AGI ISO VT AutoGuidance System Operator's Manual

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Preface

This manual provides information about operating and maintaining this Topcon Precision Agriculture product. Correct use and servicing is important for safe and reliable operation of the product.

It is very important that you take the time to read this manual before using the product.

Alert Symbols

In this manual two alert symbols are used.

This offers additional information.

Warning: A warning signal appears on safety signs and in this manual to show that this information is very important to your safety. LEARN these and APPLY them.

Terms and Conditions

Please read these Terms and Conditions carefully.

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ELECTRONIC AND MECHANICAL COMPONENTS -TPA warrants that the electronic components manufactured by TPA shall be free of defects in materials and workmanship for a period of one year from the original date of shipment to the dealer. TPA warrants that all valves, hoses, cables and mechanical parts manufactured by TPA shall be free of defects in materials and workmanship for a period of 12 months from the date of sale.

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components are not covered in this warranty policy. Damage to components due to negligence, abuse or improper use, maintenance, modification or repair is NOT covered under this warranty.

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and/or maintenance of the product other that in accordance with the terms set out in this manual, or (b) your negligence or wrongful act or omission in respect of the product.

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These Terms and Conditions may be amended, modified, superseded or cancelled, at any time by TPA. These Terms and Conditions will be governed by, and construed in accordance with:

- the laws of South Australia if the product is sold and supplied to you in Australia (in which case the courts of South Australia or the Federal Court of Australia (Adelaide Registry) have exclusive jurisdiction in respect of any claim or dispute) or
- the laws of the State of California if the product is sold and supplied to you outside of Australia.

All information, illustrations, and applications contained herein are based on the latest available information at the time of publication. TPA reserves the right to make product changes at any time without notice.

If any part of these Terms and Conditions would be unenforceable, the provision must be read down to the extent necessary to avoid that result, and if the provision cannot be read down to that extent, it must be severed without affecting the validity and enforceability of the remainder of these Terms and Conditions.

Service Information

Service assistance can be provided by contacting your local TPA Authorized Dealer.

Communications Regulation Information

FCC Compliance Statement (USA)

This equipment has been tested and found to comply with the limits for a Class ‘A’ digital device, pursuant to Part 15 of the FCC Rules. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

FCC Compliance Statement (Canada)

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulation.

CE EMC Statement (European Community)

Warning: This is a class ‘A’ product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

‘C’ Tick EMC Statement (Australia & New Zealand)

This product meets the applicable requirements of the Australia and New Zealand EMC Framework.

Radio and Television Interference

This computer equipment generates, uses, and can radiate radio-frequency energy. If it is not installed and used correctly – that is, in strict accordance with TOPCON Precision Agriculture instructions – it may cause interference with radio communication.

You can check if interference is being caused by this equipment by turning the Topcon equipment off to see if the interference stops.

If the equipment is causing interference to a radio or other electronic device, try:

- turning the radio antenna until the interference stops
- moving the equipment to either side of the radio or other electronic device
- moving the equipment farther away from the radio or other electronic device
- connecting the equipment to another circuit that is not linked to the radio.

If necessary contact your nearest Topcon Precision Agriculture dealer for assistance.

Changes or modifications to this product not authorized by TOPCON Precision Agriculture could void the EMC compliance and negate authority to operate the product.

This product was tested for EMC compliance using Topcon Precision Agriculture peripheral devices, shielded cables and connectors. It is important to use Topcon Precision Agriculture devices between system components to reduce the possibility of interference with other devices.

Safety for All Topcon Products

DANGER: It is essential that the following information and the product specific safety information is read and understood.

Most incidents arising during operation, maintenance and repair are caused by a failure to observe basic safety rules or precautions.

Always be alert to potential hazards and hazardous situations.

Safety Messages

The safety symbol is used with the relevant word: DANGER, WARNING or CAUTION.

Messages marked in this way recommend safety precautions and practices. LEARN and apply them.

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in DEATH OR VERY SERIOUS INJURY.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in DEATH OR SERIOUS INJURY.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in MINOR INJURY.

Safety Signs

WARNING: DO NOT remove or obscure safety signs. Replace any safety signs that are not readable or are missing. Replacement signs are available from your dealer in the event of loss or damage.

If a used vehicle has been purchased, make sure all safety signs are in the correct location and can be read. Replace any safety signs that cannot be read or are missing. Replacement safety signs are available from your dealer.

Operator Safety

WARNING: It is YOUR responsibility to read and understand the safety sections in this book before operating this vehicle. Remember that YOU are the key to safety.

Good safety practices not only protect you, but also the people around you. Study this manual as part of your safety program. This safety information only relates to Topcon equipment and does not replace other usual safe work practices.

Information in this manual is current at the time of publication. A system may vary slightly. The manufacturer reserves the right to redesign and change the system as necessary without notification.

WARNING: In some of the illustrations or photos used in this manual, panels or guards may have been removed for clarity. Never operate the vehicle with any panels or guards removed. If the removal of panels or guards is necessary to make a repair, they MUST be replaced before operation.

Preparation for Operation

- Read and understand this manual and learn all of the controls before you use the equipment.
- Keep the manual with the equipment
- If the equipment is moved to another vehicle, move the manual as well.
- Read the manual for the vehicle with which the equipment will be used and check that the vehicle has the correct equipment required by local regulations.
- Make sure you understand the speed, brakes, steering, stability, and load characteristics of the vehicle before you start.
- Check all controls in an area clear of people and obstacles before starting work.
- Identify possible hazards.

Warning: Topcon equipment must not be used by an operator affected by alcohol or drugs. Seek medical advice if using prescription or over-the-counter medication.

Disclaimer

Topcon accepts no responsibility or liability for damages to property, personal injuries, or death resulting from the misuse or abuse of any of its products.

Further, Topcon accepts no responsibility for the use of Topcon equipment or the GNSS signal for any purpose other than the intended purpose.

Topcon cannot guarantee the accuracy, integrity, continuity, or availability of the GNSS signal.

The operator must ensure that the equipment is correctly turned off when not in use.

Before operating any vehicle equipped with Topcon products, read and understand the following product specific safety precautions.

AGI ISO VT Important Safety Information

Operator Alertness and Responsibility

The AGI ISO VT AutoGuidance System helps the operator to steer the vehicle, but the operator remains in charge and must be alert and in complete control of the vehicle at all times. The operator is ultimately responsible for safe operation of this equipment.

It is essential that safety requirements are met when operating the AGI ISO VT and any of its components. All operators and other relevant personnel must be advised of safety requirements.

Electrical Safety

Warning: Incorrectly connected power can cause severe injury and damage to people or the equipment.

When working with electrical components, you must do the following:

- Make sure the negative terminal of the battery is disconnected before doing any welding on the vehicle.
- Check that all power cables to system components are connected to the correct polarity as marked. Please refer to the vehicle manual for safety information.

Operation and Risk of Obstacles

The following list is not exhaustive or limited. To use the AGI ISO VT for assisted steering along a defined wayline, the operator must ensure that it is used:

- Away from people and obstacles

- Away from high voltage power lines or other overhead obstructions (identify any clearance problems before activating the AGI ISO VT)
- On private property without public access
- Within cleared fields
- Off public roads or access ways.

Note that:

- The operator needs to know the vehicle's position and the field conditions at all times.
- The operator will need to respond if the GNSS satellite or differential correction signal is lost momentarily.
- The AGI ISO VT cannot detect obstacles (people, livestock or other).
- Only use the AGI ISO VT in areas that are clear of obstacles and keep a proper distance.
- Steering needs to be disengaged for manual control if an obstacle appears in the path or the vehicle moves away from the wayline.

On/Off and Manual Control

Warning: Ensure the steering switch is in the OFF position to prevent unintentional engagement of the assisted steering.

The operator must ensure that the steering switch is in the Off position (*all* LED indicators are off) when assisted steering is not being used.

The operator must disengage assisted steering and use manual control if an obstacle is in the line of travel or moves into the line of travel, or if the vehicle steers away from the desired wayline.

To disengage assisted steering:

- Turn the steering wheel a few degrees OR
- Select the Disengage Auto Steering button on the console AND/OR
  - Move the steering switch to the OFF position if the above actions do not disengage assisted steering.

Vehicle Shut Down Safety

Before leaving the vehicle, disengage assisted steering, turn the steering switch to the OFF position, and remove the key from the key switch.

Using a Reference (Base) Station

WARNING: Do not move a reference station while in operation. Moving an operating reference station can interfere with the controlled steering of a system using the reference station. This could result in personal injury or damage to property.

Operators and other affected personnel must be advised of the following safety precautions.

- Do not erect the reference station under or within the vicinity of high voltage power lines.
- When using the portable reference station, make sure the tripod is securely mounted.

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Chapter 1 - Getting Started

This chapter provides guidance on how to start up and navigate the AGI ISO Virtual Terminal (VT) AutoGuidance system.

All screens used in this manual display metric units of measurement. However, you may configure your console to display imperial units of measurement. Refer to your console operator's manual for more information.

In this chapter

1.1 About the AGI ISO VT

1.2 Turning on the System

1.3 The Guidance Screen

1.4 Navigation – Scroll Wheel and Button Consoles

1.5 Navigation – Touch Screen Consoles

1.6 Confirmation and Error Messages

1.7 Switching to Advanced Mode

1.8 Switching to Basic Mode

1.9 Customising the Advanced Guidance Screen

1.10 Using the Virtual Keyboard

1.1 About the AGI ISO VT

The AGI ISO VT AutoGuidance system is a satellite-assisted guidance system which provides hands-free auto steering capability for agricultural tractors.

The system is comprised of a VT console and an AGI receiver (e.g. AGI-4) which are connected via an ISO bus. The receiver is able to receive signals from GPS and GLONASS satellites. It is also able to receive signals from subscription correction sources such as OmniSTAR, and where available, the non-subscription correction sources: Wide Area Augmentation System (WAAS), Multi-functional Satellite Augmentation System (MSAS), European Geostationary Navigation Overlay Service (EGNOS) and Real Time Kinematic (RTK) Navigation

The AGI ISO VT uses the satellite data it receives via 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 with a high degree of accuracy, and control the vehicle’s steering system.

The AGI ISO VT allows you to define waylines (i.e. lines in a field) along which the vehicle can steer automatically. This ensures greater precision when performing various tasks such as sowing or harvesting. By reducing overlap, the system enables you to reduce your fuel, seed, fertiliser and chemical costs.

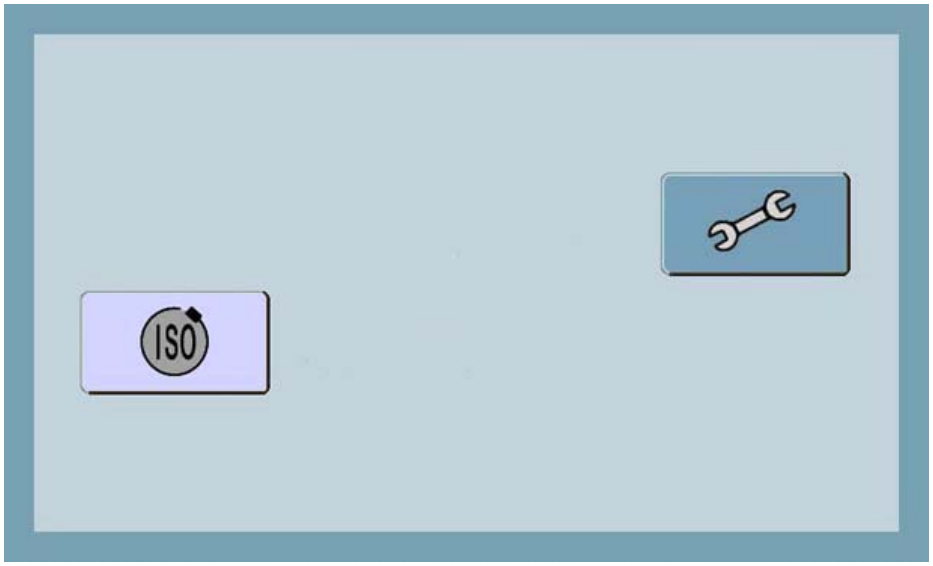
1.2 Turning on the System

Before you begin, ensure the receiver and the steering subsystem are switched on. Refer to the relevant steering subsystem instruction manual or installation and setup guide, if required.

Complete the steps below to turn on the system.

1. Start the vehicle.

   A screen such as the one below is displayed.

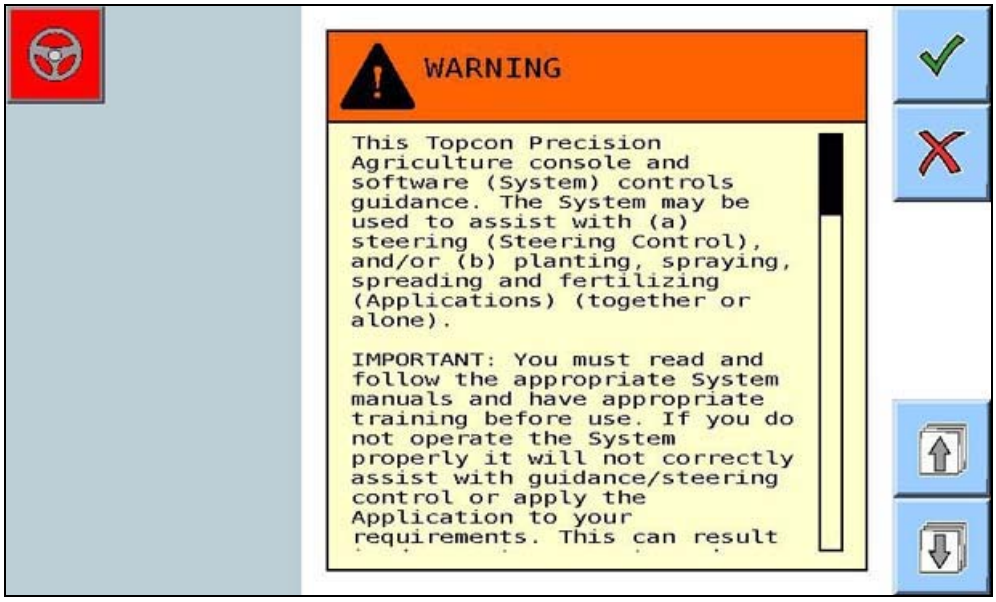


The button is used to configure console settings. For information regarding how to configure the console settings, refer to the relevant console operator's manual. For the AGCO console, refer to the *Console Operator's Manual*.

2. Select .

The loading screen is displayed for short period of time.

The WARNING screen is then displayed.



Note: Depending on whether there is more than one ISO VT client on the bus, you may also be required to select to display the WARNING screen.

3. If this is the first time you have used the system, ensure you read the warning message.

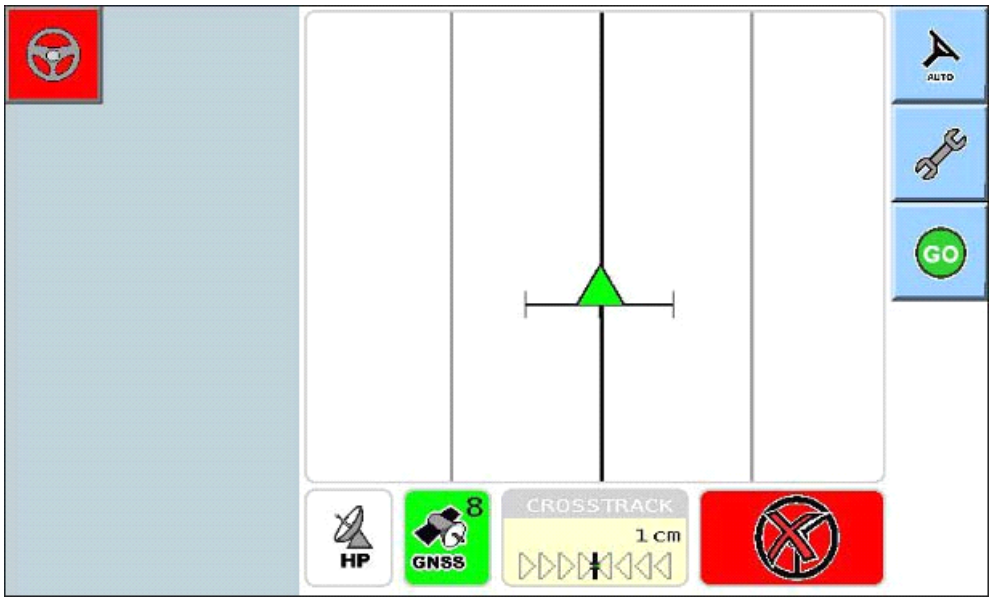
Use and to scroll through the warning.

4. Select to accept the warning.

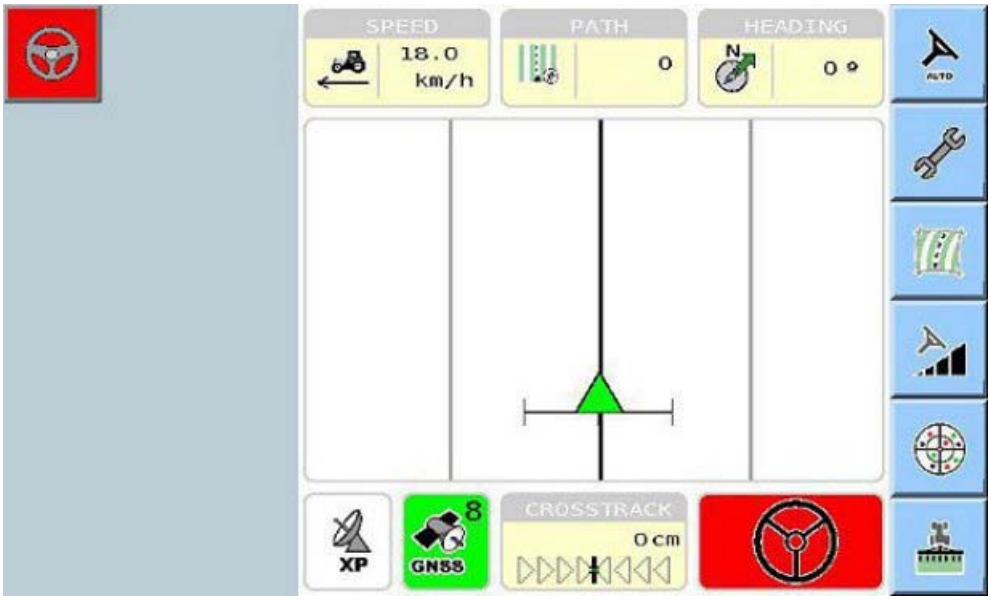
You may select to cancel out of the warning. However, the receiver will halt, and you will need to turn it off and on again.

The Guidance screen is displayed.

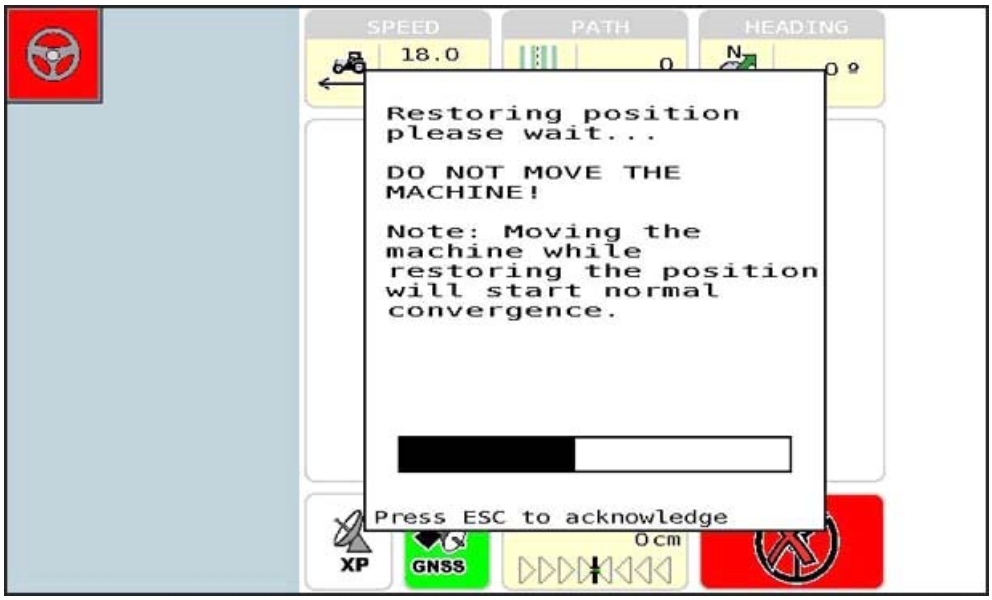
If the system is set to Basic mode, the Basic Guidance screen is displayed.



If the system is set to Advanced mode, the Advanced Guidance screen is displayed.



5. If OmniSTAR HP, XP or G2 have been selected as the correction source, the following messages are displayed.



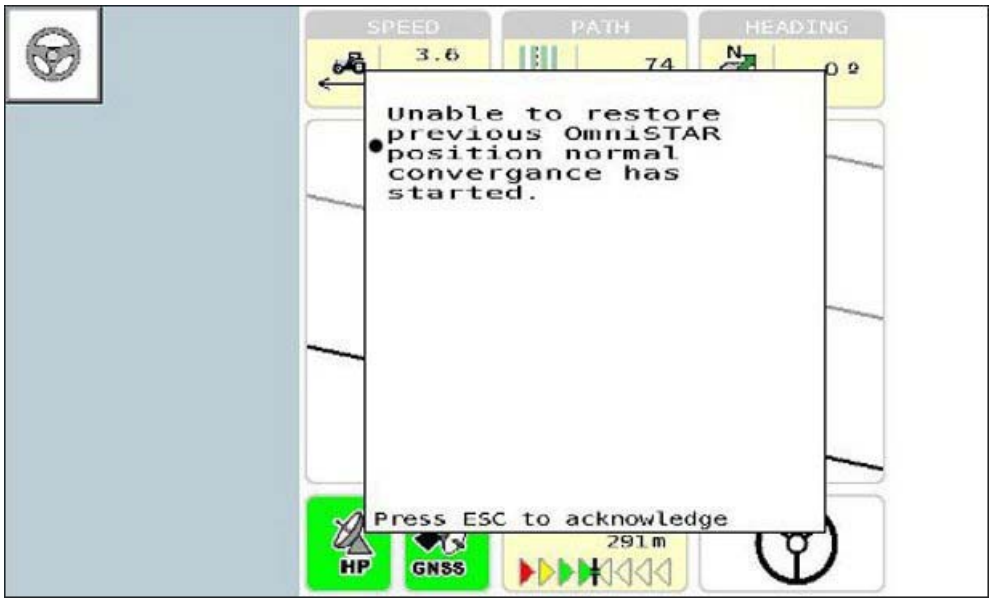
OmniSTAR XP, HP, or G2 correction sources restore the vehicle's position each time the vehicle is started up. In this case, additional steps are required. Continue to step 6.

Note: These screens are not displayed for OmniSTAR VBS.

6. If you have not moved the vehicle since receiver was last switched off, select . The Guidance screen is displayed.

7. If the vehicle has moved since the receiver was last switched off, select .

   The following message is displayed.



   OmniSTAR convergence may take up to 30 minutes to complete.

   When this is complete, the Guidance screen is displayed.

1.3 The Guidance Screen

The AGI ISO VT allows you to operate in Basic or Advanced mode. In Basic mode, the user interface includes a limited number of commonly used functions. In Advanced mode, all system functions are available to view or modify.

A different Guidance screen will be displayed depending on whether you are operating in Basic or Advanced mode.

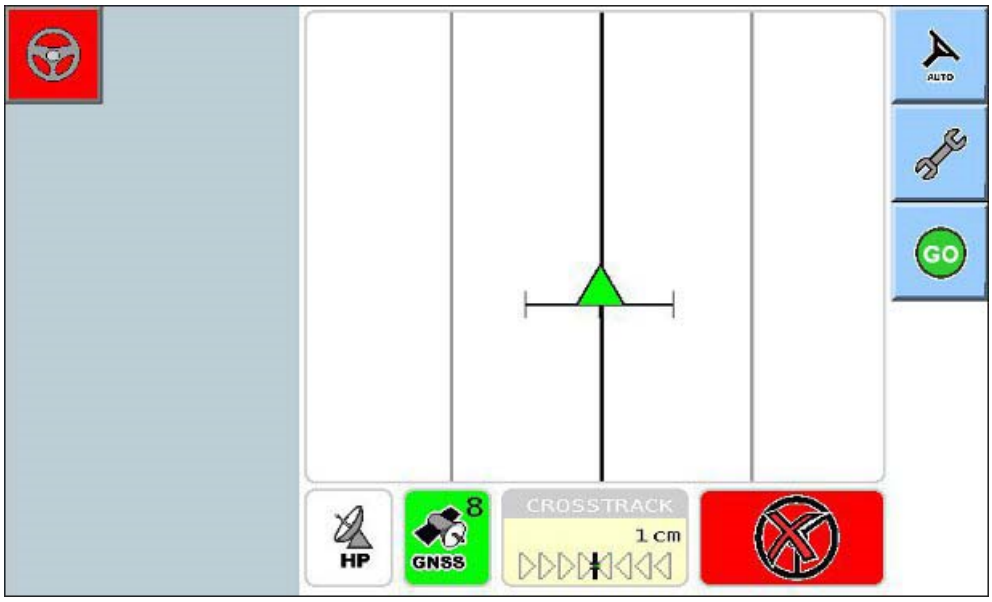
For instructions on how to switch between the two modes, refer to:

1.7 Switching to Advanced Mode

1.8 Switching to Basic Mode

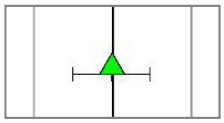
The Basic Guidance Screen

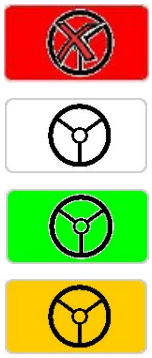
Below is an example of the Basic Guidance screen.



The table below provides a description of the features displayed on the Basic Guidance screen.

Item	Description
	The steering icon at the top left-hand side of the screen displays the status of auto steering. The steering icon is always displayed. The colour of the button will change to indicate the status. Red indicates that auto steering cannot be engaged. White indicates that auto steering can be engaged. Green indicates that auto steering is currently engaged. Yellow indicates a ‘standby phase’. It is activated by selecting the auto steering button when the vehicle is stationary. If all other auto steering preconditions are met it will turn yellow for 15 seconds. If the vehicle is driven forward or reverse during the 15 second timeout period, the vehicle will auto steer to the closest available wayline. If the vehicle is not moved during the 15 second period, the feature will time out and the auto steering button will turn red again. Refer to *2.1 Checking System Status* for information regarding factors that will prevent auto steering.
	Allows you to engage and disengage auto steering. This button is always displayed.
	Displays the Basic Setup menu.
	Displays the combined implement and wayline set up wizard. This button is disabled when auto steering is engaged.

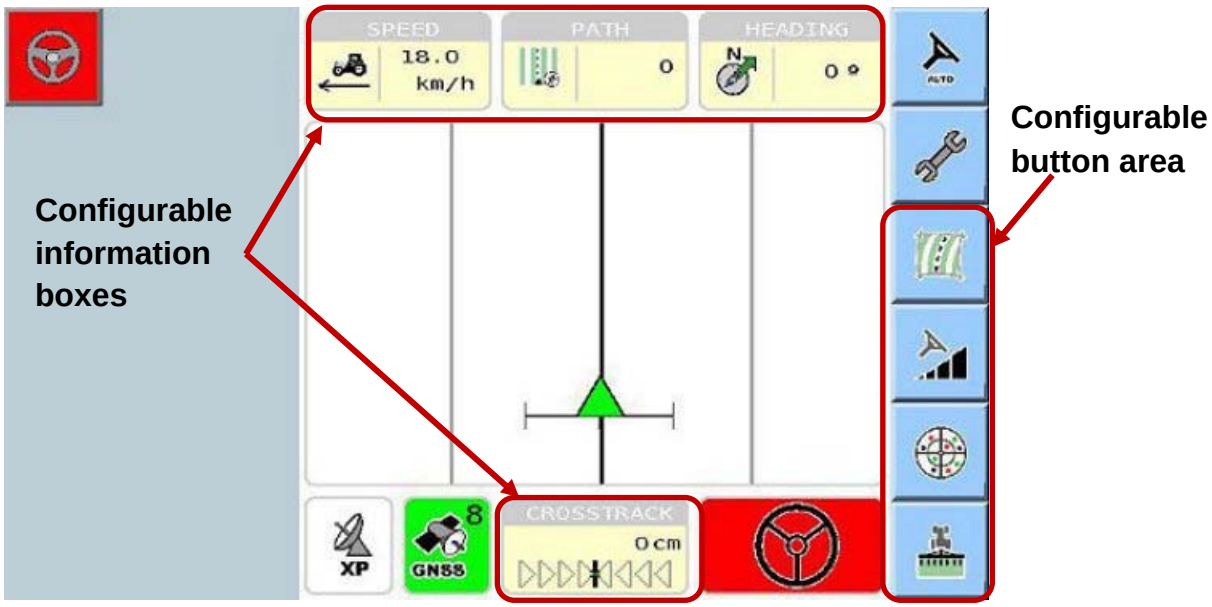
Item	Description
	The black line indicates the original wayline. The grey lines on either side indicate the paths to the right and left of the original wayline. The green triangle displays the location of the vehicle.
	Displays the selected correction source. If no correction source is selected (i.e. the system is in Autonomous mode), this icon is blank. **Note**: This icon is colour-coded: Green indicates good signal quality; White indicates adequate signal quality; Yellow indicates weak signal quality; Red indicates a poor or non-existent signal. Selecting this icon will display the Correction Setup screen.
	Displays the number of GNSS satellites that are currently available. **Note**: This icon is colour-coded: Green indicates good signal quality; White indicates signal quality which is suitable for fallback mode only; Yellow indicates weak signal quality; Red indicates a poor or non-existent signal. Selecting this icon will display the GNSS Information screen.
	Displays the position of the centre of the vehicle in relation to the wayline. ‘0’ indicates that the vehicle is exactly on the wayline. **Note**: This icon is configurable. For more information, refer to *1.9 Customising the Advanced Guidance Screen*.

Item	Description
	Displays the status of auto steering. As with the steering wheel icon at the top left-hand side of the screen (see the first item in this table), the different colours indicate the auto steering status. Selecting this icon will display the System Status menu.

The Advanced Guidance Screen

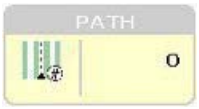
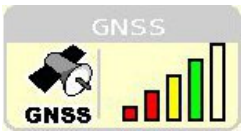
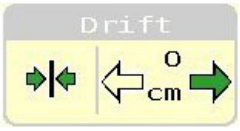
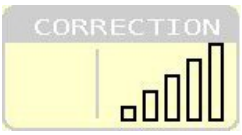
The Advanced Guidance screen contains several features which are not available in Basic mode.

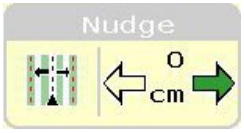
The Crosstrack icon and all the information boxes at the top of the screen, and the four last buttons on the side of the screen are configurable. This means you can change the buttons that display in this area.



For information on how to customise the information box and button display, refer to *1.9 Customising the Advanced Guidance Screen*.

The table below provides a description of the information boxes and buttons displayed on the Advanced Guidance screen.

Item	Description
	Displays the speed the vehicle is currently travelling. The optimal speed will depend on the farming task you are performing and the implement you are using.
	Displays the row you are currently driving along in relation to the original wayline. For example, if you are driving along the fourth row to the right of the original wayline, this would be shown as ‘4’; the fourth row to the left would be shown as ‘-4’.
	Displays the direction you are heading.
	Displays the strength of the GNSS signal. For more information, refer to *2.2 Viewing GNSS* Information.
	Displays the position accuracy for the current correction source. For more information refer to *Appendix B - Table of Convergence*.
	Displays the amount of GPS drift compensation. For more information, refer to *Chapter 9 – GPS Drift Compensation / Nudge*.
	Displays the strength of the correction source signal. For more information, refer to *Chapter 4 – Correction Sources*.

Item	Description
	Displays the amount of manual nudge. For more information, refer to *Chapter 9 – GPS Drift Compensation / Nudge*.
	Provides access to the Wayline screen. This button is disabled when auto steering is engaged. For more information, refer to *Chapter 7 - Waylines*.
	Provides access to the Line Acquisition Steering Response screen. For more information, refer to *10.1 Defining Steering Response*.
	Provides access to the GNSS Skyplot screen. For more information, refer to *2.2 Viewing GNSS* Information.
	Provides access to the Implement screen. This button is disabled when auto steering is engaged. For more information, refer to *Chapter 6 - Implement Profiles*.

1.4 Navigation – Scroll Wheel and Button Consoles

This topic describes how to navigate the system using a scroll wheel and button console.

In scroll wheel and button consoles, you can navigate by using the:

- Console keys
- Buttons
- Scroll wheel

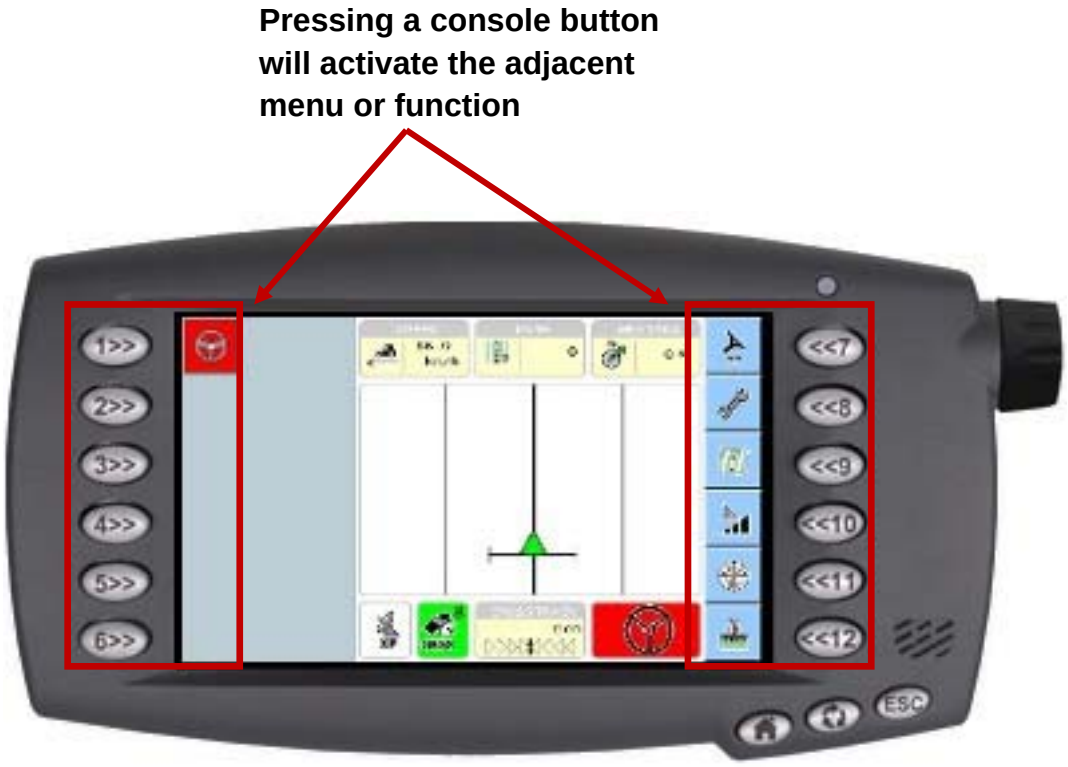
Console Keys

At the bottom right-hand side of the console there are three keys.

- **Home** key - returns to the home screen. The home screen is the first screen displayed when the system is turned on.
- **Esc** key - returns to the previous screen or menu without saving any changes you have made.
- **ISO** key - toggles between the ISOBUS screens if other ISOBUS implements, such as an implement electronic control unit (ECU), are connected.

Buttons

The buttons on each side of the console are used to select the function or menu item located adjacent to the button, as shown in the example below.



The buttons displayed will vary depending on the screen you are currently in.

Buttons are greyed out when they are not available.

Standard Buttons

The following buttons are found on most screens in the AGI ISO VT. They perform the same functions regardless of where they are located:

This button will save any changes you have made, close the current screen and return to the previous screen.

This button will cancel any changes you have made, close the current screen and return to the previous screen.

This button will close the current screen, and return to the previous screen.

This button will put the screen into edit mode.

This button will open another screen where you can select, import, export or delete an existing profile.

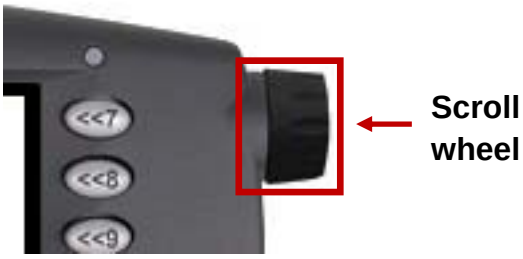
This button will display the page below.

The button will display the page above.

This button will return you to the first page.

Scroll Wheel

The scroll wheel is used to select menus and icons, and to select or enter data in fields.



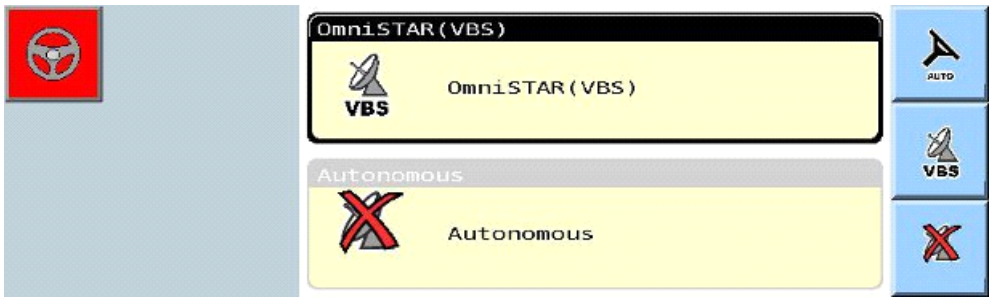
The scroll wheel is sensitive; a slight turn is sufficient to move to the next menu item, icon or field.

As you rotate the scroll wheel, you will feel a slight click when it has moved to the next item.

Selecting menus or icons

To select a menu item or icon on a screen:

1. Rotate the scroll wheel clockwise or anti-clockwise to highlight a menu item or icon. When highlighted, the menu item or icon will be surrounded by a black boundary, as shown below.



If there is more than one page of menu items, the next page will be displayed when you scroll past the last item on the page.

2. Push the end of the scroll wheel in towards the console to select the menu item or icon.
   The corresponding screen is displayed.

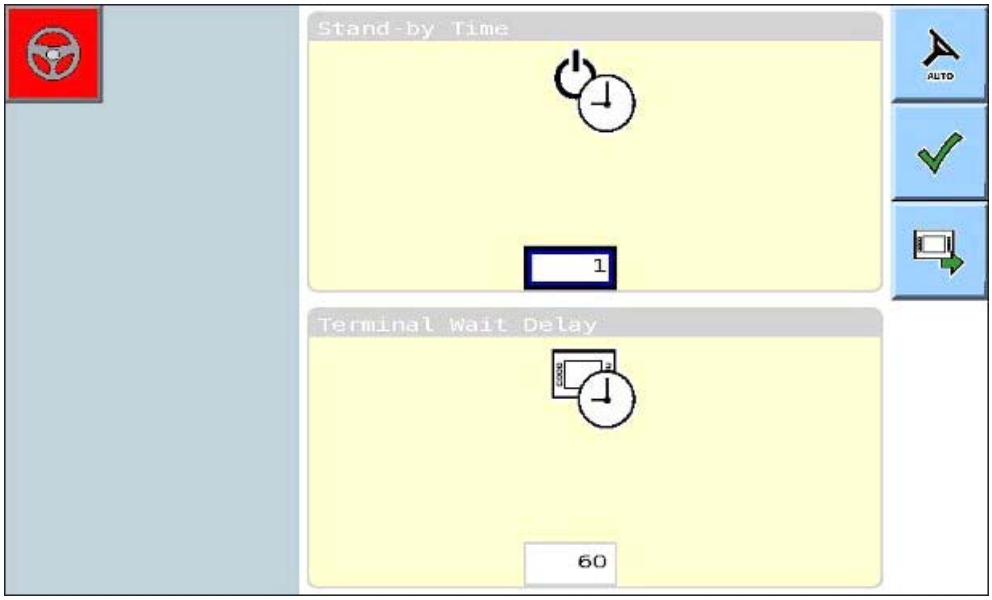
Menu items can also be selected by pressing the corresponding button on the console.

Entering values into fields

Many screens in the AGI ISO VT require you to enter numeric values into fields. This is performed using the scroll wheel.

To enter numeric values into fields:

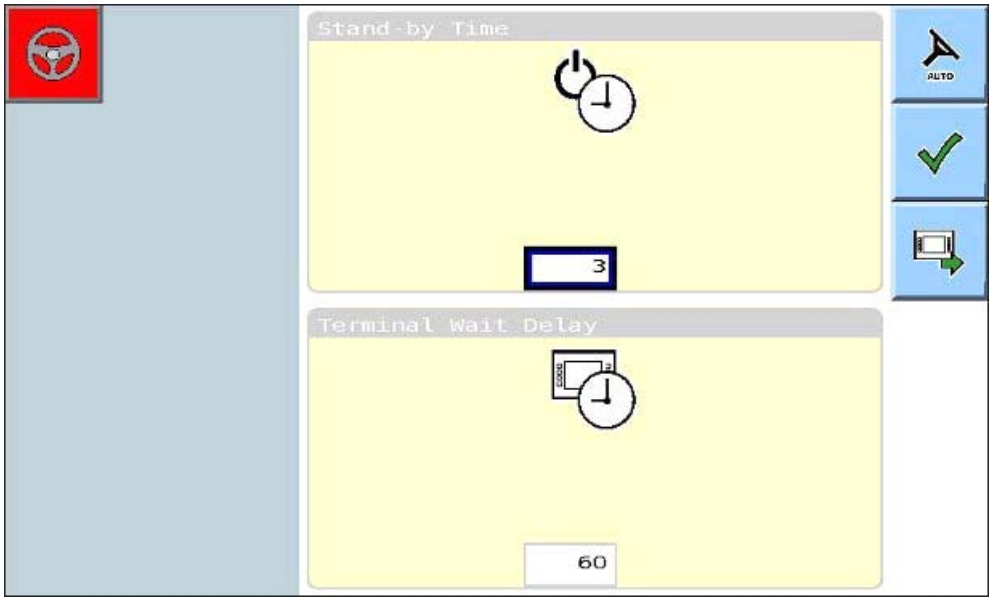
1. Rotate the scroll wheel until the relevant field is selected. When highlighted, the boundary of the field will turn blue, as shown below.



2. Push the end of the scroll wheel in towards the console.

   The value in the field flashes on and off. This indicates that the field is editable.

3. Rotate the scroll wheel until the required value is displayed.



Rotating the wheel clockwise will increase the value.
Rotating the wheel anti-clockwise will decrease the value.

4. Push the end of the scroll wheel towards the console to select the value.

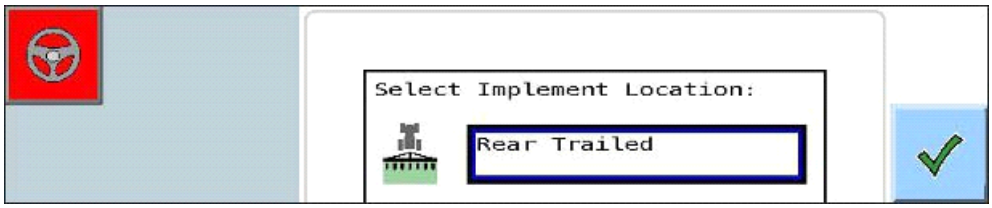
Selecting options from drop-down lists

Some fields allow you to select from several options that are displayed in a drop-down list.

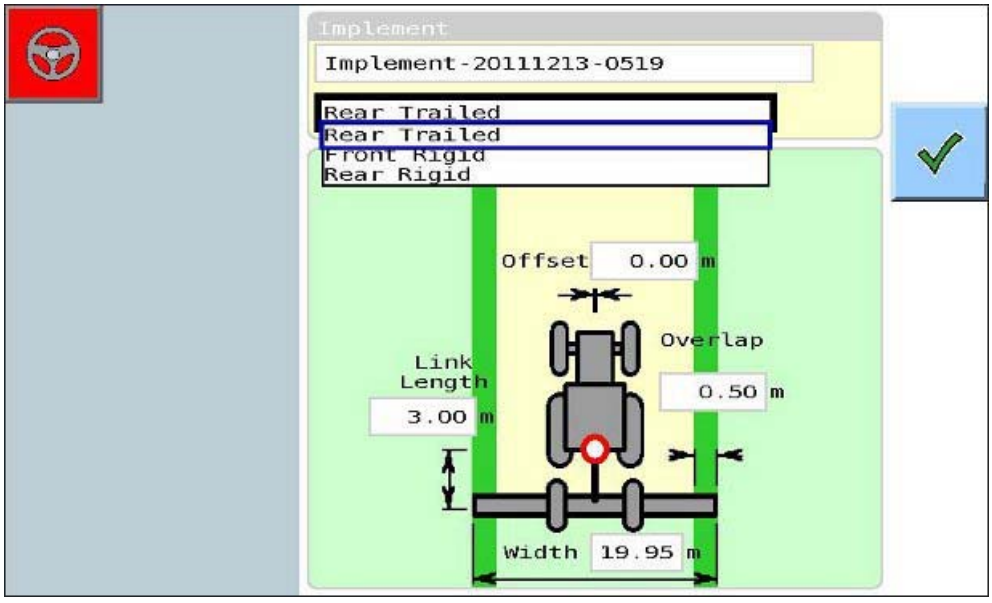
To select an option from a drop-down list.

1. Rotate the scroll wheel until the relevant field is highlighted.

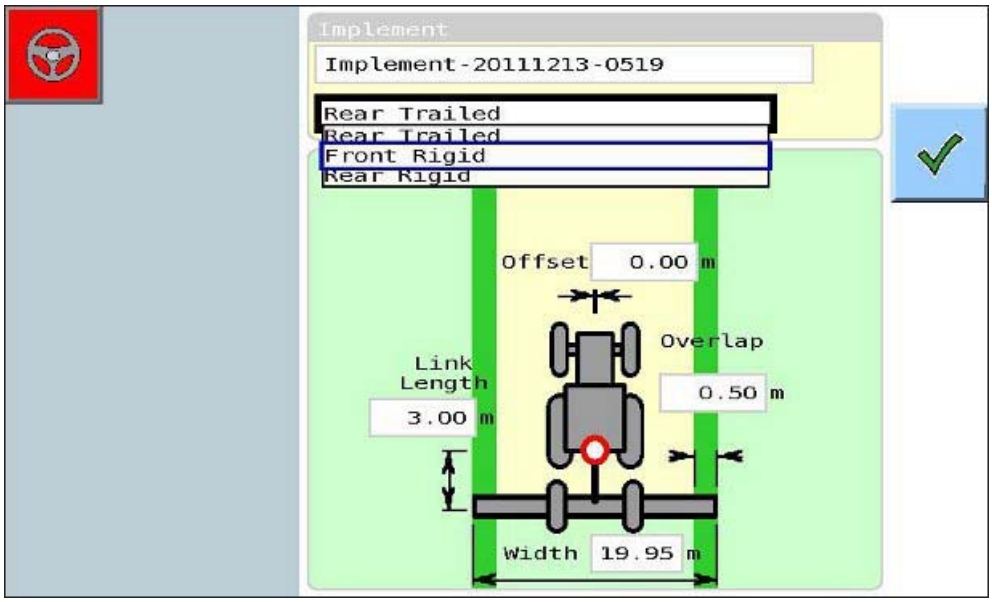
   The field boundary turns blue when highlighted.



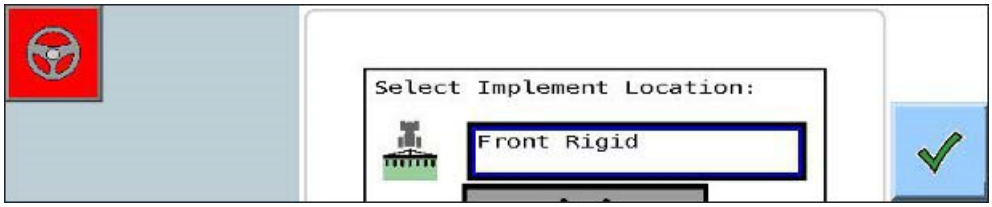
2. Push the end of the scroll wheel in towards the console. A list of options is displayed.



3. Rotate the scroll wheel until the required option is highlighted.



4. Push the end of the scroll wheel in towards the console to select the required option.

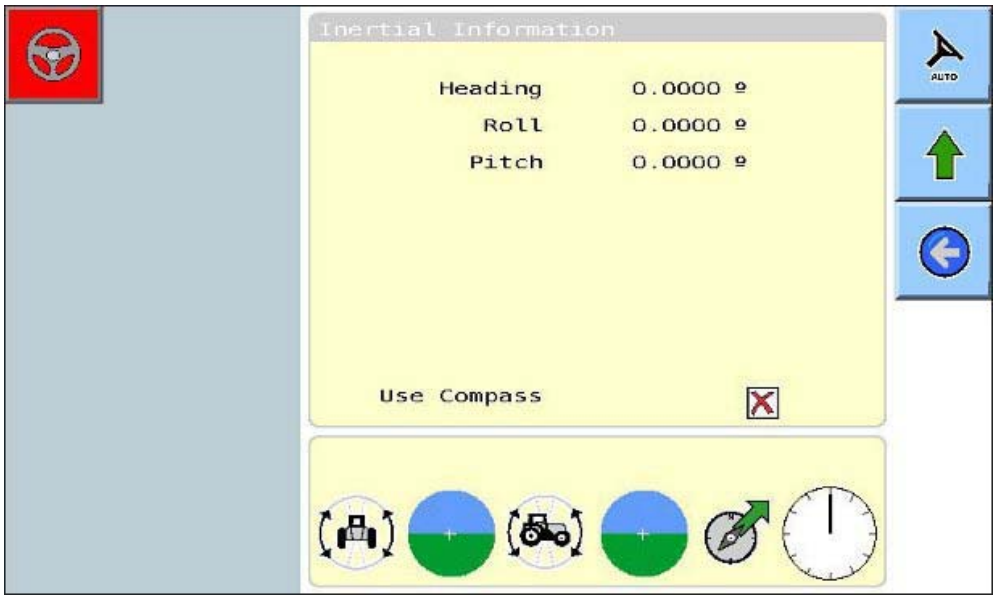


Selecting & deselecting options

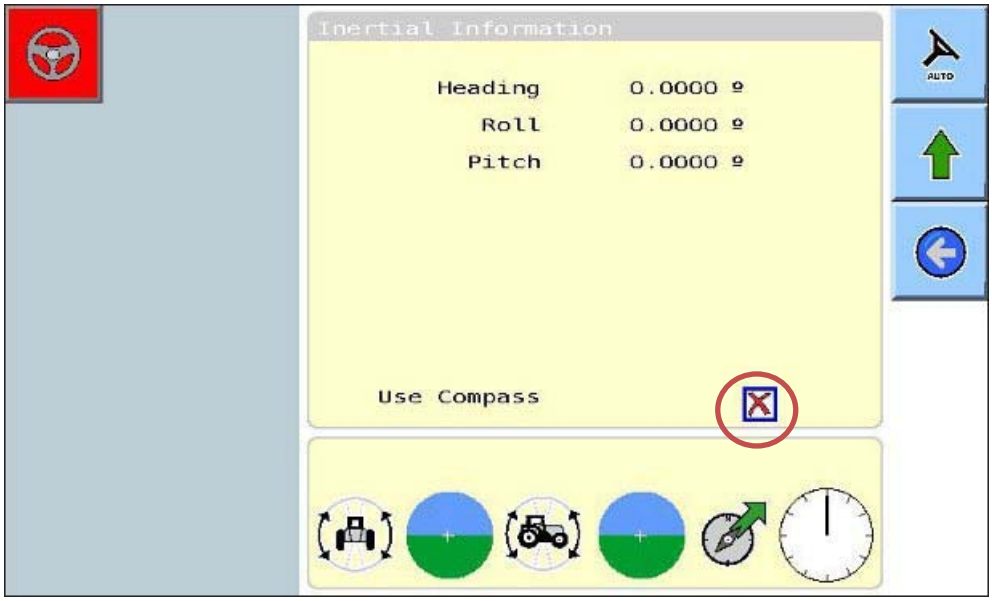
In some screens, you are required to select or deselect an option.

To select or deselect an option:

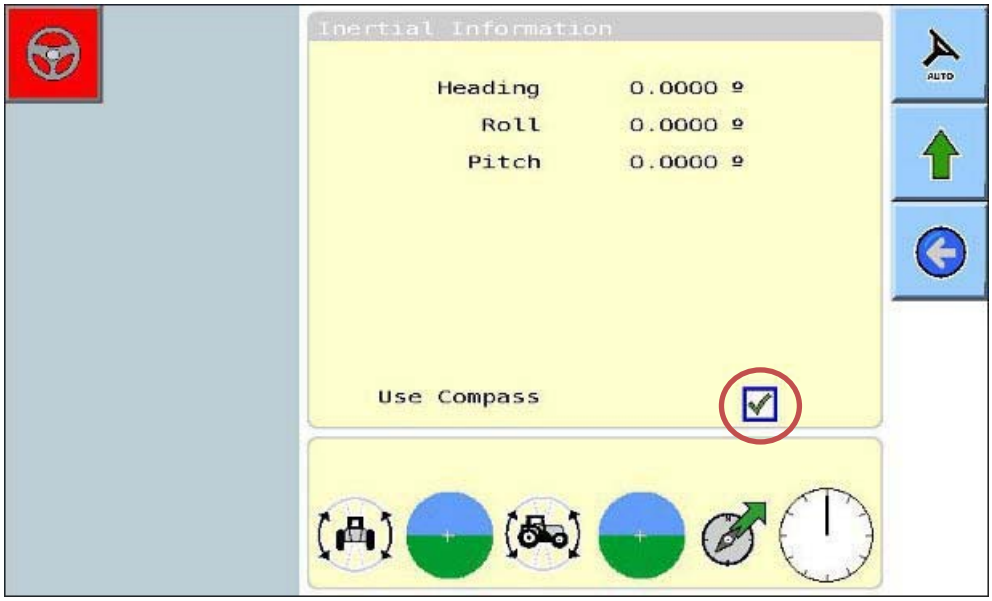
1. Access the relevant screen, e.g. Inertial Information.



2. Rotate the scroll wheel to highlight the relevant field, e.g. **Use Compass**.



3. Push the end of the scroll wheel in towards the console to select or deselect the option.

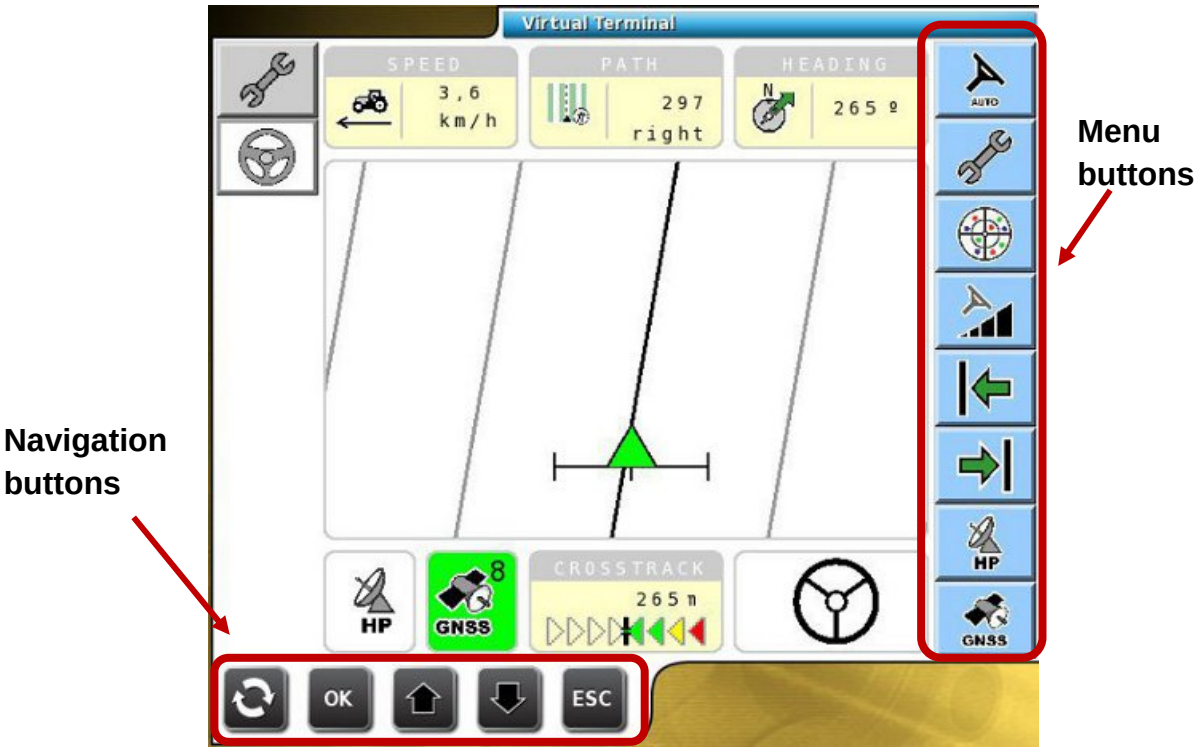


1.5 Navigation – Touch Screen Consoles

This topic describes how to navigate the system using a touch screen console. On touch screen consoles you can navigate by:

- Touching or tapping the buttons, icons, fields.
- Using navigation buttons at the bottom of the screen.

The example below is a Guidance screen on a touch screen console.



Menu buttons

- The menu buttons are located at the side of the screen. These buttons will vary depending on the screen that you are in.
- Touching a menu button will display the corresponding screen.

Navigation buttons

The table below provides an explanation of each navigation button.

	This button toggles between the ISOBUS screens if other ISOBUS implements, such as an electronic control unit (ECU), are connected.
	This button selects the item on the screen after you have navigated to it.
	This button navigates through the items on the screen, in a clockwise direction.
	This button navigates through the items on the screen, in an anti-clockwise direction.
	This button returns to the previous screen without saving any changes you have made.

The navigation buttons are always displayed regardless of the screen you are in.

Selecting a Menu

To select a menu using the navigation buttons:

1. Touch or until the required menu is highlighted.

2. Touch to display the corresponding screen.

To select a menu using touch only:

1. Touch the menu to display the corresponding screen.

Selecting & deselecting options

In some screens, you are required to select or deselect an option.

To select or deselect an option using the navigation buttons:

1. Touch or to navigate to the option field.
2. Touch to toggle between the select state ( ), and the deselect state ( ).

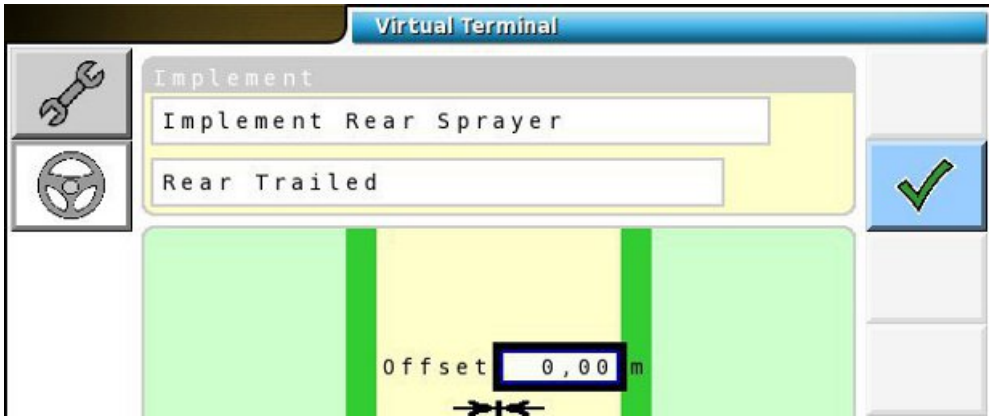
To select or deselect an option using touch only:

1. Touch the option field to toggle between the select state ( ) and the deselect state ( ).

Entering values into fields

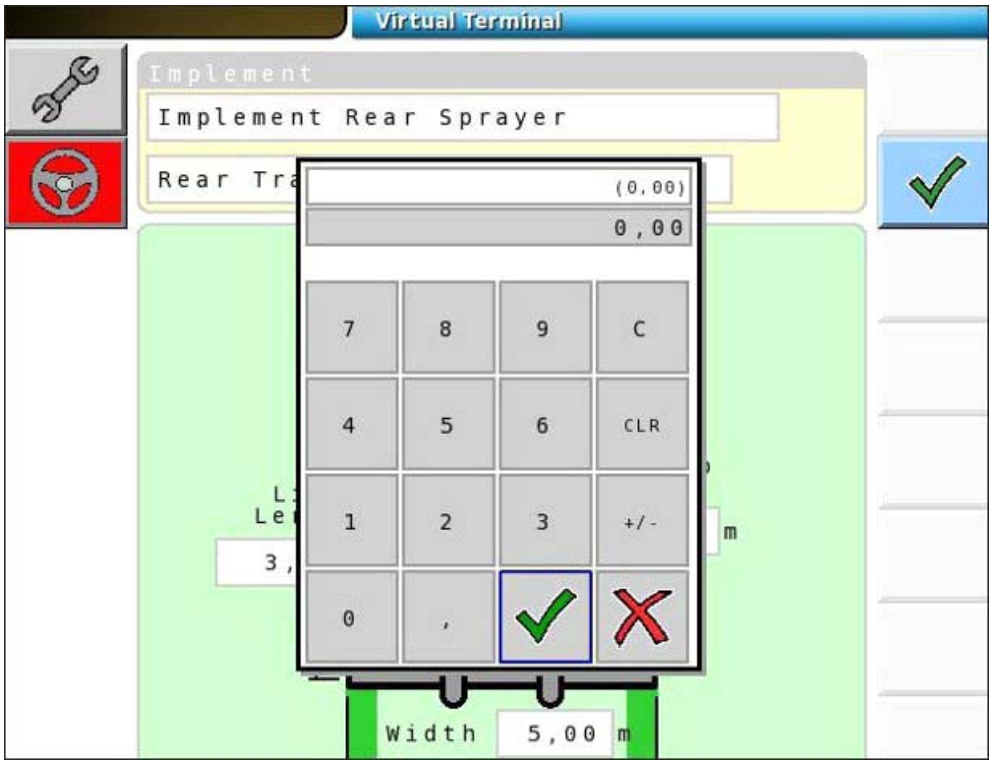
To enter values into fields using the navigation buttons:

1. Touch or to navigate to the field. When selected, the field is highlighted by a blue boundary.



2. Touch OK.

   A popup number key pad is displayed.



3. Use the number key pad to enter the amount.

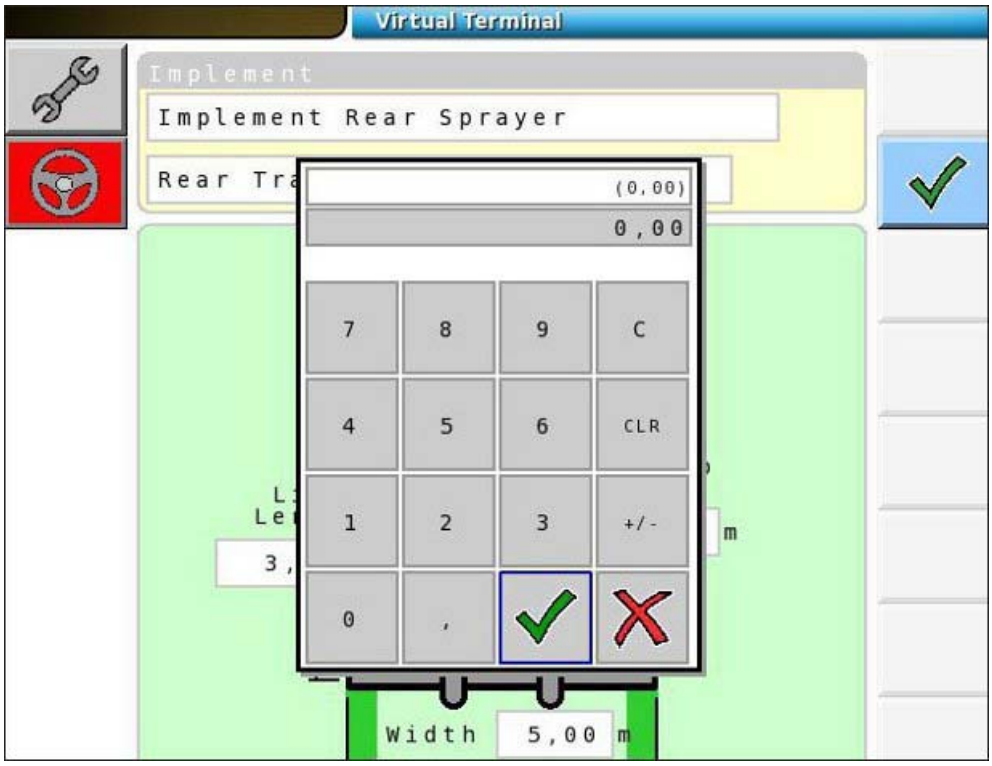
4. Select ✓ when complete. The value is displayed in the field.

   Select ✗ to cancel the field entry and close the number key pad.

To enter values into fields using touch only:

1. Touch the field.

   A popup number key pad is displayed.



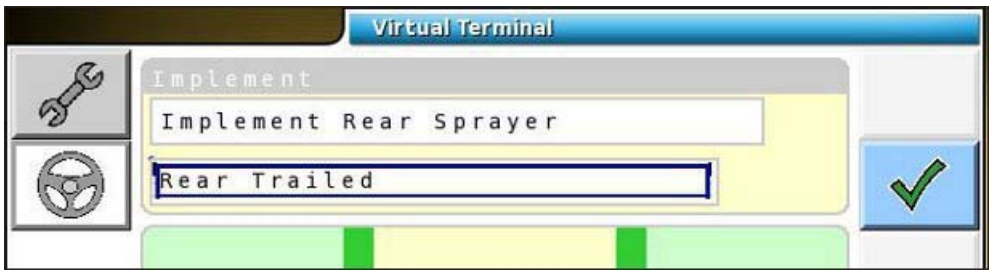
2. Use the number key pad to enter the amount.

3. Select when complete. The value is displayed in the field.

Selecting options from drop-down lists

To select an option from a drop-down list using the navigation buttons:

1. Touch or to navigate to the field. The field is highlighted by a blue boundary.



2. Touch .

   A set of buttons is displayed under the field.

3. Use the arrow buttons to scroll through the options.

4. When the required option is displayed, touch .

   The selected option is displayed in the field.

To select an option from a drop-down list using touch only:

1. Touch the field.

   A set of buttons is displayed under the field.

2. Use the arrow buttons to scroll through the options.

3. When the required option is displayed, touch .

   The selected option is displayed in the field.

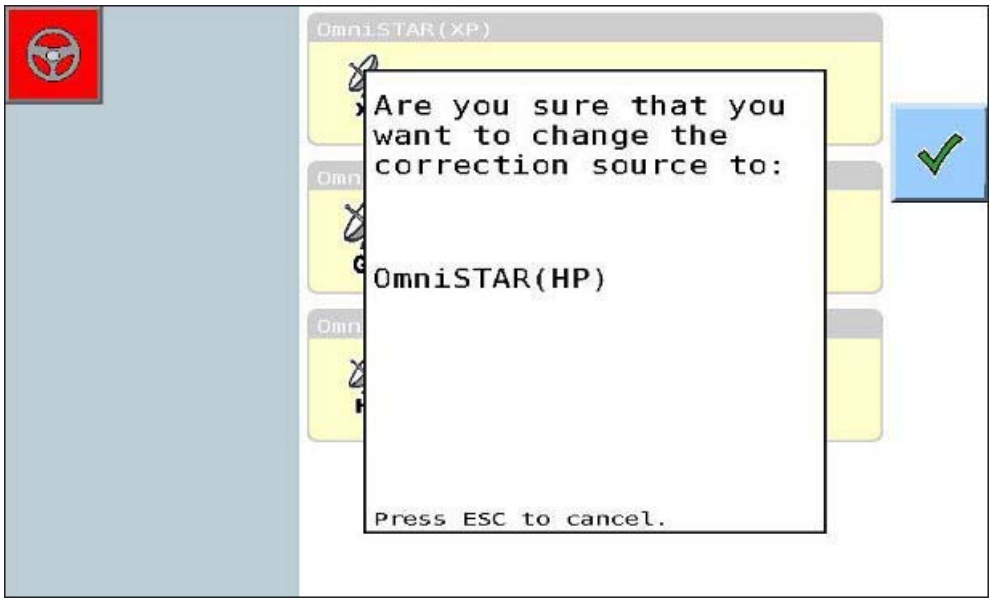
1.6 Confirmation and Error Messages

Confirmation and error messages are standard features of the AGI ISO VT.

Confirmation Sub-screens

When you make a selection in the AGI ISO VT, in many cases, a message asking you to confirm the selection will be displayed in a sub-screen.

Example:

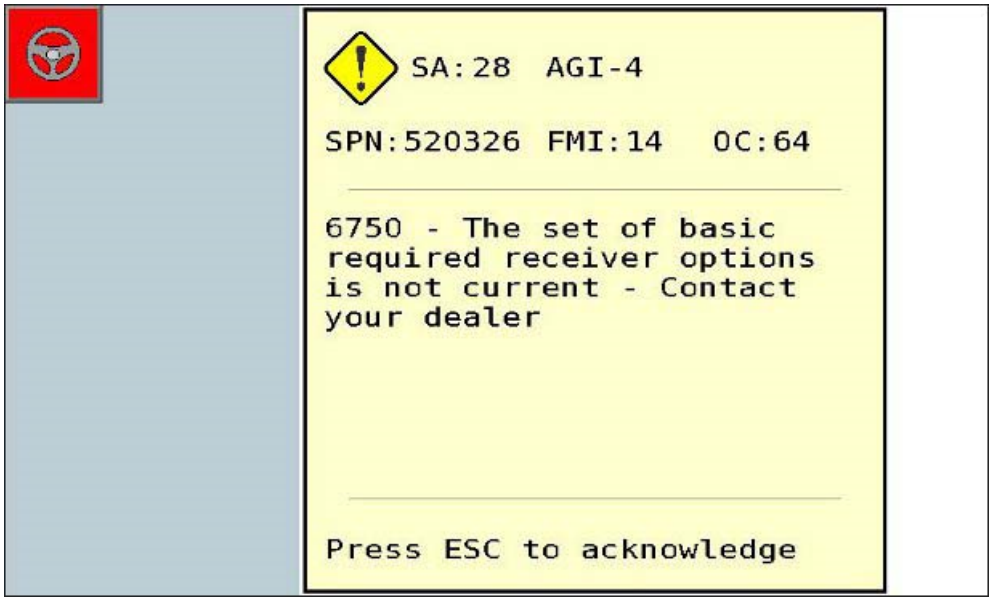


- Confirm your selection, by selecting .
- Cancel by pressing the **Esc** button on the console.

Error Messages

Error messages are displayed whenever an error occurs.

Example:



To acknowledge an error message, press the **Esc** button on the console.

The error message will disappear. However, you may not be able to operate the system until you have rectified the issue.

For a complete list of error messages, refer to *Chapter 12 - Troubleshooting Guide*.

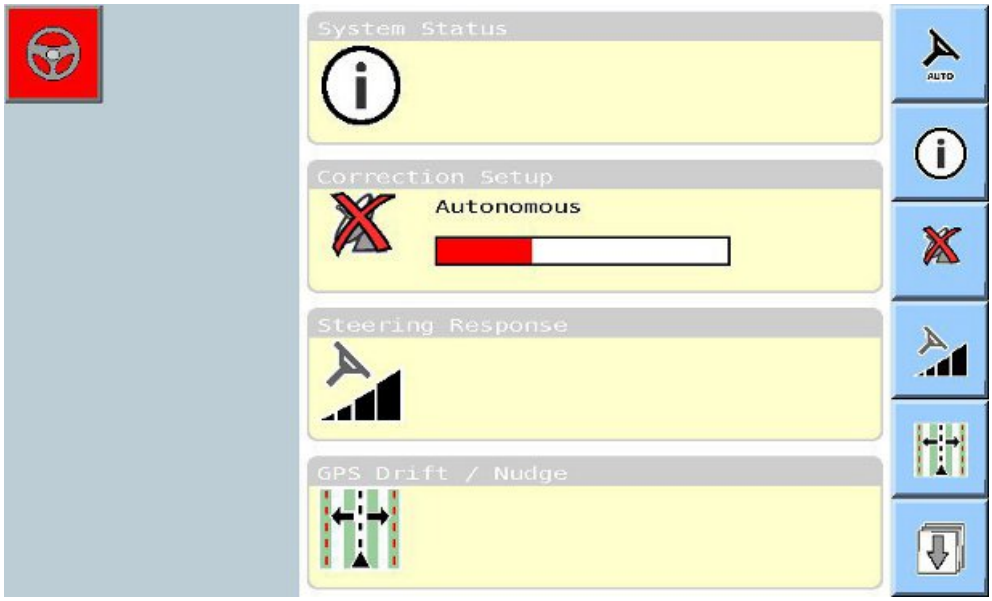
1.7 Switching to Advanced Mode

The AGI ISO VT is usually set to Basic mode as the default. However, you can switch between modes as required.

Complete the steps below to switch to Advanced mode.

1. In the Guidance screen, select .

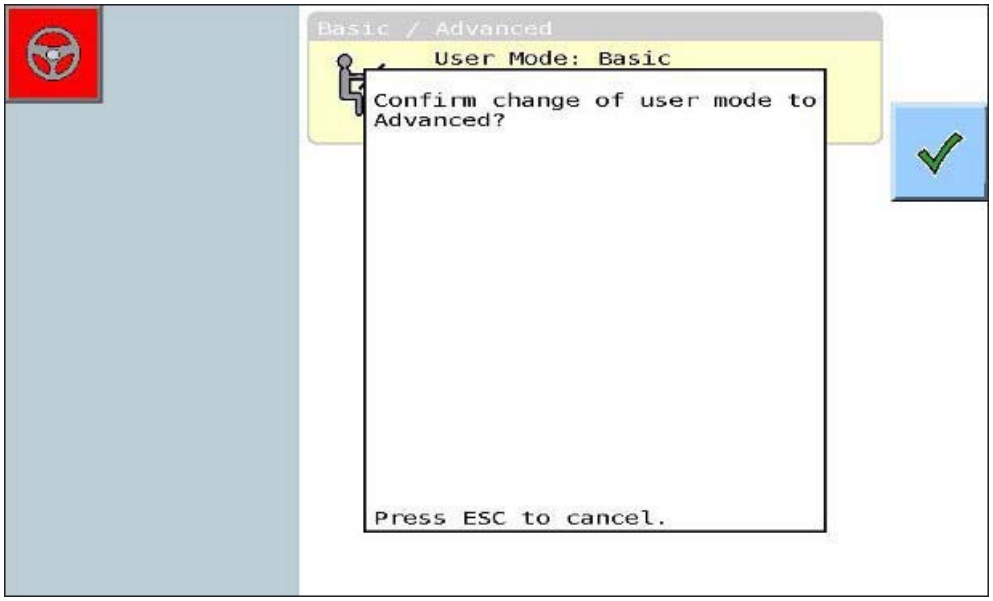
   The first screen of the Basic Setup menu is displayed.



2. Select to display the next screen of the Basic Setup menu.

3. Select .

   A confirmation sub-screen is displayed.



4. Select to confirm the change.

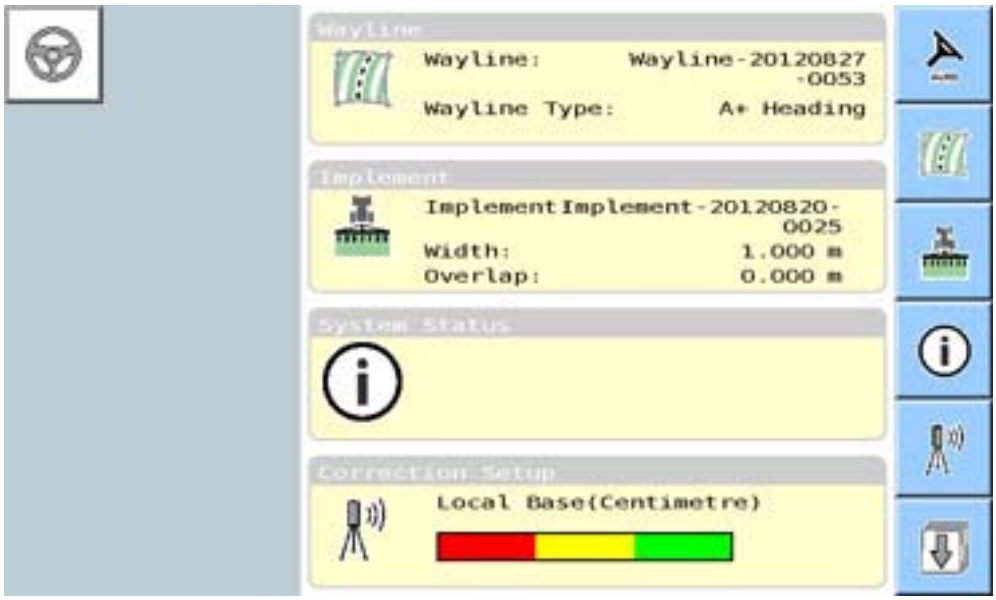
   The Advanced Guidance screen is displayed. For more information, refer to *The Advanced Guidance Screen*.

1.8 Switching to Basic Mode

Complete the steps below to switch to Basic mode.

1. From the Guidance screen, select .

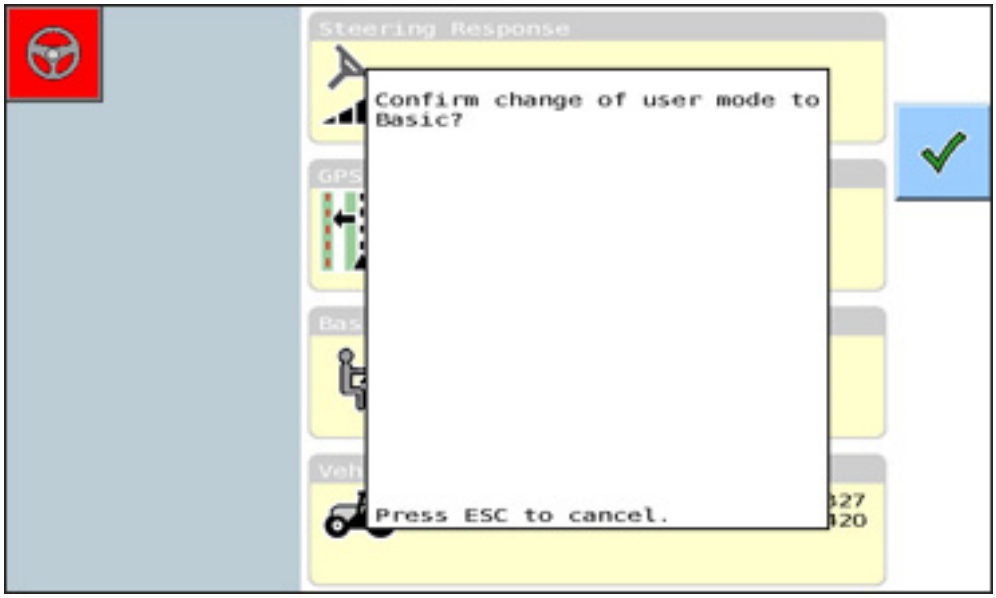
   The first screen of the Advanced Setup menu is displayed.



2. Select to display the second screen of the Advanced Setup menu.

3. Select .

   A confirmation sub-screen is displayed.



4. Select to confirm the change.

   The Basic Guidance screen is displayed. For more information, refer to *The Basic Guidance Screen*.

1.9 Customising the Advanced Guidance Screen

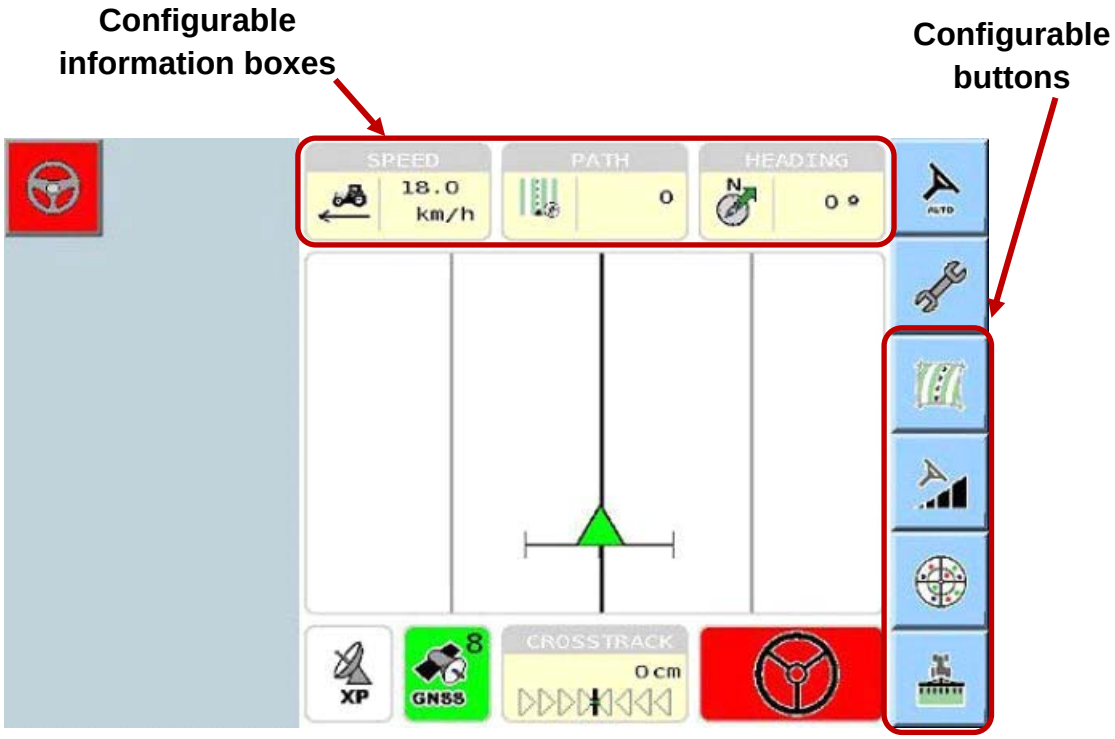
This topic provides instruction on how to customise the button and information boxes displayed on the Advance Guidance screen.

The Advanced Guidance screen is automatically displayed when you turn on the system (if you are using Advanced mode).
From other screens, you can navigate back to this screen by pressing **Esc**, or selecting .

Customising the buttons

Complete the steps below to customise the button display.

1. Display the Advanced Guidance screen.



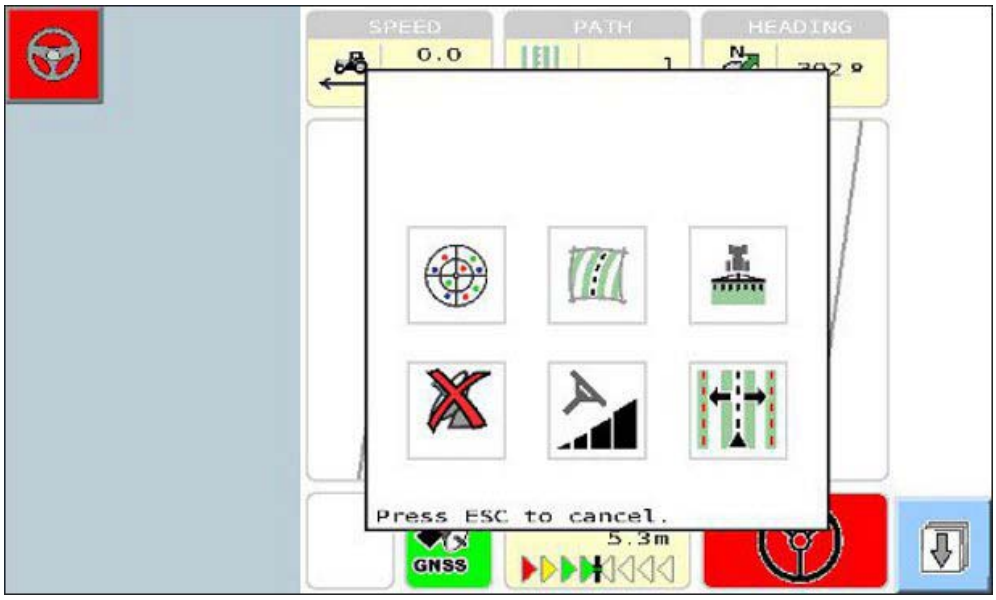
- The last four buttons on the right-hand side of the screen are configurable.

- However, if a nudge increment has been defined to compensate for GPS drift, the last two locations on the screen will be used for the Nudge Left ( ) and Nudge Right ( ) buttons. These are not configurable. For more information, refer to *9.3 Defining GPS Drift Compensation*.
- In addition, if the compass has been disabled, the third location from the bottom will be used for the Direction Reset ( ) button. This button is not configurable.
- Note that the Direction Reset button is disabled, and its appearance will change if:

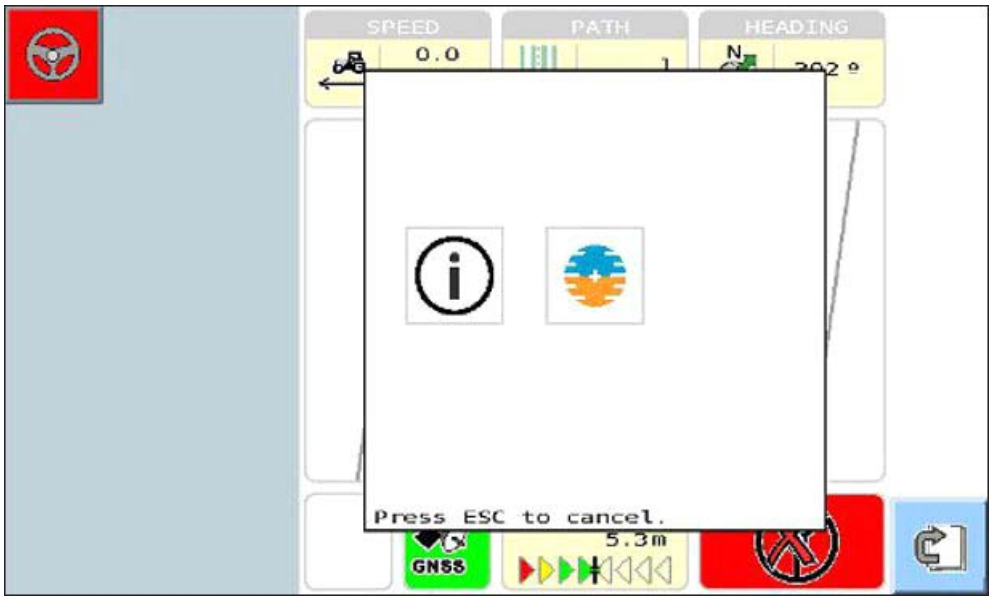
  a) auto steering is engaged ( ).

  b) auto steering cannot be engaged ( ).

2. Hold down the button you wish to change until the following sub-screen is displayed.

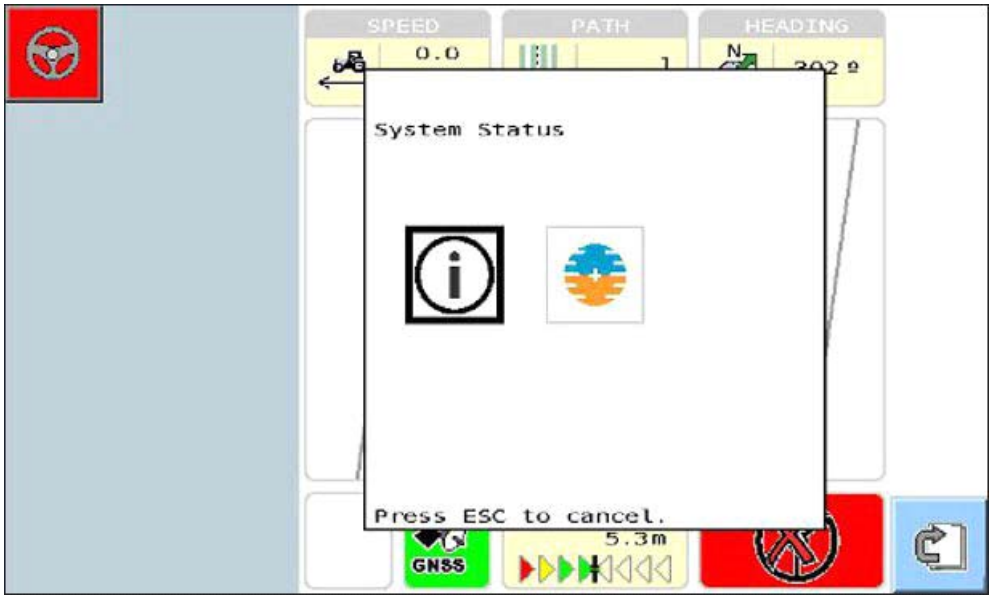


3. Select to display the next sub-screen of configurable buttons.



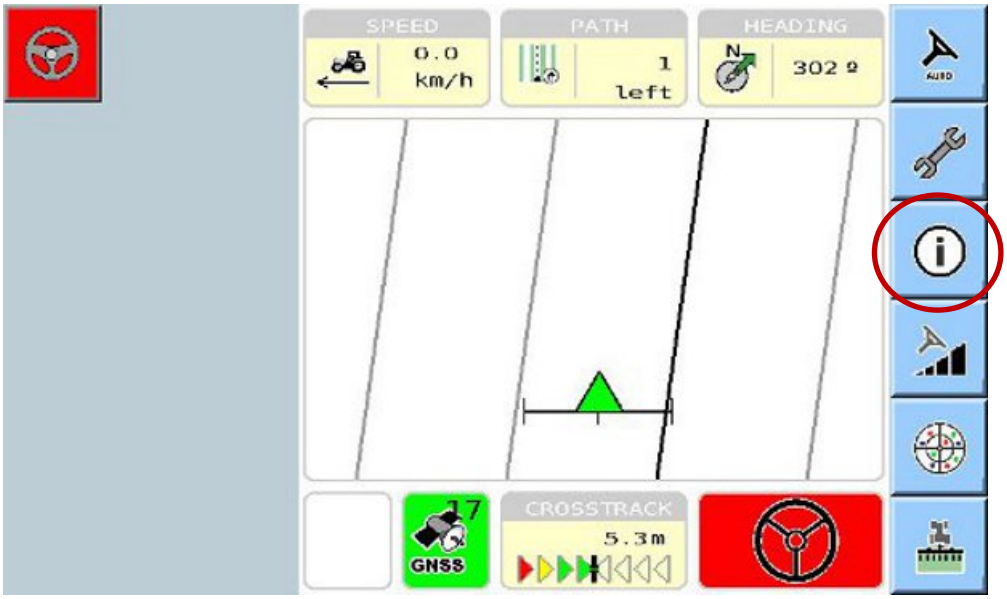
To return to the previous sub-screen, select .

4. If you are using a scroll wheel console, highlight the required button. The button name is displayed in the top left-hand side of the screen, as shown in the example below.



5. Select the required button.

   The button is displayed in the location you selected.

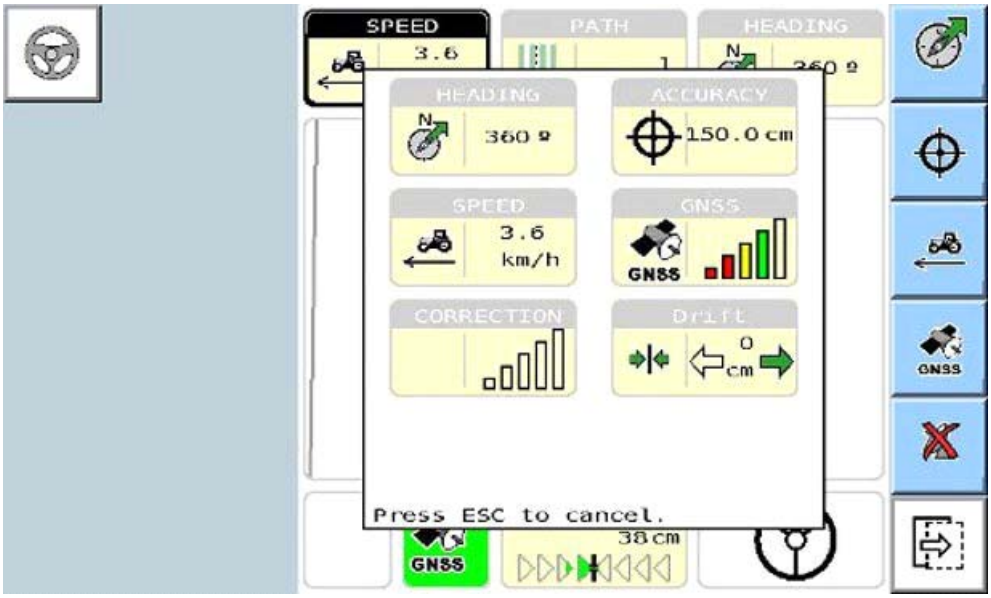


Customising the information boxes

Complete the steps below to change the information boxes displayed in the Advanced Guidance screen.

1. Select the information box that you wish to replace.

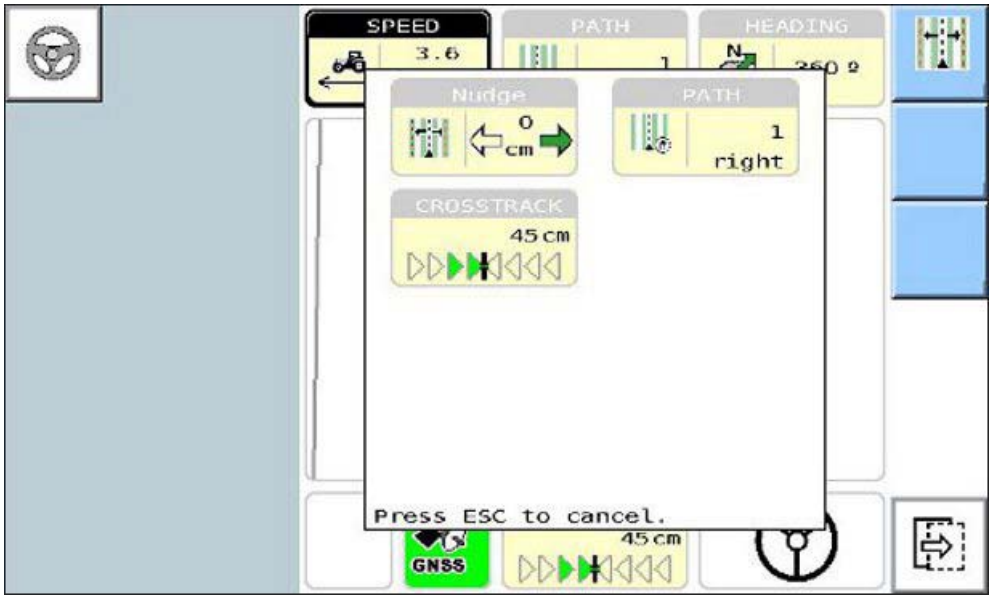
   A sub-screen displays the configurable boxes.



Note that buttons corresponding to the boxes are displayed on the right hand side of the screen. However, not all the corresponding buttons are displayed on the same page.

You can use to display the remaining buttons. Select this button again to return to the previous button display.

2. Scroll to display the next sub-screen of configurable information boxes.



3. Select the required information box.

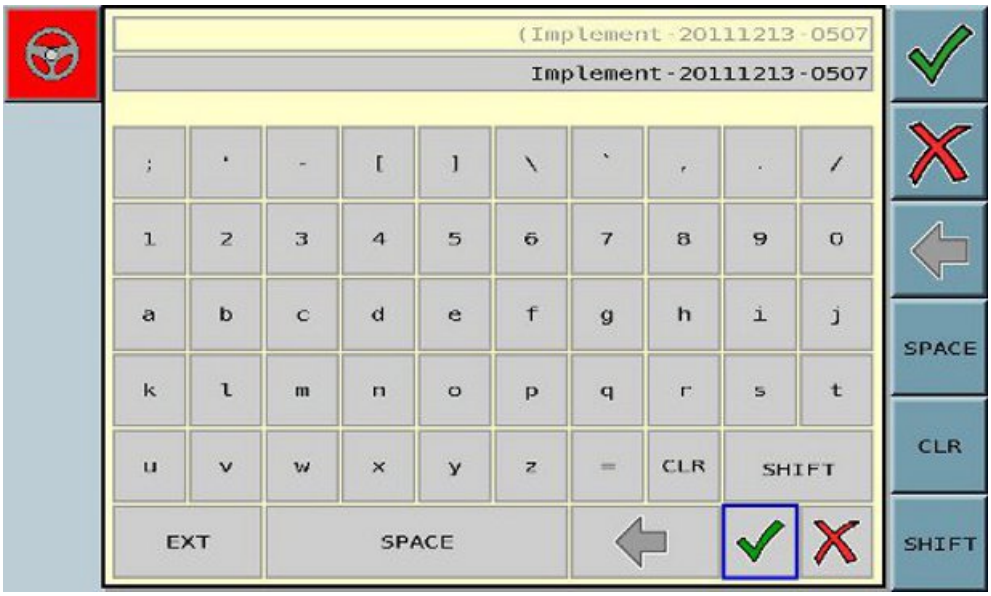
   The information box is displayed in the location you selected.

1.10 Using the Virtual Keyboard

The Virtual Keyboard is used to edit wayline, NMEA, vehicle and implement profile names.

Complete the steps below to use the Virtual Keyboard.

1. The Virtual Keyboard is displayed when you select the relevant field in the wayline, vehicle, implement or NMEA screen.



2. To clear the name completely, select

.

3. To delete the existing name character by character, select .

4. Select the required characters on the keyboard.

   If you are using a scroll wheel and button console, use the scroll wheel to highlight and select the characters on the keyboard.

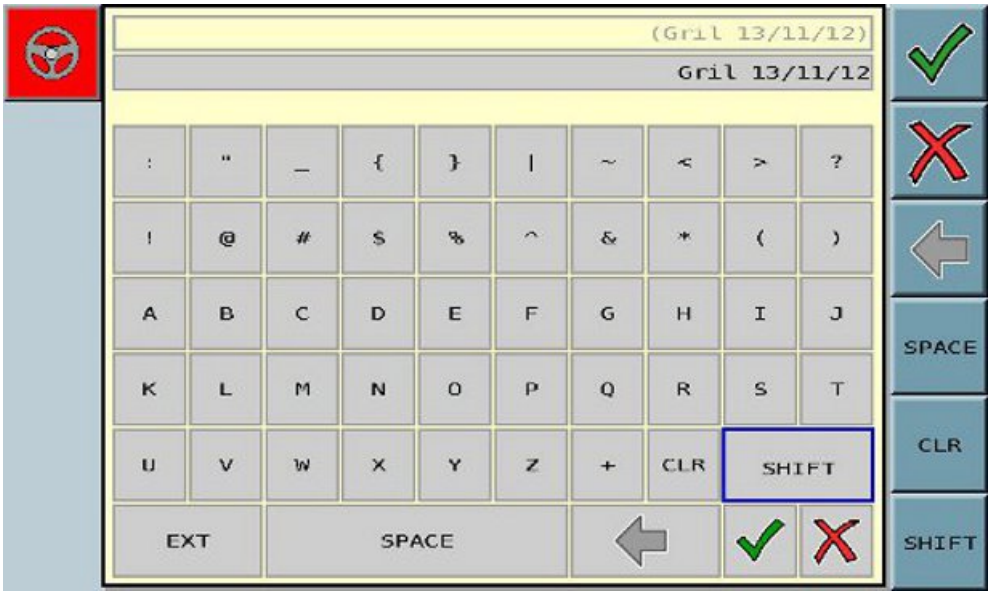
   If you are using a touch screen console, simply touch the required character.

5. To insert a space, select

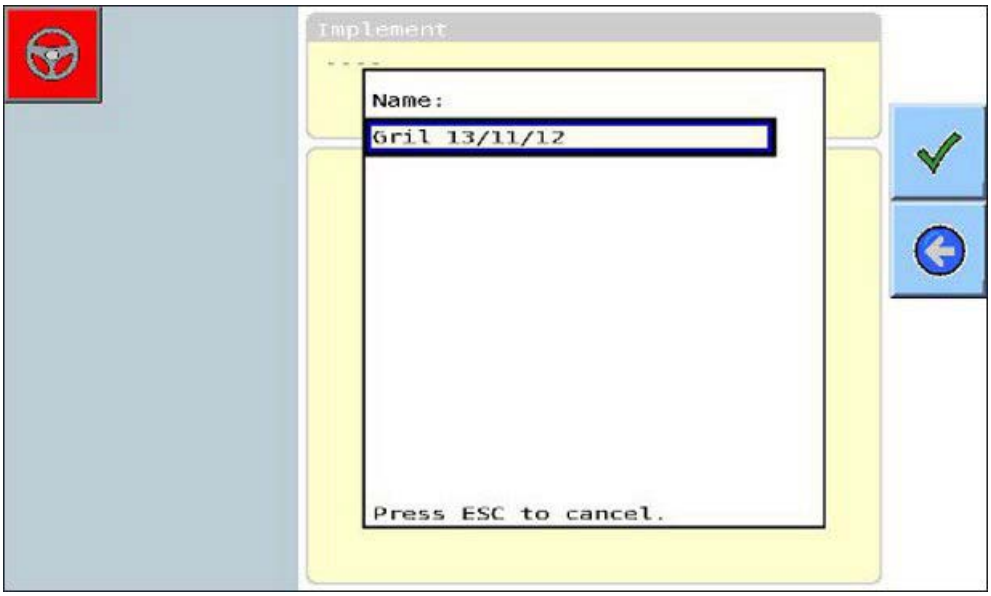
.

6. To display the upper case version of the keyboard and extra characters, select

.



7. To cancel changes and return to the previous screen, select .
8. To accept changes and return to the screen you navigated from, select . The name you entered is displayed in the screen.



Chapter 2 – System Status

This chapter describes how to use the system status screens to identify factors that may be preventing auto steering.

This function is available in both Basic and Advanced modes.

In this chapter

2.1 Checking System Status

2.2 Viewing GNSS Information

2.3 Viewing Correction Setup

2.4 Viewing Inertial Information

2.5 Viewing Steering Subsystem Status

2.6 Viewing Crosstrack Information

2.7 Viewing Angle to Wayline Information

2.8 Viewing Speed Information

2.9 Viewing System Information

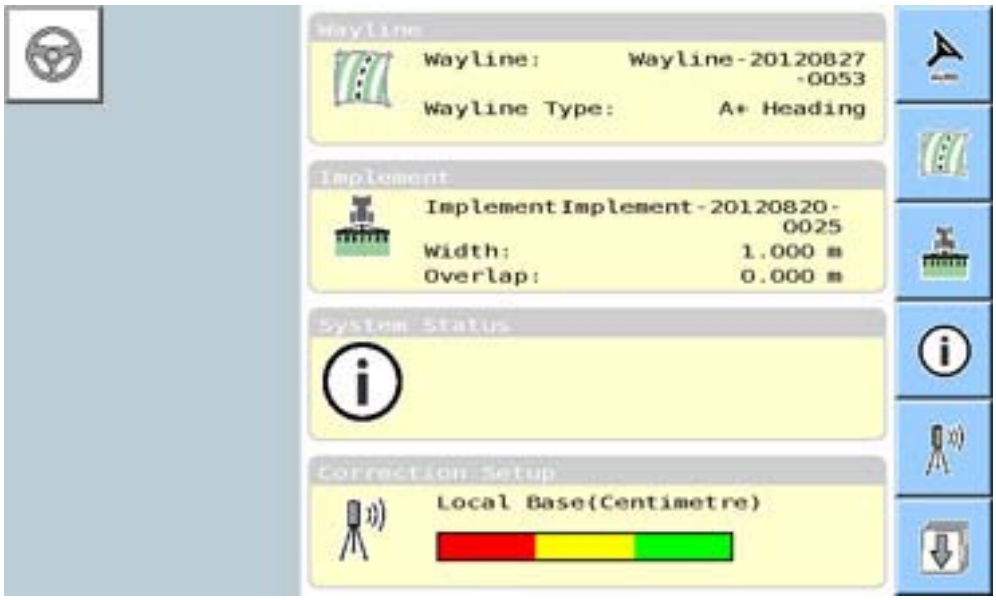
2.1 Checking System Status

Use this procedure to check if there are any requirements which will prevent you from auto steering. For example, you will not be able to use auto steering if you have not selected a correction source, or if the speed you are travelling is too low.

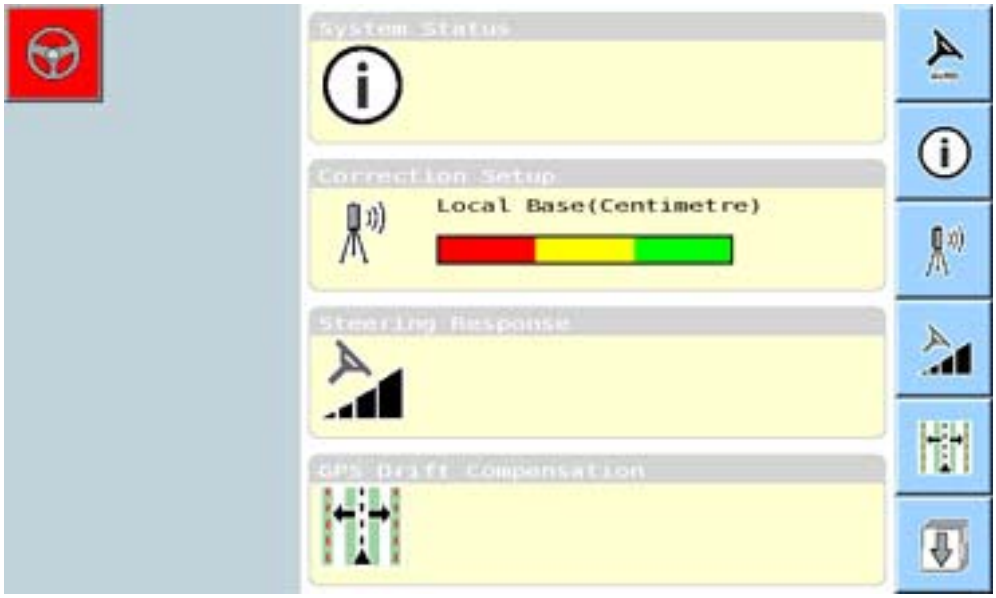
Complete the steps below to check system status.

1. Select .

   If you are using Advanced mode, the Advanced Setup menu is displayed.



If you are using Basic mode, the Basic Setup menu is displayed.



2. Select .

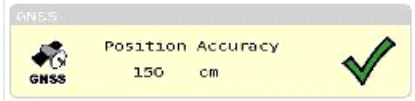
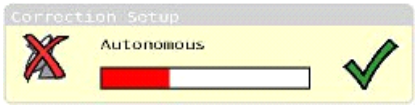
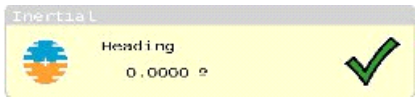
The first screen of the System Status sub-menu is displayed.

Alternatively, you can select the icon at the bottom right-hand corner of the Guidance screen to take you straight to the System Status menu.

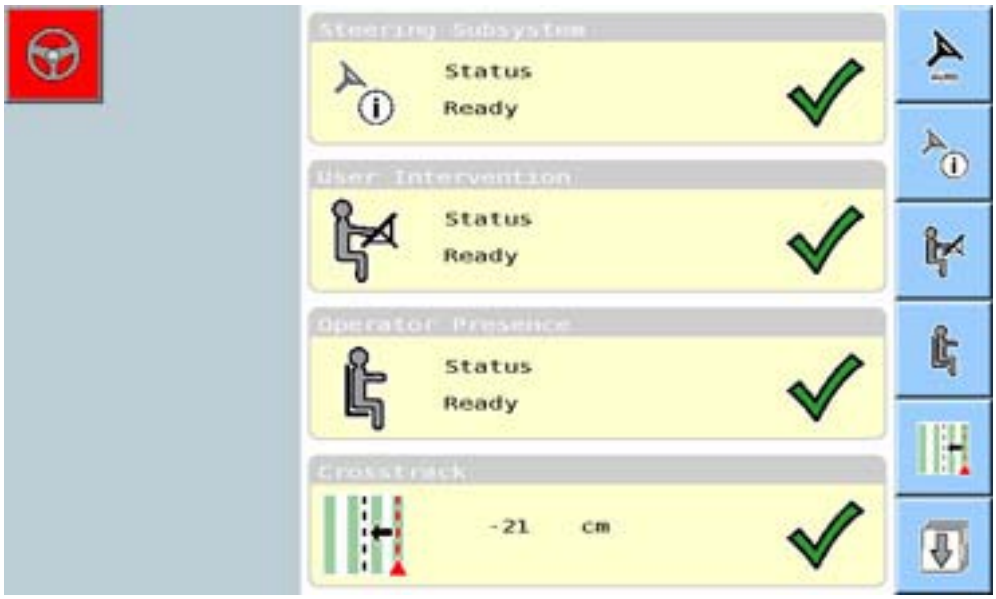
indicates that this item will not prevent you from engaging auto steering.

indicates that this item will prevent you from engaging auto steering.

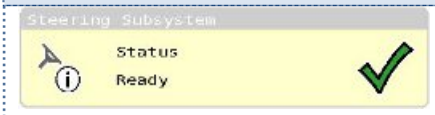
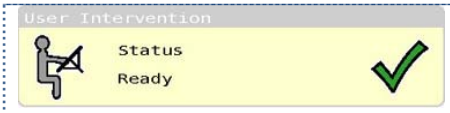
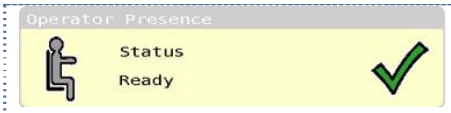
Refer to the table below for a brief explanation of each auto steering requirement.

Auto steering Requirements	Description
	Displays the current steering controller and its status.
	Position Accuracy will vary depending on the correction source that you have set up. In the example to the left, the position accuracy is 150 cm. This means that the positional information being received from the GNSS shows that the current position is accurate to within 150 cm or less.
	Correction Setup displays the correction source that you have set up. 'Autonomous' (see example to the left), indicates that no correction source has been selected. Refer to *2.3 Viewing Correction Setup*.
	Inertials provide information regarding heading, pitch and roll. Refer to *2.4 Viewing Inertial Information*.

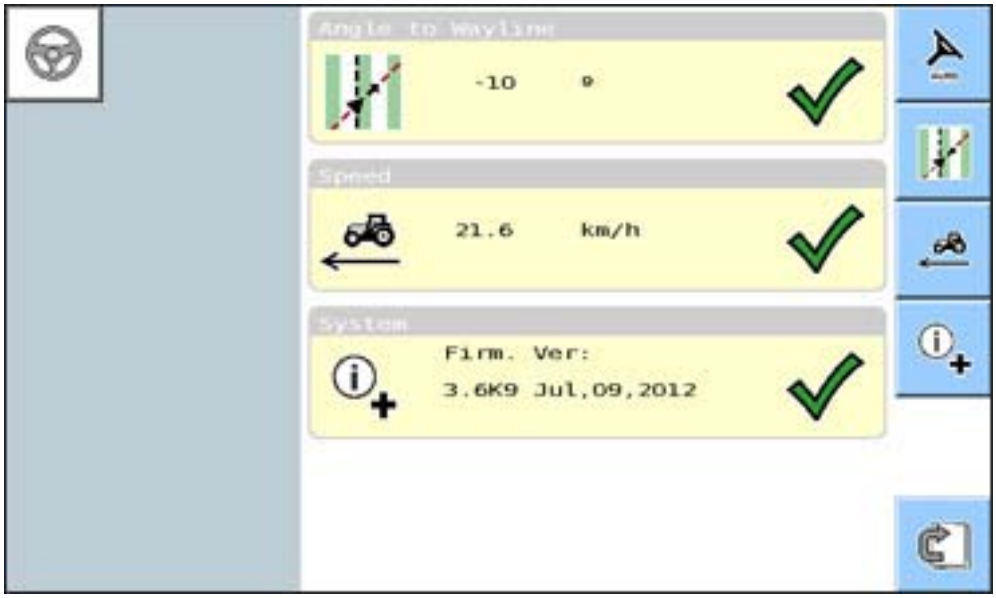
3. Select to display the next four System Status sub-menus.



Refer to the table below for a brief explanation of each steering requirement.

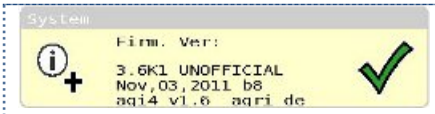
System Parameter	Description
	Steering subsystem displays the status of the steering subsystem. Refer to *2.5 Viewing Steering Subsystem Status*.
	Displays the status of the User Intervention feature
	Displays the status of the Operator Presence feature.
	Crosstrack displays the distance of the vehicle from the wayline. Your vehicle must be within 500 cm (5 meters) of the wayline in order to engage auto steering. Refer to *2.6 Viewing Crosstrack* Information.

4. Select to display the remaining three System Status sub-menus.



Refer to the table below for a brief explanation of each steering requirement.

System Parameter	Description
	Angle to Wayline displays the angle of the vehicle in relation to the wayline. If the angle is greater than 85°, you will not be able to engage auto steering. You must reposition the vehicle. Refer to *2.7 Viewing Angle to Wayline Information*.
	Speed displays the speed the vehicle is currently travelling. The vehicle must be travelling within a specified range (usually 1km to 25km) in order to engage auto steering. Refer to *2.8 Viewing Speed Information*

	System displays information about the firmware version of the installed receiver. Refer to **Error! Reference source not found.**.

5. To return to the Guidance screen without engaging auto steering, press **Esc** twice.

2.2 Viewing GNSS Information

GNSS stands for Global Navigation Satellite System. GNSS is used to pinpoint the location of a user's receiver anywhere in the world.

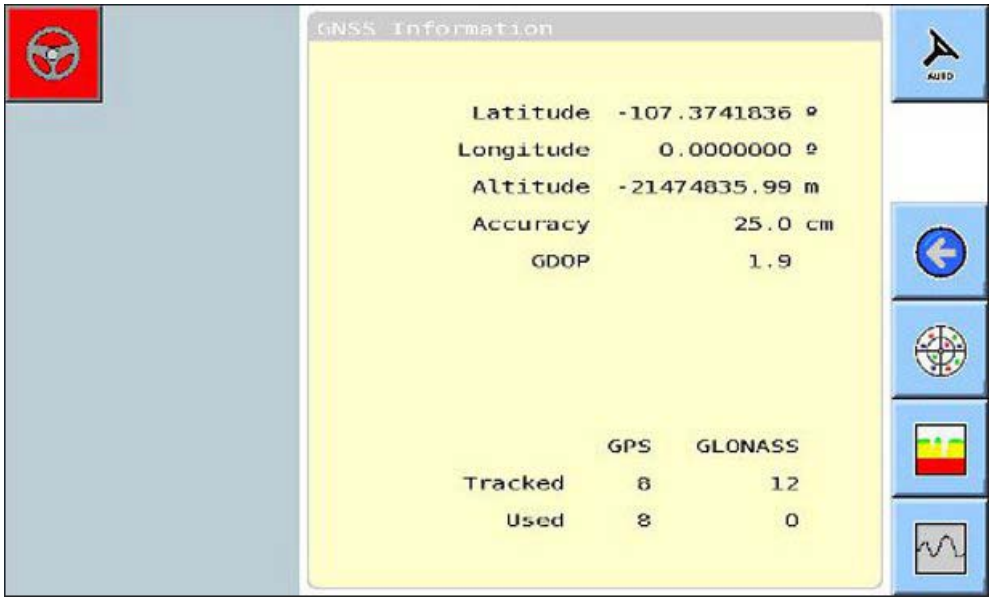
GNSS currently consists of two main systems. These are the:

- GLONASS – Global Navigation Satellite System (Russian GNSS)
- GPS – Global Positioning System (US GNSS)

Complete the steps below to view GNSS information.

1. From the System Status menu, select .

   The GNSS Information screen is displayed.



   This screen displays the:

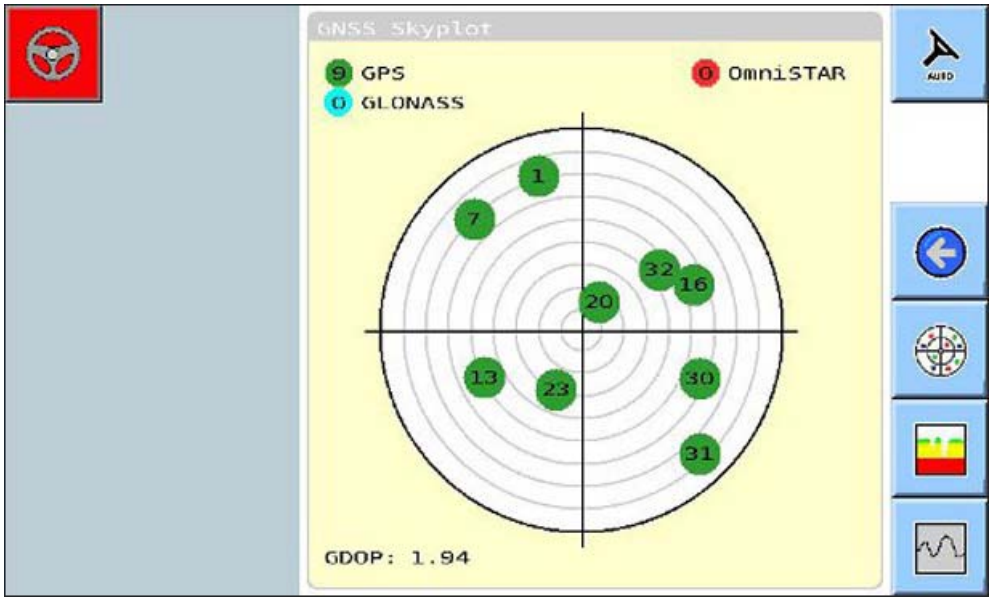
   - latitude, longitude and altitude of the receiver's current position,
   - accuracy of the GNSS signal,
   - GDOP (Geometric Dilution of Precision) accuracy. Note: The lower the GDOP value, the better the accuracy,

- number of GPS and GLONASS satellites that are currently being tracked (i.e. receiving data from the satellite), and
- number of GPS and GLONASS satellites that are currently being used (i.e. using measurements obtained from the satellite to compute the position of the vehicle). The more satellites in use, the more accurate the position reading.

2. To view the position of the GNSS and correction satellites in use, select .

   The GNSS Skyplot screen is displayed.

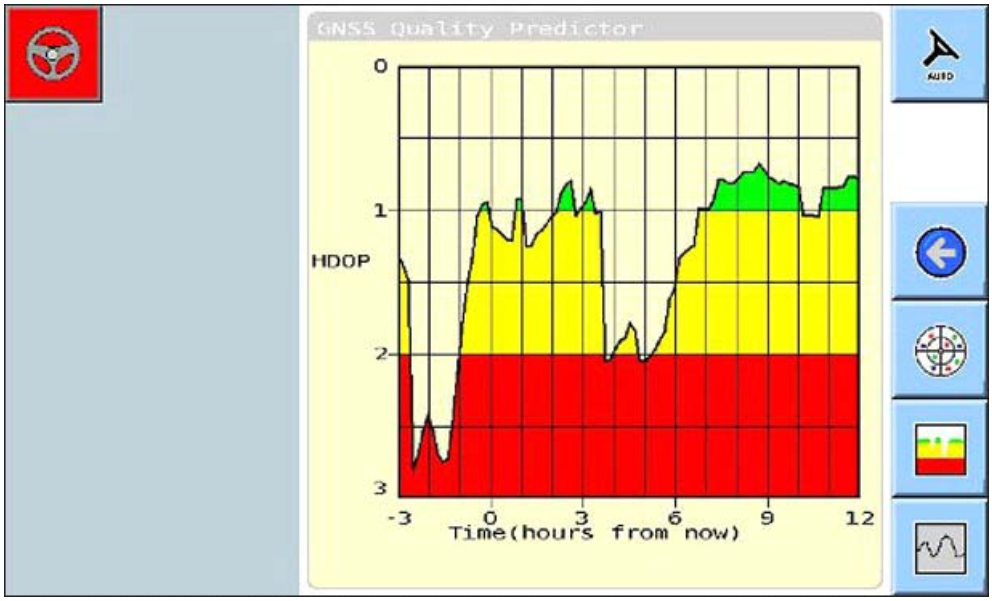
   The example below shows that there are nine GPS satellites but no GLONASS or OmniSTAR satellites in use.



Correction satellites include OmniSTAR, WAAS, EGNOS and MSAS. Apart from OmniSTAR (which is a subscription service), the availability of the other correction satellites will depend on the region where you are located.

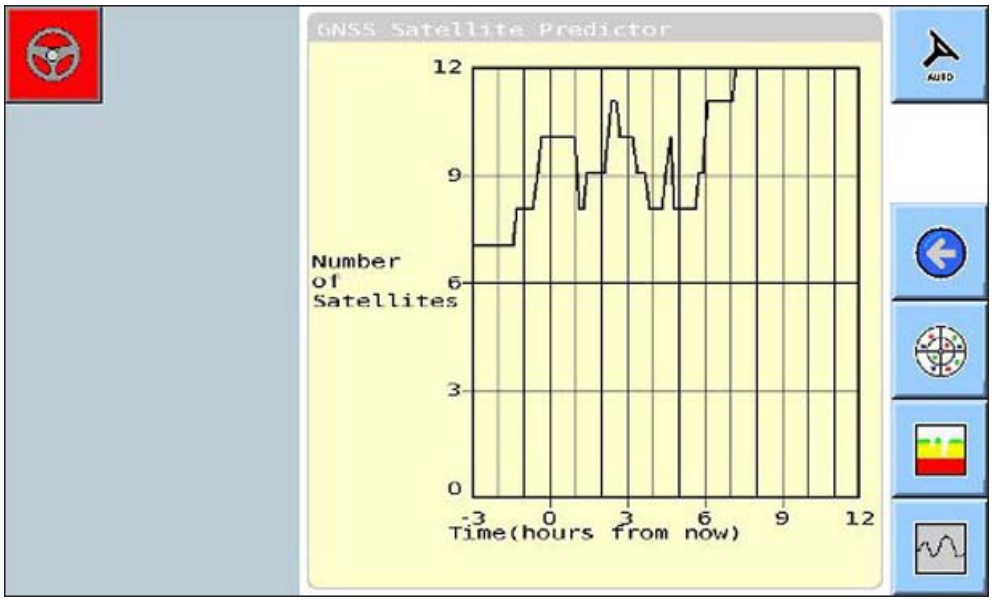
3. To view the predicted forecast of HDOP (Horizontal Dilution of Precision), select .

   The GNSS Quality Predictor screen is displayed.



4. To view the number of satellites that are predicted to be available over a period of time, select .

   The GNSS Satellite Predictor screen is displayed.



5. Select to return to the GNSS Information screen.

2.3 Viewing Correction Setup

Correction sources are enhancements that are used to enhance the quality of the location data gathered from GNSS receivers.

The correction sources available to the AGI ISO VT are:

- Local Base (RTK)
- Cellular Network (RTK)
- OmniSTAR, and
- depending on the location, one of the Satellite-Based Augmentation System (SBAS) modes (EGNOS, WAAS and MSAS) may be available.

Complete the steps below to view a correction setup in the following example OmniSTAR is being used as the correction source.

1. From the System Status menu, select the **Correction Setup** button.

Note that the appearance of the **Correction Setup** button will vary depending on the correction source currently selected. If no correction source is selected (i.e. the system is running in Autonomous mode), the following button is displayed: .
If a correction source is selected, the correction source is identified on the button, e.g:

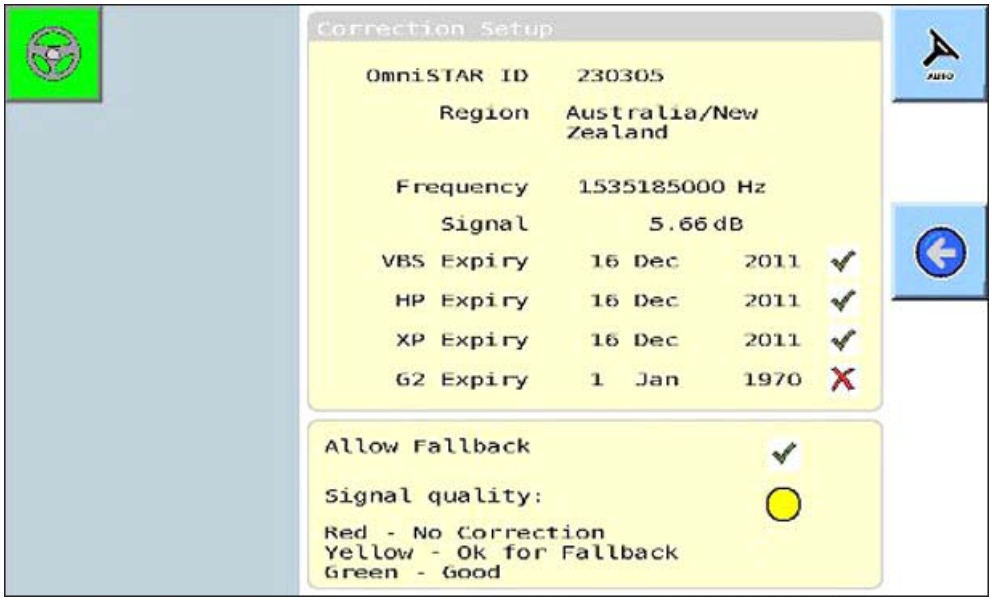
If a correction source has been set up, the Correction Setup screen will display the:

- Correction source ID
- Region where you are located
- Frequency and signal strength

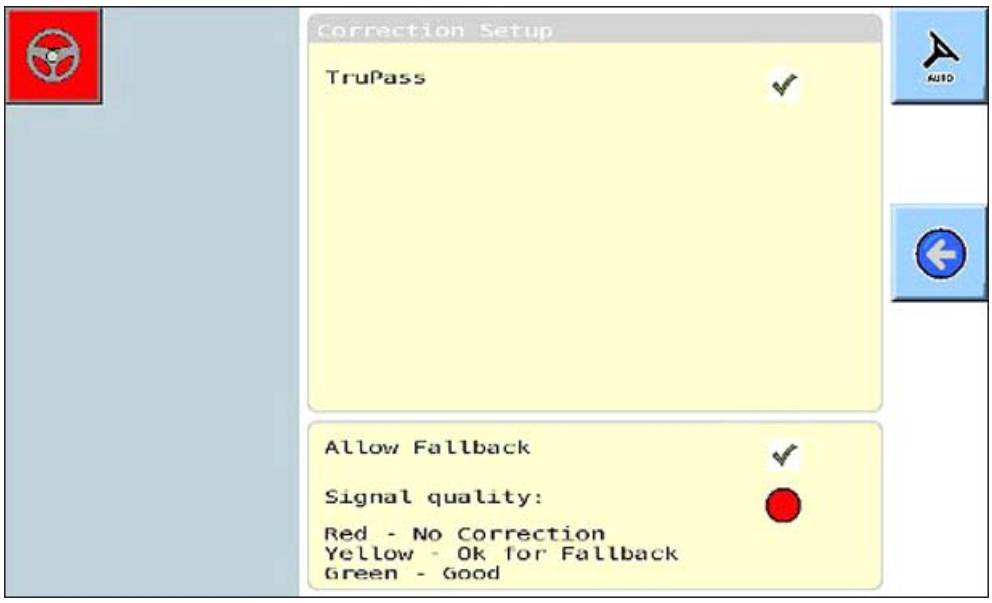
- Which correction source subscriptions are active or expired. '1 Jan 1970' indicates that there is no current subscription for that correction source.
- If fallback is enabled

Fallback is a feature which enables you to continue auto steering even if the position accuracy exceeds the minimum allowed for the selected correction source.

- Signal quality



If no correction source has been selected, the following Correction Setup screen is displayed.



TruPass is a feature which enables more accurate reading of GNSS signals when in Autonomous mode.

2. Select to return to the previous screen.

2.4 Viewing Inertial Information

Inertial information refers to the direction and orientation of the vehicle.

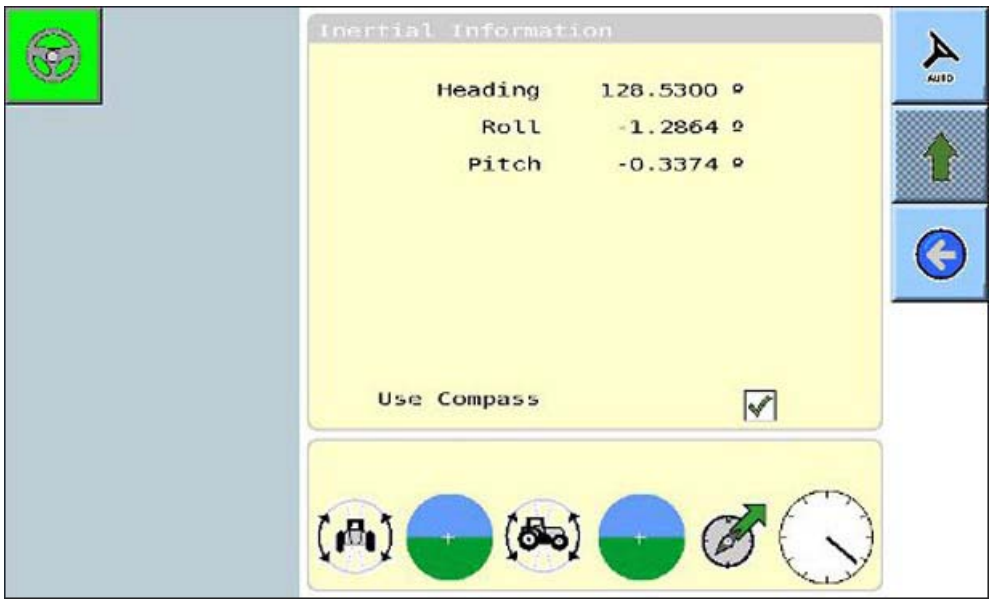
The following three items comprise the inertial information:

- Heading: This refers to the direction the front of the vehicle is currently pointing.
- Roll: This refers to the side to side tilting movement of the vehicle.
- Pitch: This refers to the forward and backward tilting movement of the vehicle.

Complete the steps below to view inertial information.

1. From the System Status menu, select .

   The Inertial Information screen displays the Heading, Roll and Pitch degrees.



Occasionally, on start up, the receiver may detect that the vehicle is travelling forward when it is really travelling in reverse, and vice versa.

If the compass has been selected, you may need to recalibrate the compass.

If the compass is not selected, the Direction Reset ( ) button can be used to correct the wrong direction detection.

For information regarding the **Use Compass** function and the Direction Reset button, refer to *3.1 Enabling / Disabling the Compass*.

2. Press to return to the previous screen.

2.5 Viewing Steering Subsystem Status

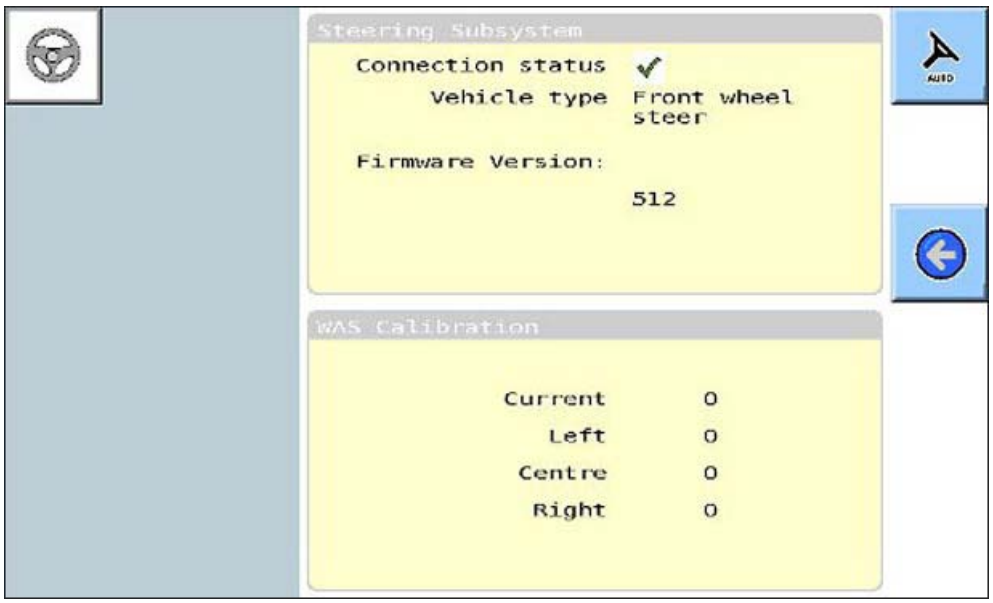
Complete the steps below to view the steering subsystem status.

1. From the System Status menu, select .

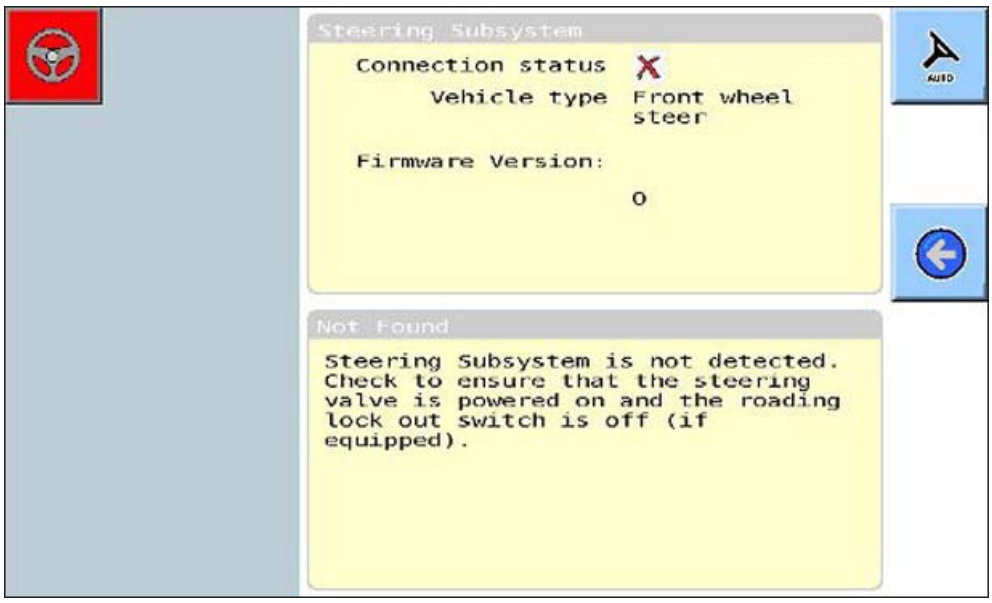
   The Steering Subsystem screen displays the connection status, vehicle type and firmware version.

   If the wheel angle sensor is calibrated, these values will be displayed in the WAS Calibration section.

   The example below shows that the steering subsystem is connected.



The example below shows that the steering subsystem is not connected.



2. If the steering subsystem is not connected, follow the instructions on your screen. Refer to the steering subsystem reference manual, if required.

3. Select to return to the previous screen.

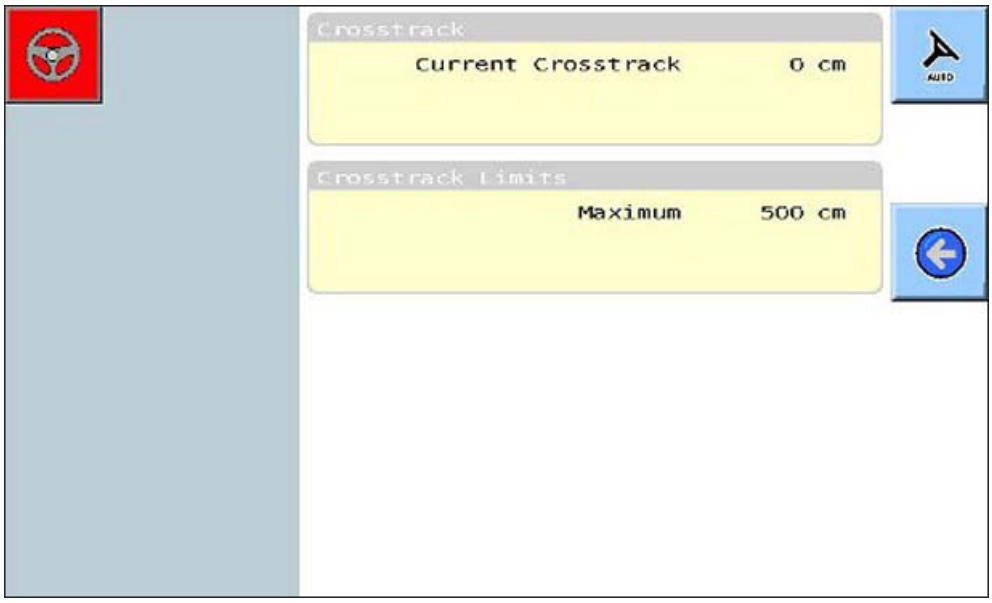
2.6 Viewing Crosstrack Information

The Crosstrack screen displays the current position of the vehicle in relation to the wayline, and the maximum distance from the wayline allowable.

Complete the steps below to view crosstrack information.

1. From the System Status menu, select .

   The Crosstrack screen is displayed.



   - The example above shows that the Current Crosstrack is ‘0 cm’. This indicates that the vehicle is positioned exactly on the wayline.
   - A positive value (e.g. 300 cm) indicates that the vehicle is positioned to the right of the wayline.
   - A negative value (e.g. -300 cm) indicates that the vehicle is positioned to the left of the wayline.
   - The maximum crosstrack limit is 500 cm (5 meters). You will not be able to engage auto steering if you are more than 500 cm from the crosstrack.

2. Select to return to the previous screen.

2.7 Viewing Angle to Wayline Information

Angle to Wayline refers to the angle of the vehicle in relation to the wayline.

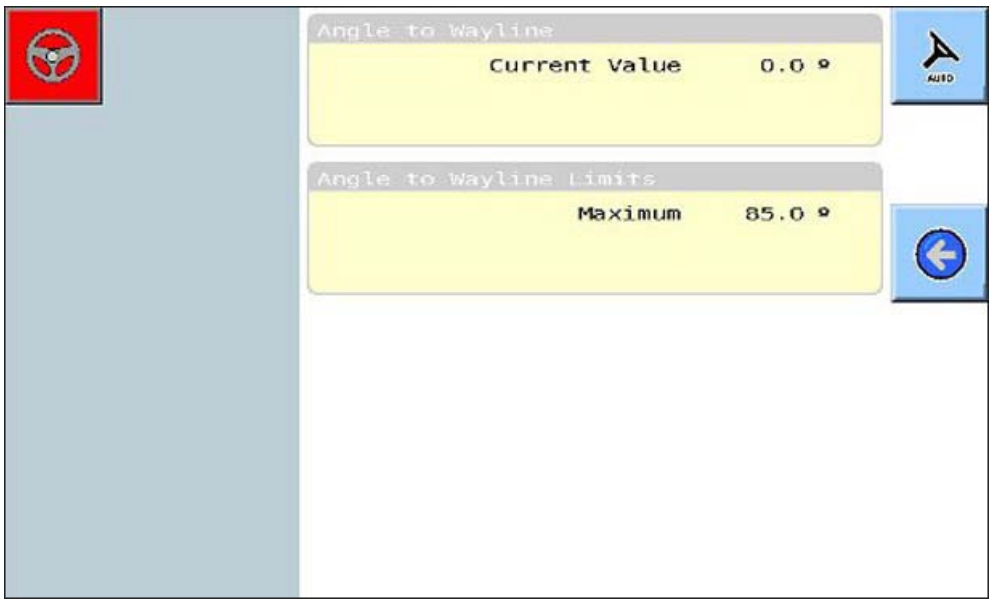
If the angle is too great, i.e. 85° or more, you will not be able to engage auto steering. This is because, if the angle is too close to 90°, the system will be unable to determine if you intend to turn left or right onto the wayline.

Complete the steps below to view the angle to wayline information.

1. From the System Status menu, select .

   The Angle to Wayline screen is displayed.

   The example below shows that the current Angle to Wayline value is ‘0.0°’. This means that the vehicle is positioned exactly parallel to the wayline.



2. Select to return to the previous screen.

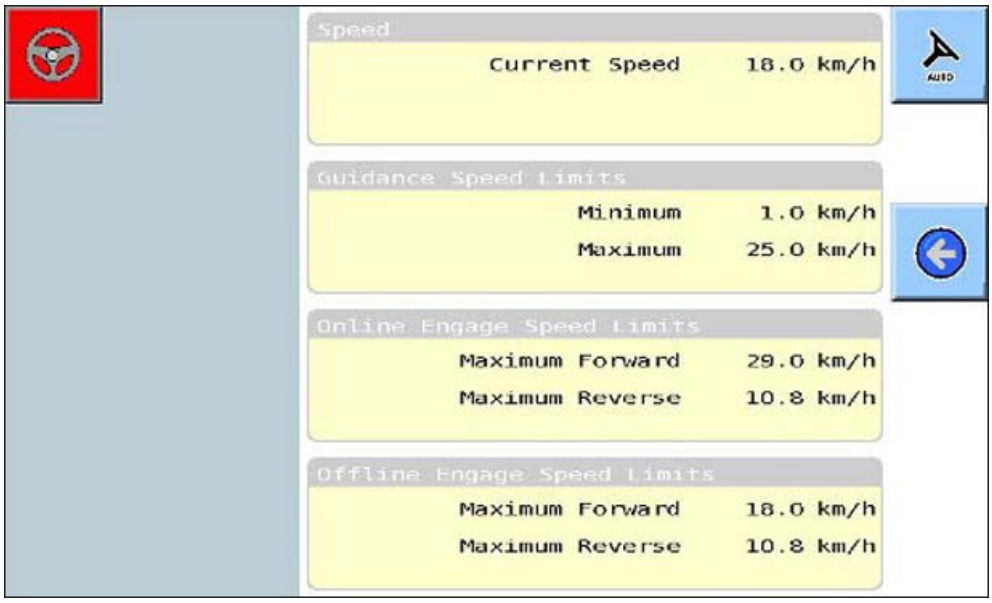
2.8 Viewing Speed Information

The Speed screen displays the current speed the vehicle is travelling at, as well as the maximum and minimum speeds allowable for the system to operate.

Complete the steps below to view the speed information.

1. From the System Status menu, select .

   The Speed screen is displayed.



- Current Speed refers to the speed the vehicle is currently travelling.
- Guidance Speed Limits refers to the minimum and maximum speed limit required to engage auto steering.
- Online Engage Speed Limits refers to the maximum forward and reverse speed limits allowable when travelling on the wayline.
- Offline Engage Speed Limits refers to the maximum forward and reverse speed limits allowable when travelling off the wayline and trying to engage auto steering.

Depending on the vehicle, the maximum Online Engage Speed Limit may be greater than the maximum Guidance Speed Limit. If this is the case, the Guidance Speed Limit has priority.

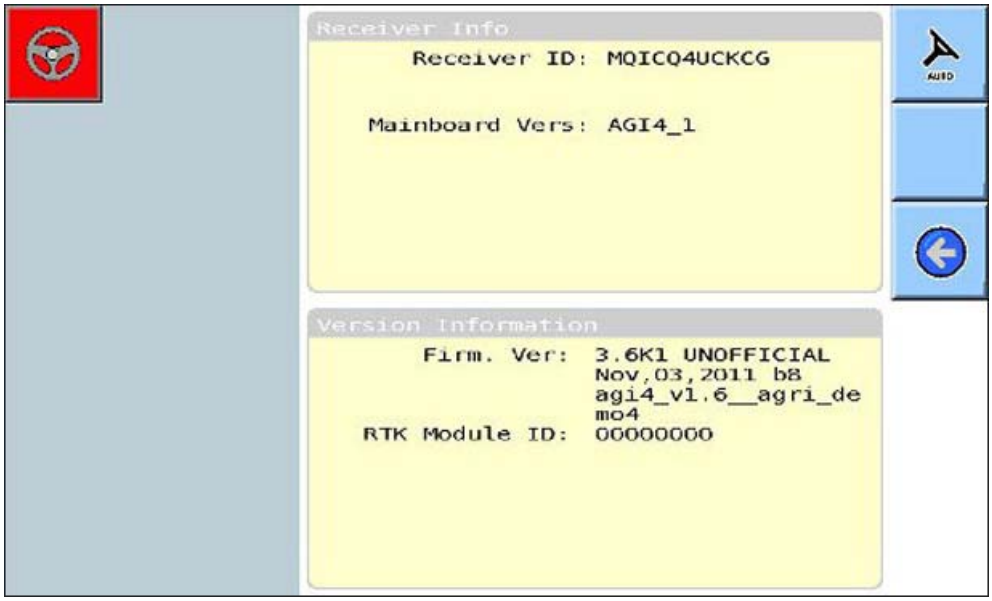
2. Select to return to the previous screen.

2.9 Viewing System Information

Complete the steps below to view system information.

1. From the System Status menu, select .

   The Receiver Info screen is displayed.



   - The Receiver ID displays the serial number of the receiver.
   - The Mainboard Vers displays the version of the receiver hardware.
   - Firm. Ver displays the firmware version.
   - RTK Module ID displays the serial number of the RTK module (if one is fitted). RTK module ID will always be 00000000.

2. Select to return to the previous screen.

Chapter 3 – Calibrations & Configurations

This chapter describes how to perform the initial calibrations and configurations required before you start using the system.

In this chapter

3.1 Enabling / Disabling the Compass

3.2 Calibrating the Compass

3.3 Calibrating the WAS

3.4 Calibrating the Mounting Bias

3.5 Configuring NMEA Output Settings

3.6 Configuring Alarms

3.7 Configuring Delay Time

3.8 Receiver Configuration

3.1 Enabling / Disabling the Compass

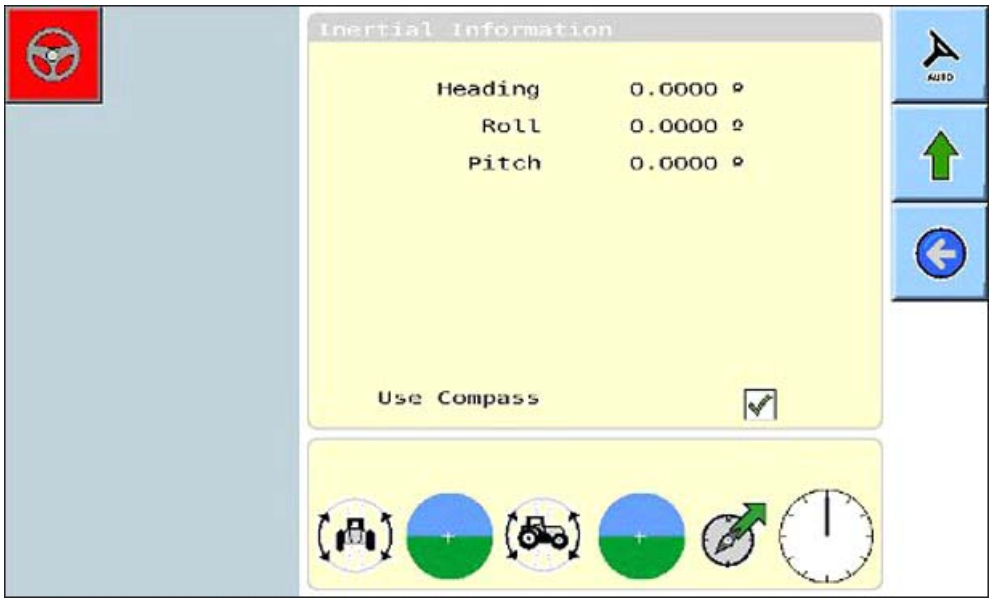
The compass, when enabled and calibrated, allows the system to detect automatically whether the vehicle is travelling forward or in reverse when you start up your vehicle. For information about calibrating the compass, refer to *3.2 Calibrating the Compass*.

When the compass is disabled the direction the vehicle is travelling (forward or reverse) needs to be established when the vehicle is started up. Once you are driving, however, the system is able to detect changes in direction automatically without the use of the compass, or the Direction Reset ( ) button

Complete the steps below to enable or disable the compass.

1. From the System Status menu, select .

   The Inertial Information screen is displayed.

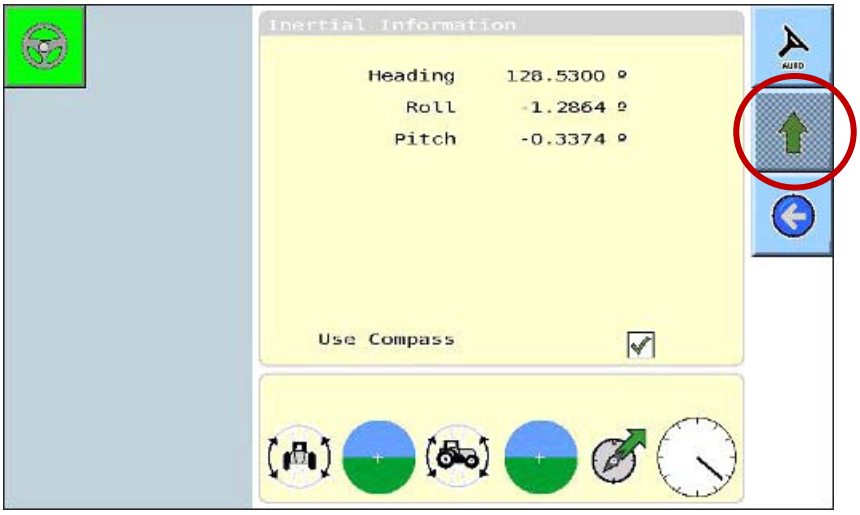


2. To enable or disable the compass, select or deselect the **Use Compass** field.

   If the compass is disabled, the Direction Reset ( ) button will be displayed on the Guidance screen.

3. If you need to correct for wrong direction detection, select .

   This button is disabled when auto steering is engaged, as shown in the example below:



4. Press to return to the previous screen.

3.2 Calibrating the Compass

If the compass is enabled, it must be correctly calibrated in relation to the position of receiver. This enables the receiver to detect whether the vehicle is moving backward or forward when you start the vehicle.

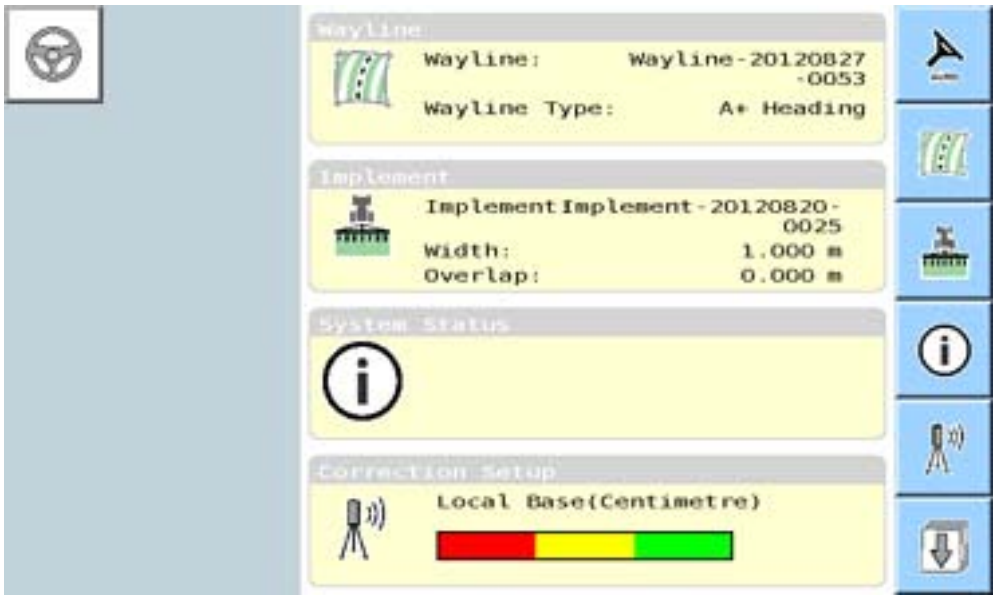
This procedure must be performed the first time you start using the AGI ISO VT, and whenever the receiver is moved, e.g. if you change the position of the receiver on the vehicle, or you move the receiver to another vehicle.

You can only calibrate the compass in Advanced mode, and when the compass is enabled.

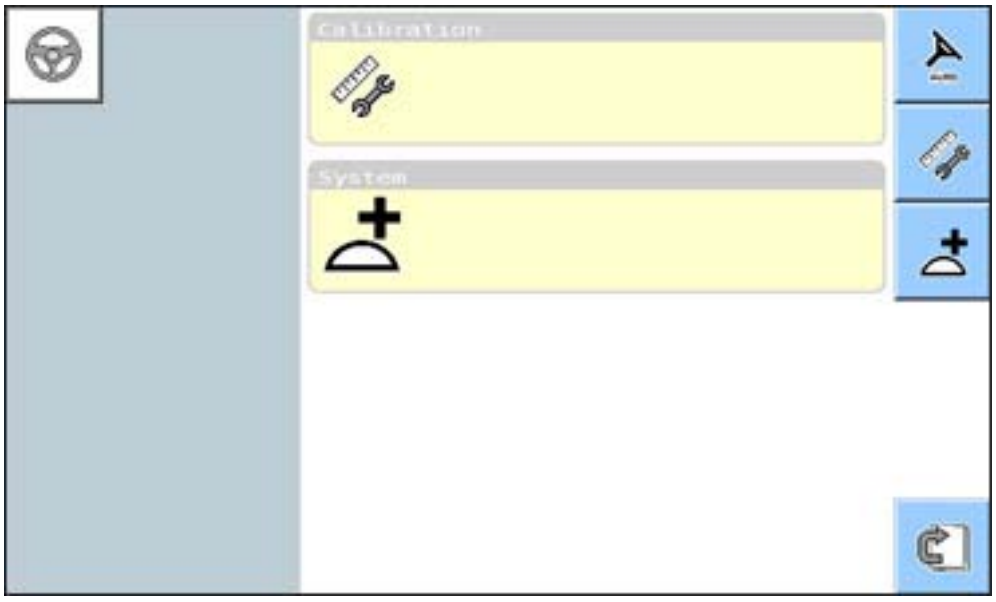
Complete the steps below to calibrate the compass.

1. Select .

   The first screen of the Setup menu is displayed.



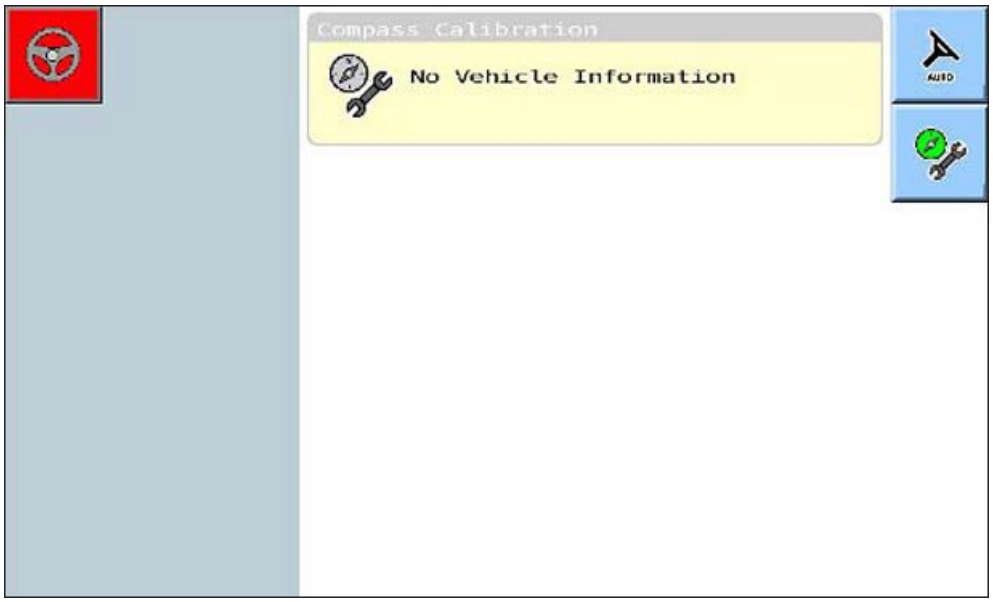
2. Select twice to display the Calibration sub-menu.



3 Select .

The Calibration screen is displayed.
If the compass has never been calibrated, the message 'No Calibration Completed' is displayed, as shown in the example below.

If the steering subsystem is not connected, the message ‘No Vehicle Information’ is displayed, as shown in the example below.

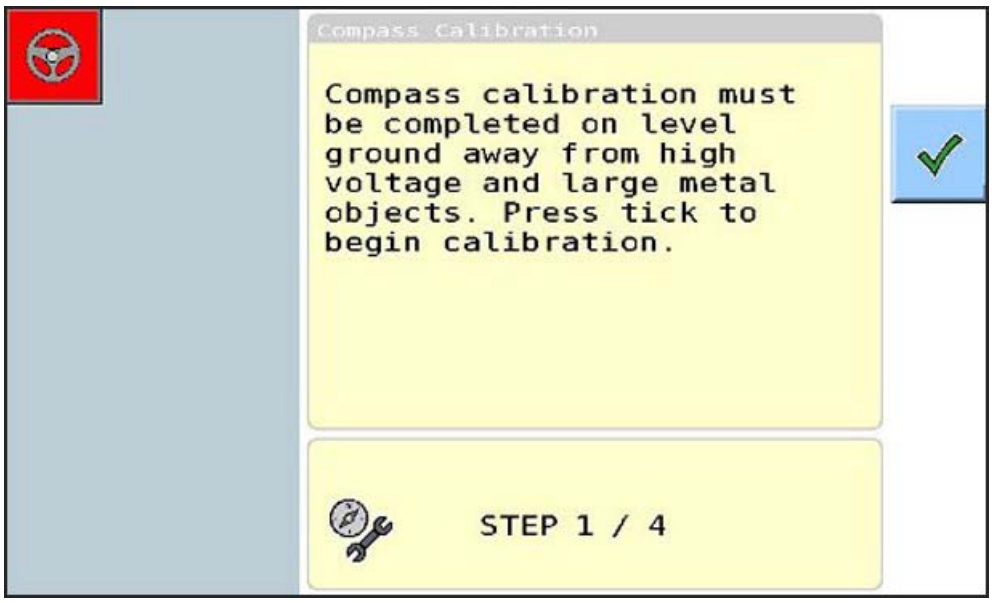


In this case, ensure the steering subsystem is connected before proceeding. Refer to your steering subsystem reference guide, if required.

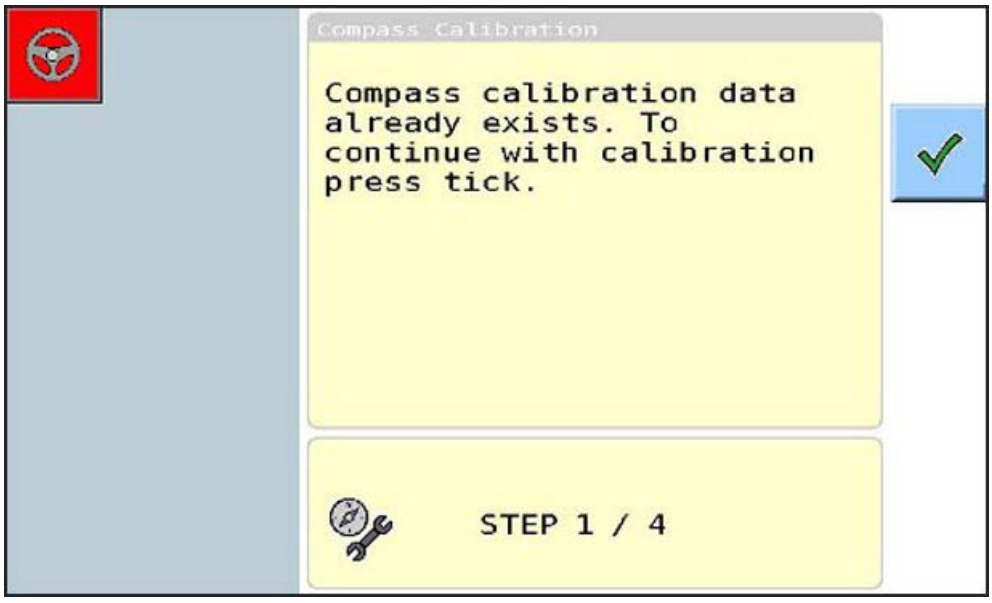
4. Select .

   Step 1 of the Compass Calibration wizard is displayed.

If this is the first time the compass has been calibrated, the following message is displayed.

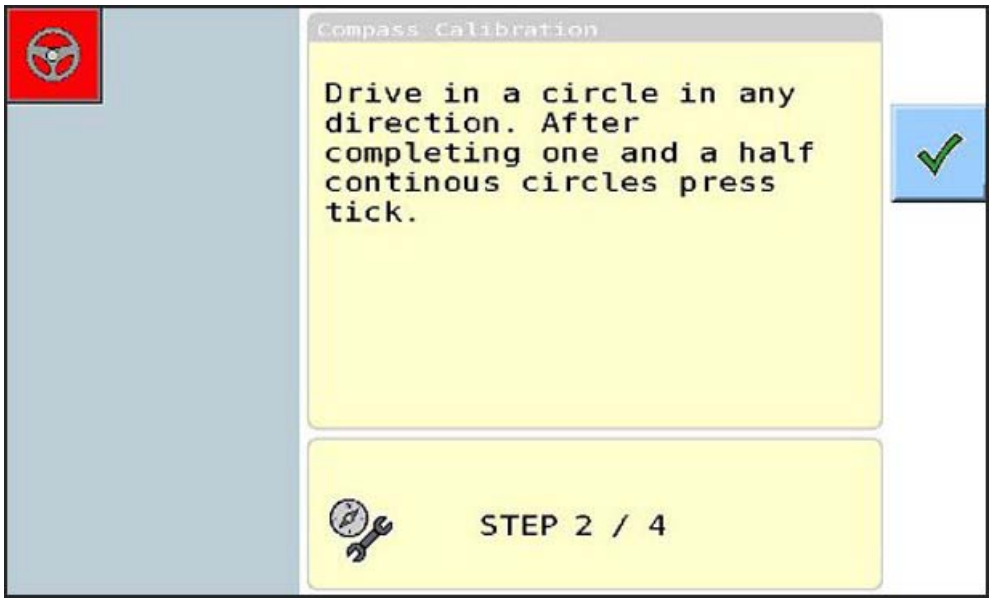


If compass calibration already exists, the following message is displayed.



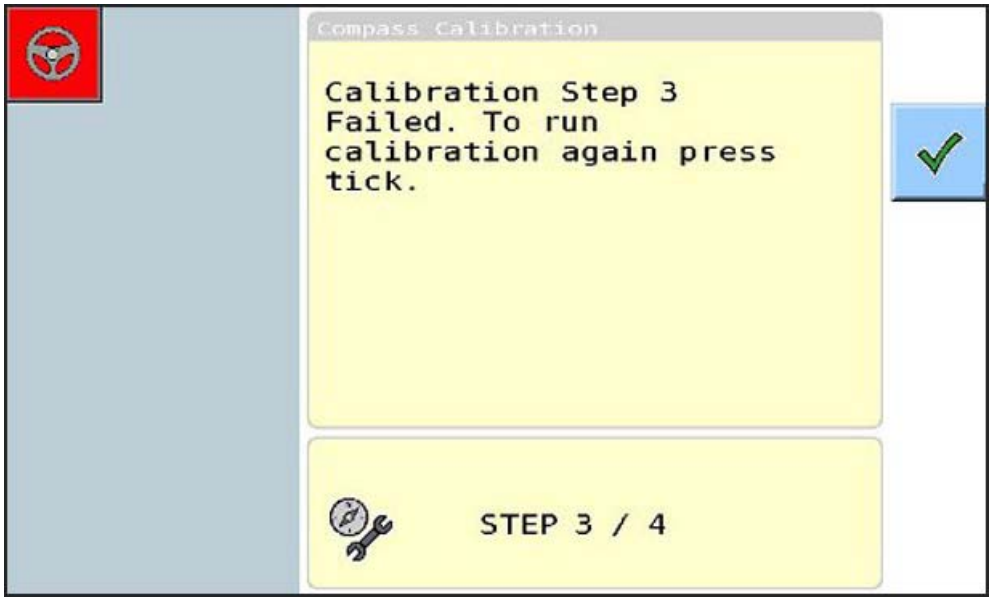
5. Follow the instruction on the screen, then select .

   Step 2 of the Compass Calibration wizard is displayed.

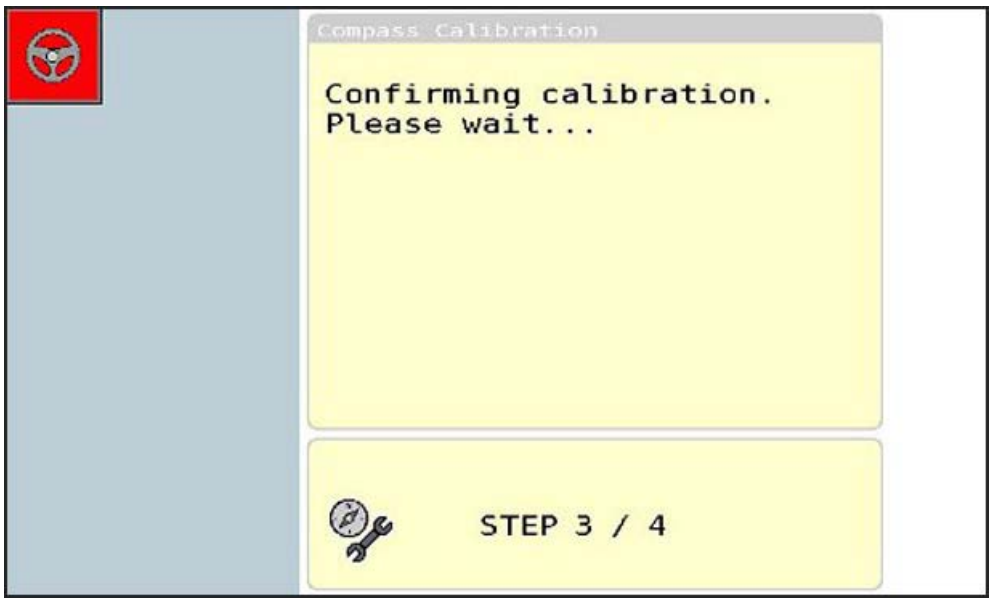


6. Follow the instructions on the screen, then select .

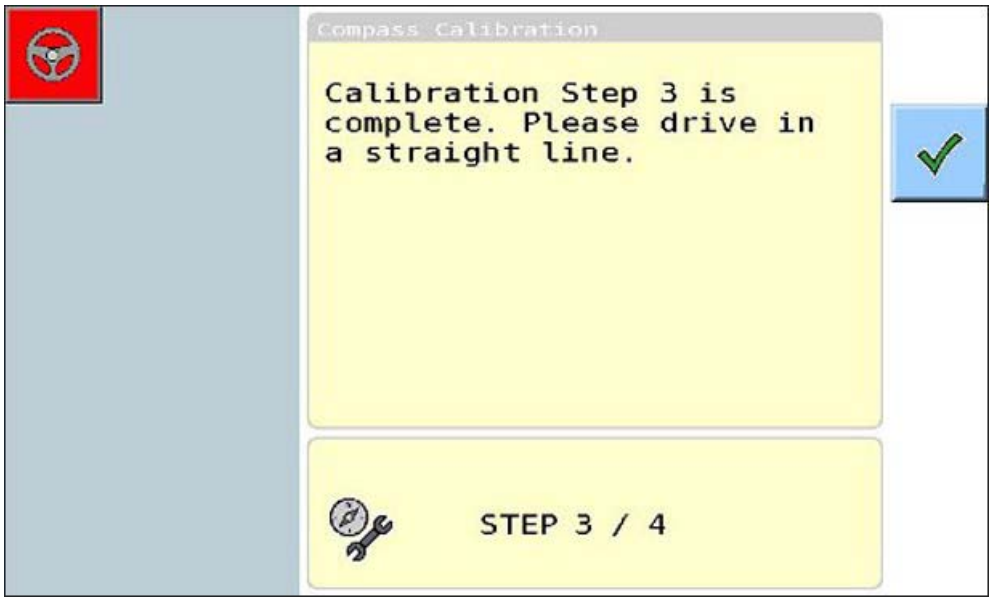
   If calibration fails, Step 3 of the Compass Calibration wizard will display the following message. In this case, select and repeat this procedure.



If calibration is successful, Step 3 of the Compass Calibration wizard will display the following message.

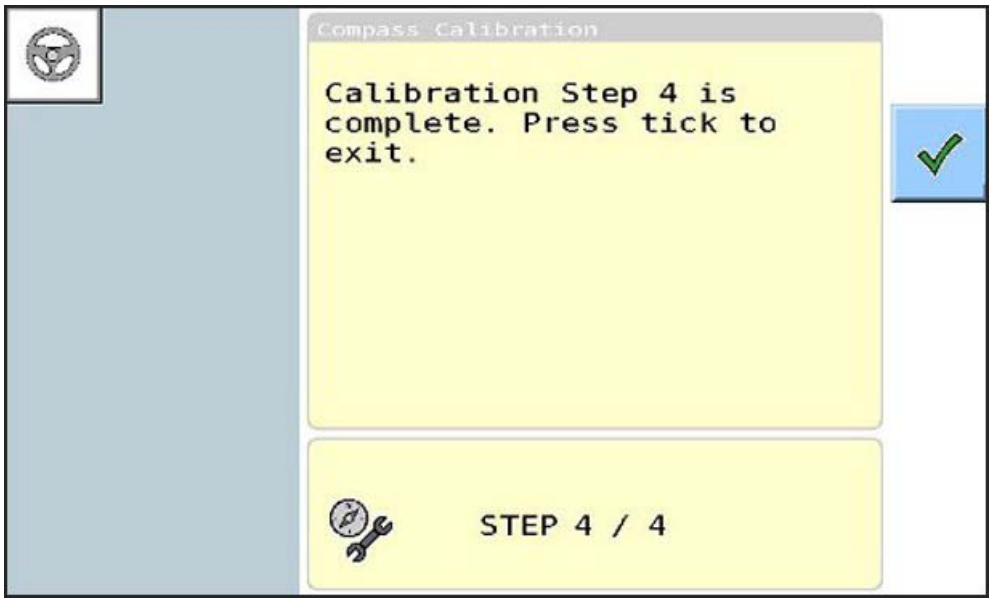


Next the following screen is displayed.

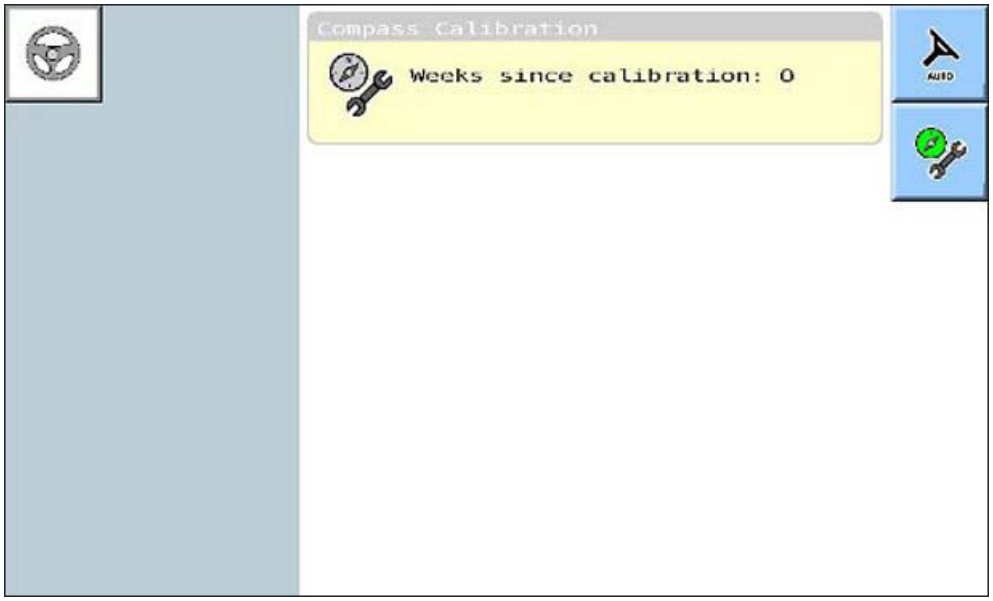


7. Follow the instructions on the screen, and select .

   Step 4 of the Compass Calibration wizard is displayed.



8. Select to return to Compass Calibration sub-menu.



3.3 Calibrating the WAS

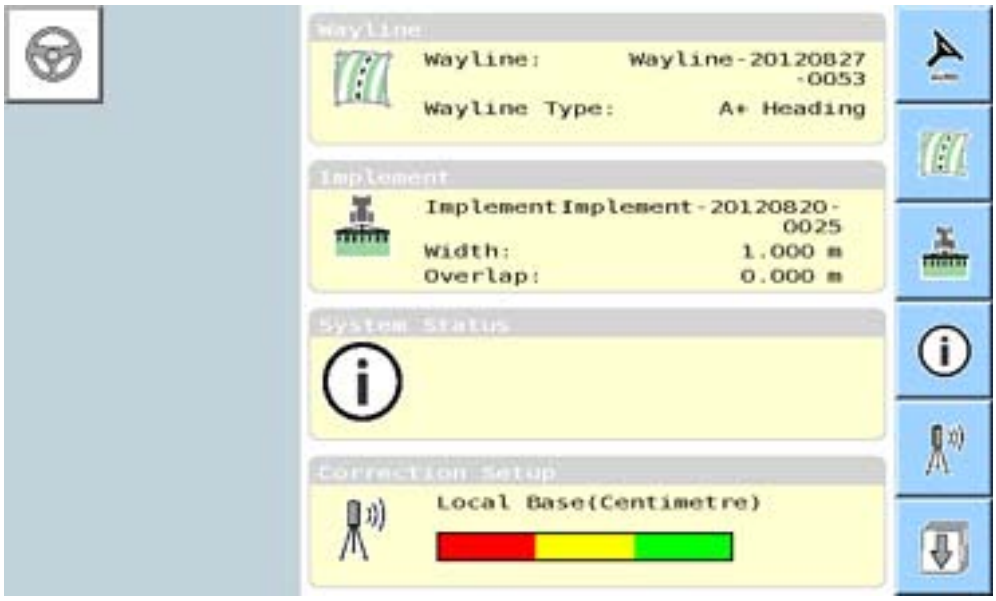
WAS stands for Wheel Angle Sensor. The WAS needs to be calibrated before you start using the system. In some cases, it may need to be recalibrated if steering becomes inaccurate.

This function is available in Advanced mode only.

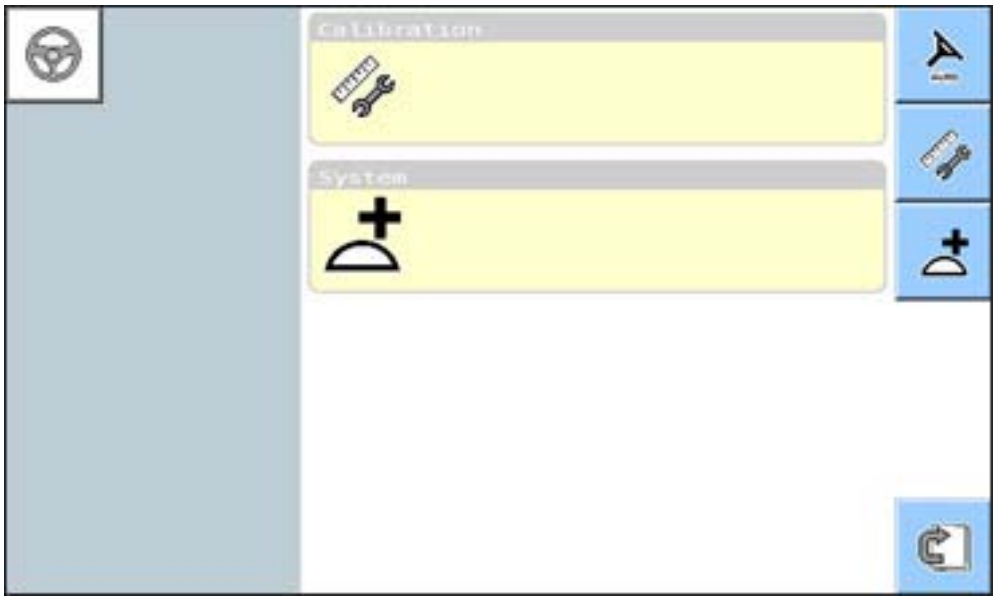
Complete the steps below to calibrate the WAS.

1. Select .

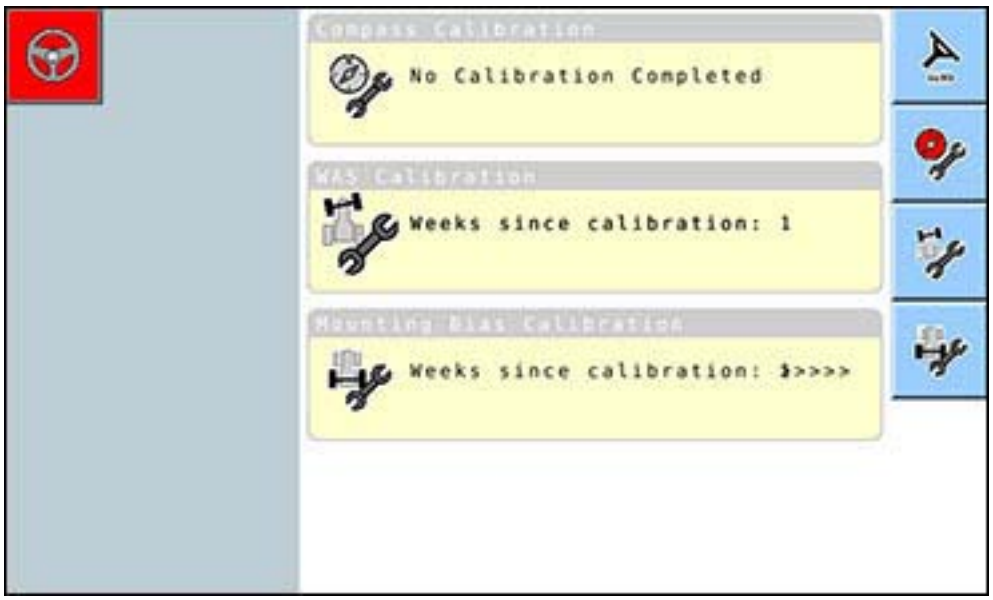
   The first screen of the Setup menu is displayed.



2. Select twice to display the Calibration sub-menu.

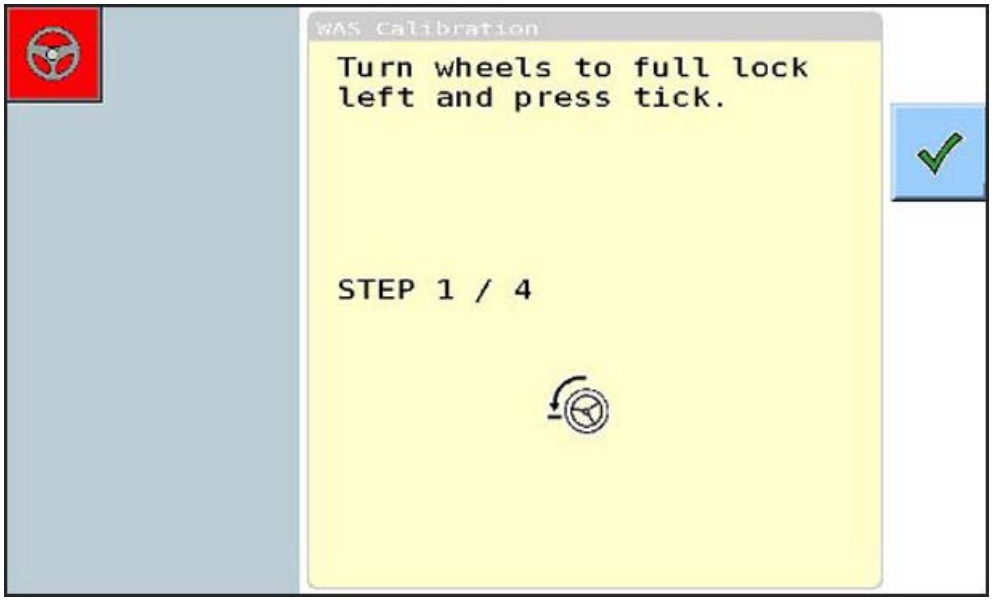


3. Select to display the Calibrations sub-menu.



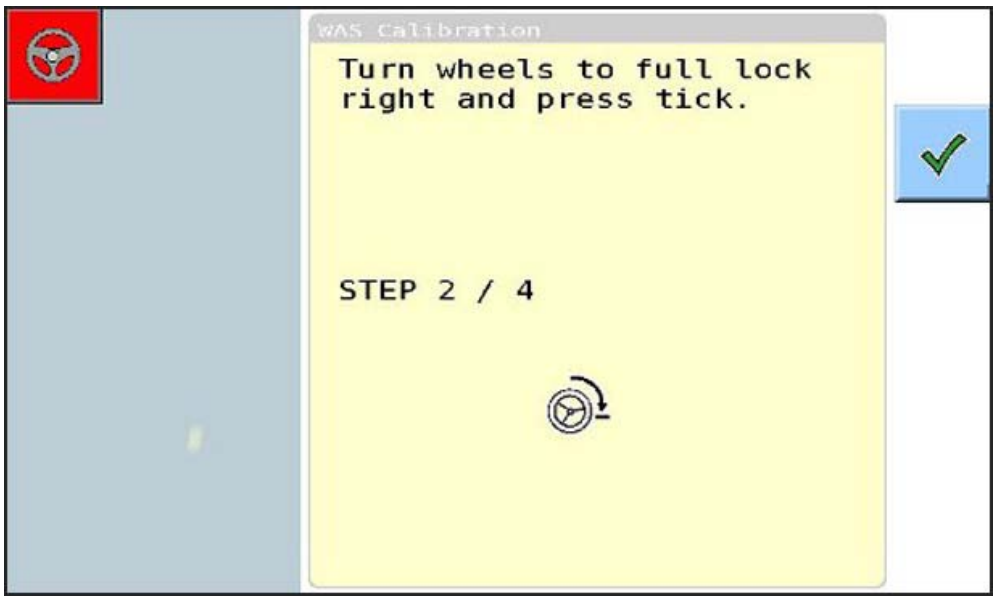
4. Select .

   Step 1 of the WAS Calibration wizard is displayed.



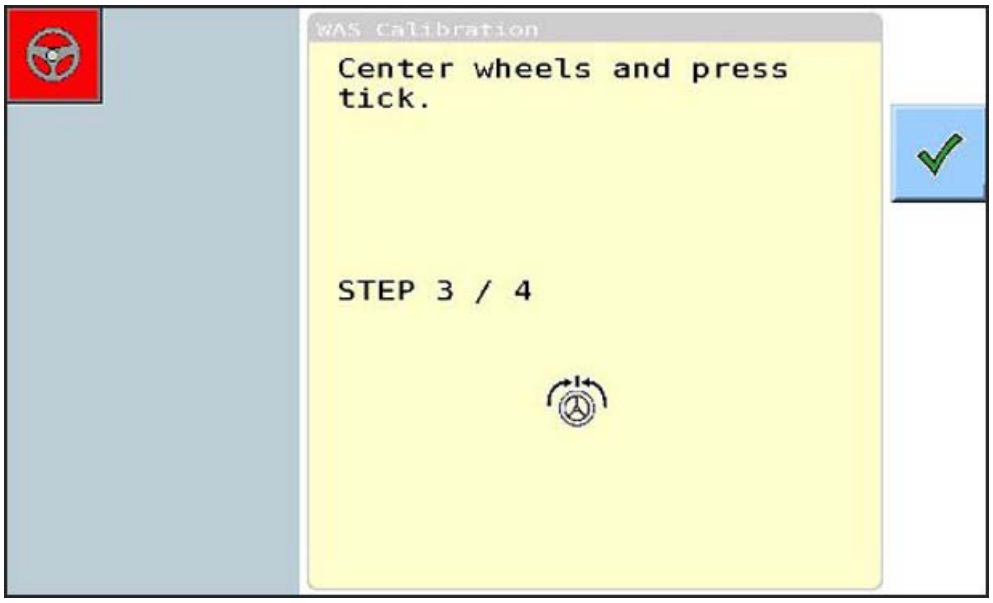
5. Follow the instructions on the screen, then select .

   Step 2 of the WAS Calibration wizard is displayed.



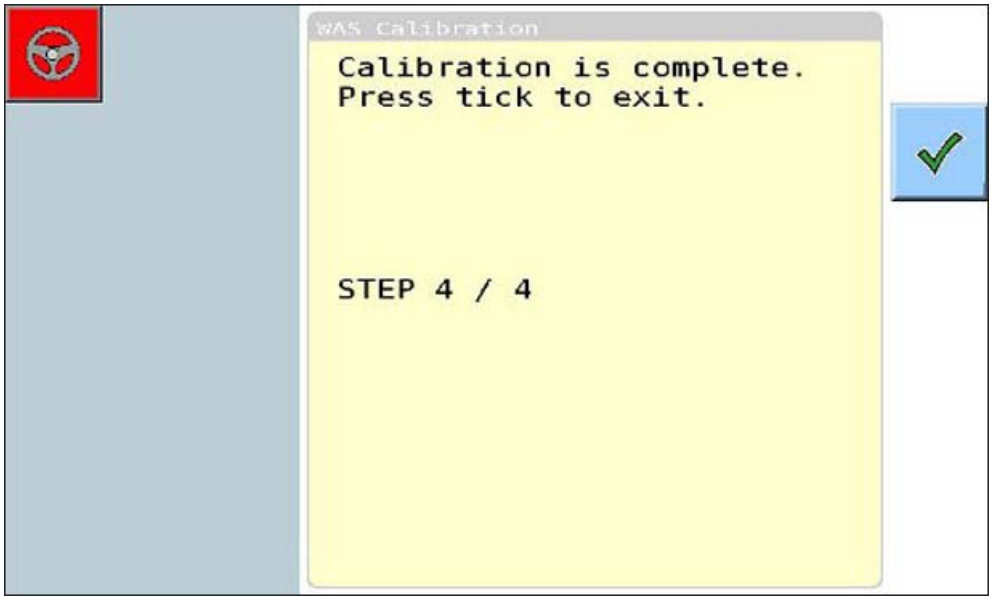
6. Follow the instructions on the screen, then select .

   Step 3 of the WAS Calibration wizard is displayed.



7. Follow the instructions on the screen, then select .

   When calibration is complete, the following message is displayed.

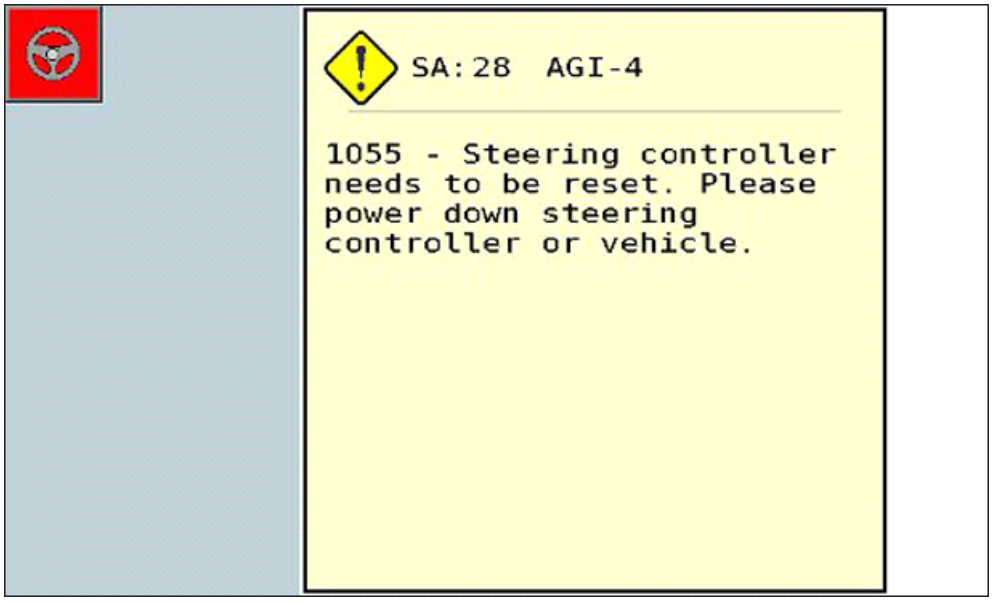


8. Select .

   The WAS data is saved to the AGI receiver and the steering subsystem.

If the following message is displayed, follow the instructions in the message.

IMPORTANT NOTE: Do not turn off the AGI receiver, only the steering subsystem.



3.4 Calibrating the Mounting Bias

If the mounting of the receiver is not exactly level, this calibration will adjust for the actual position.

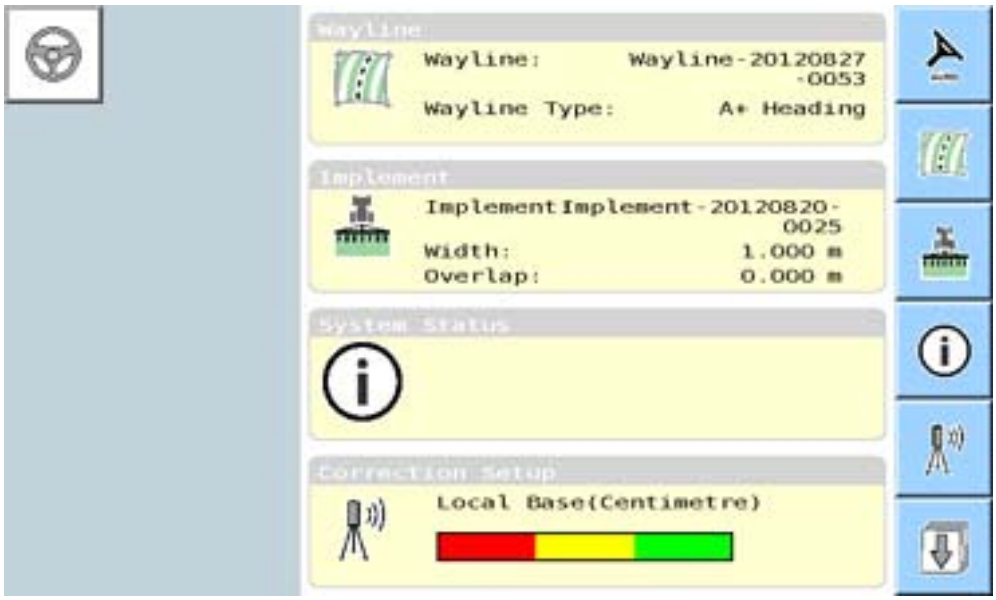
This procedure must be performed the first time you start using the AGI ISO VT, and whenever the receiver is moved, e.g. if you change the position of the receiver on the vehicle, or you move the receiver to another vehicle.

This function is available in Advanced mode only. The Mounting Bias calibration is only carried out if Local Base or Omnistar corrections have been configured.

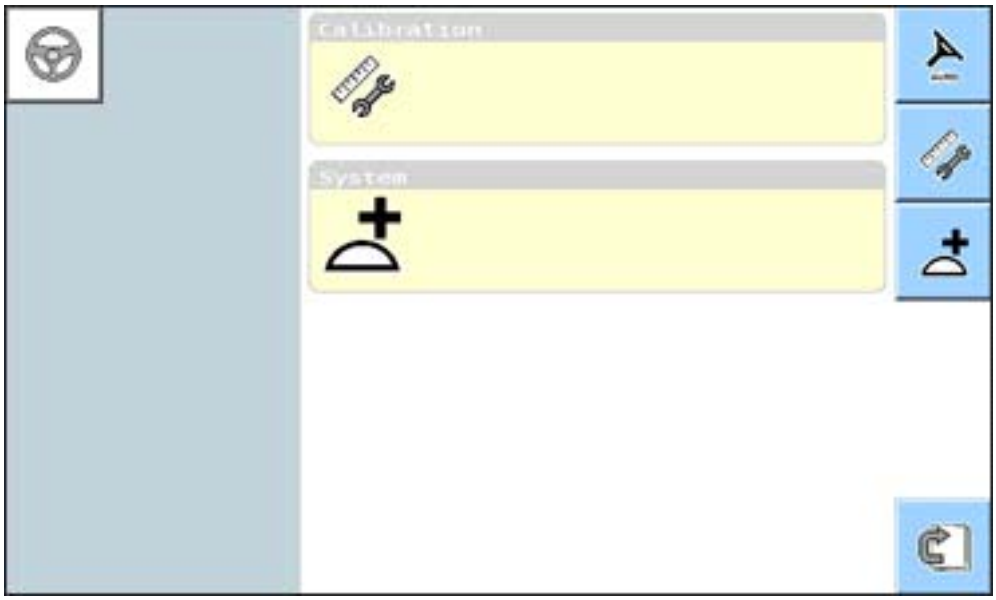
Complete the steps below to perform Mounting Bias Calibration.

1. Select

   The first screen of the Setup menu is displayed.



2. Select twice to display the Calibration sub-menu.

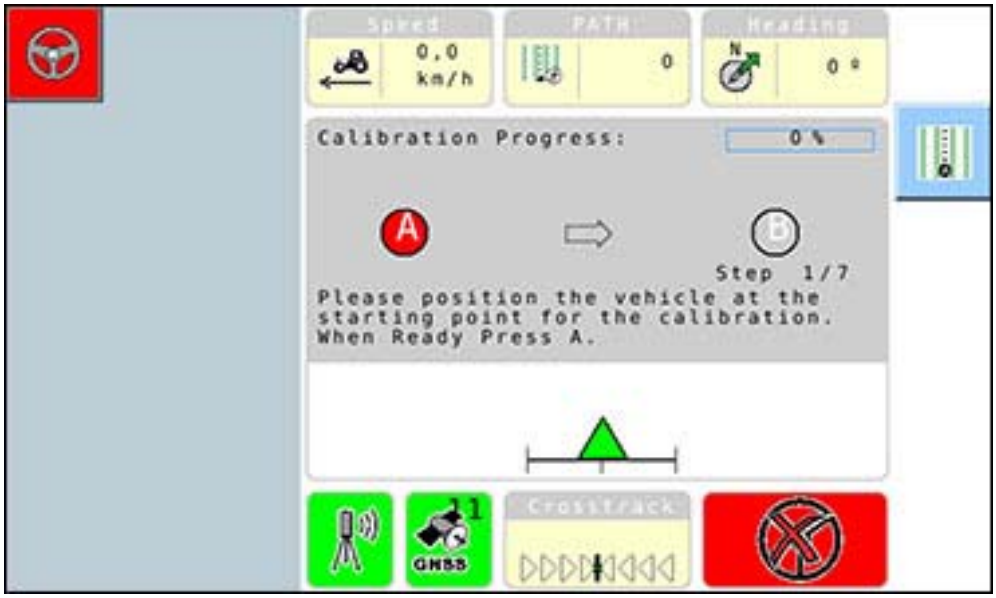


3. Select to display the Calibrations sub-menu.

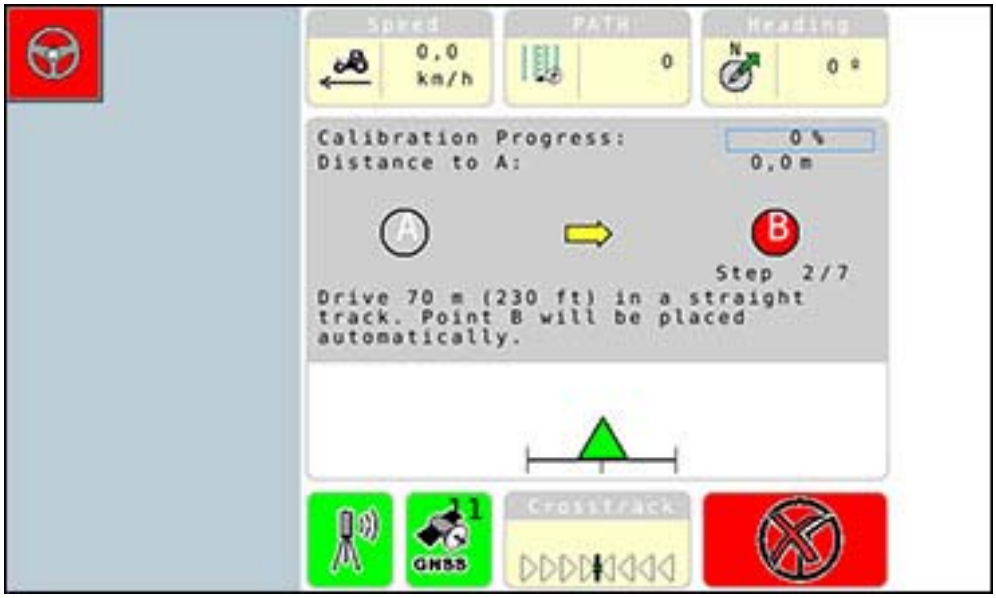
Warning: Ensure the vehicle has sufficient space to travel in a straight line for at least 70m/230 ft and then turn at each end of the wayline.

4. Select

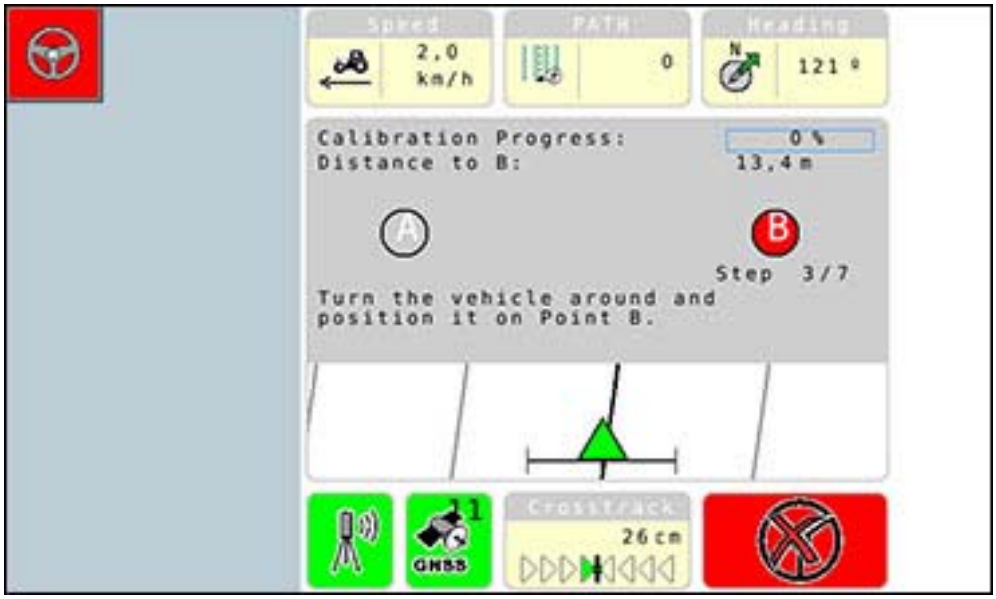
   Step 1 of the Mounting Bias Calibration wizard is displayed. Reposition the vehicle in an open area. When ready to start the procedure select to mark the 'A' waypoint.



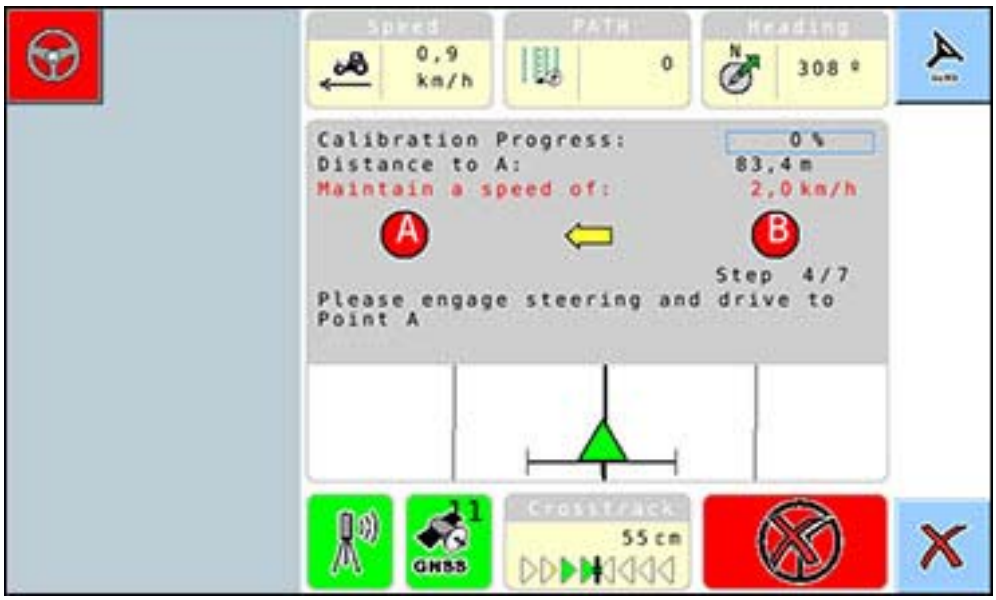
5. Drive forward in a straight line. The 'B' waypoint will be created automatically when the Distance to A indicates 70m/230ft. This can be done at any speed.



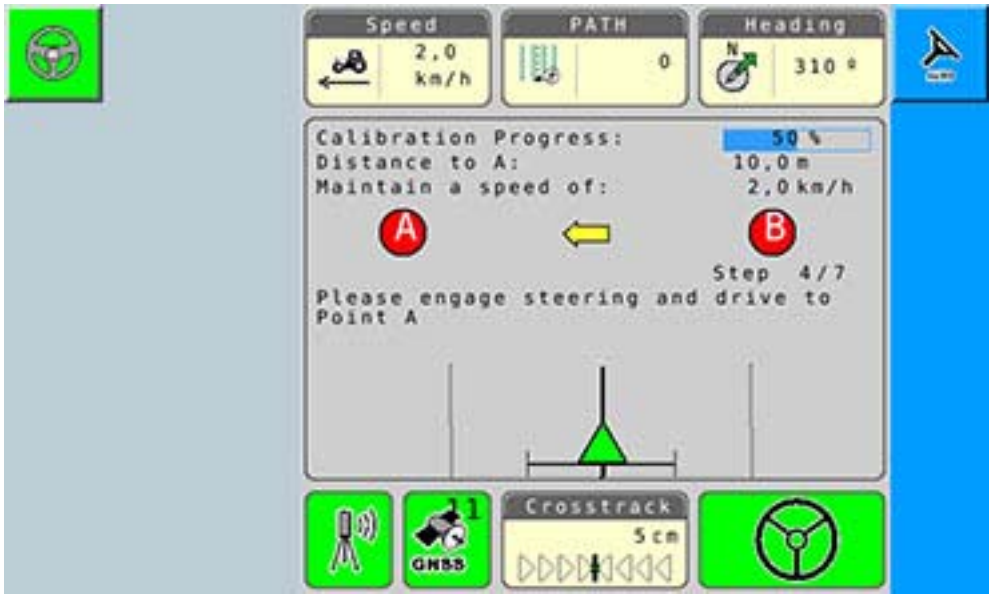
6. Once the vehicle has travelled 70m/230ft, the screen will indicate to turn the vehicle around and position it over Point B.



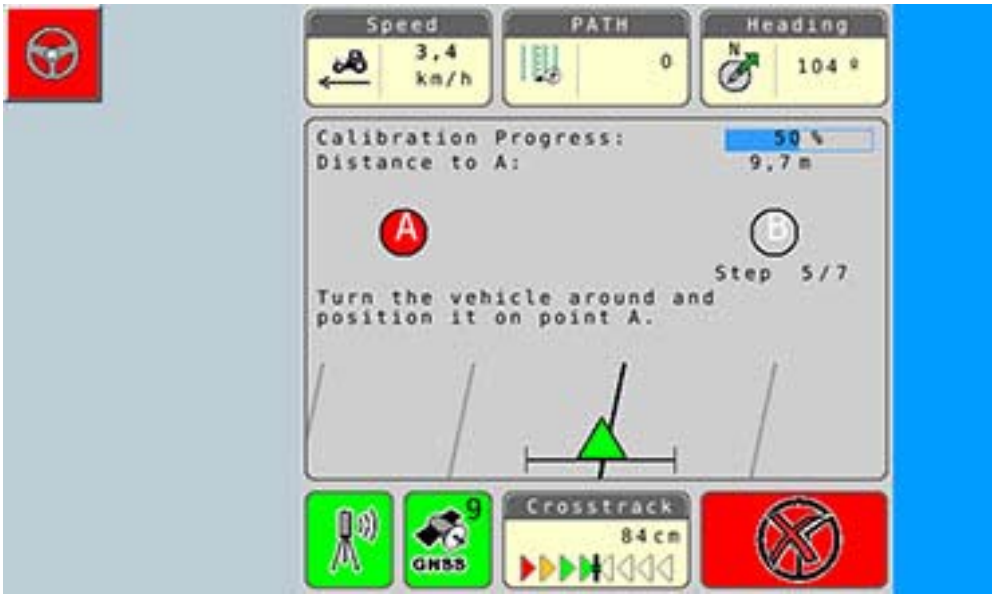
7. Drive the vehicle over the ‘B’ point that has been created. When indicated on the screen engage the steering by selecting .



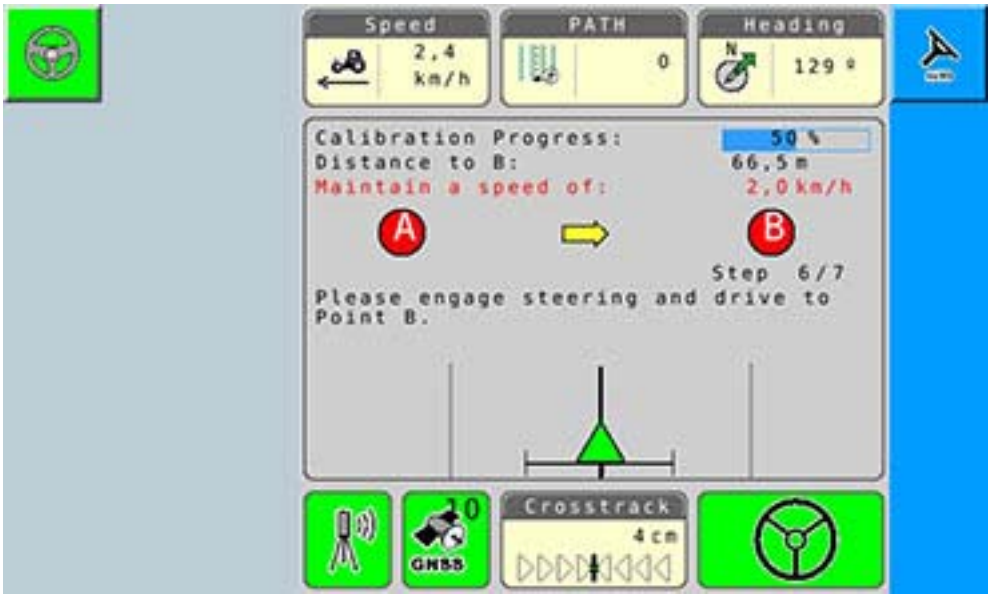
8. Set the vehicle speed to 2 km/h or 1.2 mph. Steer along the wayline back to the ‘A’ point. The blue line on the Calibration Progress Bar will move and the percentage will rise.



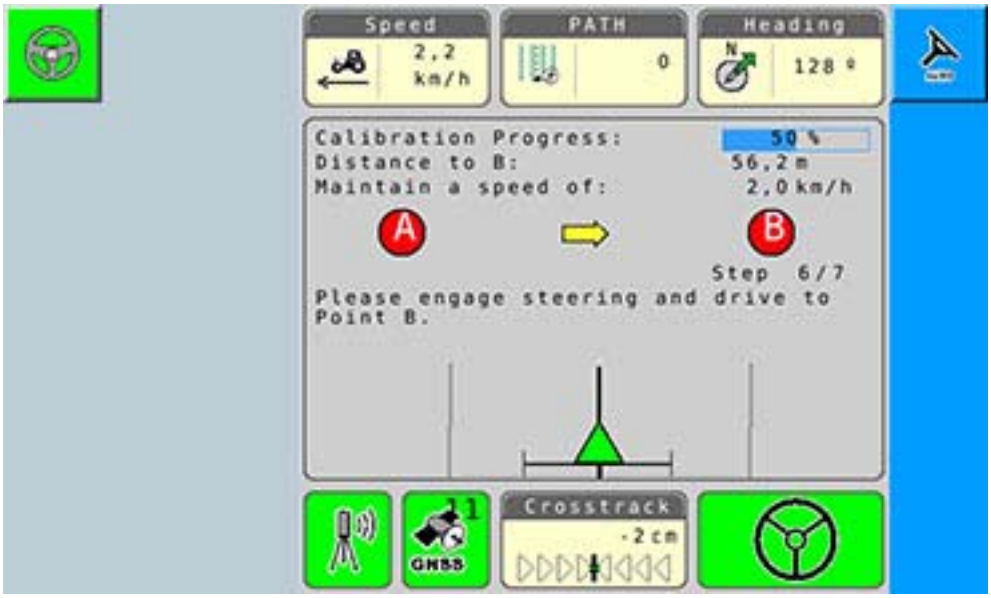
9. When the ‘A’ waypoint has been crossed, turn the vehicle around.



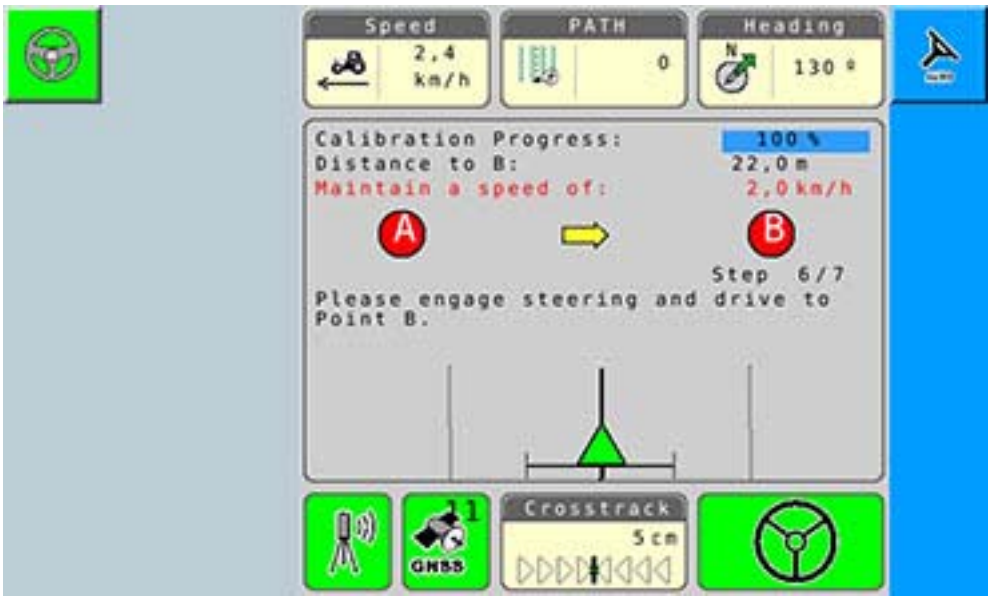
10. Drive the vehicle over the ‘A’ point that has been created. When indicated on the screen engage the steering by selecting



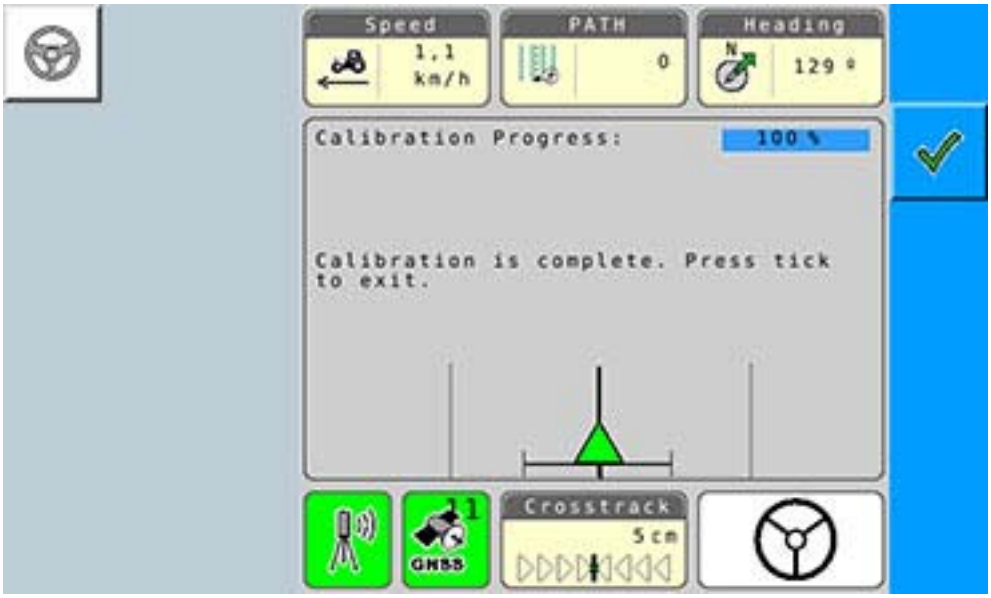
11. Set the vehicle speed to 2 km/h or 1.2 mph. Steer along the way line back to the ‘B’ point. The blue line on the Calibration Progress Bar will move and the percentage will rise.



12. Steer along the way line back to the ‘B’ point. When blue line on the Calibration Progress Bar reaches 100% continue along until you reach the ‘B’ point.



13. When you reach the ‘B’ point the calibration should be completed select to exit and return to the Main Menu.



3.5 Configuring NMEA Output Settings

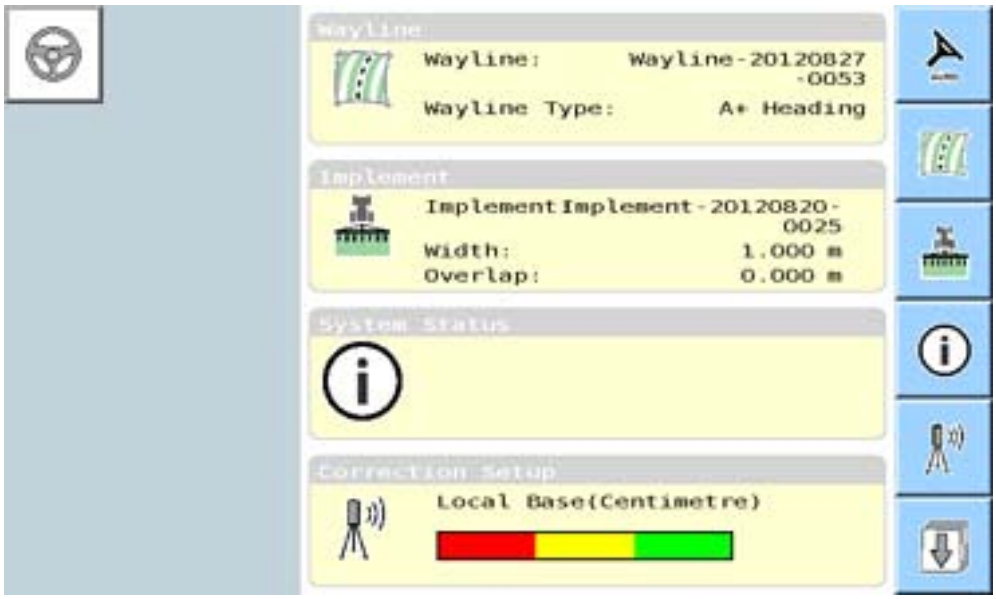
NMEA is a standard protocol used by GPS receivers to transmit data.

Use this procedure when you want to configure NMEA output settings so that you can transmit data from the AGI ISO VT to another device, e.g. a sprayer. The data is output to the Serial A or COM A port on the harness.

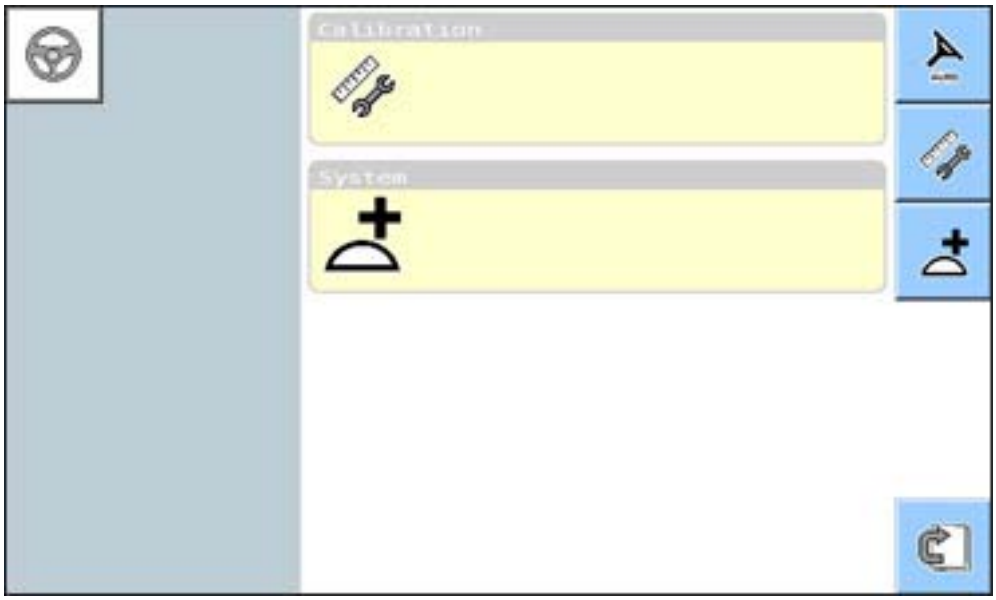
This function is available in Advanced mode only.
Although not described here, the AGI ISO VT allows you to create multiple NMEA output settings files which can be selected, edited and deleted as required.

Complete the steps below to configure NMEA output settings.

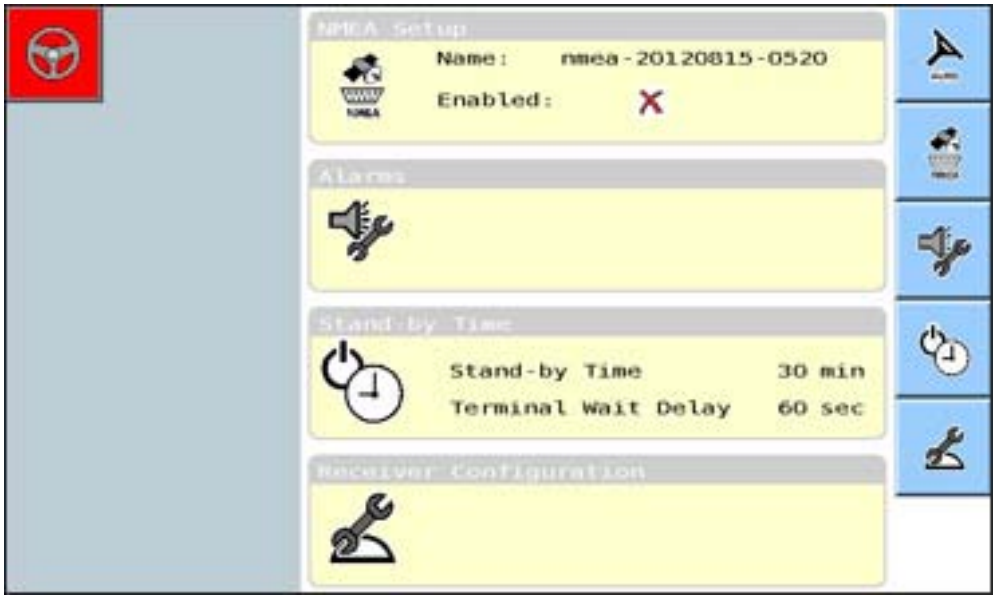
1. Select to display the Setup menu.



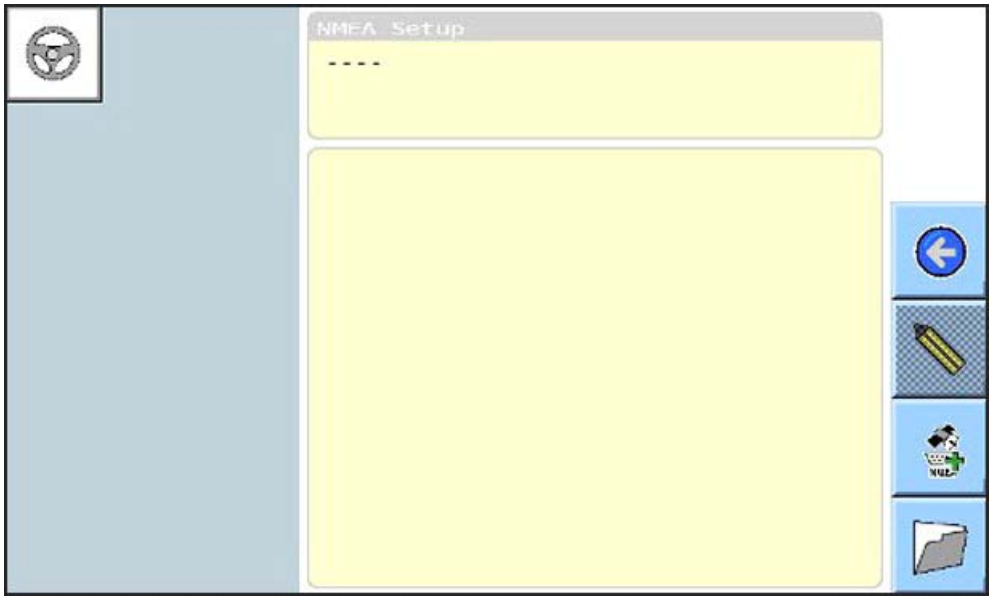
2. Select twice display the system selection sub-menu.



3. Select to display the System sub menu.



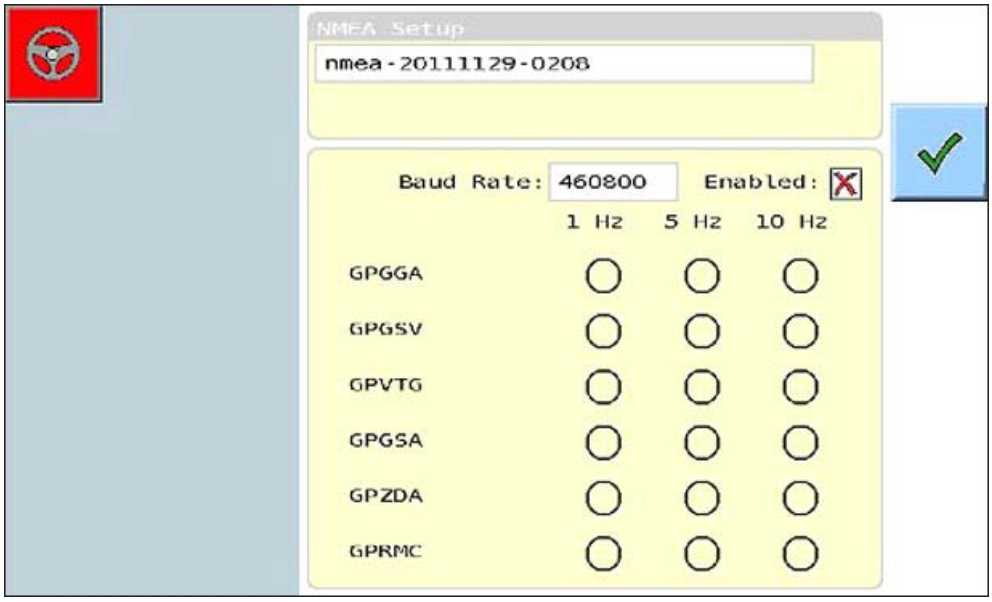
4. Select .The NMEA Setup screen is displayed.



5. Select .

You are now able to update the fields in the NMEA Setup screen.

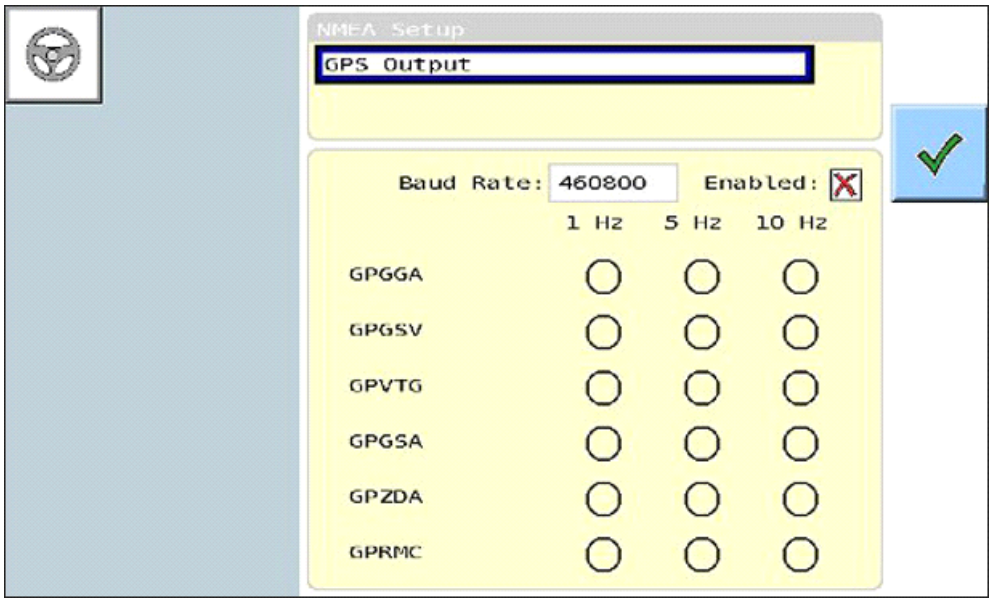
The system automatically inserts the current date and time after ‘nmea’. This default name can be changed if required.



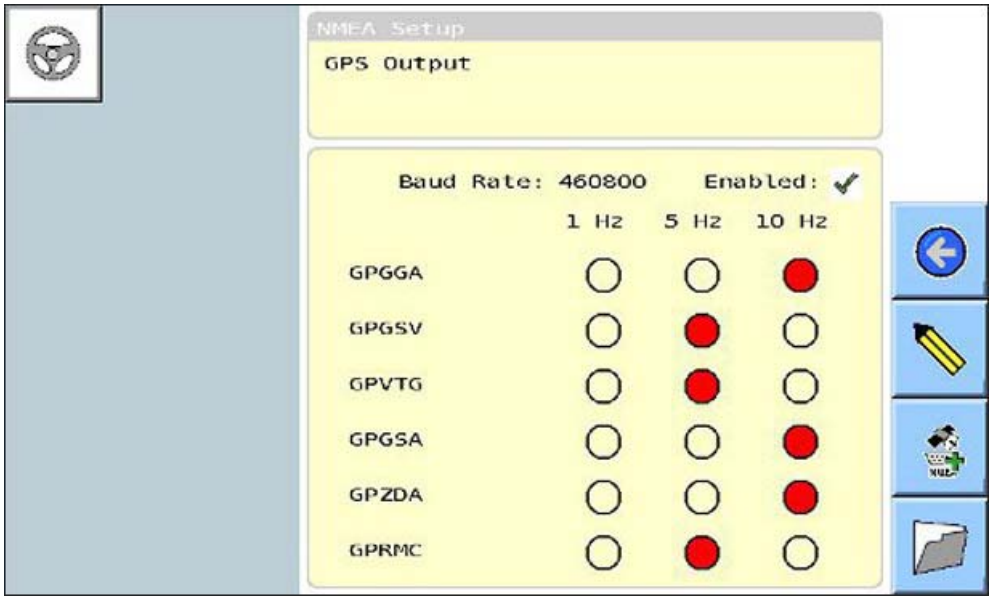
6. If you wish to change the default name:
   - Select the field directly under NMEA Setup to display the Virtual Keyboard.
   - Use the keyboard to enter a new name.

For information on how to use the virtual keyboard, refer to *1.10 Using the Virtual Keyboard*.

The name you entered is displayed in the NMEA Setup screen.



7. Update the **Baud Rate** field, if required.
8. Select **Enabled**.
9. Select the required frequency (i.e. 1 Hz, 5 Hz, 10 Hz) for each string.
10. Select to save the new NMEA profile. The settings have been saved.



11. Select to return to the Setup menu.

3.6 Configuring Alarms

The AGI ISO VT allows you to set alarms to alert you if:

- Your vehicle is veering off the wayline.
- Your vehicle is travelling too fast in reverse.
- The position accuracy has degraded to a point where fallback will be enabled.

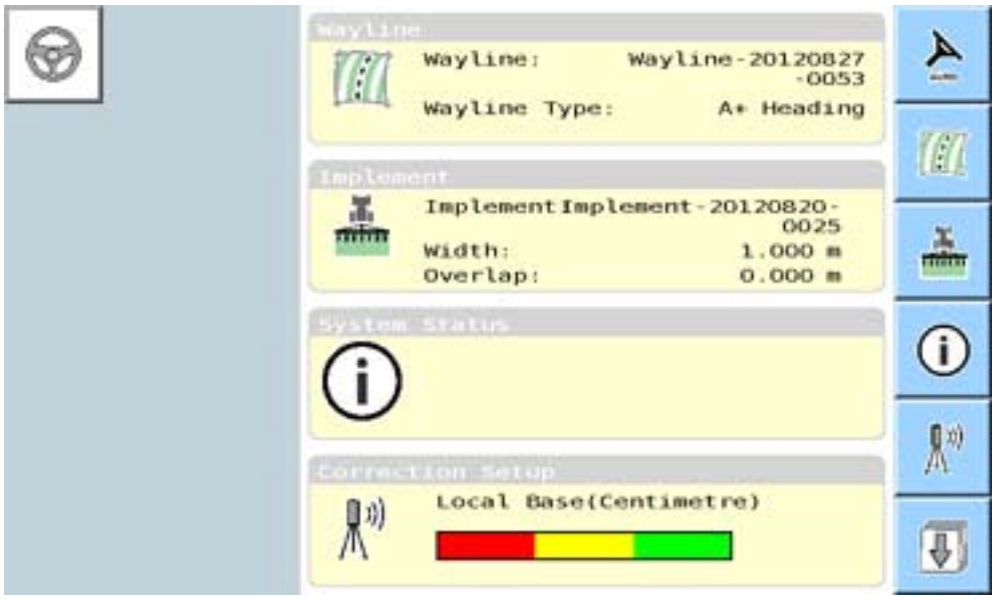
You must ensure that the console alarm sound has been turned on. For more information on how to turn on the console alarm sound, refer to the relevant console operator's manual, e.g. AGCO C1000 Console Software V. 1.7.1.

This function is available in Advanced mode only.

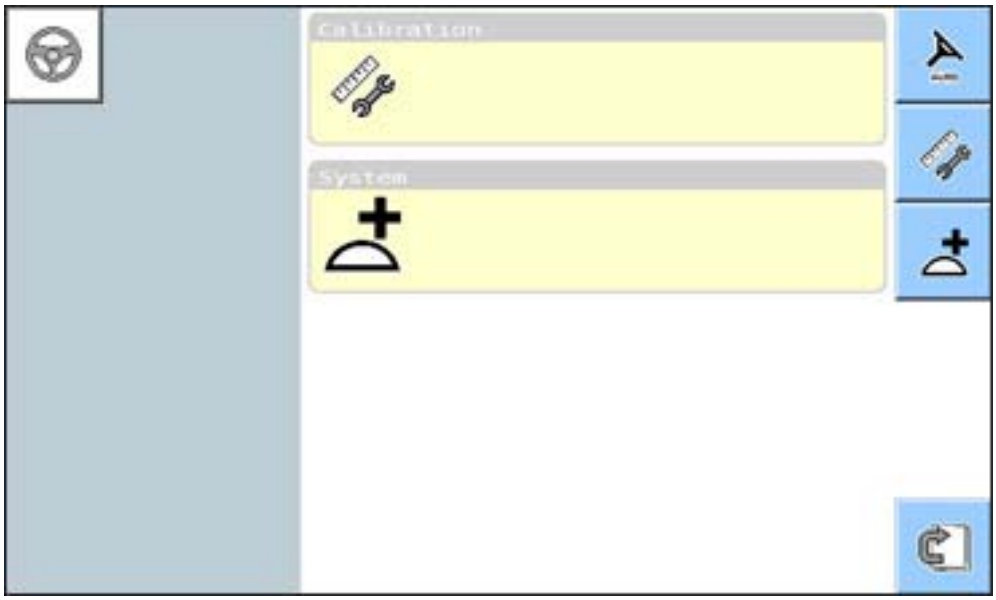
Complete the steps below to configure the alarms.

1. Select .

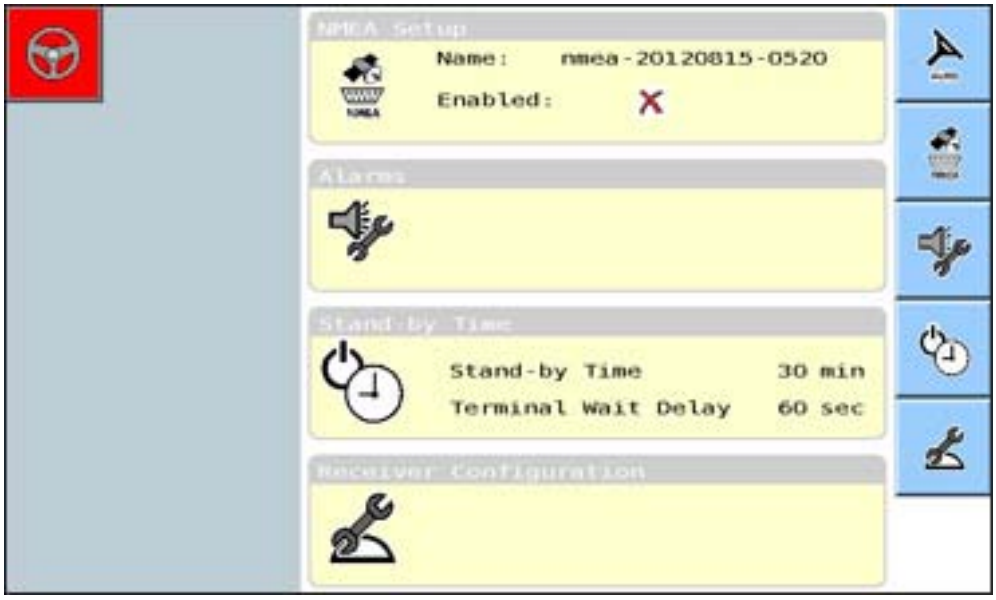
   The first screen of the Setup menu is displayed.



2. Select twice to display the System sub-menu.

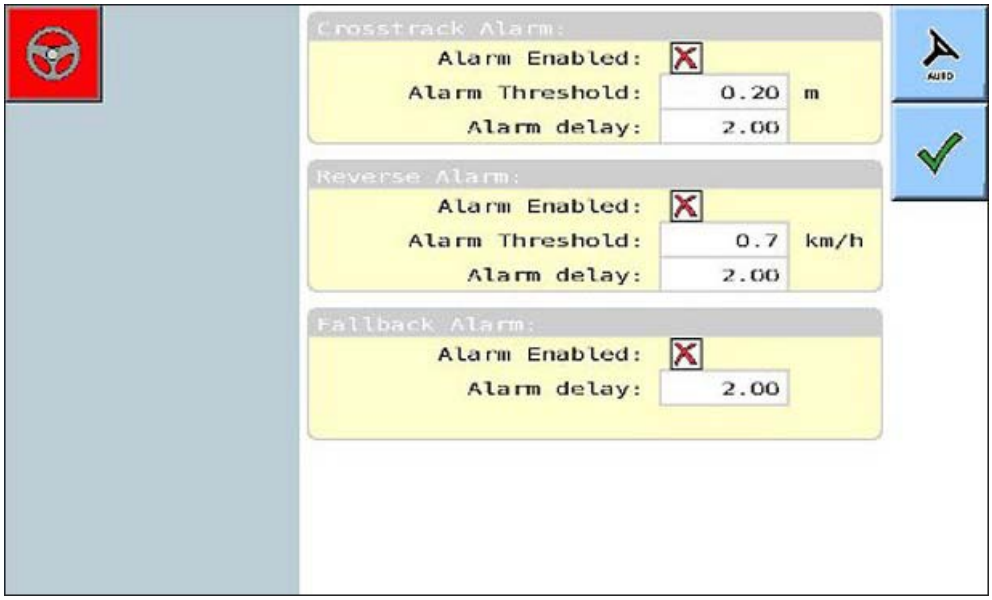


3. Select to display the System sub menu.



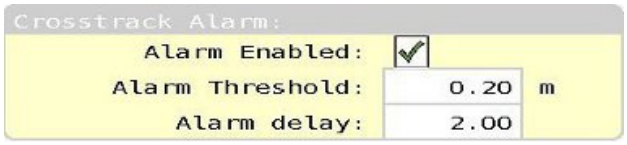
4. Select .

   The following screen is displayed. In the example below, no alarms are enabled.



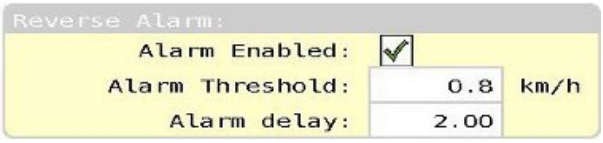
5. To enable Crosstrack Alarm:

- Select the **Alarm Enabled** field.
- In the **Alarm Threshold** field, enter the required value. This is the minimum distance required to set off the alarm.
- In the **Alarm delay** field, enter delay value in seconds. The alarm will begin sounding after the delay time specified.



6. To enable Reverse Alarm:

- Select the **Alarm Enabled** field.
- In the **Alarm Threshold** field, enter the required value. This is the minimum speed required to set off the alarm.
- In the **Alarm delay** field, enter delay value in seconds.



7. To enable Fallback Alarm:
   - Select the **Alarm Enabled** field.
   - In the **Alarm delay** field, enter the delay value in seconds.

8. When you have finished configuring the alarms, select to accept the changes and return to the Setup menu.

3.7 Configuring Delay Time

Stand-by Time

The stand-by time is the amount of time the receiver stays on after the vehicle has been switched off. This is useful when using OmniSTAR HP, XP or G2, as it eliminates convergence time (i.e. the time taken for the correction sources to restore the vehicle's position when the vehicle is started up again). When you switch the vehicle back on, the screen that was displayed before you switched off will be displayed again.

The stand-by time feature is not supported in all installations.
You can check if this feature is supported in your installation by:

a) Contacting your dealer, or

b) Entering a stand-by time, then switching the vehicle off and checking whether the receiver LEDs are still on during the specified stand-by time.

Terminal Wait Delay Time

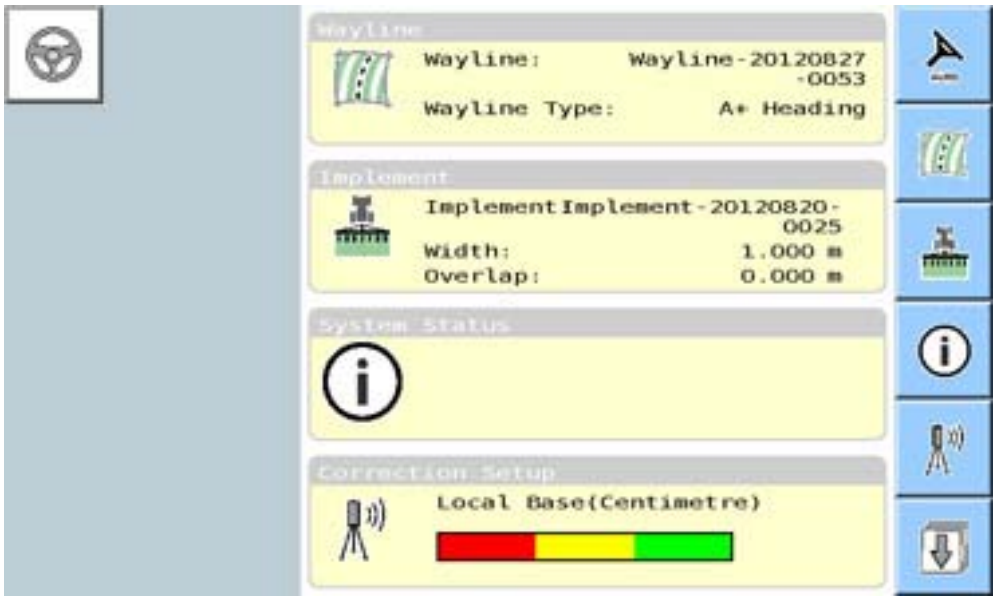
This terminal wait delay time feature is only enabled if there are two or more terminals connected to the receiver via the same ISO bus. The terminal wait delay time is the length of time the receiver will wait after the system is switched on to find the preferred terminal (this is usually the terminal that it was connected to when you switched off) . After this time, if the receiver does not find the preferred terminal, it will connect to an alternative terminal.

This function is available in Advanced mode only.

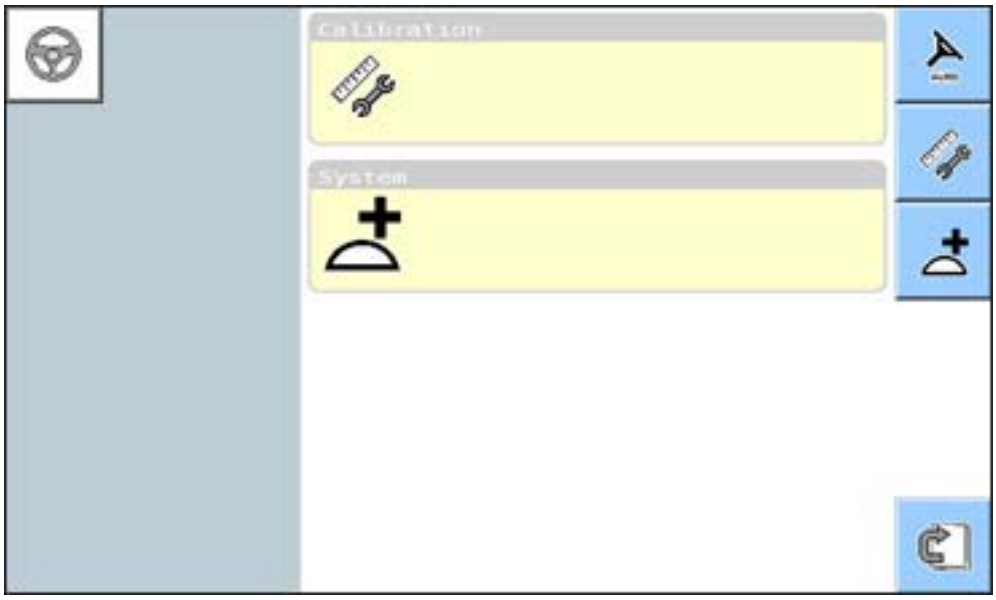
Complete the steps below to configure the stand-by and terminal wait delay time.

1. Select .

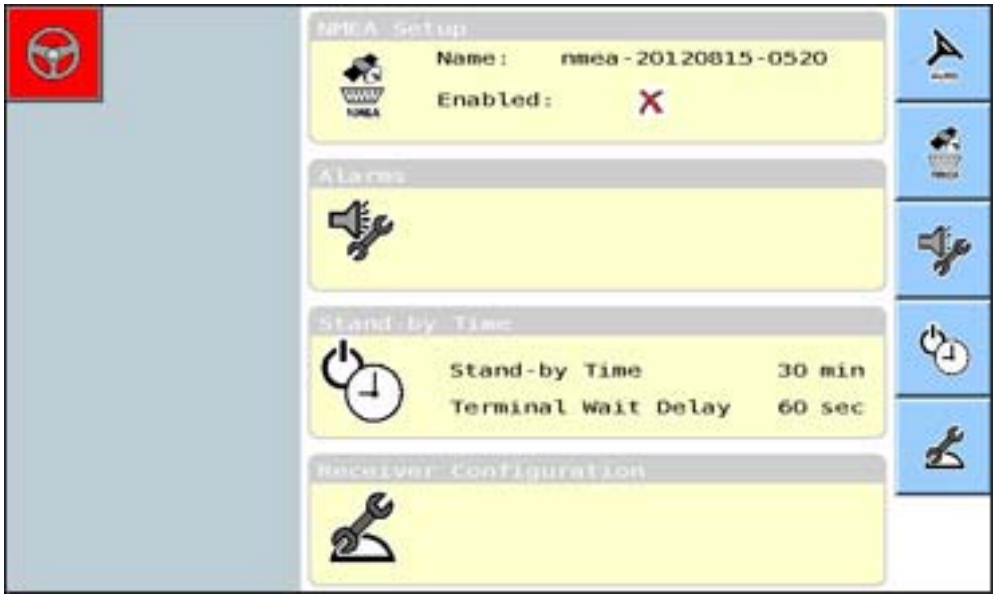
   The first screen of the Setup menu is displayed.



2. Select twice to display the System sub-menu.

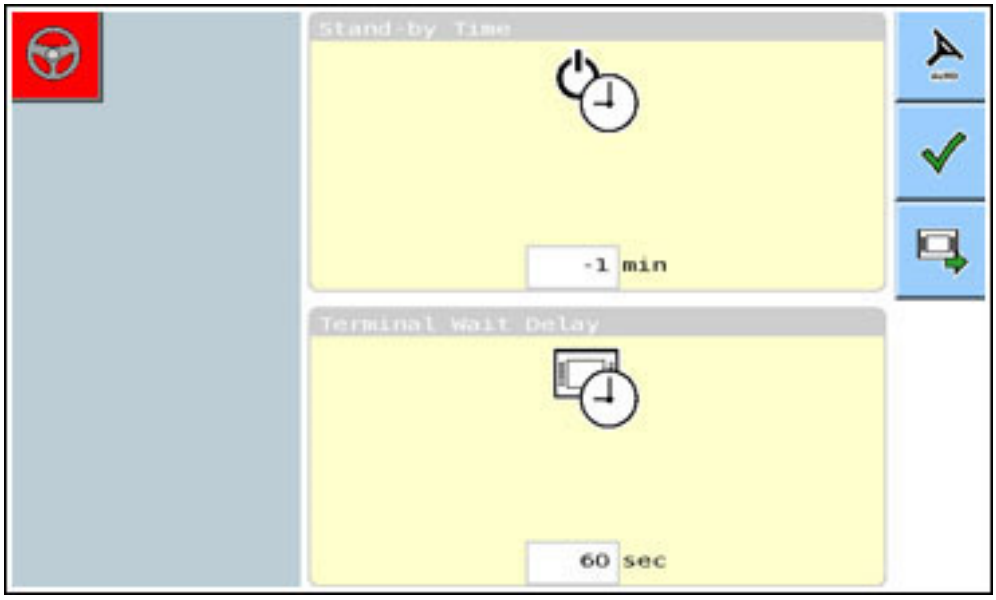


3. Select to display the System sub menu.



4. Select .

   The following screen is displayed.



5. Update the value of the Stand-by Time field, if required.

   The default stand-by time value is 30 minutes.

6. Update the value of the Terminal Wait Delay field, if required.

   The default terminal wait delay value is 60 seconds.

7. To switch to another terminal on the same bus, select

8. Select to accept the changes and return to the Setup menu.

3.8 Receiver Configuration

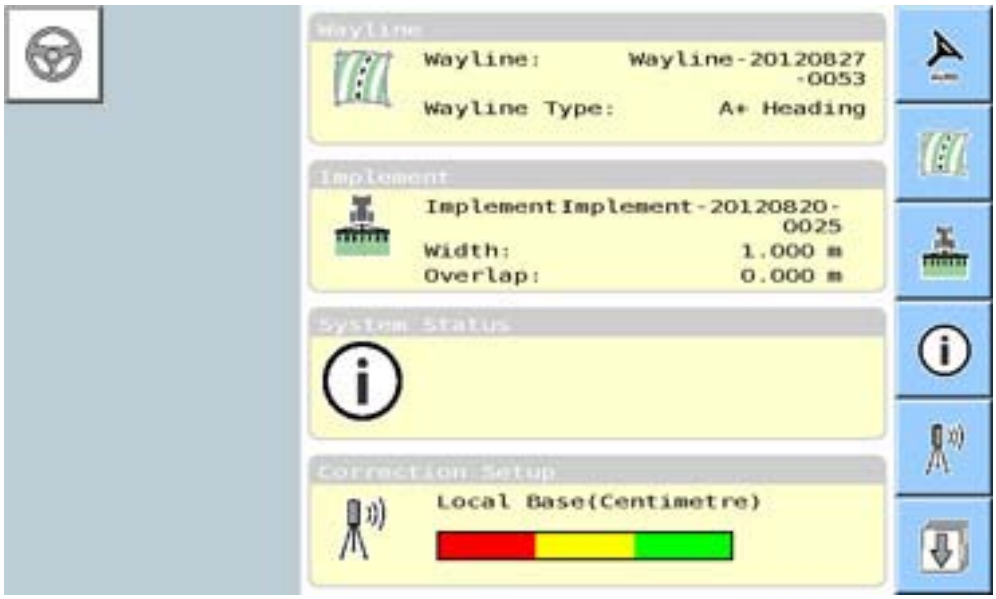
Complete the steps below for receiver configuration.

There are 3 options for receiver configuration

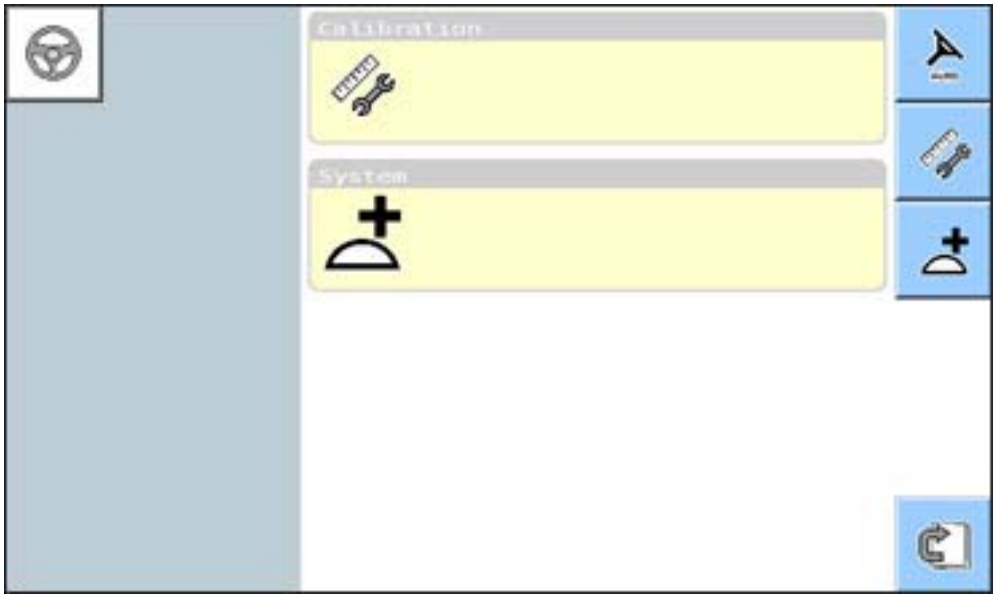
- **Reboot** This option simply reboots the console.
- **Reset GNSS** This option Resets all the GNSS (GPS) information.
- **Reset User** This option resets all the user settings, this includes, Vehicle profiles, Implement settings and any waylines that have been entered.

1. Select .

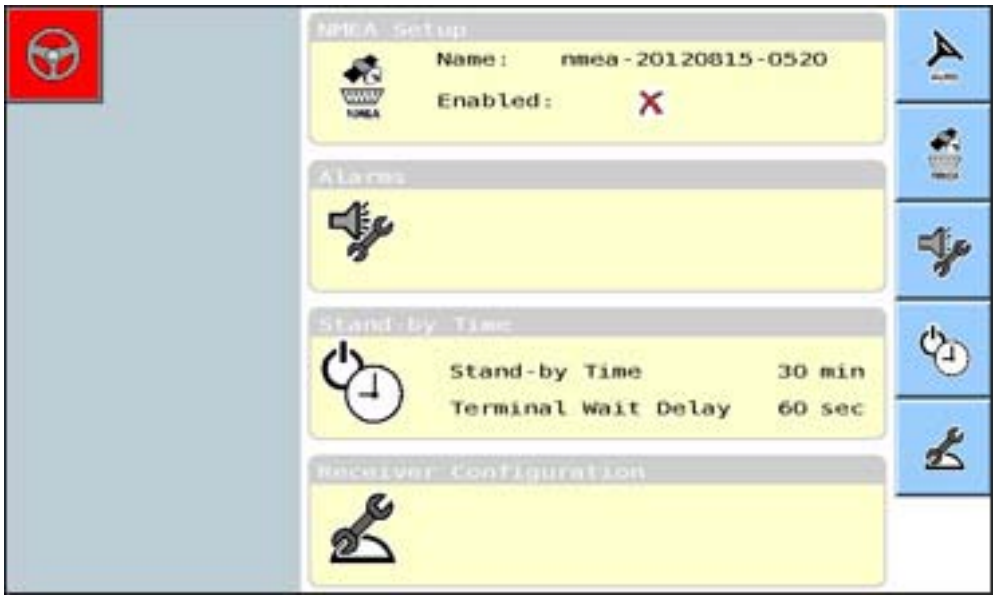
   The first screen of the Setup menu is displayed.



2. Select twice to display the System sub-menu.



3. Select to display the System selection menu.



4. Select

The following screen is displayed.

5. Select an option from the Operations function.
   - None
   - Reboot
   - Reset GNSS
   - Reset User

6. Select and the console will reboot automatically.

Chapter 4 – Correction Sources

This chapter describes how to set up and configure correction sources.

Correction sources are enhancements used to enhance the quality of the location data gathered from GNSS receivers. Correction sources available for use with the AGI ISO VT are:

- Local Base (RTK)
- Cellular Network(RTK)
- OmniSTAR (subscription service)
- SBAS non-subscription services:
    - EGNOS (available in Europe)
    - WAAS (available in the USA/Canada)
    - MSAS (available in China/Japan)

Local Base and Cellular Network are corrections sources that use RTK (Real Time Kinematic Navigation) they are centimeter correction sources, that is, they provide positional information at an accuracy of +/- two centimeters. Cellular Network is also known as CORS (Continuously Operating Reference Station) Network.

OmniSTAR HP, XP and G2 are decimeter correction sources. They provide positional information at an accuracy of 40 cm or less.

OmniSTAR VBS, and EGNOS, WAAS and MSAS are submeter correction sources, that is, they provide positional information at an accuracy of around one meter or less.

If no correction source is set up, the system can be set to operate in ‘Autonomous’ mode. Autonomous mode provides positional information at an accuracy of around 1.5 meters.

An active subscription is required if you wish to select OmniSTAR VBS, HP, XP or G2.

This function is available in both Basic and Advanced modes.

In this chapter

4.1 Selecting a Correction Source

4.2 Configuring Local Base

4.3 Configuring Cellular Network

4.4 Configuring OmniSTAR

4.5 Configuring SBAS

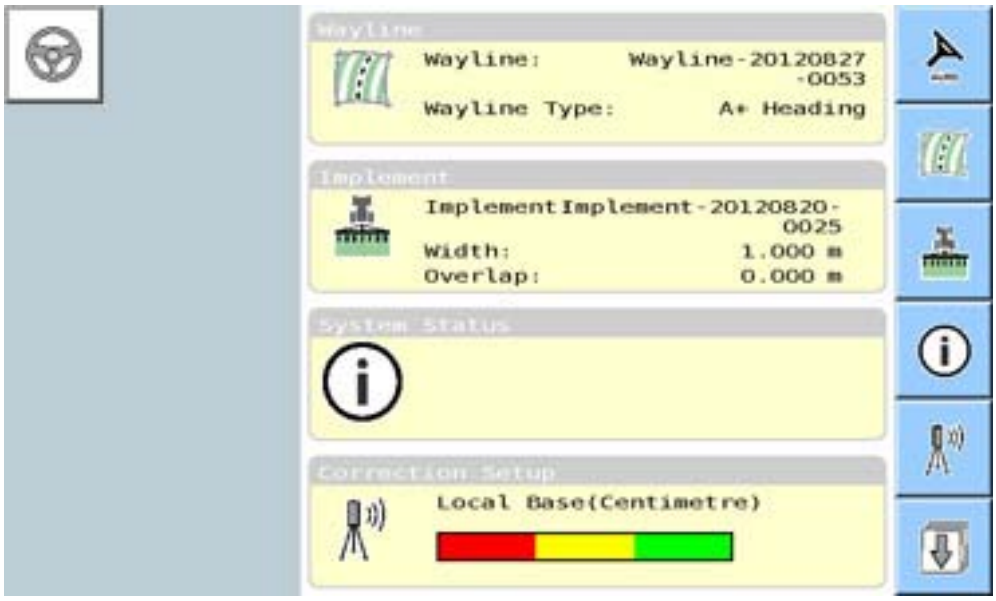
4.6 Configuring Autonomous

4.1 Selecting a Correction Source

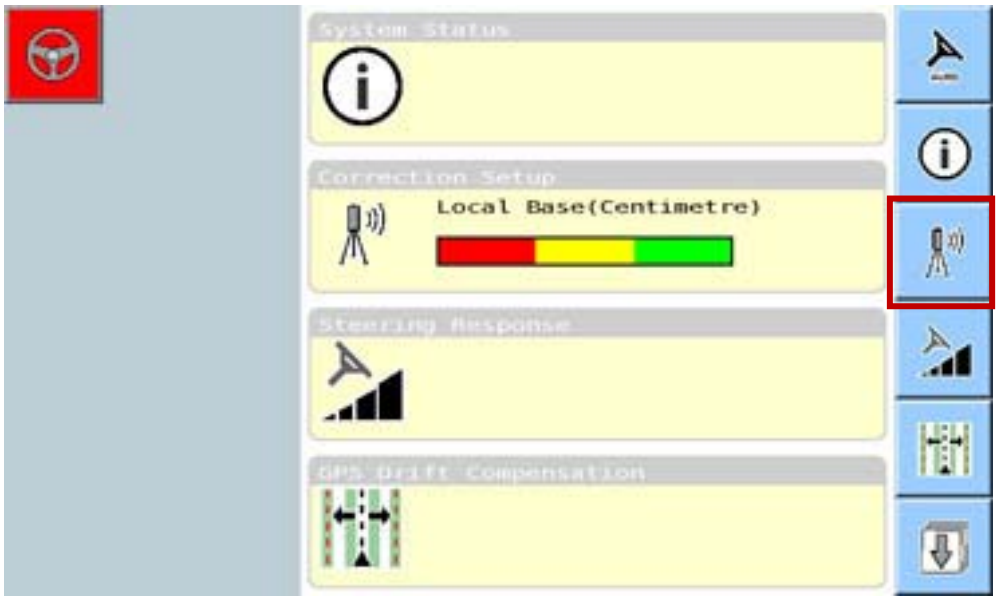
Complete the steps below to select a correction source.

1. Select .

   If you are using Advanced mode, the following menu is displayed.



   If you are using Basic mode, the following screen is displayed.



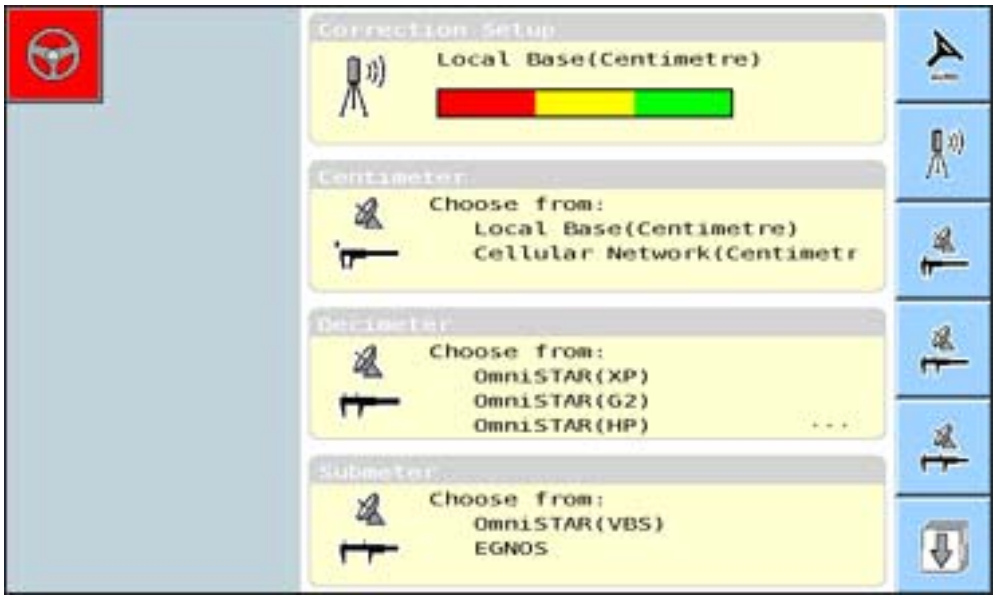
2. Select the **Correction Setup** button.

Note that the appearance of the **Correction Setup** button will vary depending on the correction source that is currently selected, e.g., (OmniSTAR XP) or (Autonomous).

The Correction Setup sub-menus are displayed.

The Correction Setup section displays the currently selected correction source.

In the following example, local base has been selected.



3. Select a correction type

- For Centimeter accuracy Select

  To configure Local Base go to Section 4.2

  To configure Cellular Network go to Section 4.3

- For Decimeter accuracy Select

  To configure OmniSTAR XP,G2 or HP go to Section 4.4

  To configure Local Base go to Section 4.2

  To configure Cellular Network go to Section 4.3

- For Submeter accuracy Select

  To configure OmniSTAR VBS go to Section 4.4

  To configure SBAS(EGNOS) go to Section 4.5

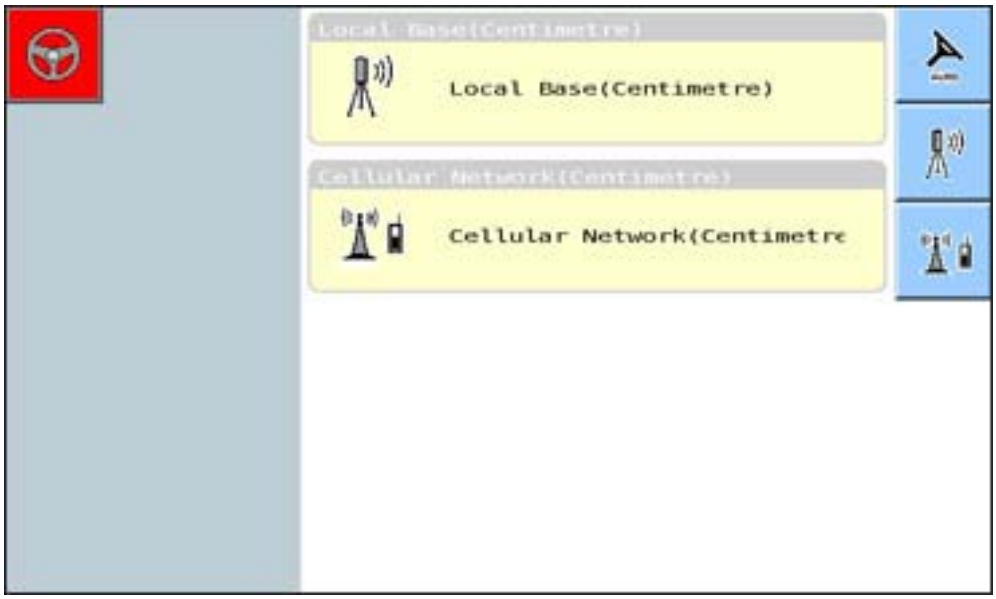
Autonomous is included in this menu although it is not, strictly speaking, a correction source.

- For Autonomous mode Select once.

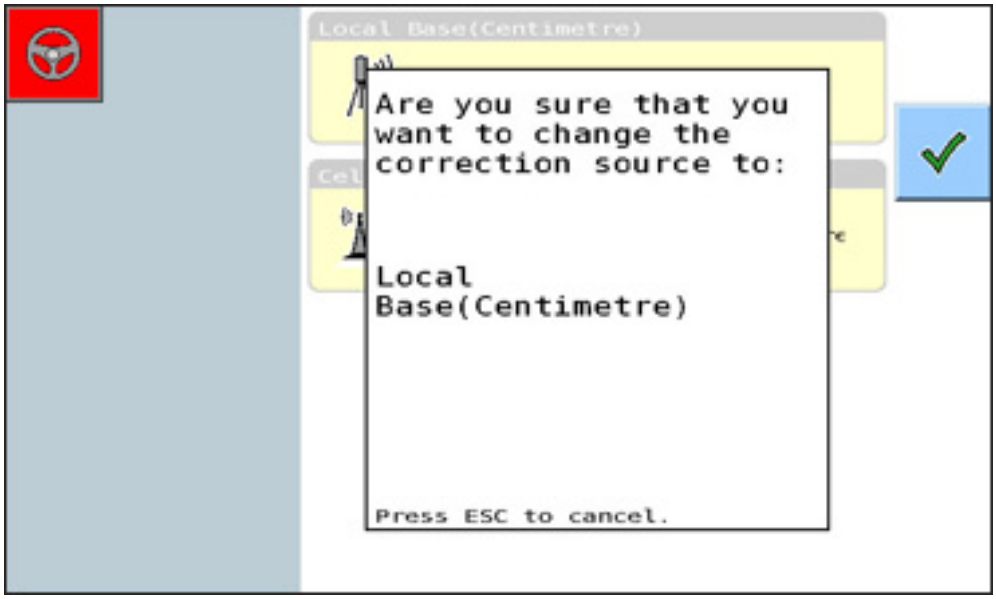
  To configure Autonomous Go to Section 4.6.

4.2 Configuring Local Base

Complete the following steps below to configure a Local Base (RTK) correction source.



1. Select from Centimeter accuracy sub menu



2. Select to confirm change of correction source.

The Local Base modem status will be displayed

The Radio modem and Cell modem will be detected automatically.

3. Select **Raw GSM** connection if required.

Raw GSM connection is used when using CSD (Circuit Switch Data).

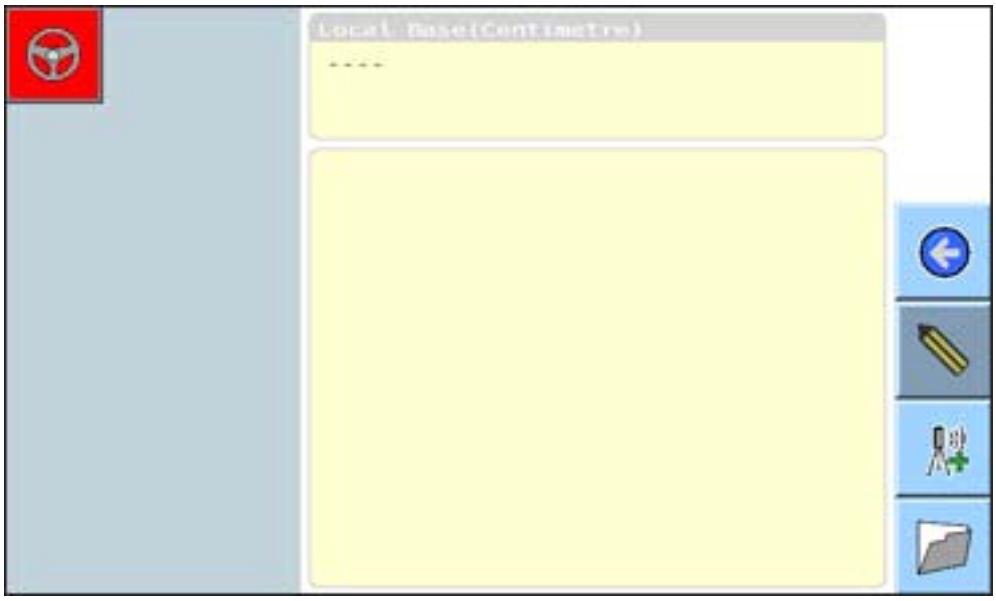
4. Select **Allow Fallback** if required.

If a high degree of precision is required, do not select **Allow Fallback**.

5. Select to Auto configure a base station if required.

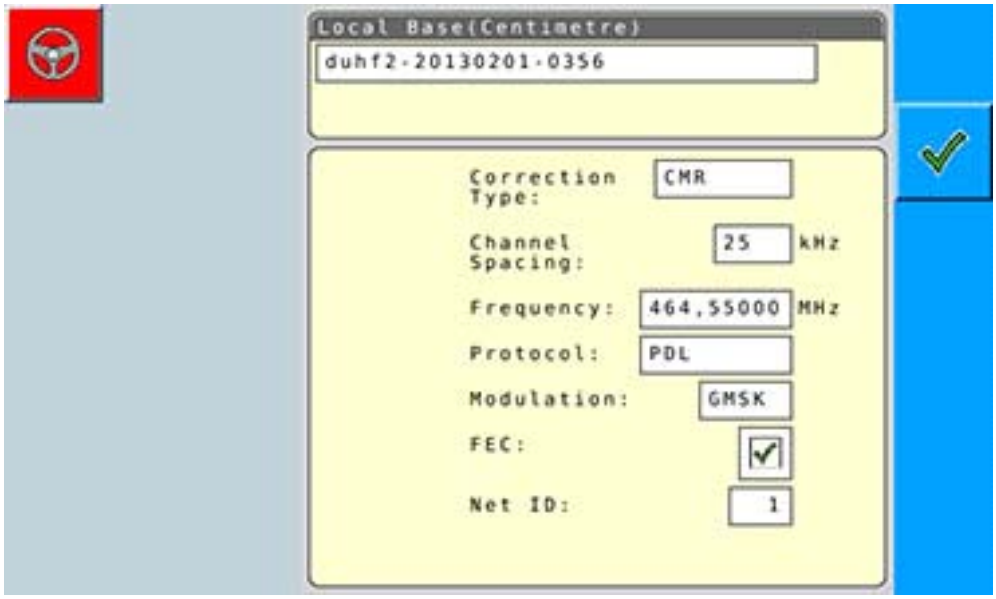
Auto Configure base station automatically configures a base station if it is attached to the console. For a list of compatible base stations and detailed instructions on how to connect a base station and carry out this operation contact your Topcon dealer

6. Select to confirm and save the settings.



7. Select to configure the modem

   The Following screen will be displayed



8. Rename the Configuration profile if required.
9. Change the **Correction Type** if required

There are 3 types of RTK corrections CMR, RTCM 3.x and RTCM 2.x. The correction type should match the correction being output by the base station.

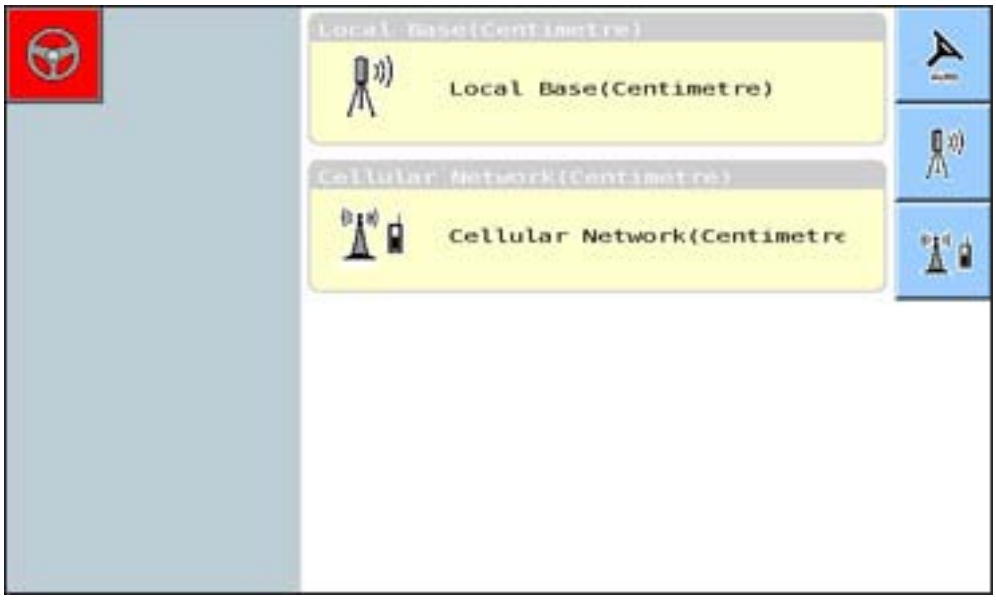
10. Change the **Channel Spacing** if required
11. Enter the required **Frequency** in MHz this should be the same as the base station being used.
12. Change the **Protocol** if required.
13. Change the **Modulation** if required.
14. Select **FEC** if required.
15. Change **Net ID** if required.
16. Select to confirm and save the settings.
17. Select on the Local base modem status screen.

    The following screen will be displayed.

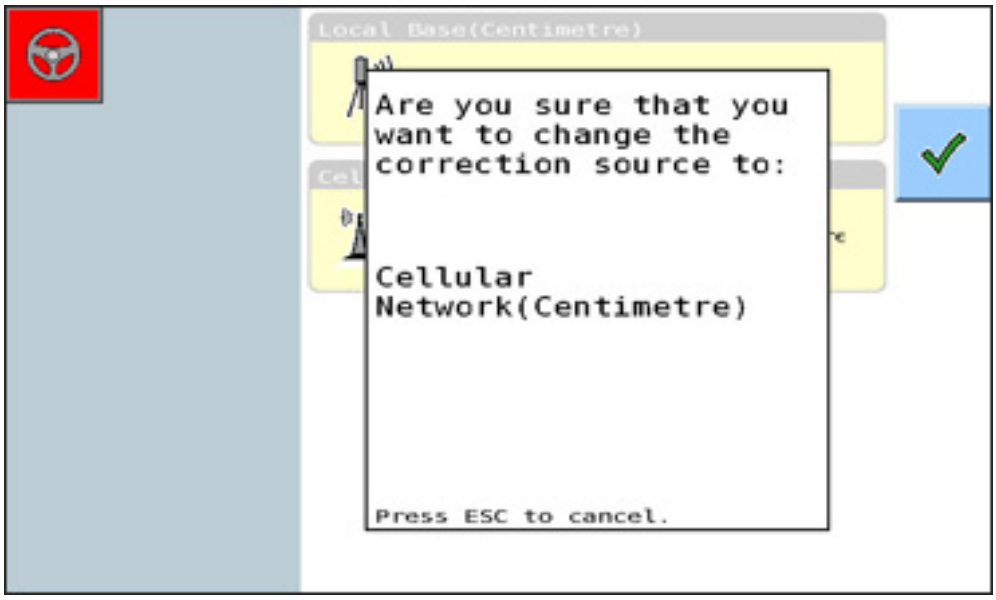
18. Select to change configuration settings.
19. Select to load/transfer or delete a profile.
20. Select to return to the Correction set-up screen.

4.3 Configuring Cellular Network

Complete the following steps below to configure a Cellular Network (RTK) correction source.



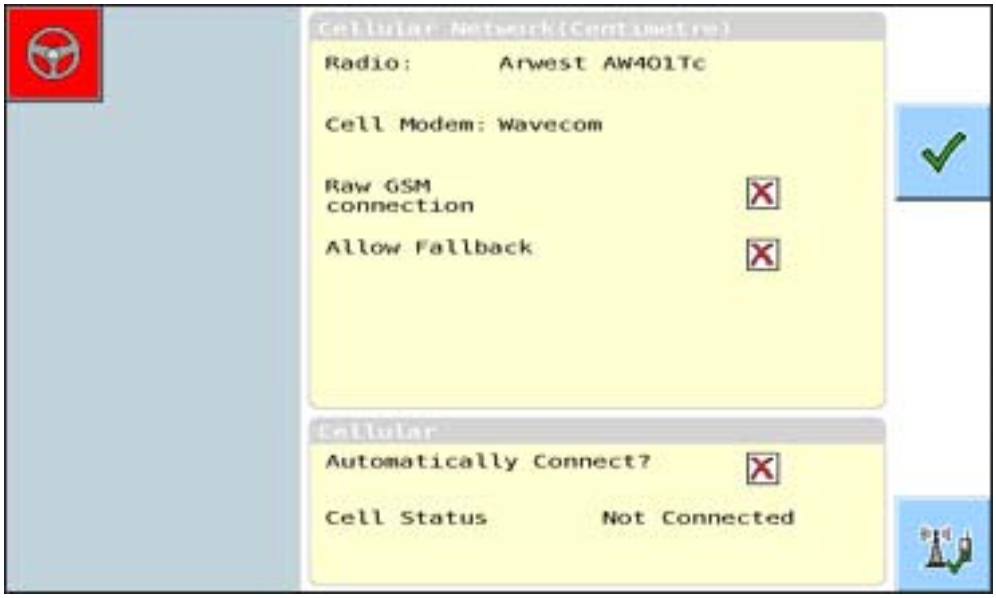
1. Select from Centimeter accuracy sub menu



2. Select to confirm change of correction source.

The Cellular Network modem status will be displayed.

The Radio modem and Cell modem will be detected automatically.



3. Select **Raw GSM** connection if required.

Raw GSM connection is used when using CSD (Circuit Switch Data).

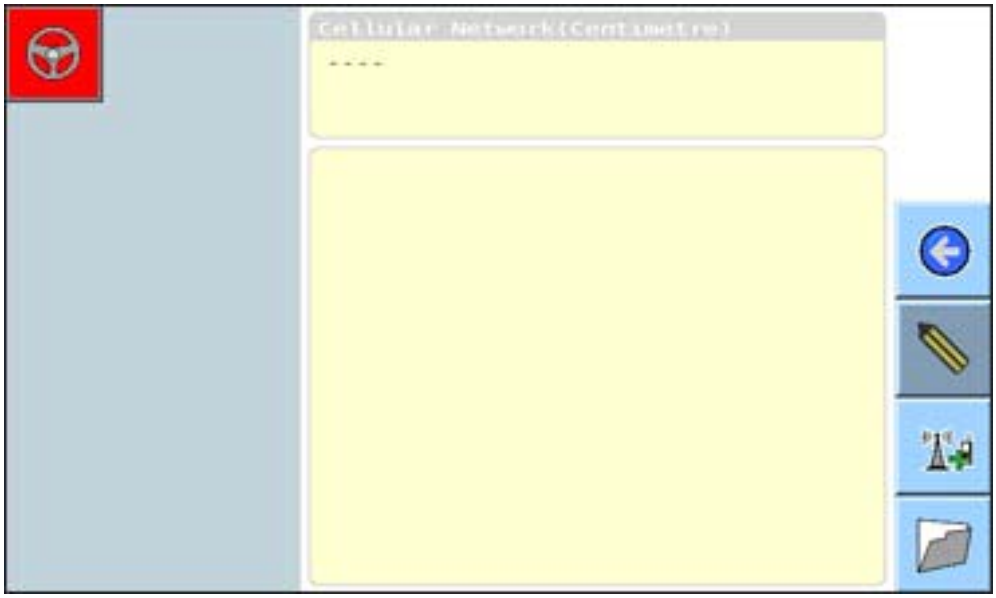
4. Select **Allow Fallback** if required.

If a high degree of precision is required, do not select **Allow Fallback**.

5. Select **Automatically Connect?** if required.

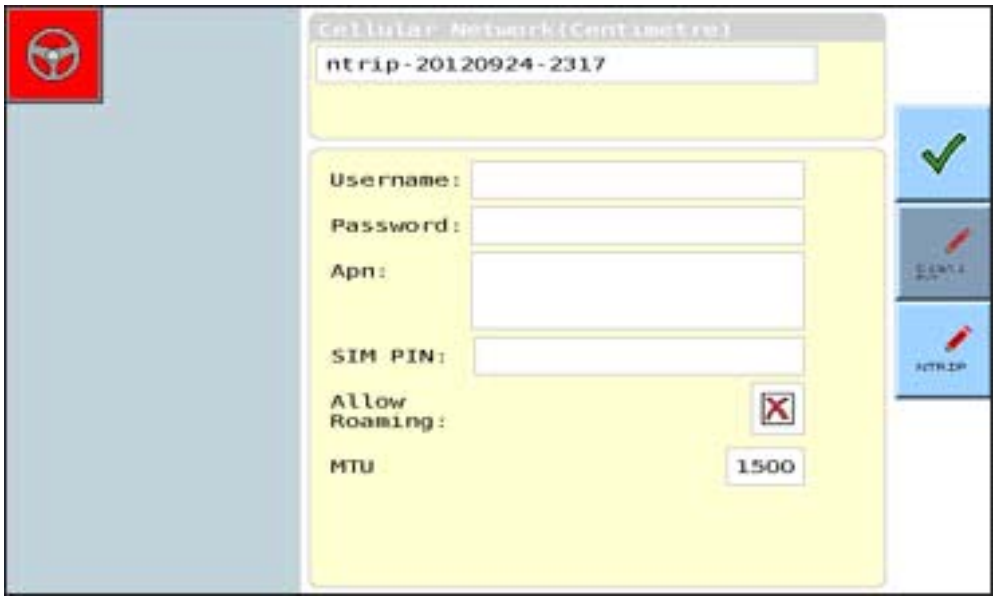
If Automatically Connect? is enabled the button to connect manually is disabled.

6. Select to confirm and save the settings.



7. Select to configure the modem

   The Following screen will be displayed



8. Rename the Configuration profile if required.
9. Enter the Cellular Network SIM card information using the virtual keyboard.

The **Username**, **Password**, **APN** and **SIM PIN** information are provided by your cellular network provider.

10. Select enable /disable **Allow Roaming** as required.
11. Set the MTU value as required.
12. Select to display the NTRIP login screen.

13. Select **Correction Type** using the drop down menu.

There are 3 types of RTK corrections CMR, RTCM 3.x and RTCM 2.x. The correction type should match the correction source being broadcast by NTRIP provider.

14. Enter the NTRIP Connection details as required. Using the virtual keyboard.

The NTRIP **Username**, **Password**, **Address**, **Mount point**, **Port number** and **NMEA Rate** information are provided by your NTRIP network provider.

15. Select to confirm and save the settings.

The following screen will be displayed.

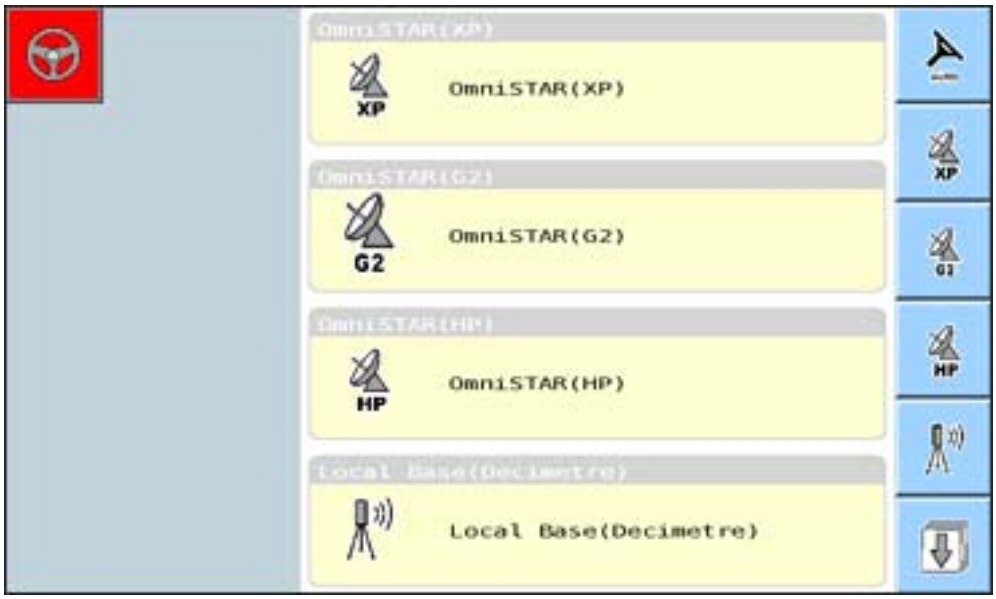
16. Select to change configuration settings.

17. Select to load/transfer or delete a profile.

18. Select to return to the correction set-up screen.

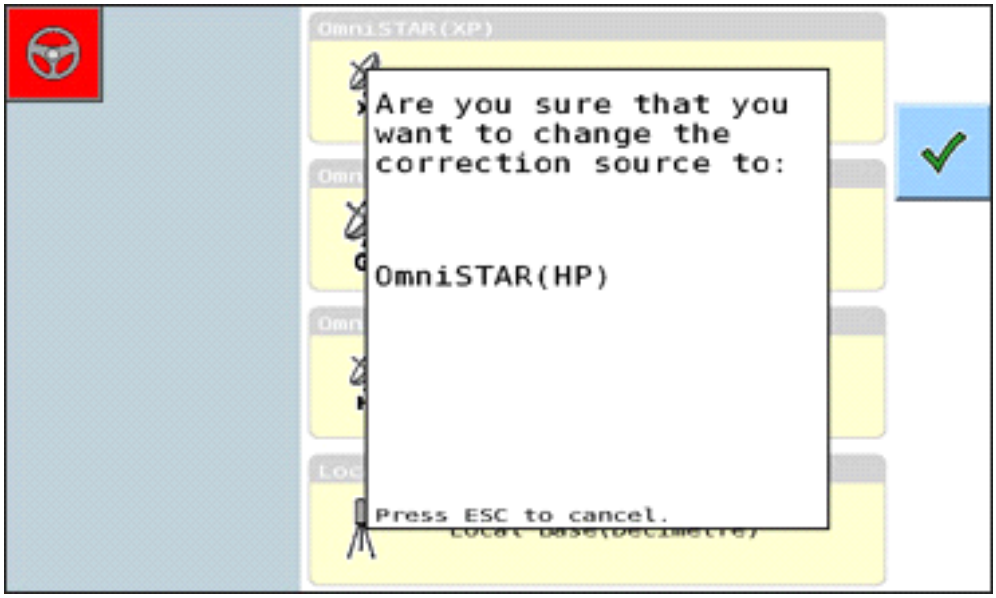
4.4 Configuring OmniSTAR

Complete the steps below to configure an OmniSTAR VBS, HP, XP or G2 correction source.



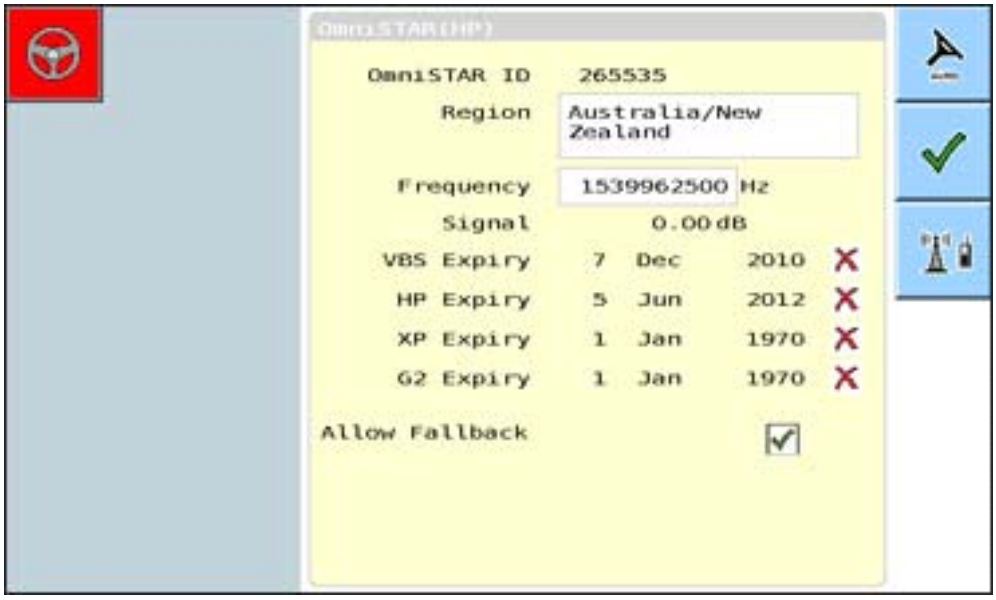
1. Select the OmniSTAR correction source required.

OmniSTAR VBS corrections are selected from the Submeter accuracy menu.



2. Select to confirm change of correction source.

The selected OmniSTAR correction source set-up screen is displayed. The type of corrections source is displayed in brackets, e.g. (HP).



‘1 Jan 1970’ and a cross symbol indicates that there is no current subscription for that correction source.

3. In the **Region** field, select the required region.

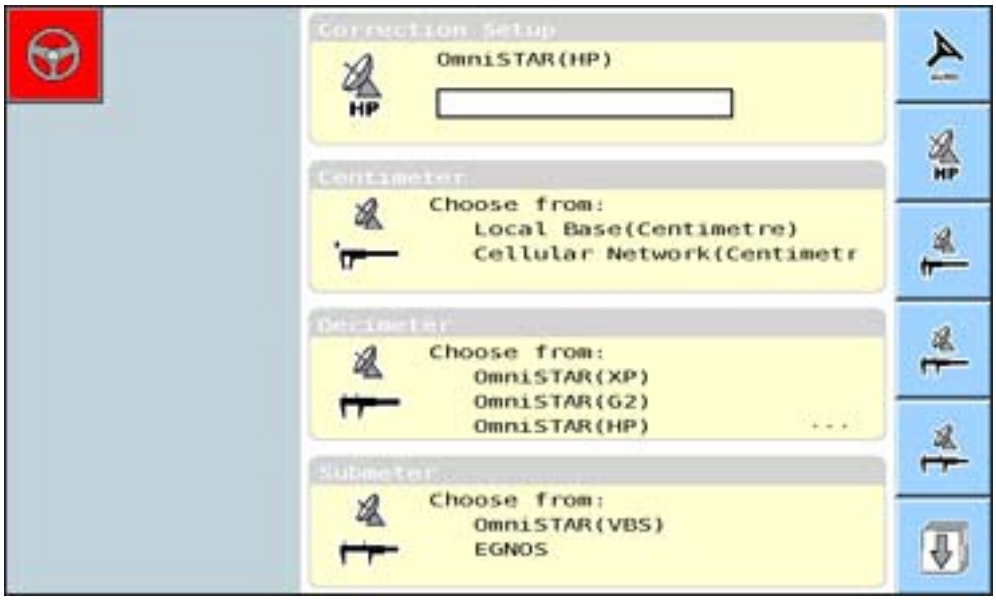
The **Frequency** field should only be updated if you receive notification from your correction source company that the frequency for the correction source has changed.

4. Select the **Allow Fallback** field, if required.

If a high degree of precision is required, do not select **Allow Fallback**.

To access OmniSTAR corrections via the Cellular network select and go to section 4.3 **Configuring Cellular Network**.

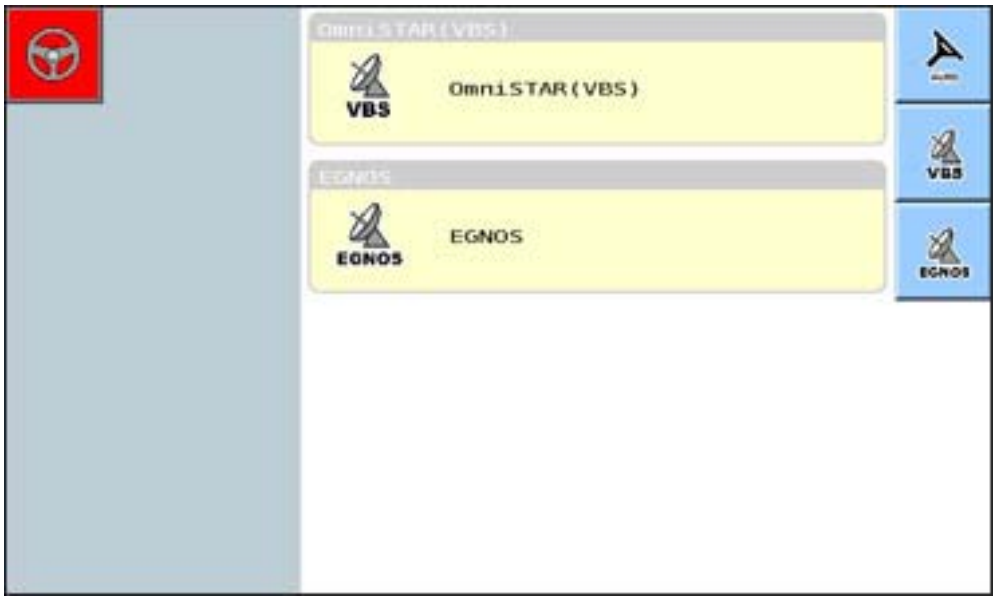
5. Select to accept the changes and return to the previous screen. The correction source you selected is displayed under Correction Setup.



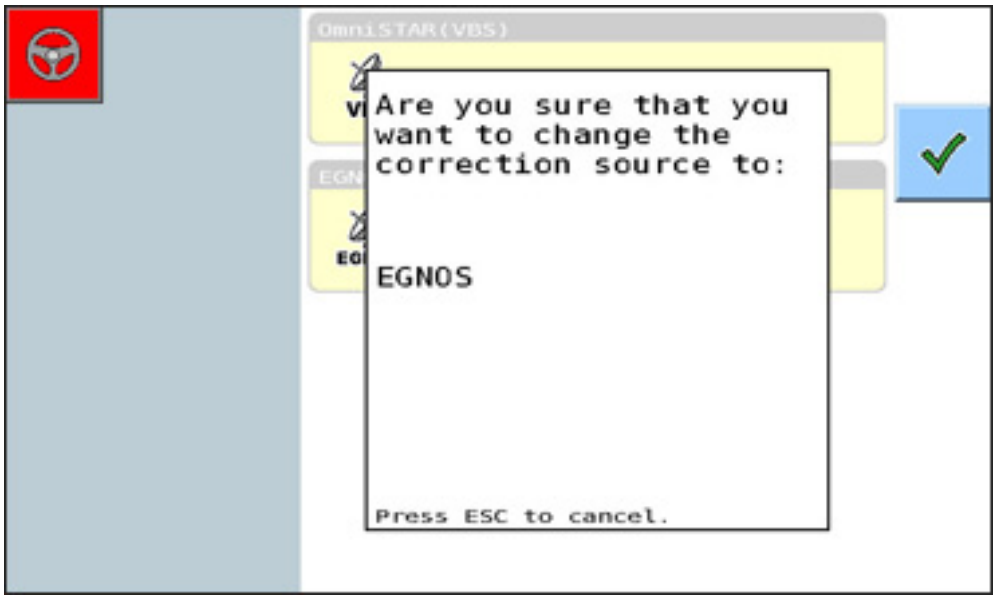
- Red only indicates that there is no correction source.
- Red and yellow indicates that the signal quality is average.
- Green indicates that the signal quality is good

4.5 Configuring SBAS

There are three SBAS correction sources available to the AGI ISO VT depending on the region you are operating in. These are EGNOS (Europe), WAAS (China/Japan), or MSAS (USA/Canada).

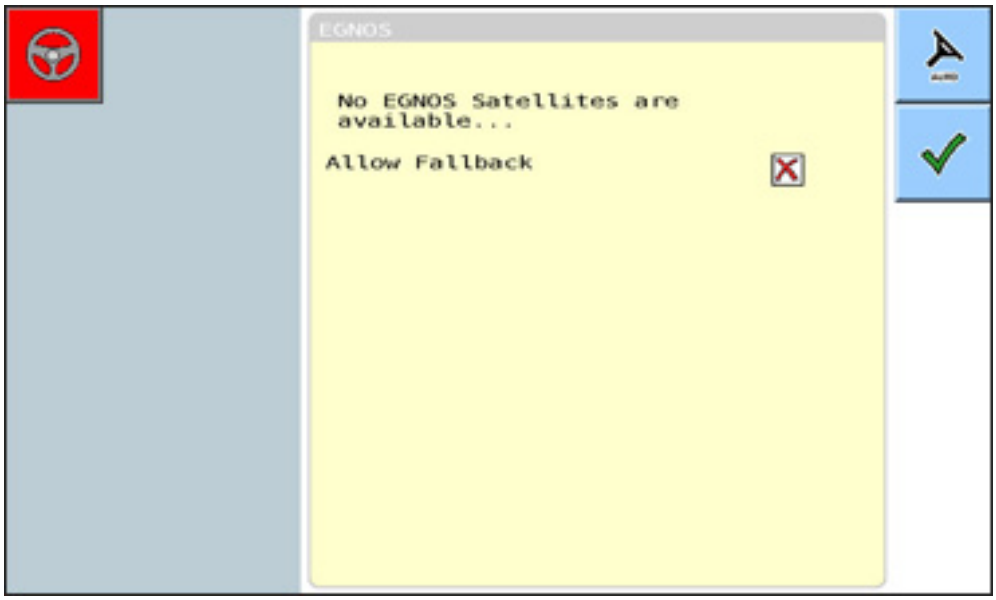


1. Select from the Submeter accuracy sub menu.



2. Select to confirm change of correction source.

The following screen should be displayed it shows the EGNOS option. However, the same option is available for WAAS and MSAS.



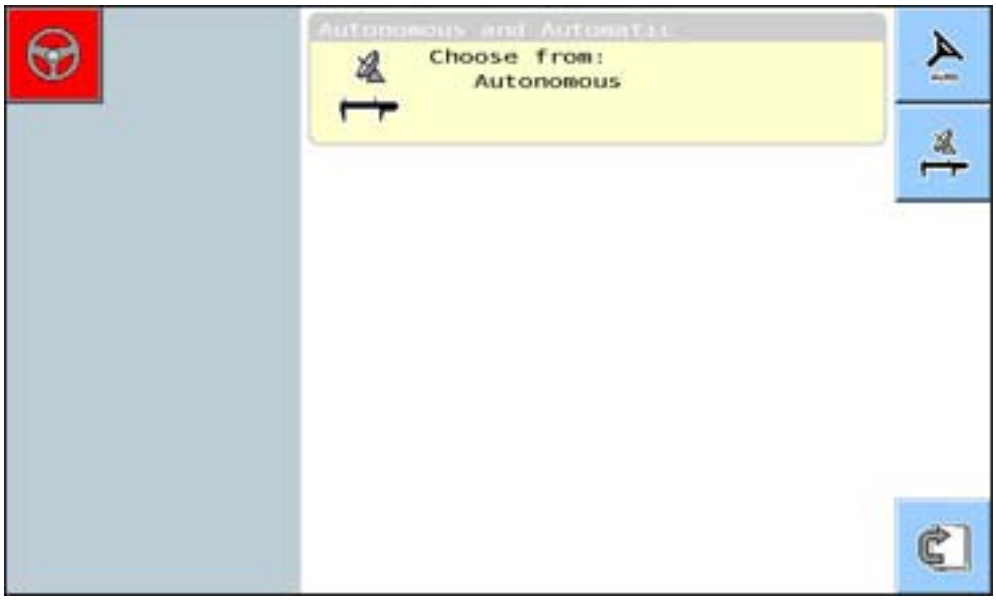
3. Select **Allow Fallback**, if required.

4. Select to accept the changes and return to the previous screen.

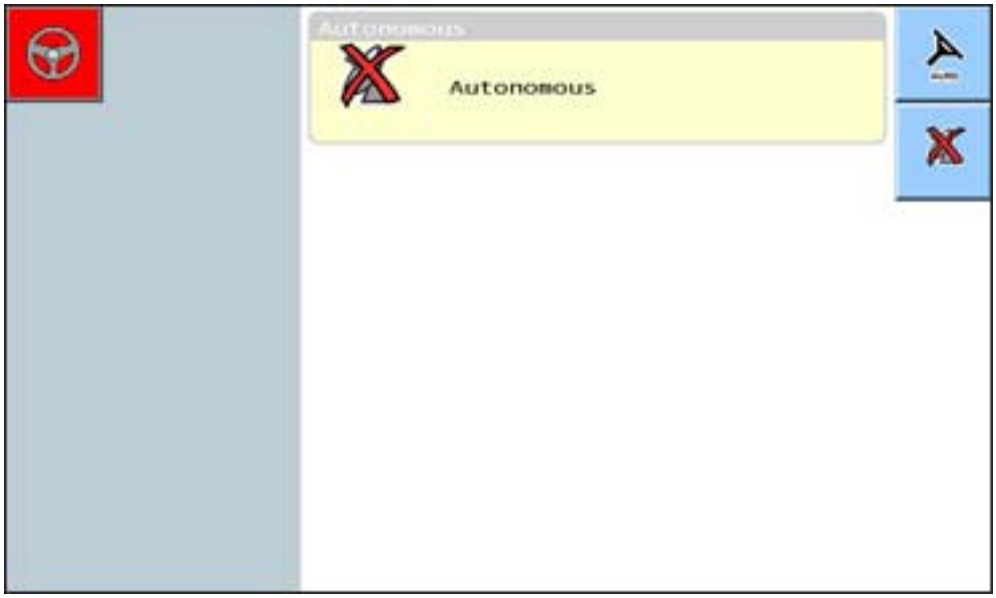
4.6 Configuring Autonomous

Complete the steps below to configure Autonomous mode.

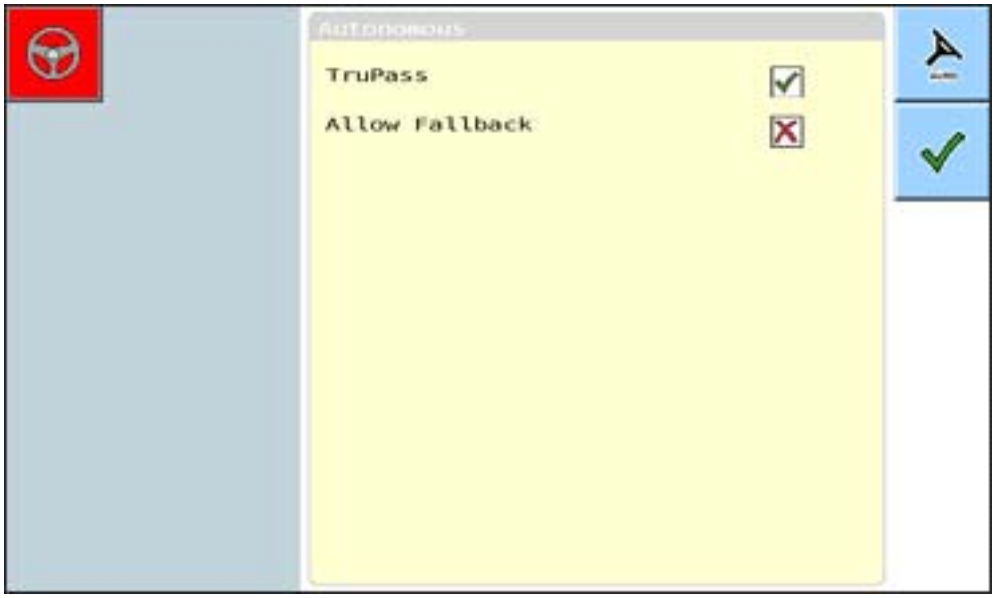
1. Select from the correction set up screen the Autonomous and Automatic selection will be displayed.



2. Select to display the Autonomous and Automatic screen.



3. Select in the Autonomous screen.



4. In the Autonomous screen, select or deselect TruPass, as required.

   TruPass is a feature which enables more accurate reading of GNSS signals when in Autonomous mode.

5. Select or deselect Allow Fallback, as required.
6. Select **Allow Fallback**, if required.
7. Select to accept the changes and return to the previous screen.

Chapter 5 - Vehicle Profiles

This chapter describes how to:

- load and manage vehicle profiles,
- create a new vehicle profile,
- select a steering subsystem, and
- define an antenna position.

This function is available in Advanced mode only.

In this chapter

5.1 Loading a Vehicle Profile

5.2 Create a Vehicle Profile

5.3 Editing a Vehicle Profile

5.4 Selecting a Steering Subsystem

5.5 Defining an External Antenna Position

5.6 Deleting a Vehicle Profile

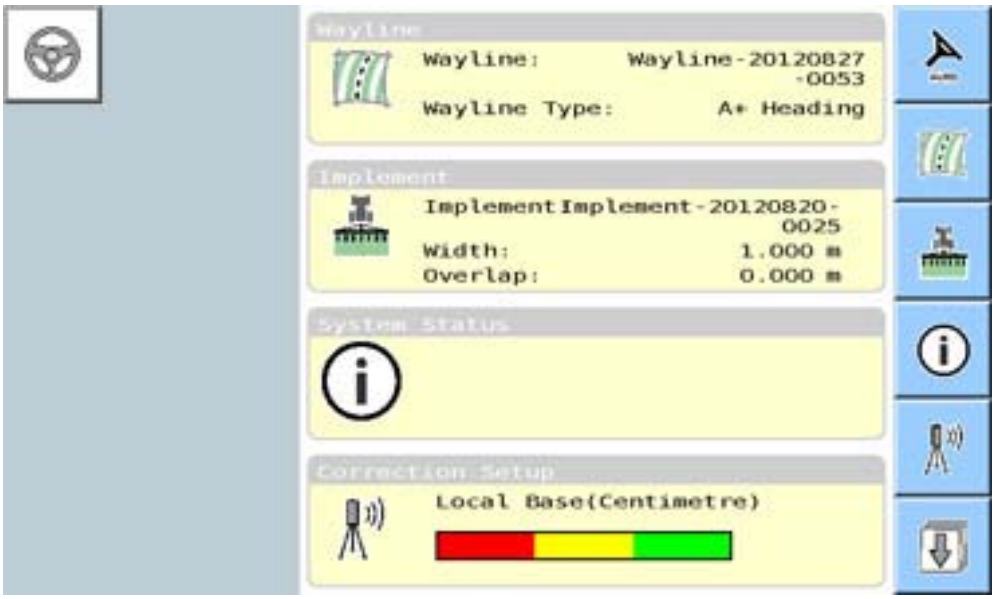
5.1 Loading a Vehicle Profile

Vehicle profiles are provided on a USB stick when you purchase the AGI ISO VT. You must load a suitable vehicle profile before you can start using auto steering.

Complete the steps below to load a vehicle profile.

1. Insert the USB stick which contains the vehicle profile.
2. Select .

   The first screen of the Setup menu is displayed.



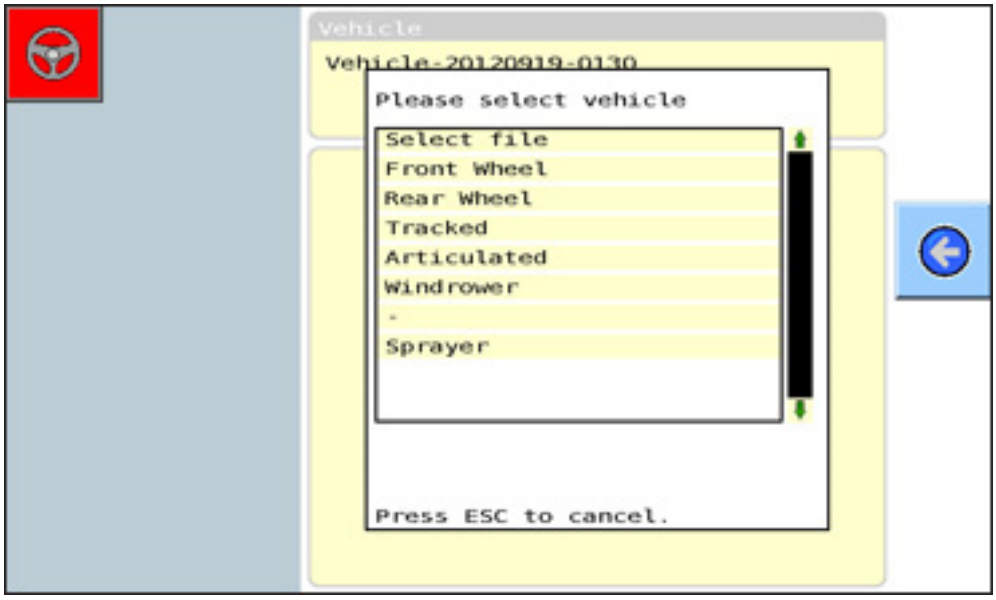
3. Select once to display the Vehicle menu.

4. Select .

   The Vehicle screen is displayed.

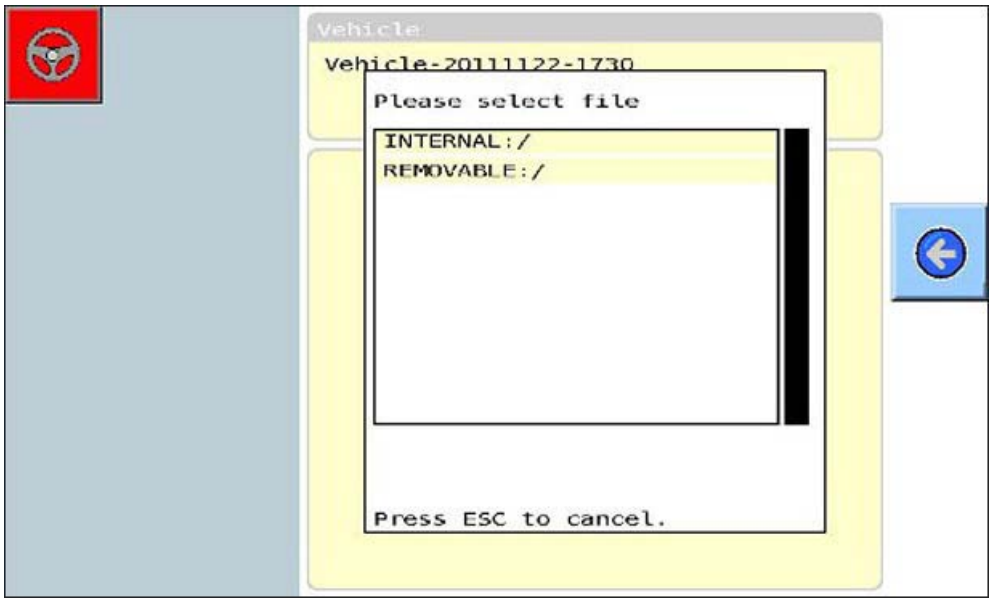
5. Select .

   The following sub-screen is displayed.



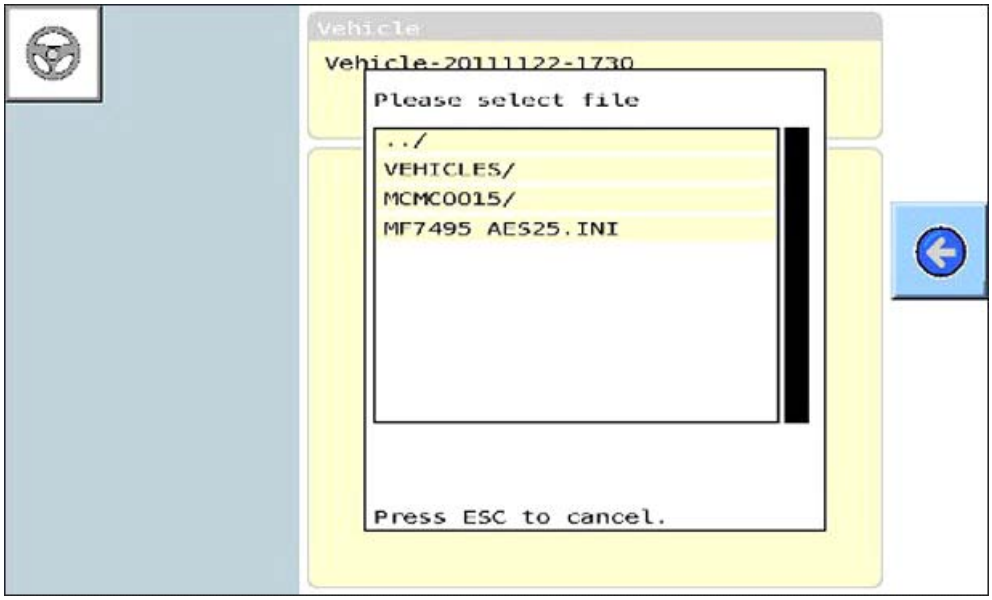
6. Select Select file

   The option to select INTERNAL or REMOVABLE is displayed. in the sub screen.



7. Select REMOVABLE.

   A list of folders and/or vehicle profiles is displayed in the sub-screen.



Vehicle profiles are ‘INI’ files.

A forward slash ‘/’ after a name, e.g.’ VEHICLES/’, indicates that it is a folder which contains other folders and/or files.

If the vehicle profile you require is not displayed, select a folder to display the contents within it.

8. Select the required vehicle profile.

   The vehicle profile is loaded. Note that the profile name changes to ‘Vehicle – [Current date-Current time]’.

9. Select to return to the Setup menu.

5.2 Create a New Vehicle Profile

Complete the steps below to create a vehicle profile by entering all the information manually.

1. Select

   The first screen of the Setup menu is displayed.

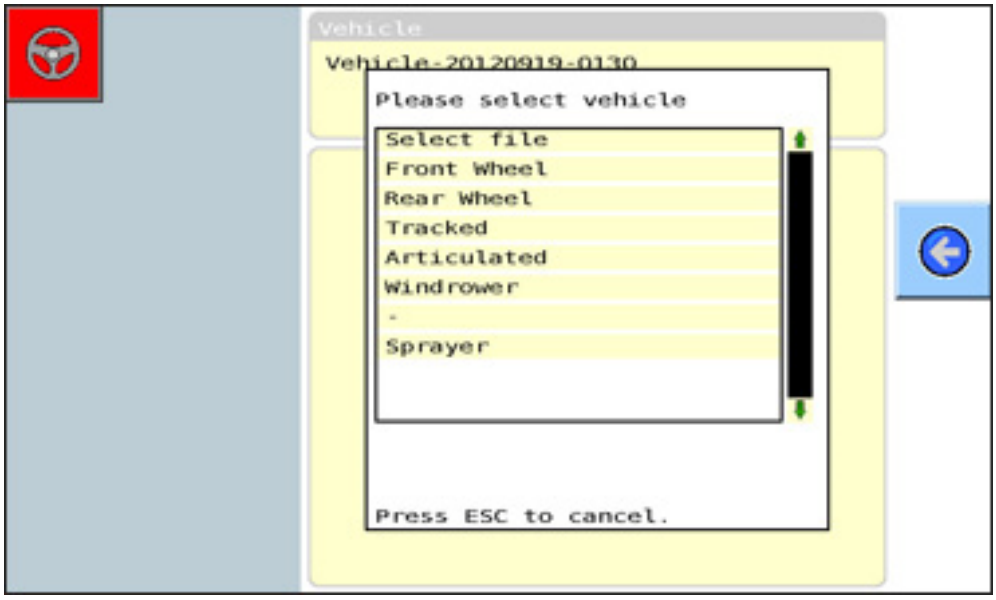
2. Select once to display the Vehicle menu.

3. Select .

The Vehicle screen is displayed.

4. Select .

The following sub-screen is displayed.

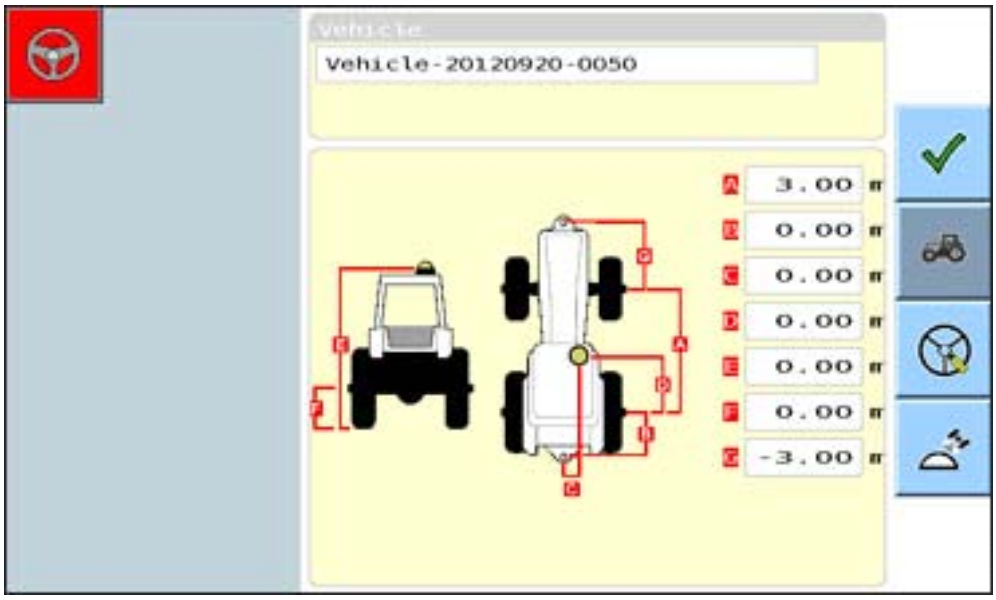


5. Select the required Vehicle type from the list.

The Vehicle screen displays the dimensions of the vehicle.

Before you enter the vehicles dimensions, ensure you measure the vehicle dimensions as accurately as possible. The recommended tolerance is +/- 5 cm. This is important because inaccurate dimensions may have an adverse effect on autoguidance precision.

6. Enter the vehicle dimensions and rename vehicle if required.



The vehicle images displayed on the above screen will vary depending on the type of vehicle selected. The dimensions will also be different.

7. Select to accept the settings and return to the guidance screen.

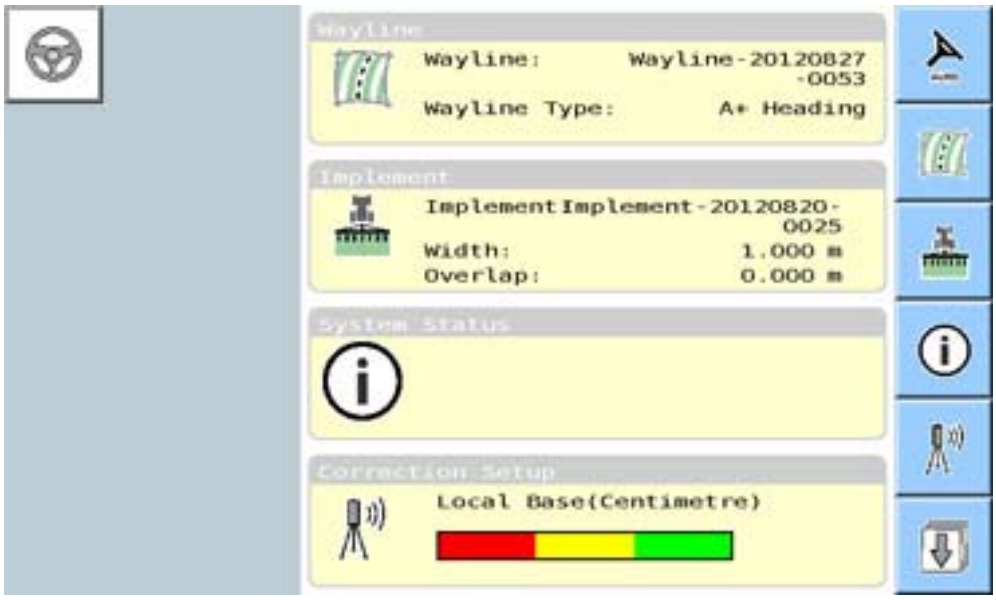
5.3 Editing a Vehicle Profile

Before you edit a vehicle profile, ensure you measure the vehicle dimensions as accurately as possible. The recommended tolerance is +/- 5 cm. This is important because inaccurate dimensions may have an adverse effect on autoguidance precision.

Complete the steps below to edit an existing vehicle profile.

1. Select .

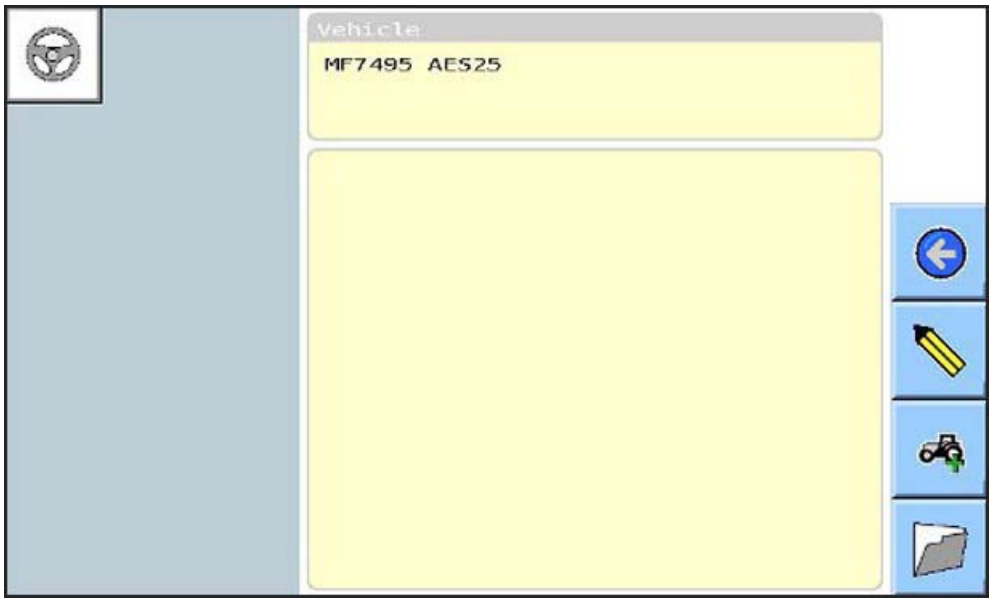
   The first screen of the Setup menu is displayed.



2. Select once to display the Vehicle sub-menu.

3. Select .

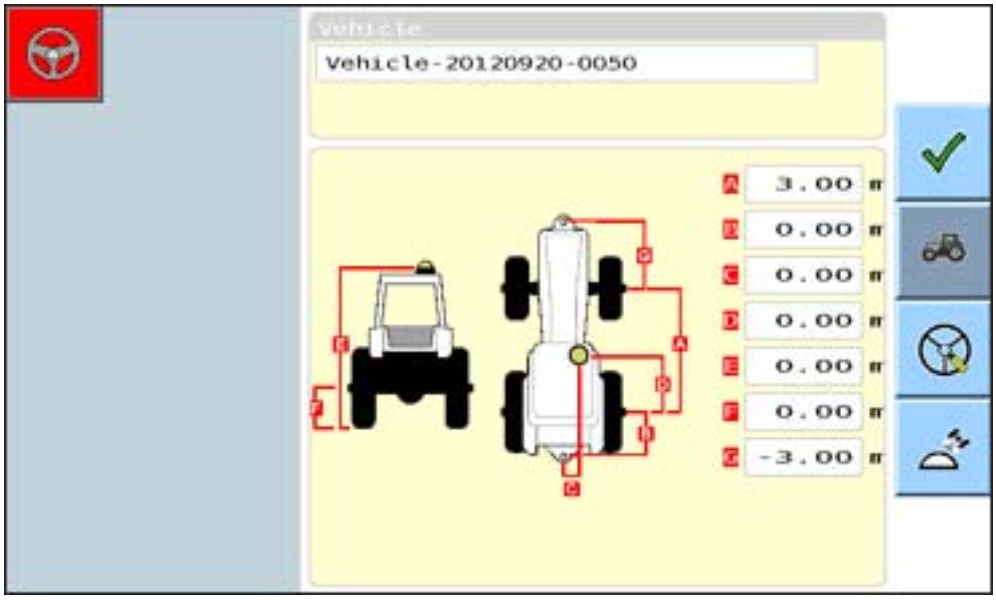
   The Vehicle screen is displayed.



4. Select .

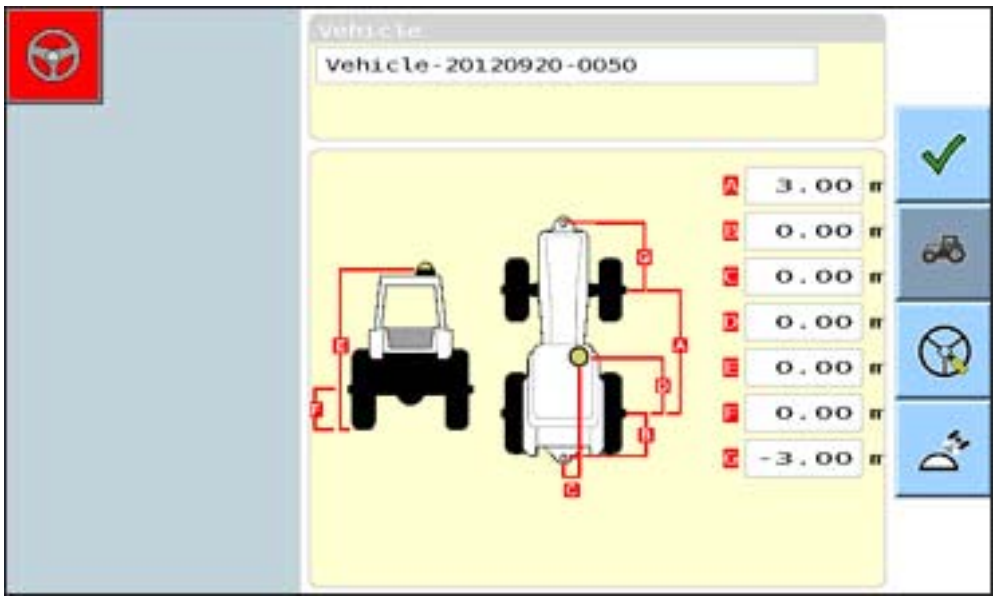
   The Vehicle screen displays the dimensions of the vehicle.

   You can edit both the vehicle dimensions and the vehicle name.



The vehicle images displayed on the above screen will vary depending on the type of vehicle. The dimensions will also be different.

5. Edit the vehicle dimensions as required.



6. If you wish to edit the vehicle profile name, select the first field under Vehicle, and use the Virtual Keyboard to enter a new name for the vehicle profile.

For information on how to use the virtual keyboard, refer to *1.10 Using the Virtual Keyboard*.

7. When you have completed your edits, select to save the changes.

8. Select to return to the Setup menu.

5.4 Selecting a Steering Subsystem

The AGI ISO VT operates with the following steering subsystems:

- AES – 25: TOPCON Electric Steering Wheel
- Fendt: Fendt Tractor Steering Controllers
- PVED
- ACU-1
- MT Track Steering Subsystem

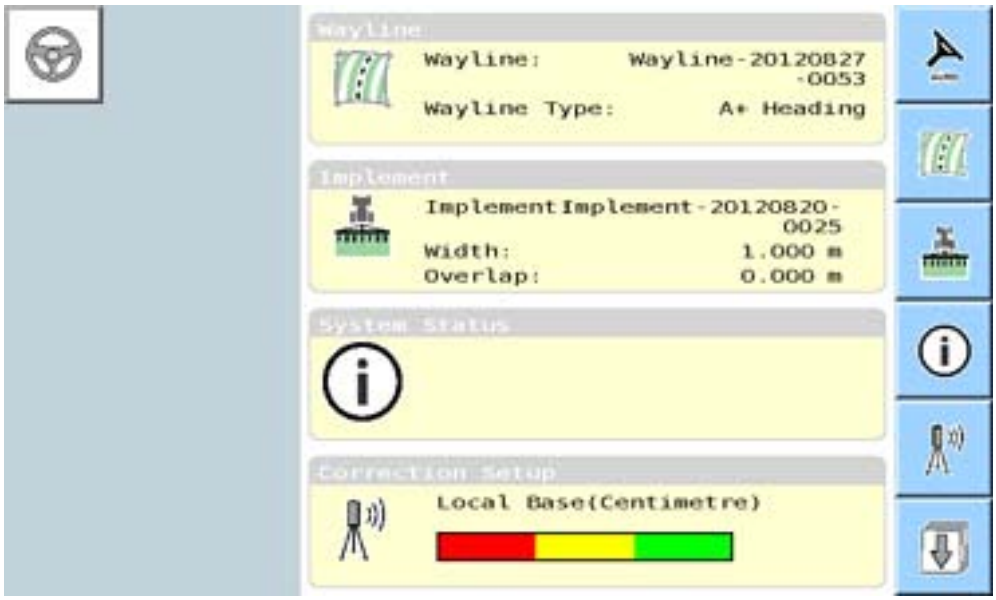
‘Automatic’ is selected for the steering subsystems that the AGI ISO VT can automatically detect e.g. PVED, ACU-1 and MT Track.

‘Automatic’ will not detect AES – 25 or FENDT steering controllers. These must be manually selected.

Complete the steps below to select a steering subsystem.

1. Select .

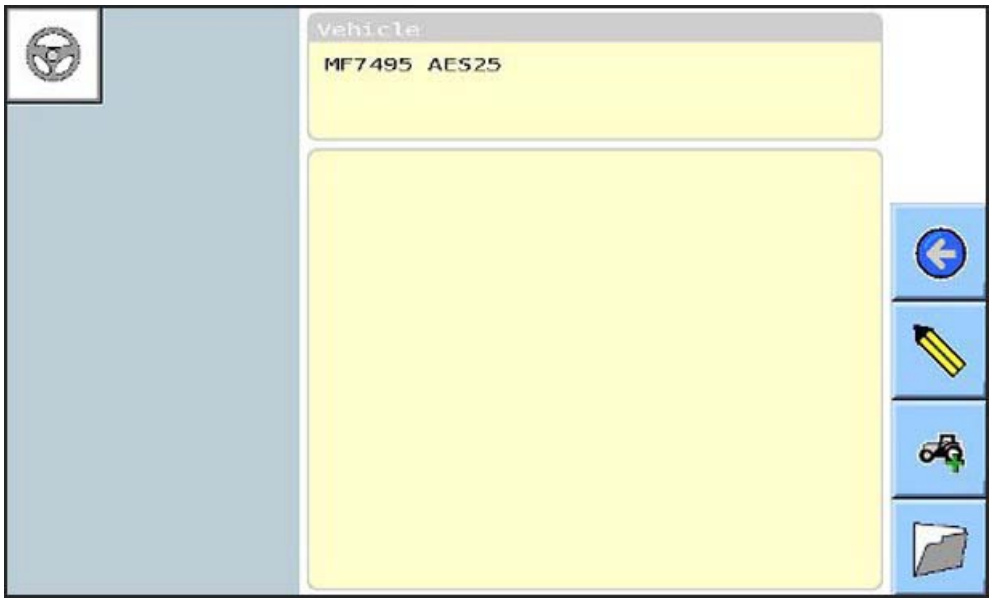
   The first screen of the Setup menu is displayed.



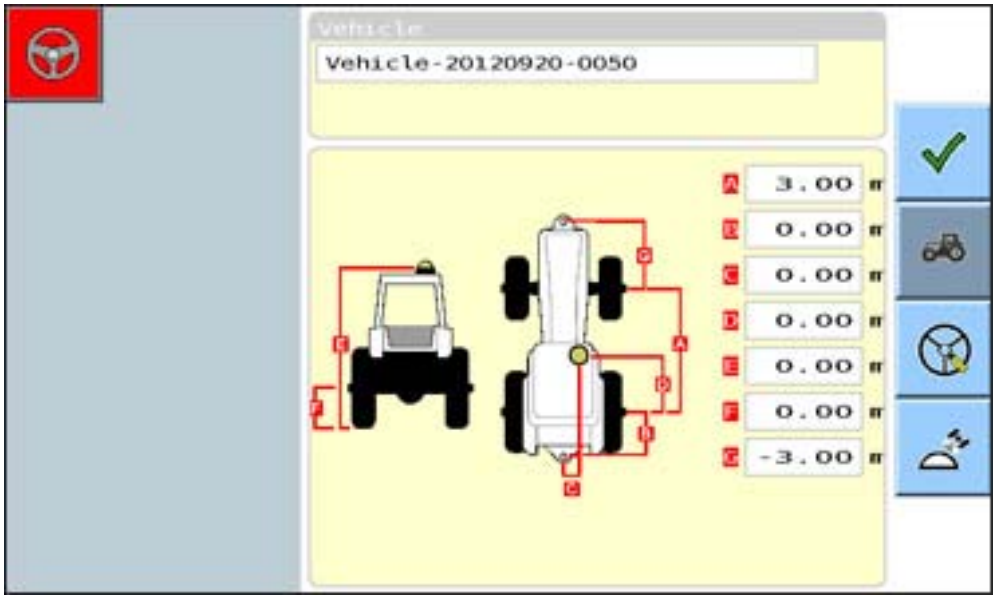
2. Select to display the Vehicle sub-menu.

3. Select .

   The Vehicle screen is displayed.

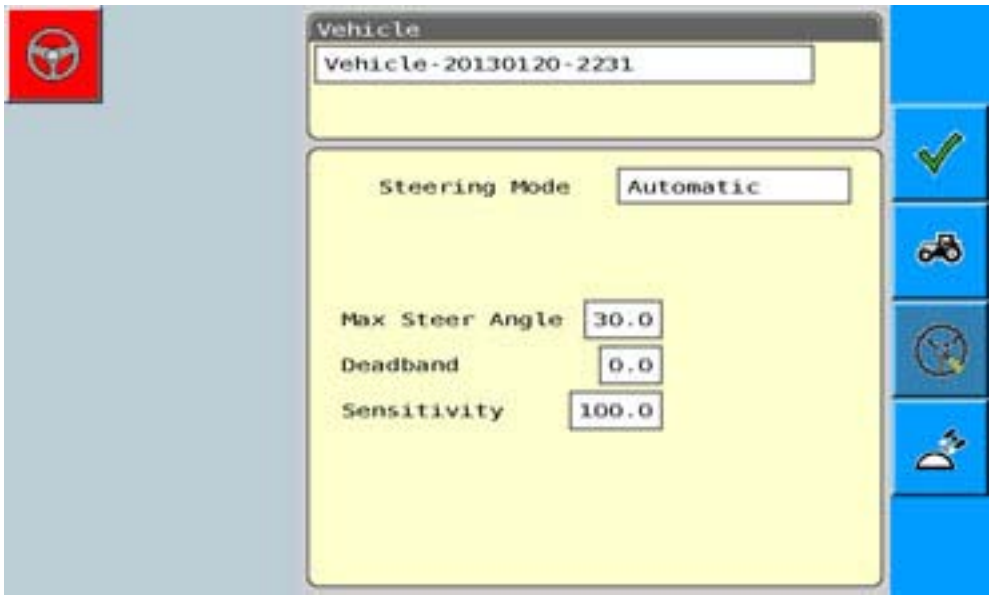


4. Select to display the Steering Mode ( ) button.



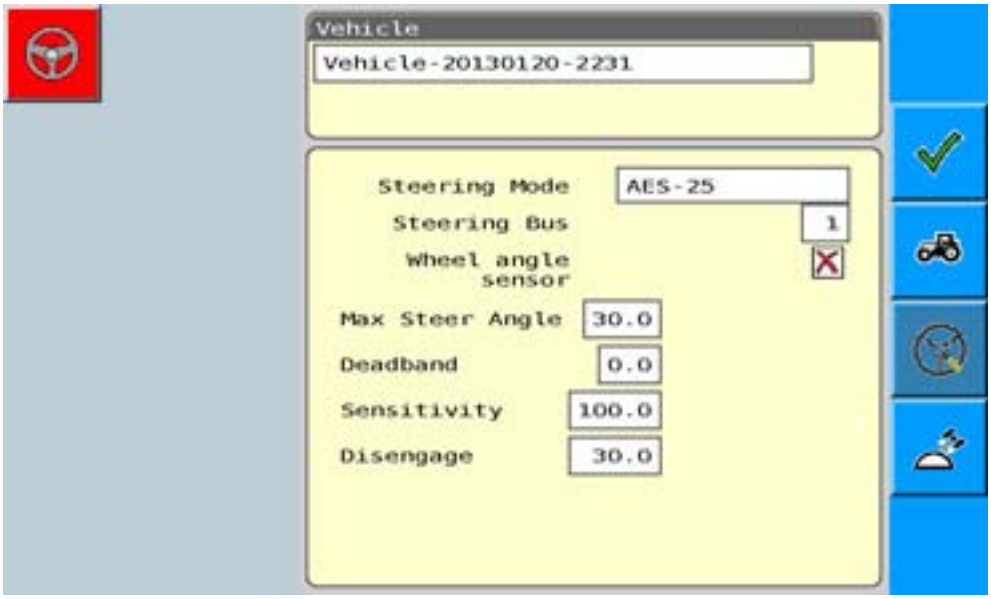
5. Select .

   The steering mode screen is displayed. The example below shows the Automatic steering mode selected.

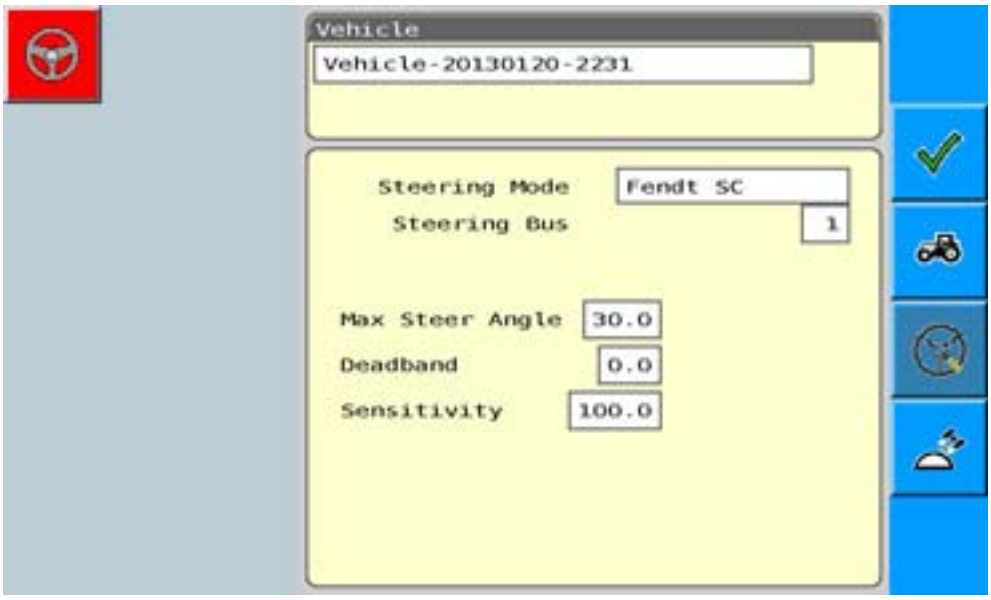


6. Update the **Steering Mode** field, as required.

   If you selected AES-25 the following screen is displayed



   If you select Fendt, the following screen is displayed.



7. Set Max Steering Angle as required.
8. Set Deadband as required.
9. Set Sensitivity as required.
10. Select a **Steering Bus**, if required.

Controller Area Network (CAN) Bus 1 is used for AGI ISO VT communications.
CAN Bus 2 is used for the steering subsystem

11. If you select AES-25 as the steering subsystem, ensure the **Wheel angle sensor** option is deselected.
12. If you select AES-25 as the steering subsystem set the Disengage Threshold as required.
13. Select to save your changes and return to the previous screen.

Changing the default settings of the steering controller can affect the performance of the vehicles steering. These setting should only be changed by a dealer or qualified technician.

5.5 Defining an External Antenna Position

Use this procedure to specify the position of an external antenna in relation to the receiver.

In some vehicles, the receiver cannot receive GNSS and correction source signals because it is obstructed by a part of the vehicle. In such cases, an external antenna can be used to relay the signals to the receiver.

Before you begin this procedure, ensure you measure the distance:

- from the centre of the receiver to the antenna reference point (ARP), along the x and y axes, and
- from the point on the ground directly below the external antenna to the ARP.

The ARP is a point on the antenna that is used for measuring distances between it and other objects.

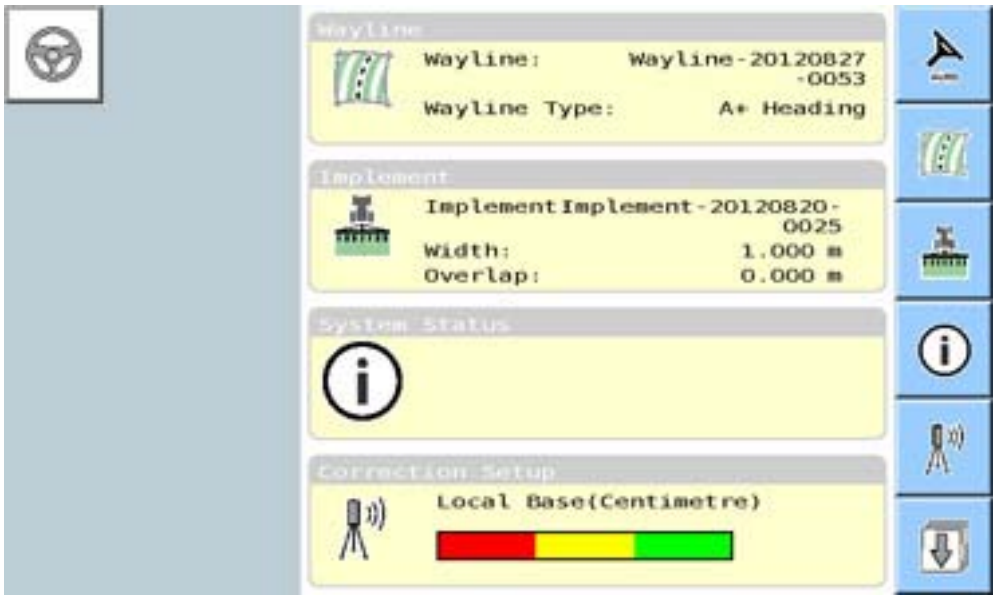
The exact location of the ARP will vary depending on the antenna.

Refer to the manufacturer’s reference manual for more information regarding the location of the ARP on your antenna.

Complete the steps below to define the antenna position.

1. Select .

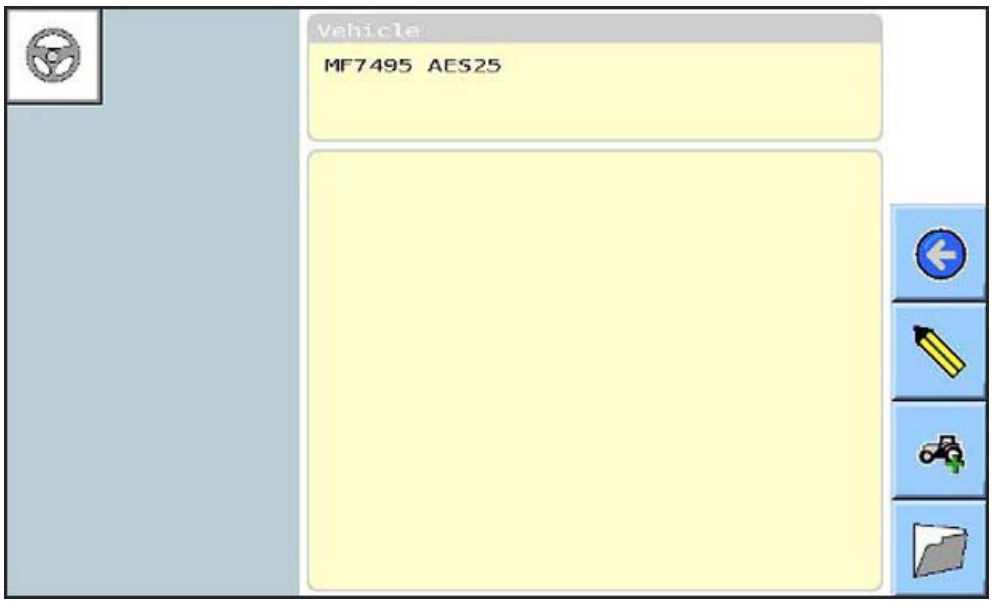
   The first screen of the Setup menu is displayed.



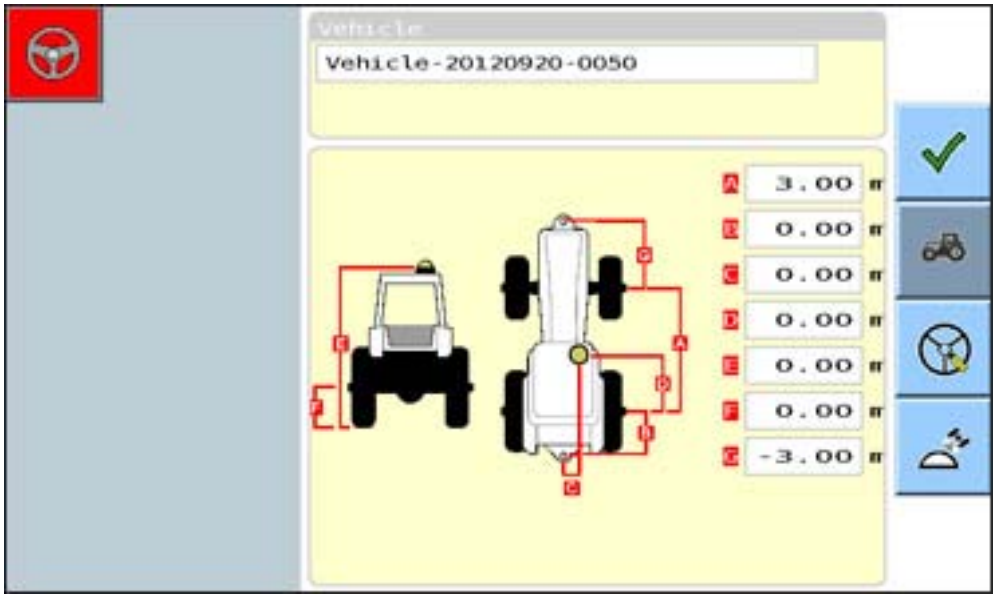
2. Select to display the Vehicle sub-menu.

3. Select .

   The Vehicle screen is displayed.

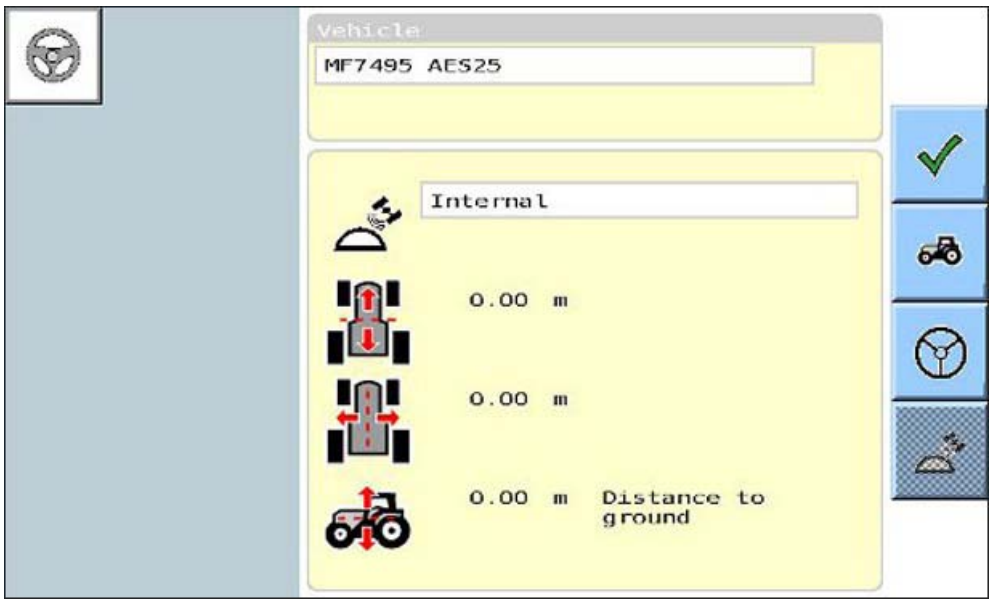


4. Select to display the Antenna ( ) button.



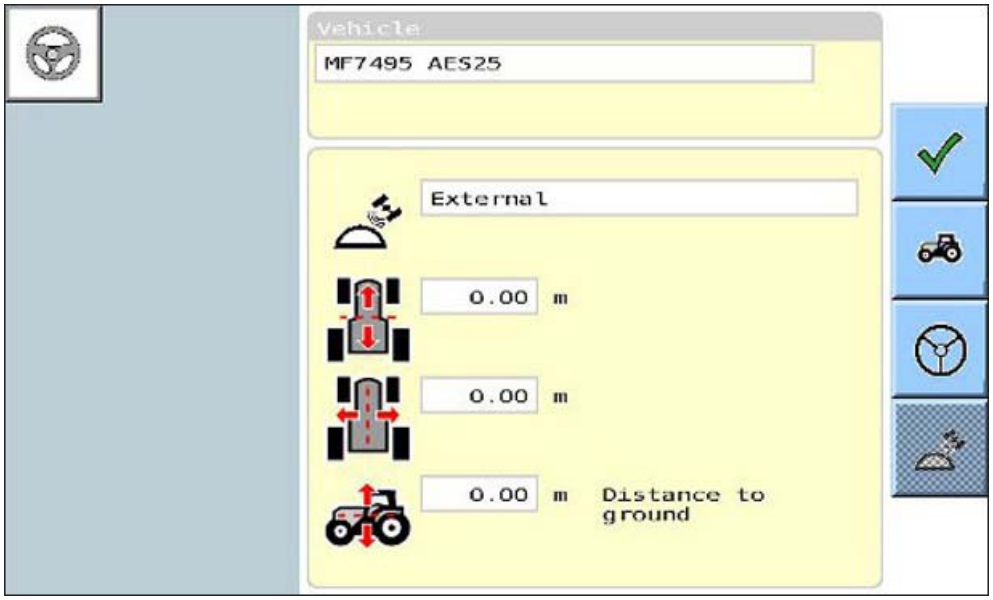
5. Select .

   The antenna screen is displayed.



6. In the first field, select ‘External’.

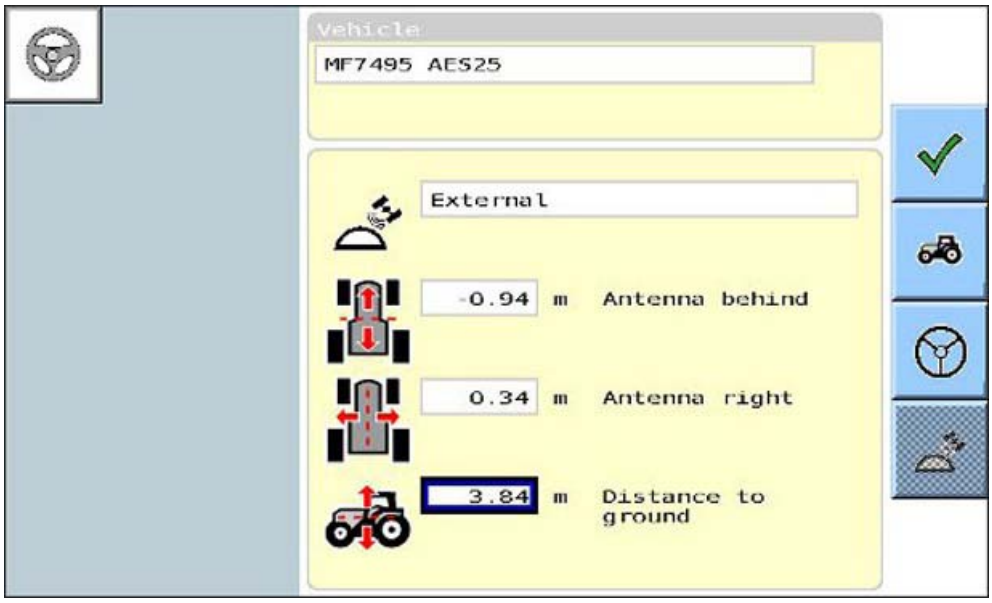
   The measurement fields are activated.



7. Update the measurement fields as required.

   - The first field captures the distance from the centre of the receiver to the ARP of the antenna along the y axis. A positive amount indicates that the antenna is located to front of the receiver. A negative amount indicates the antenna is located to the rear of the receiver.
   - The second field captures the distance from the centre of the receiver to the ARP of the antenna along the x axis. A positive amount indicates that the antenna is located to the right of the receiver. A negative amount indicates that the antenna is located to the left of the receiver.
   - The **Distance to ground** field captures the distance from the point on the ground directly below the antenna to the ARP of the antenna.

   The screen below shows an example of an external antenna with fields completed.



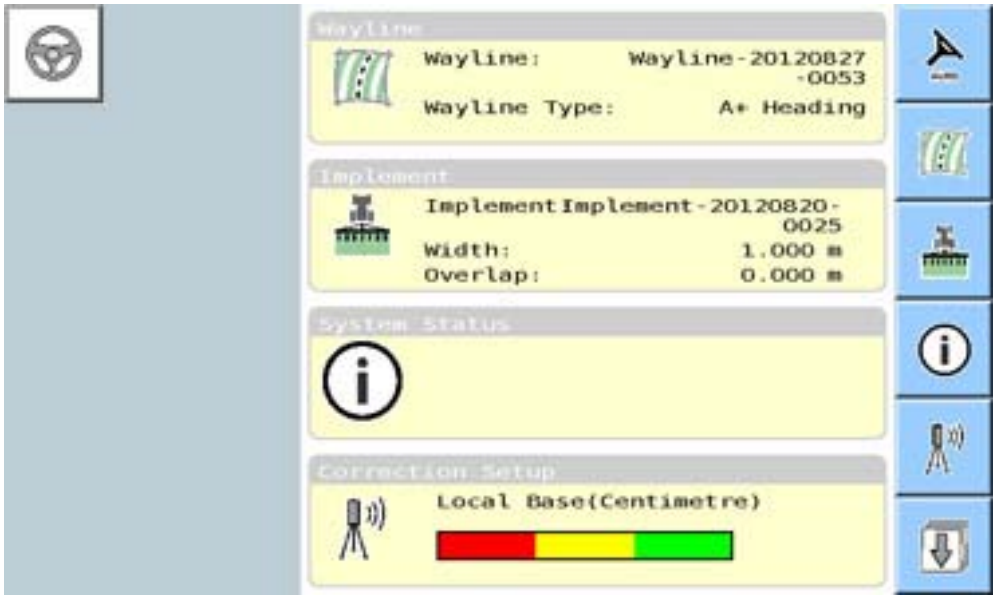
8. Select to save the changes and return to the previous screen.

5.6 Deleting a Vehicle Profile

Complete the steps below to delete a vehicle profile.

1. Select .

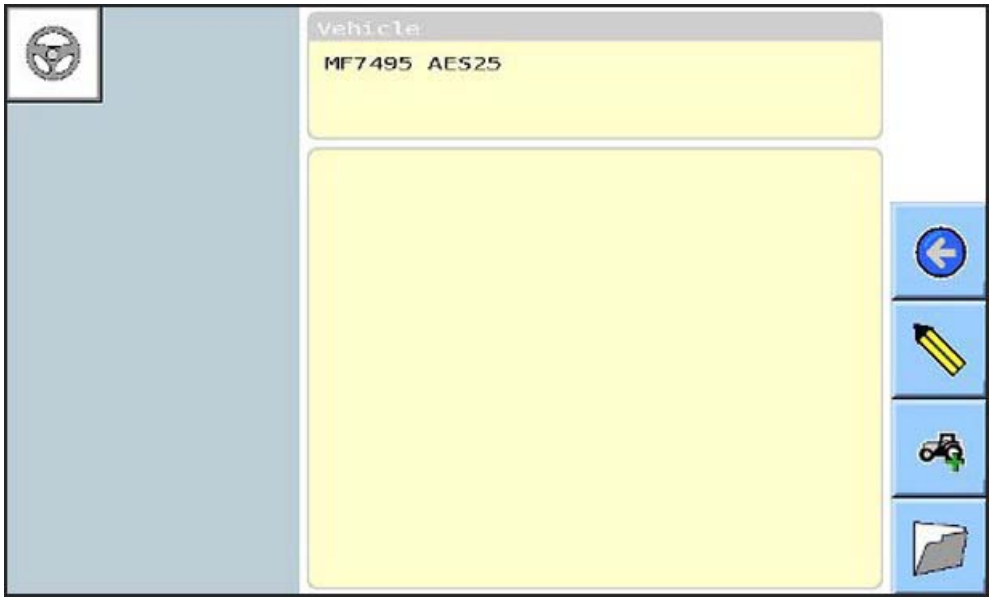
   The first screen of the Setup menu is displayed.



2. Select to display the Vehicle sub-menu.

3. Select .

   The Vehicle screen is displayed.



4. Is the vehicle you want to delete displayed?

   - If **yes**, go to step 9.
   - If **no**, continue.

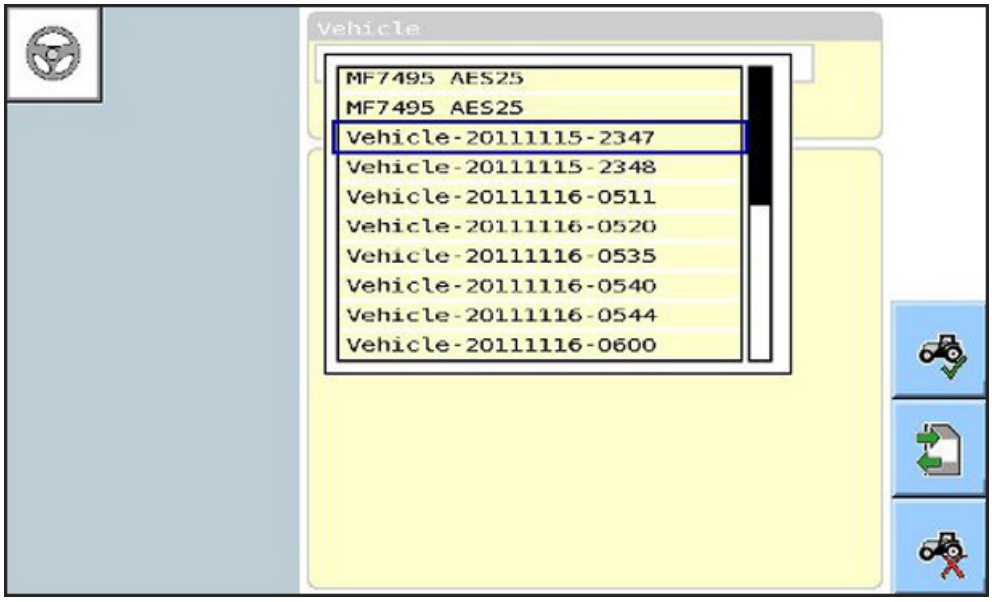
5. Select .

   The **Vehicle** field becomes editable.

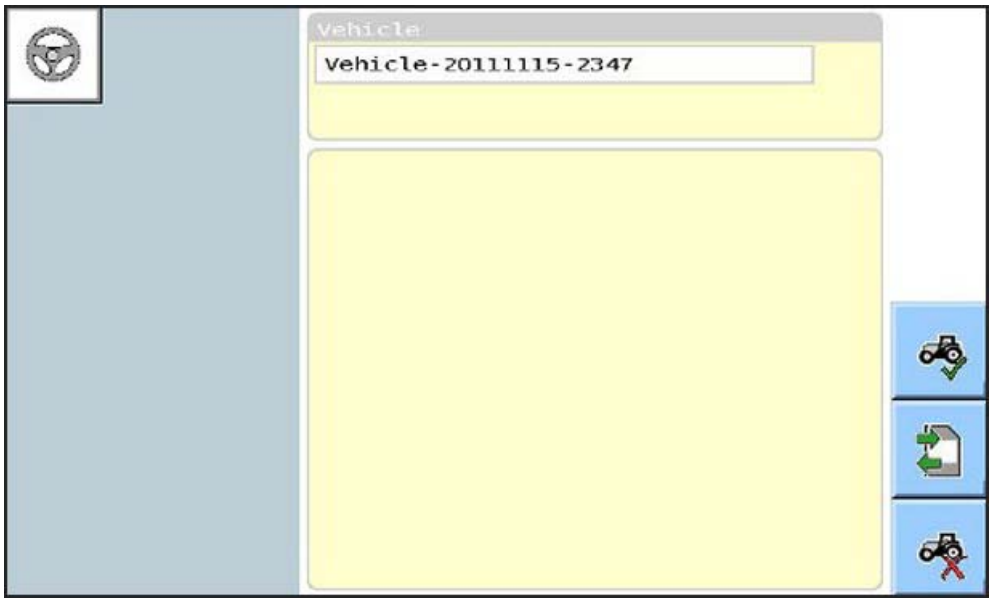
6. Select the **Vehicle** field.

   A list of vehicle profiles is displayed.

7. Highlight the required vehicle profile.

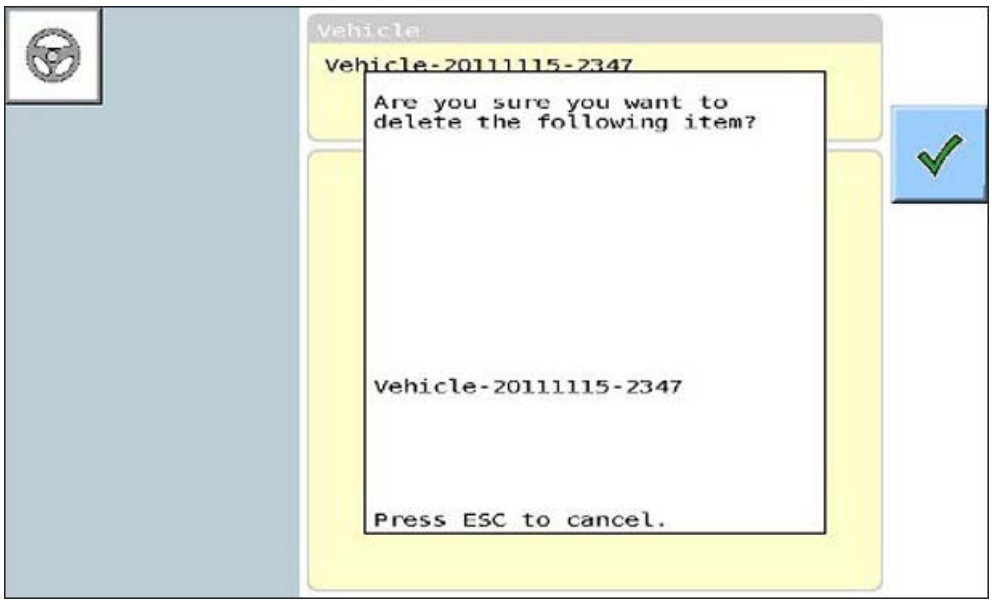


8. Select the vehicle profile.



9. Select .

   The following confirmation message is displayed.



10. Select to delete the vehicle profile and return to the previous screen.

Chapter 6 - Implement Profiles

This chapter describes how to define and manage implement profiles.

This function is available in Advanced mode only.

In this chapter

6.1 Defining an Implement Profile

6.2 Selecting an Implement Profile

6.3 Editing an Implement Profile

6.4 Deleting an Implement Profile

6.1 Defining an Implement Profile

Defining an implement profile means defining the:

- implement's type and location in relation to the vehicle and direction of travel
- width
- offset, and
- link length.

The width of an implement and the overlap amount will determine the swath width and therefore the distance between the waylines.

Before you define an implement profile, ensure you measure the implement width, link length, offset and overlap amount as accurately as possible. This is important because inaccurate dimensions may have an adverse effect on autoguidance precision. The recommended tolerance is +/- 5 cm.

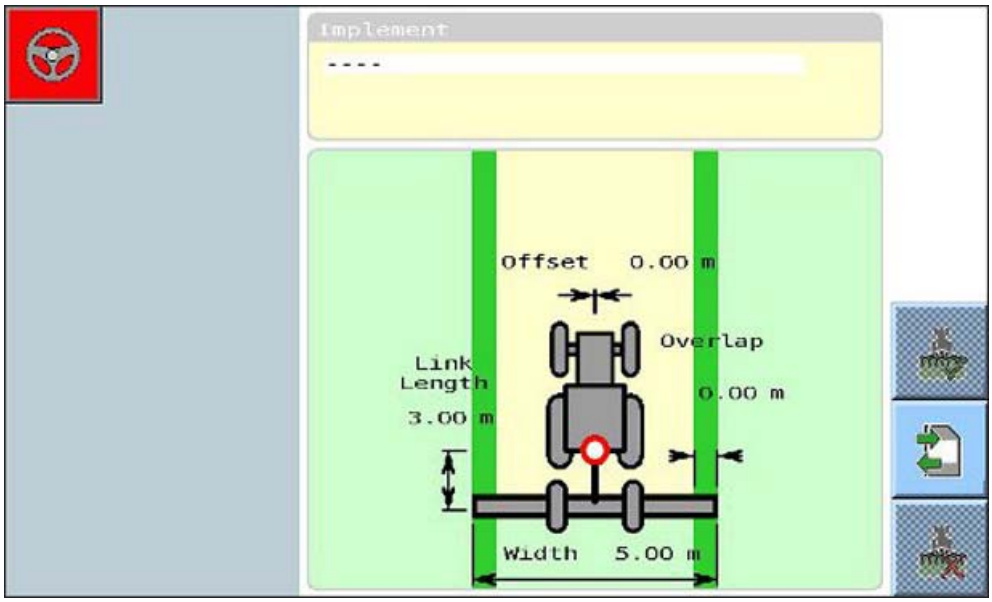
Complete the steps below to set up a new implement profile.

1. In the Guidance screen, select .

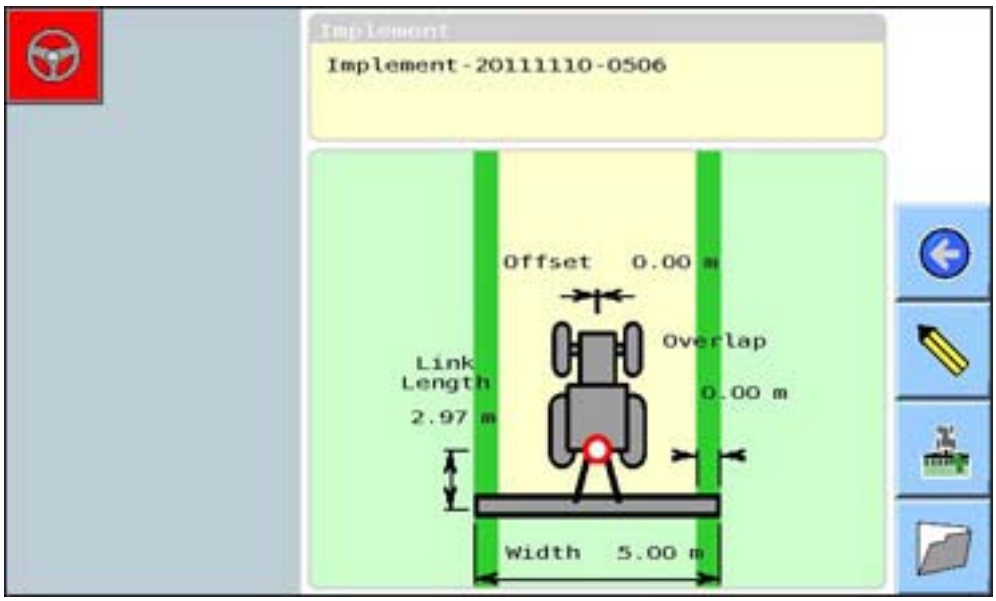
   Alternatively, if this button is not displayed in the Guidance screen, select then .

   The Implement screen is displayed.

If no implement is loaded, the field under Implement is blank, as shown in the example below.



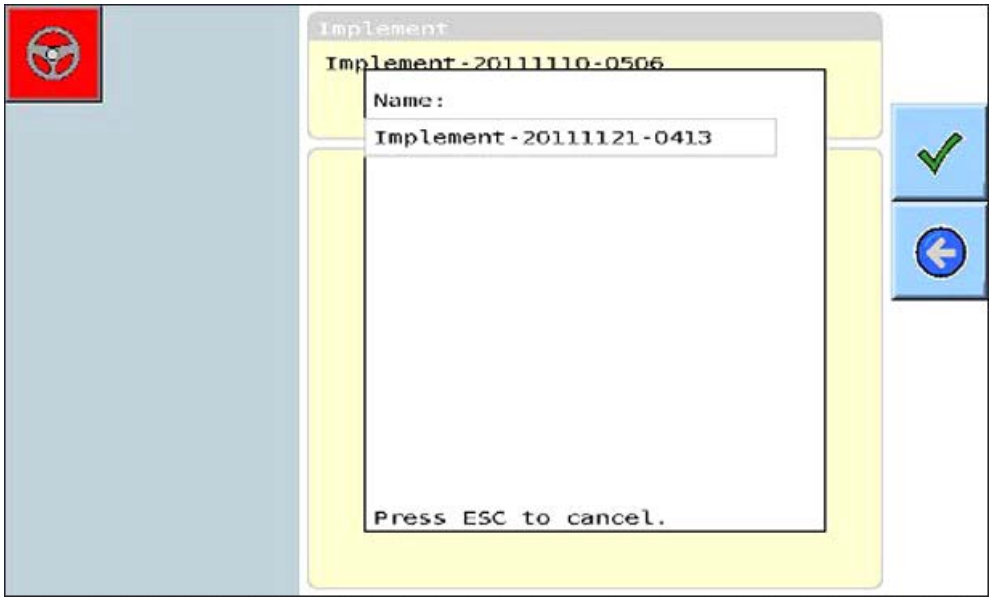
If an implement has already been loaded, the name of the loaded implement is displayed at the top of the screen, as shown in the example below.



2. Select .

   The Name sub-screen is displayed.

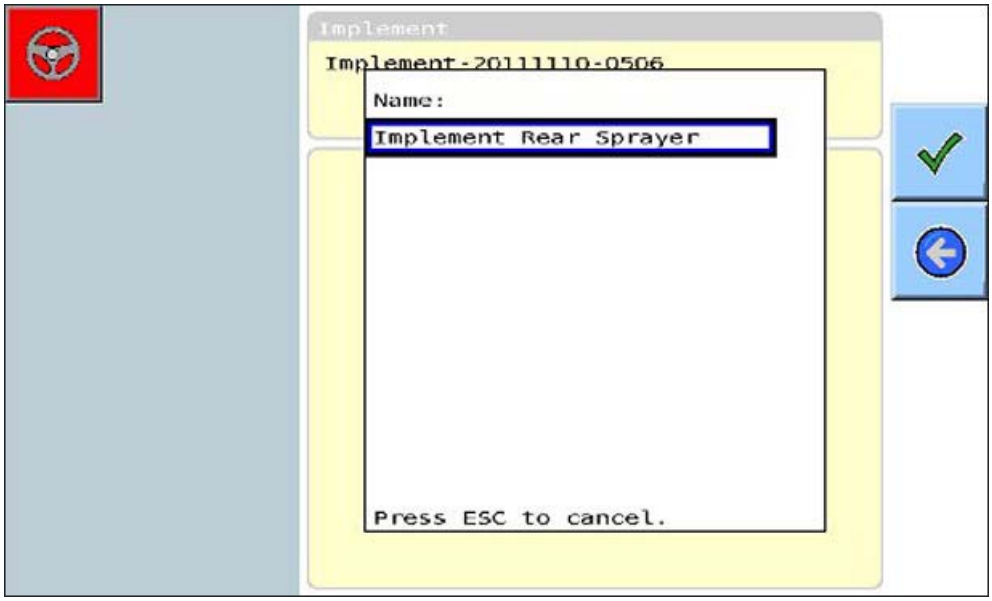
   The system will automatically insert the current date and time after ‘Implement’ in the **Name** field, as shown in the example below.



3. If you wish to edit the implement profile name, select the **Name** field, and use the virtual keyboard to enter a new name for the implement profile.

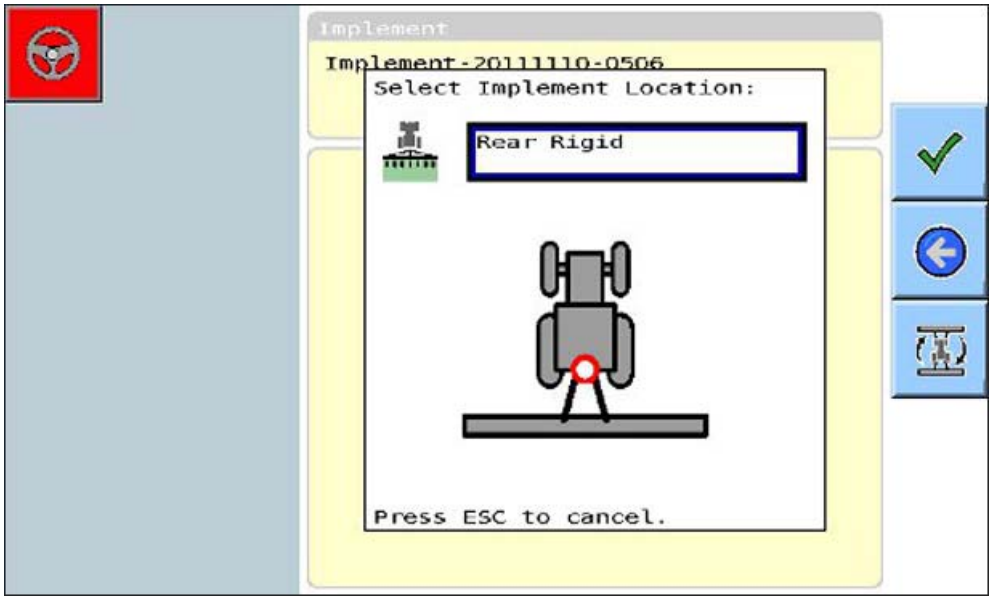
   For information on how to use the virtual keyboard, refer to *1.10 Using the Virtual Keyboard*.

The Name sub-screen displays the name you entered.



4. Select .

The Select Implement Location sub-screen is displayed.



5. In the **Select Implement Location** field, select the implement type.

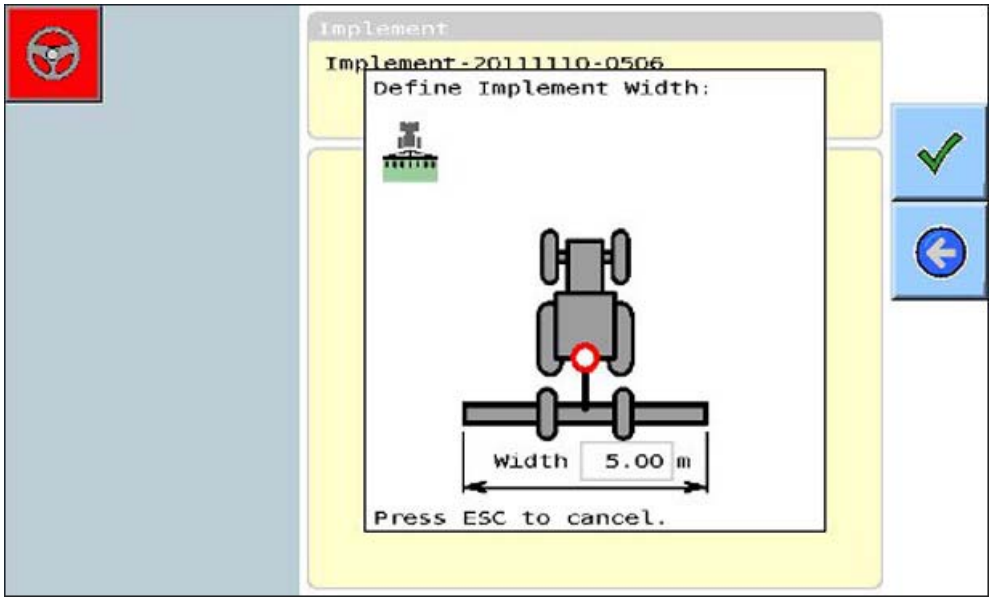
   There are three implement types:

   - Rear Rigid
   - Rear Trailed
   - Front Rigid

   Alternatively, use to select one of the three options.

6. Select to accept the changes.

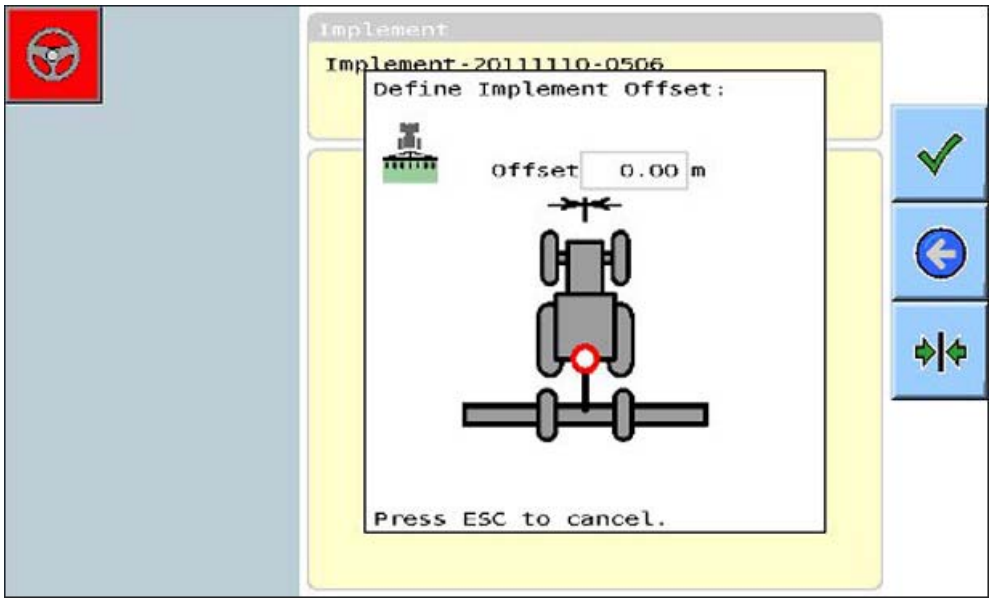
   The Define Implement Width sub-screen is displayed.



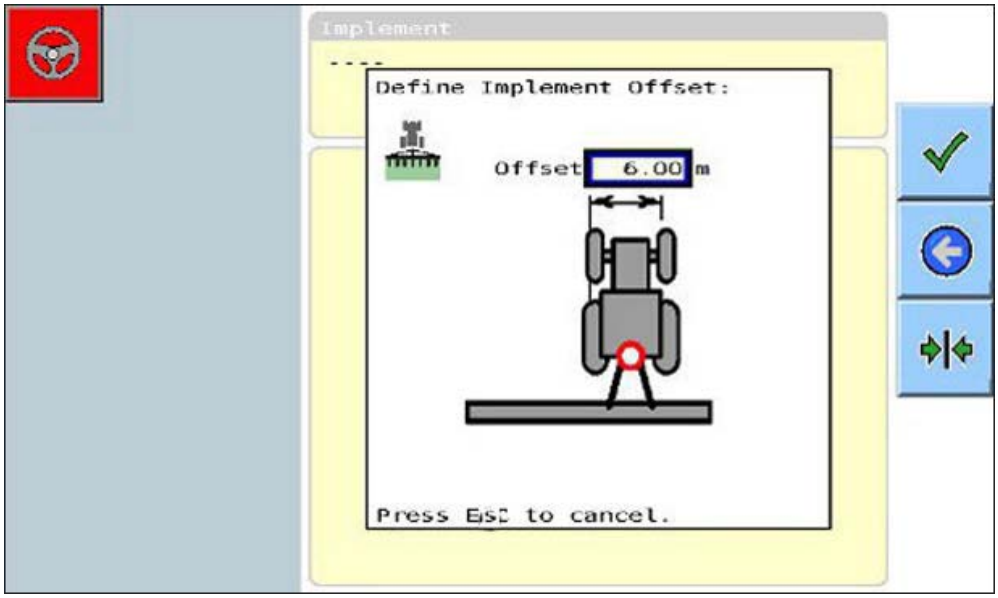
7. In the **Width** field, enter the total width of the implement.

8. Select to accept the changes.

   The Define Implement Offset sub-screen is displayed.



9. In the **Offset** field, enter the offset amount, if required.



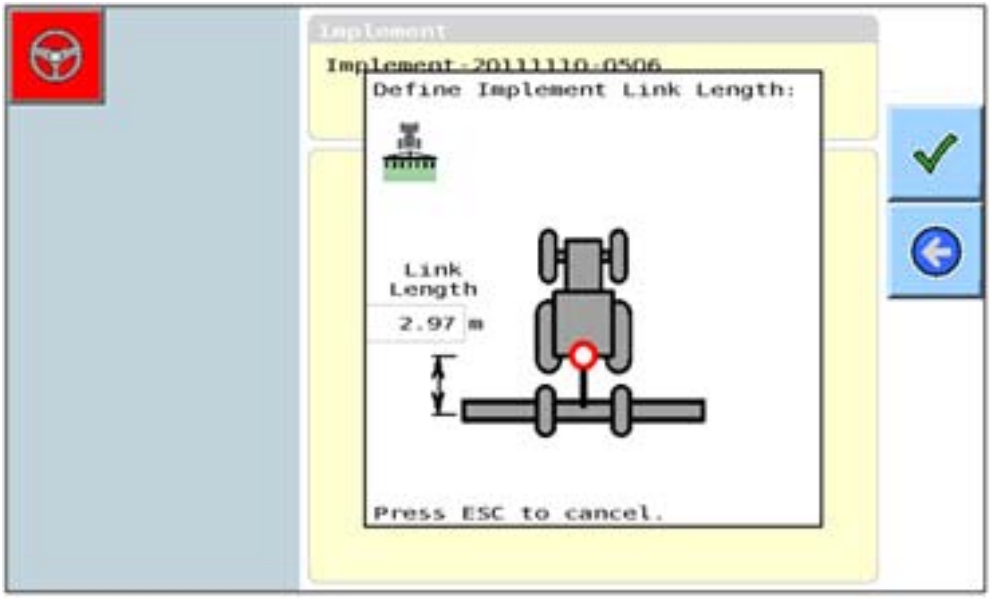
The offset amount is the amount by which the implement is placed so that its centre is either to the right or left of the drawbar point. A positive amount indicates that the implement is to the right of the drawbar point. A negative amount indicates that it is to the left of the drawbar point.

If the implement is perfectly centered, the offset should be set to zero.

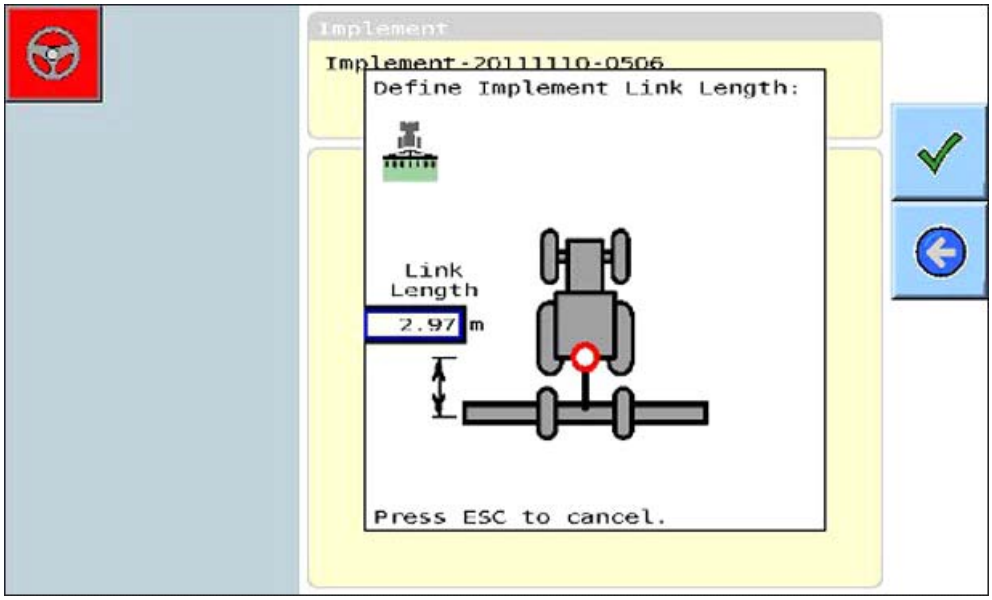
The button centres the implement.

10. Select to accept the changes.

The Define Implement Link Length sub-screen is displayed.



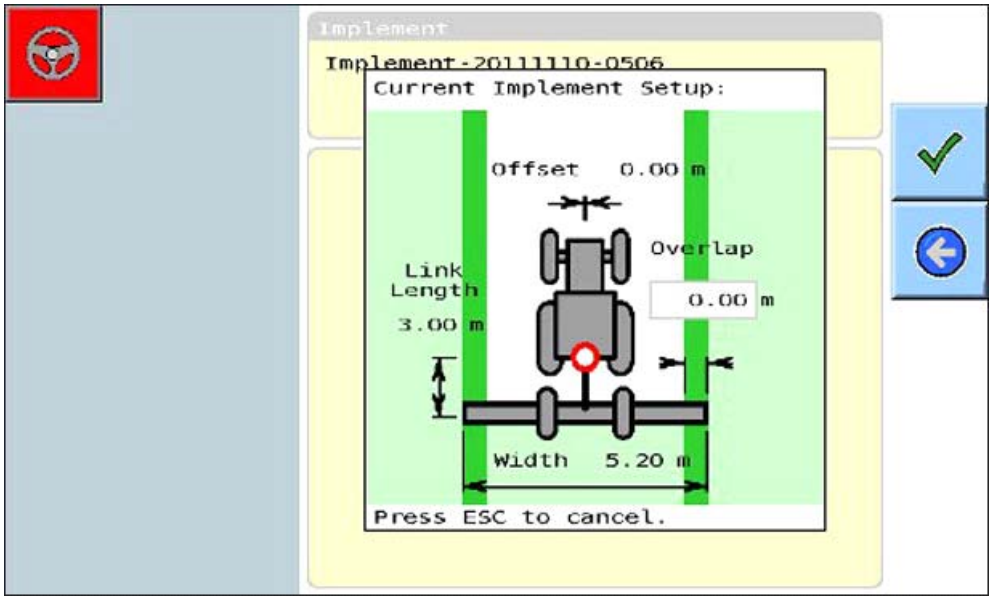
11. In the **Link Length** field, enter the length of the implement link.



The link length is the distance between the drawbar point and the working part of the implement.

12. Select to accept the changes.

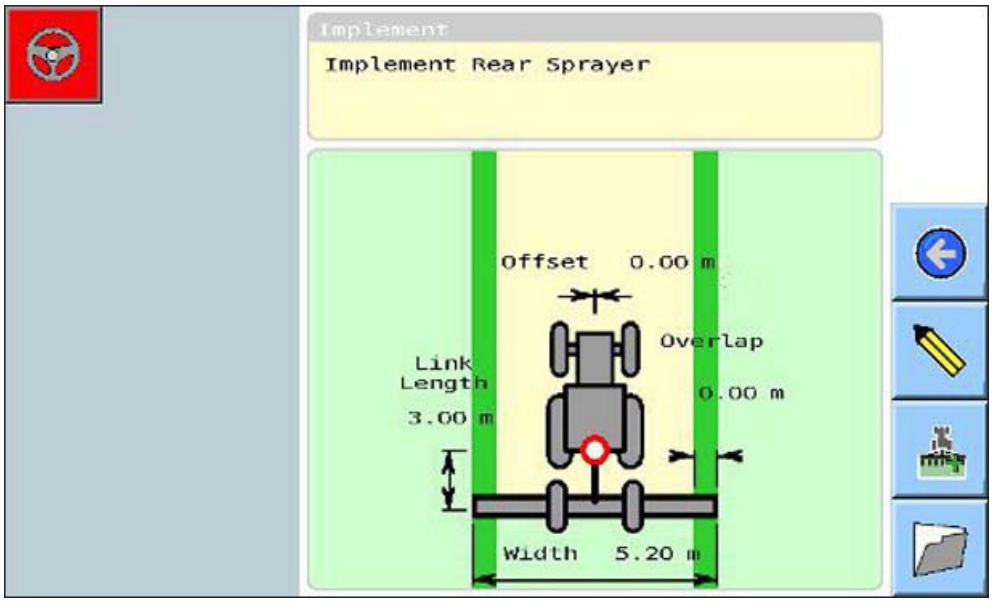
    The Current Implement Setup sub-screen is displayed.



13. If required, enter an overlap amount in the **Overlap** field.

14. Select to accept the changes.

    You are returned to the Implement screen.



15. Check that the implement profile has been set up correctly. Make amendments if required. Refer to *6.3 Editing an Implement Profile*.

16. Select to return to the Setup menu.

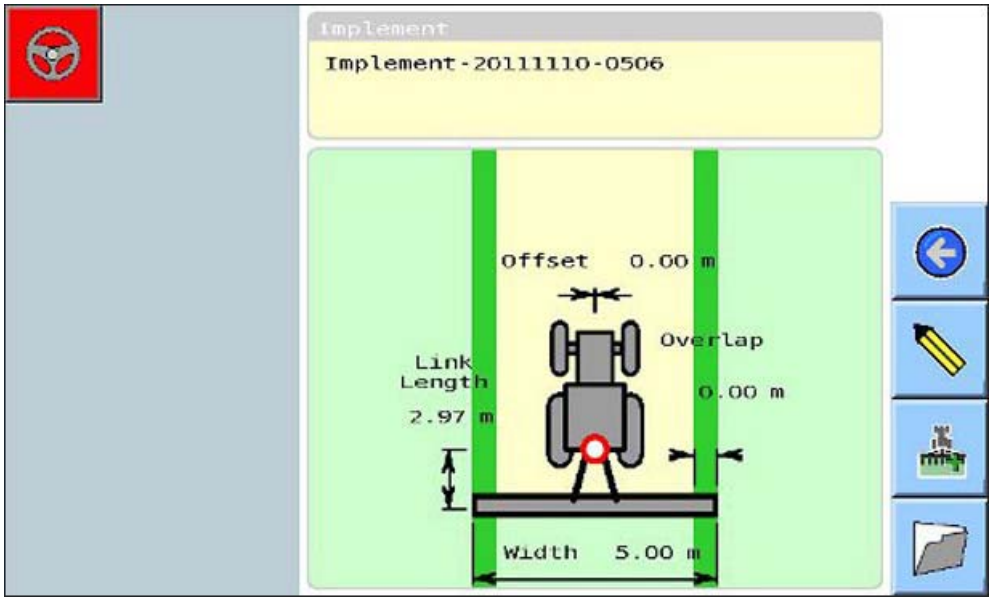
    The implement profile you just defined is loaded and ready for use.

6.2 Selecting an Implement Profile

Complete the steps below to select and load an existing implement profile.

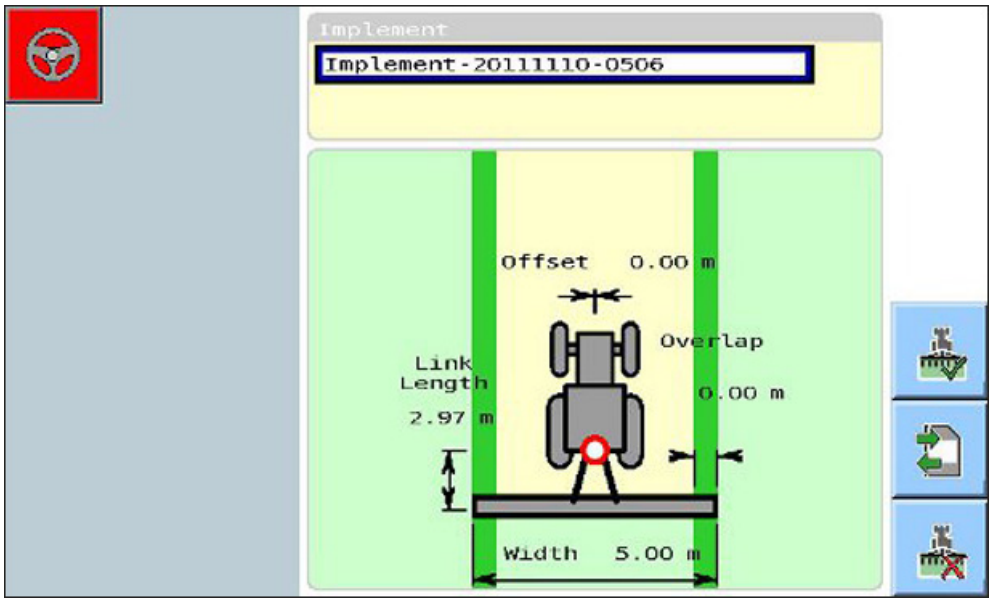
1. In the Guidance screen, select .
   Alternatively, if this button is not displayed in the Guidance screen, select then .

   The Implement screen displays the name of the currently loaded implement profile at the top of the screen.



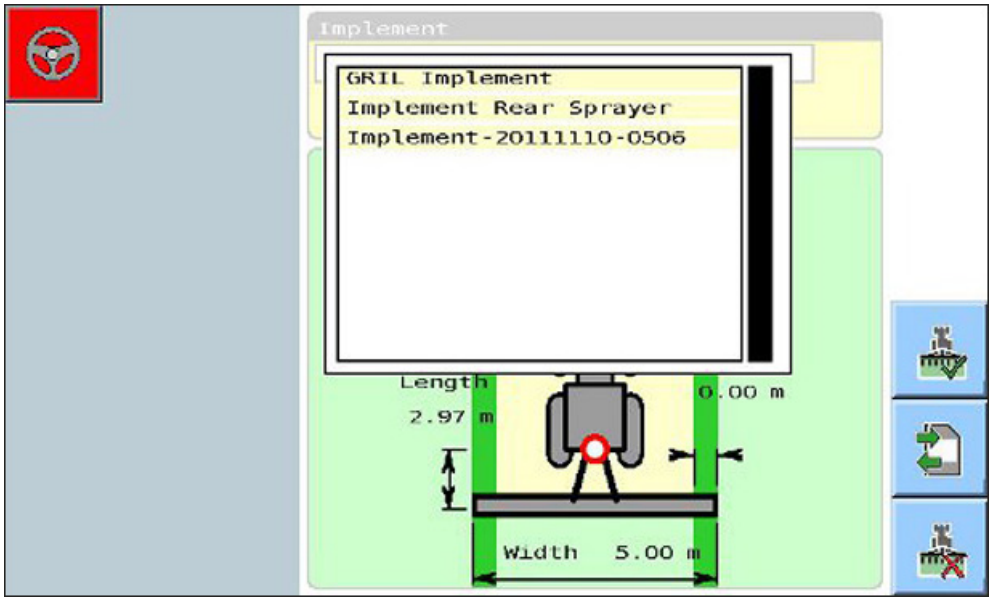
2. Select .

   The **Implement** field becomes editable.



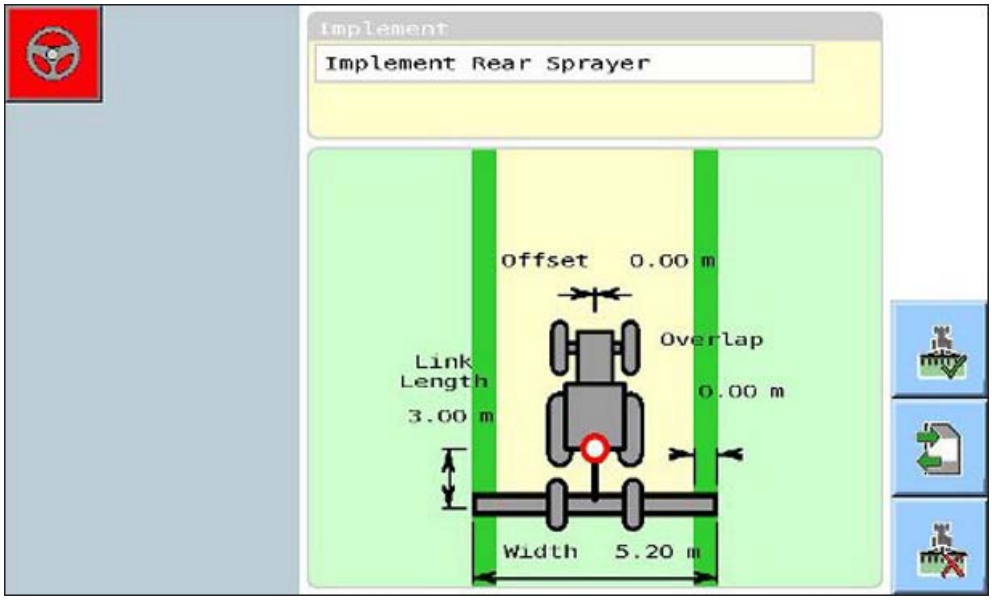
3. Select the **Implement** field.

   A list of implement profiles is displayed.



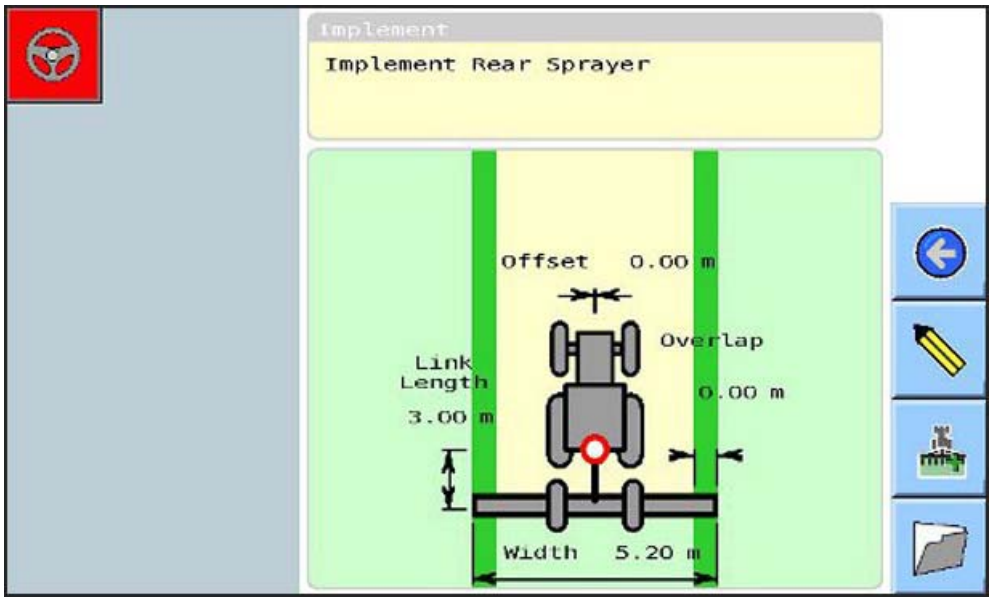
4. Select the required implement profile.

   The selected implement profile is displayed in the Implement screen.



5. Select .

   The implement profile you selected is loaded and ready for use.



6. Select to return to the Setup menu.

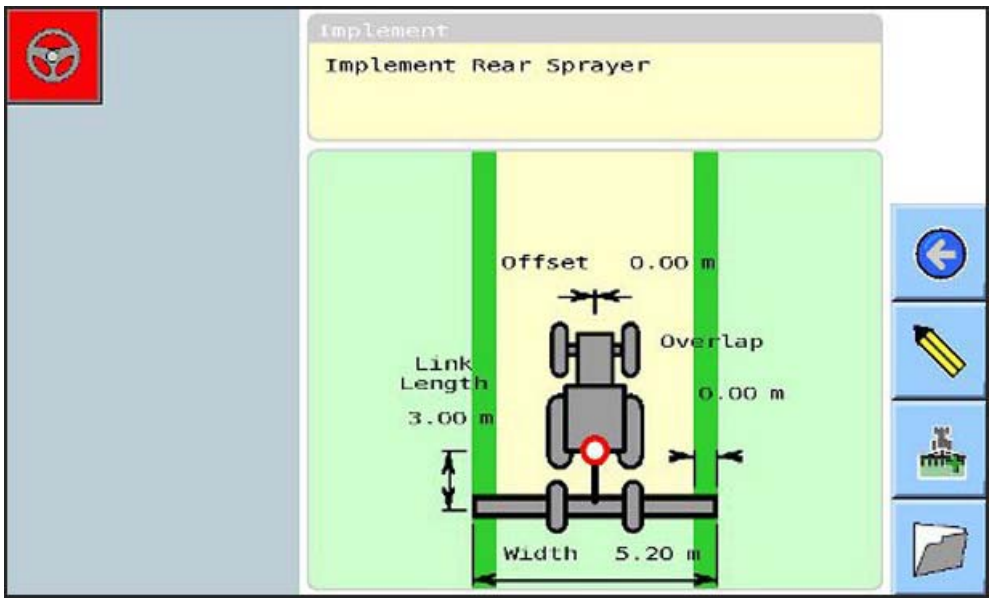
6.3 Editing an Implement Profile

You can edit the name, implement location, offset, link length, overlap and width of an implement profile.

Complete the steps below to edit an existing implement profile.

1. In the Guidance screen, select .
   Alternatively, if this button is not displayed In the Guidance screen, select then .

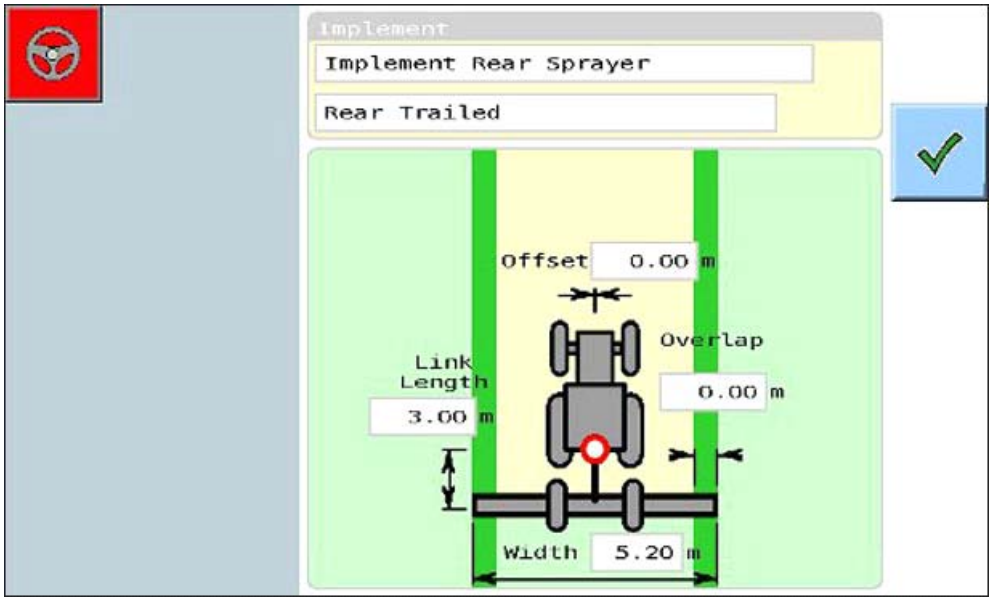
   The Implement screen displays the name of the loaded implement profile at the top of the screen.



2. If the implement profile you want to edit is not displayed, select the required implement profile before proceeding. Refer to *6.2 Selecting an Implement Profile*.

3. Select .

   The fields in the screen become editable.

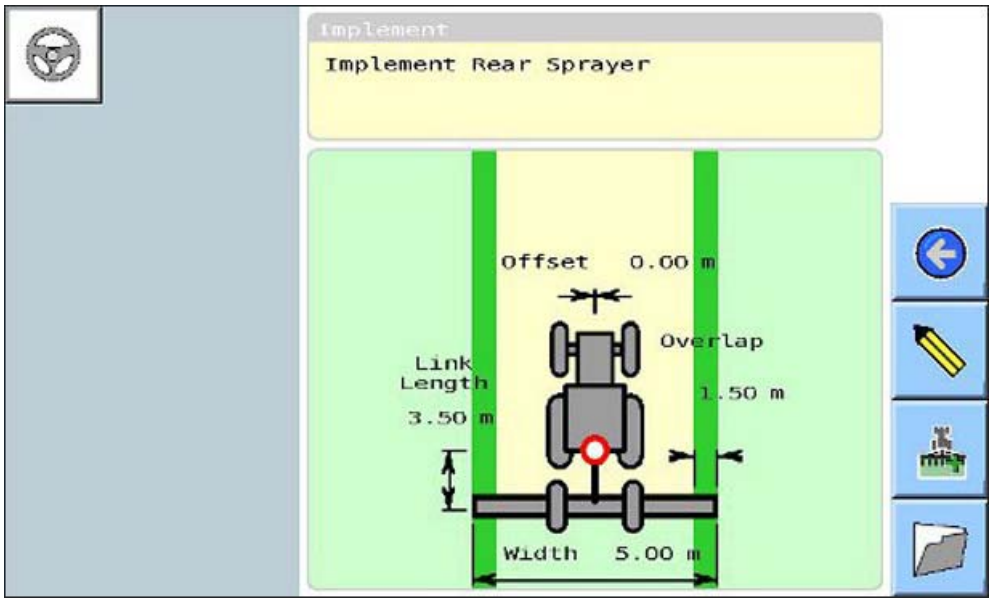


4. Edit the fields as required.
5. If you wish to edit the implement profile name, select the field under **Implement**, and use the Virtual Keyboard to enter a new name for the implement profile.

For information on how to use the virtual keyboard, refer to *1.10 Using the Virtual Keyboard*.

6. Select to accept the changes.

   You are returned to the Implement screen.



   The implement profile you have just edited is loaded and ready for use.

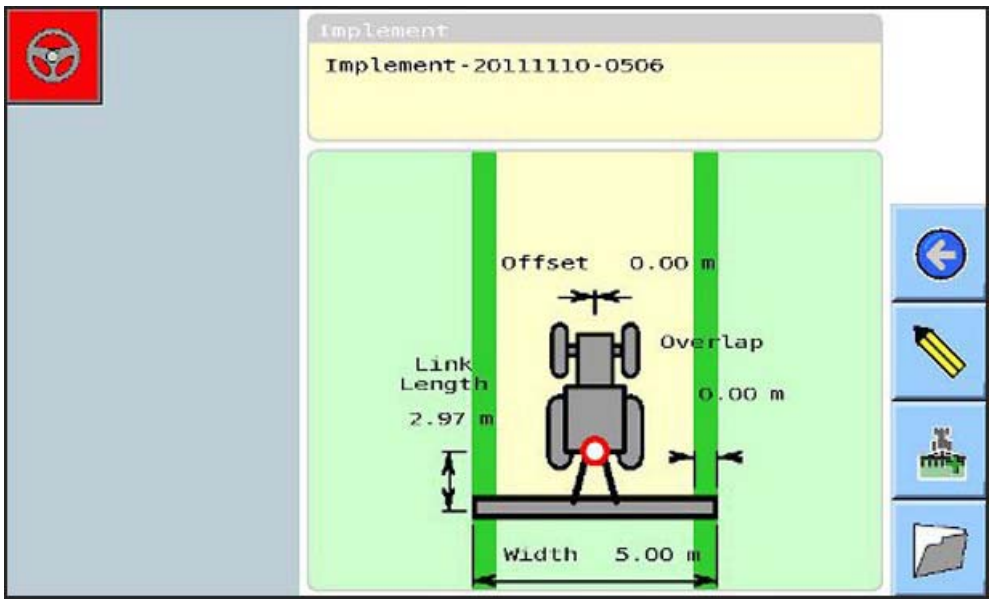
7. Select to return to the Setup menu.

6.4 Deleting an Implement Profile

Complete the steps below to delete an existing implement profile.

1. In the Guidance screen, select .
   Alternatively, if this button is not displayed in the Guidance screen, select then .

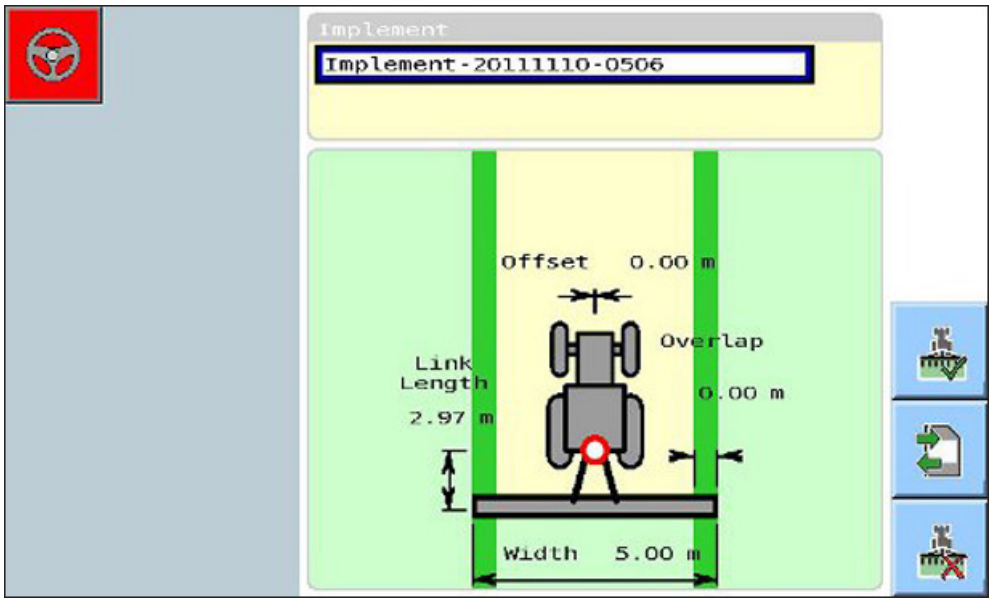
   The Implement screen displays the name of the loaded implement profile at the top of the screen.



2. If the implement profile you want to delete is not displayed, select the implement profile before proceeding. Refer to *6.2 Selecting an Implement Profile*.

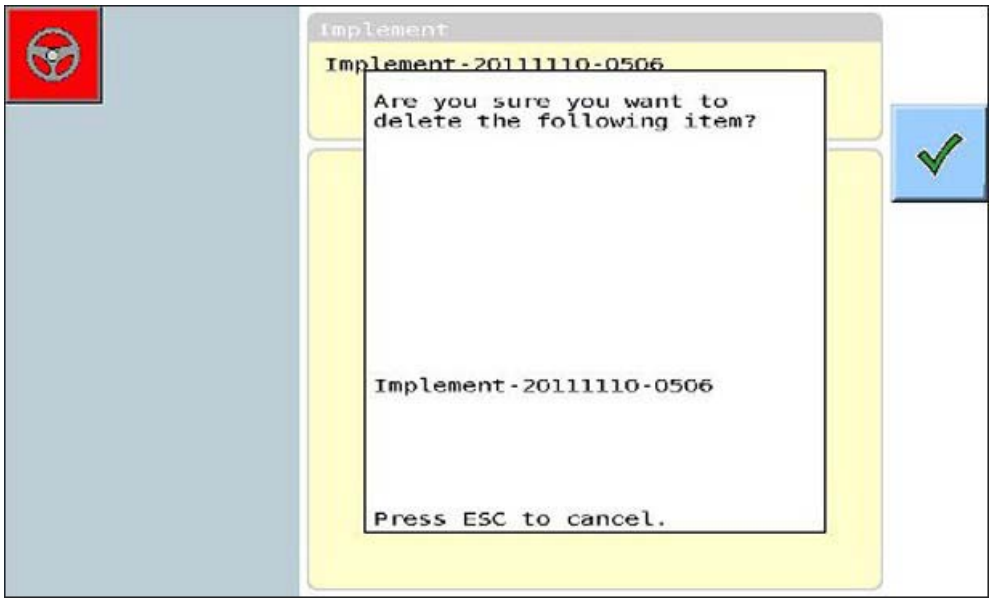
3. Select .

   The Delete button ( ) is displayed.



4. Select .

   A confirmation sub-screen is displayed.



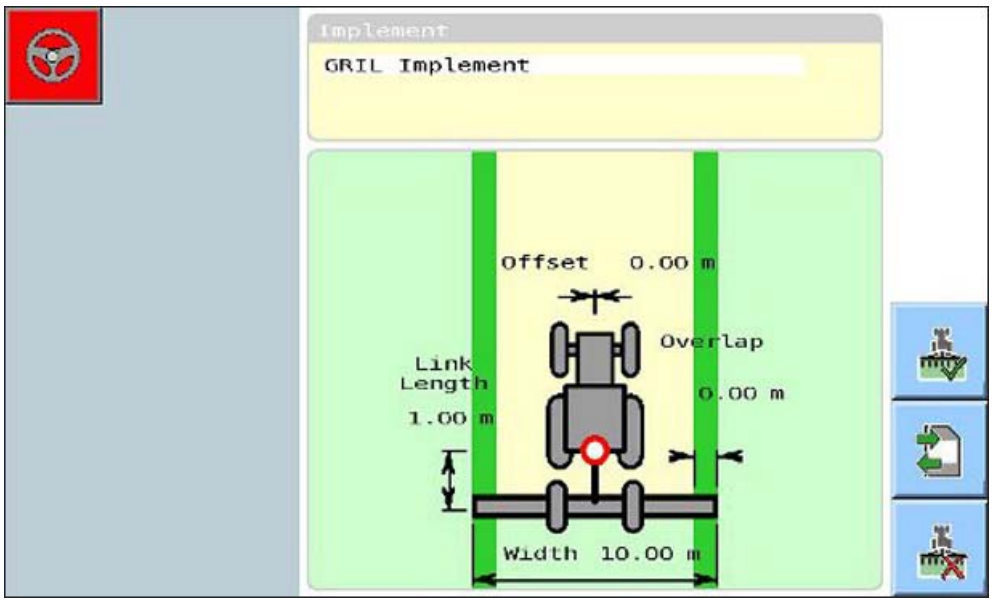
5. Select .

   The selected implement is deleted.

   The list of implement profiles is displayed again. The implement you selected will still be displayed in this list even though it has been deleted.

6. Press **Esc**.

   You are returned to the Implement screen.



   If you select the **Implement** field again, you will see that the implement has been deleted from the list.

7. Select to return to the Setup menu.

Chapter 7 - Waylines

This chapter describes how to create and manage waylines. A wayline defines the pathway the vehicle will follow.

The AGI ISO VT allows you to define four types of waylines:

- AB Line
- A + Heading Line
- Contour
- Pivot

This function is available in Advanced mode only.

In this chapter

7.1 Setting up a New Wayline

7.2 Defining an AB Line

7.3 Defining an A + Heading Line

7.4 Defining a Contour

7.5 Defining a Pivot

7.6 Selecting a Wayline

7.7 Editing a Wayline Name

7.8 Deleting a Wayline

7.1 Setting up a New Wayline

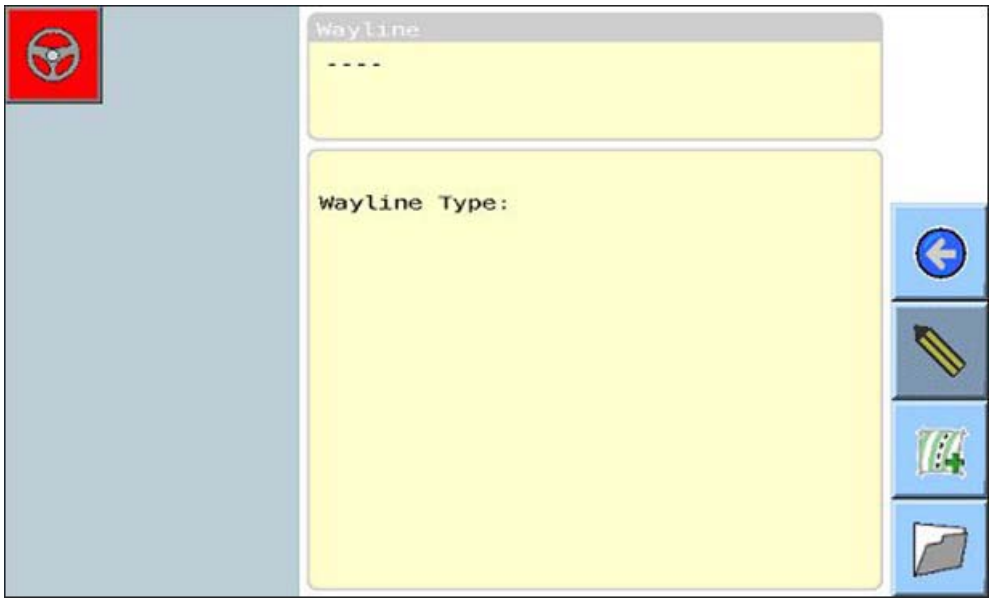
The steps to set up a new wayline are the same regardless of the wayline type.

Complete the steps below to set up a new wayline.

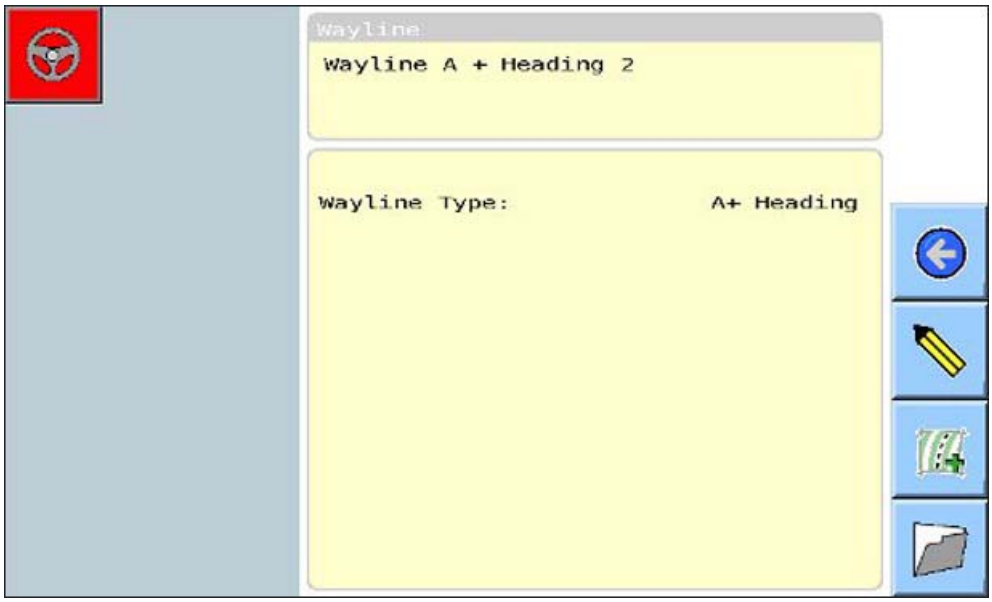
1. In the Guidance screen, select . Alternatively, if this button is not displayed In the Guidance screen, select then .

   The Wayline screen is displayed.

   If no wayline has been defined, the screen will display no information, as shown in the example below.

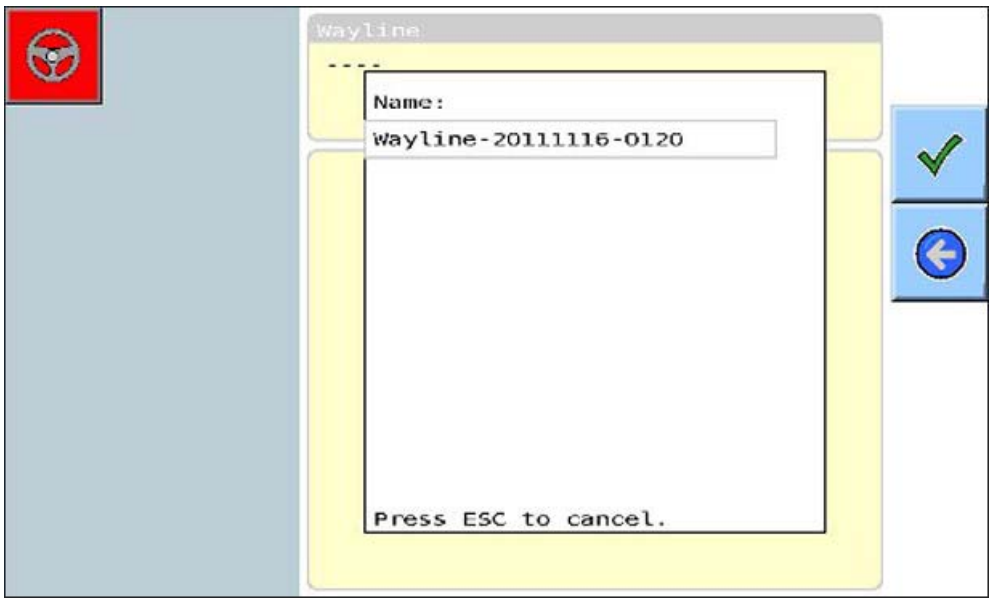


If waylines have already been defined, the wayline last used is displayed, as shown in the example below.



2. Select .

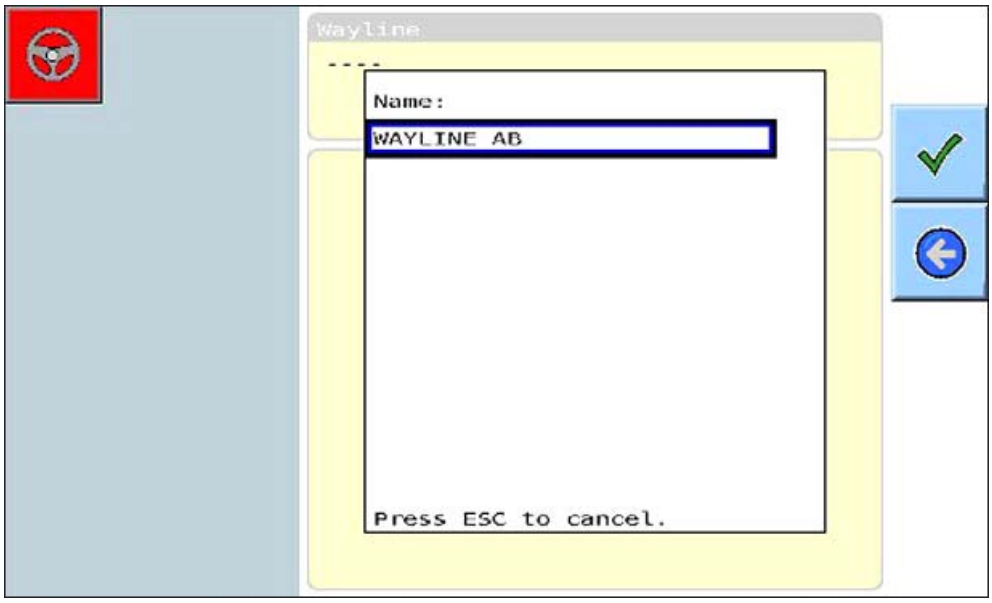
The Name sub-screen is displayed.



The wayline name will default to ‘Wayline – [Current date] – [Current time]’, e.g. ‘Wayline – 20111116 – 0120’, as shown in the example on the previous page.

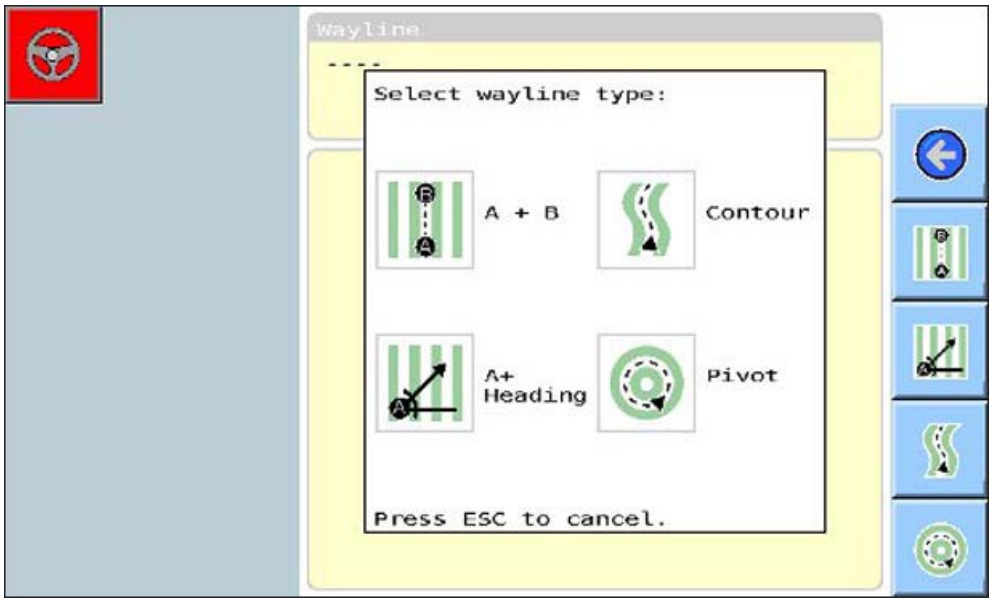
3. If you wish to change the default name:

- Select the **Name** field. The Virtual Keyboard is displayed.
- Use the keyboard to enter a new name. For information on how to use the virtual keyboard, refer to *1.10 Using the Virtual Keyboard*.
- The name you entered is displayed in the Name sub-screen.



4. Select to accept the name.

   The Select wayline type sub-screen is displayed.



From here you can define the following wayline types:

- For A + B See *7.2 Defining an AB Line*
- For A + Heading See *7.3 Defining an A + Heading Line*
- For Contour See *7.4 Defining a Contour*
- For Pivot See *7.5 Defining a Pivot*

7.2 Defining an AB Line

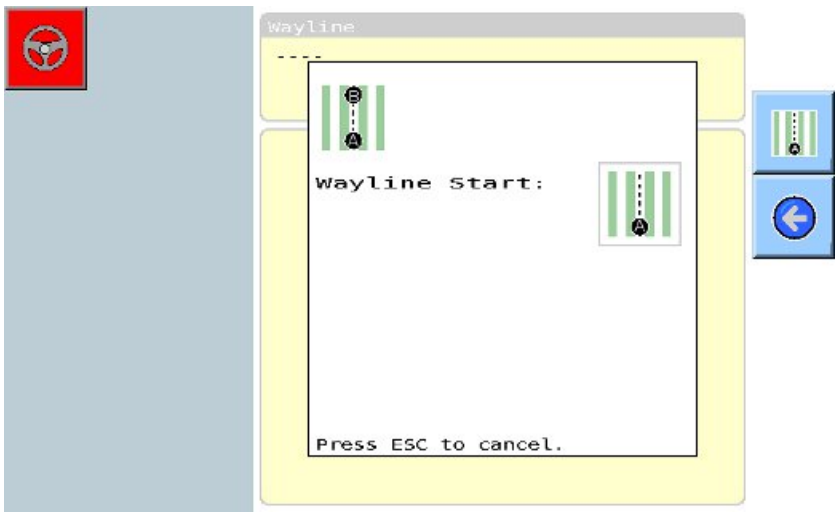
An AB line is created by setting a start point (A) and an end point (B), and driving along a straight line between the two points. This type of wayline can be used in fields where the swaths, or rows, are relatively straight.

Complete the steps below to set up an AB line.

1. First create a new wayline. Refer to *7.1 Setting up a New Wayline*.

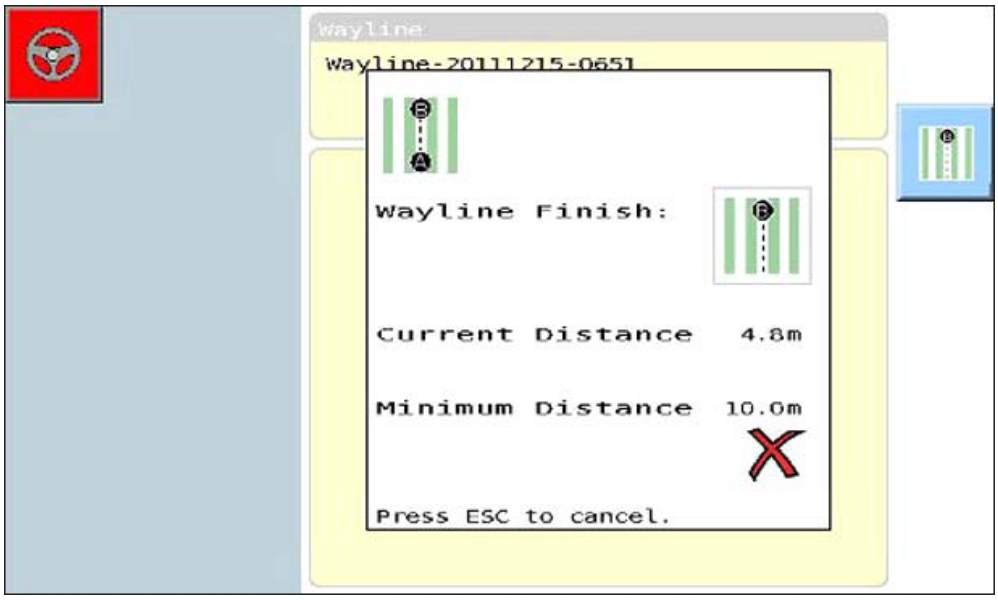
2. In the Select wayline type sub-screen, select .

   The Wayline Start sub-screen is displayed.



3. Select .

   The Wayline Finish sub-screen is displayed.

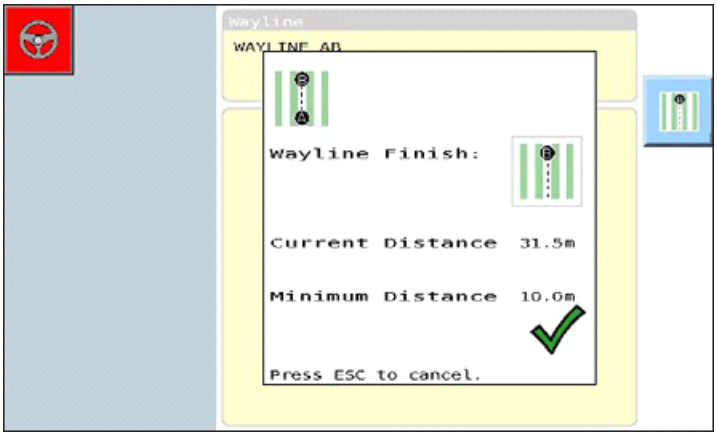


4. Start driving in the direction of the line you wish to define.

   The **Current Distance** field increases automatically as you drive.

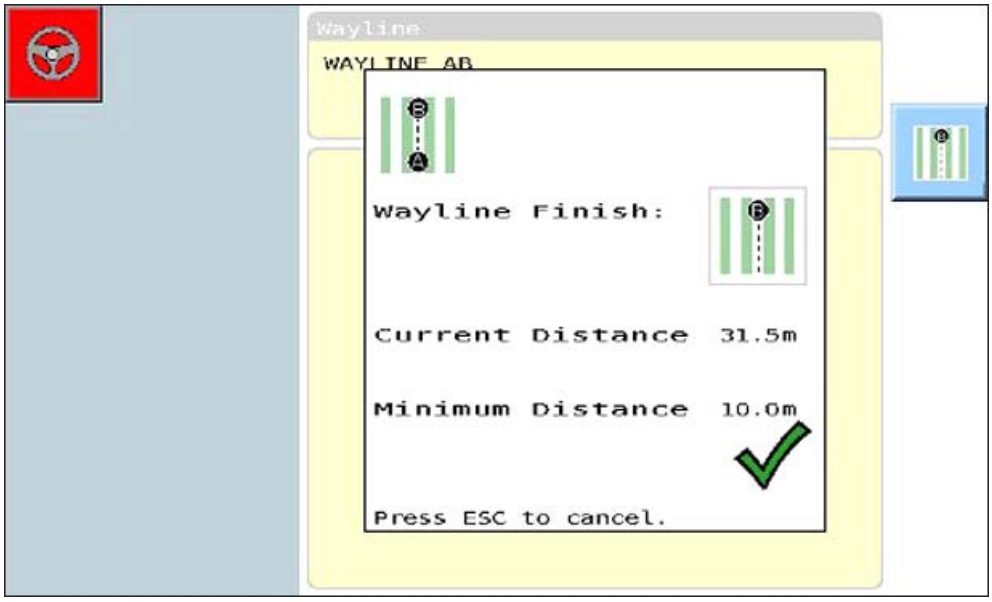
   The B point must be greater than the minimum distance allowed. If the B point is less than the minimum distance, a cross will be displayed under **Minimum Distance**, and you will not be able to proceed.

   When you reach the minimum distance, a check will be displayed under **Minimum Distance**, as shown in the following example.



5. When you have reached the required distance, select .

   The Wayline screen displays the name and type of the wayline you just defined.



If you are using the Basic Implement and Wayline Wizard (refer to *Chapter 8 – Basic Wizard*), you will be returned to the Basic Guidance screen when you select .

6. Select to apply the wayline and return to the Setup menu.

   You are ready to begin auto steering using the selected wayline.

7.3 Defining an A + Heading Line

An A + Heading line is created by setting a start point (A) and entering a value for the ‘heading’. The heading is the direction you will be driving.

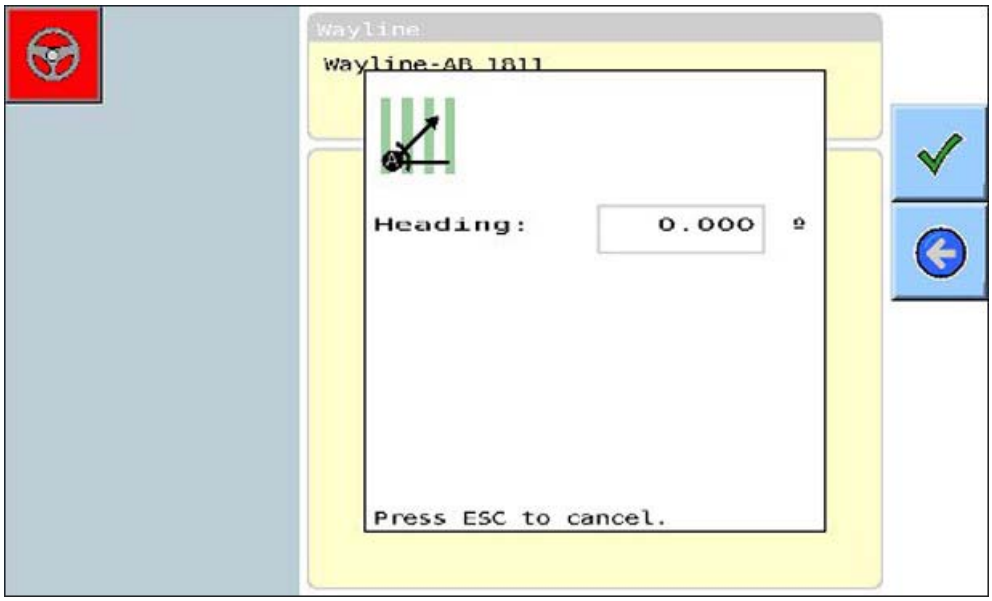
For example, if you wish to proceed directly north, the heading value is set to 0 degrees. If you wish to proceed directly east, the heading value is set to 90 degrees. For south, set the heading value to 180 degrees, and for west to 270 degrees.

Complete the steps below to set up an A + Heading Line.

1. First create a new wayline. Refer to *7.1 Setting up a New Wayline*.

2. In the Select wayline type sub-screen, select .

   The following sub-screen is displayed.

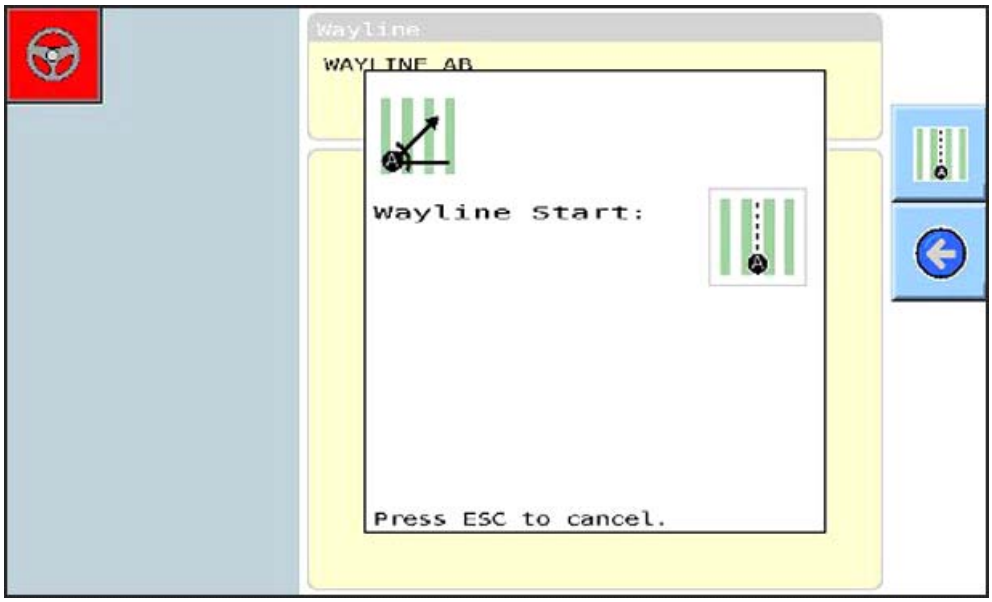


3. In the **Heading** field, enter the degrees in relation to north that you are heading.

   The **Heading** field defaults to the direction in degrees that your vehicle is currently pointing.

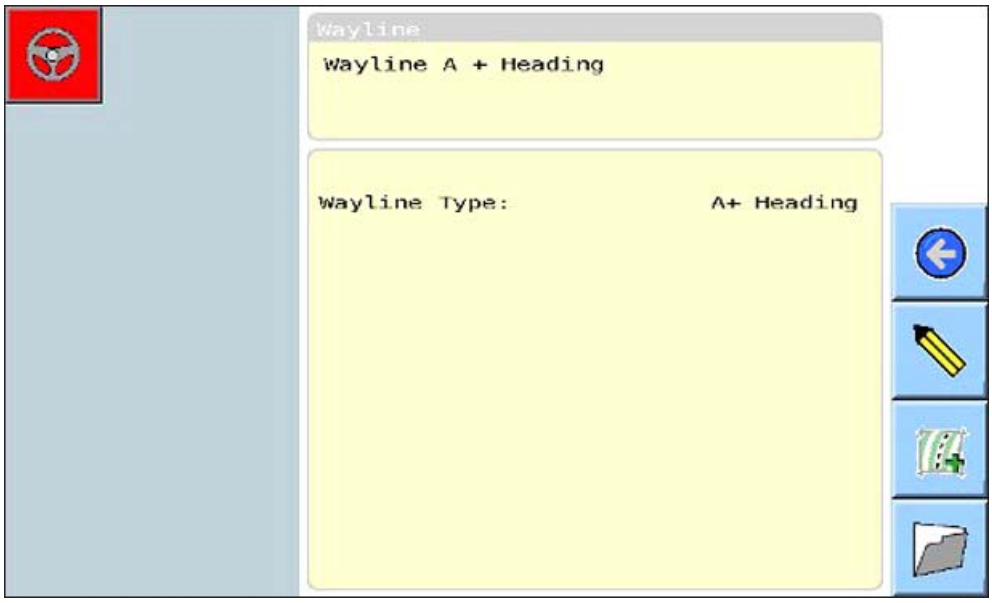
4. Select .

   The Wayline Start sub-screen is displayed.



5. Select .

   The Wayline screen displays the wayline name and type.



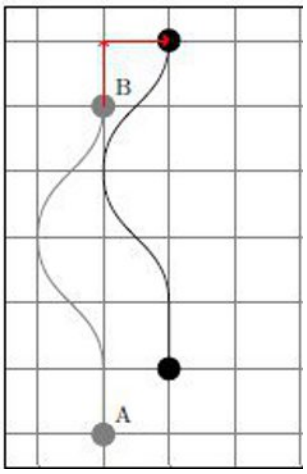
If you are using the Basic Implement and Wayline Wizard (refer to *Chapter 8 – Basic Wizard*), you will be returned to the Basic Guidance screen when you select .

6. Select to apply the wayline and return to the Setup menu.

   You are ready to begin auto steering using the selected wayline.

7.4 Defining a Contour

A contour wayline is similar to an AB wayline, except that the path progresses along a curved line, as shown in the diagram below. This type of wayline can be used if the field is an uneven shape and you are not able to use straight waylines.

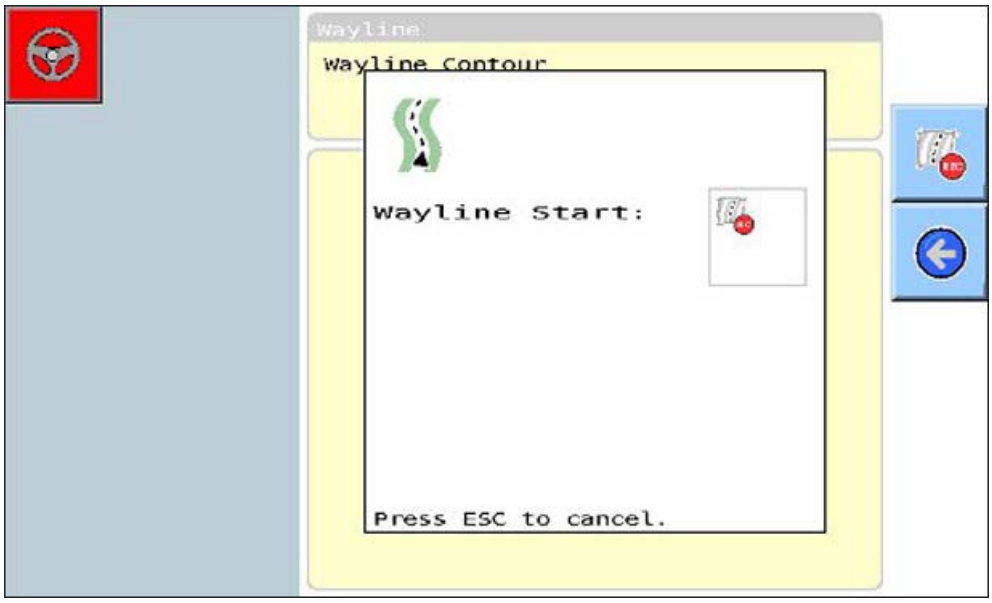


Complete the steps below to set up a contour.

1. First create a new wayline. Refer to *Start Creating a New Wayline*.

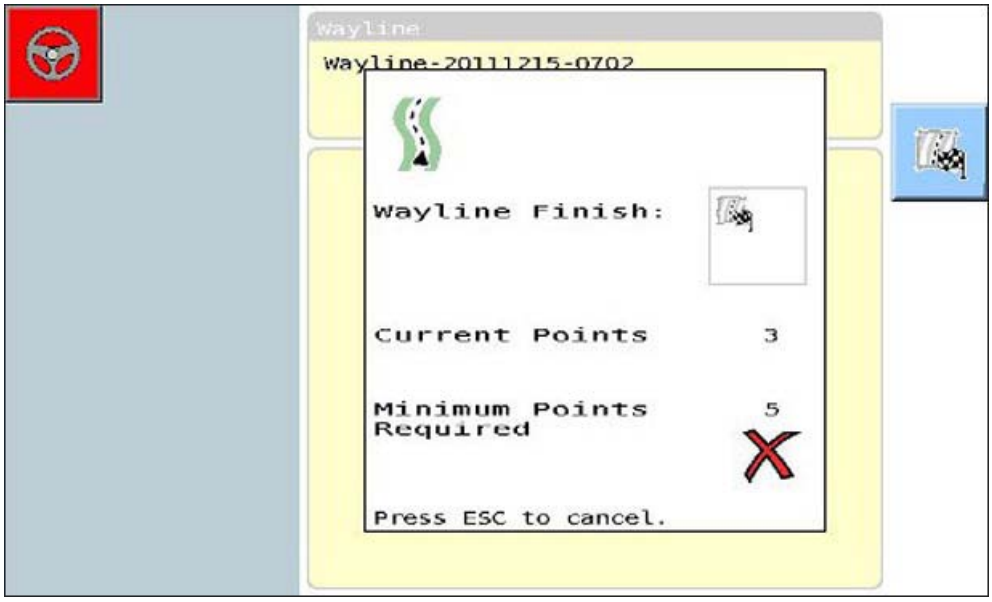
2. In the Select wayline type sub-screen, select .

   The Wayline Start sub-screen is displayed.



3. Select to start recording the contour.

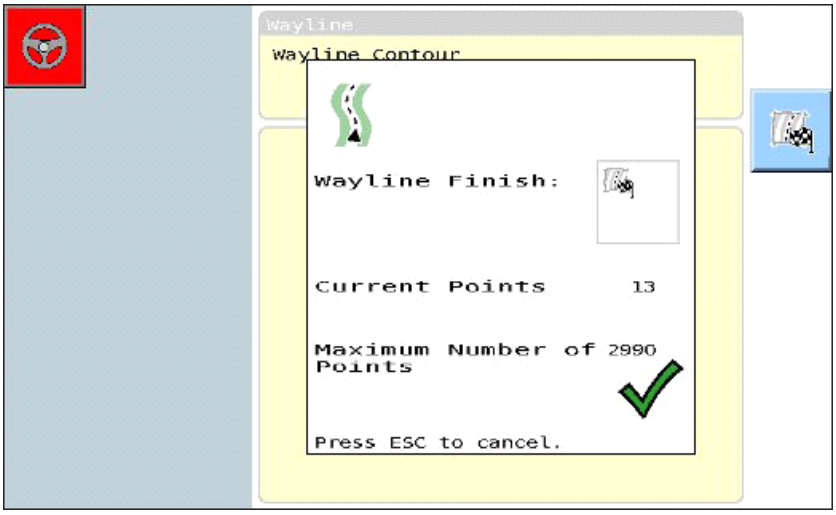
   The Wayline Finish sub-screen is displayed.



4. Drive along the wayline you wish to define.

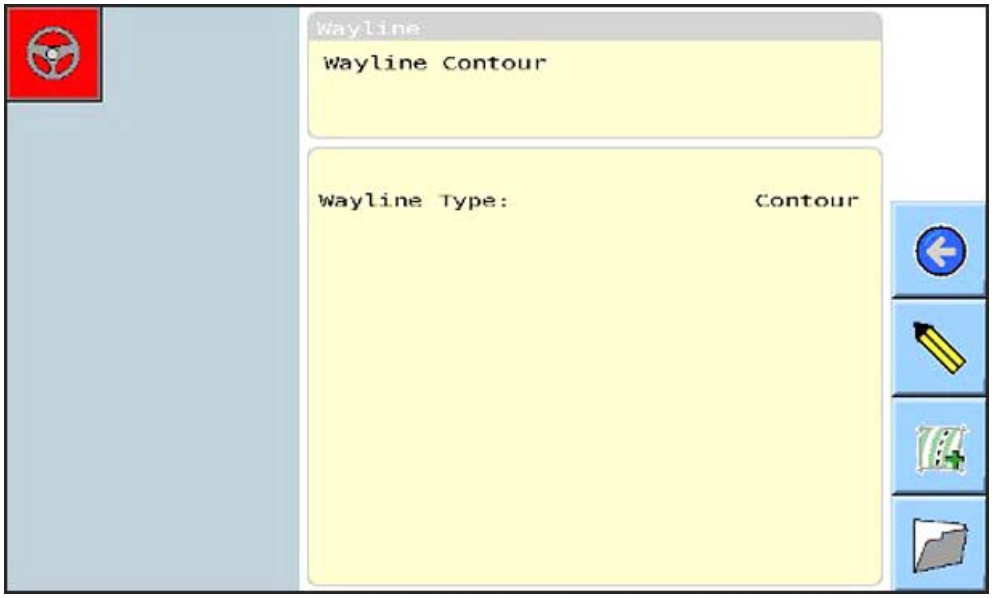
As you drive along the contour, the system records the points of the line, the **Current Points** field is automatically updated to display this. When the current points reach the minimum number of points required, the cross becomes a check, as shown in the example below.

The **Maximum Number of Points** field displays the maximum number of points allowed for one contour. This will vary depending on the type of receiver you are using.



5. When you reach the end of the contour wayline, select .

   The Wayline screen displays the name and type of the wayline you just defined.



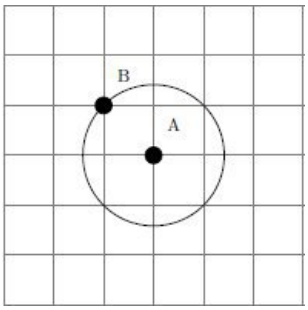
If you are using the Basic Implement and Wayline Wizard (refer to *Chapter 8 – Basic Wizard*) you will be returned to the Basic Guidance screen when you select .

6. Select to apply the wayline and return to the Setup menu.

   You are ready to begin auto steering using the selected wayline.

7.5 Defining a Pivot

A pivot wayline is used in fields that have central pivot irrigation. A pivot is used to create a circular wayline, as shown in the diagram below.



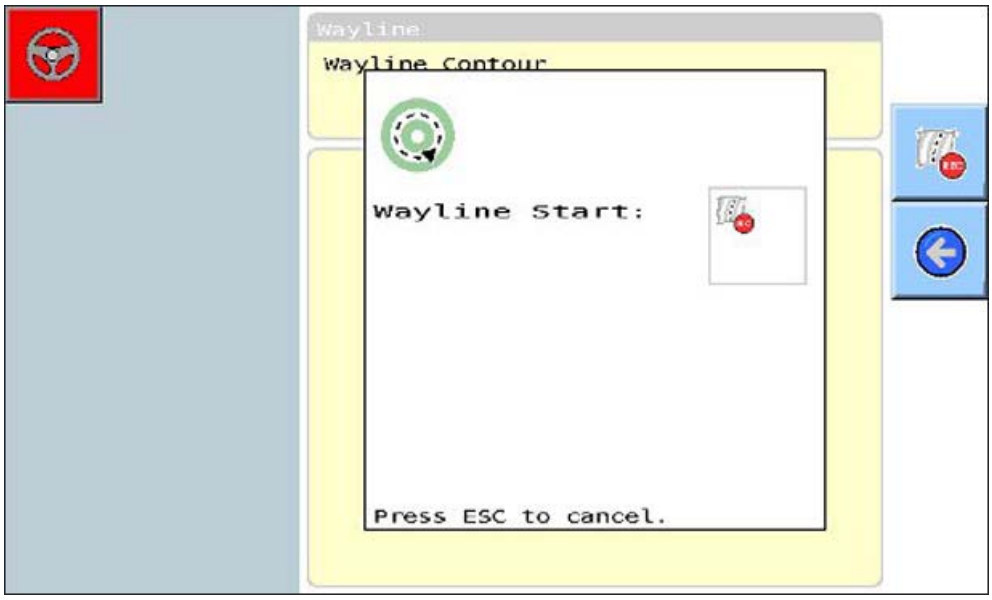
The size of the pivot will vary depending on the vehicle's distance from the pivot point.

Complete the steps below to set up a pivot.

1. First create a new wayline. Refer to *Start Creating a New Wayline*.

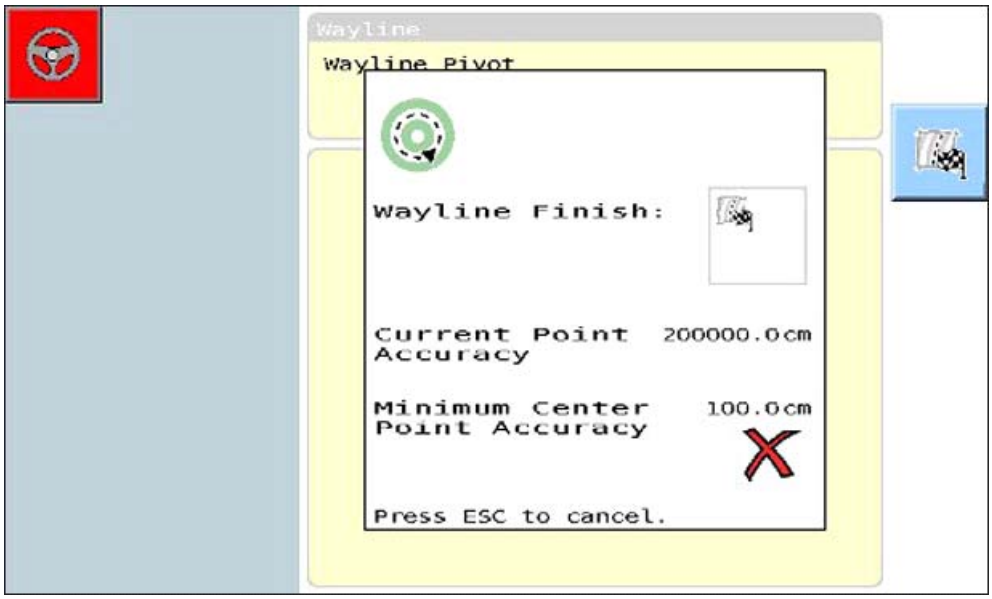
2. In the Select wayline type sub-screen, select .

   The Wayline Start sub-screen is displayed.



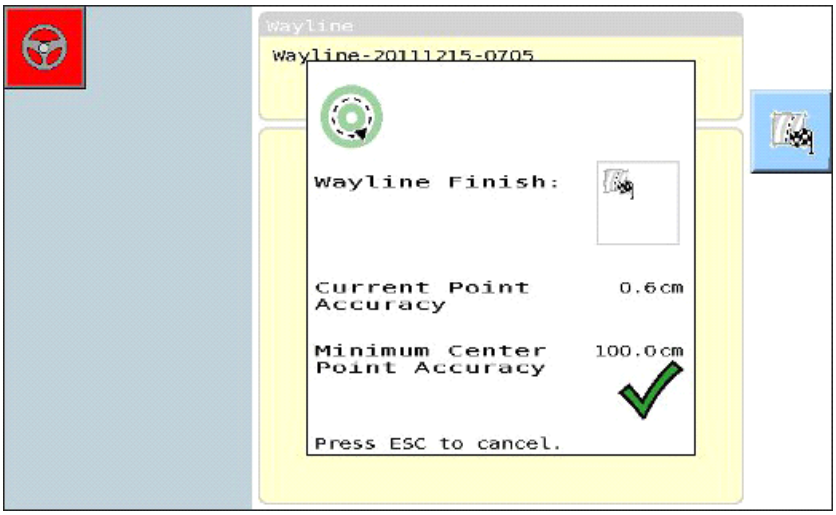
3. Select to start recording the pivot.

   The Wayline Finish sub-screen is displayed.



4. Drive along the desired pivot path. You should drive for at least a quarter of a circle in order to ensure the pivot line is defined accurately.

The **Current Point Accuracy** must be equal to or less than the **Minimum Center Point Accuracy**. When the current point accuracy reaches the required minimum, the cross becomes a check, as shown in the example below.



5. When you have finished defining the pivot, select .

   The Wayline screen displays the name and type of the wayline you just defined.

If you are using the Basic Implement and Wayline Wizard (refer to *Chapter 8 – Basic Wizard*), you will be returned to the Basic Guidance screen when you select .

6. Select to apply the wayline and return to the Setup menu.

   You are ready to begin auto steering using the selected wayline.

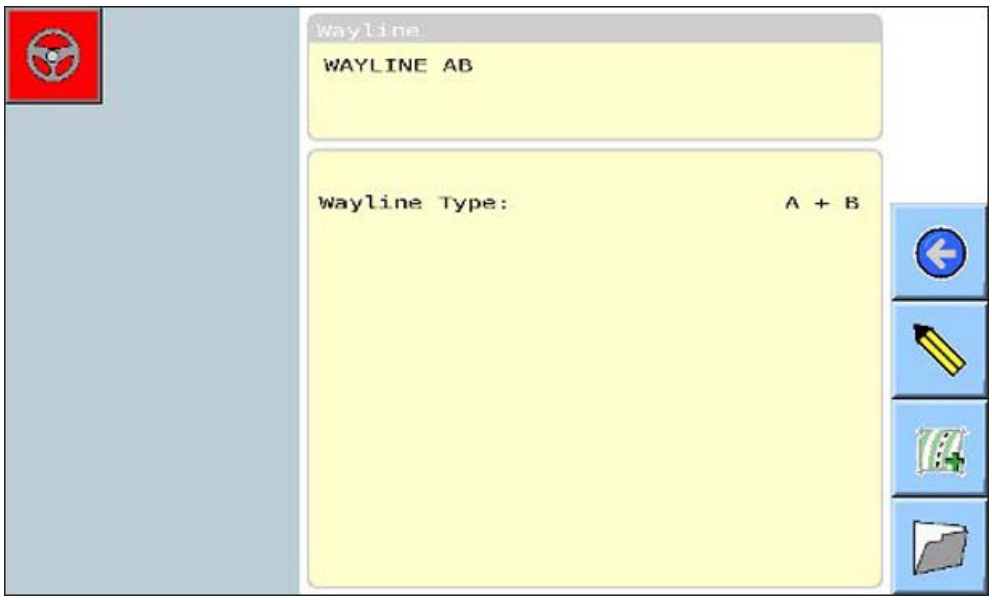
7.6 Selecting a Wayline

Use this procedure when you have more than one wayline defined and you wish to select a particular wayline to use when auto steering.

Complete the steps below to select and apply a wayline.

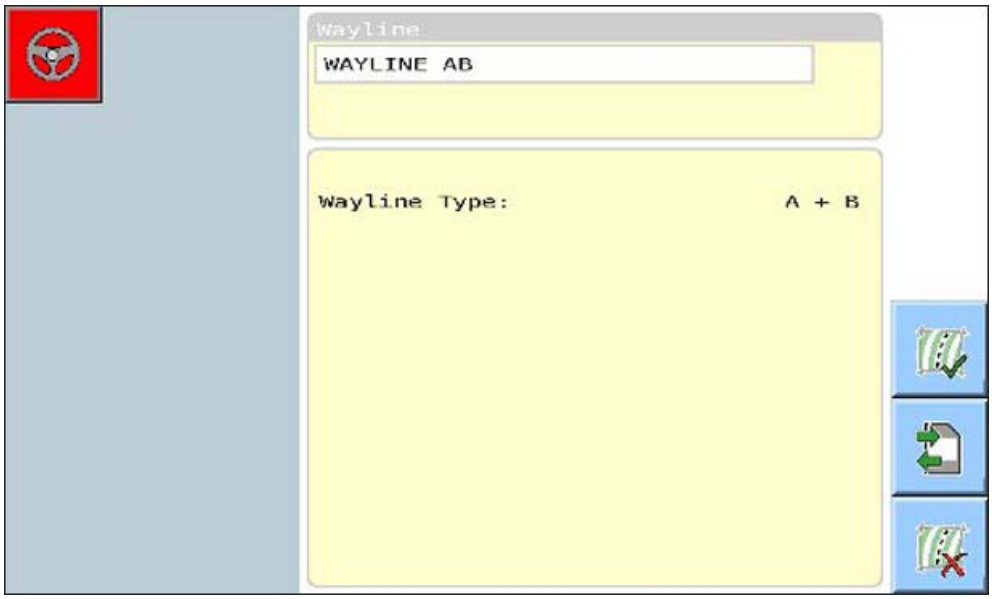
1. Select .

   The Wayline screen displays the wayline last used.



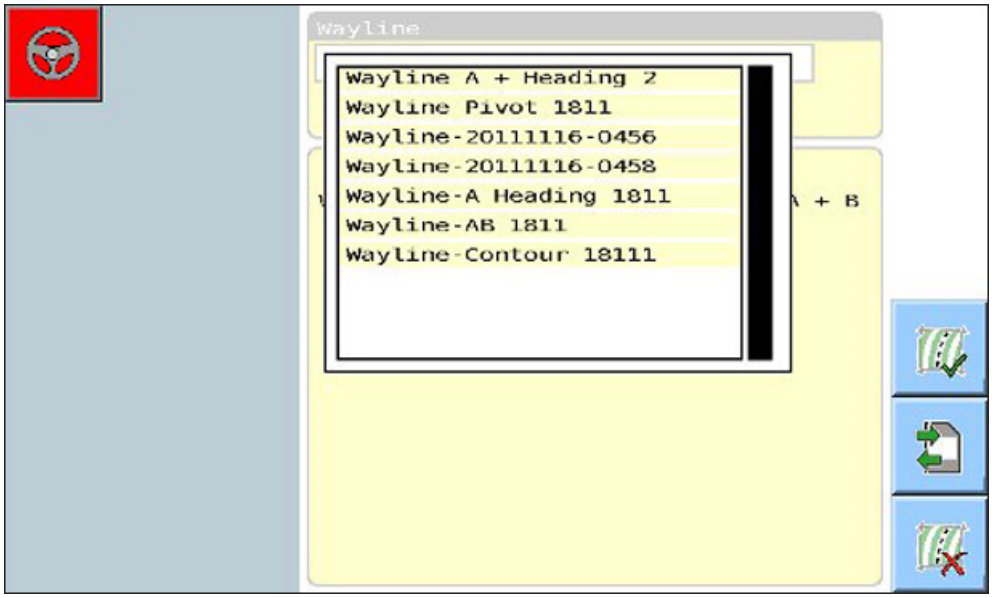
2. Select .

   The field at the top of the screen is now editable.



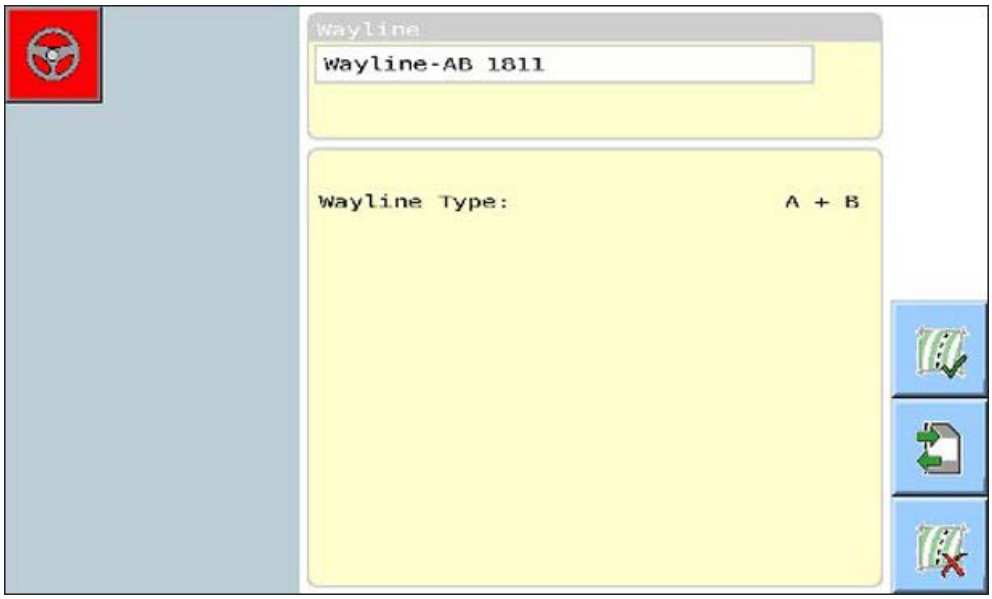
3. Select the **Wayline** field at the top of the screen.

   A list of waylines is displayed.



4. Select the required wayline.

   The selected wayline is displayed in the Wayline screen.



5. Select to load the selected wayline.

6. Select to return to the Setup menu.

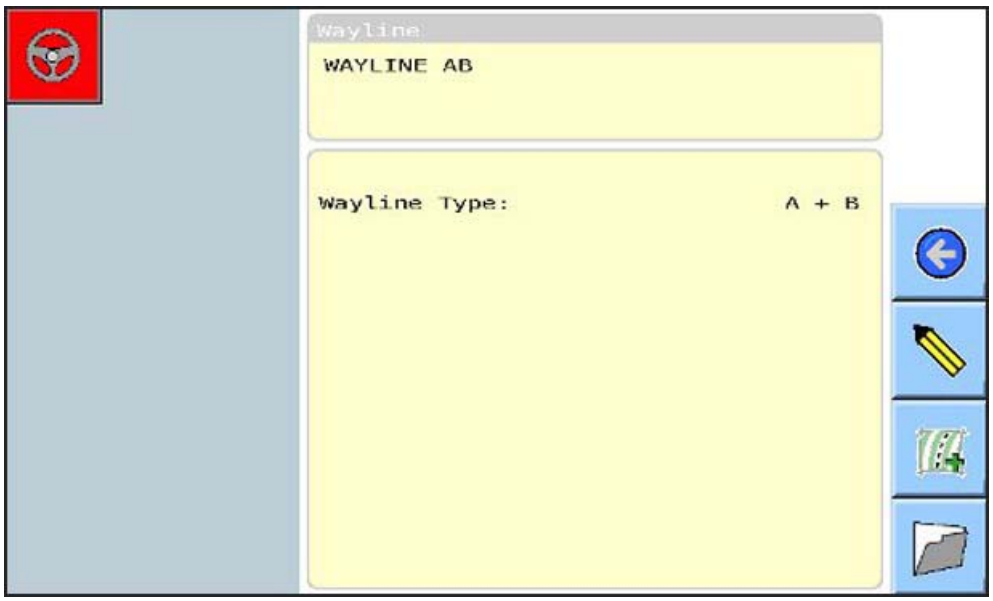
   You are ready to begin auto steering using the selected wayline.

7.7 Editing a Wayline Name

Complete the steps below to edit the name of an existing wayline.

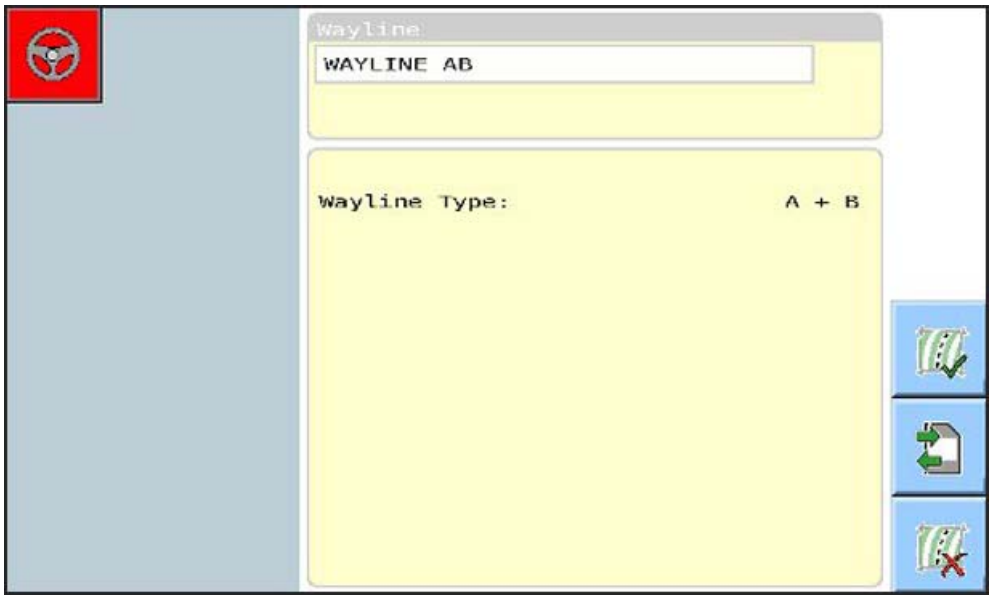
1. Select .

   The Wayline screen displays the wayline last used.

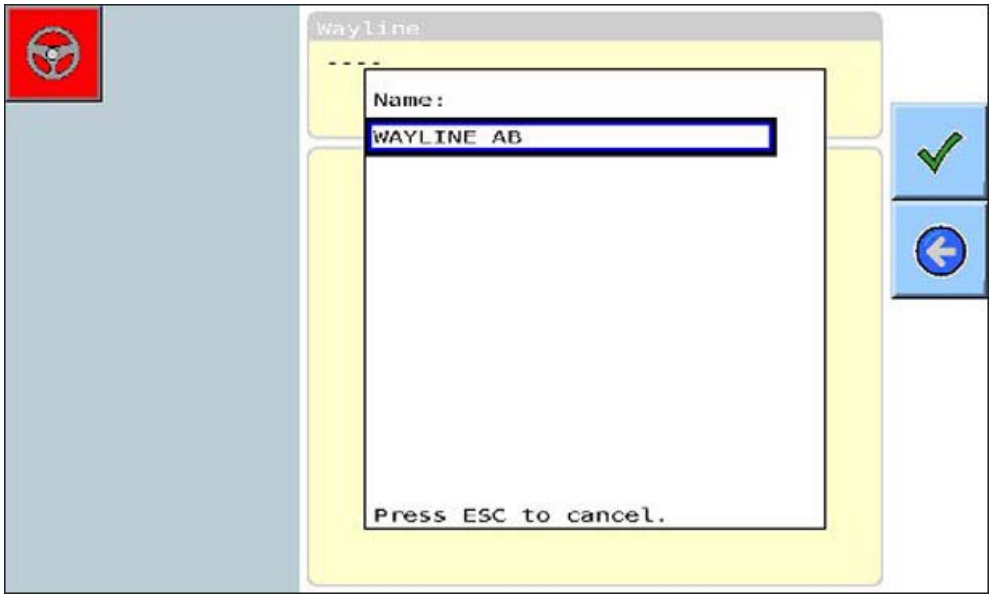


2. Select .

   The Wayline field at the top of the screen is now editable.



3. Select the field directly under Wayline.
   - The Virtual Keyboard is displayed.
   - Use the keyboard to enter a new name. For information on how to use the virtual keyboard, refer to *1.10 Using the Virtual Keyboard*.
   - The name you entered is displayed in the Name sub-screen.



4. Select to accept the name change and return to the previous screen.

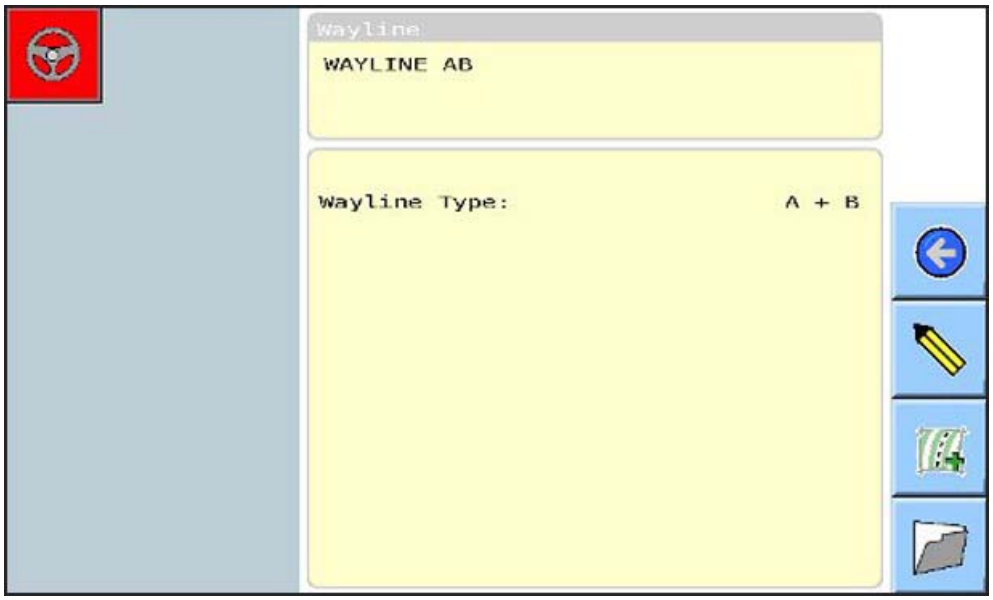
5. Select to return to the Setup menu.

7.8 Deleting a Wayline

Complete the steps below to delete an existing wayline.

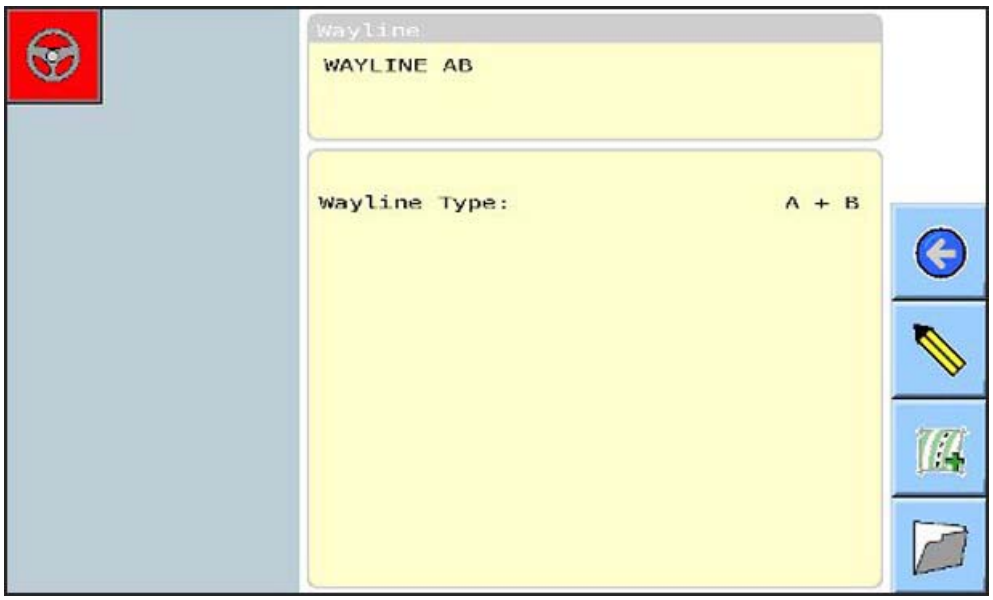
1. Select .

   The Wayline screen displays the wayline last used.



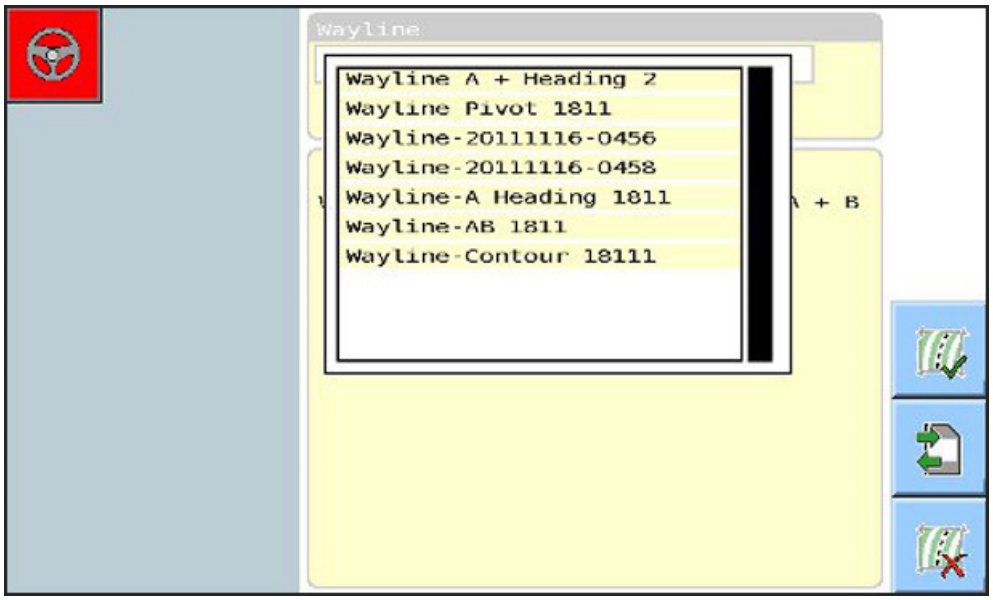
2. Select .

   The Wayline field at the top of the screen is now editable.



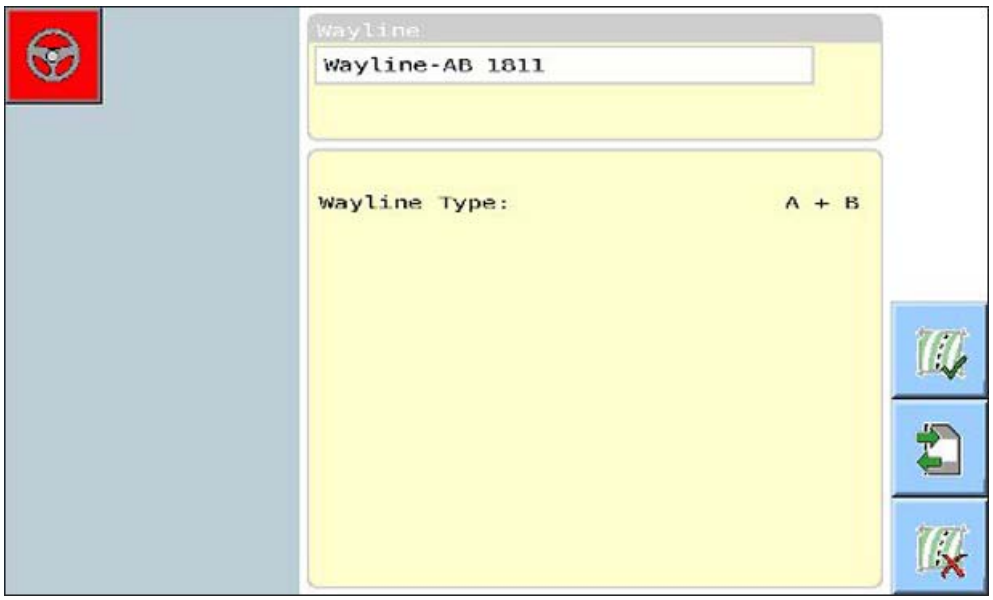
3. Is the wayline displayed on this screen the one you wish to delete?
   - If **yes**, go to step 6.
   - If **no**, continue.
4. Select the field directly under Wayline.

   A list of waylines is displayed.



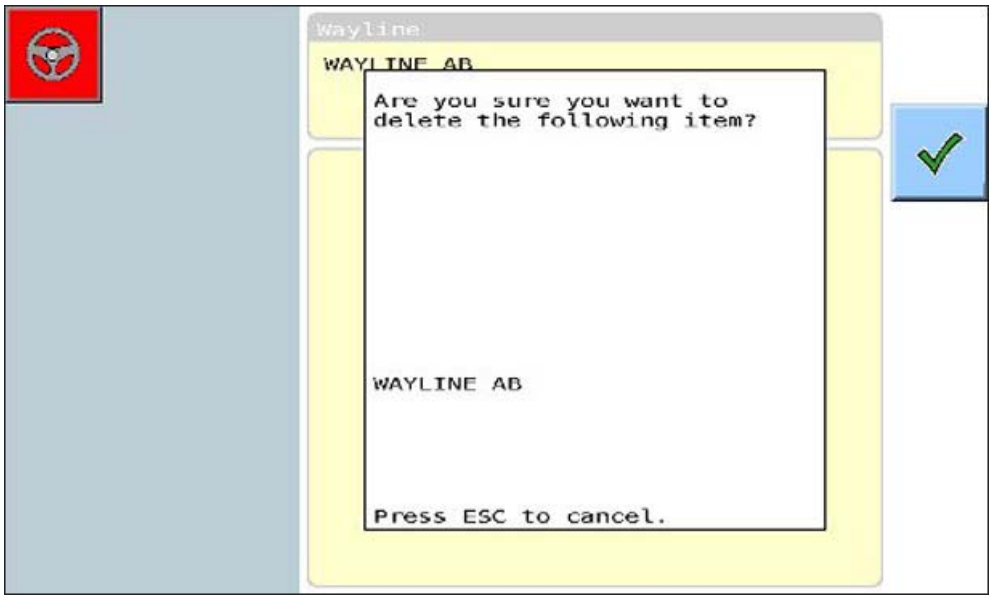
5. Select the wayline you wish to delete.

   The selected wayline is displayed in the Wayline screen.



6. Select .

   The following confirmation message is displayed.



7. Select .

   The wayline is deleted, and you are returned to the Wayline screen.

   From here you can apply the displayed wayline by selecting or you can select another wayline. Refer to *7.6 Selecting a Wayline*.

8. Select to return to the Setup menu.

Chapter 8 – Basic Wizard

This chapter covers how to use the basic implement and wayline wizard.

The basic wizard combines the creation of implement profiles and waylines into one. Whenever you create a new implement profile or wayline using the basic wizard, this will overwrite the previous implement or wayline profile created using the basic wizard.

This function is available in Basic mode only.

In this chapter

8.1 Using the Basic Implement and Wayline Wizard

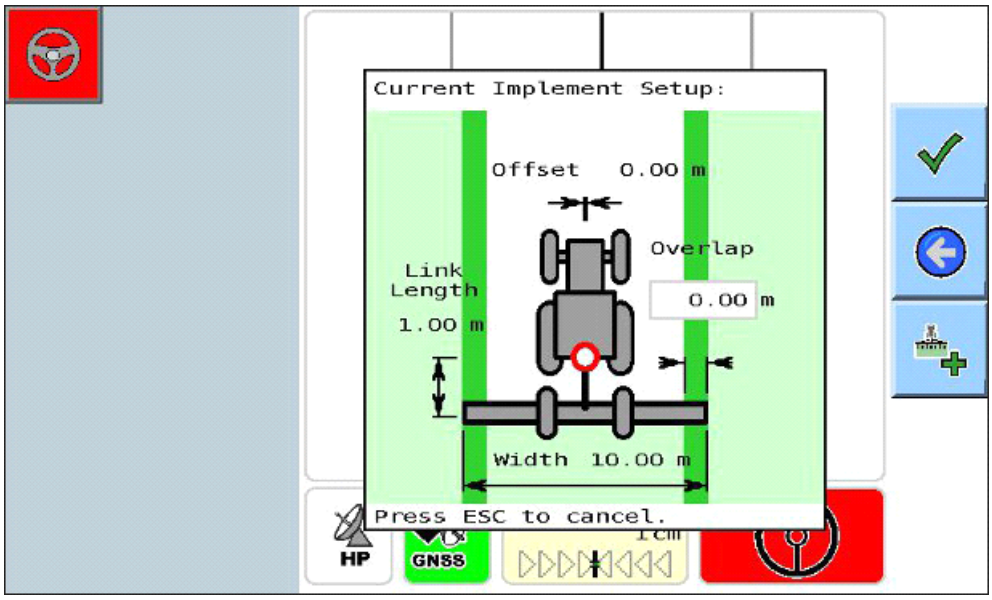
8.1 Using the Basic Implement and Wayline Wizard

Complete the steps below to set up a new implement and wayline profile.

1. From the Basic Guidance screen, select .

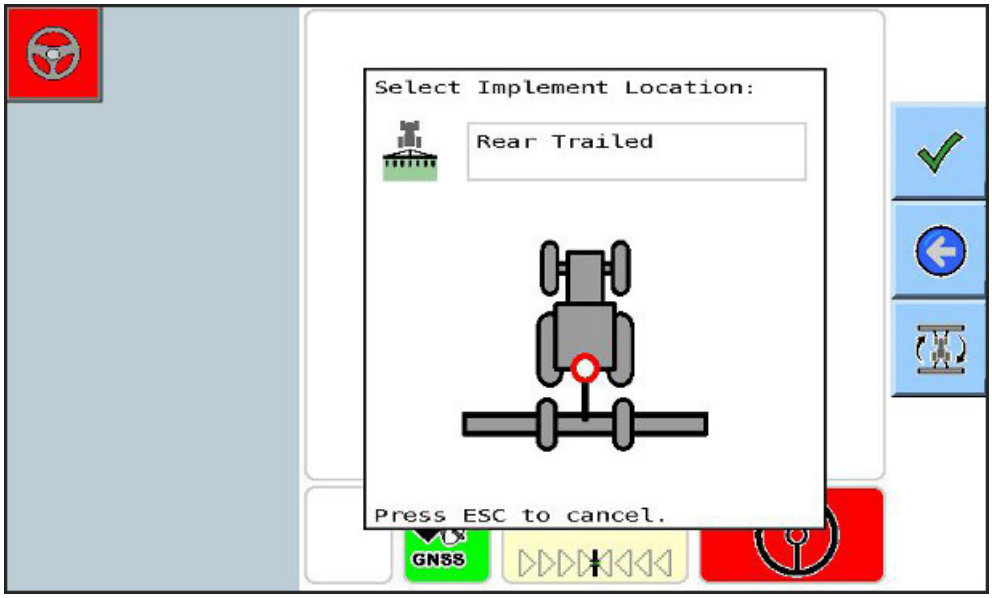
This button will be disabled if auto steering is engaged.

The Current Implement Setup sub-screen is displayed.



2. Select .

   The Select Implement Location sub-screen is displayed.



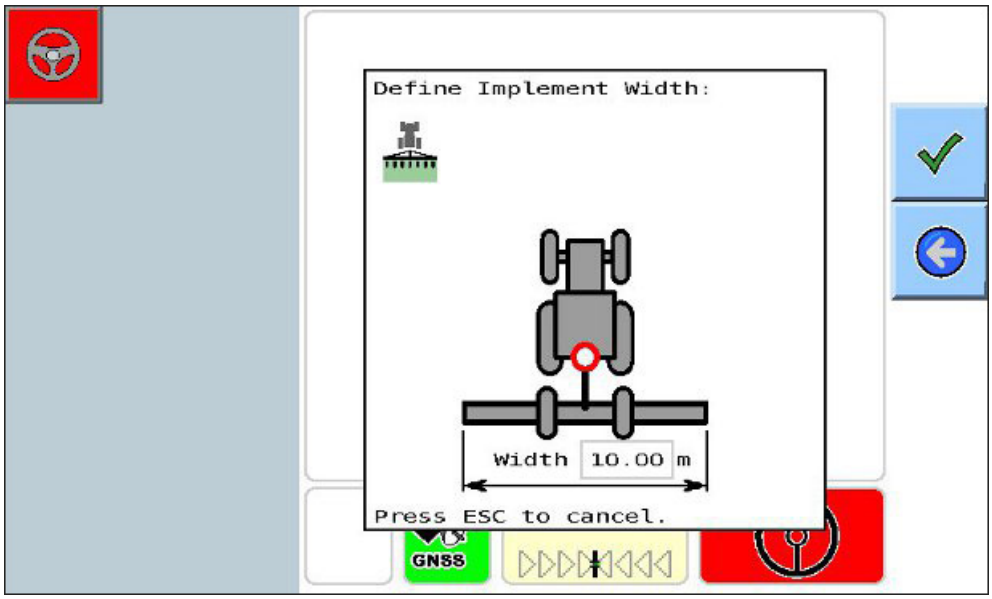
3. Select the required implement location and type. There are three options:

   - Front Rigid
   - Rear Rigid
   - Rear Trailed

   Alternatively, use to select one of the three options.

4. Select .

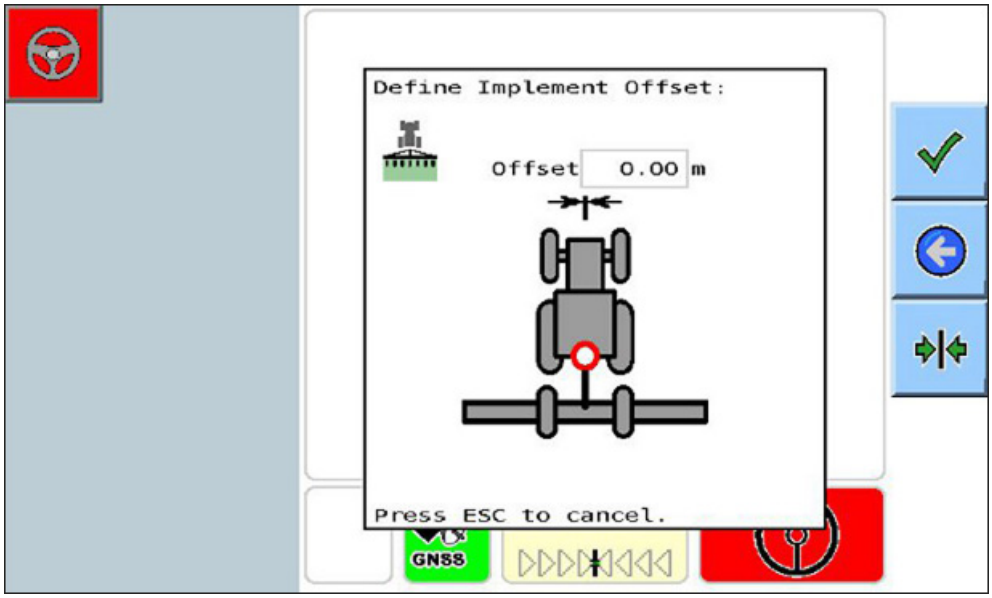
   The Define Implement Width sub-screen is displayed.



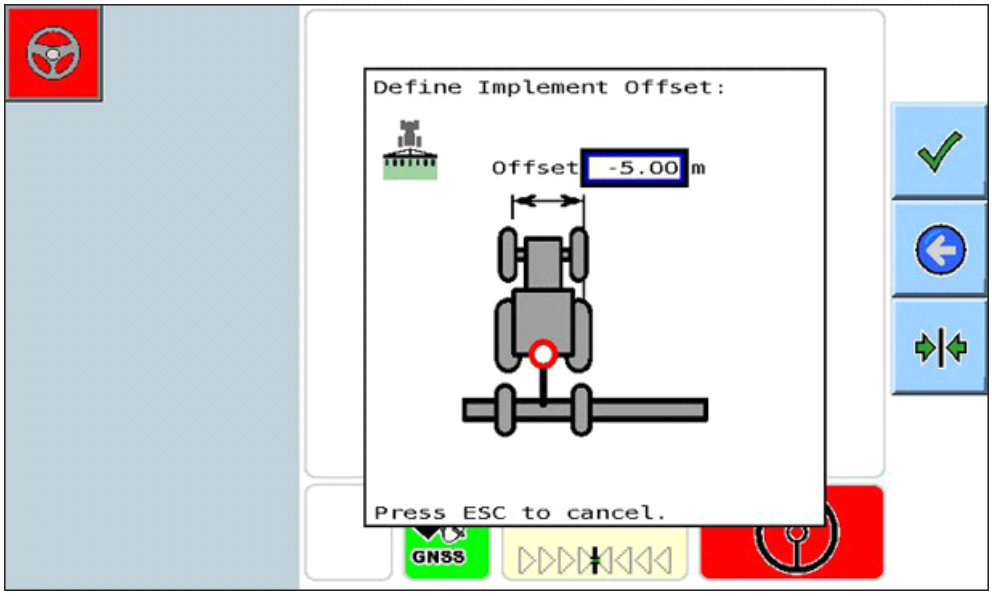
5. Enter the required width in the **Width** field.

6. Select .

   The Define Implement Offset sub-screen is displayed.



7. Enter an offset amount in the **Offset** field, if required.



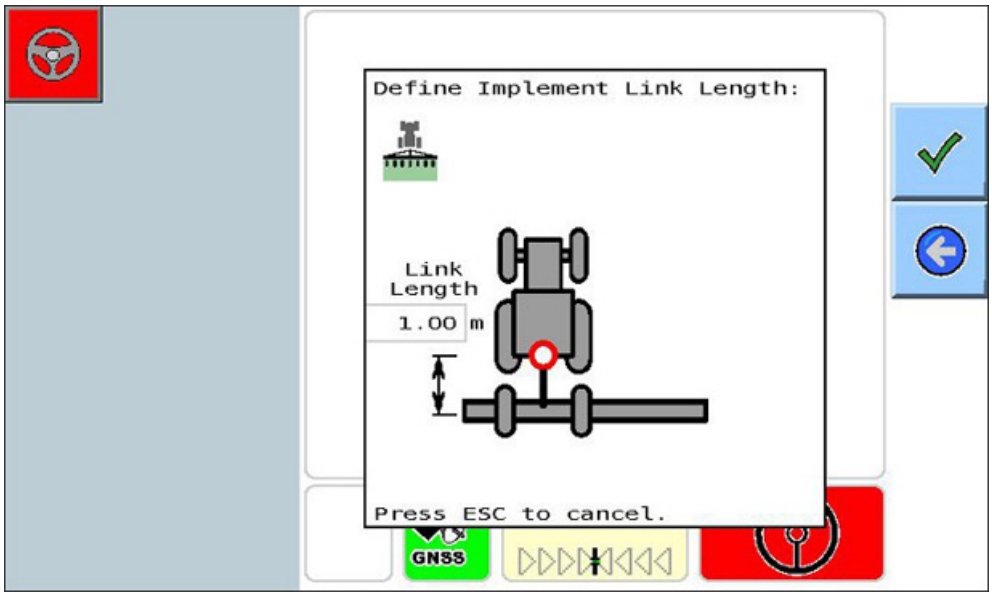
The offset amount is the amount by which the implement is placed so that its centre is either to the right or left of the drawbar point.

If the implement is perfectly centered, the offset should be set to zero. A negative amount indicates the offset is to the left.

The button centers the implement.

8. Select .

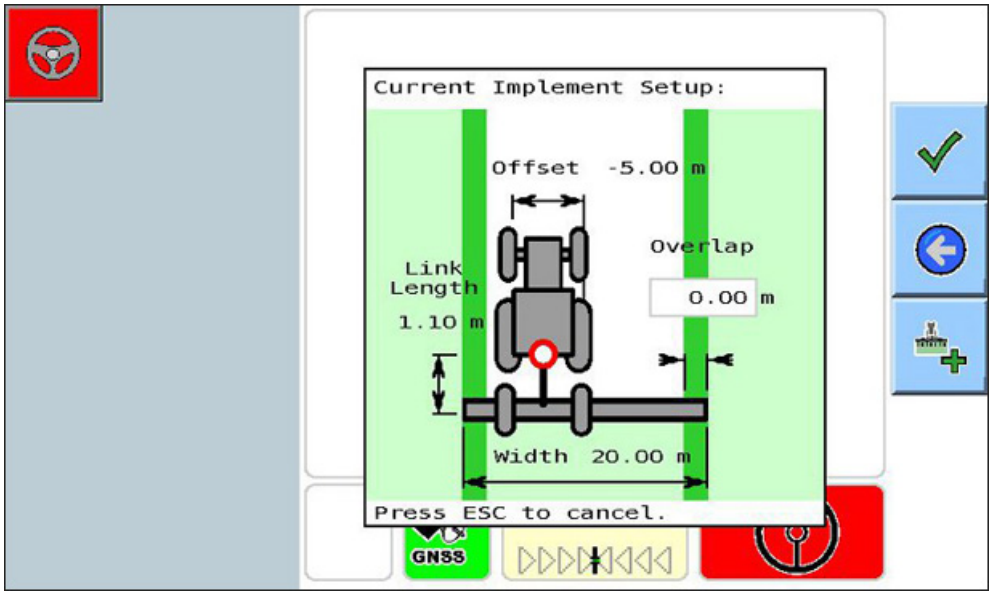
   The Define Implement Link Length sub-screen is displayed.



9. Enter the **Link Length**.

10. Select .

    The Current Implement Setup sub-screen displays the implement profile you just set up.

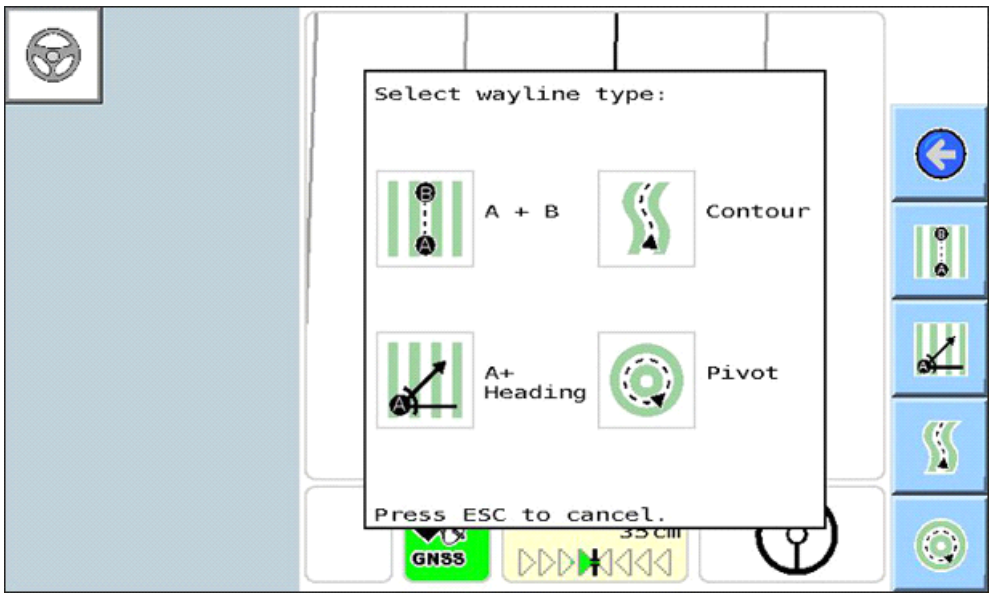


11. Enter an **Overlap** amount, if required.

    If you need to edit the other settings, repeat this procedure from step 2.

12. Select .

    The Select wayline type sub-screen is displayed.



13. Select the wayline type, and complete the relevant procedure as indicated below.

    - For A + B — See *7.2 Defining an AB Line*.
    - For A + Heading — See *7.3 Defining an A + Heading Line*.
    - For Contour — See *7.4 Defining a Contour*.
    - For Pivot — See *7.5 Defining a Pivot*.

The procedure for defining the different wayline types using the Basic Wizard is essentially the same as defining waylines in Advanced mode.

However, when you have completed defining the wayline, you are returned to the Basic Guidance screen.

Chapter 9 – GPS Drift Compensation / Nudge

This chapter describes how to use the GPS drift and nudge features. These features allow you to compensate for GPS drift or to avoid a physical obstacle such as an irrigation channel.

GPS Drift

GPS drift refers to the tendency for positional information obtained from GPS or GLONASS satellites to move over time. This is due to the changing GPS/GLONASS satellite constellation patterns used by the receiver to obtain positional information. As a result, there may be a discrepancy between an actual swath (e.g. a crop row which was originally sown using a wayline), and the position where the Guidance screen now suggests the wayline is located.

The lower the accuracy of the correction source, the more the positional information will move over time. The higher accuracy (i.e. decimeter) correction sources are still subject to GPS drift, but to a much lesser extent.

The GPS drift compensation and manual nudge features are available in both Basic and Advanced modes.

In this chapter

9.1 Defining Manual Nudge Offset

9.2 Defining Auto Nudge Offset

9.3 Defining GPS Drift Compensation

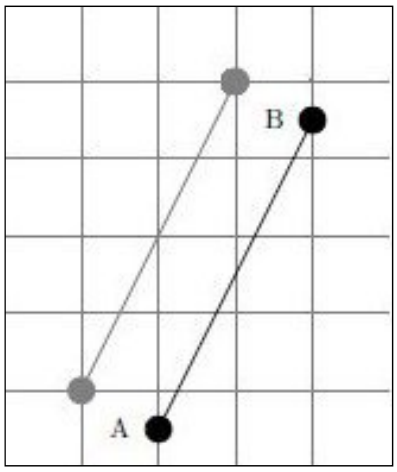
9.1 Defining Manual Nudge Offset

The manual nudge feature is used to move the wayline over an obstacle such as an irrigation channel, road, or fence.

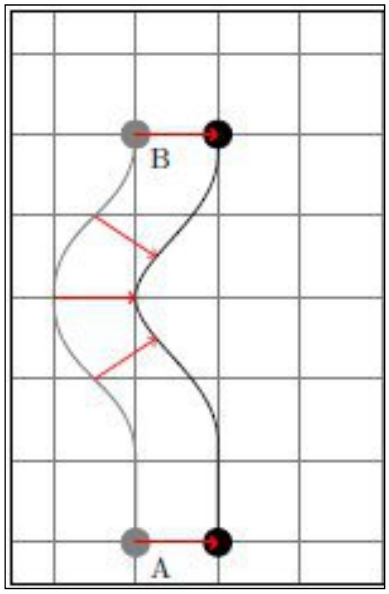
To use the manual nudge feature, you must have a visual reference, such as a crop row.

Effect of manual nudge offset on wayline

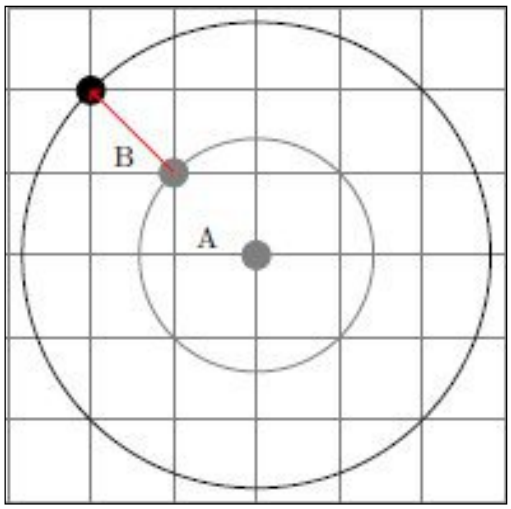
Applying a manual nudge offset to a straight wayline has the effect of moving the wayline to the left or right by the amount entered, as show in the diagram below. A represents the start of the wayline; B represents the end.



Applying a nudge offset to a curved wayline has the effect of moving the wayline to the left or right by the amount entered, as shown in the diagram below. A represents the start of the wayline; B represents the end.



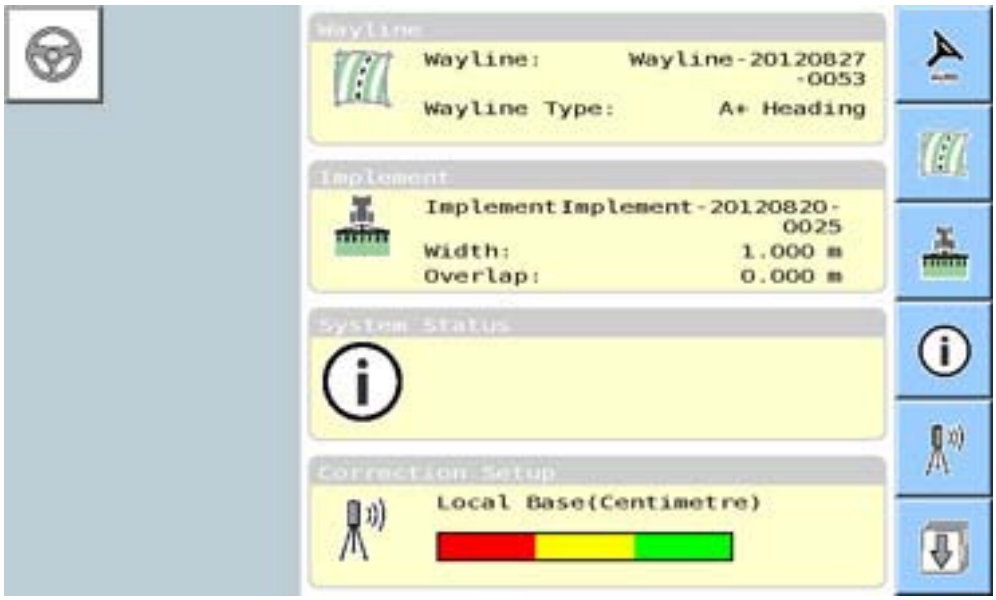
Applying a nudge offset to a pivot wayline has the effect of increasing or decreasing the diameter of the wayline by the amount of the nudge offset, as shown in the diagram below. It does not move the centre of the wayline. A represents the centre of the pivot; B represents the beginning and end of the wayline.



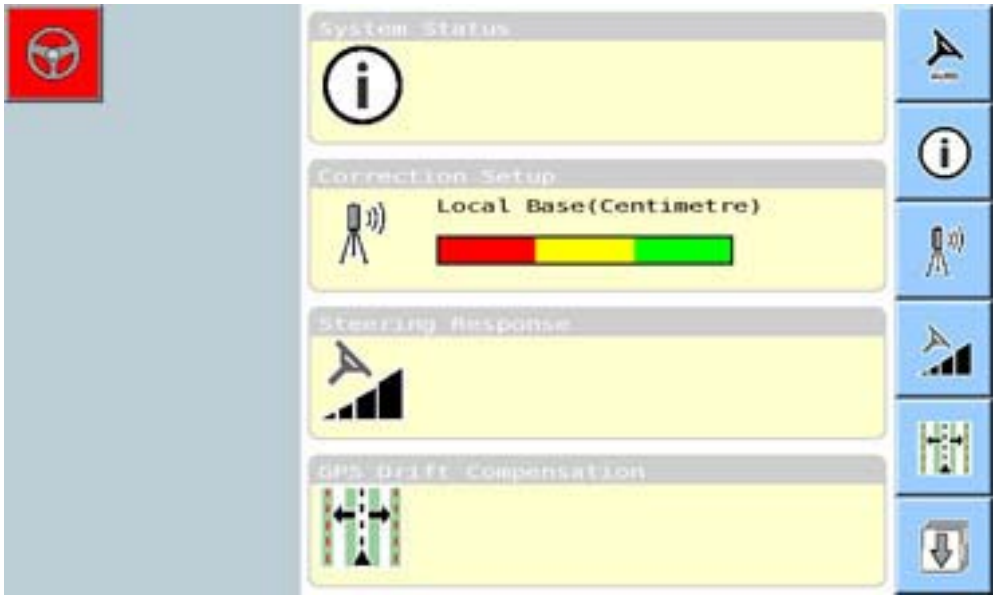
Complete the steps below to define a manual nudge offset.

1. Select .

   If you are using Advanced mode, the following menu is displayed.



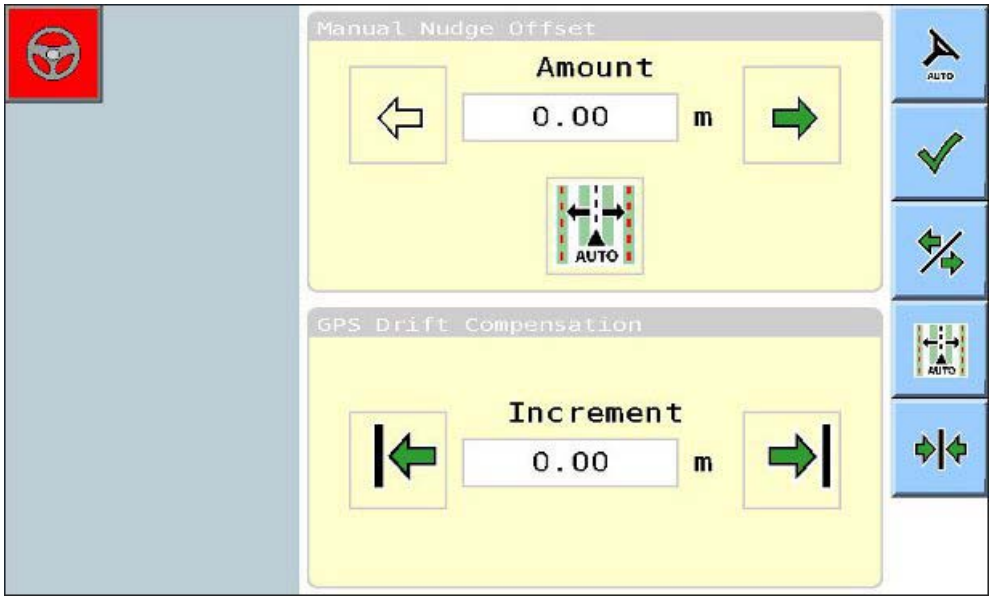
   If you are using Basic mode, the following menu is displayed. Go to step 3.



2. Select to display the next four menu items.

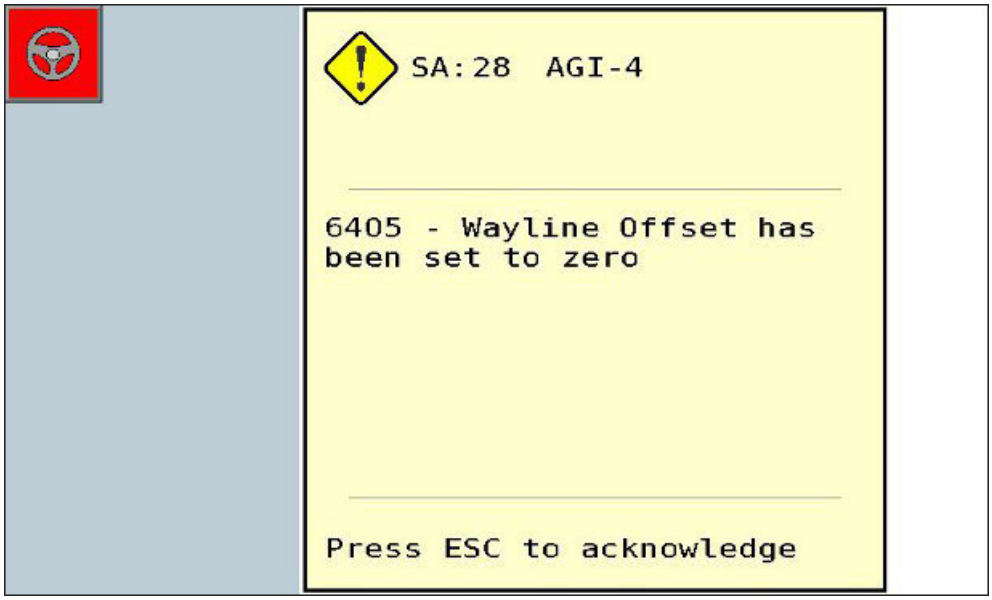
3. Select .

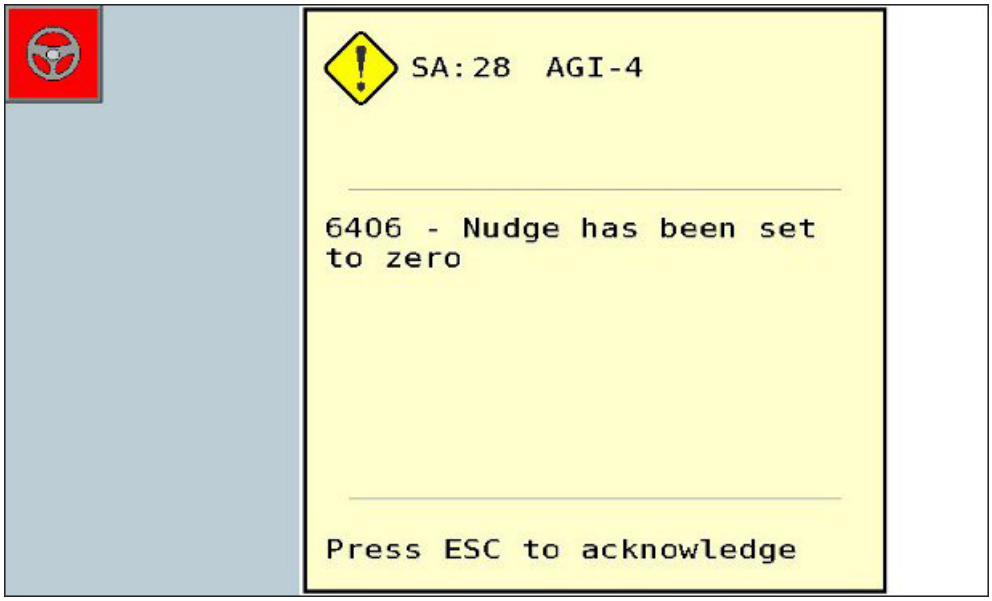
   The following screen is displayed.



4. In the Manual Nudge Offset section, select the left arrow or the right arrow as required. You can use to toggle between the left and right arrow. The arrow turns green when selected.
5. In the **Amount** field, enter the nudge amount.
6. Use to reset the increment amount to zero, if required.

   The following messages are displayed.





7. Select to save and return to the Setup menu.

   If you have entered an offset amount, the wayline will be offset to the left or the right by the amount entered.

9.2 Defining Auto Nudge Offset

The auto nudge feature allows you to apply a nudge offset to a wayline in order to compensate for GPS drift. This feature is used with the less accurate correction sources.

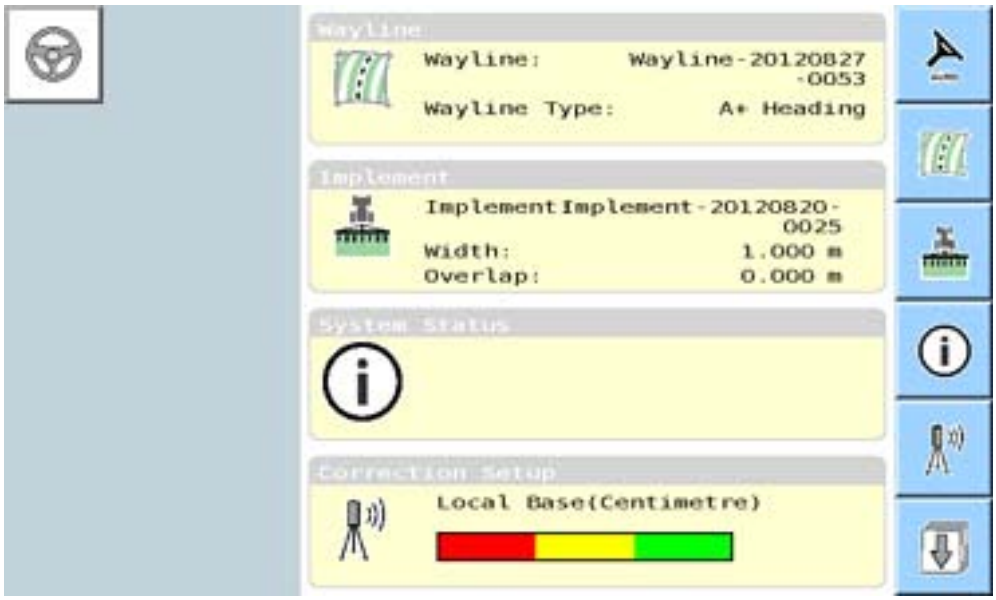
To use this feature, you must have a visual reference of the original wayline, e.g. a crop row or pre-existing wheel tracks on which to position your vehicle.

The auto nudge offset feature has the same effect on the wayline as the manual nudge offset feature. For more information, refer to *9.1 Defining Manual Nudge Offset*.

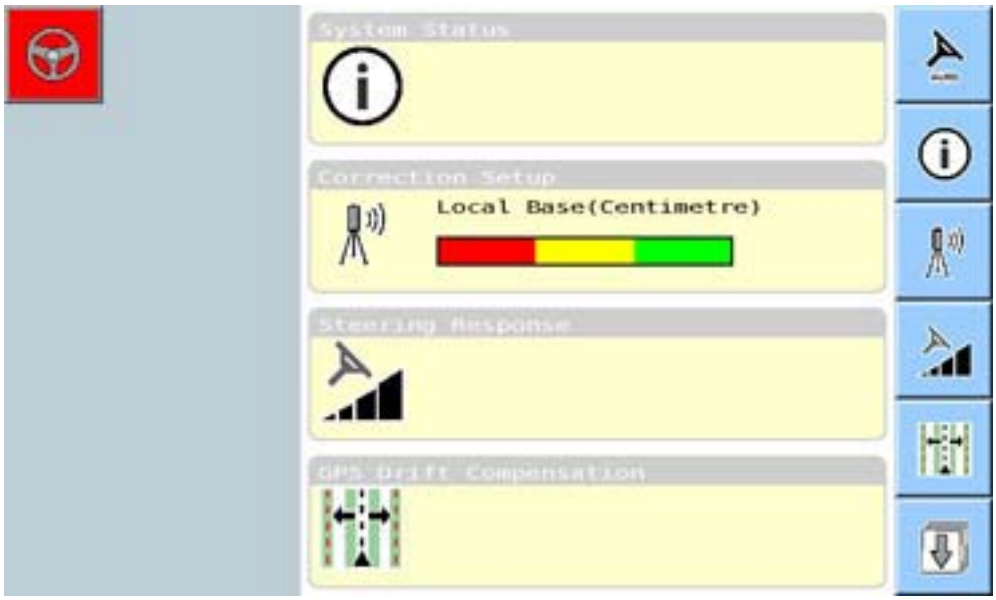
Complete the steps below to define an auto nudge offset.

1. Position the vehicle on the original wayline.
2. Select .

   If you are using Advanced mode, the following menu is displayed.



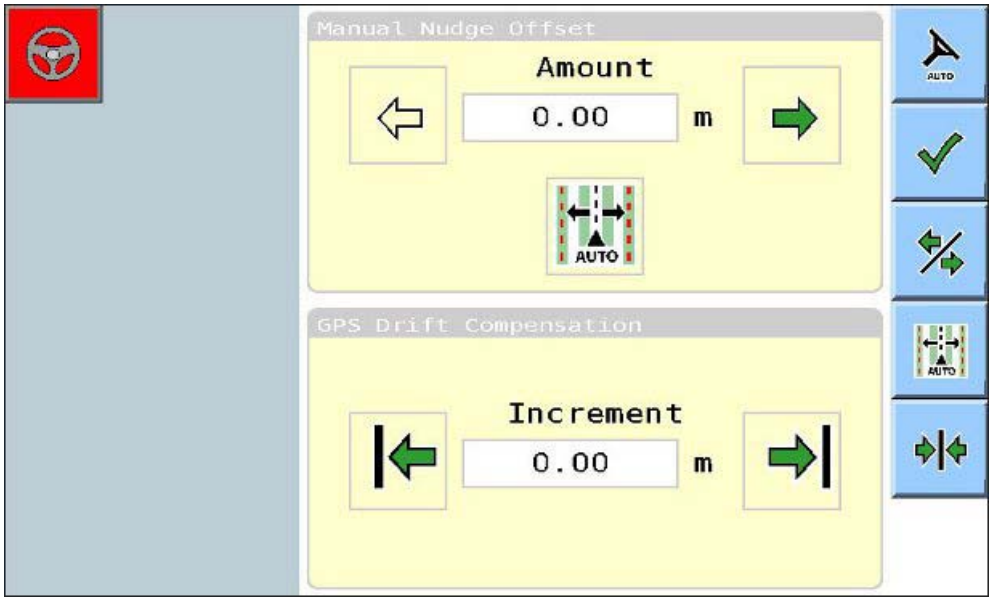
If you are using Basic mode, the following menu is displayed. Go to step 4.



3. Select to display the next four menu items.

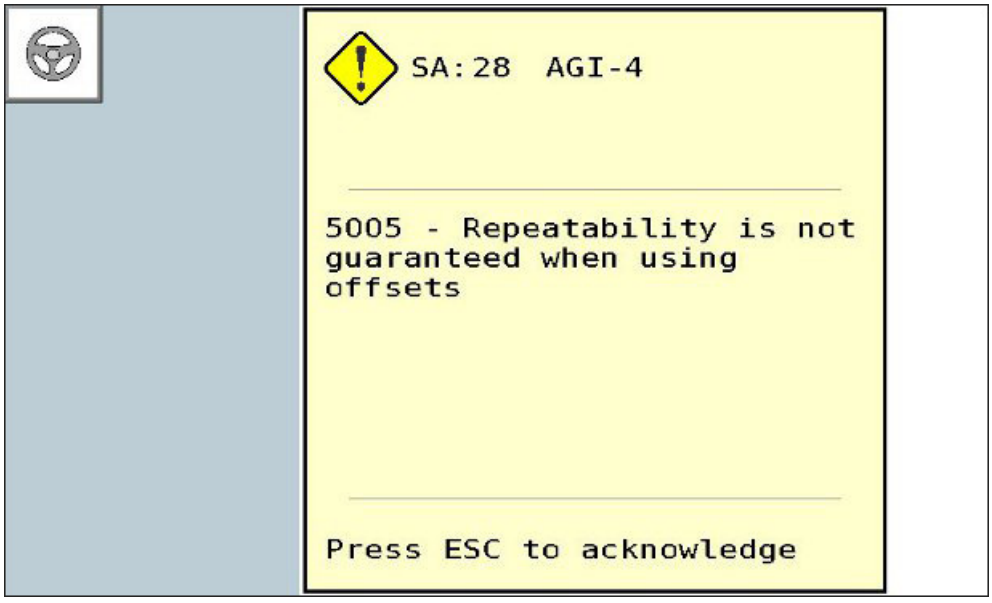
4. Select .

   The following screen is displayed.



5. In the Manual Nudge Offset section, select the Auto button .

   The following message is displayed.



The **Amount** field is updated with the amount of the offset, and the offset has been applied.

6. Press **Esc** to acknowledge and close the message sub-screen.

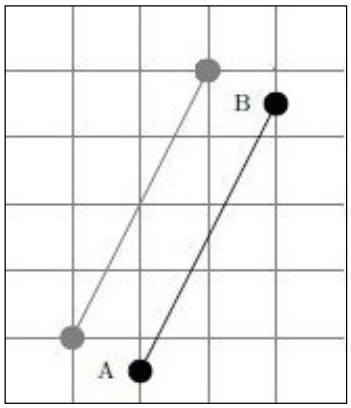
7. Select to save and return to the Setup menu.

9.3 Defining GPS Drift Compensation

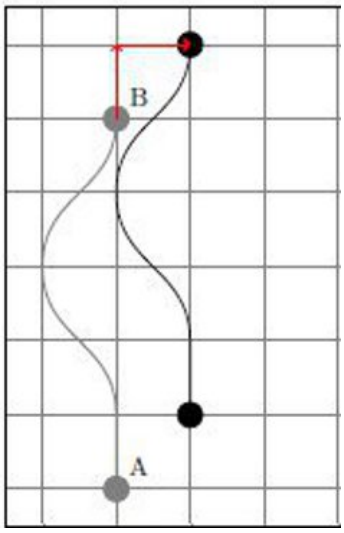
The GPS Drift compensation feature allows you to adjust for drift by defining a nudge amount, then applying the nudge amount while auto steering.

Effect of GPS drift compensation on wayline

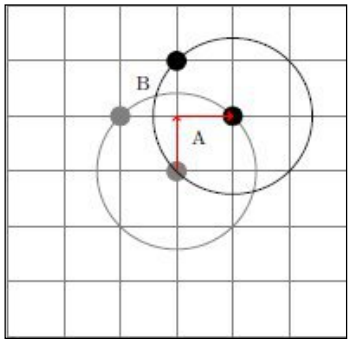
Applying GPS drift compensation to a straight wayline has the effect of moving the wayline to the left or right by the nudge increment that has been applied, as show in the diagram below. A represents the start of the wayline; B represents the end.



Applying GPS drift compensation to a curved wayline has the effect of moving the wayline by the nudge increment that has been applied, as shown in the diagram below. A represents the start of the wayline; B represents the end.



Applying a GPS drift compensation to a pivot wayline has the effect of moving the entire wayline by the nudge increment that has been applied, as shown in the diagram below. The centre of the pivot is moved, but the diameter is not increased or decreased.

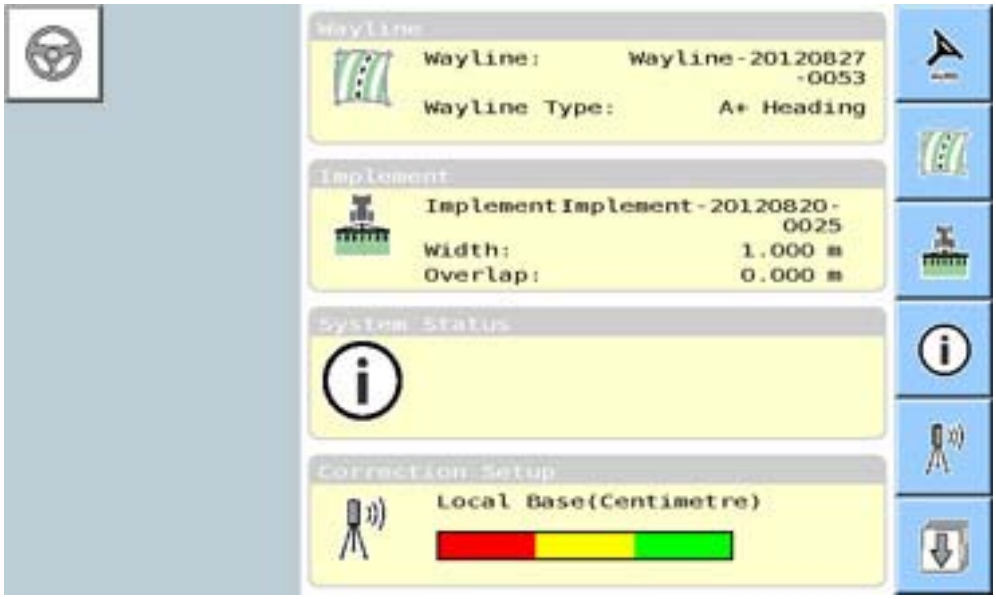


Complete the steps below to define and apply a GPS drift compensation amount.

1. Select .

   If you are using Advanced mode, the following menu is displayed.

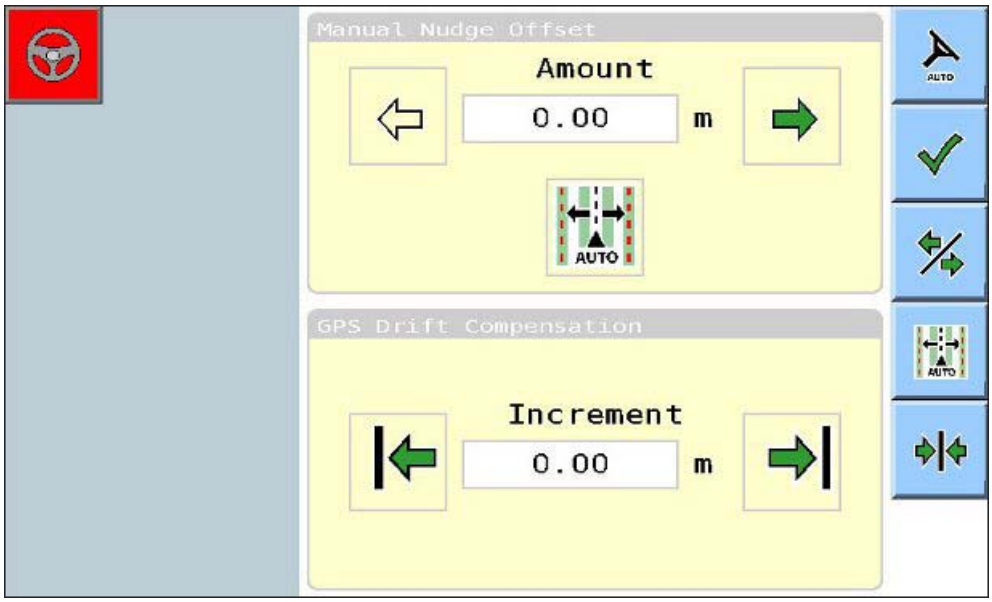
   If you are using Basic mode, the following menu is displayed. Go to step 3.



2. Select to display the next four menu items.

3. Select .

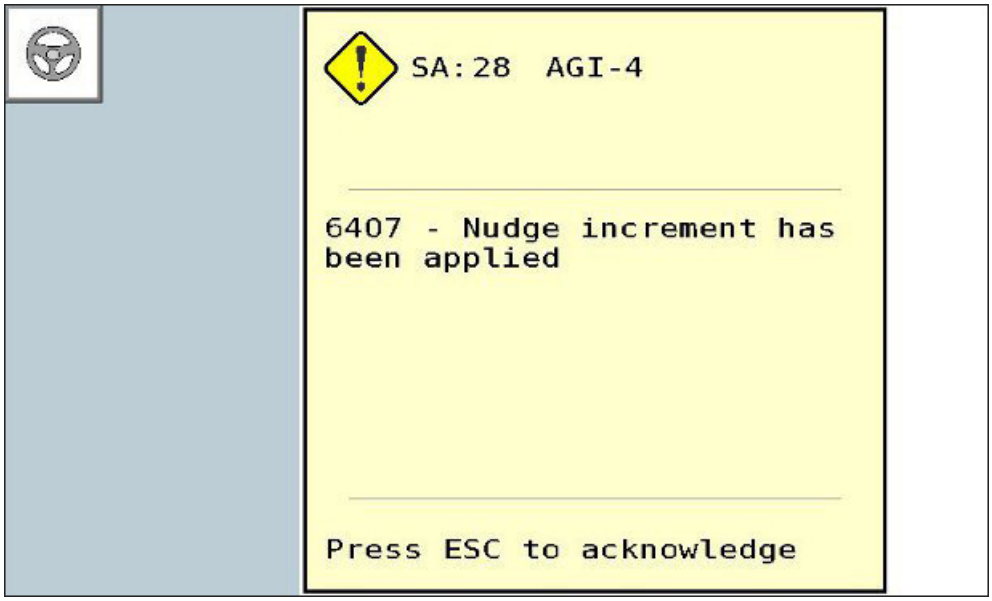
   The following screen is displayed.



4. In the GPS Drift Compensation section, enter the nudge amount in the **Increment** field.

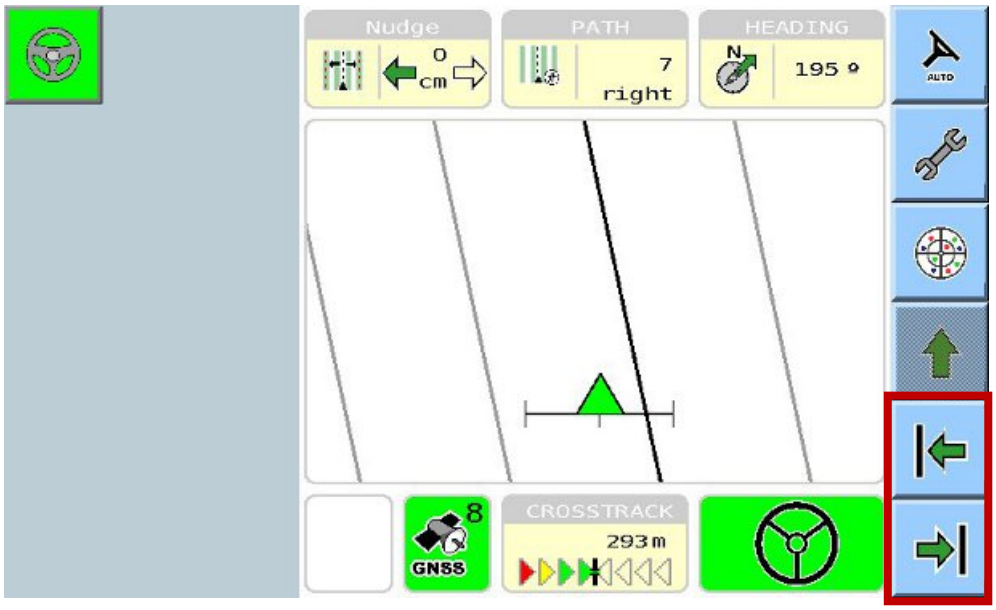
5. Use and to apply the increment.

   The following message is displayed



6. Select to save and return to the Setup menu.

   The Nudge buttons are displayed on the Guidance screen to allow you to nudge the vehicle over to the desired on-ground location while auto steering.



Chapter 10 - Using Auto Steering

This chapter covers how to define the steering response and engage auto steering.

This function is available in both Basic and Advanced modes.

In this chapter

10.1 Defining Steering Response

10.2 Engaging Auto Steering

10.3 Disengaging Auto Steering

10.1 Defining Steering Response

The AGI ISO VT allows you to define the line acquisition and online steering response.

Line acquisition steering response

Line acquisition steering response refers to the speed, or aggressiveness, with which the vehicle attempts to move onto the wayline when you engage auto steering. Desirable aggressiveness will depend on implement being used and the speed at which you are travelling. The higher the line acquisition steering response, the more sharply the vehicle will move in order to get on to the wayline. This means that if you are travelling at a higher speed, you should set the line acquisition steering response lower to avoid mishaps (e.g. rolling the vehicle).

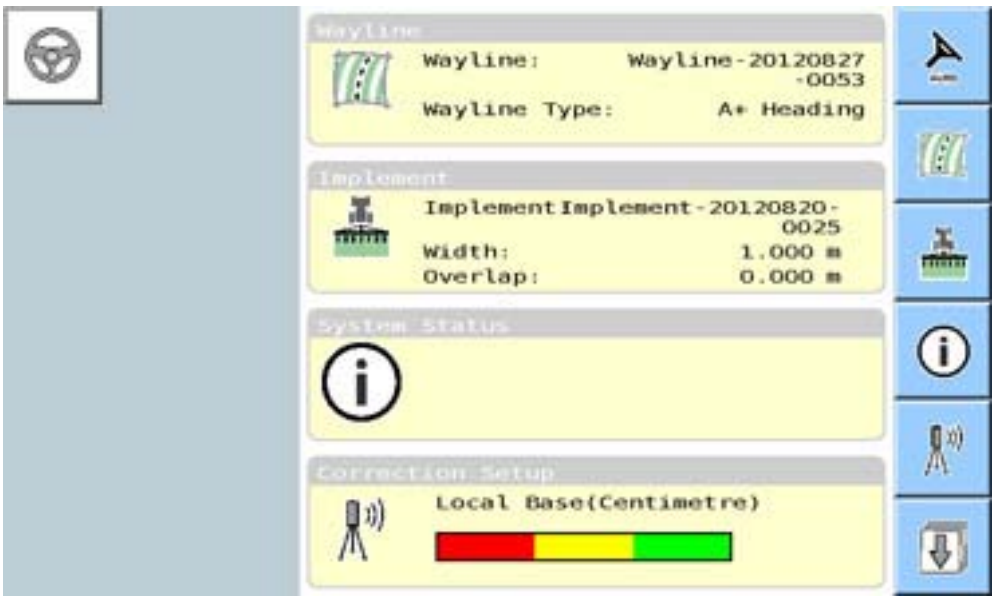
Online steering response

Online steering response refers to how precisely the vehicle attempts to stay on the wayline. The higher you set the online steering response, the more precisely the vehicle will follow the wayline. When the online steering response is set at an adequate level, the vehicle will follow the line accurately without the wheels oscillating. If you are travelling at a higher speed, you should set the online steering response lower. This mode is operational when the vehicle is between 0 cm and 100 cm of the wayline.

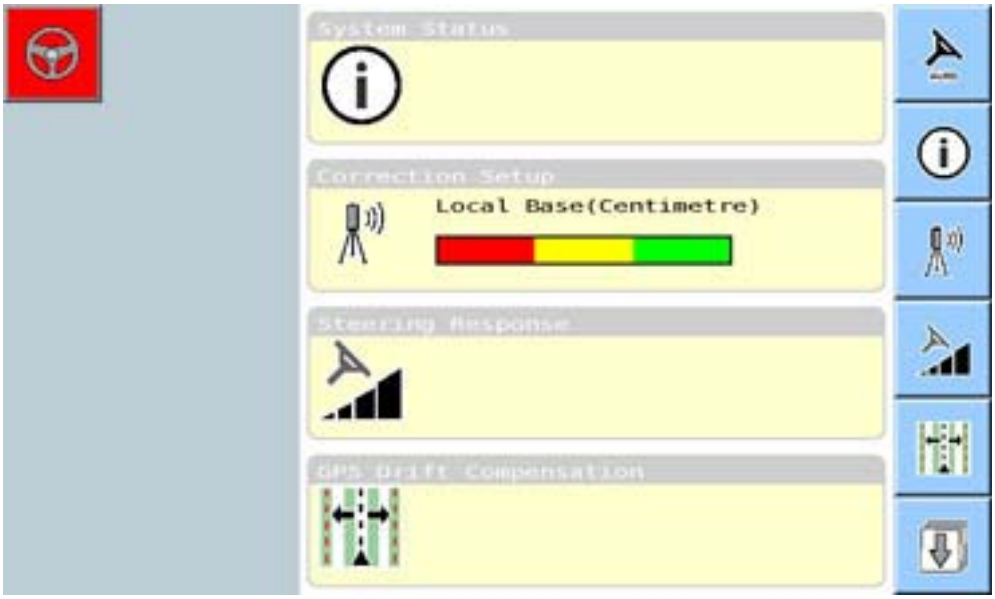
Complete the steps below to define the steering response.

1. Select .

   If you are using Advanced mode, the following menu is displayed. Go to step 2.



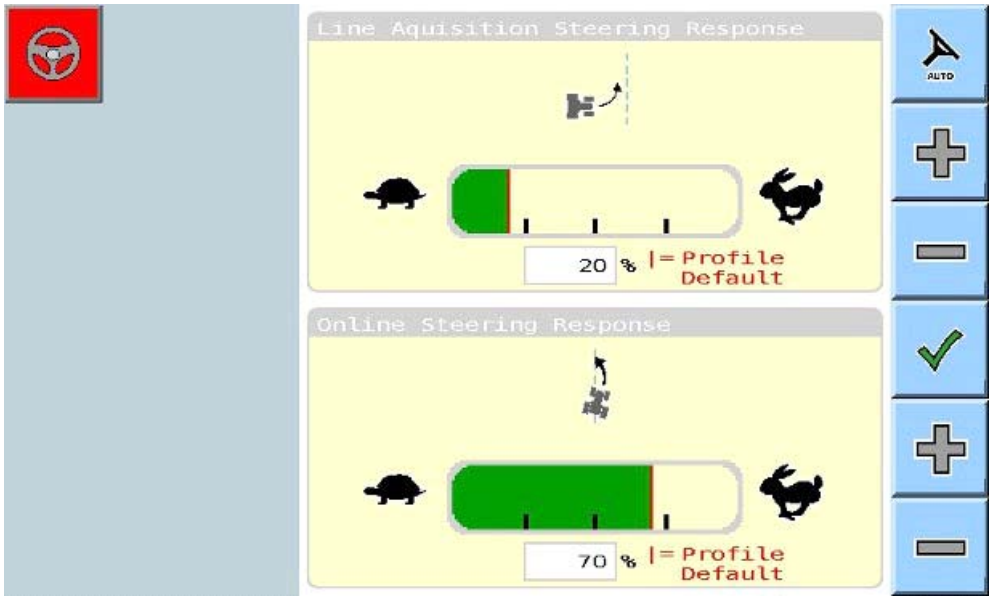
   If you are using Basic mode, the following menu is displayed. Go to step 3.



2. Select to display the next four menu items.

3. Select .

   The following screen is displayed.



The red line indicates the profile default. The profile default percentage will vary depending on the vehicle profile being used.

4. To increase the line acquisition or online steering response value, select .

   Line acquisition and online steering response values increase and decrease by 5%.

5. To decrease the line acquisition or online steering response value, select .

6. When you have set the Line Acquisition Steering Response and Online Steering Response to the required percentage, select to accept the changes and return to the Setup menu.

7. Select to engage auto steering, and test the steering response.

8. Repeat this procedure to adjust the steering response, if required.

10.2 Engaging Auto Steering

In order to engage auto steering:

- There must be no factors that will prevent auto steering, and
- You must have a wayline loaded.

Auto steering status

The steering icon on the top left-hand side of the screen indicates the status of auto steering.

Red indicates that auto steering cannot be engaged. Refer to *2.1 Checking System Status* for information regarding factors that will prevent auto steering.

White indicates that auto steering can be engaged.

Green indicates that auto steering is currently engaged.

Yellow indicates a ‘standby mode’.

Standby mode allows you to engage auto steering with a 15 second delay. This is useful in certain situations, e.g. if you have limited space in which to manoeuvre your vehicle into the required position, and have to use reverse etc.

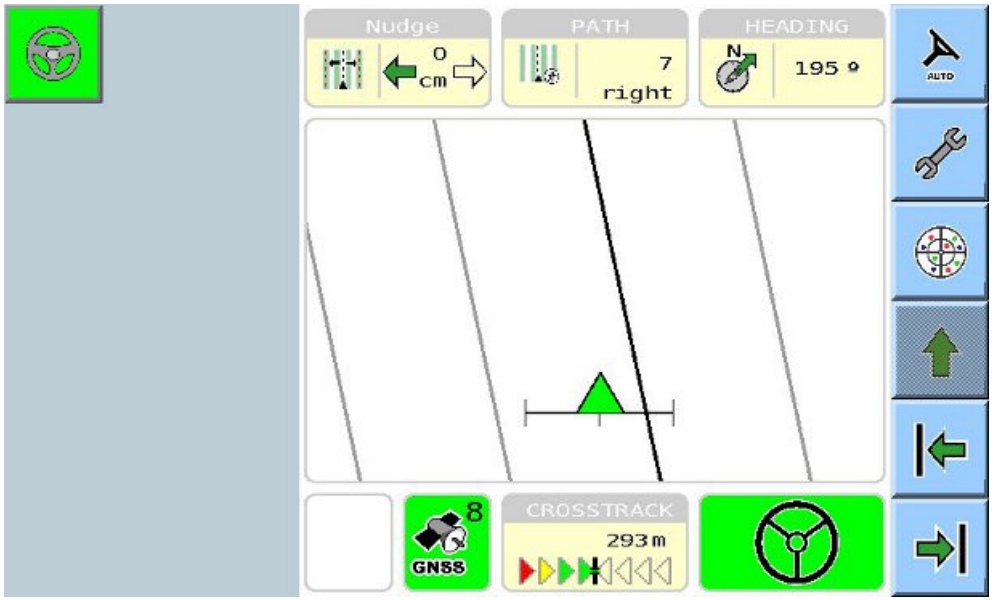
The vehicle will go into standby mode if you tap when all conditions required for auto steering are met except speed, e.g. you are not driving fast enough.

After 15 seconds, the vehicle will attempt to engage auto steering. If this attempt fails, the steering wheel will turn red again because speed is not met. Because speed is not met.

Complete the steps below to engage auto steering.

1. Position the vehicle close to the wayline, and at an angle that will allow the vehicle to move on to the wayline smoothly.
2. Ensure you are driving at an appropriate speed.
3. Select .

   When the auto steering is engaged, the steering icon will turn green, and the vehicle will begin to steer towards the nearest wayline path, as shown in the Guidance screen below.



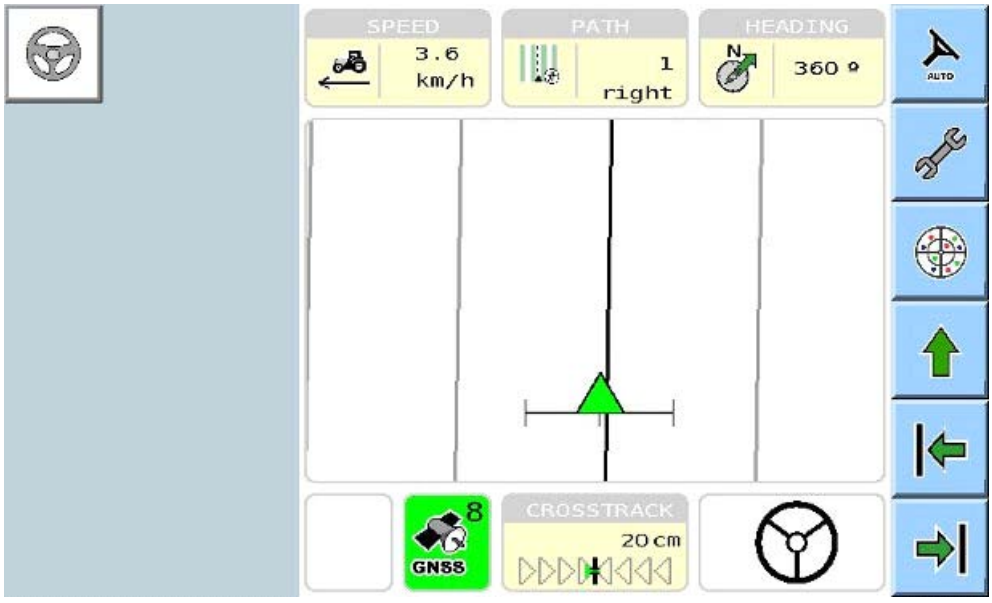
   One beep indicates that auto steering has been engaged.

10.3 Disengaging Auto Steering

There are two methods for disengaging auto steering. These are:

- Manually turning the steering wheel, or
- Selecting while auto steering is engaged.

When you disengage auto steering, the steering icon turns white, as shown in the Guidance screen below.



Three beeps indicate that auto steering has been disengaged.

Auto steering will disengage automatically if the vehicle speed is above or below the speeds allowable for online steering. In this case, the steering icon will turn red.

When the vehicle is being moved between areas and Auto Guidance is not required it is recommended that the Auto Guidance lockout switch where fitted is activated.

Refer to the vehicle manufactures operators manual for lockout switch information.

Chapter 11 – Importing & Exporting Files

This chapter covers how to import and export files such as vehicle profiles, implement profiles, NMEA profiles and waylines.

In order to be able to transfer files to and from a removable device such as a USB stick or SD card, you must ensure that the File Server option is enabled on the console.

For more information on configuring the console settings, refer to the relevant console operator's manual, e.g. AGCO C1000 Console Software V. 1.7.1.

This function is available in Advanced mode only.

In this chapter

11.1 Importing a File

11.2 Exporting a File

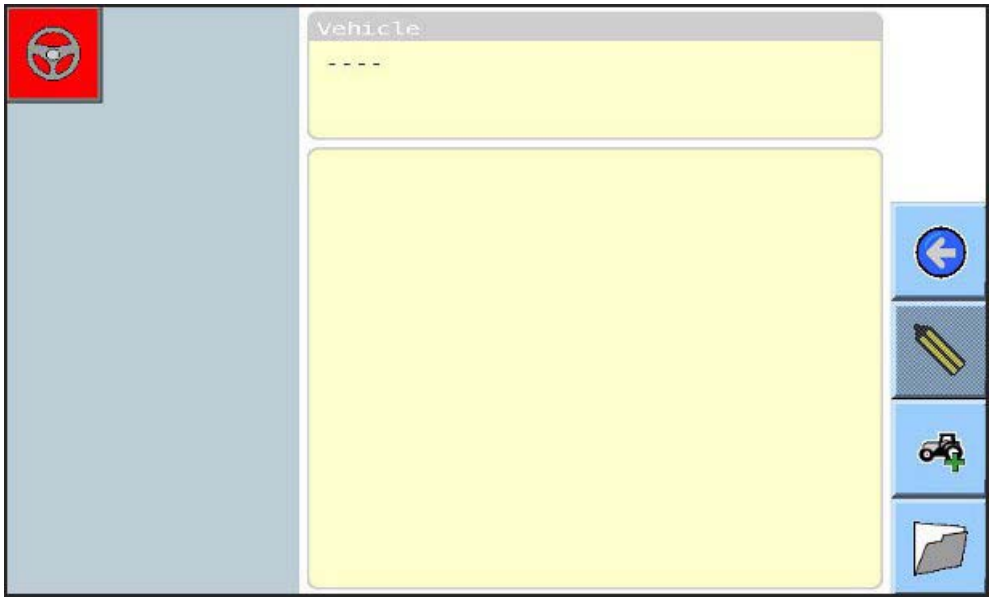
11.1 Importing a File

Files can be imported from the internal memory of the AGI ISO VT, or from an external device such as a USB stick or SD card.

This procedure uses a vehicle profile for demonstration. However, the procedure for importing a file is the same regardless of whether the file is an implement profile, vehicle profile, NMEA profile or wayline.

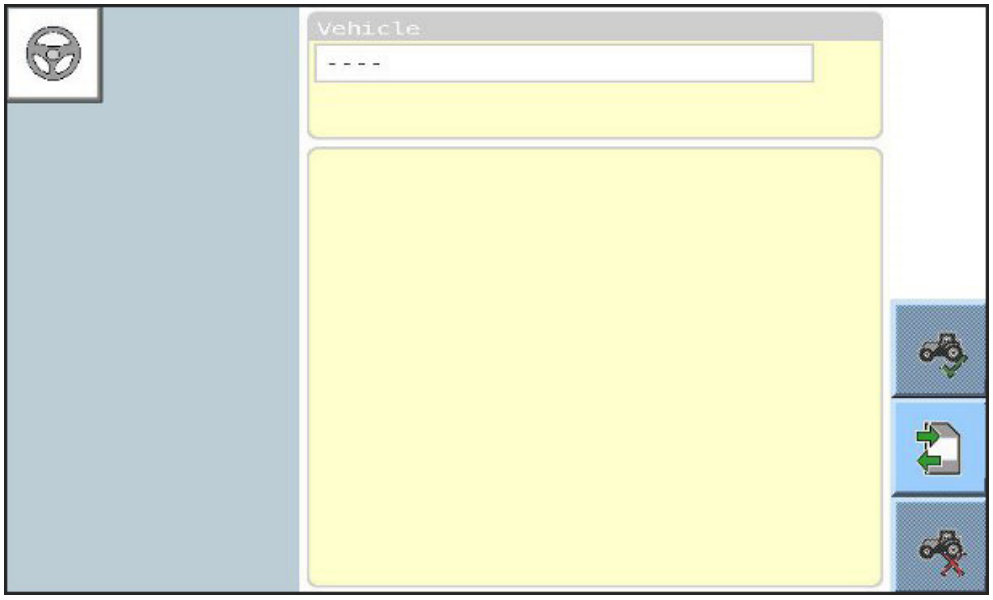
Complete the steps below to import a file.

1. Access the relevant screen for the file you wish to import. In this example, Vehicle is selected.



2. Select .

   The Import/Export button ( ) is displayed.

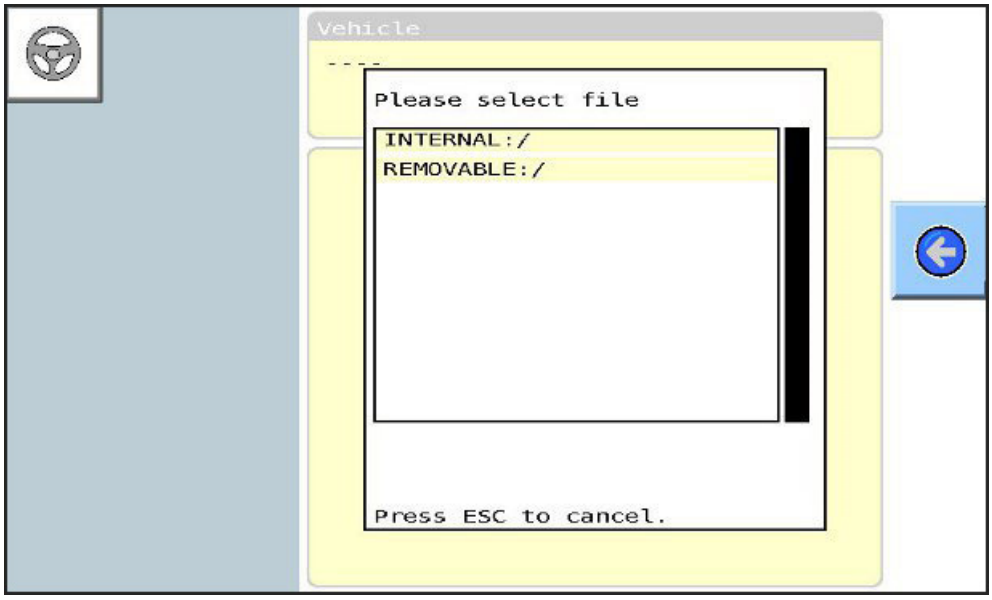


3. Select .

   The Import button ( ) is displayed.

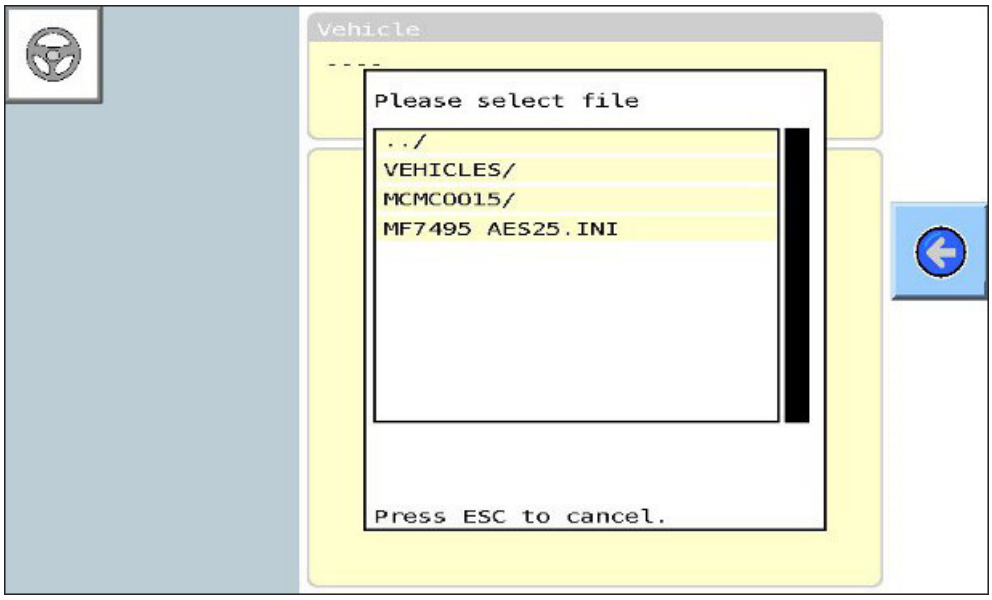
4. Select .

   The following sub-screen is displayed.



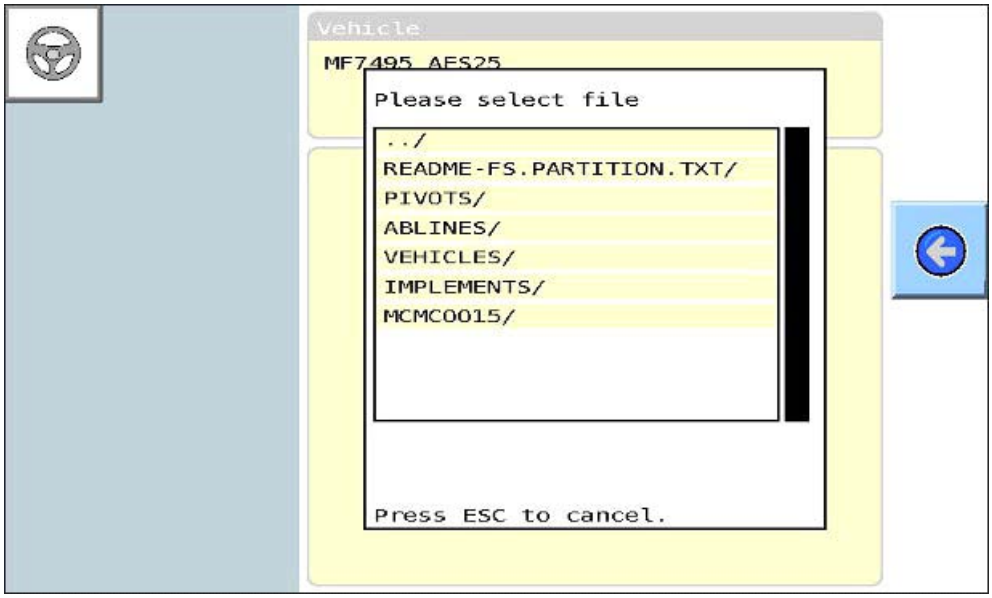
5. If you want to select a file from a removable device such as USB stick or SD card, select REMOVABLE. Go to step 7.

   A list of folders and/or profiles is displayed.



6. If you want to choose a profile from the system's internal memory, select INTERNAL.

A list of folders and/or profiles is displayed.

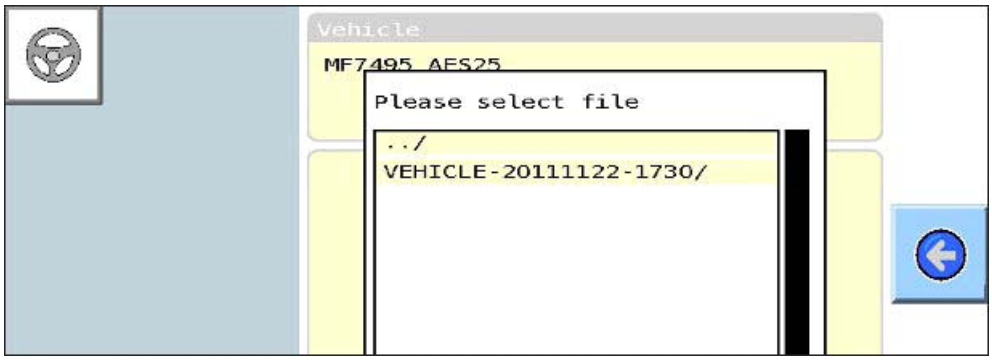


7. Select the required INI file.

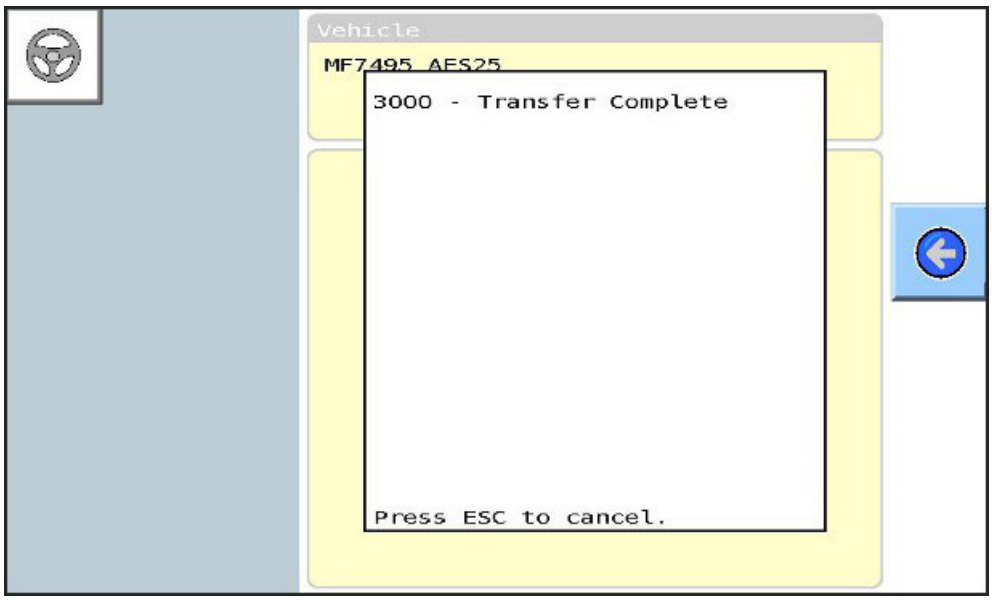
Profiles are ‘INI’ files.

A forward slash ‘/’ after a name, e.g.’ VEHICLES/’, indicates that it is a folder which contains other folders and files.

If the required INI file is not displayed, open the folder/s until you locate the required file.



When the transfer of the profile is complete, the following message will be displayed.



8. Select to return to the previous screen.

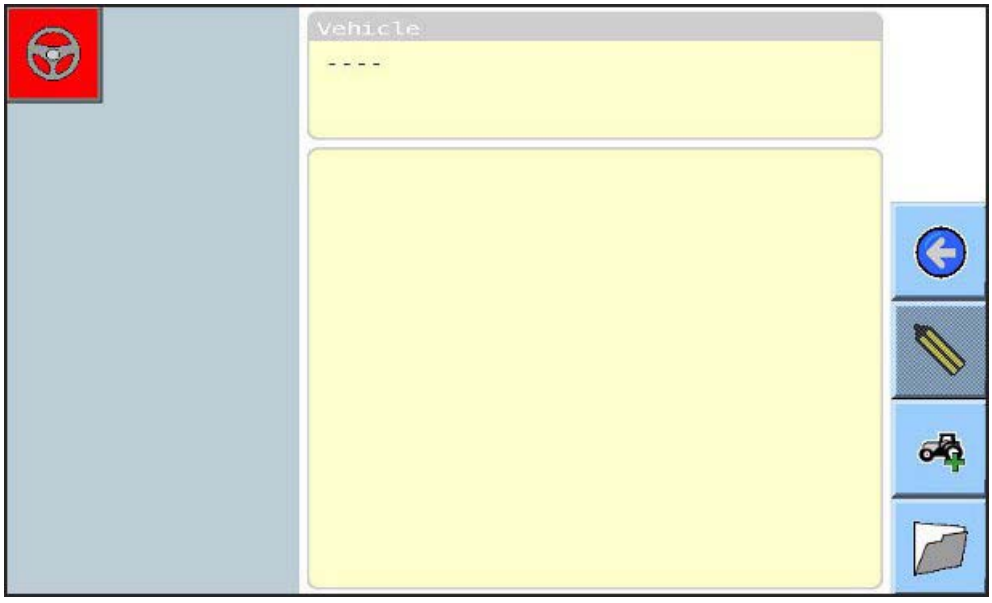
11.2 Exporting a File

Files can be exported to the internal memory of the AGI ISO VT, or to an external device such as a USB stick or SD card.

This procedure uses a vehicle profile for demonstration. However, the procedure for exporting a file is the same regardless of whether the file is an implement profile, vehicle profile, NMEA profile or wayline.

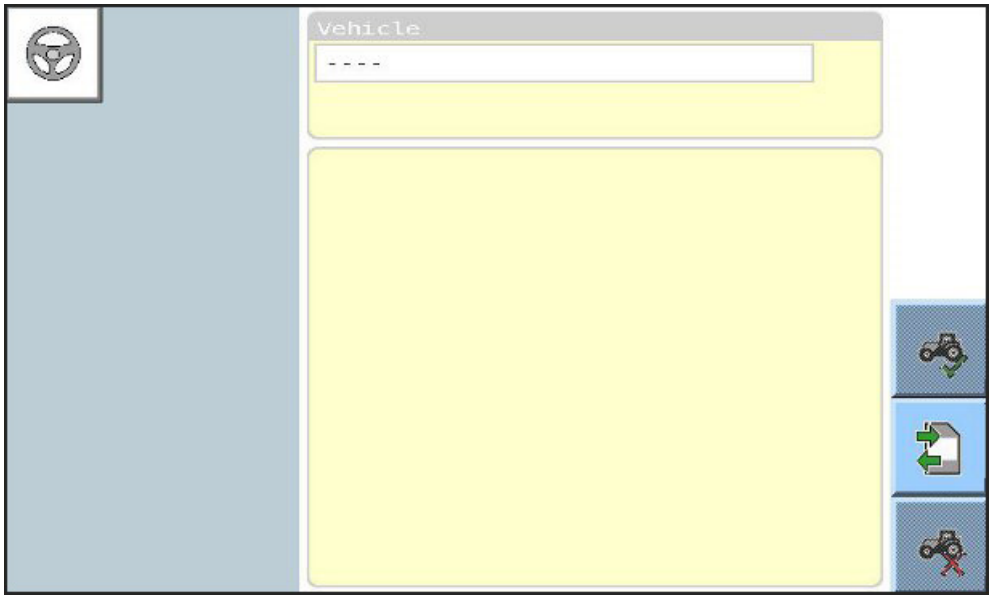
Complete the steps below to export a file.

1. Access the relevant screen for the file you wish to export.
   In this example, Vehicle is selected.



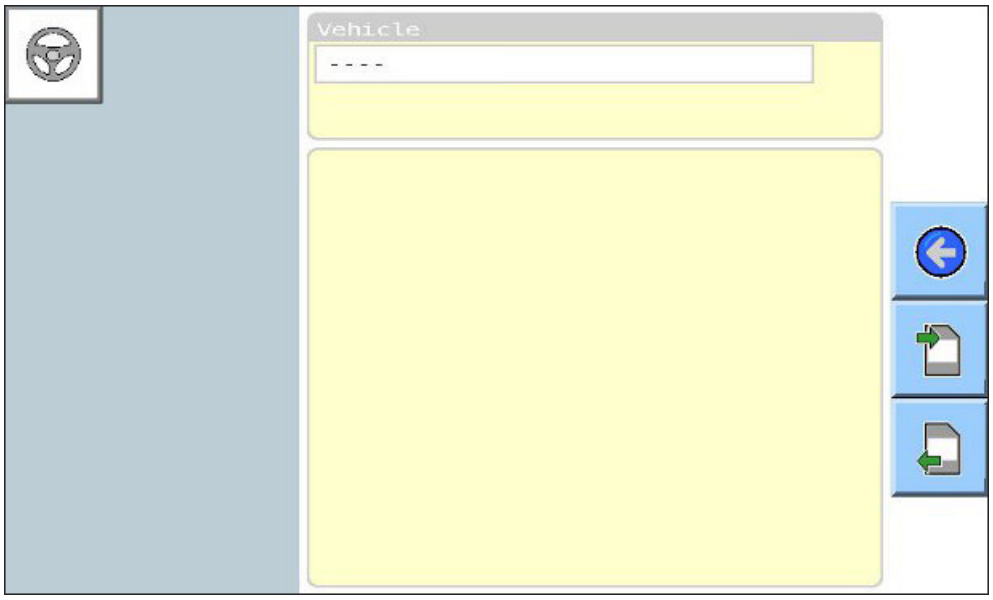
2. Select .

   The Import/Export button ( ) is displayed.



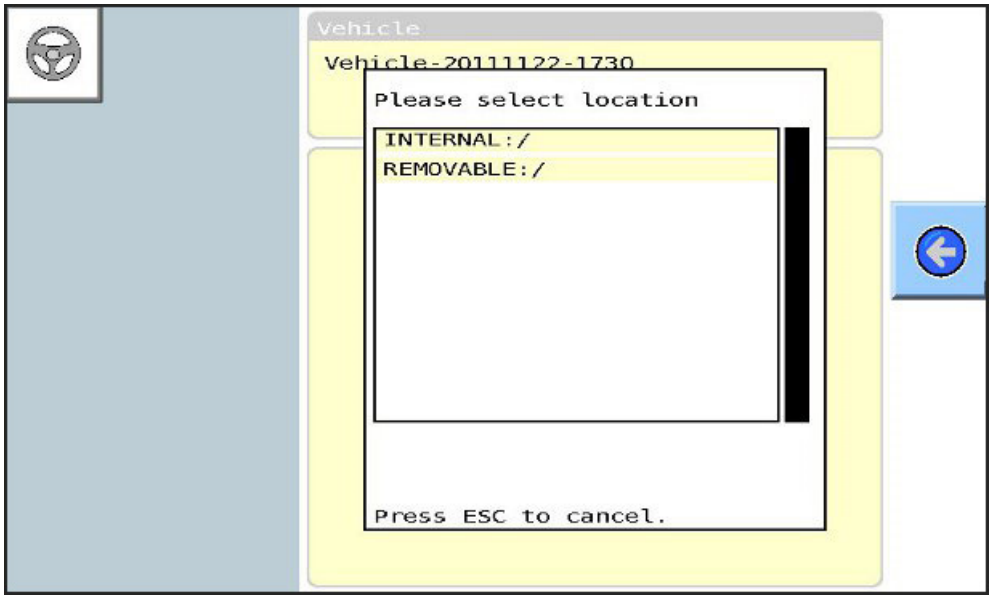
3. Select .

   The Export button ( ) is displayed.



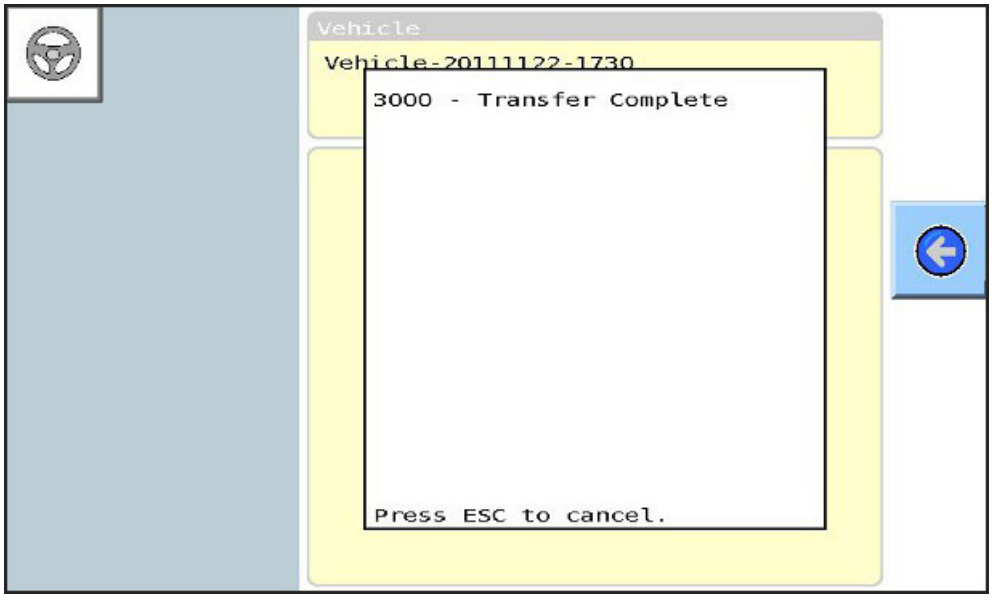
4. Select .

   The following sub-screen is displayed.



5. If you want to import a file to the system's internal memory, select INTERNAL. If you want to export a file to a removable device such as USB stick or SD card, select REMOVABLE.

   The following message is displayed.



6. Select to return to the previous screen.

Chapter 12 - Troubleshooting Guide

This chapter provides tips for troubleshooting problems you may encounter when using the AGI ISO VT.

Troubleshooting is a process of elimination. You should follow the steps outlined in the following topics. If you cannot resolve the issue, contact your dealer.

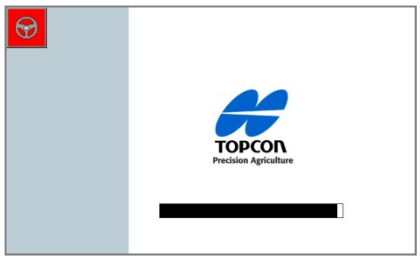
In all cases, it is advisable to observe and note down what the system is doing, and what actions you performed immediately before the problem occurred. This will enable you to replicate the problem if necessary. This information will also be helpful to your dealer when troubleshooting the issue.

In this chapter

12.1 Common AutoGuidance Problems
12.2 Actioning Error Messages

12.1 Common AutoGuidance Problems

The table below describes the most common issues encountered when using the AGI ISO VT, and presents guidelines for troubleshooting these.

Problem	Actions
When I start the system, the Topcon loading screen does not appear	Check that the receiver cable is plugged in, and that the receiver is switched on. The receiver switch is usually located on the right-hand side of the cabin. If the problem persists, contact your dealer.
When I start the system, it stops at the loading screen and won't go any further 	This indicates an AGI receiver / Virtual Terminal firmware mismatch. It occurs when older AGI receiver firmware is loaded onto a new Virtual Terminal console. You will not be able to use the system. Contact your dealer or the manufacturer for a firmware upgrade.
I'm unable to engage auto steering	The system status screens allow you to isolate specific issues that are preventing auto steering. Once you have isolated the issue, you can use the steps below to troubleshoot. For information about system status items, refer to *2.1 Checking System Status*.

Problem	Actions
I'm unable to engage auto steering	If **position accuracy** is in error: • Check that you have adequate GNSS coverage i.e. sufficient satellites in use. You can view the GNSS coverage on the Guidance screen, or on the GNSS Information screen. Refer to *2.2 Viewing GNSS* Information for more information. If there is inadequate satellite coverage, ensure that the vehicle is parked in an open area, away from power lines, trees and tall buildings. You may need to wait until you acquire enough satellites. • Ensure you have enabled the right differential correction source. • If you are using OmniSTAR, check that you have an active subscription. If you do not have an active subscription, contact your subscription provider to renew your subscription. Also ensure that you have the correct frequency selected for the region you are in. Refer to *2.3 Viewing Correction Setup* for more information.

Problem	Actions
I'm unable to engage auto steering	• If you are using OmniSTAR XP, HP, or G2, and you have moved your vehicle since the last positions were saved, you will need to allow adequate time (up to 30 minutes) for convergence. If the system has not had adequate time, the position reading may not be accurate. In this case, turn the system off, then on again, select when the OmniSTAR convergence message is displayed, then wait until convergence has completed. • If the problem persists, contact your dealer. If **heading** is in error: • If you are using the compass, recalibrate the compass. Refer to *3.2 Calibrating the Compass* for more information. • If you are not using the compass, use the Direction Reset button ( ) on the Guidance screen to reset the direction. Refer to *3.1 Enabling / Disabling the Compass* for more information. • If the problem persists, contact your dealer.

Problem	Actions
I'm unable to engage auto steering	If **steering subsystem status** is in error: • Ensure the steering subsystem it is turned on. The steering subsystem switch is usually located on the left-hand side of the cabin. Refer to steering subsystem reference manual, if required. If the steering subsystem is in fault mode, the error message U1054 will be displayed. Refer to message code: *U1054* on page 12-15 for information on how to troubleshoot this issue. • Ensure the steering subsystem cable is connected to the WAS, and that WAS calibration has been performed. Reboot and recalibrate the WAS, if required. Refer to *3.3 Calibrating the WAS* for more information. • If the problem persists, contact your dealer. If **crosstrack** is in error: • You are too far from the crosstrack to acquire the line. Reposition the vehicle closer to wayline, then try to engage again. Refer to *2.6 Viewing Crosstrack* Information for more information. If **angle to wayline** is in error: • Ensure that the angle of your vehicle to the wayline is no more than 85 degrees, then try to engage again. Refer to *2.7 Viewing Angle to Wayline Information* for more information.

Problem	Actions
I'm unable to engage auto steering	If **speed** is in error: • Ensure you are travelling more than 1 km/h and less than the maximum guidance speed limit (usually 25 km/h but this varies depending on the vehicle). Refer to *2.8 Viewing Speed Information* for more information. If the **system firmware version** is in error: • The firmware version of the receiver may not be compatible with the Virtual Terminal firmware. Contact your dealer. Refer to **Error! Reference source not found.** for more information. Ensure you have defined and applied a wayline, implement and vehicle profile.
Auto steering keeps disengaging	Some of the issues that prevent you from engaging auto steering in the first place may also cause auto steering to keep falling out once engaged. For example, a degraded GNSS signal will cause auto steering to disengage once engaged. Refer to the actions under ***I'm unable to engage auto steering*** on the previous pages. **Note**: Auto steering will disengage if you turn the steering wheel. Do not attempt to steer the vehicle manually when attempting to engage autosteering. If the problem persists, contact your dealer.

Problem	Actions
Steering is inaccurate or erratic	Ensure the vehicle profile is accurate. Check your vehicle measurements and edit the profile if necessary. Refer to *5.3 Editing a Vehicle Profile* for more information. Ensure position accuracy is adequate. Refer to ***I'm unable to engage auto steering*** for guidelines on how to troubleshoot this issue. Ensure the receiver is mounted securely. The receiver can move around if not mounted securely, and this will affect steering. Reboot the system, and perform compass (if compass is enabled) and WAS calibrations. Refer to *3.2 Calibrating the Compass*, and *3.3 Calibrating the WAS*. New tyres will affect steering. If you have changed your tyres, you may need to recalibrate the WAS. Refer to *3.3 Calibrating the WAS*. Physically check the WAS. If it is damaged, this will affect steering. You will need to have the WAS repaired. If the problem persists, contact your dealer. If the steering is jumpy or erratic, check your online steering response, and reset if required. Refer to *10.1 Defining Steering Response* for more information.

Problem	Actions
Steering is inaccurate or erratic	If the online steering response is set too low, the vehicle will move in a loose ‘S’ shape along the wayline (see figure A). If the online steering response is set too high, the vehicle will move in a tight ‘S’ shape along the wayline (see Figure B). Figure A Figure B If the problem persists, contact your dealer. Ensure there are no strong magnetic fields near the GPS receiver as this can effect compass operations.

12.2 Actioning Error Messages

This table lists all messages that may be displayed. In the case of error messages, mitigating actions have been included in the Actions column.

Message Code	Message	Actions
M0001	Warning: Hardware is outside of operating temperature - System performance may be reduced.	If the system is performing adequately, acknowledge the message, and continue. Otherwise, turn off the system, and contact your dealer.
M0006	Internal hardware failure.	If you are able to continue using the system, acknowledge the message, and continue. If you are unable to continue, contact your dealer.
M0007	Internal hardware failure.	See M0006
M0010	Internal memory is full - Some operations will be disabled.	Delete any wayline, implement or vehicle profiles that are not required. Refer to: *5.6 Deleting a Vehicle Profile*. *6.4 Deleting an Implement Profile*. *7.8 Deleting a Wayline*. If the problem persists, contact your dealer.

Message Code	Message	Actions
M0100	Internal hardware inertial sensor out of normal operating range.	This error may occur when the receiver is physically moved from the vehicle. Recalibrate the compass, and continue operations. Refer to *3.2 Calibrating the Compass*. If the problem persists, contact your dealer.
M0101	Inertial sensor has no calibration data.	Power cycle the system. If the problem persists, contact your dealer. **Dealer note**: The NVRAM will need to be cleared. Refer to your service package for instructions.
M0200	Internal hardware inertial sensor out of normal operating range.	See M0100.
M0201	Inertial sensor has no calibration data.	See M0101.
M0300	Internal hardware inertial sensor out of normal operating range.	See M0100.
M0301	Inertial sensor has no calibration data.	See M0101.
M0400	Internal hardware inertial sensor out of normal operating range.	See M0100.

Message Code	Message	Actions
M0401	Inertial sensor has no calibration data.	See M0101.
M0500	Internal hardware inertial sensor out of normal operating range.	See M0100.
M0501	Inertial sensor has no calibration data.	See M0101.
M0600	Internal hardware inertial sensor out of normal operating range.	See M0100.
M0601	Inertial sensor has no calibration data.	See M0101.
M1100	Inertial sensor is out of normal operating range.	See M0100.
M1101	Inertial sensor has no calibration data.	See M0101.
M1200	Inertial sensor is out of normal operating range.	See M0100.
M1201	Inertial sensor has no calibration data.	See M0101.
M1300	Inertial sensor is out of normal operating range.	See M0100.
M1301	Inertial sensor has no calibration data.	See M0101.
M1400	Inertial sensor is out of normal operating range.	See M0100.

Message Code	Message	Actions
M1401	Inertial sensor has no calibration data.	See M0101.
M7002	Maximum contour distance exceeded.	Define the contour wayline again, ensuring that you do not exceed the maximum contour distance. Refer to *7.4 Defining a Contour*.
M7003	Current path has exceeded contour smoothing limitations - Reduce contour severity	Define the contour wayline again, ensuring that the contour severity is within the limits. Refer to *7.4 Defining a Contour*.
M7004	Error reading from internal memory - Some operations will be disabled.	If possible, repeat the steps until the error occurred. If the error occurs again, and you cannot continue operations, contact your dealer. You may be able to continue operations, but bear in mind that performance may be degraded, and changes may not be saved.
M7005	Error writing to internal memory - Some operations will be disabled.	See M7004
M7006	Wheel angle sensor calibration required.	Perform wheel angle sensor calibration. Refer to *3.3 Calibrating the WAS*.

Message Code	Message	Actions
M7007	Current swath cannot be generated - Check operational parameters.	Check your vehicle and implement profiles and adjust if required. Refer to: *5.3 Editing a Vehicle Profile.* *6.3 Editing an Implement Profile*. Repeat steps until error occurred. If the issue persists, contact your dealer.
M8001	Last position save unsuccessful.	Repeat steps until error occurred. If the issue persists, contact your dealer.
M8002	Movement detected while saving or restoring position.	Check that the receiver is securely mounted. Then repeat steps until error occurred. If the issue persists, contact your dealer.
M8003	Last saved position is not useable.	Repeat steps if error reoccurs, contact your dealer.
M8010	MC direction check failed.	This indicates that the received WAS value was out of the reasonable range. Check the sensor to make sure that it has not failed or come loose, and check the wiring. Then recalibrate the WAS. Refer to *3.3 Calibrating the WAS.* If the problem persists, contact your dealer.

Message Code	Message	Actions
M8011	MC Max angle is incorrectly set and can be exceeded.	This indicates that the WAS value exceeds the configured maximum wheel angle. Check the sensor to make sure that it has not failed or come loose, and check the wiring. Then recalibrate the WAS. Refer to *3.3 Calibrating the WAS*. If the problem persists, contact your dealer. **Dealer Note**: Check the maximum wheel angle value specified in the INI file.
U1052	Steering Subsystem firmware version incorrect.	Contact your dealer. **Dealer Note**: This error may occur with PVED-CL steering subsystems where the firmware is version 1.28 or less.
U1053	Steering Subsystem parameters missing.	Reload the vehicle profile. Refer to *5.1 Loading a Vehicle Profile*. Power cycle the receiver. If the problem persists, contact your dealer. **Dealer Note**: This error occurs with PVED-CL steering subsystems only.

Message Code	Message	Actions
U1054	Steering Subsystem is in Fault Mode.	Power cycle the steering subsystem. If the error persists, inspect the wheel angle sensor, the cables and linkages. Repair any damage, and power cycle the steering subsystem again. Consult the relevant vehicle manufacturer or steering subsystem manual for more information. If the problem persists, contact your dealer. **Dealer Note**: This error occurs with PVED-CL steering subsystems only.
U1055	Steering controller needs to be reset. Please power down steering controller or vehicle.	Power down the steering subsystem and vehicle. Wait 20 seconds, then restart the vehicle. If the problem persists, contact your dealer.
U1056	Steering controller configuration error. Please repeat recent calibration attempts paying attention to instructions.	This error will only occur at the end of WAS calibration. Repeat WAS calibration. Refer to *3.3 Calibrating the WAS*. If the problem persists, contact your dealer.

Message Code	Message	Actions
U1061	Machine parameter settings not found in steering subsystem.	See U1053.
U1062	The AGI system does not currently have a valid mounting calibration. This may affect system performance. Calibration can be performed by selecting the mounting calibration soft key. Press ESC to cancel.	You may continue using the system as performance should not be affected. However, if performance is adversely affected, contact your dealer.
U1065	Wheel angle sensor calibration required.	Perform WAS calibration before proceeding. Refer to *3.3 Calibrating the WAS*.
U1066	Compass calibration required.	Calibrate the compass before proceeding. Refer to *3.2 Calibrating the Compass*.
U1067	AGI has moved to a new vehicle since last use and requires a Compass calibration be completed in order to use AGI again.	See U1066

Message Code	Message	Actions
U1068	Vehicle profile does not match steering subsystem settings. Do you wish to reload vehicle profile?	Ensure the steering subsystem is turned on. Load the correct vehicle profile. Refer to *5.1 Loading a Vehicle Profile*. Turn the steering subsystem on again. If the problem persists, contact your dealer.
U1069	Sensor not configured.	Contact your dealer. **Dealer note**: SASA sensor is not configured. Reload steering subsystem parameters.
U1070	Wheel angle sensor not configured.	Perform WAS calibration before proceeding. Refer to *3.3 Calibrating the WAS*.
U2000	An unexpected software error has occurred. Please report the numbers below to your dealer along with a description of recent actions.	Take note of the numbers in the error message and your actions prior to the error message being displayed, and report these to your dealer.
U3000	Transfer Complete.	Information only. No action required.

Message Code	Message	Actions
U3001	Transfer Failed.	This error may occur when loading or exporting a profile. Repeat the process that led to the issue. If the issue persists, remove and reinsert the SD card or USB stick, and try again. If this does not work, consult the console reference manual to ensure that transfer to and from external media devices is enabled. If you cannot resolve the issue, contact your dealer.
U4001	Internal Communication Error.	Power cycle the system, and repeat the process that led to the error. If the issue persists, return the system to your dealer for repair.
U4006	Valid System Calibrations do not exist. Perform System Calibrations before attempting to engage.	Perform wheel angle sensor and compass calibrations (if the compass is enabled) before proceeding. Refer to: *3.2 Calibrating the Compass*. *3.3 Calibrating the WAS*.
U4012	Engage attempt failed.	Check that all conditions for engaging are ok, and attempt to re-engage. Refer to *2.1 Checking System Status*.

Message Code	Message	Actions
U5001	Steering Subsystem is not detected. Check to ensure that the steering valve is powered on and the roading lock out switch is off (if equipped).	Ensure steering subsystem is switched on, and that the road lock out switch (if equipped) is switched off. **Note**: A road lock out switch is a switch located in the vehicle cabin that allows safe use of the vehicle on roadways.
U5002	Implement and wayline are not defined - An implement and a wayline must be defined in order to engage guidance.	Select or define an implement and wayline. Refer to: *6.1 Defining an Implement Profile*. *6.2 Selecting an Implement Profile*. *Chapter 7 - Waylines*.
U5003	Wayline is not defined - A wayline must be defined in order to engage guidance.	Select or define a wayline. Refer to *Chapter 7 - Waylines*.
U5004	Implement is not defined - An implement must be defined in order to engage guidance.	Select or define an implement. Refer to: *6.1 Defining an Implement Profile*. *6.2 Selecting an Implement Profile*.
U5005	Repeatability is not guaranteed when using offsets.	Information only. No action required.

Message Code	Message	Actions
U5006	Guidance disengaged at steering controller request.	Information only. No action required.
U5007	Implement overlap is too large for implement width.	Reduce the implement overlap. Refer to *6.3 Editing an Implement Profile*.
U6000	Implement storage is close to maximum.	Delete implement profiles that are not required. Refer to *6.4 Deleting an Implement Profile*.
U6001	Implement storage has reached the maximum. Implements must be deleted before proceeding.	See U6000.
U6002	Auto steering disengaged.	If you wish to engage auto steering, check that all conditions for engaging are ok, and attempt to re-engage. Refer to *2.1 Checking System Status*.
U6010	The number of item profiles in the system has almost reached the maximum number allowed.	Delete item profiles that are not required. Refer to: *5.6 Deleting a Vehicle Profile*. *6.4 Deleting an Implement Profile*. *7.8 Deleting a Wayline*. If the problem persists, contact your dealer.

Message Code	Message	Actions
U6011	Unable to create profile because the maximum number has been reached. You must delete older profiles in order to continue	See U6010
U6401	Offset must be less than 100 meters/300ft.	Reduce amount of implement offset. Refer to *6.3 Editing an Implement Profile*.
U6402	Wayline Auto offset selected without a defined implement.	Select or define an implement profile before proceeding. Refer to: *6.1 Defining an Implement Profile*. *6.2 Selecting an Implement Profile*.
U6403	Wayline Auto offset selected without a defined wayline.	Select or define a wayline before proceeding. Refer to *Chapter 7 - Waylines*.
U6404	Wayline Auto offset selected without a defined implement and wayline.	Select or define an implement and wayline before proceeding. Refer to: *6.1 Defining an Implement Profile*. *6.2 Selecting an Implement Profile*. *Chapter 7 - Waylines*.

Message Code	Message	Actions
U6405	Wayline Offset has been set to zero.	Information only. No action required.
U6406	Nudge has been set to zero.	Information only. No action required.
U6407	Nudge increment has been applied.	Information only. No action required.
U6408	Wayline offset has been applied.	Information only. No action required.
U6409	Nudge increment is not defined.	Define the nudge increment before proceeding. Refer to *9.3 Defining GPS Drift Compensation*.
U6410	Implement width is too small.	Increase the implement width. Refer to *6.3 Editing an Implement Profile*.
U6671	Position accuracy is not adequate for wayline creation - Ensure that you are receiving corrections and wait for the GNSS status icon to turn green.	For information on how to troubleshoot this issue, refer to ***I'm unable to engage auto steering*** on page 12-2 (position accuracy error).
U6672	Error reported by File Server.	Reboot the system. If the error persists, contact your dealer.
U6750	The set of basic required receiver options is not current - Contact your dealer.	Report the error to your dealer.

Message Code	Message	Actions
U6751	One or more of your leased receiver options is about to expire. Contact your dealer.	Report the error to your dealer.
U6900	Vehicle detection failed.	Report the error to your dealer.
U6901	System failed to initialize - Contact your dealer.	Report the error to your dealer.
U6902	Vehicle Identification Number requires updating.	Report the error to your dealer.
U6904	Machine Geometry parameters are not valid.	Check the vehicle profile dimensions. Correct any dimension errors, and repeat the process that led to the error. Refer to *5.3 Editing a Vehicle Profile*. If the error persists, contact your dealer.
U6905	Unknown machine type.	Reload or edit the vehicle profile. Repeat the process that led to the error. Refer to: *5.1 Loading a Vehicle Profile*. *5.3 Editing a Vehicle Profile*. If the error persists, contact your dealer.

Message Code	Message	Actions
U6980	Calibration cannot be performed while there is no GPS lock. Please wait for GPS lock and try again.	This is a GNSS position error. For information on how to troubleshoot this issue, refer to ***I'm unable to engage auto steering*** on page 12-2 (position accuracy error).
U7106	Internal memory is almost full - Waylines, Implements or profiles may be deleted to avoid data loss.	Delete item profiles that are not required. Refer to: *5.6 Deleting a Vehicle Profile*. *6.4 Deleting an Implement Profile*. *7.8 Deleting a Wayline*. If the problem persists, contact your dealer.
U7107	Internal memory is full - Waylines, Implements, NMEA and Vehicle profiles may be deleted to create space.	See U7106
U7109	Error storing wayline.	Delete waylines that are not required. Refer to *7.8 Deleting a Wayline*. Power cycle the system, and repeat the process that led to the error. If the issue persists, return the system to your dealer for repair.

Message Code	Message	Actions
U7110	Waypoint cannot be set - There must be a minimum distance of 10m/30ft between waypoints and a sufficient GNSS Fix.	Drive at least 10 meters before selecting the Wayline Finish button. Refer to *7.2 Defining an AB Line*.
U7111	The current wayline was defined with a different correction source - Repeatability cannot be guaranteed.	Information only. No action required
U7114	System not ready for wayline creation. Ensure that the machine has moved since power on.	If this error occurs, you can perform a number of checks: • Check the GNNS Information screen. The latitude and longitude should be set to non-zero, and the position accuracy must be better than the minimum for the correction source. Refer to *2.2 Viewing GNSS* Information, and *Appendix B - Table of Convergence*

Message Code	Message	Actions
U7114		• Check that the compass has been calibrated. Refer to *3.2 Calibrating the Compass*. • If unable to calibrate the compass, disable the compass, and drive forward at 20 kph for 20 meters. Refer to *3.1 Enabling / Disabling the Compass*. • Check that vehicle is clear of obstructions with regard to the sky, that the external settings and correction source settings are correct, and the correction source status is good. Refer to *2.3 Viewing Correction Setup*. • If the issue persists, contact your dealer.

Appendix A - Glossary

ARP	Antenna Reference Point. The ARP is a point on the antenna that is used for measuring distances between it and other objects. The exact location of the ARP will vary depending on the antenna.
EGNOS	European Geostationary Navigation Overlay Service. A European SBAS developed to supplement GPS, GLONASS and Galileo systems by reporting on the reliability and accuracy of the signals.
Fallback	Satellites and correction sources require specific position accuracy when computing the position of the vehicle. If the system is not receiving enough data to compute the vehicle's position with the required accuracy, auto steering will not be enabled. The fallback feature allows the system to bypass the position accuracy requirement so that auto steering can be engaged. This is useful in situations where a high degree of position accuracy is not required.
GDOP	Geometric Dilution of Precision. GDOP is a metric used to quantify the accuracy of GNSS satellite geometry. Satellite geometry can be pictured as an inverted square pyramid formed by lines joining four satellites with the receiver at the tip of the pyramid. The larger the volume of the pyramid, the better (i.e. lower) the value of GDOP; the smaller its volume, the worse (i.e. higher) the value of GDOP. Similarly, the greater the number of satellites, the better the value of GDOP.
GLONASS	Global Navigation Satellite System (Russian GNSS)
GNSS	Global Navigation Satellite System

GPS	Global Positioning System (US GNSS)
HDOP	Horizontal Dilution of Precision. HDOP is a metric for quantifying the accuracy of the horizontal (latitude/longitude) position information received from the GNSS satellites.
Local Base (RTK)	Local Base using Real Time Kinematic Navigation.
Cellular Network (RTK)	Use Cellular Network to provide RTK corrections
MSAS	Multi-functional Satellite Augmentation System. This is a Japanese SBAS which supplements the GPS by reporting and improving on the reliability and accuracy of the GPS signals.
NMEA	National Marine Electronics Association. This is a standard protocol used by electronic devices to receive and transmit data.
SBAS	Satellite-Based Augmentation System. This is a system which supports wide area or regional augmentation through the use of additional satellite broadcast messages. SBAS correction sources are commonly composed of multiple ground stations which take the measurements of one or more GNSS satellites, and the satellite signals and environmental factors that may impact the signal.
TruPass	A feature in the AGI ISO VT which enables more accurate reading of GNSS signals when in Autonomous mode
WAAS	Wide Area Augmentation System. This US SBAS was developed by the US Federal Aviation Administration to serve as an air navigation aid by improving the accuracy and availability of the GPS signals.
WAS	Wheel angle sensor

Appendix B - Table of Convergence

This table shows the position accuracy required for auto steering for each mode with and without fallback.

Mode	Accuracy (in metres) No Fallback	Accuracy (in metres) With Fallback
Autonomous	3.5	5.0
WAAS (SBAS)	1.5	2.0
EGNOS (SBAS)	1.5	2.0
MSAS (SBAS)	1.5	2.0
OmniSTAR VBS	1.5	2.0
OmniSTAR HP	0.15	1.5
OmniSTAR G2	0.35	1.5
OmniSTAR XP	0.35	1.5
RTK	0.02	1.5