

# USER GUIDE

# MATRIX<sup>®</sup> 908



98-01578 R1

**TeeJet**<sup>®</sup>  
TECHNOLOGIES

A Subsidiary of  Spraying Systems Co.<sup>®</sup>

# Matrix 908 Field Computer

MEASUREMENTS

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## IMPORTANT SAFETY INFORMATION

All safety related and operating instructions should be read before the system is operated. Safe operation of machinery is the operators responsibility. Safety procedures must be posted close to the equipment and clearly visible to and legible by the operator. Safety procedures should meet all company and local regulations, as well as MSDS-requirements. For assistance, contact a local dealer.

### Safety Alert Symbol Definitions:



**DANGER!** This symbol is reserved for the most extreme situations where serious personal injury or death is imminent.



**WARNING!** This symbol indicates a hazardous situation that could result in serious personal injury or death.



**CAUTION!** This symbol indicates a hazardous situation that could result in minor or moderate personal injury.



**NOTE:** This symbol addresses practices in which the operator should be aware.

## GENERAL WARNINGS AND PRECAUTIONS



### DANGER!

- Read and follow instructions. If instructions are unclear after reading the manual, please contact a local dealer.
- Keep children away from equipment.
- Do not operate machinery under the influence of alcohol or any illegal substance.
- Some systems include a fan heater. Never cover the heater otherwise there will be a serious danger of fire!



### WARNING! ELECTRICAL / SHOCK HAZARDS

- Before working on any particular component, make sure that all power supplies have been switched off and cannot be accidentally switched on.
- Disconnect power leads before using an arc welder on equipment or anything connected to the equipment.
- Systems including frequency drives have a risk of electric shock due to residual voltage. It is not permissible to open the equipment neither to disconnect the system or any quick connection until 5 minutes after the power has been removed.
- Only operate the system from the power source indicated in the manual. If you are not sure of the power source, consult qualified service personnel.
- Do not use a high pressure cleaner to clean electrical components. This could damage electrical components and subject the operator to risk of electrical shock.
- The electrical supply to the equipment must be properly routed and connected to the equipment. All connections must meet the specified requirements.



## WARNING! PRESSURIZED HYDRAULIC SYSTEMS

- Always wear personal protective equipment (PPE) when performing work on hydraulic systems.
- Adhere to the machine manufacture's approved maintenance instructions when working on the hydraulic system.
- Always turn equipment off when working on the hydraulic system. Take appropriate precautions when opening systems that have been previously pressurized.
- Be aware that hydraulic oil may be extremely hot and under high pressure.



## WARNING! CHEMICAL HANDLING

- Always wear PPE when handling any chemical substance.
- Always follow safety labels and instructions provided by the chemical manufacturer or supplier.
- The operator should have full information on the nature and the quantity of the material to be distributed.
- **ADHERE TO FEDERAL, STATE AND LOCAL REGULATIONS REGARDING THE HANDLING, USE OR DISPOSAL OF AGRICULTURAL CHEMICALS.**



## WARNING! PRESSURIZED SPRAY SYSTEM

- It is important to recognize proper safety precautions when using a pressurized spray system. Fluids under pressure can penetrate skin and cause serious personal injury.
- The system pressure should never exceed the lowest rated component. Always know your system and all component capabilities, maximum pressures and flow rates.
- Filters can only be opened when the manual valves in front of and behind the filter are in closed position. If any appliance has to be taken out of the piping, manual valves in front of and behind this appliance have to be in closed position. If they are reinstalled, make sure that this happens correctly, that this apparatus is well aligned, and that all connections are tight.
- The plumbing supply to the equipment should meet all company and local regulations and must be properly routed and connected to the equipment. All connections must meet the specified requirements.
- It is advised to drain and purge the liquid train when the equipment shall not be used for a longer period of time.



## WARNING! AUTO STEERING SAFETY

- To prevent serious personal injury or death from being run over by the vehicle or automated motion of the steering system, never leave the vehicles operator seat with the system engaged.
- To prevent serious personal injury or death from being run over by the vehicle or automated motion of the steering system, verify the area around the vehicle is clear of people or obstacles before startup, calibration, tuning or engaging the system.
- Make sure equipment is tightly secured to the proper components.
- Never drive on public roads with system engaged.



## CAUTION! EQUIPMENT SAFETY, MAINTENANCE, AND SERVICE

- The equipment should be operated only by properly trained, qualified personnel. They must have proven their skills in the operation of the equipment.
- Before using the equipment, the operator has to check if the equipment is in good condition and can be used safely. If not, the equipment cannot be used.
- All necessary PPE must be readily available to the operator at all times.
- Routinely check the system and components for wear and damage. Replace or repair when necessary.
- Only qualified authorized experts are allowed to repair or maintain the installation. The maintenance and operating instructions shall be rigidly observed and followed.
- A complete manual for the equipment must be available to the operator or maintenance technician at all times.



## CAUTION! HARNESS CABLE AND HOSE SAFETY

- Routinely check all harness cables and hoses for damage or wear. Replace or repair when necessary.
- Do not route harness cables and hoses with sharp bends.
- Do not strap harness cables and hoses to lines with high vibration or spikes in pressure.
- Do not strap harness cables and hoses to lines transporting hot fluids.
- Protect harness cables and hoses from sharp objects, equipment debris, and material buildup.
- Allow sufficient length for harness cables and hoses to have free movement on sections that move during operation, and be sure that harness cables or hoses do not hang below the equipment.
- Allow sufficient clearance for harness cables and hoses from implement and machine operational zones.
- When cleaning equipment, protect harness cables from high pressure wash.



## NOTE: TOUCH SCREEN CARE

- Keep sharp objects away from the touch screen device. Touching the screen with a sharp object could result in damage to the display.
- Do not use harsh chemicals to clean the console/display. The correct way to clean a console/display is to use a soft damp cloth or anti-static wipe, similar to cleaning a monitor on a computer.



## NOTE: RECOMMENDED REPLACEMENT PARTS

- The system has been designed with components that work together to provide the best system performance. When the system requires replacement parts, only TeeJet recommended components should be used to maintain proper system operation and safety.

## MEASUREMENTS TO HAVE ON HAND BEFORE YOU GET STARTED

The following pages are to assist in defining vehicle measurements in the Vehicle Wizard, device measurements in the Device Wizard, and mapping location measurements in the Guidance and Mapping options.

Illustrations are for general reference only. See tractor manufacture's documentation for precise measurement locations.

### Sprayers

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### Spreaders

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*NOTE: Some of the listed settings may not be required for your vehicle or device. The Vehicle Wizard and Device Wizard will guide you through each required settings based on your selections.*

### Measurement Best Practices

- Measure while vehicle and device are in a straight-line, operating position.
- Device dimensions may shift when in operation. Measure implement when engaged with the ground to achieve the best accuracy.
- Hold tape measure plumb or level in vertical or horizontal directions.
- Measure to the center of the antenna.
- Sections are numbered from left to right while facing in the machine's forward direction.
- Lateral left/right direction is determined while facing in the machine's forward direction.

### Terminology Notes

- Vehicle Pivot Point ① – the center of the vehicle's non-steering axle
  - Example: the center of the rear axle for a front steering vehicle
- Hitch Point / Hitch/Connection Point ② – the point where the implement connects to the machine or the pivot point between implement and machine depending on Hitch Type
  - Not all vehicles have hitch points. On these vehicles, the Hitch Point and the Vehicle Pivot Point will be the same point and the value should be entered as 0 in / 0 cm.
- Guidance Width – the width between guidelines
  - May be different than the Application Width or Working Width (total width of all sections).

## SPRAYERS

### Self-Propelled Front Mount Sprayer

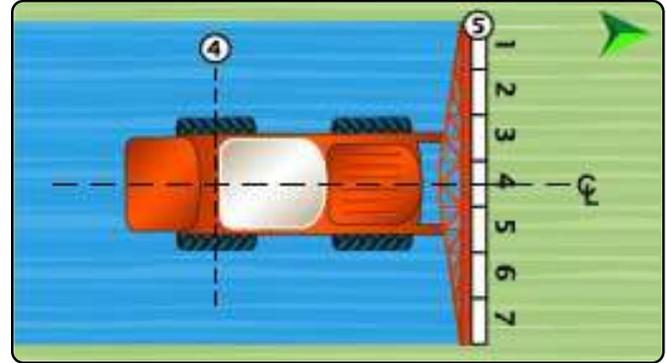
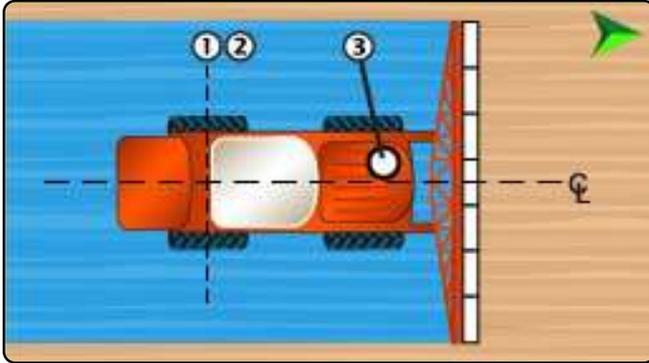


Table 1-1: Vehicle Wizard Measurements

Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	 Forward of Vehicle Pivot Point
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	0 in / 0 cm Vehicle Pivot Point ① and Hitch Point ② are the same point
Vehicle Lateral Direction to Hitch Point	 On Center
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>1</sup> and Distance from vehicle centerline $\mathcal{C}$ to the Antenna ③	

Table 1-2: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline $\mathcal{C}$ to the Mapping Location	

Table 1-3: Device Wizard Measurements

Description	Measurement/Option
Hitch Type	 Fixed Mount
Boom and Section Layout	 Front Centered
Distance to Boom: In-Line Distance Hitch/Connection Point ④ to Product Delivery Point ⑤	

Table 1-4: Section Information

Description	Option
Section Symmetry	
<b>Width Measurement</b>	
Section 1	
Section 2	
Section 3	
Section 4	
Section 5	
Section 6	
Section 7	
Section 8	
Section 9	
Section 10	
Total Application Width	

<sup>1</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

## Self-Propelled Rear Mount Sprayer

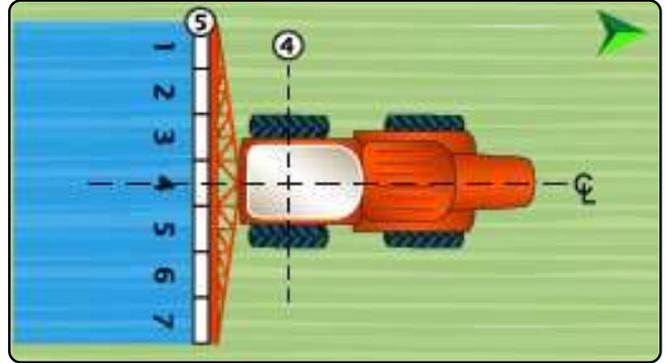
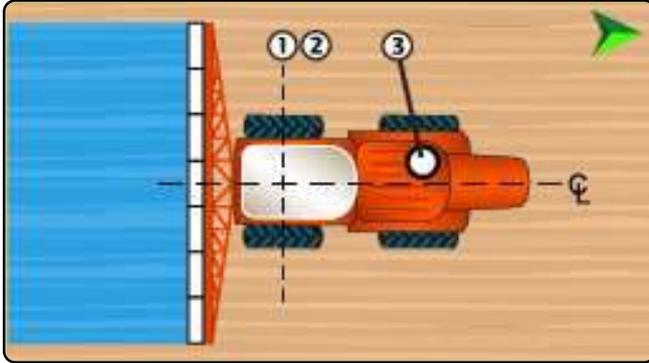


Table 1-5: Vehicle Wizard Measurements

Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	<p>Aft of Vehicle Pivot Point</p>
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	0 in / 0 cm Vehicle Pivot Point ① and Hitch Point ② are the same point
Vehicle Lateral Direction to Hitch Point	<p>On Center</p>
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>2</sup> and Distance from vehicle centerline $\mathcal{C}$ to the Antenna ③	

Table 1-6: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline $\mathcal{C}$ to the Mapping Location	

Table 1-7: Device Wizard Measurements

Description	Measurement/Option
Hitch Type	<p>Fixed Mount</p>
Boom and Section Layout	<p>Aft Centered</p>
Distance to Boom: In-Line Distance Hitch/Connection Point ④ to Product Delivery Point ⑤	

Table 1-8: Section Information

Description	Option
Section Symmetry	
Description	Width Measurement
Section 1	
Section 2	
Section 3	
Section 4	
Section 5	
Section 6	
Section 7	
Section 8	
Section 9	
Section 10	
Total Application Width	

<sup>2</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

# Matrix 908 Field Computer

## Tractor with Fixed Mount Off-Center Sprayer

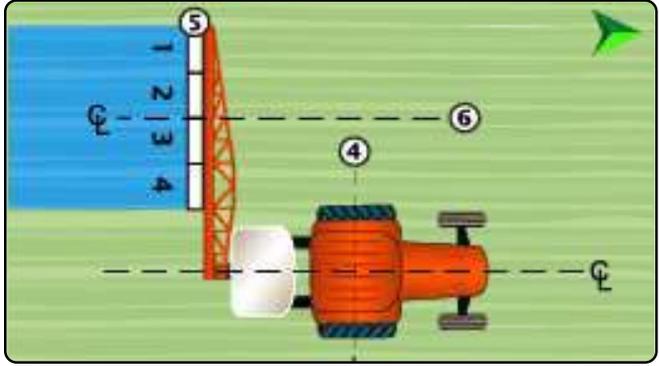
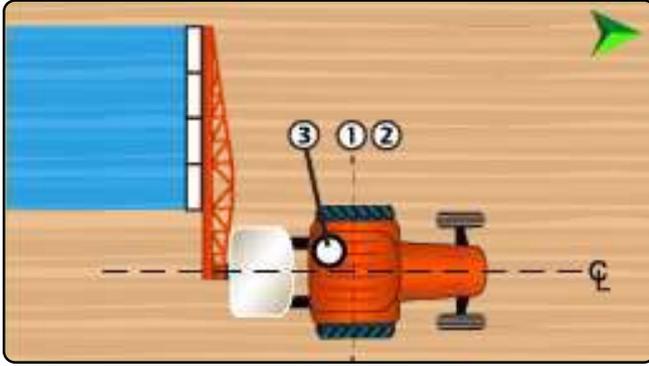


Table 1-9: Vehicle Wizard Measurements

Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	<p>Aft of Vehicle Pivot Point</p>
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	0 in / 0 cm Vehicle Pivot Point ① and Hitch Point ② are the same point
Vehicle Lateral Direction to Hitch Point	<p>On Center</p>
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>3</sup> and Distance from vehicle centerline ⌘ to the Antenna ③	

Table 1-10: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline ⌘ to the Mapping Location	

<sup>3</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

Table 1-11: Device Wizard Measurements

Description	Measurement/Option
Hitch Type	<p>Fixed Mount</p>
Boom and Section Layout	<p>Aft Off-Centered</p>
Boom Lateral Offset Direction	
Boom Lateral Offset Distance from the Centerline of the Vehicle ⌘ to the Center of the Boom ⑥	
Distance to Boom: In-Line Distance Hitch/Connection Point ④ to Product Delivery Point ⑤	

Table 1-12: Section Information

Description	Option
Section Symmetry	
Description	Width Measurement
Section 1	
Section 2	
Section 3	
Section 4	
Section 5	
Section 6	
Section 7	
Section 8	
Section 9	
Total Application Width	

## Tractor with Fixed Mount Aft Mount Sprayer

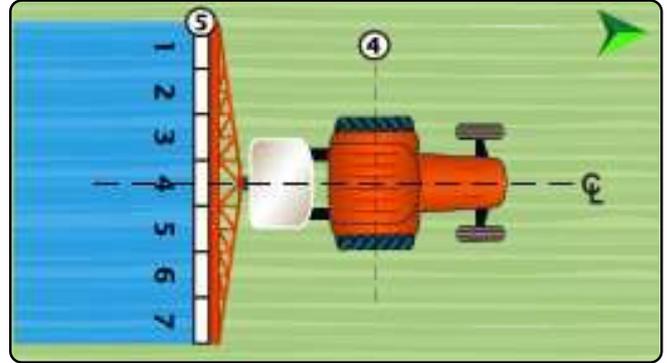
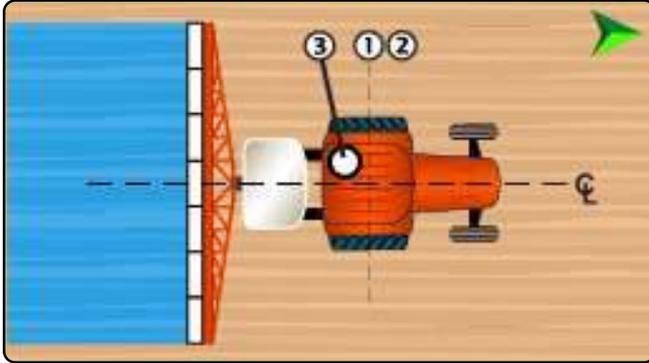


Table 1-13: Vehicle Wizard Measurements

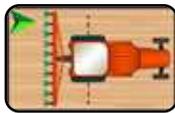
Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	 Aft of Vehicle Pivot Point
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	0 in / 0 cm Vehicle Pivot Point ① and Hitch Point ② are the same point
Vehicle Lateral Direction to Hitch Point	 On Center
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>4</sup> and Distance from vehicle centerline $\mathcal{C}$ to the Antenna ③	

Table 1-14: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline $\mathcal{C}$ to the Mapping Location	

Table 1-15: Device Wizard Measurements

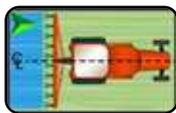
Description	Measurement/Option
Hitch Type	 Fixed Mount
Boom and Section Layout	 Aft Centered
Distance to Boom: In-Line Distance Hitch/Connection Point ④ to Product Delivery Point ⑤	

Table 1-16: Section Information

Description	Option
Section Symmetry	
Description	Width Measurement
Section 1	
Section 2	
Section 3	
Section 4	
Section 5	
Section 6	
Section 7	
Section 8	
Section 9	
Section 10	
Total Application Width	

<sup>4</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

# Matrix 908 Field Computer

## Tractor with Pivot Mount Sprayer

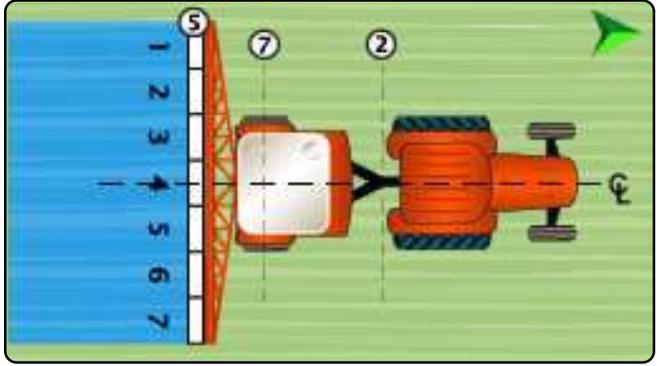
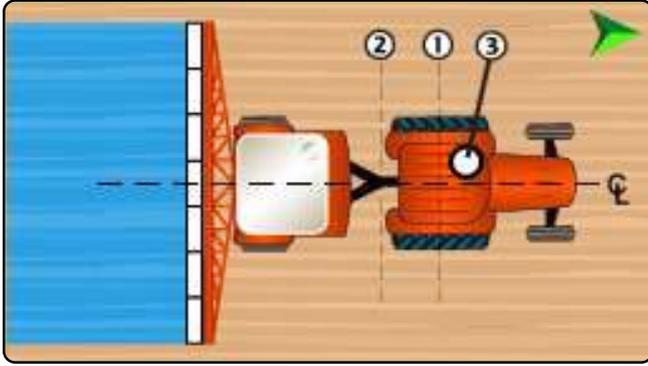


Table 1-17: Vehicle Wizard Measurements

Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	 Aft of Vehicle Pivot Point
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	
Vehicle Lateral Direction to Hitch Point	 On Center
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>5</sup> and Distance from vehicle centerline $\mathcal{C}$ to the Antenna ③	

Table 1-18: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline $\mathcal{C}$ to the Mapping Location	

Table 1-19: Device Wizard Measurements

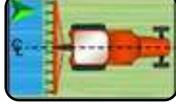
Description	Measurement/Option
Hitch Type	 Pivot Mount
In-Line Distance from Hitch/Connection ② to Trailer Axle ⑦	
Boom and Section Layout	 Aft Centered
Distance to Boom: In-Line Distance Hitch/Connection Point ② to Product Delivery Point ⑤	

Table 1-20: Section Information

Description	Option
Section Symmetry	
Description	Width Measurement
Section 1	
Section 2	
Section 3	
Section 4	
Section 5	
Section 6	
Section 7	
Section 8	
Section 9	
Section 10	
Total Application Width	

<sup>5</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

## SPREADERS

### Self-propelled Spreader

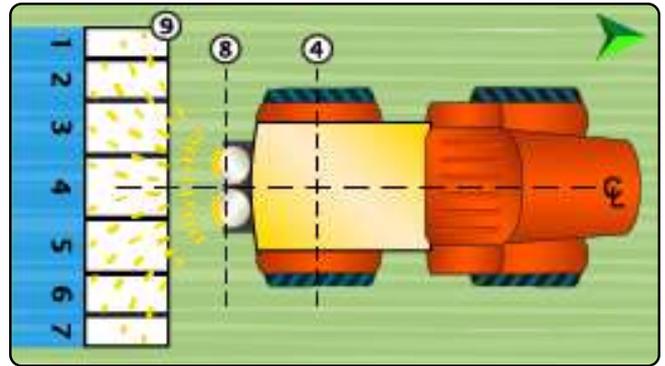
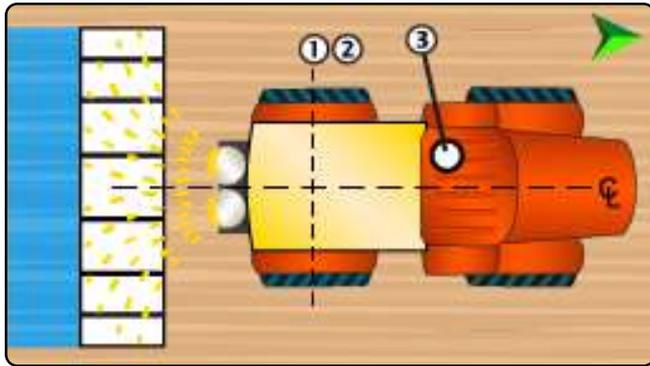


Table 1-21: Vehicle Wizard Measurements

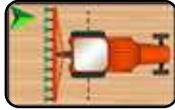
Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	 Aft of Vehicle Pivot Point
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	0 in / 0 cm <i>Vehicle Pivot Point ① and Hitch Point ② are the same point</i>
Vehicle Lateral Direction to Hitch Point	 On Center
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>6</sup> and Distance from vehicle centerline $\mathcal{C}$ to the Antenna ③	

Table 1-22: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline $\mathcal{C}$ to the Mapping Location	

Table 1-23: Device Wizard Measurements

Description	Measurement/Option
Hitch Type	 Fixed Mount
In-Line Distance from Hitch/Connection ④ to Disc ⑧	
In-Line Distance from Disc ⑧ to Leading Edge ⑨	

Table 1-24: Section Information

Description	Option		
	Measurement		
	Width	Length	In-Line Offset
Section 1			0 in / 0 cm
Section 2			
Section 3			
Section 4			
Section 5			
Section 6			
Section 7			
Section 8			
Section 9			
Section 10			
Total Working Width			

<sup>6</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

# Matrix 908 Field Computer

## Tractor with Fixed Mount Spreader

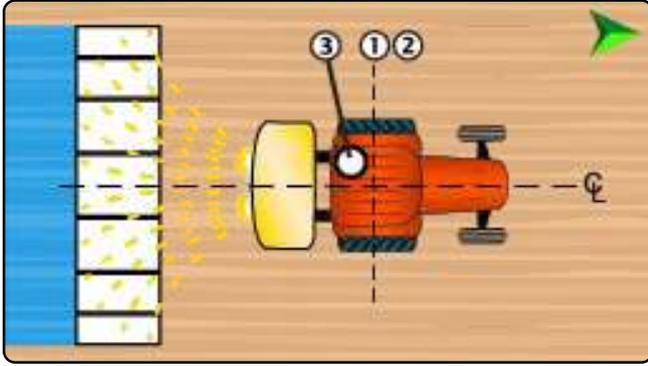


Table 1-25: Vehicle Wizard Measurements

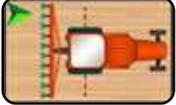
Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	 <b>Aft of Vehicle Pivot Point</b>
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	0 in / 0 cm <i>Vehicle Pivot Point ① and Hitch Point ② are the same point</i>
Vehicle Lateral Direction to Hitch Point	 <b>On Center</b>
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>7</sup> and Distance from vehicle centerline $\mathcal{C}$ to the Antenna ③	

Table 1-26: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline $\mathcal{C}$ to the Mapping Location	

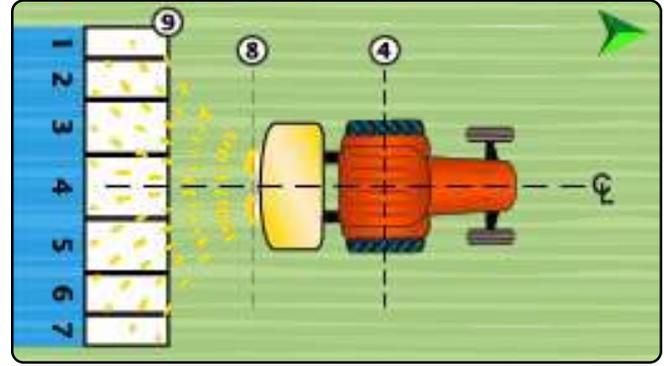


Table 1-27: Device Wizard Measurements

Description	Measurement/Option
Hitch Type	 <b>Fixed Mount</b>
In-Line Distance from Hitch/Connection ④ to Disc ⑧	
In-Line Distance from Disc ⑧ to Leading Edge ⑨	

Table 1-28: Section Information

Description	Option		
Section Symmetry			
	Measurement		
Description	Width	Length	In-Line Offset
Section 1			0 in / 0 cm
Section 2			
Section 3			
Section 4			
Section 5			
Section 6			
Section 7			
Section 8			
Section 9			
Section 10			
Total Working Width			

<sup>7</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

## Tractor with Pivot Mount Spreader

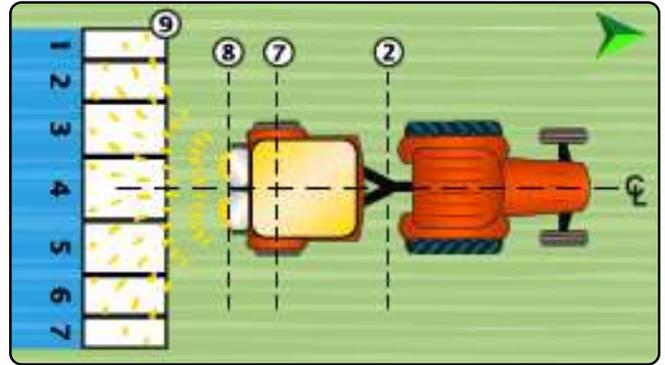
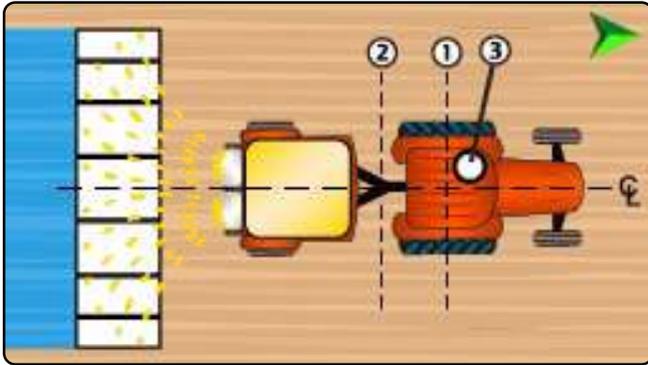


Table 1-29: Vehicle Wizard Measurements

Description	Measurement/Option
Vehicle In-Line Direction to Hitch Point	 Aft of Vehicle Pivot Point
Vehicle In-Line Distance from the Vehicle Pivot Point ① to Hitch Point ②	
Vehicle Lateral Direction to Hitch Point	 On Center
Antenna In-Line Direction and Distance from Vehicle Pivot Point ① to the Antenna ③	
Antenna Lateral Direction <sup>8</sup> and Distance from vehicle centerline $\zeta$ to the Antenna ③	

Table 1-30: Guidance and Mapping Distances

Description	Measurement
Guidance Width	
Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location	
Mapping Location Lateral Distance from the Vehicle Centerline $\zeta$ to the Mapping Location	

Table 1-31: Device Wizard Measurements

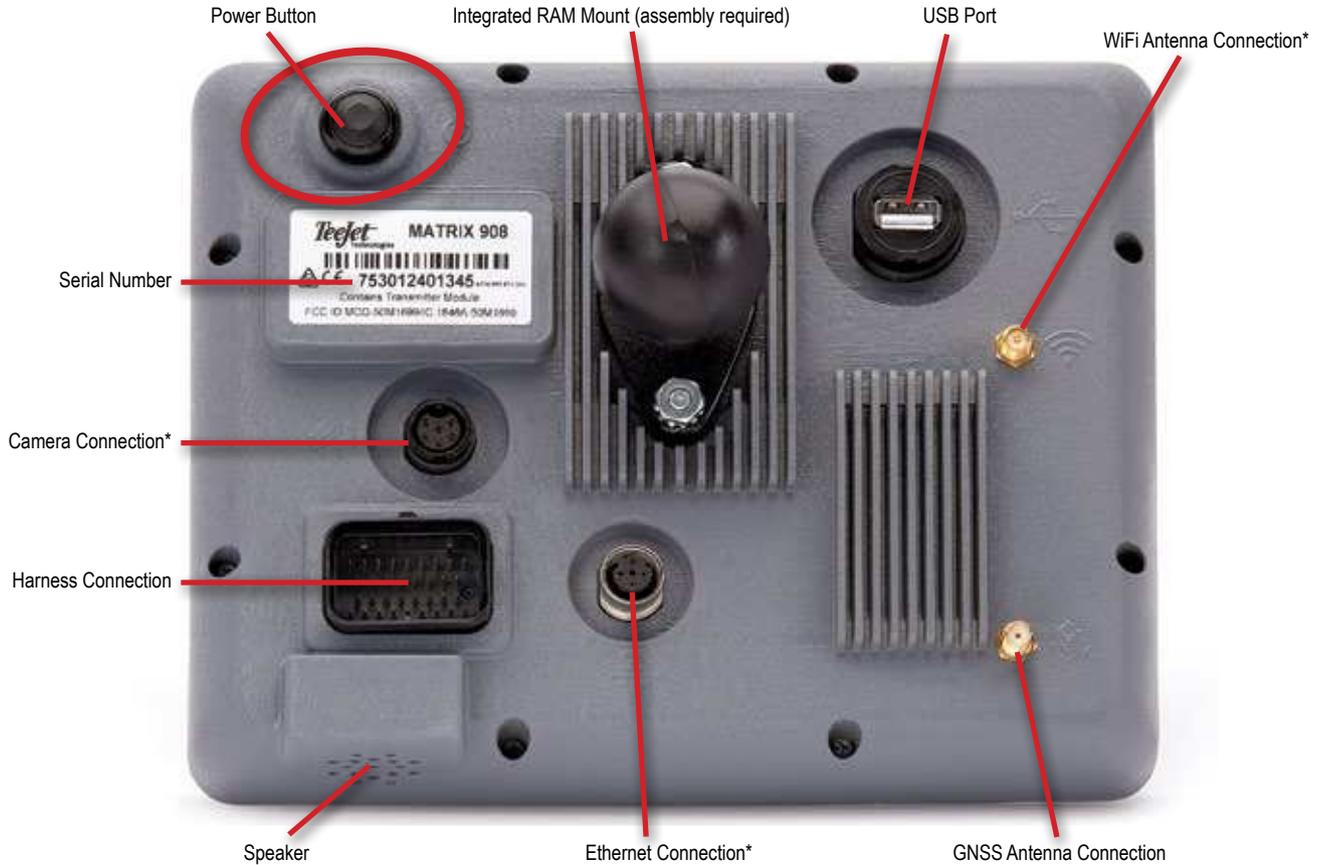
Description	Measurement/Option
Hitch Type	 Pivot Mount
In-Line Distance from Hitch/Connection ② to Trailer Axle ⑦	
In-Line Distance from Hitch/Connection ② to Disc ⑧	
In-Line Distance from Disc ⑧ to Leading Edge ⑨	

Table 1-32: Section Information

Description	Option		
	Measurement		
	Width	Length	In-Line Offset
Section 1			0 in / 0 cm
Section 2			
Section 3			
Section 4			
Section 5			
Section 6			
Section 7			
Section 8			
Section 9			
Section 10			
Total Working Width			

<sup>8</sup> When an Assisted/Automatic Steering Device is available, Antenna Lateral Distance and Direction will be established under the Assisted/Automatic Steering "Manage Vehicles" settings.

## CONSOLE CONNECTIONS AND FEATURES



\*Connection Activity is dependent on software version.

### Power On/Off Button

Before powering on the console, attach all devices to the harness.

- ▶ On – press the POWER button 
- ▶ Off – press and briefly hold the POWER button 

**WARNING!** Wait 30 seconds before restarting the console.

### Serial Number

Take note of your serial number. It is required for product registration.

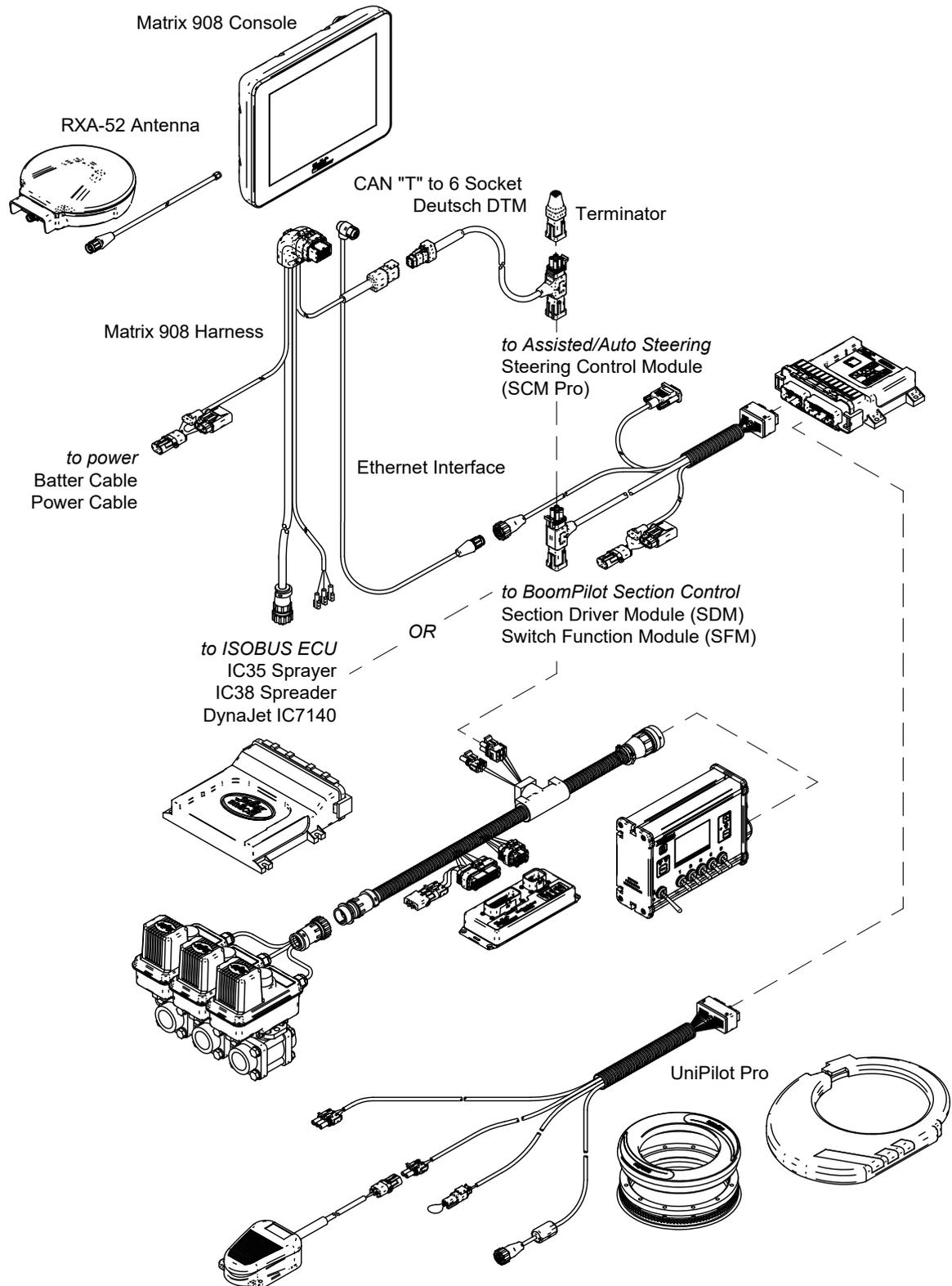
### Product Registration



## SYSTEM DIAGRAM

The following is to be used for general reference. Specific configurations will vary depending on available devices. Contact TeeJet Customer Service or your local dealer for information on your specific configuration.

**NOTE:** Connectivity to different devices may be released with future software releases. Always refer to software release notes for software/system connectivity at [www.teejet.com/support/software.aspx](http://www.teejet.com/support/software.aspx).



## SETUP THE CONSOLE

Before powering on the console, verify that all devices are attached to the harness.

### NO.1 WELCOME SCREEN

Once the power up sequence has completed, the Welcome screen will appear.

Select a different language, switch console units and change the local time zone.

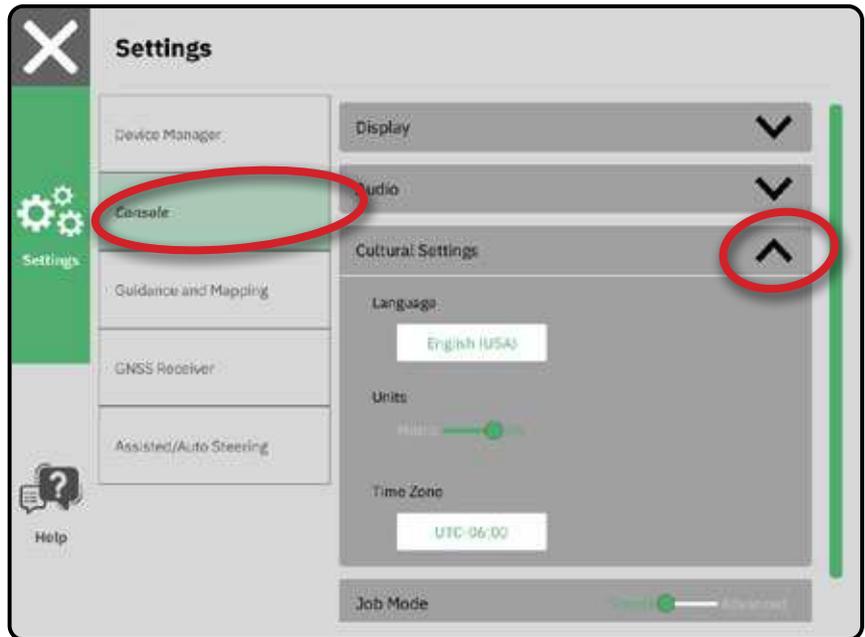
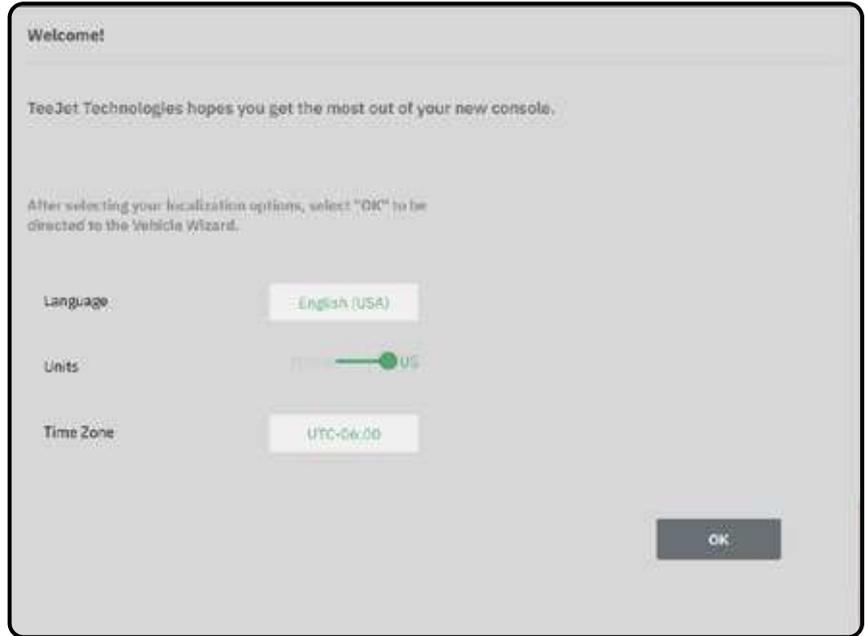
*NOTE: When changing languages, reboot the console as suggested. Upon restart, the console will return to the Welcome Screen.*

Press **OK** to advance to the Vehicle Wizard.

### To Access the Cultural Settings After Initial Startup

1. On the Main Menu , select **Console**.
2. Under **Cultural Settings**, change the settings as needed.

*NOTE: A console restart is suggested when changing languages.*



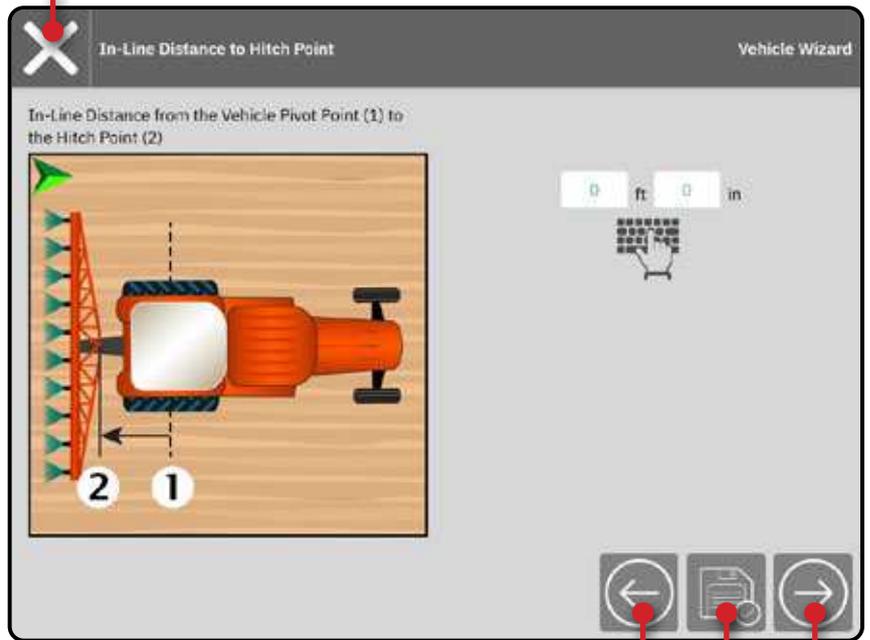
## NO.2 WALK THROUGH THE VEHICLE WIZARD

1. Follow the prompts on the Vehicle Wizard, making adjustments to the vehicle settings as needed.

-  Cancel – use to exit the wizard without saving any changes
-  Previous Wizard Option – use to revisit the previous wizard option
-  Save & Close – use to save all current selections and close the wizard
-  Next Wizard Option – use to go to the next wizard option
-  Finish – shown when the end of the wizard options has been reached; use to save and close the wizard

2. When finished, on the Vehicle Details screen, select the BACK ARROW  to continue to the Settings Menu .

Cancel Button



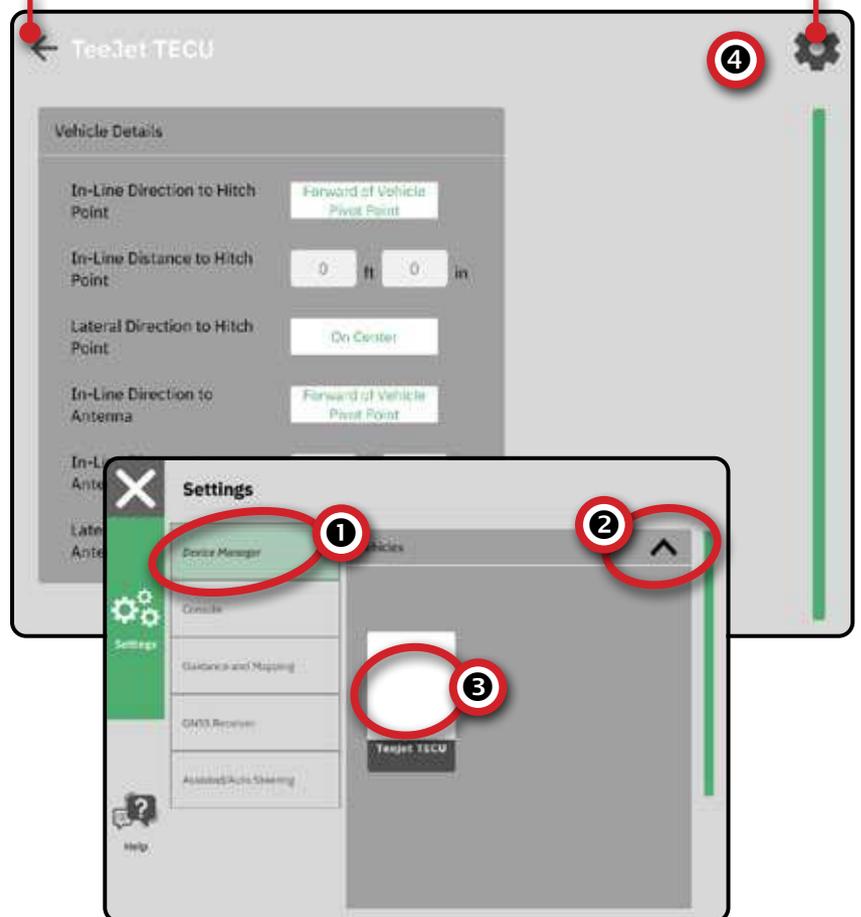
Previous Wizard Option  
Save and Close  
Next Wizard Option

### To Access the Vehicle Wizard After Initial Startup

1. On the Main Menu , on the Settings Menu , select **Device Manager** .
2. Under **Vehicles** , select the vehicle card .
3. On the Vehicle Details screen, select the EDIT SETTINGS icon .
4. Using the PREVIOUS/NEXT WIZARD OPTION buttons   on the Vehicle Wizard, make adjustments to the vehicle settings as needed.
5. At any time, use the SAVE AND CLOSE button  or FINISH button  to save any changes and exit the Vehicle Wizard.

Back Arrow

Edit Settings Button



## NO.3 ENTER AVAILABLE UNLOCKS

Before using some features or options, it is necessary to activate the function with an unlock code.

The unlock code is a unique code for each feature and console.

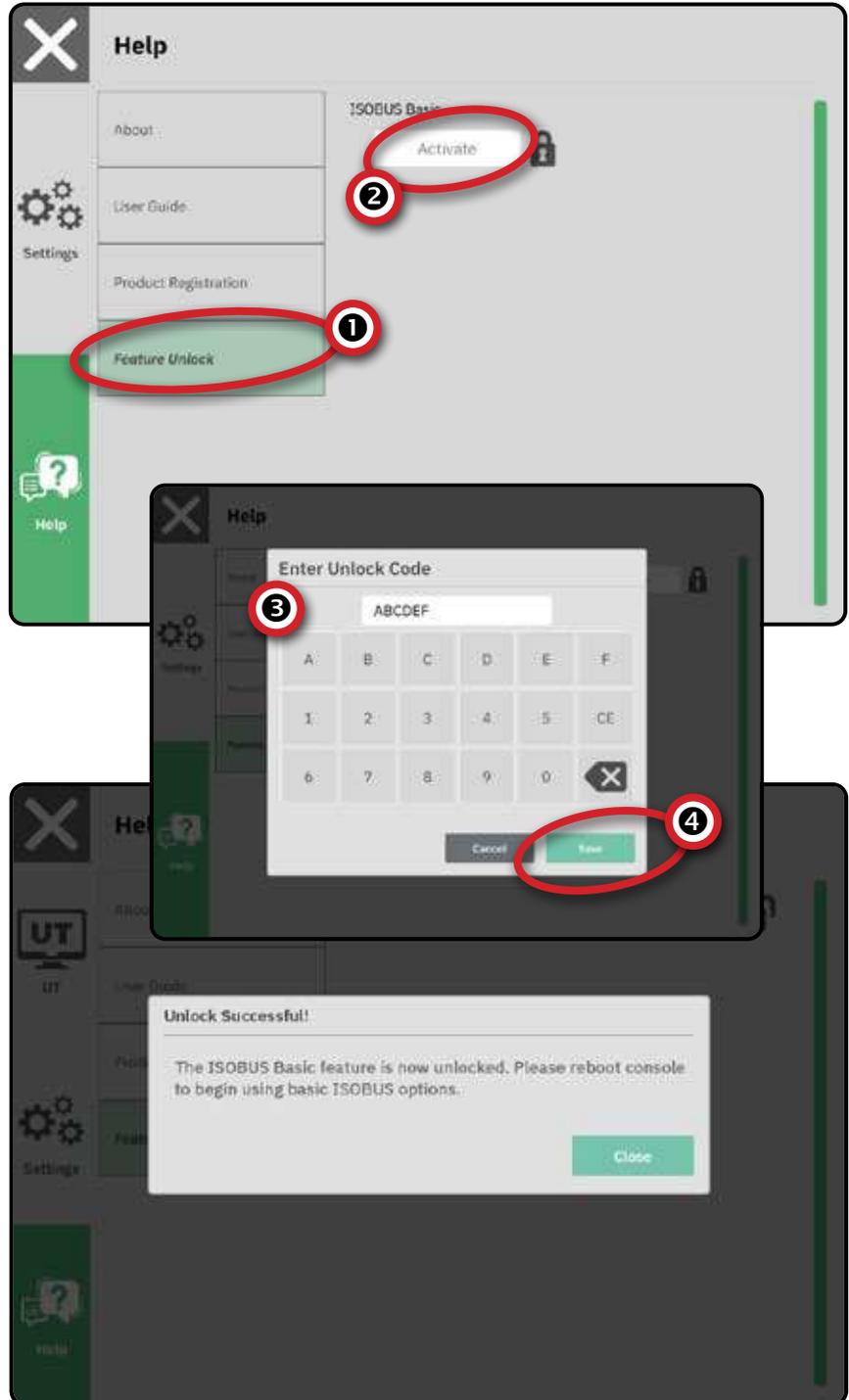
- ◀ System Order included unlocked features – refer to the PDF instruction sheet included with your order
- ◀ Unlock purchased post-receipt of your system – PDF instruction sheet with console specific code will be provided. Contact TeeJet Customer Service or your local dealer for details.

Select the unlock option:

- ▶ ISOBUS Basic – Unlocks basic ISOBUS capabilities
  - Universal Terminal (UT) is available from the Main Menu and Guidance Screen. See "Access the Universal Terminal" on page 39 for details.

To enter the unlock code:

1. On the Main Menu , on the Help Menu , select **Feature Unlock** **1**.
2. Select **Activate** **2** for the desired feature.
3. Enter the provided unlock code **3** **4**.
4. Reboot console.



## NO.4 WALK THROUGH THE DEVICE WIZARD

Before entering the Device Wizard, verify that all devices are attached to the harness. There are multiple device options dependent on what may or may not be on the system.

Before creating a device, determine:

- Is there no device but Application Mapping is needed
  - See Application Mapping for instructions
- Is there a TeeJet CAN device
  - See TeeJet CAN Device for instructions
- Is there an ISOBUS device
  - See ISOBUS Device for instructions.

*NOTE: TeeJet CAN devices and ISOBUS devices cannot be used at the same time. Only one (1) ISOBUS device is supported at a time.*

### Application Mapping

1. On the Main Menu , on the Settings Menu , select **Device Manager** .
2. Under **Devices** , select the **NEW DEVICE** card .
3. In the Device Wizard on the Device Basis screen, select **Application Mapping**.



4. Follow the prompts on the Device Wizard.

*NOTE: Default values must be acknowledged before advancing to the next wizard option.*

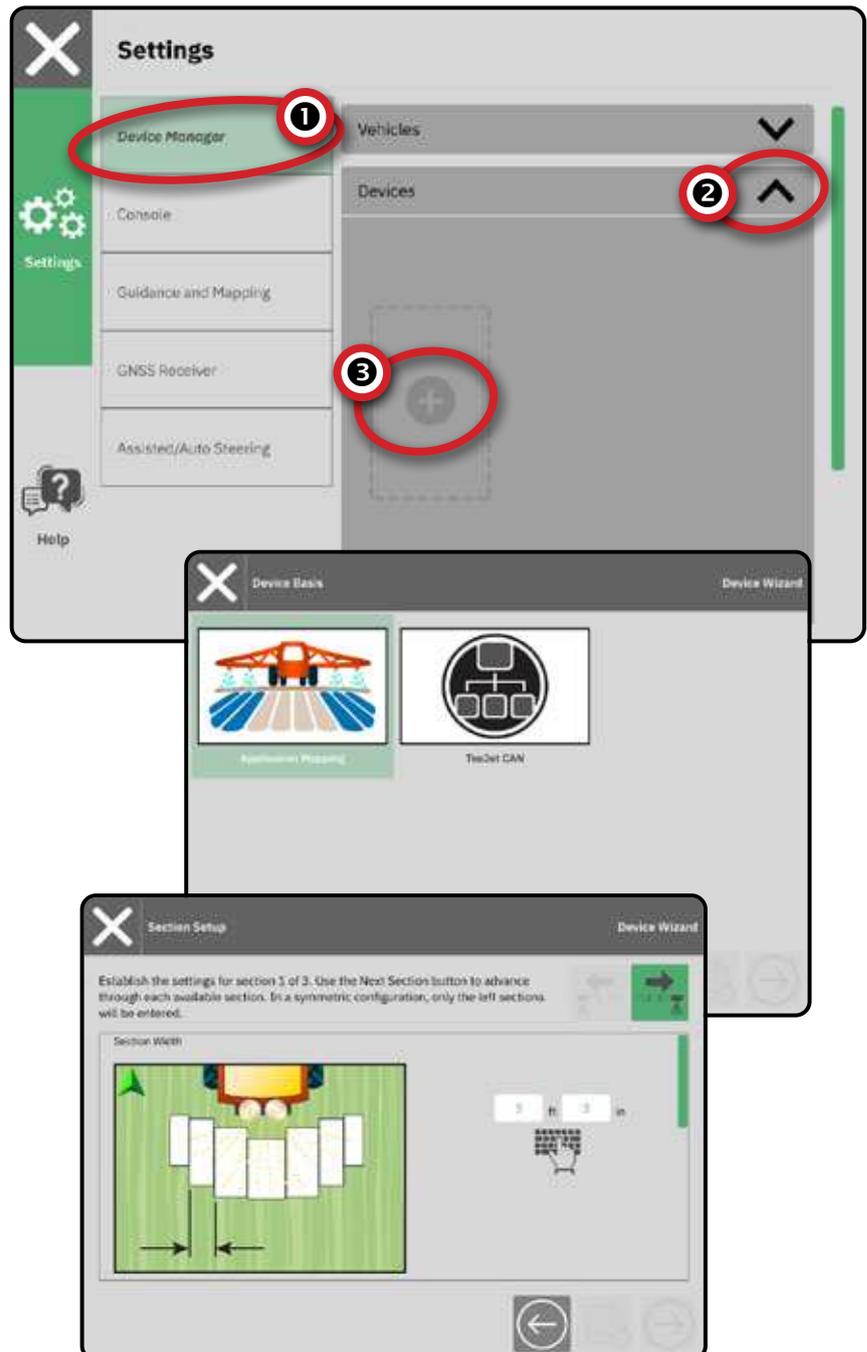
### TeeJet CAN Device

1. On the Main Menu , on the Settings Menu , select **Device Manager** .
2. Under **Devices** , select the **NEW DEVICE** card .
3. In the Device Wizard on the Device Basis screen, select **TeeJet CAN**.



4. Follow the prompts on the Device Wizard.

*NOTE: Default values must be acknowledged before advancing to the next wizard option.*



# Matrix 908 Field Computer

MEASUREMENTS

CONSOLE

SETUP

START JOB

UT

HELP

APPENDIX

## ISOBUS Device

ISOBUS devices include TeeJet products such as the IC35 Sprayer, IC38 Spreader or DynaJet IC7140.

*NOTE: An ISOBUS device requires the Universal Terminal which requires an unlock code. See "No.3 Enter Available Unlocks" on page 14 for details.*

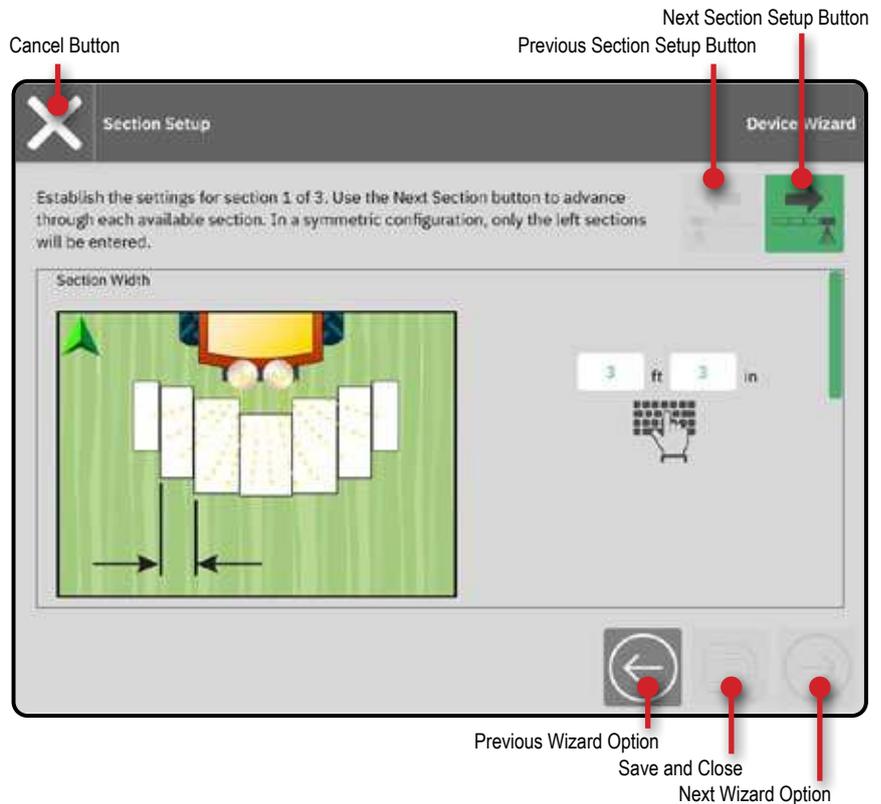
1. Once the object pool loads, the Device Wizard will launch automatically prompting the user to enter any missing information required by the system.
2. Follow the prompts on the Device Wizard.

*NOTE: Default values must be acknowledged before advancing to the next wizard option.*

*Some settings not available in the Device Wizard may be handled through the device's UT interface.*

## Common Options

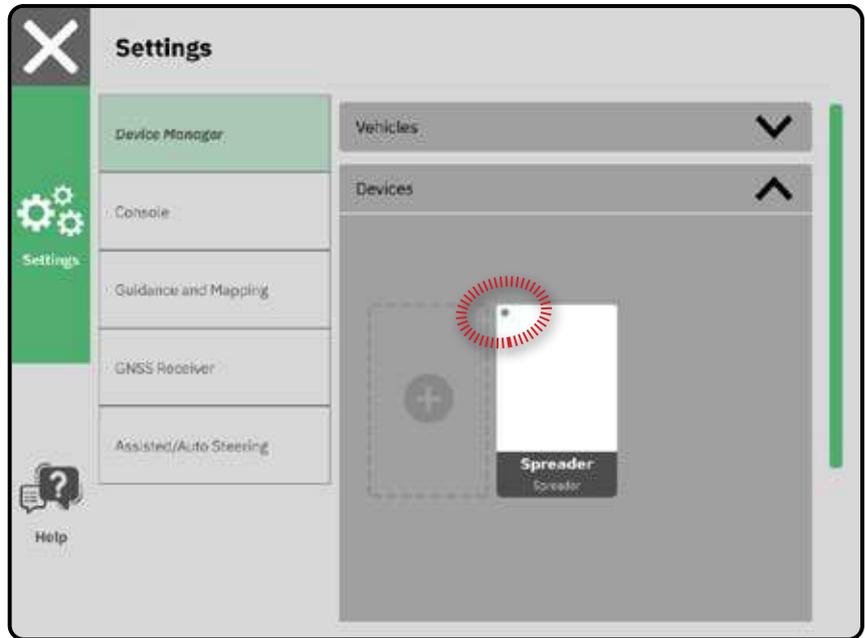
-  Cancel – use to exit the wizard without saving any changes
-  Previous Wizard Option – use to revisit the previous wizard option
-  Save & Close – use to save all current selections and close the wizard
-  Next Wizard Option – use to go to the next wizard option
-  Finish – shown when the end of the wizard options has been reached; use to save and close the wizard
-  Previous Section Setup – use to revisit the previous section setup screen
-  Next Section Setup – use to go to the next section setup screen



## Activate a Different Device

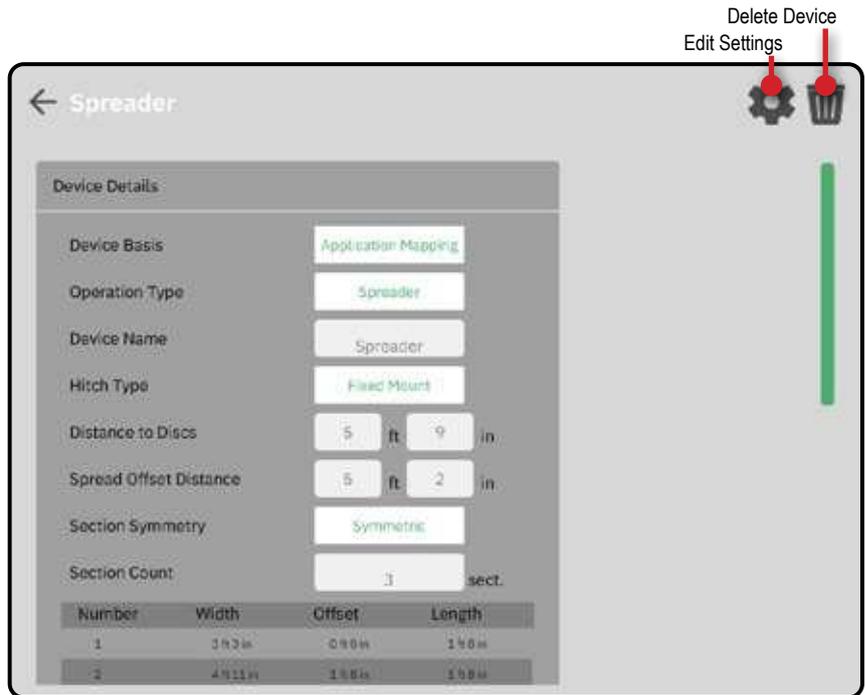
An active device is designated by a green dot in the top left-hand corner of the device card.

1. On the Main Menu , on the Settings Menu , select **Device Manager**.
2. Under **Devices**, select the device card to be activated.
3. On the Device Details screen, select the EDIT SETTINGS icon .
4. Select the SAVE AND CLOSE button .
5. When finished, select **YES** when asked if you would like to make this device the 'active' device.



## Edit a Device

1. On the Main Menu , on the Settings Menu , select **Device Manager**.
2. Under **Devices**, select the device card to be edited.
3. On the Device Details screen, select the EDIT SETTINGS icon .
4. Advance through the Device Wizard, making any necessary changes.
5. Select the SAVE AND CLOSE button  at any point in the wizard.



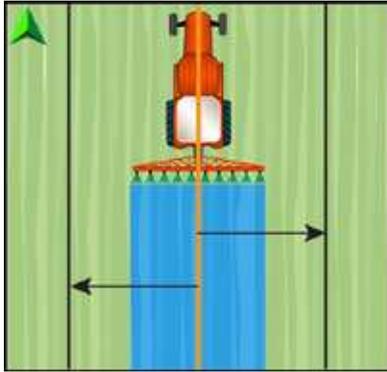
## Delete a Device

1. On the Main Menu , on the Settings Menu , select **Device Manager**.
2. Under **Devices**, select the device card to be deleted.
3. On the Device Details screen, select the DELETE icon .

# Matrix 908 Field Computer

## NO.5 SET UP GUIDANCE AND MAPPING

1. On the Main Menu , on the Settings Menu , select **Guidance and Mapping** .
2. Select the existing **Guidance Width**  to enter a new value.



3. Make adjustments to Guidance Lookahead, Lightbar and Mapping Location settings as needed. Changes are automatically applied.

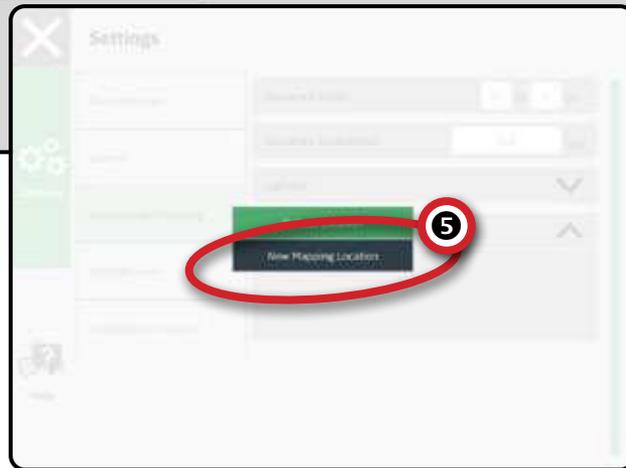
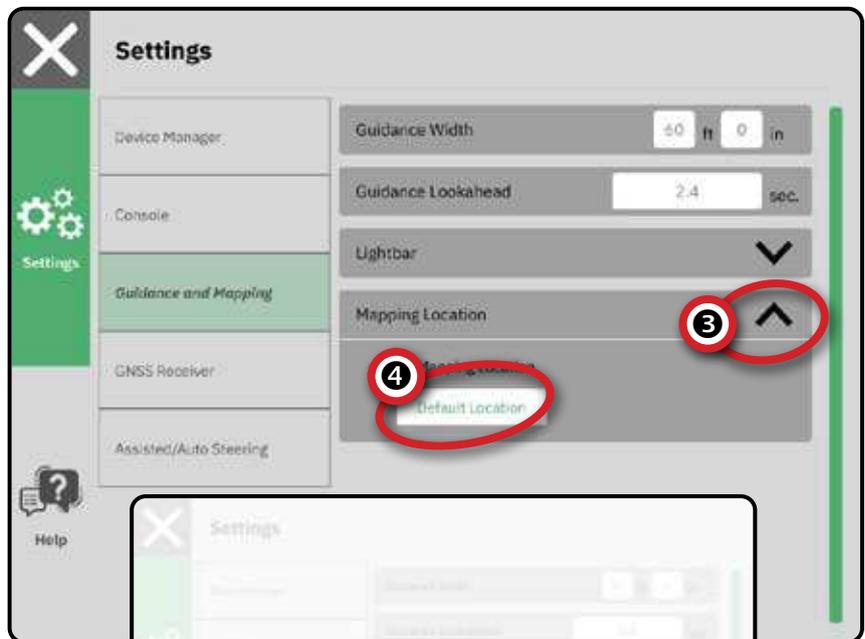
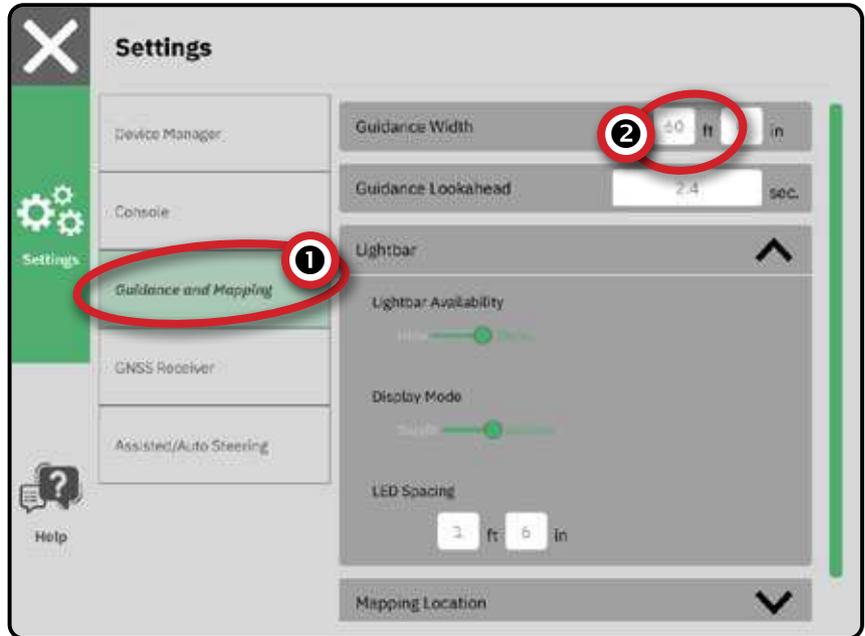
### Mapping Location

Mapping location establishes the location from which the boundary will be mapped.

- Default location –
  - ▶ Without a Device Defined – the Mapping Location will be the Vehicle Pivot Point
  - ▶ With a Device Defined – while creating an exterior boundary or polygon, the line will be to the exterior of the outermost active section. While creating an interior boundary, the line will be to the interior of the innermost active section. If no sections are active, the boundary will be marked to the end of the outermost section.
- User entry – in-line and lateral offset from the vehicle pivot point directions and distances can be specified by the user. Up to five (5) user entries can be created.

### User Entered Mapping Location

1. On the Main Menu , on the Settings Menu , select **Guidance and Mapping** .
2. Under **Mapping Location** , select the **Active Mapping Location** .
3. Select **New Mapping Location** .



- Under **Mapping Location** ③, make adjustments to settings as needed. Changes are automatically applied to the current mapping location.

## Change Active Mapping Location

- Under **Mapping Location** ③, select the **Active Mapping Location** ④.
- Select the desired Mapping Location ⑤.

## Edit a Mapping Location

- Under **Mapping Location** ③, select the **Active Mapping Location** ④.
- Select the Mapping Location ⑤ to be edited.
- Make adjustments to settings as needed. Changes are automatically applied to the current mapping location.

## Delete a Mapping Location

- Under **Mapping Location** ③, select the location to be deleted as the **Active Mapping Location** ④.
- Select **Delete Selected Active Mapping Location**.

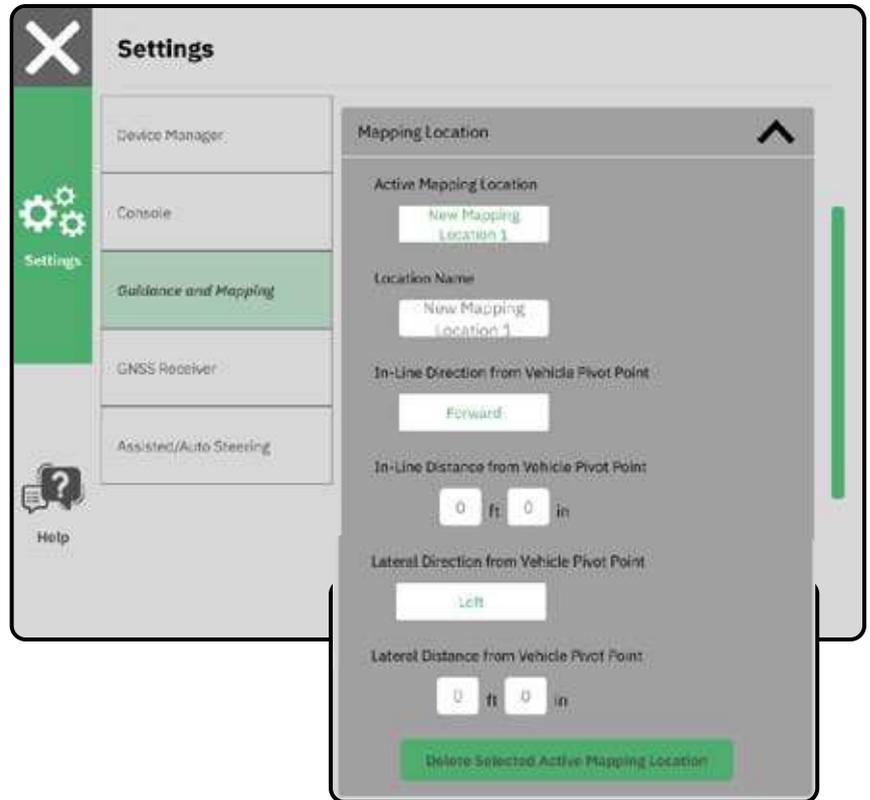


Figure 3-1: Mapping Location In-Line Distance from the Vehicle Pivot Point ① to the Mapping Location ②

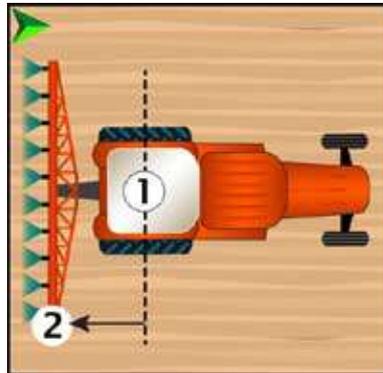
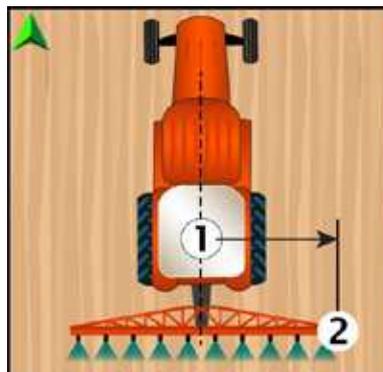


Figure 3-2: Mapping Location Lateral Distance from the Vehicle Centerline ① to the Mapping Location ②



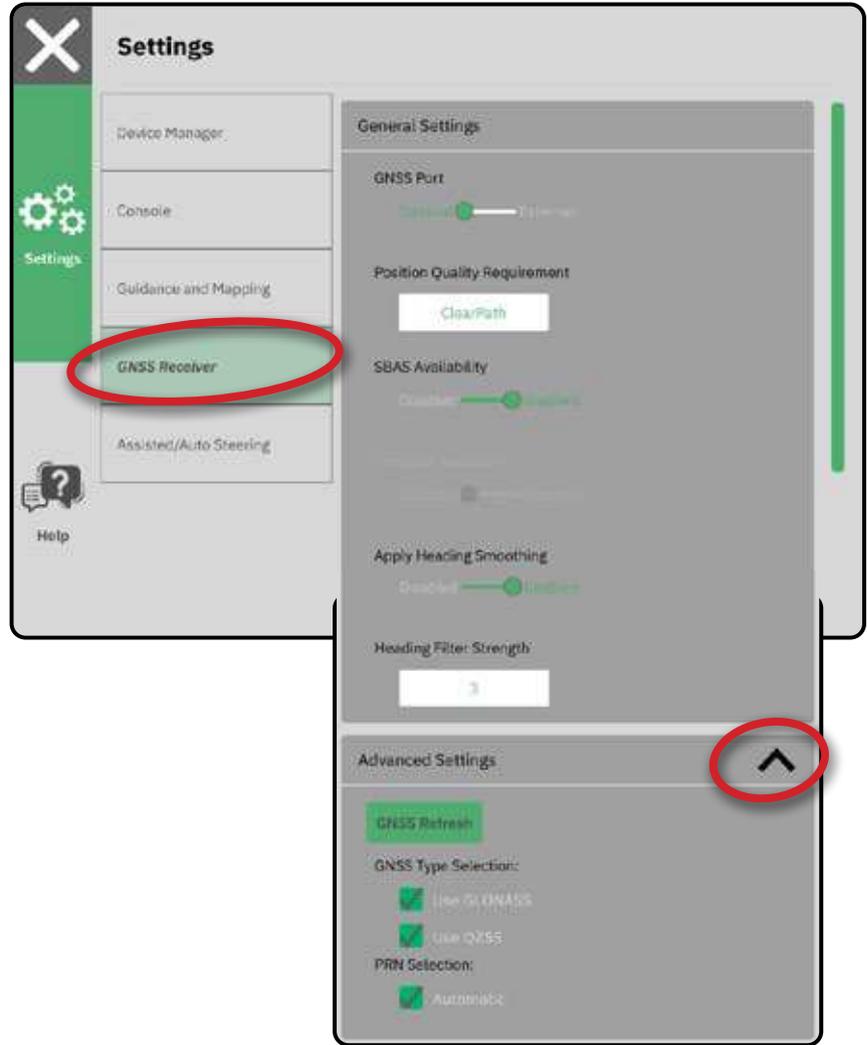
# Matrix 908 Field Computer

## NO.6 SET UP THE GNSS

*NOTE: These settings are required for proper use of the system at your location.*

1. On the Main Menu , on the Settings Menu , select **GNSS Receiver**.
2. Under **General Settings**, make adjustments to settings as needed.
3. When available, under **Advanced Settings**, make adjustments to settings as needed.
4. Exit this screen to begin initializing the GNSS receiver. A pop-up message will appear during the initialization. This takes about a minute.

For more details on GNSS Receiver options, see "Appendix A – GNSS Receiver Details" on page 41.

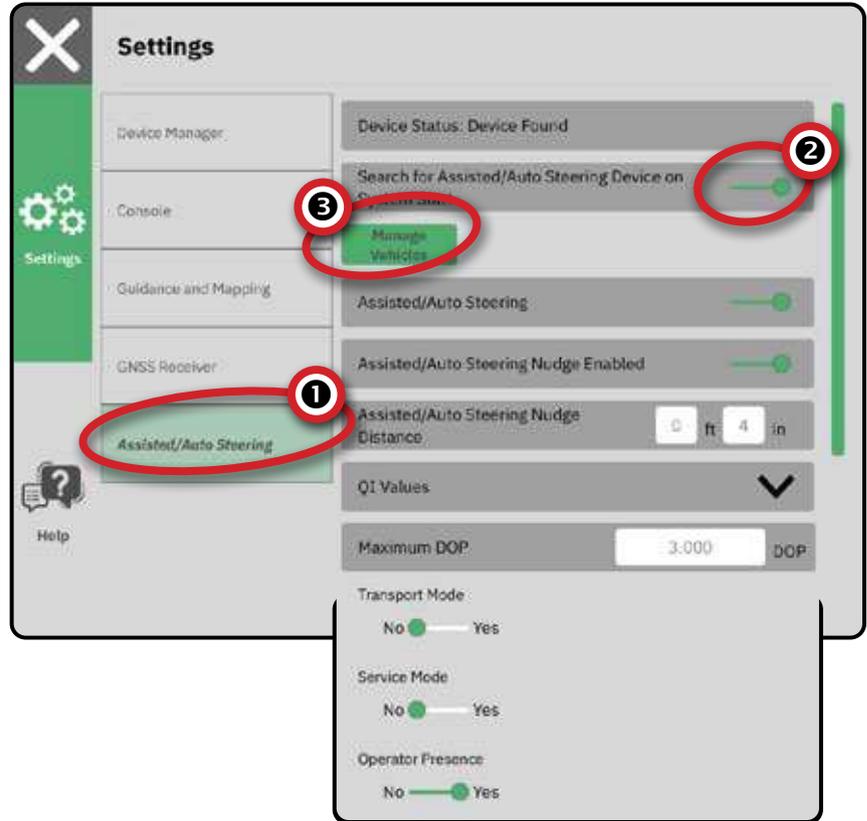


## NO.7 SET UP ASSISTED/AUTO STEERING

1. On the Main Menu , on the Settings Menu , select **Assisted/Auto Steering** **1**.
2. Activate **Search for Assisted/Auto Steering Device on System Start** **2**.
3. Restart the console.
4. On the Main Menu , on the Settings Menu , select **Assisted/Auto Steering** **1**.
5. Make adjustments to settings as needed. Changes are automatically applied.

*NOTE: For details Assisted/Auto Steering device settings, reference the user manual included with the SCM Pro.*

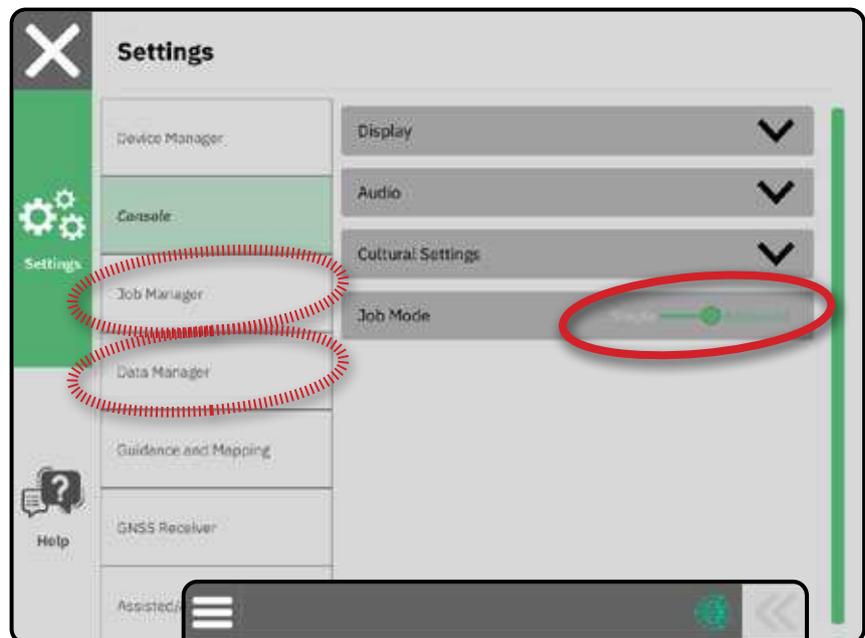
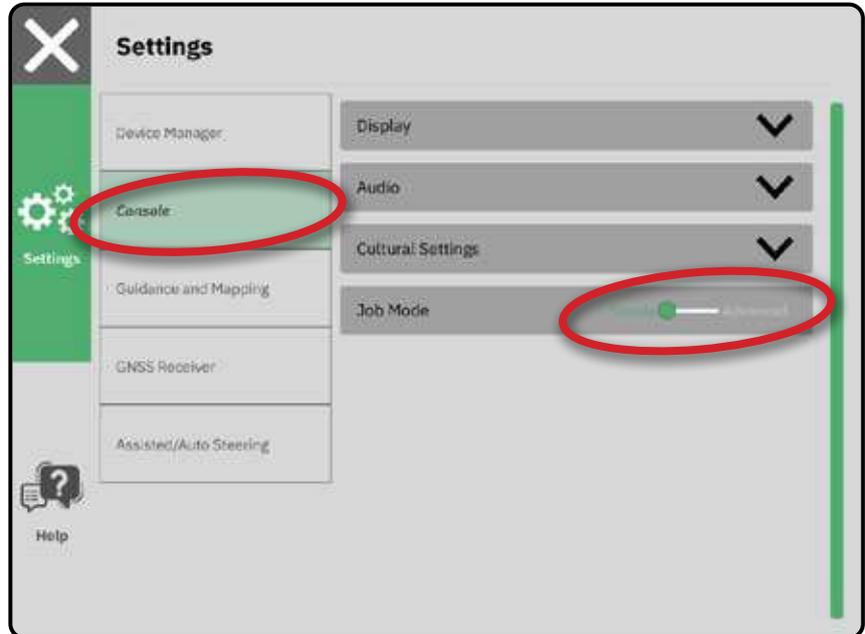
6. To manage Assisted/Auto Steering vehicles (add a new vehicle, re-calibrate the current Assisted/Auto Steering system, or to adjust steering aggressiveness), press the **Manage Vehicles** button **3**.



# Matrix 908 Field Computer

## NO.8 SELECT JOB MODE

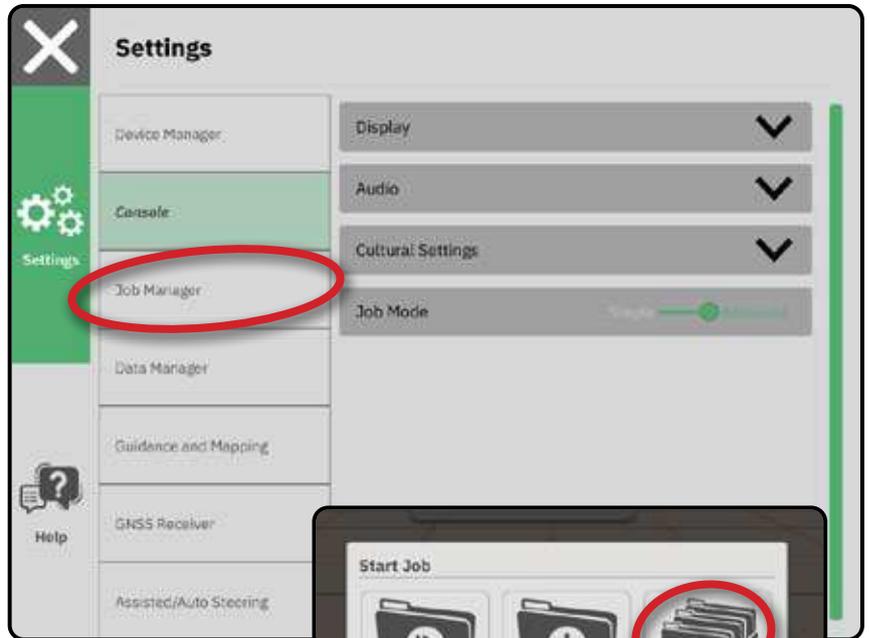
1. On the Main Menu , on the Settings Menu , select **Console**.
2. Next to **Job Mode** select from:
  - ▶ Simple Mode – only one (1) job will be available at a time
    - Start Job menu on the Guidance screen includes options to create a new job or continue the last job
  - ▶ Advanced Mode – more than one job may be available at any time
    - Start Job menu on the Guidance screen includes options to create a new job, continue the last job, or select from other jobs using the Job Manager
    - Job Manager is available from the Main Menu-> Settings Menu or from the Start Job menu on the Guidance screen
    - Data Manager is available from the Main Menu-> Settings Menu



## Job Manager

Use the Job Manager to create, delete, duplicate, start, and add information to a selected job or jobs.

-  Create New Job – Options to change the automatically generated name and add a field reference will be offered
-  Delete the Selected Job or Jobs
-  Duplicate the Selected Job – use to duplicate boundaries and guidelines from the selected job
-  Information on Selected Job – use to see and/or add details to the selected job. The job name cannot be changed.
-  Start Selected Job – GNSS position criteria must be met before this will be available
-  Close – use to exit the Job Information screen and return to the previous screen
-  Edit Information – select to enter a name using the on screen keyboard



# Matrix 908 Field Computer

## Data Manager

Use the Data Manager to import or export all job data.

Insert USB drive prior to attempting a transfer of Job Data.

### Import

– used to move job data from USB storage to internal storage

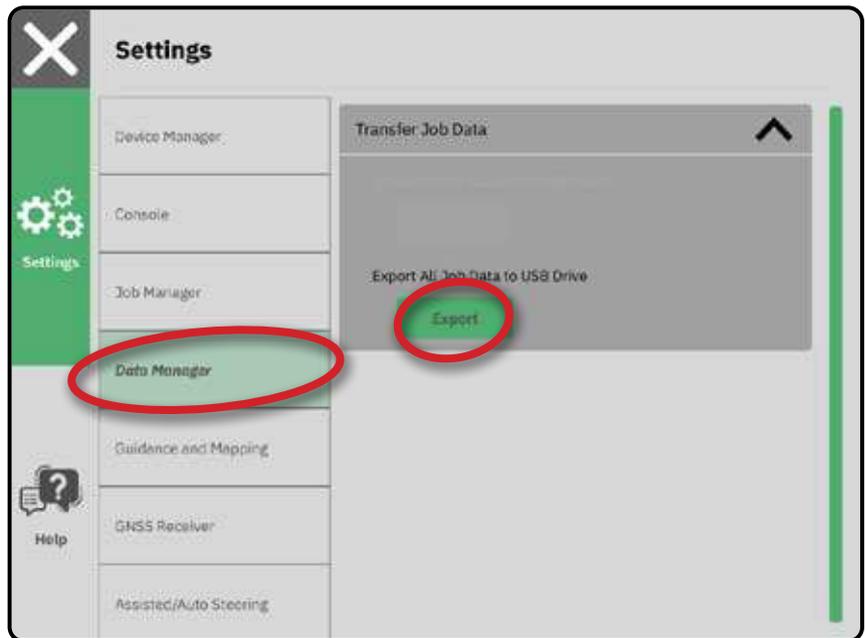
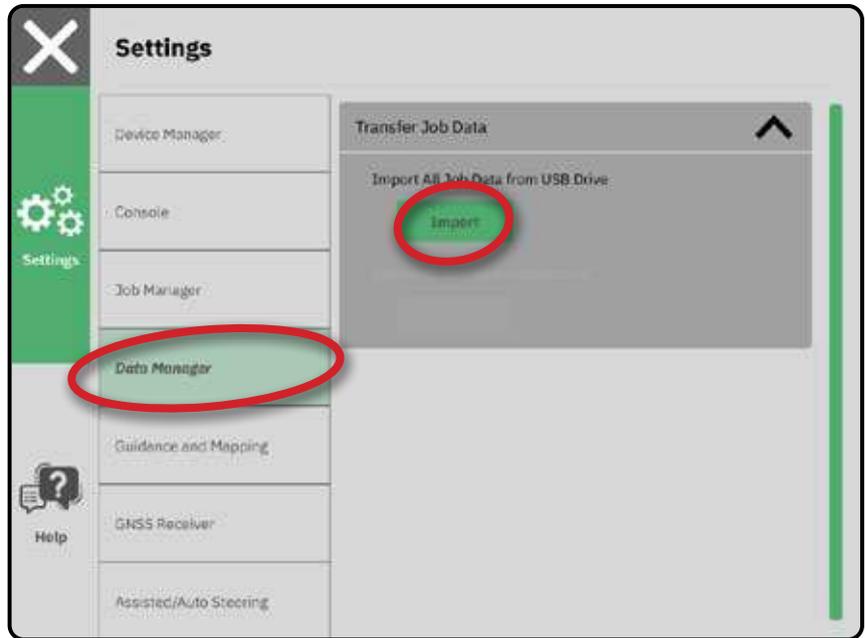
*WARNING! Importing data will delete and replace any existing data on the console.*

### Export

– used to move job data from internal storage to USB storage

Job Data includes

- Job Name
- Client, Farm, and Field Names
- Guidelines
- Boundaries (exterior, interior)
- Coverage Area
- Maps (coverage, application)



## START A JOB

Once the power up sequence has completed, the Start Job Menu will appear with the options to start a new job, continue the last job, or open the job manager to select a different job (options depend on job mode and job availability). Once a job is active, some setup options can no longer be changed. Close the Job to change these settings.

**REQUIREMENT:** Setup for the specific vehicle and its devices must be completed before starting a job. See "No.2 Walk through the Vehicle Wizard" on page 13 and "No.4 Walk through the Device Wizard" on page 15 for details.

To change between Simple Job mode and Advanced Job mode, go to Main Menu-> Settings-> Console-> Job Mode. See "No.8 Select Job Mode" on page 22 for details on selecting a job mode.

### Simple Job Mode

Use the Start Job menu to start a new job or continue the last job. Only one job is available at a time. Selecting a new job will delete any previous job.



Start a New Job



Continue the Last Job

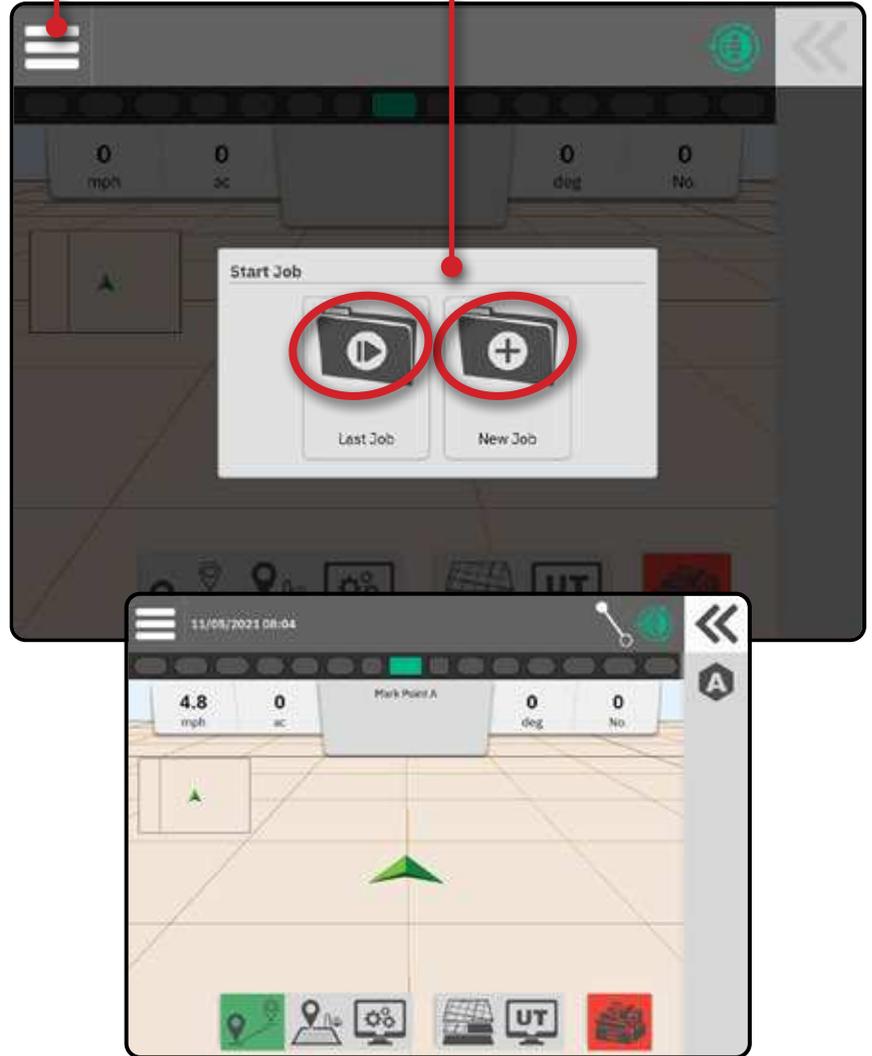


Main Menu Button – access to the Settings including wizards, Help options and Universal Terminal (UT)

If the current GNSS Position is in a UTM zone other than the current or adjacent UTM zone **Last Job** will be disabled.

Main Menu Button

Simple Job Mode Start Job Menu



# Matrix 908 Field Computer

## Advanced Job Mode

Use the Start Job menu to start a new job, continue the last job, or open the job manager to select a different job.



**Start a New Job** – options to change the automatically generated name and add a field reference will be displayed. Use the Job Information button in the Job Manager to add farm and/or client references.



**Continue the Last Job** – options to review and/or enter job information including client, farm and field name will be displayed



**Open the Other Jobs** using the Job Manager



**Main Menu Button** – access to the Settings including wizards, Help options and Universal Terminal (UT)



**Edit Information** – select to enter a name using the on screen keyboard



**Cancel** – use to exit the Job Information screen and return to the previous screen without creating a new job or starting the previous job



**Cancel** – use to exit the New Job Information screen and return to the previous screen without creating a new job



**Save & Exit** – select to save the new job and return to the Start Job

Menu



**Start** – select to start the new job

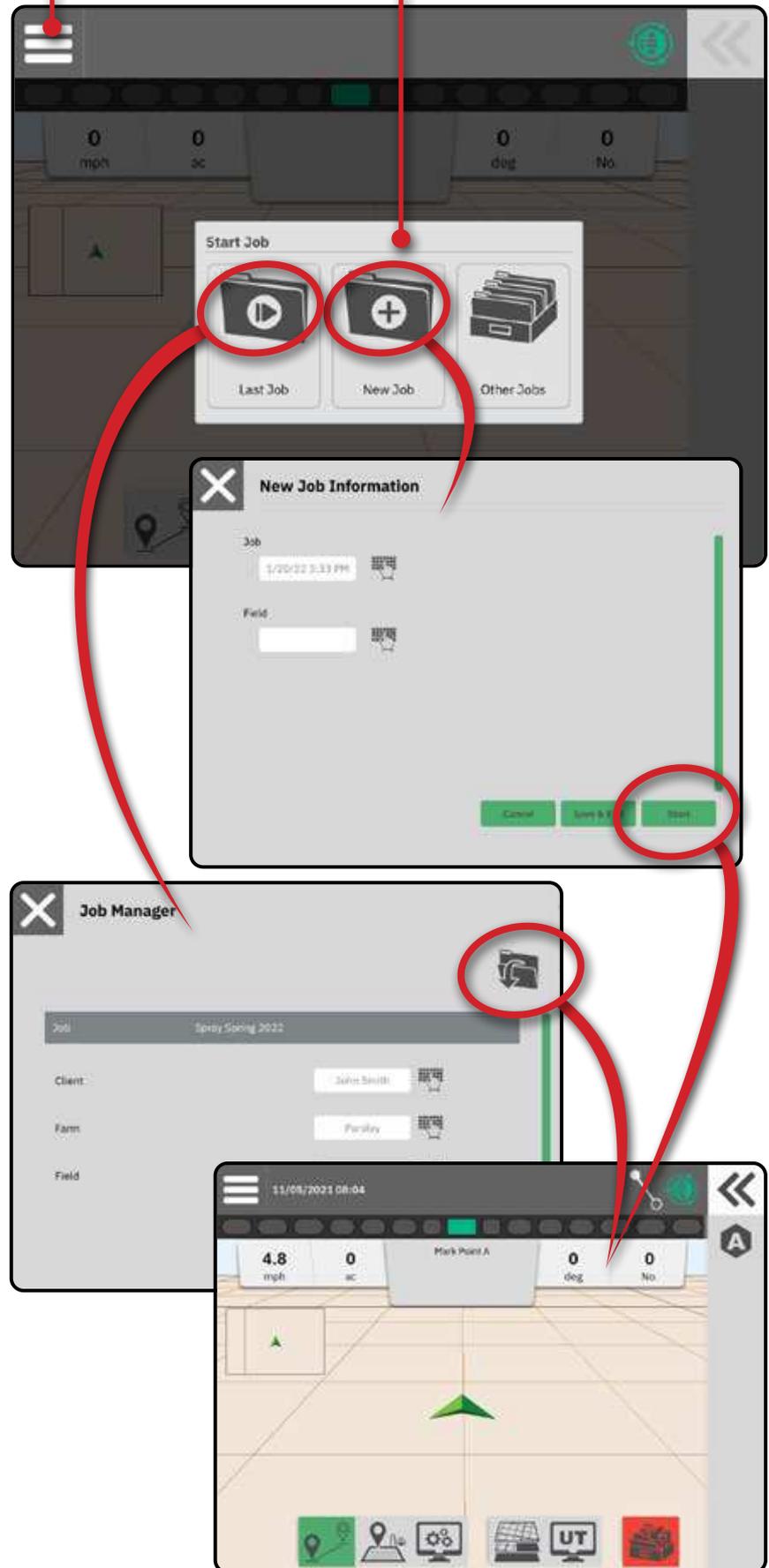


**Start Selected Job** – select to start the last job

If the current GNSS Position is in a UTM zone other than the current or adjacent UTM zone **Last Job** will be disabled.

Main Menu Button

Advanced Job Mode Start Job Menu



## Guidance Screen Features

### Information & Status Bar

Current job name and information on GNSS status, guidance mode, arable land area, and assisted/automatic steering engagement.

### Slide-Out Tray Button

 Access options for the Feature Bar selection

### Feature Bar

Current selected options will be highlighted.

 Guidance Mode – select to access guidance options including selecting a guidance mode and creating, deleting and switching guidelines

 Boundary Mode – select to access boundary options

 Display Quick Adjust – select to access frequently adjusted console and screen options

 Mapping Layers – select to turn on or off map layers

 Universal Terminal (UT) – select to access the UT

 Close Job – select to close the current job and save any job progress

### Action Bar

Options are dynamic based on the selected Feature Bar option and associated Slide-Out Tray Button. See individual features for details.



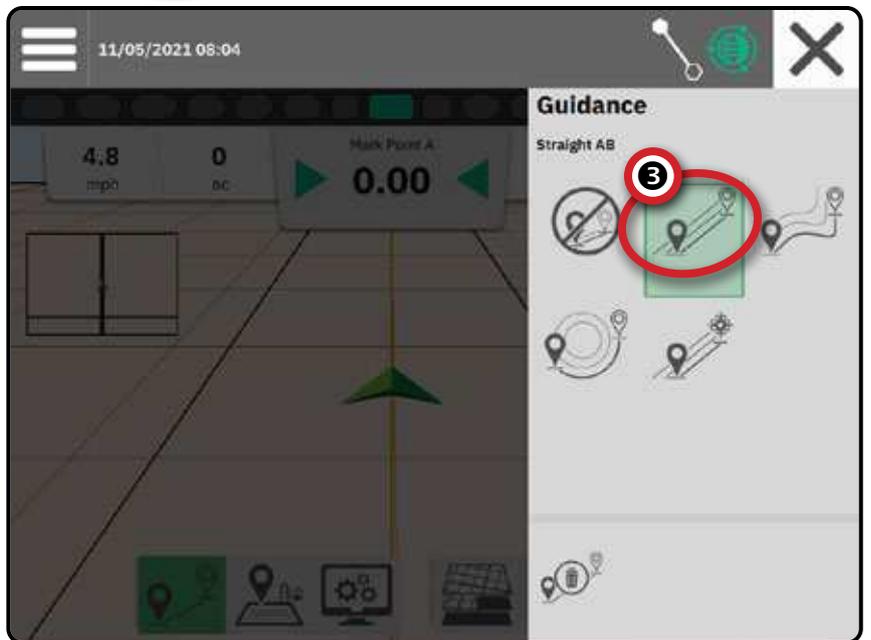
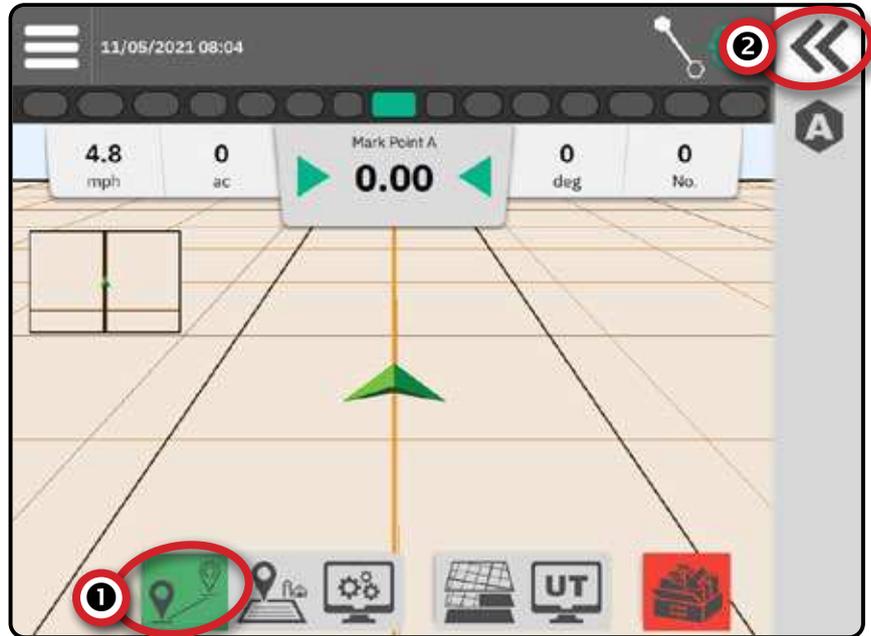
# Matrix 908 Field Computer

## NO.1 CHOOSE A GUIDANCE MODE

1. With the Guidance button  **1** on the Feature Bar active, press the Slide-Out Tray button  **2**.

2. Selects a guidance mode **3**:

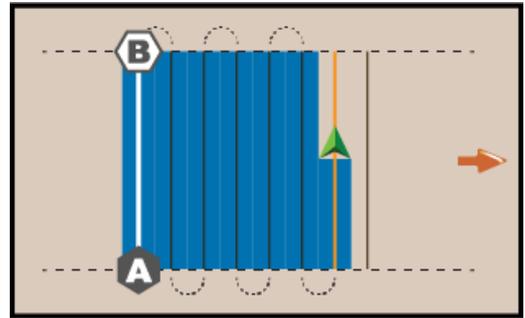
-  No Guidance
-  Straight AB Guidance
-  Dynamic Adaptive AB Guidance
-  Circle Pivot Guidance
-  Azimuth Guidance





## Straight AB Guidance

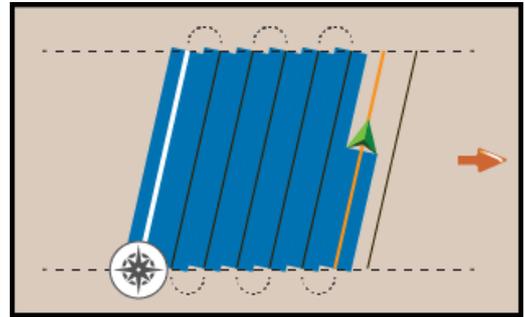
Straight AB guidance provides straight-line guidance based on A and B reference points. The original A and B points are used to calculate all other parallel guidelines.



## Azimuth Guidance

Azimuth guidance provides straight-line guidance based on a horizontal angle measured clockwise from a true north baseline. When using an azimuth, the point from which the azimuth originates is the center of an imaginary circle. North = 0°, East = 90°, South = 180°, West = 270°.

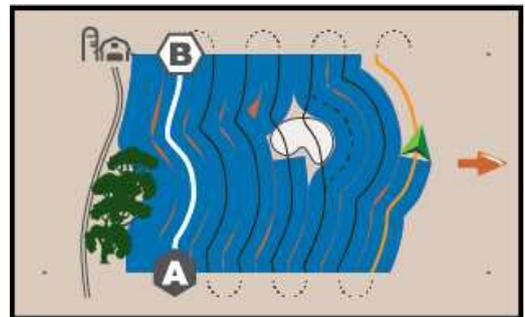
Azimuth Degree guidance projects a guideline between the current vehicle position (the A point) and a B point set 300 feet / 100 meters away along the entered azimuth heading.



## Dynamic Adaptive AB Guidance

Dynamic Adaptive AB guidance provides guidance along a curved line based on an initial AB reference line where each adjacent guideline is drawn from the projected guidance width and heading.

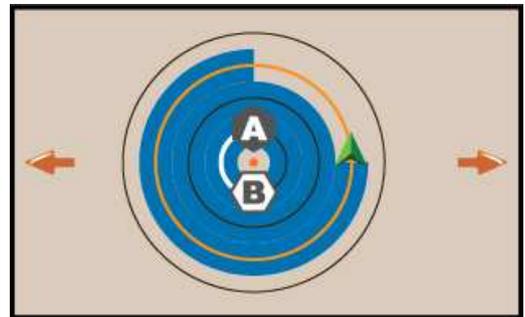
Dynamic Adaptive AB Guidance includes a detour option which allows a variation of the guideline to be created then either connected back to the original guideline or finished, creating a new B point of the original guideline. A minimum distance of 6.5 feet / 2 meters must be travelled before a detour can be started. A minimum of 164 feet / 50 meters must be travelled before a detour can be finished.



## 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 center pivot field while being guided along a circular guideline that matches a center pivot irrigation system radius.



## 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, see "Data management" in the System setup chapter.*

*NOTE: Offset to adjacent guidelines will be calculated using the guidance width, see "Settings-> Guidance and Mapping" for established distance.*

# Matrix 908 Field Computer

## NO.2 ESTABLISH AN AB GUIDELINE

1. Drive to the desired location of Point A .
2. With the Guidance button  on the Feature Bar active, press MARK A icon .
3. Drive to the desired location of Point B .
4. Press MARK B icon  to establish the AB line.

*Recommendation: If Heading Smoothing is disabled, mark point B while vehicle is moving.*

5. Name the guideline.
  - ◀ Select **Cancel** to save the guideline using the automatically generated name.
  - ◀ Use the keyboard to select a custom name then select **Save**.

The console will begin providing navigation information.

### Action Bar Options

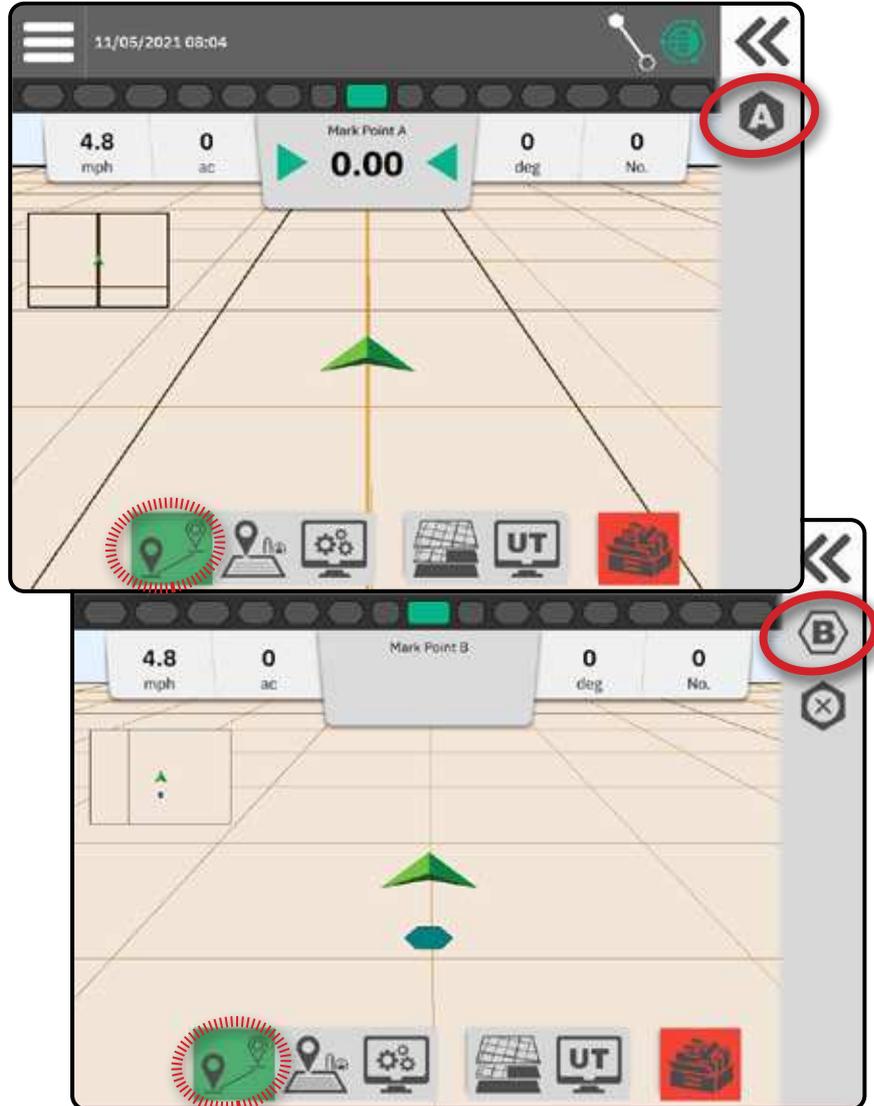
 Mark A Point – use to mark the first point on the guideline

 Mark B Point – use to mark the last point on the guideline and establish the AB line

*NOTE: The MARK B Icon  is not available for selection (grayed out) until the minimum distance is travelled.*

- *Straight or Curved Guidance: 10 feet / 3.0 meters*
- *Circle Pivot guidance: 165 feet / 50.0 meters. If driving the wheel tracks, it is recommended to complete at least half of the circle. It is not necessary to drive the entire circumference.*

 Cancel Mark – use to cancel the Mark A Point command and revert to the previous guideline (when established)



## Delete Last Guideline

 Delete Last Marked Guideline deletes the last marked guideline from the current job.

1. With the Guidance button  on the Feature Bar active, press the Slide-Out Tray button .
2. Press the DELETE GUIDELINE icon .
3. Press the DELETE GUIDELINE icon  again to remove additional guidelines in order from last to first created.

## Adjust Guideline

 The Adjust Guideline option allows the current guideline to be shifted to the vehicle's current location.

*NOTE: Available only when in Straight AB, Azimuth or Dynamic AB guidance.*

Vehicle must be stopped to adjust a guideline.

## Assisted/Auto Steering Nudge

The Assisted/Auto Steering Nudge option allows the vehicle's current location and guideline to be temporarily shifted to the left or right by the preset Nudge distance. Left/right direction is determined while facing in the machine's forward direction.



Nudge Left

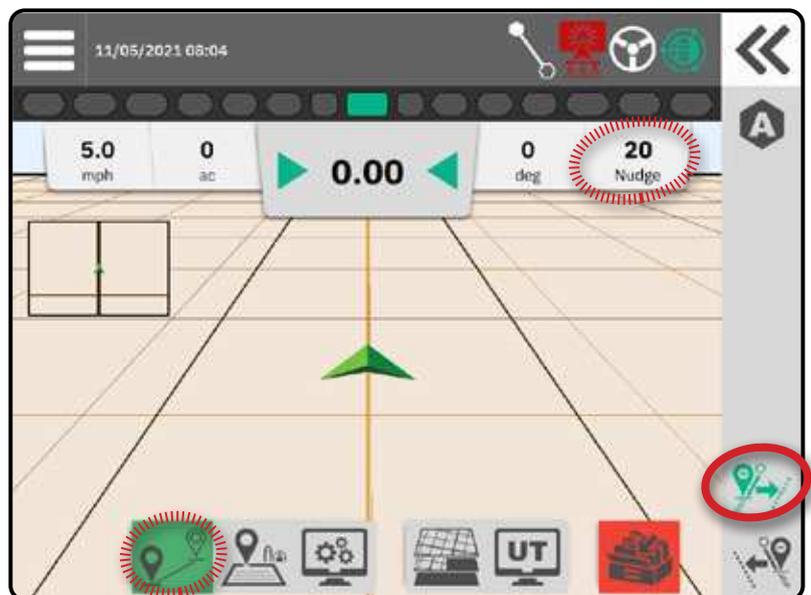
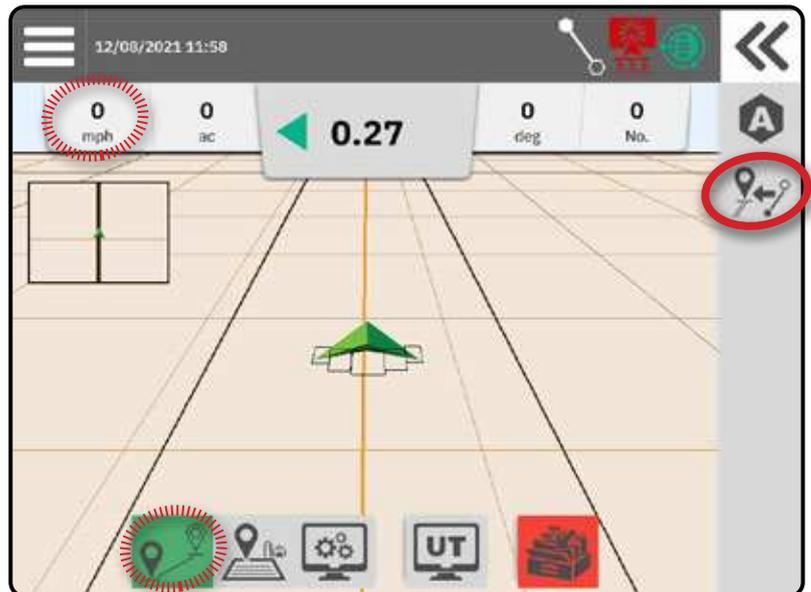
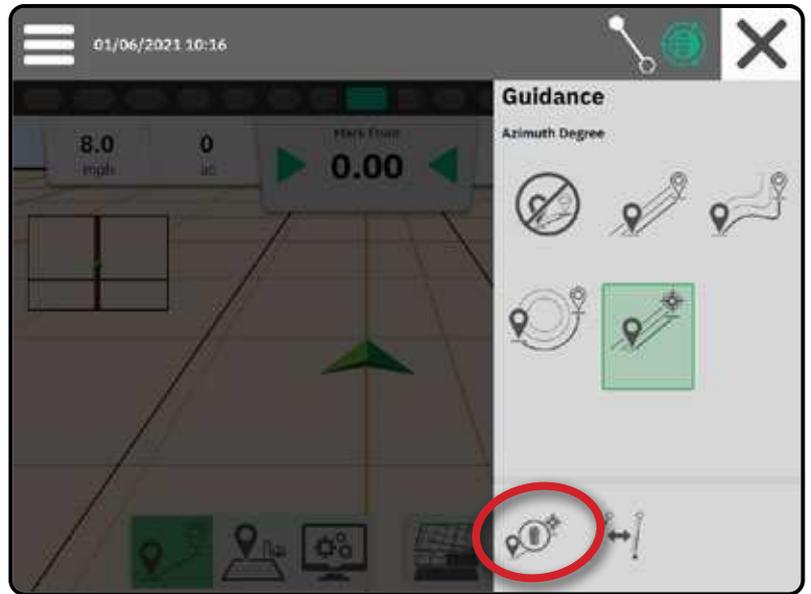


Nudge Right

Assisted/Auto Steering must be active, and Assisted/Auto Steering Nudge must be enabled. Preset Nudge distance is established in the Assisted/Auto Steering settings. See "No.7 Set Up Assisted/Auto Steering" on page 21 for details.

Each press of an Assisted/Auto Steering Nudge button adds or subtracts from a previous press. Total accumulated nudge offset distance can be displayed on the Guidance Bar. See "Selectable Job Information" on page 38 for details.

- ◀ No change in actual marked guideline will occur. Switching guidelines, marking a new guideline, creating a detour, or closing the job will zero out any accumulated nudge distance.
- ◀ Cross-track error will be based on the new "Nudged" guideline.



## Dynamic Adaptive AB Guideline Action Bar Options

 When in Dynamic Adaptive AB Guidance, the following options are available:

-  **Pause Guideline Mapping** – use to pause dynamic mapping. A straight line will be drawn between the pause point and the resume point.
-  **Resume Guideline Mapping** – use to resume dynamic mapping. A straight line will be drawn between the pause point and the resume point.
-  **Start Detour** – use to start a variant guideline off of the current guideline. If connected or finished, this will change the existing guideline.
-  **Pause Detour** – use to pause dynamic detour mapping. A straight line will be drawn between the pause point and the resume point.
-  **Resume Detour** – use to resume dynamic detour mapping. A straight line will be drawn between the pause point and the resume point.
-  **Cancel Detour** – use to cancel detour mapping, discarding the detour guideline
-  **Connect Detour** – use to connect the detour guideline to the existing guideline. The detour will become part of the current guideline.
-  **Finish Detour** – use to create a new guideline end location. The detour will become part of the current guideline.

Figure 4-1: Detour with Connect Detour

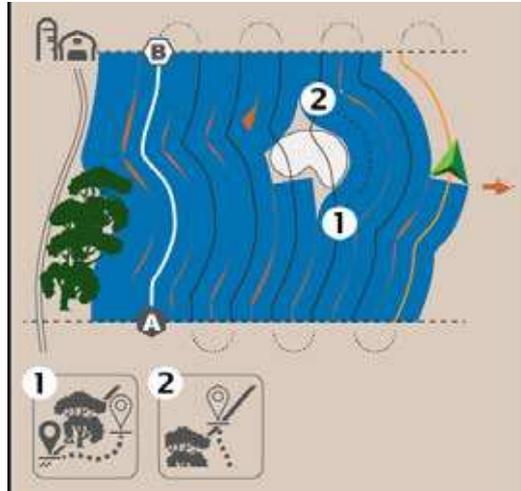
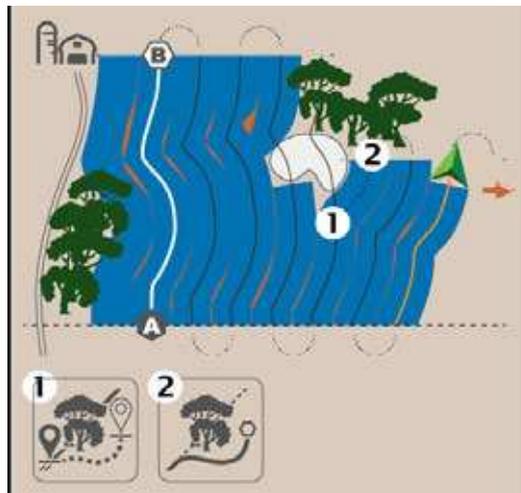


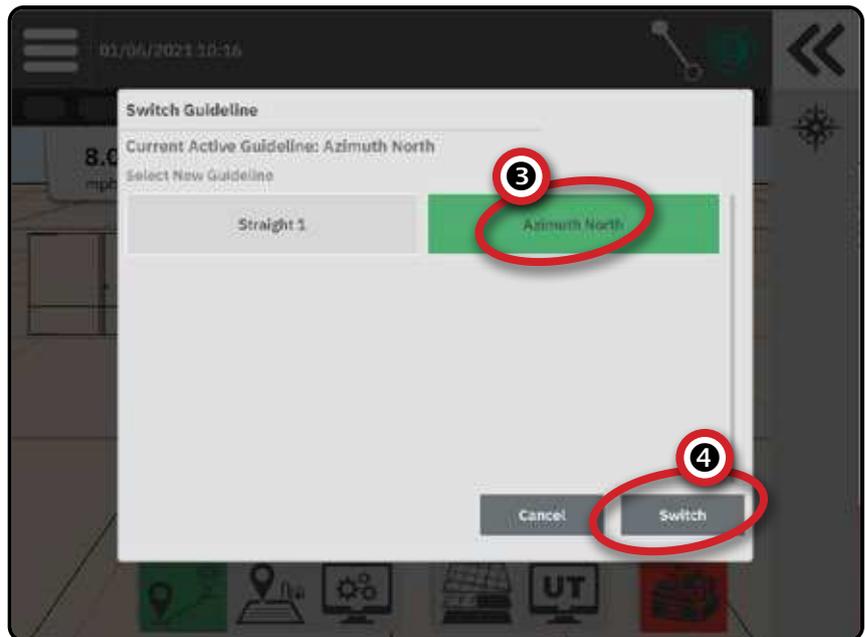
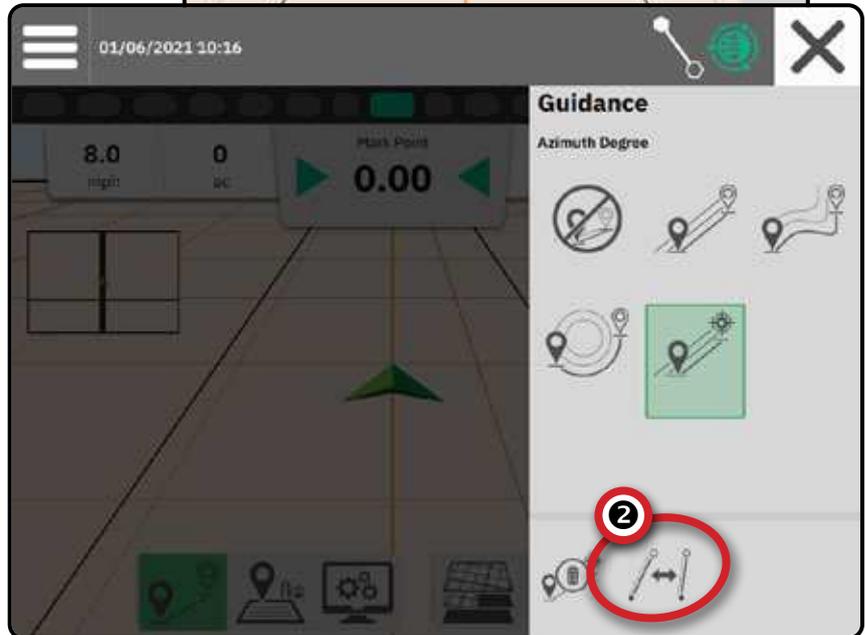
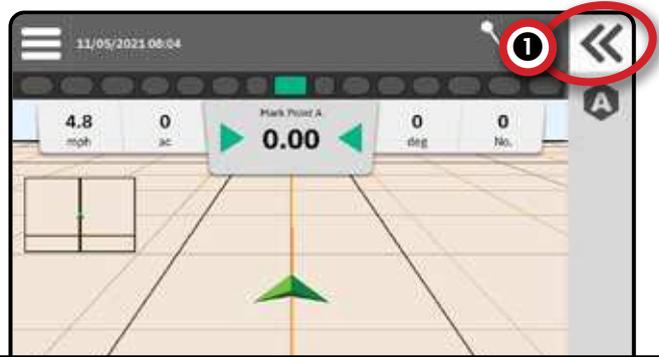
Figure 4-2: Detour with Finish Detour



## Switch Guideline

 If more than one guideline is saved, the Switch Guideline option will become available. To change to other available guidelines:

1. Select the Slide-Out Tray button .
2. Press SWITCH GUIDELINE icon .
3. Select the guideline to be active.
4. Press the **Switch** button.



# Matrix 908 Field Computer

## NO.3 CREATE AN APPLICATION BOUNDARY

Application boundaries establish the work areas where product is or is not applied while using Automatic Section Control (ASC) or BoomPilot.

Application is not required to map a boundary. Boundary will be mapped to the outer edge of all the programmed sections (not necessarily those turned on at any given time during the boundary pass) or a user selected mapping location (see "Mapping Location" on page 18 for details).

### Establishing an Exterior or Interior Boundary

1. Drive to a desired location at the perimeter of the application area and orientate the vehicle in association to the established mapping location.
2. With the Boundary button  on the Feature Bar active, press the Slide-Out Tray button .
3. Select the type of boundary to be mapped.



Exterior Boundary – establishes a work area where application will be applied while using ASC or BoomPilot



Interior Boundary – establishes a work area where application will NOT be applied while using ASC or BoomPilot

4. Press MARK BOUNDARY icon

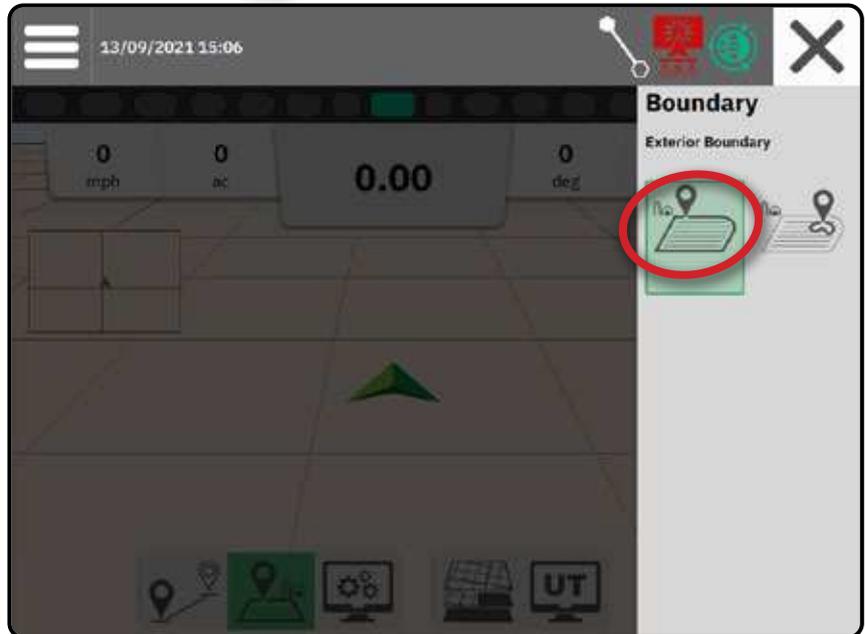
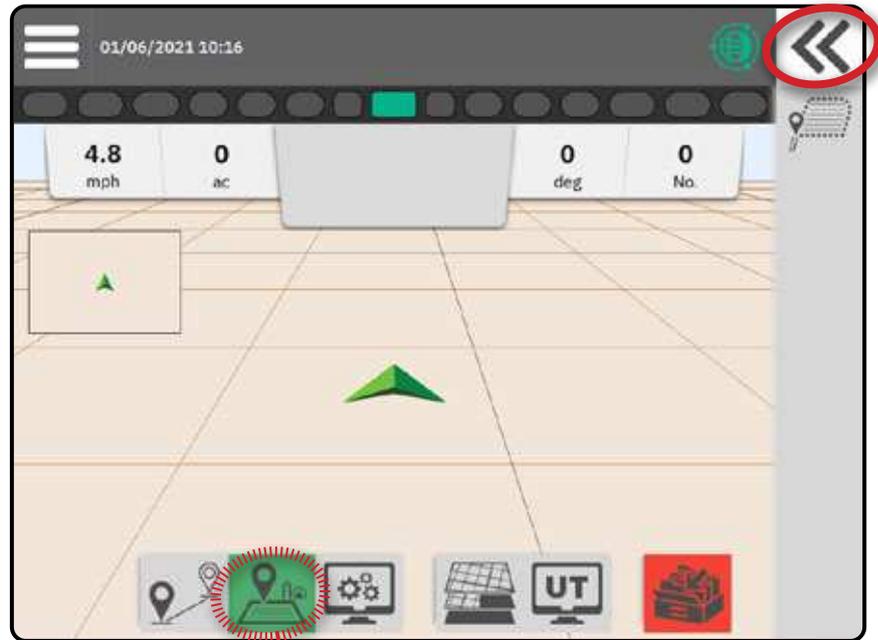


Start Exterior Boundary



Start Interior Boundary

5. Acknowledge that the default mapping location will be used.



## 6. Travel the perimeter of the application area.

While traveling, use as needed:

  **Pause Boundary** – pauses the mark boundary process. A straight line will be drawn between the pause point and the resume point.

  **Resume Boundary** – resumes the mark boundary process. A straight line will be drawn between the pause point and the resume point.

  **Cancel Boundary** – cancels mark boundary process.

## 7. Finish the boundary:

**Automatic close** – travel to within 10 feet / 3 meters of the starting point. The boundary will close automatically (the white guideline will turn black).

  **Manual close** – press the **FINISH BOUNDARY** icon to close the boundary with a straight line between the current location and the starting point.

*NOTE: If the minimum distance is not travelled (50 feet / 15 meters), an error message will pop-up.*

## 8. Press:

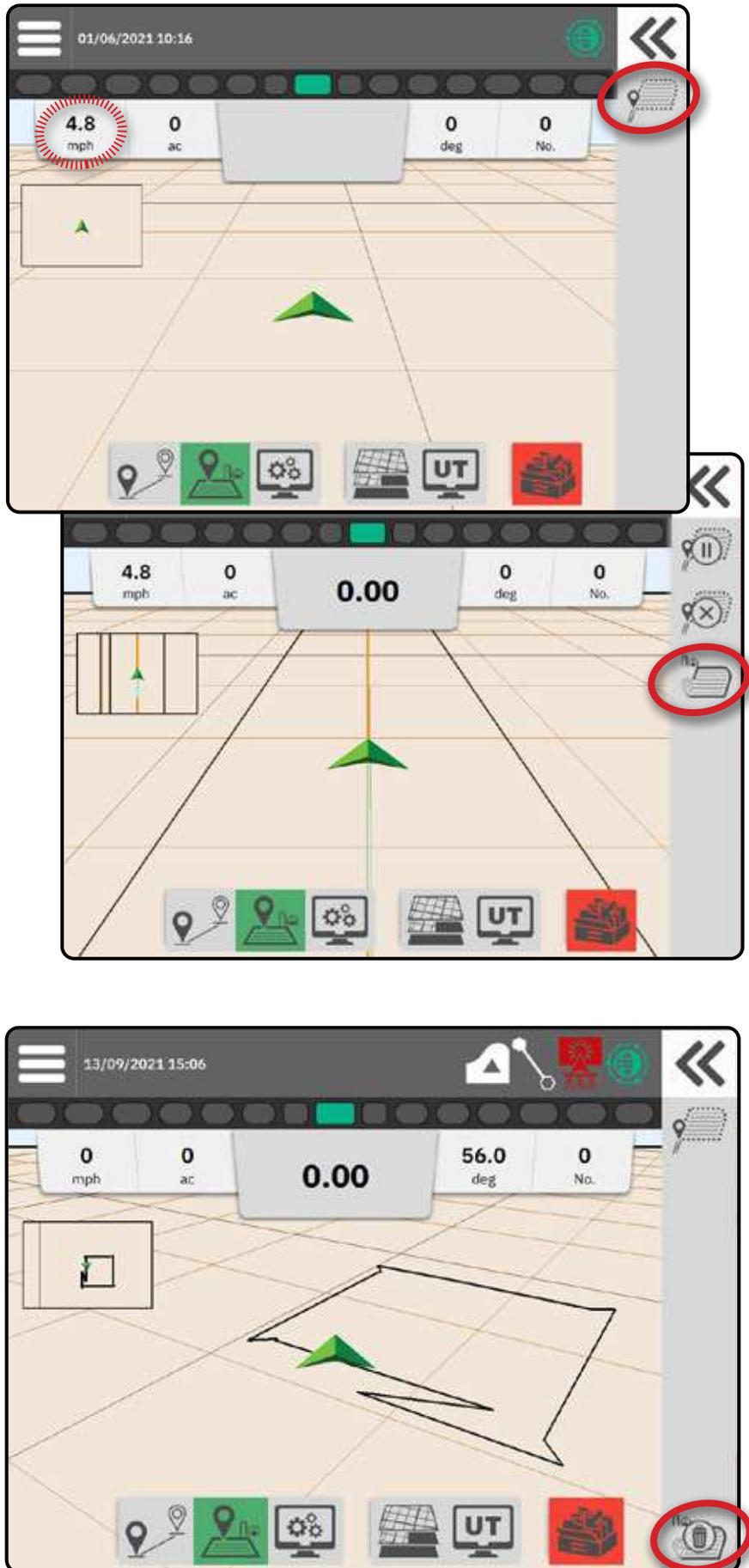
- ▶ **Accept** – to save and manually name the boundary
- ▶ **Decline** – to save and automatically name the boundary

## Delete Last Marked Boundary

**Delete Last Marked Boundary** (interior or exterior) deletes the last marked boundary from the current job.

 **Delete Exterior Boundary**

 **Delete Interior Boundary**



# Matrix 908 Field Computer

## NO.4 UNDERSTAND MORE ABOUT THE GUIDANCE SCREEN

### Map Options

#### Guideline & Points

- Guidelines
  - ◀ Orange – active guidance line
  - ◀ Black (multiple) – adjacent guidance lines
  - ◀ Black – exterior boundary line
  - ◀ Gray – interior boundary line
  - ◀ Blue – polygon boundary line
  - ◀ Black/white – prescription map zone boundary line
- Points – markers for established points
  - ◀ Blue point – Mark A
  - ◀ Green point – Mark B
- Coverage area – illustrates applied area and overlap:
  - ◀ Blue – one application
  - ◀ Red – two or more applications

#### Vehicle

Vehicle chevron with real-time representation of active boom sections is touch responsive to start and stop application mapping when an Application Mapping device or a BoomPilot system has been activated.

- Minimum speed – 1.5 mph / 0.66 m/s / 2.38 km/h
- Sections
  - ◀ Empty boxes – inactive sections
  - ◀ White boxes – active sections

#### Mini Map

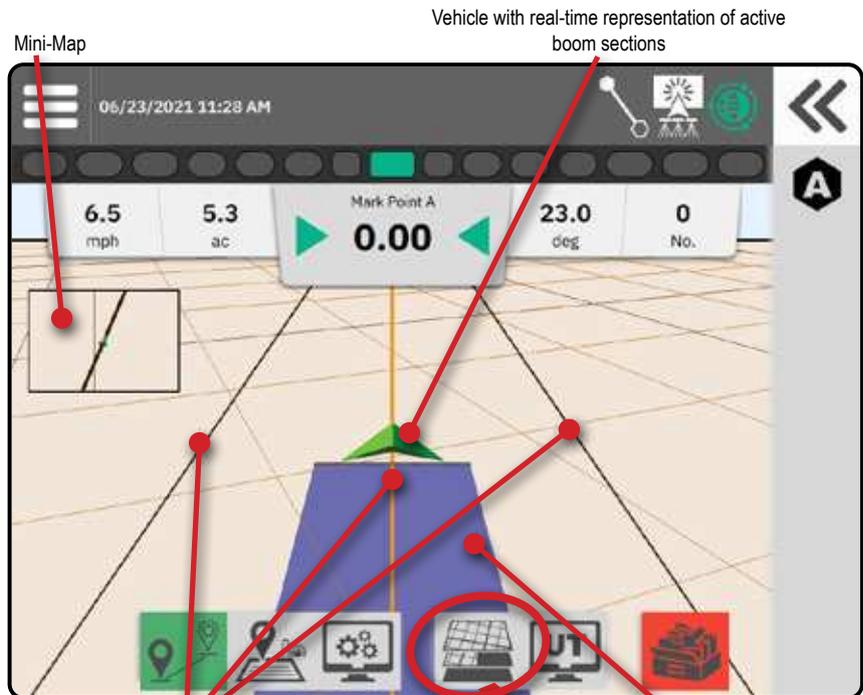
The mini-map provides quick access between Vehicle View and Field View

- ▶ Vehicle View – creates a computer-generated image of the vehicle position displayed in the application area
- ▶ Field View – creates a computer-generated image of the vehicle position and application area from an aerial perspective

#### Mapping Layers

The mapping layers options displays options to display coverage maps and applied rates maps.

- ▶ Devices without rate control only create a Coverage map of the application
- ▶ Devices with rate control create both a Coverage map layer and a separate Applied Rates map layer



Navigation Guidelines

Coverage Area



## Information & Status Bar

### Job Boundary & Application Details

Select the job name in the Information Bar to see details on the current job's arable land area.

### Status Bar

The Status Bar provides information on GNSS status, guidance mode, arable land area, assisted/auto steering engagement, and implement control status.

To access related status information, select the Status Bar to display available options.

#### GNSS Status

-  Green = GPS, GLONASS, or SBAS (with or without DGPS Required)
-  Yellow = GPS only
-  Red = no GNSS
-  Orange = Glide/ClearPath

#### Guidance Mode

-  Straight AB or Azimuth Guidance
-  Dynamic Adaptive AB Guidance
-  Circle Pivot Guidance

#### Arable Land Area Status

-  Outside Arable Land Area = traveling outside arable land area
-  Inside Arable Land Area = traveling inside arable land area

#### Application Mapping Status

-  Automatic
-  Red = off/manual

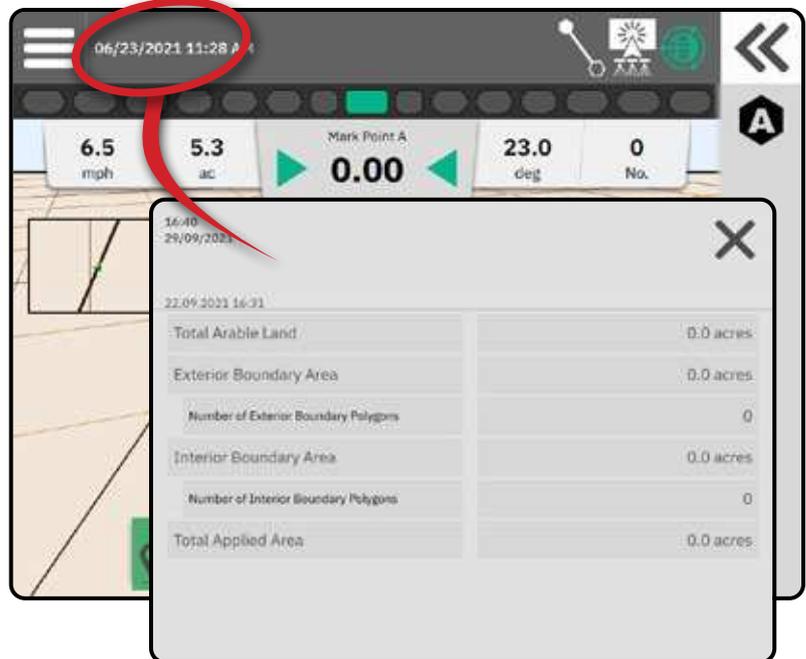
#### Assisted/Auto Steering Status

-  Engaged, actively steering
-  Yellow = enabled
-  Red = disabled

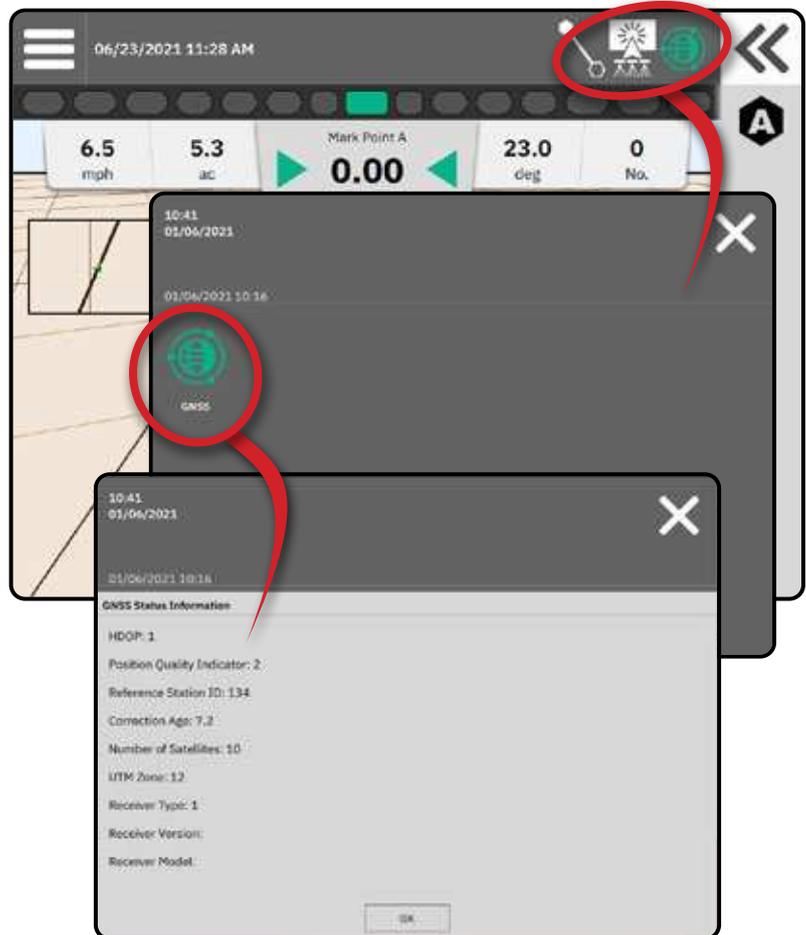
#### BoomPilot Status

-  Automatic
-  Red = off/manual

Job Boundary & Application Details



Status Bar



# Matrix 908 Field Computer

## Guidance Bar

### On Screen Lightbar

Used to represent the distance away from the guideline or vehicle.

To configure the lightbar availability, display mode or LED spacing, from the Main Menu , on the Settings Menu , go to Guidance and Mapping-> Lightbar.

### Navigation Activity

GNSS Status & Current Activity

- Displays “No GNSS” when GNSS is unavailable, or “Slow GNSS” when GNSS is receiving GGA data at less than 5Hz.
- Displays activities such as mark an A or B point

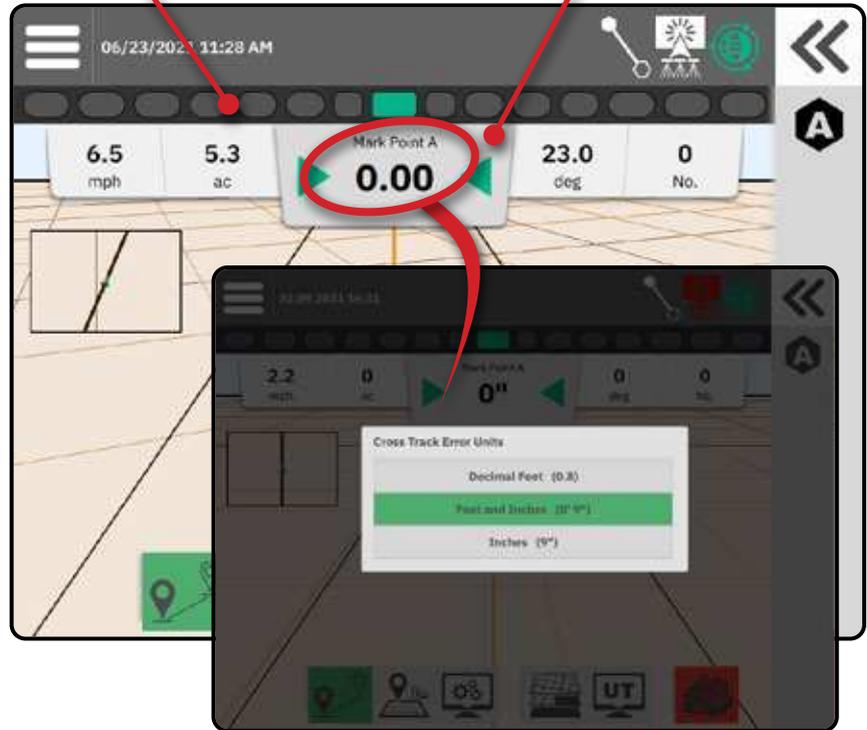
Cross Track Error – displays the distance from your desired guideline.

To change the format in which the distance is displayed:

1. Press the Navigation Activity box.
2. Select the measurement format.

On Screen Lightbar

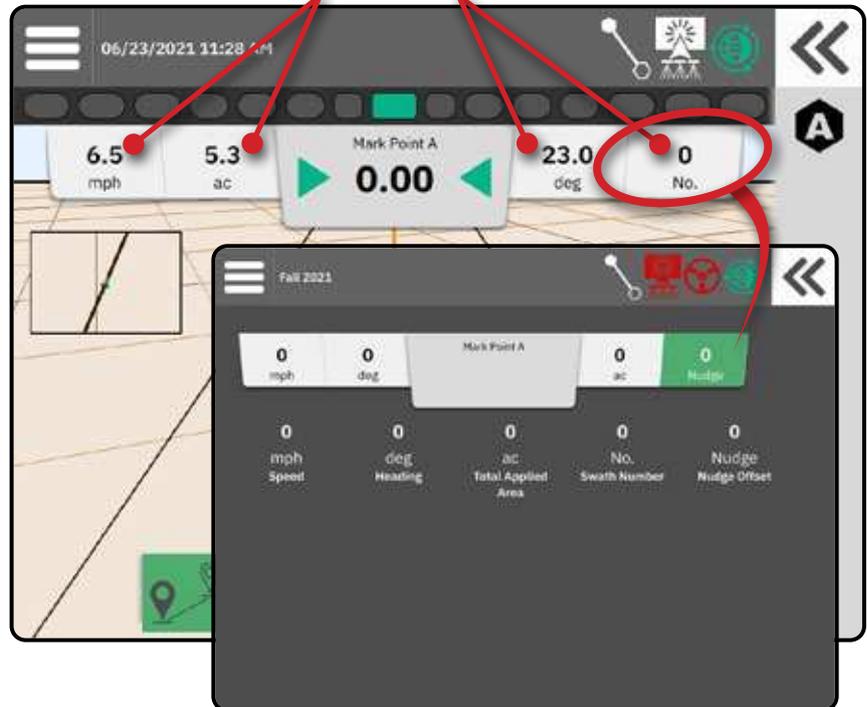
Navigation Activity



### Selectable Job Information

- ▶ Speed – displays the current speed of travel
- ▶ Heading – displays the course of travel based clockwise from a true north baseline. North = 0°, East = 90°, South = 180°, West = 270°.
- ▶ Total Applied Area – displays the total accumulated area that has had product applied, including double-coverage areas
- ▶ Swath Number – displays the current swath number in reference to the initial AB guidance line, facing in the direction from A to B. Number will be positive when the vehicle is to the right of the AB baseline, or negative when the vehicle is to the left of the AB baseline.
- ▶ Nudge Offset – when Assisted/Auto Steering and Assisted/Auto Steering Nudge are both enabled, displays the total accumulated nudge offset distance

Selectable Job Information



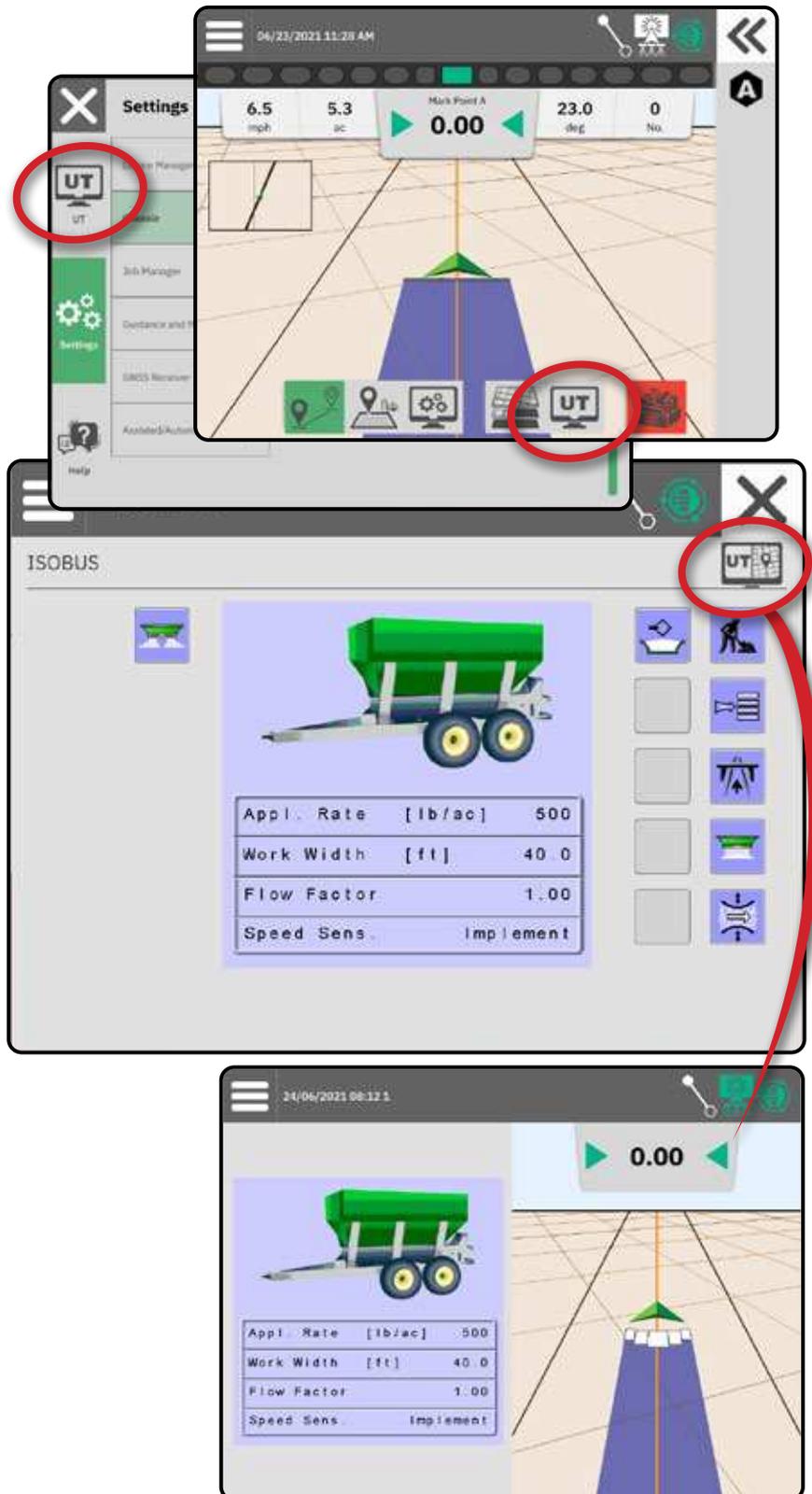
## ACCESS THE UNIVERSAL TERMINAL

When a ISOBUS unlock has been activated, the Universal Terminal (UT) is accessible from either the Guidance Screen or Main Menu .

**NOTE:** An ISOBUS device requires the Universal Terminal which requires an unlock code. See "No.3 Enter Available Unlocks" on page 14 for details.



TwinView – use to display both UT and guidance information



## HELP OPTIONS

### About

Displays the console identification numbers, system software version, language update version, software versions of modules connected to the CAN bus, and how much disk space is remaining.

### User Guide

Provides a QR Code to access this user guide online.

### Product Registration

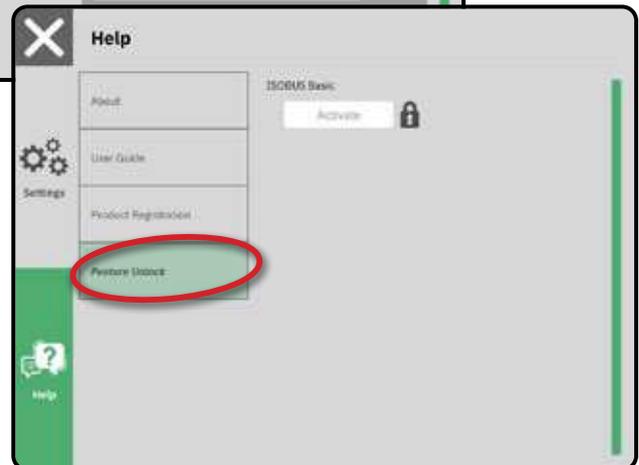
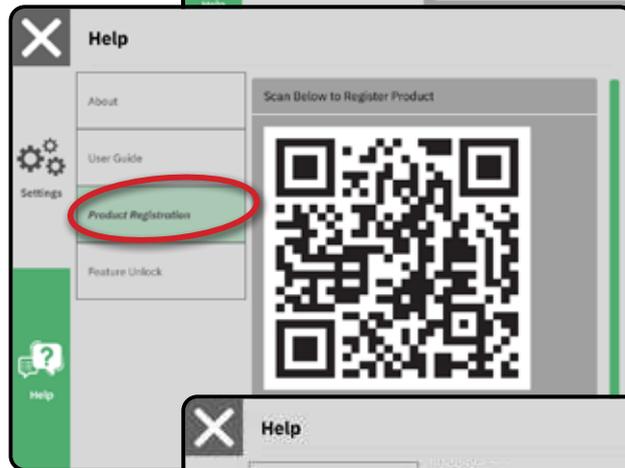
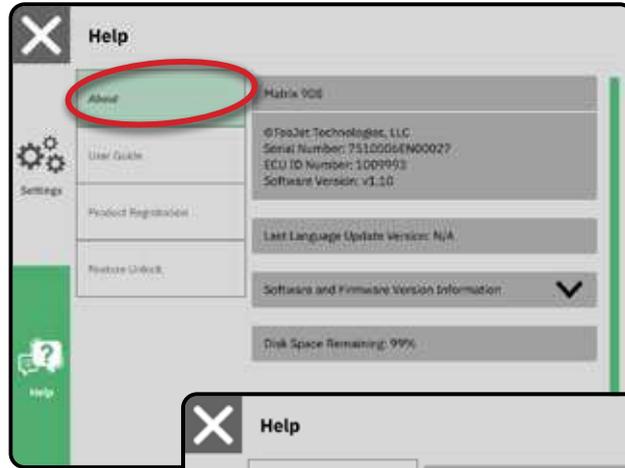
Provides a QR Code to register your console.

Take note of your serial number on the back of the console. It is required for product registration.

### Feature Unlock

Before using some features or options, it is necessary to activate the function with an unlock code. The unlock code is a unique code for each feature and console.

See "No.3 Enter Available Unlocks" on page 14 for details.



## APPENDIX A – GNSS RECEIVER DETAILS

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

1. On the Main Menu , on the Settings Menu , select **GNSS Receiver**.
2. Under **General Settings**, make adjustments to settings as needed.
3. When available, under **Advanced Settings**, make adjustments to settings as needed.
4. Exit this screen to begin initializing the GNSS receiver. A pop-up message will appear during the initialization. This takes about a minute.

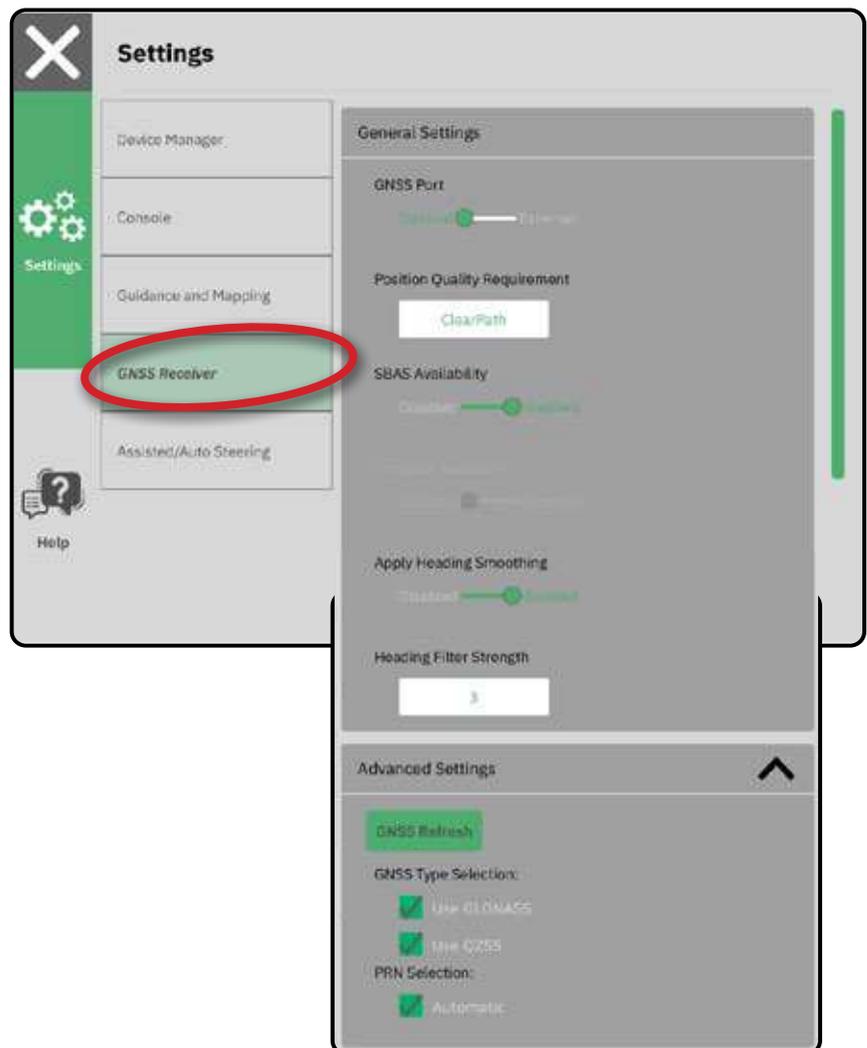
### GENERAL SETTINGS

#### GNSS Port

The COM port can be set to “Internal” to use the internal GNSS receiver and transmit out, or “External” to receive external GNSS data.

- ▶ Internal – uses position data from the internal GNSS receiver; these NMEA data are sent out the RS-232 serial "Port A" of the harness at the selected GNSS Data Rate
- ▶ External – uses position data from an externally attached GNSS receiver attached to the RS-232 serial "Port A" of the harness

*NOTE: An external receiver is required to work with TerraStar, OmniStar HP/XP, or RTK position data.*



# Matrix 908 Field Computer

MEASUREMENTS

CONSOLE

SETUP

START JOB

UT

HELP

APPENDIX

## External Receiver Minimum Configuration Requirements

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

### Serial Port Settings

Baud Rate:	Only allowed at 115,200
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	10.0 Hz
Optional VTG	10.0 Hz
ZDA	1.0 Hz

## Position Quality Requirements

Select between using ClearPath or SBAS. SBAS must be enabled below in the "SBAS Availability" setting for the SBAS option to be presented.

The table below shows the GGA Quality Indicator that can be expected from different GNSS signal types.

GNSS Signal Type	GGA Quality Indicator	Typical Accuracy
Single Point / Autonomous GNSS	1	<2 m
Single Point / Autonomous GNSS with GLIDE/ClearPath	1	<1 m*
SBAS systems including WAAS, EGNOS, GAGAN, MSAS, etc.	2 or 9	0.7 m
TerraStar-L (converged)	2	40 cm
RTK (fixed)	4	1.0 cm + 1 ppm
RTK (float)	5	4 cm
TerraStar-C (converged)	5	4 cm
OmniStar HP/XP/G2	5	~10 cm

\*For a 60 minute period.

## SBAS Availability

Enable if SBAS (e.g. EGNOS, GAGAN, MSAS, SDCM, WAAS) differentially corrected signals are to be used.

## TerraStar Availability

Enable if TerraStar services are to be used.

## Apply Heading Smoothing

Enable when using an OEM7 receiver to reduce noisy heading information.

## Heading Filter Strength

Sets the value for Heading Smoothing.

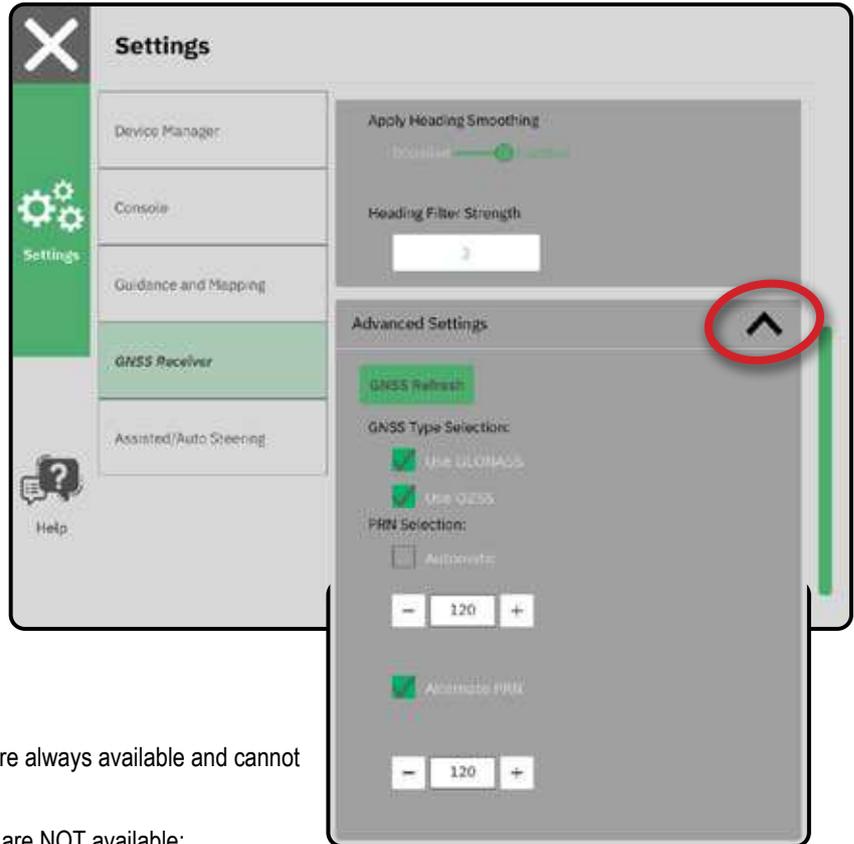
## ADVANCED SETTINGS

### GNSS Refresh

The refresh GNSS position button will reset the ClearPath filter in the OEMStar receiver in cases where the user has had the receiver running in close proximity to heavy tree cover and/or buildings. In Advanced more, the ClearPath filter will be reset automatically when starting a new job or an existing job.

*NOTE: After pressing GNSS Refresh the user is required to wait approximately 10 minutes for full operation and expected GNSS accuracy. Activating the refresh while in a job will cause a momentary interruption in the relay of GNSS data. This will most likely result in sections already on in automatic BoomPilot mode to go off for a short period of time.*

*The refresh should not be done during active application.*



### GNSS Type Selection

GPS uncorrected signals from the GPS system are always available and cannot be disabled.

Indicated when the following uncorrected signals are NOT available:

- ▶ GLONASS
- ▶ Galileo
- ▶ Beidou
- ▶ QZSS

### PRN Selection

When using the internal GNSS receiver, the PRN menu allows selection of up to two specific SBAS satellites to use for SBAS corrections. This allows the user to remove SBAS correction data from malfunctioning SBAS satellites.

- ▶ Automatic – automatic PRN selection
- ▶ Number – contact your local dealer for the number associated with your operating location

#### Alternate PRN

When PRN is not automatic, allows possible selection of a second SBAS PRN to provide correction data.

- ▶ None – no alternate PRN number
- ▶ Number – contact your local dealer for the number associated with your operating location

#### PRN Not Shown

PRN options are only available with SBAS GNSS type selected while set to the internal GNSS receiver.

# Matrix 908 Field Computer

## GNSS Status Information

GNSS status information displays a snapshot of the current GNSS status information.

1. On the Guidance Screen, press the **Status Bar**.

2. Select the GNSS icon .

3. View data including:

- ◀ HDOP – a measure of satellite geometry strength in the horizontal plane. A HDOP value of less than 2 is preferred.
- ◀ Position Quality Indicator – the current quality indicator of the GNSS signal (see GGA requirements chart)
- ◀ Reference Station Identification – the current DGPS satellite identification number
- ◀ Correction Age – age of any and all corrections being applied to the position calculation estimate. When using SBAS the correction age is not a true Differential Correction SC104 Type and only incorporates Ionospheric modeling.
- ◀ Number of Satellites – the number of GNSS satellites in view (minimum of 4 are required for DGPS)
- ◀ UTM Zone – zone where currently located (see "UTM coordinates and zones" in this manual)
- ◀ Receiver Type – the current indicator of the receiver
- ◀ Receiver Version – the software version installed on the receiver
- ◀ Receiver Model – the correction models available to be used with the current receiver configuration

4. Press **OK** to return to the Status Bar Information screen.

*NOTE: If GNSS is not available, all entries will be "Invalid".*

### GGA Quality Indicator Information

- ▶ GPS – single point uncorrected position data based on GPS only with a GGA QI of "1" is accepted.

*NOTE: GPS is always selected.*

- ▶ GPS+GLONASS – single point uncorrected position data based on GPS and GLONASS with a GGA QI of "1" is accepted.
- ▶ GPS+SBAS – either single point uncorrected or SBAS corrected position data are accepted - GGA QI of "1" or "2" (3, 4 or 5 are also accepted).
- ▶ GPS+GLONASS+SBAS – either single point uncorrected or SBAS corrected position data are accepted - GGA QI of "1" or "2" (3, 4 or 5 are also accepted).
- ▶ GPS+GLONASS+SBAS+DGPS – only GGA data with a QI value of "2" or higher is accepted (3, 4 or 5 are also accepted).

*NOTE: All console based mapping, application and guidance functions are ceased if the GGA QI value drops below "2" with this setting checked.*



## GNSS GLOSSARY

### **Commercial Satellite Provider:**

Another common source for DGPS signals. Error correction information obtained from their base stations is sent to a communications satellite (separate from the GPS satellites) and broadcast to the user. These satellite-based corrections tend to have more widespread coverage than tower-based broadcasts (FM links), and system accuracy is not greatly affected by the user's distance from the base station receivers. Most of these service providers require a subscription fee for use. A commonly known provider is OmniSTAR.

### **CORS (Continuously Operating Reference Station)/Network RTK:**

A series of base stations spread across a given geographic region (such as an entire state/county) that are networked via a centralised computer and which broadcast RTK correction data over the Internet. CORS networks may be publicly or privately owned/operated and may offer a free signal or require an annual subscription fee. By accessing a CORS network via a cellular connection, the end-user eliminates the need to own a base station.

### **Differential Corrections**

Differential corrections is a solution specific to the "double-differencing" algorithm used to determine the correction values applied by RTK to each GNSS satellites range data. "Corrections" is the generic term applied to all forms of potential corrections from SBAS (WAAS/EGNOS) through to OmniStar, TerraStar PPP and RTK.

### **Differential GPS (DGPS):**

Use of the specific RTK solution to apply differential corrections to the GPS satellite constellation data.

### **EGNOS (European Geostationary Navigation Overlay Service):**

A satellite based augmentation system (SBAS) developed jointly by the European space agency (ESA), European community and EUROCONTROL. The system is free to use and provides differential correction coverage primarily across the European continent. EGNOS delivers pass-to-pass accuracies of 15-25 cm and year-to-year accuracies of +/-1 m.

### **GLONASS (Global Navigation Satellite System):**

A global satellite navigation system developed and operated by the Russian government. It is composed of approximately 24 satellites which continuously orbit the earth. While early GNSS receivers typically utilized only GPS signals, many of today's GNSS receivers can utilise signals from both GPS and GLONASS, effectively increasing the total number of satellites available for use.

### **GNSS Precise Point Positioning (PPP)**

PPP is a subscription based globally provided satellite correction service broadcast to properly equipped GNSS receivers. PPP utilizes a global array of reference stations to correct for satellite clock and orbit errors which are then broadcast to local receivers. PPP does require a convergence time.

### **GNSS (Global Navigation Satellite System):**

A general term that refers to a multiple satellite navigation system used by a receiver to compute its position. Examples of these systems include: GPS developed by the United States and GLONASS by Russia. Additional systems in development include Galileo by the European Union and Compass by China. New generation GNSS receivers are being designed to utilise multiple GNSS signals (such as GPS and GLONASS). Depending on constellation and desired accuracy levels, system performance may be improved by having access to a greater number of satellites.

### **GPS (Global Positioning System):**

The name of the satellite-navigation network maintained by the U.S. Department of Defense. It is composed of approximately 30 satellites which continuously orbit the earth. The term is also used to refer to any device that depends on navigation satellites for functionality.

### **NTRIP (Networked Transportation of RTCM via Internet Protocol):**

An internet-based application that makes the RTCM correction data from the CORS stations available to anyone with an internet connection and the appropriate log-on credentials to the NTRIP server. Typically uses a cellular link to get to the internet and the NTRIP server.

## Positional Drift

The constant change in the GNSS position calculation primarily caused by atmospheric and ionospheric changes, poor satellite geometry (possibly caused by obstructions such as buildings and trees, satellite clock errors and satellite constellation changes. For sub-decimeter accuracy dual frequency receivers using either PPP or RTK solutions are recommended.

## RTK (Real time kinematic):

Currently the most accurate GPS correction system available that uses a land-based reference station located in relatively close proximity to the GPS receiver. RTK can provide one-inch, also known as centimeter, pass-to-pass accuracy and also provides year-to-year position stability. RTK users can have their own base stations, subscribe to RTK Networks or use CORS.

## SBAS (Satellite Based Augmentation System):

A general term that refers to any satellite-based differential correction system. Examples of SBAS include: WAAS in the United States, EGNOS in Europe and MSAS in Japan. Additional SBAS covering other regions of the world will likely be coming online in the future.

## WAAS (Wide-Area Augmentation System):

A satellite correction service developed by the Federal Aviation Administration (FAA). It is free to use and provides coverage across the U.S. along with parts of Canada and Mexico. WAAS delivers pass-to-pass accuracies of 15-25 cm; however, year-to-year accuracy will be in the range of +/-1 m.

## APPENDIX B – DATA MANAGEMENT ERROR CODES

Reference the following error codes when encountering errors when importing or exporting data using the Data Manager (see "Data Manager" on page 24 for details).

### Import Fail Errors

Code	Issue	Details and Possible Solution or Action Required
1000	The USB Drive is offline	No USB device is present. Remove the USB Drive, reboot the console and retry the import.
1001	The TASKDATA directory is missing in the root of the USB device	No import directory located on the USB device. Check for the correct data on the USB Drive.
1002	The TASKDATA.XML file is missing from the TASKDATA directory	No TASKDATA.XML file located in the import directory. Check for the correct data on the USB Drive.
1003	The Task Controller Client is offline	The Task Controller Client is not connected. Remove the USB Drive, reboot the console and retry the import.
1004	Task Controller timed out	Importing from USB Drive is taking longer than expected. Remove the USB Drive and reboot the console. Open Job Manager and verify expected files were imported.
1005	Data initialization failed	Data initialization failed. Remove the USB Drive and reboot the console. Open Job Manager and verify expected files were imported.
1006	There are duplicate file names in the data set	Duplicate file names in data set. Check for the correct data on the USB Drive.
1007	There are duplicate objects in the data set	Duplicate objects in data set. Check for the correct data on the USB Drive.
1008	The Task Controller could not move file(s)	Error moving files. Remove the USB Drive, reboot the console and retry the import.
1009	The Task Controller could not copy file(s)	Error copying files. Remove the USB Drive, reboot the console and retry the import.
1010	The TASKDATA.XML file is not a valid file	Invalid ISO TSKDATA.XML file. Check for the correct data on the USB Drive.
1011	Internal error, invalid request Id	Invalid request identification. Remove the USB Drive, reboot the console and retry the import.
1012	The Task Controller could not copy an object	Error copying an object. Check for the correct data on the USB Drive.
1013	The Task Controller is offline/inactive	The Task Controller is inactive. Remove the USB Drive, reboot the console and retry the import.
1014	Task Controller internal error	Invalid result - internal error. Remove the USB Drive, reboot the console and retry the import.

# Matrix 908 Field Computer

## Export Fail Errors

Code	Issue	Details and Possible Solution or Action Required
2000	The USB Drive is offline	No USB device is present. Remove the USB Drive, reboot the console and retry the export.
2001	Could not create the directory on the USB Drive	Failed to create export directory. Remove the USB Drive, reboot the console and retry the export.
2002	The Task Controller Client is offline	The Task Controller Client is not connected. Remove the USB Drive, reboot the console and retry the export.
2003	Task Controller timed out	Exporting to USB Drive is taking longer than expected. Remove the USB Drive, reboot the console and retry the export.
2004	Data initialization failed	Data initialization failed. Remove the USB Drive and reboot the console. Open Job Manager and verify expected files were imported.
2005	The TASKDATA directory on the USB Drive is invalid	The directory is invalid. Remove the USB Drive, reboot the console and retry the export.
2006	The Task Controller experienced errors moving the data	Error moving data. Remove the USB Drive, reboot the console and retry the export.
2007	There was nothing to export	Nothing to export.
2008	The Task Controller is offline/inactive	The Task Controller is inactive. Remove the USB Drive, reboot the console and retry the export.
2009	Task Controller internal error	Invalid result - internal error. Remove the USB Drive, reboot the console and retry the export.

MEASUREMENTS

CONSOLE

SETUP

START JOB

UT

HELP

APPENDIX



# MATRIX<sup>®</sup> 908

## GETTING STARTED

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