

SBG



PRECISION FARMING

Powered by **RAVEN**



USER MANUAL

(ENGLISH)

SBGuidance 4.0.0

SOFTWARE OPERATION



Performing perfection.



Intentionally left blank

Preface

This operating manual is intended for those persons who are competent to operate the SBGuidance software. The operating manual contains important information and instructions that must be complied with when setting up, operating and servicing the SBGuidance system. This operating manual must therefore be read and understood by competent persons BEFORE the system is set up and must always be kept in the close vicinity of the machine.

The greatest possible care has been taken in the compilation of the manual. However, SBG Precision Farming accepts no liability for any errors or incomplete information contained in this document.

Remarks or queries can be submitted to:
service-eu@ravenind.com

Neither SBG Precision Farming nor any of its suppliers may be held liable for any injury or damage to property that may arise from the use of the system SBGuidance System.

In this manual several terms are used that are intended to draw attention to particular aspects of the SBGuidance System and its operation.

**Tip:**

Provides recommendations on how certain activities can be performed much easier.

**Please note!**

Indicates certain problems that the user should take note of.

**Caution!**

Indicates that the machine can be damaged.

**Warning!**

Indicates a risk of injury.



Disclaimer

- Warning!**
The safety instructions contained in the operating manual of the tractor or the machine must be complied with at all times.
- Warning!**
It is strictly forbidden to use the SBGuidance system on public roads.
- Warning!**
It is strictly forbidden to leave a machine being operated with or without the SBGuidance steering system activated.
- Warning!**
In order to prevent personal injury or fire, defective or blown fuses may only be replaced by fuses of the same type and amperage.
- Warning!**
The SBGuidance steering system is not capable of identifying and avoiding obstacles. Any obstacles along the driving path must be avoided by the driver.
- Warning!**
Only allow authorized persons to operate the system. Authorized persons include: Persons who have read and understood the operating manual and who are both physically and mentally fit to operate the system.

- Caution!**
Always start the machine first, before activating the SBGuidance steering system in order to prevent the occurrence of a peak voltage.
- Caution!**
Only touch the touch-screen with your finger or with a special touch-screen stylus. Sharp objects may cause irreparable damage to the touch-screen.
- Caution!**
Only clean the screen using a damp cloth. Never use caustic or other aggressive substances.
- Please note!**
If the terminal is not used for a long period, better remove the terminal from the tractor and store in a heated environment. This will extend the life span of the electronic components.
- Please note!**
To prevent theft, it is better to not let the terminal and GPS-antenna unattended in the tractor on the field.



Table of Contents

Preface	3
Disclaimer	4
Table of Contents	5
1. Starting the system	7
1.1. Disclaimer	7
1.2. SBGuidance Loader	8
1.3 Field manager	9
1.4 Wi-fi Manager	11
1.5 Update Manager	12
2. Main menu	13
2.1. Soft Keys	13
2.2. Top bar information	14
3. Section Control	15
3.1. Section control Settings	15
3.1.1. Registration Overlap data	16
3.1.2. Overlap configuration	16
3.1.3. Section Controller	17
3.1.4. Section Controller	17
4. Fields	19
4.1 Quick AB-mode	20
4.2 Boundary Measurement	21
4.3 Create a new Field	22
4.3.1 A+ Field	22
4.3.2 A-B Field	24
4.3.3 Contour	25
4.4 Defining a new operation	27
4.5 Load field	28
4.6 Load fast	29
4.7 Edit operation	30
5. Setup	31
5.1 Setup vehicle	31
5.2 Setup GPS	34
5.2.1 RTK GPS	34
5.2.2 SBAS Egnos	35
5.2.3 Modem	36
5.3 Setup system	38



5.4	VRA (Variable Rate Application)	39
6.	Info.....	41
6.1.	GPS info	41
6.1.1.	Position.....	41
6.1.2.	Orientation	43
6.2.	Field info	44
6.3.	System info	45
6.4.	Internet.....	48
6.5.	Can information	48
7.	Registration	49
7.1.	Point of Interest.....	49
7.2.	Lines	50
7.3.	Height Registration	52
7	Appendix A (Quick Start GPS Section Control EGNOS)	53



1. Starting the system

Switch on the Agrifac GPS display by briefly pressing the ON switch on the left on the front of the screen.

The start-up procedure takes about one minute.

1.1. Disclaimer

Before getting started, some conditions for the use of the system are displayed see Figure 1. These conditions must be read and accepted by the user.

These conditions are accepted by the user when the **I AGREE** button is pressed.

The language in which the conditions are displayed can be changed by pressing the flag at the bottom left of the screen. Changing the language also changes the language of applications such as the Field Manager and Update Manager.

A screen appears as shown in Figure 2. The language can be chosen by pressing the associated flag and confirming the selection.

Confirm by pressing.



Cancel by pressing.

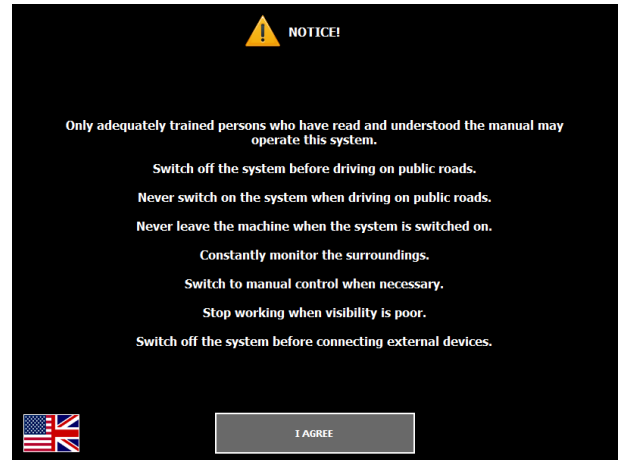


Figure 1 Disclaimer



Figure 2 Supported languages



1.2. SBGuidance Loader

After the conditions have been accepted in the disclaimer screen the SBGuidance Loader appears.

All the available machines that are equipped with a SBGuidance system are shown in the Loader see Figure 3.

Select the required machine by pressing the green arrows or by pressing the name. The selected machine is shown in the blue bar and is displayed in the centre at the top of the screen.

After selecting the required machine, the **SBGUIDANCE** button must be pressed at the bottom of the selection window. The software is started, the associated parameters loaded, and the start-up screen appears see Figure 4.

Note

i Remain stationary while the software is starting up. The electronic spirit level is calibrated (DynamIQ).

To shut down the system, **SWITCH OFF** at the bottom right of the screen must be pressed. Then the shut-down screen appears see Figure 5.

Confirm by pressing.



Cancel by pressing.



Figure 3 Loader overview



Figure 4 SBGuidance start up screen

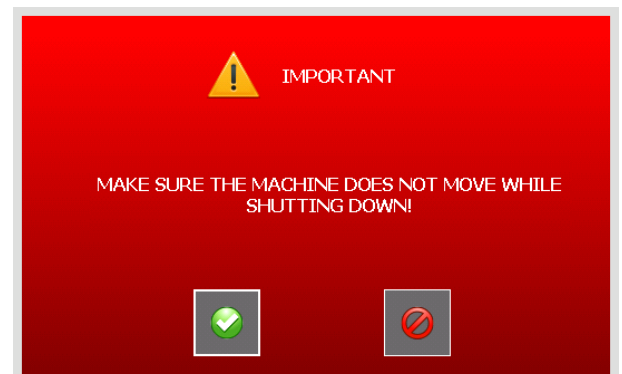


Figure 5 Shutting down terminal



1.3 Field manager

With the [SBGuidance Field Manager](#) it is possible to exchange fields between other GPS Guidance computers. This is possible through a storage device or cloud sync. An overview is shown in Figure 6.

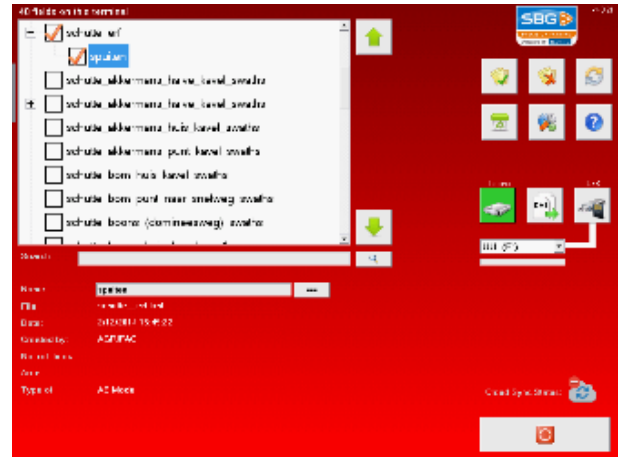


Figure 6 Field Manager overview

In the top left corner is a list with the available fields and operations visible from the [terminal](#) or [external storage device](#). If a field is selected, all the saved operations are unfolded and shown. With the arrows at the right side of the list it is possible to scroll through the stored fields.



Figure 7 Navigating through the fields

In the bottom left corner are the following details of a field shown (Figure 8):

- **Name:** The name shown at the terminal.
- **File:** The file in which the data about the field is stored.
- **Date:** The date when the field/operation is added/created.
- **Created by:** The name of the user which created the field/operation
- **Number of referential lines:** The number of lines contained by the field.
- **Area:** The total surface area of the field (contour needed)
- **Type of operation:** Type of operation (AB mode, curve, contour)



Figure 8 Details of a field



Overview of the available buttons:










-  Show fields on terminal
-  Show fields on external memory
-  Reload list
-  Select all fields
-  Clear selection
-  Copy selected items onto USB
-  Copy selected items onto terminal
-  Delete selected files
-  Open configuration windows see Figure 10.



Figure 9 Configuring the Field manager

Currently the field manager supports the following file formats:

- SBGuidance KML
- Trimble (Boundary)
- Trimble (Swaths)
- Amazone (Boundary)
- John Deere (Boundary)
- John Deere (GS2/GS3)
- ISO-XML (Boundary)
- Guidance Lines
- Raven ePro (*.ini)
- Raven Viper 4 (*.ab)

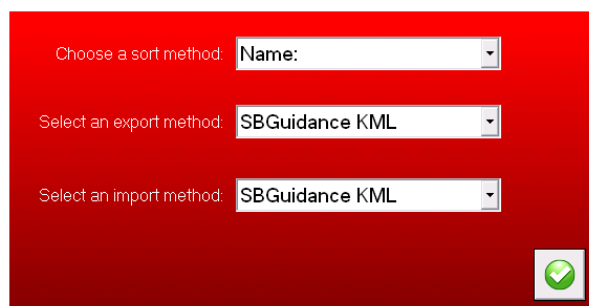


Figure 10 Configuring import export methods



1.4 Wi-fi Manager

With the Wi-Fi Manager is it possible to connect to wireless networks. Out in the field through a mobile hotspot created on a smart phone or through a business Wi-Fi network (Figure 11).

Button overview



The refresh button will refresh the network list



Connect to Wi-Fi network



Connected to Wi-Fi Network

When connecting to Wi-Fi network you may be prompted for Wi-Fi password. Be prepared and have it ready.

When the connection was successful and the terminal is online. The online logo will be shown by the Wi-Fi Manager (Figure 12).

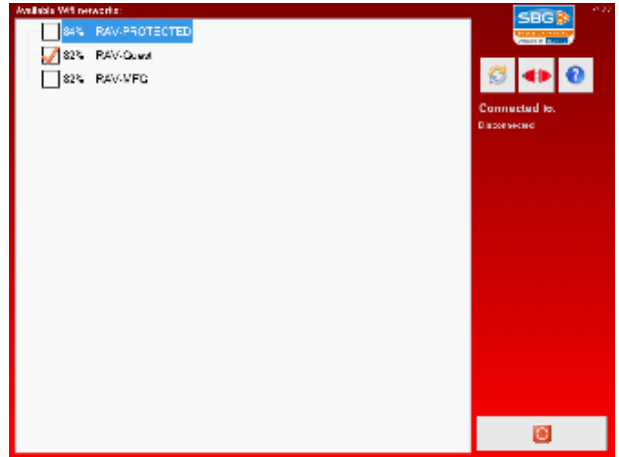


Figure 11 Overview Wi-Fi Manager

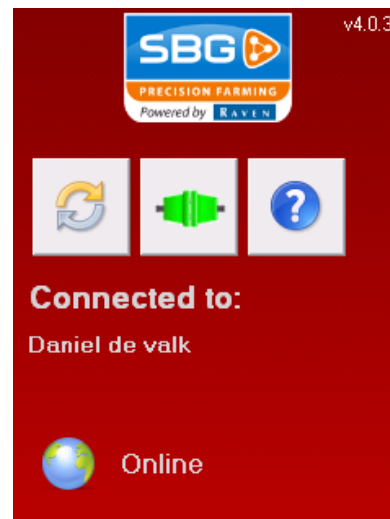


Figure 12 Wi-Fi Manager is online and connected to Wi-Fi network "Daniel de Valk"



1.5 Update Manager

SBGuidance Update Manager is an application that runs on the Condor screen. With this tool Agrifac users can keep their applications up-to-date. The tool will scan the available software on the terminal or on the internet and will determine if a newer version is available (Figure 13). Agrifac users can use SBGuidance Live Update to load the latest SBGuidance software versions onto a memory stick. With an activated internet connection is this downloaded from the SBG server.

External memory

Download the SBGuidance Live update tool from <http://www.sbg.nl/support/downloads-support/> and run it. The SBGuidance Live Update tool will check the SBGuidance server for the latest software version and will automatically keep your USB drive up-to-date with the latest software releases (Figure 14).

You do not need to install the tool. Just double-click the file to run. You need an active internet connection in order to contact the SBGuidance server for software updates.

The installation files will be placed in the “software” folder on your USB-drive.

Update outdated software

Select the software you want to update and press upgrade. The software will be installed automatically.

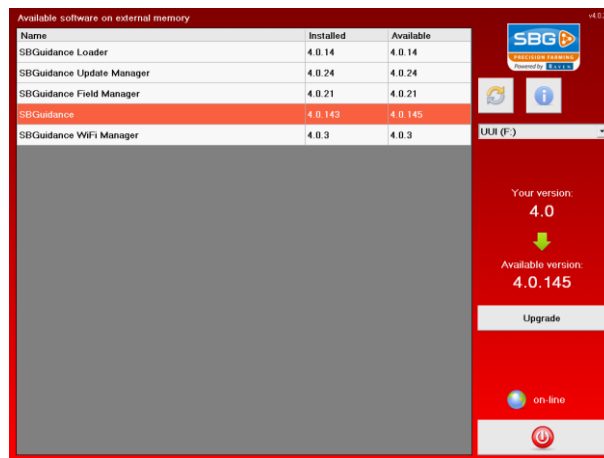


Figure 13 Overview Update Manager

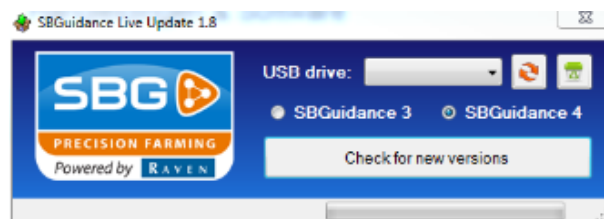


Figure 14 SBGuidance Live Update



2. Main menu

After selecting the machine and pressing **SBGUIDANCE**, the SBGuidance main menu is displayed see Figure 15.

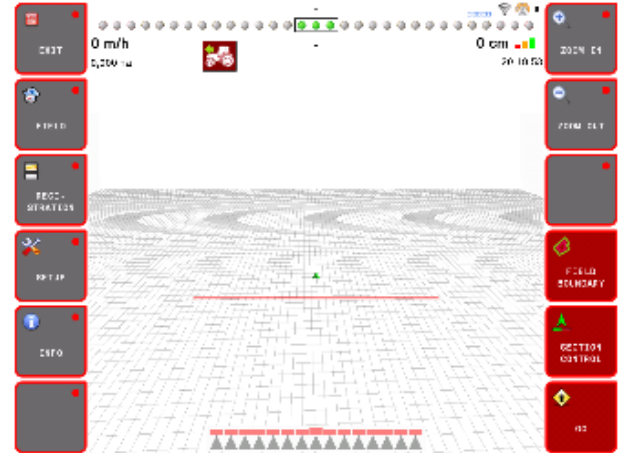


Figure 15 Overview of SBGuidance

2.1. Soft Keys

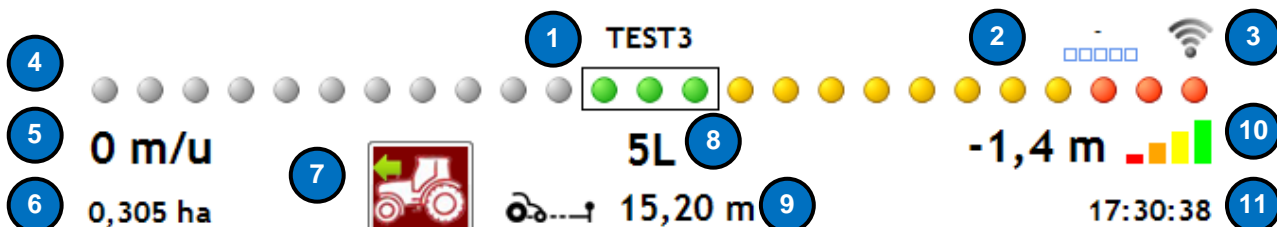
The following is an overview of the buttons (Soft Keys) in the main menu.

	Software shutdown. Keep the button pressed for 3 seconds. The software is shut down and the SBGuidance Loader is displayed once more.	Zoom screen in	
	Go to field menu	Zoom screen out	
	Go to registration menu		
	Go to settings menu	Record Field Boundary	
	Go to info menu	Section control activate / deactivate	
		Control activate / deactivate	



2.2. Top bar information

The general information is shown at the top of the main menu. The user can always see this information, regardless of which menu is open.



1. Name of selected field

2. **GeoConnect 3G signal strength:** if a correction signal through a GSM connection is used, the signal strength and the type of GSM connection are displayed here: Yellow/orange blocks = 2G connection. Green = 3G connection.

3. Internet connection:

Blue icon = internet access
Grey icon = no internet access

4. **LED bar:** shows the position w.r.t. the reference line. The scale of the lights can be adjusted by pressing the LED bar.

5. Speed

6. **Area processed:** this area is linked to the field loaded.

7. **Forwards/reverse indication:** if the driving direction displayed differs from the actual driving direction, this can be changed by pressing this button.

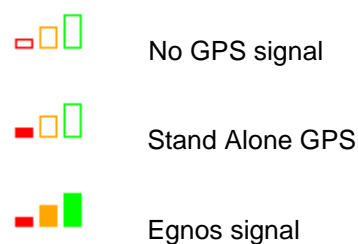
8. Pass number

9. Distance to the reference line

10. RTK GPS quality indicator:



10. SBAS Egnos quality indicator



11. GPS time



3. Section Control

When SBGuidance is started, the section configuration is loaded automatically. The configuration is displayed at the bottom of the screen (Figure 16).

One of two options can be chosen to use the section controller:

1. Spraying without creating a field:
Spraying with section controller can be started immediately by activating the section controller button ("Green" –button = activated).
2. Spraying with a field:
 - a. Using the Quick AB-mode (see chapter 0)
 - b. Creating a new field or loading an existing field (see chapter 4.3, 4.4, 4.5, 4.6 and 4.7)

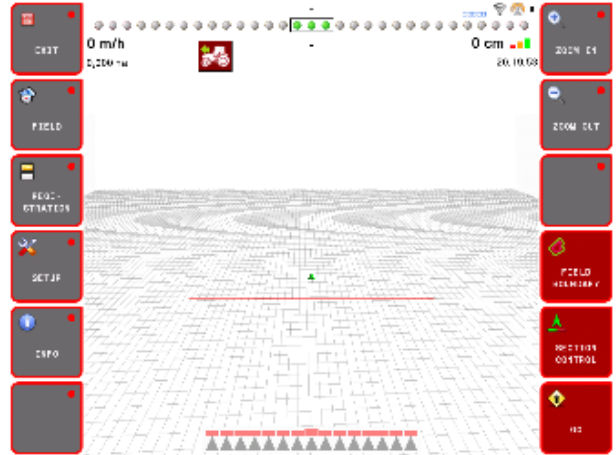


Figure 16 SBGuidance software started with the section control bar

3.1. Section control Settings

By navigating to **Settings > Section Control** (Figure 17) the settings for the section control can be changed.

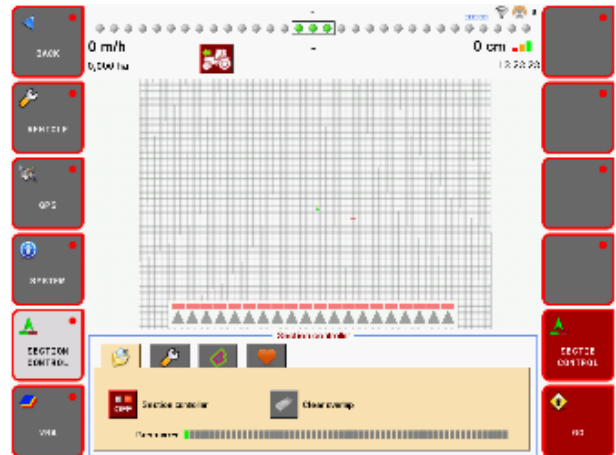






Figure 17 Section control settings

See below for an overview of the present tab-pages:

-  Registration overlap data
-  Overlap configuration
-  Field configuration
-  Diagnostic data



3.1.1. Registration Overlap data

In **Registration overlap data** (Figure 18) following buttons can be found:

- **Section Control**
With the **section controller** button the section control /overlap data can be activated and deactivated.
- **Clear Overlap**
With the **Clear overlap** button the stored overlap data can be deleted.
- **Resources**
The resources bar shows the available memory capacity.

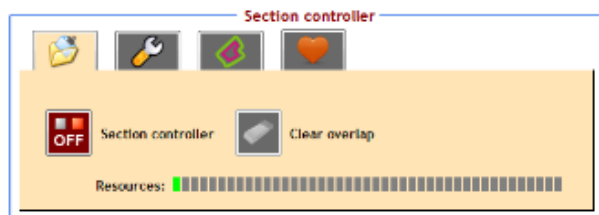


Figure 18 Section Control overlap data

3.1.2. Overlap configuration

In **Overlap Configuration** Figure 19 the configuration of the overlap data can be changed.

Side overlap

The sideways overlap is the percentage with which the section must be outside the sprayed area.

With a setting of 80%, the section must come 80% outside the already sprayed area in order for it to be excluded. There is thus 80% overlap, 20% will not be sprayed. In the example in Figure 20 the side overlap on 100%.

Front overlap

With the front overlap, the sections are virtually displaced forwards. This means that the section controller is switched predictively because the distance set is considered to be the place where spraying is carried out ahead of or after the arm. With a positive value, registration occurs earlier.

Section OPEN delay

With the "Section-open delay" setting, the delay can be set between the moment of switching on and the moment when the section actually starts. The section controller will account for this and switch the section on earlier at the set time. A larger value means more spraying.

Section CLOSE delay

With the "Section-close delay" setting, it is possible to delay the moment of switching between off and the moment when the section actually ends. The section controller will account for this and switch the section off earlier at the set time. A smaller value means more spraying.

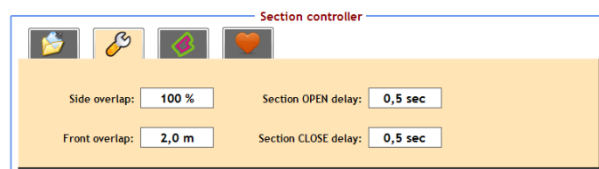


Figure 19 Section control overlap configuration

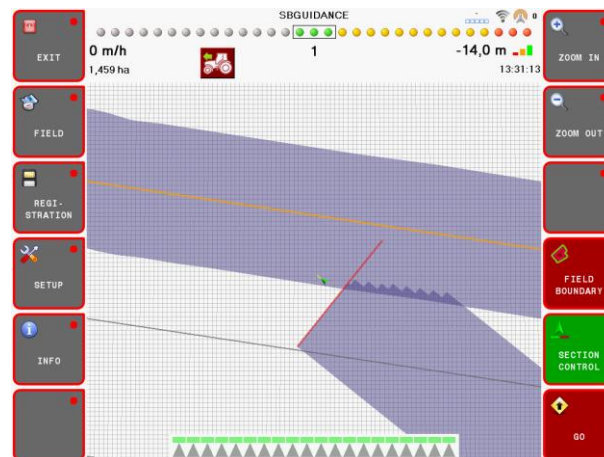


Figure 20 Side overlap



3.1.3. Section Controller

In **Section Controller** (Figure 21) it is possible to set the field boundary. This is only possible if a contour has also been loaded.

Side overlap

With the field boundary overlap, the percentage of the section can be set that can be outside the field before it is excluded. At 0 percent, the section will be excluded immediately and at 100 percent the section can be completely outside the field Figure 21

Front overlap

With the field boundary front overlap the front overlap of the spraying arm can be set. If, for example, this is 1 meter ahead of the spray boom, in a cone spray the switching is predictive (Figure 22).

Field boundary offset

With the field boundary offset, a boundary can be set around the field where the sections have to be excluded.

Do not treat headlands

With this function the headlands can be excluded from the area to be sprayed. When this function is activated, the headlands will not be sprayed. You can choose to spray these later by reactivating this function. This can also be done during the treatment so that the headlands are sprayed last.

Record boundary

This button is used for recording boundary for more information see chapter 4.2.

3.1.4. Section Controller

With the "Store diagnostic data" the retrieved logging data is saved to an external storage device. Using this, problems can be recorded by the service technician see Figure 23.

i Please note!

See Appendix A (Quick Start GPS Section Control EGNOS) for a quick start manual for explanation of the section control on a Agrifac Condor with an EGNOS GPS-system.

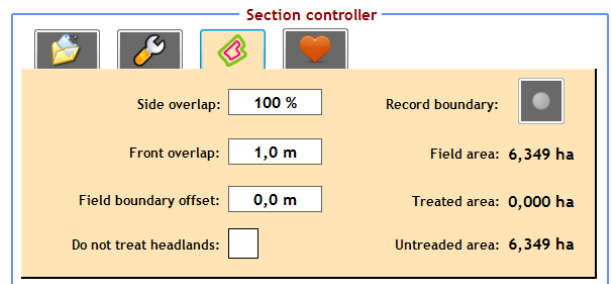


Figure 21 Boundary settings

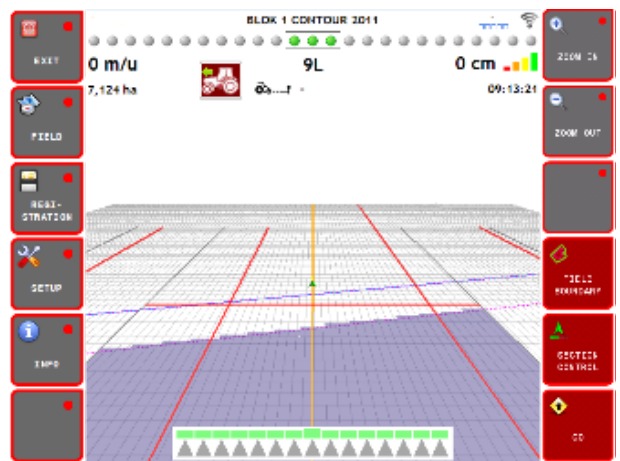


Figure 22 Field boundary offset

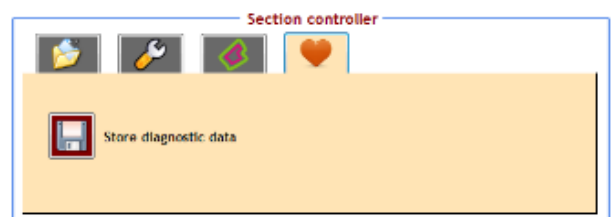


Figure 23 Store diagnostic data



Intentionally left blank

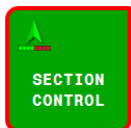
4. Fields

Figure 24 shows an overview of the functions that can be used through the **FIELD** button.

It is possible to exit from a specific application at any time by pressing **CANCEL** at the top left of the screen or to return to the main menu by pressing **BACK** at the top left of the screen.

i By pressing **CANCEL** all of the data entered, points set and reference lines will be lost. Confirmation is therefore always requested when this button is pressed.

There are three options in creating a new field.



Quick AB-mode

Make sure the Section Control button is green (activated) before creating a new field. You can create a fast (Straight) AB line, see chapter 0.



FAST CONTOUR MODE

Create a contour on a complete different method, see chapter 4.2



NORMAL MODE A+, A-B, CONTOUR

Make sure the Section Control button is red (deactivated) before creating a new field. See chapter 4.3

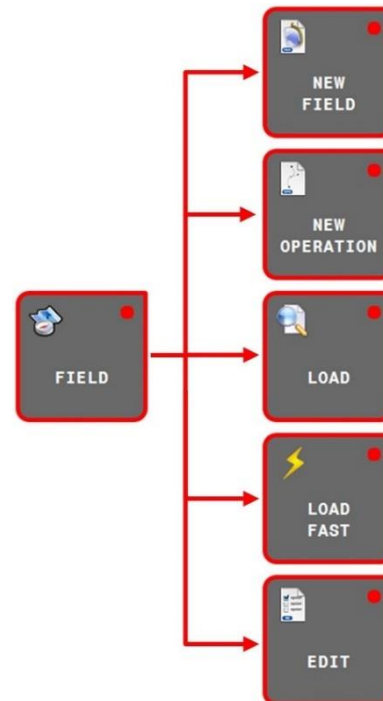


Figure 24 Overview of the Field menu



4.1 Quick AB-mode

In this type of field, a reference line is created between two fixed points.

To open the Quick AB-mode make sure the Section controller is activated (SECTION CONTROL-button = GREEN) and press the **FIELD**-button (Figure 25).

Define point A by placing yourself in the position where the reference line has to start, and then tap on **A**. Now move to the end of the field and tap **B**. SBGuidance will automatically draw a straight line between these two points. The distance between point A and B is displayed at the bottom of the screen. This distance must be at least 20 meters. As long as the field has not been saved, it is always possible to define one of the two points again. In order to ensure that the AB line runs parallel to the edge of the field, it is important that point A and point B have the same distance to the edge of the field.



Figure 25 Quick AB-mode



Tip!

When defining point A, the vehicle must be stationary. This makes it easier to precisely define where this point should be. The corner point is the position of the GPS antenna on the tractor.



Centre line

this button can be used to shift the **A-B** line to the middle of the machine.



Save Line

save the Current **A-B** Line



Remove Line

Remove the current **A-B** Line



4.2 Boundary Measurement

This Function can be used for registration of the sprayed surface (Figure 26).



Enable Spraying on the Ecotronic screen.



Enable Section Control



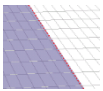
Enable Field Boundary or by pressing the record

Spray the field alongside the boundaries of the field see (Figure 27)

When the outside of the field boundary is sprayed (Figure 28)



Disable the field boundary



A red Dotted line will appear around the Field

0 m/h
0,89 ha / 2,68 ha
ha

In the upper left corner appears two values for hectares the left value is the untreated area, the value on the right is the total field area.



Note:

the sprayer will not spray outside of the red dotted line

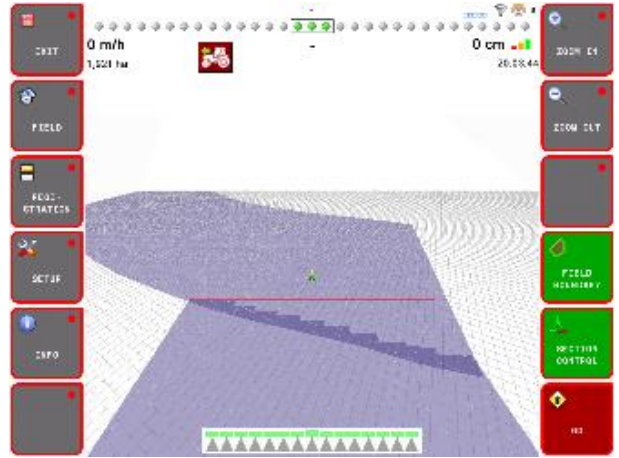


Figure 26 Boundary measurement

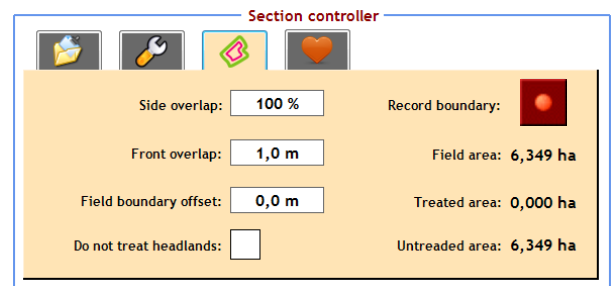


Figure 27 second location of the field boundary button

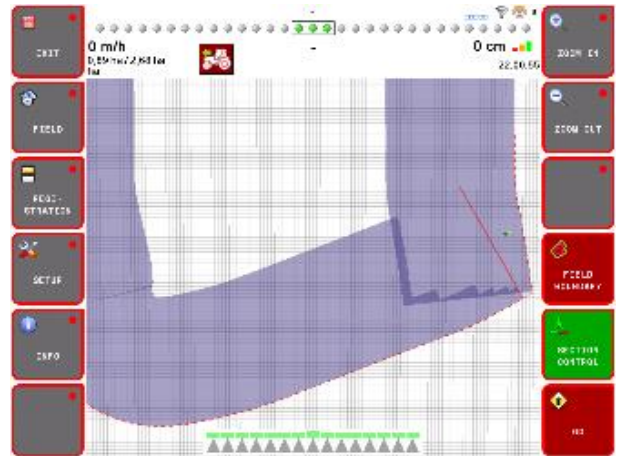


Figure 28 done measuring field boundary



4.3 Create a new Field

A field consists of one or more straight and/or curved field edges or a complete contour. Every field edge has a start and an end point. These corner points have to be created for each type of field.

To create a new field, in the main menu press **FIELD** and then **NEW FIELD**. At the bottom of the screen three different options for measuring a field are shown. A schematic overview of this is shown in Figure 29.

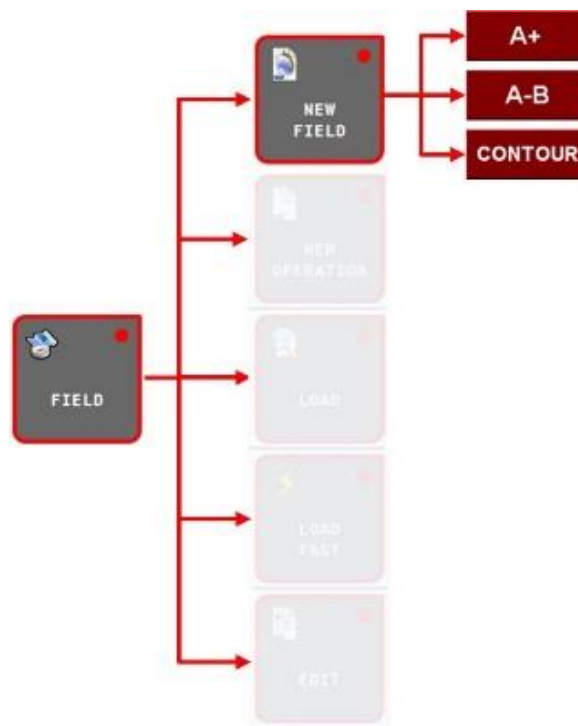


Figure 29 Options for creating a new Field

4.3.1 A+ Field

When defining a field in this way, a reference line is created based on a fixed point. A prerequisite for defining a field in this way is that the direction of the required reference line is already known.

After tapping **A+** at the bottom of the screen, the menu will display the option **Create field: A+** (Figure 30).

Now set your vehicle in the correct position. The front of the vehicle should be pointing towards the end of the field. Tap on **A** at the bottom of the screen in order to define the starting point of the reference line. The **A** coordinate is now saved. This can be derived from the numbers behind the **latitude**, **longitude** and **height**.

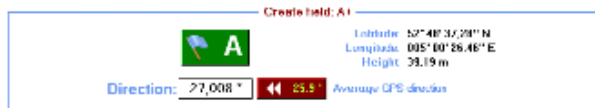


Figure 30 creating an "A+" reference line

i **Tip!** When defining the A point, the vehicle must be stationary. This makes it easier to precisely define where this point should be. Point A is the position of the GPS antenna on the condor.

The numbers under **A+** are used to define the direction (Figure 31). This value can be set to a value between 0.000 and 360.000 degrees.

i Tip! In order to ensure the highest degree of accuracy, the direction must always be given with three decimal places.

In addition to the manual entry of the direction, you can also drive a few meters so that a value will appear in **Average GPS direction**.

The defined field can now be saved by tapping on **READY** at the top left of the screen. This operation can be aborted by tapping on **CANCEL** (Figure 32).

You will then be asked if you wish to save the field. If you tap on **YES**, you can then name the field so that the field defined in this way is easier to find in the list of fields. If you tap on **NO**, the field will be saved with the name **TEMPORARY FIELD**. The temporary field will be lost if you choose to create a new field and do not save the temporary field.

After the save operation described above has ended, an option is displayed at the bottom of the screen to create a **new field** or **new operation**.

To “Create a new field”, see chapter 4.3.

To “Define a new operation”, see chapter 4.4.



Figure 31 Direction in degrees

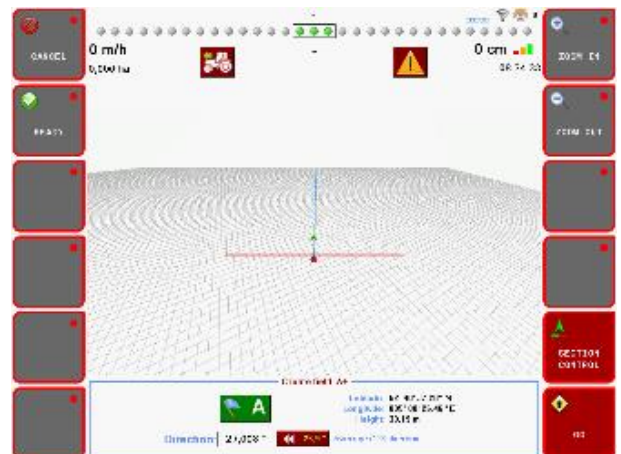


Figure 32 A+ Field Created



4.3.2 A-B Field

In this type of field, a reference line is created between two fixed points.

After tapping AB at the bottom of the screen, the menu will display the option **Create field: A-B** (Figure 33).

Define point A by placing yourself in the position where the reference line has to start, and then tap on **A**. Now move to the end of the field and tap **B**. SBGuidance will automatically draw a straight line between these two points. The distance between point A and B is displayed at the bottom of the screen. This distance must be at least 20 meters. As long as the field has not been saved, it is always possible to define one of the two points again. In order to ensure that the AB line runs parallel to the edge of the field, it is important that point A and point B have the same distance to the edge of the field.



Tip!

When defining point A, the vehicle must be stationary. This makes it easier to precisely define where this point should be. The corner point is the position of the GPS antenna on the Condor.

[Optional step]

After points have been set, it is possible to add a headland line using **Rotate AB line** (Figure 34). Select the point from which the headland turn should be made and then tap the icon with the direction in which to turn. Then add the desired angle for the headland turn.

It is always possible to return to the previous menu using the blue arrow at the bottom right of the screen.

The defined field can now be saved by tapping on **READY** at the top left of the screen. This operation can be aborted by tapping on **ABORT**.

You will then be asked if you wish to save the field. If you tap on **YES**, you can name the field so that the field defined in this way is easier to find in the list of fields. If you tap on **NO**, the field will be saved with the name **TEMPORARY FIELD**. The temporary field will be lost if you choose to create a new field and do not save the temporary field.

After the save operation, described above, has ended, an option is displayed at the bottom of the screen to create a **new field** or **new operation**.

To "Create a new field", see chapter 4.3.

To "Define a new operation", see chapter 4.4.

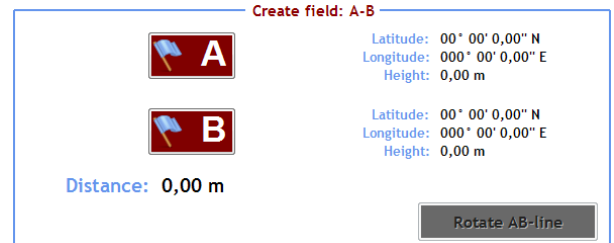


Figure 33 Create field: A-B

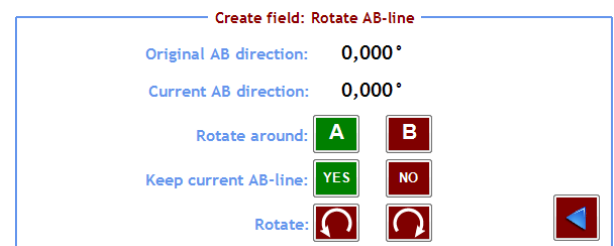


Figure 34 Rotating the AB line



4.3.3 Contour

Creating a field in this way allows an entire contour of a field to be defined, or even only one side with a curved section.

After tapping on **CONTOUR** at the bottom of the screen, the menu will display the option **Create field: Contour** screen (Figure 35).

First enter the distance of the GPS antenna from the field boundary in **Antenna Offset**. The minus symbol (-) can be used to position the offset to the left or to the right. In Figure 36, the green arrow indicates the vehicle (GPS antenna) and the green cross indicates the position of the field boundary.



Figure 35 Create a field: Contour

DEFINING A CORNER POINT.

Define the first corner point of the desired starting position of your vehicle by tapping on **Add corner point**. Corner point 1 is now defined. This step must be repeated for a field that only has straight boundaries until all corner points are defined.



Tip!

Quite often, it is very difficult to position the vehicle precisely in the corner of a field. Therefore, always define two corner points in each corner! Corner points defined further away from and outside the corner ensure that the direction of the boundaries can also be more accurately defined.

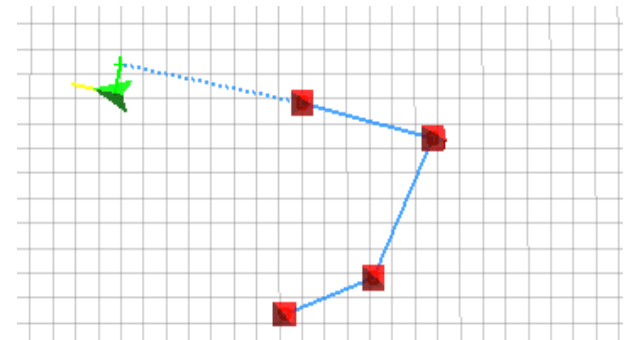


Figure 36 Example of a corner point

RECORDING A CURVE.

A curve can be recorded in order to define a curved reference line. Place the vehicle in the desired starting position and then tap on **Record Curve**. The recording symbol will now turn green. Now drive precisely parallel to the curved side in order to ensure an accurate recording.

When recording a curve, if a corner of the field or the end of the reference line is reached, tap on **Add corner**.

SBGuidance will now apply a corner point to the last position (red pyramid on the screen).

It is possible to alternately define straight and curved line segments of a field by activating or deactivating the **Record Curve** key.

If a curved section has to be joined with a straight section on the same boundary line, tap on **Record Curve** at the transition between the straight and curved sections. You will then be asked: **“Is this point a corner point?”** If the straight line section is to be joined to the curved line section, the response to this question should be **No**. This enables a curved and straight line section of an existing field boundary to be used as a reference line. If the response to this

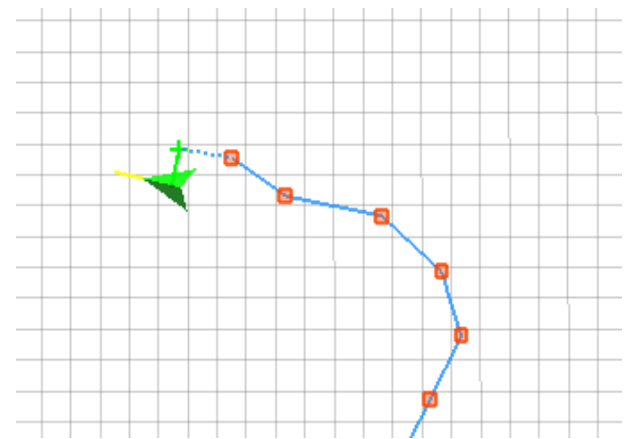


Figure 37 Example of recording a corner point



question is **YES**, a corner point will be created. The curved and straight line sections are then defined as two different sides of the field.

Now tap on **Close field** in order to draw a straight reference line from the last corner point to the first corner point. The surface area within the defined contour will then be calculated after closing the field. If you have only entered a single curved side, you do not need to close the field.

If **Close field automatically** is selected, SBGuidance closes the field automatically when the vehicle is within a radius of 5 meters from the first corner point.

i Please note!
A corner point separates two different sides of a field. Do not add a corner point to the centre of a side that is considered as a whole.

The defined field can now be saved by tapping on **READY** at the top left of the screen. This operation can be aborted by tapping on **ABORT**.

You will then be asked if you wish to save the field. If you tap on **YES**, you can name the field so that the field defined in this way is easier to find in the list of fields. If you tap on **NO**, the field will be saved with the name **TEMPORARY FIELD**. The temporary field will be lost if you choose to create a new field and do not save the temporary field.

After the save operation described above has ended, an option is displayed at the bottom of the screen to create a **new field** or **new operation**.

To “Create a new field”, see chapter 4.3.

To “Define a new operation”, see chapter 4.4.

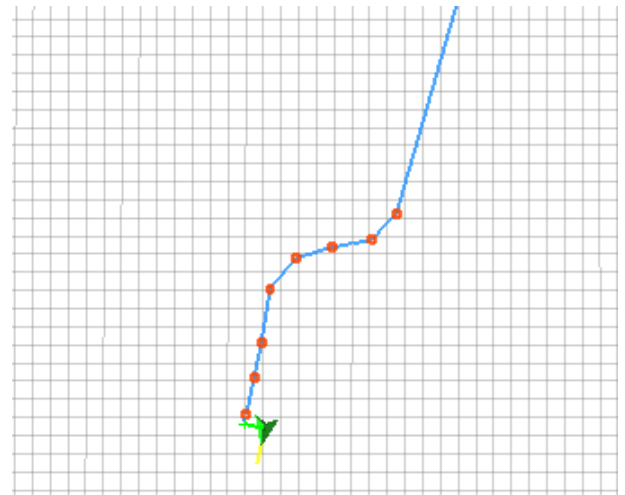


Figure 38 Example of recording a combination of a

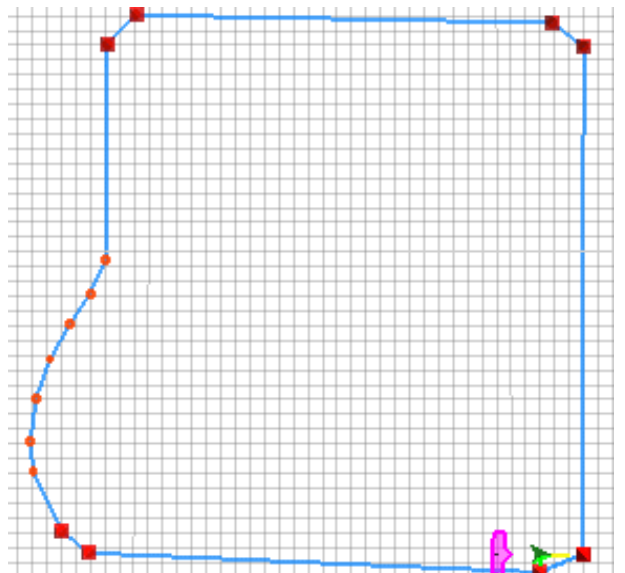
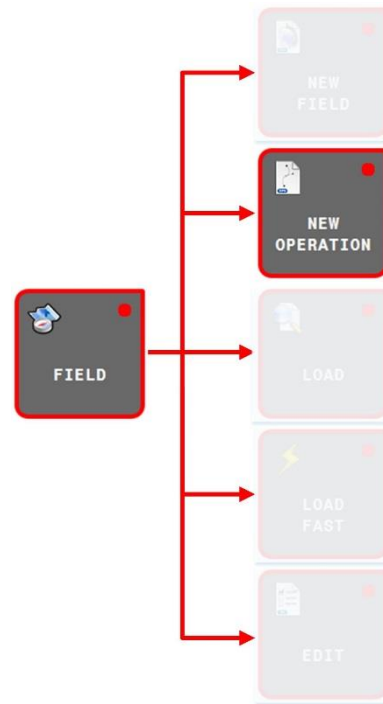


Figure 39 Example of a field

4.4 Defining a new operation

In order to perform an operation on a field that has been created, an operation must first be defined in SBGuidance. Operations are always linked to a particular field. Therefore, at least one operation must be defined for each individual field in order to use a field in SBGuidance.

Figure 40 shows which keys should be tapped to add a new operation. In addition, SBGuidance proposes a new operation after a new field is saved.



After tapping **NEW OPERATION**, the **Operation** menu will be displayed at the bottom of the screen (Figure 41).

This menu presents a summary of the five steps required to define an operation:

1. **Select the desired field.**
2. **Select the desired reference line.**
3. **Define the machine width.**
4. **Define the operation offset.**
5. **Define the headland turning point (optional).**

Select the field on which the operation has to be performed (Figure 41). The selection is highlighted in blue.

Furthermore, detailed information concerning the selected field is displayed at the bottom of the screen. The distance between the current position and the field is displayed to the right of the field name.

The alphabetical order of the list can be changed by tapping on **A-Z** at the bottom right of the screen. The options window enables operations to be sorted by date, name or distance.

Figure 40 defining a new operation



Figure 41 defining a new operation



Tap on **Next step**.


Select the reference line (field boundary) parallel to which the operation has to be performed.

Select the desired drive mode (straight, curved or contour) and use the arrows to the left and right of the word **Reference line** to select the desired reference line. The selected reference side is highlighted green (Figure 42).

i Please note!
Straight lines shorter than 20 meters in length cannot be selected for defining an operation.

i Please note!
If two straight lines at the opposite sides of the field run more or less parallel, only one of the two lines can be selected for defining an operation.

After the machine width is set, press the next step button.

The  button can be used to shift the closest line. To the middle of the machine. After shifting the lines, press the 'ready' button on the left top screen, a message is displayed. By pressing **YES** you can give the operation a name, by pressing **NO** the operation will be loaded but not saved. The operation will be lost as soon as another field is selected.

When an operation is added in a contour field, it is possible to setup headlands in the contour. Select the line which has to become a headland by the arrows left and right. When the correct line appears green, set up the right distance (on the right of the screen) and press add (Figure 45).

4.5 Load field

Press **FIELD** and then **LOAD** (Figure 46).

Then select the required field.

Press **Next step** and select the desired operation.

Confirm your selection by pressing **READY** at the top left of the screen.

The selected fields and operation will now be loaded.



Figure 42 defining an operation step 2



Figure 43 defining an operation step 3



Figure 44 defining an operation step 4



Figure 45 defining an operation step 5

4.6 Load fast

After loading a field it is possible to switch fast between saved operations. Tap on **FIELD**, then on **LOAD FAST**. Thereafter, the **OPERATION** menu will be visible.

Tap on the arrows in the menu to switch between the different saved operations under the loaded field. It is even possible to activate the auto steering (GO) from this menu.

i **Tip!** Use this function to switch quickly between the different operations while working on the headlands.

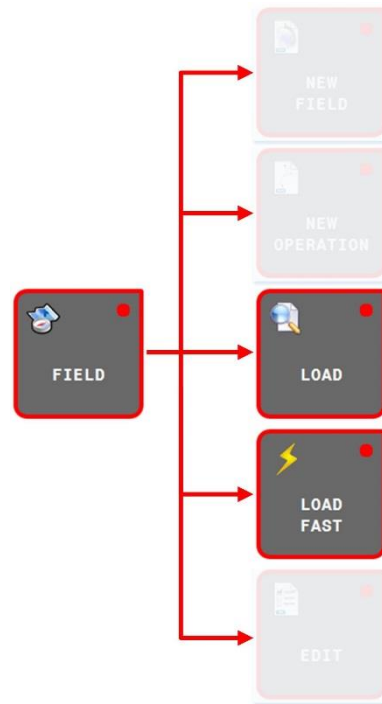







Figure 46 Loading operations



4.7 Edit operation

Press **FIELD** and then **EDIT** (Figure 47). The **Edit** menu is then visible (Section control button has to be red).

THE EDIT MENU CONTAINS OF FIVE TABS:

-  Edit location of lines
-  Edit working width
-  Edit headlands
-  Edit characteristics
-  Lock operation

Please note! The lock operation function is irreversible. So, if this function is activated, it is not possible to change anything back on the operation.

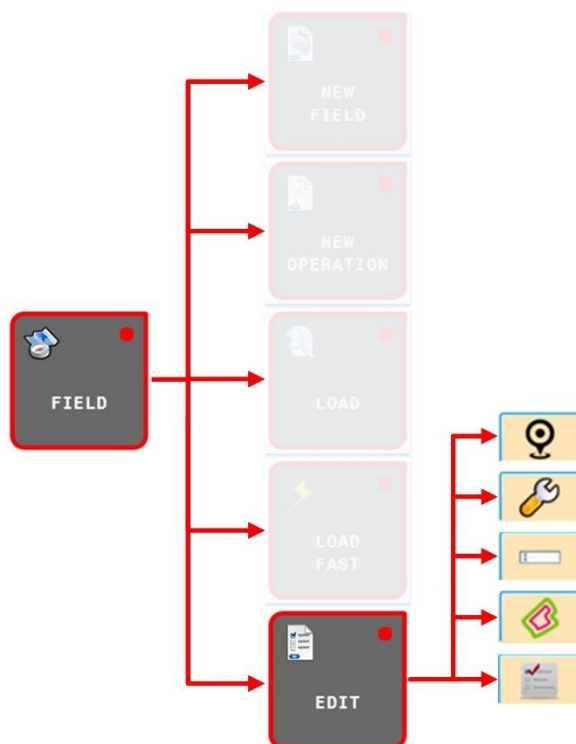




Figure 47 editing an operation

In the tab **working width** the normal working width can be edited (Figure 48). Besides that it is possible to manually mark a track, which allows the user to mark a track on a random place in the track pattern. After this manual marked track the original track pattern continues (Figure 49). It is possible to mark several spray tracks manually with the

 button. If the manual marked spray track is the nearest track, this line can be removed with the  button.

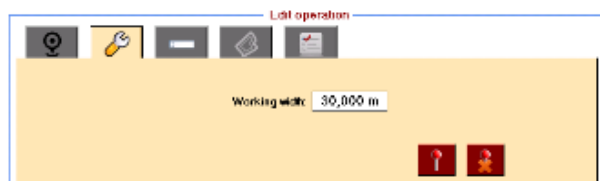


Figure 48 menu to mark a track

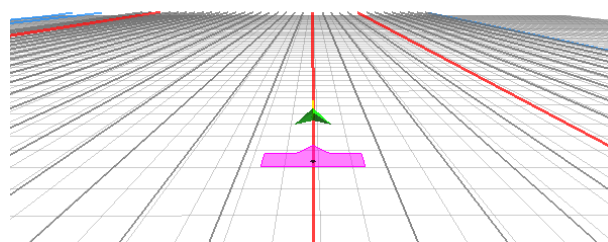


Figure 49 Marked track

5. Setup

Figure 50 shows an overview of the functions that can be activated via the **SETUP** button.

Return to the main menu by pressing **BACK** at the top left of the screen.

5.1 Setup vehicle

Press **VEHICLE**. The settings can be changed using **TUNING** and **OFFSETS** (top right) (Figure 50).

By default, the **TUNING** window appears at the bottom of the screen. The parameters for the machine control can be changed via this screen.

i The correct tuning depends on the field conditions and the type of treatment carried out.

i Changes in a machine's tuning can result in the machine no longer steering properly; therefore always remember the starting values before making any changes.

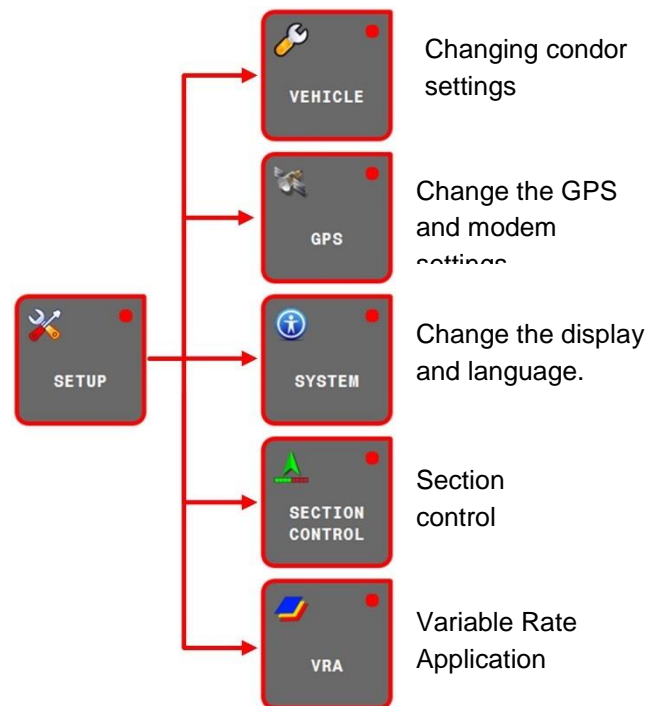


Figure 50 settings menu

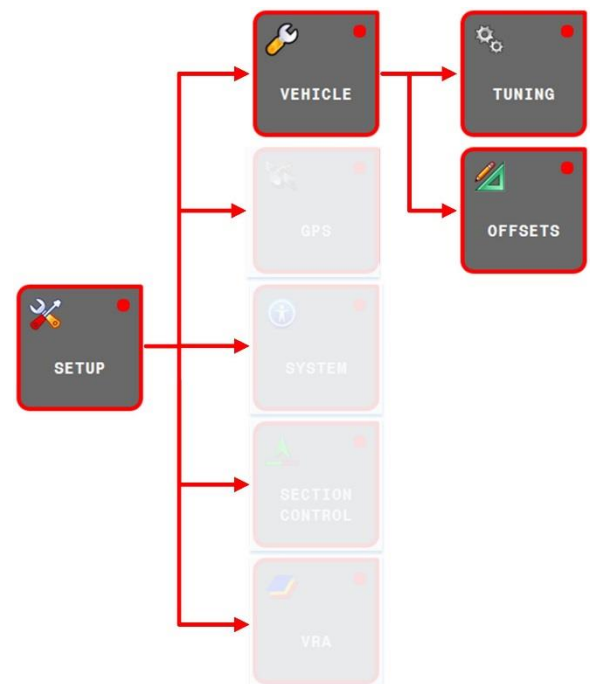


Figure 51 settings Condor



With the Agrifac Condor control, only the **TRACTOR** tab page is active (Figure 52).

Using the **Centre offset** the centre of the machine is displaced and this also changes the joins between the tracks. The **left** join is made **narrower** by pressing **L** and **wider** by pressing **R**.

Example: With a measured left join of 71 cm instead of 75 cm, the **Centre offset** must be adjusted by half the join error. In this case, $4 \text{ cm} / 2 = 2 \text{ cm}$. (press **R**).

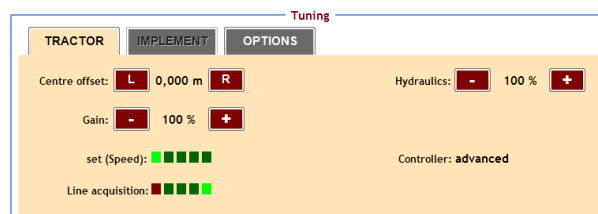


Figure 52 Tuning SBGuidance Auto

Hydraulic = Control speed


Amplification = Control effect

Line acquisition = Path determination towards the line

	Standard	Range
Hydraulic	100%	50 - 150%
Gain	100%	50 - 400%

If the control does not react quickly enough. Increase the **Hydraulic** in steps of 5% until the control makes quick control actions.

If the vehicle steers too slowly towards the line without overshooting it, increase the **Amplification** in steps of 20% until the control becomes erratic. If the control has become erratic, reduce the amplification by 20%.

The amplification can be set individually for five speed ranges. The **set (Speed)** indicator shows the active speed range using light green blocks. Click on the  indicator (next to set: Speed) to open the input screen (Figure 53). Now, in the stationary position, the amplification can be adjusted for each range.

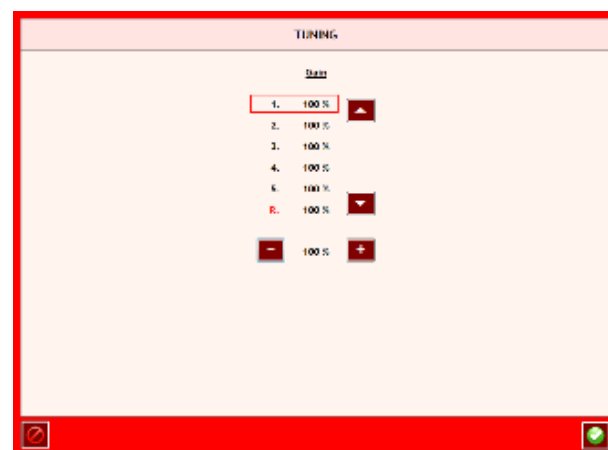


Figure 53 changing the gain per speed set



Line acquisition is used to ensure that the machine is not steered towards the line too quickly. When this is set to 0, the function will not be used. When the **Line acquisition** is set to 4, the Condor will steer very slowly towards the line. Pressing on the 5 block will make a small screen appear in which the user can set the line acquisition (Figure 54).

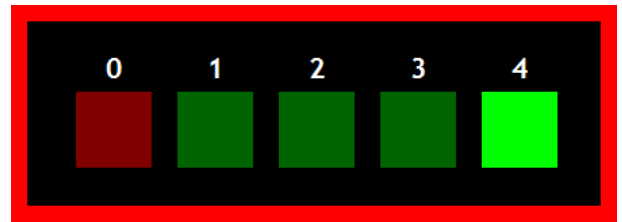


Figure 54 line acquisition

i *If the control keeps switching between two speed ranges, it is possible that the control no longer has the required driving behaviour. Drive a little faster or slower so that one speed set remains active.*

The **Controller** type is always set on **advanced**. This is the standard control used by SBG and Agrifac.



5.2 Setup GPS

The setup for the GPS receiver depends on the mounted GPS receiver on the machine. Do not change settings in the GPS setup without contacting the dealer!

5.2.1 RTK GPS

The **GPS Receiver** menu consists of two tabs. The **GPS** tab is displayed by default, as shown in Figure 56.

Tap on **Connect** if the connection with the GPS receiver is interrupted. The connection is interrupted if the clock at the top right of the screen is coloured red and/or displays 0:00:00. The **reboot** key serves to initialize the GPS receiver and is only intended to be used in exceptional cases, e.g. when the GPS receiver displays three boxes (RTK Float) for a longer period of time.



Caution!

Never tap the connect button and reboot keys without good reason. Frequent initialization of the GPS receiver can cause damage to the device. Always wait long enough for a signal to be produced after activating the keys. The system needs time to perform the action properly.

The **EGNOS** key can be used for operations with a low accuracy to apply automatic steering based only on the EGNOS signal. If this field is tapped it will turn green, indicating that the operation can be automatically controlled using EGNOS.

The **elevation mask** (default setting = 10°) can be changed in order to influence the number of satellites used. Increasing the elevation mask ensures that fewer satellites are used but with a much better signal quality. Decreasing the elevation mask ensures that more satellites are used but with a poorer signal quality. The elevation mask can be increased or decreased in order to obtain a better RTK fix.

With the **Max. Diff. age** setting it is possible to set the time period wherein the system can work without RTK-correction data.

With the **Diff. corr. Type** setting it is possible to set the used correction data type.

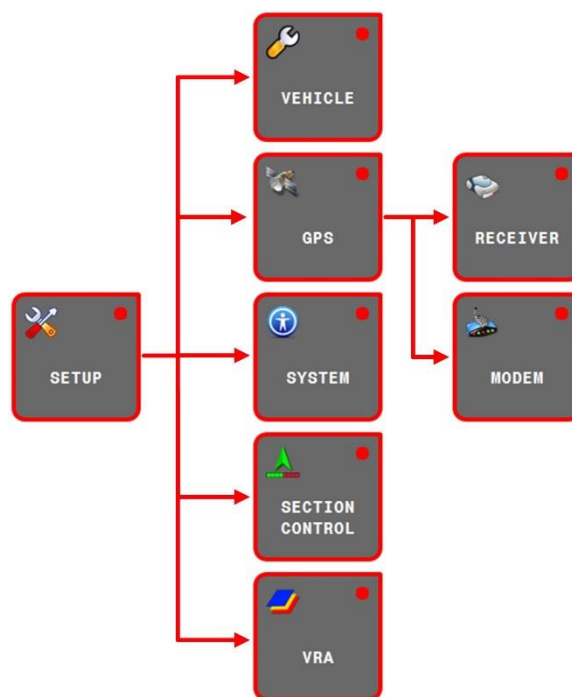


Figure 55 GPS setup

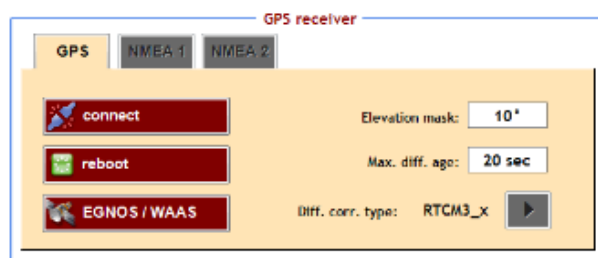


Figure 56 configuring the GPS receiver

5.2.2 SBAS Egnos

The **GPS Receiver** menu consists of two tabs. The **GPS** tab is displayed by default, as shown in Figure 57.

Tap on **Connect** if the connection with the GPS receiver is interrupted. The connection is interrupted if the clock at the top right of the screen is coloured red and/or displays 0:00:00. The **reboot** key serves to initialize the GPS receiver and is only intended to be used in exceptional cases, e.g. when the GPS receiver displays two boxes (GPS) for a longer period of time.



Caution!

Never tap connect and reboot keys without good reason. Frequent initialisation of the GPS receiver can cause damage to the device. Always wait long enough for a signal to be produced after activating the keys. The system needs time to perform the action properly.

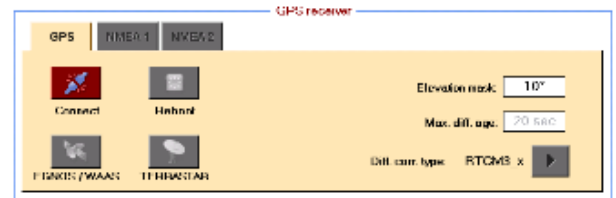


Figure 57 configuring SBAS GPS receiver



5.2.3 Modem

In the **GPS** menu tap on **MODEM** to change the modem settings (Figure 58). The type of modem to be used will depend on the type of correction signal. A GSM modem (**GeoConnect**) is used for correction signals over an NTRIP network.

The **GEOCONNECT** tab is only active Figure 58 if a GeoConnect modem is connected. Tap on **Edit settings** to change the configuration of the GeoConnect modem. Enter the SIM card data on page 1/2 (Figure 59). Several providers and their data are already available for certain countries. If this is the case, select the **country**, the correct **network provider** and correct **PIN** code. Other data is entered automatically. If the desired country and network provider are not available in the list, select **use defined**. This enables the **APN** (access point name), **username** and **password** to be entered manually. To obtain these details, please contact your own GSM network provider. **Frequency band** and **Selection** can be used to select a connection type: 2G, 3G or AUTO (automatic selection of available connection type).

i Please note!

The SIM card will be blocked if an incorrect PIN code is entered. The blocked SIM card can be accessed again after entering the PUK code. This code can be entered after the SIM card has been removed from the GeoConnect device and inserted into a cell phone.

i Please note!

Always check that the SIM card is inserted into the correct SIM card slot. SIM 1 is the slot located closest to the metal housing of the GeoConnect modem.

Go to page 2/2 with the blue arrow (Figure 60). The **Primary SIM** determines which SIM card is used while initialling the system. Select **Switch when roaming** in order to use the secondary SIM card automatically in a foreign country. Tap on the green checkmark symbol to save the data, or on the abort symbol at the bottom left of the screen in order to abort the input (data will not be saved). GeoConnect will now reboot (Figure 61). Wait until GeoConnect starts up for the first time.

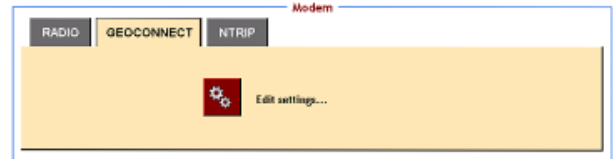


Figure 58 GeoConnect settings

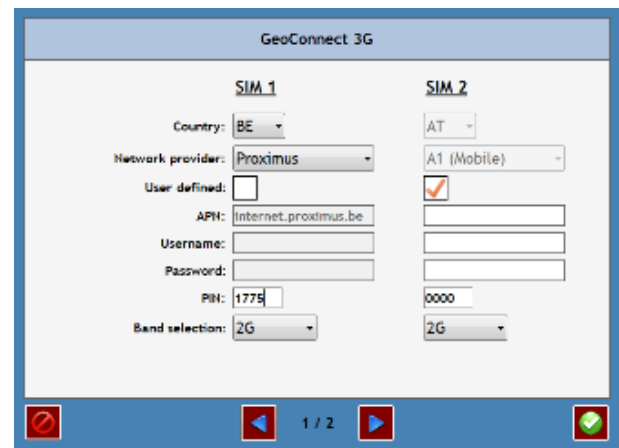


Figure 59 GeoConnect settings 1

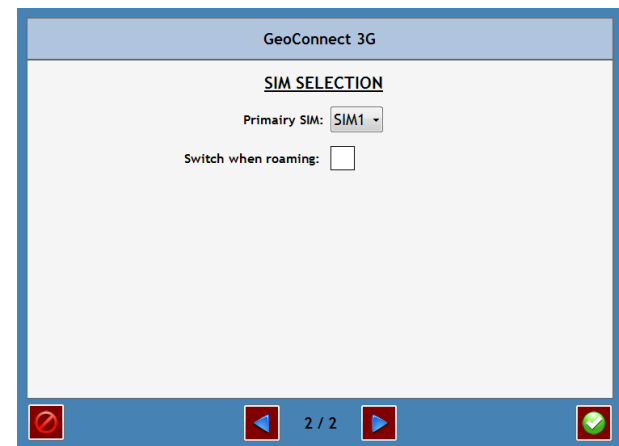


Figure 60 GeoConnect settings 2

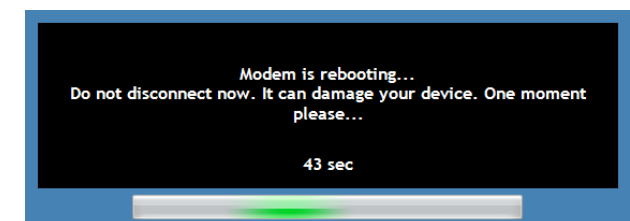


Figure 61 GeoConnect initialisation



Caution!

Do not disconnect the modem during initialization. This may lead to the loss of data and may cause irreparable damage to the device.

The required **NTRIP** provider can be selected from the NTRIP tab (Figure 62). The selected provider will be highlighted in green.

The connected status is then displayed:

Number of messages received (**Bytes received**) Number of message sent (**Bytes sent**) Connection speed (**Receiving**) Connection time (**Time online**)

To establish a connection automatically, select **Auto start NTRIP** when starting the GPS system.

The NTRIP networks are established by tapping on the settings key (gearwheel symbol) at the bottom of the screen (Configure the settings for the first NTRIP network in the first window. Networks for specific countries are also given here under **Preselect**. If the preselected connection data are selected, the parameters for other **correction type**, **hostname/IP address** and **port** are also entered automatically. If the desired network connection is not available in the preselect options, the parameters can be entered manually after selecting **own entry**. Finally, enter the **username** and **password** in order to gain access. (All these data must be obtained from the NTRIP network provider).

[This step is optional]

Go to page 3/3 in order to configure a second NTRIP network (Figure 65). Select **Use 2nd NTRIP subscription** and return to page 2/3. Now configure the second NTRIP network (Figure 64).

Tap on the green checkmark symbol to save the data, or on the abort symbol at the bottom left of the screen in order to abort the input (data will not be saved).

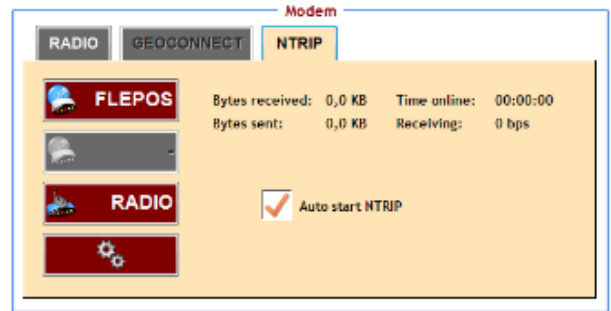


Figure 62 NTRIP



Figure 63 NTRIP configuration 1

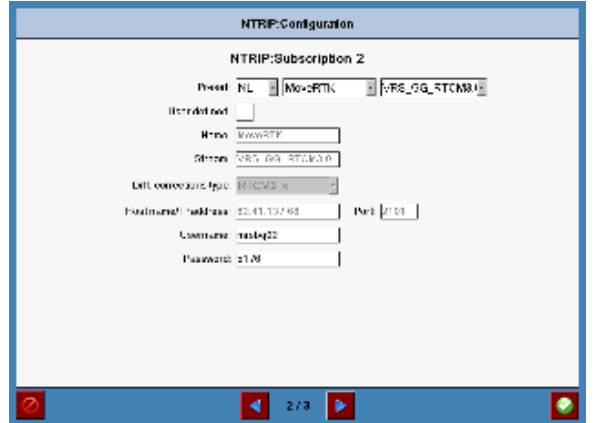


Figure 64 NTRIP configuration 2






Figure 65 NTRIP configuration 3



5.3 Setup system

Go to the **SYSTEM** menu to change the screen and language settings (Figure 67 - Figure 69). The system settings are divided in three tab pages, the display tab, the beeper tab and the language and time settings.

-  Display settings
-  Beeper settings
-  Language and time settings

DISPLAY SETTINGS

Select **Head-up Display (HUD)** to make the spray boom visible or invisible.

Select **Hide overlap** to hide the blue highlighting on the screen. With the **Erase overlap** button the blue overlap is removed completely.

Press **Contrast** to switch the field display background between white and black. This switch overrules the automatic switch to black by activating the working lights. Also the Brightness can be adjusted. If this setting is grey, the brightness can be adjusted by a dimming button on the side of the terminal.

BEEPER SETTINGS

In this tab page the beeper can be activated or deactivated with a checkmark. In some terminals, the volume of the beep can be adjusted.

LANGUAGE AND TIME SETTINGS

The language and time settings as well as the unit system can be changed in this tab page.

By selecting the desired language and unit system, the settings will be stored when this tab page is closed (pressing another button in SBGuidance will store this settings).

The UTC Offset will be automatically restored and the time will be updated when the offset is changed.

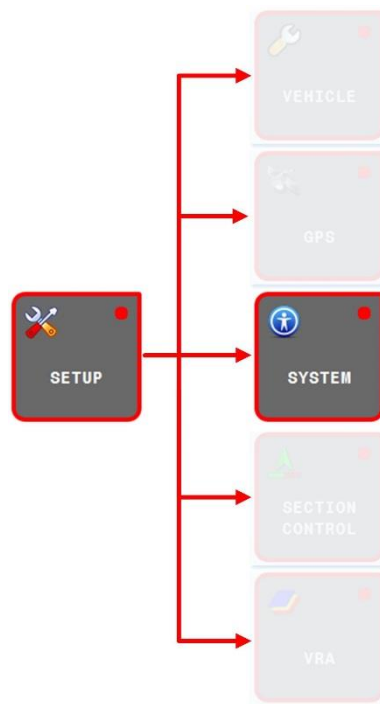


Figure 66 system set-up

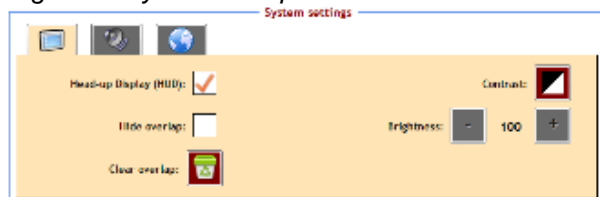


Figure 67 display

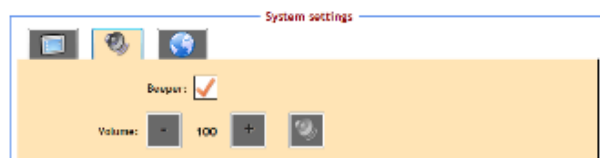


Figure 68 beeper

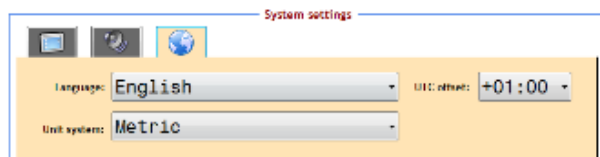


Figure 69 system

5.4 VRA (Variable Rate Application)


During automatic control, SBGuidance can control the dosage from the Condor at a specific location. Press **VRA** to open the application (Figure 70).


A screen opens as in the following actions must be performed in this screen:

- 1 Connection with the Agrifac VRA module
- 2 Loading a VRA map

 VRA Disconnected

 VRA Connected

 Load VRA maps

 Minimize VRA tray

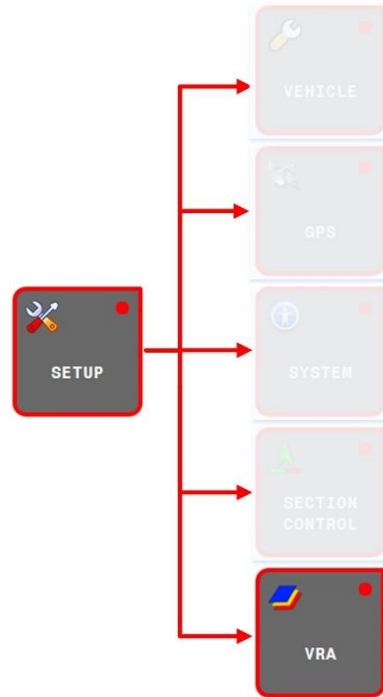


Figure 70 setup VRA

SCALE FACTOR

Changing ALL values of the task card is done here by setting a different factor. For example, the dosing over the whole field must be increased by 25%. Then enter 1.2500 by pressing the figures in this field and entering the new value.

USER VALUE

If you want a part of the field to be dosed according to a fixed value, enter this required value here. The SBGuidance software will now continuously control the fertilizing computer according to this value and no longer uses the value from the task card.

DEFAULT VALUE

When the vehicle is driven outside the boundary of the VRA map, the specified dosage will be used.

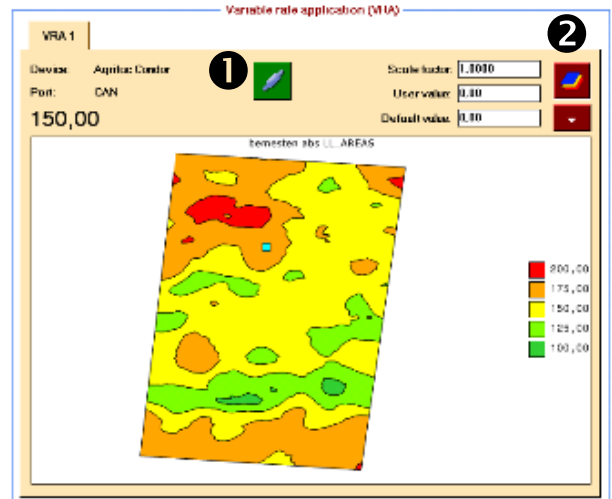


Figure 71 VRA map loaded



LOADING A VRA MAP

Loading a VRA map is in Figure 72 notice that these fields are located on the terminal. In Figure 73 are the available maps on the external memory device shown.

THESE BUTTONS ARE AVAILABLE



VRA maps on the terminal



VRA maps on the external storage device



Copy VRA maps to the external storage device if this map has been used for spraying, than the as_applied map will be copied as well.



Copy VRA maps to the terminal



Delete the selected VRA map



A license is required for the VRA dosage!



For proper recognition of the VRA map, the SHAPE file must contain one of the following column names: rate, rating, dose, dosage.

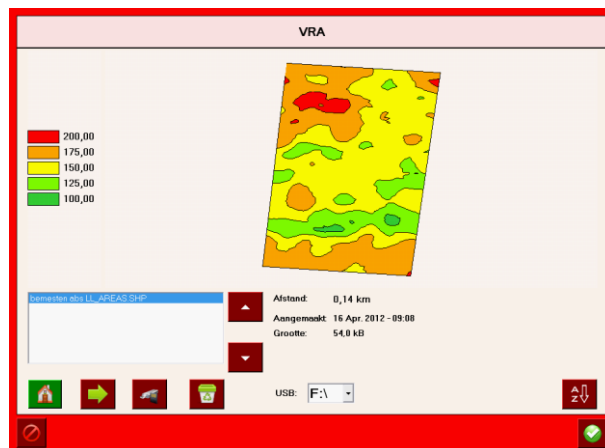


Figure 72 loading VRA map on the terminal

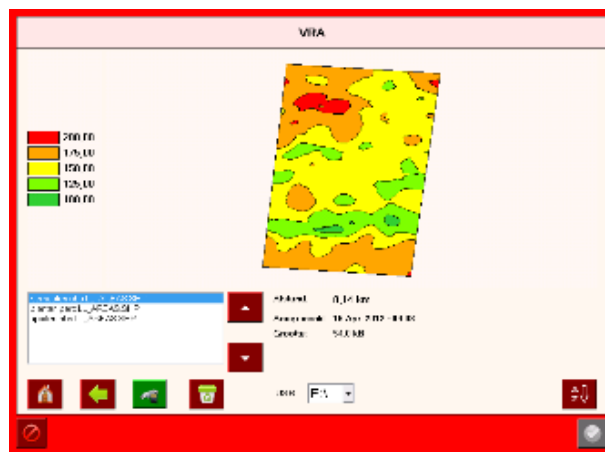


Figure 73 loading VRA map from external memory

6. Info

Figure 74 shows which functions are invoked after selecting the **INFO** key.







It is always possible to abandon a specific application and to return to the main menu by tapping on **BACK** at the top left of the screen.

6.1. GPS info

Tap on **POSITION** in order to display information on the GPS position. This information is divided amongst five different tabs: **GPS1**, **GPS2**, **BASE**, **INFO**, **TERRASTAR** and **GEOCONNECT**

6.1.1. Position

Press **POSITION** (on the right of the screen) to request information about the GPS position. The information is then divided over six tab pages.

-  GPS 1
-  GPS 2 (in case of 2 GPS receivers)
-  GPS Base
-  Info
-  Satellite GS / Terrastar
-  Modem (if connected)

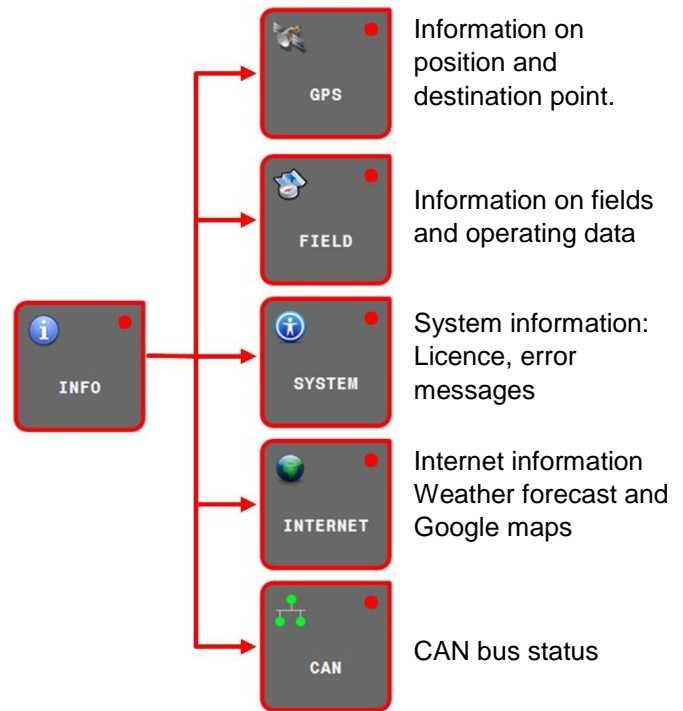


Figure 74 Info menu

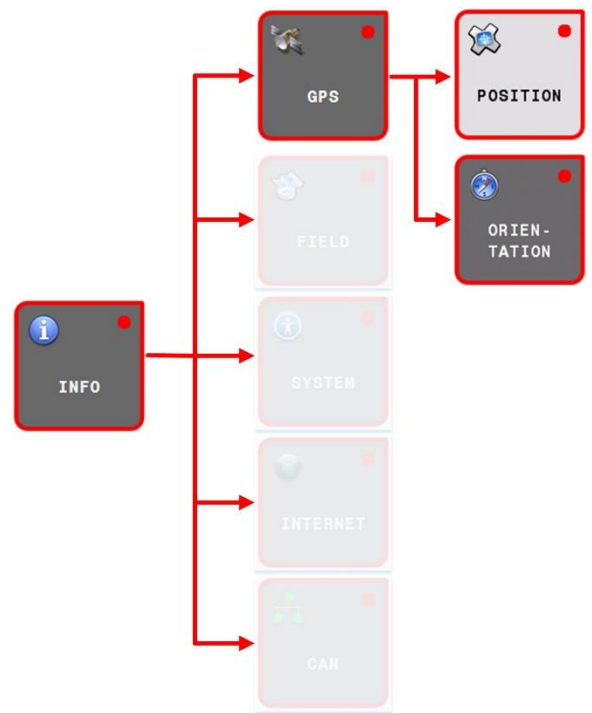


Figure 75 GPS info



GPS 1

On the GPS 1 tab page (Figure 76) information concerning the GPS antenna (GPS 1 = main antenna) is displayed. This is the antenna mounted on the machine.

In **Latitude**, **Longitude** and at **X, Y, Z** the coordinates of the current position are shown, the **Height** shows the GPS height. **Satellites** shows the number of visible satellites and the number of satellites that can be used by the system:

- Light green: number of GPS satellites used.
- Dark brown: number of GPS satellites visible but not used.
- Yellow: number of GLONASS satellites used.
- Brown: number of GLONASS satellites visible but not used.

GPS mode shows the quality of the signal: **No solution**, **Stand-Alone GPS**, **SBAS**, **DGPS** or **RTK-Fixed**. **Error message** shows any reception problems. Pressing the **reset** button resets the GPS receiver's RTK filter.

GPS BASE

On the GPS Base tab page (Figure 79), information about the base station (sender of the correction signal) is displayed. **Distance** shows the distance to the base station in metres. **Received** indicates the number of messages received from the base station. **Diff. age** indicates how much time has passed since the last correction message received.

INFO

On the INFO tab page (Figure 78) data concerning the connection with the GPS receiver are displayed. These data can be used by a specialist for diagnostic purposes in case of malfunction

SATELLITE GS / TERRASTAR

This tab (Figure 77) shows information about the Satellite GS or Terrastar unlock. When the Raven 600S GPS antenna has mounted, it is possible to unlock this accuracy.

MODEM

On the modem tab (Figure 80) information about the modem, if connected, is shown.

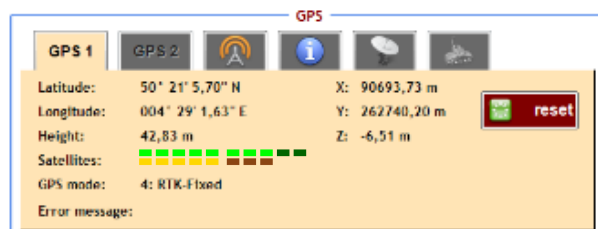


Figure 76 GPS1 (Main-antenna) info

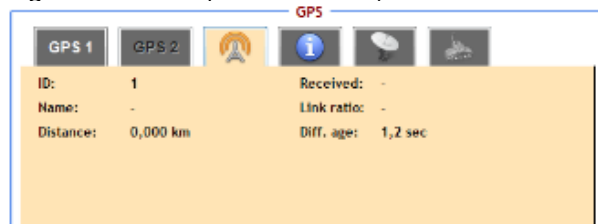


Figure 79 base station



Figure 78 GPS Info

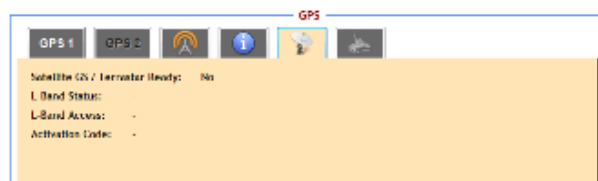


Figure 77 GPS Terrastar



Figure 80 GPS Modem

6.1.2. Orientation

Press the **ORIENTATION** (on the right of the screen) button to access the vehicle orientation (only if a DynamIQ is mounted).

On the **TRACTOR** tab page (Figure 81) the **Roll**, **Pitch** and **Yaw** (direction) of the machine are displayed. With the **reset** button the DynamIQ spirit level can be reinitialized.

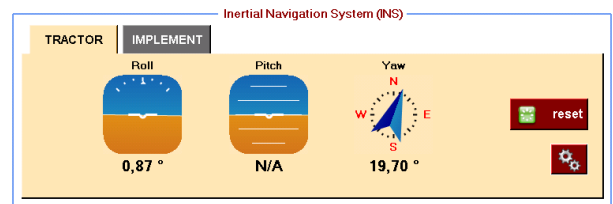


Figure 81 machine orientation

Press the sprockets on the right and then the **calibrate** button to carry out a 2-position calibration (Figure 82). With this procedure, the levelling and also the centre of the machine is determined. This ensures that the machine drives back and forth on the same track and that the completed treatments therefore align correctly.

Find a smooth flat surface (e.g. a yard). Position the machine next to a reference point. Press on **step 1** to record the Roll angle in this direction. The **Status** will change from **NORMAL** or **Waiting for Heading** to **CALIBRATING**. Wait until the status changes to **WAITING**. Then position the machine in exactly the opposite direction (turned 180°) next to the reference point. Press on **step 2** to record the Roll angle in this direction. The status will change from **WAITING** to **CALIBRATING**. The levelling is determined as soon as the status has returned to **NORMAL** or **Waiting for Heading**. Exit the window by pressing the checkbox at the bottom right.

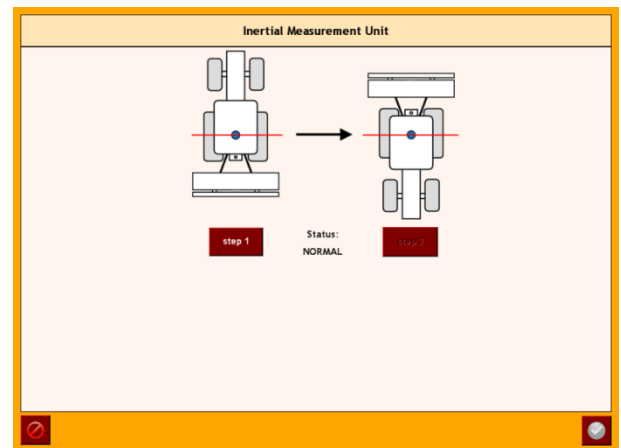


Figure 82 calibrating DynamIQ

The centre offset should now be generally correct. Check the centre offset (for example, by driving back and forward under automatic control on the same track) and adjust this as necessary in SBGuidance under **CONFIGURATION >> VEHICLE >> TUNING**. See Section 5.1 for more details about the centre offset of the machine. To check: drive slowly and long enough so that the deviation back and forth is 0 cm.

i The centre offset must be adjusted by half the connection error.



6.2. Field info

Tap on **FIELD**. Three menus are now displayed at the top right of the screen (Figure 83).

6.2.1. Details

Press **DETAILS** to display various data for the field and the treatment (Figure 84).

6.2.2. Work data

In the **WORK DATA** menu various details are registered (Figure 85). There are three tab pages available: **FIELD (1)**, **FIELD (2)** and **TOTAL**.

The **FIELD (1)** and **FIELD (2)** tab pages are linked to the active field. Two different registrations can therefore be made simultaneously for the same field. Both counters keep counting for the field until they are individually reset via the **RESET** button. The area shown on the **FIELD (1)** tab page is linked to the area shown in the top bar in the main screen.

The counters on the **TOTAL** tab page are counters that record a total for the activities, they are independent of a field and keep counting until they are reset via the **RESET** button (000) on the tab page itself. The total work for different fields can be recorded with this.

Every tab page contains a button that indicates whether it concerns the active time (the button is green) or inactive time (the button is yellow). This button is linked to the **GO** button in the main screen but each tab page can also be manually switched between active and inactive by pressing this button.

6.2.3. Edit

The **EDIT** button enables the parameters of the selected treatment to be changed. This button is equivalent to the **EDIT** button under the **FIELD** button in the main screen (for more details, see Section 4.7).

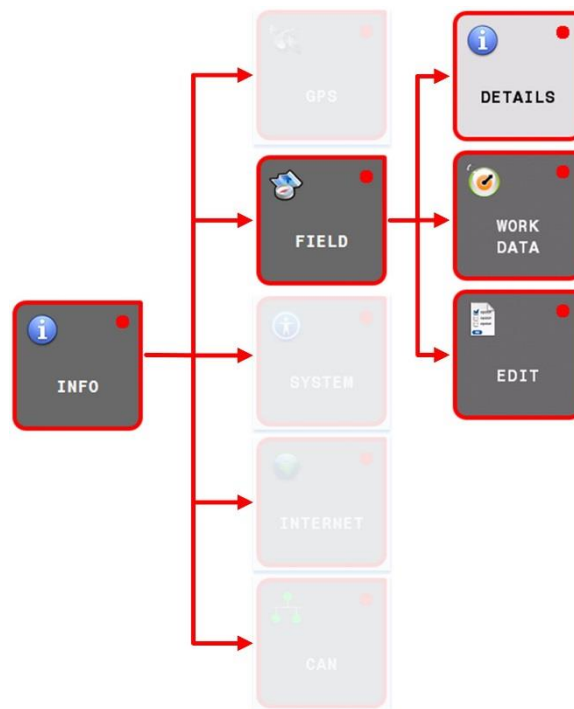
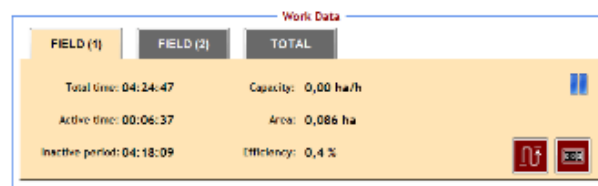


Figure 83 field info

Field		Operation	
Name:	D 70	Name:	demo
Creator:	SBGUIDANCE	Creator:	SBGUIDANCE
Date:	26 okt. 2013 - 17:08	Date:	25 nov. 2015 - 12:13
AB-lines:	8	Mode:	Straight
Curves:	0	Offset:	1,500 m
Contour:	Yes	Working width:	0,750 m
Area:	6,349 ha	Spray width:	33,000 m Spray path: No
Direction:	89,680 °	Headlands:	0

Figure 84 Field details



Work Data	
FIELD (1)	FIELD (2)
TOTAL	
Total time: 04:24:47	Capacity: 0,00 ha/h
Active time: 00:06:37	Area: 0,086 ha
Inactive period: 04:18:09	Efficiency: 0,4 %

Figure 85 work data



6.3. System info

Via the **SYSTEM** button various system information can be viewed (FIGUUR).

6.3.1. Error messages

Under **ERROR MESSAGES** you can scroll through the list (history) of error messages. If there are any error messages, this is indicated in the main screen by a warning triangle (Figure 87).

Press the warning triangle to go to the error message menu (Figure 88).

Error messages can be individually deleted by pressing the **DELETE** button.

i *Never just delete error messages without writing them down. These error messages can help product specialists to quickly determine the problem on malfunctions.*

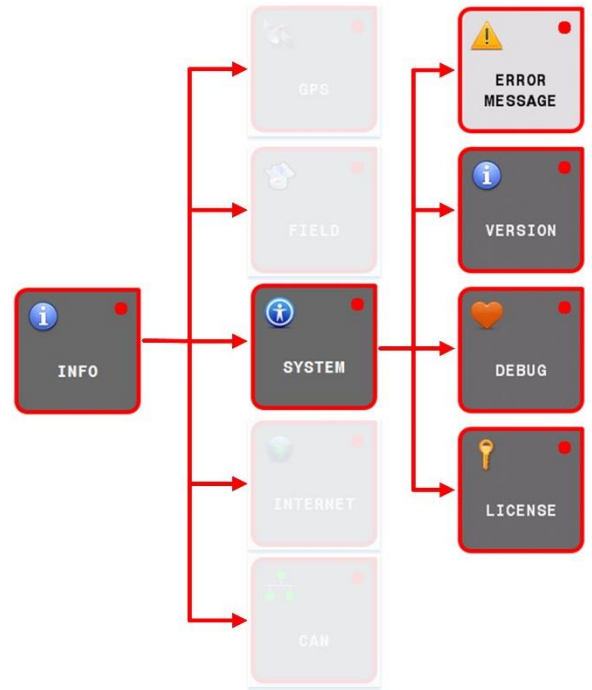


Figure 86 system info

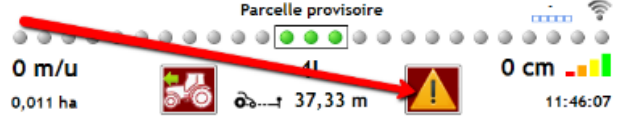


Figure 87 position of the warning symbol

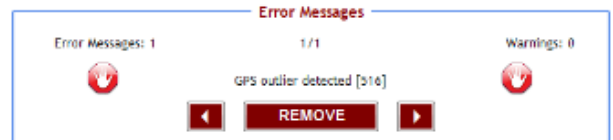


Figure 88 system error messages

6.3.2. Version

After tapping **VERSION**, the **System information** menu will be displayed at the bottom of the screen (Figure 89). This menu displays the **Software - ID**, **Support - ID**, **Terminal - ID** and **Hardware - ID**.

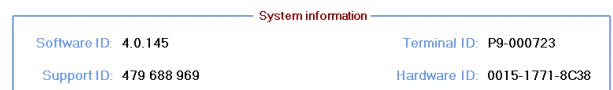


Figure 89 Version info

i **Tip**
Ensure that you have the Hardware ID ready when you order a license for the activation of a new SBGuidance application.



6.3.3. Debug

The **Debug** option enables product specialists to trace the cause or origin of problems. There are two tabs in the **System diagnostics** menu.



Please note!

Any changes to this menu may only be made following the approval of the dealer or manufacturer.

The first tab (Figure 90) is that which is typically displayed by tapping on **DEBUG**. By checking GPS/BIN/CAN/SCM the GPS/BIN/CAN/SCM data will be saved on the hard disc of the terminal.

6.3.4. License

LICENCE can be selected to display information on the licenses and to install new licenses or temporary licenses on the terminal.

The **License Information** menu displays detailed information regarding the (temporary) licenses.

LOADING A NEW LICENCE

A new license is required when the user requires steering types or software modules that were not provided at the time of the initial purchase of the system. Please apply to your SBG dealer to order new licenses.

The license data file is accessed as follows:

1. Copy the license data file from the USB stick and insert the USB stick into the terminal.
2. Go to the **License information** menu (Figure 91) and tap on the right of the menu on the file symbol. This will open a new window (Figure 92).
3. Select at the bottom of the screen on **USB** the correct drive station (the license files on the USB stick will be automatically displayed).
4. Select the correct data file by tapping on it. The selection is highlighted in blue.
5. Confirm your selection by tapping on the confirm symbol at the bottom right.



Tip

Before confirming, check that the serial number of the terminal is included in the name of the required license file (e.g. T010-1228). The serial number of the terminal can be found on the sticker behind or to the left of the terminal and has the following format: T0XX-XXXX.

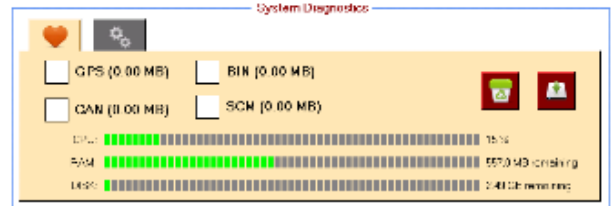


Figure 90 data logging

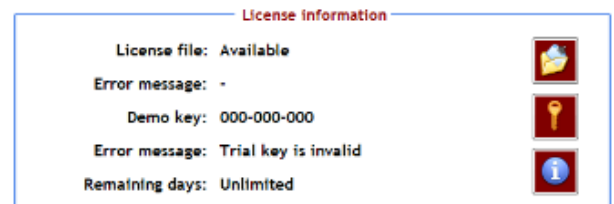


Figure 91 license information

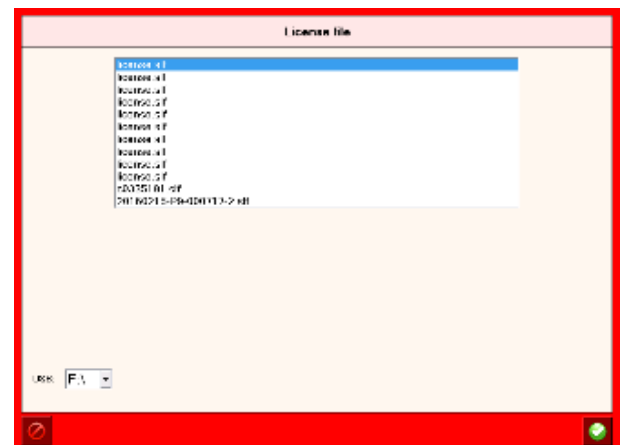


Figure 92 selecting license data file



ENTER PRODUCT KEY FOR TEST VERSION

A **test product key** is a code which will temporarily activate the steering systems or the software modules. Please apply to your SBG dealer to order a test product key.

To enter the **test product key** by going to the **License information** menu (Figure 91) and tapping on the key symbol. This will open a new window (Figure 93). Enter the license code. Tap on the confirm symbol after entering the serial code. The **License information** menu will then indicate whether the code is valid or invalid.



Figure 93 enter product key for test version

DISPLAYING CURRENT LICENCES

In the **License information** menu (Figure 91) tap on **I** at the bottom right in order to check which steering systems and software modules are activated (Figure 94).



Please note!

Each license applies to one terminal only. Each individual terminal requires its own license file.

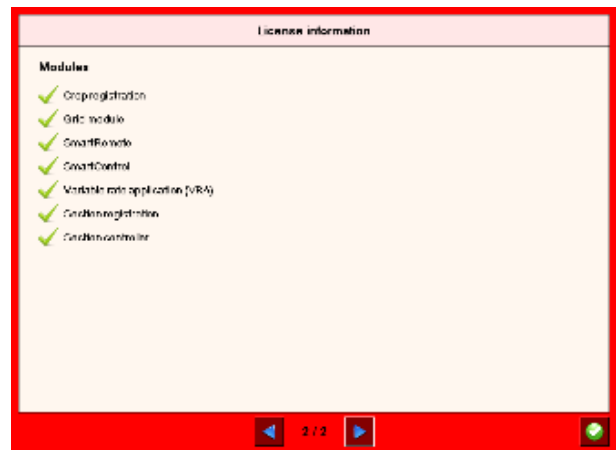
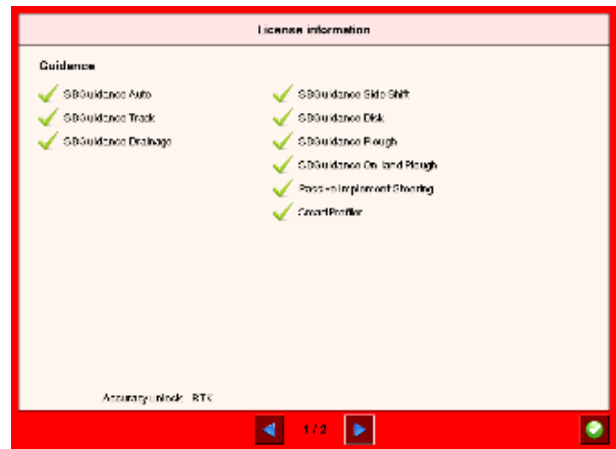


Figure 94 License information for steering and software modules



6.4. Internet

Via the **INTERNET** button (Figure 95) information on the internet can be viewed (Only when the terminal is connected with internet by a modem or Wi-Fi module).

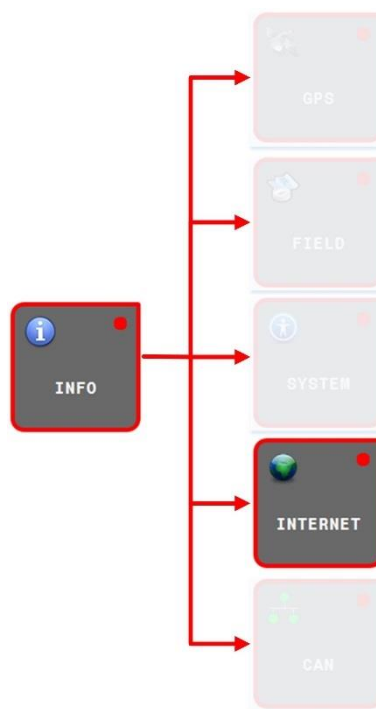


Figure 95 internet info

Press **WEATHER** on the tab page to see the weather forecast.

Press **MAPS** on the tab page to see the current position in Google Maps (Figure 96). At the bottom of the screen the nearest address is displayed. The map on the screen can be refreshed by pressing the recycle button; zoom with the - and + buttons. Switch between the road map and the satellite display with the map button.

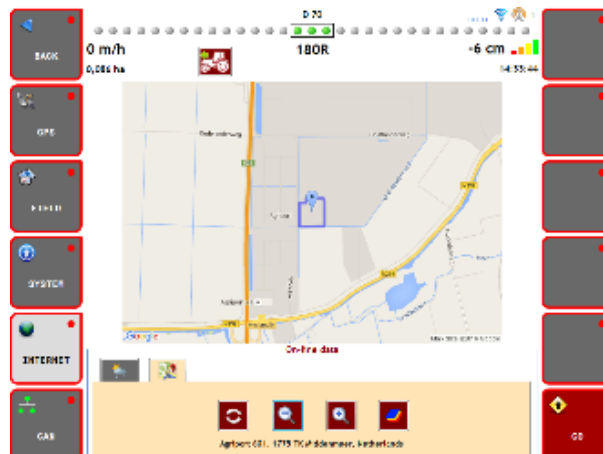


Figure 96 online data maps

6.5. Can information

The **CAN** key can be used to display information on the CAN bus communication

CAN Info		
Online:	00:00:04	RxCount: 258
Busload:	2.63 %	TxCount: 60
		Error Count: 0


Figure 97 CAN Info

7. Registration

Figure 98 shows which functions are invoked after pressing the **REGISTRATION** key.

7.1. Point of Interest

With the **POI** the Points of Interest (useful position in a field) screen can be opened. Points of interest can be set in the active fields by the following steps:

1. Drive and place the machine in the correct position in the field.
2. Tap in the **POI**-screen (Figure 99) on the  key to add a point of interest. A new screen will occur (Figure 100).
3. Fill in the desired name, colour and size of the POI. Tap on the blue + icon to add the POI. In the field display a pyramid will occur on the current position in the field.

The marked position is stored under the current loaded field. Thus, after reloading the field, the added points of interest are automatically loaded and visualised. In the table view of the POI menu the points of interest are ranked on distance. Therefore, the nearest point of interest is visualised at the first row in the table (Figure 99).

 Use the key **MARKED POSITIONS** e. g. if the container of the manure spreader empties whilst in the middle of an operation.

In the second tab of the POI menu (Figure 101) the distance of the proximity warning can be set. Furthermore, the alarm sound, when approaching a point of interest, can be deactivated.

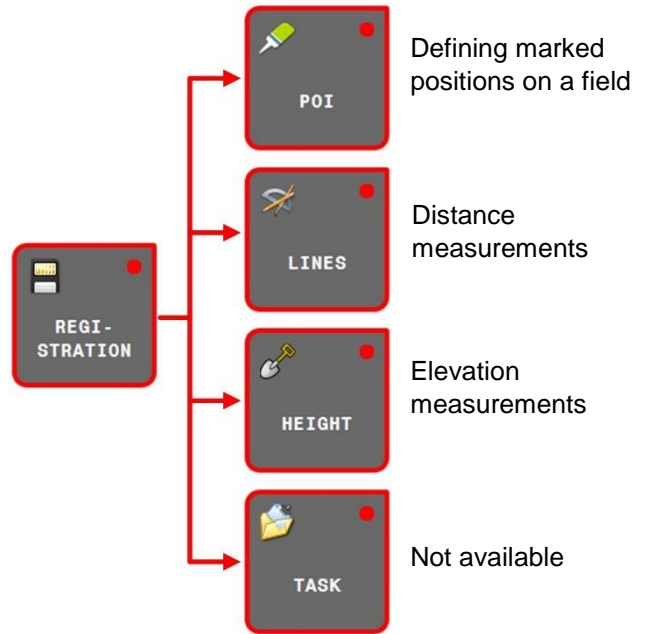


Figure 98 registration menu

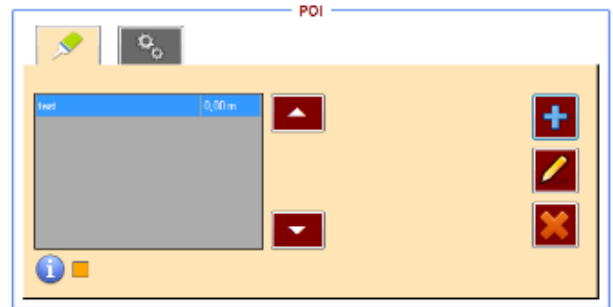


Figure 99 POI menu

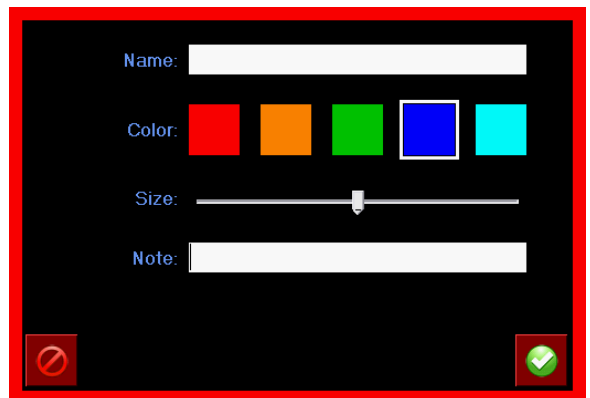


Figure 100 add POI

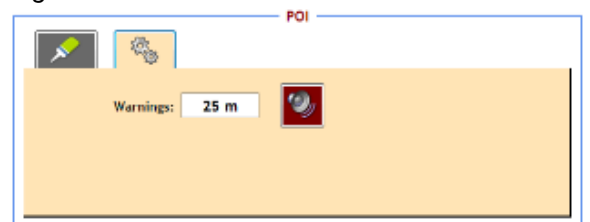


Figure 101 proximity warning points of interest









7.2. Lines

In the **REGISTRATION** menu, tap on **Lines**. In the Line and Distance (Figure 102) menu additional reference lines or navigation lines can be added to the loaded field. Furthermore, a distance can be measured with this function.

When saving the recorded line as a reference line, an additional line is added to the field and can be used as a reference line when adding an operation to the field. This function can be useful when there is no suitable side of the contour field that can be used as a reference line for an operation. The added reference line can be used as a main line of the operation.

When saving the recorded line(s) as a navigation line, an (or more) additional line(s) can be added to the loaded field. This function can be useful to record beds or orchards which are not planted/applied with RTK-GPS. Each bed or tree line can be recorded separately as an individual track.

Fulfil the following steps to add a reference or navigation line:

1. Choose behind "save as" whether you want to save a reference or navigation line (Figure 103).
2. Tap on the  key to capture the first point of the line. The recording of the line starts simultaneously.
3. Use the  key to start recording a curve. Tap once more on the same key to stop the curve recording.
4. Tap on the  key to stop a contiguous line.
5. Tap on the  key to add manually a breakpoint on the line.
6. Tap on the  key to saved and add the line to the loaded field. It is possible to record several lines before saving the line(s) to the loaded field. Intermediate saving is also possible.
7. Tap on the  key to capture the first point of a subsequent line.

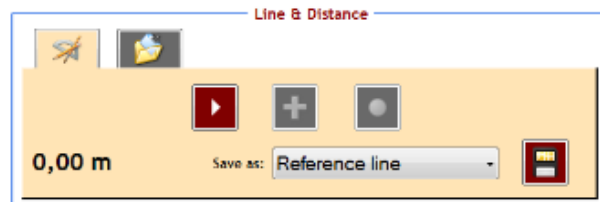


Figure 102 Line & Distance menu

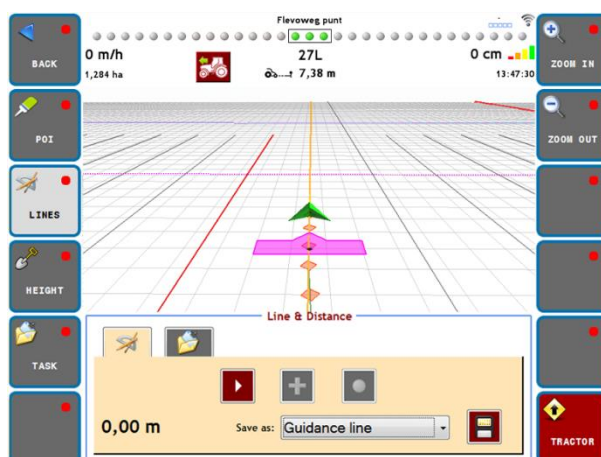


Figure 103 Record curves

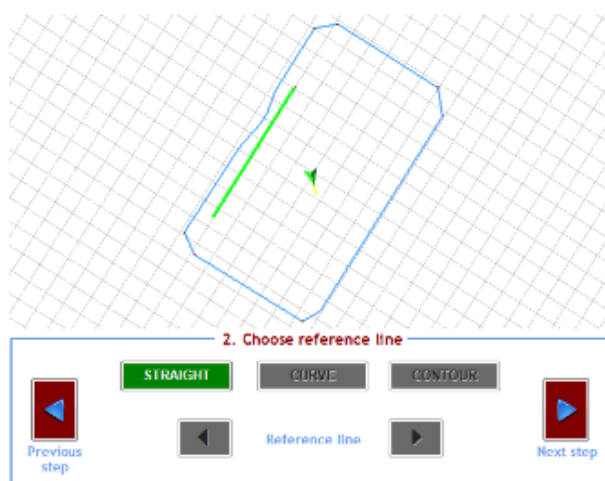


Figure 104 New operation on added reference line



If one or more recorded lines are saved as a reference line, you can add a new operation based on this reference line(s) by making a new operation under Field > New operation and selecting the added reference line in that screen (Figure 104).



Please note!

To select an added reference line in a new operation, the recorded line should be longer than 20 m.

If one or more recorded lines are saved as a navigation line, you can add a new operation based on this reference line(s) by making a new operation under Field > New operation and selecting the added navigation line in that screen. In the field view only the recorded navigation lines will be visualized (Figure 105).

In the second tab of the Line & Distance menu the recorded and added additional lines can be deleted. Select the to be deleted lines and tap on the red X icon (Figure 106).

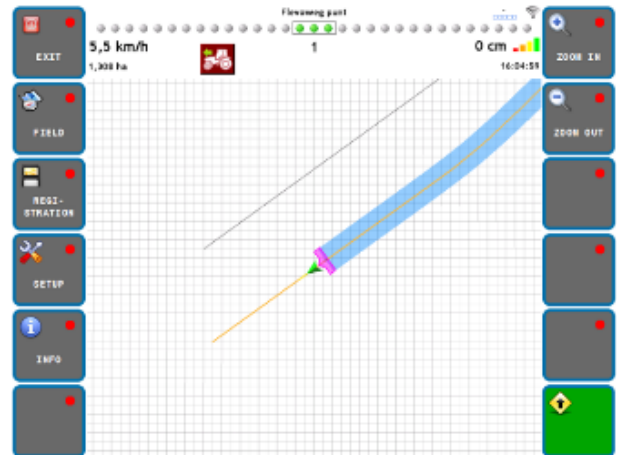


Figure 105 Steering on navigation line



Figure 106 delete lines



7.3. Height Registration

The SBGuidance software enables the user to define height measurements on a field. These height maps can be used with the SBGuidance Grader software when performing levelling operations. Height measurements can be taken whilst performing operations on fields. A contour field is required.

This is created as follows:

- Load a field and an operation.
- Go to **REGISTRATION** >> **HEIGHT** in the activate height recording menu (Figure 107) and check the box next to **Display height map**.
- You will then be asked if a new height measurement should be created. Select **YES** if a new height map needs to be created or **NO** if height data already recorded should be added.
- Tap on the symbol for **RECORD/PAUSE** in order to record or to interrupt the recording of the height data.
- The menu can always be exited whilst the data is being recorded.

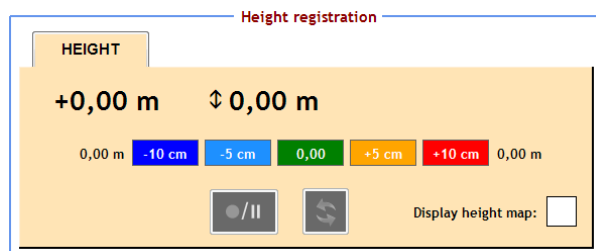



Figure 107 activate the height recording



The symbol  is used to update the information. The defined height is automatically saved to the active field after exiting SBGuidance. Select **Show elevation** chart in order to display recorded elevation data in the main menu during field operations.



7 Appendix A (Quick Start GPS Section Control EGNOS)

Hold 3 seconds to exit

Speed

Treated Area Covered

(press to change resolution) Light bar

Distance to track

Internet connection (blue = internet)

GPS Quality (= no GPS, = GPS only, = EGNOS)

EXIT

FIELD

REGI-STRATION

SETUP

INFO

ZOOM IN

ZOOM OUT

Record A-B (if Section Control button = green)
Load A-B (if Section Control button = red)

Erase existing overlap data

FIELD BOUNDARY

SECTION CONTROL

GO

Section status (green = activated)
Section status (blue = spraying)

Untreated Area

Total Field

Field name

Track nr.

Home land

Distance to track

BACK

ZOOM IN

ZOOM OUT

Change between 2D / 3D view (tab screen to toggle between 2D and 3D view)

FIELD BOUNDARY

SECTION CONTROL

GO

Track width (press to change)

Record A (green = recorded)

Record B (green = recorded)

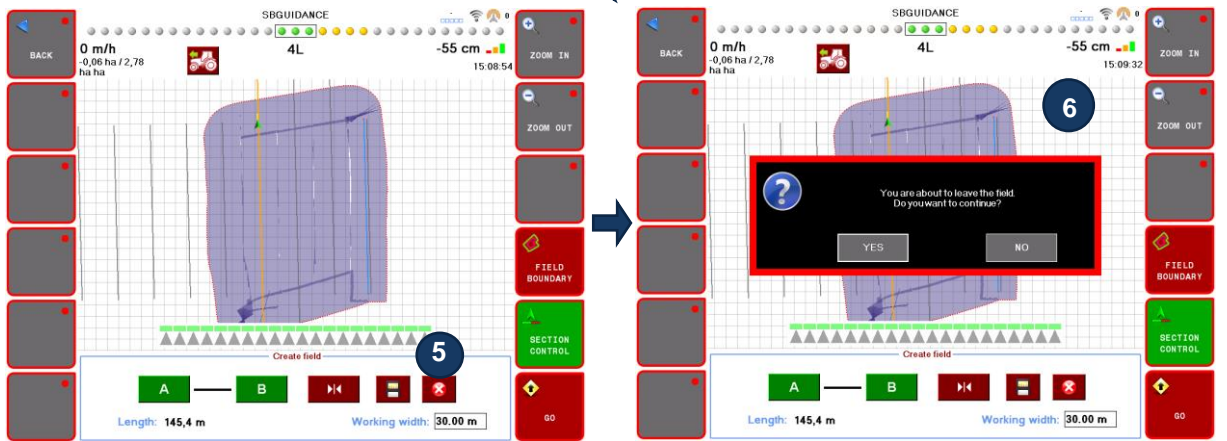
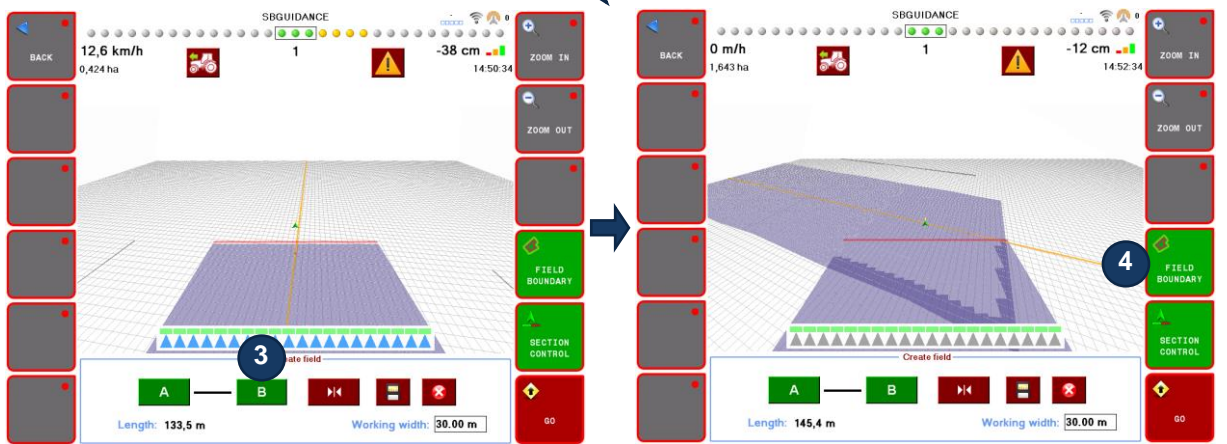
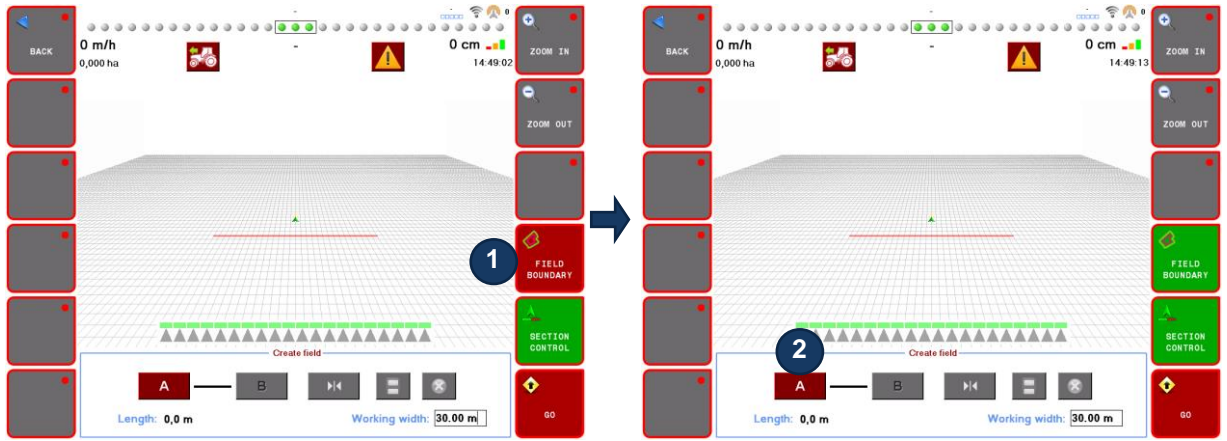
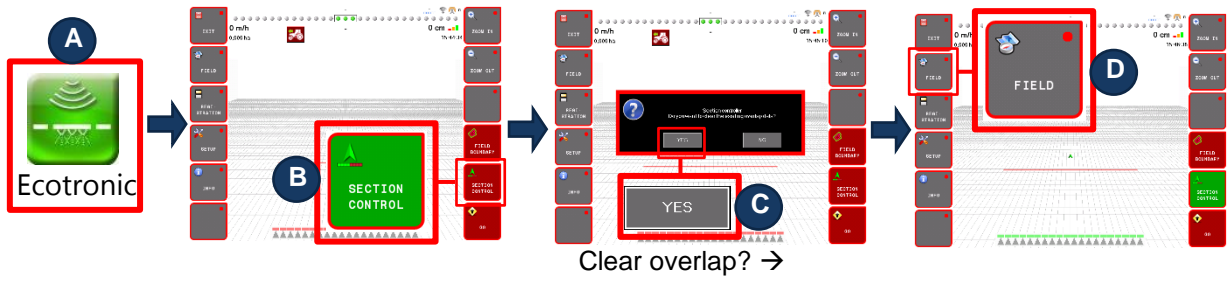
Leave Field (Clear track lines)

Save Field (Tracks and overlap data)

Center Track lines under sprayer

Length: 62,9 m

Working width: 34,00 m



Repeat 1 → 6 for every new field

Leave field? → Yes
Clear overlap? → Yes