ARAG Navigation Software

**MULTI-PLATFORM SOFTWARE
FOR COMPUTER WITH INTEGRATED GPS GUIDE**

CE

Software rel. 4.4.X

PROGRAMMING AND USE

⚠	= **Generic danger**
✋	= **Warning**

⚠

This manual contains indications on how to program and use the software installed on the following monitors:
Bravo 400S
Delta80
Ninja

Please refer to the above-mentioned monitor manuals for all recommendations regarding risks and intended use.

WARNING:
ARAG NAVIGATION SOFTWARE, FROM SOFTWARE VERSION 4.0.X AND ABOVE, SUPPORTS ONLY CONNECTION TO THE IBX100 CONTROL UNIT.

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.

1 SETUP

1.1 Setup preparation

Before computer setup, check:
• that all components are correctly installed (control unit and sensors);
• the correct connection to the power source;
• the correct connection of components (control unit and sensors).
Failure to correctly connect system components or to use specified components might damage the device or its components.

⚠️ **WARNING: DO NOT CONNECT THE CONNECTORS TO THE SELETRON NOZZLE HOLDERS.**
THE SELETRON ELECTRIC CONNECTORS MUST BE CONNECTED AT A LATER TIME, DURING THE PAIRING PROCEDURE
(chap. 12 Seletron connection).

1.2 Switching on

DELTA 80 SWITCHING ON
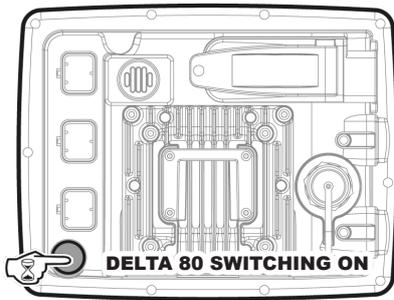
Fig. 1

**SWITCHING ON
BRAVO 400S / NINJA**

Fig. 2

Probing devices...

Fig. 4

SOFTWARE VERSION

ℹ️	Backup Load...	Memories management 📚
		Info / Alarms ℹ️
☰	User Create... ℹ️ 10 : 24	⚙️
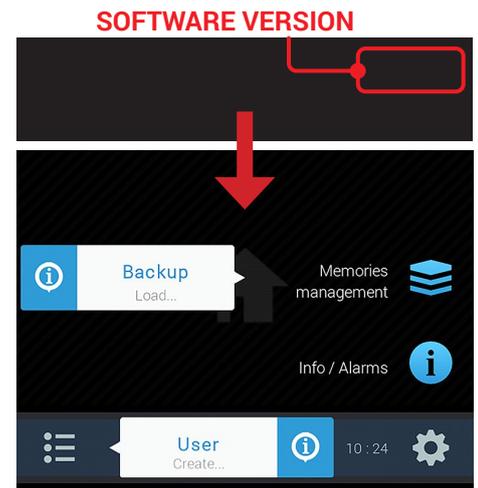
Fig. 3

Keep the switching on button pressed for 3 seconds: after a few seconds the monitor will show the screen Fig. 2.
Immediately after, system is checked to detect the compatibility of the connected remote devices and software versions (Fig. 4).
Finally, monitor software version followed by screen "Home" (Fig. 3).

AUTOMATIC DETECTION UPON SYSTEM SWITCHING ON

Probing devices...

Fig. 5

Hardware probe result:

the following parts have been detected but the configuration is invalid

Direct switchbox
IBX100
IBX100 Hydraulic

Press OK to proceed with reduced functionality
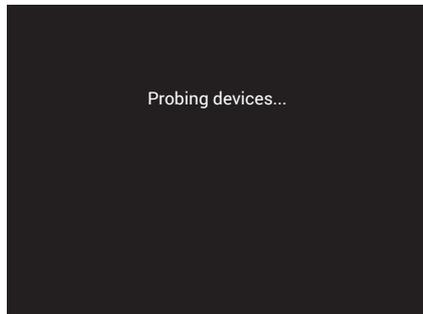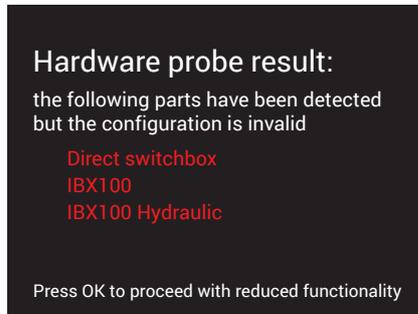
Fig. 6

1 COMPATIBILITY OF REMOTE DEVICES

Screen Fig. 6 indicates that the combination of the connected devices is not envisaged by the system. Check that the connected devices are suitable for use.

2 UPDATE OF REMOTE DEVICES

Screen Fig. 7 indicates that the system has detected a device that is not updated (the hydraulic control unit, in the example).
Press ☐K to run the update. Once the procedure is completed, press ☐K to restart the system.

System update:

1. IBX100 Hydraulic   V2.1.0

Press OK to proceed or ESC to skip   OK

Fig. 7

Updating...

IBX100 Hydraulic

Writing program memory
Estimated time: 186 s

Fig. 8

Update completed, press OK to reboot

OK
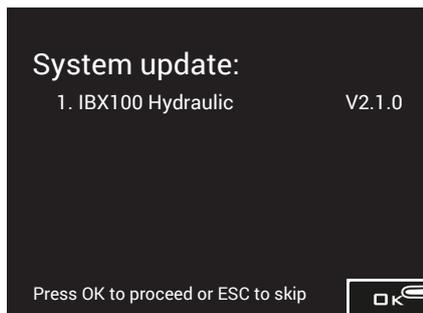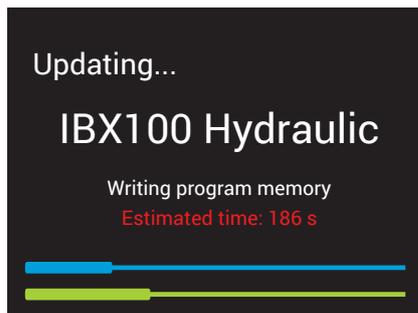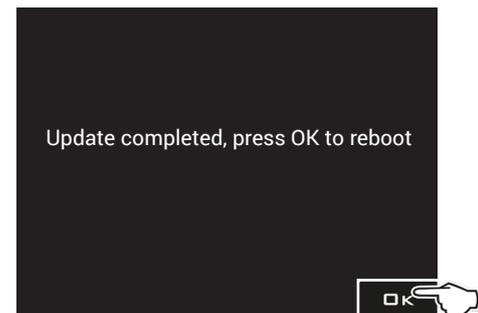
Fig. 9

⚠️ **WARNING: PRESS KEY Esc TO SKIP THE UPDATE AND <u>LOCK THE DEVICE</u>.**

FIRST DEVICE SWITCHING ON
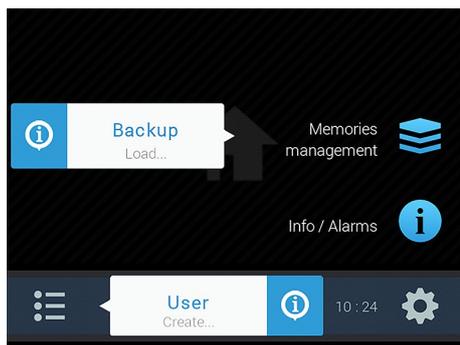
Fig. 10

Fig. 11

Fig. 12

Upon first switching on, after system checks, the monitor directly accesses screen "Home" (Fig. 10).
Set the monitor language.
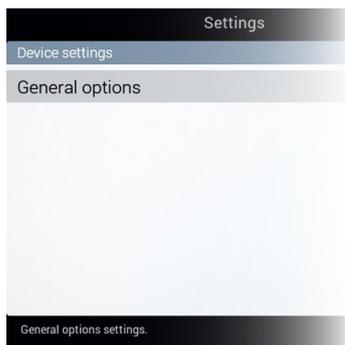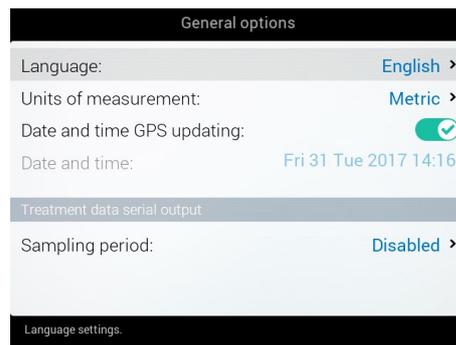
LANGUAGE SETTING
- In the screen "Home" (Fig. 10) press F8 to access the menu **Settings** (Fig. 11).
- Select **General options > Language** and set the monitor language.
- Press ESC and return to the menu "Home".

Shift to device basic settings (chap. 4).

ORDINARY SWITCHING ON
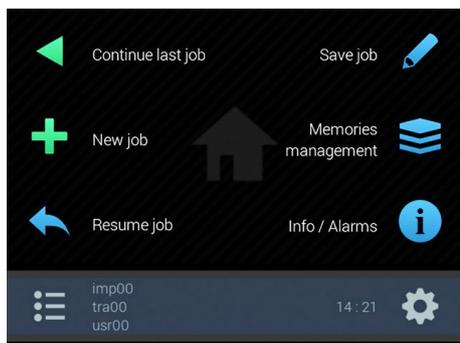
Fig. 13

After system checks, the monitor directly accesses screen "Home" (Fig. 13).
Shift to device basic settings (chap. 4).

1.3   Switching off

Keep switching off key (Fig. 14) pressed until the switching off message (Fig. 15) is displayed, then release key.
Now press key OK to confirm switching off, or key ESC to cancel it.
DO NOT KEEP SWITCHING OFF KEY (Fig. 16) PRESSED FOR TOO LONG.

DELTA 80 SWITCHING OFF

ESC SWITCHING OFF
BRAVO 400S / NINJA

Fig. 14

PRESS Ok TO POWER OFF

Fig. 15

RELEASE POWER BUTTON
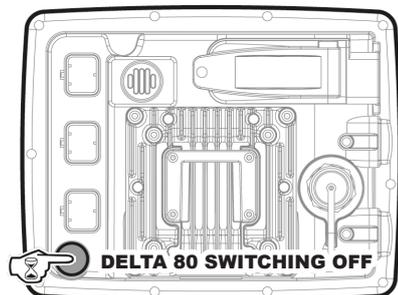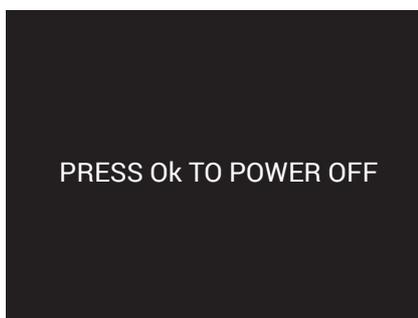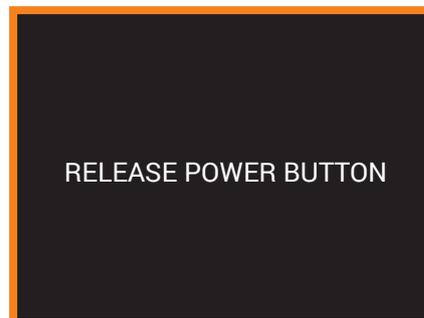
Fig. 16

⚠ **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.

1.4 Use of keys for setup

SELECTION AND ACCESS TO MENU ITEMS
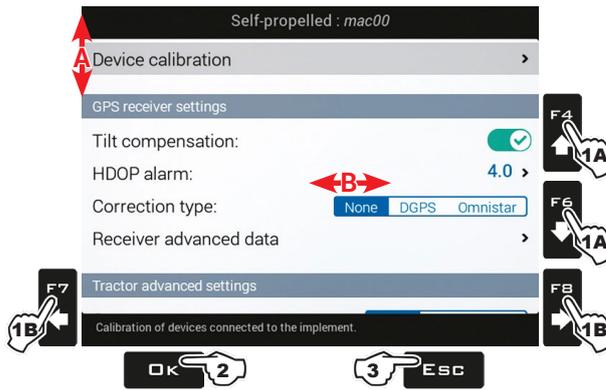
Fig. 17

1A Press in succession to move across the menu items (UP / DOWN).
The selected item is highlighted with a gray bar (**A**).

1B Press in succession to move across the available options (RIGHT / LEFT).
Display options (**B**): The selected item is highlighted with a blue bar.

✓ Active option
✗ Inactive option

2 Press to access the selected item or to confirm modification.
3 Press to exit screen without confirming modification.

ENTERING A NUMERICAL VALUE
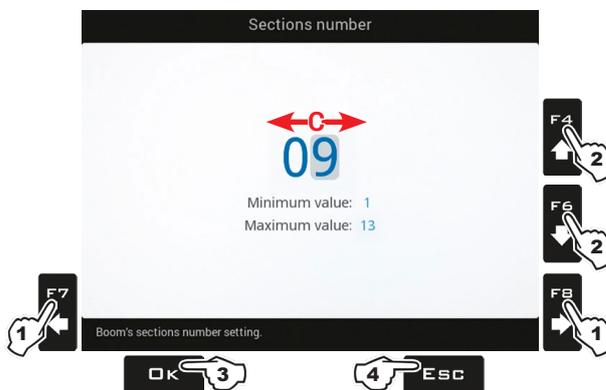
Fig. 18

1 Press to move the cursor (**C**) across the digits
2 Press to edit the highlighted digit (increase, decrease)
3 Press to confirm
4 Press to exit screen without confirming modification

ENTERING TEXT

Fig. 19

1A Press in succession to select the character you wish to type (UP / DOWN).
1B Press in succession to select the character you wish to type (RIGHT / LEFT).
Press to:
2 confirm the selected character.
2 delete the character before the cursor (when symbol "⌫" is selected)
2 save the entered text (when symbol "ok" is selected)
3 delete the character before the cursor
4 save the entered text (when symbol "ok" is selected)
5 exit screen without confirming modification

Legend:

usr01 │	ok	← →	⇧	⌫	ok
Typed Name Cursor	Selected character	Shift cursor across name characters	Caps lock	Deletes the character before the cursor	Saves the entered text

The box at the bottom of the page is a summary of key functions during setup.

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

2   MENU STRUCTURE

✋ **Upon first switching on, enter the device basic settings (chap. 4).**
Afterwards, it will be possible to select the preset settings by pressing F7.

HOME 🏠 →

chap. 10
Menu "Home"

F1 ℹ	◀ Continue last job	Save job ✏	F2 🔄
F3 ➕	➕ New job	Memories management 📚	F4 ⬆
F5 ➖	◀ Resume job	Info / Alarms ℹ	F6 ⬇
F7 ☰ ◀	imp00 tra00 usr00	14 : 21 ⚙	F8 ➡

chap. 4
Basic settings

Create / Load settings*****:
User ("**usrxx**")
Configuration
("**macxx**", "**impxx**", "**traxx**")

Setups management

Recent	
mac00	
tra00 / imp00	

Create new	
User	📌 ›
Setup	📌 ›
Copy	📌 ›

| Load | |

Creation of a new user.

* *The type of displayed configuration varies based on the type of system set (chap. 4):*
- the "macxx" configuration refers to self-propelling machines,
- the "impxx" and "traxx" configurations refer to the machines with towed or carried implement ("impxx" for the implement, "traxx" for the tractor)

chap. 6
Advanced setup

Edit the created configurations*****(chap. 4).
System setup.

Settings

Device settings	
Implement	imp00 ›
Tractor	tra00 ›
User	usr00 ›
General options	›

Implement settings.

---

chap. 11
Job menu

F1 ℹ	Syncro	Job data: 📊	F2 🔄
F3 ➕	Tank	Camera 📹	F4 ⬆
F5 ➖	Prescription map	Zoom all 🗺	F6 ⬇
F7 ◀	Boom lighting 💡	Beacon light 🚨	F8 ➡

MENU ↗ ←

F1 ℹ	🛰 GPS Data	Device status 🩺	F2 🔄
F3 ➕	🔧 Menu	SkyGuide ✛	F4 ⬆
F5 ➖			F6 ⬇
F7 ◀			F8 ➡

---

chap. 13
Job functions

FUNC. ◀▶ ←

F1 ℹ	0.0 -3		F2 🔄
F3 ➕			F4 ⬆
F5 ➖			F6 ⬇
F7 A|B ◀			F8 ➡

chap. 9
Automatic functions

AUTO 🔄 ←

F1 ℹ	0.0 -3		F2 🔄
F3 ➕			F4 ⬆
F5 ➖			F6 ⬇
F7 ◀			F8 ➡

3   MENU STRUCTURE

✋ **Upon first switching on, enter the device basic settings (chap. 4).**
Afterwards, it will be possible to select the preset settings by pressing F7.

HOME 🏠 ➡️

chap. 10
Menu "Home"

F1 ℹ️	Continue last job ... Save job ✏️	F2 🔄
F3 ➕	New job ... Memories management 📚	F4 ⬆️
F5 ➖	Resume job ... Info / Alarms ℹ️	F6 ⬇️
F7 ⬅️	imp00 / tra00 / usr00 ... 14 : 21 ⚙️	F8 ➡️

chap. 4
Basic settings

Create / Load settings*****:
User ("**usrxx**")
Configuration
("**macxx**", "**impxx**", "**traxx**")

Setups management

Recent	
mac00	
tra00 / imp00	
Create new	
User	⚑ ›
Setup	⚑ ›
Copy	⚑ ›
Load	

Creation of a new user.

* *The type of displayed configuration varies based on the type of system set (chap. 4):*
- the "macxx" configuration refers to self-propelling machines,
- the "impxx" and "traxx" configurations refer to the machines with towed or carried implement ("impxx" for the implement, "traxx" for the tractor)

chap. 6
Advanced setup

Edit the created configurations*****(chap. 4).
System setup.

Settings

Device settings	
Implement	*imp00* ›
Tractor	*tra00* ›
User	*usr00* ›
General options	›

Implement settings.

chap. 11
Job menu

MENU ↗️

F1 ℹ️	Syncro ... Job data: 📊	F2 🔄
F3 ➕	Tank ... Camera 🎥	F4 ⬆️
F5 ➖	Prescription map ... Zoom all 🗺️	F6 ⬇️
F7 ⬅️	Boom lighting 💡 ... Beacon light 🚨	F8 ➡️

F1 ℹ️	GPS Data ... Device status 🧰	F2 🔄
F3 ➕	Menu 🔧 ... SkyGuide	F4 ⬆️
F5 ➖		F6 ⬇️
F7 ⬅️		F8 ➡️

chap. 13
Job functions

FUNC. ◀️

F1 ℹ️	0.0 / -3	F2 🔄
F3 ➕		F4 ⬆️
F5 ➖		F6 ⬇️
F7 ⬅️ A B		F8 ➡️

chap. 8
Automatic functions

AUTO 🔄 ◀️

F1 ℹ️	0.0 / -3	F2 🔄
F3 ➕		F4 ⬆️
F5 ➖		F6 ⬇️
F7 ⬅️		F8 ➡️

4 BASIC SETTINGS

FIRST SWITCHING ON - SETTINGS

If you have a configuration file (Backup), correctly saved on a pen-drive / SD card, press F4 (A in Fig. 20) and follow the steps specified in par. 10.4.2.
IN ALL OTHER CASES, PRESS F7 (B): SAVE USER AND MACHINE CONFIGURATION;
THEN START GUIDED SETUP BY PRESSING KEY F8 (Fig. 22 o Fig. 23).

PAR. 10.4.2

ACTIVE SETTINGS AT THE END OF GUIDED SETUP

Fig. 20

Fig. 21

self-propelling machine

machine with carried / towed implement
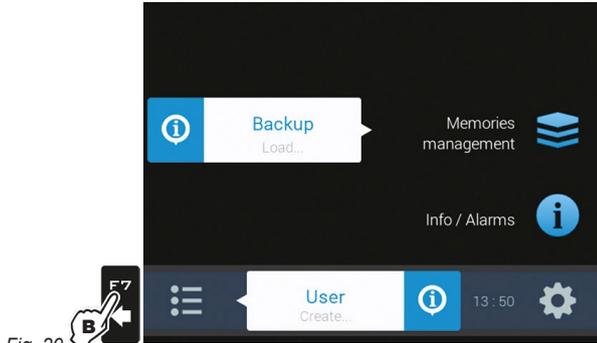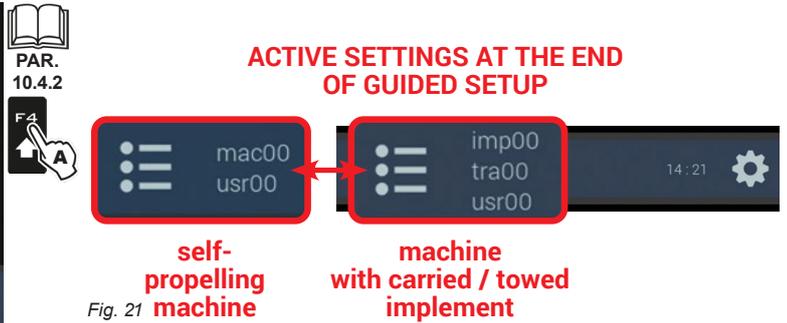
3 GUIDED SETUP

You can do the following:

SELF-PROPELLING MACHINE

Fig. 22

MACHINE WITH TOWED / CARRIED IMPLEMENT
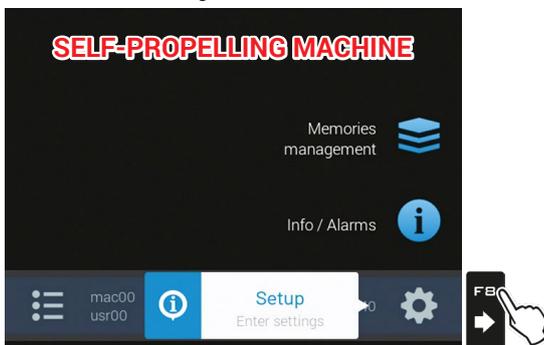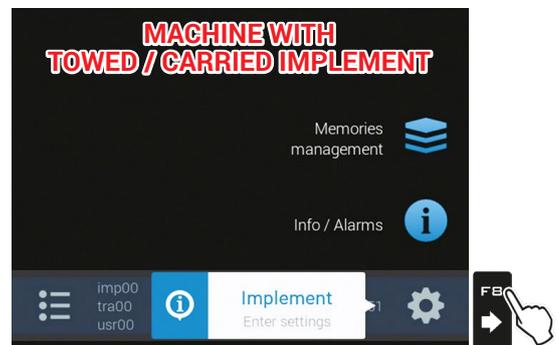
Fig. 23

GUIDED SETUP - MENU

IMPLEMENT / SELF-PROPELLING MACHINE BASIC SETTINGS

• **IMPLEMENT TYPE**
Sprayer (Seletron): system with Seletron valves.
Sprayer (Electrovalves): system with electric valves - with gear motor.
• **MAIN VALVE**
Main control valve installed on the control unit:
None
2 ways (drain valve)
3 ways (main valve)
• **SPRAYING SPOT TYPE**
Seletron type: single, twin or fourfold
• **FLOWRATE REFERENCE SENSOR**
Device used to calculate flowrate:
Flowmeter
Pressure sensor: the measured pressure is used to calculate the spray rate.
Both: within the working limits the computer uses the flowmeter, otherwise it uses the pressure sensor, ONLY if properly configured.
• **TERMINAL NOZZLES**
None
"Buffer zone" nozzles: allows enabling the use of nozzles at the "Buffer zone" see par. 7.3.4 "Buffer Zone" function enabled on page 64.
"Fence" nozzles: allows using the "Fence" nozzles, see par. 7.3.5 "Fence nozzle" function enabled on page 65.
• **TANK LEVEL SOURCE**
Device used to read tank level:
Manual: no device connected
Filling flowmeter
Tank level sensor

GUIDANCE SETTINGS / BASIC TRACTOR SETTINGS

• **AUTONOMOUS GUIDANCE**: automatic guidance control unit.
ECU-S1: ARAG control unit code 4679100
Polaris: ARAG control unit code 46795x1
None

• **GPS RECEIVER**
  Smart-AG
  Smart 7
  Smart 6
  Smart 2   **AgStar**   **Atlas**   : ARAG receivers code 467016xx.

A100: ARAG receiver code 520100.693.

NMEA: all GPS receivers with NMEA183 protocol and with the following features:
- 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 bps, n, 8, 1.

Demo: the monitor simulates the driving.

None

BASIC SETUP PROCEDURE IS NOW COMPLETE. NOW IT IS POSSIBLE TO START THE ADVANCED SETUP PROCEDURE, DESCRIBED IN CHAP. 6. The system assigns to the monitor ONLY the suitable setup menus.

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | Par. 1.4 |

5   SYSTEM CONNECTED TO EXTERNAL COMPUTERS

The application detects and manages the connection to external computers of the Bravo 180S, Bravo 300S and Alfa 350 series, which are compatibly updated.

In this mode, the system:

- receives the status of the sections from the connected computer
- allows enabling main valve automatic closing (external computers with direct connection)
- allows enabling section automatic closing (external computers with RCU connection)
- manages the variable application through the prescription map.

To enable this mode, the guided setup procedure has to be run ("Basic settings" on page 10).

GUIDED SETUP - MENU

IMPLEMENT / SELF-PROPELLING MACHINE BASIC SETTINGS

The screen below indicates that the system has detected the connection to an external computer. Press ☐ K to enable the configuration.

GPS monitor configuration

Device detected:

Bravo180S - SPR

Ok Confirm
Esc Cancel

GUIDANCE SETTINGS / BASIC TRACTOR SETTINGS

• **AUTONOMOUS GUIDANCE**: automatic guidance control unit.
ECU-S1: ARAG control unit code 4679100
Polaris: ARAG control unit code 46795x1
None

• **GPS RECEIVER**
  Smart-AG
  Smart 7
  Smart 6
  Smart 2   **AgStar**   **Atlas**   : ARAG receivers code 467016xx.

A100: ARAG receiver code 520100.693.

NMEA: all GPS receivers with NMEA183 protocol and with the following features:
- 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 bps, n, 8, 1.

Demo: the monitor simulates the driving.

None

BASIC SETUP PROCEDURE IS NOW COMPLETE. NOW IT IS POSSIBLE TO START THE ADVANCED SETUP PROCEDURE. The system assigns to the monitor ONLY the suitable setup menus.

SELF-PROPELLING MACHINE
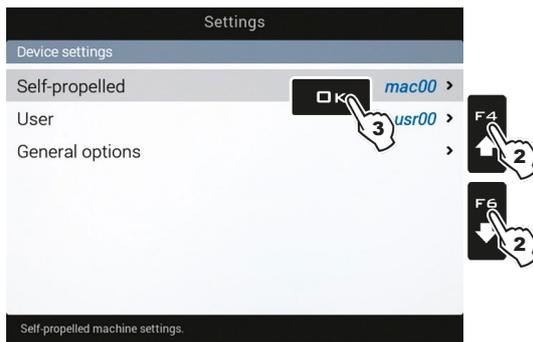
Fig. 24

MACHINE WITH TOWED / CARRIED IMPLEMENT
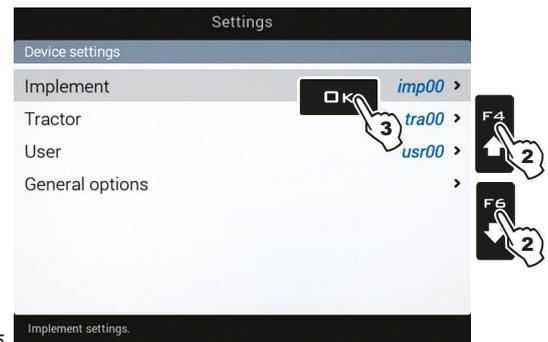
Fig. 25

IMPLEMENT / SELF-PROPELLING MACHINE / TRACTOR SETTINGS

• **EXTERNAL COMPUTER SETTINGS (B180S / B300S / ALFA350)**
Boom settings: coming from the external computer, which cannot be edited.
Valves: **Shut-off time**, **Switch-on time** - page 25.
Working parameters: **Automatic section control** - page 34, **Automatic closing of main valve**, **Guidance** - page 37.

• **IMPLEMENT GEOMETRY** (par. 6.8)

• **GPS RECEIVER SETTINGS** (par. 6.9)

• **AUTONOMOUS GUIDANCE** (par. 6.10)

• **TRACTOR ADVANCED SETTINGS** (par. 6.11)

USER (par. 6.12)

GENERAL OPTIONS (par. 6.13)

REMOTE SUPPORT (par. 6.14)

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6 ADVANCED SETUP

ACTIVE SETTINGS

mac00   imp00
usr00   tra00
         usr00

self-propelling machine ↔ **machine with towed / carried implement**
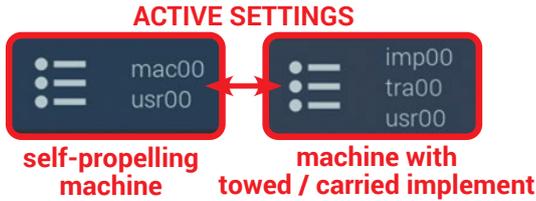
Before starting advanced setup, select the type of system configuration: all the modifications to advanced setup will be applied to ACTIVE SETTINGS (mac, imp, tra, usr).

6.1 Configuration management

Press **F7** in screen "Home" (Fig. 26).
Now it is possible to create a new setup (**A**), or select an existing one (**B**):
in all cases the setup will be enabled and the name will be displayed in screen "Home".
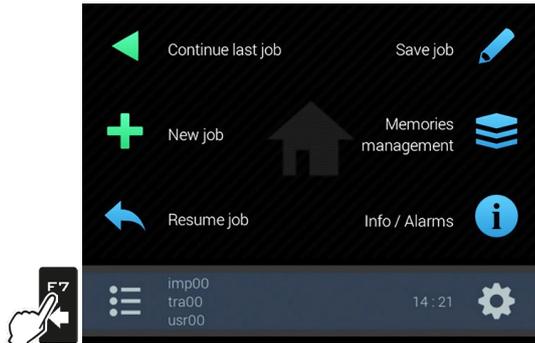
Fig. 26
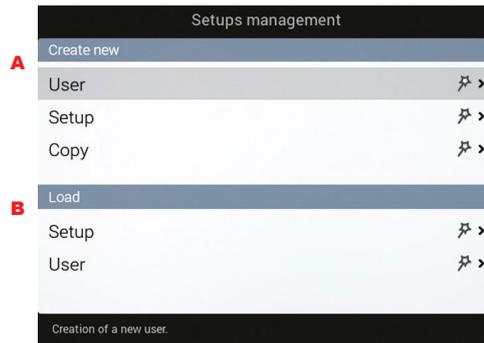
Fig. 27

NEW SETUP CREATION (Create new > User / Create new > Configuration)

1 Select **Create new > User** (**a** in Fig. 28) to create a new setup and press **OK**.
2 User's definition: select **Yes** for extended configuration, **No** for device reduced configuration (par. 6.2) - **FOR "NEW USER" ONLY**.
Follow the steps and select the desired options. **OK**: next step **ESC**: previous step.
3 Type the name (in the example of Fig. 29: **usr01**) and press **OK**.
The new setup is now active on the computer (Fig. 30). Before moving on to the advanced setup procedure carry out the basic setup (chap. 4).

You can follow the same procedure for setup **Create new > Configuration** (**b**)
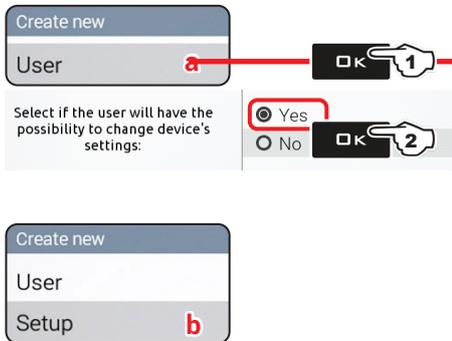
Fig. 28

Fig. 29
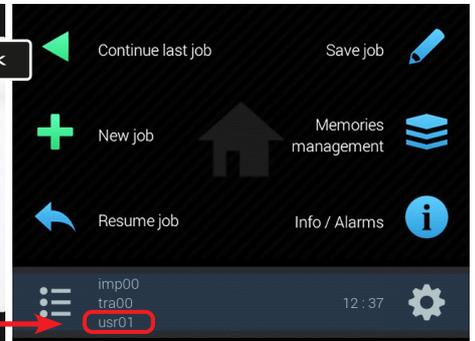
Fig. 30

COPYING A SETUP (Create new > Copy*: COPYING DATA FROM AN EXISTING SETUP)

* copy valid only for "Configuration" files

1 Select **Copy** (**c** in Fig. 31) to copy the active setup and save the data on a new one; press **OK**.
Follow the steps and select the desired options. **OK**: next step **ESC**: previous step.
2 Type the name (in the example of Fig. 32: **imp01**) and press **OK**.
The saved setup is now active on the computer (Fig. 33). Proceed to advanced setup.
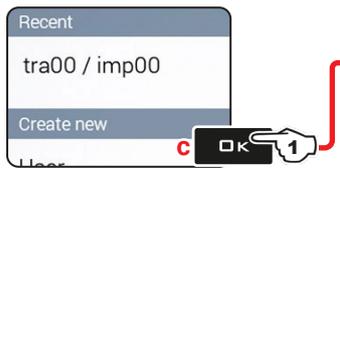
Fig. 31

Fig. 32
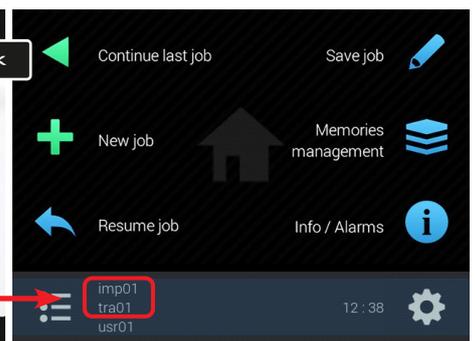
Fig. 33

LOADING A SETUP

Instead of saving, you can activate a previously saved setup.

1 Select **Load > Configuration** (**d** in Fig. 34) and press **OK**.
2 From the example in Fig. 35 select the type of setup to load, and press **OK**.
Follow the steps and select the desired options. **OK**: *next step* **ESC**: *previous step.*
The selected setup is now active on the computer (Fig. 36). Proceed to advanced setup.

You can follow the same procedure for setup **Load > User** *(e)*
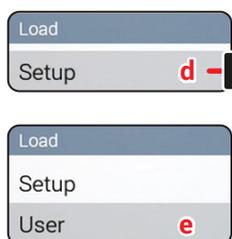
Fig. 34
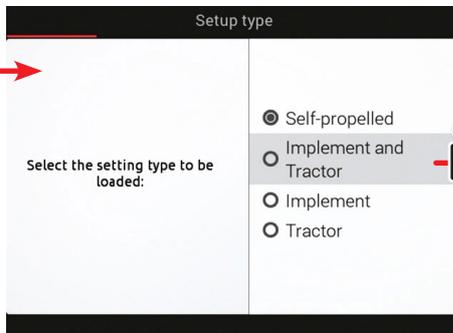
Fig. 35
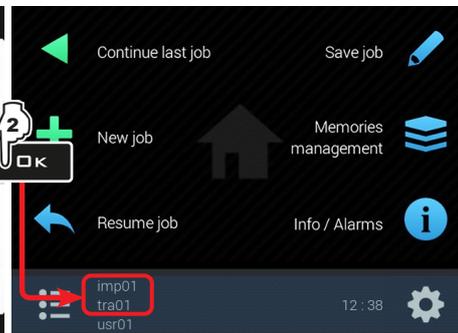
Fig. 36

✋ **Now you can start advanced setup: all the modifications will be applied to ACTIVE SETTINGS (mac, imp, tra, usr).**

6.2 Device reduced configuration

Allows reducing the access level to control parameters.

1 Select **Create new > User** and press **OK**.
2 User's definition: select **No** for device reduced configuration (Fig. 37). Press **OK**.
3 Type the name (in the example of Fig. 38: **usr01**) and press **OK**.
The new user is now active on the computer (Fig. 39).
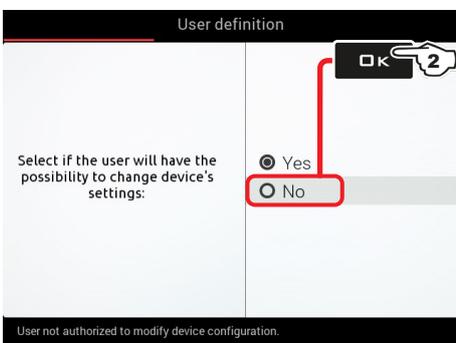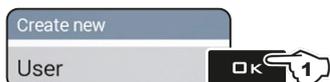
Fig. 37

Fig. 38
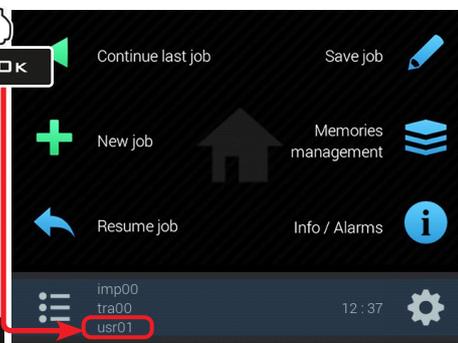
Fig. 39
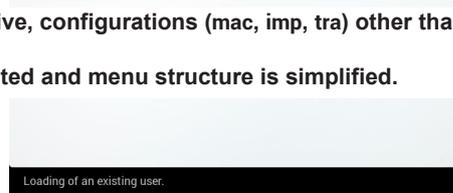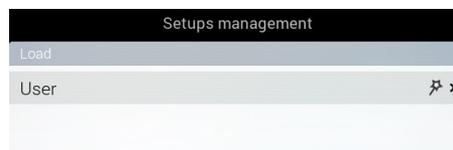
✋ **When reduced configuration is active, configurations (mac, imp, tra) other than those already present CAN NEITHER BE CREATED NOR LOADED.**
Device configuration cannot be edited and menu structure is simplified.

Fig. 40

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**ESC** Exit the function or data change	**Par. 1.4**

6.3 Settings

Fig. 41

1 In the "Home" screen (Fig. 41) press **F8** to enter menu **Settings** (Fig. 42 / Fig. 43).
2 Perform monitor advanced setup: select the desired menu item (with **F4** or **F6**);
3 Press **OK** to shift to the selected item setup.

SELF-PROPELLING MACHINE
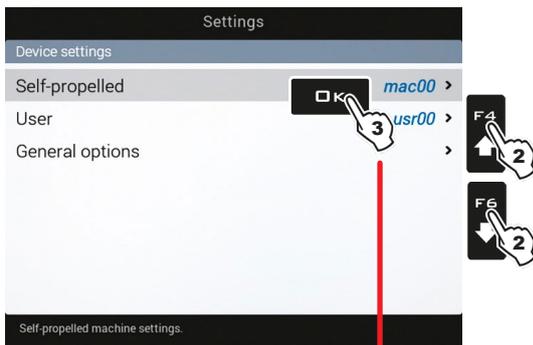
Fig. 42

SELF-PROPELLED
CONNECTION TO SYNCRO DEVICE (par. 6.4)
IBX SPRAYER SETTINGS (par. 6.5)
IBX HYDRAULIC SETTINGS (par. 6.6)
JOYSTICK SETTINGS (par. 6.7)
GPS RECEIVER SETTINGS (par. 6.9)
AUTONOMOUS GUIDANCE (par. 6.10)
TRACTOR ADVANCED SETTINGS (par. 6.11)

USER (par. 6.12)

GENERAL OPTIONS (par. 6.13)

REMOTE SUPPORT (par. 6.14)

MACHINE WITH TOWED / CARRIED IMPLEMENT
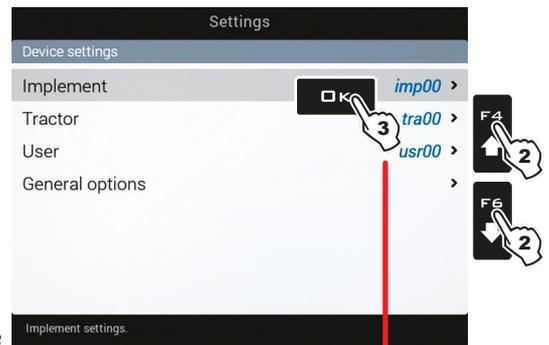
Fig. 43

IMPLEMENT
CONNECTION TO SYNCRO DEVICE (par. 6.4)
IBX SPRAYER SETTINGS (par. 6.5)
IBX HYDRAULIC SETTINGS (par. 6.6)
JOYSTICK SETTINGS (par. 6.7)
IMPLEMENT GEOMETRY (par. 6.8)

TRACTOR

GPS RECEIVER SETTINGS (par. 6.9)
AUTONOMOUS GUIDANCE (par. 6.10)
TRACTOR ADVANCED SETTINGS (par. 6.11)

USER (par. 6.12)

GENERAL OPTIONS (par. 6.13)

REMOTE SUPPORT (par. 6.14)

6.4 CONNECTION TO SYNCRO DEVICE

6.4.1 Activation status

Enables the remote connection to the Syncro computer as well as function **F1 Syncro** (job menu, par. 11.1).
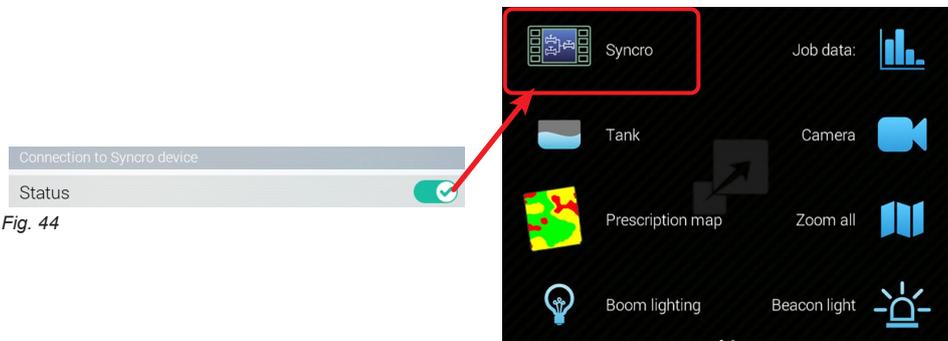
Fig. 44

Fig. 45

6.5 IBX SPRAYER SETTINGS

🖐 **THE BASIC SETTINGS (CHAP. 4), AFFECT WHICH AND HOW MENU ITEMS ARE DISPLAYED, HENCE WHICH ADVANCED SETUP IT IS POSSIBLE TO CONTROL. A NAVIGATION SUMMARY IS AVAILABLE IN Fig. 42 AND Fig. 43.**

6.5.1 Spray spots configurations

Allows setting 20 different configurations (i.e., 20 nozzle combinations), which can be selected before starting each job.
Each configuration indicates which type of nozzle is installed on the boom's spraying points.
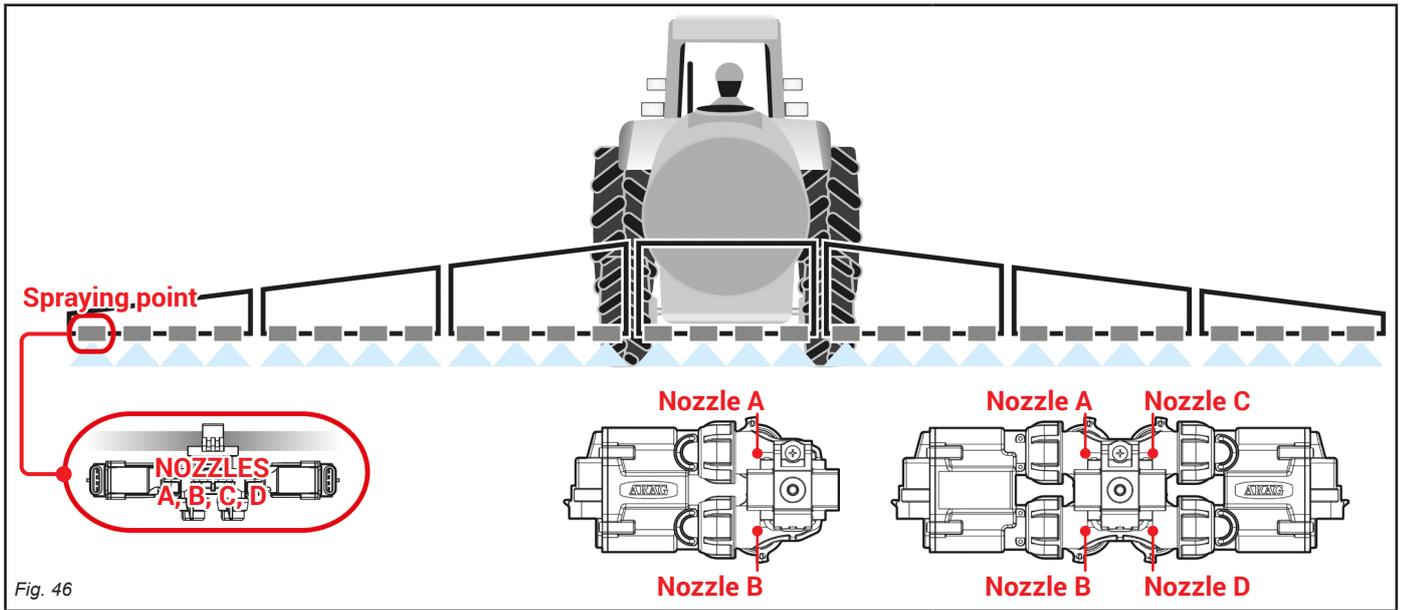
Fig. 46

During guided setup (chap. 4), the computer will ask you to indicate which type of Seletron is installed at said spraying points (single, twin or fourfold).
Depending on the selected option the number of nozzles to be programmed in this menu will vary.

- Select the configuration you wish to set up (Fig. 47).
- Select the nozzle you wish to set up (**A**, **B**, **C** or **D** , in Fig. 48).
- Select one of the suggested nozzles (Fig. 49): if a nozzle is NOT in use, disable it by selecting ⬚.
- Repeat the setup for each configuration.

✋ **The nozzle settings are the same for all spraying points on the boom.**
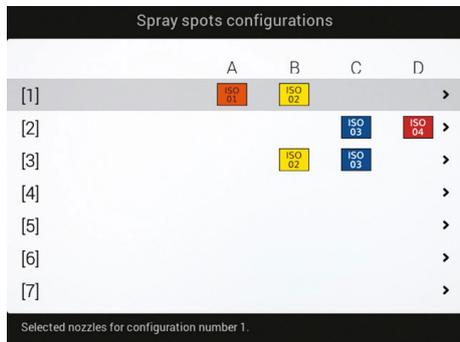
Fig. 47

Fig. 48

Fig. 49

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)

F4 F6 Scroll (UP / DOWN) — Data decrease / increase — **OK** Confirm access or data change — **Esc** Exit the function or data change — **Par. 1.4**

[1]	
Nozzle A	ISO01 ›
Nozzle B	ISO015 ›
Nozzle C	ISO02 ›
Nozzle D	ISO025 ›
Custom nozzle shifts:	✓
Nozzle shifts intervals	›

Enable/Disable nozzle shifts intervals custom definition.

Fig. 50

Nozzle shifts intervals	
Number of intervals:	6 ›
Nozzle type:	ISO01 ⊠ ⊠ ⊠
Shift flowrate 1	0.634 l/min ›
Nozzle type:	⊠ ISO015 ⊠ ⊠
Shift flowrate 2	0.951 l/min ›
Nozzle type:	⊠ ⊠ ISO02 ⊠
Shift flowrate 3	1.269 l/min ›
Nozzle type:	⊠ ⊠ ⊠ ISO

Range 1

Range 2

Range 3

...

Number of intervals settings.

Fig. 52

Number of intervals:	

06

Minimum value: 1
Maximum value: 16

Number of intervals settings.

Fig. 53

- Program menus **Nozzle type** and **Shift flowrate** corresponding to each range.
- Set all ranges.

• Custom nozzle shifts

First of all, enable the menu to configure it (✓ **Menu enabled** / ✗ **Menu disabled).**
Allows activating nozzle customized combination;
shift to menu **Nozzle shifts intervals**, from which the combinations can be setup.

Spray spots configurations					
		A	B	C	D
[1]	☰	ISO 01	ISO 015	ISO 02	ISO 025 ›
[2]				ISO 02	ISO 025 ›
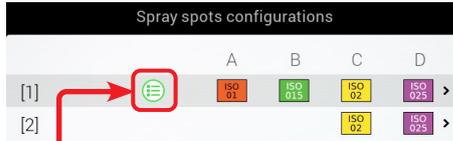
The "Customized nozzle change" menu is ACTIVE for configuration 1
Fig. 51

• Nozzle shifts intervals

In a Seletron system, this menu optimizes nozzle automatic selection (par.): it allows setting up one nozzle combination, using ONLY SOME in relation to a flowrate range.
Each range has a specific nozzle combination and an exchange flowrate that, once exceeded, will make the computer use the combination of the next range.

• Number of intervals

Indicate the number of customized ranges.

• Nozzle type

Enable /disable the nozzles used for each range.

- Select the menu **Nozzle type** of the first range (Fig. 54).
- Select the nozzles to be used among the suggested ones: should you disable one or more nozzles, select them using arrow keys F7 / F8, then press OK to disable them (one at a time).
In the example below, out of the four available nozzles, ⊠ is disabled.

Nozzle shifts intervals	
Number of intervals:	6 ›
Nozzle type:	ISO01 ⊠ ⊠ ⊠
Shift flowrate 1	0.634 l/min ›
Nozzle type:	⊠ ISO015 ⊠ ⊠
Shift flowrate 2	0.951 l/min ›
Nozzle type:	⊠ ⊠ ISO02 ⊠
Shift flowrate 3	1.269 l/min ›
Nozzle type:	⊠ ⊠ ⊠ ISO

Range 1

Nozzle combination setting.

Fig. 54

• Shift flowrate

Program the flowrate limit of the corresponding range.

Shift flowrate 1	

0.634 l/min

Minimum value: 0.005 l/min
Maximum value: 1.450 l/min

Combination shift flowrate setting.

Fig. 55

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | Par. 1.4 |

6.5.2 Boom settings / Section configuration

Boom settings	
Spray spots spacing:	50.0 cm ›
Sections number	7 ›
Spraying spots number:	32
Boom length:	16.00 m
Section 1:	4 ›
Section 2:	4 ›
Section 3:	5 ›
Boom's sections number setting.	
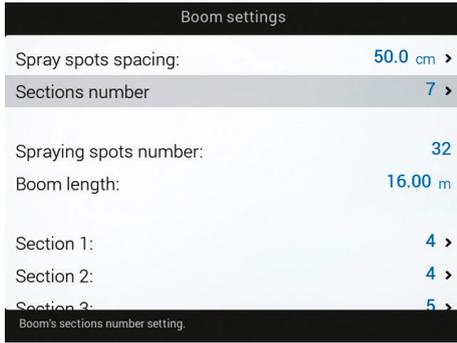
Fig. 56

Spraying points distance
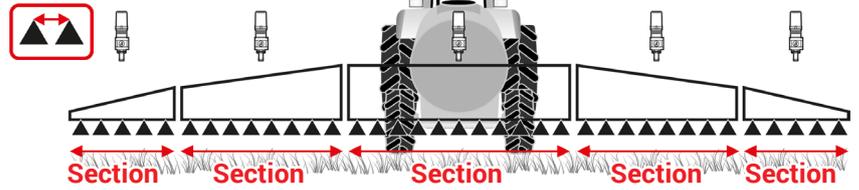
Fig. 57

sele TRON **MODE** **ON** *The operator may choose the way in which the boom is subdivided into different sections: this is done in order to act on the corresponding control when closing sections manually.*
With automatic management, instead, the computer acts on each single Seletron separately.

Boom settings	
Spray spots spacing:	50.0 cm ›
Sections number	7 ›
Spraying spots number:	32
Boom length:	16.00 m
Section 1:	4 ›
Section 2:	4 ›
Section 3:	5 ›
Boom's sections number setting.	
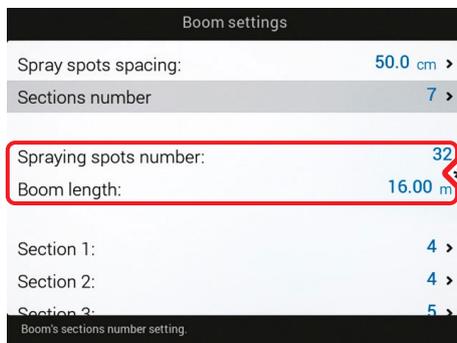
Fig. 58

⬥*⬥ **Depending on the selected settings, the number of spraying points as well as the value of the boom width, displayed in Fig. 58 will change.**

Boom width

Fig. 59

Spray spots spacing:	
0050.0 cm	
Minimum value: 1.0 cm	
Maximum value: 1000.0 cm	
Distance between spray spots setting.	
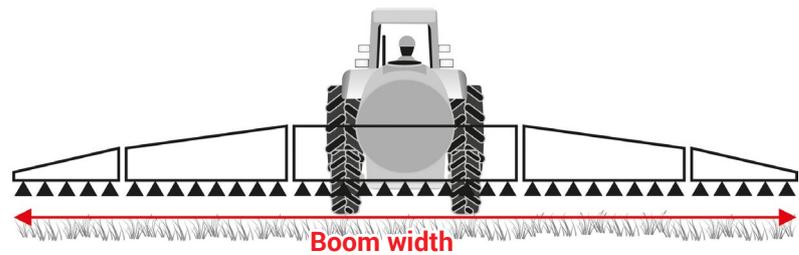
Fig. 60

• Spray spots spacing

Indicate the distance between spraying points (nozzle holders).

Sections number	
7	
Minimum value: 1	
Maximum value: 7	
Boom's sections number setting.	

Fig. 61

• Sections number

Indicate the number of boom sections.

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | Par. 1.4 |

Section 1:

04

Minimum value: 1
Maximum value: 50

Spraying spots number of section 1.
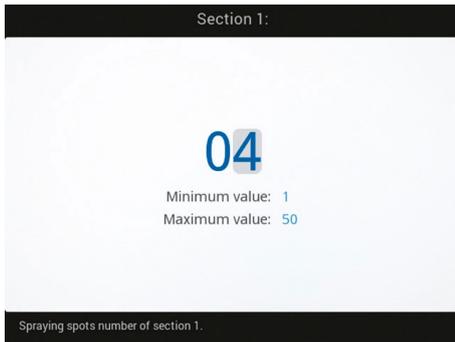
Fig. 62

• **Section 1 ÷ 13**

- Indicate the number of spraying points (nozzle holders) installed on each boom section.
- Repeat the setup for each section (Fig. 56).

SECTIONS MANAGEMENT

Activation status of the sections

Section 1:
Section 2:
Section 3:
Section 4:
Section 5:

Enable/Disable management of the section 1.
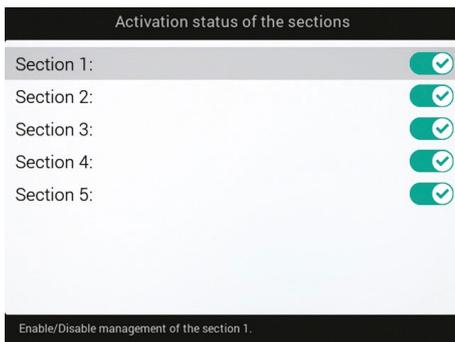
Fig. 63

• **Activation status of the sections**

It allows enabling/disabling specific boom sections.
(✓ **Section enabled** / ✗ **Section disabled)**.
- Select the section you wish to set up.
- Repeat the setup for each section (Fig. 63), by disabling the disconnected outputs.

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

6.5.3   Flowmeter

Enter the values for the flowmeter installed on the system.
The table below indicates the values that are automatically set when selecting the flowmeter code.
If the installed flowmeter is not displayed, select **Other** and enter the relevant values.

Flowmeter	
Type:	Orion 462 XX A4 XXXX ›
Constant:	300 pls/l ›
Minimum flowrate:	10.0 l/min
Maximum flowrate:	200.0 l/min
Flowmeter type selection.	

Fig. 64

ORION FLOWMETERS						
Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
4621xA0xxxx	6000	22710	0.5	0.10	10	2.6
4621xA1xxxx	3000	11355	1	0.30	20	5.3
4621xA2xxxx	1200	4542	2.5	0.70	50	13.2
4621xA3xxxx	600	2271	5	1.30	100	26.4
462xxA4xxxx	300	1135	10	2.60	200	52.8
4622xA5xxxx	150	568	20	5.30	400	105.7
4622xA6xxxx	100	378	30	7.90	600	158.5
Other	625	2366	10	2.60	200	52.8

WOLF FLOWMETERS						
Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
462x2xxx	1025	3880	2.5	0.7	50	13.2
462x3xxx	625	2366	5.0	1.3	100	26.4
462x4xxx	250	946	10.0	2.6	200	52.8
462x5xxx	132	500	20.0	5.3	400	105.7
462x7xxx	60	227	40.0	10.6	800	211.3

Type:	
○ Orion 4621 X A0 XXXX	
○ Orion 4621 X A1 XXXX	
○ Orion 4621 X A2 XXXX	
○ Orion 4621 X A3 XXXX	
◉ Orion 462 XX A4 XXXX	
○ Orion 4622 X A5 XXXX	
○ Orion 4622 X A6 XXXX	
○ Wolf 462 X 2 XXX	
Orion 10 ÷ 200 l/min (2.6 ÷ 53 GPM).	

Fig. 65

• Type

Indicate the type of flowmeter installed.

Constant:	
00300 pls/l	
Minimum value: 1 pls/l	
Maximum value: 32000 pls/l	
Flowmeter constant setting.	
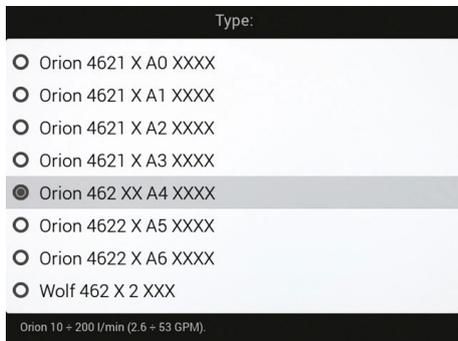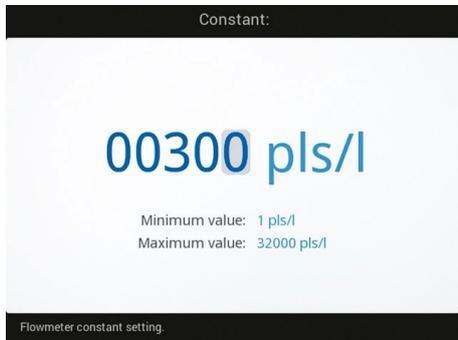
Fig. 66

• Constant

Indicate the constant of the installed flowmeter.

Minimum flowrate:	
010.0 l/min	
Minimum value: 0.1 l/min	
Maximum value: 999.9 l/min	
Minimum flowrate limit.	

Fig. 67

Maximum flowrate:	
200.0 l/min	
Minimum value: 0.1 l/min	
Maximum value: 999.9 l/min	
Maximum flowrate limit.	

Fig. 68

• Minimum flowrate
• Maximum flowrate

🖐 **The items Minimum flowrate and Maximum flowrate can be edited only when option Other is enabled (menu Type in Fig. 65).**

Enable the relevant function of the menu **Alarms** (par. 6.5.13) if you want the computer to trigger an alarm when, during spraying, the flowmeter rate is outside the set range.

F1	Enter selected character	F2	Delete selected character	F7 F8	Scroll (LEFT / RIGHT)	F4 F6	Scroll (UP / DOWN)	Data decrease / increase	OK	Confirm access or data change	Esc	Exit the function or data change	📖 Par. 1.4
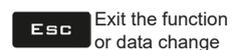
6.5.4 Filling flowmeter

✋ **This menu is only visible when the filling flowmeter is selected as tank level source (basic settings, chap. 4).**

Filling flowmeter	
Type:	Orion 462 XX A4 XXXX ›
Constant:	300 pls/l ›
Minimum flowrate:	10.0 l/min
Maximum flowrate:	200.0 l/min
Filling flowmeter type selection.	

Fig. 69

The filling flowmeter allows displaying the tank filling data in real time.
Enter the values for the filling flowmeter installed on the system: the table below indicates the values that are automatically set when selecting the flowmeter code.
If the installed filling flowmeter is not displayed, select **Other** and enter the relevant values.

ORION FLOWMETERS

Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
462XXA4XXXX	300	1135	10	2.60	200	52.8
4622XA5XXXX	150	568	20	5.30	400	105.7
4622XA6XXXX	100	378	30	7.90	600	158.5
Other	625	2366	10	2.60	200	52.8

WOLF FLOWMETERS

Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
462x4xxx	250	946	10.0	2.6	200	52.8
462x5xxx	132	500	20.0	5.3	400	105.7
462x7xxx	60	227	40.0	10.6	800	211.3

Type:	
⦿ Orion 462 XX A4 XXXX	
○ Orion 4622 X A5 XXXX	
○ Orion 4622 X A6 XXXX	
○ Wolf 462 X 4 XXX	
○ Wolf 462 X 5 XXX	
○ Wolf 462 X 7 XXX	
○ Other	
Orion 10 ÷ 200 l/min (2.6 ÷ 53 GPM).	

Fig. 70

• Type

Indicate the type of flowmeter installed.

Constant:	
00300 pls/l	
Minimum value: 1 pls/l	
Maximum value: 32000 pls/l	
Flowmeter constant setting.	

Fig. 71

• Constant

Indicate the constant of the installed filling flowmeter.

Minimum flowrate:	
010.0 l/min	
Minimum value: 0.1 l/min	
Maximum value: 999.9 l/min	
Minimum flowrate limit.	

Fig. 72

Maximum flowrate:	
200.0 l/min	
Minimum value: 0.1 l/min	
Maximum value: 999.9 l/min	
Maximum flowrate limit.	

Fig. 73

• Minimum flowrate
• Maximum flowrate

✋ **The items Minimum flowrate and Maximum flowrate can be edited only when option Other (Fig. 70) is enabled.**

Indicate the minimum and maximum pressure for the filling flowmeter installed on the system.

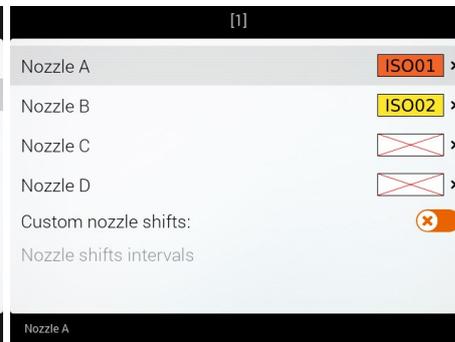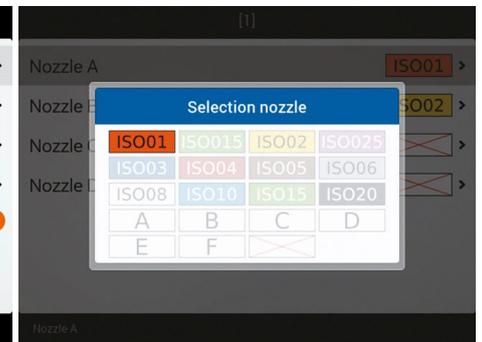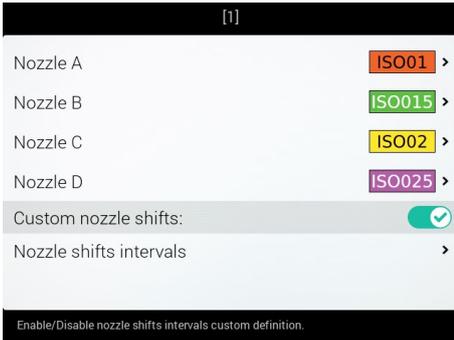|		
F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	📖 **Par. 1.4**

6.5.5   Pressure sensor

Pressure sensor
Activation status:
Type: 466113.200 ›
Maximum pressure: 20.0 bar

Enable/Disable the pressure sensor.
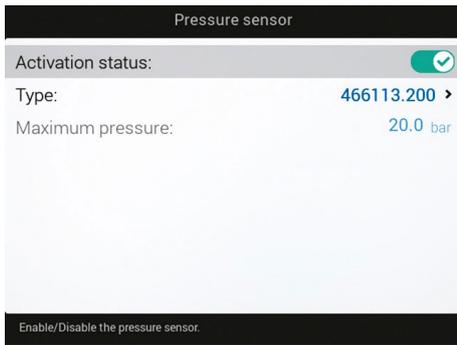
Fig. 74

• Activation status

To configure the items on this menu, you must enable the pressure sensor
(✓ **Sensor enabled** / ✓ **Sensor enabled cannot be modified** / ✗ **Sensor disabled**).

- Enter the values for the pressure sensor installed on the system.

The table below indicates the values that are automatically set selecting the sensor code.
If the installed sensor is not displayed, select **Other** and enter the relevant values.

Type	Maximum pressure	
	bar	PSI
ARAG 466113.200	20.0	290
ARAG 466113.500	50.0	725
Other	50.0	725

ARAG PRESSURE SENSOR

Depending on the basic settings (**Flowrate reference sensor**, chap. 4), the pressure sensor, once properly set up, can perform different functions:
• **Pressure sensor**: the pressure measured by the sensor is used to calculate the spray rate.
• **Flowmeter**: the pressure sensor displays ONLY the job pressure.
• **Both**: the pressure sensor displays the job pressure when the machine works within the flowmeter limits.
When the flowmeter operates outside the limits the pressure measured by the sensor is used to calculate the spray rate.

Type:
◉ 466113.200
○ 466113.500
○ Other

0 ÷ 20 bar / 0 ÷ 290 psi.
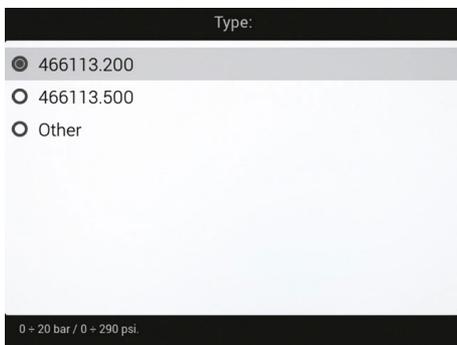
Fig. 75

• Type

Indicate the type of pressure sensor installed.

Maximum pressure:

050.0 bar

Minimum value: 0.1 bar
Maximum value: 150.0 bar

Pressure sensor's fullscale setting.

Fig. 76

• Maximum pressure

Item **Maximum pressure** can be edited only when option **Other** is enabled.

Indicate the full scale of the pressure sensor installed on the system.

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

6.5.6   Valves

Fig. 77
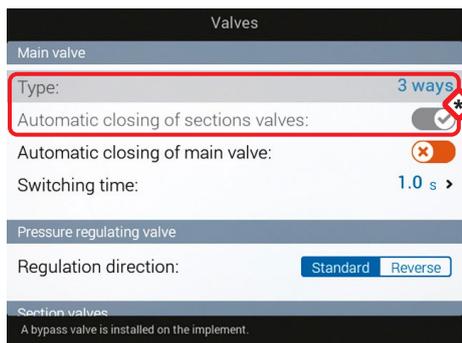
Set the type of valve installed on the system and the relevant values.

Items Main valve > Type and Automatic closing of section valves are shown as REMINDER: they are activated during the guided setup (chap. 4). Therefore, they cannot be modified from this screen.

MAIN VALVE

• Type (REMINDER)

Main control valve installed. Available options are:
None, **2 ways** (drain valve), **3 ways** (main valve)

• Automatic closing of section valves (REMINDER)

On a Seletron system, automatic closing of sections is active by default (**"M" type**).
In this mode, the section valves are closed or opened by operating the main control valve based on the settings of the controls relating to the single section valves, namely:
- if section controls are set to OFF, when main control is operated, the sections will stay closed;
- if the control of one or more section valves is set to ON, when main valve is closed or opened, the section valves will be closed or opened as well.

• Automatic closing of main valve

When all section valves are closed and this option is enabled, the main valve is automatically closed as well.
(✓ **Main valve automatic closure enabled /** ✗ **Main valve automatic closure disabled)**

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

6.5.7   Valves
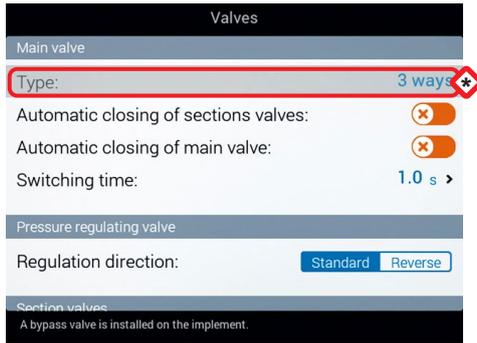
Fig. 78

Set the type of valve installed on the system and the relevant values.

✻ **The item Main valve > Type is shown as REMINDER: it is activated during the guided setup (chap. 4). It can not therefore be modified on this screen.**

MAIN VALVE

• Type (REMINDER)

Main control valve installed. Available options are:
None, **2 ways** (drain valve), **3 ways** (main valve)

• Automatic closing of section valves

Allows enabling/disabling the section automatic closing when the main control valve is closed.

Fig. 79
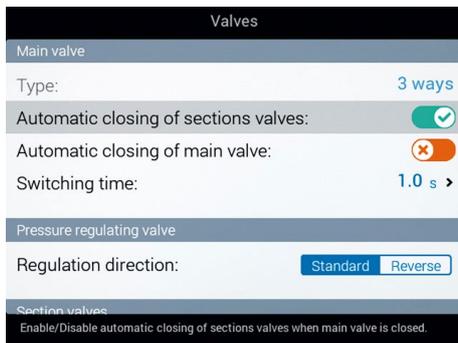
• **"P" operating mode (option):**
The section valves are controlled independently.
Main valve control functions do not affect section valve opening or closing.

• **"M" operating mode (option):**
the section valves are closed or opened by operating the main control valve based on the settings of the controls relating to the single section valves, namely:
- if section controls are set to OFF, when main control is operated, the sections will stay closed;
- if the control of one or more section valves is set to ON, when main valve is closed or opened, the section valves will be closed or opened as well.

🖐 **ENABLED MODE CANNOT BE MODIFIED: this condition occurs when no main valve is installed on the system or the installed one is a 2 ways.**

• Automatic closing of main valve

When all section valves are closed and this option is enabled, the main valve is automatically closed as well.
(**Main valve automatic closure enabled /** **Main valve automatic closure disabled)**

🖐 **DISABLED MODE CANNOT BE MODIFIED: this condition occurs when no main valve is installed on the system.**

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | Par. 1.4 |
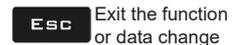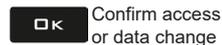
• Switching time

Indicate the time between the moment when the command is sent to the main valve and the actual moment in which spraying starts / stops.

Switching time:

1.0 s

Minimum value: 0.1 s
Maximum value: 1.0 s

Main valve switching time setting.
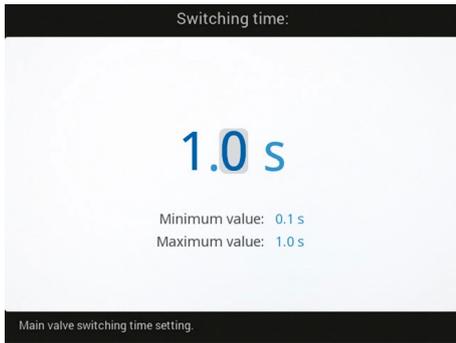
Fig. 80

PRESSURE REGULATING VALVE

• Regulation direction

Indicate the type of installed control valve. Available options are:
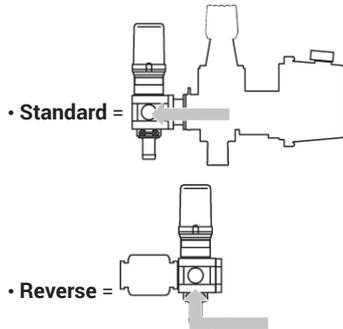
• **Standard** =

• **Reverse** =

F1 Enter selected character	**F2** Delete selected character	**F7** **F8** Scroll (LEFT / RIGHT)	**F4** **F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

24

SELETRON MODE ON

SECTION VALVES

Valves	
Switching time:	1.0 s ›
Pressure regulating valve	
Regulation direction:	Standard Reverse
Section valves	
Type:	2 ways
Shut-off time:	0.3 s ›
Switch-on time:	0.3 s ›
Section valves type selection.	

Fig. 81

• Type (REMINDER)

On a Seletron system, section valves are of the **2 ways** type (without metered by-pass) and are automatically set.

CONTINUES " Shut-off time" > > >

SECTION VALVE MODE ON

SECTION VALVES

Valves	
Switching time:	1.0 s ›
Pressure regulating valve	
Regulation direction:	Standard Reverse
Section valves	
Type:	2 ways 3 ways
Shut-off time:	0.6 s ›
Switch-on time:	0.6 s ›
SVT_DEFAULT.hint	

Fig. 82

• Type

Indicate the type of installed section valves. Available options are:
• **2-Way** (valves without metered by-pass)
• **3-Way** (valves with metered by-passes)

CONTINUES " Shut-off time" > > >

Shut-off time:
0.3 s
Minimum value: 0.1 s
Maximum value: 1.0 s
Section valves shut-off time setting.

Fig. 83

• Shut-off time

Indicate the time between the moment when the command is sent to the valves and the actual moment in which product output stops.

Switch-on time:
0.3 s
Minimum value: 0.1 s
Maximum value: 1.0 s
Section valves switch-on time setting.

Fig. 84

• Switch-on time

Indicate the time between the moment when the command is sent to the valves and the actual moment in which product output starts.

END 6.5.6 Valves

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | **Par. 1.4** |

6.5.8   Nozzles data

Fig. 85

Legend:
A *Nozzle*
B *Reference flowrate*
C *Reference pressure*

Fig. 86

Allows setting the values of
12 types of ISO nozzles and 6 "User" nozzles
(A, B, C, D, E, F).

✋ **The values Flowrate and Pressure can be modified for "User" nozzles ONLY, not for "ISO" nozzles.**

- Select the nozzle you wish to set up (Fig. 85).
- Enter the relevant features (Fig. 86).
- If necessary, repeat the setup for each nozzle.

Fig. 87

Fig. 88

• **Flowrate**
• **Pressure**

Set the reference flowrate and pressure for the selected nozzle.
The flowrate of the nozzle being used allows the monitor to calculate the pressure without a pressure sensor.

Fig. 89

Fig. 90

• **Minimum pressure**
• **Maximum pressure**

Set the pressure limits for the selected nozzle.
Enable the relevant function of the menu **Alarms** (par. 6.5.13) if you want the computer to trigger an alarm when the nozzle is outside the set range.

seletron **MODE** ON

✋ **Pressure limits for the nozzle in use allow the monitor to select the suitable nozzle during spraying, therefore they must be set correctly.**

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

6.5.9 "Fence" nozzles data

✋ **This menu is only visible if the end nozzles are enabled and set to "Fence" nozzles (basic settings, chap. 4).**

Fig. 91

Legend:
A *Reference flowrate*
B *Reference pressure*
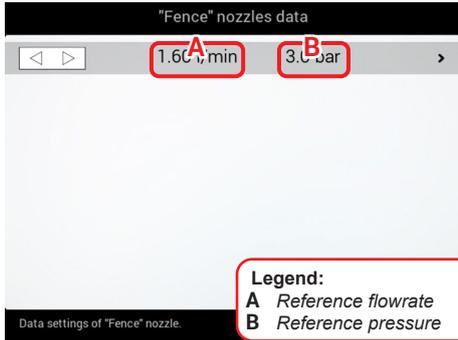
Fig. 92

Allows setting the values
of "Fence" nozzle.

- Select the nozzle you wish to set up (Fig. 91).
- Enter the relevant features (Fig. 92).

01.60 l/min

Minimum value: 0.10 l/min
Maximum value: 10.00 l/min

Fig. 93

03.0 bar

Minimum value: 0.1 bar
Maximum value: 50.0 bar
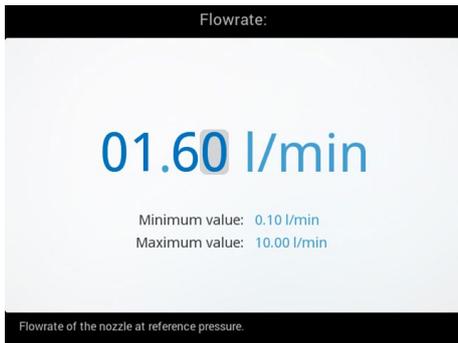
Fig. 94

• **Flowrate**
• **Pressure**

Set the reference flowrate and pressure for the
"Fence" nozzle.
These data allow the correct adjustment of
the application rate when "Fence" nozzles are
enabled.

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | 📖 **Par. 1.4** |
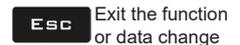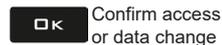
6.5.10 Wheel sensor

Information concerning speed is usually received by the GPS, which is connected directly to the monitor.
If there is no GPS signal this menu allows to use the wheel sensor as a source of speed data instead of the GPS, and therefore to calculate the data on the basis of the pulses received by the speed sensor installed on the wheel.

Wheel sensor	
Constant:	4.25 cm/pls ›

Wheel sensor constant setting.
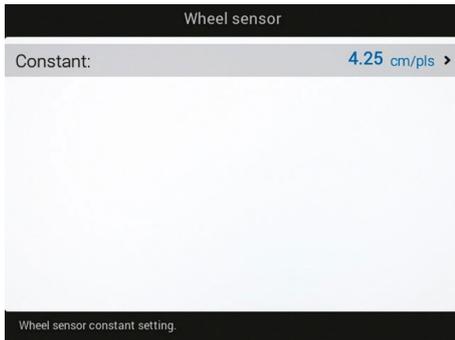
Fig. 95

• Constant

Allows entering the wheel constant value calculated with the suitable formula.
The wheel constant can be calculated with a good approximation by detecting the distance traveled by the wheel with the speed sensor.
The longer the distance traveled, the more accurate the wheel constant calculation.

$$Kwheel = \frac{distance\ traveled\ (cm)}{no.\ of\ detection\ points \times wheel\ rpm}$$

<distance traveled> distance expressed in cm covered by the wheel along measurement travel.
<no. of measurement points> number of measurement points (e.g., magnets, bolts, etc.), mounted on wheel.
<no. of wheel revolutions> number of wheel revolutions required to travel measurement distance.

Take measurements with tires at the operating pressure.
This test must be performed on medium-hard terrain; for application to very soft or very hard terrain, rolling diameter may vary, leading to inaccurate output calculation; when this is the case, repeat the procedure.
During the test, cover the distance with the tank filled up to half capacity with water.

6.5.11 Rev counter

Rev counter	
Activation status:	✓
Constant:	100 pls/rev ›
Minimum rotation speed:	100 rpm ›
Maximum rotation speed:	500 rpm ›

Enable/Disable the rev counter.
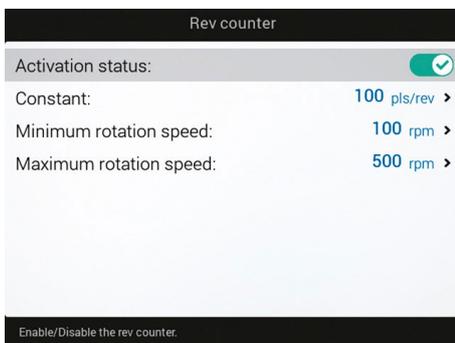
Fig. 96

• Activation status

To configure the items on this menu, you must enable the rev counter
(✓ **Rev counter enabled** / ✗ **Rev counter disabled).**

Enter the values for the rev counter installed on the system.

Constant:

100 pls/rev

Minimum value: 1 pls/rev
Maximum value: 999 pls/rev

Rev counter constant setting.

Fig. 97

• Constant

Indicate the constant of the installed rev counter.

Minimum rotation speed:

00100 rpm

Minimum value: 1 rpm
Maximum value: 10000 rpm

Minimum rotation speed setting.

Fig. 98

Maximum rotation speed:

00500 rpm

Minimum value: 1 rpm
Maximum value: 10000 rpm

Maximum rotation speed setting.
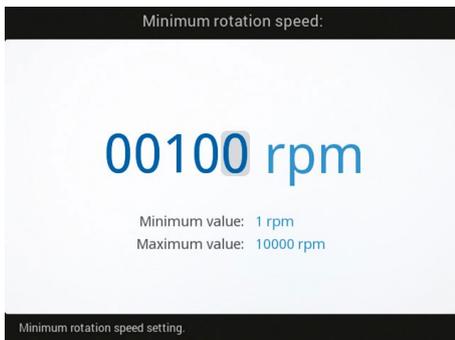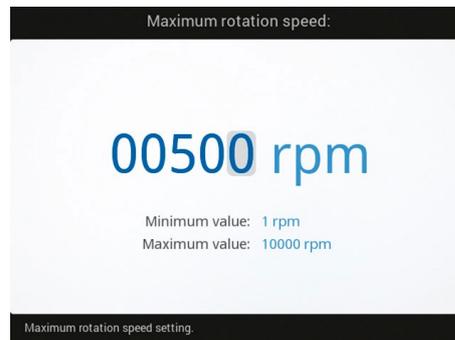
Fig. 99

• Minimum rotation speed
• Maximum rotation speed

Enable the relevant function of the menu **Alarms** (par. 6.5.13) if you want the computer to trigger an alarm when, during spraying, the measured RPM are outside the set range.
For minimum speed, the control is active only when the spraying is active (main switch ON).

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change

Esc Exit the function or data change

Par. 1.4

6.5.12   Tank

Tank level source:
Manual / Filling flowmeter

Tank	
Reserve level:	150 I ›
Capacity	2000 I ›

Reserve level alarm setting.

Fig. 100

Tank level source:
Level sensor

Tank	
Reserve level:	150 I ›
Tank profile:	›

Reserve level alarm setting.

Fig. 101

Allows setting the tank values.

The settings will change according to the selected source for tank level reading (basic settings, chap. 4).

TANK LEVEL SOURCE: MANUAL / FILLING FLOWMETER

Reserve level:

0150 I

Minimum value: 1 l
Maximum value: 2000 l

Reserve level alarm setting.
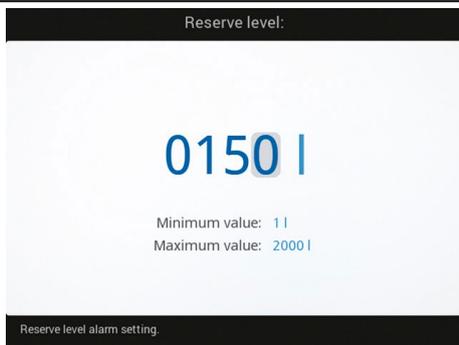
Fig. 102

• Reserve level

Indicate range value.
The tank alarm is triggered when, during spraying, the tank level falls below the set value.

Capacity

02000 I

Minimum value: 1 l
Maximum value: 99999 l

Tank capacity:

Fig. 103

• Capacity

Indicate tank capacity.

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**
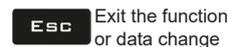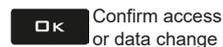
TANK LEVEL SOURCE: LEVEL SENSOR
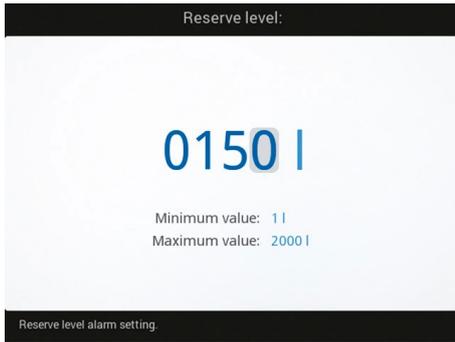
Fig. 104

• Reserve level

Indicate range value.
The tank alarm is triggered when, during spraying, the tank level falls below the set value.
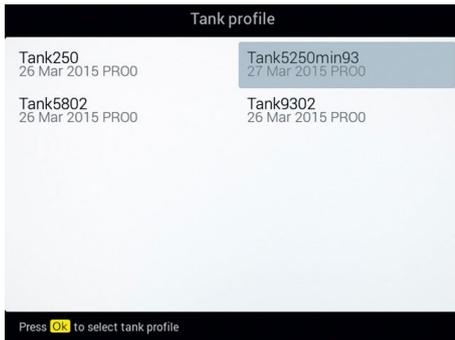
Fig. 105

• Tank profile

The tank profiles can be loaded or saved on the internal memory so as to reconfigure the computer if necessary, solve problems or configure another tank without repeating all operations manually.

In this menu, indicate the current tank profile.
The profiles are ONLY available if copied onto the internal memory (par. 10.4.5), or after calibrating the tank profile (par. 6.5.16).
After loading a tank profile, it is NECESSARY to perform a zero calibration of the level sensor (Tank level zero value, par. 6.5.16).

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

6.5.13   Alarms

Alarms	
Nozzles alarms	
Nozzle wear check:	⊗
Nozzle wear limit percentage:	10 %
Minimum pressure alarm:	⊗
Maximum pressure alarm:	⊗
Flowmeter alarms	
Minimum flowrate alarm:	⊗
Maximum flowrate alarm:	⊗
Enable/Disable nozzle wear check alarm.	

Fig. 106

Set monitor job alarms.

NOZZLES ALARMS

Alarms	
Nozzles alarms	
Nozzle wear check:	✓
Nozzle wear limit percentage:	10 % ›
Minimum pressure alarm:	⊗
Maximum pressure alarm:	⊗
Flowmeter alarms	
Minimum flowrate alarm:	⊗
Maximum flowrate alarm:	⊗
Enable/Disable nozzle wear check alarm.	

Fig. 107

Nozzle wear limit percentage:
10 %
Minimum value: 1 %
Maximum value: 50 %
Nozzle wear limit percentage setting.

Fig. 108

• Nozzle wear check

To configure the items on this menu, you must enable the nozzle wear check:
✓ **Check enabled**
⊗ **Check disabled**

This alarm can be enabled ONLY if the system features both flowmeter and pressure sensor.

• Nozzle wear limit percentage

Set the acceptable threshold: the monitor compares the effective rate read by the flowmeter and the one calculated by the pressure sensor.
When the difference between the two rate values exceeds the set percentage, the alarm is triggered.

Alarms	
Nozzles alarms	
Nozzle wear check:	⊗
Nozzle wear limit percentage:	10 %
Minimum pressure alarm:	✓
Maximum pressure alarm:	⊗
Flowmeter alarms	
Minimum flowrate alarm:	⊗
Maximum flowrate alarm:	⊗
Enable/Disable minimum pressure alarm of the nozzle.	
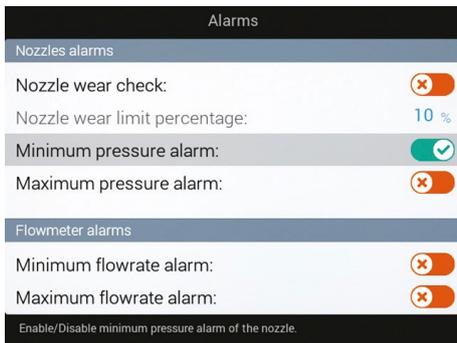
Fig. 109

• Minimum pressure alarm
• Maximum pressure alarm

Allows enabling/disabling minimum and maximum pressure alarms for the nozzles in use.
- Select the item you wish to set up.
- Enable / disable the alarm (✓ **Alarm enabled** / ⊗ **Alarm disabled**).
- Repeat the setup for each alarm.

Outside the range set in the menus **Minimum pressure** / **Maximum pressure** (par. 6.5.8 Nozzles data), the computer triggers an alarm.

F1 ⓘ Enter selected character	**F2** ⟳ Delete selected character	**F7** ◄ **F8** ► Scroll (LEFT / RIGHT)	**F4** ▲ **F6** ▼ Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	📖 **Par. 1.4**

FLOWMETER ALARMS

Alarms	
Nozzles alarms	
Nozzle wear check:	⊗
Nozzle wear limit percentage:	10 %
Minimum pressure alarm:	⊗
Maximum pressure alarm:	⊗
Flowmeter alarms	
Minimum flowrate alarm:	✓
Maximum flowrate alarm:	⊗
Enable/Disable minimum flowrate alarm.	

Fig. 110

• Minimum flowrate alarm
• Maximum flowrate alarm

Allows enabling/disabling minimum and maximum flowrate alarms for the flowmeter.
- Select the item you wish to set up.
- Enable / disable the alarm (✓ **Alarm enabled** / ⊗ **Alarm disabled**).
- Repeat the setup for each alarm.

Outside the range set in the menus **Minimum flowrate** / **Maximum flowrate** (par. 6.5.3 Flowmeter), the computer triggers an alarm.

REV COUNTER ALARMS

Alarms	
Maximum pressure alarm:	⊗
Flowmeter alarms	
Minimum flowrate alarm:	⊗
Maximum flowrate alarm:	⊗
Rev counter alarms	
Minimum rotation speed alarm:	✓
Maximum rotation speed alarm:	⊗
Enable/Disable minimum rotation speed alarm.	

Fig. 111

• Minimum rotation speed alarm
• Maximum rotation speed alarm

Allows enabling/disabling minimum and maximum speed alarms for the rev counter.
- Select the item you wish to set up.
- Enable / disable the alarm (✓ **Alarm enabled** / ⊗ **Alarm disabled**).
- Repeat the setup for each alarm.

Outside the range set in the menus **Minimum rotation speed** / **Maximum rotation speed** (par. 6.5.11 Rev counter), the computer triggers an alarm.

END 6.5.13 Alarms

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

6.5.14 Working parameters

Working parameters	
Spraying limits	
Spraying speed limit:	⊗
Minimum spraying speed:	1.0 km/h
Regulation pressure limit:	⊗
Minimum regulation pressure:	1.0 bar
Flowrate correction factor:	1.00 ›
Liquid density	1.00 kg/l ◈
Automatic section control	
Enable/Disable minimum spraying speed limit.	

Fig. 112

Set the farming machine job limits.

◈ **Item Tank level correction factor is present only if Tank level sensor has been selected in chapter 4 "Basic setup".**

SPRAYING LIMITS

Working parameters	
Spraying limits	
Spraying speed limit:	✓
Minimum spraying speed:	1.0 km/h ›
Regulation pressure limit:	⊗
Minimum regulation pressure:	1.0 bar
Flowrate correction factor:	1.00 ›
Liquid density	1.00 kg/l ›
Automatic section control	
Enable/Disable minimum spraying speed limit.	

Fig. 113

Minimum spraying speed:

01.0 km/h

Minimum value: 0.4 km/h
Maximum value: 99.9 km/h

Minimum spraying speed limit setting.

Fig. 114

• Spraying speed limit

To configure the items on this menu, you must enable the speed limit:
✓ **Limit enabled**
⊗ **Limit disabled**

• Minimum spraying speed

Set the minimum spraying speed:
The monitor closes the main valve when the tractor speed is lower than the set value.

Working parameters	
Spraying limits	
Spraying speed limit:	⊗
Minimum spraying speed:	1.0 km/h
Regulation pressure limit:	✓
Minimum regulation pressure:	1.0 bar ›
Flowrate correction factor:	1.00 ›
Liquid density	1.00 kg/l ›
Automatic section control	
Enable/Disable minimum regulation pressure.	

Fig. 115

Minimum regulation pressure:

01.0 bar

Minimum value: 0.1 bar
Maximum value: 99.9 bar

Minimum regulation pressure setting.

Fig. 116

• Regulation pressure limit

To configure the items on this menu, you must enable the pressure limit:
✓ **Limit enabled**
⊗ **Limit disabled**

• Minimum regulation pressure

Set the minimum spraying pressure:
The monitor blocks the automatic regulation of the proportional valve when the pressure is lower than the set value.

Flowrate correction factor:

1.00

Minimum value: 0.25
Maximum value: 4.00

Flowrate correction factor setting.
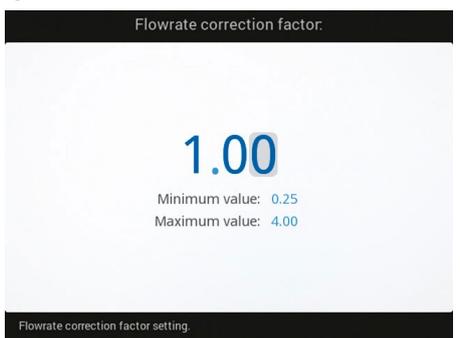
Fig. 117

• Flowrate correction factor

When using a paddle flowmeter and the sprayed fluid has a different viscosity than that of water, the computer could display wrong measurements; to correct them change the flowrate correction factor:
• if at the end of the spraying the tank still contains fluid, reduce the factor;
• if the fluid finishes before the job has ended, increase the factor.

✋ **Flowmeters of the ORION series (code 462xxx) are not affected by the viscosity difference of the fluids: set the value to 1.00.**

Liquid density

1.00 kg/l

Minimum value: 0.25 kg/l
Maximum value: 4.00 kg/l

Liquid density.

Fig. 118

• Tank level correction factor

If the sprayed fluid is lighter than water, the device may indicate wrong measurements; to correct this measurement, edit the sprayed liquid weight, referred to 1 liter of product.

AUTOMATIC SECTION CONTROL

Working parameters	
Flowrate correction factor:	1.00 ›
Liquid density	1.00 kg/l ›
Automatic section control	
Sections overlapping limit:	100 %
Perimeter overlapping limit:	0 %
Spray closing delay:	0.0 m ›
Spray opening advance:	0.0 m ›
Sections maximum overlapping limit setting.	

Fig. 119

• Sections overlapping limit

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. 9.7 Boom section management), the monitor will prompt the operator to close the relevant valves or proceed to the automatic closing of the spraying points.

Sections overlapping limit 0%	Sections overlapping limit 100 %
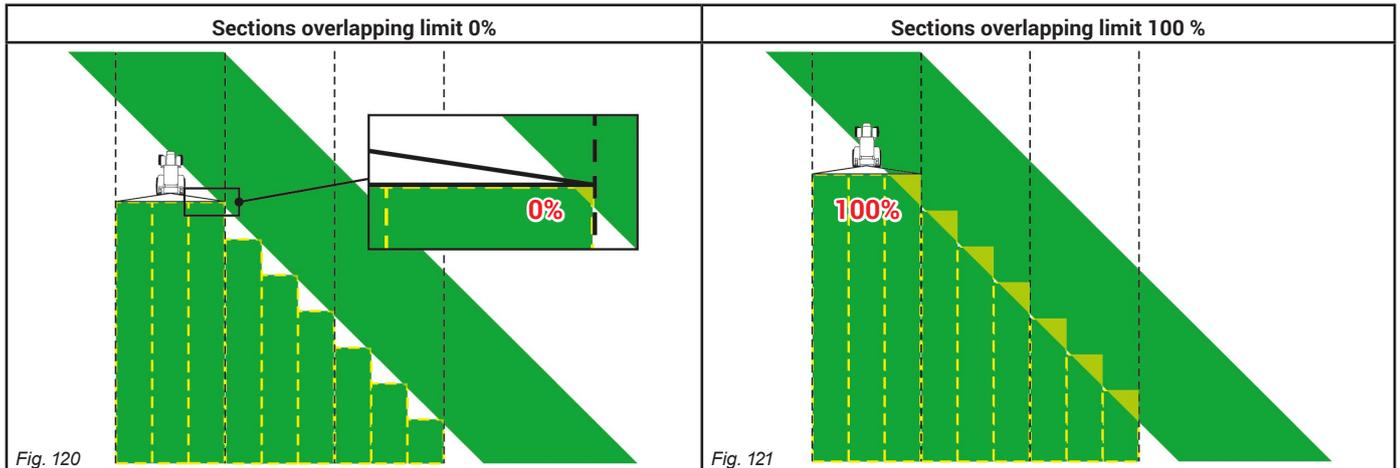
Fig. 120

Fig. 121

Working parameters	
Flowrate correction factor:	1.00 ›
Liquid density	1.00 kg/l ›
Automatic section control	
Sections overlapping limit:	100 %
Perimeter overlapping limit:	0 %
Spray closing delay:	0.0 m ›
Spray opening advance:	0.0 m ›
Perimeter overlapping limit setting.	

Fig. 122

• Perimeter overlapping limit

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. 9.7 Boom section management), the monitor will notify the operator that the section valves spraying outside the field perimeter must be opened or closed, or proceed to the automatic opening/closing of the spraying points.

The following conditions are required in order to use this setup:
- **Drawing the field perimeter (red line in the figures) using the function F4 Surface (par. 13.4).**
- **Enabling automatic section management: the icon on the guidance screen indicates that automatic management is enabled.**

Perimeter overlapping limit 0%	Perimeter overlapping limit 100%
The alert asking to close / open section valves will be displayed following a minimum overlapping (0%) across the field perimeter.	*The alert asking to close / open section valves will be displayed ONLY when the machine is spraying across the entire field perimeter (100%).*

Fig. 123

PERIMETER OF THE FIELD

Fig. 124

PERIMETER OF THE FIELD

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

• Spray closing delay

Indicate the distance corresponding to the delayed closing of sections during spraying, to ensure correct spraying range.
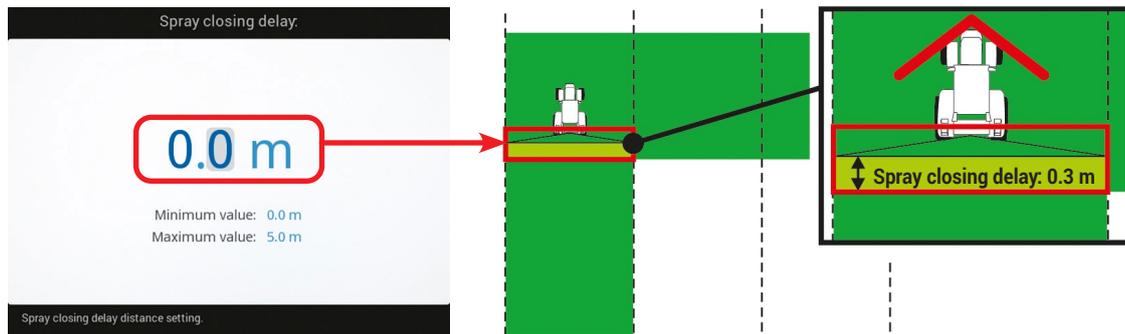
Fig. 125

Fig. 126

• Spray opening advance

Indicate the distance corresponding to the advanced opening of sections during spraying, to ensure correct spraying range.
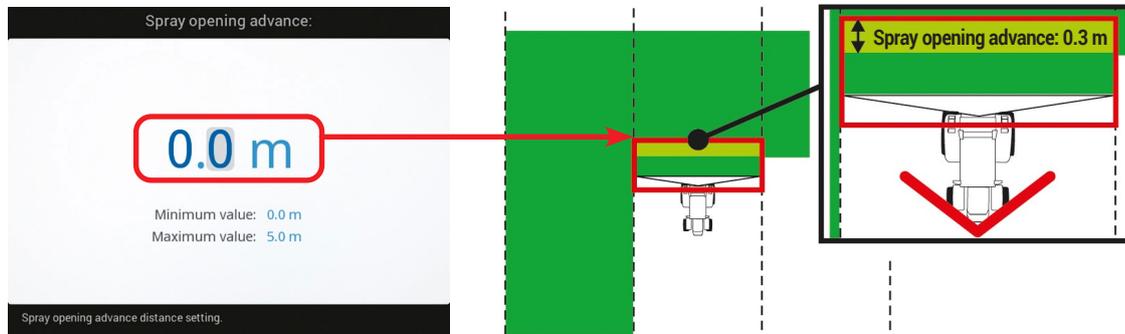
Fig. 127

Fig. 128

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

AUTOMATIC REGULATION CONTROL

• Regulating valve positioning

This function proves useful when control units without metered by-passes are used, as well as when the automatic management of spraying points is active (Seletron system type).

OPERATION

When one or more section valves are closed during spraying, the control valve proportionally opens to reduce system pressure.
Upon the first modification of the spraying conditions (one or more sections set to **ON**), the control valve closes as much as necessary to restore output correct pressure.
This function allows programming the **Flowrate activation limit** (with one or more sections set to **OFF**), under which the control valve closes for the duration of the **Activation time** set, so that pressure is increased before valves are set to ON.
In such a way, the correct spraying will be restored more quickly.

Working parameters	
Automatic regulation control	
Regulating valve positioning	⊗
Flowrate activation limit:	100.0 l/min
Activation time:	3.0 s
Guidance	
Steering radius:	0.0 m ›
Reference lines distance offset:	0.00 m ›
Enable/Disable regulating valve positioning.	
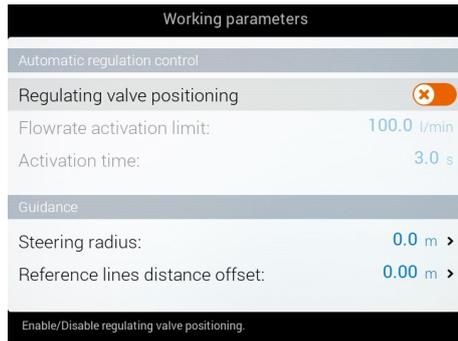
Fig. 129

First of all, enable the menu to configure it.
(✓ **Menu enabled** / ⊗ **Menu disabled**).

100.0 l/min

Minimum value: 0.1 l/min
Maximum value: 199.0 l/min

Fig. 130

03.0 s

Minimum value: 0.1 s
Maximum value: 20.0 s
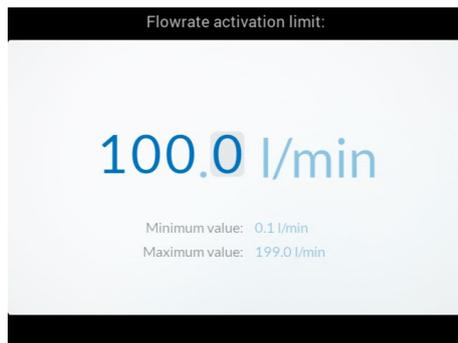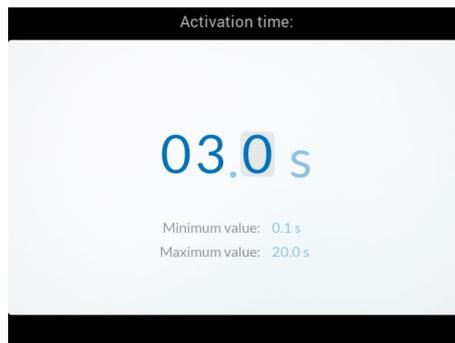
Fig. 131

• Flowrate activation limit

Set the limit flowrate.

• Activation time

Set the operating time.

	Function
F1 ℹ	Enter selected character
F2 ↻	Delete selected character
F7 ← F8 →	Scroll (LEFT / RIGHT)
F4 ↑ F6 ↓	Scroll (UP / DOWN)
	Data decrease / increase
OK	Confirm access or data change
Esc	Exit the function or data change
📖	Par. 1.4
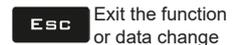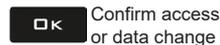
GUIDANCE

• Steering radius

By setting this value, an acoustic alarm will indicate the exact moment when the operator must steer in order to align the machine with the following track, avoiding unsprayed or overlapping areas between the two sprays. **The acoustic alarm may be enabled or disabled from the menu User > Steering warning (par. 6.12.4).**

This distance should correspond to the implement steering radius (**A** in Fig. 133), used at the end of the field to change driving direction and resume spraying on the next track, but it will have to be adjusted according to the characteristics of the operator and the speed of the machine.

The alarm is triggered ONLY if the direction of the machine is at an angle of more than 85° with respect to track to cover and if the straight driving mode is selected (par. 13.2).

Steering radius:

00.0 m

Minimum value: 0.0 m
Maximum value: 20.0 m

Distance that the implement needs to do a 90° turn.

Fig. 132

A
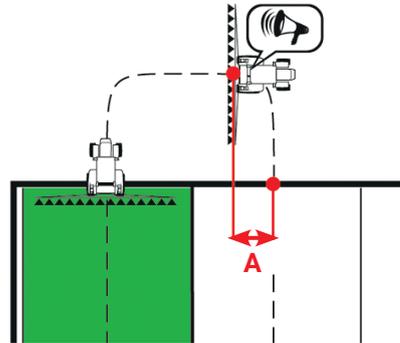
Fig. 133

• Reference lines distance offset

This value allows changing the distance between the reference tracks.

Reference lines distance offset:

+001.00 m

Minimum value: -100.00 m
Maximum value: 100.00 m

Intentional decrease (+) or increase (-) of the distance between reference lines.

Fig. 134

+1 m   +1 m
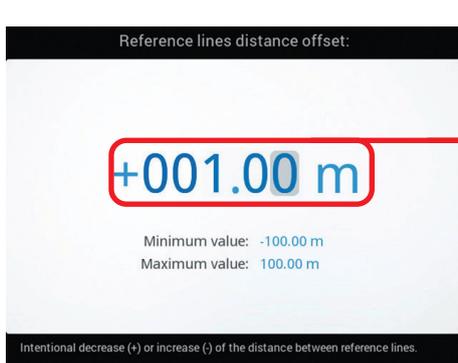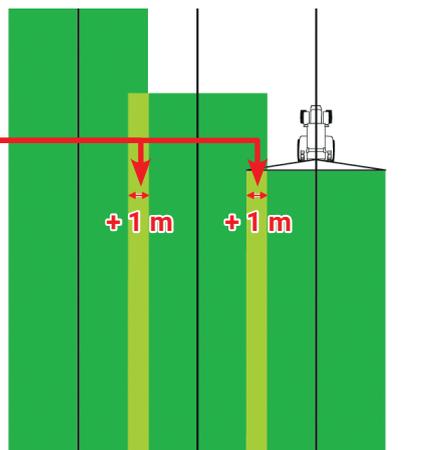
Fig. 135

When the value is positive, the distance between the reference tracks (black lines) decreases.
The spray lateral sides overlap.

Reference lines distance offset:

- 001.00 m

Minimum value: -100.00 m
Maximum value: 100.00 m

Intentional decrease (+) or increase (-) of the distance between reference lines.

Fig. 136

- 1 m   - 1 m
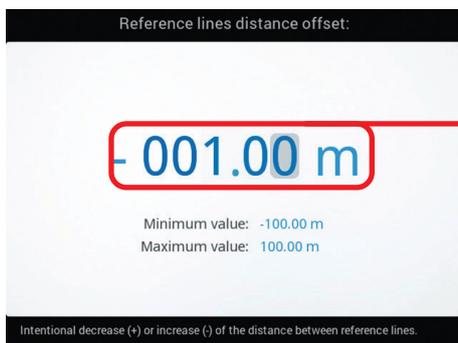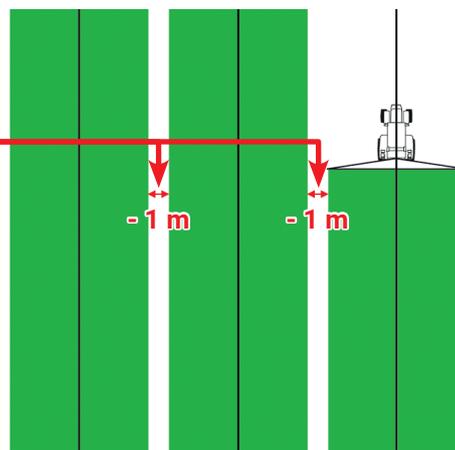
Fig. 137

When the value is negative, the distance between the reference tracks (black lines) increases.
Unsprayed spaces are left between one spray and the other.

END 6.5.14 Working parameters

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

6.5.15 Lighting devices

Enables the connection to lighting devices and the relevant functions inside the job menu:
Boom lighting (par. 11.4);
Beacon light (par. 11.9).
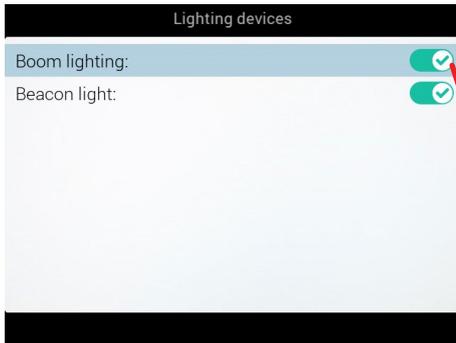
Fig. 140

Fig. 141

6.5.16 Device calibration

Allows starting calibration for the devices connected to the monitor.

✋ **THE BASIC SETTINGS (CAP. 4) AFFECT WHICH AND HOW MENU ITEMS ARE DISPLAYED, HENCE WHICH ADVANCED SETTING IT IS POSSIBLE TO CONTROL.**

seletron MODE ON

SELETRON SYSTEM

• Identification numbers reset

Fig. 138

Fig. 139

Allows to reset the identification numbers of all saved Seletron devices, before repeating the pairing procedure (chap. 12).

- Select item **Identification numbers reset** (Fig. 138)
and press **OK**.
- The message in Fig. 139 is displayed: confirm reset by pressing **OK** again.

At the end of the reset procedure, DISCONNECT ALL SELETRON DEVICES and start a new pairing procedure (chap. 12).

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

SENSORS

• Pressure sensor zero value

```
            Device calibration
 Seletron system
   Identification numbers reset

 Sensors
   Pressure sensor zero value              ⚲ ›
   Tank level zero value                   ⚲ ›
   Tank profile calibration                ⚲ ›


 Setting procedure of the pressure sensor zero value.
```

Fig. 142

✋ **To access this menu, the pressure sensor must be enabled (✅ , par. 6.5.5)**

In case a pressure value other than zero is displayed **despite the absence of pressure inside the circuit**, it is necessary to perform zero calibration of the sensor.

⚠️ **Before carrying out any operation disable the pump by disconnecting it from the power supply. Make sure that the pump is correctly disabled, then open the main valve and all section valves.**

```
        Pressure sensor calibration




  Please turn off the pump, open the main valve and all the section
                        valves.

       Press [Ok] to start calibration procedure.
```

Fig. 143

```
            Reading in progress...



      bar              mA




            Pressure:  0.000 bar

 Press [Esc] to stop calibration procedure.
```
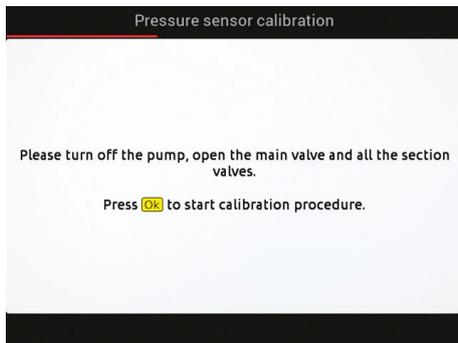
Fig. 144

1 Select **Pressure sensor zero value** (Fig. 142) and press ▢K.
2 The message in Fig. 143 is displayed: follow the instructions, then start the procedure by pressing ▢K.
3 Press ▢K to reset the pressure sensor residual signal.

Value out of range!
If this alarm is displayed, faulty pressure values have been detected: check the sensor operation.
If the problem persists, check for residual pressure in the system.

• Tank level zero value

```
            Device calibration
 Seletron system
   Identification numbers reset

 Sensors
   Pressure sensor zero value              ⚲ ›
   Tank level zero value                   ⚲ ›
   Tank profile calibration                ⚲ ›


 Setting procedure of the Tank level zero value.
```
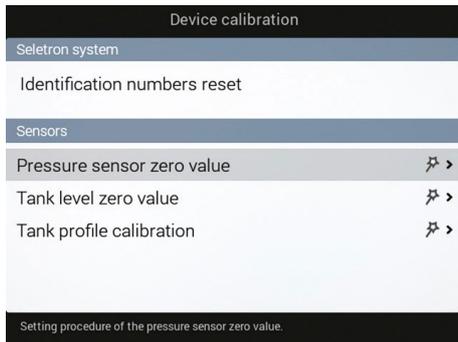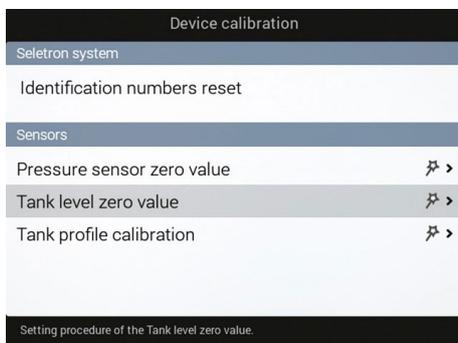
Fig. 145

In the cases below it is necessary to perform the level sensor zero adjustment.
1 The monitor displays the presence of fluid inside the tank, **even when it is empty**;
2 a tank profile has been loaded (par. 6.5.12).

✋ **To use this menu the level sensor must be active (Tank level source, chap. 4). Perform the adjustment with empty tank**

```
        Level sensor calibration




          Ensure that the tank is empty.

       Press [Ok] to start calibration procedure.
```

Fig. 146

```
            Reading in progress...



             mA




          Stored value:  4.0 mA
           Read value:  4.3 mA
       Press [Ok] to confirm zero value
                Valid value...

 Press [Esc] to stop calibration procedure.
```
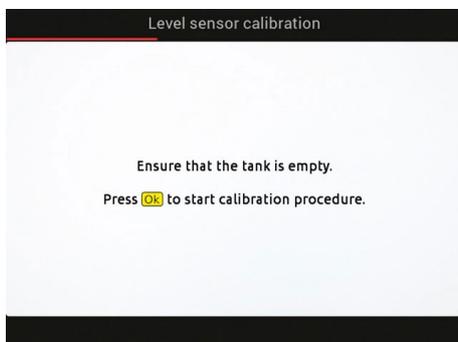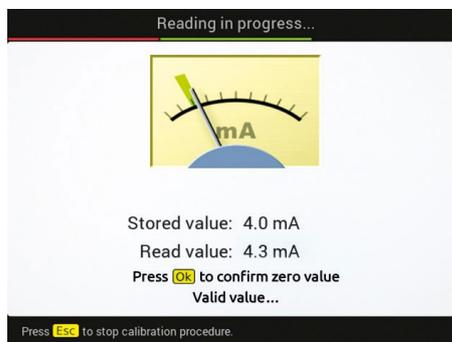
Fig. 147

1 Select **Tank level zero value** (Fig. 145) and press ▢K.
2 The message in Fig. 146 is displayed: follow the instructions, then start the procedure by pressing ▢K.
3 Press ▢K to reset the level sensor residual signal.

Value out of range!
If this alarm is displayed, faulty values have been detected: check the sensor operation.
If problem persists, check for residual fluid in the tank.

F1 ⓘ Enter selected character	**F2** ↻ Delete selected character	**F7** ◀ **F8** ▶ Scroll (LEFT / RIGHT)	**F4** ▲ **F6** ▼ Scroll (UP / DOWN)	Data decrease / increase	**Ok** Confirm access or data change · **Esc** Exit the function or data change · 📖 **Par. 1.4**

> > > 6.5.16 Device calibration

• Tank profile calibration

✋ The calibration of the tank profile is ONLY possible if a flowmeter is installed on the system (par. 6.5.3).

⚠ **Before starting the procedure carry out the following operations:**

1 Make sure the main control is in OFF position (switch box par. 7.2, or joystick par. 6.7.1).
2 Fill the tank with clean water WITHOUT ADDING CHEMICAL SUBSTANCES. The tank must be full.
Visually check the reached level.
3 Set the output to the maximum value by operating the control valve switch (nearly 7 s).
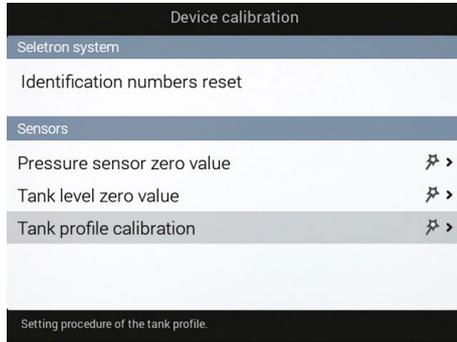
Fig. 148

Fig. 149

4 Select **Tank profile calibration** (Fig. 148) and press ☐K. The calibration starts.

5 The message in Fig. 149 is displayed: follow the instructions, then start the procedure by pressing ☐K.

6 Start the spraying system: open, in succession, all section valves and the main control (**ON**).
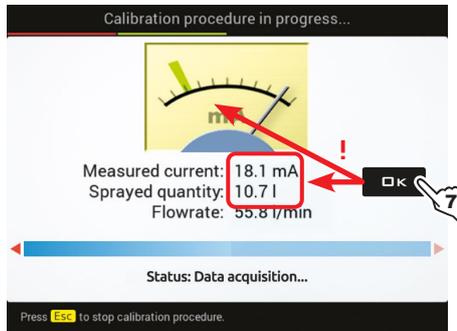
Fig. 150
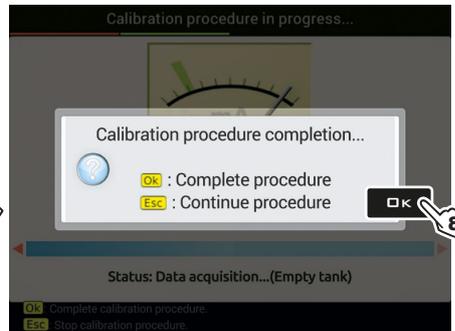
Fig. 151

The display will show in real time the quantity of sprayed water and the calibration status (Fig. 150).

7 When the tank is empty press ☐K to end the procedure: the value read by the level sensor must be lower than 5.0 mA and at least 10 liters must have been sprayed.

8 Press ☐K again to save the tank profile: the name edit screen is displayed (Fig. 152).
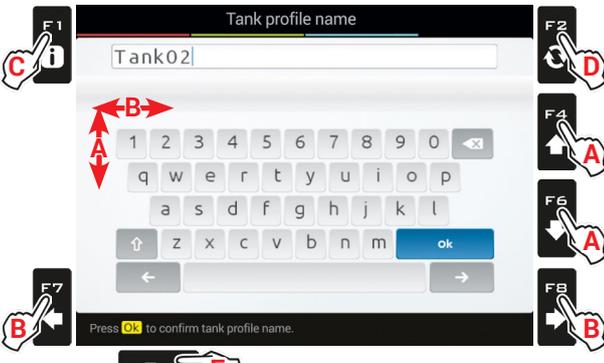
Fig. 152

9 Type in the name:

A Press in succession to select the character you wish to type (UP / DOWN).

B Press in succession to select the character you wish to type (RIGHT / LEFT).

C Press to confirm the selected character

D Press to delete the character before the cursor

E Select the symbol [ok] and press ☐K to save the name.
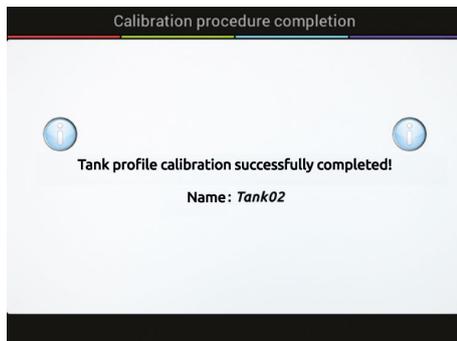
Fig. 153

11 A confirmation message is displayed once the process is completed (Fig. 153). Press ☐K or ᴇѕᴄ.

The calibration is completed.

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	☐K Confirm access or data change	ᴇѕᴄ Exit the function or data change	📖 **Par. 1.4**
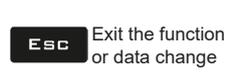
6.6   IBX HYDRAULIC SETTINGS

6.6.1   IBX100-Hydraulic feature unlock

It allows enabling the BLC or TTC functions. It is necessary to enter the activation code provided when purchasing the software license.

BLC embedded

6.6.2   BLC

🖐 **This menu is displayed ONLY after having activated the BLC function on the control unit (software license to be purchased separately). To refine system performance, refer to the manual supplied with the BLC kit.**

TTC embedded

6.6.3   TTC

🖐 **This menu is displayed ONLY after having activated the TTC function on the control unit (software license to be purchased separately). To refine system performance, refer to the manual supplied with the TTC kit.**

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

6.7 JOYSTICK SETTINGS

6.7.1 "Explorer" joystick

The "Explorer" joystick allows the direct control of the spraying functions and of boom hydraulic movements.
This menu allows consulting the functions associated to the joystick and/or configuring specific functions when each key is pressed.
On page 43 and page 44 is a summary of the pre-assigned functions.

THE MENU IS DISPLAYED ONLY IF THE "EXPLORER" JOYSTICK (CODE 46701801) IS CONNECTED TO THE MONITOR. THE JOYSTICK MUST FULLY REPLACE THE SWITCH PANEL (THEY CANNOT BE BOTH CONNECTED). The instructions for device installation and use are provided with the product.

• Pages number
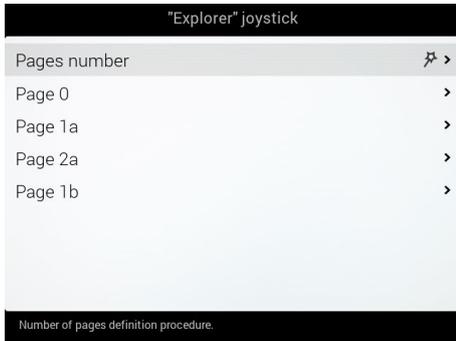
Fig. 154
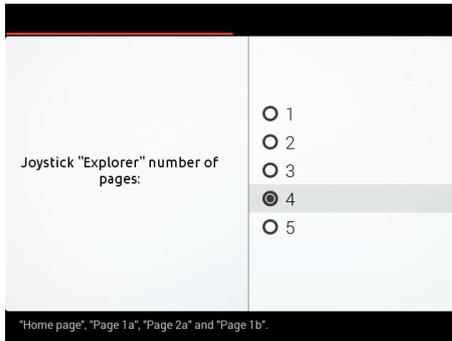
Fig. 155

Defines the number of joystick pages.

Select **Pages number** and press **OK**. Follow the steps and select the desired options.
OK: *next step*
ESC: *previous step.*

The selected option enables a setup menu for each page (Fig. 154).

Option **1**: page 0
Option **2**: page 0 + 1a
Option **3**: page 0 + 1a + 2a
Option **4**: page 0 + 1a + 2a + 1b *(DEFAULT)*
Option **5**: page 0 + 1a + 2a + 1b + 2b

• Joystick keys configuration
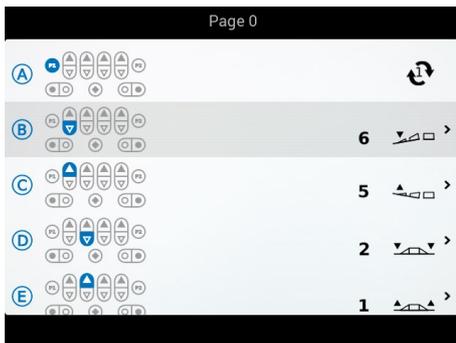
Fig. 156
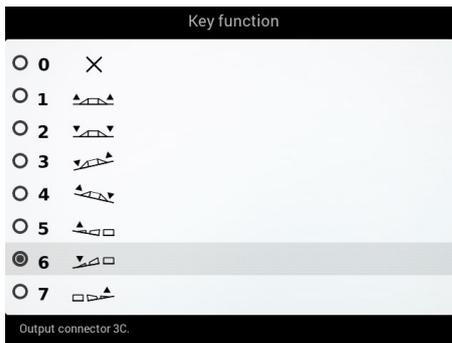
Fig. 157

Access the menu corresponding to the page (**Page 0** in the example of Fig. 156).
Select key position (shown on the display) and press **OK**;
program one of the available options (Fig. 157).

**Keys P1 and P2 cannot be customized:**

P1 Access Page 1a / Page1b

P2 Access Page 2a / Page 2b

Available options:

0	No function	**9**	Arm no. 1 L (C)	**21**	Boom lock (O)	**30**	AUTO/MAN Rate control
1	Height (O)	**10**	Arm no. 1 L (O)	**22**	Boom lock (C)	**31**	AUTO/MAN Sections management
2	Height (C)	**11**	Arm no. 1 R (C)	**23**	Seq. 1 L	**32**	AUTO/MAN Boom leveling
3	Boom tilt (O)	**12**	Arm no. 1 R (O)	**24**	Seq. 1 R	**33**	AUTO/MAN Nozzle selection
4	Boom tilt (C)	**13**	Arm no. 2 L (C)	**25**	Seq. 2 R	**34**	ON/OFF Controllo timone sterz.
5	Var. geom. L (O)	**14**	Arm no. 2 L (O)	**26**	Seq. 2 L	**35**	Azzeramento angolo timone sterz.
6	Var. geom. L (C)	**15**	Arm no. 2 R (C)	**27**	Main valve switch key	**36**	Timone sterz. controllo man. (Dx)
7	Var. geom. R (O)	**16**	Arm no. 2 R (O)	**28**	+ Pressure	**37**	Timone sterz. controllo man. (Sx)
8	Var. geom. R (C)	**17**	Arm no. 1 L+R (C)	**29**	- Pressure		
		18	Arm no. 1 L+R (O)				
		19	Arm no. 1 L+R (C)				
		20	Arm no. 1 L+R (O)				

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

PAGE 0 ("MAIN") - PRESET CONTROLS

Height (O)

Height (C)

Var. geom. L (O)

Var. geom. L (C)

Access Page 1a / Page 1b

Seq. 1 L

Seq. 1 R

Boom tilt (O)

Boom tilt (C)

Var. geom. R (O)

Var. geom. R (C)

Access Page 2a / Page 2b

Seq. 2 R

Seq. 2 L

Main valve switch key
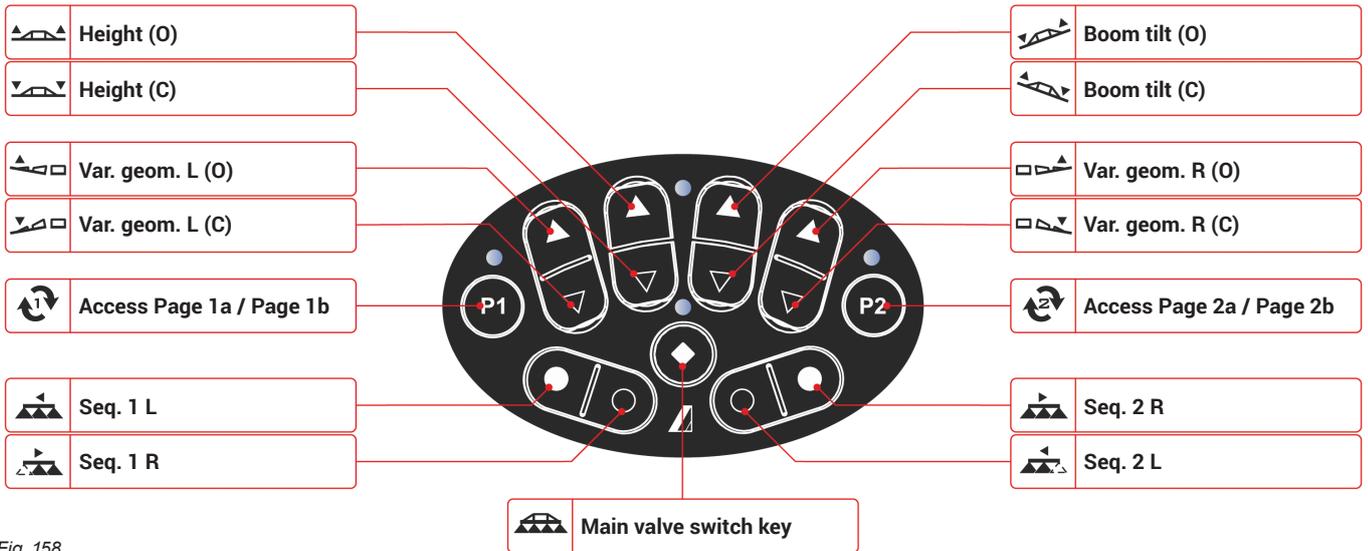
Fig. 158

PAGE 1a - PRESET CONTROLS
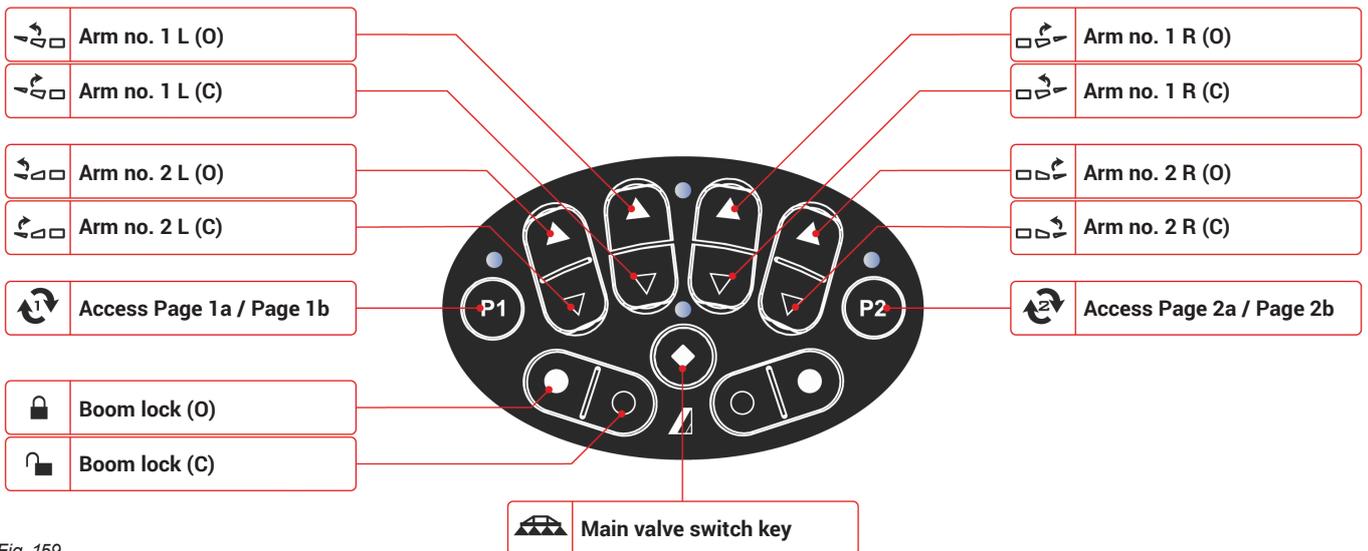
Arm no. 1 L (O)

Arm no. 1 L (C)

Arm no. 2 L (O)

Arm no. 2 L (C)

Access Page 1a / Page 1b

Boom lock (O)

Boom lock (C)

Arm no. 1 R (O)

Arm no. 1 R (C)

Arm no. 2 R (O)

Arm no. 2 R (C)

Access Page 2a / Page 2b

Main valve switch key

Fig. 159

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | Par. 1.4 |

PAGE 1b - PRESET CONTROLS

Height (O)	Boom tilt (O)
Height (C)	Boom tilt (C)
Arm no. 1 L+R (O)	Arm no. 1 L+R (O)
Arm no. 1 L+R (C)	Arm no. 1 L+R (C)
Access Page 1a / Page1b	Access Page 2a / Page 2b
Boom lock (O)	
Boom lock (C)	
Main valve switch key	
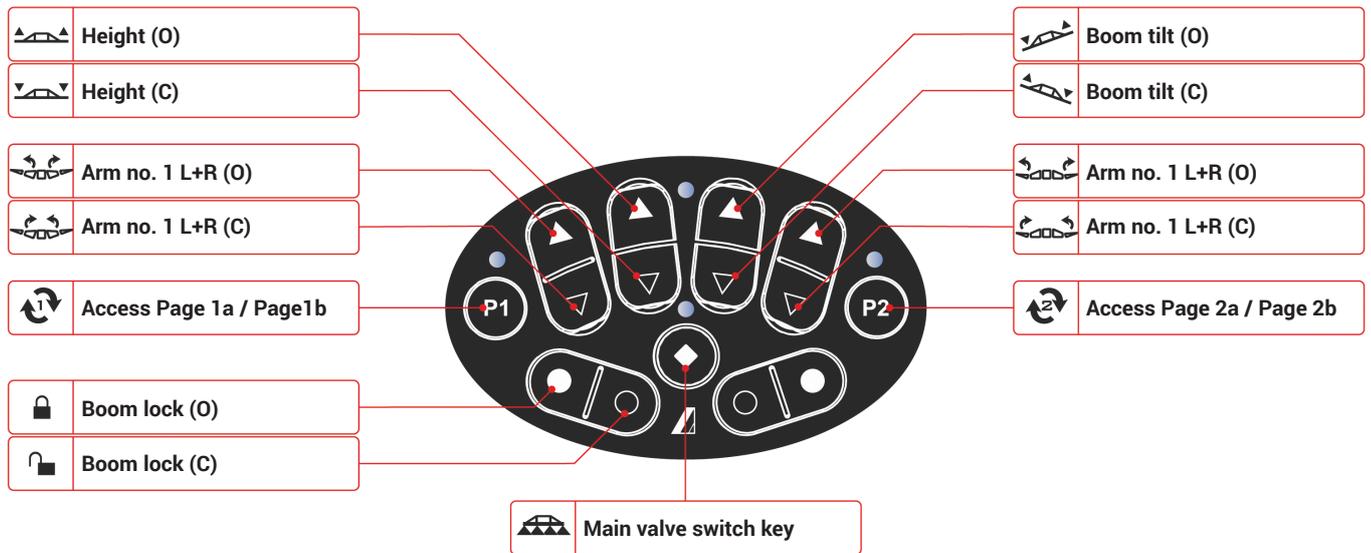
Fig. 160

PAGE 2a - PRESET CONTROLS

	ON/OFF Controllo timone sterz.
	Azzeramento angolo timone sterz.
+ Pressure	Timone sterz. controllo man. (Dx)
- Pressure	Timone sterz. controllo man. (Sx)
Access Page 1a / Page1b	Access Page 2a / Page 2b
AUTO/MAN Rate control	AUTO/MAN Boom leveling
AUTO/MAN Sections management	AUTO/MAN Nozzle selection
Main valve switch key	
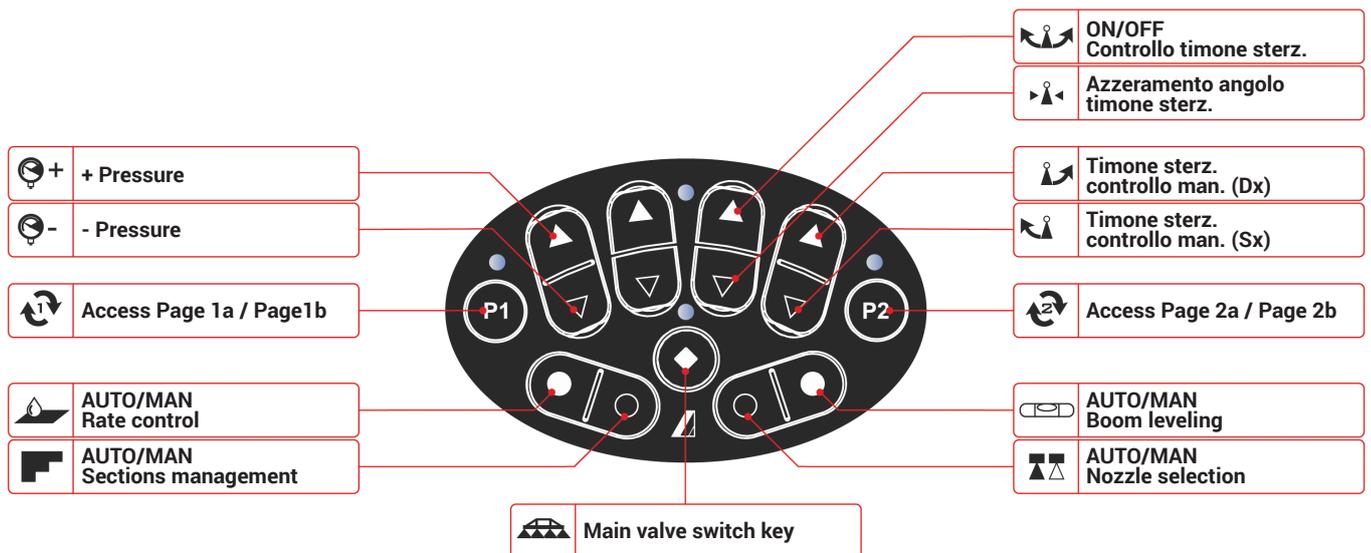
Fig. 161

✋ **Page 2b has NO preset controls (option ✕ for all keys).**

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	Par. 1.4

6.8   IMPLEMENT GEOMETRY (MACHINE WITH TOWED / CARRIED IMPLEMENT)

✋ **The displaying of this menu depends on the selected basic settings (chap. 4).**
FOR SELF-PROPELLING MACHINE GEOMETRY, REFER TO PAR. 6.11.2 AND 6.11.3.

6.8.1   Geometry settings (TOWED IMPLEMENT)

✋ **The settings displayed below vary based on the type of system set (chap. 4).**

Enter farming machine measures.
- Press arrow keys (UP, DOWN) to move among the value descriptions: the image of the selected value will be displayed.
- Confirm by pressing ☐K to enter setup.
- Enter the value.
- Select and enter, one by one, all values.
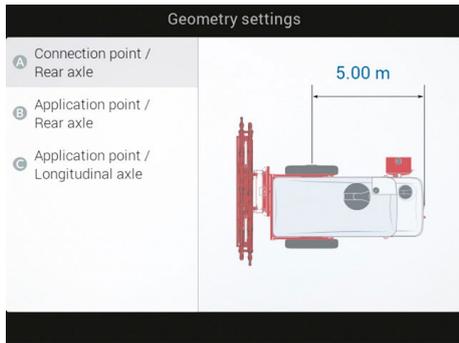
Fig. 162
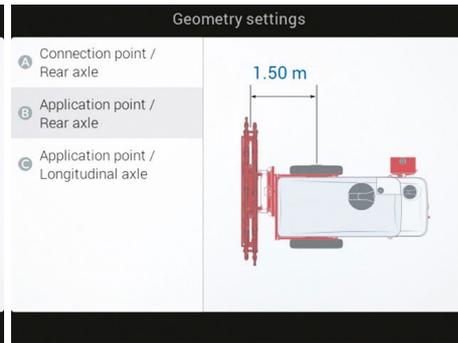
Fig. 163
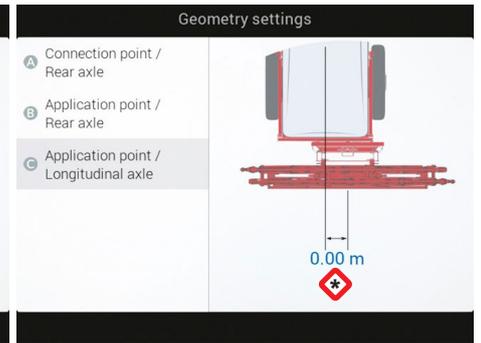
Fig. 164

◈ **Application point / Longitudinal axle**

Application point — **- 1.50 m** — **Longitudinal axis**

NEGATIVE VALUES:
The application point is to the left of the longitudinal axis
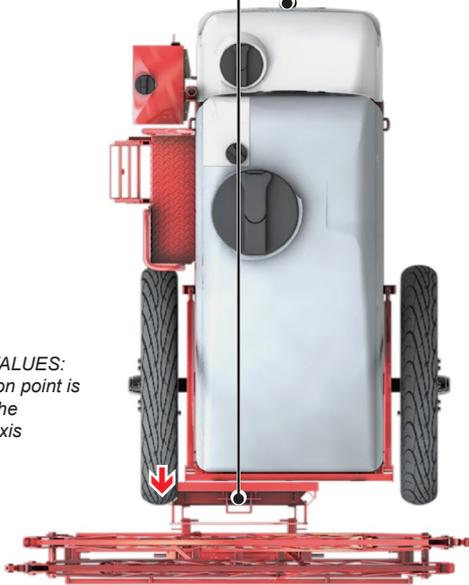
Fig. 165

Longitudinal axis — **+ 1.50 m** — **Application point**

POSITIVE VALUES:
The application point is to the right of the longitudinal axis

Fig. 166

F1	Enter selected character	F2	Delete selected character	F7 F8	Scroll (LEFT / RIGHT)	F4 F6	Scroll (UP / DOWN)		Data decrease / increase	OK	Confirm access or data change	Esc	Exit the function or data change	📖 Par. 1.4
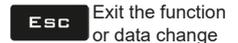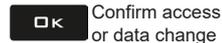
6.8.2 Geometry settings (CARRIED IMPLEMENT)

✋ **The settings displayed below vary based on the type of system set (chap. 4).**

Enter farming machine measures (Fig. 167).
- Press arrow keys (UP, DOWN) to move among the value descriptions: the image of the selected value will be displayed.
- Confirm by pressing ☐K to enter setup.
- Enter the value.
- Select and enter, one by one, all values.
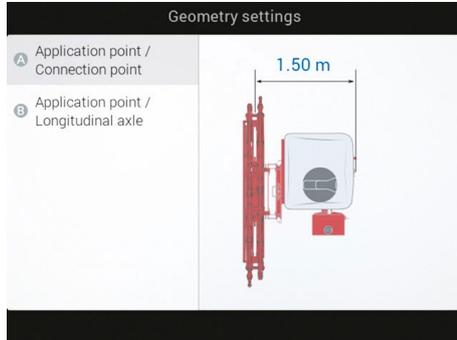
Fig. 167
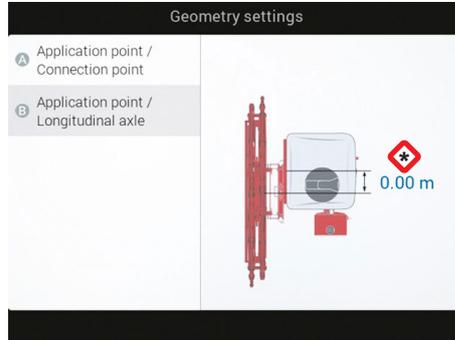
Fig. 168

◈ **Application point / Longitudinal axle**
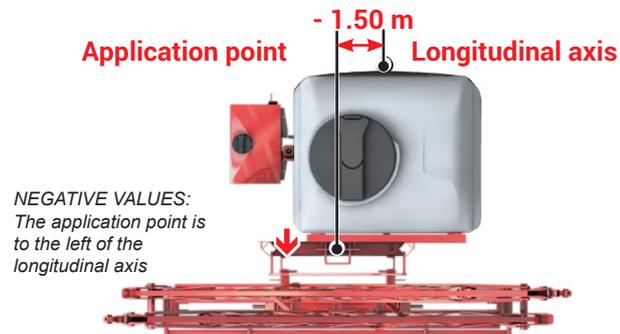
Application point **- 1.50 m** **Longitudinal axis**

NEGATIVE VALUES:
The application point is to the left of the longitudinal axis

Fig. 169

Longitudinal axis **+ 1.50 m** **Application point**

POSITIVE VALUES:
The application point is to the right of the longitudinal axis

Fig. 170

F1 ℹ️	Enter selected character	F2 ↻	Delete selected character	F7 ⬅️ F8 ➡️	Scroll (LEFT / RIGHT)	F4 ⬆️ F6 ⬇️	Scroll (UP / DOWN)	Data decrease / increase	☐K	Confirm access or data change	Esc	Exit the function or data change	📖 Par. 1.4

6.9   GPS RECEIVER SETTINGS

✋ **The items displayed in this menu depend on the basic settings (chap. 4) and on the features of the connected receiver.**
The connection of ARAG receivers, models AG-Star - Atlas - Smart 2 - Smart 6 - Smart 7 - Smart-AG, entails a guided pairing procedure assigning to the monitor ONLY the suitable setup menus. Hereinafter is a summary of the settings:

AG-Star, Atlas, Smart 2, Smart 6, Smart 7, Smart-AG
- **Tilt compensation** (par. 6.9.1).
- **Correction type** (par. 6.9.2).
- **HDOP alarm** (par. 6.9.3).
- **Receiver advanced data** (par. 6.9.4).
- **Receiver update** (par. 6.9.5)

A100
- **Correction type** (par. 6.9.2).
- **Minimum quality** (par. 6.9.6).
- **HDOP alarm** (par. 6.9.3).

NMEA
- **Minimum quality** (par. 6.9.6).
- **HDOP alarm** (par. 6.9.3).
- **Baudrate** (par. 6.9.7).

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

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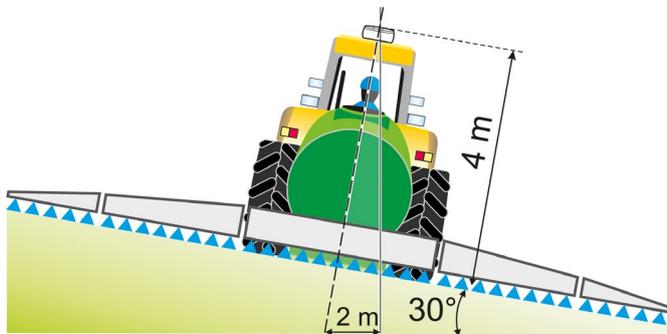
Allows to enable/disable the tilt compensation function of the vehicle (*with antenna only. See ARAG catalog*).

✅ **Tilt compensation enabled**
❌ **Tilt compensation disabled**

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

Fig. 171

6.9.2   Correction type

Allows selecting the differential correction function:

- None Correction disabled

- SBAS DGSP 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 (for preset receiver ONLY):
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.

- RTK (on Delta 80 ONLY with modem 3G - code 4675001, connected to a preset receiver):
differential correction system, much more accurate compared to SBAS and Terrastar, but requiring correction signals from base station (CORS) networks very close to the receiver since the satellites in view must be the same.
These data are received through a 3G module connected to the Internet.

- RTK - SBAS:
This option allows enabling the SBAS correction in case the RTK correction is temporarily unavailable.
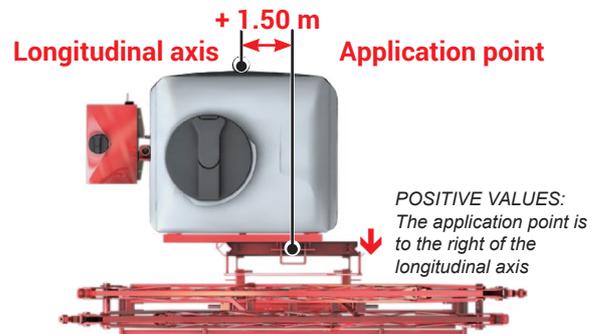
F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	📖 Par. 1.4

✋ **The items displayed in this menu depend on the basic settings (chap. 4) and on the features of the connected receiver. The connection of ARAG receivers, models AG-Star - Atlas - Smart 2 - Smart 6 - Smart 7 - Smart-AG, entails a guided pairing procedure assigning to the monitor ONLY the suitable setup menus.**

6.9.3   HDOP alarm

HDOP alarm:

04.0

Minimum value: 1.0
Maximum value: 10.0

Insufficient GPS signal quality alarm setting.
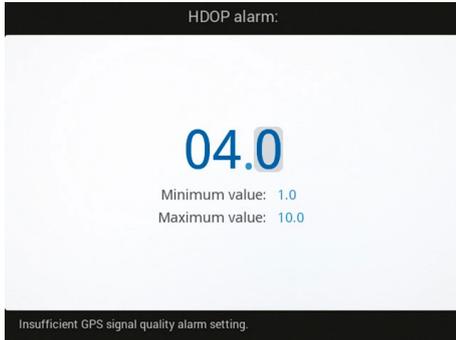
Fig. 172

"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 driving 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.**

6.9.4   Receiver advanced data

Shows the GPS receiver data and the type of correction.

6.9.5   Receiver update - for Smart range receivers ONLY

Tractor : *tra02*

Tractor basic settings

Start   ⚲ ›

GPS receiver settings

Correction type   None ›
HDOP alarm   4.0 ›
Receiver advanced data   ›
Receiver update

Fig. 173

System reboot needed
to start upgrade procedure...

Ok : Start procedure
Esc : Cancel procedure
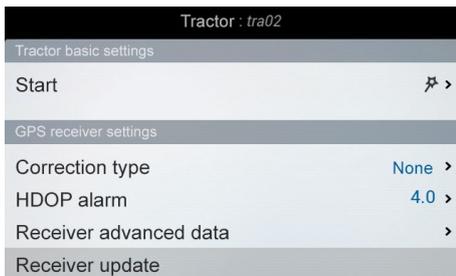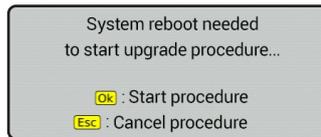
Fig. 174

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

- Select **Software update** (Fig. 173) and press **OK**.
- The message in Fig. 174 is displayed: confirm the update by pressing **OK** again.

6.9.6   Minimum quality - for NMEA / A100 receivers ONLY

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.

6.9.7   Baudrate - for NMEA receiver ONLY

Baudrate

○ Baudrate 4800 bps
○ Baudrate 9600 bps
○ Baudrate 19200 bps
○ Baudrate 38400 bps
◉ Baudrate 57600 bps
○ Baudrate 115200 bps

Baudrate 57600 bps
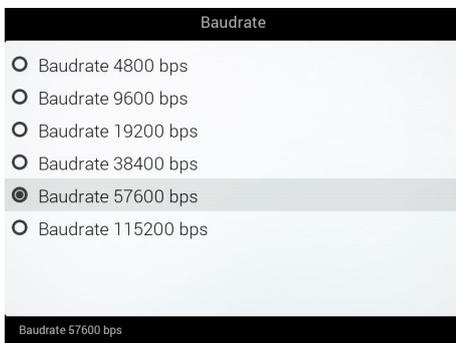
Fig. 175

Typical value of the connected NMEA receiver.

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4
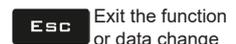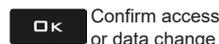
6.10   AUTONOMOUS GUIDANCE

✋ **The displaying of this menu depends on the selected basic settings (chap. 4).**

6.10.1   Guidance configuration

This screen provides "quick" access to the settings of the ECU-S1 control unit for automatic guidance.

✋ **Adjust the parameters ONLY from the control unit direct interface.**
To refine performance, refer to the manual supplied with ECU-S1.

Fig. 176

Fig. 177

Fig. 178

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**
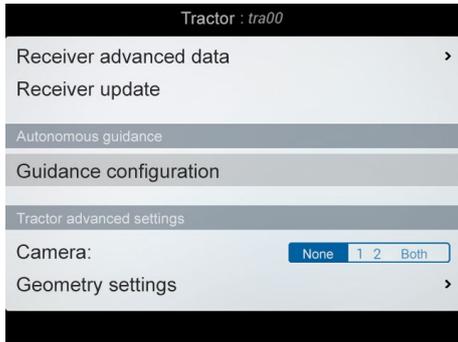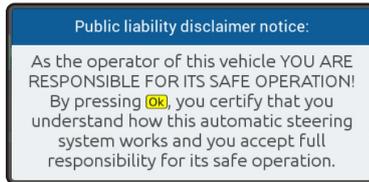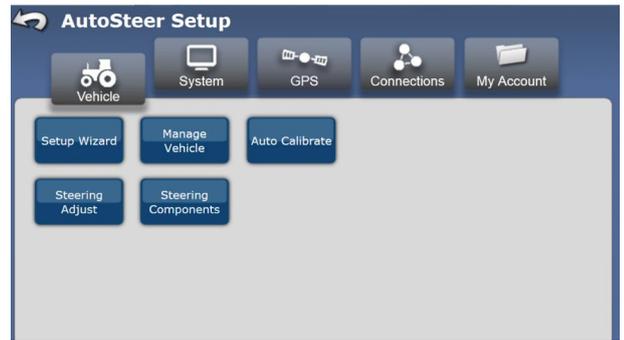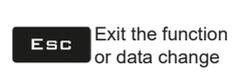
6.11   TRACTOR ADVANCED SETTINGS

6.11.1   Camera

Tractor advanced settings	
Camera:	None 1 2 Both

Fig. 179

It is possible to connect up to 2 cameras to the monitor in order to monitor the working areas that the operator is unable to see (e.g., when driving in reverse).
From the menu it is possible to enable/disable each single camera individually or both cameras:
None No camera connected
1 1 camera connected to input no.1
2 1 camera connected to input no.2
Both 2 cameras connected

6.11.2   Geometry settings (SELF-PROPELLING MACHINE WITH REAR BOOM)

✋ **The settings displayed below vary based on the type of system set (chap. 4).**

Enter farming machine measures.
- Press arrow keys (UP, DOWN) to move among the value descriptions: the image of the selected value will be displayed.
- Confirm by pressing ☐K to enter setup.
- Enter the value.
- Select and enter, one by one, all values.
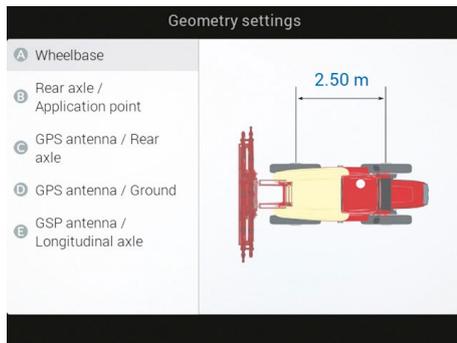
Fig. 180
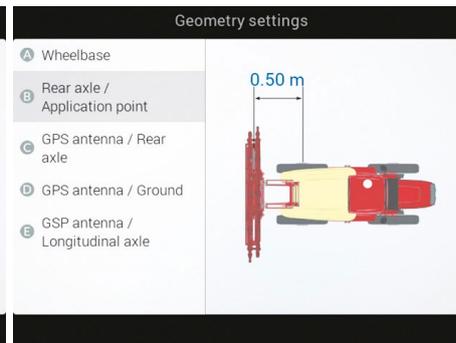
Fig. 181

Fig. 182

Fig. 183

Fig. 184
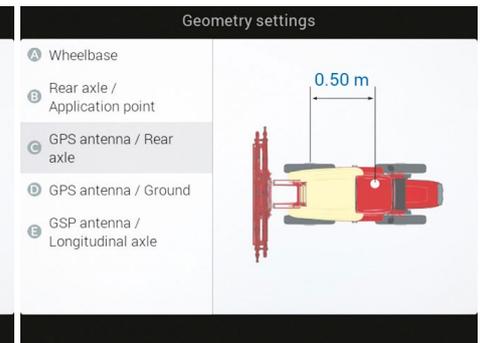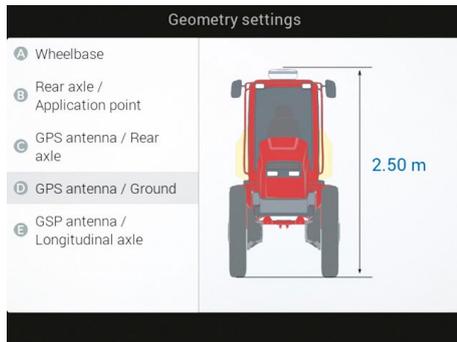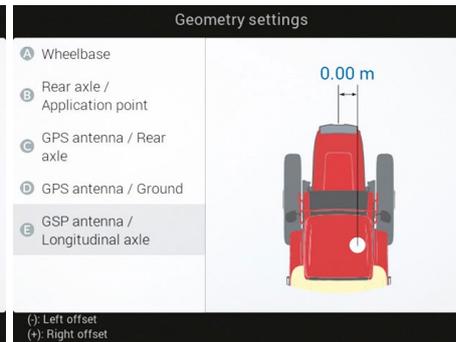
| F1 ℹ | Enter selected character | F2 🔄 | Delete selected character | F7 F8 ← → | Scroll (LEFT / RIGHT) | F4 F6 ↑ ↓ | Scroll (UP / DOWN) | Data decrease / increase | ☐K | Confirm access or data change | Esc | Exit the function or data change | 📖 Par. 1.4 |

✋ **The settings displayed below vary based on the type of system set (chap. 4).**

Enter farming machine measures.
- Press arrow keys (UP, DOWN) to move among the value descriptions: the image of the selected value will be displayed.
- Confirm by pressing ☐K to enter setup.
- Enter the value.
- Select and enter, one by one, all values.

6.11.3 Geometry settings (SELF-PROPELLING MACHINE WITH FRONT BOOM)
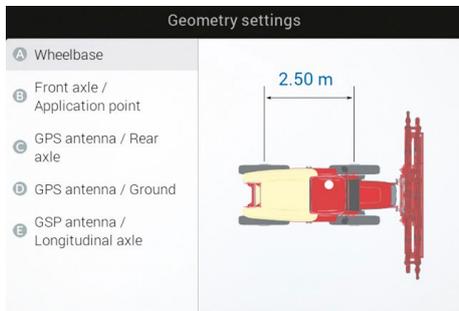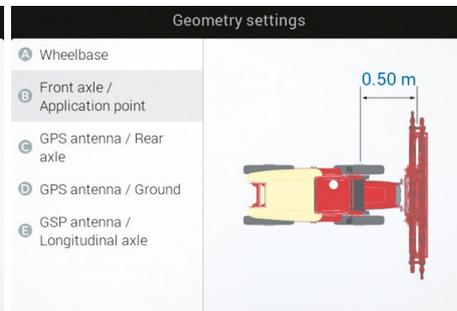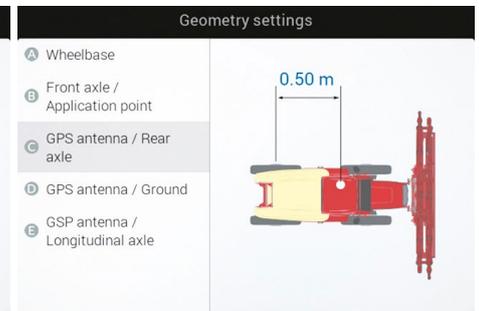
Fig. 185	Fig. 186	Fig. 187
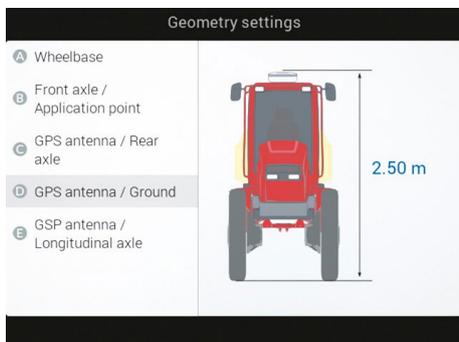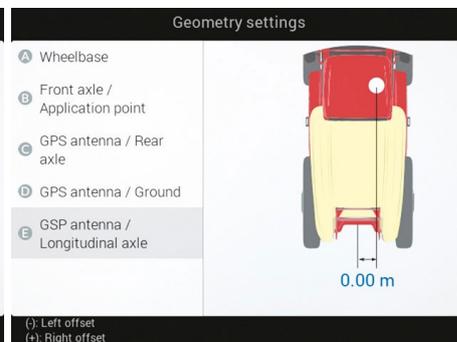
Fig. 188	Fig. 189

6.11.4 Geometry settings (TRACTOR WITH CARRIED/TOWED IMPLEMENT)
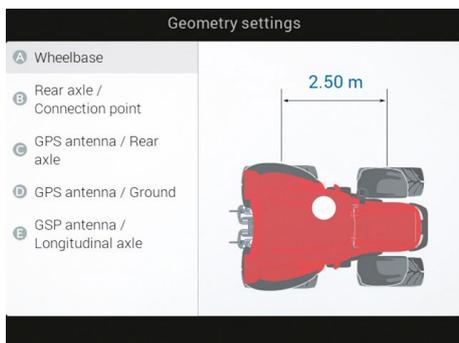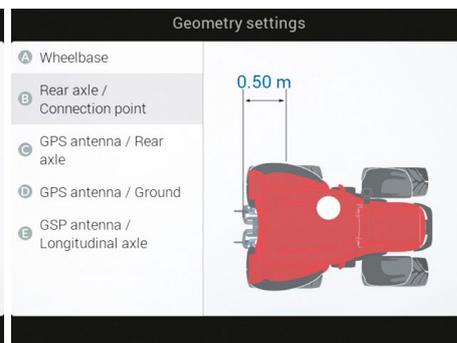
Fig. 190	Fig. 191	Fig. 192

Fig. 193	Fig. 194

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	☐K Confirm access or data change	Esc Exit the function or data change	📖 Par. 1.4

6.12   USER

✋ **The items displayed in this menu depend on the type of connected monitor (Delta 80, Bravo 400S or Ninja).**

User : *usr00*	
Acoustic alarms	
Acoustic critical alarms:	✅
Acoustic low priority alarms:	✅
Acoustic info:	✅
Steering warning:	✅
Alarms volume	70 %
Guidance	
Offset tolerance:	10 cm ›
Enable/Disable acoustic signal when a critical alarm occurs.	

Fig. 195

Alarms
❌ Seletron connection failed!
⚠ Accelerate! Insufficient pressure.
ℹ Minimum tank level reached!
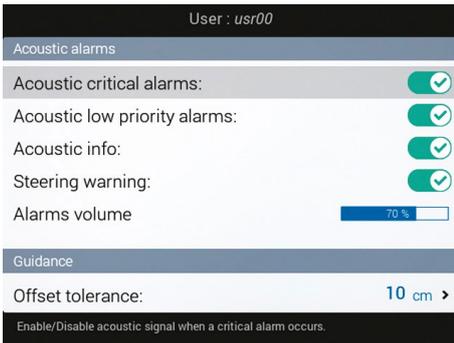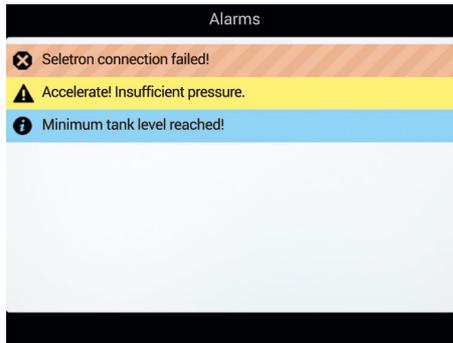
Fig. 196

The monitor features a menu **Alarms** (Fig. 196, accessible from the "Home" menu by pressing **F6**). This page displays all active notifications for the operator.
Based on their importance, notifications are rated in **Critical alarms**, **Low priority alarms** and **Info**.

From the **User** menu it is possible to enable / disable acoustic alarms for each notification:
• **Acoustic critical alarms** (par. 6.12.1).
• **Acoustic low priority alarms** (par. 6.12.2).
• **Acoustic info** (par. 6.12.3).
• **Steering warning** (par. 6.12.4).

ACOUSTIC ALARMS

6.12.1   Acoustic critical alarms

User : *usr00*	
Acoustic alarms	
Acoustic critical alarms:	✅
Acoustic low priority alarms:	✅
Acoustic info:	✅
Steering warning:	✅
Alarms volume	70 %
Guidance	
Offset tolerance:	10 cm ›
Enable/Disable acoustic signal when a critical alarm occurs.	
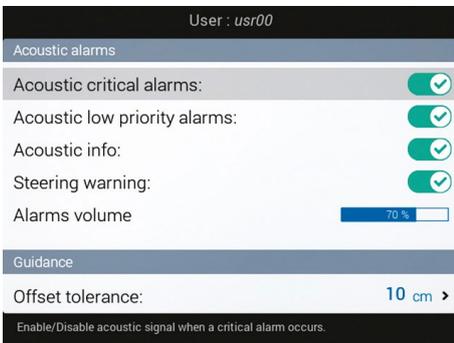
Fig. 197

It allows to enable/disable the acoustic signal when new **Critical alarms** (Fig. 196) occur.
✅ **Signal enabled**
❌ **Signal disabled**

6.12.2   Acoustic low priority alarms

User : *usr00*	
Acoustic alarms	
Acoustic critical alarms:	✅
Acoustic low priority alarms:	✅
Acoustic info:	✅
Steering warning:	✅
Alarms volume	70 %
Guidance	
Offset tolerance:	10 cm ›
Enable/Disable acoustic signal when a low priority alarm occurs.	
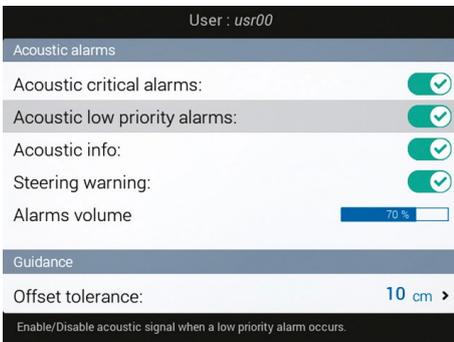
Fig. 198

It allows enabling/disabling the acoustic signal when new **Low priority alarms** (Fig. 196) occur.
✅ **Signal enabled**
❌ **Signal disabled**

6.12.3   Acoustic info

User : *usr00*	
Acoustic alarms	
Acoustic critical alarms:	✅
Acoustic low priority alarms:	✅
Acoustic info:	✅
Steering warning:	✅
Alarms volume	70 %
Guidance	
Offset tolerance:	10 cm ›
Enable/Disable acoustic signal when an info warning occurs.	
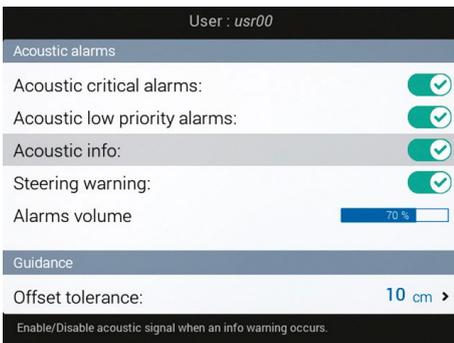
Fig. 199

It allows enabling/disabling the acoustic signal when new **Info** (Fig. 196) occur.
✅ **Signal enabled**
❌ **Signal disabled**

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	📖 Par. 1.4

6.12.4 Steering warning
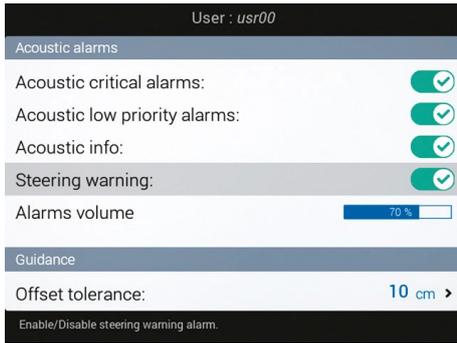
Fig. 200

It allows enabling/disabling the acoustic signal when the operator must steer in order to align the machine with the following track, avoiding unsprayed or overlapping areas between the two sprays (**Steering radius** set, par 6.5.14 Working parameters).

✅ **Signal enabled**

❌ **Signal disabled**

6.12.5 Alarms volume

✋ **THE MENU IS DISPLAYED ONLY ON DELTA 80 (CODE 467500X).**
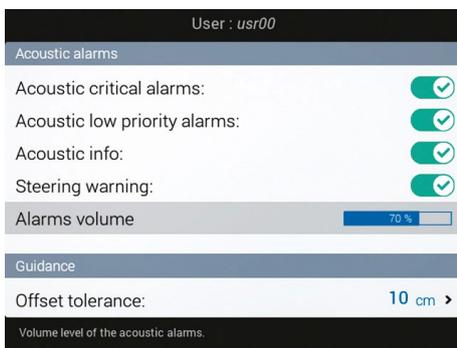
Fig. 201

Press the arrow keys to adjust the alarm volume (LH = decrease, RH = increase).

GUIDANCE

6.12.6 Offset tolerance
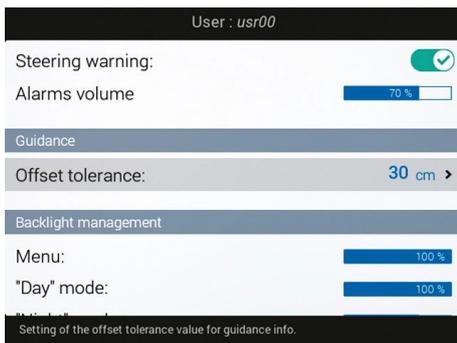
Fig. 202

Fig. 203

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** (e.g.: 30 cm).

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

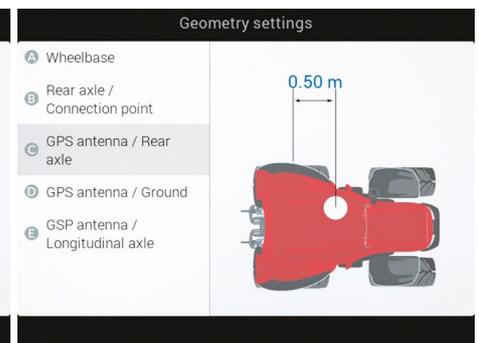|									
F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

6.12.7 Displayed data configuration
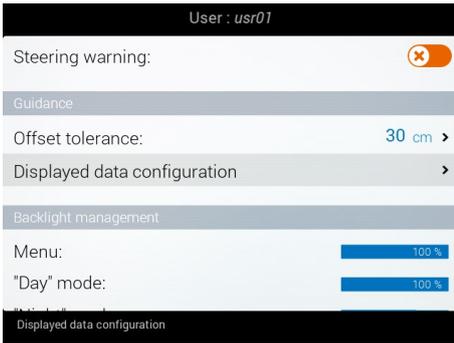
Fig. 204

Allows setting the data of the spraying you want to display on the guidance screen (Fig. 205).
Two data pages are available on each side, which can be alternated using keys **F7** / **F8**.
Both pages can be customized: select the data position (menu **Page 1 settings** or **Page 2 settings**) and program one among the options available.

Fig. 205
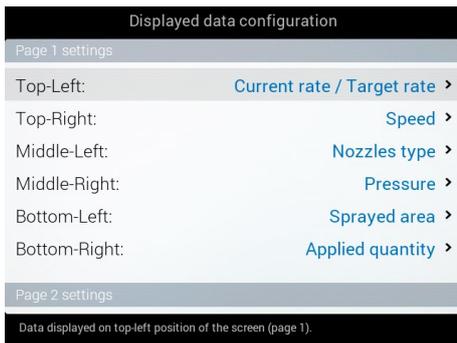
Fig. 206
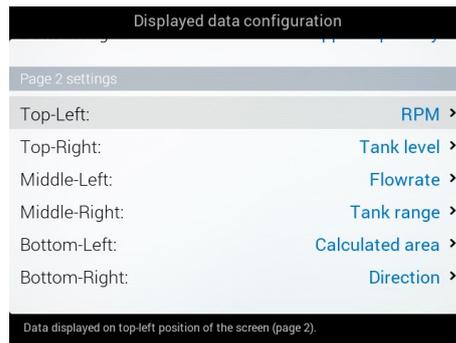
Fig. 207

Available options

None
Current rate / Target rate
Current rate
Nozzles type
Sprayed area
Tractor angle
Flowrate
Direction
RPM
Calculated area
Speed
Pressure
Applied quantity
Tank level
Tank range
BLC
Row width
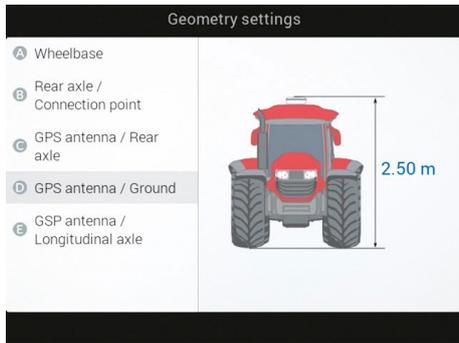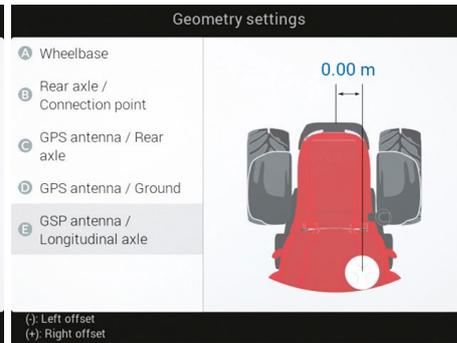Row range
Worked rows
SkyGuide remaining time

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

BACKLIGHT MANAGEMENT

6.12.8 Backlight

Backlight management	
Menu:	100 %
Day mode brightness:	100 %
Night mode brightness:	70 %
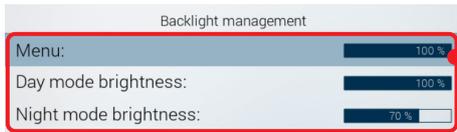
Fig. 208

The adjustment is divided by type of screen:
- Menu screens.
- Guidance screen in "Daytime" mode (par. 13.8.3).
- Guidance screen in "Night time" mode (par. 13.8.3).

Select the type of screen and press the arrow keys to adjust display backlighting (LH = decreases, RH = increases).

6.12.9 Attenuation

Auto reduction:	✓
Idle time:	1 min ›
Value when dimmed:	70 %

Fig. 209

The three items at the side define display automatic attenuation after a long period of inactivity.
IT APPLIES TO MENU SCREENS, ONLY.
First of all, enable **Auto reduction** to use the function, then adjust the waiting time and the attenuation percentage.

✓ **Automatic attenuation enabled**
✗ **Automatic attenuation disabled**

6.12.10 Switchbox brightness

Day mode switchbox brightness:	100 %
Night mode switchbox brightness:	100 %
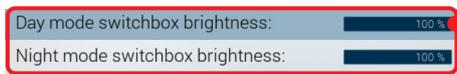
Fig. 210

The items on the side manage the brightness of the switch LEDs in "Day" or "Night" mode.
Press the arrow keys to adjust the LED brightness (LH = decrease, RH = increase).

PREFERENCES

6.12.11 Selective job loading

Preferences	
Selective job loading:	✓

Enable/Disable screen of the selective job loading.

Fig. 211

Loading options	
Load...	
Applied area:	✓
Perimeter:	✓
Reference lines:	✓
Points of interest:	✓
Job data:	✓
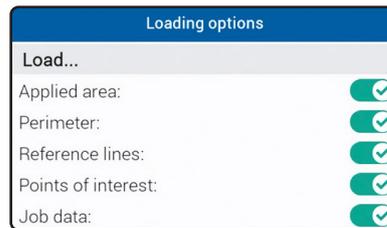
Fig. 212

It allows enabling/disabling the **Loading options** (Fig. 212) screen when the operator loads a previously saved job (par. 10.5 F5 Resume job).

✓ **Screen enabled**
✗ **Screen disabled**

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

6.13   GENERAL OPTIONS

General options	
Language:	English ›
Units of measurement:	Metric ›
Date and time GPS updating:	✓
Date and time:	Tue 28 Jul 2015 08:27
GSM	
GSM	✕
SIM PIN	✕
Enter PIN	1000
Language settings.	
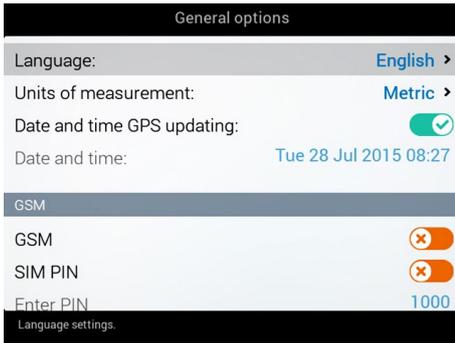
Fig. 213

Set the device system options:

• **Language** (par. 6.13.1).
• **Units of measurement** (par. 6.13.2).
• **Date and time GPS updating** (par. 6.13.3).
• **Date and time** (par. 6.13.4).
• **GSM** (par. 6.13.6)

6.13.1   Language

Language:
◯ български
◯ Cesky
◯ Deutsch
◯ Ελληνικά
◉ English
◯ Español
◯ Français
◯ Magyar
Language settings.
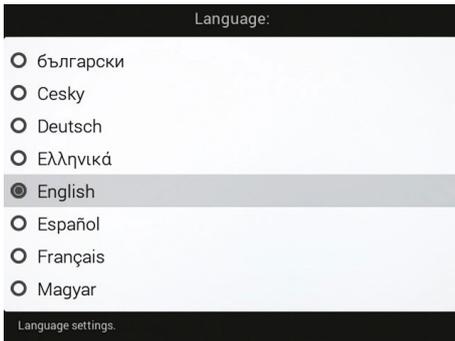
Fig. 214

Set the computer language.

Available languages:
български, Cesky, Deutsch, Eesti, Ελληνικά, English, Español, Français, Magyar, Italiano, 日本語, Lietuvių Nederlands, Polski, Portugês, Român, Русский, Српски, Türkçe, 中文.

6.13.2   Units of measurement

Units of measurement:
◉ Metric
◯ US
◯ Turf
Metric units of measurements.
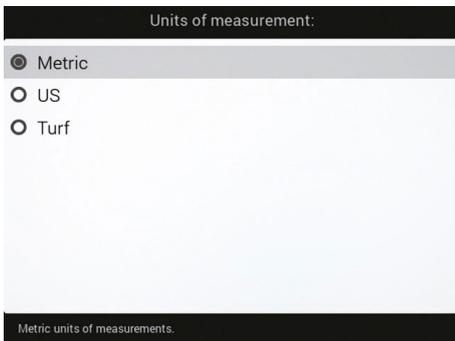
Fig. 215

Set the computer units of measurement:
• **Metric**: km/h, l/ha, l/min, bar, etc...
• **US**: MPH, GPA, GPM, PSI, etc...
• **Turf**: MPH, GPK, GPM, PSI, etc...

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

6.13.3 Date and time GPS updating
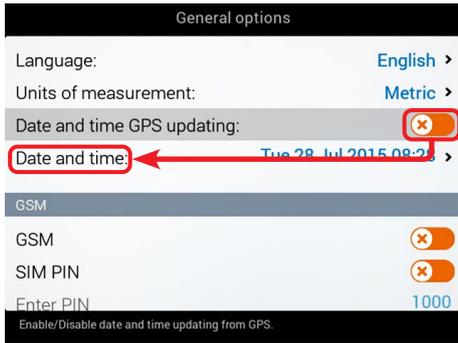
Fig. 216

Allows to enable / disable computer automatic date and time updating.

Acquisition enabled
The local time, date and timezone will be constantly updated thanks to the signal picked up by the GPS receiver.

Acquisition disabled
Set date and time manually.
The display will show the menu Date and time (Fig. 216).

6.13.4 Date and time
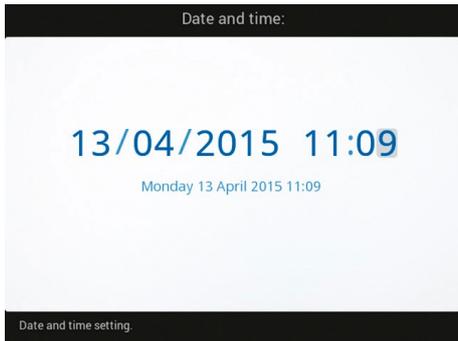
Fig. 217

To configure this menu (Fig. 216), disable **Date and time GPS updating**.

Now set the computer time.

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

6.13.5 Sampling period

✋ **This function IS NOT AVAILABLE if the automatic guidance ECU S1 or the connection to B180S/300S/Alfa350 is set.**

General options	
Language:	English ›
Units of measurement:	Metric ›
Date and time GPS updating:	✅
Date and time:	Thu 8 Jun 2017 14:04
Treatment data serial output	
Sampling period:	Disabled ›

Sampling period of the serial data output.

Fig. 218

Sampling period:
⦿ Disabled
○ 1 second
○ 2 seconds
○ 5 seconds
○ 10 seconds

Serial data output disabled.
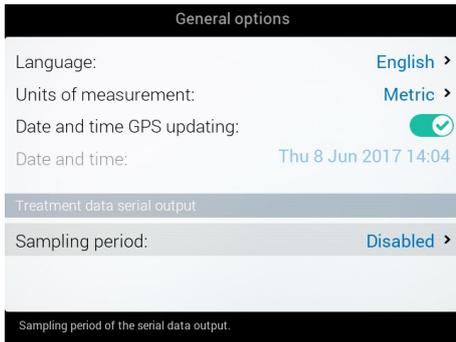
Fig. 219

Allows sending spraying instantaneous data in text format, through serial communication.
Set a recording frequency (Fig. 219) to enable the data output.

Set the serial port of the recording device as follows:
19200 8 - N - 1

Legend:
19200 = speed (bps)
8 = data bit
N = parity (None)
1 = stop bit

Ask to Arag technical service the availability of the adapting cables for your data recording system.

A sampling period of 5 seconds is recommended in case of serial connection with TBOX IO.

DATA RECORDING FILE
When the sampling period has been set, the system generates a "lastjob.txt" file (containing the active job data), and other "jobxx.txt" files, corresponding to the names of the recorded jobs. Files are automatically saved in the serial port enabled.

The sent data can be displayed on Personal Computer with a text editor.
They consist of a header followed by data strings.

Example - **SELETRON VERSION**:
B400S, 1.0.0, S, 1, 11/11/2019, 09:50:25, 44,64226197, 10,78941207, 0, 3,1, 3, 910,411, 60, 0,15, 2,7, 2, 660, 1982, 10, 10, 50,0, DDDDDDDDDD, ISO01, ISO02, ISO03, ISO04, 1101, Job01, Map

DATA	HEADERS	DESCRIPTIONS	AVAILABLE OPTIONS / NOTES
B400S	Device	Device	B400S / Delta80
1.0.0	FwVersion	Firmware version	
S	SwType	Software type	S = crop sprayer
1	GPSQ	GPSQ	
11/11/2019	Date	Date	
09:50:25	Time	Time	
44,64226197	Lat	Latitude	
10,78941207	Lon	Longitude	
0	MUnit	Unit of measurement	0: metric 1: US 2: metr. L/100m
3,1	Speed	Speed	
3	BoomWidth	Row width	
910,411	CoveredArea	Covered area	
60	TargetRate	Target rate	
0,15	ApplRate	Rate applied	
2,7	Flow	Flowrate	
2	Press	Pressure	
660	SprQnty	Sprayed quantity	
1982	TankLevel	Tank level	
10	Tot Spray Spot	Total number of spraying points	
10	Act Spray Spot	Active spraying points	
50,0	Spot Spacing	Spacing	
DDDDDDDDDD	Seletron Map	Seletron map	Each hexadecimal digit represents the opening status of nozzles in the corresponding Seletron node. Es HEX(D) = BIN(1101): A=ON, B=ON, C=OFF, D=ON
ISO01	Act Nozzle A	Nozzle A	
ISO02	Act Nozzle B	Nozzle B	
ISO03	Act Nozzle C	Nozzle C	
ISO04	Act Nozzle D	Nozzle D	
1101	Nozzle Status	Nozzles status	
Job01	Selected Job	Selected job	
Map	Map Name	Map name	

✋ **Data are only indicative and given by way of example; they are expressed in the current unit of measurement, i.e. metric.**
In real facts they will always be different according to the type of spraying.

| F1 ℹ | Enter selected character | F2 ↻ | Delete selected character | F7 ← F8 → | Scroll (LEFT / RIGHT) | F4 ↑ F6 ↓ | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | 📖 Par. 1.4 |

Example - **VALVES VERSION**:
B400S, 1.0.0, S, 1, 11/11/2019, 09:50:25, 44,64226197, 10,78941207, 0, 3,1, 3, 910,411, 60, 0,15, 2,7, 2, 660, 1982, 11110, 5,0, 5,0, 5,0, 5,0, 5,0, ActNozzle, J1, 1101, Job01, Map

DATA	HEADERS	DESCRIPTIONS	AVAILABLE OPTIONS / NOTES
B400S	Device	Device	B400S / Delta80
1.0.0	FwVersion	Firmware version	
S	SwType	Software type	S = crop sprayer
1	GPSQ	GPSQ	
11/11/2019	Date	Date	
09:50:25	Time	Time	
44,64226197	Lat	Latitude	
10,78941207	Lon	Longitude	
0	MUnit	Unit of measurement	0: metric 1: US 2: metr. L/100m
3,1	Speed	Speed	
3	BoomWidth	Row width	
910,411	CoveredArea	Covered area	
60	TargetRate	Target rate	
0,15	ApplRate	Rate applied	
2,7	Flow	Flowrate	
2	Press	Pressure	
660	SprQnty	Sprayed quantity	
1982	TankLevel	Tank level	
11110	Sections	Section status	0: closed 1: open e.g.: sections all open except no. 5
5,0	Sect1 Width	Section 1 width	
5,0	Sect2 Width	Section 2 width	
5,0	Sect3 Width	Section 3 width	
5,0	Sect4 Width	Section 4 width	
5,0	Sect5 Width	Section 5 width	
ActNozzle	ISO01	crop sprayer: name of enabled nozzle orchard sprayer: boom sprayer name multi-row sprayer: boom name	
J1	SelectedJob	Job name	
1101	Nozzle Status	Nozzles status	
Job01	Selected Job	Selected job	
Map	Map Name	Map name	

✋ **Data are only indicative and given by way of example; they are expressed in the current unit of measurement, i.e. metric.**
In real facts they will always be different according to the type of spraying.

F1 ⓘ Enter selected character	F2 ↻ Delete selected character	F7 ◄ F8 ► Scroll (LEFT / RIGHT)	F4 ▲ F6 ▼ Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	📖 **Par. 1.4**

6.13.6 GSM

✋ **The functions of this menu are available on Delta 80 only, and can be used only on Delta 80 with 3G modem (code 4675001).**

• GSM

Fig. 220

Allows enabling/disabling the 3G data network.

✅ **Network enabled**
❌ **Network disabled**

• SIM PIN

Fig. 221
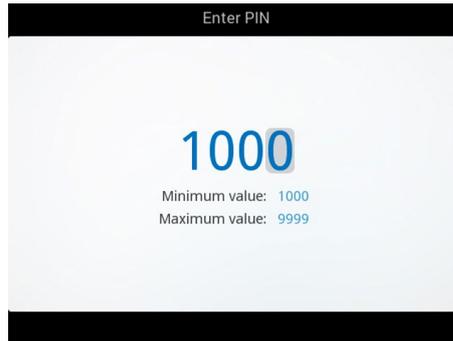
Fig. 222

Allows enabling/disabling the PIN code for data network.

✅ **PIN enabled**
The **PIN insertion**
(Fig. 221) menu item, which allows setting the PIN, is enabled.

❌ **PIN disabled**

• APN
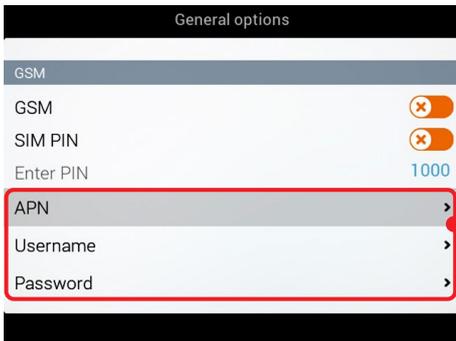
Fig. 223

Allows entering the APN setup, the username and the password of the data operator.

6.14 REMOTE SUPPORT

✋ **The functions of this menu are available on Delta 80 only, and can be used only on Delta 80 with 3G modem (code 4675001).**

Function to be exclusively used by Arag technical service staff.

| F1 ℹ Enter selected character | F2 ↻ Delete selected character | F7 F8 ← → Scroll (LEFT / RIGHT) | F4 F6 ↑ ↓ Scroll (UP / DOWN) | Data decrease / increase | ☐K Confirm access or data change | Esc Exit the function or data change | 📖 Par. 1.4 |

7 USE

7.1 Controls

MONITOR BRAVO 400S
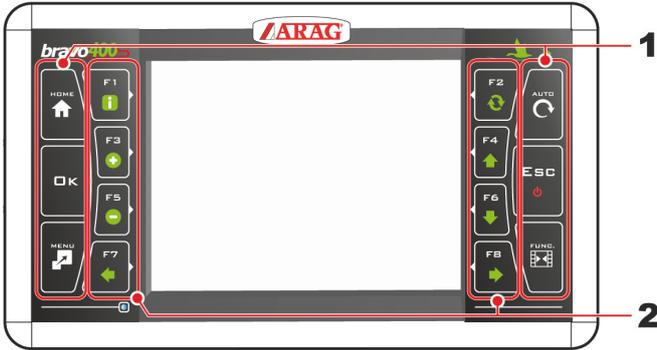
Fig. 224

MONITOR NINJA
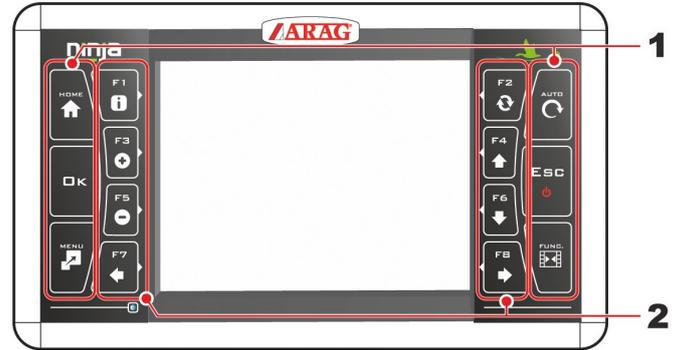
Fig. 225

MONITOR DELTA 80
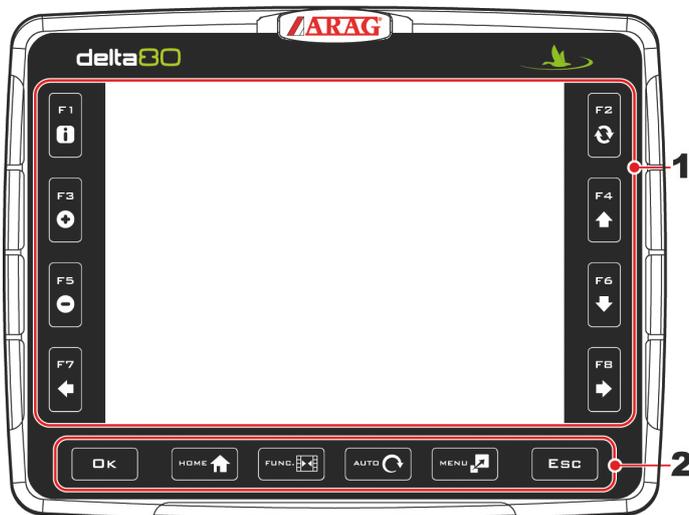
Fig. 226

• **Controls on the monitor**
1 Function keys.
2 Control and display keys
Function keys are contextual: the function of each key depends on what appears on the display, therefore **the use of these keys will be illustrated during the description of the corresponding procedures.**

SWITCH PANEL
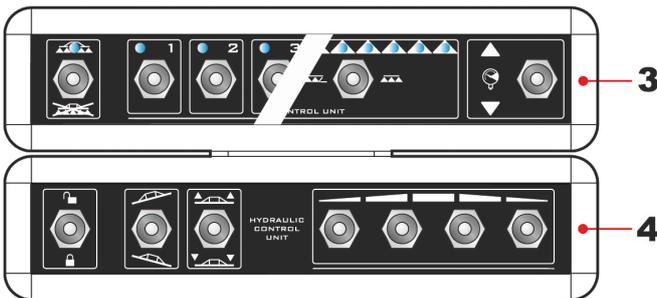
Fig. 227

• **Controls to valves and/or hydraulic functions with switch valve panel (DELTA 80 / BRAVO 400S ONLY)**
3 Switches used to operate control unit valves - **par. 7.3**
4 Switches used to operate hydraulic valves - **par. 7.2**

JOYSTICK EXPLORER
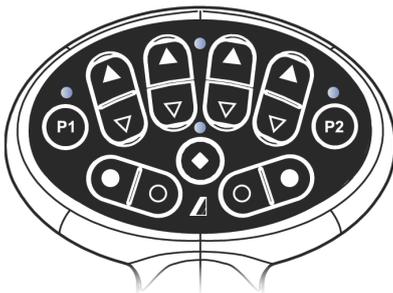
Fig. 228

• **Controls to valves and/or hydraulic functions with joystick - par. 6.7.1**

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

7.2   Operating switches for hydraulic valves

Release of the boom	Block of the boom	Leveling of the boom clockwise	Leveling of the boom counter-clockwise	Increase of the boom height of the boom	Decrease of the boom	Boom section movement: opening	Boom section movement: closing

7.3   Operating switches for control unit valves

7.3.1   Switches with control from 1 to 7 sections

Main control ON	Main control OFF	Open section	Closed section	Increase of output	Decrease of output

7.3.2   Switches for sequential control (up to 13 sections)

Main control ON	Main control OFF	Section operating switches	Increase of output	Decrease of output
		Open section / Closed section		

A Opens sections from the last one open

B Closes the sections from the last closed

C Opens sections from the last one open

D Closes the sections from the last closed
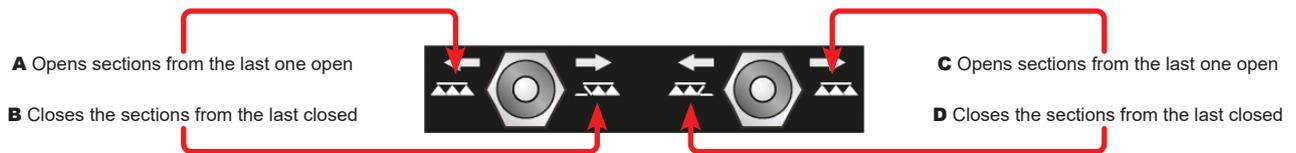
The valves can be opened and closed from the right to the left and vice versa with the section control switches.
Prolonged pressure opens / closes the sections of half boom.

* RIGHT AND LEFT INDICATE THE SIDE OF THE IMPLEMENT LOOKING AT THE MACHINE FROM BEHIND.

Examples:

• Closing of one section

As in the example here, shift once the switch to the left to close the first open section.
Shift several times to close sections in sequence.

• Opening of one section

As in the example here, shift once the switch to the right to open the first closed section.
Shift several times to open sections in sequence.

• Simultaneous closing of half boom sections

As in the example here, keep the switch shifted to the left to close the boom open half.

• Simultaneous opening of half boom sections

As in the example here keep the switch shifted to the right to open the boom closed half.

7.3.3 Switches with sequential control + central switch (up to 13 sections)

Main control ON	Main control OFF	Section operating switches	Increase of output	Decrease of output

Section operating switches:

- **CENTRAL SWITCH:** it manages the controls on the central section INDEPENDENTLY from the rest of the implement.

- **SIDE SWITCHES:** they control the sequential opening and closing of the valves from right to left* and vice versa; prolonged pressure opens / closes the sections of half boom. **THE CONTROL ON THE CENTRAL SECTION IS ALWAYS DISABLED.**

* RIGHT AND LEFT INDICATE THE SIDE OF THE IMPLEMENT LOOKING AT THE MACHINE FROM BEHIND.

LEFT SIDE SWITCH

Opens the left side sections, starting from the last open one	Closes the left side sections, starting from the last closed one
Open section (ON)	Closed section (OFF)

RIGHT SIDE SWITCH

Closes the right side sections, starting from the last closed one	Opens the right side sections, starting from the last open one
Closed section (OFF)	Open section (ON)

CENTRAL SWITCH

Open central section (ON)
Closed central section (OFF)

Examples:

• Closing of one section

As in the example here, shift once the switch to the left to close the first open section.
Shift several times to close sections in sequence.

• Opening of one section

As in the example here, shift once the switch to the right to open the first closed section.
Shift several times to open sections in sequence.

• Simultaneous closing of half boom sections

As in the example here, keep the switch shifted to the left to close the boom open half.

• Simultaneous opening of half boom sections (ONLY WITH CENTRAL SWITCH ON)

As in the example here keep the switch shifted to the right to open the boom closed half.
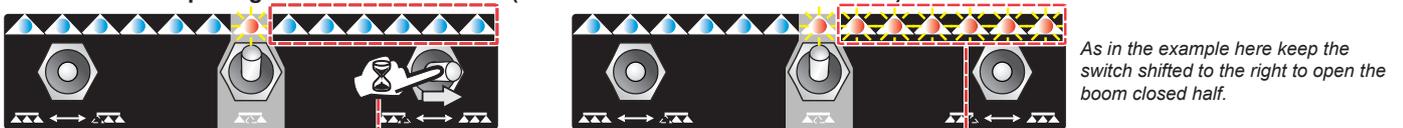
• Simultaneous opening of all sections (ONLY WITH CENTRAL SWITCH OFF)

As in the example here, keep the switch shifted to the right to open the whole boom (central section DISABLED).
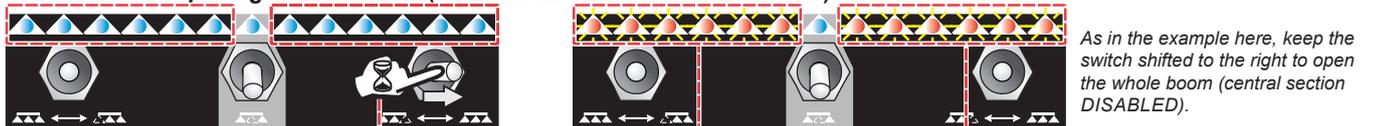
7.3.4 "Buffer Zone" function enabled

Some spraying modes entail special areas called "Buffer zones", where spraying must be reduced or absent.
Besides the normally used nozzles, special nozzles must be installed (e.g.: ASJ AOC), which reduce the jet or the drift effect at boom end sides. To connect the "Buffer" nozzles, proceed as follows:
LH "Buffer" nozzle (boom view from back), 1st boom nozzle, 2nd boom nozzle,---> No. of boom nozzle, RH "Buffer" nozzle (boom view from back).

Fig. 229   Buffer zone   Buffer zone

By enabling the function in implement basic settings (chap. 4) standard nozzles or special nozzles can be alternately selected.

NOZZLE SELECTION THROUGH THE SWITCH PANEL

• **LH special nozzle enabling (Boom view from back)**

CORRESPONDING ICON ON GUIDANCE SCREEN
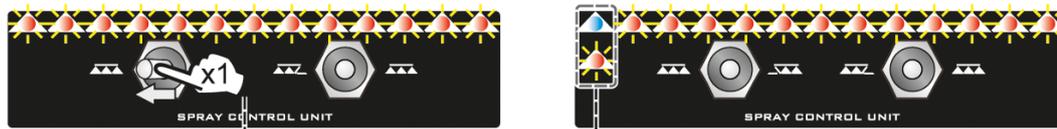
Press switch to the left once to enable the LH "Buffer zone" nozzle and to close the standard one. The LED on the left flashes alternately.

• **RH special nozzle enabling (Boom view from back)**

Press switch to the right once to enable the RH "Buffer zone" nozzle and to close the standard one. The LED on the right flashes alternately.

• **LH special nozzle disabling (Boom view from back)**
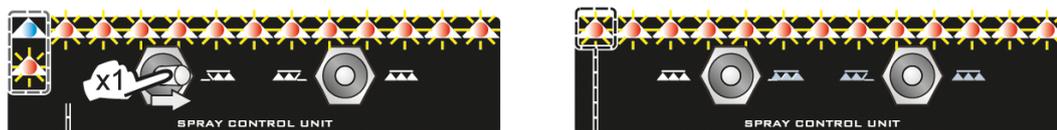
Press switch to the right once to disable the LH "Buffer zone" nozzle and to enable the standard one. The LED on the left no longer flashes and is steady.

• **RH special nozzle disabling (Boom view from back)**
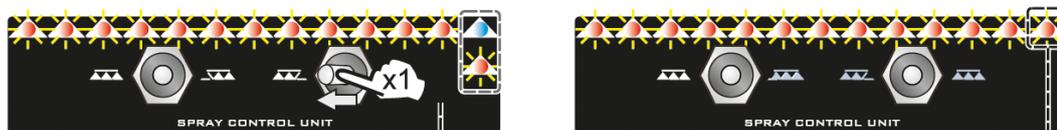
Press switch to the left once to disable the RH "Buffer zone" nozzle and to enable the standard one. The LED on the right no longer flashes and is steady.

NOZZLE SELECTION THROUGH THE JOYSTICK

The operation is similar to the one just described for the sequential switch panel.
The functions associated to nozzle enabling are included in the "Main" page. For further details, refer to the instructions provided with the joystick.

Seq. 1 L   Seq. 2 R

Seq. 1 R   Seq. 2 L
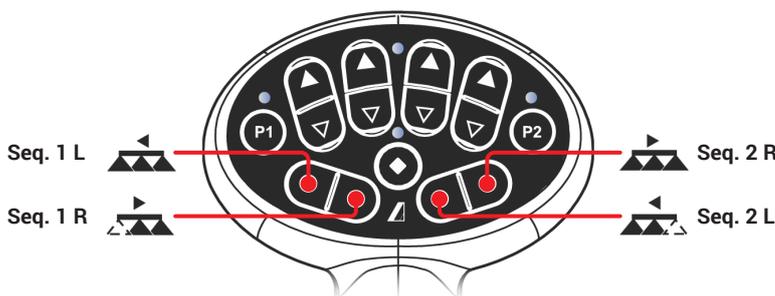
7.3.5 "Fence nozzle" function enabled

This function entails the assembly of specific nozzles at boom end; these nozzles allow spraying areas that cannot be reached by the traditional nozzles due to the boom size (i.e. fences). The enabling of such nozzles does not stop the output from the other boom nozzles.
The connection and pairing procedure of seletron devices and "Fence" nozzles is the following: at first connect all boom nozzles, then the left "Fence" nozzle and the right "Fence" nozzle.
By setting the reference flowrate and pressure for the "Fence" nozzle, it is possible to control the output of all nozzles based on the set spray rate.
The width covered by the fence nozzle is not included in the calculation of the applied area.
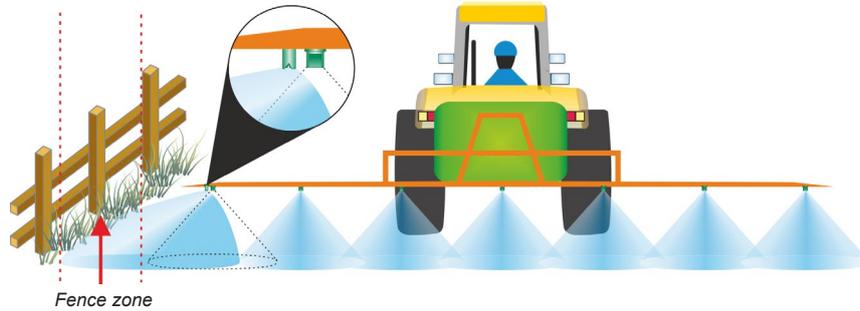
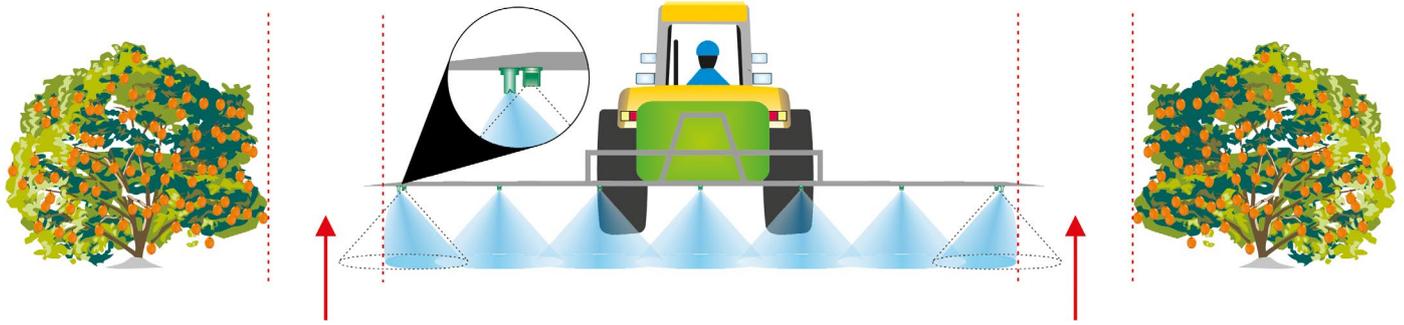*Fig. 230*   *Fence zone*

By enabling the function in implement basic settings (chap. 4) standard nozzles or special nozzles can be selected:
the enabling of "Fence" nozzles does not stop the output from the other boom nozzles.

NOZZLE SELECTION THROUGH THE SWITCH PANEL

• LH special nozzle enabling (Boom view from back)
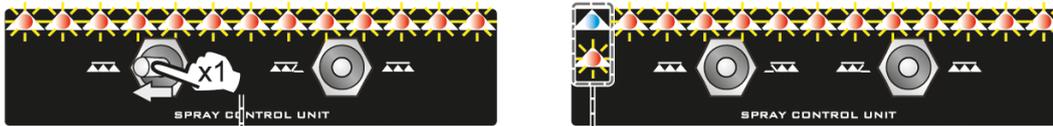
*Press switch to the left once to enable the LH "Fence" nozzle.
The LED on the left flashes alternately.*

CORRESPONDING ICON ON GUIDANCE SCREEN

• RH special nozzle enabling (Boom view from back)
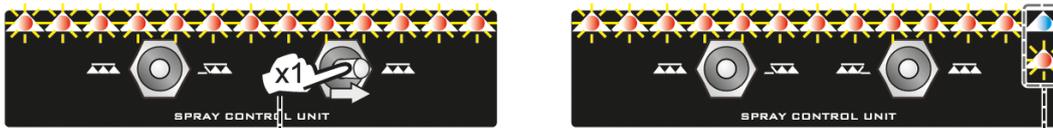
Press switch to the right once to enable the RH "Fence" nozzle. The LED on the right flashes alternately.

• LH special nozzle disabling (Boom view from back)
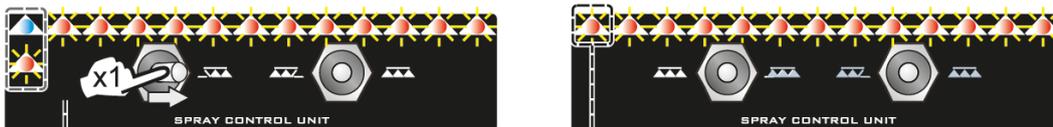
Press switch to the right once to disable the LH "Fence" nozzle. The LED on the left no longer flashes and is steady.

• RH special nozzle disabling (Boom view from back)
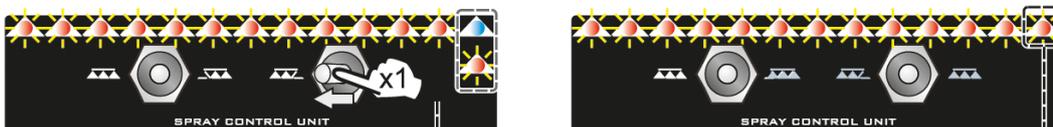
Press switch to the left once to disable the RH "Fence" nozzle. The LED on the right no longer flashes and is steady.

NOZZLE SELECTION THROUGH THE JOYSTICK

The operation is similar to the one just described for the sequential switch panel.
The functions associated to nozzle enabling are included in the "Main" page. For further details, refer to the instructions provided with the joystick.

Seq. 1 L   Seq. 2 R
Seq. 1 R   Seq. 2 L

7.4 Guidance screen

USING THE KEYS

Displays job information / Alarms

Zoom adjustment on the display:
F3 (+) increases
F5 (-) reduces

Alternates pages 1 and 2 of the job data, displayed on the LEFT side

Alternates pages 1 and 2 of the job data, displayed on the RIGHT side

Switches to menu "Home"

Views automatic function menu

Aborts a function
Aborts data change

Fig. 231

Confirmation key

Enables / disables job functions display

Switch to job menu

F1 ÷ F8: Contextual function keys
These keys control what is shown on the display (guidance page zoom adjustment, etc., Fig. 231)
When the function list is displayed, they perform specific functions: the function of each key depends on what appears on the display, therefore the use of these keys will be illustrated during the description of the corresponding procedures.

DISPLAY ITEMS

LED bar: graphic representation of the deviation
Each LED corresponds to the value set in par. 6.12.6

Deviation: distance between the position of the tractor and the track to be followed

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

Automatic functions status:
Nozzle selection (par. 9.2)
Section management (par. 9.8)
Output setting (par. 9.5)

Enabled alarm
(Press F1 for further details)

Instant output /
Target spray rate /
Instant flowrate

Output percentage variation
Every symbol corresponds to a 10% variation: ▲ +10% ▼ -10% (max. ± 50%)

Nozzles being used / Direction

Sprayed surface/ RPM

Speed / Tank level

Pressure / Range

Sprayed quantity / Calculated area

Spraying boom (par. 9.7)

Covered area

Machine position

Reference tracks

GPS signal strength:

The receiver operates correctly and the correction or the minimum quantity selected is present (None, SBAS, TerraStar, RTK).

The receiver communicates with the monitor, but the correction or the minimum quantity selected is not present.

The receiver does not communicate with the monitor.

Fig. 232

F1 Enter selected character

F2 Delete selected character

F7 F8 Scroll (LEFT / RIGHT)

F4 F6 Scroll (UP / DOWN)

Data decrease / increase

OK Confirm access or data change

Esc Exit the function or data change

Par. 1.4

7.5 Spraying a field

Fig. 233

Let us assume we want to spray a field along parallel lines, but only once the edges of the field have been sprayed.

• Go the beginning of the field to be sprayed.

• Switch the monitor on (par 1.2).
After self-diagnosis, the monitor displays screen "Home" (Fig. 233).

• Begin a new spraying, using the function F3 New job (par. 10.3).

• Enter spraying settings.

SPRAYING SETTINGS
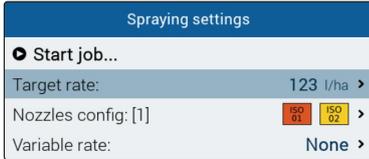
Fig. 234

Fig. 235

Target rate

- Set the spray rate value for the spraying (Fig. 235).
Press O K to confirm the set value.

Fig. 236

Fig. 237

Select nozzles config

- Select a nozzle configuration from the list (Fig. 237).
With this data indicate which nozzles are installed on the boom spraying points (preset configurations in the menu **Spray spots configurations**, par. 6.5.1).
- Press O K to confirm.

Fig. 238
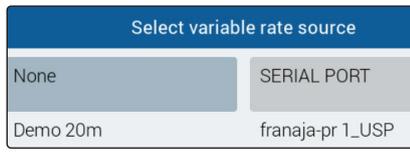
Fig. 239

Variable rate

If you have at least one prescription map or an external device able to communicate via serial port (optional connection available only for Delta 80) you can select which source to use for variable application spraying.
According to the current position, the monitor will use the appropriate spray rate for the area that is being treated (par. 9.6 Importing and using a prescription map).

- Select a map from the list (Fig. 239).
- Press O K to confirm.
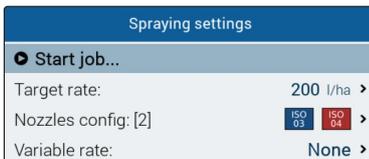
Fig. 240

Fig. 241

Start job

- Select ▶ and press O K to switch to guidance.
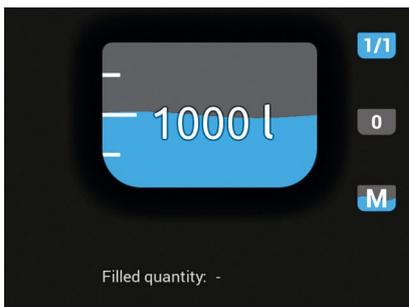
Fig. 242

• In the job menu, set the tank level with the function **Tank** (par. 11.2).

• Start spraying by acting on the main valve control.

• Start moving along the field perimeter.

MARKING POINTS A AND B

Mark A ?

Mark B ?
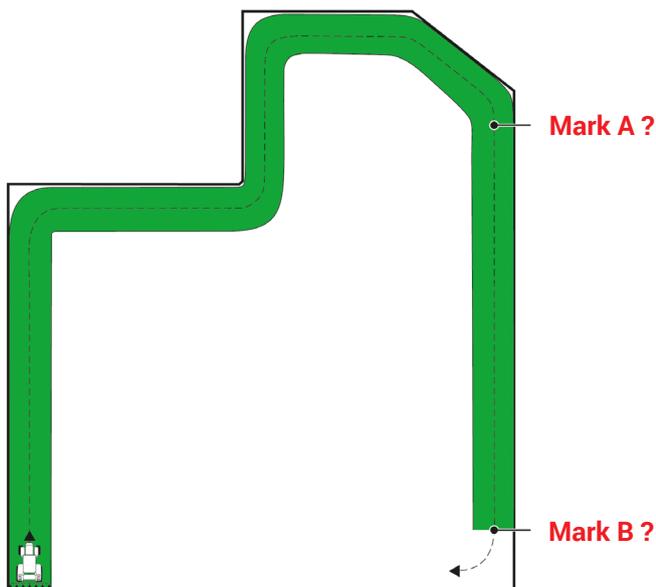
Fig. 243

• While moving along the perimeter of the field, you will mark points A and B (as described in par. 13.7 F7 New AB).

This operation is fundamental for the monitor to guide you, during spraying, along tracks parallel to the reference track obtained by marking points A and B.

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.

• Once the line from A to B has been marked (**T0**), it will be possible to spray the rest of the field along parallel lines, (Fig. 244), by following the reference tracks shown on the display (Fig. 245).

A

T0

B

Fig. 244

T0

Fig. 245

At the beginning of a new job the monitor gives guidance directions in the "Straight parallel" mode. To change driving mode see function F2 Driving mode (par. 13.2).

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

7.6 Guidance screen

USING THE KEYS

Displays job information / Alarms — F1

Zoom adjustment on the display:
F3 (+) increases
F5 (-) reduces

Alternates pages 1 and 2 of the job data, displayed on the LEFT side — F7

Alternates pages 1 and 2 of the job data, displayed on the RIGHT side — F8

Switches to menu "Home"

Views automatic function menu

Aborts a function / Aborts data change

Confirmation key

Enables / disables job functions display

Switch to job menu

Fig. 246

F1 ÷ F8: Contextual function keys
These keys control what is shown on the display (guidance page zoom adjustment, etc., Fig. 246)
When the function list is displayed, they perform specific functions: the function of each key depends on what appears on the display, therefore the use of these keys will be illustrated during the description of the corresponding procedures.

DISPLAY ITEMS

LED bar: graphic representation of the deviation
Each LED corresponds to the value set in par. 6.12.6

Deviation: distance between the position of the tractor and the track to be followed

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

Automatic functions status:
Section management (par. 9.8)
Output setting (par. 9.5)

Enabled alarm (Press **F1** for further details)

Instant output / Target spray rate / Instant flowrate

Output percentage variation
Every symbol corresponds to a 10% variation: ▲ +10% ▼ -10% (max. ± 50%)

Nozzles being used / Direction

Sprayed surface/ RPM

Speed / Tank level

Pressure / Range

Sprayed quantity / Calculated area

Spraying boom (par. 9.7)

GPS signal strength:

The receiver operates correctly and the correction or the minimum quantity selected is present (None, SBAS, TerraStar, RTK).

The receiver communicates with the monitor, but the correction or the minimum quantity selected is not present.

The receiver does not communicate with the monitor.

Covered area

Machine position

Reference tracks

Fig. 247

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

7.7 Spraying a field

Let us assume we want to spray a field along parallel lines, but only once the edges of the field have been sprayed.

Fig. 248

- Go the beginning of the field to be sprayed.

- Switch the monitor on (par 1.2).
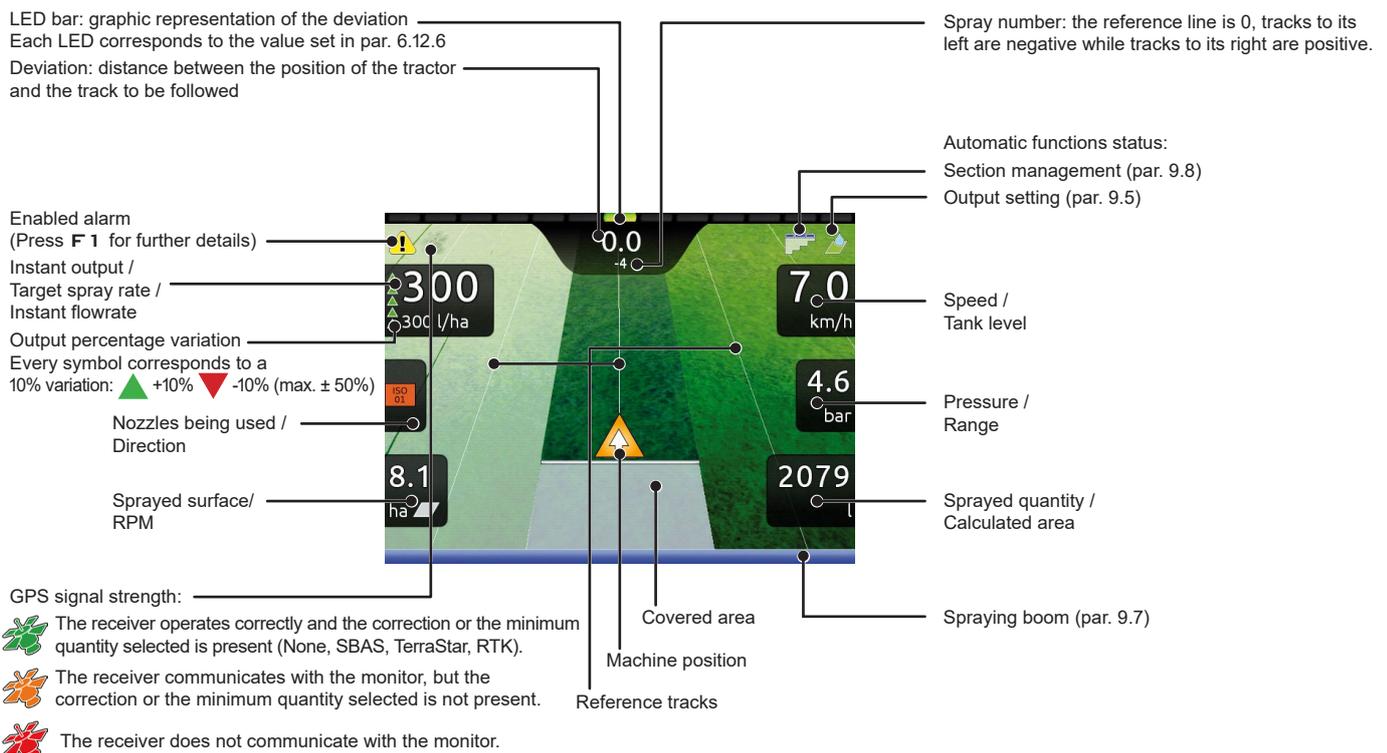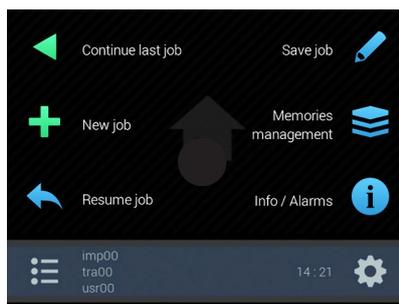After self-diagnosis, the monitor displays screen "Home" (Fig. 248).

- Begin a new spraying, using the function **F3** New job (par. 10.3).

- Enter spraying settings.

SPRAYING SETTINGS

Fig. 249

Fig. 250

Target rate

- Set the spray rate value for the spraying (Fig. 250).
Press **OK** to confirm the set value.

Fig. 251

Fig. 252

Selected nozzle

- Select the nozzle among the ones on the list (Fig. 252).
With this data indicate which nozzles are installed on the boom spraying points.
- Press **OK** to confirm.

Fig. 253

Fig. 254

Variable rate

If you have at least one prescription map or an external device able to communicate via serial port (optional connection available only for Delta 80) you can select which source to use for variable application spraying.
According to the current position, the monitor will use the appropriate spray rate for the area that is being treated (par. 9.6 Importing and using a prescription map).

- Select a map from the list (Fig. 254).
- Press **OK** to confirm.

Fig. 255

Fig. 256

Start job

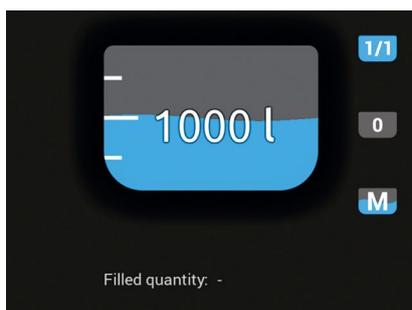- Select ▶ and press **OK** to switch to guidance.

Fig. 257

- In the job menu, set the tank level with the function Tank (par. 11.2).

- Start spraying by acting on the main valve control.

- Start moving along the field perimeter.

> > > 7.7 Spraying a field

MARKING POINTS A AND B
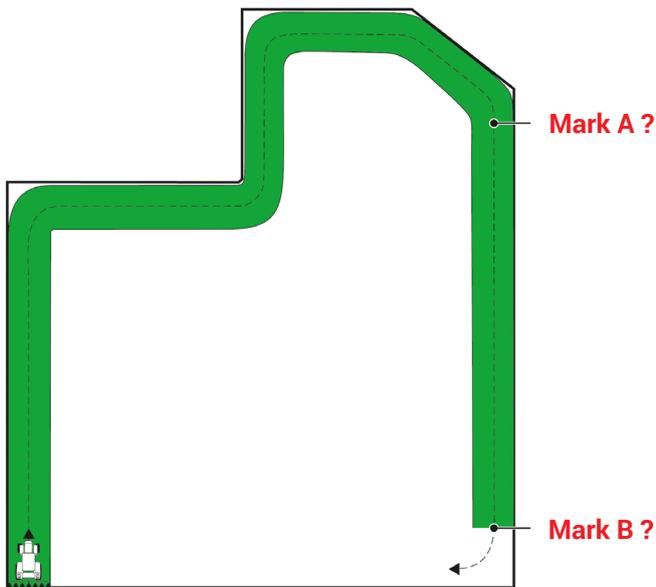

Mark A ?

Mark B ?

Fig. 258

• While moving along the perimeter of the field, you will mark points A and B (as described in par. 13.7 F7 New AB).

This operation is fundamental for the monitor to guide you, during spraying, along tracks parallel to the reference track obtained by marking points A and B.

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.

A

T0

B

Fig. 259

• Once the line from A to B has been marked (**T0**), it will be possible to spray the rest of the field along parallel lines, (Fig. 259), by following the reference tracks shown on the display (Fig. 260).

0.0
+1
300
300 l/ha
ISO 015
ISO 02
7.0
km/h
T0
4.6
bar
8.1
ha
2079
l

Fig. 260

At the beginning of a new job the monitor gives guidance directions in the "Straight parallel" mode.
To change driving mode see function F2 Driving mode (par. 13.2).

END 7.7 Spraying a field

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | Par. 1.4 |

8   AUTOMATIC FUNCTIONS

To access automatic functions, start a spraying (**New job**, **Resume job**, **Continue last job**, chap. 10 Menu "Home");
in the guidance screen, press ᴀᴜᴛᴏ. When the list is active (Fig. 261), pressing the key at the side will enable the relevant function.

Fig. 261

The table below lists all available job functions and the corresponding function keys:

Par.			
9.5	🌢	F2	ON/OFF automatic adjustment
9.8	▦	F6	ON/OFF section automatic management

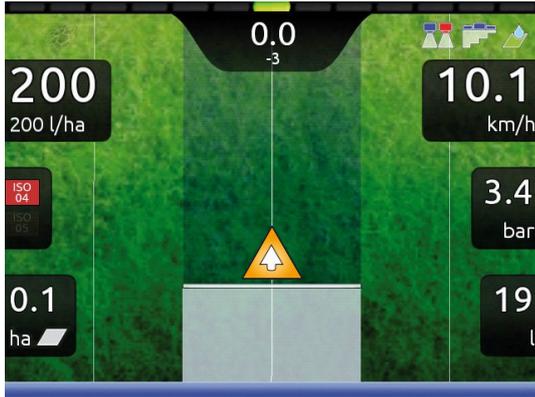| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | Par. 1.4 |

9   AUTOMATIC FUNCTIONS

To access automatic functions, start a spraying (**New job**, **Resume job**, **Continue last job**, chap. 10 Menu "Home");
in the guidance screen, press AUTO. When the list is active (Fig. 262), pressing the key at the side will enable the relevant function.
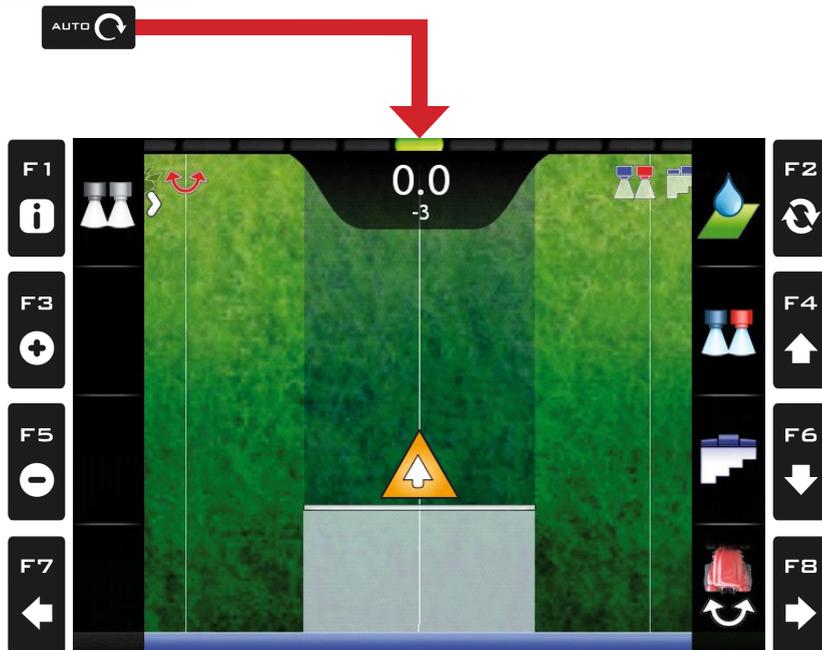
Fig. 262

The table below lists all available job functions and the corresponding function keys:

📖 Par.			
9.3	🔲	F1	Nozzle manual selection. Includes several options:
	ISO 01	F1	Manual selection of NOZZLE A
	ISO 015	F3	Manual selection of NOZZLE B
	ISO 02	F5	Manual selection of NOZZLE C
	ISO 025	F7	Manual selection of NOZZLE D

📖 Par.			
9.5	💧	F2	ON/OFF automatic adjustment
9.2	🔲	F4	Automatic nozzle selection ON / OFF
9.8	📶	F6	ON/OFF section automatic management

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | 📖 Par. 1.4 |

9.1   How the automatic nozzle selection works (SELETRON system)

In a traditional system, the farming machine speed limits depend on the minimum and maximum pressure of the nozzle in use and on the desired spray rate.

For instance, if we were spraying 100 l/ha with a violet evenfan nozzle ISO110025, the minimum operating speed shall be 6.9 km/h (corresponding to a pressure of 1 bar) while maximum speed shall be 13.9 Km/h (corresponding to a pressure of 4 bars).

This operation field can be restrictive for the features of both crop to be treated and machine.

Operation field of possible combinations of ISO11002 and ISO110025 nozzles

When automatic nozzle selection is enabled, the monitor (using Seletron devices) will enable the nozzle, or combination of nozzles, according to the set spray rate and driving speed.

This system allows to widen the machine operating range, i.e. in the above instance, using ISO11002 yellow (**A**) and ISO110025 violet (**B**) nozzles, that work correctly at a speed from 5.5 km/h to 24.9 km/h.

Nozzle A

Nozzle B

Fig. 263

12.5 ÷ 24.9 km/h

ISO02 + ISO025   A+B

6.9 ÷ 13.9 km/h
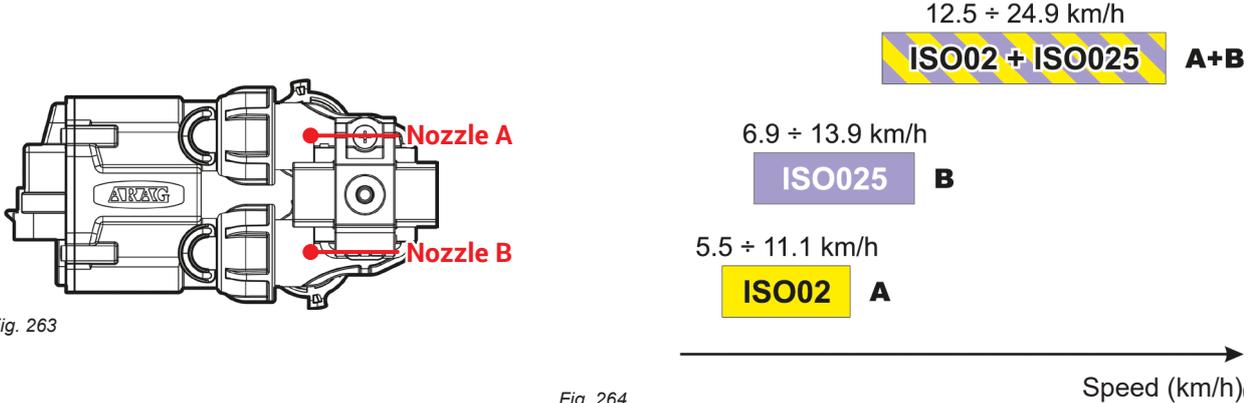
ISO025   B

5.5 ÷ 11.1 km/h

ISO02   A

Speed (km/h)

Fig. 264

According to the set data and those detected by the sensors, the monitor selects the suitable nozzle configuration constantly checking that:
- the spraying pressure always remains within the job features set for each single nozzle;
- in case of many possible nozzle configurations, the operating pressure of the configuration in use is as close as possible to the operating range of the nozzle;
- required number of nozzle changes is as low as possible.

When setting a spraying, make sure to couple compatible nozzles.

For example:

• ***Compatible nozzles***: the flowrate at 1 bar of the ISO025 nozzle is LOWER than the flowrate at 5 bars of the ISO02 nozzle (Fig. 265).

• ***NON-compatible nozzles:*** the flowrate at 1 bar of the ISO05 nozzle is HIGHER than the flowrate at 5 bars of the ISO02 nozzle (Fig. 266).
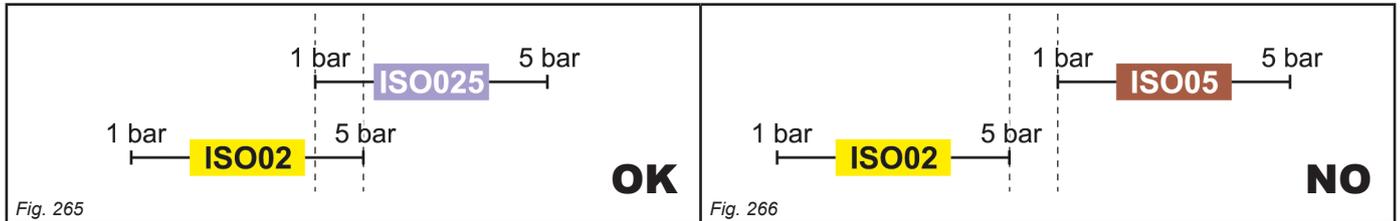
1 bar ISO025 5 bar 1 bar ISO02 5 bar **OK** *Fig. 265*	1 bar ISO05 5 bar 1 bar ISO02 5 bar **NO** *Fig. 266*

In the same way, the overall rate of both nozzles at MINIMUM pressure shall be LOWER than the rate of the high rate nozzle at MAXIMUM pressure.

When setting the spraying (par. 7.5) the monitor automatically checks the rates and in case the above conditions are not respected, the computer will display the message Wrong nozzles configuration!

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | **Par. 1.4** |

9.2   **F4** **Automatic nozzle selection ON/OFF**   Enables / disables automatic nozzle selection on all spraying points *(DEFAULT: ON)*.

1 In the guidance screen, press **Auto**.
2 Press **F4** (Fig. 267) to enable or disable automatic selection.
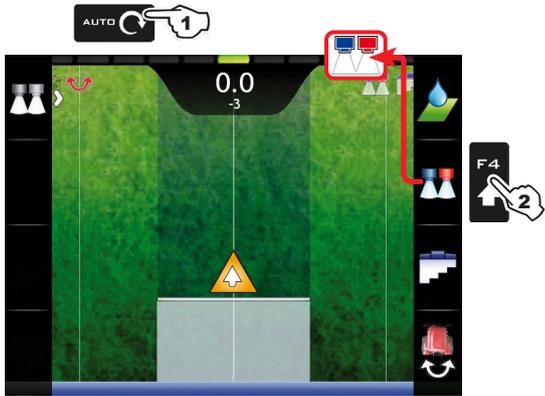
Automatic selection **ON**

Automatic selection **OFF**

Enabled nozzle

Disabled nozzle

✋ **The number of nozzles displayed in Fig. 267 will vary according to the spraying point setting (par. 6.5.1).**

Fig. 267

**9.3**   **F1/F3/F5/F7**
Nozzle manual selection   Allows to select manually nozzles A, B, C, D in use on the spraying points.
This function is enabled ONLY when automatic nozzle selection is disabled (par. 9.2).

1 In the guidance screen, press **Auto**.
2 Press **F1** to enable nozzle manual selection. The list of available nozzles will be displayed.
3 Press the button next to the nozzle (Fig. 268) to enable or disable the corresponding nozzle.

Enabled nozzle

Disabled nozzle
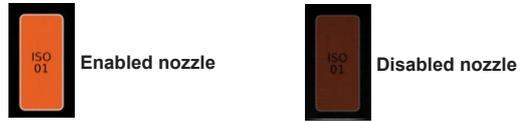
✋ **The number of nozzles displayed in Fig. 268 will vary according to the spraying point setting (par. 6.5.1).**

NOZZLE A
NOZZLE B
NOZZLE C
NOZZLE D

Fig. 268

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**Ok** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

9.4 Output adjustment

The monitor can control chemicals output with an automatic adjustment function (par. 9.5, *DEFAULT: ON*).

AUTOMATIC ADJUSTMENT ON	AUTOMATIC ADJUSTMENT OFF (MANUAL)
The monitor keeps the set spray rate constant regardless of the changes in speed and boom section status.	Rate manual regulation shall be carried out with the suitable control (switch panel par. 7.3, or joystick par. 6.7.1).

In this case the spray rate can be set with the function **F1** Spray rate (par. 13.1), or by uploading a prescription map (par. 9.6) from one of the external memories (pendrive + SD card).

If necessary, during spraying, it is possible to intervene on the output control (switch panel par. 7.3, or joystick par. 6.7.1) to adjust output to crop conditions, increasing or decreasing momentarily the application rate up to ±50%.

9.5 F2 ON/OFF automatic adjustment

Enables / disables automatic output adjustment *(DEFAULT: ON)*.

1 In the guidance screen, press **AUTO**.
2 Press **F2** (Fig. 269) to enable or disable automatic adjustment.

adjustment ON

adjustment OFF
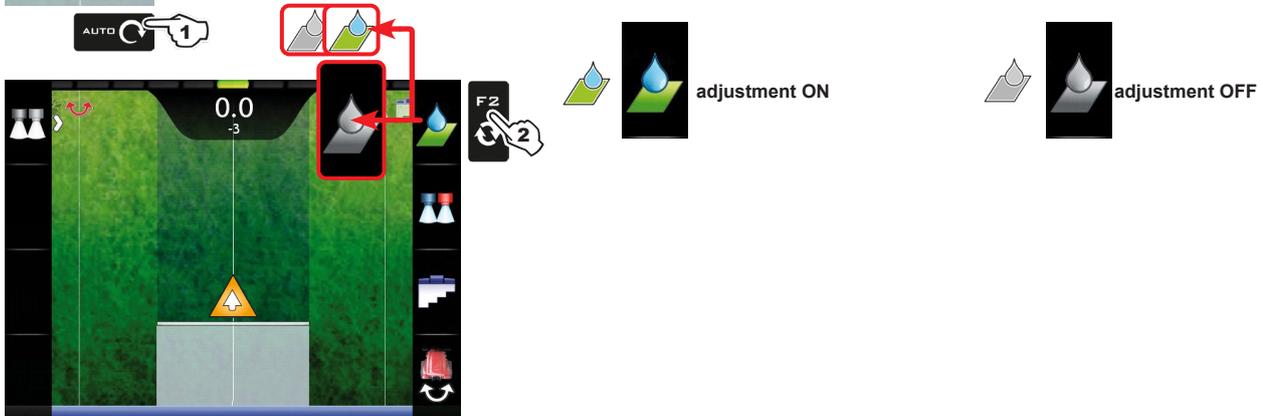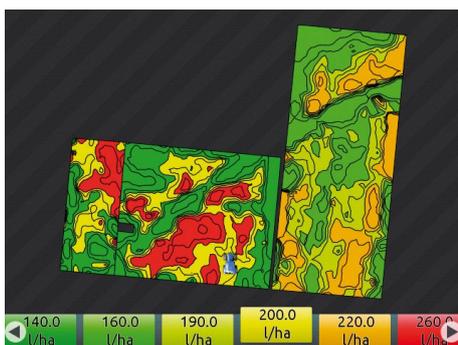
Fig. 269

9.6 Importing and using a prescription map

The monitor can vary output by using the data contained in a "prescription map", which indicates the exact quantity of fluid that must be sprayed at every point in the field.

The map is created thanks to a special analysis and simulation software. The correct spray rate is established for every point on the map, in order to obtain the optimal yield from a field with the minimum expenditure in terms of materials and time.

To enable monitor to read and use the collected information, the following is required:

- **The prescription map must be in " Shapefile ESRI® " format.**
- **The database field containing the indication of the spray rate that must be applied to the different areas must be named "Rate".**
- **The database may include other fields, provided that these contain exclusively numerical values (the presence of any alphabetic characters will prevent the database from being imported correctly).**

Fig. 270

ESRI® is a registered trademark of ESRI, California, USA

At this point you must transfer the prescription map from one of the external memories (pendrive / SD card) onto the monitor:

• Create a new folder named "maps" on the used memory.
• Save the map in the just created map.
• Paste the map on the internal memory, with menu **Files copy to internal memory > Maps from USB** (par. 10.4.5) or **Files copy to internal memory > Maps from SD card** (par. 10.4.5)
• Carry out one of the functions of menu "Home": **F1** Continue last job (par. 10.1), **F3** New job (par. 10.3) or **F5** Resume job (par. 10.5).
• In the spraying start screen select the desired prescription map.
• Proceed with the spraying. According to the position detected by the GPS receiver, the monitor will use the appropriate spray rate for the area that is being sprayed (Fig. 270).
If tractor is on a "black" area of the map, i.e. without any spray rate indication, the monitor stops spraying managing every single section.

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

9.7   Boom section management

AUTOMATIC MANAGEMENT ON	AUTOMATIC MANAGEMENT OFF (MANUAL)
The section valves are closed or opened automatically.	Section valves must be opened or closed manually.

To change section valve management mode, use function F6 Automatic section management ON/OFF (par. 9.8).

SPRAYING AND BOOM SECTION STATUS

Main control OFF Sections OFF	Main control OFF Sections ON	Section ON	Section OFF	Zone to be sprayed. OPEN SECTION	Zone already sprayed. CLOSE SECTION

OPENING AND CLOSING SIGNALS

MANUAL MANAGEMENT OF THE SPRAYING POINTS

When overlapping is above the set value for the **Sections overlapping limit** (par. 6.5.14), the monitor warns that the relevant spraying points must be CLOSED (Fig. 271). Close the valves through the relevant controls: the monitor will confirm closure on display.
As the machine advances, the signal is triggered for each valve.

When overlapping returns within the set limit, the monitor warns to OPEN the relevant spraying points (Fig. 272).
Open the valves through the relevant controls (switch panel par. 7.3, or joystick par. 6.7.1): the monitor will confirm opening on the display. As the machine advances, the signal is triggered for each valve.

Closing signal

Fig. 271

Opening signal
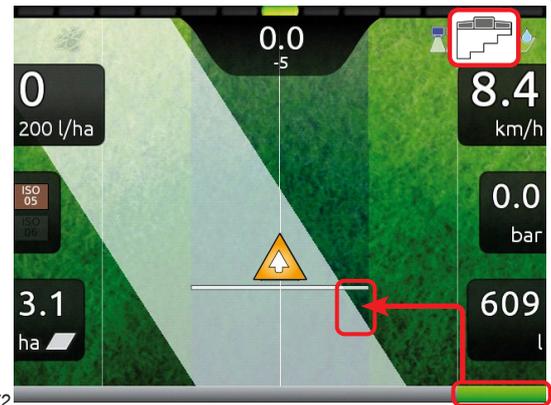

Fig. 272

AUTOMATIC MANAGEMENT OF THE SPRAYING POINTS

When overlapping of ONE or MORE spraying points is above the set value for the **Sections overlapping limit** (par. 6.5.14) the monitor closes the relevant valves (Fig. 273). It is not necessary to intervene on the controls.
The monitor closes the sections automatically. Spraying interruption is shown on the display in real time.

When overlapping returns within the set limits, the monitor opens the relevant valves automatically. Spraying resumption is shown on the display in real time (Fig. 274).

Automatic section closing

Fig. 273

Automatic section opening

Fig. 274

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

9.8   F6 Automatic section management ON/OFF   Enables / disables automatic boom section management *(DEFAULT: ON)*.

1 In the guidance screen, press AUTO.
2 Press F6 (Fig. 275) to enable or disable automatic management.

Automatic section management ON

Automatic section management OFF

Fig. 275

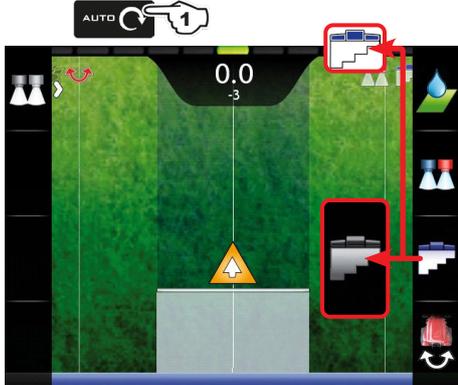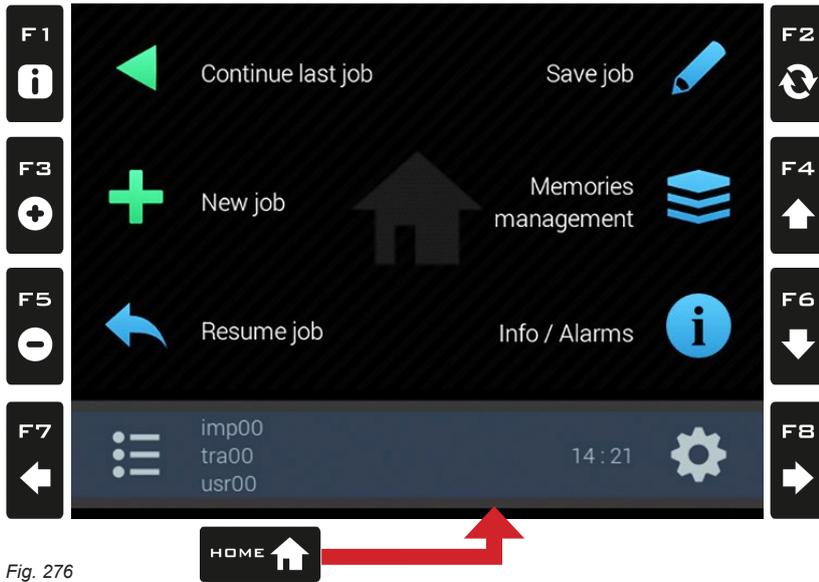|						
F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

10 MENU "HOME"

Fig. 276

To enter the menu press the HOME key: once inside the menu, pressing each key will enable the corresponding function.
The table below sums up all menu items and corresponding keys:

Par.		
10.1	F1 Continue last job	
	Continues last job	
10.3	F3 New job	
	Starts a new spraying	
10.5	F5 Resume job	
	Activates procedure for resuming a job	
6	F7	
	Selects / Creates settings **User**, **Tractor** and **Implement**	

Par.		
10.2	F2 Save job	
	Saves current job	
10.4	F4 Memories management	
	Manages and copies data between internal and external memories (Pendrive / SD card)	
10.7	F6 Info / Alarms	
	Job information / alarms	
6	F8	
	Edits settings **User**, **Tractor** and **Implement**	

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

10.1
F1 Continue last job

Continues last job.

1 Press **F1** to continue the last job, from the point where it has been interrupted.

2 Check the **Spraying settings** in Fig. 278; modify them if necessary.

3 Select ▶ and press **OK** to switch to driving mode.

4 Complete the spraying (Fig. 279).

Fig. 277

Fig. 278

Fig. 279

| | F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

10.2
F2 Save job
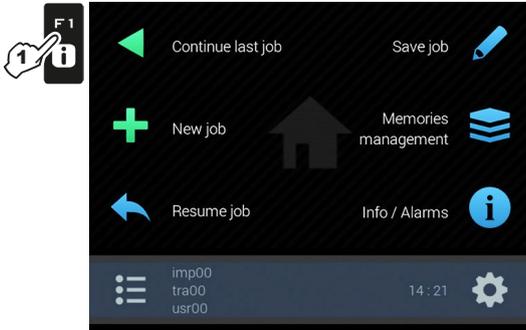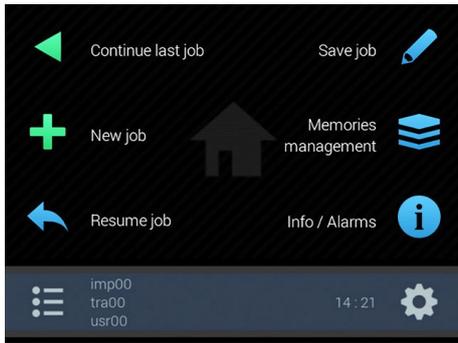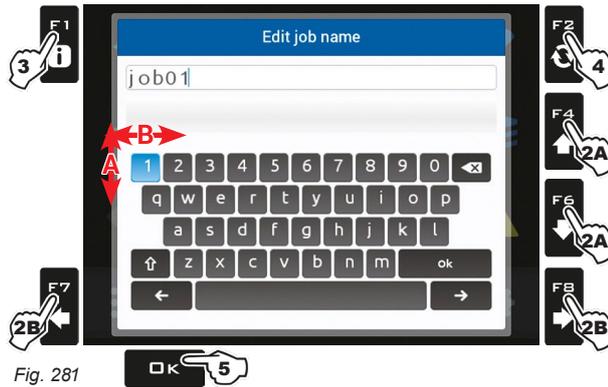
Saves current job

Fig. 280

Fig. 281

1 Press **F2** to save current job: the name edit screen is displayed (Fig. 281). Type the name.

2A Press in succession to select the character you wish to type (UP / DOWN).

2B Press in succession to select the character you wish to type (RIGHT / LEFT).

Press to:

3 confirm the selected character.

3 delete the character before the cursor (when symbol " ⌫ " is selected).

3 save the entered text (when symbol " ok " is selected).

4 delete the character before the cursor.

5 save the entered text (when symbol " ok " is selected).

6 exit screen without confirming modification.

Legend:

imp03 |
Typed Name Cursor

1 Selected character	← → Shift cursor across name characters	⇧ Caps lock	⌫ Deletes the character before the cursor	ok Saves the entered text

job01
Successfully saved!

A confirmation message is displayed once the process is completed (Fig. 282). Press **ESC**.

Fig. 282

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change **Esc** Exit the function or data change **Par. 1.4**

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10.3
F3 New job   Starts a new spraying

1 Press **F3** to start a new spraying. If the current job has not been saved yet, the monitor will prompt the user to save it (Fig. 283).
Press **OK** to continue without saving (**2A**) or **ESC** to interrupt the procedure and save (**2B**).
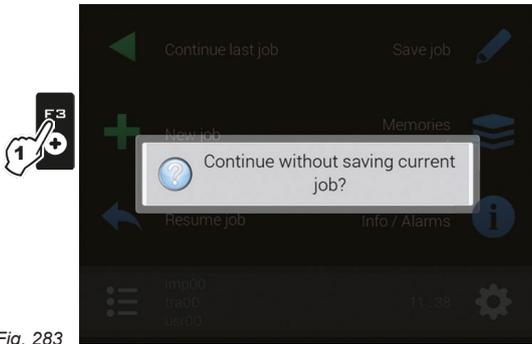

Fig. 283

⚠ **IF AT THIS STAGE YOU CHOOSE TO CONTINUE WITHOUT SAVING (2A), ALL CURRENT JOB DATA WILL BE LOST.**

2B The **ESC** key stops the beginning of a new job.
3B Save the previous job with the function **Save job** (par. 10.2).
Now start from point **1** to begin a new spraying and pass directly to step **2A**.
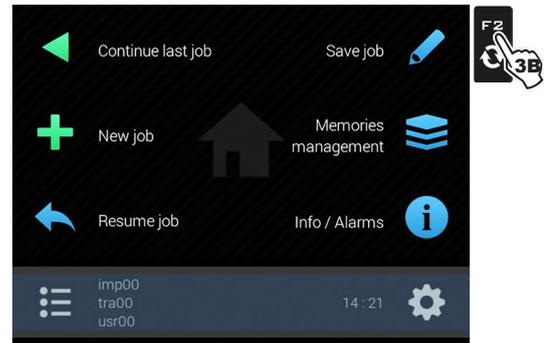
Fig. 284

2A The **OK** key allows switching to the spraying start page without saving the job.

Fig. 285

Check the **Spraying settings** in Fig. 285;
change them if necessary.

CONTINUES

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**ESC** Exit the function or data change	**Par. 1.4**

10.4
F4 Memories management

Manages and copies data between internal and external memories (Pendrive / SD card).

Allows to upload, save and/or delete the data memorized on the monitor or on an external memory; said data concern jobs carried out, maps or machine configurations. All the operations are described in next paragraphs.

When both memories are available, use the pendrives for the exchange of the job data and of the system update data.
The monitor featuring ONLY the SD card reader is an exception.
The following paragraphs refer to an example with a pendrive: the procedure is the same with a SD card.
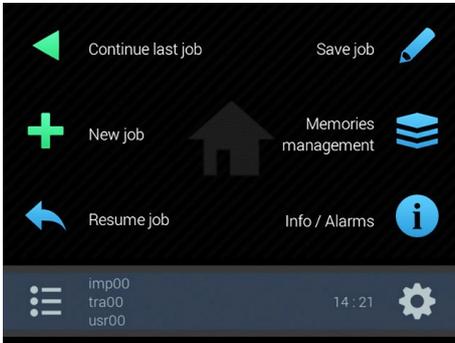
ARAG monitors can use different external memories:
Bravo 400S: Pendrive + SD card
Delta 80: Pendrive
Ninja: SD card

The items displayed in this menu depend on the type of external memory used.

Fig. 286

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

10.4.1 Jobs export

Allows exporting the saved data to an external memory device (Pendrive / SD card).

✋ **When both memories are available, use the pendrives for the exchange of the job data and of the system update data.**
The monitor featuring ONLY the SD card reader is an exception.
The following paragraphs refer to an example with a pendrive: the procedure is the same with a SD card.

Press **F4** to access **Memories management**.

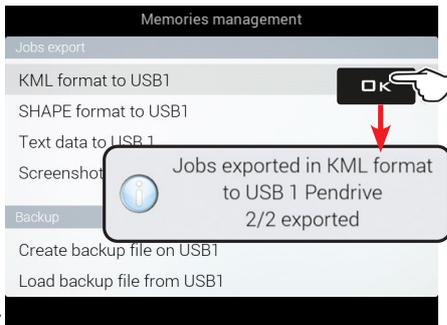#### • KML format to USB / KML format to SD card

Fig. 287

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®.

- Select **KML format to USB 1** (Fig. 287) and press **OK**.
- A confirmation message appears once the process is completed. Press **OK**.

The map is saved on the USB pendrive, inside a folder named "kml".

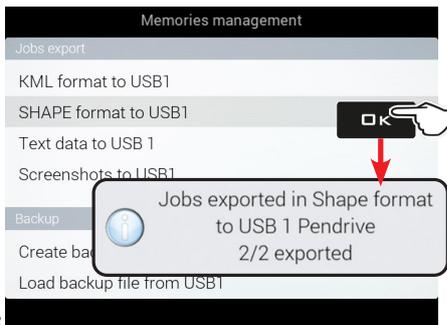#### • SHAPE format to USB / SHAPE format to SD card

Fig. 288

Allows exporting in SHAPE 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 a "Shape" file viewer (.shp).

- Select **SHAPE format to USB 1** (Fig. 288) and press **OK**.
- A confirmation message appears once the process is completed. Press **OK**.

The map is saved on the USB pendrive, inside a folder named "shapes".

• Text data to USB1

Fig. 289

Allows saving the job data on the USB Pendrive, in text format.

- Select **Text data to USB 1** (Fig. 289) and press **OK**.
- A confirmation message appears once the operation is completed. Press **OK**.
System carries out data saving only under the following conditions:
• speed above 0.3 km/h, and/or
• main control ON + (at least) one section ON

The data are saved on the USB pendrive, inside a folder named "text".

       DATA RECORDING FILE
System generates a "lastjob.txt" file (containing the active job data), and other "jobxx.txt" files, corresponding to the names of the recorded jobs.
Data in the file can be displayed on Personal Computer with a text editor.
These are just indicative data and represent a mere example: in real facts they will always be different according to the type of spraying. A detailed description is available in page 58.

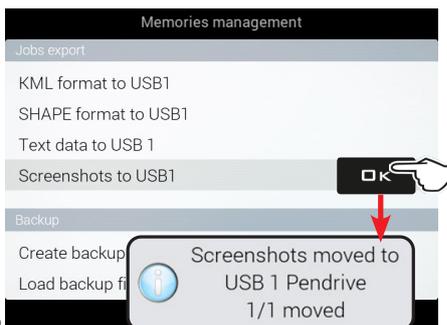#### • Screenshots to USB / Screenshots to SD card

Fig. 290

The prolonged pressure of **F8** saves a screen-shot of the image displayed inside the internal memory
(max 10 images).
This menu allows saving the images stored on the USB Pendrive.

- Select **Screenshots to USB 1** (Fig. 290) and press **OK**.
- A confirmation message appears once the operation is completed. Press **OK**.

The image is saved on the USB pendrive, inside a folder named "screen-shots".

F1 Enter selected character	**F2** Delete selected character	**F7** **F8** Scroll (LEFT / RIGHT)	**F4** **F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	📖 **Par. 1.4**

10.4.2   Backup

Manages the system setting exchange between the monitor and an external memory device.

When both memories are available, use the pendrives for the exchange of the job data and of the system update data. The monitor featuring ONLY the SD card reader is an exception.
The following paragraphs refer to an example with a pendrive: the procedure is the same with a SD card.

Press **F4** to access **Memories management**.

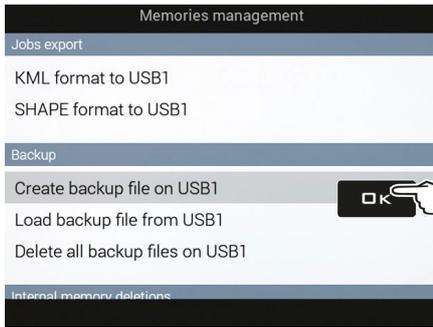### • Create backup file on USB / Create backup file on SD card

Fig. 291

Backup file creation on USB 1:

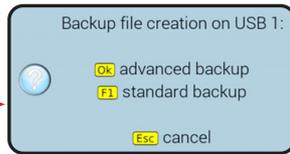Ok advanced backup
F1 standard backup

Esc cancel

Fig. 292

Allows saving a copy (backup) of system settings on the USB pendrive.

- Select **Create backup file on USB1** (Fig. 291) and press **OK**.

Select the type of saving method:
OK: *advanced backup (saves a ".abk" type backup)*
F1 : *standard backup (saves a ".zip" type backup)*
ESC: *cancel.*

- A confirmation message (Fig. 293 / Fig. 294) appears once the saving is completed. Press **ESC**.

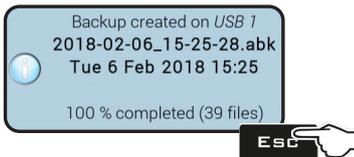*The backup is saved on the USB pendrive, inside a folder named "backups".*

Backup created on *USB 1*
2018-02-06_15-25-28.abk
Tue 6 Feb 2018 15:25

100 % completed (39 files)

Fig. 293

ADVANCED BACKUP: SAVE A ".ABK" TYPE BACKUP

Besides the complete copy of all the saved settings and files, it contains also additional information that can be used in case of system technical service.

Backup created on *USB 1*
2018-02-06_15-25-59.zip
Tue 6 Feb 2018 15:25

100 % completed (31 files)
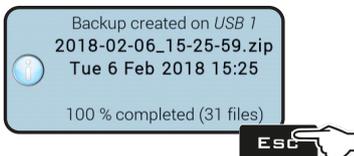
Fig. 294

STANDARD BACKUP: SAVE A ".ZIP" TYPE BACKUP

Complete copy of all saved settings and files.

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

• Load backup file from USB / Load backup file from SD card

Memories management

Jobs export

KML format to USB1

SHAPE format to USB1

Backup

Create backup file on USB1

Load backup file on USB1   OK

Delete all backup files on USB1

Internal memory deletions

Fig. 299

Backup on USB 1 Pendrive

22 Jan 2015
12:09:59   OK   22 Jan 2015
1:26:06

14 Apr 2015
13:26:58

USB 1 Pendrive:
Thu 22 Jan 2015 12:09
Confirm load?

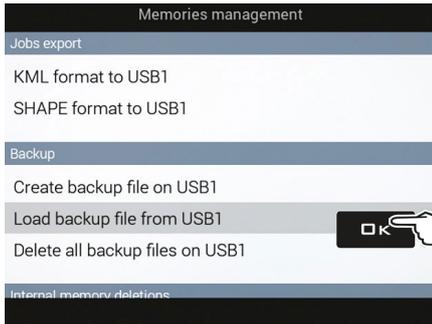*Fig. 300*

Allows loading on the device a copy (backup) of system settings, thus ENABLING THEM.
Before carrying out this operation, it is recommended to create a backup of the existing settings.

- Select **Load backup file from USB1** (Fig. 299) and press **OK**.
- Select the backup folder to be loaded (Fig. 300) and press **OK**.
The monitor requires to confirm: **ALL the settings active till that moment will be lost**
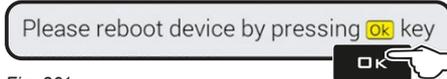(**OK**: confirm, **ESC**: cancel).

Please reboot device by pressing Ok key   OK

Fig. 301

- The message in Fig. 301 is displayed once loading is completed.
  Reboot the device by pressing key **OK**.

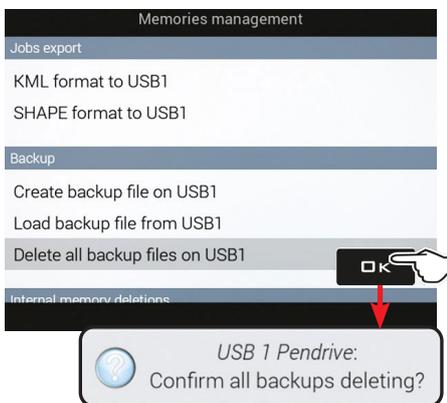### • Delete all backup files on USB / Delete all backup files on SD card

Memories management

Jobs export

KML format to USB1

SHAPE format to USB1

Backup

Create backup file on USB1

Load backup file from USB1

Delete all backup files on USB1   OK

Internal memory deletions

USB 1 Pendrive:
Confirm all backups deleting?

Fig. 302

Allows deleting all the backups from the USB pendrive.

- Select **Delete all backup files on USB1** (Fig. 292) and press **OK**.
The monitor requires to confirm the deletion (**OK**: confirm, **ESC**: cancel).

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

10.4.3 Internal memory deletions

Allows deleting data from the monitor internal memory. **THE CURRENTLY USED FILES MUST NOT BE DELETED.**
The following paragraphs will use Implements as an example: the same procedure will be valid for all other cases (Tractors, Users, etc.).

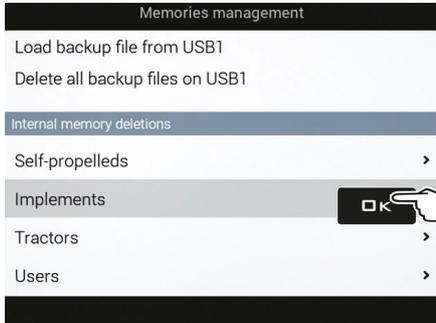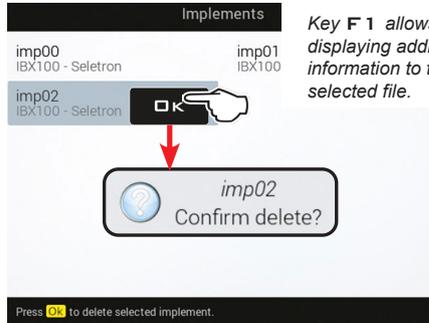Press **F4** to access **Memories management**.

*Key **F1** allows displaying additional information to the selected file.*

Example:

Fig. 295

Fig. 296

- Select **Implements** (Fig. 295) and press **OK**.
- Scroll the list of the names present inside memory: select the desired implement (Fig. 296) and press **OK**.
- The message in the figure is displayed: confirm deletion by pressing **OK**.

10.4.4 Open source licenses

- **Export licenses to USB**: it allows exporting the open source licenses of the device: it saves a compressed file "os_licenses.tar.gz", which once extracted can be viewed with a text editor.

10.4.5 Files copy to internal memory

Allows copying data from an external memory device to the monitor internal memory.

These are the data that can be copied on the internal memory:
- **Maps from USB** / **Maps from SD card**: create a folder called "**maps**" on the external memory and add inside it the prescription map files (*.dbf, *.shp, *.shx)
- **Tank profiles from USB / Tank profiles from SD card**: create a folder called "**ibx100-tank-profiles**" on the external memory and insert inside it the tank profile files (extension *.pro) compatible with ECU IBX100.

When both memories are available, use the pendrives for the exchange of the job data and of the system update data.
The monitor featuring ONLY the SD card reader is an exception.
The following paragraphs refer to an example with a pendrive: the procedure is the same with a SD card.
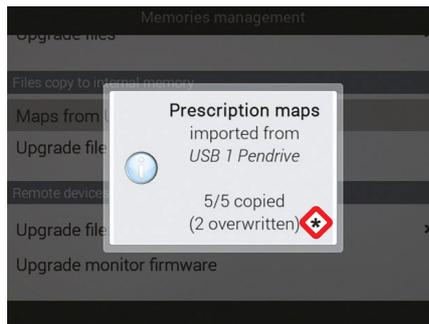
Fig. 297

Fig. 298

- Select **Maps from USB** (Fig. 297) and press **OK**. The monitor requires to confirm the import
OK: *confirm*, **ESC**: *cancel*
- A confirmation message (Fig. 298) appears once the process is completed. Press **ESC**.

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

| **F1** Enter selected character | **F2** Delete selected character | **F7 F8** Scroll (LEFT / RIGHT) | **F4 F6** Scroll (UP / DOWN) | Data decrease / increase | **OK** Confirm access or data change | **Esc** Exit the function or data change | **Par. 1.4** |

10.4.6   Remote devices upgrade

✋ **When both memories are available, use the pendrives for the exchange of the job data and of the system update data.**
The monitor featuring ONLY the SD card reader is an exception.
The following paragraphs refer to an example with a pendrive: the procedure is the same with a SD card.

• Upgrade monitor firmware

Allows updating the monitor firmware.

Fig. 303

Before starting the procedure copy the upgrade files onto the pendrive.

- Insert the pendrive in a pendrive reader and connect it to the computer.
The window to the right will appear: select **Open folder to view the files**.
- Pendrive content window will open.

- Select the upgrade file and drop it onto the pendrive window.
WARNING: save files in the main directory of the USB pendrive. Otherwise the monitor will not be able to read it.

Based on the device to be upgraded, the upgrade contents may consist of one or several files. Always copy all displayed files.
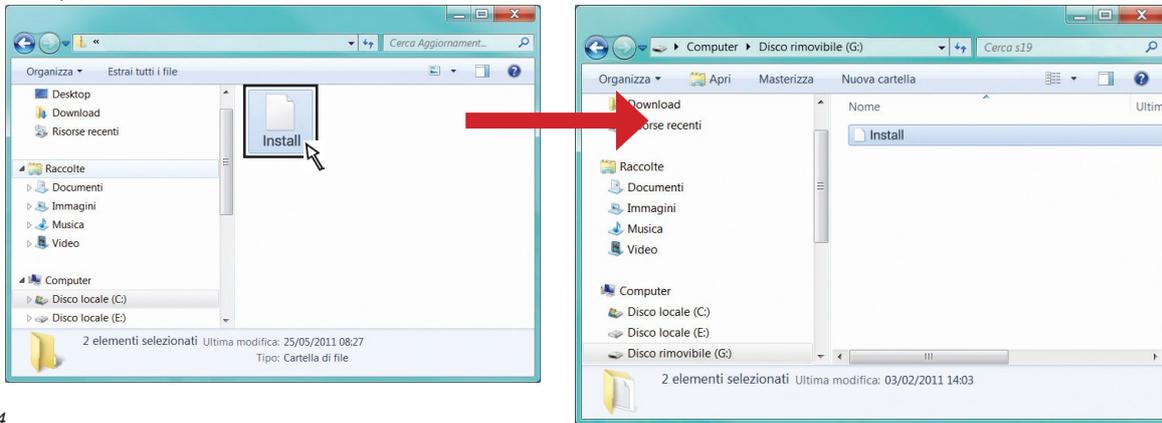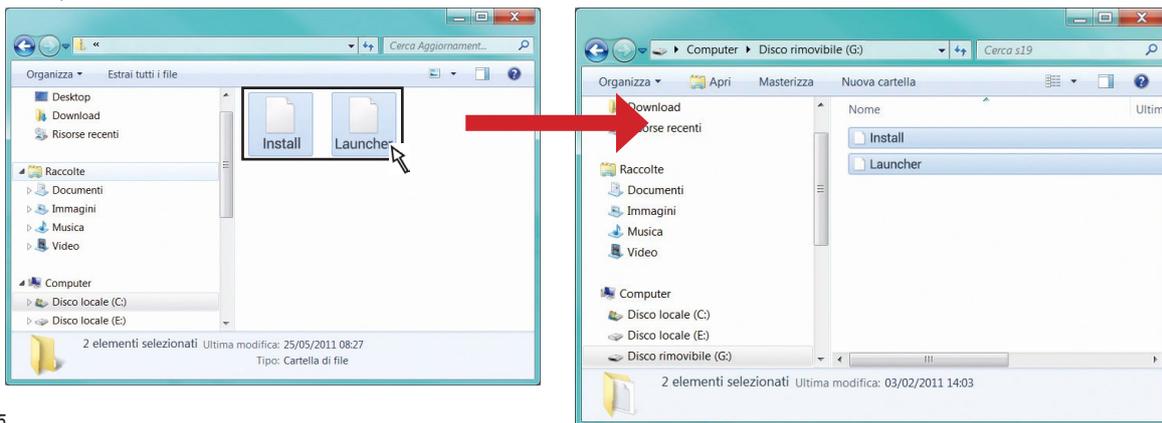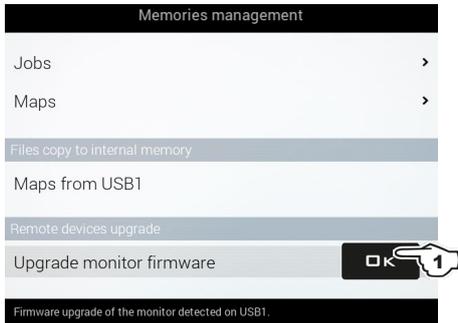
Example 1

Fig. 304

Example 2

Fig. 305

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	📖 **Par. 1.4**

- Insert the pendrive in its slot on the monitor.

STARTING THE UPDATE:

1 Select **Upgrade monitor firmware** (Fig. 306) and press ⬜K. The message in Fig. 307 is displayed once loading is completed.

2 Remove the pendrive and restart the monitor.

Memories management	
Jobs	›
Maps	›
Files copy to internal memory	
Maps from USB1	
Remote devices upgrade	
Upgrade monitor firmware	⬜K 1
Firmware upgrade of the monitor detected on USB1.	

Fig. 306

Please reboot device to procede with the upgrade...

Fig. 307

IF YOU SELECT THE UPDATE FUNCTION, 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.

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

WARNING: DURING THE FOLLOWING OPERATIONS DO NOT TURN THE MONITOR OFF AND DO NOT DISCONNECT IT FROM THE POWER SUPPLY!

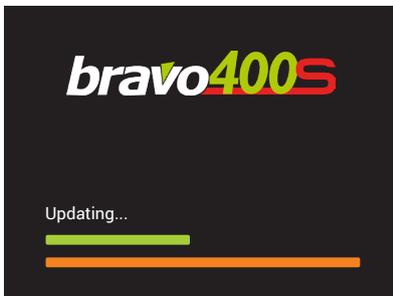At the end of the installation the computer will reboot automatically.

bravo400s

Updating...

Fig. 308

delta80

Updating...

Fig. 309

ninja

Updating...

Fig. 310

Should this prove necessary, the COMPLETE DELETION of all settings and files can be FORCED.
While the update is in progress, and before it is completed (i.e. before the colored progress bars reach the right end), press F3 once: the message Full erase option activated will be thus displayed and the system will be completely reset once the update is completed.

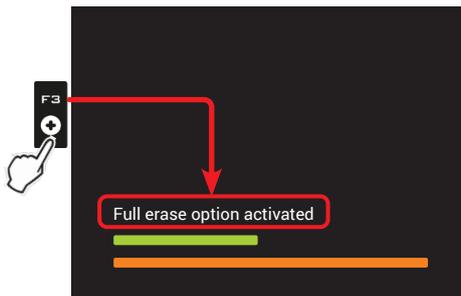F3

Full erase option activated

Fig. 311

Should you wish to CANCEL THE COMPLETE DELETION, press F3 again before the update is completed:
in this case, message Full erase option disabled will be displayed and the system will be updated without deleting all data.
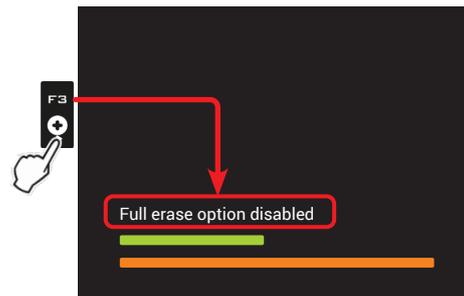
F3

Full erase option disabled

Fig. 312

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | | Data decrease / increase | ⬜K | Confirm access or data change | Esc | Exit the function or data change | | **Par. 1.4** |

10.5
F5 Resume job

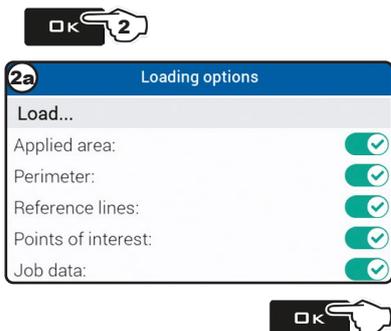Enables procedure for resuming a previously saved spraying.

1 Press **F5** to resume a previous spraying, from the list of saved ones.
As for the function **New job** (par. 10.3), if the current job has not been saved yet, the monitor asks to save it.

2 Select the job among those in the list (Fig. 313) and press **OK** to confirm the selection.

2a When an "old" job is resumed, the monitor provides guidance information by restoring the conditions which were active at the time of saving.
In screen **Loading options** (enabled in par. 6.12.11), it is possible to choose the information to be loaded (Fig. 314).

3 Check the **Spraying settings** in Fig. 315; modify them if necessary.

4 Select ▶ and press **OK** to switch to driving mode.

5 Complete the spraying (Fig. 316).

Key **F1** allows displaying additional information to the selected file.

Example:
job06
22/12/2014 14:50

job06
Working start: **22/12/2014 12:12**
Last working: **22/12/2014 14:50**
User: **usr03**
Implement: **mac02 (seletronEcuSprayer)**
Applied area: **72.51 ha**
Applied quantity: **8976.1 l**
Nozzles: ISO 01 ISO 02

Fig. 313

Fig. 314

In this screen it is possible to enable or disable the information memorized during the last saving (✓ **Value enabled**, ✗ **Value disabled**).

- Select, one by one, the parameters shown in the list and start the setup procedure:
• **Applied area** disabling this parameter resets the relevant counter.
• **Perimeter** disabling this parameter resets the calculated surface counter.
• **Reference lines**
• **Points of interest**
• **Job data** disabling this parameter resets all counters;
upon job loading a new spraying start date and time will be saved.

- Select **Start job...** and press **OK** to switch to **Spraying settings**.

Fig. 315

Fig. 316

10.6
F5 Resume job

Enables procedure for resuming a previously saved spraying.

1 Press **F5** to resume a previous spraying, from the list of saved ones.
As for the function **New job** (par. 10.3), if the current job has not been saved yet, the monitor asks to save it.

2 Select the job among those in the list (Fig. 317) and press **OK** to confirm the selection.

2a When an "old" job is resumed, the monitor provides guidance information by restoring the conditions which were active at the time of saving.
In screen **Loading options** (enabled in par. 6.12.11), it is possible to choose the information to be loaded (Fig. 318).

3 Check the **Spraying settings** in Fig. 319; modify them if necessary.

4 Select ▶ and press **OK** to switch to driving mode.

5 Complete the spraying (Fig. 320).
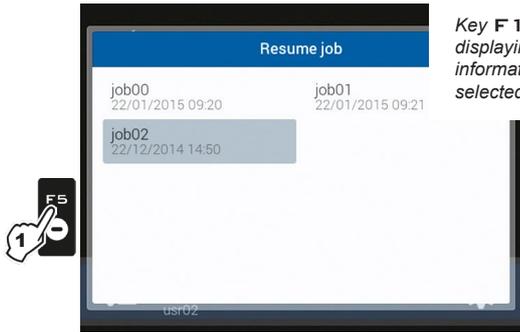
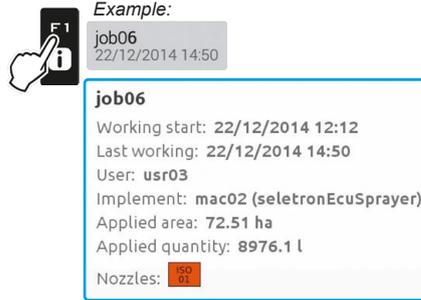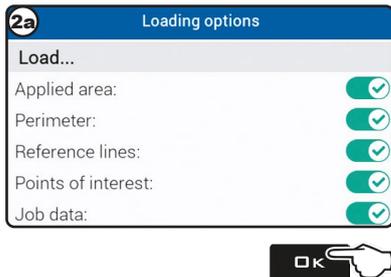Key **F1** allows displaying additional information to the selected file.

Example:

Fig. 317

In this screen it is possible to enable or disable the information memorized during the last saving (⬤✓ **Value enabled**, ⊗ **Value disabled**).

- Select, one by one, the parameters shown in the list and start the setup procedure:
• **Applied area** disabling this parameter resets the relevant counter.
• **Perimeter** disabling this parameter resets the calculated surface counter.
• **Reference lines**
• **Points of interest**
• **Job data** disabling this parameter resets all counters;
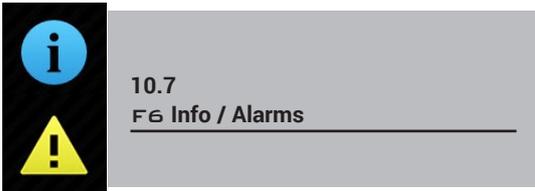upon job loading a new spraying start date and time will be saved.

- Select **Start job...** and press **OK** to switch to **Spraying settings**.

Fig. 318

Fig. 319

Fig. 320

| **F1** Enter selected character | **F2** Delete selected character | **F7 F8** Scroll (LEFT / RIGHT) | **F4 F6** Scroll (UP / DOWN) | Data decrease / increase | **OK** Confirm access or data change | **Esc** Exit the function or data change | **Par. 1.4** |

10.7
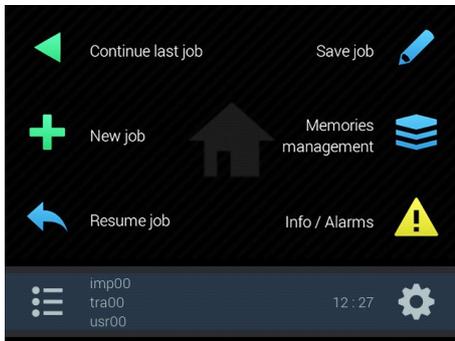**F6 Info / Alarms**

Displays job information / alarms.

Fig. 321

Fig. 322

1 Press **F6** to display the menu **Info / Alarms** (Fig. 322). This screen gives an overview of the active notifications for the operator, rated by importance, in **Critical alarms**, **Low priority alarms** and **Info**.
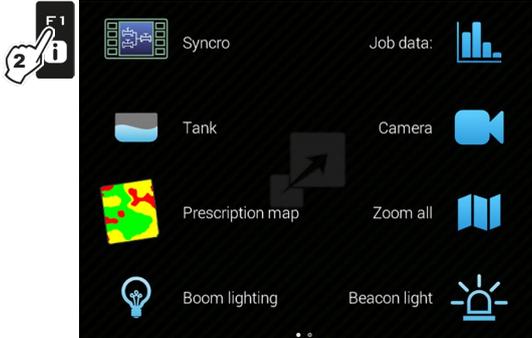
F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

11 JOB MENU

To access the job menu, press MENU. Pressing the key at the side will enable the relevant function.
WARNING: function position is variable, hence also that of the corresponding key.

page 1

page 2
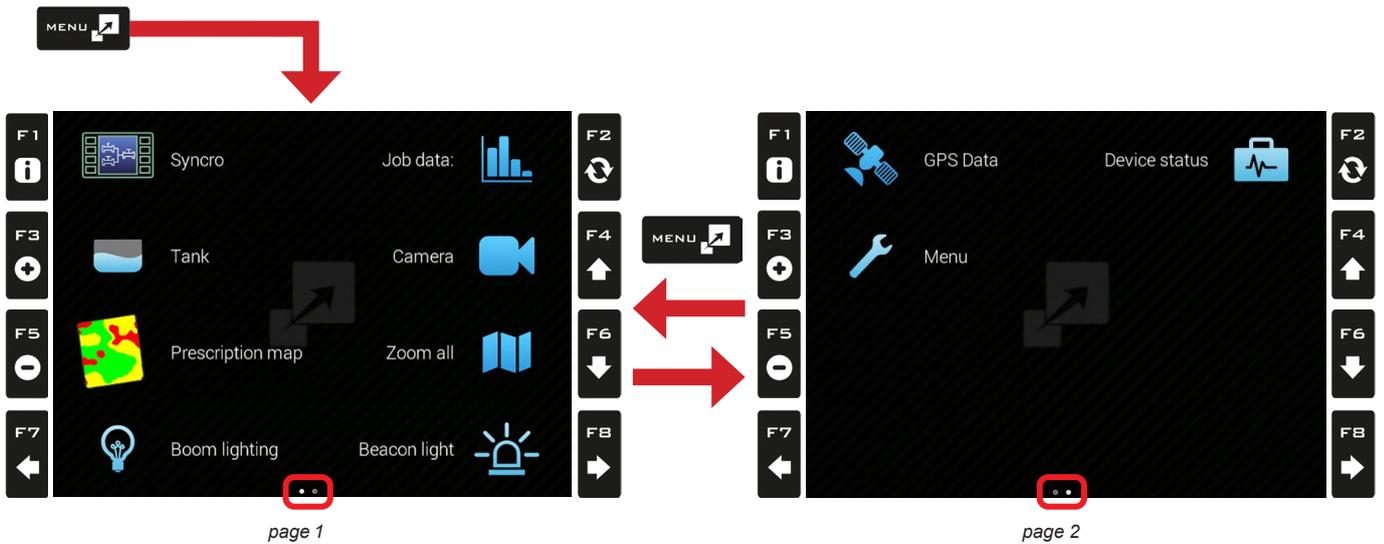
The table below sums up all menu items. If several pages are present, press MENU in sequence to scroll them.

Par.

11.1	Syncro

Displays the auxiliary circuit control screen (remote connection to Syncro).

11.2	Tank

Tank filling management

11.3	Prescription map

Overview of the prescription map in use

11.4	Boom lighting

Turns boom lighting ON / OFF

11.5	Job data

Displays job data

11.7	Camera

Displays images from connected cameras

11.8	Zoom all

Overview of the field during spraying

11.9	Beacon light

Turns tractor flasher ON / OFF

Par.

11.10	GPS Data

Displays GPS data

11.11	Menu

Job settings menu

11.12	Device status

Checks device operation

11.13	SkyGuide

Display SkyGuide control screen

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | **Par. 1.4** |

	11.1 **Syncro**	Displays the auxiliary circuit control screen (remote connection to Syncro). **This menu is displayed ONLY IF the connection to Syncro is duly configured (par. 6.4). The instructions for device installation and use are provided with the product.**

1 Press key Menu.
2 Press the key at the side of menu **Syncro**.
This screen allows controlling the Syncro computer from the Bravo 400S, Delta 80 and Ninja monitors. The use of the keys is the same.
A system with IBX100 ECU is necessary; refer to the relevant installation manual.
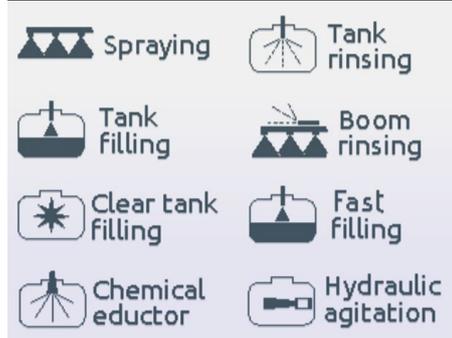**System settings can be configured ONLY by the Syncro.**

Fig. 323

Fig. 324

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

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| 11.2 Tank | Manages tank filling.
The management mode will change according to the device set for the tank level reading (basic settings, chap. 4). |

1 Press key MENU.
2 Press the key at the side of menu **Tank**.

Fig. 325

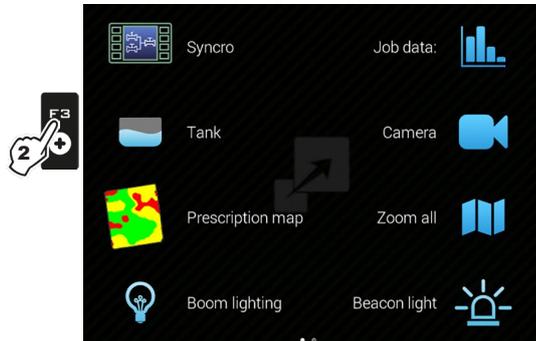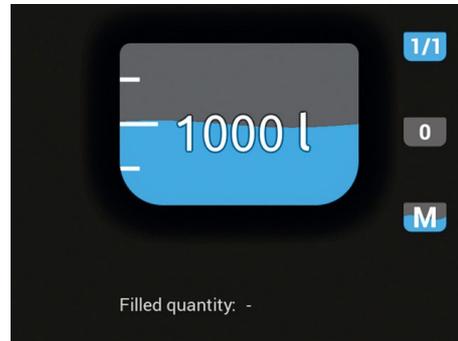→ Complete filling
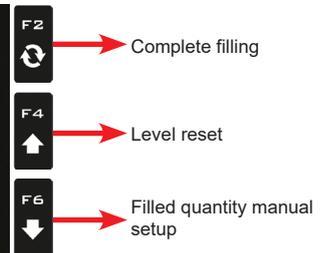→ Level reset
→ Filled quantity manual setup

Fig. 326

• TANK LEVEL SOURCE: LEVEL SENSOR
The computer displays the real quantity of fluid inside the tank, detected by the level sensor.

• TANK LEVEL SOURCE: MANUAL / FILLING FLOWMETER
The computer calculates the quantity of fluid inside the tank (by processing the job data), and allows enabling several manual procedures:
- Complete filling, according to the tank capacity (Fig. 327)
- Level reset (Fig. 328)
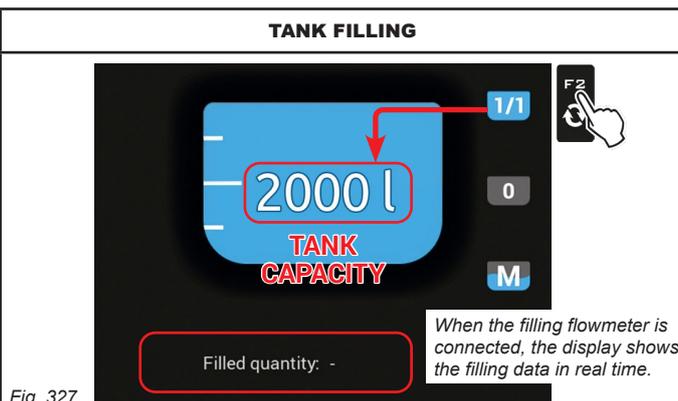- Filled quantity manual setup (Fig. 329)

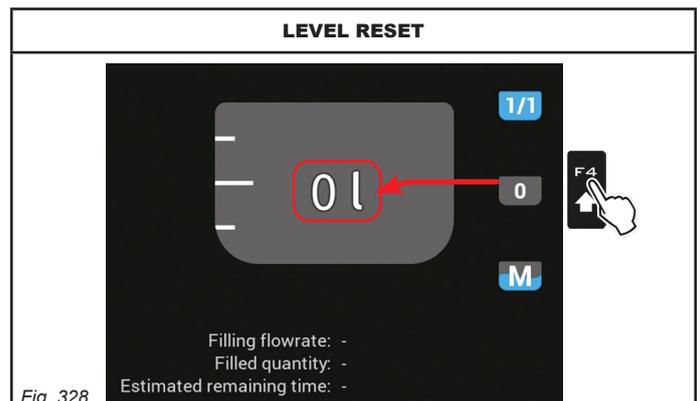| **TANK FILLING**	**LEVEL RESET**
 When the filling flowmeter is connected, the display shows the filling data in real time. *Fig. 327* Press **F2** to set tank level to the maximum value. The display will show the tank as full: its total capacity has been set during advanced setup (par. 6.5.12).	 *Fig. 328* Press **F4** to set tank level to zero. The display will show the tank as empty.

FILLED QUANTITY MANUAL SETUP
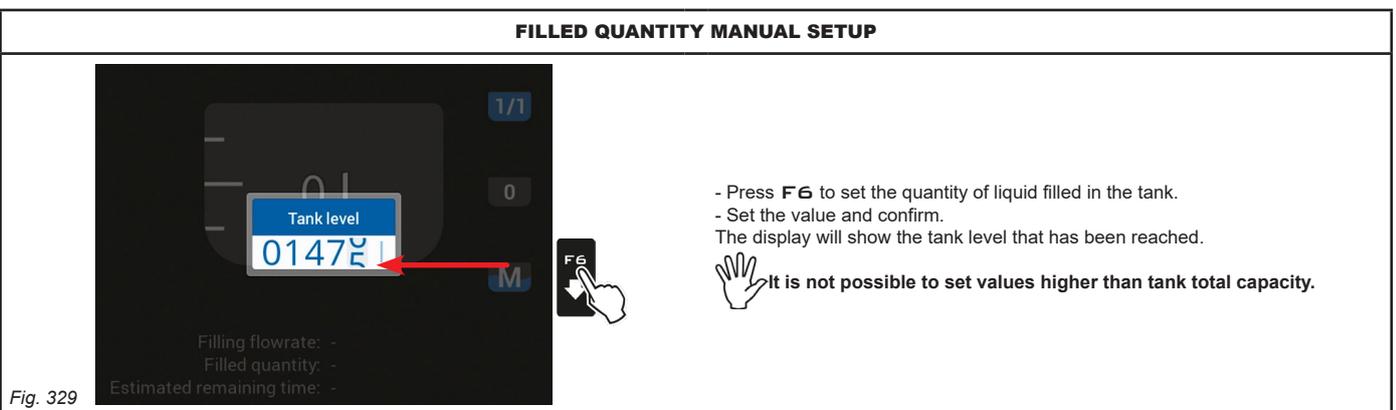
Fig. 329

- Press **F6** to set the quantity of liquid filled in the tank.
- Set the value and confirm.
The display will show the tank level that has been reached.

✋ **It is not possible to set values higher than tank total capacity.**

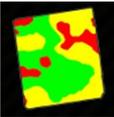|							
F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

11.3
Prescription map

Overview of the prescription map in use

1 Press key MENU.
2 Press the key at the side of menu **Prescription map**.
From this screen it is possible to view data of the prescription map during spraying and to check the position of the machine on the map.
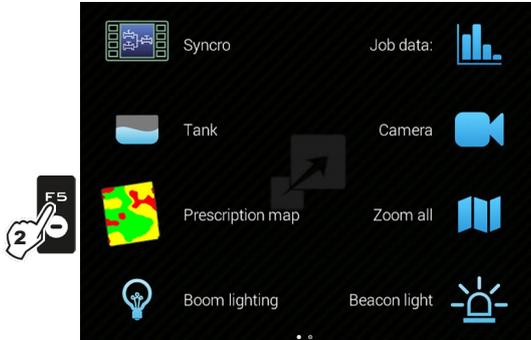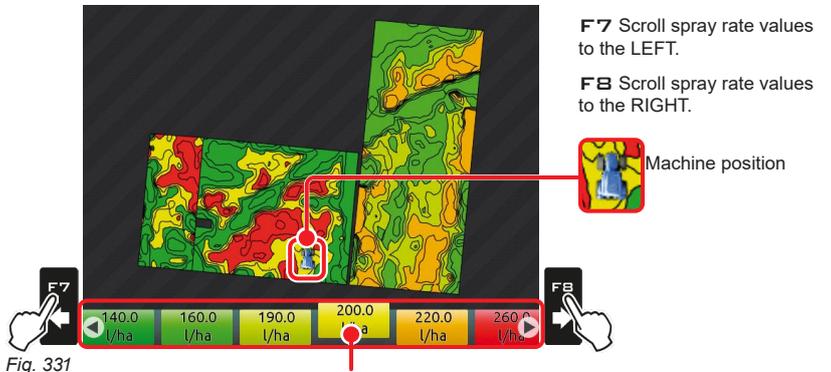

Syncro | Job data:
Tank | Camera
Prescription map | Zoom all
Boom lighting | Beacon light

Fig. 330

Fig. 331

F7 Scroll spray rate values to the LEFT.

F8 Scroll spray rate values to the RIGHT.

Machine position

140.0 l/ha | 160.0 l/ha | 190.0 l/ha | 200.0 l/ha | 220.0 l/ha | 260.0 l/ha

Spray rate values legend:
The highlighted box displays the spray rate referred to the machine's current position

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

	11.4 **Boom lighting**	Turns boom lighting ON / OFF ✋ **This menu is displayed ONLY IF the lighting devices are duly configured (par. 6.5.15).**

1 Press key **Menu**.
2 Press the key at the side of **Boom lighting** menu.

Lighting ON

Lighting OFF

Fig. 332

F1 Enter selected character	**F2** Delete selected character	**F7** **F8** Scroll (LEFT / RIGHT)	**F4** **F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

	11.5 **Job data**	Displays job data

1 Press key **Menu**.
2 Press the key at the side of menu to display the job data.
3 Press **F4** / **F6** to scroll data.

Syncro   Job data:

Tank   Camera

Prescription map   Zoom all

Boom lighting   Beacon light

Fig. 333

Job data	
Applied area:	0.00 ha
Applied quantity:	0 l
Average application rate:	0 l/ha
Nozzles:	ISO 04 ISO 05
Calculated area:	0.00 ha
Working time:	00:00
Application time:	00:00
Average productivity:	0.0 ha/h

Total applied area in current job.

Fig. 334

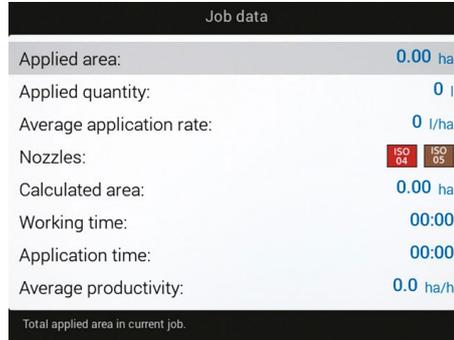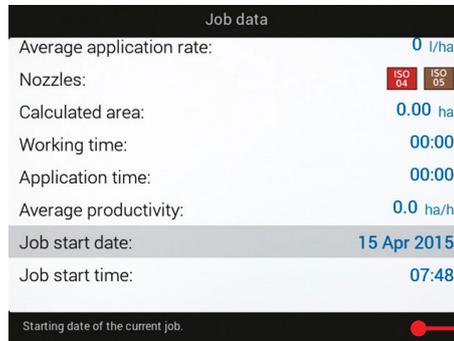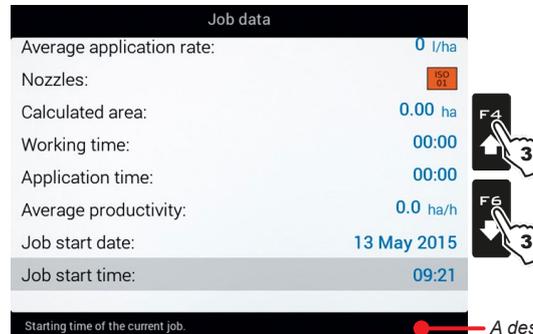| Job data	
Average application rate:	0 l/ha
Nozzles:	ISO 04 ISO 05
Calculated area:	0.00 ha
Working time:	00:00
Application time:	00:00
Average productivity:	0.0 ha/h
Job start date:	15 Apr 2015
Job start time:	07:48

Starting date of the current job.

Fig. 335

A description of the selected value is shown at the bottom of the display.

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | **Par. 1.4** |

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11.6 Job data

Displays job data

1 Press key **Menu**.
2 Press the key at the side of menu to display the job data.
3 Press **F4** / **F6** to scroll data.

Syncro	Job data:	📊	**F2** 2
Tank	Camera	🎥	
Prescription map	Zoom all	📖	
Boom lighting	Beacon light	🚨	

Fig. 336

Job data	
Applied area:	0.00 ha
Applied quantity:	0 l
Average application rate:	0 l/ha
Nozzles:	ISO 01
Calculated area:	0.00 ha
Working time:	00:00
Application time:	00:00
Average productivity:	0.0 ha/h

Total applied area in current job.

Fig. 337

F4 3
F6 3

Job data	
Average application rate:	0 l/ha
Nozzles:	ISO 01
Calculated area:	0.00 ha
Working time:	00:00
Application time:	00:00
Average productivity:	0.0 ha/h
Job start date:	13 May 2015
Job start time:	09:21

Starting time of the current job.

Fig. 338

F4 3
F6 3

A description of the selected value is shown at the bottom of the display.

F1 Enter selected character	**F2** Delete selected character	**F7** **F8** Scroll (LEFT / RIGHT)	**F4** **F6** Scroll (UP / DOWN)	Data decrease / increase

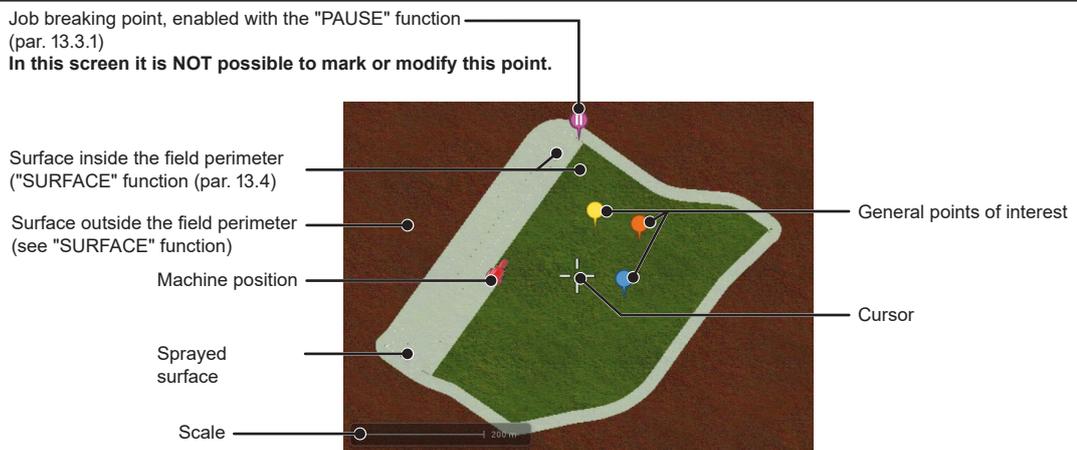| **Ok** Confirm access or data change	**Esc** Exit the function or data change	📖 **Par. 1.4**

	11.7 **Camera**	Displays images from connected cameras

1 Press key Menu.
2 Press the key at the side of menu **Camera**.
By connecting one or more cameras, it is possible to monitor working areas and at the same time view spraying data.

👋 Enable camera view during advanced setup (par. 6.11.1).

Syncro   Job data:

Tank   Camera

Prescription map   Zoom all

Boom lighting   Beacon light

Fig. 339

Fig. 340

JOB DATA

F2 Alternates the displaying of the two cameras
F7 Selects the job data displayed on the LEFT side of the screen.
F8 Selects the job data displayed on the RIGHT side of the screen.

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	📖 **Par. 1.4**

	11.8 **Zoom all**	Overview of the field during spraying

1 Press key MENU.
2 Press the key at the side of menu **Zoom all**.

Fig. 341

INDICATORS AND POINTS OF INTEREST ON THE FIELD

Job breaking point, enabled with the "PAUSE" function (par. 13.3.1)
In this screen it is NOT possible to mark or modify this point.

Surface inside the field perimeter ("SURFACE" function (par. 13.4)

Surface outside the field perimeter (see "SURFACE" function)

Machine position

Sprayed surface

Scale

General points of interest

Cursor

F3 **F5** Display zoom adjustment:
F3 (**+**) increases,
F5 (**-**) reduces

◀ It indicates the machine position outside the displayed area

Fig. 342

F1 Enter selected character	**F2** Delete selected character	**F7** **F8** Scroll (LEFT / RIGHT)	**F4** **F6** Scroll (UP / DOWN)	Data decrease / increase	**Ok** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

MARKING POINTS OF INTEREST

Fig. 343

✋ The general points of interest can be memorized with this procedure or with the specific function (par. 13.3.2). It is possible to mark more points.

In this screen it is possible to memorize one point of the field even if the tractor is in another position:

1 In the field overview screen (Fig. 343) press **OK**.
Cursor **A** will appear.
2 Press **F4** / **F6** / **F7** / **F8** to move the cursor in the exact point to be marked.
3 Press **OK** (Fig. 344).
4 Press **F7** / **F8** to select the type of marker.
5 Press **OK** to confirm (Fig. 345).
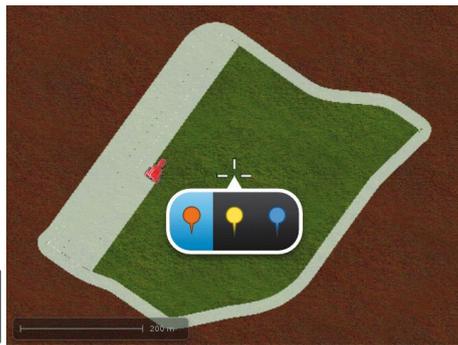
Fig. 344

Fig. 345

REMOVING POINTS OF INTEREST

1 In the field overview screen (Fig. 346) press **OK**. Cursor **A** will appear.
2 Press **F4** / **F6** / **F7** / **F8** to move the cursor near or on the marked point; when the point is selected, the symbol ☆ will appear in the middle of the cursor.
3 Press **OK** twice to delete (Fig. 347) / **ESC** to cancel.

Fig. 346

Fig. 347

| **F1** Enter selected character | **F2** Delete selected character | **F7 F8** Scroll (LEFT / RIGHT) | **F4 F6** Scroll (UP / DOWN) | Data decrease / increase | **OK** Confirm access or data change | **Esc** Exit the function or data change | 📖 Par. 1.4 |

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	11.9 Beacon light	Turns tractor flasher ON / OFF. **This menu is displayed ONLY IF the lighting devices are duly configured (par. 6.5.15).**

1 Press key **Menu**.

2 Press the key at the side of **Beacon light** menu.

Flasher ON

Flasher OFF

Fig. 348

F1 Enter selected character	**F2** Delete selected character	**F7** **F8** Scroll (LEFT / RIGHT)	**F4** **F6** Scroll (UP / DOWN)	Data decrease / increase	**Ok** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

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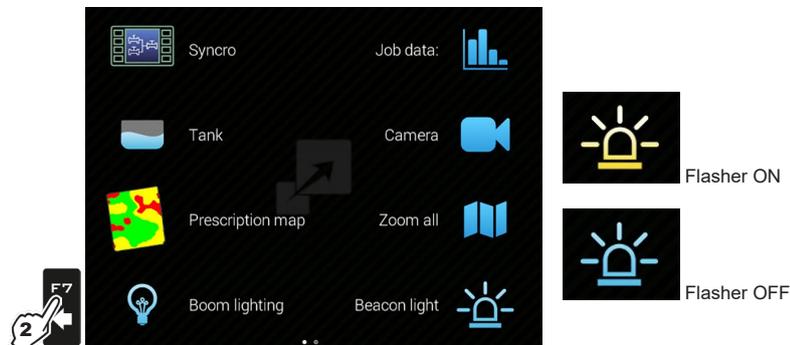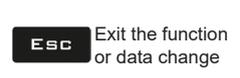
	11.10	Displays GPS data
	GPS Data	

1 Press key Menu.
2 Press the key at the side of **GPS Data** menu.
This screen shows the data sent to the GPS receiver.

Fig. 349

Fig. 350

*Only active for GPS receiver with built-in inclinometer
(see General ARAG Cat.)*

A description of the selected value is shown at the bottom of the display.

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

| 11.11 | Job settings menu |
| Menu | |

1 Press key MENU.
2 Press the key at the side of menu **Settings menu**.
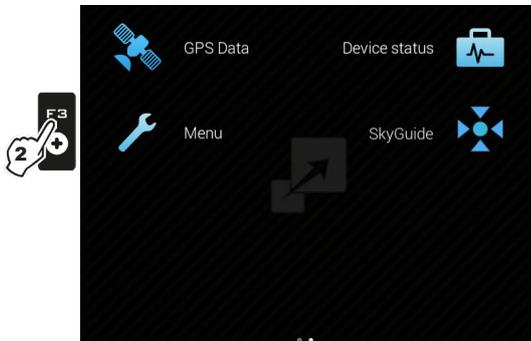
Fig. 351

In this screen it is possible to access several different menus, which can be useful during spraying:
• **Alarms** (par. 6.5.13).
• **Working parameters** (par. 6.5.14).
• **Speed source** (par. 11.11.1).
• **User** (par. 6.12).

11.11.1 Speed source
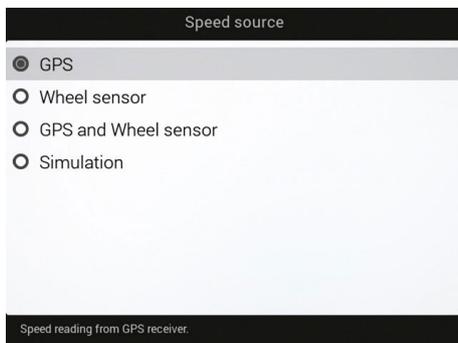
Fig. 352

Allows to select the source for speed calculation. Available options:

• GPS

Information concerning speed is received by the GPS, which is connected directly to the monitor.

• Wheel sensor

When this option is enabled, the speed is calculated on the basis of the pulses received by the speed sensor installed on the wheel.

⚠ **WARNING: guidance information and all accessory functions (surface calculation, alignment, etc.) are disabled.**

The wheel constant must be entered during the setup procedure (par. 6.5.10).

• GPS and Wheel sensor

When this option is enabled, the monitor uses both sources:
- the guidance information and the accessory functions are active thanks to the data sent by the GPS receiver;
- the output is adjusted (par. 9.4) according to the speed read by the wheel sensor.

• Simulation

Allows to enable speed simulation in order to carry out adjustment tests even when the machine is stationary.

Fig. 353

Edit simulation speed *(DEF 6.0 km/h - 3.7 MPH)*:
F3 (**+**) increases, F5 (**-**) decreases

⚠ **WARNING: guidance information and all accessory functions (surface calculation, alignment, etc.) are disabled.**

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |

	11.12	
	Device status	

Allows checking the correct operation of the monitor: the description of the selected item will appear on the display.

✋ **The items displayed in this menu are READ-ONLY; they depend on the basic settings (chap. 4).**

1 Press key **Menu**.
2 Press the key at the side of menu **Device status**.

Fig. 355

DEVICE TOTALIZERS

Device totalizers	
Applied area:	0 ha
Application time:	0 h
Maximum speed:	10.1 km/h

Allows consulting the spraying total data.

Fig. 354

MODE ON

SELETRON SYSTEM

• Status of the Seletron system

This menu has two main functions:

• INSTALLATION
Allows displaying the progress during Seletron's pairing procedure (chap. 12 Seletron connection).

• DIAGNOSTICS
Allows to check the connection of each single Seletron.

✋ **CARRY OUT BOTH PROCEDURES WITH RUNNING ENGINE.**

SELETRON CONNECTION DIAGNOSTICS

Color legend:

🟩 Correct operation.
⬜ Seletron does not respond.
🟥 Power supply error on Seletron devices: power voltage lower than the allowed value.

From screen Fig. 356 it is possible to display the relevant number.

Status of the Seletron system									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

Monitor seletron discovery.

✋ **If necessary, you can and repeat the pairing procedure for each Seletron device:
BEFORE STARTING A NEW PAIRING PROCEDURE, YOU MUST RESET THE PREVIOUSLY ALLOCATED IDENTIFICATION NUMBERS.**
Use function **Identification numbers reset (par. 6.5.16).**

Fig. 356

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

EXTERNAL SIGNALS

External signals		
Pressure sensor:	0.00	mA
Flowmeter:	0.00	Hz
Filling flowmeter:	0.00	Hz
Rev counter:	0.00	Hz
Wheel sensor:	0.00	Hz
Tank level sensor:	0.00	mA

Fig. 357

The monitor detects frequency and current sent by each sensor on the system.

External command:	On
Driving direction:	Forward

Fig. 358

The monitor displays the status of the external main control, which starts the spraying.

The monitor detects the driving direction.

SWITCHBOX SIGNAL

Switchbox signal	
Sections switch panel:	
Hydraulic switch panel:	

Fig. 359

The monitor displays the status of switches (section valves and/or hydraulic valves), if the switch panels are connected.

JOYSTICK SIGNAL

Joystick signal	
Joystick status	

Fig. 360

The monitor displays the status of the Explorer joystick keys (if connected).

FIRMWARE VERSIONS

The monitor displays:
- Firmware versions
- Serial number of the hydraulic control unit (if connected).

POWER DATA

The monitor checks the status of the power supply.

MEMORY STATUS

Percentage of the memory used by the system for the job in progress.

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

	11.13 **SkyGuide**	Display SkyGuide control screen **SKyGuide allows correcting the GPS position by means of the repeated calibration of a specific point in the field (SkyGuide origin).**

1 Press F3 to start a new spraying. If the current job has not yet been saved, the monitor asks to save it: press OK to continue without saving or ESC to stop the procedure and save (par. 10.2).
2 Press key Menu.
3 Press the key at the side of the **SkyGuide** menu.
4 Press F4 / F6 to scroll data.
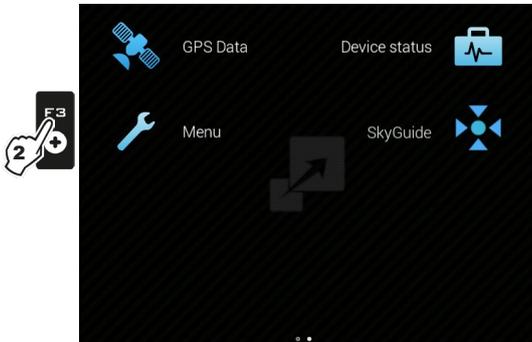
Fig. 361

A description of the selected value is shown at the bottom of the display.

Fig. 362

The navigation page allows monitoring SkyGuide functionality through a dedicated label, which indicates **SkyGuide time** and **SkyGuide icon**.
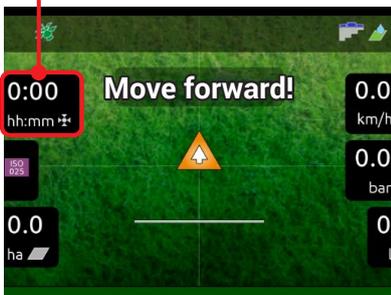
Fig. 363
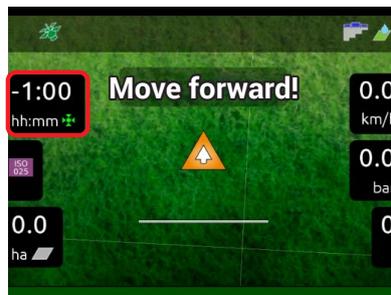
Fig. 364

Fig. 365

SkyGuide time: indicates the calibration validity time, i.e. 1 hour.

There is no origin.

Time left before the **Alarm period** (1 hour) expires.

Time passed since the expiry of the **Alarm period**.

SkyGuide icon

 WHITE: SkyGuide has not an origin.

 GREEN: SkyGuide has an origin and neither the warning time nor the calibration validity time have expired.

 YELLOW: the warning time has expired, but the calibration validity time has not.

 RED: the calibration validity time has expired.

 NOTE: When a new job is started, the SkyGuide origin is removed.

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4
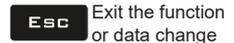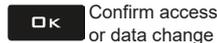
11.13.1 Origin calibration

It allows starting the SkyGuide origin calibration procedure (the **Origin calibration** menu is disabled if an origin is already present.)
After calculating the origin, the SkyGuide time will start updating.

WARNING: during the first origin calibration it is necessary to identify a reference point and a vehicle orientation. This because the following calibrations will require you to return exactly to the origin point and keep the same vehicle orientation previously chosen, otherwise the GPS signal correction will not be accurate.

1 Select the **Origin calibration** menu and press ⌧**K**.
2 Wait 15 seconds. Follow the steps indicated by selecting the desired options (⌧**K**: *confirm acquired data /* **ESC**: *reject acquired data).*
3 Press ⌧**K** or **ESC** to go back to SkyGuide page.
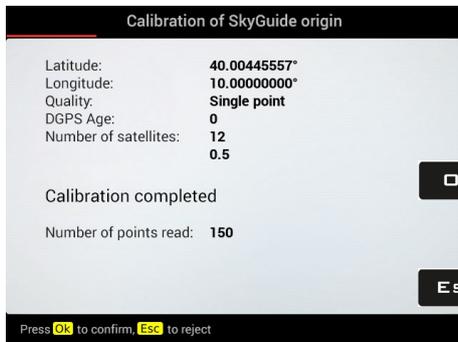
The origin calibration procedure will be aborted if the machine is not stationary (stopped, zero speed) or if the GPS signal quality is insufficient.

→ Procedure successfully completed

→ Procedure aborted, calibration data rejected

Fig. 366

11.13.2 Correction calibration

It allows starting the SkyGuide origin correction procedure (the **Correction calibration** menu is enabled only if an origin is already present).
The correction is recommended when the origin validity is about to expire or has already expired (alarms on the display: **SkyGuide time about to expire**, **Repeat SkyGuide calibration**).

1 Select the **Correction calibration** menu and press ⌧**K**.
2 Wait 15 seconds. Follow the steps indicated by selecting the desired options (⌧**K**: *confirm acquired data /* **ESC**: *reject acquired data).*
3 Press ⌧**K** or **ESC** to go back to SkyGuide page.
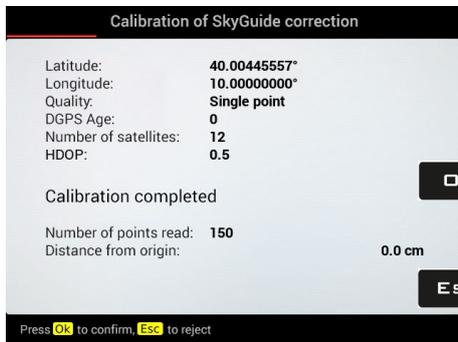
The correction calibration will be aborted if the machine is not stationery (stopped, zero speed), if the GPS signal quality is insufficient or if you are too far from the previously calibrated SkyGuide origin.

→ Procedure successfully completed

→ Procedure aborted, calibration data rejected

Fig. 367

F1	Enter selected character	**F2**	Delete selected character	**F7 F8**	Scroll (LEFT / RIGHT)	**F4 F6**	Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change — **Esc** Exit the function or data change — **Par. 1.4**
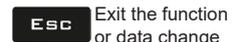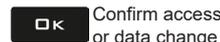
11.13.3 Reset origin

It allows resetting the SkyGuide origin so that a new origin, i.e. a different reference in the field, can be calibrated.
The **Reset origin** menu is enabled only if an origin is already present.

1 Select the **Reset origin** item and press ⊡Ⲕ.

2 Select the desired option. *(⊡Ⲕ: delete origin / ᴱՏᴄ: keep origin)*.

11.13.4 Show origin return line

It allows enabling/disabling the display of the indication of the return to the origin point, that is to say the line that links the machine to the SkyGuide origin (✅ **Line enabled,** ❌ **Line disabled)**.
The guide line is visible only after the warning period has expired and disappears when the machine is at less than 10 m from the SkyGuide origin.

Fig. 368

11.13.5 Warning period

The SkyGuide origin calibration validity lasts 60 minutes.
The warning period indicates after how many minutes since the SkyGuide origin calibration it is preferable to perform the correction.

At the end of the warning period, the job page will display the message **SkyGuide time about to expire**.

It is recommended to set a warning period shorter than the SkyGuide time (1 hour) so that the operator has the time to return to the origin point and repeat the calibration.

END 11.13 SkyGuide

| | Enter selected character | | Delete selected character | | | Scroll (LEFT / RIGHT) | | | Scroll (UP / DOWN) | Data decrease / increase | | Confirm access or data change | | Exit the function or data change | Par. 1.4 |

12 SELETRON CONNECTION

PLEASE CAREFULLY FOLLOW THE INSTRUCTIONS PROVIDED IN THIS CHAPTER. ANY MISTAKE DURING SELETRON PAIRING/REPLACEMENT MAY LEAD TO SYSTEM OPERATION FAILURE.

BEFORE PROCEEDING, MAKE SURE YOU ARE ABLE TO HEAR THE ACOUSTIC SIGNALS COMING FROM THE MONITOR LOCATED IN THE CABIN (DOORS OPEN, ETC.).
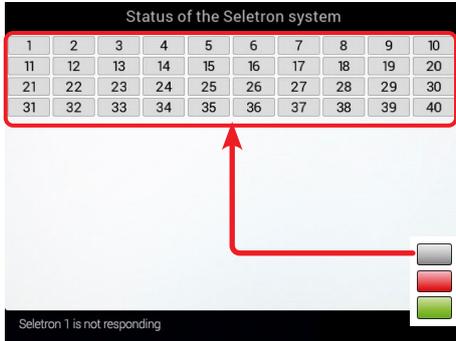
• Access menu **Device status > Status of the Seletron system** on the monitor (par 11.12).

Make sure that ALL SELETRON DEVICES ARE DISCONNECTED: they must be shown on the display only with the symbols ▢, as shown in Fig. 369.

▢ *Seletron does not respond.*
▮ *Power supply error on Seletron devices: power voltage lower than the allowed value.*
▮ *Correct operation.*

Fig. 369

Seletron 1

~4 secondi

Seletron 2, 3, etc.
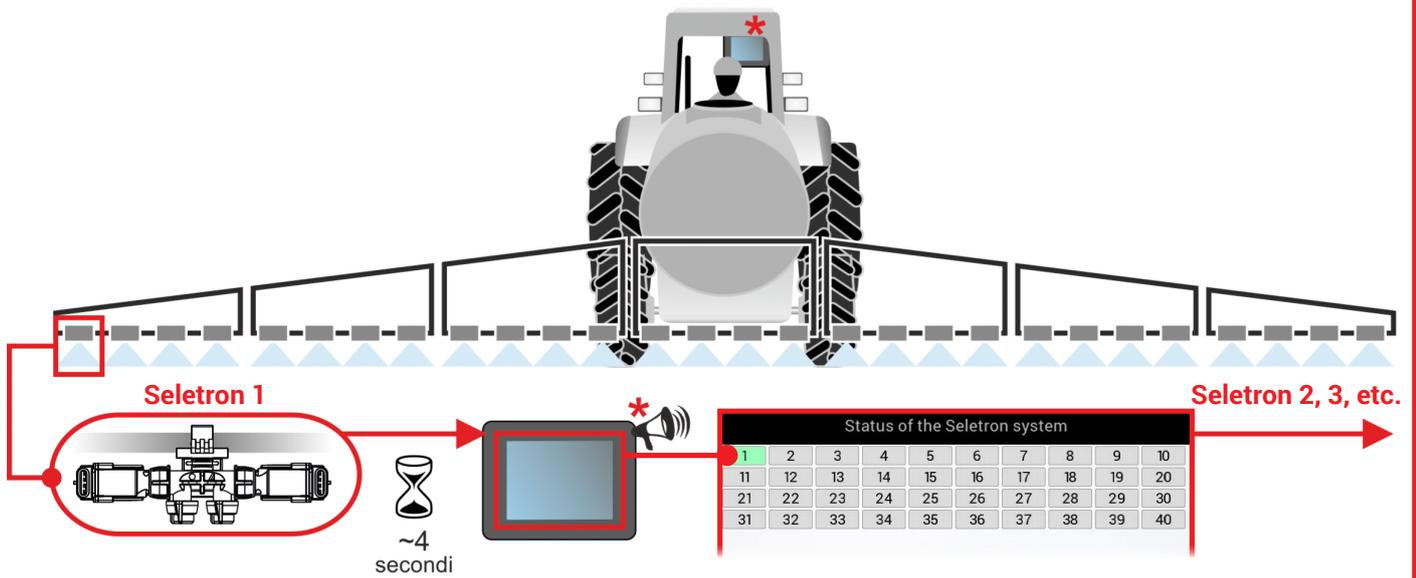
BEFORE CONNECTING A NEW SELETRON, MAKE SURE THAT THE PREVIOUS ONE HAS BEEN PAIRED, that the acoustic signal has been made and that the relevant green symbol has been displayed.

In case of errors during the pairing procedure, (the display shows the symbol ▢) reset all identification numbers and repeat the procedure from the start (par. 6.5.16, **Identification numbers reset**).

Fig. 370

• Connect the first Seletron.
Seletron no. 1 is the first on the left, when looking at the boom from behind (Fig. 370).

WAIT FOR THE ACOUSTIC SIGNAL BY THE MONITOR. WAIT FOR THE MONITOR TO DISPLAY THE GREEN SYMBOL FOR THE CONNECTED SELETRON (FIG. 370).

• **ONLY NOW** is it possible to proceed with the installation of the following Seletron.

WARNING: ALL SELETRON DEVICES MUST BE INSTALLED IN A SEQUENCE FROM LEFT TO RIGHT (when looking at the boom from behind).

• Repeat the above steps, connecting all remaining Seletron devices from left to right until the end of the boom.

• Connection sequence with special nozzles:

"Buffer zone" nozzles (par. 7.3.4): start by connecting the "Buffer zone" Seletron, which is located on boom left end, then connect all the "standard" Seletrons in their correct order from left to right and, at last, connect the "Buffer Zone" Seletron located on boom right end.

"Fence" nozzles (par. 7.3.5): start by connecting all "standard" Seletrons in their correct order from left to right, then connect the "Fence" Seletron located on boom left end and, at last, connect the "Fence" Seletron connected on boom right end.

"Fence" nozzles
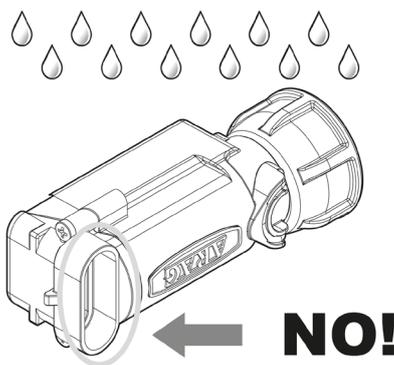
The products are supplied with valve installation instructions.
Make sure the device is correctly fitted and push it until locking it. When the cable is inserted in the connector, the Seletron is sealed.
To avoid damaging the internal components, make sure that when using or cleaning the system the connectors are not bare or inserted incorrectly.

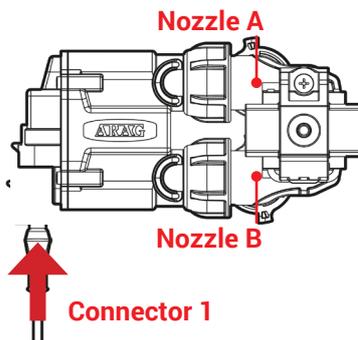*Fig. 371*

CONNECTION SEQUENCE FOR SINGLE AND TWIN SELETRON DEVICES

Fig. 372

Connect all Seletron devices in sequence, from left to right until the end of the boom.

CONNECTION SEQUENCE FOR FOURFOLD SELETRON DEVICES
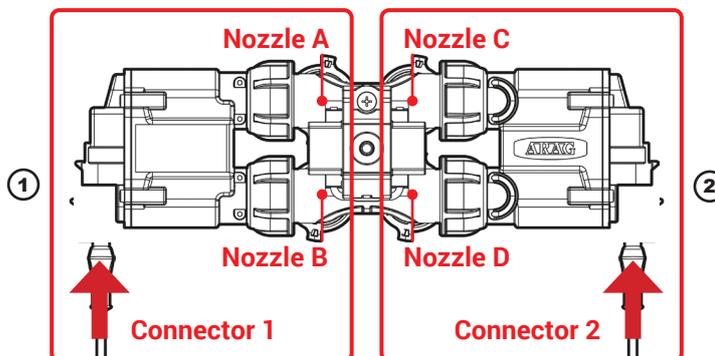
Fig. 373

1 Connect in sequence **ONLY SELETRON NOZZLE HOLDERS A AND B**, from left to right until the end of the boom (**connector 1** in Fig. 373).
2 Start again from the beginning: this time connect **SELETRON NOZZLE HOLDERS C AND D**, from left to right until the end of the boom (**connector 2**).

| F1 | Enter selected character | F2 | Delete selected character | F7 F8 | Scroll (LEFT / RIGHT) | F4 F6 | Scroll (UP / DOWN) | | Data decrease / increase | OK | Confirm access or data change | Esc | Exit the function or data change | | **Par. 1.4** |

SELETRON REPLACEMENT

12.1   Preliminary Operations

⚠️ **TO AVOID ACCIDENTS, EMPTY THE TANK AND MAKE SURE THAT THE ENTIRE SYSTEM IS COMPLETELY FREE FROM CHEMICALS.**

IMPORTANT: Operate main valve and section controls (ON position).
Enable all nozzles and disable all automatic functions par. "9 Automatic functions" on page 73.

Main control ON ✚   Open sections ✚   Enabled nozzles ✚   MANUAL nozzle selection settings ✚   MANUAL section management settings
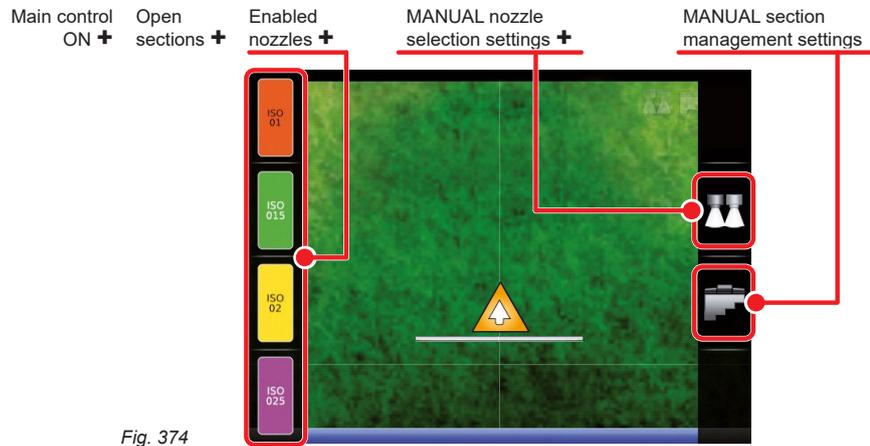
Fig. 374

12.2   Seletron replacement
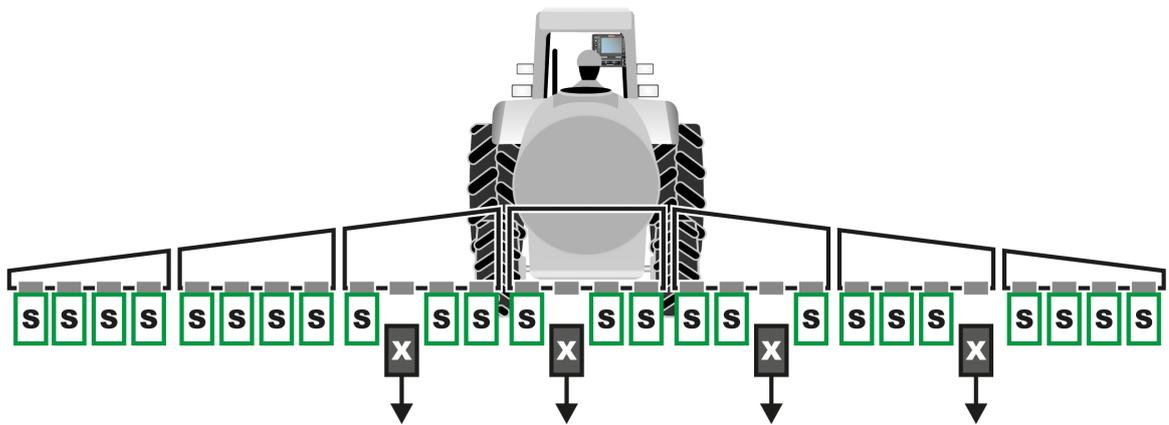
Fig. 375
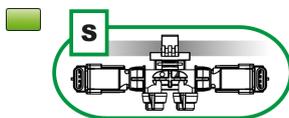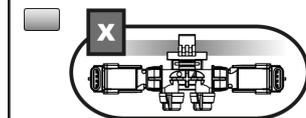
Correctly paired Seletron   NOT correctly paired Seletron

- ONLY DISCONNECT THE SELETRON DEVICES THAT WERE NOT CORRECTLY PAIRED (▢ Fig. 375).

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | 📖 Par. 1.4 |

Connect the new Seletron devices: ***** Fig. 376, IN A SEQUENCE FROM LEFT TO RIGHT (when looking at the boom from behind).

🖐 **AFTER CONNECTING THE SELETRON, WAIT FOR APPROX. 4 SECONDS, THE MONITOR MAKES AN ACOUSTIC SIGNAL AND DISPLAYS THE GREEN SYMBOL OF THE CONNECTED SELETRON.**
ONLY NOW is it possible to proceed with the installation of the following Seletron.

Tighten each Seletron onto the relevant nozzle holder, using a torque wrench and a tightening torque of 4.5 Nm / 40 Inch/lbs. Alternatively, if you do not have a torque wrench, tighten the Seletron devices by hand and make sure there are no leaks.

🖐 **ARAG IS NOT LIABLE FOR ANY DAMAGE OR MALFUNCTION CAUSED BY THE USE OF TOOLS DIFFERENT FROM THE ONES INDICATED ABOVE.**

Fig. 376

10

14

19

24
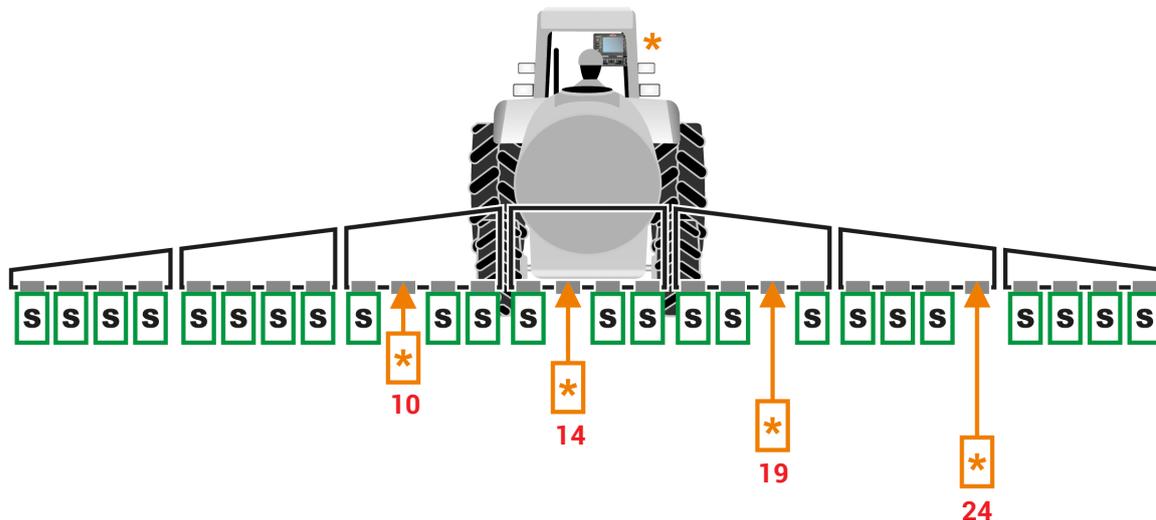
Seletron connection sequence: 10, 14, 19 and 24

Status of the Seletron system

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

Seletron 9 is OK

⌛ ~4 secondi

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | 📖 Par. 1.4 |

13   JOB FUNCTIONS

To access job functions start a spraying (**New job**, **Resume job**, **Continue last job**, chap. 10 Menu "Home"); in the guidance screen, press FUNC.
When the list is active (Fig. 377), pressing the key at the side will enable the relevant function.
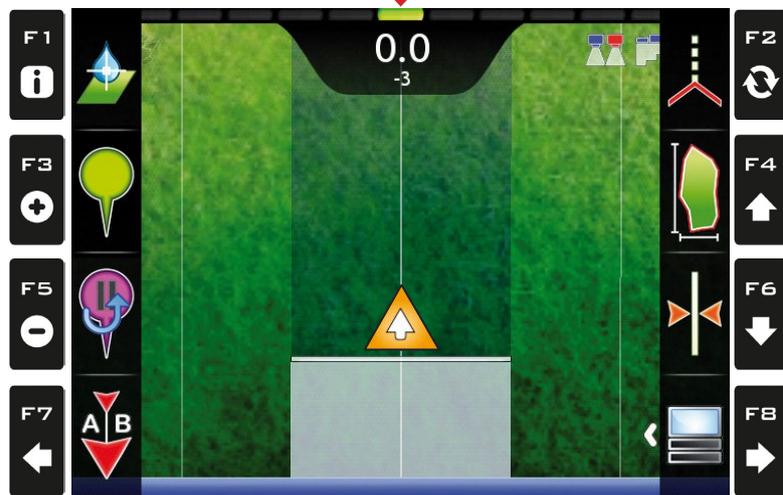
Fig. 377

The table below lists all available job functions and the corresponding function keys (unavailable functions are displayed in gray).

Par.			
13.1		F1	**Spray rate** Change spray rate
13.3		F3	**Point marking** Groups the marking of more points:
		F1 Pause Save job breaking point	F3/F5/F7 General point of interest saving
13.5		F5	**Resume from pause** Guidance indications to return to job breaking point
13.7		F7	**New AB** Create a new AB track

Par.			
13.2		F2	**Driving mode** Select driving mode
13.4		F4	**Surface** Calculate field surface
13.6		F6	**Align** Align to nearest track
13.8		F8	**Display** Display options Includes several functions:
	F2 Tractor themes	F4 Spraying themes	F6 Daytime/ night time display mode	F8 2D / 3D. display mode

F1 Enter selected character	F2 Delete selected character	F7 F8 Scroll (LEFT / RIGHT)	F4 F6 Scroll (UP / DOWN)	Data decrease / increase	OK Confirm access or data change	Esc Exit the function or data change	Par. 1.4

13.1   F 1 **Spray rate**   Change spray rate

1 In the guidance screen, press Func.
2 Press F 1 to enable the function.
3 Change the spray rate value for the spraying (Fig. 379).
4 Confirm the value.

Fig. 378   *Fig. 379*

0123 l/ha

| | F1 | Enter selected character | | F2 | Delete selected character | | F7 | F8 | Scroll (LEFT / RIGHT) | | F4 | F6 | Scroll (UP / DOWN) | Data decrease / increase | | OK | Confirm access or data change | | Esc | Exit the function or data change | **Par. 1.4** |

13.2   F2 Driving mode

Selecting driving mode:
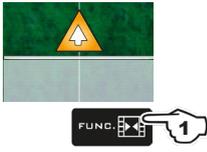
1 In the guidance screen, press FUNC.
2 Press F2 to enable the function.
3 Select a driving mode (Fig. 381): press F4 and F6 to move across the available items
(**A** - **Straight driving mode**, **B** - **Curved driving mode**, **C** - **Pivot mode** or **D** - **Free driving mode**)
4 Confirm the selection.

Fig. 380
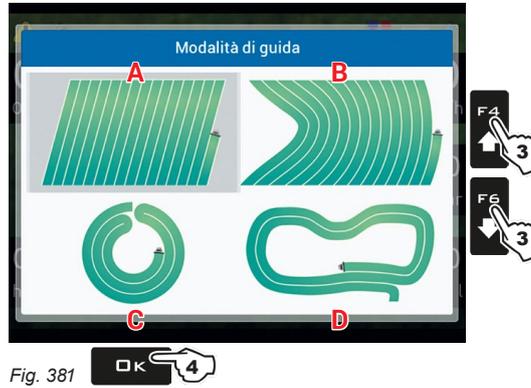
Fig. 381

A - STRAIGHT DRIVING MODE

Fig. 382

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

B - CURVED DRIVING MODE

Fig. 383

Fig. 384

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. 384).
The trajectory between **A** and **B** will be saved and the monitor will create evenly distributed tracks.

C - PIVOT MODE

Fig. 385

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

D - FREE DRIVING MODE

Fig. 386

No guidance references are shown on the display.
The operator will drive freely and will be able to check the spraying range on the display in real time.

F1	Enter selected character	F2	Delete selected character	F7 F8	Scroll (LEFT / RIGHT)	F4 F6	Scroll (UP / DOWN)	Data decrease / increase	OK	Confirm access or data change	Esc	Exit the function or data change	Par. 1.4

13.3
F3 Point marking

It groups the available options for marking points of interest.
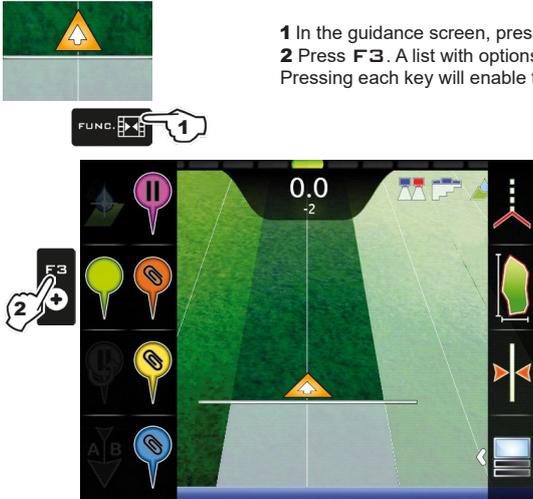
1 In the guidance screen, press **Func**.
2 Press **F3**. A list with options for marking the points will appear (Fig. 387).
Pressing each key will enable the corresponding function.

Fig. 387

13.3.1
F1 Pause

Saves job breaking point, which will be shown on the display with the symbol.
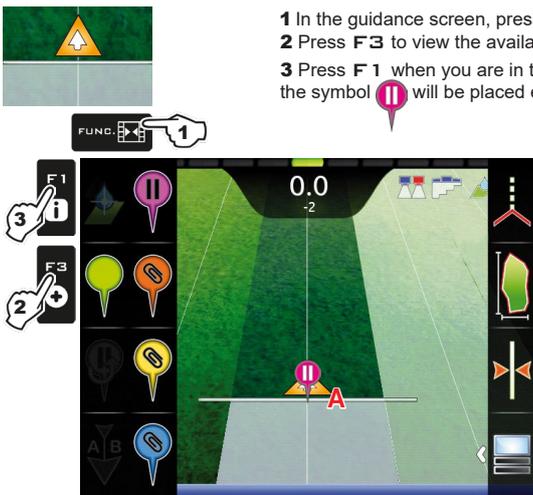
1 In the guidance screen, press **Func**.
2 Press **F3** to view the available options.
3 Press **F1** when you are in the position you wish to save (**A** in Fig. 388):
the symbol will be placed exactly on that point.

The monitor can save ONLY ONE BREAKING POINT:
every time you save a point, the previous one will be deleted.

Fig. 388

13.3.2
F3/F5/F7 General point marking

Saving of general points of interest.

The general points of interest can be memorized with this procedure or in the field overview screen (par. 11.8). It is possible to mark more points.
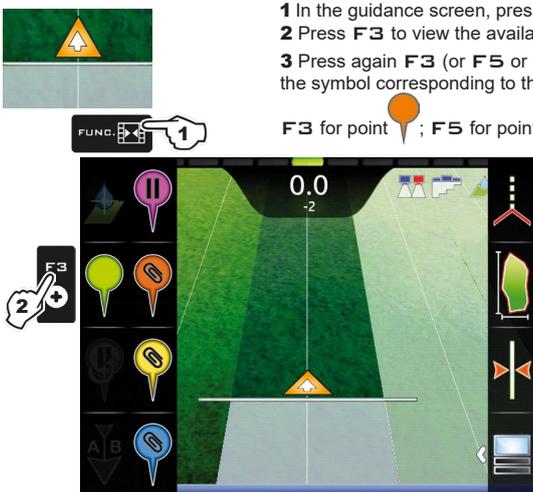
1 In the guidance screen, press **Func**.
2 Press **F3** to view the available options.
3 Press again **F3** (or **F5** or **F7**) to save the point of interest (**B** in Fig. 390):
the symbol corresponding to the pressed key will be displayed exactly on that point:

F3 for point ; **F5** for point ; **F7** for point .

Fig. 389   *Fig. 390*

| 13.4 | F4 Surface | Enables the procedure to calculate field surface by driving along its perimeter. |

1 In the guidance screen, press **Func**.
2 Press **F4** to start the surface calculation procedure (function list disappears).
The message **Field edge side selection** prompting the operator to select which side of the machine to use as a reference to define the field perimeter will appear.
3 Press **F3** (*Left*) or **F4** (*Right*): a white line will be displayed to draw the field perimeter as the tractor moves (Fig. 392).
4 Drive along the perimeter of the field or of the surface you wish to measure. When you get close to the calculation starting point, press **Func** again.
5 Press **F6** to complete the surface calculation procedure (Fig. 393). The computer will connect starting and end points and will calculate the surface.

Fig. 391

Fig. 392

EDGE
OF THE FIELD

Fig. 393

The field external edge (white line) follows the trajectory of the most external open section valve.
When all section valves are closed, the field edge starts from the boom center.

| FIELD EDGE ON THE LEFT SIDE | FIELD EDGE ON THE RIGHT SIDE |
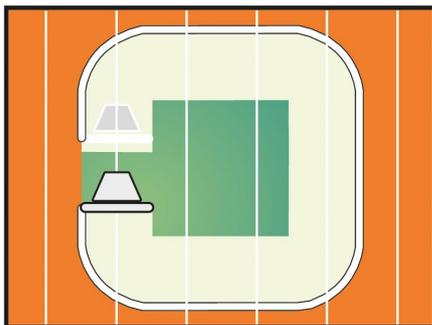
Fig. 394

Fig. 395

• Pause function in area calculation
This function can be used when changes in direction or maneuvers are necessary while the perimeter is being marked,
but they do not have to be included (for example close to an obstacle or to the field end).
- Press **Func** and then **F4**: the field edge will no longer be drawn (Fig. 396);
- Press **Func** again, then **F4** to restore perimeter marking (Fig. 398);
- Continue the procedure described above (point **4**).

Fig. 396
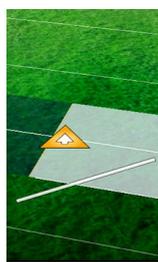
Fig. 397 MANEUVER
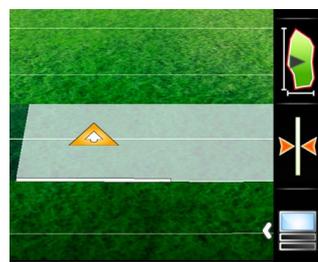
Fig. 398

Fig. 399

13.5   F5 Resume from pause

Guidance indications to return to job breaking point [II] , previously saved with function "F1 Pause" (par. 13.3.1).

1 In the guidance screen, press **Func**.
2 Press **F5** to obtain guidance information and enable the return to job breaking point procedure [II] .
The fuchsia line **B** in Fig. 400 (which connects the position of the machine to that of the breaking point) shows the direction to be followed to reach the point marked as **A**. The display shows in fuchsia the distance between your position and the breaking point (**C** in Fig. 400).
3 Continue driving and make sure that the distance is decreasing: you are reaching the breaking point.
When you are close to it, you can see it on the display.
4 Once you have reached the position, the value of the distance reaches "zero" (Fig. 401): press **OK** or **ESC** to exit the procedure.

Fig. 400
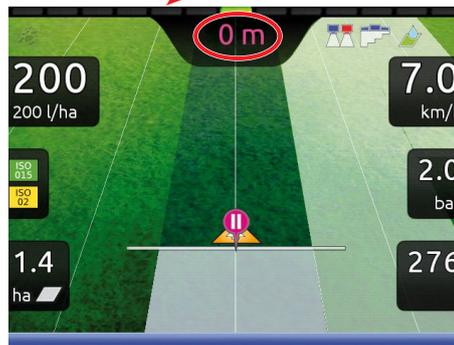
Fig. 401
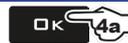
OK *the monitor goes back to displaying guidance information for the spraying and the symbol is erased.*

ESC *the monitor goes back to displaying guidance information for the spraying but the symbol is saved.*

|										
F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**OK** Confirm access or data change	**Esc** Exit the function or data change	**Par. 1.4**

	13.6 F6 Align	Moves the closest reference track, re-aligning it to the position of the machine. 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).
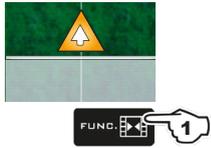
1 In the guidance screen, press Func.

2 Press F6 to align with the current position.

The closest reference track (**A** in Fig. 402) moves and becomes aligned with the center of the tractor: all other reference tracks move accordingly. After the alignment, the deviation value **>2.0>** (**B**) becomes **0.0**.

Fig. 402

Fig. 403

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

	Enter selected character		Delete selected character			Scroll (LEFT / RIGHT)			Scroll (UP / DOWN)	Data decrease / increase		Confirm access or data change		Exit the function or data change	Par. 1.4

13.7   F7 New AB

Saves two points A and B on the field, which the monitor uses to draw a line that will act as a reference track (**T0**, Fig. 406) for the current spraying.

1 In the guidance screen, press **Func**.
2 Drive along the stretch you wish to use as a reference for the spraying.
Press **F7** to enable the function: the request **Mark A?** (Fig. 404) will appear on the display.
3 Press **OK**. The display shows the message **Drive!** (Fig. 405).
4 Keep driving, when you have reached the minimum distance (30 m / 95.5 ft), the request **Mark B?** Press **OK** will be displayed.

The reference track **T0** and all tracks to be followed during the spraying will appear on the display (Fig. 406).
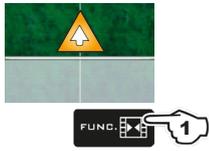
We recommend marking points A and B while the machine is moving, at both ends of a straight line that is as long as possible: the longer the line marked by points A and B, the lower the error caused by any deviations of the machine itself.
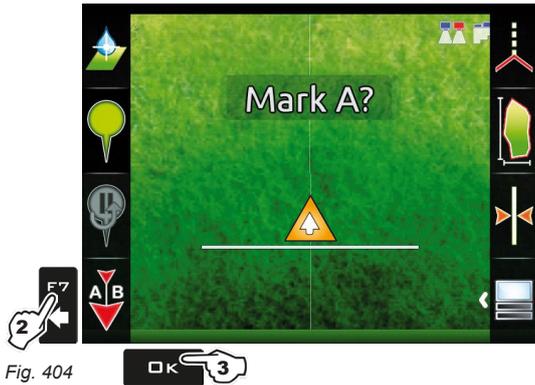
Fig. 404

Fig. 405
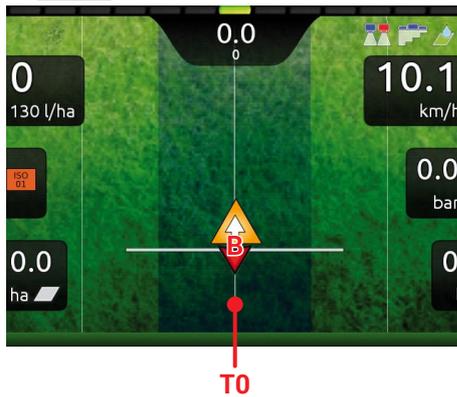
Fig. 406

When this function is used, the monitor deletes the previous reference track **T0** (if present), and prompts the operator to save two NEW points **A** and **B** on the field, which create a NEW reference track.

WARNING:
Points **A** and **B** can be marked only when the vehicle is moving.
The previous track **T0** cannot be restored.

| **F1** Enter selected character | **F2** Delete selected character | **F7 F8** Scroll (LEFT / RIGHT) | **F4 F6** Scroll (UP / DOWN) | Data decrease / increase | **OK** Confirm access or data change | **Esc** Exit the function or data change | **Par. 1.4** |

13.8   F8 Display

Allows to select different display modes. Includes several options.
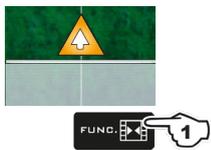
1 In the guidance screen, press **Func**.
2 Press **F8**. A list of options concerning display modes will appear (Fig. 407).
Pressing each key will enable the corresponding function:
F2 changes tractor themes (par. 13.8.1);
F4 changes spraying themes (par. 13.8.2);
F6 switches between daytime/night time display mode (par. 13.8.3);
F8 switches between 2D/3D display mode (par. 13.8.4);

Fig. 407

Fig. 408

par. 13.8.1
par. 13.8.2
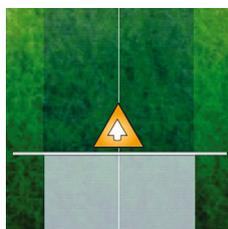par. 13.8.3
par. 13.8.4
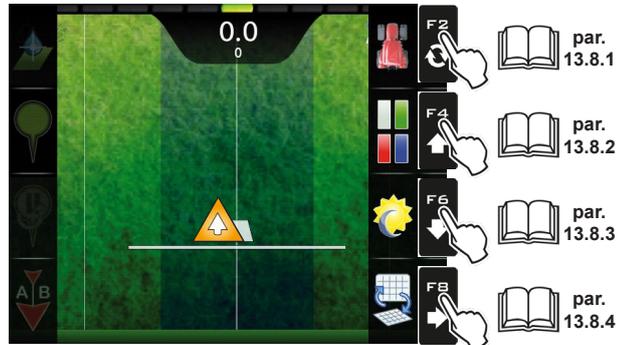
13.8.1   F2 Tractor themes
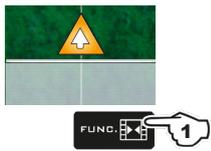
Fig. 409

1 In the guidance screen, press **Func**.
2 Press **F8** to view the available options.
3 Press **F2** in succession to scroll tractor themes.

TRACTOR THEME 1 (DEFAULT)	
THEME 2	THEME 3
THEME 4	THEME 5

F1 Enter selected character	**F2** Delete selected character	**F7 F8** Scroll (LEFT / RIGHT)	**F4 F6** Scroll (UP / DOWN)	Data decrease / increase	**Ok** Confirm access or data change

Esc Exit the function or data change

Par. 1.4
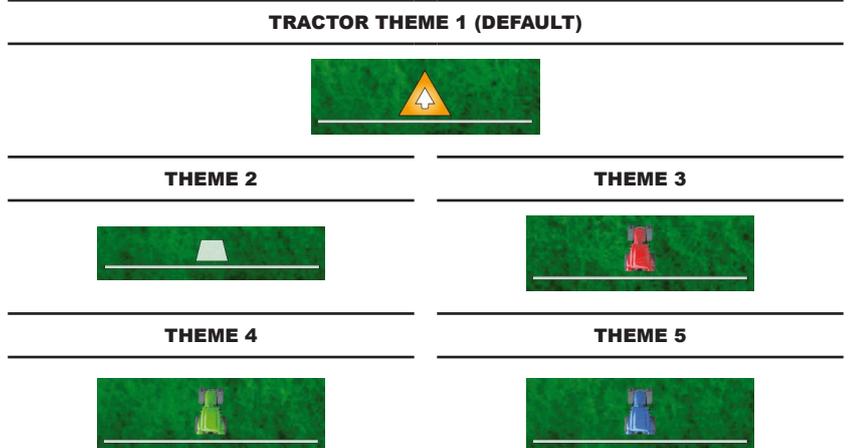
13.8.2 F4 Spraying themes
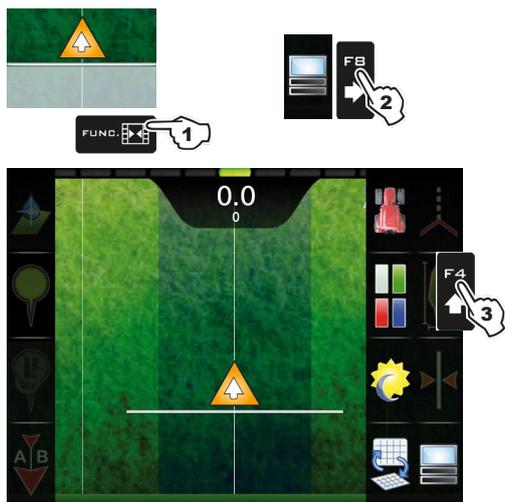
Fig. 410

1 In the guidance screen, press Func.
2 Press F8 to view the available options.
3 Press F4 in succession to scroll spraying color combinations.

SPRAYING THEME 1 (DEFAULT)	

THEME 2	THEME 3

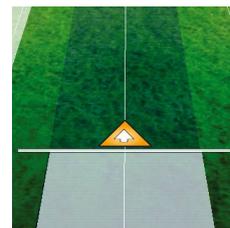| THEME 4	THEME 5

13.8.3 F6 Daytime/night time display mode
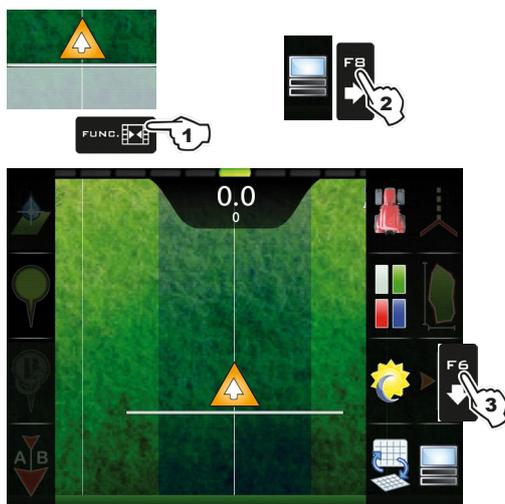
Fig. 411

1 In the guidance screen, press Func.
2 Press F8 to view the available options.
3 Press F6 in succession to switch between daytime and night time display mode.

DAYTIME DISPLAY MODE (DEFAULT)	NIGHT TIME DISPLAY MODE
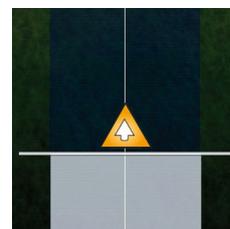
13.8.4 F8 2D/3D display mode
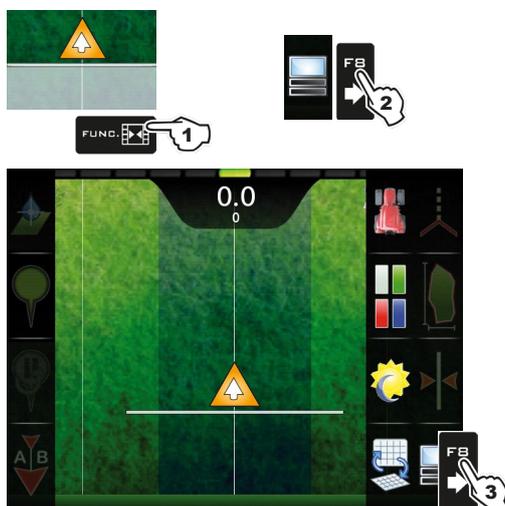
Fig. 412

1 In the guidance screen, press Func.
2 Press F8 to view the available options.
3 Press F8 in succession to switch between 2D and 3D display mode.

2D DISPLAY MODE (DEFAULT)	3D DISPLAY MODE

| F1 Enter selected character | F2 Delete selected character | F7 F8 Scroll (LEFT / RIGHT) | F4 F6 Scroll (UP / DOWN) | Data decrease / increase | OK Confirm access or data change | Esc Exit the function or data change | Par. 1.4 |