5.7. Setting up utilities

1. Select **System** / **Utilities** .

Provision USB for upgrade

This option is used if the console software is being upgraded via a USB. Insert the USB and select this option to run a script that enables the USB to perform an upgrade the next time it is plugged into a console and the console is turned on. Refer to Quick Setup Guide, page 17.

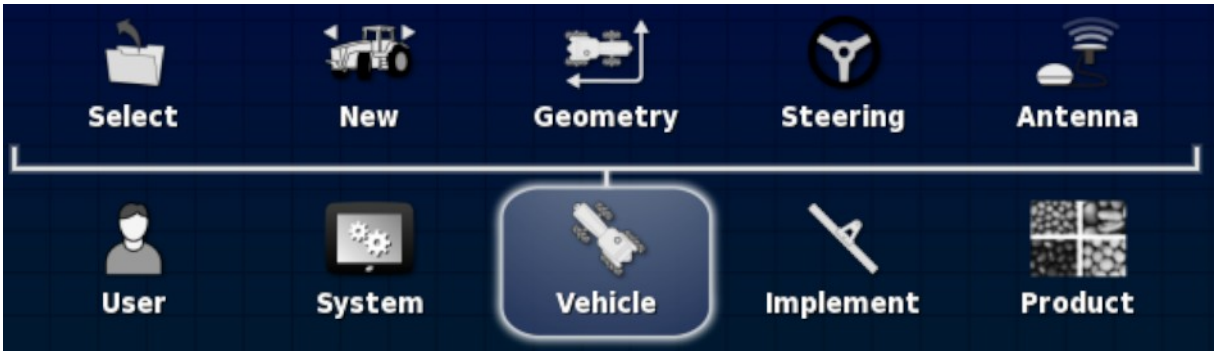
Chapter 6 – Vehicle Setup

This chapter explains how to set up and access profile information about the vehicle on which the console is mounted. If the console is to be used on more than one vehicle then more than one vehicle profile must be set.

The **Vehicle** menu option provides the following menu items:

- **Select**: Select a vehicle from the previously created profiles.
- **New**: Create a new vehicle profile.

  Note that **Select** and **New** are the only options available on this menu if no vehicles have been setup.
- **Geometry**: Sets the vehicle measurements so that guidance can work accurately.
- **Steering**: Controls how the vehicle will respond to guidance.
- **Antenna**: Sets whether the GPS receiver has an internal or external antenna.



6.1. Selecting a vehicle

Selects a vehicle from a previously defined list of vehicle profiles. This is blank when the console is first used.

To select a vehicle:

1. Select **Vehicle** / **Select** .

2. Highlight the required vehicle and confirm, or:

Select to import a vehicle profile from a USB.

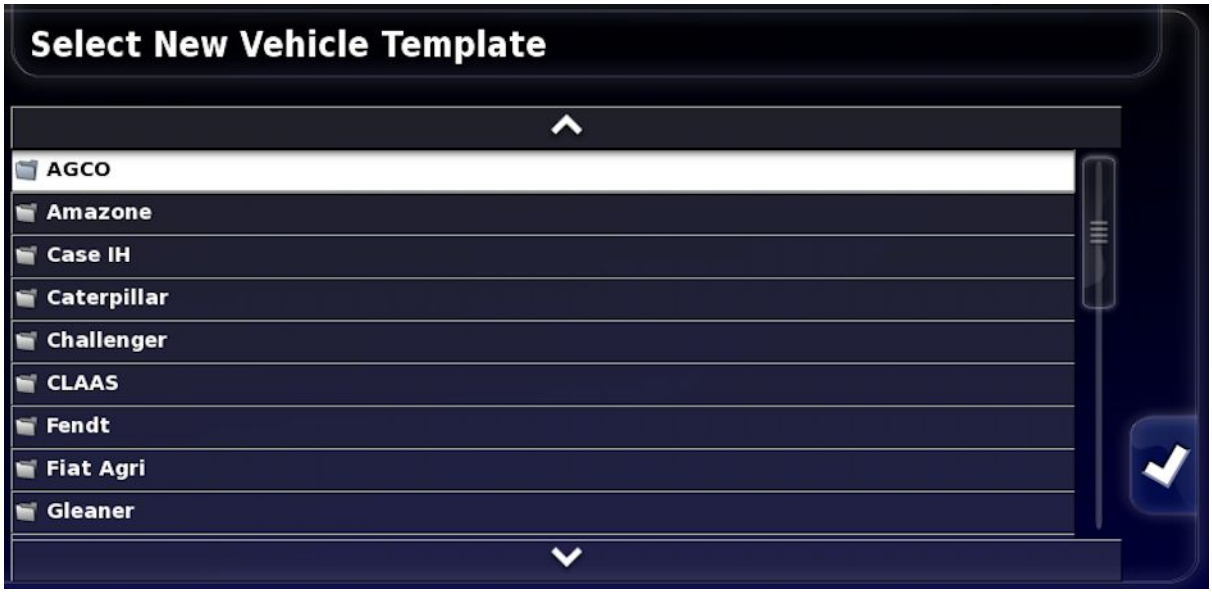
Select to create a copy of the highlighted vehicle. This profile may then be edited.

6.2. Creating a new vehicle

Creates a new vehicle profile for the vehicle on which the console is mounted.

To create a new vehicle profile:

1. Select **Vehicle** / **New** .



A list of pre-defined factory vehicle templates displays. Templates contain standard measurements and steering parameter information where this is available.

Measurements can be adjusted to correct for the particular vehicle, tire size and so on when geometry is confirmed in the following section.

Steering parameters control how the vehicle will respond to guidance and these can be fine-tuned later in the process in Auto Steering, page 187. If steering continues to be unsatisfactory once setup is complete and after tuning the auto steering, contact your dealer.

2. Select the vehicle manufacturer. Use the scroll bar to see the complete list. If the required manufacturer is not available, select one that is most like the vehicle being used. If none of the choices are appropriate, select **Other** and go to Customizing a vehicle, page 88.

Note: Select  to go up one level to the parent folder.

3. Select the vehicle model and confirm.
4. To change the name, select **VEHICLE NAME**, enter the name and confirm.

5. Confirm the new vehicle. The Vehicle Geometry screen displays.
6. Go to Setting the vehicle geometry, page 90.

6.2.1. Customizing a vehicle

When **Other** is chosen from the Vehicle Template screen, generic vehicle templates are displayed that hold basic vehicle information and steering parameters.

1. Select **Other**. A list of steering controllers displays:
   - **ACU-1**: Autosteering Control Unit
   - **AES**: Accurate Electric Steering
   - **AF**: AutoFarm® valve block
   - **RST**: Raven SmarTrax™ valve
   - **Other**: Any other steering controller
2. Select from the list and confirm. A range of generic vehicle templates displays.
3. Use the arrows to select the template shape most like your vehicle and confirm.
4. To change the name, select **VEHICLE NAME**, enter the name and confirm.

5. Confirm the new vehicle. The Vehicle Geometry screen displays.
6. Go to Setting the vehicle geometry, page 90.

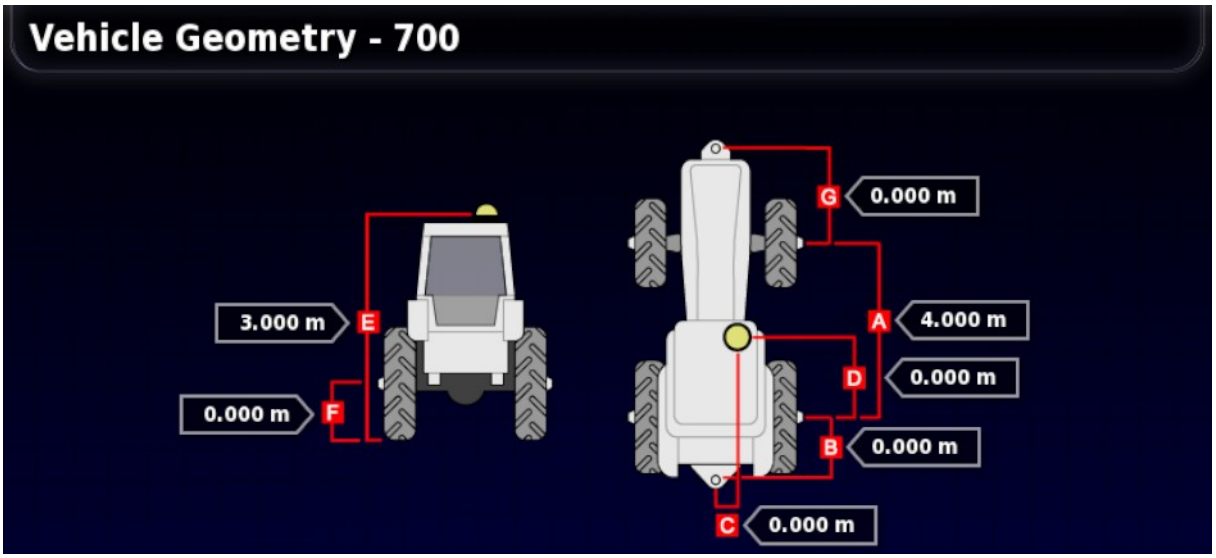
6.3. Setting the vehicle geometry

Sets the vehicle measurements so that guidance can work accurately.

Note: Measure the vehicle dimensions as accurately as possible. The recommended tolerance is +/- 5 cm.

To set the vehicle geometry:

1. Select **Vehicle** / **Geometry** . Alternatively, the Vehicle Geometry screen displays automatically when a vehicle is created or selected.



2. Select a vehicle dimension.

   Dimensions requested vary according to the type of vehicle selected.

3. Add or adjust dimensions where needed and confirm.

The following lists key measurements commonly used in the system:

- **Wheelbase** (A): The distance from the center of the front axle to the center of the rear axle.
- **Implement Tow Point** (B): The distance from the center of the rear axle to the tow point.
- **GPS Steer** (C): The offset left or right from the middle of the axles to the GPS receiver. This is a positive number if the receiver

is to the right of the middle of the axle and negative if the receiver is to the left.

- **GPS Antenna** (D): The horizontal distance of the receiver from the center of the rear axle. The number is positive when the receiver is in front of the rear axle and negative if it is behind the rear axle.
- **GPS Height** (E): The height of the top of the GPS receiver above the ground.
- **Axle Height** (F): The height of the axle above ground.
- **Front Hitch** (G): The distance from the center of the front axle to the front hitch position.
- **Track Spacing** (H): This only applies to tracked vehicles and is the distance between the tracks.
- **Articulation Point** (I): This only applies to articulated vehicles and is the distance from the rear axle to the articulation (pivot) point of the vehicle.

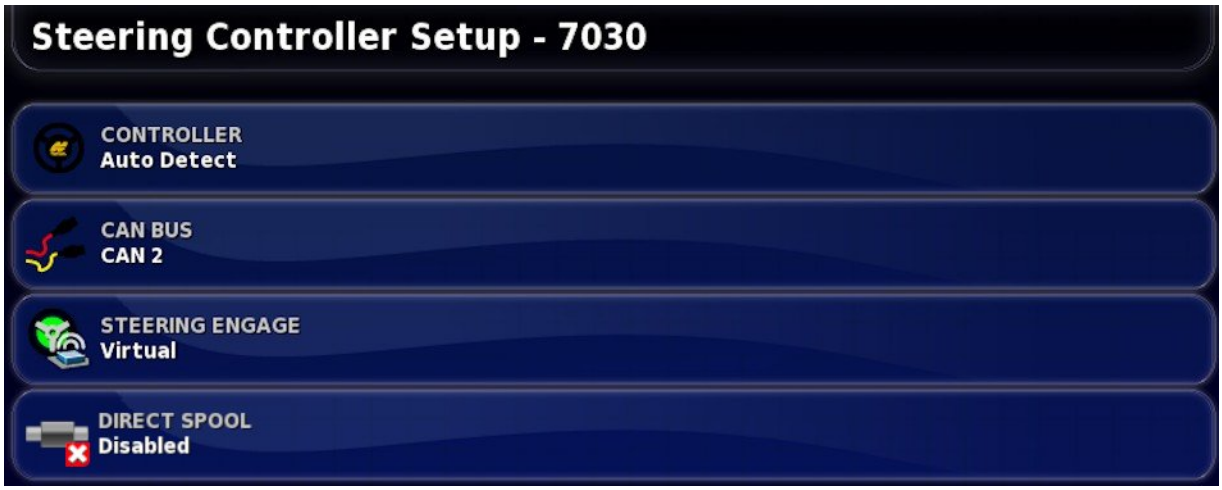
6.4. Setting up the steering controller

Controls how the vehicle will respond to guidance. Refer to Auto Steering, page 187.

This option is only visible if **AUTO STEER** is enabled on **System** / **Features** / **Guidance**.

To set up the steering controller:

1. Select **Vehicle** / **Steering** .



Controller

Note: It is important to select the specific steering controller, if it is listed, so that auto steering settings match the vehicle profile. Note that if the steering controller is changed later, it may be necessary to return to the vehicle geometry to confirm the dimensions (refresh them). Note that **Auto Detect** does not automatically detect the controller options that are available in the list, so the specific controller must be selected if it is an available option.

Selecting AES-25 as the controller adds extra options to the Steering Tuning screen, refer to Tuning auto steer, page 191.

CAN bus

Controller Area Network. Select the CAN bus being used. If unsure, look at the labeling on the connections to the GPS receiver.

- **CAN 1**: ISOBUS

- **CAN 2**: Primary steering BUS

Steering engage

Allows the operator to engage auto steering from the console.

- **Virtual**: Select if only the on-screen **Auto Steer Engage** button will be used  .
- **Virtual and External Console Input**: Select if you have an external Engage button connected directly to the console.

If you have an external Engage button connected to the CAN bus, you can select either of these two options.

Direct spool

This option is only available if **Auto Detect** is the selected Controller.

Direct spool is a special mode where the ACU-1 will operate without a wheel angle sensor.

This is designed for use with tracked sugar cane harvesters.

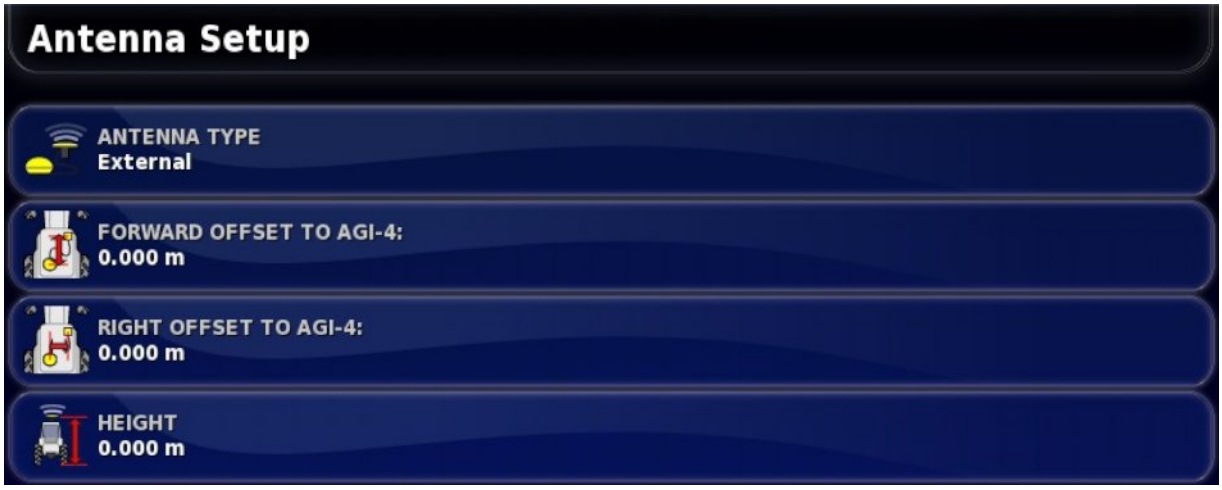
Enabling this adds two new options to the Steering Tuning screen, refer to Tuning auto steer, page 191.

6.5. Selecting the vehicle antenna

Sets whether the GPS receiver has an internal (built into the receiver) or external antenna. Internal antenna is set as default.

To set the antenna type:

1. Select **Vehicle** / **Antenna** .



If **External** is selected, the measurements for the location of this antenna must be entered:

Forward offset to AGI-4 (or AGI-3)

Enter the distance forward from the center of the AGI-4 to the center of the antenna (use a negative number if the antenna is behind).

Right offset to AGI-4 (or AGI-3)

Enter the distance to the right from center of AGI to center of antenna (use negative number if antenna is to the left of the AGI).

Height

Enter the height of the antenna above the ground.

Chapter 7 – Implement Setup

This chapter explains how to set up and access profile information about the implement being used. If the console is to be used with more than one implement, then more than one implement profile must be set up.

The following information details how to set up a non-controlled implement for correct swath paths or guidelines. This allows the creation of coverage maps and provides waylines for auto steering and guidance.

Refer to the Spreader / Sprayer / Seeder operator manuals for detailed implement information. The following information sets up the implement for auto guidance and steering only.

Note: The options displayed on the Implement menu will vary depending on the implements created/selected.

The **Implement** menu option provides the following menu items when no implements have yet been created:

- **Select**: Select an implement from previously created profiles. (This list is blank if no implements have been created.)
- **New**: Create a new implement profile.
- **Speed & Position**: Refer to Setting up GPS speed emulation, page 106.

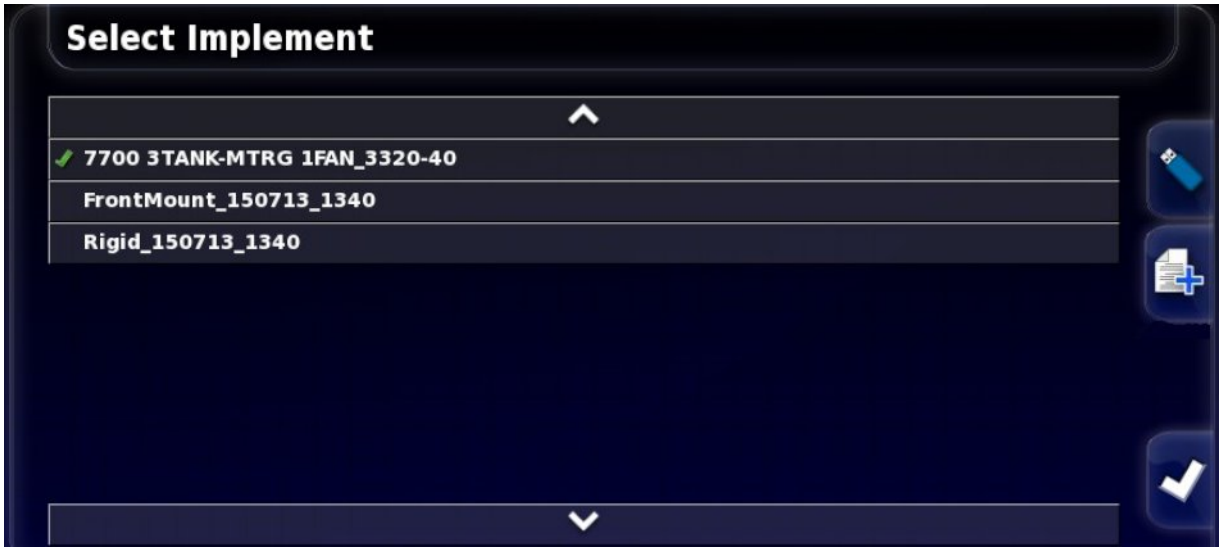
7.1. Selecting an implement

Selects an implement from a previously defined list of implement profiles. This is blank when the console is first used.

When changing implements the system will restart.

To select an existing implement:

1. Select **Implement** / **Select** .



2. Highlight the required implement and confirm, or:

Select to import an implement profile from a USB.

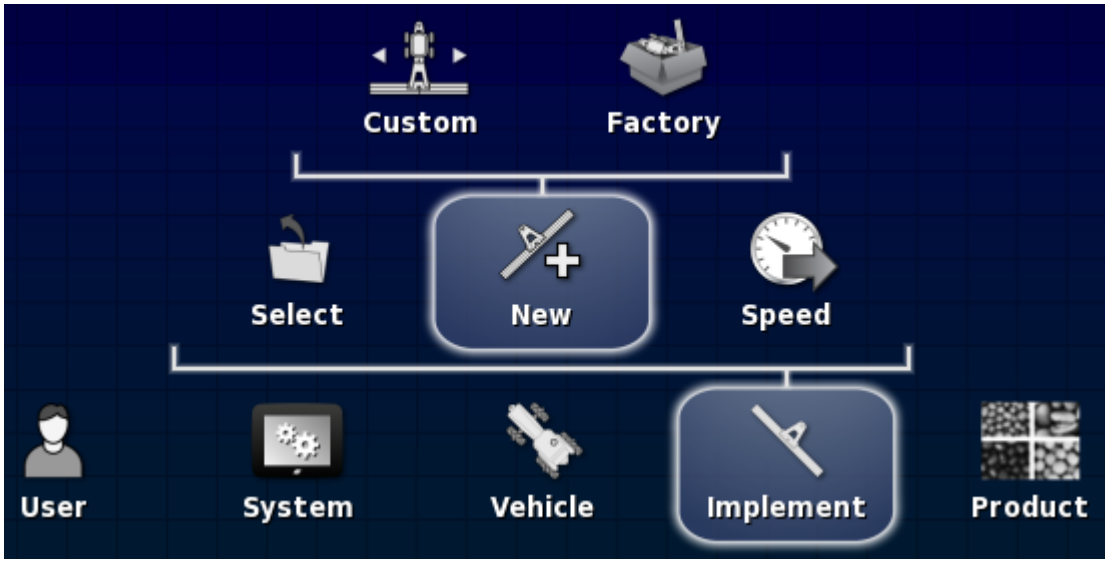
Select to create a copy of the highlighted implement. This profile may then be edited.

7.2. Setting up a new implement

Creates a new implement profile for the attached implement.

To create a new implement:

1. Select **Implement** / **New** .



- **Custom**: Create a new implement profile.
- **Factory**: Select an implement template from a pre-defined list.

2. If the required implement is not available in the **Factory** templates, select **Custom**.
3. Use the arrows to select the implement **Type** and confirm.


rigid


pivoted (tow behind)


front mount


double pivoted (tow between)

A message displays stating that the console will restart once the implement has been created.

A default name for the implement is displayed.

Note: It is highly recommended that items are named in a thoughtful and structured way to allow easy use in future seasons.

4. To change the default name, select **IMPLEMENT NAME** and enter the new name, then confirm.

   The New Implement Setup wizard displays.

   Note: The following instructions do not apply if the implement is controlled by an ISOBUS ECU, refer to Setting up an ISOBUS implement, page 98.

5. Select **IMPLEMENT CONTROL**, select **NONE**, then confirm and select next.
6. Select **IMPLEMENT FUNCTION** and select the most appropriate option from the selection list.
7. When the screen shows that the setup is complete, confirm.

   The Implement Geometry screen displays. Refer to Setting the implement geometry, page 100.

7.2.1. Setting up an ISOBUS implement

If an ISOBUS implement is required:

1. At step 5 above, select the required **IMPLEMENT CONTROL**:
   - Section control only
   - Section control and rate control, or
   - Rate control only
2. Confirm and select next.
3. Select **ECU TYPE**, select **ISOBUS**, then confirm and select next.
4. Select **IMPLEMENT FUNCTION** and select the most appropriate option from the selection list.

5. Ensure the implement ECU is connected, select **ECU ASSIGNMENT** and select the required ECU from the selection list. Select **Any ECU** if the specific ECU is not listed.
6. When the screen shows that the setup is complete, confirm.

   The console restarts and the ECU Setup screen displays.

Changing ECU settings (ISOBUS)

It is possible to change the implement controls from the **ECU Setup Screen** once implements are fully set up in the system.

1. Select **Implement** / **ECU** .

- To change the type of control, select **IMPLEMENT CONTROL**.
- To change the type of function, select **IMPLEMENT FUNCTION**.
- Select **REFRESH ECU SETTINGS** to synchronize information between the ISOBUS ECU and the console.

Refer to Using universal terminal (ISOBUS), page 204 for implement operation.

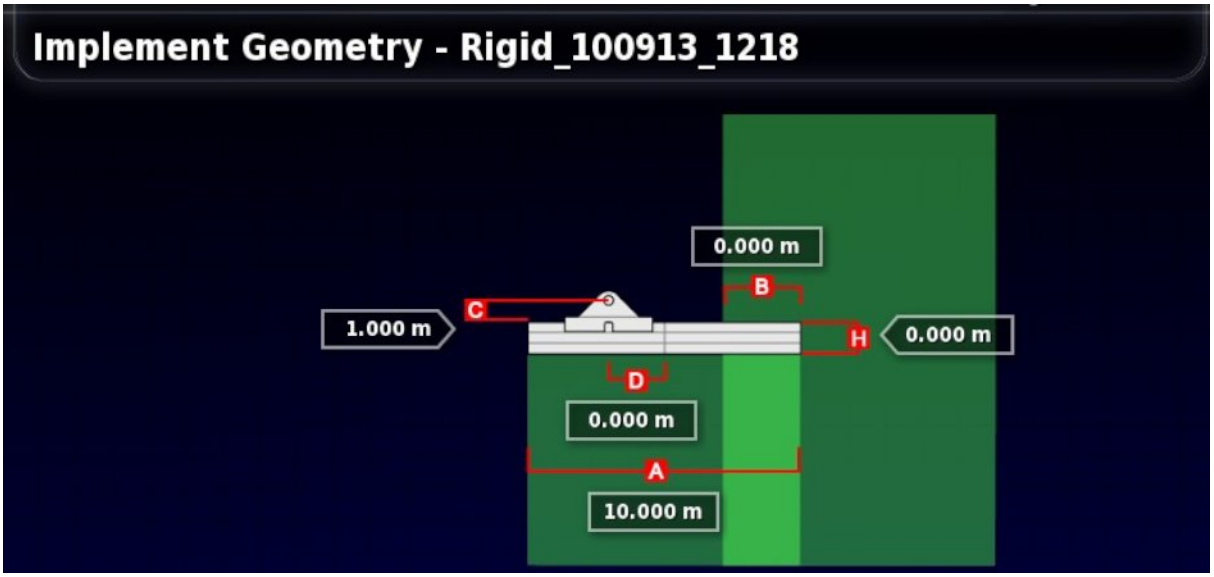
7.3. Setting the implement geometry

Sets the implement measurements so that guidance can work accurately.

Note: Measure the implement dimensions as accurately as possible. The recommended tolerance is +/- 5 cm. When an ISOBUS implement is connected, some of the geometry items are provided by the implement and cannot be altered on this screen. Any changes to these must be made in the implement ISOBUS UT control screen.

To set the implement geometry:

1. Select **Implement** / **Geometry** . Also, the Implement Geometry screen displays automatically when an implement is created or selected.



2. Select an implement dimension.

   Dimensions requested vary according to the type of implement selected.

3. Add or adjust dimensions where needed and confirm.

The following lists measurements used in the system:

- **Swath Width**: Measures the working width of the implement (that is, the width of the area that is treated during one pass of the

implement).

- **Working Length**: Length from the start to the finish of the working area of the boom. Together with swath width, it defines the 'Working Area', which is the region that product is applied over for that boom.
- **Overlap**: Measures the width of the overlap between two adjacent passes.
- **Implement Offset**: Measures the distance between the hitch point and the wheels of the implement.
- **Implement Wheels Offset**: Measures the distance between the wheels and the working area of the implement.
- **Inline Offset**: Measures the off-center offset of the implement relative to the hitch point. Enter a positive number if the implement is shifted to the right and a negative number if it is shifted to the left.
- **Trailer Offset**: Measures the distance between the trailer hitch point and the trailer wheels.
- **Trailer Wheels Offset**: Measures the distance between the implement hitch point and the trailer wheels.

Note: If the implement has multiple booms, the boom that is to be used for guidance must be selected from the **BOOM FOR GUIDANCE** selection list. This determines the swath width (spacing for the guidance lines). The implement geometry must be set for each boom on the numbered tabs.

7.4. Setting up section control

The console can support up to 30 sections if using three ASC-10 ECUs.

An ISOBUS ECU can identify up to 32 sections automatically. Make any necessary changes on the ISOBUS ECU.

The maximum width of a section is 100 m, divided by the number of sections.

To set up section control:

1. Select **Implement** / **Section Control** / **Sections** .

2. Select **SECTIONS** and use plus or minus to set the number of sections, then confirm.
3. To set the section width for all sections, select **Width** next to **All**.

4. Enter the section width for all sections and confirm.
5. To set individual widths for sections, select the width next to a section, enter the width and confirm.
6. Repeat for each section.

Refer to the Spreader / Sprayer / Seeder operator manuals for more information.

7.4.1. Setting timing

These settings set the response times for the sections when switched on or off. It is important to accurately calculate the response times to avoid overlaps or gaps in product application.

To calculate the response times:

1. Ensure the implement is ready to begin product application and that the calibration factor for the product has been calculated (refer to Product Setup, page 107).
2. Use a stop watch to time the delay between switching a section on and the application of product. This is the **ON TIME**.
3. When the section is switched off, time the delay between switching it off and the product ceasing to flow. This is the **OFF TIME**.

To set the response times:

1. Select **Implement**  / **Section Control**  / **Timing**  .
2. Select **ON TIME** to set how many seconds delay there is between switching a section on and the application of product, then confirm.
3. Repeat for **OFF TIME** and confirm. This will set how many seconds delay there is between switching a section off and stopping product flow.

7.4.2. Setting up the section switch

The section switch can be either Virtual (on the console screen) or External (a physical switch connected to the ASC-10 ECU or console).

The type of switch cannot be selected with spreaders as the spinners' on/off action controls the two sections.

To configure the switches:

1. Select **Implement**  / **Section Control**  / **Section Switch**  .
2. Select **TYPE**.

3. Select **Virtual** or **External ECU Sense** and confirm.

7.5. Setting up the master switch

The master switch turns on the application control (spreader, sprayer) and also enables the coverage map on the guidance screen.

To set up the master switch:

1. Select **Implement** / **Master Switch** .

   Note: If an Apollo seeder or sprayer implement is connected, this option is under **Implement** / **Operator Inputs** / **Master Switch**. Refer to the implement Operator Manual for more information.

Virtual

Enables the master switch to be operated by selecting the virtual master switch on the console Operation screen.

Refer to the manual for the implement controller for information on setting up the switches for the implement.

External console input

Enables the master switch to be operated via an external switch (a physical switch box / master switch connected to the console).

Note: If an external switch is connected, this is usually done by the dealer during installation. The cable labeled 'Remote Mapping' connects to the console harness and provides power to activate / deactivate coverage map and master switch input.

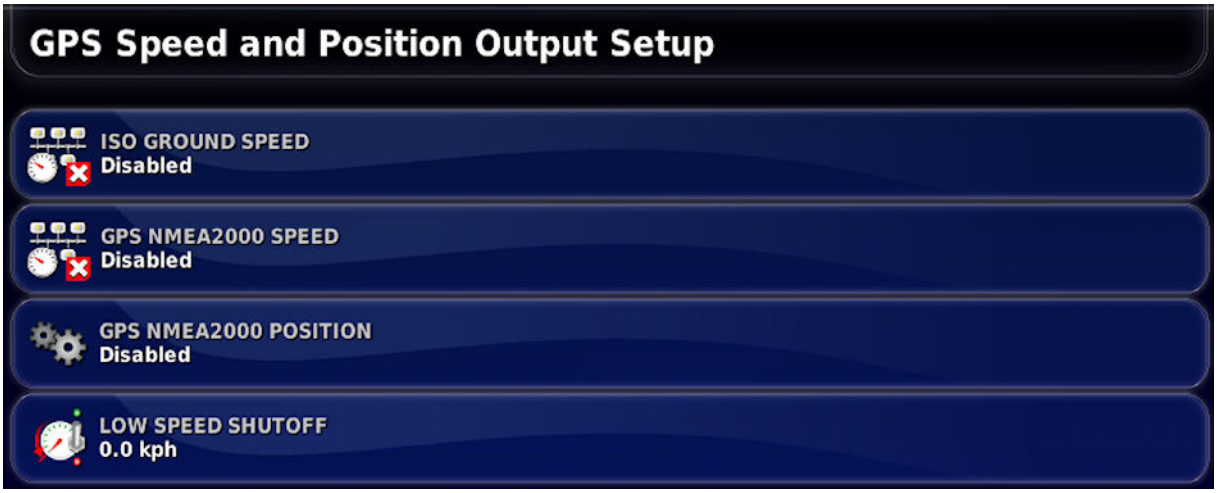
External ECU sense

Enables the master switch to be operated via an external switch (a physical switch box / master switch connected to the ASC-10 ECU).

7.6. Setting up GPS speed emulation

Sends vehicle speed information to the ISOBUS implement for performing rate control or other functions.

1. Select **Implement** / **Speed & Position** .



Outputs speed on ISO and/or NMEA2000 bus to the ECU.

Note: The GPS NMEA2000 setting specifies that the virtual TECU should emulate NMEA 2000 COG/SOG messages (129026) if they are not already present on the bus. It has no effect on the NMEA 2000 output sent from the receiver.

2. Select the required output/s.

Chapter 8 – Product Setup

8.1. Setting up the product database

Product definitions can be saved in one common area. This allows common products to be used across a range of rate controllers without having to enter each product name and rate repeatedly.

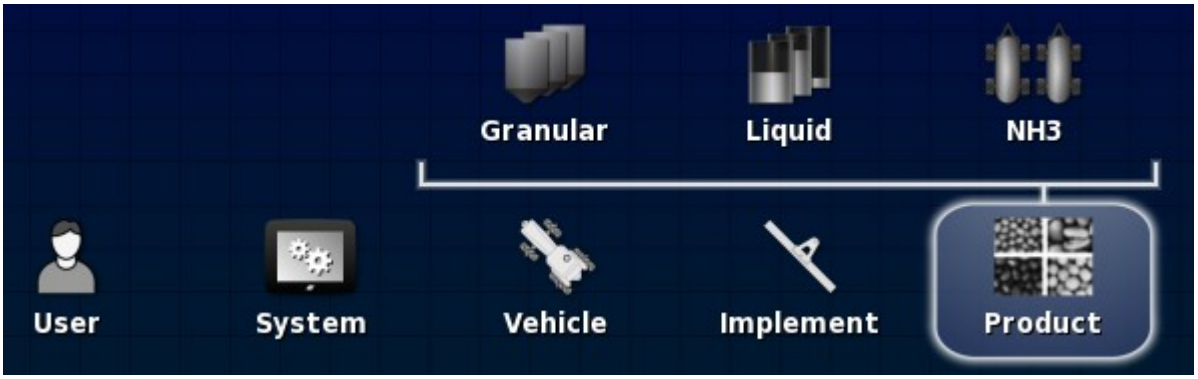
Note: When task data is enabled, this option is hidden, as products are defined in task data instead.

Pre-set rates, increments and product densities can be set up and saved to be recalled in the appropriate rate controller.

The calibration factor for each product is assigned to each implement tank or bin. This means, for example, that you could have urea saved once with different calibration figures for each bin.

Refer to the Spreader / Sprayer / Seeder operator manuals for detailed product information.

The **Product** menu option allows granular, liquid and NH3 (ammonia) product definitions to be created.



For each product, the following information must be defined:

- **Density** (granular only): Product density is used with tank volumes to determine tank capacities. Defined as kg/L or lb/gal.
- **Rate increment**: Defines how much the application rate will change when the operator presses the application rate up/down button. The rate can be changed by a fixed rate or by a percentage

of the rate set for **Rate Preset 1**. Refer to Application rate increment type, page 26.

- **Rate preset 1** / **Rate preset 2**: Defines preset application rates.
- **Calibration factor**: This is the amount of product dispersed per revolution of the product metering unit for granular products and the number of pulses from the flow meter per litre of liquid. This value can be viewed here but must be set for each implement and product. Refer to the Spreader / Sprayer / Seeder operator manuals for more information.

Chapter 9 – Operation Basics

9.1. Using mini-views

1 Navigation bar

Mini-views may be opened by selecting any feature on the Navigation bar.

Some mini-views have a maximize arrow. These may be expanded to display in full screen view by selecting the arrow or by swiping left to right across the mini-view (ending the swipe to the right of the mini-view screen).

To move the mini-view up or down, touch anywhere within the mini-view and slide it in the desired direction. The mini-view will start moving once your finger moves outside its area.

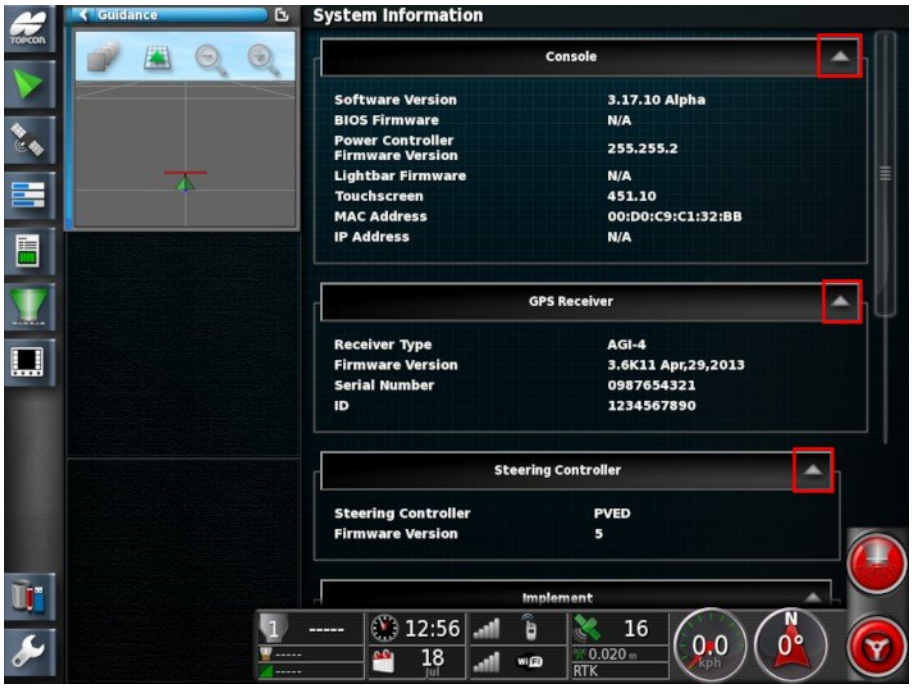
To close the mini-view, select the feature on the Navigation bar again, select the top left arrow or touch anywhere within the mini-view and slide it to the left into the navigation bar.

There is no minimize arrow on the full screen view. Expand another mini-view to replace the information on the main screen.

9.2. Viewing system information

The Topcon logo button on the Navigation bar is used to display software and system information summaries.

Maximize the mini-view to see the full **System Information** panel.



Use the arrows to expand or hide information. A scroll bar displays when needed.

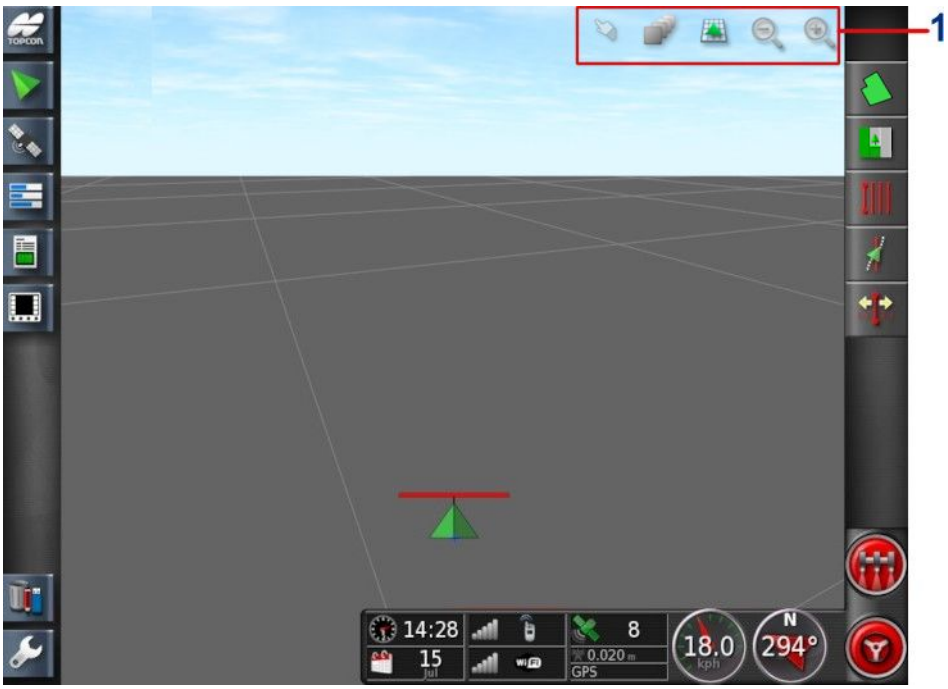
9.3. Viewing guidance

The full guidance screen opens by default when the Operation screen is accessed for the first time. It can also be viewed in a mini-view.

The view controls available on the mini-view may also be accessed on the guidance full screen view.

9.3.1. Using view controls

Note: An option for panning across the map is also available (refer to Map panning, page 31).



1 View controls

Select mode

There is a new touchscreen mode available. To use this mode, press and hold on the screen for half a second then drag your finger over the required object to select it. Once the mode is engaged, the select mode icon becomes visible and the object is highlighted.

This function is available for the following objects on the operation screen:

- boundaries (refer to Editing a boundary, page 156)
- flag points (refer to Removing or changing a flag point, page 163)
- controlled traffic guidelines
- water conservation benchmarks

Select visible map layers

1. Select to choose which coverage and information layers will appear on the screen.

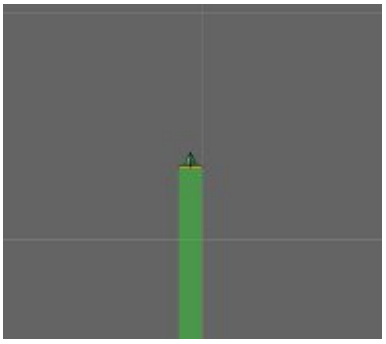
Map layers

- **Grid lines**: Show grid lines on the guidance screen.
- **All fields**: Displays all defined fields in the current farm.
- **Flag points**: Refer to Setting flag points, page 162.

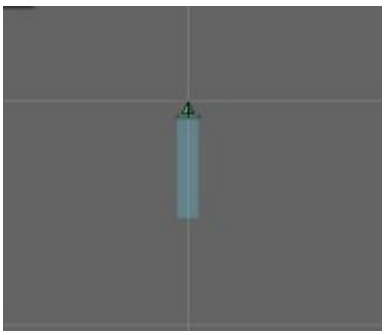
- **Line numbers**: Displays guidelines as a row of numbered lines across the field (applies only to AB Lines).

Coverage map

The coverage map selector enables one type of coverage map to be selected. This is done by pressing the center button and selecting from a list or by pressing the left/right arrows to scroll through the list with a live preview of that layer in the map in the background. The popup list has slightly longer descriptions of the layers, which may make selecting the correct map easier.

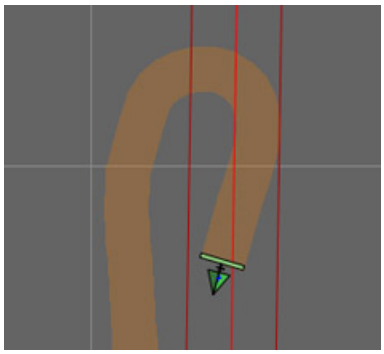


Coverage shows in green.



Applied rate shows in selectable colors.

Legend displays for applied rates.



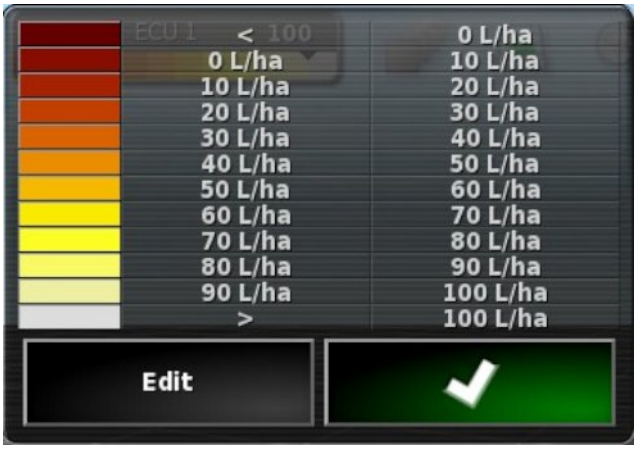
GPS quality shows in orange.

Legend displays for GPS quality.

Editing the legends

The legends that are displayed for Applied Rate and GPS Quality may be edited.

1. Click on the legend to display the legend color and range map.



2. Select **Edit** to change the colors and ranges used.

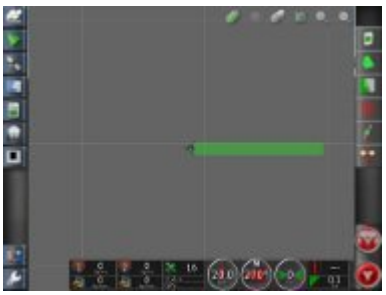
VRC map

If Variable Rate Control is enabled on the Setup screen (**System** / **Features** / **Implement**), the VRC Map option displays below the coverage map selector.

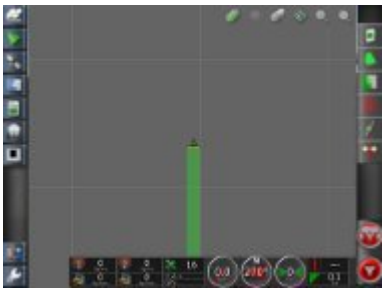
The VRC map selector enables a VRC map layer to be displayed (or hidden by selecting **None**).

Toggle map view mode

1. Select  to toggle views of the map (North Up, Overhead or Perspective).



In North Up View  the top of the screen represents North.



In Overhead View  the top of the screen represents the vehicle's current direction.

Perspective View  places the map into virtual perspective with a virtual horizon.

Map zoom

Select  to zoom in or out if needed. Press and hold to zoom quickly.

9.4. Viewing GPS details

To view and monitor GPS information:

1. Select **GPS Information** from the **Navigation bar**. Positioning information displays.

Latitude and Longitude show the positioning of the vehicle.

Easting and Northing shows the Universal Transverse Mercator (UTM) position and zone of the vehicle. They are measured in meters.

The grid numbers on the east-west (horizontal) axis are called Eastings, and the grid numbers on the north-south (vertical) axis are called Northings.

2. Select the **Vehicle Orientation**  tab.

This shows altitude, heading (degrees), actual speed of the vehicle and roll/pitch (degrees).

Roll is the left/right tipping of the vehicle.

Pitch is the forward/back tipping of the vehicle.

3. Select the **GPS Accuracy**  tab.

This displays the number of available satellites, the correction age (seconds) and the HDOP (lower value indicates better accuracy) and HRMS (lower value indicates better accuracy).

Note: The HDOP (Horizontal Dilution of Precision) indicates the effect on accuracy of a number of satellite sources and their geometry. Keep the antennae clear of obstructions to maintain accurate GPS readings.

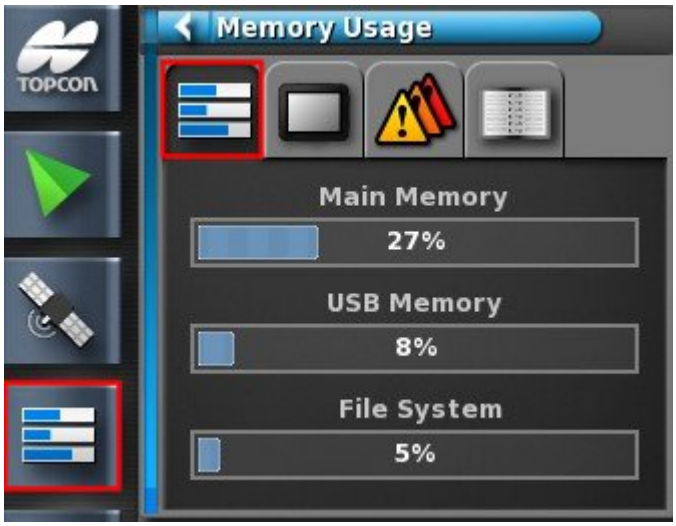
HDOP < 1.0	Good accuracy
HDOP between 1.0 and 4.0	Average accuracy
HDOP > 4	Poor accuracy
GPS invalid 0	No signal

The HRMS (Horizontal Root Means Squared) calculates an average horizontal position from the source information from the satellites.

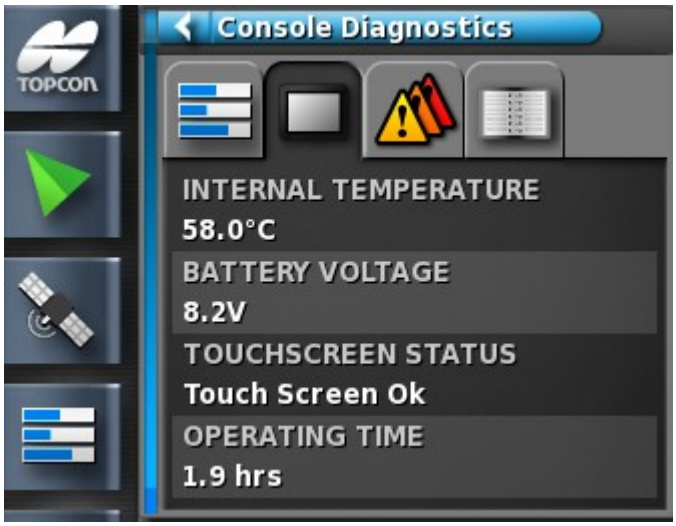
9.5. Viewing diagnostics

To view diagnostic information:

1. Select **System Diagnostics** from the **Navigation bar**. Memory usage displays.



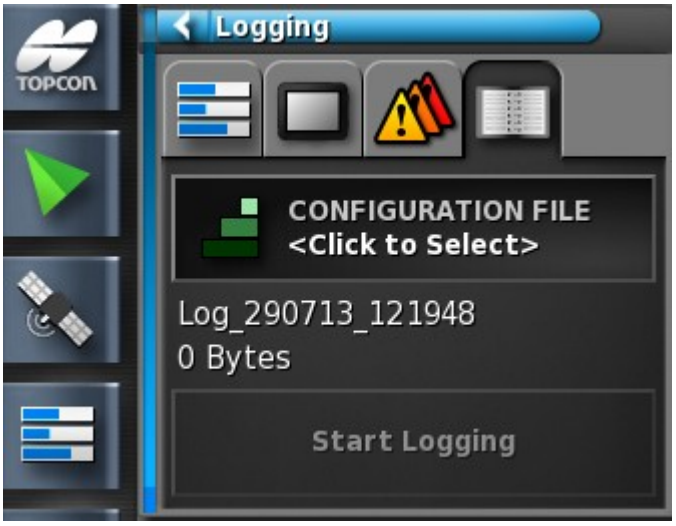
2. Select the **Console Diagnostics**  tab. Console status information displays.



3. Select the **Trouble Codes**  tab.

Error messages are listed. If problems do happen, take note of these for customer support personnel.

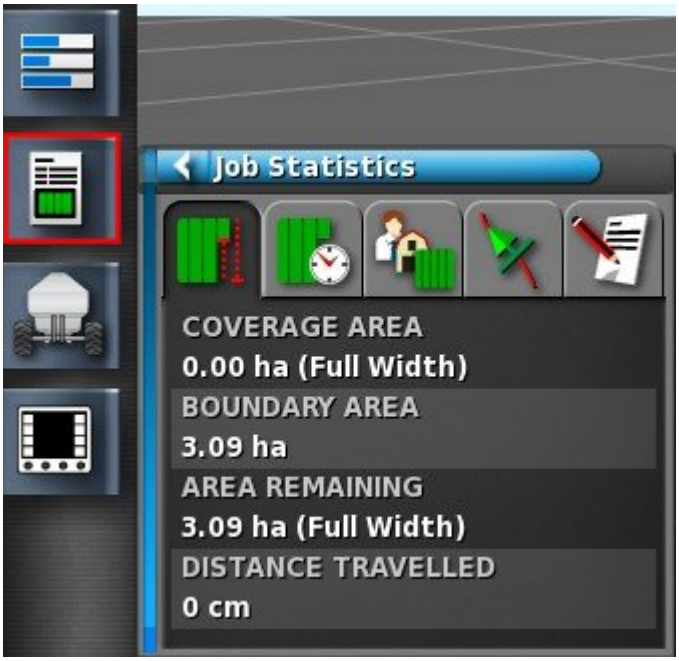
The **Logging** tab is used by customer support personnel. However, if Topcon support personnel send a logging configuration file, it can be loaded from USB and run using this screen.



9.6. Viewing job information

To view job information:

1. Select **Job Information** from the **Navigation bar**.



   This shows overall information on the job's progress.

2. To view other information or to take notes, select the following tabs.


Job Statistics


Job Settings


Guidance Settings


Job Notes - Select anywhere in the Job Notes screen to bring up a keyboard.

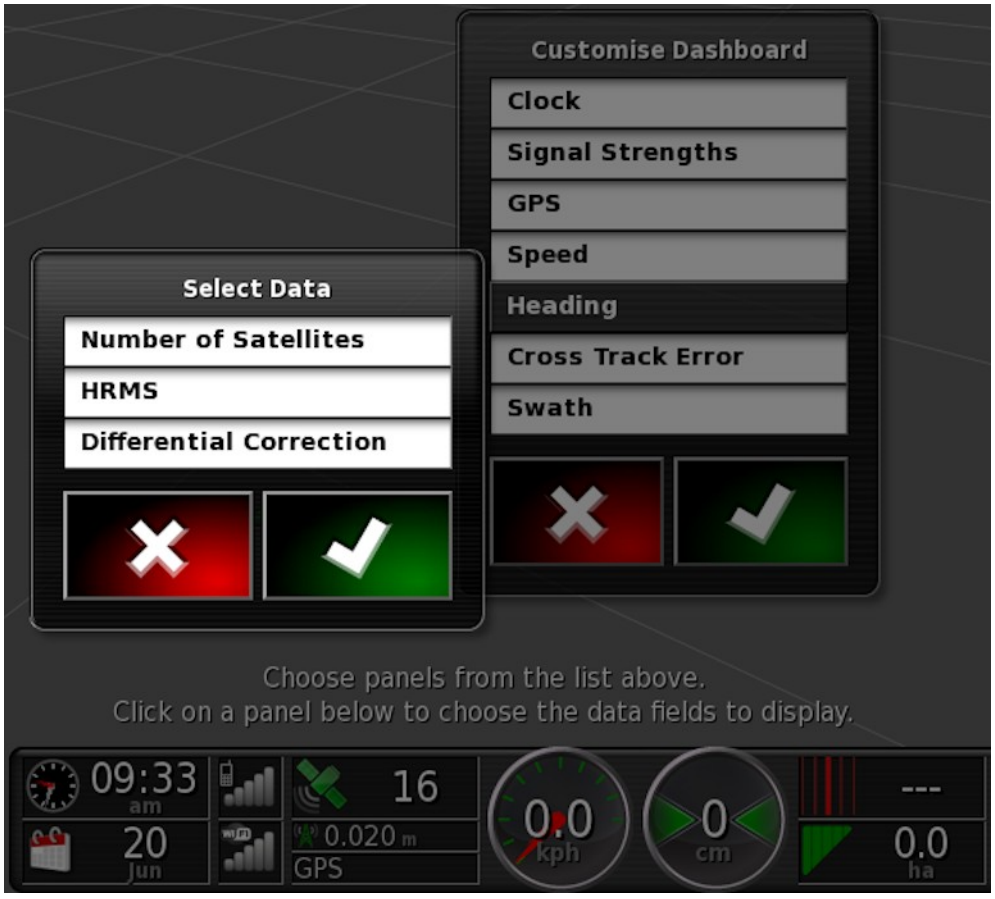
If an implement with more than one boom is selected, an icon is displayed to select the boom about which to view information.

9.7. Monitoring on the dashboard

The display on the dashboard can be adjusted.

9.7.1. Customizing the dashboard

1. Select anywhere on the dashboard to customize what is shown on the dashboard.
2. Press again on the particular panel to be customized and further options display.
3. Deselect and select options as required.



4. Confirm the new dashboard display. The chosen options appear on the dashboard.

Time and date

Time is set via the Setup screen, **User** / **Region** / **Time/Date**. Date is supplied via the GPS signal.

Signal strength

The signal strength panel shows the GPRS and Wireless signal strength.

GPS and correction source

The GPS panel shows:

- System readiness (satellite icon) and the number of satellite signals available
- Correction quality and position accuracy
- Correction source in use (DGPS, PPS, RTK, Float RTK, SBAS, OmniSTAR VBS, TopNET Global D, Invalid, Unknown, Estimated, GPS, Manual Input).

Accuracy to within 2 cm is high level accuracy.

Note: If correction source is set to **Autonomous**, the dashboard displays **GPS**.

Satellite icon

A green satellite icon shows that the GPS and correction source are converged and is based on HDOP. Other colors indicate that

information is not available:

Grey: No correction source, no signal

Red: Poor accuracy

Yellow: Average accuracy

Green: Good accuracy

Note: If **AUTOMATIC** was chosen during GPS setup, the colors may shift during operation as different correction sources are detected. If a specific source was chosen during GPS setup, then the system will seek to detect the chosen system. Refer to page 60 for more information on correction sources and to page 118 for more information on HDOP.

Correction icon

Green: Correction source has converged for auto steering. (Position accuracy on steering status panel page is green.)

Yellow: Correction source received but not accurate enough to engage auto-steering. Check differential correction and position accuracy on steering status.

Red: Correction source received is different from configuration.

Grey: No correction source received.

Guidance information

The guidance information panels may be configured to display four of six possible options: cross track error, speed, heading, swath, area worked or area remaining.

- **Cross track error**: Displays the distance of the vehicle from the nearest wayline.
- **Area worked**: Displays the total area of the coverage, per boom (including overlaps).
- **Area remaining**: Area that has not had coverage applied within boundaries that are not excluded from the current job.

The vehicle speed icon will change depending on the vehicle speed source selected in the Setup screen **Implement** / controller / **Speed Source**. If the vehicle speed is displaying incorrectly, calibration of the speed source may be required.

9.8. Storing information about jobs

The console allows operators to record and store features and working files for many fields and for each job on each field.

Under each field, additional information such as obstacles and boundaries can be stored.

Under each job, information about the job can be stored. It is important to create clear names for farms, fields and jobs so that the information can be accessed easily next season.

The operator can then select the field easily in the future and access the same boundaries, flag points and guidelines without having to recreate them.

9.9. Recognizing color and working status

The Operation screen uses colors to indicate the status of functions. The exact meanings will vary slightly with the implements, choices and features established during setup.

In general terms:

- Red indicates that the function cannot be used. Check that all necessary items have been enabled and set up correctly.
- White indicates that the function is ready to use.
- Yellow and/or green indicate that the function is currently working.

9.10. Understanding default file names

When new vehicles, implements, guidelines or jobs are created, the system displays a default name that can be changed by the operator.

Vehicles and implements are named as follows:

- <Vehicle Type/Implement Type>_XX

  The _XX is appended if an implement of that name already exists (for example: **Pivoted** and **Pivoted_01**).

Jobs are named as follows:

- <Implement Name>_YYYYMMDD_XX

  The <Implement Name> is that of the currently loaded implement, followed by the date in the format: Year, Month, Day. The _XX is appended if a job of that name already exists (for example: **Pivoted_20150311** and **Pivoted_20150311_01**).

Guidelines are named as follows:

- <Default_Prefix>_YYYYMMDD_HHMM_XX

  The _XX is appended if a file with the same name already exists (for example: **L_20150311_1505** and **L_20150311_1505_01**).

Note: Renaming items in a structured way is recommended. This allows items to be easily identified in later seasons.

Chapter 10 – Steering Calibrations

The console uses the satellite data it receives, through the receiver attached to the top of the vehicle, to identify the precise coordinates of the vehicle. Using this and other data, the system is able to estimate the vehicle's position and control the vehicle's steering system.

For this to work properly the system needs to be calibrated for the individual vehicle. If the system has not been calibrated for this vehicle, follow the steps in this chapter.

WARNING: Drive the vehicle to a suitable area with level ground, away from people and obstacles, with room to drive in complete circles. To ensure accurate calibration, the vehicle should have open sky visibility and be well away from trees, high voltage power wires and buildings.

It is recommended to remove the implement if it is a trailed, pivoted type implement to avoid implement draw bar interference.

Note: Calibration screens may vary depending on the vehicle selected. Some steering controllers may offer hydraulics calibration.

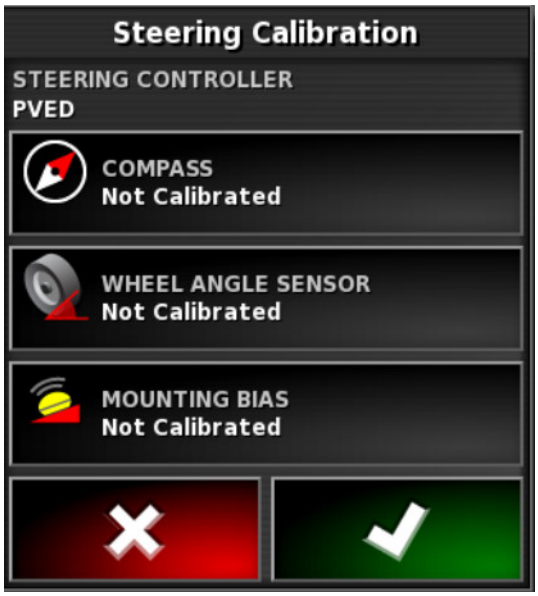
10.1. Calibrating the compass

Follow the steps to start the calibration wizard. Drive to a place that will not interfere with the calibration before beginning. This should be away from high voltage and large metal objects, with space to drive in complete circles.

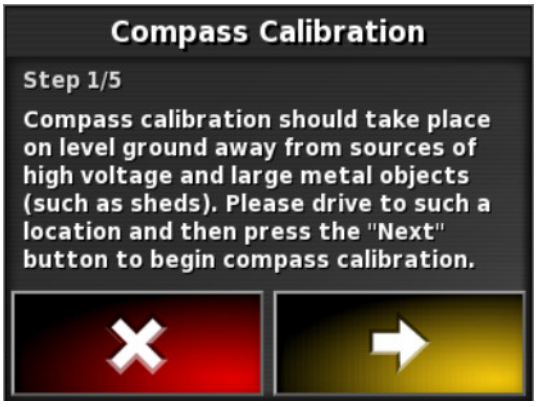
Note: Calibration screens may vary depending on the vehicle selected. **ALWAYS READ THE SCREEN PROMPTS CAREFULLY**.

1. Select **Steering Options Menu**  **/ Auto Steer Calibration**  .

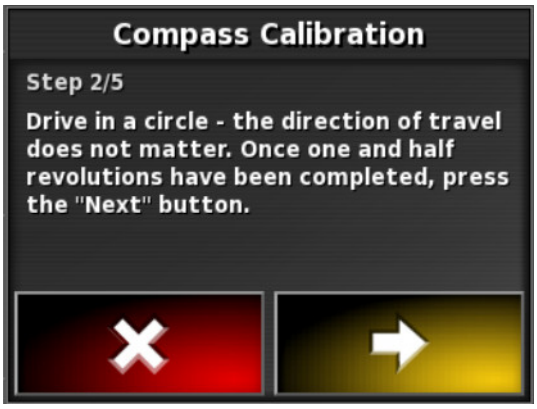
   The Steering Calibration screen displays.



2. Select **COMPASS**. If the component reports as calibrated, still complete the calibration procedure if the receiver has not been calibrated on this vehicle.
3. Read the screen and find an appropriate flat place away from high voltage and large metal objects. Then select next  .



4. Drive the vehicle in a circle at approximately 75% of full lock, the direction does not matter. Once 1 and ½ turns have been completed, stop and select next.



5. Drive the vehicle straight ahead for approximately 100 m then STOP the vehicle. Select next.

6. The system will begin to save calibration data. Wait until the screen states that the calibration is completed successfully and then confirm  .

10.1. Calibrating the compass

10.2. Calibrating the wheel angle sensor

Note: Wheel angle sensor calibration should be performed once every 6-12 months.

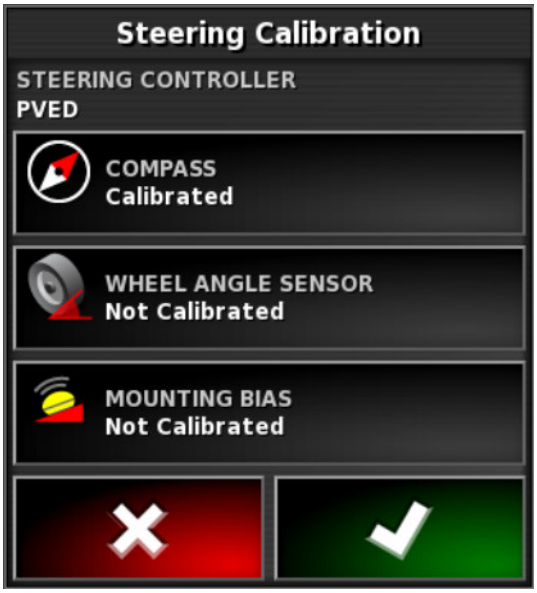
WARNING: Ensure there is sufficient space for the vehicle to complete the full maneuver before selecting Next. The calibration will take up to 60 seconds in each of these locked modes.

WARNING: Some vehicle models may automatically move the wheels to the required position.

1. Select **Steering Options Menu** / **Auto Steer Calibration** .

   The Steering Calibration screen displays.

2. Select **WHEEL ANGLE SENSOR**. If the component reports as calibrated, still complete the calibration procedure if the receiver has not been calibrated on this vehicle.



Note: The number of screens and contents of screens may vary depending on the vehicle and type of steering controller. If an error

displays, read the message and take the recommended action before proceeding.

3. Drive the vehicle forward to start the procedure. The wheel angle sensor calibration should be completed at 2 kph (1.2 mph).
4. Turn the steering wheel full lock to the left and select next  .

5. Turn the steering wheel full lock to the right and select next.

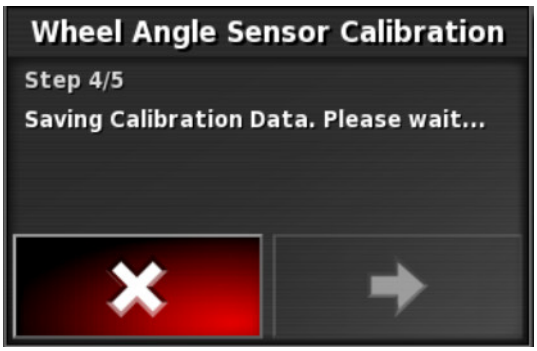
6. Ensure the vehicle is still moving at 2 kph (1.2 mph). Turn the steering wheel as close to the center position as possible.

   Note: Finding the center position and driving in a straight line, before selecting Next, is crucial for system performance.

WARNING: Ensure there is sufficient space for the tractor to drive forward in the center position before proceeding.

7. Select next.

8. The system will begin to save calibration data. Wait until the screen states that the calibration is completed successfully and then confirm  .



Note: Some steering controllers may cause the console to offer hydraulics calibration. If this is displayed, select hydraulics and follow the screen prompts.

10.3. Calibrating the mounting bias

Mounting bias refers to the initial offset from horizontal at which the GPS receiver is mounted on the roof of the vehicle. The following things can affect and change the mounting bias:

- Tire pressure
- Track tension
- Duals
- Tire sizing
- Cabin suspension
- Cabin repairs (suspension and mounts)
- Removing and refitting the receiver
- Mounting location has moved

Note: Mounting bias calibration should be performed if any of the above change or at a minimum once every 6-12 months.

It is advisable to still perform a mounting bias calibration when using **Autonomous** as the **Correction Source**, even though the screen reports that it is not required.

Mounting bias calibration is done in a clear area well away from obstacles. If the mounting of the receiver is not quite level, this calibration will adjust for the actual position.

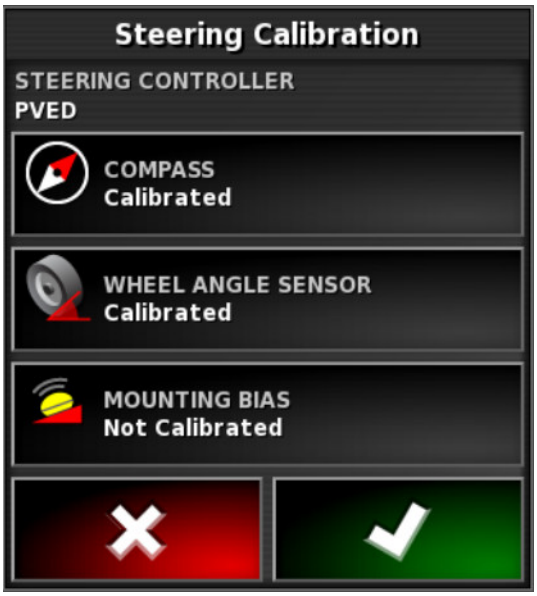
WARNING: Ensure the vehicle has sufficient space to travel in a straight line for at least 70 m/230 ft and then turn at each end of the wayline.

1. Select **Steering Options Menu**  / **Auto Steer Calibration**  .

   The Steering Calibration screen displays.

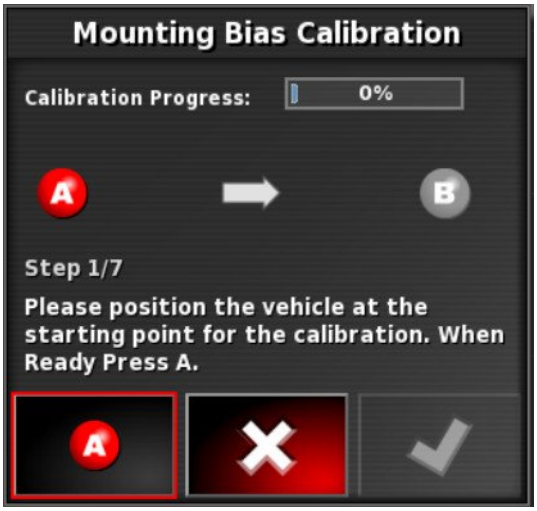
2. Select **MOUNTING BIAS**. If the component reports as calibrated, still complete the calibration procedure if the receiver

has not been calibrated on this vehicle.

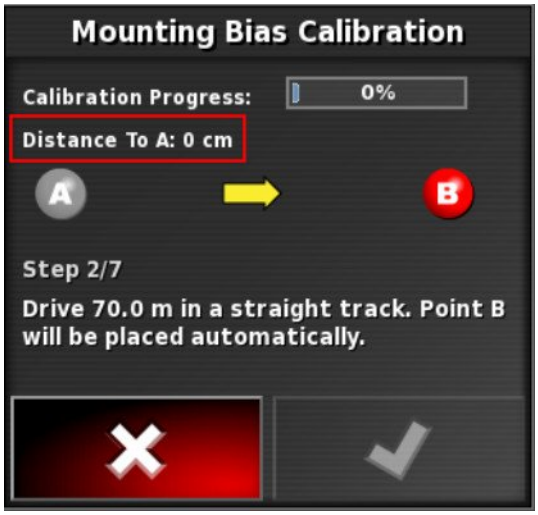


Note: To calibrate for mounting bias, 'A' and 'B' wayline points are plotted over 70 m/230 ft, driving the vehicle at 2 kph or 1.2 mph along the wayline. The operator turns the vehicle around at the end of the pass and repeats the procedure. It is important that the vehicle meets the 'A' and 'B' waypoints within approximately 30 cm, to initiate the next step in the calibration procedure.

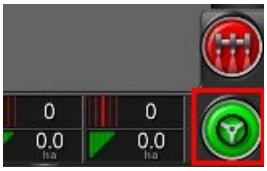
3. Reposition the vehicle in an open area. When ready to start the procedure, select A to mark the 'A' waypoint.



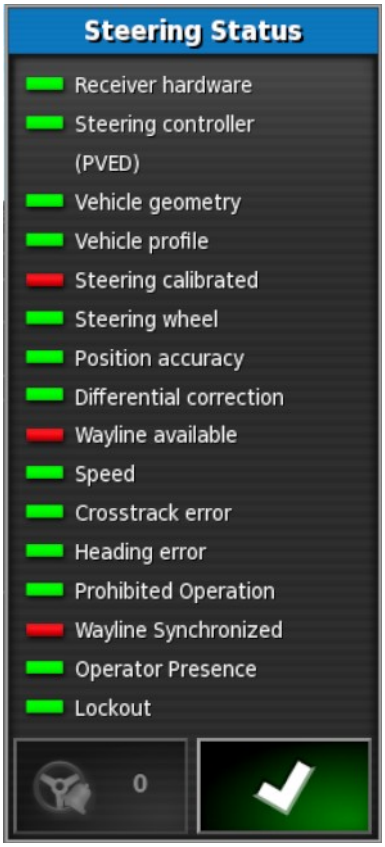
4. Drive forward in a straight line. The 'B' waypoint is created automatically when the **Distance To A** indicates 70 m/230 ft.



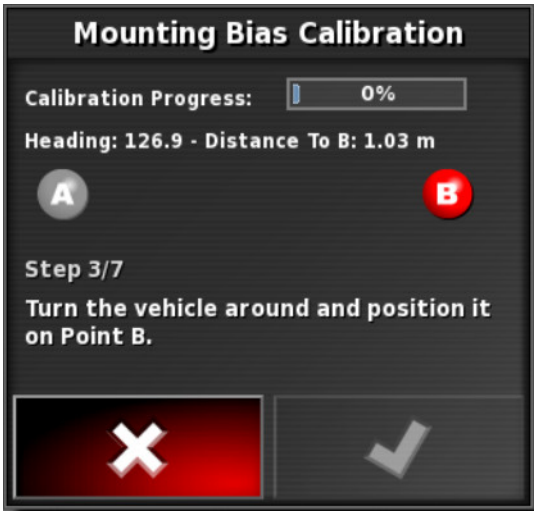
5. Turn the vehicle around and acquire the wayline just plotted, this track number should read ‘0’.
6. Select **Auto Steer Engage** on the operations screen to steer on the wayline. The color will turn green, an audible tone will sound and an ‘engage message’ will flash on screen to indicate the auto steering has engaged.



   If steering does not engage when **Auto Steer Engage** is selected, the steering status box will appear.
7. Address any of the issues with red indicators before proceeding with the mounting bias calibration procedure (work through issues displayed from the top to the bottom of the screen).

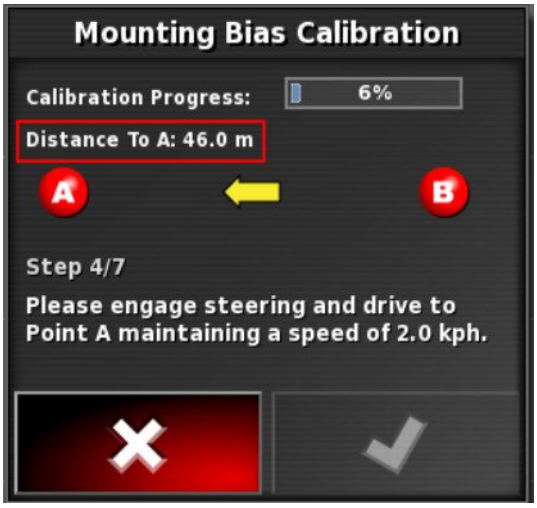


8. Drive the vehicle over the ‘B’ point previously created during the calibration procedure.



9. Set the vehicle speed to 2 kph or 1.2 mph.
10. Steer along the wayline back to the ‘A’ point previously created.

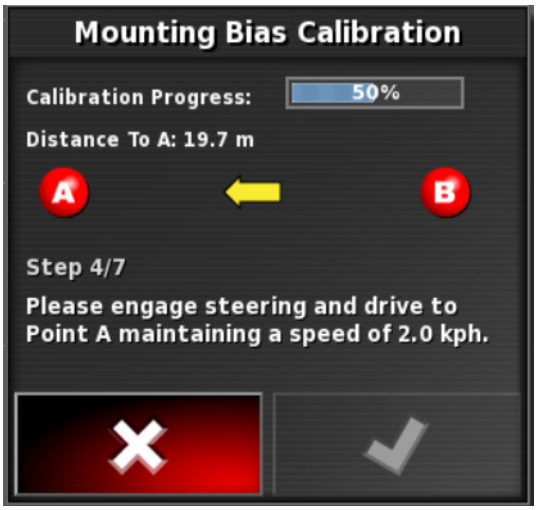
    When the **Distance To A** indicates 50 m the blue line on the Calibration Progress bar will start to move and the percentage will increase.



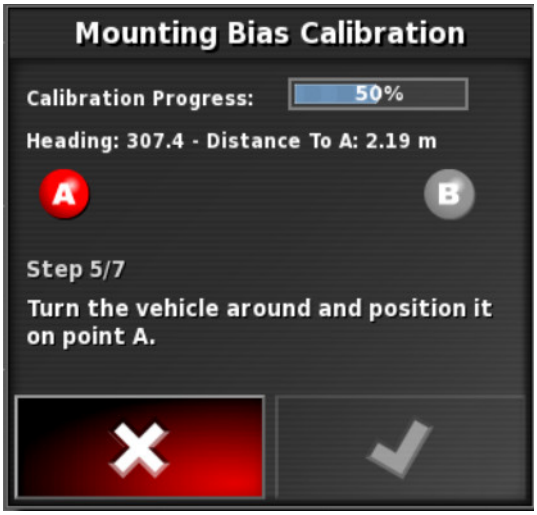
When the Calibration Progress bar reaches 50% the calibration bar will stop and the percentage will remain at 50%.

This indicates the system has enough data for the first stage of the calibration and the mounting bias calibration will be paused at this point.

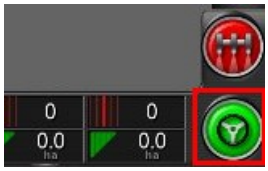
11. Proceed to cross the ‘A’ waypoint.



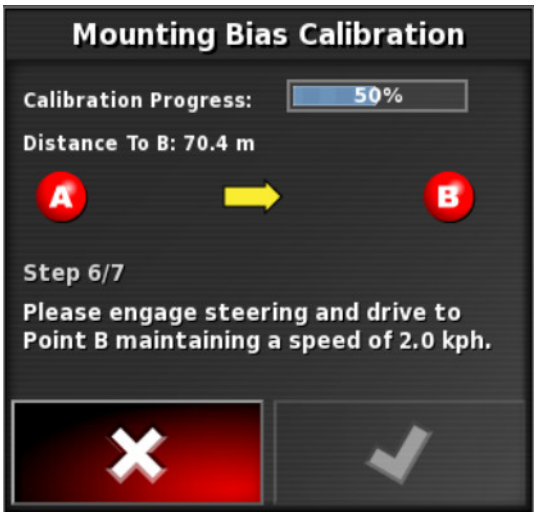
12. When the ‘A’ waypoint has been crossed, turn the vehicle around.



13. Acquire the track ‘0’ and engage the auto steering again.

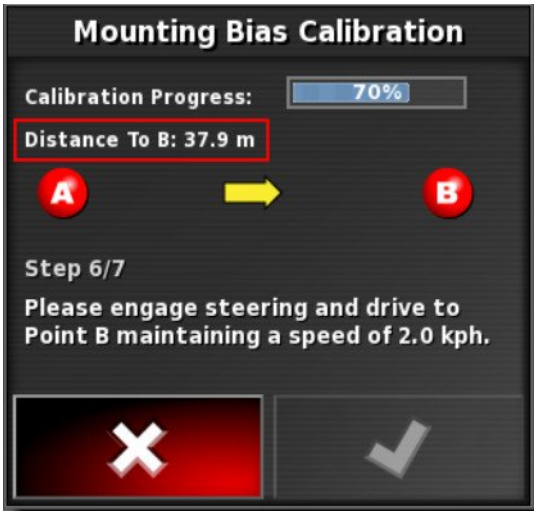


14. Cross over the ‘A’ waypoint again travelling in the opposite direction.



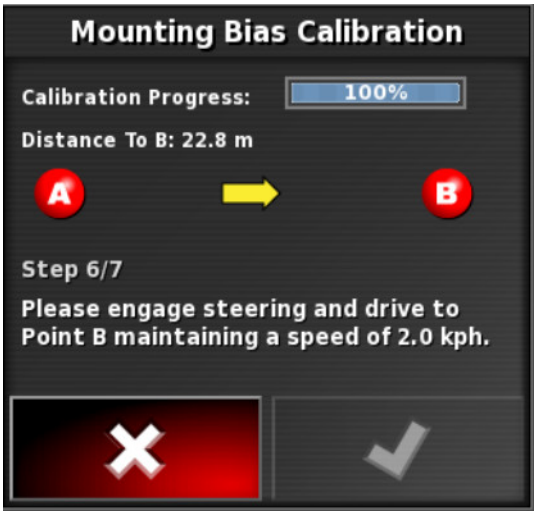
15. Set the vehicle speed to 2 kph or 1.2 mph.
16. Steer along the wayline back to the ‘B’ waypoint previously created.

    When the **Distance To B** is less than 50 m, the blue line on the Calibration Progress bar will move from 50% and the percentage will increase.

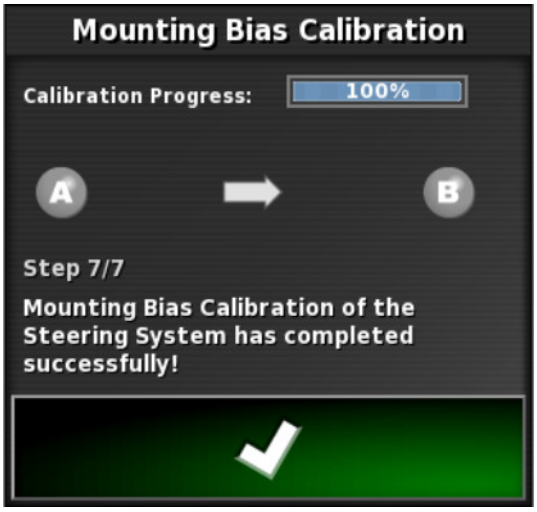


When the Calibration Progress bar reaches 100% this indicates the system has enough data for the second stage of the calibration and the mounting bias calibration is paused at this point.

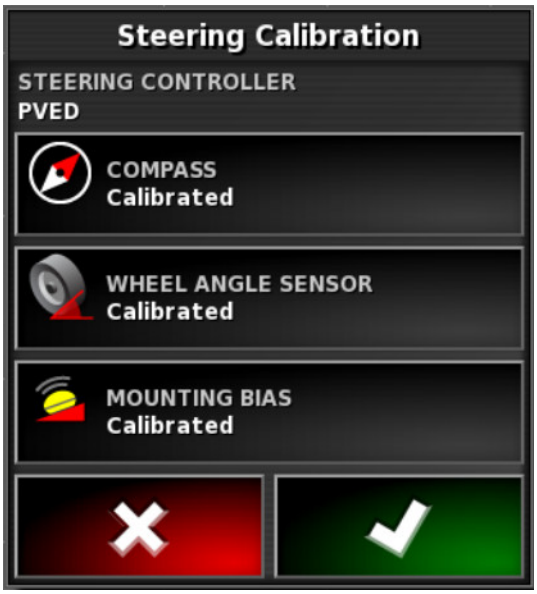
17. Proceed to cross the ‘B’ waypoint.



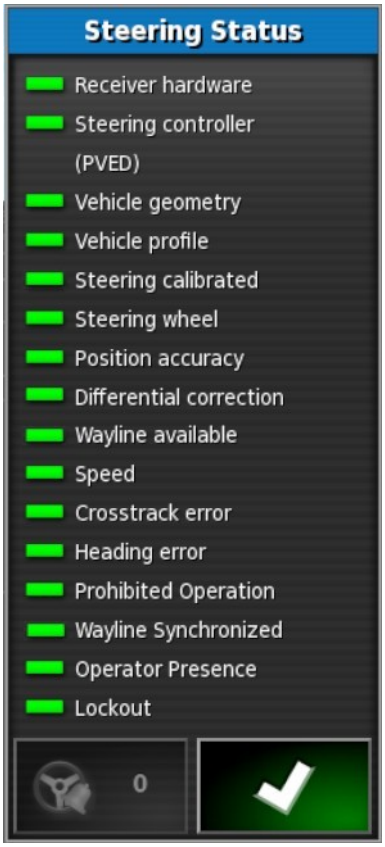
18. Stop the vehicle. Mounting Bias has been successfully calibrated.
19. Confirm  to return to the calibration screen.



The Steering Calibration screen will display **Calibrated** for Compass, Wheel Angle Sensor and Mounting Bias.



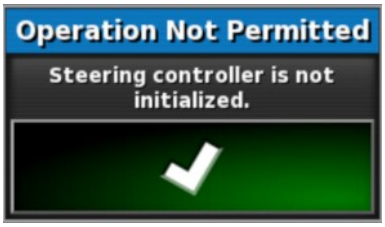
20. Confirm  to return.

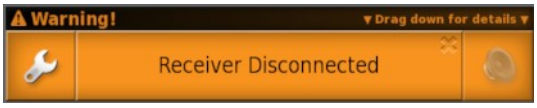
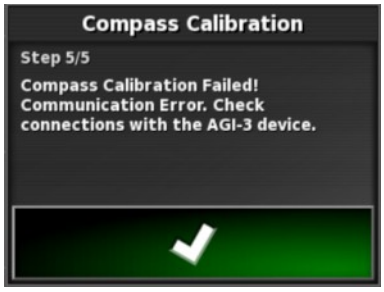


Steering Status box indicators will now all be green.

10.4. Dealing with calibration errors/alarms

The following errors/alarms can occur during calibrations. Perform the recommended procedures below to fix the errors.

View	Error
	**Steering controller not initialized** The steering subsystem is not turned on or is not ready for use. Check to see that the steering subsystem is powered on and ready for use.
	**Steering Profile Mismatch** The parameters in the selected vehicle profile do not match the vehicle configuration in the steering subsystem. Select the correct vehicle profile for this vehicle.
	**Parameters Mismatch** Vehicle geometry parameters do not match the geometry configuration in the steering system. Re-select the vehicle on the Setup screen or ensure the vehicle geometry in the vehicle geometry screen is correct.

View	Error
	**Receiver Disconnected** The AGI receiver has shutdown, lost power or the receiver – console serial connection has been broken. Check the power supply to the receiver and ensure the serial connection is good.
	**Compass Calibration Failed** Repeat compass calibration and ensure the vehicle completes 1½ turns. Ensure the vehicle is stopped when completing the procedure. Move the receiver away from magnetic sources.
	**Wheel Angle Sensor Calibration Failed** Repeat procedure and ensure the steering axle moves through the complete range. Confirm wheel angle sensor position information moves when steering axle is turned. Confirm wheel angle sensor harnesses and connections. Check wheel sensor condition. Failed wheel angle sensor.
	**Receiver firmware version is out of date** Update receiver firmware.

Chapter 11 – Field Menu

This chapter details how to set client, farm, field, boundaries, exclusion zones and flag points. These are the first steps when beginning a job.

The console will store the field information so that, once set up, the field details can be recalled for other jobs in the same field.

Drive to the field and follow the steps to set up a field and identify its features.

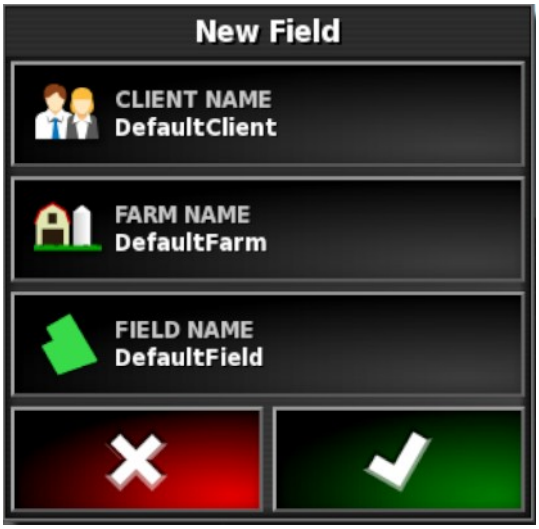
Note: The vehicle must be in or near the field for boundaries and related information to appear on the screen.

11.1. Creating a client / farm / field

1. Select **Field Menu** / **New Field** .

   Note: Default file names are provided when naming options appear. It is highly recommended that the operator names items in a thoughtful and structured way to allow easy use in future seasons.

2. Select **CLIENT NAME**, (or select an existing client if some have already been set up).



3. Select **New**, enter a name and confirm.

4. Select **FARM NAME**, (or select an existing farm name if some have already been set up).
5. Enter a name and confirm.
6. Select **FIELD NAME**, enter a name and confirm.
7. Completing this section selects the new field, proceed to Setting a new boundary, page 152.

Note: To change any of these settings after they have been confirmed, refer to Inventory Manager, page 215.

11.2. Selecting a client / farm / field

Note: The vehicle must be in or near the field for boundaries and related information to appear on the screen.

1. Select **Field Menu** / **Select Field** .
2. Select the required client, farm and field, then confirm.

3. To import field information from a USB, select USB .
4. To select the nearest field, select **Nearest Field** .

   The current GPS position is used. This will only work if the nearby fields have boundaries created.
5. Confirm field selections.

Note: To change any of these settings after they have been confirmed, refer to Inventory Manager, page 215.

11.3. Setting a new boundary

If required, it is possible to create multiple boundaries within a field. They may be created by driving around the boundary (see below), created from coverage (see page 154) or created from shapefiles (see page 155).

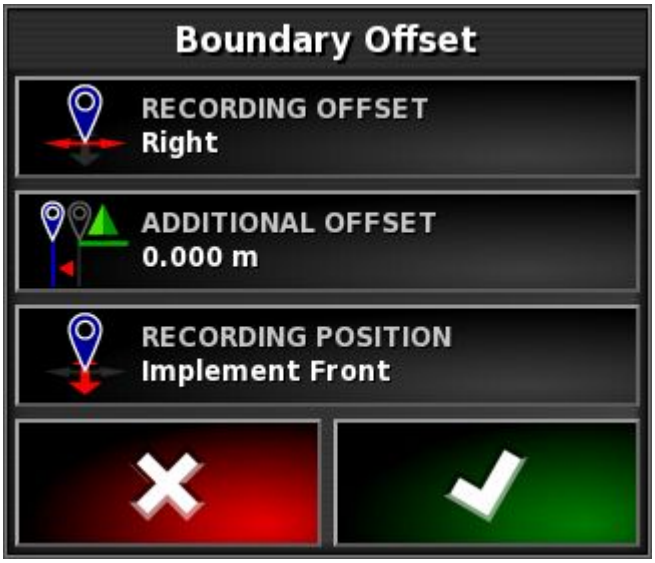
The interior of a created boundary defaults to a work region, however, any boundaries created within that boundary default to an excluded region (shown as greyed out). These properties may be edited. Refer to Editing a boundary, page 156.

Setting the boundary establishes the perimeter of the field (or a section of a field). Boundaries may overlap.

A boundary recording offset may be specified to control where the boundary is recorded in relation to the vehicle. This accounts for fences and other obstacles that do not allow the vehicle to drive exactly on the boundary.

Once the offset is entered, the vehicle must be driven around the boundary of the field.

1. Drive the vehicle to the edge of the field.
2. Select **Field Menu** / **Boundary Offset** .



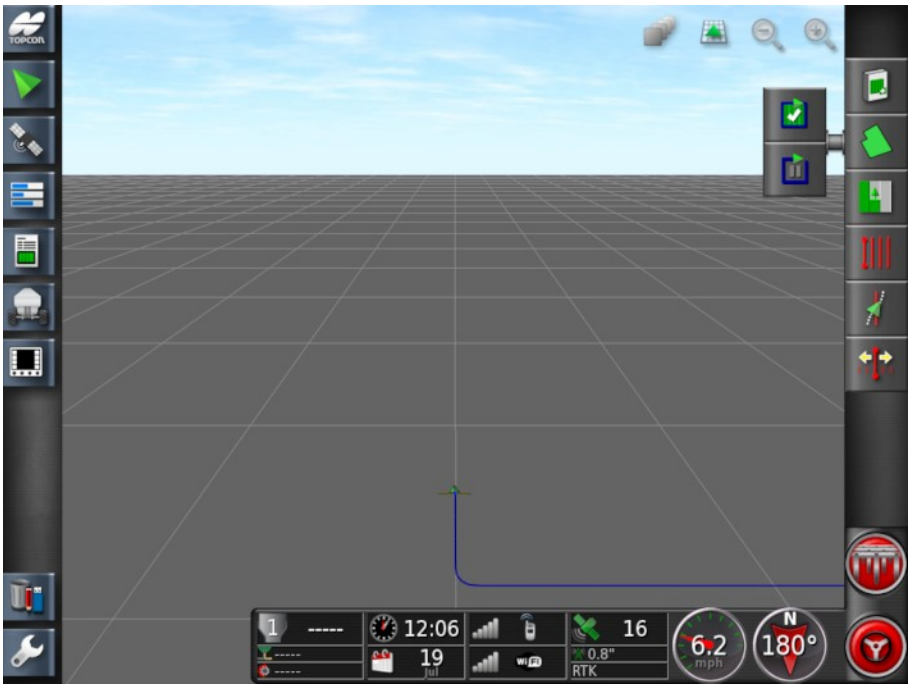
- **Recording Offset**: Positions the offset on the left or right side of

the implement.

- **Additional Offset**: Enter a positive value to extend the offset beyond the edge of the implement. A negative value positions the offset within the implement extents.
- **Recording Position**: Select to record the boundary from the front or rear of the implement, or from the position of the vehicle.

  Note: An implement needs to have been established during setup, but the actual implement does not need to be physically attached to the vehicle.

3. Select **Record Field Boundary**  .
4. Drive the vehicle around the boundary of the field. A blue line will display the boundary being recorded, taking into account any offset.



5. Select **Pause**  to pause recording. This is useful if an obstacle prevents driving on the boundary. The icon will change to show the record option. Select **Record**  to resume. The boundary will record a straight line between the point recording was paused and

the point recording was resumed. Note that boundary recording may be automatically paused if the master switch is turned off (see Pause boundary recording with master, page 32).

6. As the vehicle approaches the start point, select **Complete Field Boundary Recording**  to automatically complete the boundary.
7. Repeat the procedure for more boundaries, if required.

11.3.1. Creating a boundary from coverage

A boundary may be created from existing coverage.

1. Select **Field Menu**  **/ Create Boundary from Coverage**  to display the Boundary from coverage settings panel.

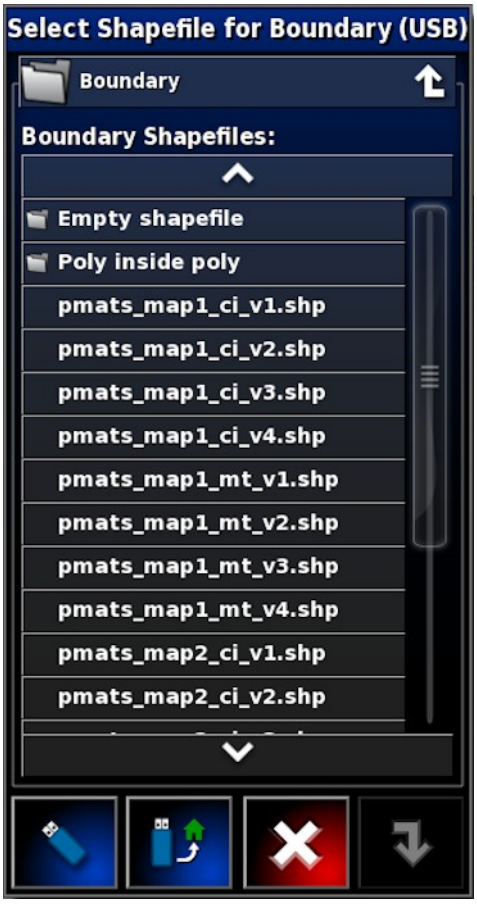
- **Smoothing**: The minimum gap size that will be automatically filled when creating a boundary from coverage.
- **Minimum coverage area**: Any coverage smaller than the area specified here will not automatically create a boundary.
- **Distance from coverage**: Expands the created boundary the specified distance from the coverage.
- **Excluded Regions** (on / off): Excluded regions are used to indicate areas that will not have product applied if section control is being used. Turning this on will automatically create excluded regions from any gaps in coverage that are within the total coverage area.
- **Minimum excluded area**: Any gap in coverage smaller than the area specified here will not automatically create an excluded region. This prevents very small gaps in coverage inside the boundary from automatically being created as excluded regions.

  A boundary (or multiple boundaries) is drawn around the outside edge of existing coverage. New boundaries are added to the current field.

11.3.2. Creating a boundary from a shapefile

A boundary may be imported from a shapefile stored on a USB.

1. Load the shapefile onto a USB.
2. Ensure the USB is inserted into the console.
3. Select **Field Menu** / **Create Boundary from Shapefile** .
4. Select the USB icon at base of the screen . The data objects turn blue.
5. Select the USB home icon to view the root of the USB file structure. Files and folders on the USB root are displayed.
6. Select a folder to open it. Find the required file and select it. It will display as white and next is now enabled.

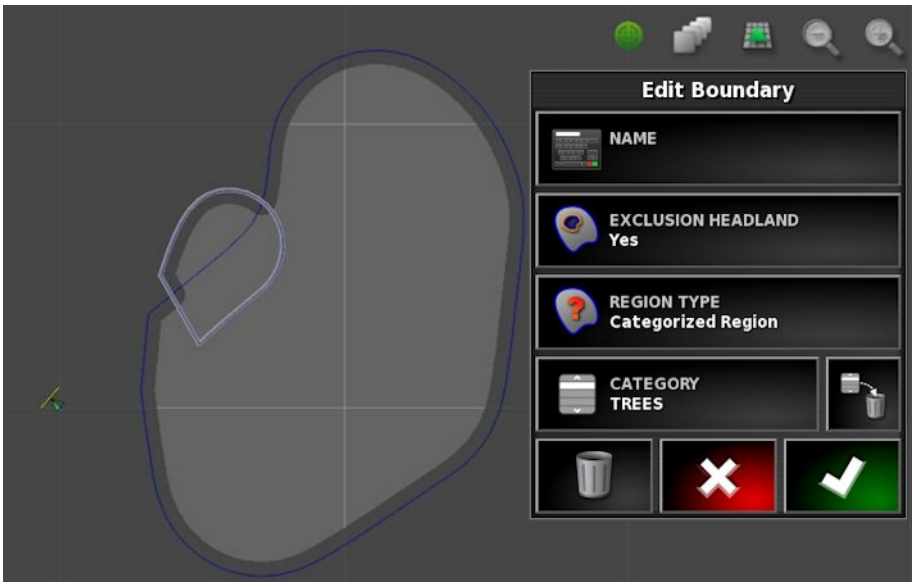


7. Confirm to import the shapefile boundary.

11.3.3. Editing a boundary

Once a boundary has been created, it can be edited.

1. Press and hold to select the boundary on the touchscreen. The boundary is highlighted. Release to display the Edit Boundary screen.



- **Name**: Optional name used to identify the boundary.
- **Exclusion Headland**: Sets whether the exclusion zone boundary edges will be treated as a headland (refer to Setting up a working headland, page 158).
- **Region Type**:
  - **Work Region**: Work regions are used to indicate areas that will have product applied if section control is being used.
  - **Excluded Region**: Excluded regions are used to indicate areas that will not have product applied if section control is being used.
  - **Disabled**: The existence of the boundary is ignored.
  - **Categorized Region**: Where there are a large number of boundaries, assigning each a category may be useful (for example, to include areas while spraying, but exclude those areas while seeding). Categories may then be used to define

work regions and excluded regions for the current job (refer to Setting up job regions, page 167).

- **Category**: Used to assign or create region categories. Only shown if Categorized Region is selected for Region Type. (The bin button next to this field can be used to delete unused categories.)

The bin button at the base of the screen can be used to delete the selected boundary.

11.3.4. Removing a boundary

If a boundary must be changed, it can be erased and a new boundary can be set. To delete a single boundary, the bin button on the Edit Boundary screen can be used.

To delete all boundaries in a field:

1. Drive to the field.
2. Select **Field Menu**  / **Select Field**  to choose the client, farm and field names. The boundary will appear on the screen.
3. To remove the boundary, select **Clear Boundary**  . A message will ask for confirmation.

   Note: Erasing boundaries is a permanent action.

11.4. Setting up a working headland

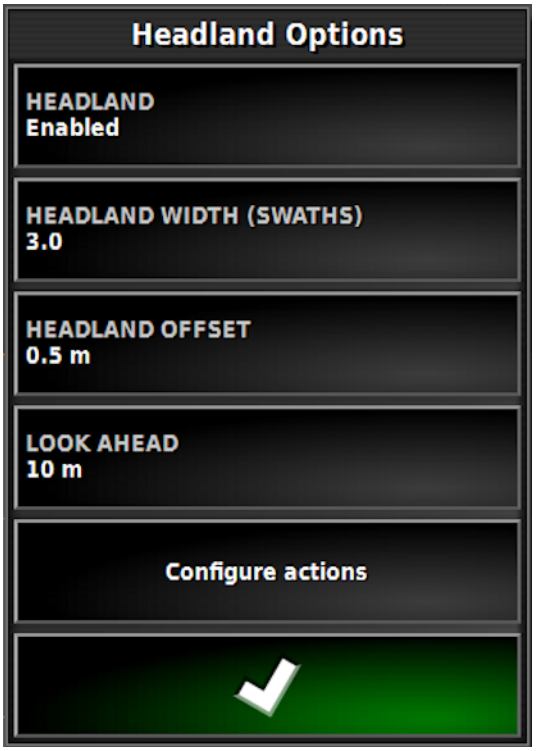
Implements often work around the boundary differently from the rest of the field. A headland creates a zone inside the line of the boundary that will be worked differently. The width will depend on the operator's method of working the field.

Note: Headland data is stored with the selected implement. This allows each implement to have different headland requirements.

Note: A headland can only be created once a boundary has been recorded, refer to Setting a new boundary, page 152.

Follow the steps to set up the working headland for this implement inside the field boundary.

1. Select **Field Menu** / **Configure headland for this implement** .



2. Ensure **Headland** is enabled.

The width of the headland can be defined using **Headland Width** or **Headland Offset**. If both are used, the two figures are added together for the total headland width.

3. Select **Headland Width (Swaths)** and enter the width of the headland in swaths from the inside of the boundary, then confirm. A swath is the working width of the implement.

   Note: To set a headland width that is not related to the swath width, use **Headland Offset** to enter a value instead.

4. To increase the width of the headland, if needed, select **Headland Offset**.

   This may be useful to supply a buffer zone for steering if the headland width has been set so that the tip of the implement would be touching the fence.

   If you have recorded the field boundary so that the blue line is on top of the fence line (the actual physical boundary of the field), then set a headland of 1 swath, you would be required to drive with the tip of the implement touching the fence to fill this area with no overlap. Obviously this is not a particularly useful scenario. So in this situation you can add an offset of 1 meter (for example) to your headland, which will move the headland an extra 1 meter inside the boundary, allowing you to have a 1 meter gap between the implement and the fence.

5. Enter the offset measurement and confirm.
6. Select **Look Ahead**. This sets how many meters in front of the vehicle that the system looks to respond with actions.
7. Enter the distance in front of the vehicle for actions and confirm.
8. Select **Configure actions**.

Action Name

- **Alarm**: Sets an alarm to trigger when approaching the headland.
- **Auto Zoom**: If this is enabled, the map view will zoom in or out to the defined zoom level as the vehicle approaches the headland and return to the original defined zoom level as the vehicle leaves the headland. Select the preferred zoom level.

Note: When an action is enabled it is marked with a ✓. When an action is disabled it is marked with a ✖.

Action state

Allows the map view to zoom in when approaching the headland.

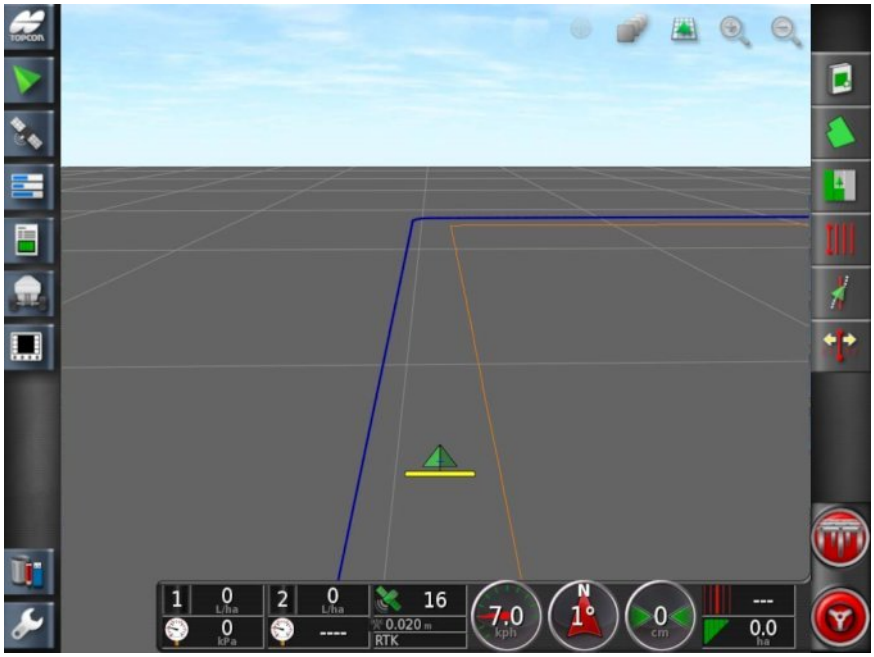
Message

Enter the words for a visual message (for example ‘Approaching headland’). Enter the text and confirm.

Audio type

Sets an audible alarm. Choose the type and confirm.

9. Confirm the alarm and zoom actions. The screen can now display a headland in orange inside the boundary line.



Approaching the headland will trigger the alarm and zoom that has been set.

11.5. Setting flag points

Flag points are used on the guidance map to indicate obstacles and noted items in the field.

Note: If required, flag points can be used with an exclusion zone around the obstacle (such as a large hole or electrical tower). If this is needed, read this section and read Editing a boundary, page 156.

1. Drive to the item to be flagged.
2. Select **Field Menu** / **Set Flag Point** .
3. To flag the obstacle, choose a flag symbol to be placed at that spot on the map.

Note: To change Flag Point presets, refer to Setting up flag points, page 77.

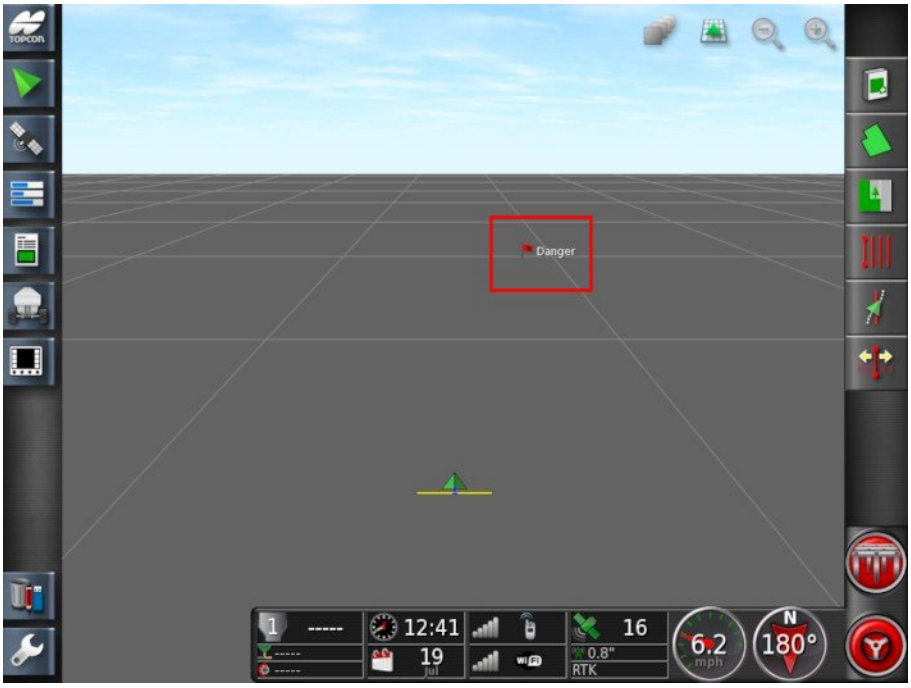
4. To customize flag points, select **Custom** to define a particular flag point.

5. Select the required symbol.
6. Select **FLAG POINT NAME** and enter the name. Confirm the name. Confirm to add the customized flag point.
7. If an exclusion zone is needed around the obstacle, go to Editing a boundary, page 156.
8. If an exclusion zone is not needed, drive to the next item in the field to be flagged and repeat.

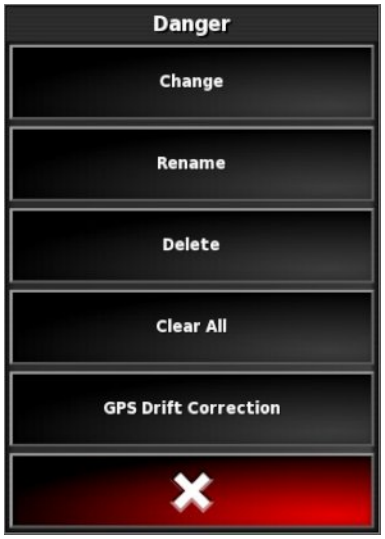
11.5.1. Removing or changing a flag point

To remove or change a flag point:

1. Press and hold on the flag point marker on the screen for 0.5 seconds.



2. Select:



- **Change** to choose a different flag point.
- **Rename** to change the name showing on the flag point.
- **Delete** to remove the selected flag point or **Clear All** to clear all flag points from the field.
- **GPS Drift Correction** to move the vehicle to the flag point location to compensate for GPS drift. Note, to remove applied GPS drift compensation, refer to Compensating for GPS drift, page 199.

11.6. Unloading a field

The Unload field option  may be used to exit from a field and its associated flag points, boundaries etc. This prevents new coverage being added to the field if the vehicle has been moved to a new field but the operator has neglected to create a new field / job.

If this option is not used, when the vehicle has moved more than 15 km away from the current field, the following message is displayed, and the field is unloaded automatically "The active field is more than 15 km away and has been deactivated and its data unloaded."

Note: The console will no longer restart when it has travelled too far from the current field.

Chapter 12 – Job Menu

The Job Menu selects or sets up specific job information associated with the chosen field. Using this menu, the job information is stored and activity can be recorded and reported.

12.1. Creating a new job

1. To set up a new job, select **Job Menu**  / **Create New Job**  .
2. Select **JOB NAME**.
3. Enter a name and confirm.

   Note: Default file names are provided when naming options appear. It is highly recommended that the operator names items in a thoughtful and structured way to allow easy use in future seasons.
4. Confirm the new job.

12.1.1. Setting up job regions

If one or more boundaries in the current field have a named Category (refer to Editing a boundary, page 156), and a job is active, region types for the current job can be selected.

Note: All categorized regions that are not specified in work regions or excluded regions are treated as though that boundary does not exist for this job.

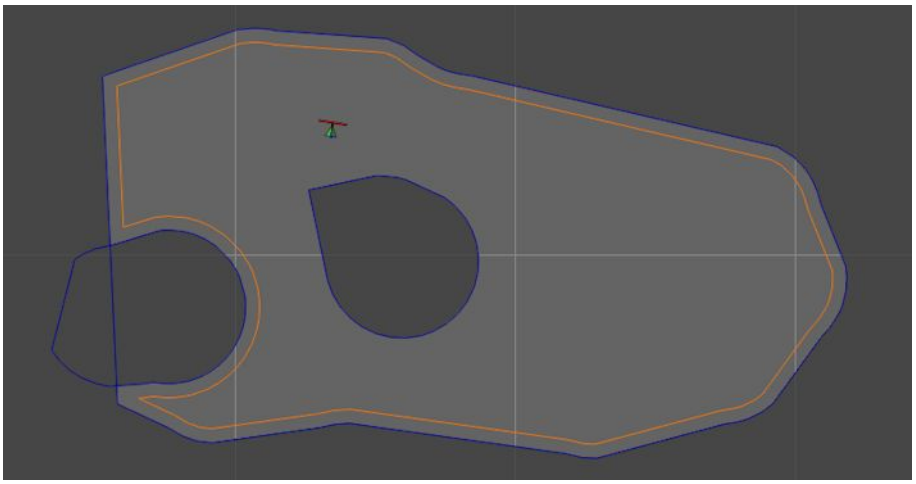
Note: Assigning region types to boundaries is not supported in Task Data mode.

1. To set up a job region, select **Job Menu**  / **Configure Job Regions**  .

- **Work Regions**: The boundary contents are included in the work area of this job.
- **Excluded Regions**: The boundary contents are excluded from the work area of this job.

2. Select the region types to be included and excluded for the current job.

Note: Areas that will be treated are shown as a lighter grey area on the map (if auto section control is enabled and the Boundary Limit is not set to Unlimited).



12.2. Selecting an existing job

Job information can be recorded, stored and transferred for later access.

Drive to the field and follow the steps to choose an existing job. To create a new job, refer to Creating a new job, page 167.

1. Before selecting an existing job, ensure the correct field is selected (refer to Selecting a client / farm / field, page 151).
2. To choose from a list of existing jobs, select **Job Menu** / **Select Job** .
3. Select the job and confirm.

Note: Changing the client, farm or field at the top of the Select Job window allows importing of a job from a neighboring field. This can be useful in order to reuse common information stored within the job, such as weather observations, crop information or product application notes. The coverage should be cleared manually before starting the new job. See Clearing a job, page 174.

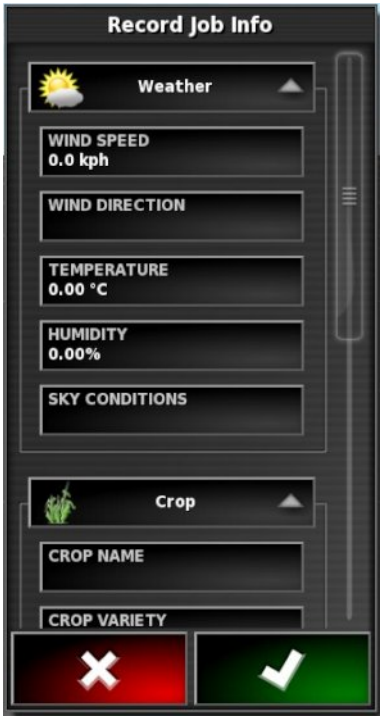
Note: The same implement that was used to create the job must be selected to load an existing job.

12.3. Recording job details

The console can record details of the job and store and export these.

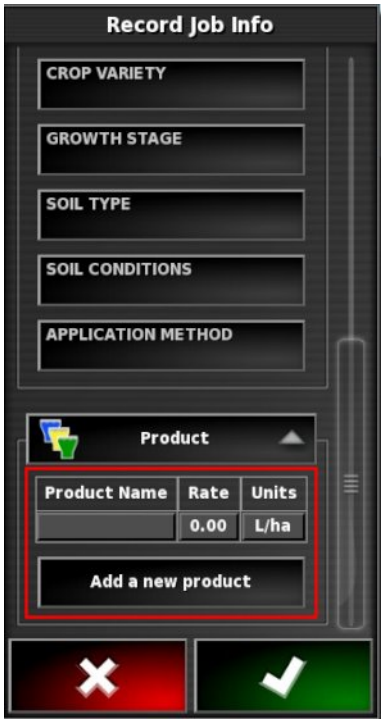
1. Select **Job Menu**  / **Record Job Details**  .

   Weather and site conditions are optional. Adding some crop and product information is recommended.



2. Select a category, enter the information and confirm.
3. Use the scroll bar or use the hide arrow to see crop and product options.
4. Select **CROP NAME**, enter the name and confirm.
5. Select categories as needed, enter the information and confirm.

   The **Product** section of this screen is intended to record the specific product mix that is being used for this job. This information is stored separately to the product definitions saved in the **Product** menu on the Setup screen.
6. Select **Product Name** from the list or select **Add a new product**.



7. Select **Rate** next to the product and enter the rate.
8. Select **Units** next to the product and choose the unit of measurement.

12.4. Exporting a job report

Job records can be exported in PDF format to a USB.

Exporting a job places the PDF report in D:/Reports and in D:/Client/Farm/Field/Reports.

Note: Job reports may also be exported as .csv files by enabling **PER-POINT DATA LOGGING** on the setup screen (**System** / **Features** / **Console**) before performing the job (refer to page 41).

1. Insert the USB into the console.
2. Select **Job Menu**  / **Data Exchange**  / **Export Job Report to USB**  .

   The Job Report Options screen displays.
3. Select the required option/s:
   - **Auto adjust ranges**: If data exists that uses a color legend, the colors used in the report map shading are altered so that the maximum variation in colors is used to illustrate the yield rates.
   - **Create shape files**: Shape file data is exported to D:/Client/Farm/Field/ CoverageShapefiles and D:/Client/Farm/Field/ BoundaryShapefiles
   - **Task data**: Exporting a job report also exports XML based task data into a folder named TASKDATA.

The active or current job is exported to a folder named Reports on the USB.

Before removing the USB, always disconnect first by touching the **USB Eject** icon (refer to Using the console toolbar, page 9). A message will display that it is safe to remove the USB. If this is not done, the report may be missing or corrupt.

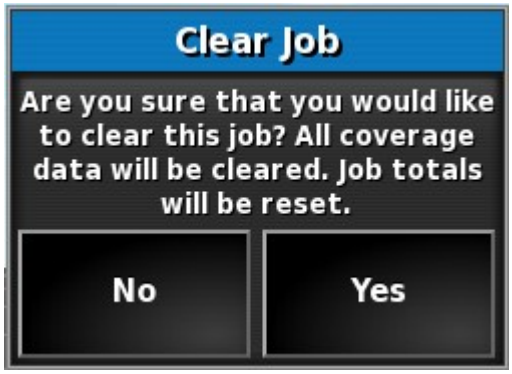
Note: It is also possible to batch export job reports (and jobs) for non-active jobs using the Inventory Manager. Refer to Inventory Manager, page 215.

12.5. Clearing a job

This action will remove any coverage information on the screen and delete job data that has been recorded on the current job. It does not affect field information or guidelines set for the field.

1. Select **Job Menu**  / **Clear Job Data**  .

   The following message appears.



2. Select **Yes** to clear the data or **No** to keep the data.

To delete farms or fields or previously created job data, refer to Inventory Manager, page 215.

12.6. Using variable rate control

Before use, Variable Rate Control (VRC) must be set up with a controller and must be enabled on the Setup screen (**System** / **Features** / **Implement**).

Select  to enable or disable the VRC Map display on the guidance screen.

12.6.1. If using VRC maps

There are three ways to perform VRC:

- Importing prescription maps (shapefiles and ISO XML files) into created jobs using the VRC import wizard.
- Using real-time sensor data from nitrogen sensors mounted on the tractor (for example: Topcon CropSpec).
- Using Task Data based prescription maps.

The following instructions describe the first two methods. If using task data, refer to Task Data Menu, page 219.

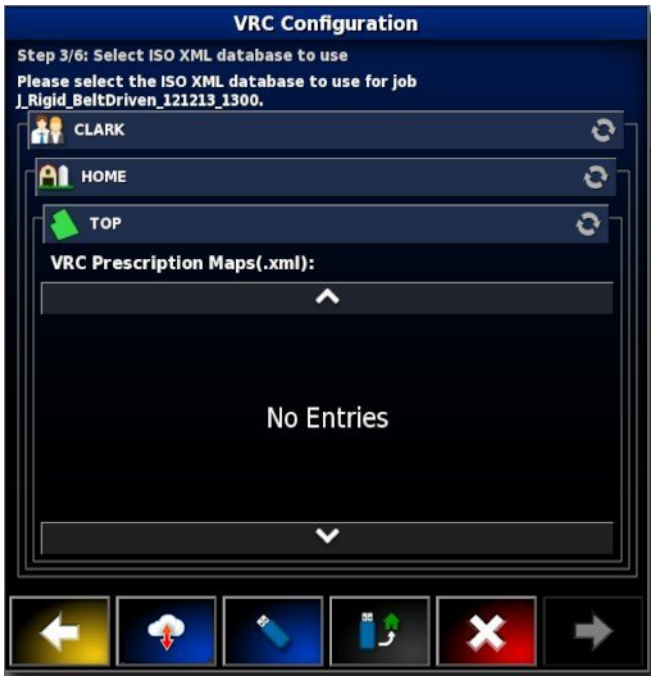
Both shapefiles (.shp) and ISO XML files (.xml) may be imported into created jobs. Note that only the prescription map portion of the data is used if .xml files are imported.

1. Select a client / farm / field, refer to page 151.
2. Create a new job, refer to page 167.
3. Select **Job Menu**  / **Configure Variable Rate Control**  .
4. Select next at step 1 of the VRC Configuration wizard.
5. Select the rate source(s) for the VRC and select next. The possible options are:
   - Shapefiles
   - ISO XML
   - CropSpec or LH5000 Rate Sensor (if enabled)

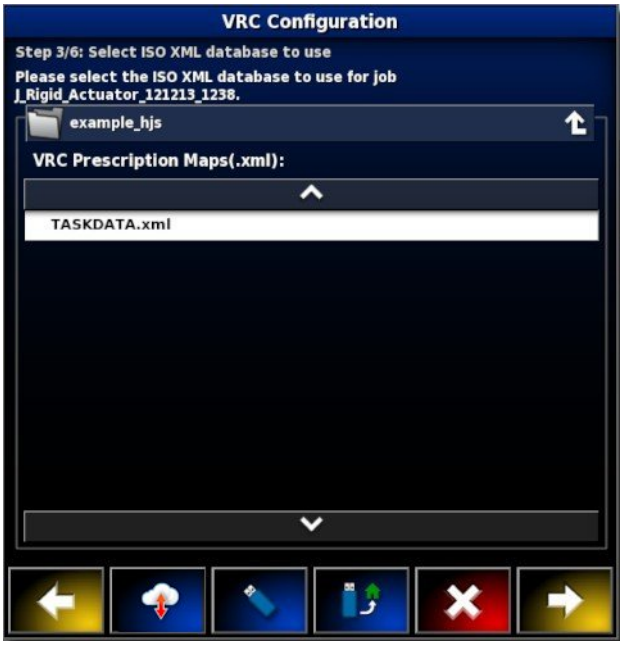
Note that shapefiles and ISO XML cannot be used at the same time. However CropSpec can be used in conjunction with shapefiles or ISO XML.

If **Shapefiles** or **ISO XML** are selected at step 2, all maps previously imported to the current field are displayed so that previously used maps can be recalled.

- If the desired maps are not already on the console, insert a USB with prescription maps.
- Select the USB icon at base of the screen  . The window background turns blue to indicate you are viewing the USB file list.



- Select the USB home icon  to view the root of the USB file structure. Files and folders on the USB root are displayed.
- Select a folder to open it. Find the required file and select it. It will display as white and next is now enabled. Note that multiple files may be selected.



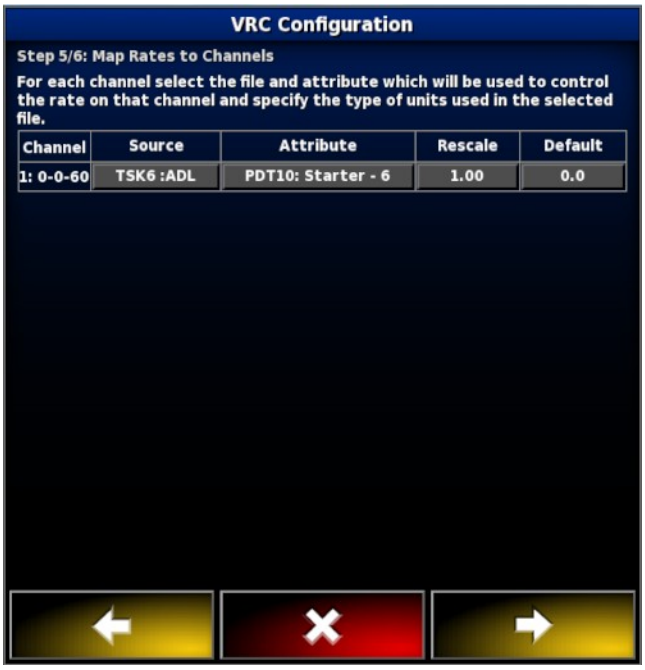
- Select next.

6. If ISO XML was selected in step 2, select the task that you wish to run. The file may have several tasks listed. Select the task that matches the implement that is hooked up.
7. Select next.

   Source and Attributes must now be assigned to channels.

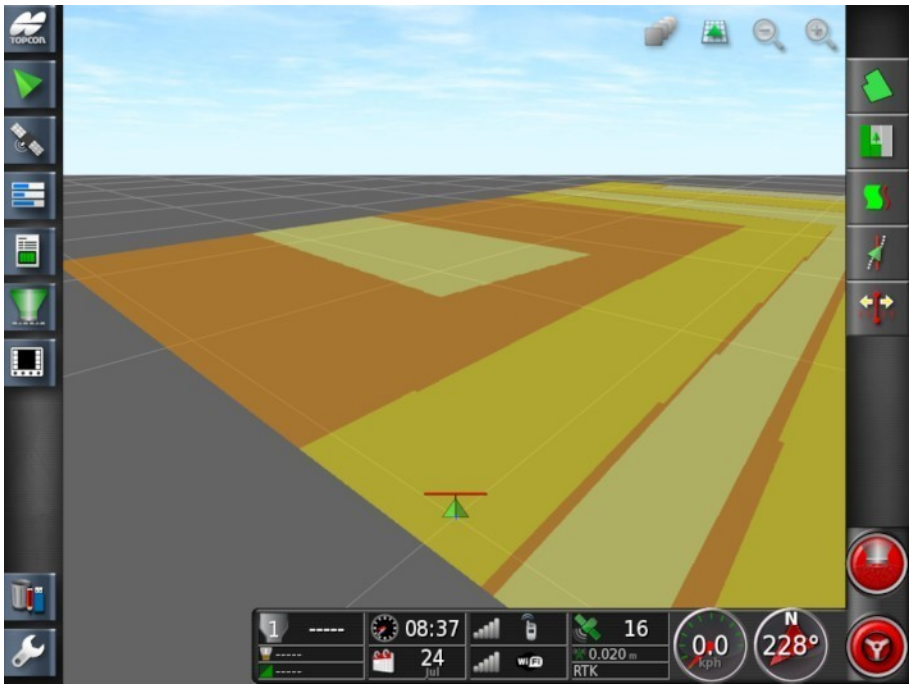
   - **Channel**: The tank or bin that is being controlled.
   - **Source**: The source of the prescription map for that channel. The list of files that were selected earlier will appear here or you can also select a live source like CropSpec.
   - **Attribute**: One of the properties in the shape file or ISOXML file or the sensor output from CropSpec. The same shape file may have multiple attributes to define the rates for more than one tank so this allows the operator to map the prescription to the appropriate tank.
   - **Rescale**: This column defaults to 1, which means that the prescription defined in the source will be used directly. However, depending on weather conditions, the operator may choose to increase or decrease the rate of application. This allows a uniform increase for all defined rates. For example, a rescale of 1.1 will apply 110 percent of the rate defined in the source.

- **Default**: Defines the rate to use if the source doesn't specify a rate for that region of the paddock.



8. Select next.
9. On the final step, you must confirm the setup. This cannot be changed for the job, so ensure it is correct before continuing. Select Back to change the configuration or OK to confirm.

The map is displayed. If it does not display, ensure you are in close proximity geographically to the map's location.

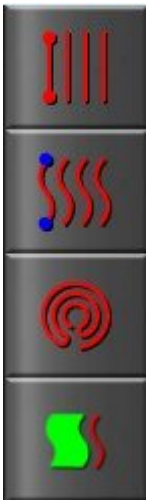


Chapter 13 – Guideline Menu

Guidelines are used to indicate the path that the vehicle should travel for optimum coverage. The system will use the implement width to set evenly spaced lines across the field.

If some guideline types are not required, they can be disabled. Refer to Guidance setup, page 46.

Guideline types supported are:



Parallel AB Line guidelines, page 180

Identical Curve guidelines, page 183

Centre Pivot guidelines, page 184

Guidelock Guidance mode, page 185

Note: To clear a guideline once it has been created, refer to Inventory Manager, page 215. Select the required **Category** then select the guideline to be deleted.

If required, guidelines can be transferred via MAGNET. Refer to Using MAGNET, page 206.

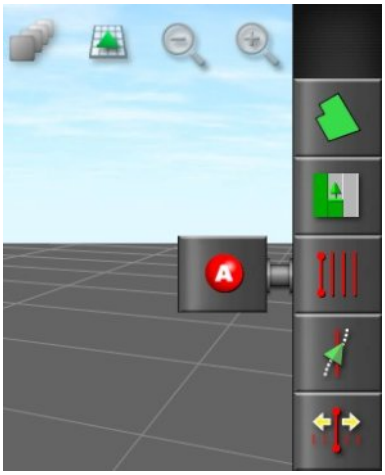
13.1. Using straight lines guidelines

This option creates parallel lines for guidance, using the width of the implement to set the distance between guidelines.

Where working is generally done in straight lines, the AB line should be set near the headland line. This allows the lines to evenly space across the working area.

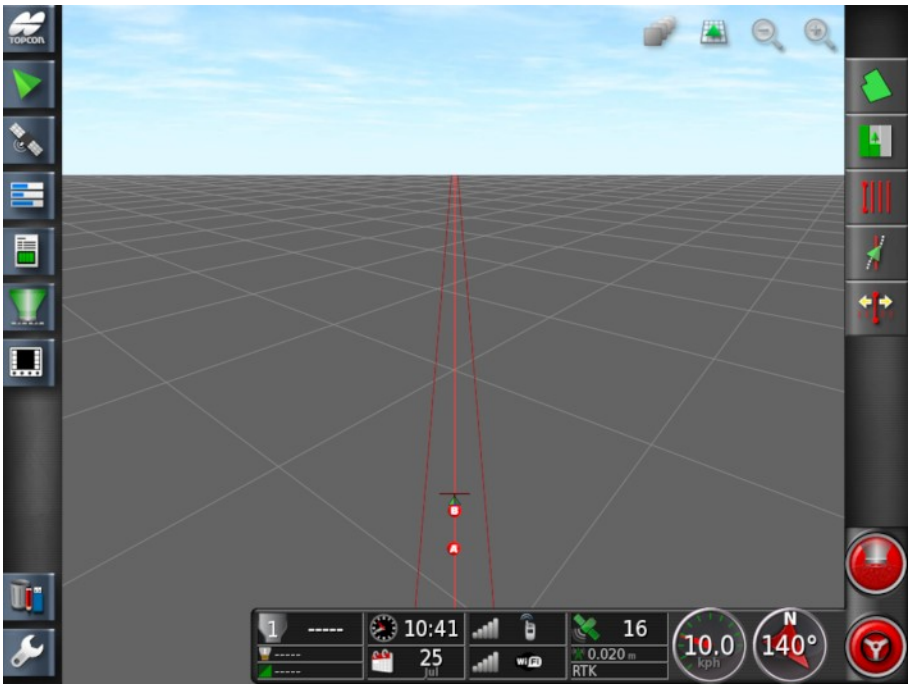
1. Position the vehicle.
2. Select **Guidelines Menu** / **Change Guidance Mode**, if necessary, to choose **AB Lines** .
3. To set the AB line, select **Create New AB line** .
4. To change the default name, select **GUIDELINE NAME**.

5. Enter a name and confirm. Confirm the new guideline.
6. Drive to the start of the swath. Select **Set A Point** .



7. To set a ‘B’ point, drive along the required swath and select  .

   The ‘B’ point appears and parallel guidelines for steering display on the screen.



In most cases the screen will display the line being travelled and the two adjacent lines.

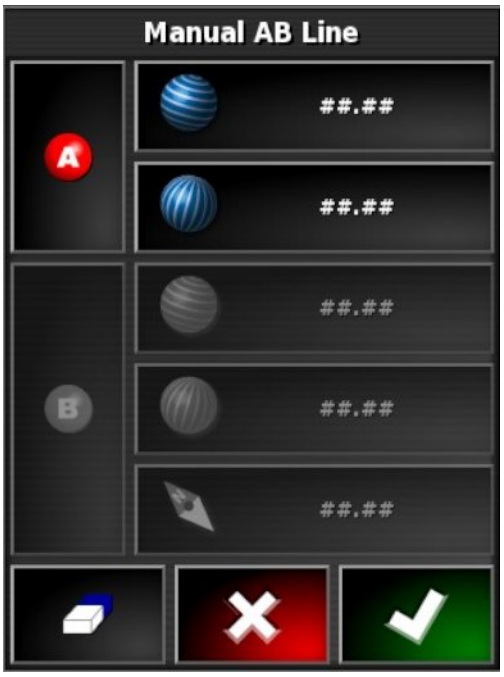
To view all guidelines across the field, select  from the top of the screen and choose **Line Numbers**. (This requires a field boundary, refer to Setting a new boundary, page 152.)

13.1.1. Setting AB lines manually

It is also possible to set AB lines using coordinates.

1. Select **Guidelines Menu** / **Manual AB Line** .

   The Manual AB Line screen displays.



2. Set the ‘A’ point using one of the following methods:
   - Drive to the desired location and select .
   - Enter the coordinates (latitude/longitude) of the ‘A’ point.
3. Set the B point using one of the following methods:
   - Drive to the desired location and select .
   - Enter the coordinates (latitude/longitude) of the B point.
   - Enter the Heading of the AB Line. The software will automatically place a ‘B’ point to create an AB line of the desired heading, relative to the ‘A’ point.

Note: To erase a guideline, select .