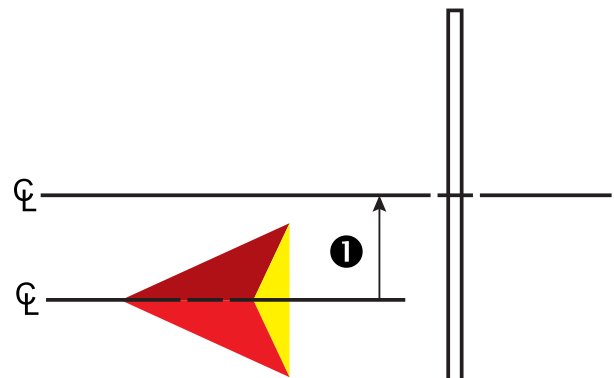
Straight implement type

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 ❶ – used to enter the distance from the GPS antenna to the boom. Range is 0.0 to 50.0 metres.

4. Press RETURN arrow ↩ to return to the implement screen or CONFIGURATION side tab 🔧 to return to the main configuration screen.
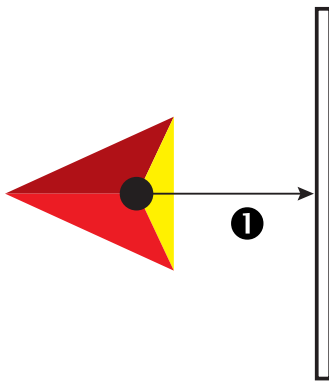
Figure 8-10: Implement setup options in straight mode
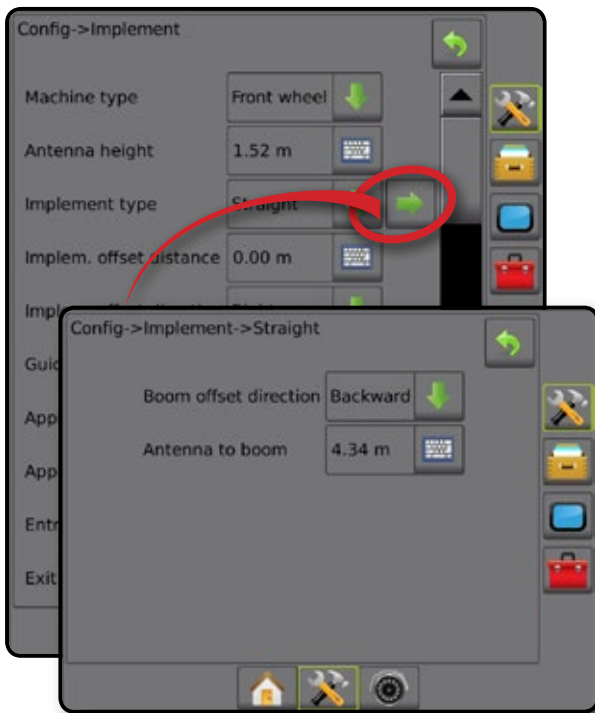
TeeJet spreader implement type

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 ❶ – used to enter the distance from the GPS antenna to the delivery disks or dispersal mechanism. Range is 0.0 to 50.0 metres.

   ► Spread offset distance ❷ – used to enter the offset distance from the disks, or dispersal mechanism, to where product initially hits the ground. Range is 0.0 to 75.0 metres.

   ► Spread length ❸ – used to enter the length of application for the section. Range is 0.0 to 75.0 metres.

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

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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 50.0 metres.

   ► 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

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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 10.0 metres.
   - ► 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 ❶ – used to enter the distance from the centreline of the machine to the centre of the implement. Range is 0 to 10.0 metres.

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

   - ► Implement offset direction ❶ – direction from the centreline of the machine to the centre 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 1.0 to 75.0 metres.
   - ► 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 75.0 metres. Total for all sections must be greater than 1.0 metres.
   - ► 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 75.0 metres. Total for all sections must be greater than 1.0 metres.

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

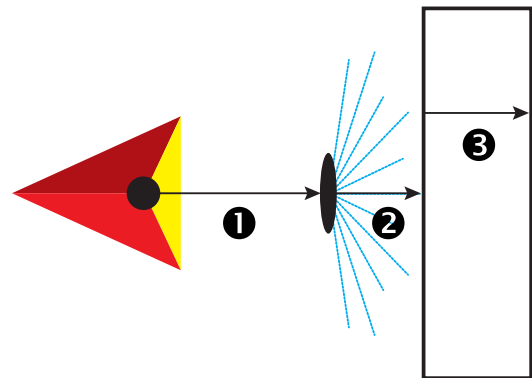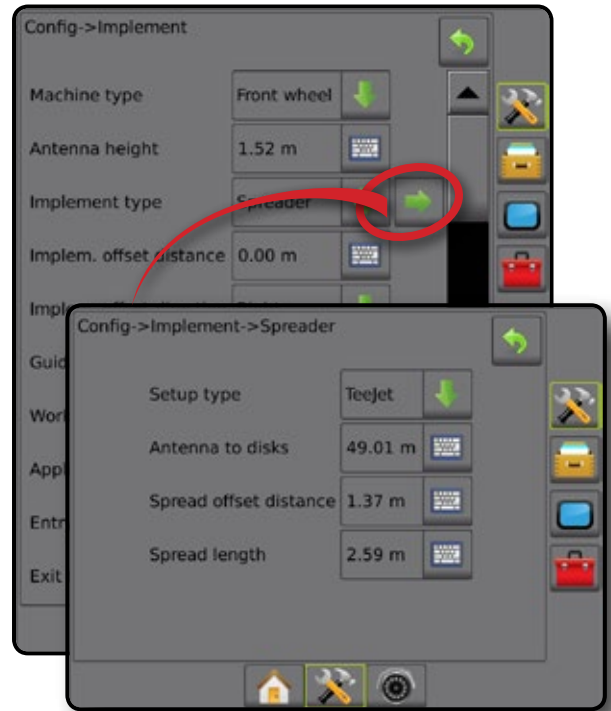*Figure 8-13: Implement – Smartcable or Section Driver Module*
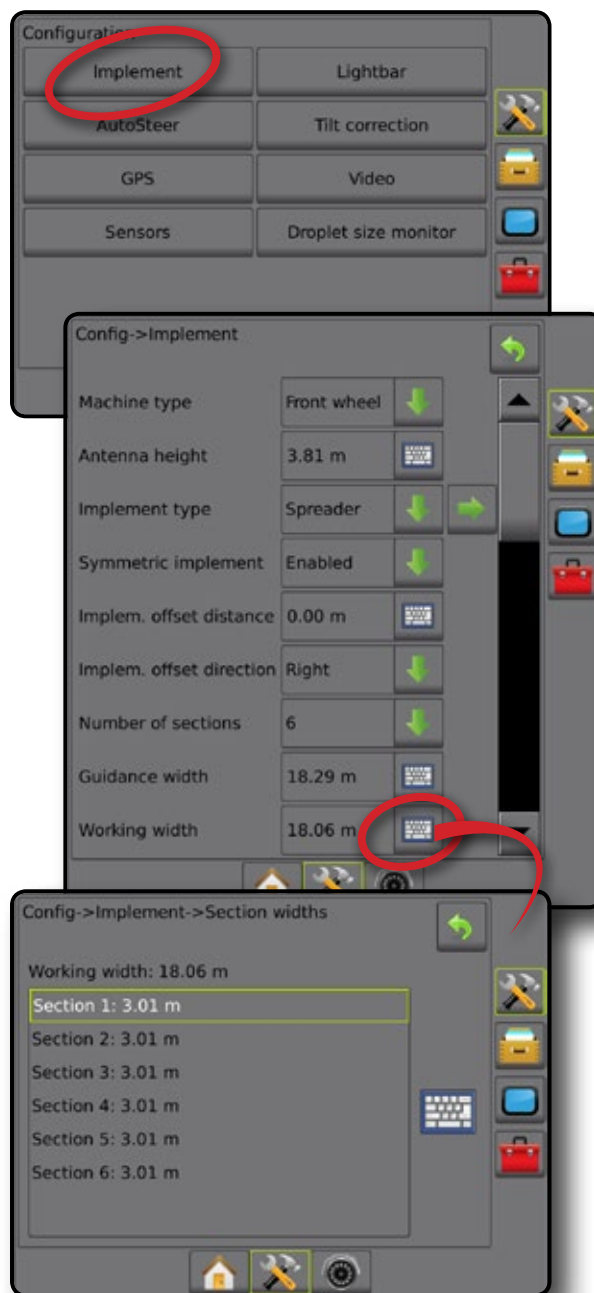
Figure 8-14: Implement offset distance and direction

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 ❶ – used to enter the distance from the GPS antenna to the boom. Range is 0.0 to 50.0 metres.

   ► 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.
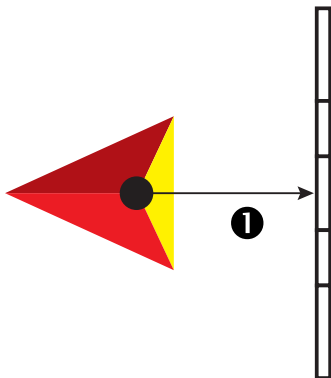
Figure 8-15: Implement setup options in straight mode
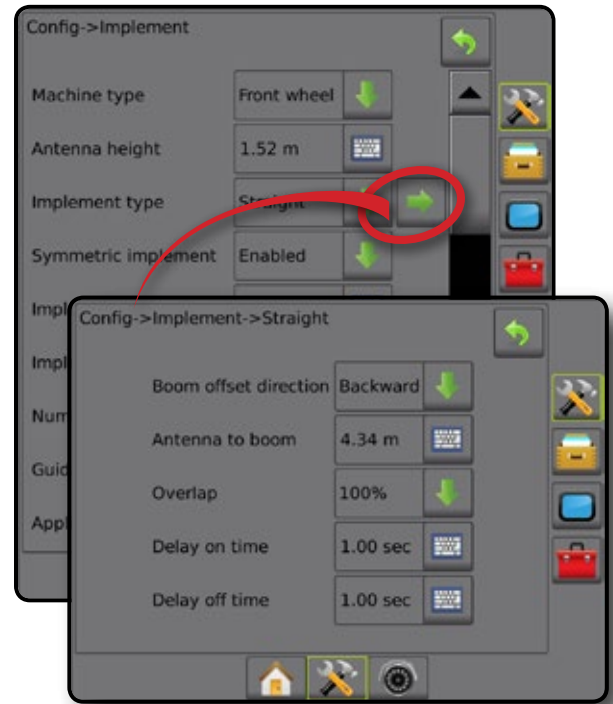
Figure 8-16: Overlap

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 ❶ – used to enter the distance from the GPS antenna to the delivery disks or dispersal mechanism. Range is 0.0 to 50.0 metres.

   ▶ 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 ❷ – 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 75.0 metres.

   ▶ Section offset ❸ – 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 metres. 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 75.0 metres.

   ▶ Spread length ❹ – 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 75.0 metres.

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

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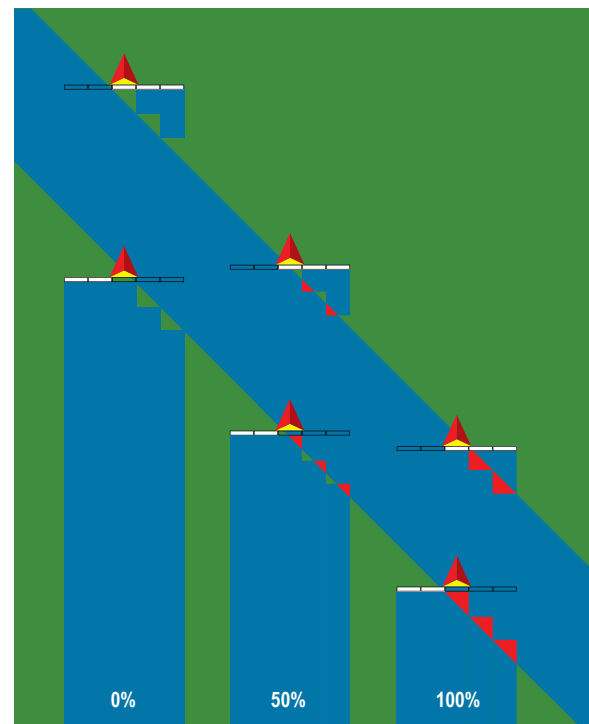INTRODUCTION
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Figure 8-18: Overlap

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 50.0 metres.

   ► 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 metres. 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
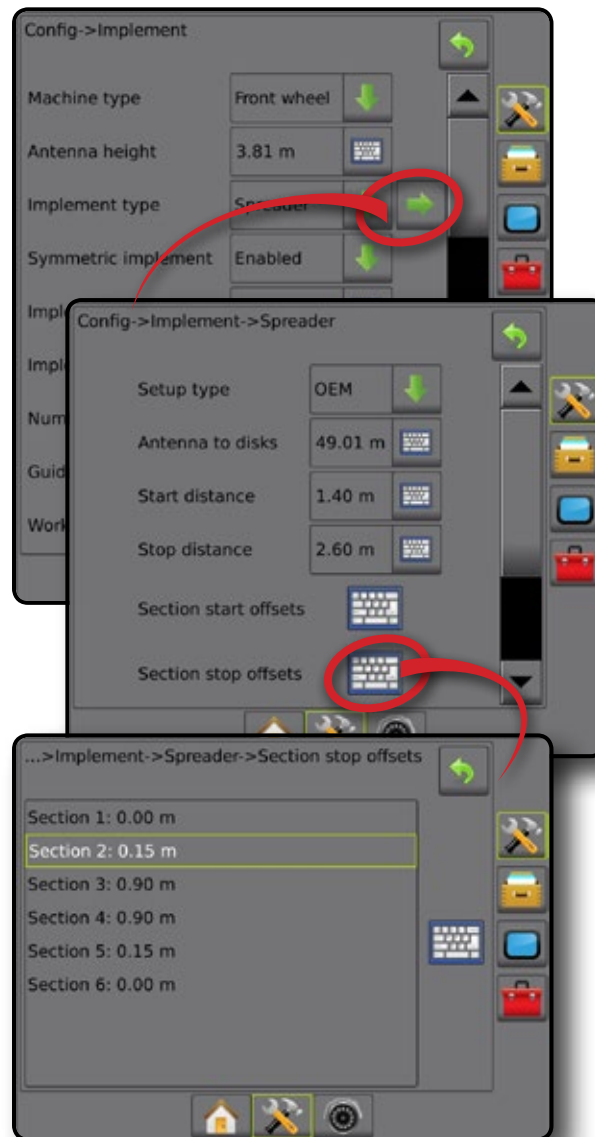
Staggered implement type

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 ❶ – used to enter the distance from the GPS antenna to section 1 (the zero-point of the section offsets). Range is 0.0 to 50.0 metres.

   ► 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 ❷ – 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 metres. 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 -75.0 to 75.0 metres.

4. Press RETURN arrow ⤺ to return to the implement screen or CONFIGURATION side tab 🛠 to return to the main configuration screen.
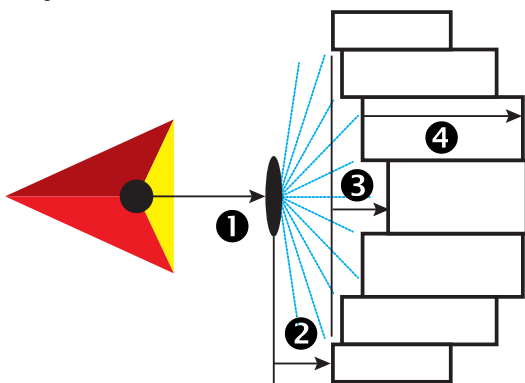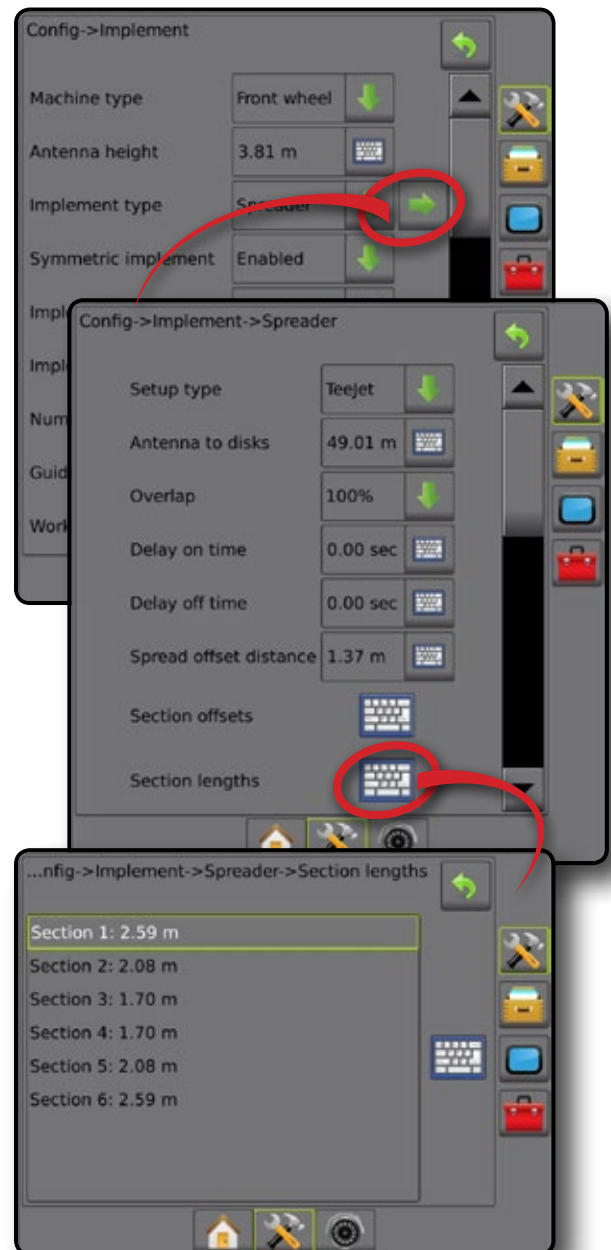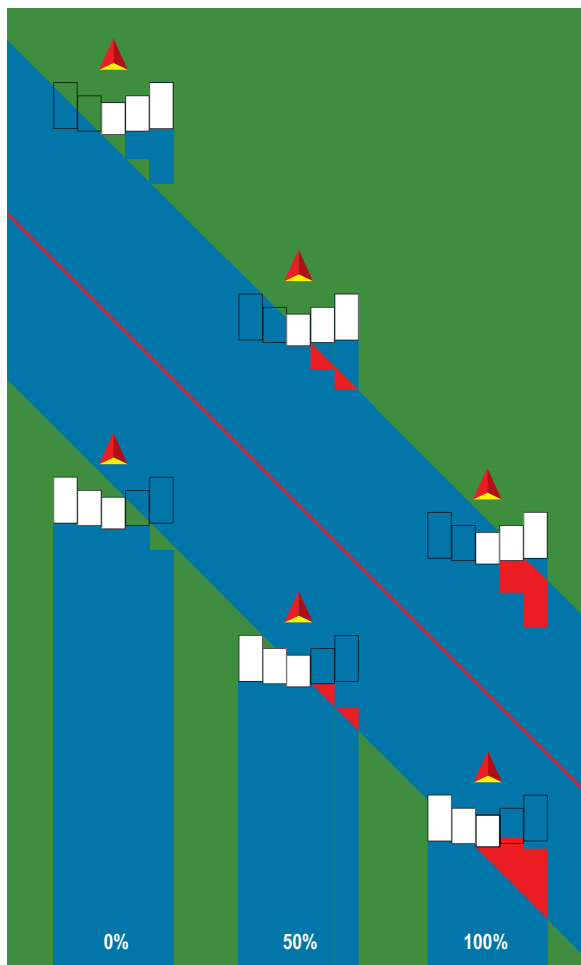

Figure 8-20: Implement setup options in staggered mode

Figure 8-21: Overlap

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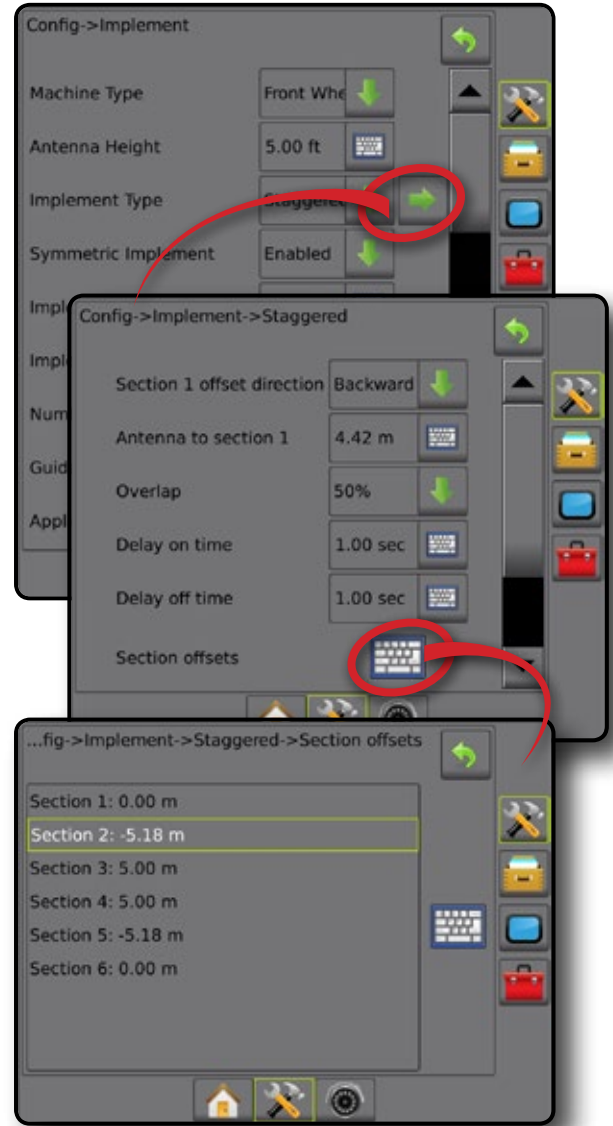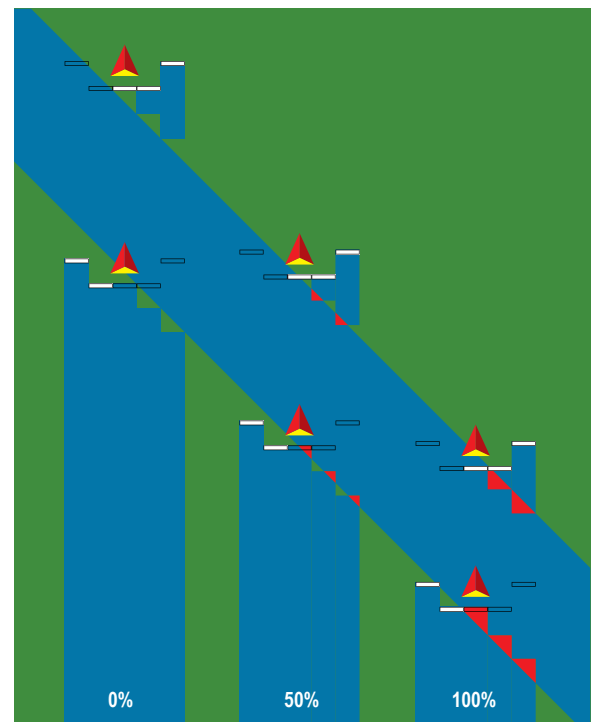
IMPLEMENT OFFSET DISTANCE ADJUSTMENT

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 directio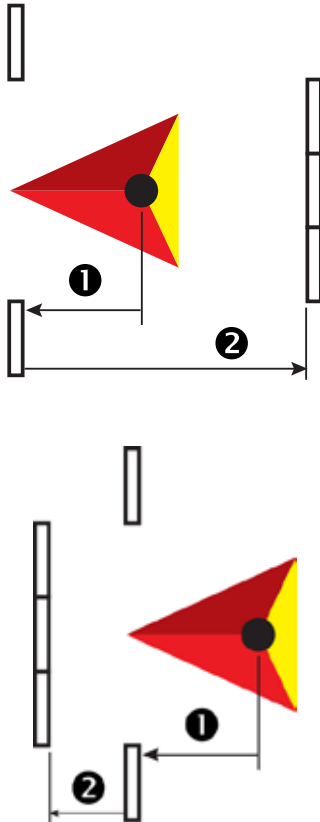n of travel, an adjustment to the implement offset distance should be calculated and made to the implement offset distance value.

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
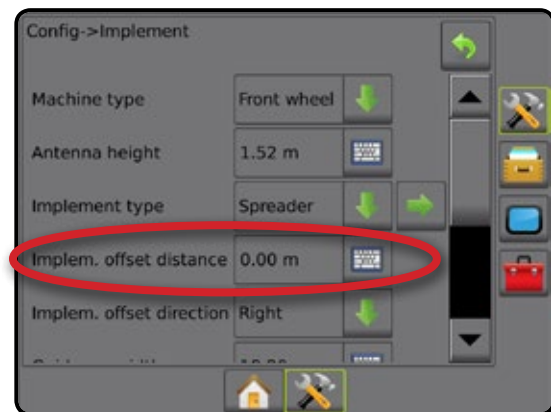
GPS offset adjustment calculation

To calculate a GPS offset adjustment using the same guideline:

1. Create a straight AB line.
2. With assisted/auto steering engaged, drive pass ❶ at least 30 metres and place flags at the draw bar or next to the machine.
3. Turn around and engage assisted/auto steering on pass ❷ 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 ❶.
4. Measure the difference ❸ between the flags of pass ❶ and pass ❷.
5. Divide the measured distance ❸ 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 ❶	increase distance offset value	decrease distance offset value	increase distance offset value
To the left of pass ❶	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 Dstance

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 ❶ 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 ❷ 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 ❶.
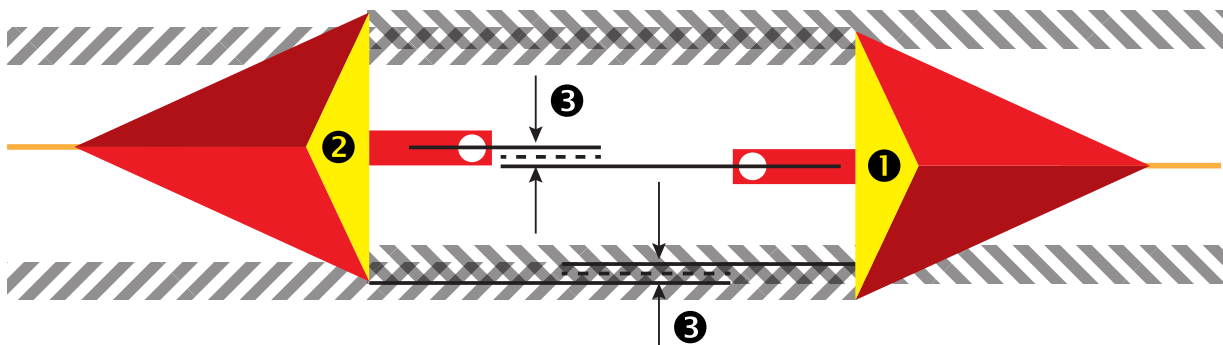
4. Measure the difference ❸ between the flags of pass ❶ and pass ❷.

5. Divide the measured distance ❸ in half. This difference will be the offset adjustment.

6. Increase or decrease the offset distance ❹ as needed dependent on where the field application overlap occurs and the current implement offset direction setting.

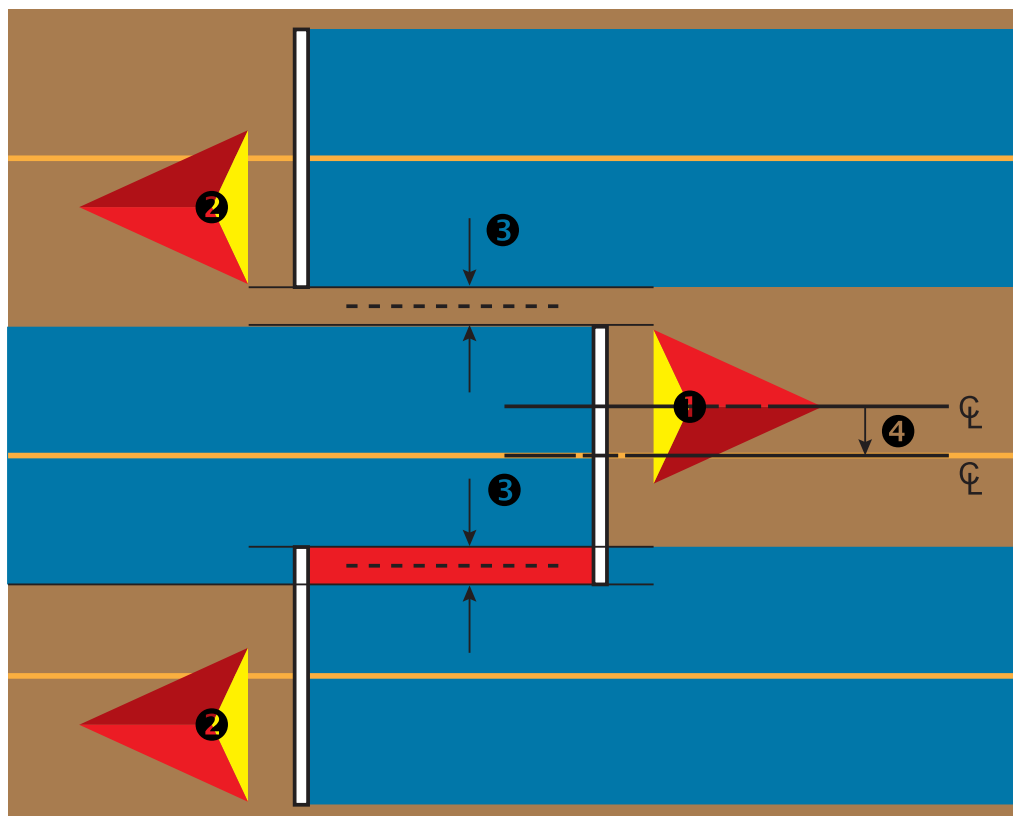| Field application	Current offset settings		
	Offset direction = left	Offset direction = right	Offset direction = right Offset distance = 0 m
Overlap on the right of pass ❶ or Gap on the left of pass ❶	increase distance offset value	decrease distance offset value	increase distance offset value
Overlap on the left of pass ❶ or Gap on the right of pass ❶	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

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FACTORY SETTINGS & RANGES

Single section

Description	Factory setting	Range
Machine type	Front wheel	
GPS antenna height	3.81 m	0.0 to 10.0 m
Implement type	Straight	
Implement Offset Distance	0.0 m	0.0 to 10.0 m
Implement Offset Direction	Right	
Guidance width	18.288 m	1.0 to 75.0 m
Application width / Working width	3.6576 m	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 m	0.0 to 50.0 m

TeeJet Spreader implement type

Description	Factory setting	Range
Setup type	TeeJet	
Antenna to disks	0.0 m	0.0 to 50.0 m
Spread offset distance	0.0 m	0.0 to 75.0 m
Spread length	0.0 m	0.0 to 75.0 m

OEM Spreader implement type

Description	Factory setting	Range
Setup type	OEM	
Antenna to disks	0.0 m	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	3.81 m	0.0 to 10.0 m
Implement type	Straight	
Symmetric implement layout	Enabled	
Implement Offset Distance	0.0 m	0.0 to 10.0 m
Implement Offset Direction	Right	
Number of implement sections	Depends on cable or SDM	
Guidance width	18.288 m	1.0 to 75.0 m
Application width / Working width	Total for all sections must be greater than 1.0 m.	
Section width	3.6576 m	0.0 to 75.0 m

Straight implement type

Description	Factory setting	Range
Boom offset direction	Backwards	
Antenna to boom	0.0 m	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 m	0.0 to 50.0 m
Overlap	50%	
Delay on time	0.0 sec	0.0 to 10.0 sec
Delay off tme	0.0 sec	0.0 to 10.0 sec
Spread offset distance	0.0 m	0.0 to 75.0 m
Section offset	0.0 m	0.0 to 75.0 m
Spread length	0.0 m	0.0 to 75.0 m

OEM Spreader implement type

Description	Factory setting	Range
Setup type	OEM	
Antenna to disks	0.0 m	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 m	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 m	-75.0 to 75.0 m

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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 manufacture'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.

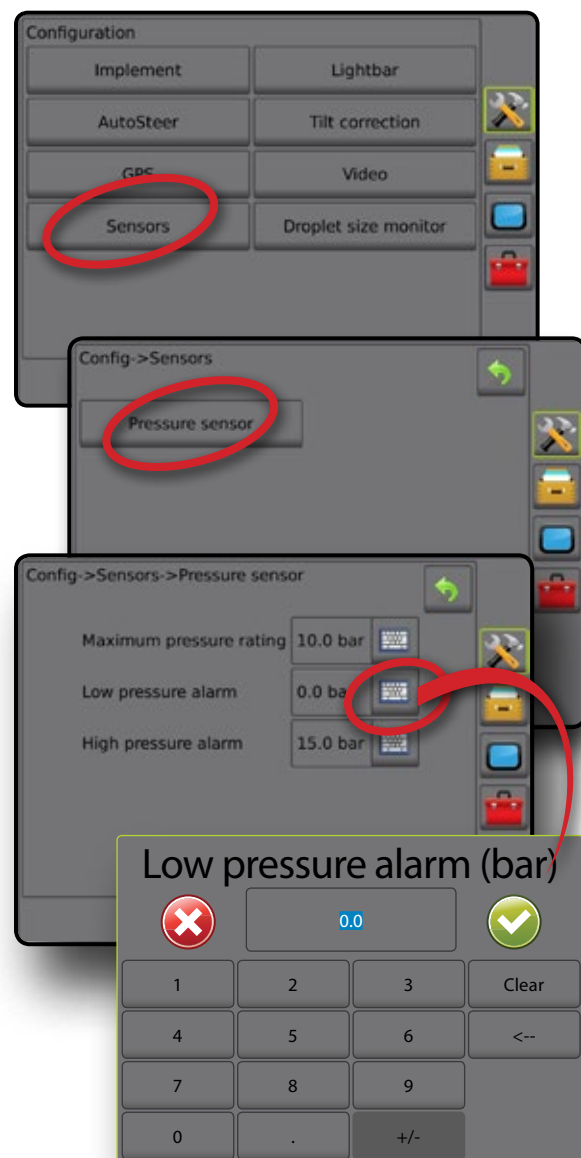1. Press CONFIGURATION side tab.
2. Press Sensors.
3. Press Pressure sensor.
4. Press the KEYPAD icon to select from:
   ► Maximum pressure rating – used to establish the maximum pressure rating of the pressure sensor as recommended by the manufacturer
   ► Low pressure alarm– used to enter the user 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) nozzles and select the current nozzle.

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) nozzles for quick recall

   ► Current nozzle – selects the current nozzle for determining droplet size information

5. Press RETURN arrow or CONFIGURATION side tab to return to the main Configuration screen.
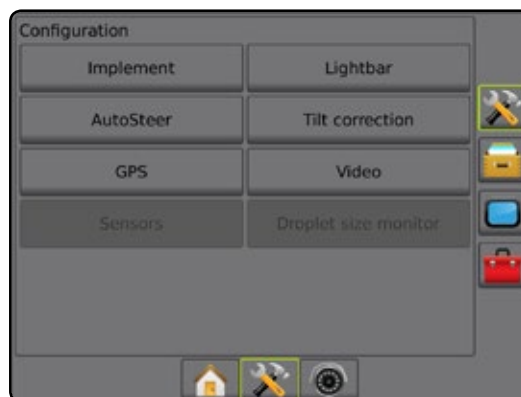
Figure 9-2: Droplet size monitor and nozzles
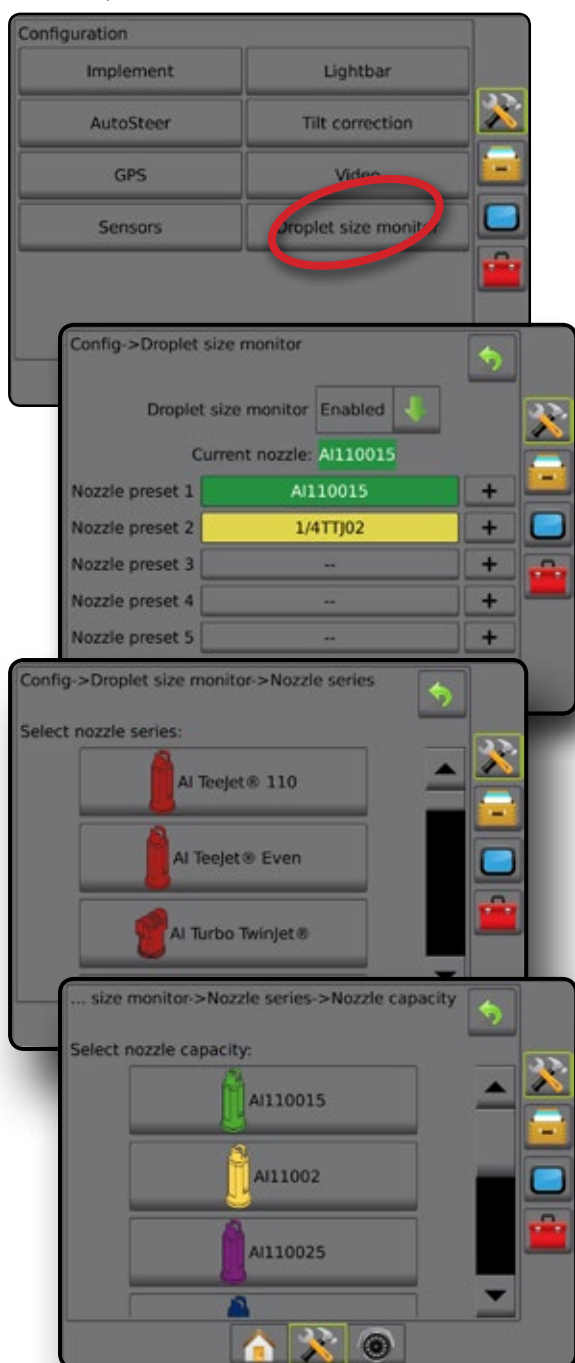
Droplet size monitor unavailable

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 nozzle capabilities and setup functions will be disabled (options will be grayed out).

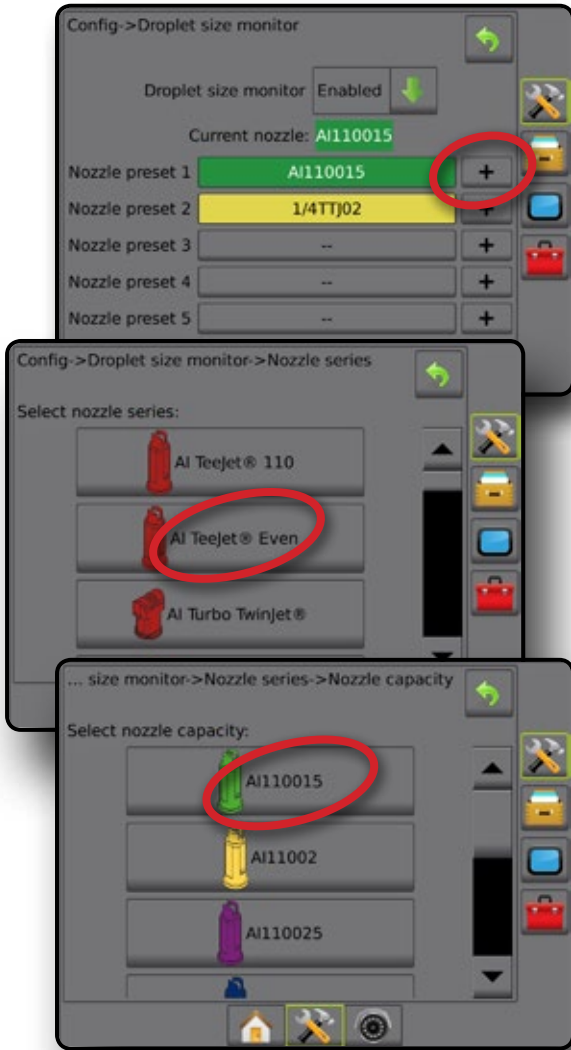*Figure 9-4: Disabled and enabled DSM options*
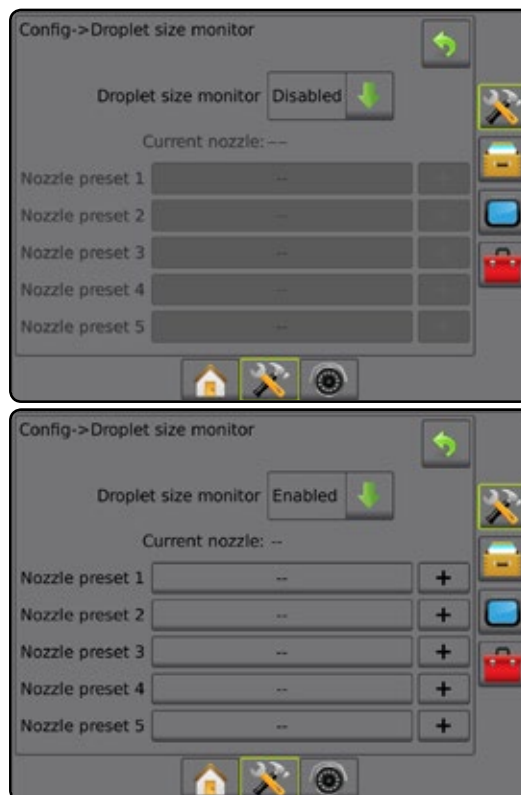
Nozzle preset

Nozzle presets allow saving of up to five nozzles for quick recall.

1. Press ＋ .
2. Select a TeeJet nozzle series.
3. Select nozzle capacity.

Figure 9-5: Preset nozzle

Current nozzle

Current nozzle shows the active nozzle for determining current droplet size information. Nozzles must be preset to be available for current nozzle selection.

1. Press desired nozzle.

Selected nozzle will be also visible on the Droplet/Pressure Status display from the status bar on the guidance screens.
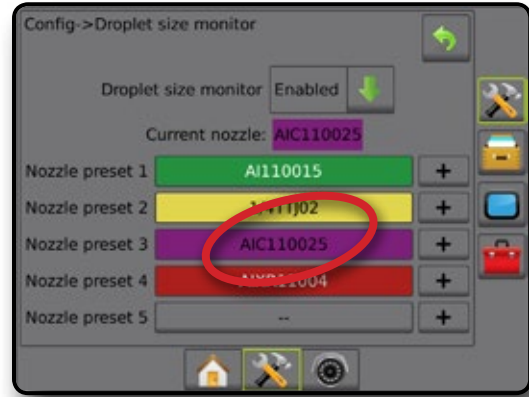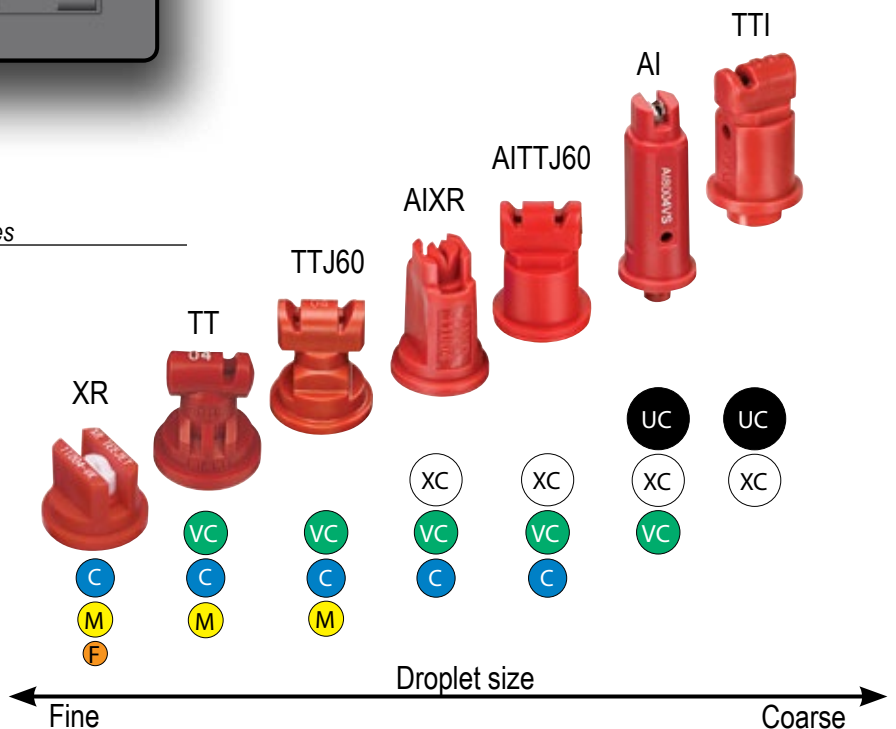
Figure 9-7: Current nozzle

Figure 9-6: Droplet sizes for select teejet nozzles

DROPLET SIZE MONITOR OPERATION

Status bar

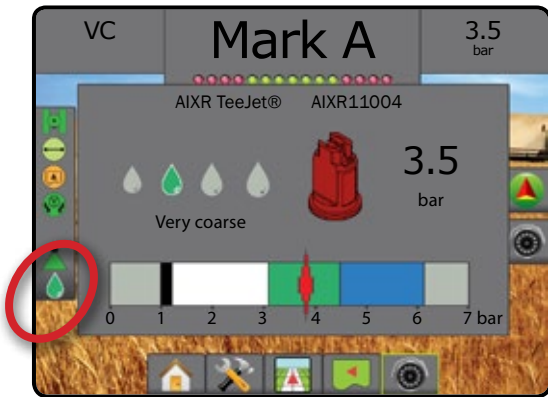Droplet/pressure status displays information regarding the current status of the droplet size and system pressure.

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	
💧	Coloured = engaged. The colour of the droplet is directly associated with the current droplet size. Colour options include: 🟣🔴🟠🟡🔵🟢⚪⚫
❌	Crossed out = disabled
	No icon = no pressure sensor interface kit is installed on system

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
   ► Droplet size – displays the current nozzle droplet size

3. Press outside the selection box to return to the guidance screen.

Figure 9-9: Guidance bar selectable information
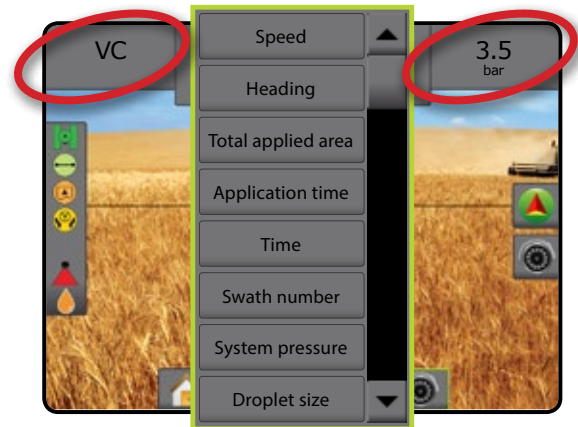
Droplet size chart

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

Category	Symbol	Colour 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

Unit specifications

Dimensions	Matrix Pro 570GS	16.15 x 14.91 x 5.84 cm
	Matrix Pro 840GS	27.0 x 18.0 x 6.0 cm
Weight	Matrix Pro 570GS	0.794 kg
	Matrix Pro 840GS	1.06 kg
Connector	Power/CAN	8 pin Conxall
	Camera	5 pin Conxall
	Speed/Status	8 pin Conxall *WARNING! Some original Matrix consoles have a 4 pin conxall cable connection. The 4-pin and 8-pin cables are NOT interchangable.*
Environmental	Storage	-10 to +70°C
	Operating	0 to +50°C
	Humidity	90% non-condensing
Display	Matrix Pro 570GS	320 x 240 resolution 14.5 cm
	Matrix Pro 840GS	800 x 600 resolution 21.3 cm
Input/output		USB 2.0
Power requirement		< 9 watts @ 12 VDC

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MATRIX® PRO GS
U S E R   M A N U A L

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 kit for droplet size monitor