ARAG

# delta30t

## VIRTUAL TERMINAL ISOBUS
## WITH INTEGRATED GPS NAVIGATOR



CE

467510X

Software rel. 1.3.x

USE AND MAINTENANCE

| | |
|---|---|
| ⚠ | = Generic danger |
| ✋ | = Warning |
| **ECU** | = ISOBUS remote control unit |
| **OP** | = Object Pool |
| **UT** | = Universal Terminal |
| **TC** | = Task Controller |



*This manual is an integral part of the equipment to which it refers and must accompany the equipment in case of sale or change of ownership. Keep it for any future reference; ARAG reserves the right to modify product specifications and instructions at any moment and without notice.*

## • MANUAL USE MODES

This manual contains information for installers. For this reason we have used technical terms without providing any explanations.

**THE INSTALLATION MUST BE CARRIED OUT BY AUTHORIZED AND SKILLED PERSONNEL ONLY. ARAG IS NOT RESPONSIBLE FOR ANY INSTALLATION CARRIED OUT BY UNAUTHORIZED OR UNSKILLED PERSONNEL.**

## • RESPONSIBILITY

The installer must carry out workmanlike installations and ensure to the end user the perfect operation of the whole system both with ARAG components only and other brands' components.

ARAG always recommends using its components to install control systems. The installer will be held responsible for any malfunction if he decides to use other brands' components even without actually changing the system parts or harness.
The compatibility check with components and accessories of other manufacturers shall be carried out by the installer.
If the monitor or the ARAG components installed together with other brands' components get damaged because of what stated above, no direct or indirect warranty will be provided.

## 1 RISKS AND PROTECTIONS BEFORE ASSEMBLY

**Use ONLY clean water for treatment tests and simulations: using chemicals during simulated treatment runs can seriously injure persons in the vicinity.**

## 2 INTENDED USE

The device you have purchased is a monitor which makes it possible to control all phases of treatment in agricultural applications directly from the cabin of the farming machine it is installed in.
Depending on the activated licenses, it is able to manage three functions (par. 10.3.4):
- UT (Universal Terminal)
it displays the OP of the connected ECU compatible with the ISOBUS system according to ISO11783.

- Nav (Navigator)
Delta80t features a satellite navigator that – through the external GPS receiver – can be used for agricultural applications and navigation.

- TC (Task Controller)
• TC-BAS: It provides information on the overall values, received from the equipment, regarding the performed job.
• TC-SC: Automatic management of sections according to GPS position and desired overlapping degree.
• TC-GEO: Additional ability to acquire position-based data or job planning based on GPS position and desired overlapping degree.

**Delta80t is not designed for use on public roads and should only be used on farmland.**

**This device is designed to work on agricultural machinery.**
**The equipment is designed and built in compliance with UNI EN ISO 14982 standard (Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria), harmonized with EMC Directive - 2014/30/EU.**

## 3 PRECAUTIONS

**• Do not aim water jets at the equipment.**
**• Do not use solvents or fuel to clean the case outer surface.**
**• Do not clean equipment with direct water jets.**
**• Comply with the specified power voltage (12 VDC).**
**• In case of voltaic arc welding, remove connectors from Delta80t and disconnect the power cables.**
**• Only use ARAG genuine spare parts and accessories.**
**• When connected to a suitable ISOBUS control unit, Delta80t can carry out electromechanical control operations.**
**The monitor does not feature emergency stop devices: the manufacturer must provide all necessary safety devices for the equipment.**

# 4 SETUP

## 4.1 Setup preparation

**Before monitor setting, check:**
**• that all components are correctly installed;**
**• the correct connection to the power source;**
**• the component connection.**
**Failure to correctly connect system components or to use specified components might damage the device or its components.**

## 4.2 Switching on

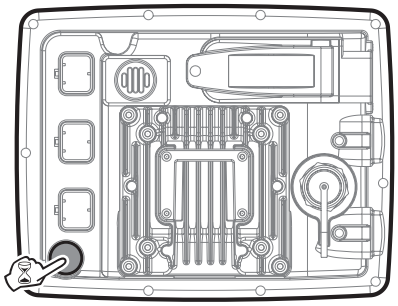


Fig. 1

Keep the ON/OFF key pressed; as soon as the monitor beeps, release the key.

**FIRST DEVICE SWITCHING ON**


Fig. 2

Upon first start-up, after system checks, the monitor directly accesses the use language setting (Fig. 2) and the basic settings of the device (chapter 5).

**ORDINARY SWITCHING ON**

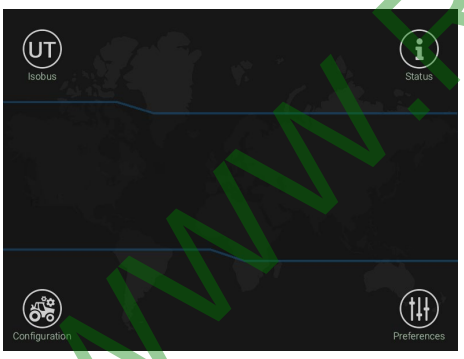



Fig. 3

After system checks, the monitor directly accesses **HOME** screen (Fig. 3).

## 4.3 Switching off

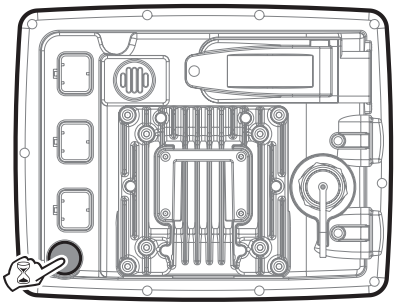


Fig. 4

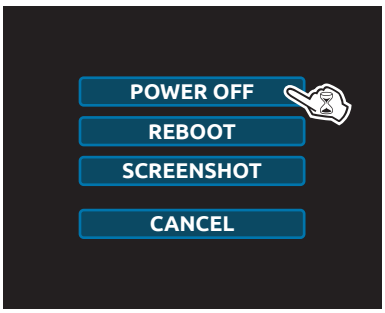



Fig. 5

Press and hold the switching off key until Fig. 5 is displayed and then release it and press **POWER OFF**.

**During switching off, monitor automatically saves the current job: Do NOT press any other key and do NOT disconnect the power supply until monitor turns off.**
**WARNING: ALWAYS use the special key to switch off the device; otherwise ALL data concerning the spraying and the setup will be lost.**

Press **CANCEL** to return to the previous screen.

## 4.4 Reboot

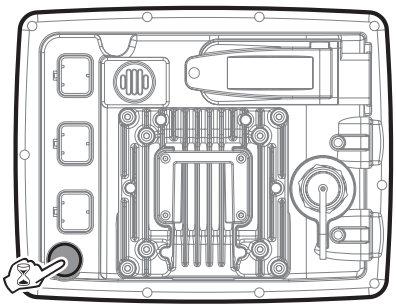


Fig. 6

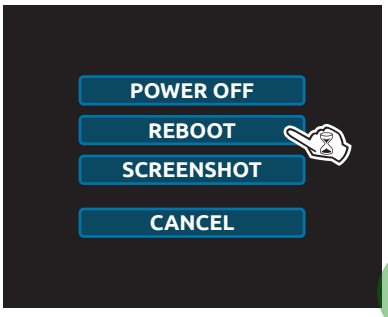



Fig. 7

- Press and hold the switching off key until Fig. 7 is displayed and then release it and press **REBOOT**.
- The Delta80 will restart:

**During switching off, monitor automatically saves the current job: Do NOT press any other key and do NOT disconnect the power supply until monitor turns off.**
**WARNING: ALWAYS use the special key to switch off the device; otherwise ALL data concerning the spraying and the setup will be lost.**

Press **CANCEL** to return to the previous screen.

## 4.5 Screenshot

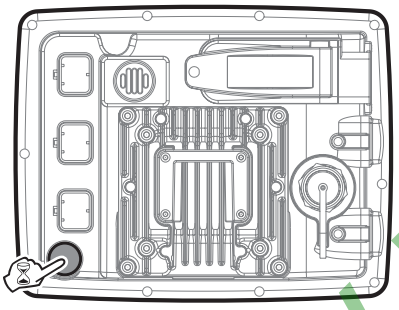


Fig. 8

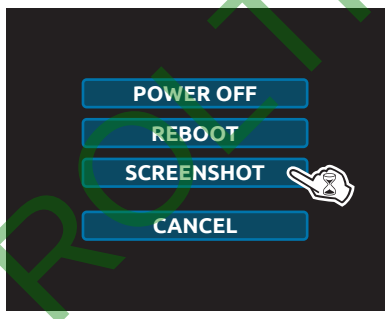



Fig. 9

- Insert the USB pendrive into the **USB 1** / **USB 2** slot (Fig. 97).
- Press and hold the switching off key until Fig. 9 is displayed.
- Press **SCREENSHOT** and wait for the monitor to flash:

An image of the current screen is automatically saved on the USB pendrive.

Press **CANCEL** to return to the previous screen.

## 5 BASIC SETTINGS

**FIRST START-UP - GUIDED SETUP**

**IT WILL ALWAYS BE POSSIBLE TO MODIFY THE SETTINGS MADE IN THIS PHASE AT A LATER DATE USING THE MENU IN PAR. 10.3.4.**


Fig. 10

Select the monitor language.

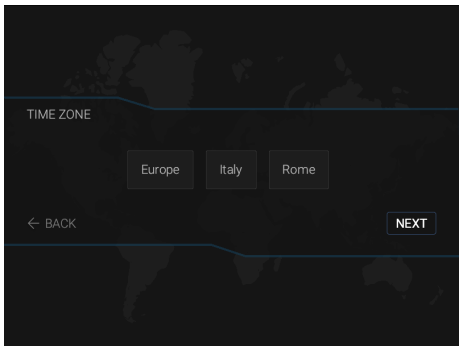



Fig. 11

Select: Continent / State / City.
Press **NEXT** to confirm and move to the next page or **BACK** to return to the previous page.

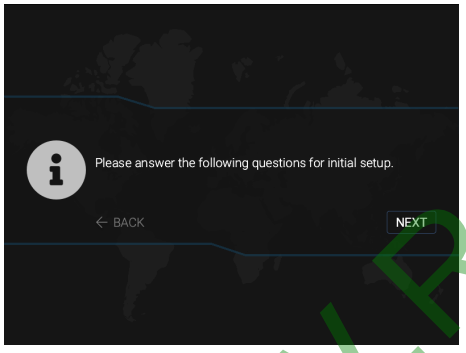



Fig. 12

Press **NEXT** to start basic settings configuration or **BACK** to return to the previous page.

*CONTINUES > > >*

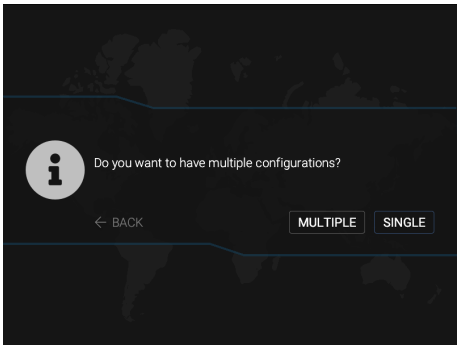



Fig. 13

**MULTIPLE (Multiple configuration):**
This configuration is recommended for situations where you plan to move the monitor to another machine (par. 7.2).

**SINGLE (Single configuration):**
This configuration is recommended for applications where the monitor is intended to be used with one tractor and one implement (e.g. self-propelled sprayer) This selection simplifies the settings and use (par. 7.1).

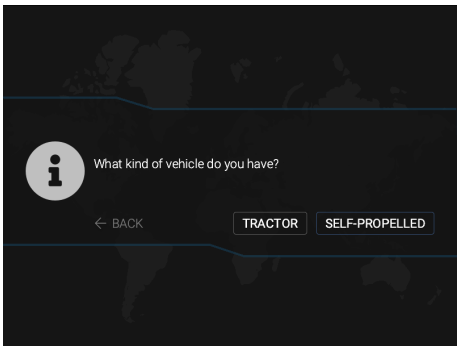



Fig. 14

Select the type of vehicle used to facilitate entry of the machine geometry data

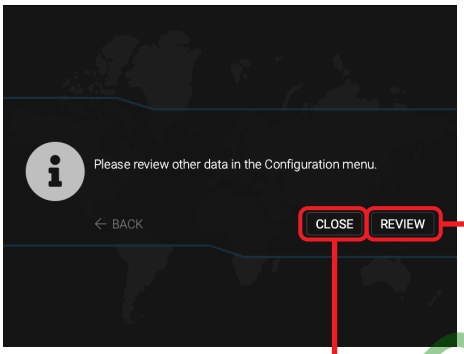



Fig. 15

**CLOSE**
It allows switching to the **HOME** screen (Fig. 16).

**REVIEW**
It gives direct access to the menu
**HOME > CONFIGURATION** (Fig. 16).

To complete the setup it is necessary to enter all the data of the **CONFIGURATION** page (Fig. 17)

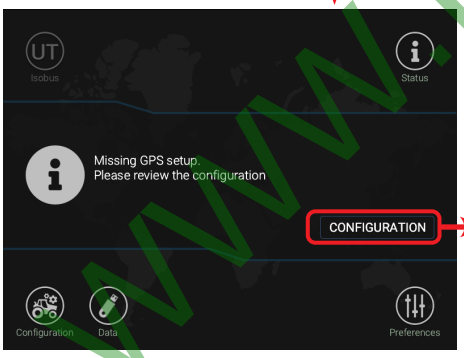



Fig. 16

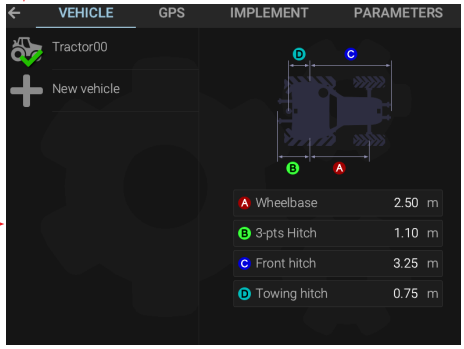



Fig. 17

**CONFIGURATION**
Accesses the **CONFIGURATION** menu from the **HOME** screen.

**NOW IT IS POSSIBLE TO CARRY OUT THE DEVICE CONFIGURATION, DESCRIBED IN CHAPTER 7.**
**The system assigns to the monitor ONLY the suitable setup menus.**

# 6 ENTERING AND EDITING NUMERICAL VALUES AND TEXTS

Delta80t is a touch screen Monitor. To enter the menus and set them just press on the area you wish to configure (icons or text).

## 6.1 Entering text

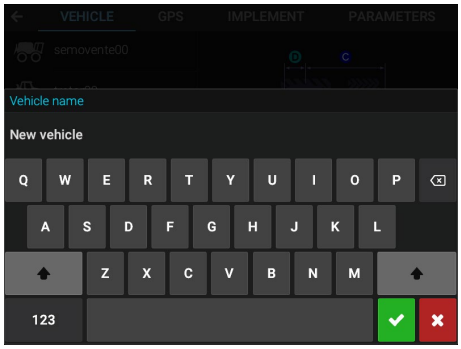



Fig. 18

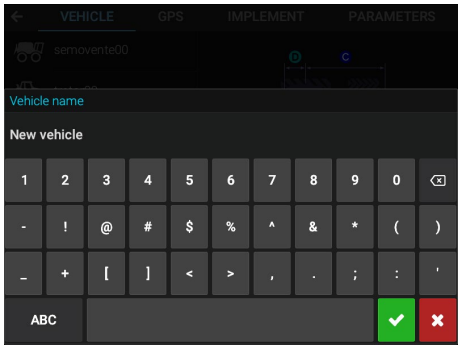



Fig. 19

- Confirm
- Quits without confirming
- Deletes one character at a time (from right to left)
- Allows entering capital letters
- 123 — Allows entering numbers and symbols (Fig. 19)
- ABC — Allows entering letters (Fig. 18)

## 6.2 Entering a number

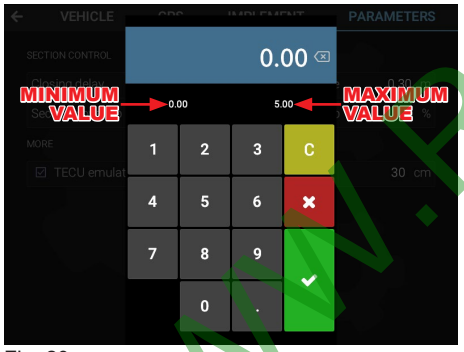



Fig. 20

- Deletes one number at a time (from right to left)
- C — Deletes all numbers (reset)
- Quits without confirming
- Confirm

## 6.3 Canceling the selection

Here are some examples of selection and deselection areas:

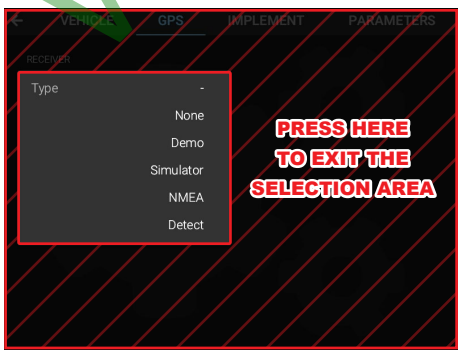



Fig. 21

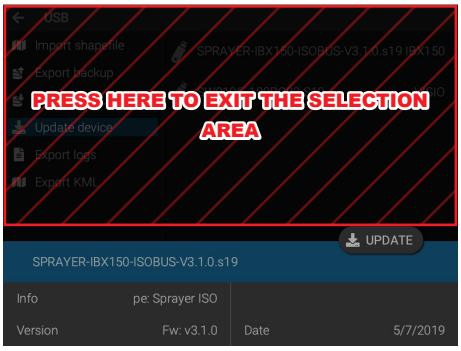



Fig. 22

Active area: area with higher brightness than the deselection area.

Not active area: area with lower brightness than the selection area.

- Press outside the active area to cancel your selection.

# 7 MULTIPLE OR SINGLE CONFIGURATION

Delta 80t can be installed on different systems. Depending on the system in use, it is possible to set several configurations so that you can directly select the one to be used without having to set it upon each system change.

## 7.1 SINGLE CONFIGURATION

This mode allows setting and managing a single configuration, thus simplifying its use.
Delta 80t, in the basic settings, gives the possibility to enable this mode by selecting **SINGLE** (Fig. 13).
Alternatively, later in the **Home** > **Preferences** > **ADVANCED** menu, by enabling the **Single configuration** item you can directly access the configuration setting menu.

## 7.2 MULTIPLE CONFIGURATION

This mode allows setting and managing more than one configuration.
Delta 80t, in the basic settings, gives the possibility to enable this mode by selecting **MULTIPLE** (Fig. 13).
Alternatively, later in the **Home** > **Preferences** > **ADVANCED** menu by disabling the **Single configuration** item, you can access the multiple configuration menu.

### 7.2.1 Creating a new configuration

- Press **Configuration** (Fig. 23).
- Press **Add configuration** (Fig. 24) and edit the new configuration name (par. 6.1).

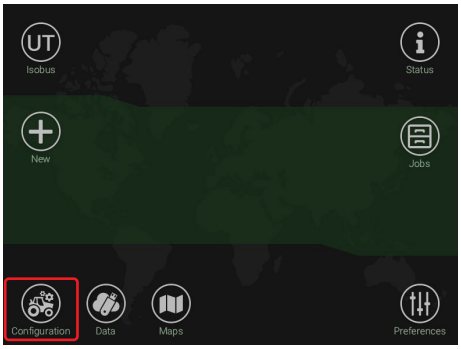


Fig. 23

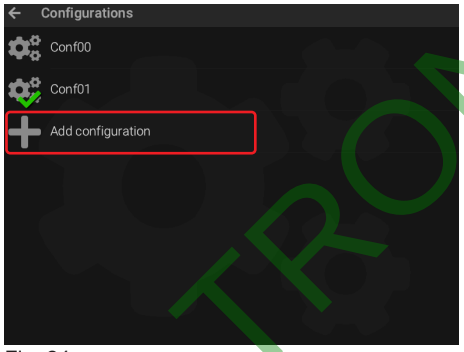


Fig. 24

### 7.2.2 Deleting a configuration

- Press **Configuration** (Fig. 25).
- Press the configuration to be deleted (Fig. 26).

**WARNING: the configuration in use (✓) CANNOT be deleted.**

- Press **DELETE** (Fig. 27).

Fig. 25

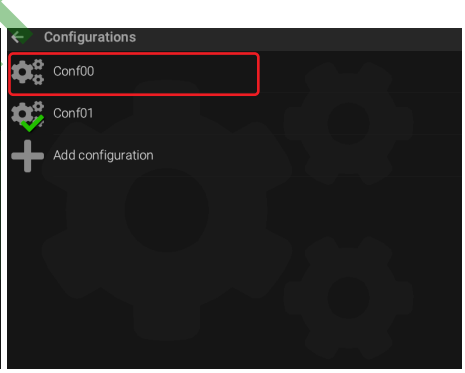


Fig. 26

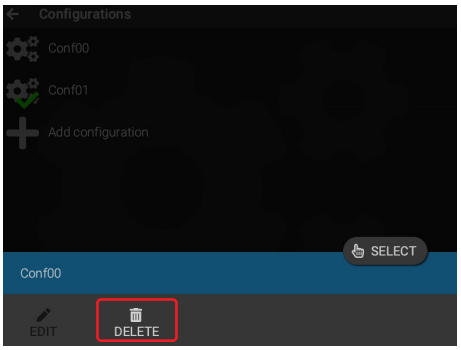


Fig. 27

### 7.2.3 Selecting a configuration

These operations activate the configuration which will be the one used in the spraying.
- Press **Configuration** (Fig. 28).
- Press the configuration to be selected (Fig. 29).
- Press **SELECT** (Fig. 30).

The monitor marks the configuration in use with this symbol ✔.

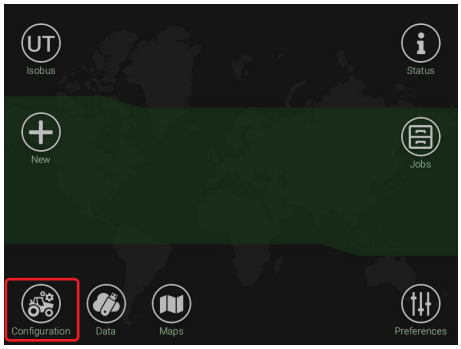


Fig. 28

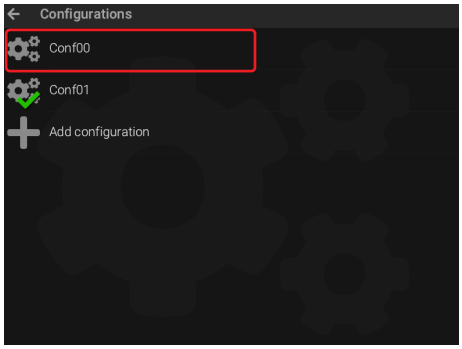


Fig. 29

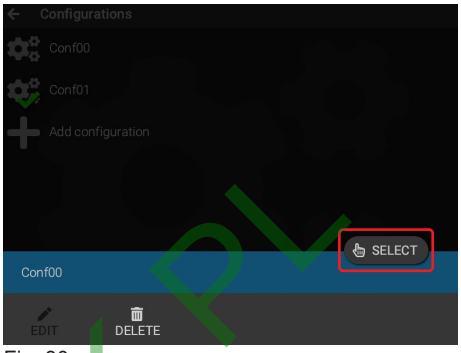


Fig. 30

### 7.2.4 Editing a configuration

- Press **Configuration** (Fig. 31).
- Select the configuration in use: it will be the only one that can be edited (Fig. 32).
- Press **EDIT** (Fig. 33): the monitor shows the configuration setting menu.

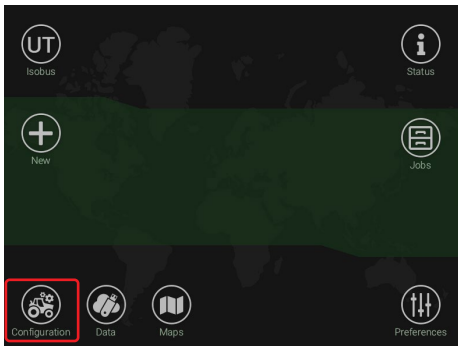


Fig. 31

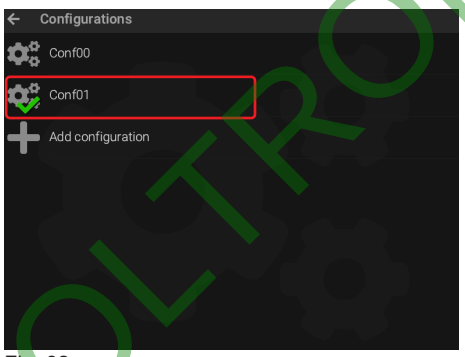


Fig. 32

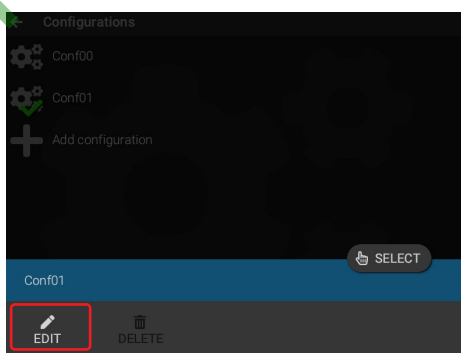


Fig. 33

# 8 SETTING A CONFIGURATION

SINGLE CONFIGURATION:
- Press **Configuration** (Fig. 34): the monitor opens directly the configuration setting menu (Fig. 35).
- Enter all measurements as described in the following paragraphs.

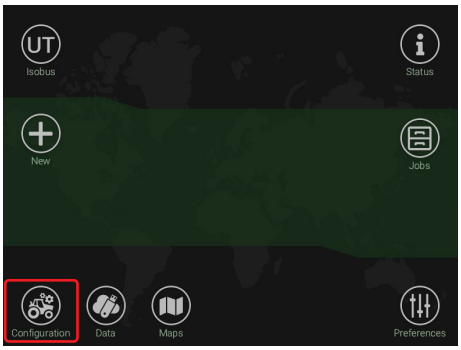


Fig. 34

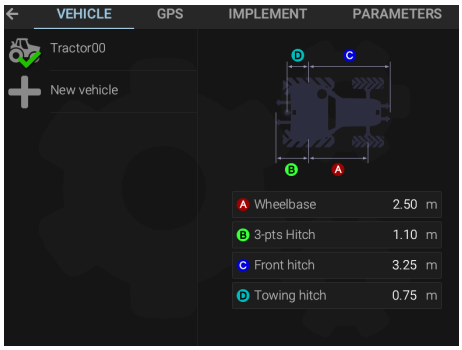


Fig. 35

MULTIPLE CONFIGURATION:
- Press **Configuration** (Fig. 36)
- Press the configuration to be set (Fig. 37).
- Enter all measurements as described in the following paragraphs.

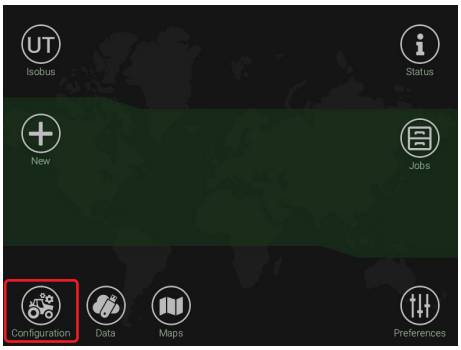


Fig. 36

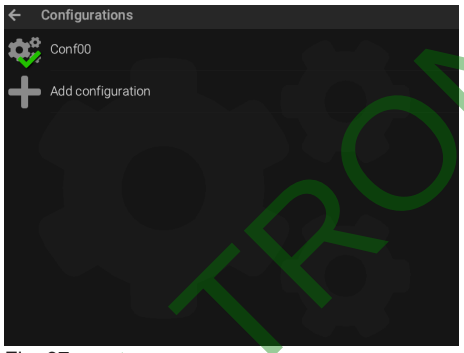


Fig. 37

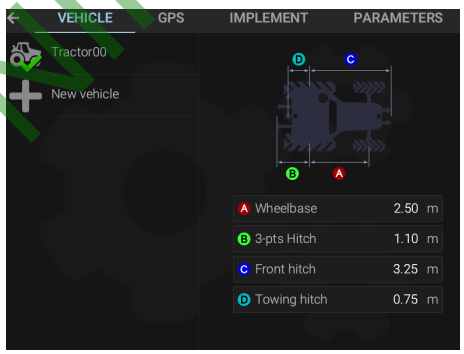


Fig. 38

## 8.1 Creating a new vehicle

- Press **New vehicle** (Fig. 39).
- Select the vehicle type you want to create: **Tractor** or **Self-propelled** and edit the name of the new vehicle (par. 6.1).

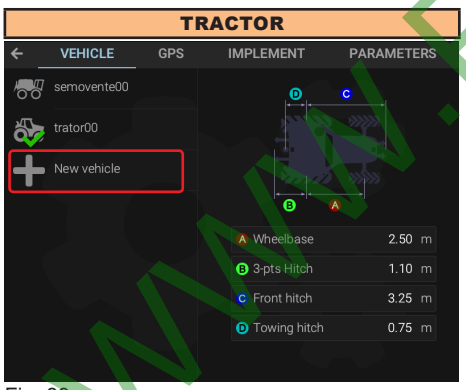


Fig. 39

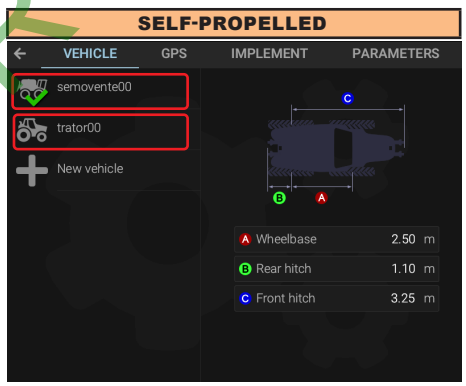


Fig. 40

CONTINUES > > >

## 8.2 Configuration > VEHICLE

Enter farming machine measures (Fig. 41 - Fig. 42).

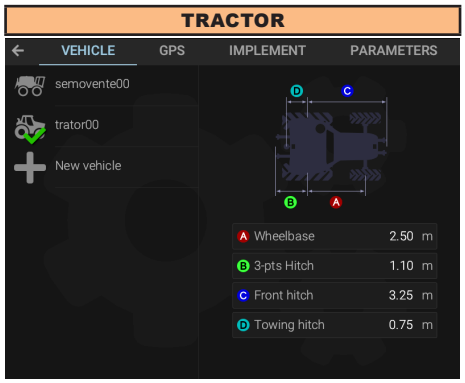



Fig. 41

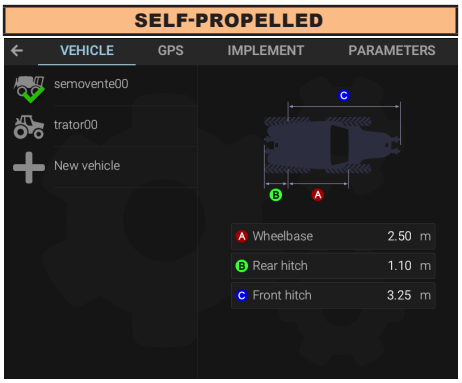



Fig. 42

Select and enter, one by one, all values.

## 8.3 Configuration > GPS

Press **Type** to select the GPS data source:
**None**: There is no receiver in the system. If you select this option, the TC and Navigator functions are NOT available.
**Demo**: a preset route is played back for demonstration purposes (par. 8.3.1).
**Simulator**: the monitor allows you to simulate a GPS route using the on-screen controls (par. 8.3.2).
**NMEA**: all GPS receivers with NMEA183 protocol and with the following features (par. 8.3.3):

- 10 Hz GGA message; latitude and longitude coordinates with at least 6 decimal digits.
- 10 Hz VTG message.
- 0.1 Hz ZDA message.
- Serial port 57600 / 19200 / 115200 bps, n, 8, 1.

**Detect**: the monitor recognizes the connected GPS receiver among those available in the ARAG catalog, configures it and shows the relevant menus (par. 8.3.4).

**ARAG SHALL NOT ACCEPT ANY LIABILITY DUE TO ANY FAILURE OR MALFUNCTION CAUSED BY THE CONNECTION OF RECEIVERS NOT SUPPLIED BY ARAG.**

### 8.3.1 Configuration > GPS > Demo

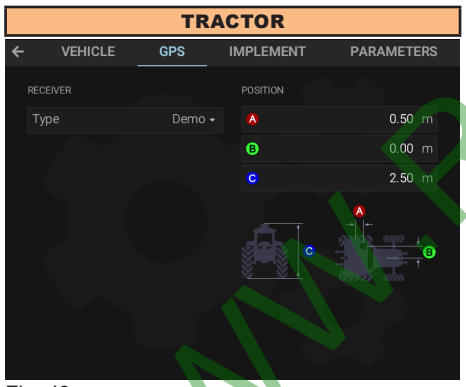



Fig. 43

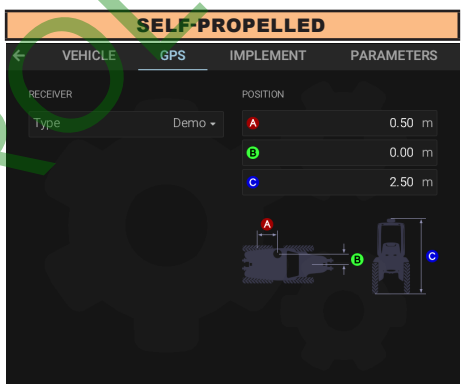



Fig. 44

**POSITION**

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 43 - Fig. 44).
Select and enter, one by one, all values.

### 8.3.2 Configuration > GPS > Simulator

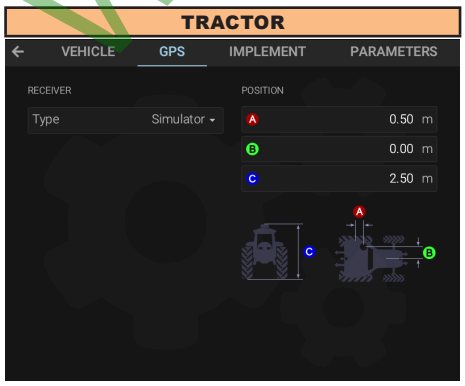



Fig. 45

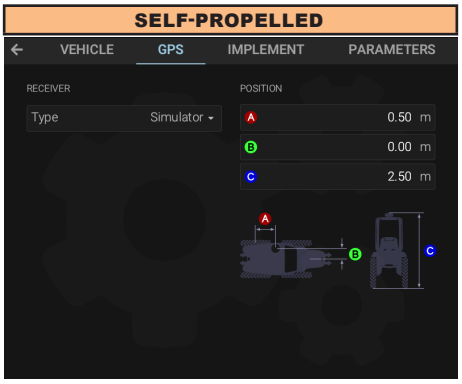



Fig. 46

**POSITION**

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 45 - Fig. 46).
Select and enter, one by one, all values.

### 8.3.3 Configuration > GPS > NMEA

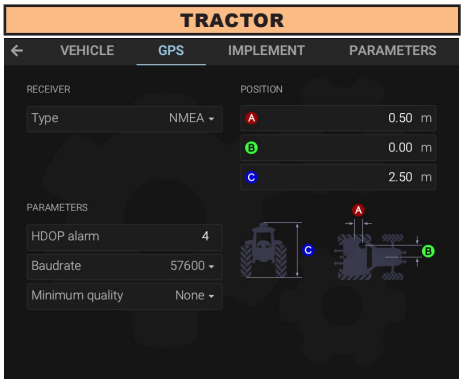



Fig. 47

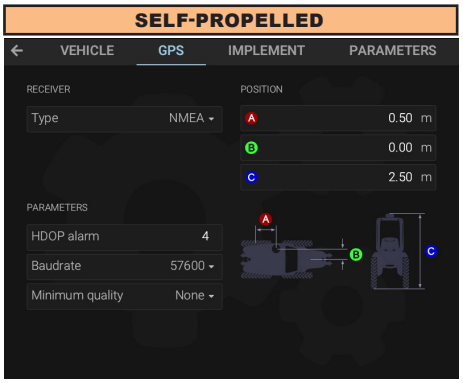



Fig. 48

**POSITION**

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 47 - Fig. 48).
Select and enter, one by one, all values.

**PARAMETERS**

**HDOP alarm**
"HDOP" is the parameter with which the position and number of satellites in space affect the positional precision of the system (longitude and latitude); the lower the value, the higher is the guidance precision. The precision alarm is triggered when the value of HDOP measured by the GPS receiver is above the set limit. **We recommend NOT to set values above 4.0.**

**Baudrate**
Available options:
**57600**
**19200**
**115200**

**Minimum quality**
Allows selecting the minimum accuracy level requested for the GPS signal.

**- None**: no check is made on the signal accuracy level.

**- SBAS**: the accuracy level is checked by displaying an alarm if it is below the SBAS differential correction.
The SBAS differential correction signal is free of charge and available only in some areas of the world. This signal allows to obtain a more accurate spraying.

**WARNING: this function may be used only in Europe (EGNOS), USA (WAAS) and Japan (MSAS).**

*CONTINUES > > >*

### 8.3.4 Configuration > GPS > Detect

**The items in this menu depend on the basic settings (chap. 7) and on the features of the receiver connected. The connection of ARAG receivers, models Smart Ag - Ag Star - Smart 6 - Atlas, entails a pairing procedure assigning to the monitor ONLY the suitable setup menus.**

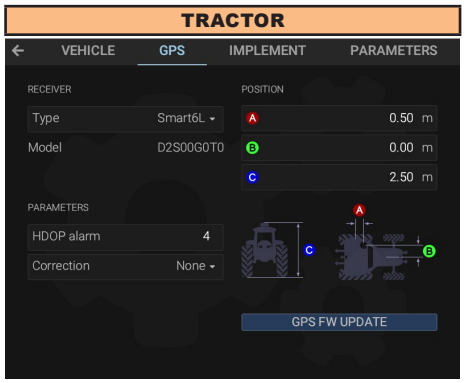



Fig. 49

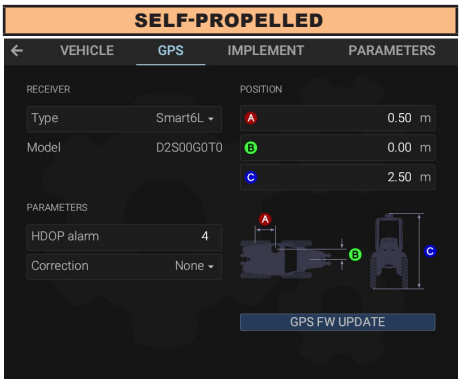



Fig. 50

**POSITION**

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 49 - Fig. 50).
Select and enter, one by one, all values.

**PARAMETERS**

**HDOP alarm**
"HDOP" is the parameter with which the position and number of satellites in space affect the positional precision of the system (longitude and latitude); the lower the value, the higher is the guidance precision. The precision alarm is triggered when the value of HDOP measured by the GPS receiver is above the set limit. **We recommend NOT to set values above 4.0.**

**Correction**
Allows selecting the differential correction function:
**- None**
**Corrections disabled**

**- SBAS**
**DGPS correction enabled:**
The SBAS differential correction signal is free of charge and available only in some areas of the world. This signal allows to obtain a more accurate spraying.

**WARNING: this function may be used only in Europe (EGNOS), USA (WAAS) and Japan (MSAS).**

**- Terrastar-L / Terrastar-C (ONLY for the preset receiver):**
Terrastar is a privately-owned company supplying differential correction signals all over the world via satellite.
The GPS receiver must be preset to receive this type of signal. Service is available at a fee which depends on the type of accuracy required and time of use.

**- Terrastar-L - SBAS / Terrastar-C - SBAS :**
This option allows enabling the SBAS correction in case the Terrastar (L or C) correction is temporarily unavailable.

**ROLL COMPENSATION (Only available for 6t smart receivers)**

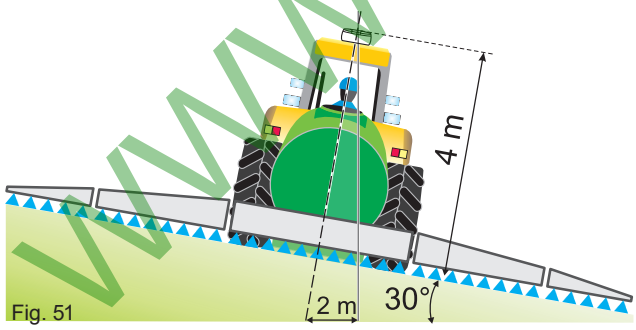



Fig. 51

Allows to enable/disable the tilt compensation function of the vehicle (*with antenna only. See ARAG catalog*).

The monitor can set off any measurement errors due to ground inclination. On steep slopes the error can reach 2 m / 6.5 ft.

### 8.3.5 GPS FIRMWARE UPDATE (SMART receivers only)

Allows updating the GPS receiver if the used receiver (Smart series) is not updated to the version compatible with the guidance monitor.

Select **GPS FW UPDATE** and confirm to update the detected GPS receiver.
Once the update is completed, the monitor will restart.

## 8.4 Configuration > IMPLEMENT

It allows selecting how you want to enter implement geometry measurements.

### 8.4.1 Configuration > IMPLEMENT > Type > ISOBUS

The monitor retrieves implement geometry information directly from the control unit.

### 8.4.2 UNPAIR CONTROL UNIT

By pressing this key the monitor unpairs the tractor from the ECU and is ready to accept and store a new ECU.

Delta80t stores the connected ECU during the first configuration and considers it as the main ECU; if it is replaced with another one it is necessary to unpair it.
The monitor will consider the new ECU as the main ECU.

### 8.4.3 Configuration > IMPLEMENT > Type > NONE

Select this option if you do not want to use the Navigation and TC functions.
To use the two functions it is essential to enter the implement geometry.

### 8.4.4 Configuration > IMPLEMENT > Type > CUSTOM

Select this mode if the attached implement is not operated by an ISOBUS ECU.
The TC function will not be available in this case.
Configure the implement geometry according to the selected implement **Type** as shown in the figures (Fig. 52 - Fig. 53 - Fig. 57 - Fig. 62):

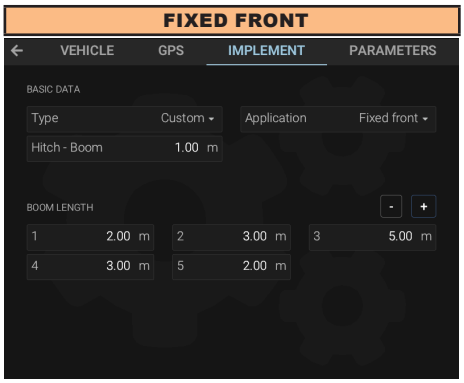



Fig. 52

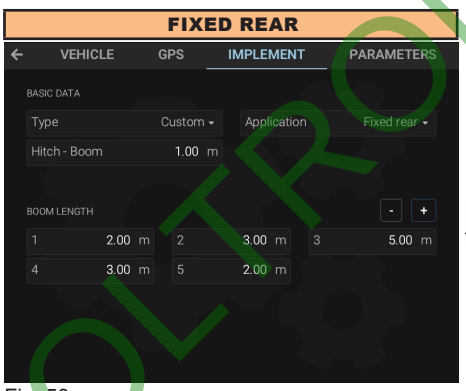



Fig. 53

Enter the required measurements according to the selected implement **Type**.

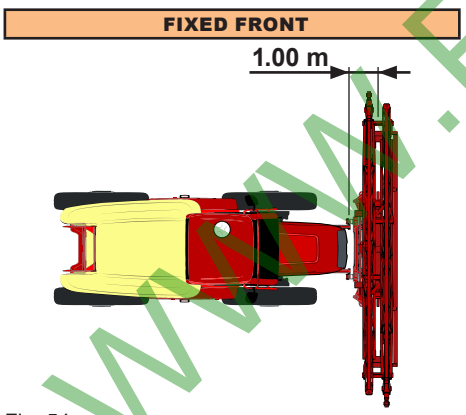



Fig. 54

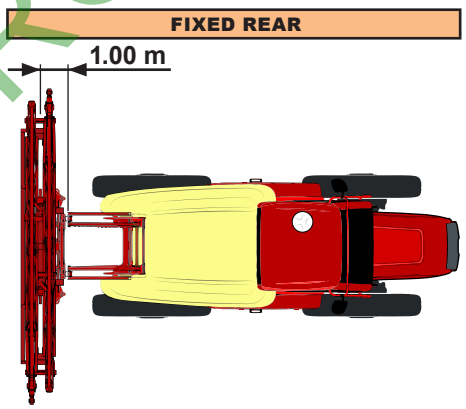



Fig. 55

**HITCH - BOOM**

- Enter the measurement between the connection point of the boom and the point of application (Fig. 54) (Fig. 55).


Fig. 56

**BOOM LENGTH**

- Enter the measurements of the implement sections (Fig. 56).
- Press the ✚ symbol to increase the number of sections or the ▬ symbol to decrease the number of sections.
- Select and enter, one by one, all sections.

CONTINUES > > >

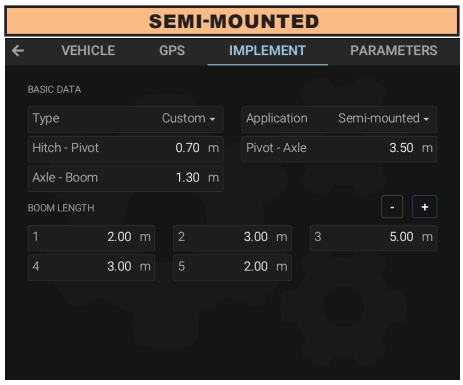



Fig. 57

Enter the required measurements according to the selected implement **Type**.

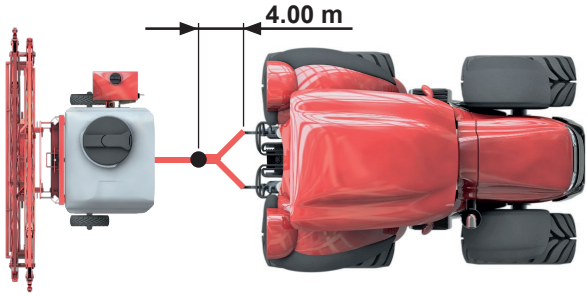



Fig. 58

### HITCH - JOINT

Enter the measurement between the connection point and the joint (Fig. 58).

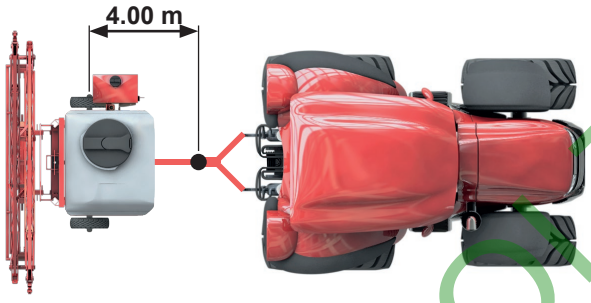



Fig. 59

### JOINT - AXLE

Enter the measurement between the joint and the rear axle (Fig. 59).

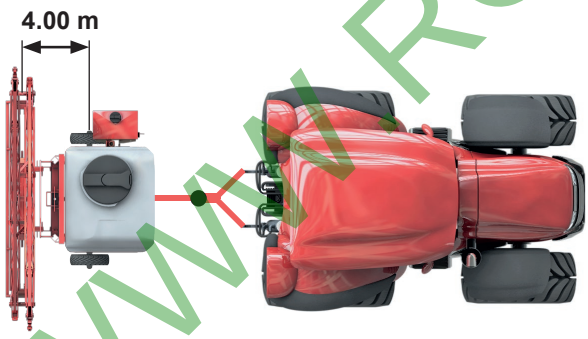



Fig. 60

### AXLE - BOOM

Enter the measurement between the rear axle and the point of application (Fig. 60).


Fig. 61

### BOOM LENGTH

- Enter the measurements of the implement sections (Fig. 61).
- Press the ✚ symbol to increase the number of sections or the ▬ symbol to decrease the number of sections.
- Select and enter, one by one, all sections.

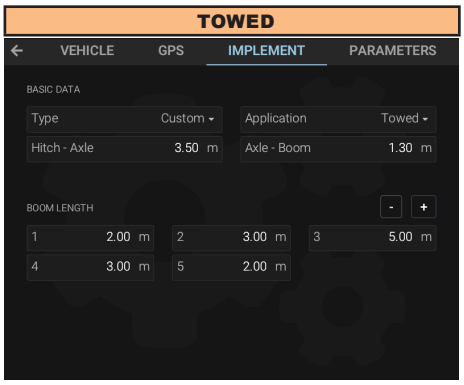



Fig. 62

Enter the required measurements according to the selected implement **Type**.

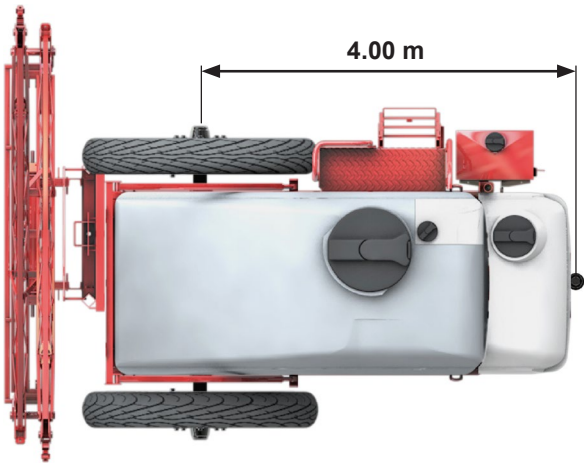



Fig. 63

### HITCH - AXLE

Enter the measurement between the connection point and the rear axle (Fig. 63).

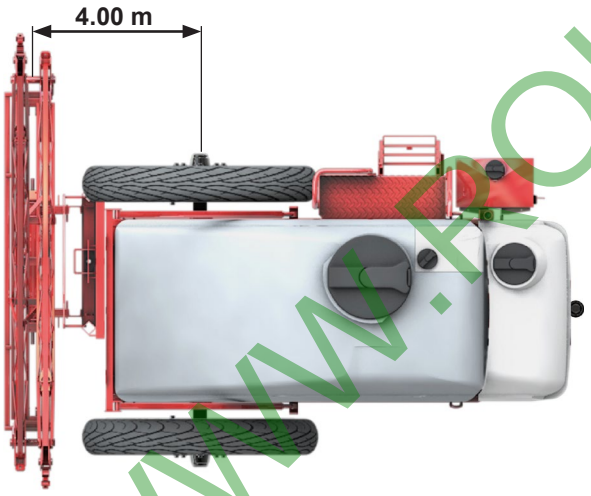



Fig. 64

### AXLE - BOOM

Enter the measurement between the rear axle and the point of application Fig. 64).


Fig. 65

### BOOM LENGTH

- Enter the measurements of the implement sections (Fig. 65).
- Press the ✚ symbol to increase the number of sections or the ▬ symbol to decrease the number of sections.
- Select and enter, one by one, all sections.

## 8.5 Configuration > PARAMETERS

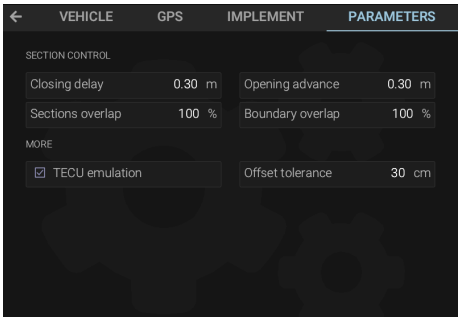



Fig. 66

It allows setting advanced monitor parameters.

### 8.5.1 Configuration > PARAMETERS > Closing delay

Indicate the distance corresponding to the delayed closing of sections during spraying, to ensure correct spraying range.

*NOTE: Negative values indicate that sections are closed in advance with respect to the calculated point.*

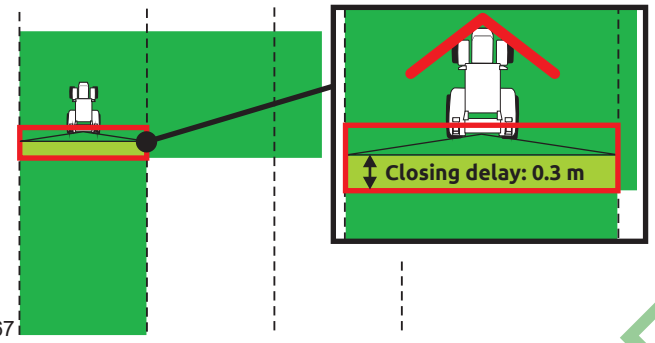



Fig. 67

### 8.5.2 Configuration > PARAMETERS > Opening advance

Indicate the distance corresponding to the advanced opening of sections during spraying, to ensure correct spraying range.

*NOTE: Negative values indicate that section opening is delayed with respect to the calculated point.*

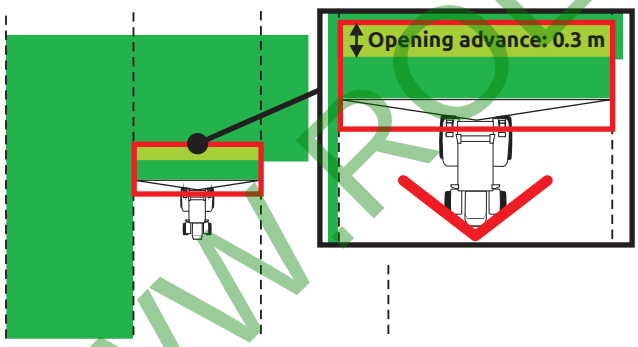
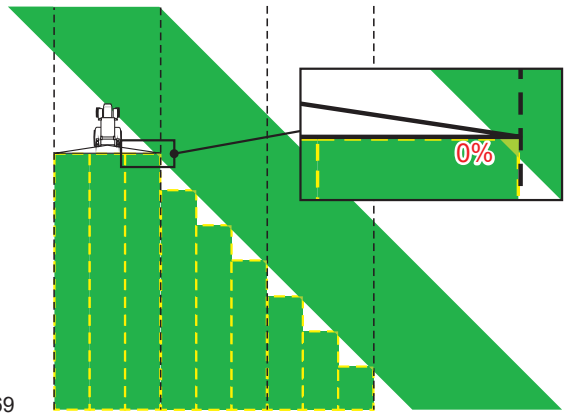
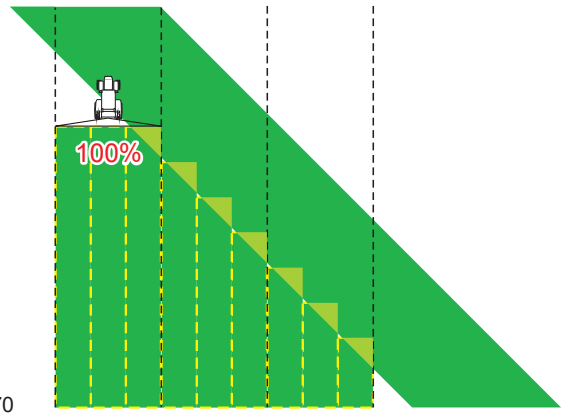



Fig. 68

### 8.5.3 Configuration > PARAMETERS > Sections overlap

Set the acceptable threshold for overlapping of already-sprayed areas. When this value is exceeded, the monitor restores the correct spraying: depending on the section management mode enabled (par. 17.2.3), the monitor will indicate to set to OFF the sections concerned or it will act on the sections automatically.

| Sections overlap 0% | Sections overlap 100% |
|---|---|
|  |  |
| Fig. 69 | Fig. 70 |

### 8.5.4 Configuration > PARAMETERS > Boundary overlap

Set the acceptable threshold for overlapping of spraying with respect to field perimeter.
When this value is exceeded, the monitor restores the correct spraying:
depending on the section management mode enabled (par. 17.2.3), the monitor will notify the operator that the sections spraying outside the field boundaries must be ON / OFF or it will act on the sections in automatic mode.

**The following conditions are required in order to use this setup:**
**- Drawing the field perimeter (red line in the figures) using the Area (par. 17.2.3) function.**
**- Enabling automatic section management: the icon on the guidance screen indicates that automatic management is enabled.**

| Boundary overlap limit 0% | Boundary overlap limit 100% |
|---|---|
| *The section ON/OFF alert will be displayed following a minimum overlapping (0%) across the field perimeter.* | *The section ON/OFF alert will be displayed ONLY when the machine is spraying across the entire field perimeter (100%).* |

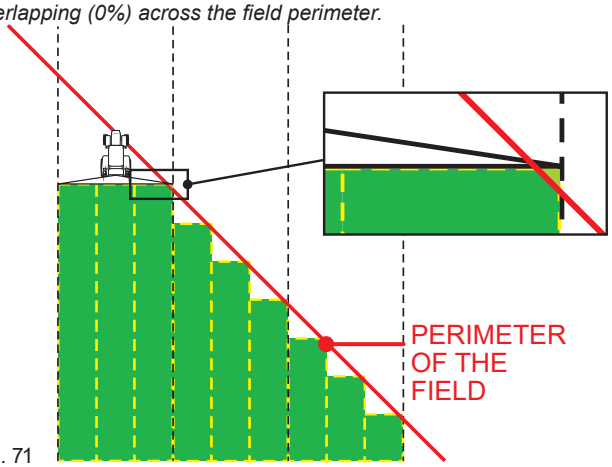


Fig. 71

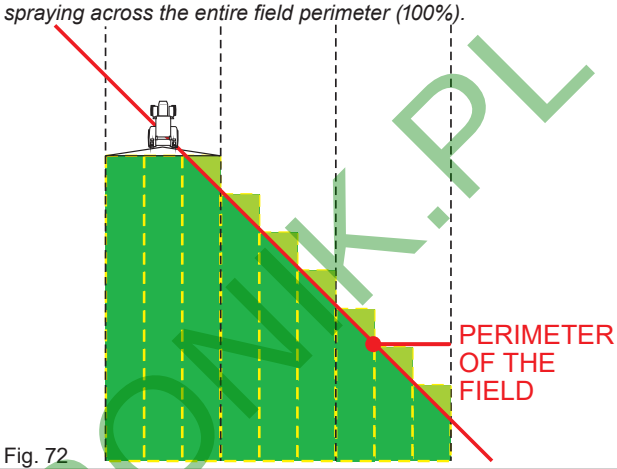


Fig. 72

### 8.5.5 Configuration > PARAMETERS > TECU emulation

**☑ TECU emulation**
Activated option: The monitor reproduces the operation of a Tractor ECU.
Some features of a Tractor ECU:
- correct management of the connected ECU power supply; the monitor will wait for the ECU to save the data correctly before cutting off the power to the implement;
- the monitor detects the status of the auxiliary function “spraying enabling input” and sends it to the connected ECU;
- the monitor sends the forward speed data, calculated by the GPS receiver, to the connected ECU.

**☐ TECU emulation**
Disabled option.

### 8.5.6 Configuration > PARAMETERS > Offset tolerance

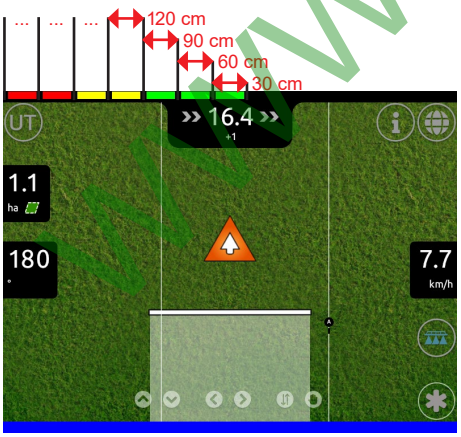


Fig. 73

The deviation of the machine compared to the reference line is represented by the LED bar at the side (guidance screen).
Each LED ON indicates an offset value corresponding to the one set in item **Offset tolerance** (for ex.: 30 cm).

By following the example, the LEDs come on progressively whenever the deviation reaches a multiple of 30 cm

# 9 MAPS

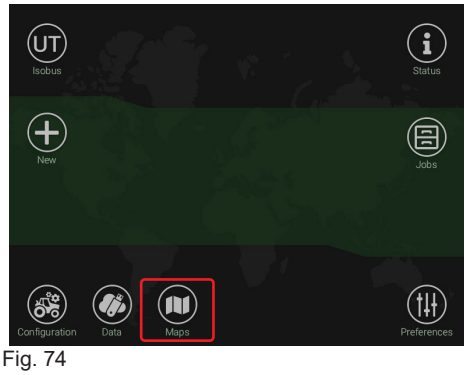


Fig. 74

This menu allows previewing the loaded prescription maps (par. 13.1).
It is also possible to delete one or more maps.

## 9.1 Displaying maps preview

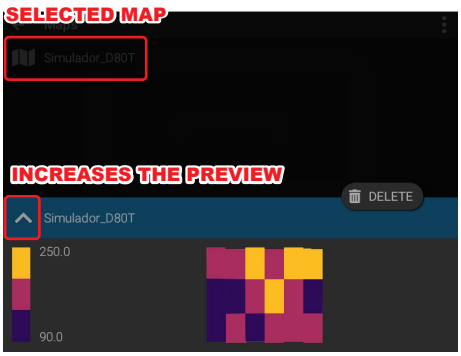


Fig. 75

Fig. 76

## 9.2 Deleting the maps

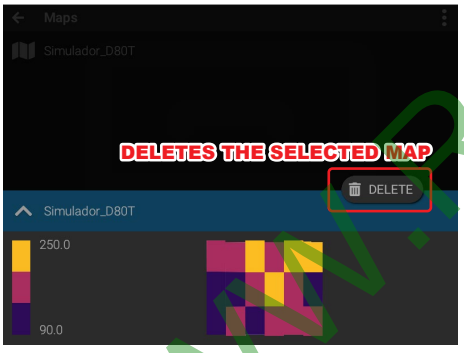


Fig. 77

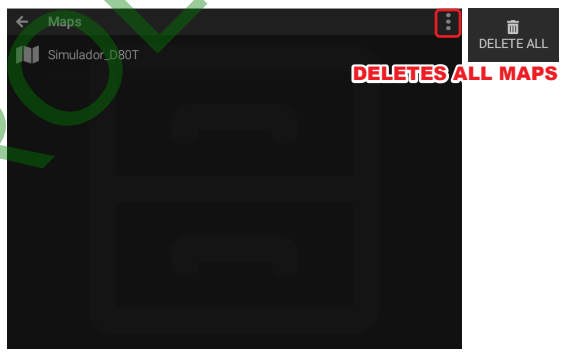


Fig. 78

# 10 PREFERENCES

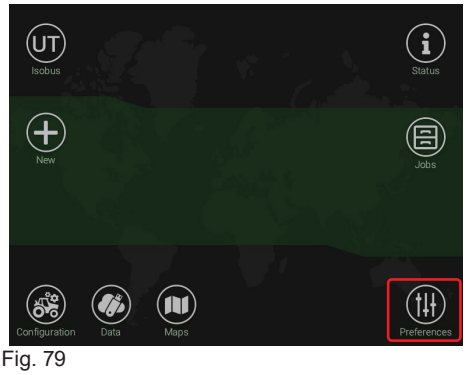


Fig. 79

This menu allows defining the system preferences of the monitor.

## 10.1 Preferences > LOCALIZATION

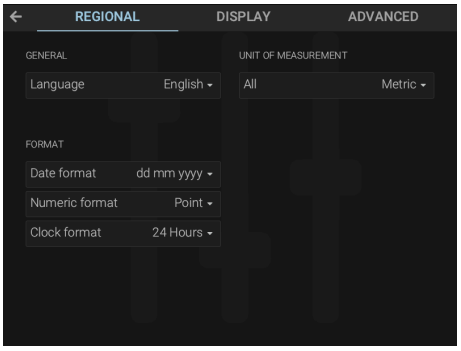


Fig. 80

**Language**
The language is selected during the first start (chapter 5) but can be changed from the available options:
**Italiano**, **English**, **Español**, **Português**, **Français**, **Deutsch**.

**Units of measurem.**
Select the system unit of measurement: **Metric** (km/h, l/ha, l/min, bar, etc.), **US** (MPH, GPA, GPM, PSI, etc.), **Imperial** (MPH, GPK, GPM, PSI, etc.).

**Date format**
Select the date format:
**dd** indicates the day
**mm** indicates the month
**yyyy** indicates the year

**Numeric format**
Select the decimal separator character: **Comma**, **Point**.

**Clock format**
Select the monitor time display format: **24 Hours**, **AM/PM**.

## 10.2 Preferences > DISPLAY

Fig. 81

It allows adjusting the intensity of sounds, monitor brightness and UT zoom.

◀ It decreases brightness / volume
▶ It increases brightness / volume

### 10.2.1 Preferences > DISPLAY > VOLUME

It allows adjusting the intensity of the sounds emitted by the monitor for the available options:

**Touch**
It adjusts the volume of the tone emitted each time the touch screen is touched.

**Notifications**
It adjusts the volume of acoustic notification alerts.

**Isobus alarms**
It adjusts the volume of alarms from connected ISOBUS ECUs.

**Alarms reminder**
It selects the time interval between the first sound alarm and subsequent reminders.

*CONTINUES > > >*

### 10.2.2 Preferences > DISPLAY > BRIGHTNESS

It allows adjusting the brightness intensity for the available options:

**Navigation**
It adjusts the brightness during GPS navigation.

**Menu**
It adjusts the brightness of menus.

**☑ Inactive dimming**
Activated option: Delta80t reduces brightness after 4 minutes of inactivity.

**Inactive**
It adjusts the monitor brightness when it remains inactive for more than 4 minutes (ONLY if the ☑ **Inactive dimming** option is enabled).

### 10.2.3 Preferences > DISPLAY > UT (Universal Terminal)

**☑ Zoom UT**
Activated option: The UT screen is larger than the standard screen.

## 10.3 Preferences > ADVANCED

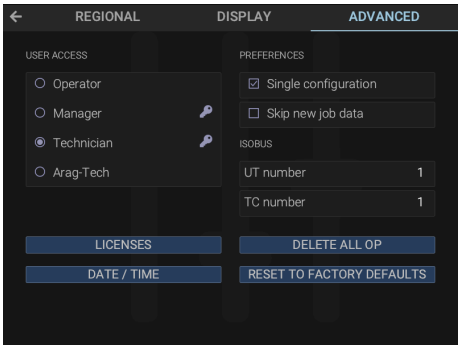



Fig. 82

It allows setting the user access level and password.

**Operator**
It inhibits any type of setting except monitor preferences (par. 10.2).

**Manager**
It inhibits the setting of some advanced preferences options: you can set an access PIN.

**Technician**
It allows configuring all monitor parameters: you can set an access PIN.

**ARAG-Tech**
Reserved to ARAG personnel.

### 10.3.1 Preferences > ADVANCED > Entering the PIN (Manager and Technician)

- Press 🔑, located beside the user level for which you want to enter the PIN.

The monitor displays the PIN entry page:

**New PIN**
- Enter the PIN (5 digits).

**Repeat PIN**
- Enter it again to confirm.

- Press **CONFIRM** to activate the entered PIN or **CANCEL** to interrupt the operation.

### 10.3.2 Preferences > ADVANCED > Deleting the PIN (Manager and Technician)

- Press 🔑, located beside the user level for which you want to delete the PIN.

The monitor displays the PIN entry page:

**New PIN**
- Enter 00000 as new PIN.

**Repeat PIN**
- Enter 00000 again to confirm the deletion of the PIN code.

- Press **CONFIRM** to complete the PIN deletion or **CANCEL** to interrupt the operation.

### 10.3.3 Preferences > ADVANCED > PREFERENCES

**☑ Single configuration**
Activated option: in the **Configuration** menu the monitor directly displays the configuration setting screen (par. 7.1).
ONLY one tractor-implement combination can be configured.
When this option is deactivated several tractor-implement combinations can be configured.

**☑ Skip new job data**
Activated option: On the **Home > New** screen the monitor goes directly to the spraying screen (Fig. 119).
The function that allows importing **Job name**, **Boundary map**, **Guidance patterns**, **Pause point** and **Applied area map** from other jobs is disabled.

*CONTINUES > > >*

### 10.3.4 Preferences > ADVANCED > ISOBUS

These parameters allow setting the address to which the UT and TC respond on the ISOBUS channel.

This option is useful in case there are two VTs on the same system and therefore it is necessary to uniquely identify UT and TC for the ISOBUS ECUs they interface with.

**UT number**
It allows defining the instance with which UT is presented on the ISOBUS (Editable Number).

**TC number**
It allows defining the instance with which TC is presented on the ISOBUS (Editable Number).

### 10.3.5 LICENSES

It allows viewing or entering the license numbers of:
**Universal Terminal**
**Navigation**
**Task Controller Isobus**

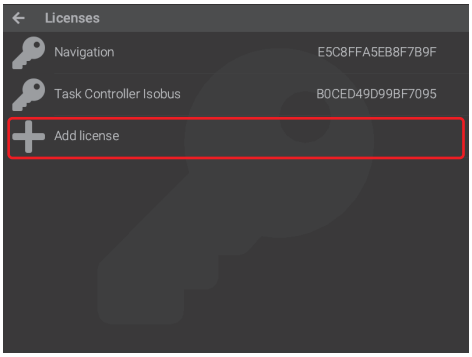


Fig. 83

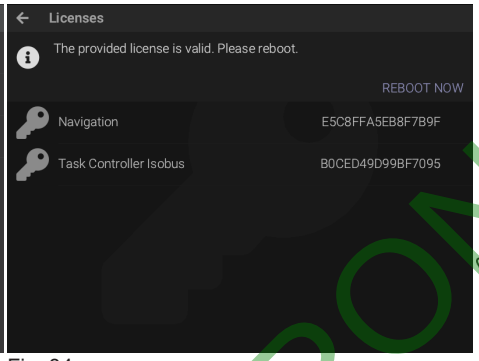


Fig. 84

**ADD LICENSE**

- Press **Add license**.
- Enter the license code and confirm ✔.

If the license is valid, the following message will be displayed: **The entered license is valid. Reboot the device.**
- Press **REBOOT NOW**: The monitor will restart.

**IF THE MONITOR DOES NOT DISPLAY THE MESSAGE: The entered license is valid. Reboot the device. MAKE SURE THE ENTERED CODE IS CORRECT.**

### 10.3.6 DATE / TIME

It allows setting the date and time of the monitor.

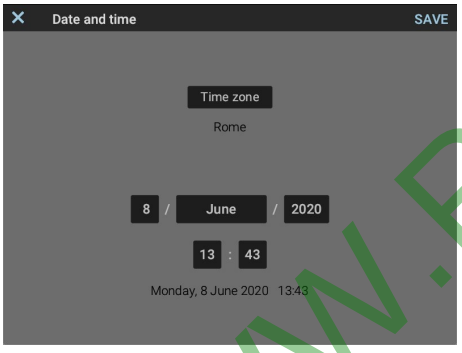


Fig. 85

**The items displayed in this menu depend on the preferences set in the menus:**
**PREFERENCES > LOCALIZATION > Date format** (par. 10.1).
**PREFERENCES > LOCALIZATION > Time format** (par. 10.1).

**Time zone**
It allows changing the time zone set upon the first start-up (Fig. 11).

**Date**
Indicate day / month / year

**Time**
Indicate hours / minutes

**At the end of the configuration press SAVE otherwise the settings will be lost when exiting the menu.**

***White items with a black background are editable.***
***Black items with a gray background are read-only.***

### 10.3.7 DELETE ALL OP

It allows deleting all the Object Pools on the monitor.
In case of inconsistencies in the display of the OPs it is advisable to delete them from the VT memory thereby forcing their reloading.

**After confirming the deletion of the OPs with DELETE the monitor will restart.**

If there is an ISOBUS ECU connected, the monitor will automatically load the detected OP when it is turned on.

### 10.3.8 RESET TO FACTORY DEFAULTS

Restores factory default settings of the system.

**After confirming the reset with CONFIRM the monitor will restart.**
**WARNING, ALL SETTINGS WILL BE LOST**

## 11 UNIVERSAL TERMINAL (UT)

This key allows you to access the UT area where the OPs of the connected ISOBUS ECUs are displayed and to associate the auxiliary inputs with the related functions.
**TO CORRECTLY CONFIGURE THE APPLICATION OF THE OP, REFER TO THE MANUAL OF THE CONNECTED ECU.**

**THE IMAGES VARY ACCORDING TO THE OP OF THE CONNECTED ECU.**

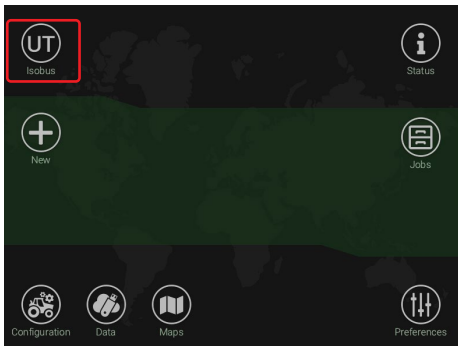


Fig. 86

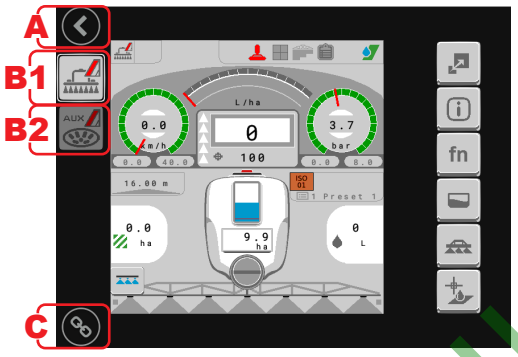


Fig. 87

**A** Allows going back to the **HOME** screen (Fig. 86)
**B1 / B2** Shows the icons of the OP applications loaded from the ECUs: **B1** displayed OP.
**C** Allows managing the assignment of the auxiliary functions to the auxiliary device inputs (e.g. Joystick, Switch box, etc.).
**FOR SPECIFICATIONS ON AUXILIARY DEVICES PLEASE REFER TO THE RELEVANT MANUALS.**

### 11.1 Associating an OP function to an auxiliary input

- Press icon **C** of the Fig. 87 (the icon background turns from dark to light ).
- Press and then the auxiliary input key you want to configure.
- Press **CONTINUE**: the monitor shows the functions that can be assigned (example Fig. 88)). Select the desired one. The auxiliary input is now associated with the function.

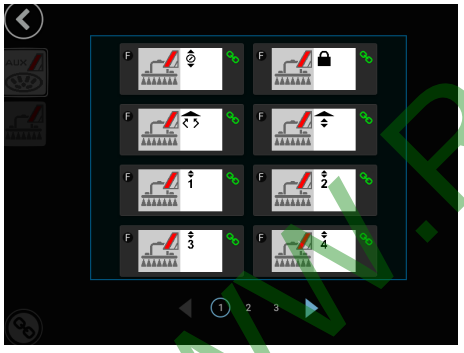


Fig. 88

### 11.2 Deleting the association of an OP function to an auxiliary input

- Press icon **C** of the Fig. 87 (the icon background turns from dark to light ).
- Press .
- Press the icon of the association you wish to delete (the icon turns red ).
- Press to confirm the deletion.

**For specifications on configuring the auxiliary control, refer to its manual.**

## 12 STATUS

This menu displays the alarms, the status of the GPS receiver and of the device.

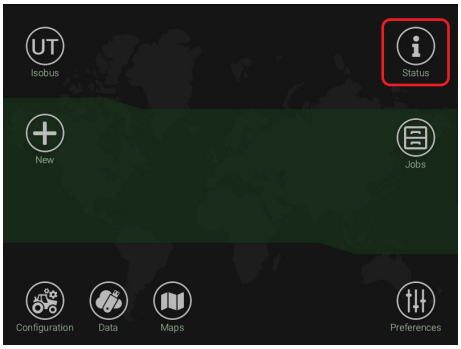



Fig. 89

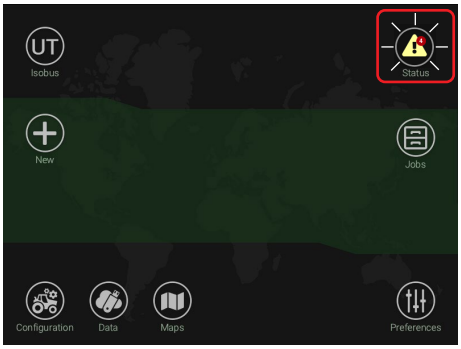



Fig. 90

**The icon changes according to whether or not there are notifications** (Fig. 89) **or alarms** (Fig. 90).

The value in the red circle indicates the number of active notifications (e.g.: ❹ Fig. 90)

### 12.1 Status > ALARMS

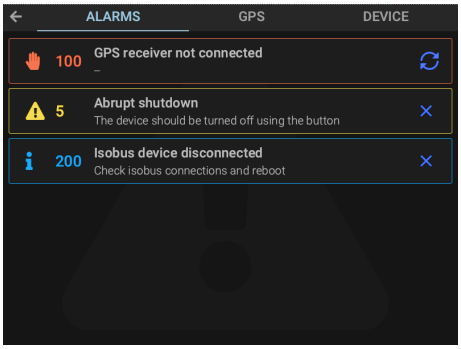



Fig. 91

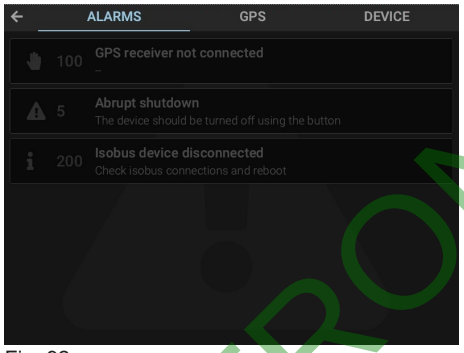



Fig. 92

Press **Status** to display the **ALARMS** menu (Fig. 91).
This screen gives an overview of the active notifications for the operator, rated by importance, in:
- Critical alarms (red)
- Low priority alarms (yellow)
- Info (light blue)

Notifications of deactivated alarms are gray (Fig. 92).

The critical alarm indicates a Software or Hardware problem.
- Press the key ⟲ to the right of the notification to restart the alarm-related Software (Fig. 91).
If the notification does not disappear, check the hardware status.

The low priority alarm or info notifications can be turned off by pressing the **X** key to the right of the notification (Fig. 91).

### 12.2 Status > GPS

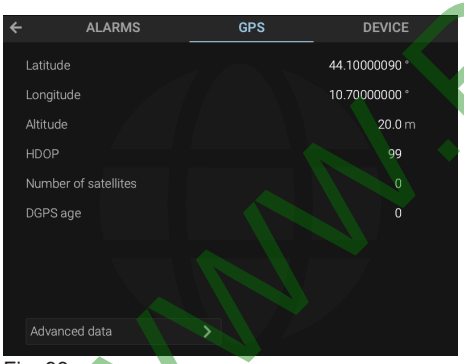



Fig. 93

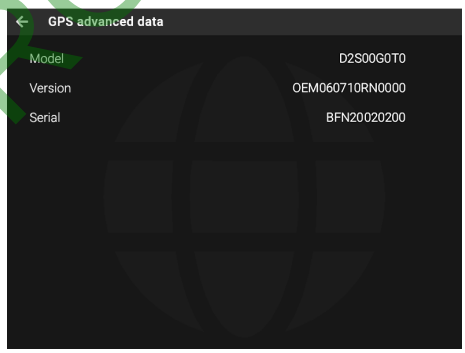



Fig. 94

This menu shows the data sent to the GPS receiver.

## 12.3 Status > DEVICE

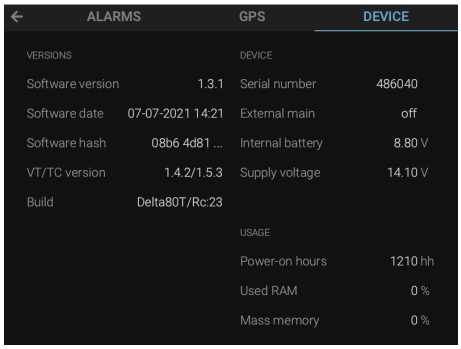



Fig. 95

This menu displays the data related to:
- the supply voltage
- the memory
- the versions of the software components of the device

## 12.4 Status > IOTBOX

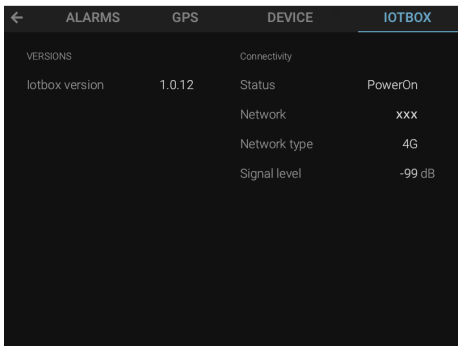



Fig. 96

This menu displays the data related to the IOTBOX control unit, if connected.

## 13 DATA

The monitor shows the **Data** menu (Fig. 98).
This menu allows performing updates, when a USB pendrive is inserted, or loading / exporting data and configurations.

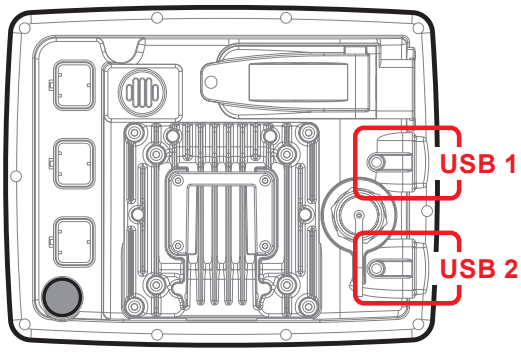


Fig. 97

Fig. 98

**IF BOTH USB PENDRIVES ARE PRESENT IN THE SLOTS, THE ORDER IN WHICH THEY ARE INSERTED DETERMINES WHICH PENDRIVE THE MONITOR WILL INTERACT WITH.**

### 13.1 Data > Import shapefile

This menu allows you to load from the USB pendrive one or more prescription maps: create a "maps" folder on the USB pendrive and insert the prescription map files (*.shp) inside it.

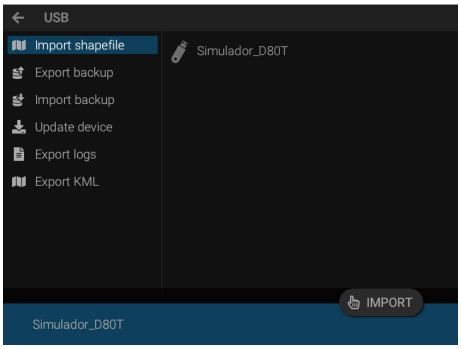


Fig. 99

- Insert a USB pendrive in the relevant slots (Fig. 97).
- Press the **Data** icon (Fig. 98).
- Select the map (Fig. 99) and press **IMPORT**. The monitor requires to confirm the import.
- A confirmation message appears once the process is completed. Press **OK**.

**WARNING: THE FILES HAVING THE SAME NAME WILL BE REPLACED.**

### 13.2 Data > Export backup

This function allows exporting a backup file to the USB pendrive that contains all the data of the jobs performed and the system configuration.

Press **Export backup** (Fig. 99) and **CONFIRM** (Fig. 100):

**THE MONITOR WILL RESTART.**
**TO ALLOW A CORRECT EXPORT, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE EXPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.**

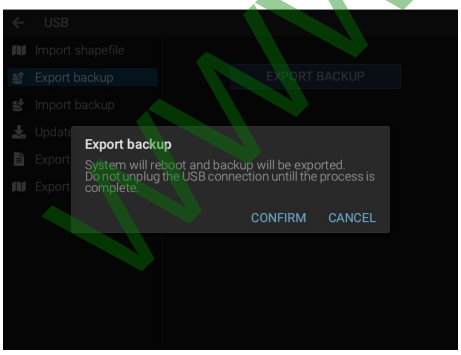


Fig. 100

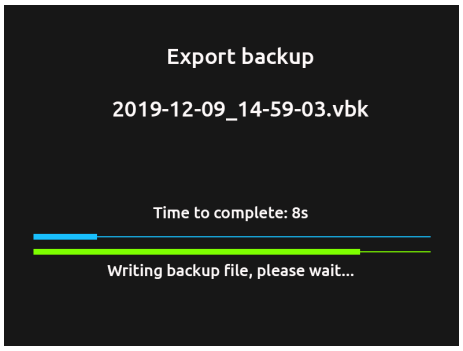


Fig. 101

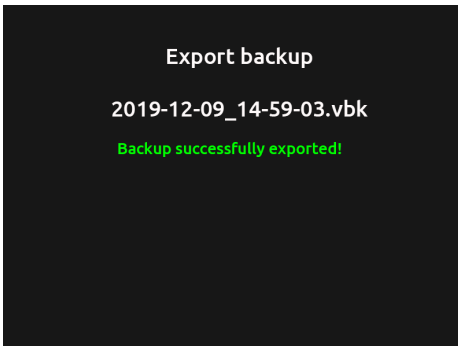


Fig. 102

CONTINUES > > >

## 13.3 Data > Import backup

This function allows importing a backup file to the monitor that contains all the data of the jobs performed and the system configuration.

**ALL DATA STORED IN THE DEVICE WILL BE DELETED**

The monitor displays the list of backups on the pendrive (Fig. 103)
- Select the file: the monitor displays the name of the selected file (Fig. 104).
- Press IMPORT (Fig. 104) and then **CONFIRM** (Fig. 105).

**THE MONITOR WILL RESTART.**
**TO ALLOW A CORRECT IMPORT, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE IMPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.**

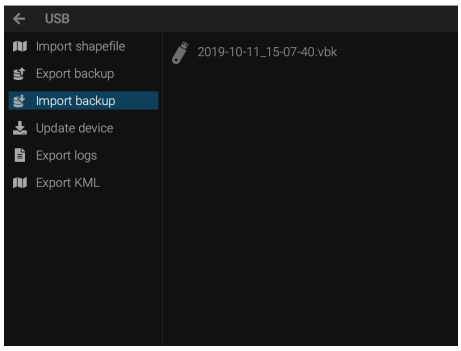


Fig. 103

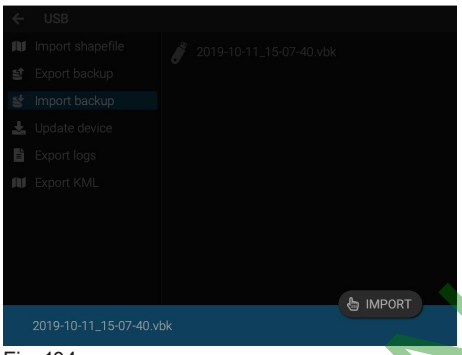


Fig. 104

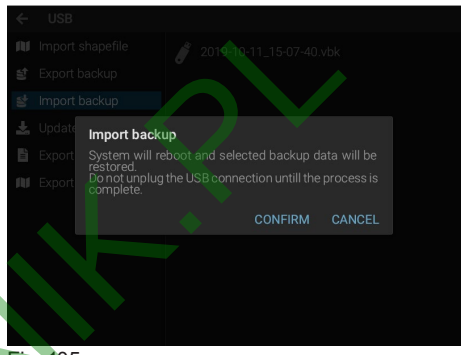


Fig. 105

*CONTINUES > > >*

## 13.4 Data > Update device

This function allows updating all ARAG ISOBUS devices connected to the Delta80t (ECU, switch box, joystick, etc.).

- Insert the pendrive in a computer.
- Create a new folder in the USB pendrive and name it **s19** (Fig. 106).
- Download the update file from *www.aragnet.com* in the section related to the product to update (download menu > software) and save it in the **s19** folder.

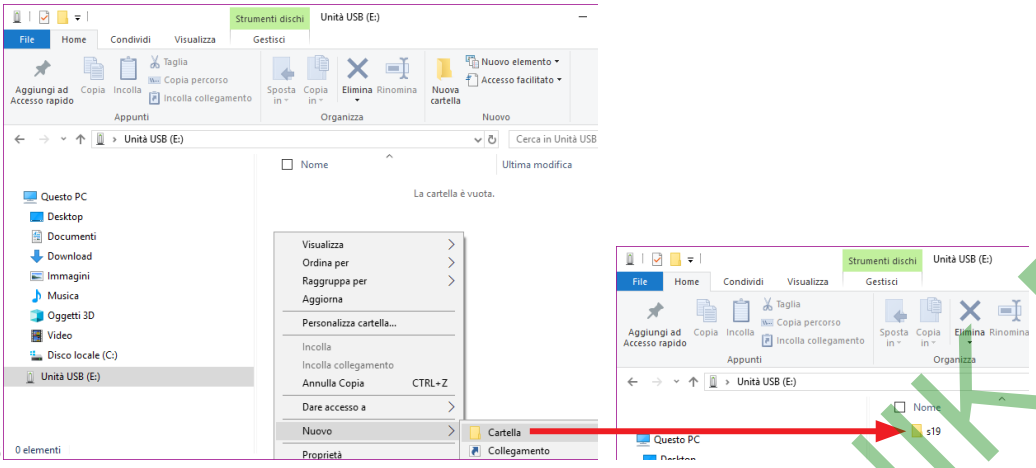



Fig. 106

- Insert the USB pendrive into the **USB 1** / **USB 2** slot (Fig. 97).
- Press the **Data** icon (Fig. 98).
- Select the file you want to use for the update (Fig. 107).
- Check that the type of update file (Fig. 108 Info) corresponds to the product to be updated and press UPDATE (Fig. 108).
- Press **Confirm** (Fig. 109). The monitor will scan the file and, if compatible, the update will start.

**ONCE THE UPDATE IS COMPLETED, THE MONITOR WILL RESTART.**
**TO ALLOW A CORRECT UPDATE, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE EXPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.**

**WARNING: IF THE FILE TYPE IS NOT COMPATIBLE, THE MONITOR WILL NOT PERFORM THE UPDATE.**

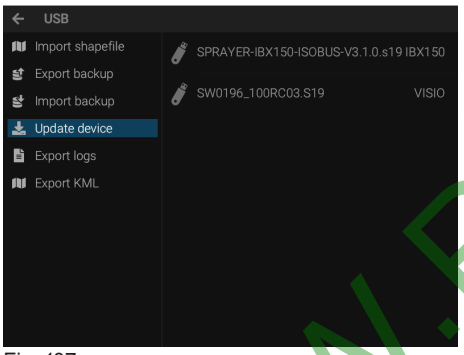



Fig. 107

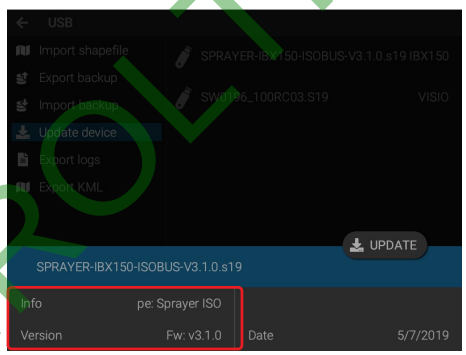



Fig. 108

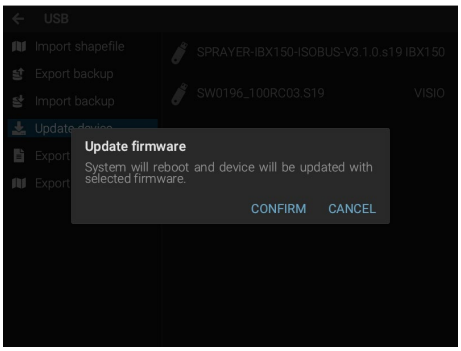



Fig. 109

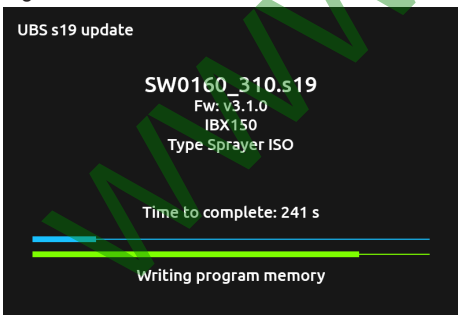



Fig. 110


Fig. 111

*CONTINUES > > >*

## 13.5 Data > Export logs

This function allows exporting recorded data from the system (events, spraying data, GPS and diagnostic data) in the selected time period:
**Today**

**Last 2 days**

**Last week**

**Everything**

**By run Id**: it is the identification number of each switching on.
Edit the Run Id number you intend to export.
To view the current Run Id number, hold the switching off key until Fig. 113 is displayed.

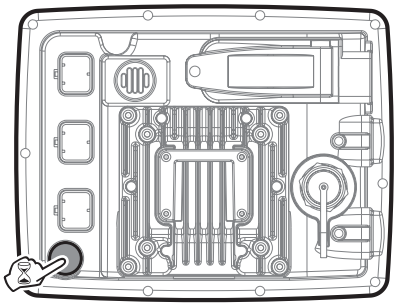


Fig. 112

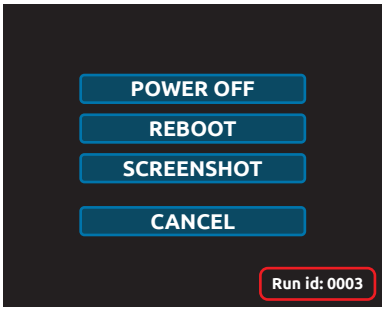



Fig. 113

Depending on the settings set in the **LOG TIME SPAN** menu, press **EXPORT LOG**: the monitor will export the selected time span on the USB pendrive.

## 13.6 Data > Export KML

Allows exporting in KML format all the jobs currently saved inside the internal memory and saving them on the USB Pendrive.
Data in the file can be displayed on a Personal Computer with Google Earth®.

Press **Export KML** (Fig. 114) and **CONFIRM** (Fig. 115): a confirmation message appears once the export is completed. Press **OK**.
The map is saved on the USB pendrive, inside a folder named "kml".

**TO ALLOW A CORRECT EXPORT, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE EXPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.**

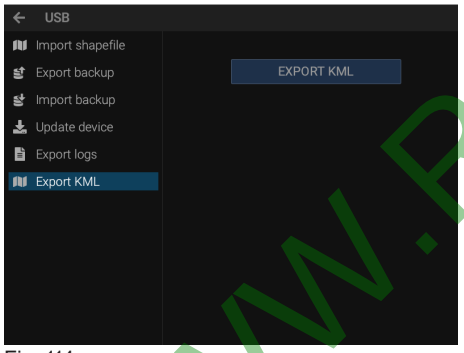



Fig. 114

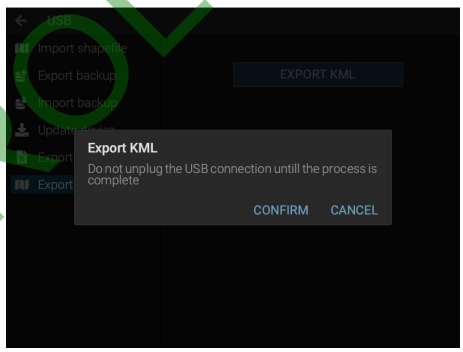



Fig. 115

# 14 JOB MANAGEMENT

## 14.1 New job

Press this icon to access the job page (chap. 6 on page 9).

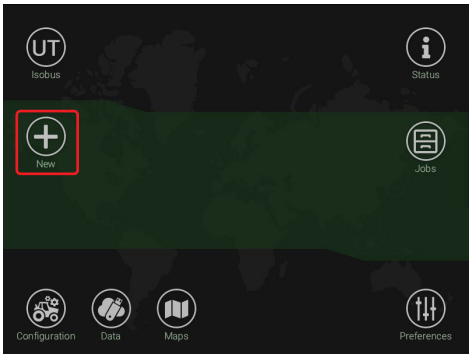



Fig. 116

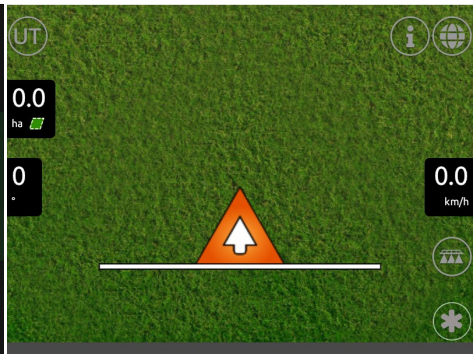



Fig. 117

When **Skip new job data** is enabled, in the **Home** > **Preferences** > **ADVANCED** menu, by pressing the icon the monitor will access directly to the job page.

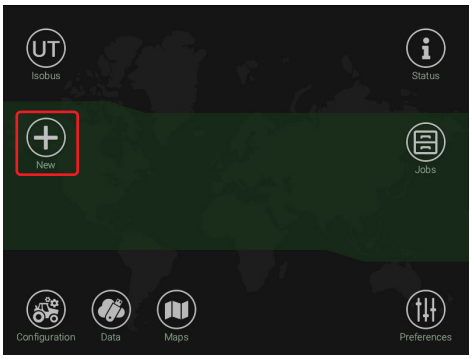



Fig. 118

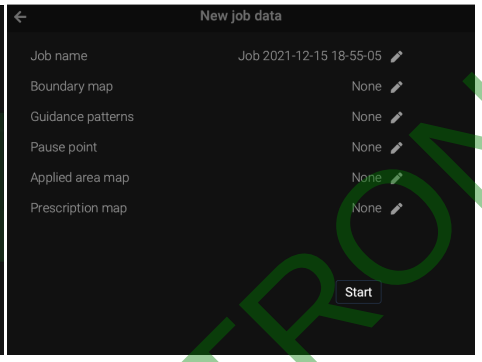



Fig. 119

When **Skip new job data** is not enabled, the system allows entering or importing some data (Fig. 119) before accessing the job page.

By pressing the symbol next to each item it is possible to:
- edit the job name **Job name** (par. 6.1)
- select, for each item, the job or the map from which to import the following data

**Boundary map**

**Guidance patterns**

**Pause point**

**Applied area map**

**Prescription map**

- When the settings are complete, press **Start** to start the new job (Fig. 117).

## 14.2 Continue job

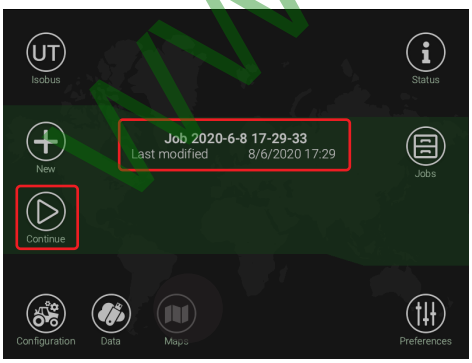



Fig. 120

- Press this icon to continue the last job performed (e.g. Job 2019-12... Fig. 120).

## 14.3 Jobs

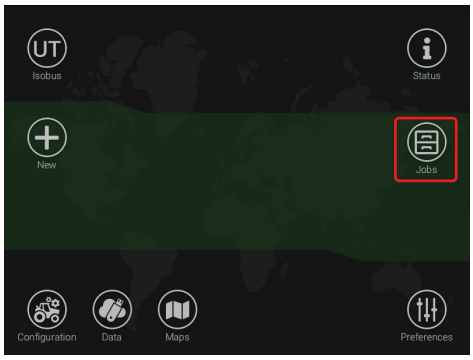



Fig. 121

- Press this icon to manage the jobs that have been performed so far.

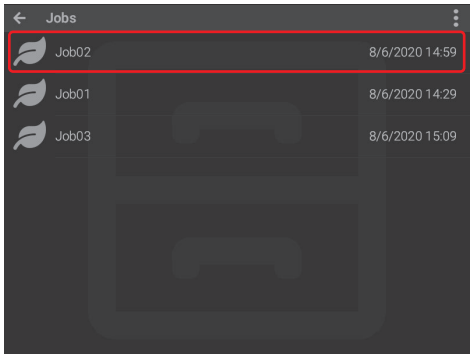



Fig. 122

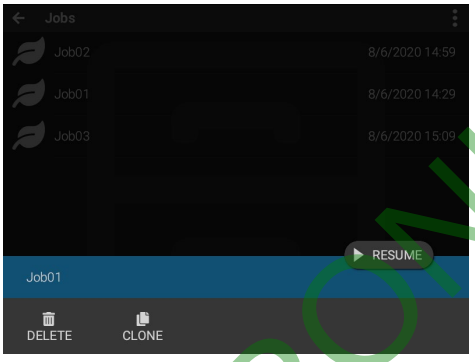



Fig. 123

Press the line of the job you want to act on (Fig. 122) and select the command you want to execute.

**DELETE**: press this item to delete the selected job.

**WARNING: THE JOB WILL BE PERMANENTLY DELETED AND YOU WILL NOT BE ABLE TO RETRIEVE IT.**

**CLONE**: press this item to duplicate the selected job. The source job remains available in the list of displayed jobs.
**RESUME**: press this item to continue with the selected job.

- Press this symbol to access the management menu for **ALL** jobs in the list:

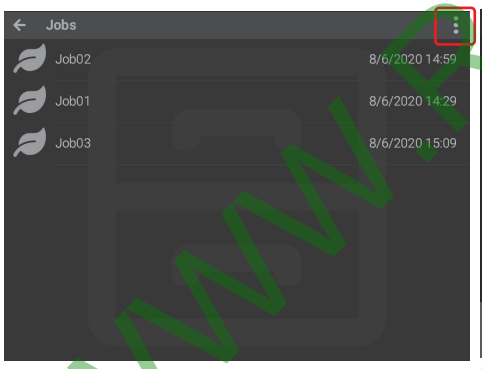



Fig. 124

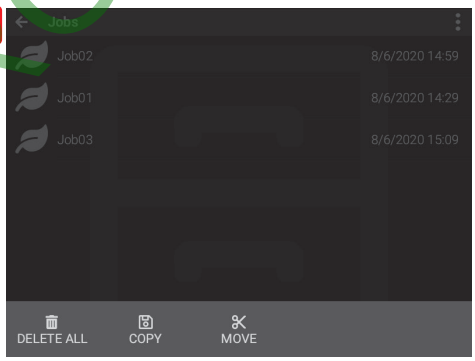



Fig. 125

**DELETE ALL**: press this item to delete all jobs in the list.

**WARNING: THE JOBS WILL BE PERMANENTLY DELETED AND YOU WILL NOT BE ABLE TO RETRIEVE THEM.**

**Options available ONLY if there is a USB pendrive (Fig. 97):**
**COPY**: press this item to copy all jobs on a USB pendrive.

**MOVE**: press this item to copy all jobs on a USB pendrive.
All jobs will be deleted from the memory of the device.

## 15 JOB SCREEN

Below is an example of a job screen with indications of the main functions.

**THE SCREENS CHANGE BASED ON THE ARAG ISOBUS CONTROL UNIT CONNECTED AND ON THE SETTINGS SELECTED IN THE Configuration MENU.**

LED bar: graphic representation of the deviation
Each LED corresponds to the value set in par. 8.5.6

Spray number: the reference line is 0, tracks to its left are negative while tracks to its right are positive.

Deviation: distance between the position of the tractor and track to follow

This symbol ⊥ next to the numbers indicates that the direction of the vehicle forms an angle greater than 85° to the track to be driven (straight line driving mode).

It gives access to the menus:
**MONITOR** 10.2
**JOB** 15.3
**ALARMS** 12.1
**GPS** 12.2

GPS signal strength:

The receiver is working correctly: the required minimum accuracy has been reached.

The accuracy has not reached the minimum set level (differential and/or HDOP correction).

The receiver does not communicate with the monitor.

View UT chap. 11:

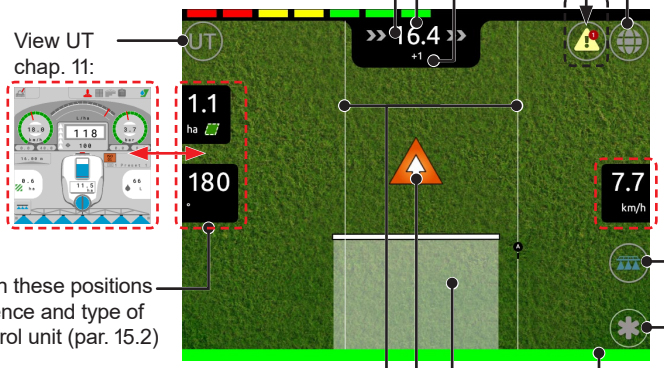



Fig. 126

The data displayed in these positions depend on the presence and type of ARAG ISOBUS control unit (par. 15.2)

Spraying ON / OFF

Function keys / Home

Covered area

Section spraying status (par. 15.1 on page 34)

Machine position

Reference tracks

### 15.1 Spraying and section status

The color of the border at the bottom of the screen determines the spraying status.

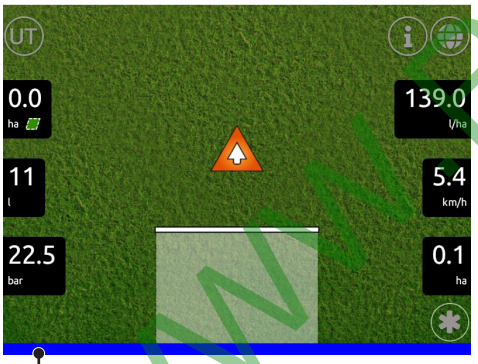



Fig. 127

Section **ON**

Section **OFF**

Zone to be sprayed.
**OPEN SECTION**

Zone already sprayed.
**CLOSE SECTION**

## 15.2 Job data

Data displayed in the job screen according to the type of ARAG ISOBUS ECU:

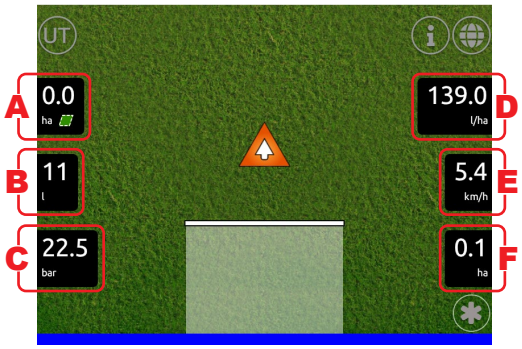


Fig. 128

### UT SPRAYER

**A** Calculated area
**B** Applied quantity
**C** Pressure
**D** Spray rate
**E** Speed
**F** Sprayed area

### UT MULTIROW

**A** Tank level
**B** Applied quantity
**C** Pressure
**D** Sprayed area
**E** Speed
**F** Working width

### UT MULTIFLOW

**A** Calculated area
**B** Applied quantity
**C** Pressure
**D** Spray rate
**E** Speed
**F** Sprayed area

### UT SPREADER

**A** Hopper level
**B** Applied quantity
**C** Calculated area
**D** Spray rate
**E** Speed
**F** Sprayed area

### UT PLANTER

**A** Granular rate 1
**B** Granular rate 2
**C** Calculated area
**D** Seeding rate
**E** Speed
**F** Sprayed area

**When no ARAG ISOBUS ECU is associated, the monitor displays only these details:**

**A** Calculated area
**B** Direction of travel
**C** - - -
**D** - - -
**E** Speed
**F** - - -

## 15.3 JOB

Displays job data:

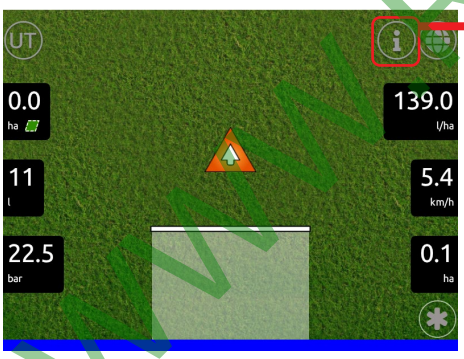


Fig. 129

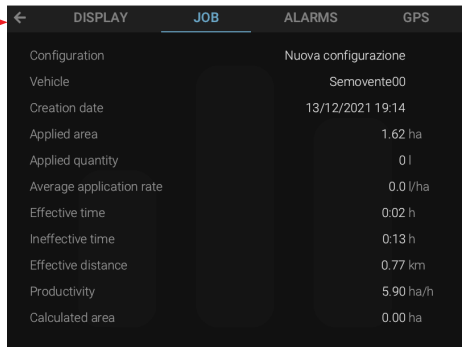


Fig. 130

## 16 SIMULATION COMMANDS

This function only serves to simulate a spraying for demonstration purposes.

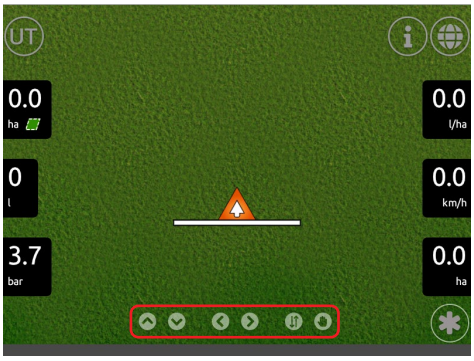



Fig. 131

These commands are present only if simulation mode is active:
**Home** > **Configuration** > **GPS** > **RECEIVER** > **Simulator**

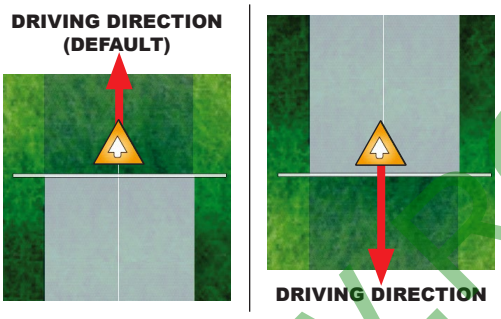
Press this icon to increase the simulated speed.

Press this icon to decrease the simulated speed.

Press this icon to steer to the left during the simulation.

Press this icon to steer to the right during the simulation.

Press this icon to reverse the driving direction during the simulation:




Press this icon to reduce the simulated speed to zero.

# 17 FUNCTION KEYS

**FUNCTION KEYS**


Fig. 132

**FUNCTION BUTTONS WITH ACTIVE PRESCRIPTION MAP**


Fig. 133

**THE BUTTONS CHANGE BASED ON THE SETTINGS SELECTED IN THE Configuration MENU.**

From the job screen, press this icon to open and close the function key menu.

## 17.1 HOME

Press this icon to go back to the Home screen (Fig. 3).

## 17.2 TC FUNCTIONS (SUBMENU)

Press this icon to display the TC functions of the submenu, which is active when a prescription map is selected at the start of the job (Fig. 133).

### 17.2.1 Displaying the prescription map

This button is displayed only if an ISOBUS control unit with the variable application function is connected and correctly configured.

Press this icon to turn the prescription map display on or off.

### 17.2.2 Variable application

This button is displayed only if an ISOBUS control unit with the variable application function is connected and correctly configured.

**ON** **OFF**

Press this icon to turn the variable application on or off.

### 17.2.3 Section automatic control (TC-SC)

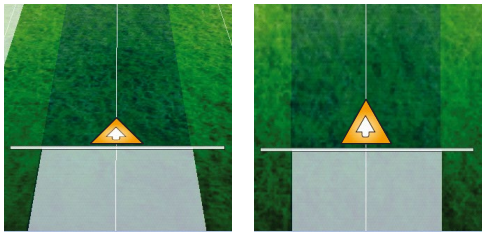
This key is displayed only when an ISOBUS control unit with TC-SC function is connected and correctly configured.

Press this icon to turn automatic section control on or off.

| AUTOMATIC CONTROL ON | AUTOMATIC CONTROL OFF (MANUAL) |
|---|---|
|  The spraying of the single section is interrupted or resumes automatically. |  It is necessary to intervene manually to interrupt or resume spraying of the individual section. |

## 17.3 3D - 2D display mode

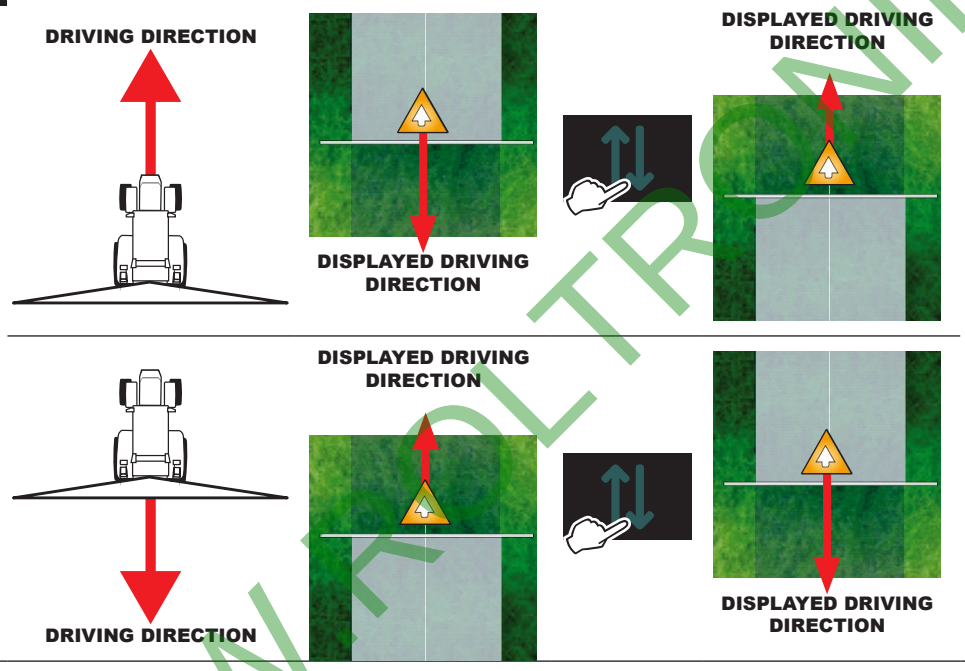
Press this icon to switch between 3D (default) and 2D display mode and vice versa.



3D DISPLAY MODE (DEFAULT) 2D DISPLAY MODE

## 17.4 Displaying the driving direction

The monitor determines the driving direction using the data provided by the GPS receiver.
If the driving direction is not determined correctly, you can press this key to reverse the displayed direction.



## 17.5 Marking the pause point and return to point

The function allows marking a point where you want to stop the spraying and then return to it later.

When you are close to the spraying breaking point, press this key to memorize its position:
The marked point will be indicated by the symbol .

Press this key to return to the pause point.
The monitor will show the direction to follow to approach the previously marked point.
The display shows in fuchsia the distance between the vehicle's position and the breaking point (fuchsia line and numbers Fig. 134).

Press this key to remove the pause point marked before.

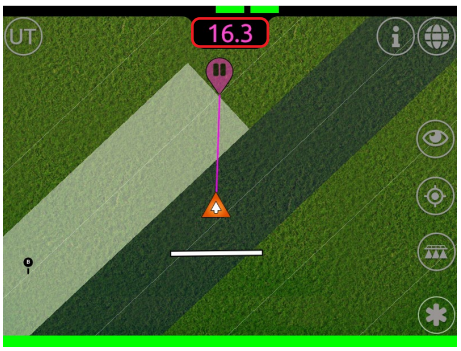



Fig. 134

**The monitor can mark ONLY ONE pause POINT:**
**every time a point is marked, the previous one will be deleted.**

*CONTINUES > > >*

## 17.6 Area

Press this icon to enable the procedure to calculate field surface area by driving along its perimeter.

- Press the corresponding icon to the side of the machine to use as a reference to define the field perimeter.
- The display will show a white line that marks the field perimeter (Fig. 135 / Fig. 136 / Fig. 137 / Fig. 138).
- Drive along the perimeter of the field whose area you want to calculate.

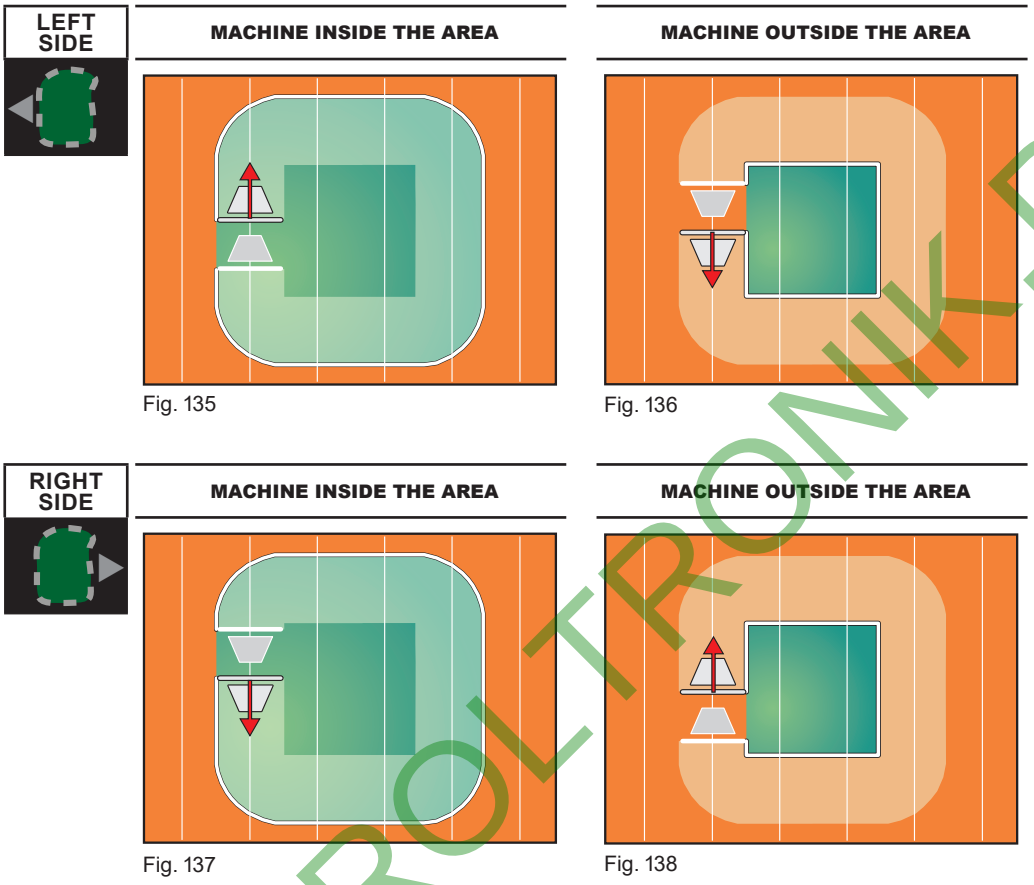



Fig. 135 Fig. 136

Fig. 137 Fig. 138

**WARNING: TO CORRECTLY SELECT THE SIDE (LEFT OR RIGHT) THAT WILL BE USED AS THE FIELD PERIMETER it is necessary TO ACTIVATE THE SPRAYING.**
**OTHERWISE THE monitor WILL USE THE MACHINE CENTER AS REFERENCE.**

While driving around the perimeter, you can perform these operations using the keys below:

Pause: you can use this function when you need to make detours or maneuvers while the perimeter marking is in progress, but you do not want them to be included (e.g. at an obstacle or at the end of the field). With this function activated, the edge of the field will no longer be drawn.

After pressing pause, press this icon to resume drawing the edge of the field.

Cancel: use this function to delete the perimeter drawn so far.

Approaching the starting point of the perimeter marking you can press the key below to finish the operation:

Confirm and complete the perimeter drawn so far: the monitor will connect the start and end points and calculate the internal area.

### 17.6.1 Adding or removing areas

This function allows adding or removing areas to a field whose perimeter had been previously defined.

Press this icon to start the procedure that allows adding or removing areas to those previously defined.
The following icons will be displayed:

Press the corresponding icon to the side of the machine to use as a reference to add other areas to the job field.


**MACHINE OUTSIDE THE ADDED AREA**

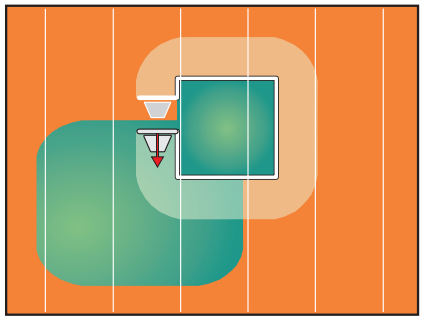


Fig. 139

**MACHINE INSIDE THE ADDED AREA**

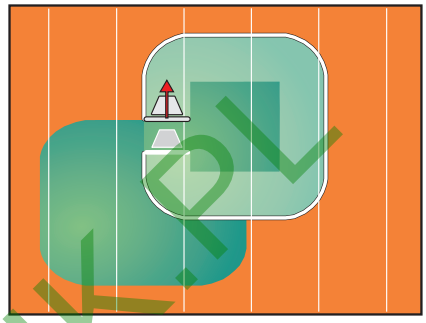
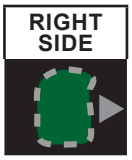


Fig. 140




**MACHINE OUTSIDE THE ADDED AREA**

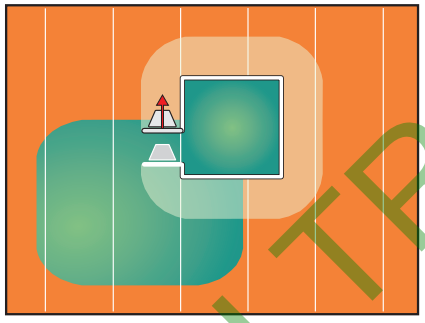


Fig. 141

**MACHINE INSIDE THE ADDED AREA**

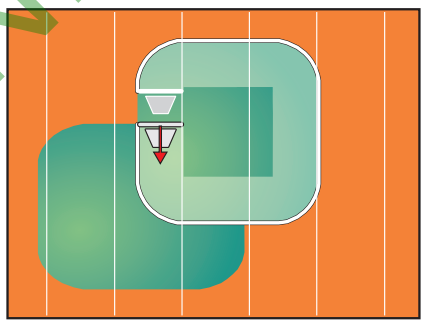


Fig. 142

Press the corresponding icon to the side of the machine to use as a reference to remove other areas from the job field.


**MACHINE OUTSIDE THE REMOVED AREA**

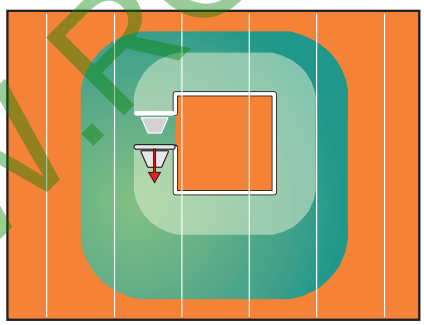


Fig. 143

**MACHINE INSIDE THE REMOVED AREA**

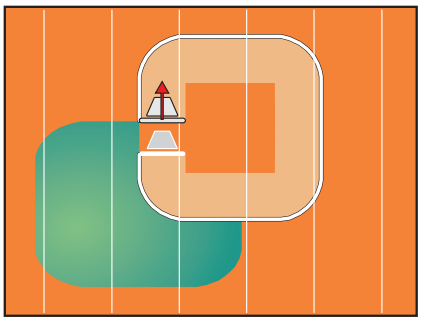


Fig. 144


**MACHINE OUTSIDE THE REMOVED AREA**

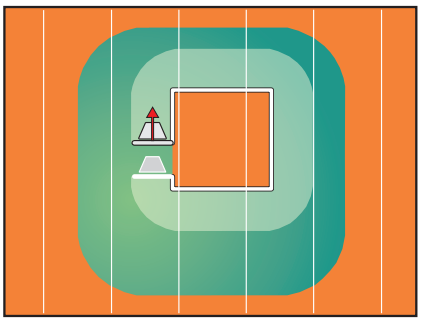


Fig. 145

**MACHINE INSIDE THE REMOVED AREA**

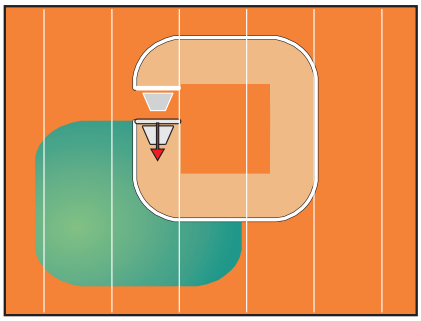


Fig. 146

### 17.6.2 Delete areas

Press this icon to delete all areas defined so far.

## 17.7 Guidance mode

By using this key, you can select the type of reference line you want to follow to spray the field

Press this icon to enter the driving mode selection menu.

Press this icon to select the **STRAIGHT DRIVING MODE**

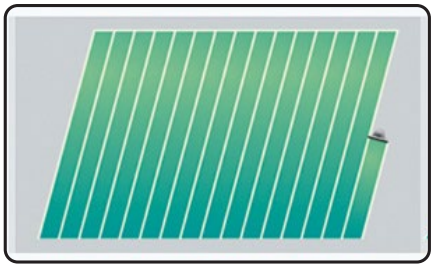


Fig. 147

The tracks appearing on the display, which will act as a guidance reference, are perfectly straight and parallel to the reference line joining points A and B as previously marked (par. 17.7.1).
Upon creation of the reference track, any bends in the trajectory between A and B will be ignored.

Press this icon to select the **CURVED DRIVING MODE**

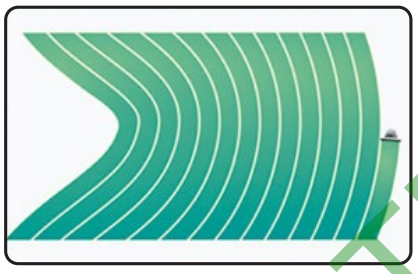


Fig. 148

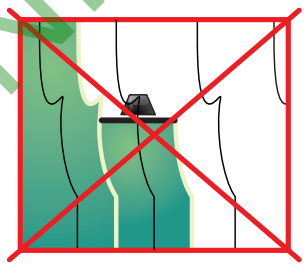


Fig. 149

The tracks appearing on the display, which will act as a guidance reference, include portions that are not straight, but do not include sharp bends (Fig. 149).
The trajectory between A and B ( par. 17.7.1) will be saved and the monitor will create evenly distributed tracks.

Press this icon to select the **PIVOT DRIVING MODE**

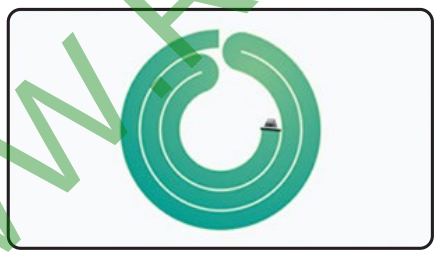


Fig. 150

Specific mode for spraying of field with movable pivots.
The circular trajectory between A and B (par. 17.7.1) will be saved and the monitor will create evenly distributed and concentric tracks.

CONTINUES > > >

### 17.7.1 Marking points A and B

After selecting the driving mode it is necessary to drive through the section of the field you want to use as a reference.
Save the points A and B that define the beginning and end of this section. The monitor uses these points to create a T0 (Fig. 156) line that will serve as a reference track for the current spraying.
This operation is essential for the monitor to guide you, during the spraying, on tracks parallel and equidistant to the reference track obtained by marking the points A and B.

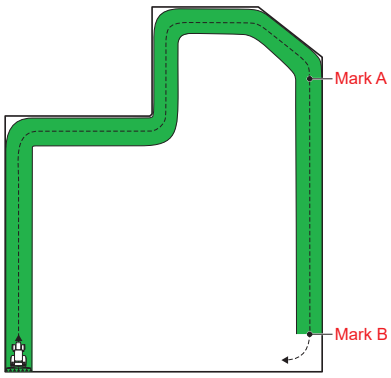


Fig. 151

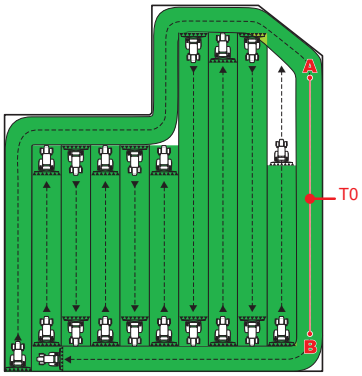


Fig. 152

**We recommend marking points A and B while the machine is moving, at both ends of a straight line that is as long as possible: the longer the line marked by points A and B, the lower the error caused by any deviations of the machine itself.**

**WARNING:**
**POINTS A AND B CAN BE MARKED ONLY WHEN THE VEHICLE IS MOVING.**

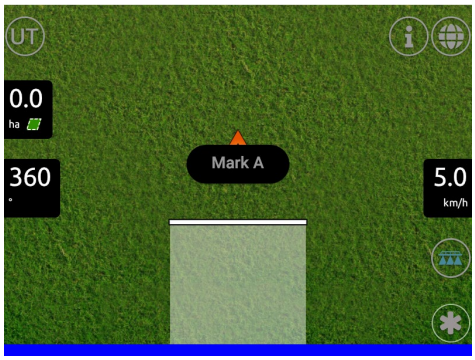


Fig. 153

Get to the point A which defines the beginning of the reference section, and press **Mark A**.

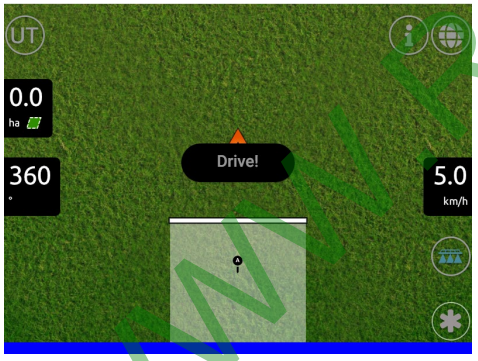


Fig. 154

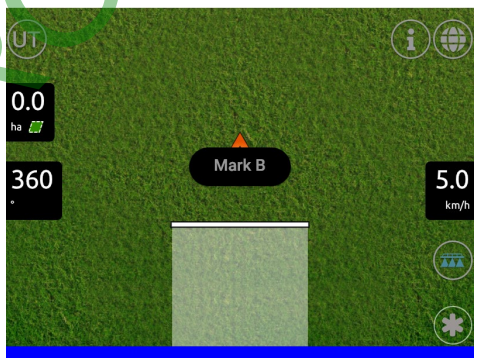


Fig. 155

- The display shows the message **Drive!**.
- Drive through the previously set reference section and press **Mark B**: you must travel a minimum distance of (30 m / 95.5 ft) to mark the point B.

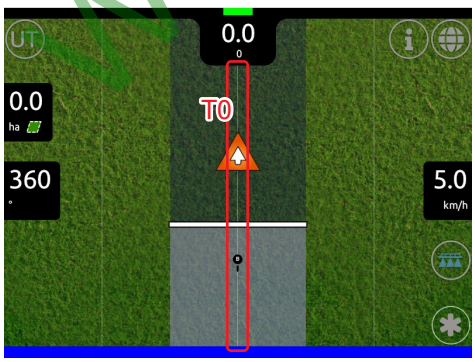


Fig. 156

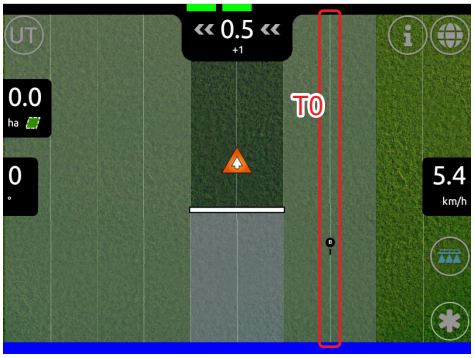


Fig. 157

- The reference track T0 and the tracks to be followed during the job will appear on the display.

Once the straight line A / B (T0) has been marked, it will be possible to spray the entire field along lines equidistant from this one (Fig. 157) by following the reference tracks shown on the display.

CONTINUES > > >

### 17.7.2 Adding, deleting and selecting the reference tracks

Delta80t allows managing multiple guidance patterns.
This menu allows storing, selecting or deleting reference tracks.

| | |
|---|---|
| | Press this icon again to manage the tracks.<br>Some of the following icons are only available if you have already stored a reference track: |
| | **THIS ICON DELETES THE REFERENCE TRACK CURRENTLY DISPLAYED.**<br>**WARNING: IT IS NOT POSSIBLE TO RECOVER THE TRACK AFTER DELETION.** |
| | Press this icon to add a job reference track to the one previously marked in straight driving mode. |
| | Press this icon to add a job reference track to the one previously marked in curved driving mode. |
| | Press this icon to add a job reference track to the one previously marked in pivot driving mode. |
| | Press this icon to select the desired reference track (scrolls in descending order of storage). |
| | Press this icon to select the desired reference track (scrolls in descending order of storage). |

| | |
|---|---|
| | Moves the nearest reference track (A in Fig. 158), realigning it to the position where the machine is, at the center of the tractor: all other reference tracks move accordingly. After the alignment, the deviation value becomes zero (Fig. 152 / Fig. 158). This function is useful when you need to re-align the machine, whilst continuing to drive in the same direction (for example, for corn, sugar cane). |

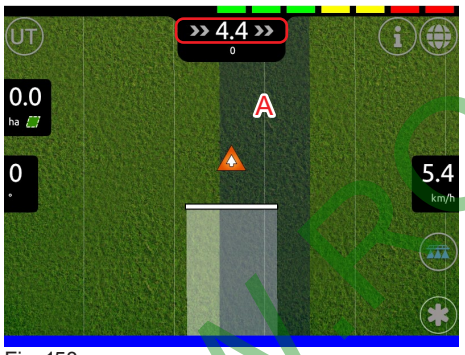


Fig. 158

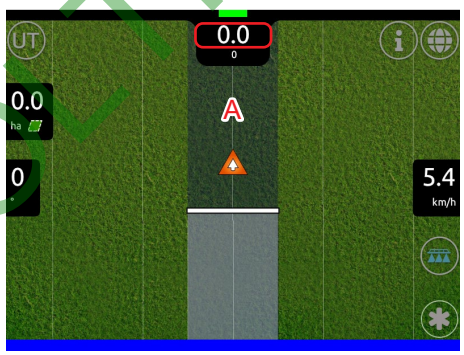


Fig. 159

**Once this function has been used, it is not possible to restore the original reference track position.**

## 18 ZOOM FUNCTIONS

Delta80t is a touch screen device that allows enlarging or reducing the job screen zoom by finger movements:

Do this with your fingertips to get a more detailed view of the job area (zoom in).

Do this with your fingertips to get a wider view of the job area (zoom out).

If you zoom out the job area beyond a certain level, the displayed screen will look like this:

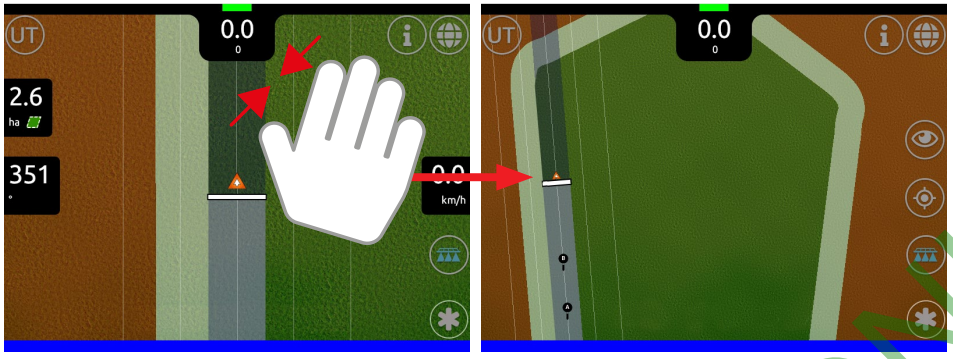



Fig. 160

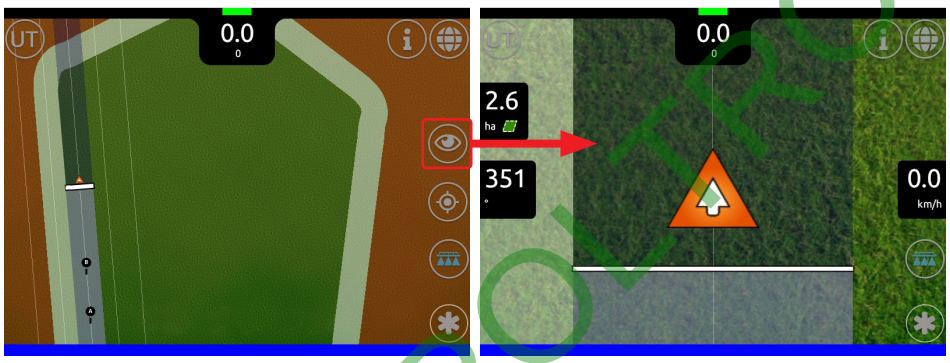



Fig. 161

It brings the position indicator of the machine to the center of the screen, setting the zoom level back to the base level.

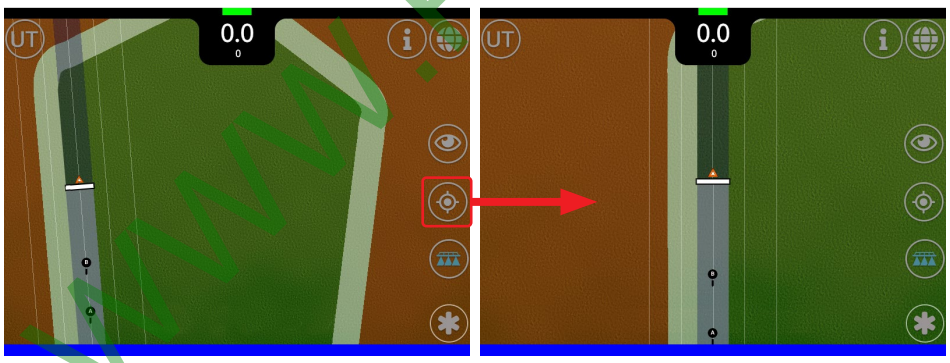



Fig. 162

It brings the position indicator of the machine to the center of the screen, by keeping the current zoom level.

## 19 DEVICE UPDATE

The following operations allow updating the Delta80t software.

- Download the update file from the website: www.aragnet.com (Download section).

- Insert a USB pendrive in the computer.

- Copy the file previously downloaded from the site to the USB pendrive.
**WARNING: save files in the main directory of the USB pendrive. Otherwise the system will not be able to read it.**


Fig. 163

- **Turn off the Delta80t.**

- Insert the pendrive into one of the two slots on the VT.

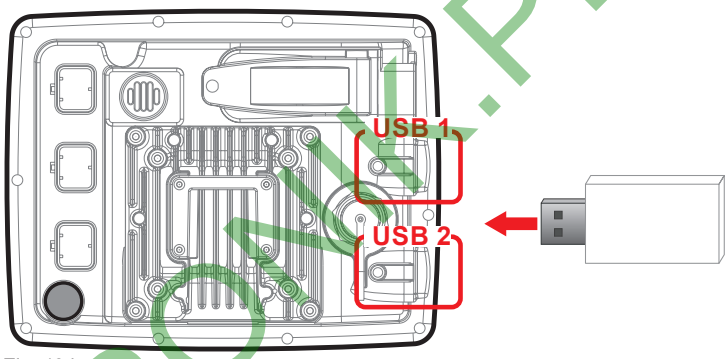



Fig. 164

- Press and hold the switching on key **for about 7 seconds and release** it: the device will beep first and then a **double beep** will start the update.

**WARNING: to start the bypass procedure it is essential to wait for the two beeps close together (double beep) and release the key.**

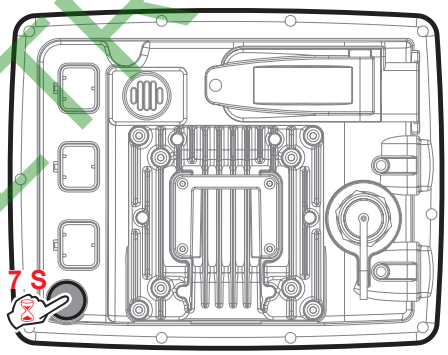



Fig. 165

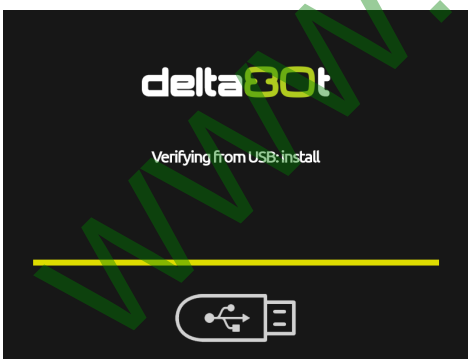



Fig. 166

Upon switching on, the VT will check data and start installation.

**WARNING: DO NOT TURN OFF THE DELTA80T OR DISCONNECT THE POWER SUPPLY DURING SUBSEQUENT OPERATIONS!**

**After this procedure and before the update is complete (i.e. before the colored progress bars reach the right end Fig. 166 / Fig. 167) choose the update mode using the Erase all key:**

- Updating the device while keeping the set configurations unchanged.

- Updating the device and restoring it to factory defaults.
**FULL DELETION of all settings and saved files.**

**In case you want to CANCEL THE FULL DELETION it is necessary to press again the Erase all key before the update is completed: in this way the message Full erase option disabled will be displayed and the system will be updated without deleting all the data.**

*CONTINUES > > >*

## 19.1 Updating the device while keeping the set configurations unchanged

This procedure updates the VT but the configurations set on the device remain unchanged.

**THE SYSTEM IS PRESET TO KEEP ANY PREVIOUSLY SET CONFIGURATION.**
**THERE ARE CIRCUMSTANCES, BASED ON THE UPDATE CRITICALITY, WHERE ITS INSTALLATION COULD COMPLETELY DELETE ALL THE SETTINGS AND SAVED FILES. PLEASE REFER TO THE "README" FILE FOUND IN THE PACKAGE FOR ANY FURTHER DETAIL ON THIS MATTER.**

- The system has the **Erase all** key disabled by default (Fig. 167) then wait for the device to complete the update (Fig. 169).
- If the update is successful the display shows Fig. 169. Otherwise, follow the instructions on the display.
- Remove the USB pendrive (Fig. 170): the device will automatically restart and show the Home page (Fig. 171).

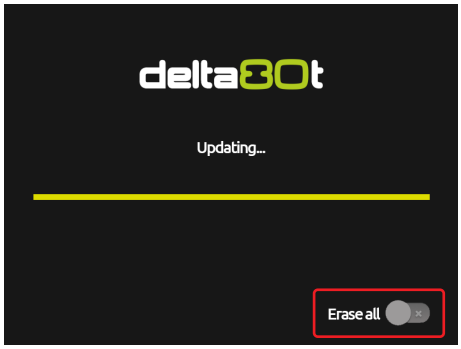


Fig. 167

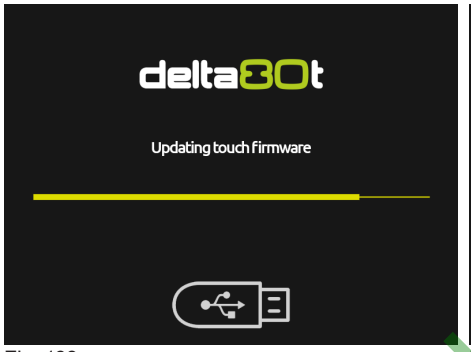


Fig. 168

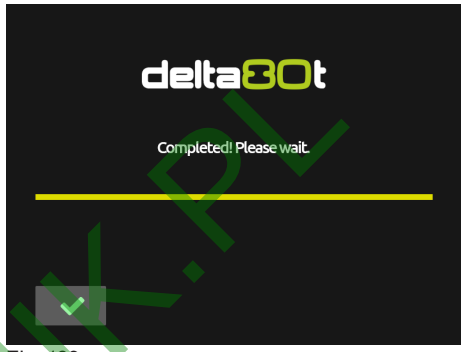


Fig. 169

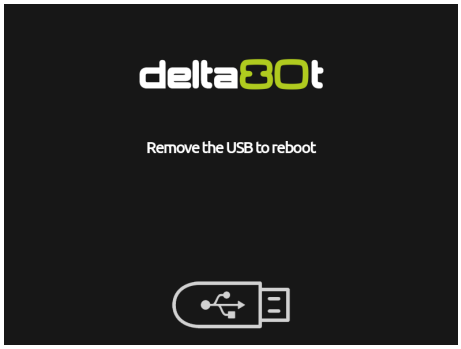


Fig. 170

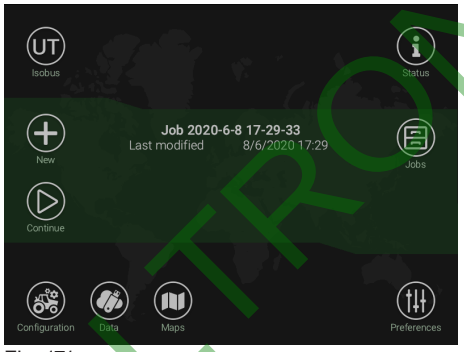


Fig. 171

## 19.2 Updating the device and restoring it to factory defaults

This procedure updates the VT and resets it to zero: **ALL THE CONFIGURATIONS SET ON THE DEVICE WILL BE LOST AND CANNOT BE RECOVERED.**
- Press **Erase all** (Fig. 172)
- Wait for the device to finish updating (Fig. 175).
- If the update is successful the display shows Fig. 175. Otherwise, follow the instructions on the display.
- Remove the USB pendrive (Fig. 176): the device will automatically restart and allow configuring the basic settings (Fig. 177).

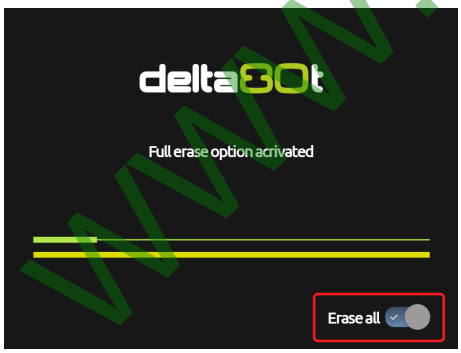


Fig. 172

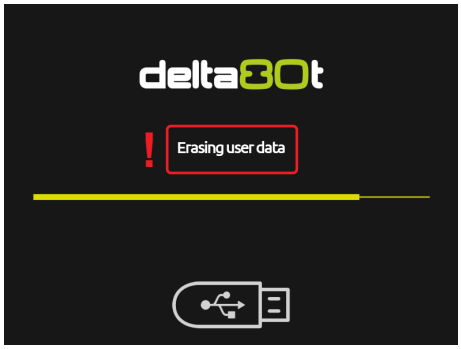


Fig. 173

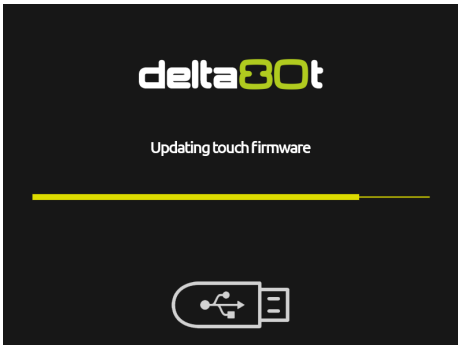


Fig. 174

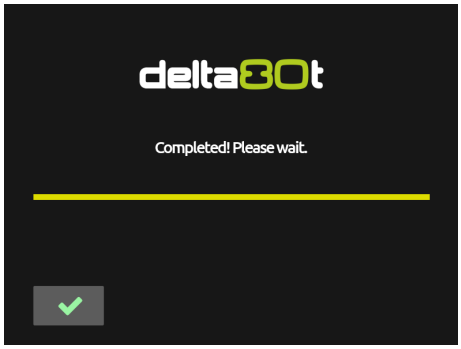


Fig. 175

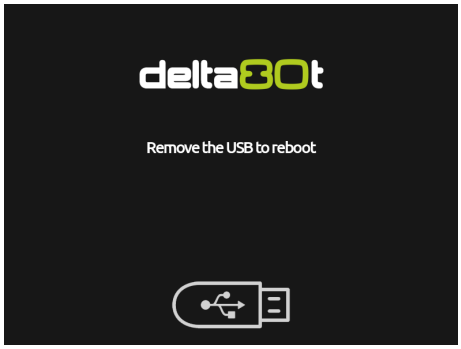


Fig. 176

Fig. 177

# 20 MAINTENANCE / DIAGNOSTICS / REPAIRS

## 20.1 Troubleshooting

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| The display does not switch on | No power supply | • Check power supply connection |
| | Monitor is OFF | • Press the ON key |

## 20.2 Cleaning rules

**- Clean only with a soft wet cloth.**
**- DO NOT use aggressive detergents or products.**
**- DO NOT use direct water jets.**

# 21 TECHNICAL DATA

## 21.1 Electrical features

Rated supply voltage ..... 12 Vdc (9 ÷ 16 Vdc)
Consumption..... monitor: 1,5 A
Protection against polarity inversion ..... Yes
Protection against short-circuit ..... Yes
4 RS232 serial ports ..... up to 115200 baud
4 RS232 CanBus ports ..... up to 1 Mbit/sec
N. 2 USB 2.0 ports..... HOST
Spraying activation input (MASTER IN)..... active low (NPN)
GPS receiver power supply ..... 12 Vdc (max 300 mA)

## 21.2 Environmental features

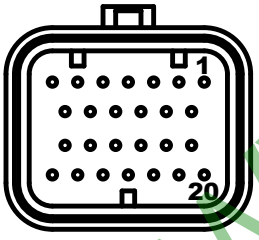
Operating temperature..... 0 °C ÷ 45 °C / +32 °F ÷ +113 °F
Storage temperature..... -20 °C ÷ 60 °C / -4 °F ÷ +140 °F

## 21.3 Physical features

Display ..... LCD 8,4", 65000 colors, 500 cd/m2
Weight (without cables) ..... monitor: 2240 g

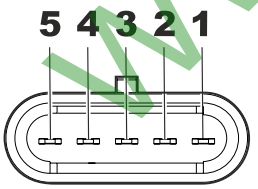
## 21.4 Connector pin-out

**• Virtual Terminal**




| PIN | COLOR | SIGNAL |
|---|---|---|
| 18 | black | GND |
| 19 | blue | GND |
| 20 | green | CAN L |
| 21 | yellow | CAN H |
| 24 | white | Von |
| 25 | red | BATT_MONITOR |
| 26 | brown | BATT_MONITOR |

**• Auxiliary Input Arag**




| PIN | COLOR | SIGNAL |
|---|---|---|
| 1 | black | GND power supply |
| 2 | red | +12V power supply |
| 4 | green | CAN L |
| 5 | yellow | CAN H |

## 22 END-OF-LIFE DISPOSAL

This device contains a lithium polymer battery that, at end of life, must be disposed of according to the prevailing rules.

Should it be necessary to replace the battery, do not disassemble the device but contact ARAG directly.

**The device must be used and stored at the temperature indicated in chapter "Technical data" of this manual.**
**Excessive temperature oscillations may cause acid leakage, overheating, explosion or self-combustion of the battery and consequent injuries and/or damage to persons.**
**Do not open, remove, drill or throw the device in the fire.**
**In case of battery leakage and accidental contact with the leaked out fluids, thoroughly rinse the concerned area and seek immediately medical advice.**

## 23 GUARANTEE TERMS

1. ARAG s.r.l. guarantees this apparatus for a period of 360 days (1 year) from the date of sale to the client user (date of the goods delivery note).
   The components of the apparatus, that in the unappealable opinion of ARAG are faulty due to an original defect in the material or production process, will be repaired or replaced free of charge at the nearest Assistance Center operating at the moment the request for intervention is made. The following costs are excluded:
- disassembly and reassembly of the apparatus from the original system;
- transport of the apparatus to the Assistance Center.
2. The following are not covered by the guarantee:
- damage caused by transport (scratches, dents and similar);
- damage due to incorrect installation or to faults originating from insufficient or inadequate characteristics of the electrical system, or to alterations resulting from environmental, climatic or other conditions;
- damage due to the use of unsuitable chemical products, for spraying, watering, crop sprayer or any other crop treatment, that may damage the apparatus;
- malfunctioning caused by negligence, mishandling, lack of know how, repairs or modifications carried out by unauthorized personnel;
- incorrect installation and regulation;
- damage or malfunction caused by the lack of ordinary maintenance, such as cleaning of filters, nozzles, etc.;
- anything that can be considered to be normal wear and tear;
3. Repairing the apparatus will be carried out within time limits compatible with the organizational needs of the Assistance Center.
   No guarantee conditions will be recognized for those units or components that have not been previously washed and cleaned to remove residue of the products used;
4. Repairs carried out under guarantee are guaranteed for one year (360 days) from the replacement or repair date.
5. ARAG will not recognize any further expressed or intended guarantees, apart from those listed here.
   No representative or retailer is authorized to take on any other responsibility relative to ARAG products.
   The period of the guarantees recognized by law, including the commercial guarantees and allowances for special purposes are limited, in length of time, to the validities given here.
   In no case will ARAG recognize loss of profits, either direct, indirect, special or subsequent to any damage.
6. The parts replaced under guarantee remain the property of ARAG.
7. All safety information present in the sales documents regarding limits in use, performance and product characteristics must be transferred to the end user as a responsibility of the purchaser.
8. Any controversy must be presented to the Reggio Emilia Law Court.

## 24 EU DECLARATION OF CONFORMITY

The declaration of conformity is available at the website www.aragnet.com, in the relevant section.

*Only use genuine ARAG accessories or spare parts to make sure manufacturer guaranteed safety conditions are maintained in time. Always refer to the Internet address www.aragnet.com.*



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