





## **IBX100 ECU CONTROL UNIT**



**4679004**  
**4679005**

*Object Pool rel. 1.2.6*

**INSTALLATION, USE AND MAINTENANCE**

	= Generic danger
	= Warning
<b>ECU</b>	= IBX100 remote control unit
<b>VT</b>	= Virtual Terminal
<b>OP</b>	= Object Pool
<b>TC</b>	= Task Controller

**WARNING:**

**THE NATIVE CONTROLS INSIDE YOUR VIRTUAL TERMINAL HAVE THE PRIORITY ON ALL THE CONTROLS DERIVING FROM THE IBX100. PLEASE, KEEP THIS IN MIND WHEN PROGRAMMING AND USING THE PRODUCT.**

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## • MANUAL USE MODES

The section of this manual dedicated to the installation contains information for installers. For this reason we have used technical terms without providing explanations which would be necessary for end users only.

**THE INSTALLATION MUST BE CARRIED OUT BY AUTHORISED AND SKILLED PERSONNEL ONLY. THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY OPERATION SPECIFIED IN THIS MANUAL CARRIED OUT BY UNAUTHORISED OR UNSKILLED PERSONNEL.**

## • LIMITATIONS

The descriptions of the assembly phases refer to a "general" Virtual Terminal, so specific models will not be mentioned, unless a certain installation procedure concerns exclusively one VT type.

## • RESPONSIBILITY

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

ARAG always recommends using its components to install control systems.

The installer will be held responsible for any malfunction if he decides to use other brands' components even without actually changing the system parts or harness.

The compatibility check with components and accessories of other manufacturers shall be carried out by the installer.

If the computer or the ARAG components installed together with other brands' components get damaged because of what stated above, no direct or indirect warranty will be provided.

## 1 RISKS AND PROTECTIONS BEFORE ASSEMBLY

The job computer installation operations, except for the main connection (ISOBUS system, *Chap. 7*) must be performed with disconnected battery using suitable equipment as well as any type of necessary personal protection.



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

## 2 INTENDED USE

The device you have purchased is a standard ISOBUS system, complying with the ISO11783 standard, to be applied to a crop spraying boom.

**This device is designed to work on agricultural machinery for spraying and crop spraying applications.**

**The machine is designed and built in compliance with EN ISO 14982 standard**

**(Electromagnetic compatibility - Forestry and farming machines), harmonized with 2004/108/EC Directive.**

## 3 PRECAUTIONS



- Do not aim water jets at the equipment.
- Do not use solvents or fuel to clean the case outer surface.
- Do not clean equipment with direct water jets.
- Comply with the specified power voltage (12 VDC).
- In case of voltaic arc welding, remove connectors from device and disconnect the power cables.
- Only use ARAG genuine spare parts and accessories.

## 4 PACKAGE CONTENT

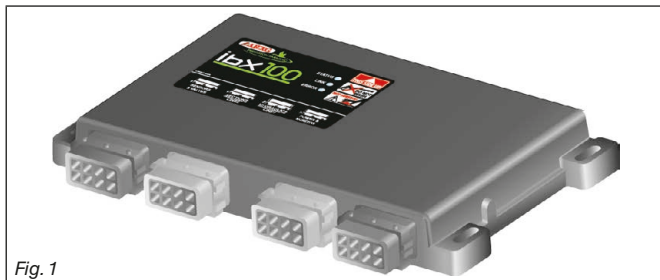


Fig. 1

- Control unit



Wiring must be ordered separately (Ref. to ARAG general catalog)

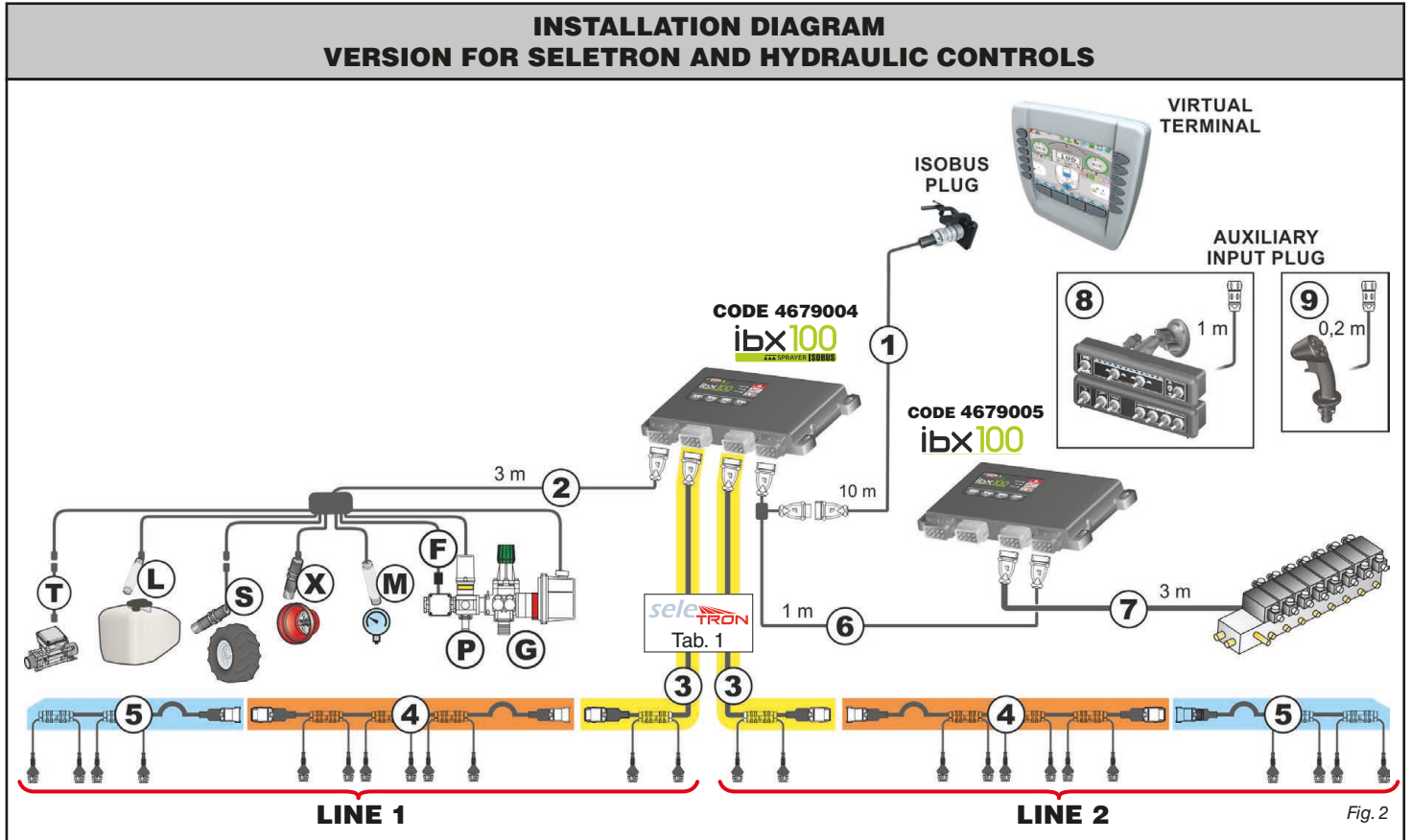


**5 POSITION ON FARMING MACHINE**

**5.1 System recommended composition**

To connect all parts of the system correctly, make sure to use the proper connection cables specified in *Tab. 1 on page 6* are correct. Consider all possible variants

- type of system,
- type of Seletron units connected (single, twin or fourfold)
- number of nozzles per mechanical arm (of spraying boom)



**Legend of connection cables:**

- 1** Standard ISOBUS connector (ISOBUS PLUG)
- 2** Sensors / control unit
- 3** Head-end cable
- 4** Extension cable
- 5** Termination cable
- 6** Hydraulic ECU
- 7** Hydraulic unit
- 8** Auxiliary Input
- 9** Joystick Explorer

- S** Speed sensor
- T** Filling flowmeter
- X** RPM sensor
- L** Level sensor
- M** Pressure sensor
- F** Flowmeter
- P** Control valve
- G** Main valve



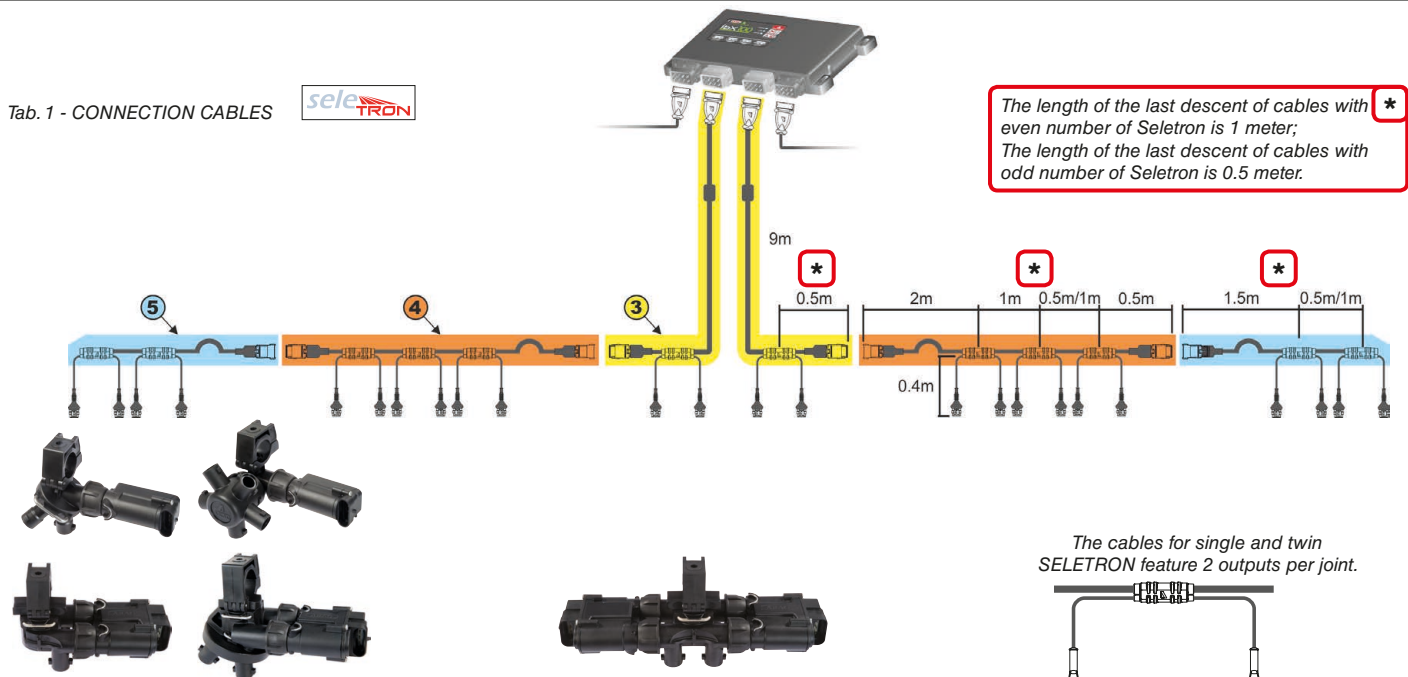
**WARNING: SELETRON SYSTEM ALLOWS CONNECTING A MAXIMUM OF 100 SINGLE SELETRON UNITS OR 50 TWIN / FOURFOLD SELETRON UNITS\*.**

*\* ONLY 2 OF THE 4 NOZZLES CAN BE ACTIVATED AT THE SAME TIME.*

CONTINUES >>>

>>> 5.1 System recommended composition

Tab. 1 - CONNECTION CABLES

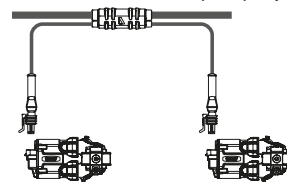


The length of the last descent of cables with even number of Seletron is 1 meter;  
The length of the last descent of cables with odd number of Seletron is 0.5 meter.

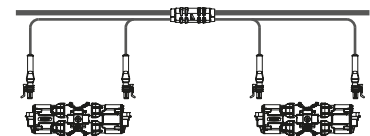
**CABLES FOR SELETRON - SINGLE  
MAX. BOOM WIDTH 52 m  
CABLES FOR SELETRON -  
TWIN / FOURFOLD  
MAX. BOOM WIDTH 36 M  
50 cm spacing**

**CABLES FOR SELETRON - FOURFOLD  
MAX. BOOM WIDTH 36 M  
50 cm spacing**

The cables for single and twin SELETRON feature 2 outputs per joint.



The cables for fourfold SELETRON feature 4 outputs per joint.



**3 - CENTRAL CABLES**

Code	no. of SELETRON nozzle holders	Cable length (m)
467 491 C020.121	2	2
467 491 C020.120	2	9,5
467 491 C031.121	3	2,5
467 491 C031.120	3	10
467 491 C041.120	4	10,5

**3 - CENTRAL CABLES**

Code	no. of SELETRON nozzle holders	Cable length (m)
467 491 D020.101	2	2
467 491 D020.120	2	9,5
467 491 D031.101	3	2,5
467 491 D031.120	3	10

**4 - PLUS EXTENSION CABLES**

Code	no. of SELETRON nozzle holders	Cable length (m)
467 492 C031.100	3	3
467 492 C041.100	4	3,5
467 492 C051.100	5	4
467 492 C061.100	6	4,5
467 492 C071.100	7	5
467 492 C081.100	8	5,5
467 492 C091.100	9	6
467 492 C101.100	10	6,5
467 492 C111.100	11	7
467 492 C121.100	12	7,5
467 492 C131.100	13	8
467 492 C141.100	14	8,5
467 492 C151.100	15	9
467 492 C161.100	16	9,5
467 492 C171.100	17	10
467 492 C181.100	18	10,5
467 492 C191.100	19	11
467 492 C201.100	20	11,5

**4 - PLUS EXTENSION CABLES**

Code	no. of SELETRON nozzle holders	Cable length (m)
467 492 D031.100	3	3
467 492 D041.100	4	3,5
467 492 D051.100	5	4
467 492 D061.100	6	4,5
467 492 D071.100	7	5
467 492 D081.100	8	5,5
467 492 D091.100	9	6
467 492 D101.100	10	6,5
467 492 D111.100	11	7
467 492 D121.100	12	7,5
467 492 D131.100	13	8
467 492 D141.100	14	8,5
467 492 D151.100	15	9
467 492 D161.100	16	9,5
467 492 D171.100	17	10
467 492 D181.100	18	10,5
467 492 D191.100	19	11
467 492 D201.100	20	11,5

**5 - PLUS TERMINATION CABLES**

Code	no. of SELETRON nozzle holders	Cable length (m)
467 493 C031.100	3	2
467 493 C041.100	4	2,5
467 493 C051.100	5	3
467 493 C061.100	6	3,5
467 493 C071.100	7	4
467 493 C081.100	8	4,5

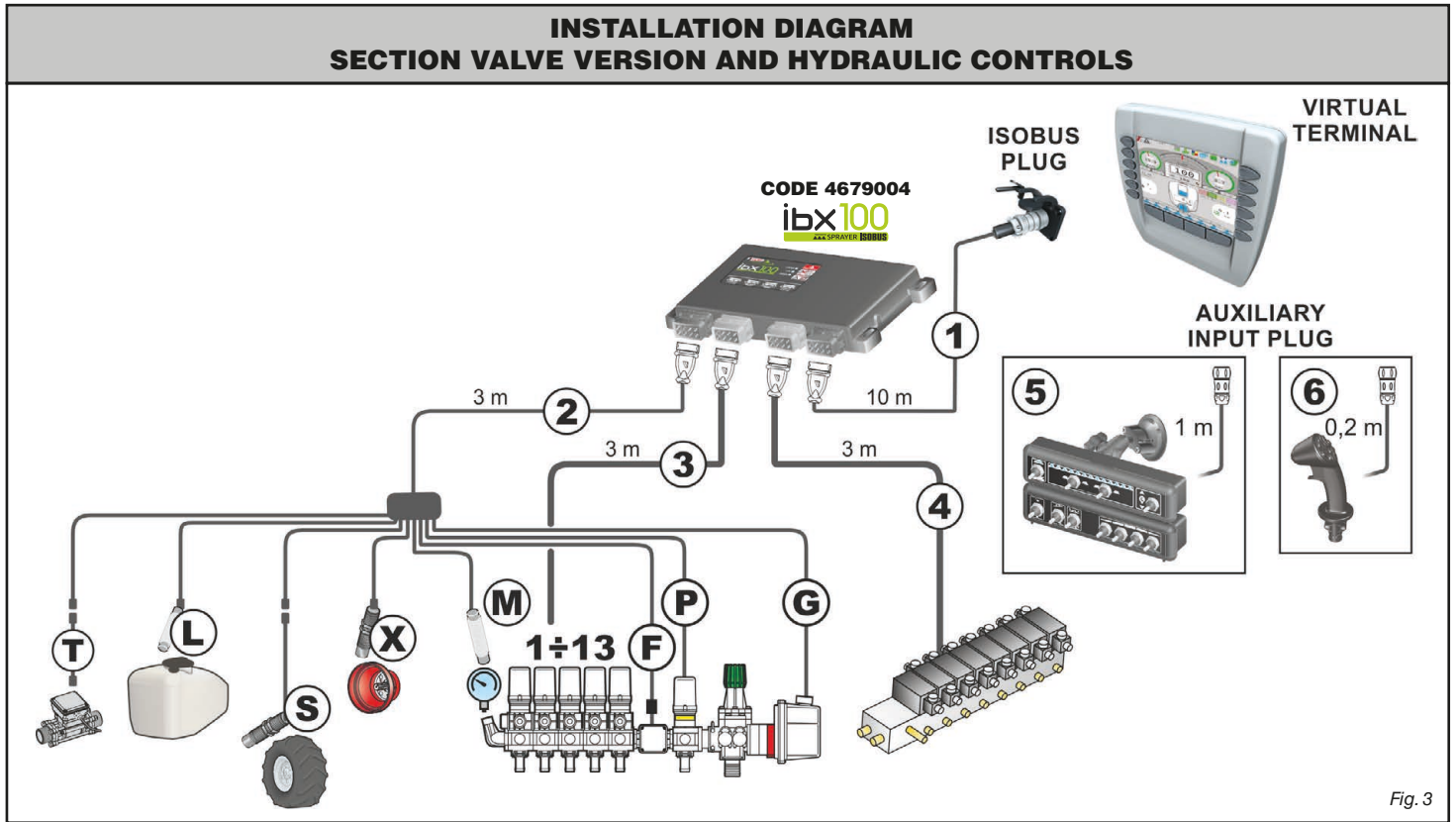
**5 - PLUS TERMINATION CABLES**

Code	no. of SELETRON nozzle holders	Cable length (m)
467 493 D031.100	3	2
467 493 D041.100	4	2,5
467 493 D051.100	5	3
467 493 D061.100	6	3,5
467 493 D071.100	7	4
467 493 D081.100	8	4,5

CONTINUES >>>

>>> 5.1 System recommended composition

To connect all parts of the system correctly, make sure to use the proper connection cables.  
Consider any variants depending on system type.



**Legend of connection cables:**

- 1** Standard ISOBUS connector (ISOBUS PLUG)
- 2** Sensors / control unit (G + P)
- 3** Control unit (section valves)
- 4** Hydraulic unit
- 5** Auxiliary Input
- 6** Joystick Explorer
  
- S** Speed sensor
- T** Filling flowmeter
- X** RPM sensor
- L** Level sensor
- M** Pressure sensor
- F** Flowmeter
- P** Control valve
- G** Main valve

5.2 Control unit fixing

Secure the control units on the back of the machine, close to the control unit and the hydraulic unit.

Consider all necessary connections of the device (par. 5.3), the cable length, and make sure there is enough space for connectors and cables. For any reference to the system configuration read par. 5.1.

Respect the mounting direction of the control units, as specified in Fig. 4 (connectors shall be facing down)  
Fasten the ECU using 4 bolts installed in the relevant slots (A, Fig. 4).



Any other positioning is not allowed

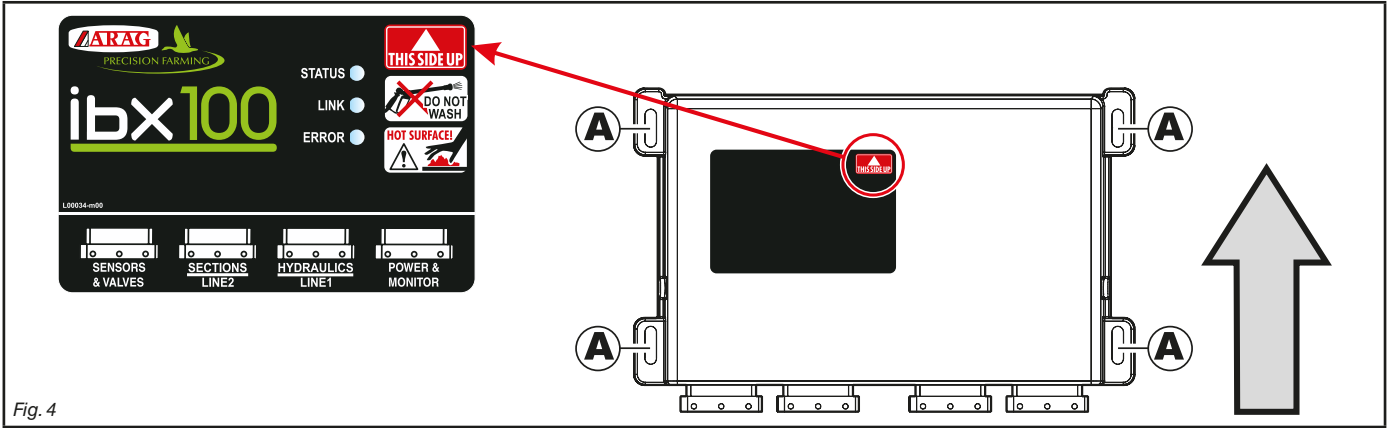


Fig. 4

OVERALL DIMENSIONS

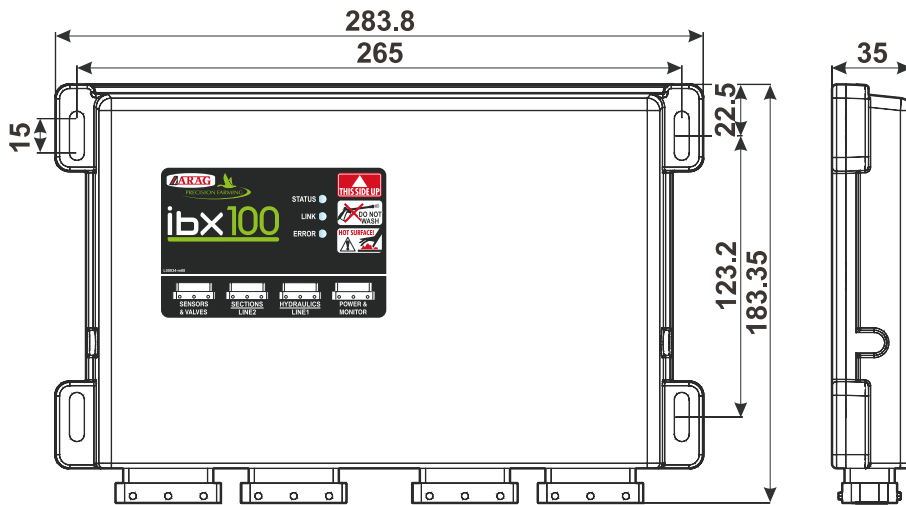


Fig. 5

Unit of measure: mm

5.3 Wiring connections

**IBX100 SPRAYER**

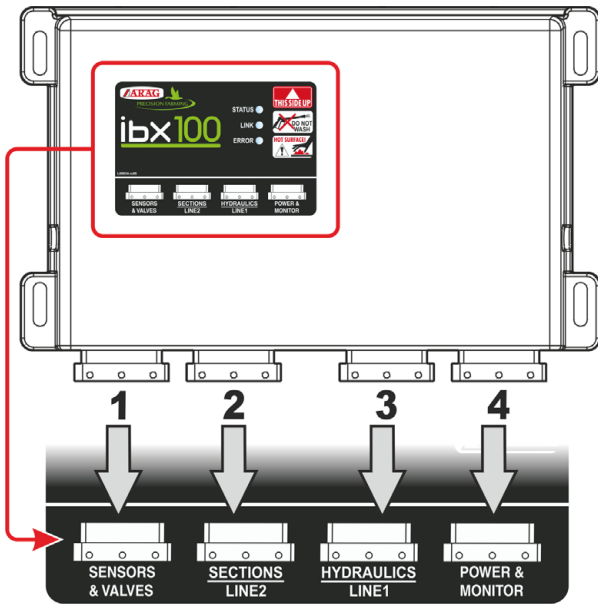


Fig. 6

NUM	CONNECTION POINTS
1	Control unit (G + P) + Sensors
2	Control unit (section valves)
3	Hydraulic unit
2	Seletron - Line 2
3	Seletron - Line 1
4	Standard ISOBUS connector (ISOBUS PLUG)

<b>SYSTEM WITH SECTION VALVES</b>
<b>SYSTEM WITH SELETRON</b>

**IBX100 HYDRAULIC  
(FOR SELETRON SYSTEMS, ONLY)**

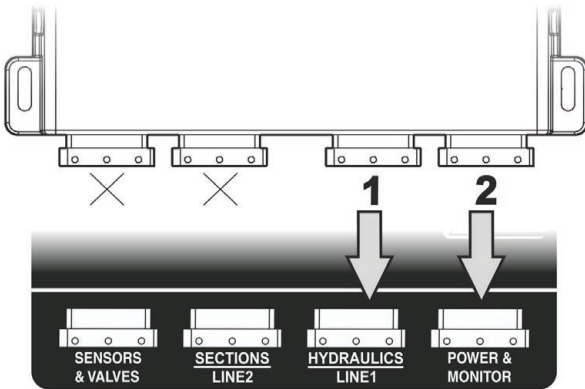


Fig. 7

NUM	CONNECTION POINTS
1	Hydraulic unit
2	ECU IBX100 Sprayer

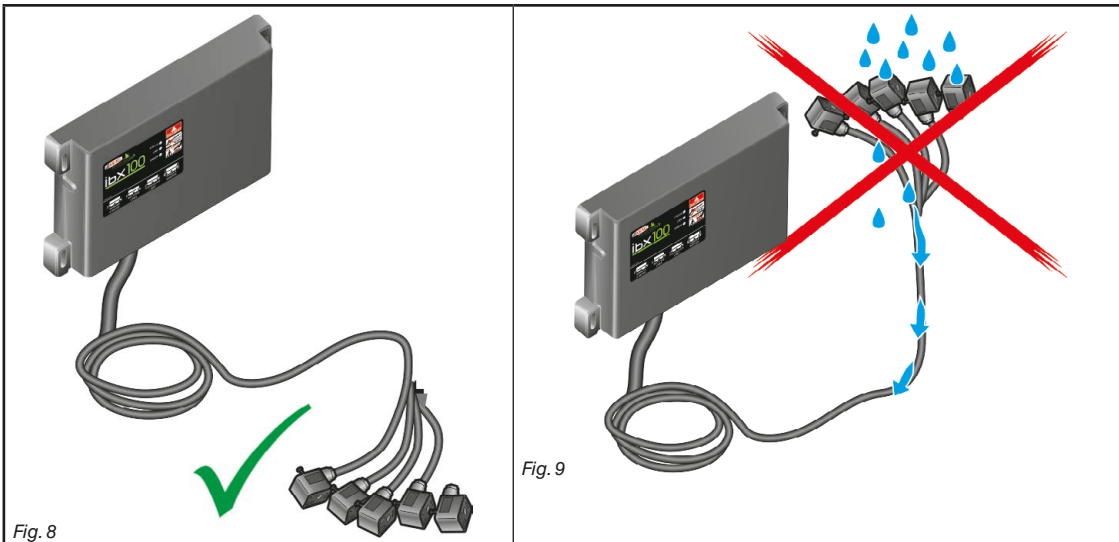
**6 WIRING CONNECTIONS**



- Use only the cables provided with the ARAG computers.
- Take care not to break, pull, tear or cut the cables.
- Use of unsuitable cables not provided by ARAG automatically voids the warranty.
- ARAG is not liable for damages to the equipment, persons or animals caused by failure to observe the above instructions.

**6.1 General precautions for a correct harness position**

- **Securing the cables:**
  - secure the harness so that it does not interfere with moving parts;
  - route the harnesses so that they cannot be damaged or broken by machine movements or twisting.
- **Routing the cables to protect against water infiltrations:**
  - the cable branches must ALWAYS be face down (Fig. 8).



- **Fitting the cables to the connection points:**
  - do not force the connectors by pushing too hard or bending them: the contacts may be damaged and compromise the system correct operation.



Use **ONLY** the cables and accessories indicated in the catalog, having technical features suitable for the use to be made of them.

**6.2 Control unit (ECU) connection**

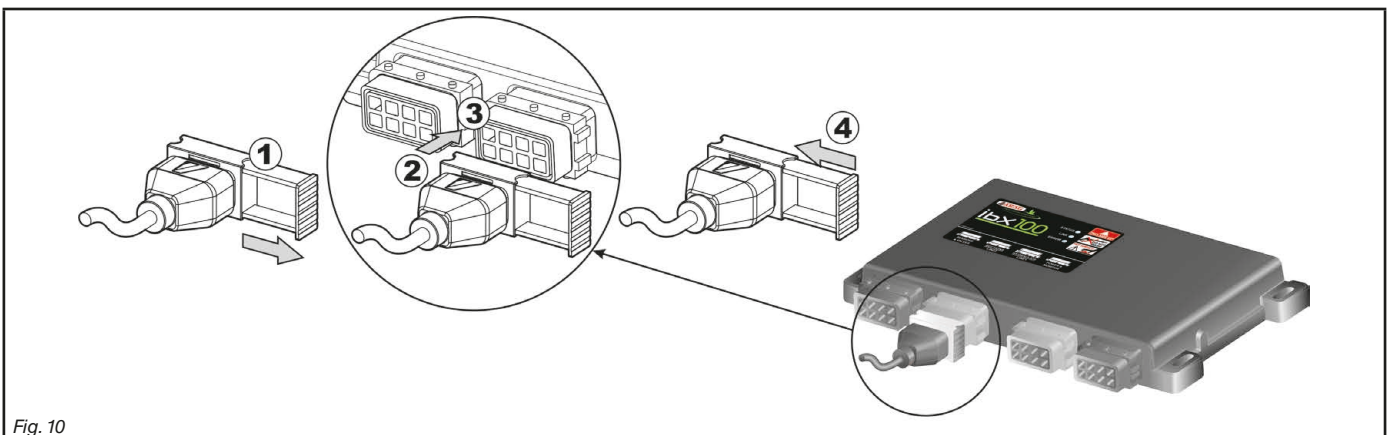


**WARNING: DO NOT CONNECT THE ISOBUS CONNECTOR (Fig. 6 on page 9). IT MUST BE CONNECTED ONLY AFTER INSTALLING ALL COMPONENTS (Chap. 7 ISOBUS system cable connection).**

Connect wiring harnesses as indicated under *par. 5.3*; each of them must be connected to the corresponding socket on control unit. Close the unused connectors with the relevant caps provided in the package.



If they prove hard to insert, do not force them, but check the shown position.



Some connectors are supplied with separate slide. Manually fit the slide in the most convenient position allowing easy insertion and removal of the connector.

- Open connector slide (1, Fig. 10).
- Position connector (2) and insert it inside socket (3), then press: **during this operation, take special care not to bend electric contacts.**
- Close slide (4) until it locks in place.



6.3 Securing the Seletron cables

**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. "13 Seletron connection" on page 42).**

Route the cable following these rules:

**1** The Seletron units are connected to the ECU (Fig. 11) via two main wiring harnesses (**1** and **2**) each made up of three types of cables: head-end cable (**3**), extension cable (**4**) and termination cable (**5**); the termination cable is indispensable in order to close circuit. **The system will not operate without a termination cable.**

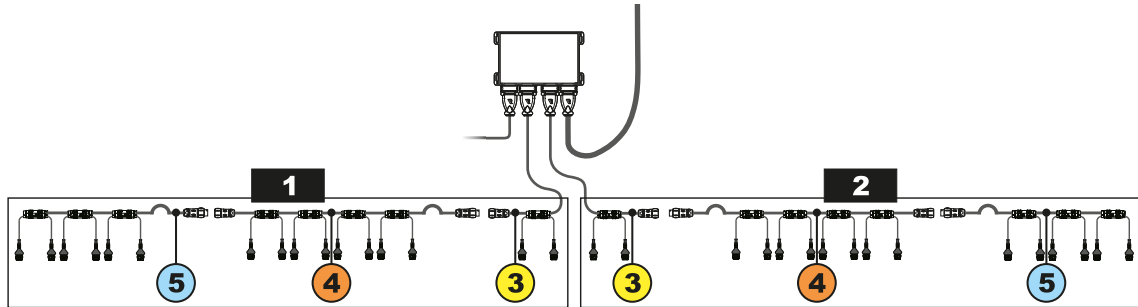


Fig. 11

Consider all necessary connections of the Seletron system, the cable length, and make sure there is enough space for connectors and cables. Secure the cables with ties to protect them from damage.

**Thanks to the modular concept of the system, additional EXTENSION cables can be added to the circuit to connect additional nozzle holders and obtain the desired boom length.**

**To ensure proper operation of the system, observe the wiring diagram and use ONLY dedicated cables for the type of Seletron installed (Tab. 1 - CONNECTION CABLES on page 6).**

**WARNING: THE CABLES DESIGNED FOR CONNECTING TWIN SELETRON UNITS ON BOOMS UP TO 24 M LONG SHOULD NEVER BE USED ON LONGER BOOMS.**

**2** ECU main control valve, flowmeter and pressure sensor must be installed in the front section of the machine; if needed, ONLY the sensors may be moved to a different position and connected using the extensions listed in the catalogue. **Never use an extension for any other components unless you have so agreed with the ARAG Assistance Center.**

**3** Choose and install the cables so that they retain some freedom of movement at boom joints.

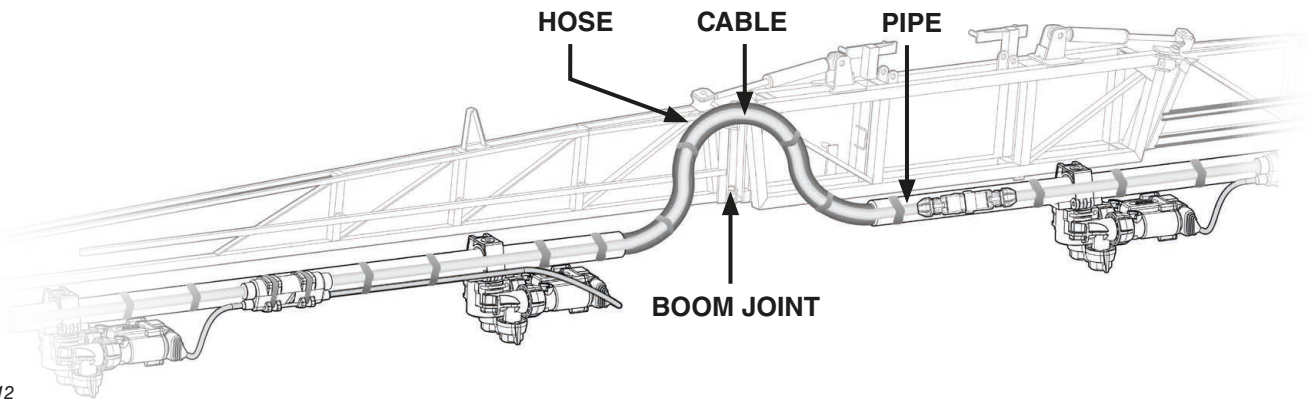


Fig. 12

**4** ALWAYS secure the main cable connections (**3**, **4** and **5**) to a stationary section of the boom; the head-end cable is longer than the termination to facilitate this.

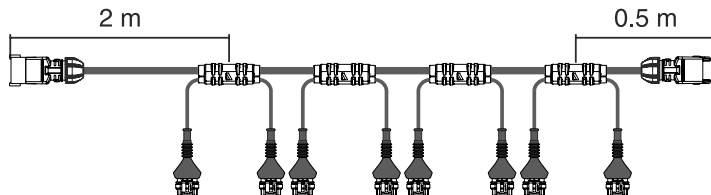


Fig. 13

**5** Account for any possible boom movement when positioning and fixing the cables.

**6** Respect the position of the connectors and do not force their insertion: the position is correct when guides **A** (Fig. 17) engage in the relevant slots.

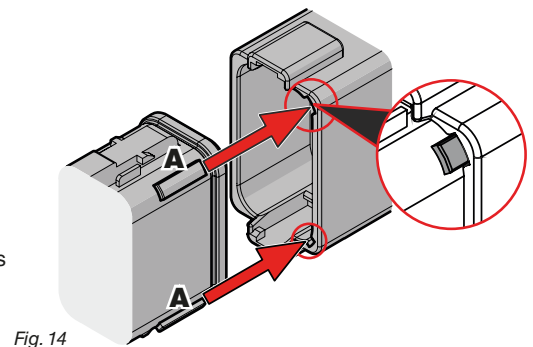


Fig. 14

**7** Carefully check that no connections or branches are positioned near moving parts and high enough to clear possible obstacles on the ground. Ensure that the Seletron nozzle holders do not become jammed with one another or touch any cables or delicate system areas when the boom is closed or folded away.

8 If space is limited and you need to bend a cable, be sure not to bend it too tight or it may get damaged.

**OK**

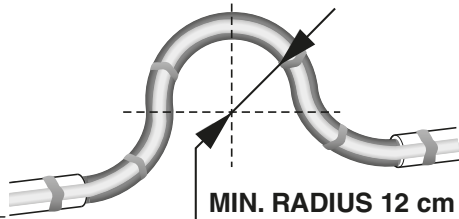
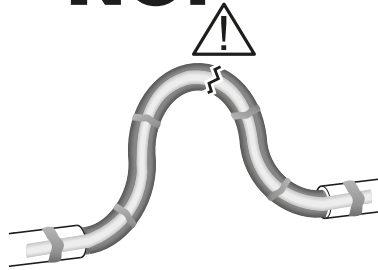


Fig. 15

**NO!**



9 Position the cable so that branches **A** are equally spaced from Seletron connectors **B**.

**NO!**

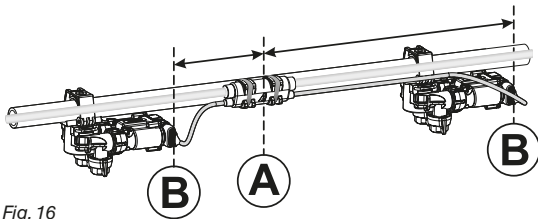
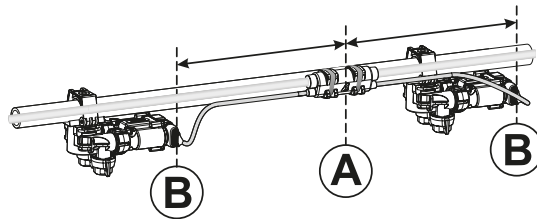


Fig. 16

**OK**



10 Secure the branches to the boom threading the ties through the suitable recesses.

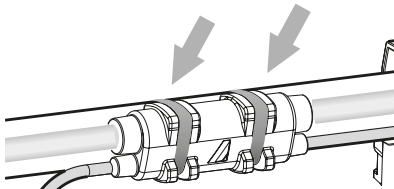


Fig. 17

11 When installing a twin or fourfold nozzle holder, make sure that all connectors are facing the same direction, or the computer might select the wrong nozzle.

**OK**

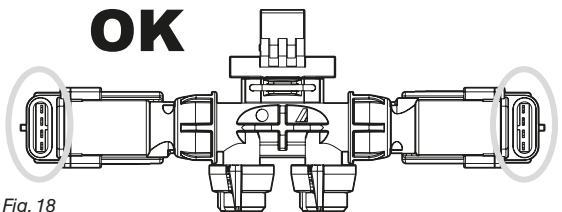
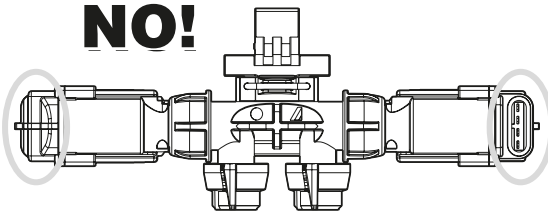


Fig. 18

**NO!**



For special needs it is possible to install two nozzles on boom ends that can work instead of the standard outer nozzles.

**Any Seletron connectors left unused must be closed using the suitable plugs (code ECS0075). The plugs must be ordered separately.** When the connectors are plugged off, the Seletron is sealed. To avoid damaging the internal components, make sure that when using or cleaning the system the plugs and the connectors are not bare or inserted incorrectly.

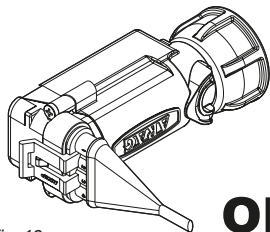
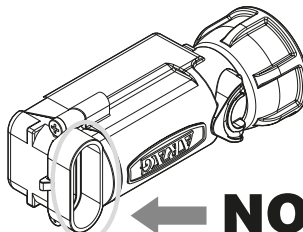


Fig. 19



**WARNING!**  
**DO NOT CONNECT THE SELETRON UNITS. THE SELETRON ELECTRIC CONNECTORS MUST BE CONNECTED AT A LATER TIME, DURING THE PAIRING PROCEDURE (chap. "13 Seletron connection" on page 42).**



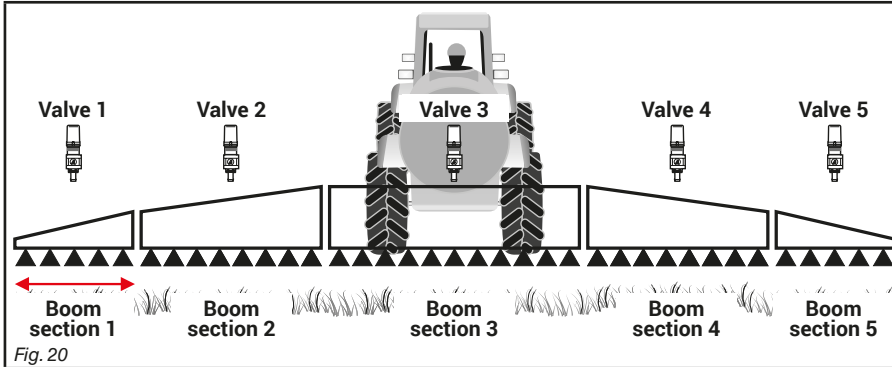
**WARNING: TO AVOID DAMAGING ONE OR MORE DEVICES, MAKE SURE THAT NONE OF THE PARTS OF EACH SINGLE SELETRON (BODY, HARNESSSES, ETC.) COME INTO CONTACT WITH MOVING PARTS AT ANY TIME WHEN THE SYSTEM IS IN USE (INSTALLATION, COMMISSIONING, USE AND SHUTDOWN OF THE FARMING MACHINE).**

**ARAG will not be held responsible for any damage to the system, people, animals or objects caused by failure to follow the guidelines outlined above.**

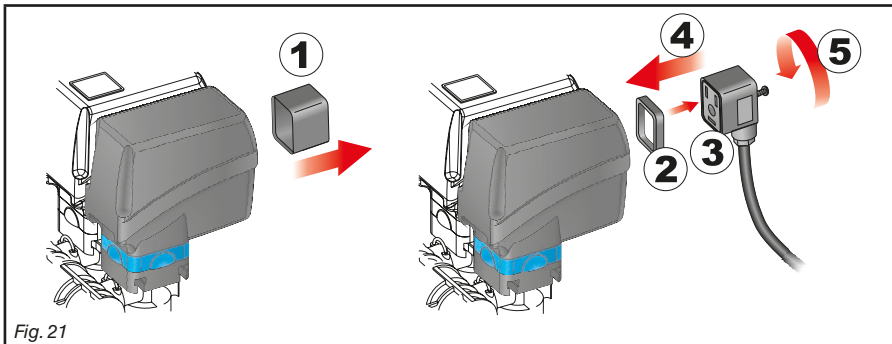


6.4 Control unit valve connection - SYSTEM WITH SECTION VALVES

- The system works only if made up with 3-wire type valves.
- The computer only works if connected to the 3-wire type valves.
- Use ARAG valves: use of unsuitable valves not provided by ARAG automatically voids the warranty. ARAG is not liable for damage to the equipment, persons or animals caused by failure to observe the above instructions.
- All valve connectors must be provided with seals before being connected (Fig. 21).
- Make sure the seals are correctly fitted to avoid water infiltration when using the control unit.



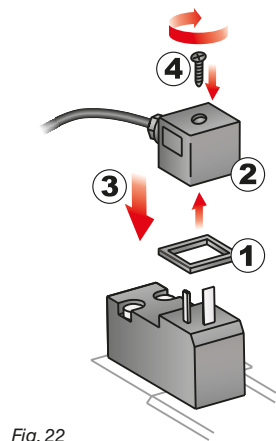
Connector 1 shall control the valve which in turn is connected to the boom section 1, and so on with the other valves. Connect "connector 1" to "valve 1", and then the other connectors with increasing numbers from left to right. **The boom section 1 is the furthest from the machine on the left, looking at the machine from the rear side (Fig. 20).**



Fix the connectors to the relevant valves according to the initials indicated in your assembly general diagram (par. 5.1 System recommended composition)

- Remove the protection cap (1, Fig. 21) from the electric valve.
- Place the seal (2) onto the connector (3), and push the connector fully on (4): **be careful not to bend the contacts upon insertion on the valve.**
- Tighten the screw (5) fully home.

6.5 Hydraulic valve connection

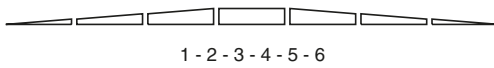

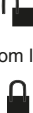



The system can control up to 9 hydraulic functions through double-acting valves. Fix the connectors to the relevant valves according to the initials indicated in your assembly general diagram (par. 5.1).

- Position seal (1) onto connector (2), then connect the latter pressing it fully home (3): **during this operation, take special care not to bend valve electric contacts.**
- Insert screw inside connector, and screw it (4) until it is tightened.

The function of each switch on the hydraulic function control panel is described below.

- Connect the connector marked with "DD" to the pilot valve, and then the other connectors, as specified on the table:

CONTROL	MOVEMENT	CONNECTOR
Section movement 	Opening	1 ÷ 6 A
	Closing	1 ÷ 6 C
Boom height 	Opening	AA
	Closing	AC
Boom lock 	Opening	BA
	Closing	BC
Boom leveling 	Opening	CA
	Closing	CC

6.6 Sensor connection

Fix the connectors to the relevant functions according to the initials indicated in your assembly general diagram (par. 5.1).

**Harness cables are marked with a symbol denoting their functions: please see the table for correct harness connection.**



**Use ARAG sensors: use of unsuitable sensors not provided by ARAG automatically voids the warranty. ARAG is not liable for damage to the equipment, persons or animals caused by failure to observe the above instructions.**

ITEM	CONNECTION
<b>F</b>	Flowmeter
<b>L</b>	Level sensor
<b>M</b>	Pressure sensor
<b>S</b>	Speed sensor
<b>T</b>	Filling flowmeter
<b>X</b>	RPM sensor

- The products are supplied with the sensor installation instructions.

The following speed sensors can also be used as RPM sensors:

- inductive speed sensor (**code 467100.086**);
- magnetic speed sensor (**code 467100.100**).

- Connection of:

- flowmeter;
- pressure sensor;
- level sensor
- filling flowmeter;
- RPM sensor.

All ARAG sensors use the same type of connector. Connect the sensor connector to the relevant harness; make sure it is correctly fitted and push it until locking it.



Fig. 23



Fig. 24

## 7 ISOBUS SYSTEM CABLE CONNECTION

1. Connect the ISOBUS and IN-CAB cables.
2. Turn the VT on.
3. Wait for the OP complete loading (par. 8.1).

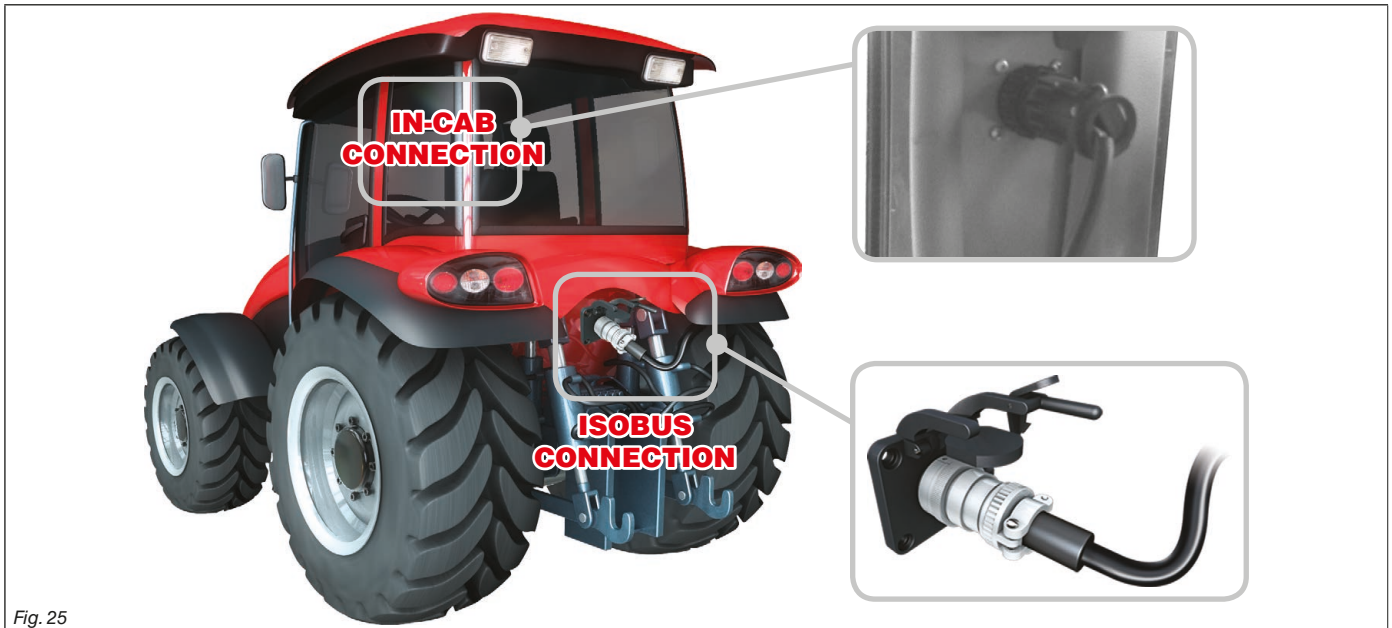


Fig. 25

### 7.1 In-cab cable connection

Use the cable provided with the Auxiliary Input\* package.

Connection: fit the (**in-cab connection** connectors in Fig. 25), make sure they are properly connected and turn the ring nut clockwise until blocking.

*\*ARAG Auxiliary Input control system is not compulsory on all systems, and must thus be ordered separately.  
Some VTs allow controlling section valves directly from monitor touch-screen panel.*

### 7.2 ISOBUS cable connection


Use the cable **1** (Fig. 2 / Fig. 3, par. 5.1 System recommended composition).

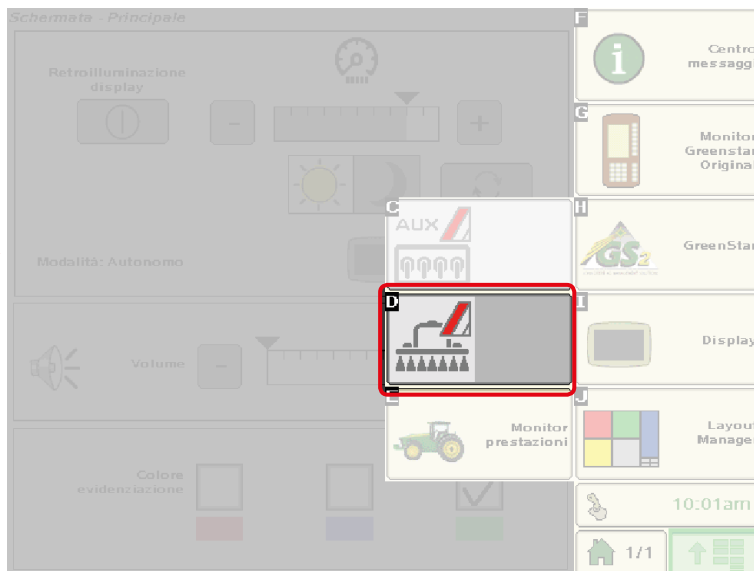
Connection: fix (**ISOBUS connection** connectors in Fig. 25); make sure they are properly connected and press until locking.

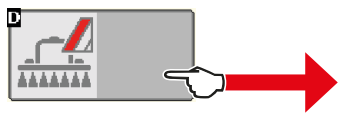
**8 INTRODUCTION**

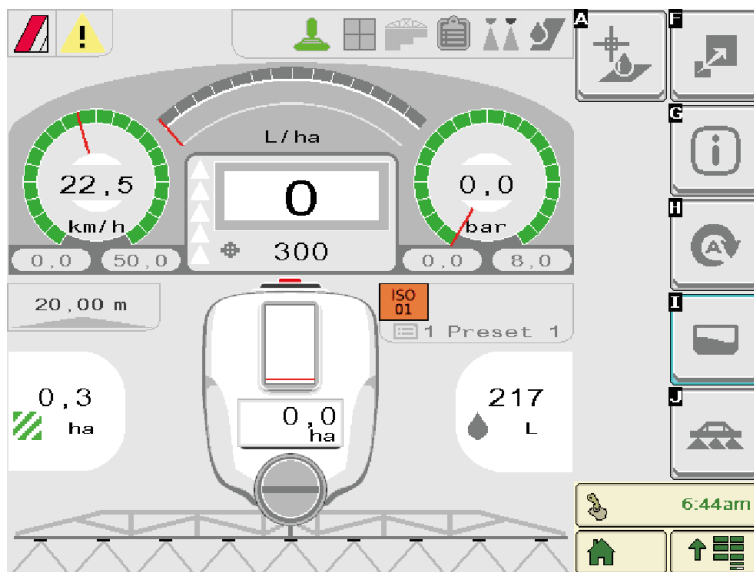
 The images and the relevant description texts of this manual are indicative and they may vary according to the VT being used. In case of mismatch between the description herein and the information displayed on your VT, refer to the manual supplied with it

**8.1 "OBJECT POOL" loading**

 Press to display the OP selection page.  
**D:** ECU OP.



 Press to enter the main screen.  
 Wait for the ECU OP to be fully loaded.



**9 SETUP**

**9.1 Tests and checks before programming**

Before programming, ensure:

- that all components are correctly installed (control unit and sensors);
- the connection to the power source;
- the component connection (main control unit and sensors).



Failure to correctly connect system components or to use specified components might damage the device or its components.

**9.2 Command location**

**MENU / DATA SELECTION**

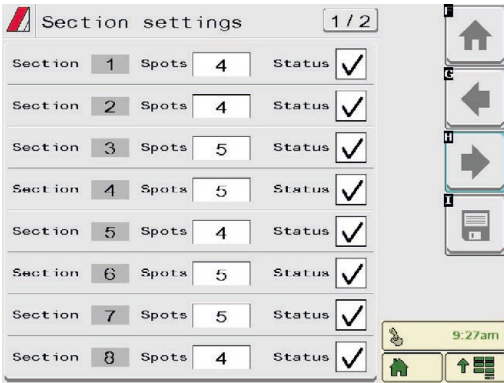






Fig. 26

-  Goes back to main screen
-  Goes back to previous menu, or scrolls the pages of a menu (previous page)
-  Scrolls the pages of a menu (next page)
-  Saves the changes to current page

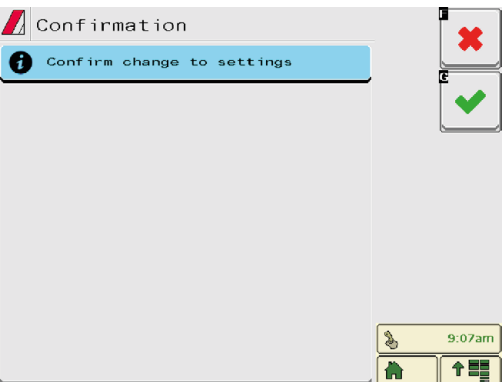




Fig. 27

-  Quits without confirming the changes
-  Saves the changes

**ENTERING A NUMERIC VALUE**

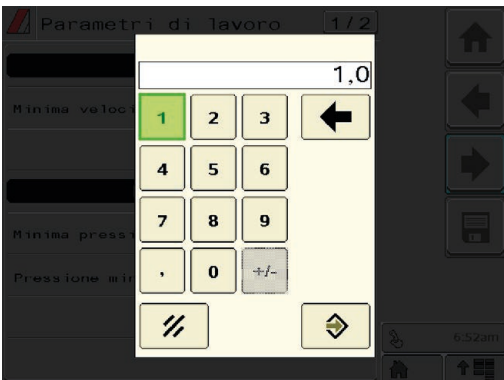





Fig. 28

-  Delete
-  Quit
-  Confirm

10 IMPLEMENT SETTINGS > BASIC SETTINGS

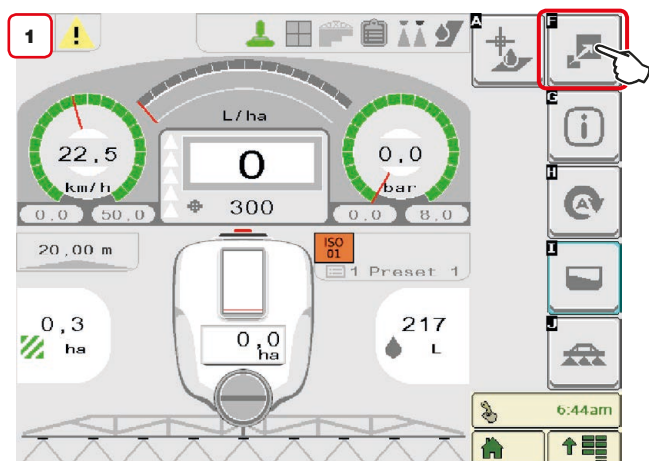


Fig. 29



Upon first switching on, run the device basic settings.

For correct use of keys while programming refer to par. 9.2.

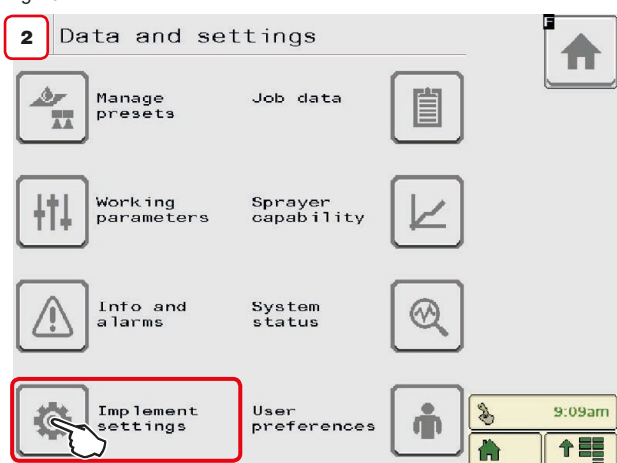


Fig. 30



Fig. 31

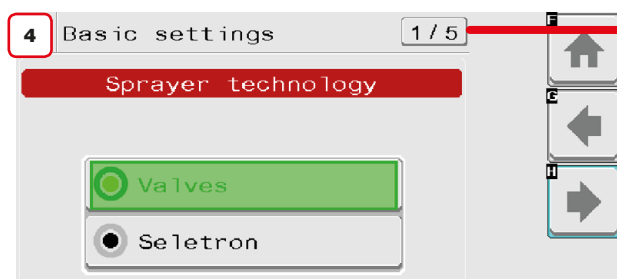


Fig. 32

**BASIC SETTING PROCEDURE START**

- The VT starts the guided setup procedure: go through each step selecting the desired options.



- As soon as the message **Confirm change to settings** appears, configuration is complete.



**BASIC SETTINGS MENU**

• **Sprayer technology**

**Valves:** system with electric-activated valves - with gearmotor / **Seletron:** system with Seletron valves.

• **Main valve type:** main control valve installed on the control unit.

**None / 2 ways** (drain valve) / **3 ways** (main valve).

• **Spraying spot type:** Seletron type.

**1 single / 2 twin / 4 fourfold.**

• **Flowrate reference sensor:** device used to calculate flowrate.

**Flowmeter**

**Pressure sensor:** measured pressure is used to calculate application rate.

**Both:** within the working limits the VT uses the flowmeter, otherwise it uses the pressure sensor, ONLY if properly configured.

• **Terminal nozzle type**

**None**

**Buffer zone:** allows enabling the use of nozzles in the "Buffer zone" see par. "BUFFER ZONE" FUNCTION ENABLED.

**"Fence":** allows enabling the use of "Fence" nozzles see par. "FENCE NOZZLE" FUNCTION ENABLED.

• **Tank level source:** Device used to read tank level.

**Manual:** no device connected; **Filling flowmeter;** **Level sensor.**

YOU COMPLETED BASIC SETUP. WAIT FOR THE SYSTEM RESTART.  
NOW PROCEED TO ADVANCED SETUP DESCRIBED IN CHAP. 11.

**11 IMPLEMENT SETTINGS > ADVANCED SETUP**

The computer can be set-up with all data required to ensure a correct distribution of the treatment product.



**DEPENDING ON BASIC SETTINGS (CHAP.10), ITEMS AND MENU LAYOUT WILL CHANGE, AND DEVICE ADVANCED SETUP WILL CHANGE ACCORDINGLY. AN OVERVIEW OF NAVIGATION CAN BE FOUND IN Fig. 34.**

This operation must be done once only, when installing the computer.

**ACCESS TO IMPLEMENT SETTINGS MENU**

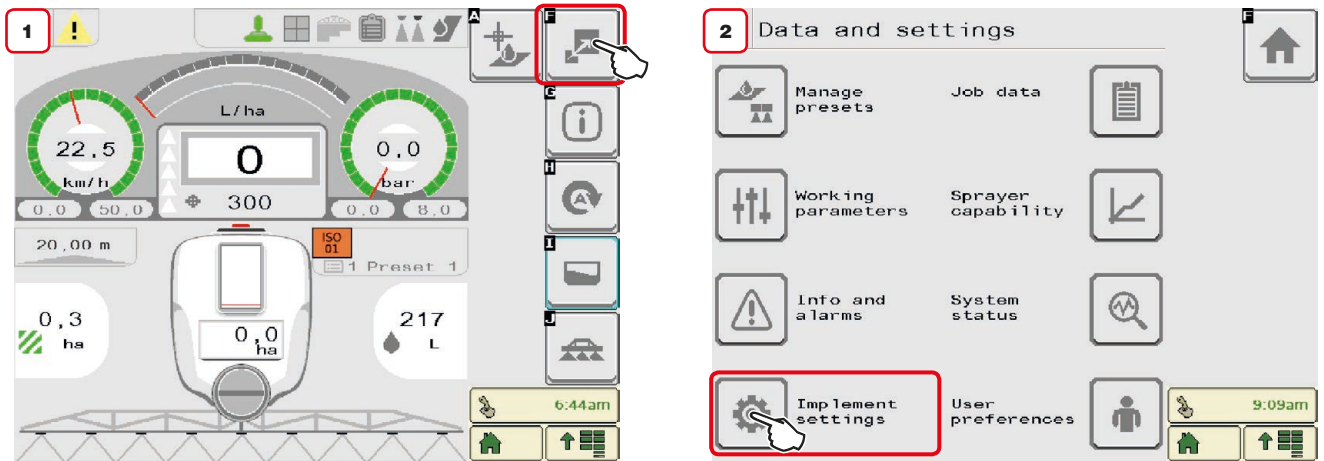


Fig. 33

**IMPLEMENT SETTINGS - MENU STRUCTURE**

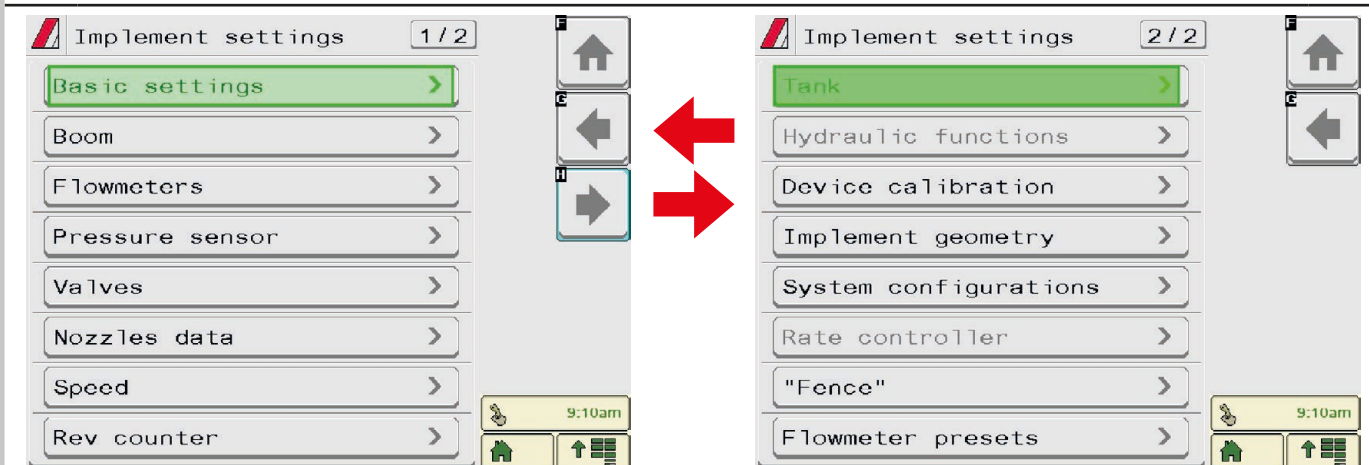


Fig. 34



The gray items cannot be edited. For correct use of keys while programming refer to par. 9.2.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm



11.1 Boom

- 1 Indicate the number of boom sections.
- 2 Indicate the distance between spraying points (nozzle holders).
- 3 Indicate the number of spraying points (nozzle holders) installed on each boom section.
  - 3a Repeat the setup for each section (Fig. 36).
  - 3b It allows to enable/disable specific boom sections. Repeat the setup for each section, by disabling the disconnected outputs.
- 4 The displayed number of valves / Seletron that can be managed depends on the type of VT connected to the system. The VT could be able to manage just a limited number of sections, therefore, should it not be possible to manage all nozzle doors individually, the VT will group them so as to fully exploit the number of permitted sections.
- 5 Displays the type of installed end nozzles (Basic settings, chap. 10).

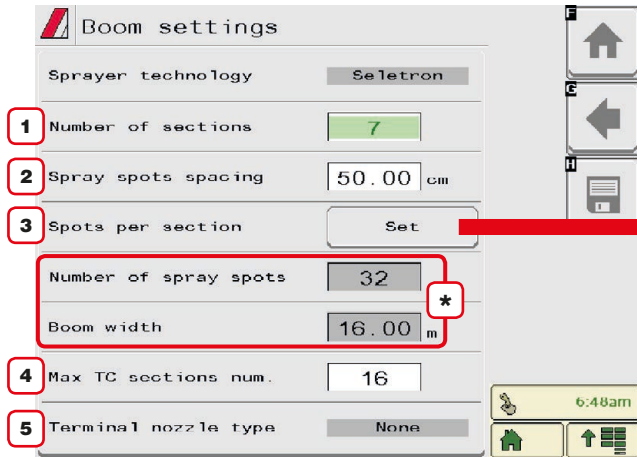


Fig. 35

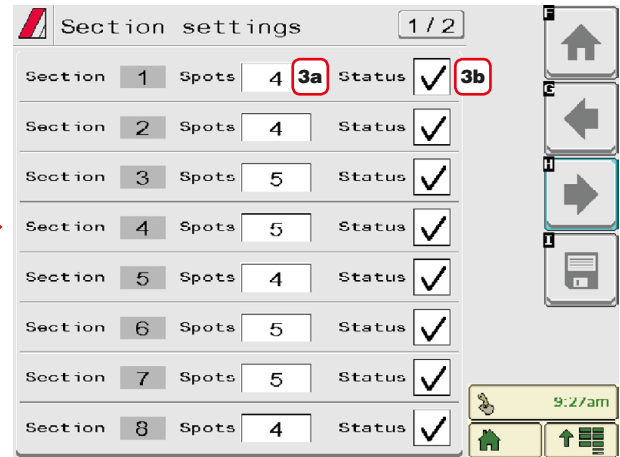


Fig. 36

\* Depending on the selected settings, the total number of spraying points as well as the value of the boom width, displayed in Fig. 35, will change.

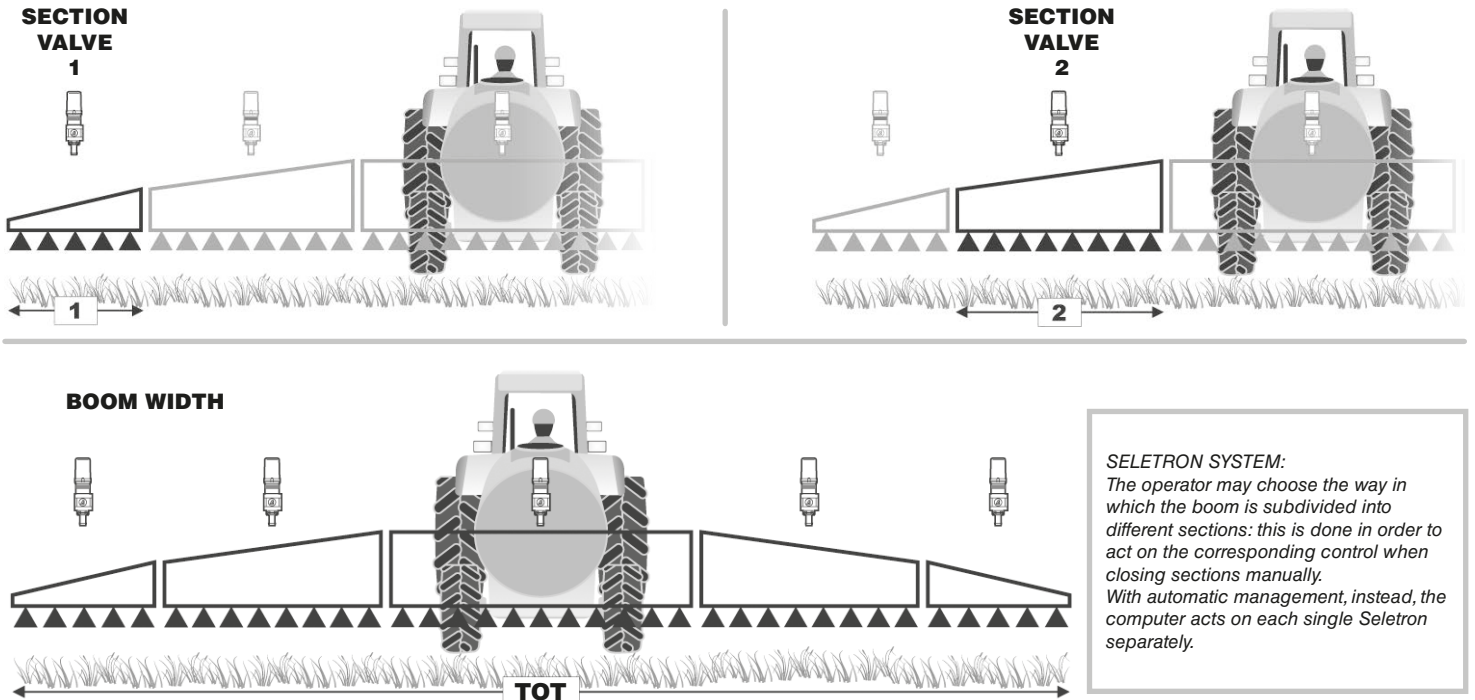


Fig. 37

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm



11.2 Flowmeters

This menu allows setting both flowmeter and filling flowmeter.

- 1 Set the installed flowmeter by selecting it from the list in Fig. 39 (use keys 2 to scroll items, and key 3 to confirm).
- 4 to confirm **Constant**.

 The items **Minimum flowrate** and **Maximum flowrate** can be modified only when the option **Other** is enabled.

\* Use keys **H** and **G** to move among the pages of **Flowmeter** (Fig. 38) and **Filling flowmeter** (Fig. 40).

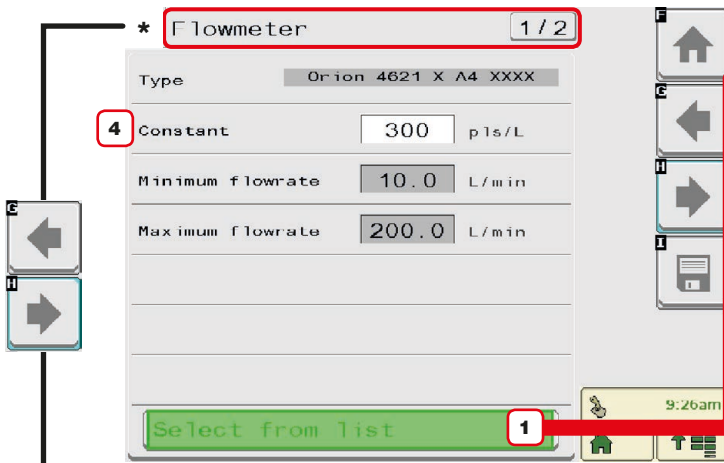


Fig. 38

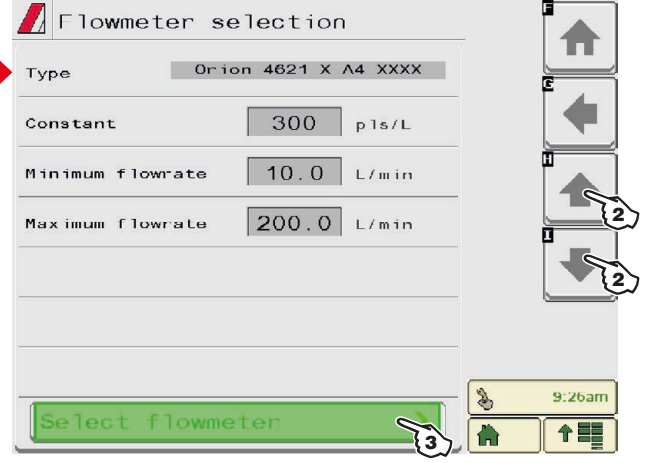


Fig. 39

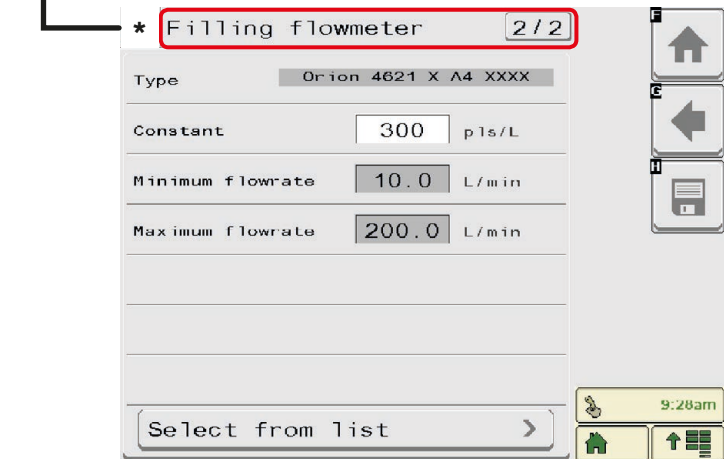


Fig. 40










List of available flowmeters and preset data:

**ORION FLOWMETERS**

Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
4621 x A0 xxxx	6000	22710	0,5	0,10	10	2,6
4621 x A1 xxxx	3000	11355	1	0,30	20	5,3
4621 x A2 xxxx	1200	4542	2,5	0,70	50	13,2
4621 x A3 xxxx	600	2271	5	1,30	100	26,4
462x x A4 xxxx	300	1135	10	2,60	200	52,8
4622 x A5 xxxx	150	568	20	5,30	400	105,7
4622 x A6 xxxx	100	378	30	7,90	600	158,5
<b>Other</b>	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
462 x 2 xxx	1025	3880	2,5	0,7	50	13,2
462 x 3 xxx	625	2366	5,0	1,3	100	26,4
462 x 4 xxx	250	946	10,0	2,6	200	52,8
462 x 5 xxx	132	500	20,0	5,3	400	105,7
462 x 7 xxx	60	227	40,0	10,6	800	211,3

 Goes back to Main screen	 Goes back to previous menu, or scrolls the pages of a menu (previous page)	 Quits without confirming the changes	 Delete
 Saves the changes to current page	 Scrolls the pages of a menu (next page)	 Saves the changes	 Quit
			 Confirm

11.3 Pressure sensor

- 1 Set the installed pressure sensor by selecting it from list in Fig. 42 (use keys 2 to scroll items, and key 3 to confirm).
- The relevant configuration data will be automatically loaded (Fig. 41).
- 4 Activate pressure sensor.

 The item **Maximum pressure** can be modified only when the option **Other** is enabled.

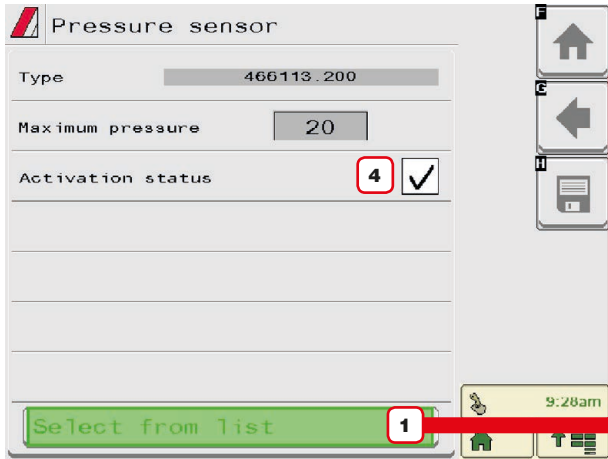


Fig. 41

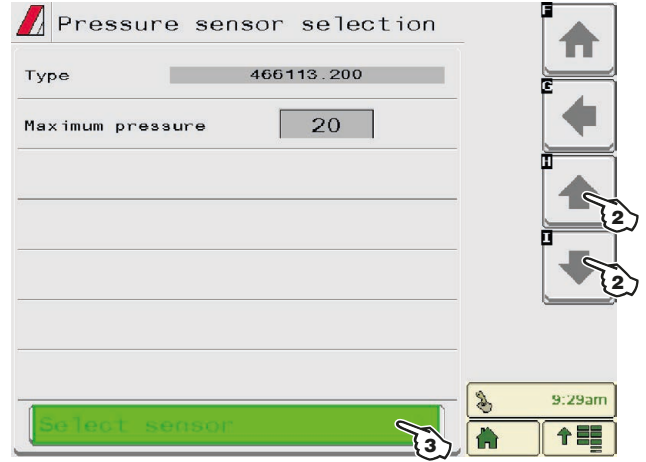


Fig. 42










Depending on the basic settings (**Flowrate reference sensor**, chap. 10), 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.

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.

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

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

11.4 Valve settings

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

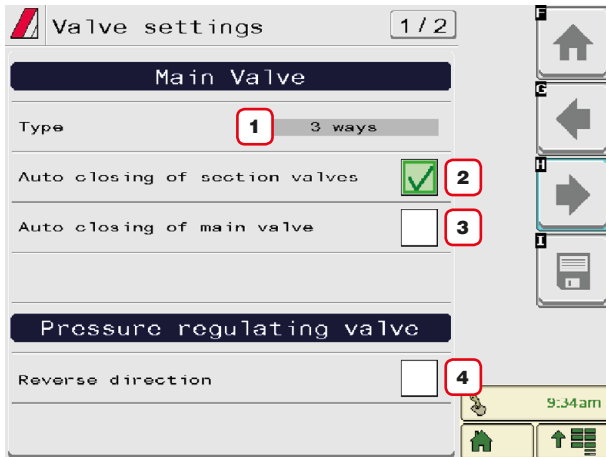


Fig. 43

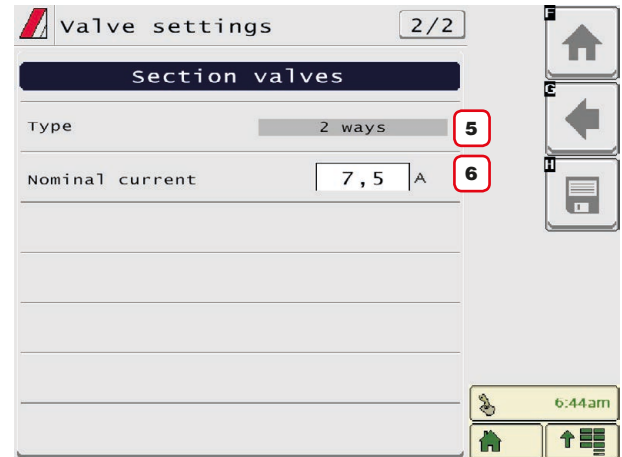


Fig. 44

**1 Main Valve > Type**

Main control valve installed. Available options are: **None**, **2 ways** (drain valve), **3 ways** (main valve).  
 The items **Main Valve > Type** is shown as a **REMINDER**: it is activated during the guided setup (chap. 10).  
 It can not therefore be modified on this screen.

**2 Main Valve > Auto closing of section valves**

Allows to enable/disable the section automatic closing when the main control valve is closed.  
 On a Seletron system, automatic closing of sections is enabled by default ("M" type).

- **"M" operation mode** (option 

**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** valve.

- **"P" operation mode** (option 

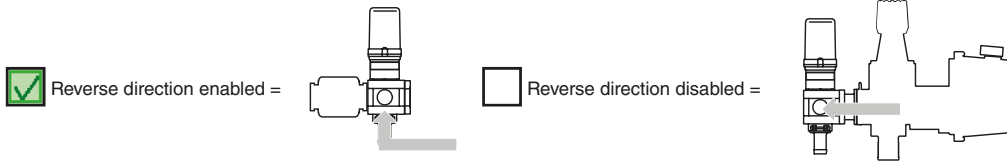
**3 Main Valve > Auto closing of main valve**

When all section valves are closed and this option is enabled, main valve automatic closing is performed as well.

( Automatic closing of main valve enabled /  Automatic closing of main valve disabled).

**4 Pressure regulating valve > Reverse direction**

Indicate the type of installed control valve. Available options are:



**5 Section valves > Type**

Indicate the type of installed section valves. Available options are:

- **2 ways** (valves without calibrated backflows)
  - **3 ways** (valves with calibrated backflows)
- On a Seletron system, section valves are of the **2 ways** type (without calibrated backflows) and are automatically set.

**6 Section valves > Nominal current**

**FOR SELETRON SYSTEMS, ONLY**  
 Enter the maximum operating current value for each section valve.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

11.5 Nozzle data

Allows setting the values of 12 types of ISO nozzles and 6 "User" nozzles (A ÷ F).

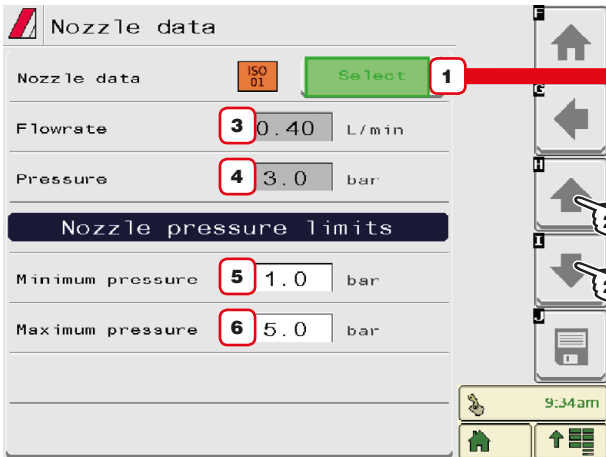


Fig. 45



Fig. 46

- 1 - 2 Select the nozzle you wish to set up (Fig. 45 / Fig. 46); enter the relevant features (Fig. 45).  
If necessary, repeat the setup for each nozzle.
- 3 - 4 Set the reference flowrate and pressure for the selected nozzle.  
The rate of the nozzle being used allows the VT to calculate the pressure without a pressure sensor.  
*The values for Flowrate and Pressure can be modified for "User" nozzles ONLY, not for ISO nozzles.*
- 5 - 6 Set the pressure limits for the selected nozzle.  
Enable the relevant function on the Alarms menu **Info and alarms** (par. 12.3) if you want the computer to trigger an alarm when the nozzle is outside the set range.  
For the procedure to be followed when an alarm occurs, please refer to par. 16.3.

11.6 Speed settings

1 Allows to select the source for speed calculation.

Available options:

- **Wheel sensor (ECU)** : When this option is enabled, the speed is calculated on the basis of the pulses received by the speed sensor installed on the wheel **and connected to the ECU through a special harness**. The wheel constant must be entered during the setup procedure (2).
- **Tractor wheel** : When this option is enabled, the speed is calculated on the basis of the pulses received by the speed sensor installed on the wheel and **directly connected to VT**. The wheel constant must be entered during the setup procedure (2).
- **Tractor radar** : Information concerning speed is received by the GPS, which is connected directly to the VT.
- **Simulated speed** : Allows to enable speed simulation in order to carry out adjustment tests even when the machine is stationary.

2 Enter the wheel constant value calculated with the suitable formula.

3 Enter the simulated speed value.

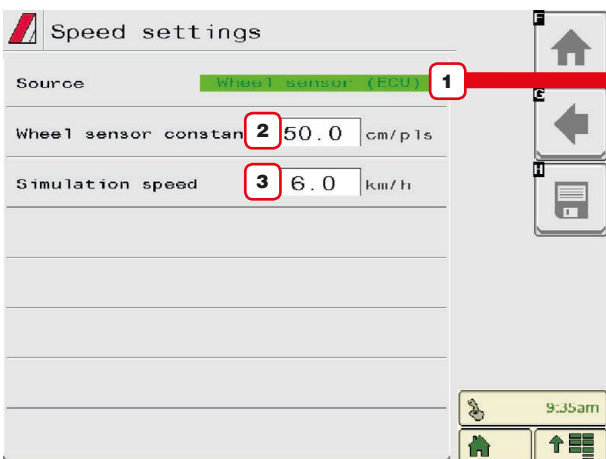
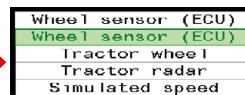


Fig. 47



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.

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

- <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.**

11.7 Rev counter

- 1 Allows enabling/disabling rev counter status ( rev counter enabled /  rev counter disabled).
- 2 Enter the values for the rev counter installed on the system.
- 3 - 4 Enable the relevant function on the **Info and alarms** menu (par. 12.3) if you want the VT to trigger an alarm when, during spraying, the measured RPM is outside the set range. For minimum speed, the control is active only when the spraying is active (**main switch ON**).  
For the procedure to be followed when an alarm occurs, please refer to par. 16.3.
- 5 Real-time displaying of the actual datum

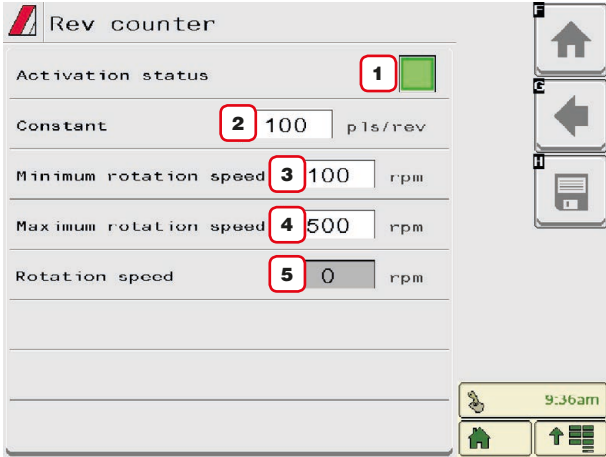


Fig. 48

11.8 Tank

Allows setting the tank values.

- 1 Indicate range value. The tank alarm is triggered when, during spraying, the tank level falls below the set value (enable the special function inside menu **Info and alarms**, par. 12.3)  
For the procedure to be followed when an alarm occurs, please refer to par. 16.3.
- 2 Indicate tank capacity.

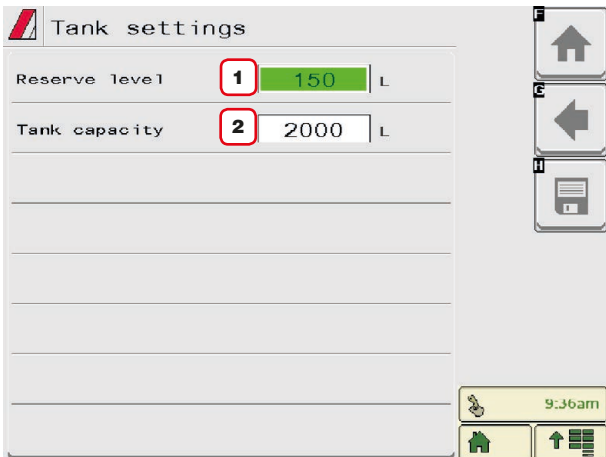


Fig. 49

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

11.9 Device calibration

Allows to start calibration for the devices connected to the VT.

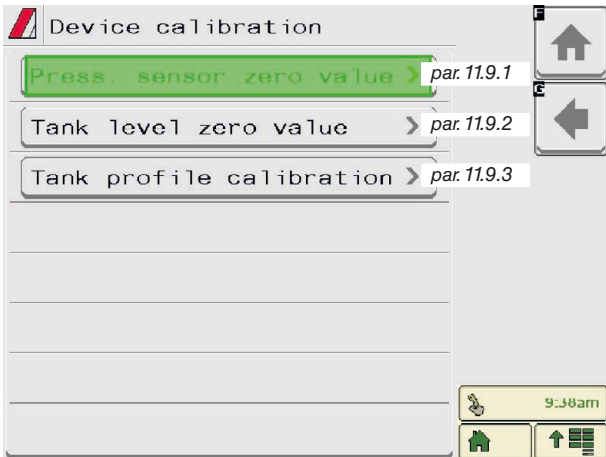


Fig. 50

11.9.1 Press. sensor zero value

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.

- 1 Start the procedure by pressing **Start**.
- 2 Press **Confirmation** to reset the pressure sensor residual signal.

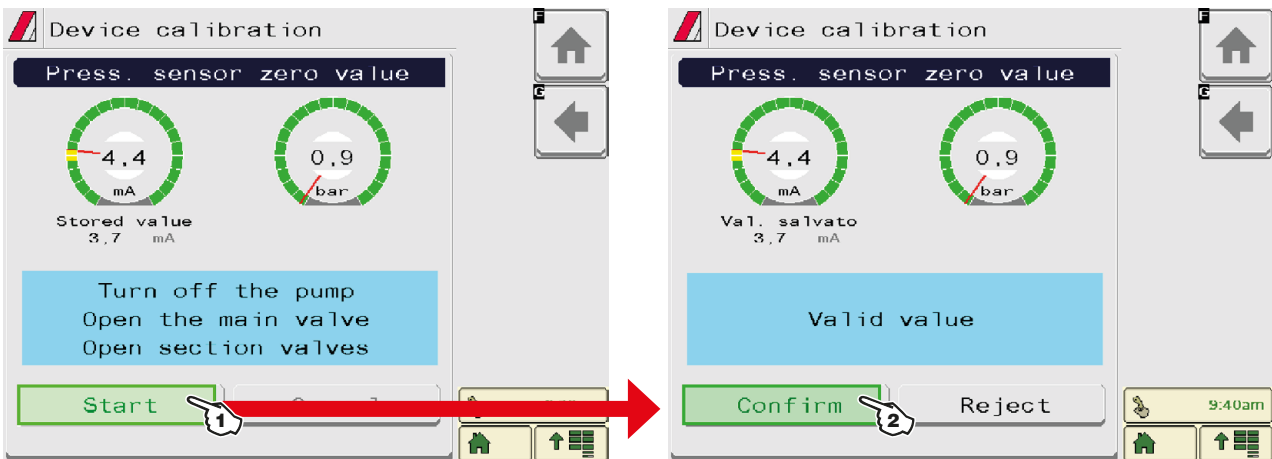


Fig. 51

**Value too low!  
Value too high!  
Unstable signal!**  
If this alarm is displayed, faulty pressure values have been detected: check the conditions described at the beginning of the paragraph (no residual pressure, disabled pump). If the problem persists, check the correct connection and operation of sensor.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

11.9.2 Tank level zero value

If the VT detects the presence of fluid inside tank, even if empty, set the level sensor to zero;

 **To use this menu the level sensor must be active (Tank level source, chap. 10).  
PERFORM THE ADJUSTMENT WITH EMPTY TANK.**

- 1 Start the procedure by pressing **Start**.
- 2 Press **Confirmation** to reset the level sensor residual signal.

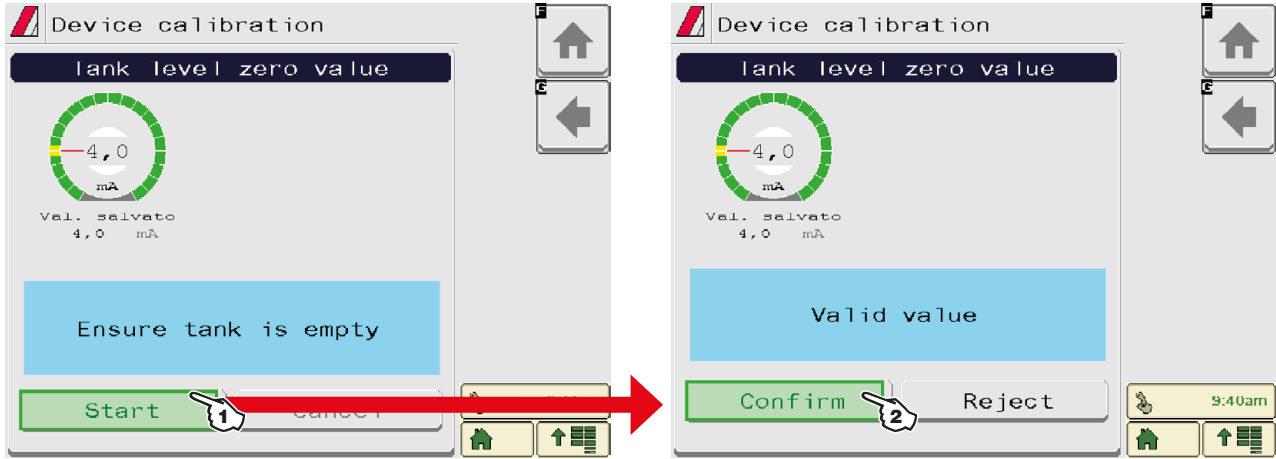











Fig. 52

**Value too low!  
Value too high!  
Unstable signal!**  
If this alarm is displayed, faulty values have been detected: check the conditions described at the beginning of the paragraph (no residual fluid, level sensor active). If the problem persists, check the correct connection and operation of sensor.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

11.9.3 Tank profile calibration

The calibration of the tank profile is **ONLY** possible if a flowmeter is installed on the system

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

- 1 Make sure that the main control is set to OFF
- 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 acting on the control valve control (nearly 7 s).  
**THE FLOWRATE MUST BE WITHIN THE FLOWMETER OPERATING RANGE.**
- 4 Start the procedure by pressing **Start**.
- 5 Start the spraying system: open, in succession, all section valves and the main control (**ON**).  
The display will show in real time the quantity of sprayed water and the calibration status.
- 6 **When the tank is empty press Confirmation 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.

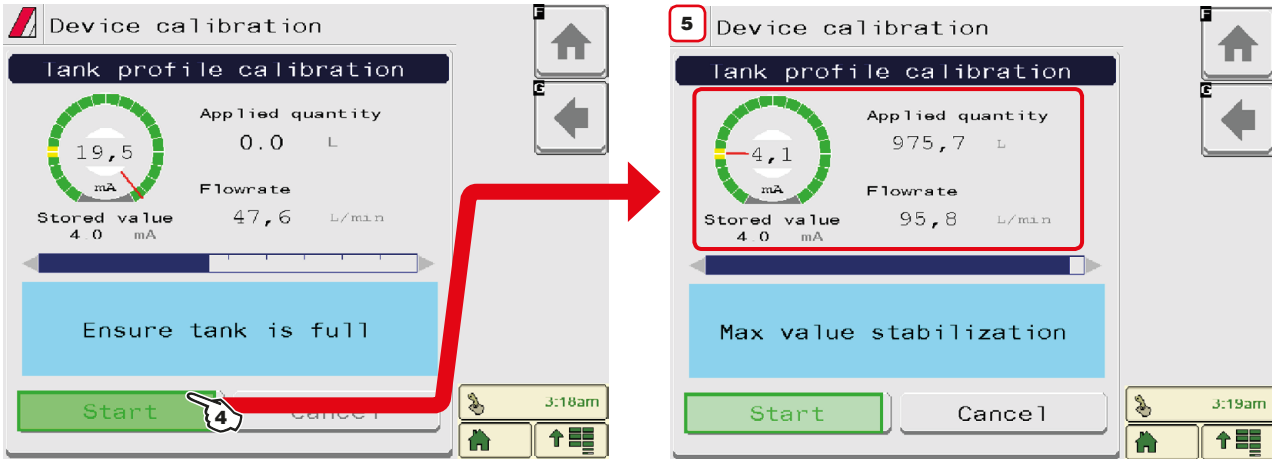


Fig. 53

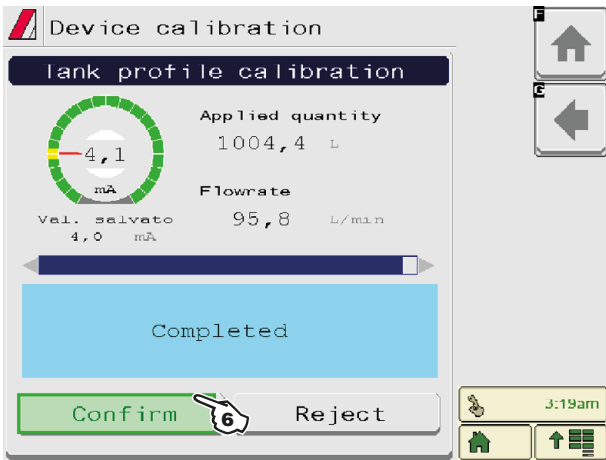


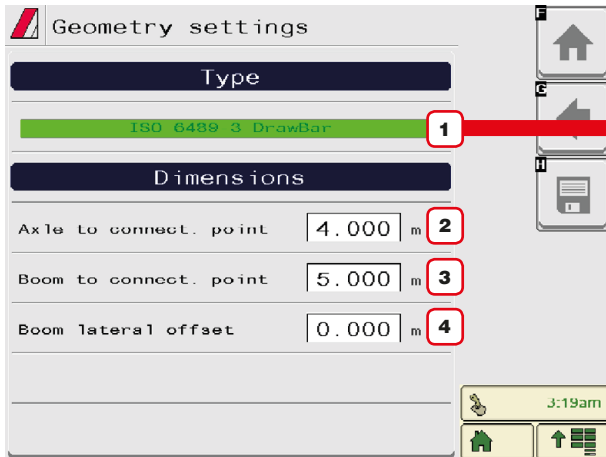
Fig. 54

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm



11.10 Implement geometry

- 1 Select the type of equipment connection.
- 2 - 3 - 4 Enter farming machine measures.



ISO 6489 3 DrawBar
Unknown
ISO 6489-3 DrawBar
ISO730 3 point semi-mount
ISO730 3 point mounted
ISO6489-1 Hitch hook
ISO6489-2 Clevis coupl. 40
ISO6489-4 Piton coupling
ISO6489-5 CUNA coupling
ISO 24347 Ball type hitch

Check Virtual Terminal settings: if a specific menu is available (varying based on your VT to program machine geometry, it has the priority over the ECU menu.

Fig. 55

Axle to connect. point

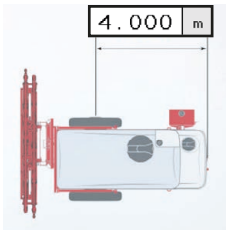


Fig. 56

Boom to connect. point

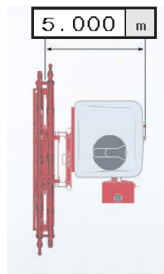


Fig. 57

Boom lateral offset

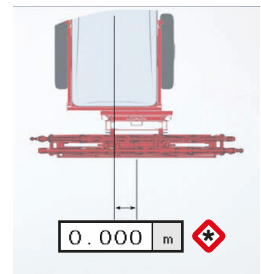
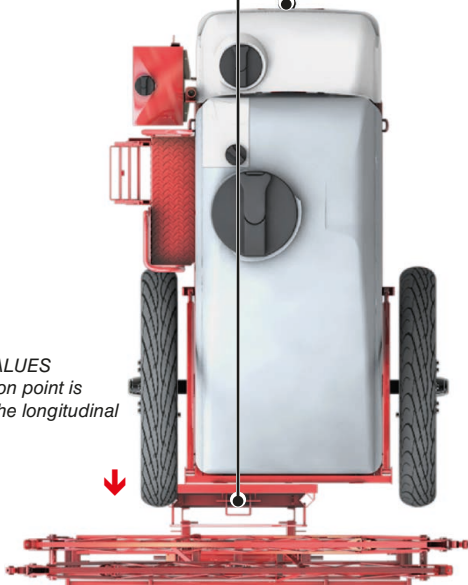


Fig. 58

Boom lateral offset

- 1.50 m  
Application point ← Longitudinal axle



**NEGATIVE VALUES**  
The application point is to the left of the longitudinal axle

Fig. 59

+ 1.50 m  
Longitudinal axle → Application point



**POSITIVE VALUES**  
The application point is to the right of the longitudinal axle

Fig. 60

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

11.11 System configurations

Set the device system options.

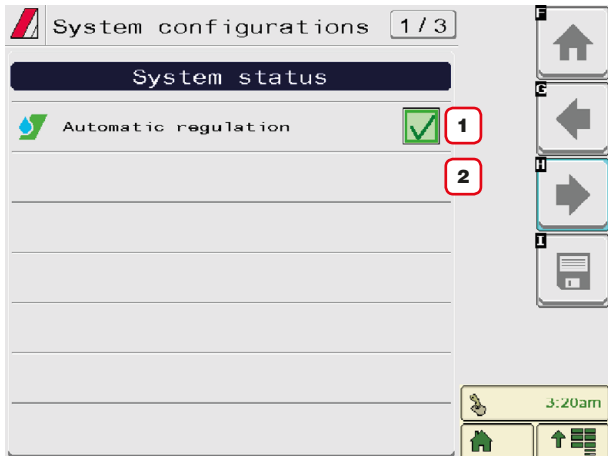


Fig. 61

**SYSTEM STATUS**

**1** The setting of this item makes **visible / invisible** the **Application rate regulation** function of the menu **Automatic functions** (par. 15.3.1).

**2** The setting of this item enables nozzle manual selection.

- Manual nozzle selection
- Automatic nozzle selection

Nozzle selection modes are described in par. 15.3.3 *Nozzles selection*.

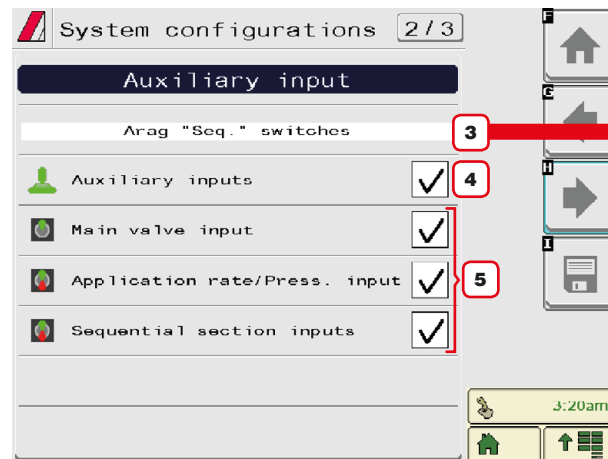
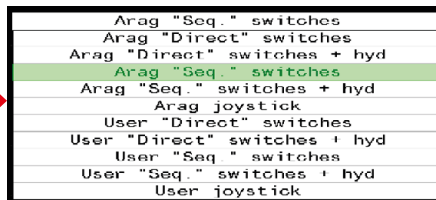


Fig. 62

**AUXILIARY INPUT**



**3** Select the type of auxiliary control (Auxiliary Input) connected to the VT.

**4** Enable/ disable the auxiliary control selected in point 2.

**5** Enable / disable the displayed controls, linked to the selected Auxiliary Input type.

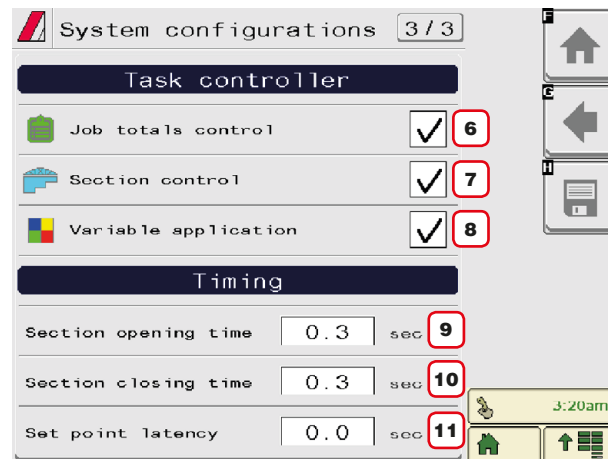


Fig. 63

**TASK CONTROLLER**

The VT can make some functions through the TC, ONLY IF THEY ARE enabled in this screen:

**6** Enable / disable the job total counter control.

**7** AEnable / disable (section and main) valve automatic closing.

**8** Enable / disable the use of prescription maps for treatments with variable application.

**TIMING**

The correct management of valve timing, set on tool OP (IBX100), may vary based on the connected VT.

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

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

**11** Adjustment parameter for variable applications (with the use of prescription maps): this datum is used to indicate the advance time of application rate adjustment when the machine approaches the area changeover of the prescription map.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

11.12 "Fence"

Allows setting the characteristic data of "Fence" nozzle:

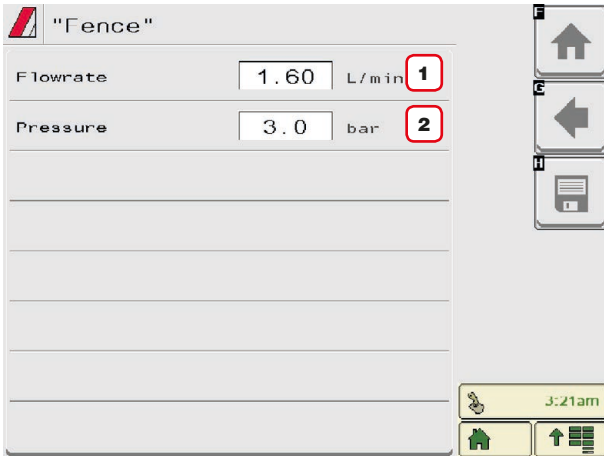


Fig. 64

1 - 2 Set the reference flowrate and pressure for the "Fence" nozzle. These data allow properly adjusting the application rate when "Fence" nozzles are activated.

11.13 Flowmeter presets

Allows setting flowmeter data

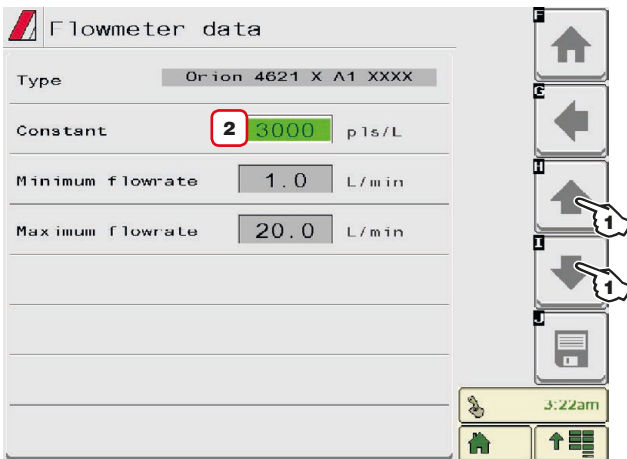


Fig. 65

1 Select the flowmeter to be set with keys.  
2 Set the **Constant**.

The items **Minimum flowrate** and **Maximum flowrate** can be modified only when the option **Other** is enabled.

List of available flowmeters and preset data:

ORION FLOWMETERS						
Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
4621 x A0 xxxx	6000	22710	0,5	0,10	10	2,6
4621 x A1 xxxx	3000	11355	1	0,30	20	5,3
4621 x A2 xxxx	1200	4542	2,5	0,70	50	13,2
4621 x A3 xxxx	600	2271	5	1,30	100	26,4
462x x A4 xxxx	300	1135	10	2,60	200	52,8
4622 x A5 xxxx	150	568	20	5,30	400	105,7
4622 x A6 xxxx	100	378	30	7,90	600	158,5
<b>Other</b>	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
462 x 2 xxx	1025	3880	2,5	0,7	50	13,2
462 x 3 xxx	625	2366	5,0	1,3	100	26,4
462 x 4 xxx	250	946	10,0	2,6	200	52,8
462 x 5 xxx	132	500	20,0	5,3	400	105,7
462 x 7 xxx	60	227	40,0	10,6	800	211,3

Goes back to Main screen	Goes back to previous menu, or scrolls the pages of a menu (previous page)	Quits without confirming the changes	Delete
Saves the changes to current page	Scrolls the pages of a menu (next page)	Saves the changes	Quit
			Confirm

12 DATA AND SETTINGS

12.1 Manage presets

This menu allows:

- Setting 20 different treatment configurations (**Preset**).
- Activating one configuration among the preset ones.
- Consulting the job data of the selected treatment (**Preset**) pages "Totals" and "Averages" in Fig. 69.

PRESET SETTING

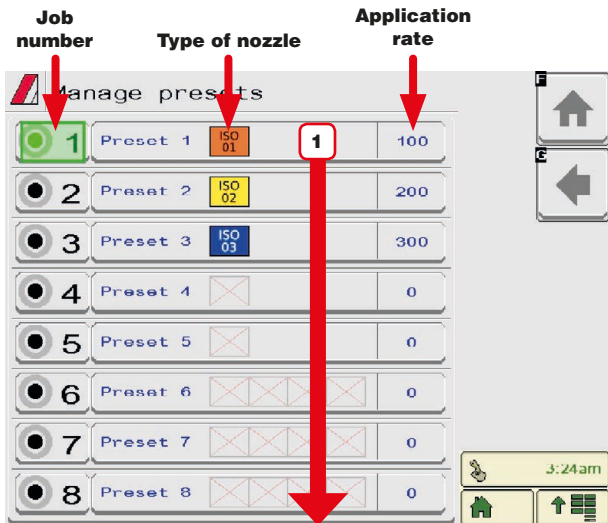


Fig. 66

Features to set for each **Preset**:

- 1 Select the **Preset** to be set
- 2 Type in the name.
- 3 Enter the application rate value (L/Ha).
- 4 Select the type of nozzle among the suggested ones:  
12 types of ISO nozzles and 6 customized nozzles.

**Nozzle type:** thanks to multiple nozzle holders (twin or fourfold Seletron units), it changes the number of nozzles to be programmed (2 or 4).

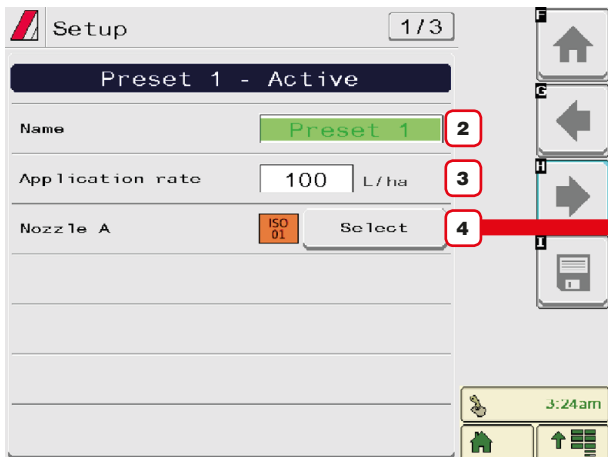
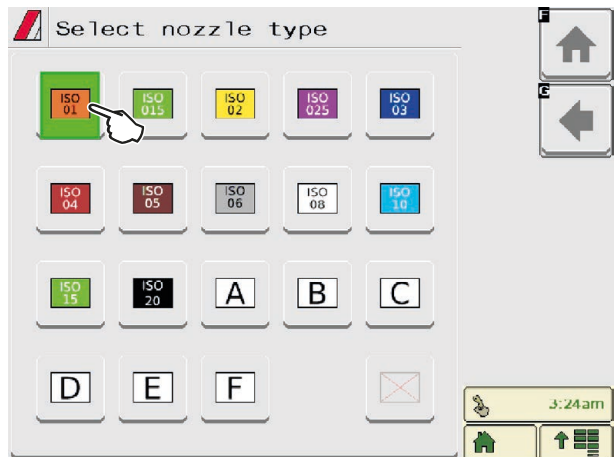


Fig. 67



CONTINUES

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

>>> Manage presets

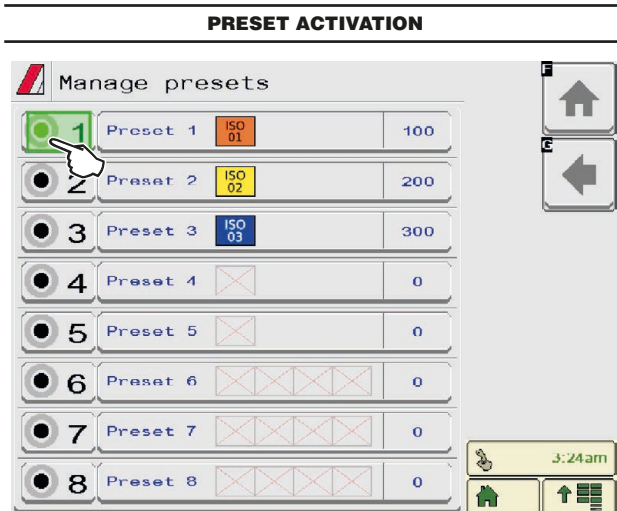


Fig. 68

CONSULTATION OF JOB DATA OF THE SELECTED PRESET

- Select the **Preset**.
- Use key **1** to scroll pages and key **2** to delete the job data;
- WARNING: total counters and average values are simultaneously deleted.**

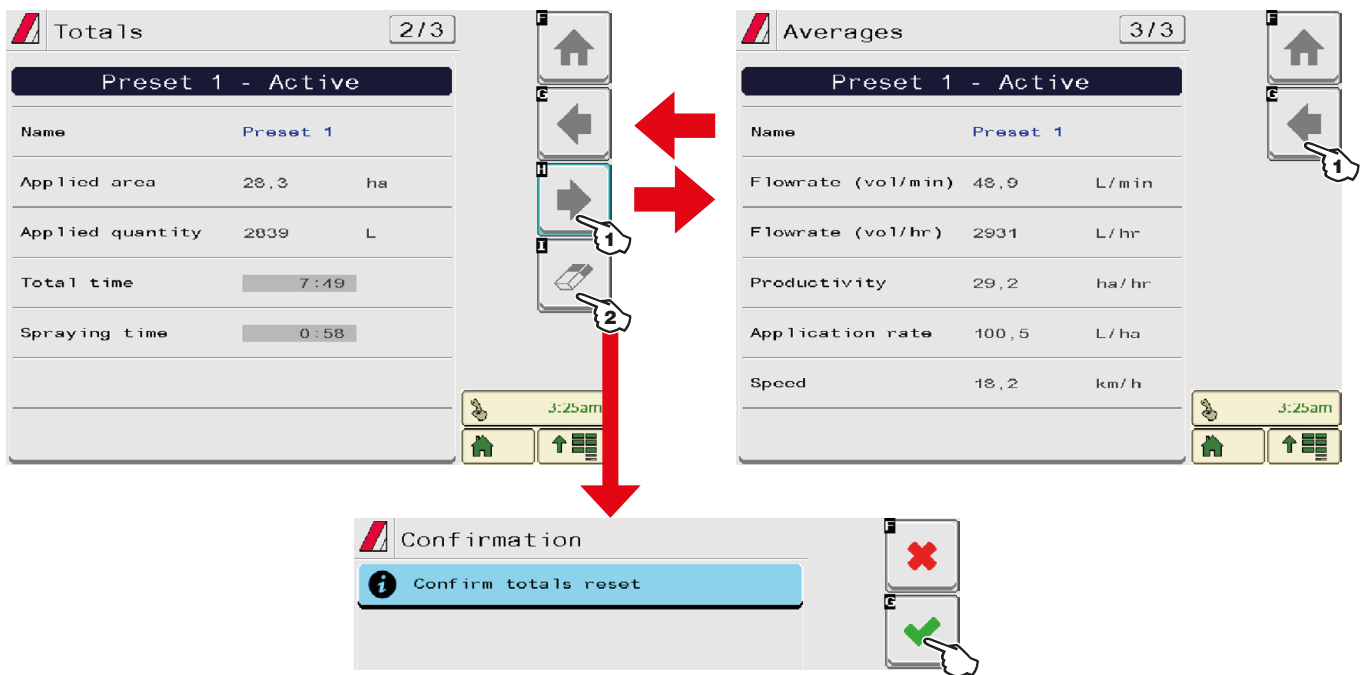


Fig. 69

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

12.2 Working parameters

Set the farming machine job limits.

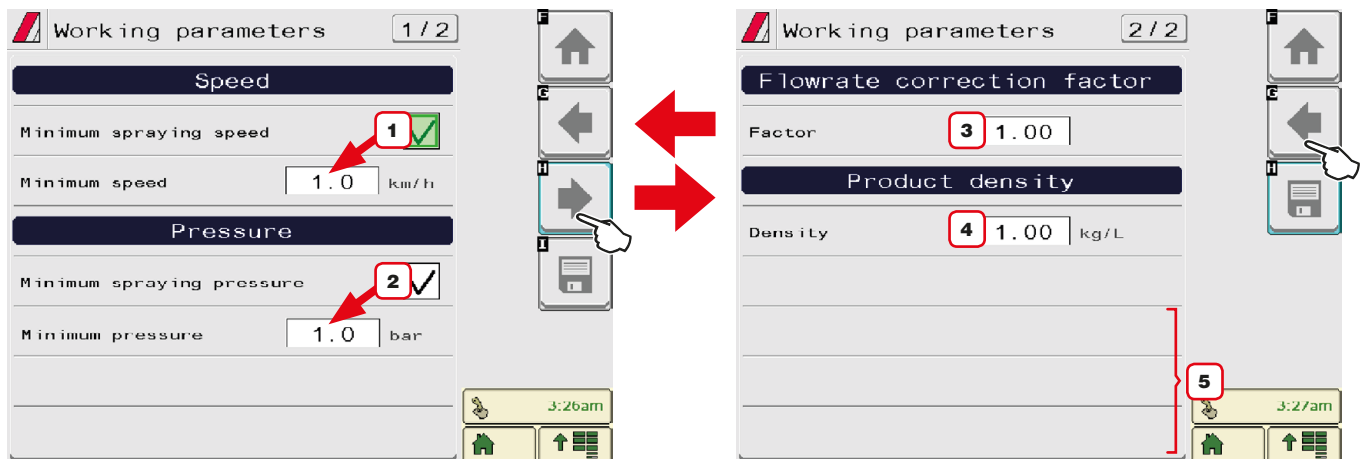












Fig. 70

- 1** To configure the items on this menu, you must enable the speed limit.  
Set the minimum spraying speed: the VT closes the main valve when the tractor speed is lower than the set value.
  - 2** To configure the items on this menu, you must enable the pressure limit.  
Set the minimum spraying pressure: the VT blocks the automatic regulation of the proportional valve when the pressure is lower than the set value.
  - 3** When using a paddle flowmeter and the sprayed fluid has a different viscosity than that of water, the VT 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.**
  - 4** 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. **A tank level sensor must be installed.**
  - 5** Enable item **Regulating valve positioning** to enable this function, to be used with a control unit without **calibrated backflows and with the active automatic management of spraying points (Seletron systems).**
- OPERATION**  
When spraying is interrupted during treatment by setting main control to OFF (i.e. at the end of the field), the control valve fully opens to reduce system pressure to the minimum level.  
When spraying is restored (main control set to ON), the control valve partially closes to restore output to the correct pressure level.  
Use this function to set the **Flowrate limit** (with main control set to OFF), under which the control valve closes for the duration of the set **Activation time**, so as to increase the pressure level before main control is set to ON and to restore the correct treatment in the shortest delay.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

12.3 Info and alarms

From this menu you can enable alarm visual and acoustic notifications when the related event occurs.

Alarm enabled /  Alarm disabled.

For the procedure to be followed when an alarm occurs, please refer to par. 16.3 Error messages.



Fig. 71

**APPLICATION RATE ALARM**

1 Alarm active when user changes the application rate during treatment (par. 15.1).

**TANK ALARMS**

2 One of the two alarms activates if tank (minimum or maximum) level is not within the set values (par. 11.8).

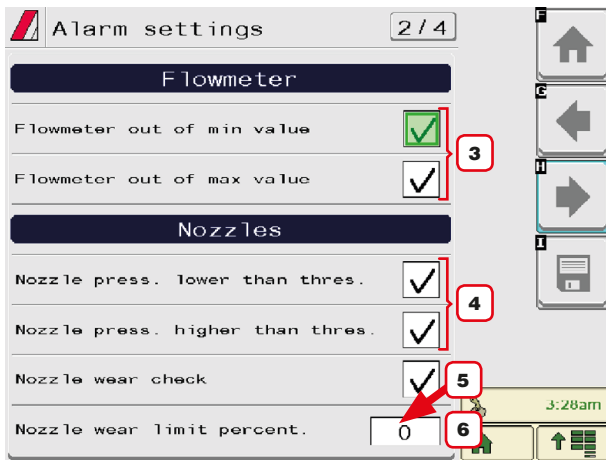


Fig. 72

**FLOWMETER ALARMS**

3 Outside the range set in the **Minimum flowrate/Maximum flowrate** menus (par. 11.2 *Flowmeters*), the VT triggers an alarm.

**NOZZLE ALARMS**

4 Outside the range set in the **Minimum pressure/Maximum pressure** menus (par. 11.5 *Nozzle data*), the VT triggers an alarm.

5 Enable/disable nozzle wear check and set the tolerance threshold in point 6.

6 Set the acceptable threshold: the VT 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.

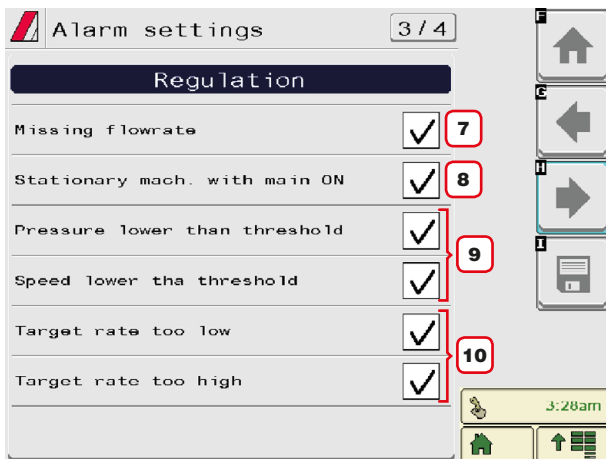


Fig. 73

**ADJUSTMENT ALARMS**

7 Alarm is activated with main control ON, but rate at zero.

8 Alarm is activated with main control ON with machine stopped.

9 Alarms are activated if pressure, or speed, do not reach the set limit values (par. 12.2).

10 Alarm is activated if the output (l/ha or GPM) is different from the set application rate (par. 12.1).

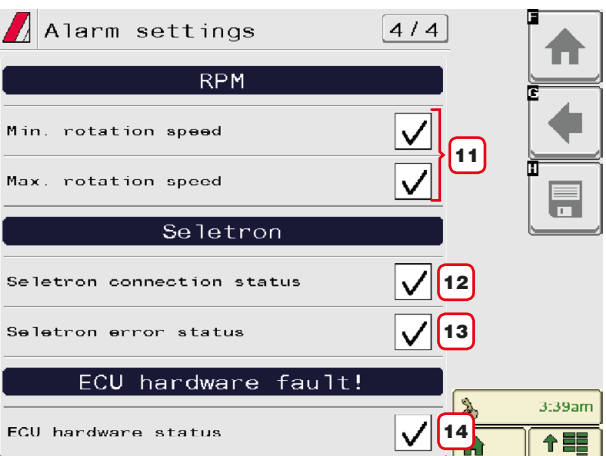


Fig. 74

**RPM ALARMS**

11 Outside the range set in the **Minimum rotation speed/Maximum rotation speed** menus (par. 11.7 *Rev counter*), the VT triggers an alarm.

**SELETRON ALARMS**

Alarms relating to Seletron valves (**Basic settings, chap. 10**):

12 Alarm is activated when (one or more) spraying points do not respond.

13 Alarm is activated when the input voltage on one or more spraying points is too low.

**HARDWARE ALARMS**

14 Enable / disable ECU hardware status alarm.



## 12.4 Implement settings

Consult *chap. 11 Implement settings > Advanced setup.*

## 12.5 Job data

Allows user to view total spraying data, concerning sprayed area and work time.

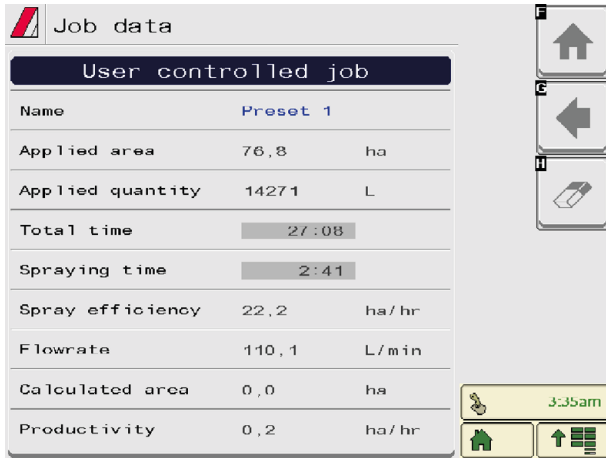


Fig. 75

## 12.6 Sprayer capability

Allows checking treatment performance based on speed, configurations and nozzles installed on the machine.

**WARNING: guidance information and all accessory functions are disabled.**  
 Displayed items are READ-ONLY.

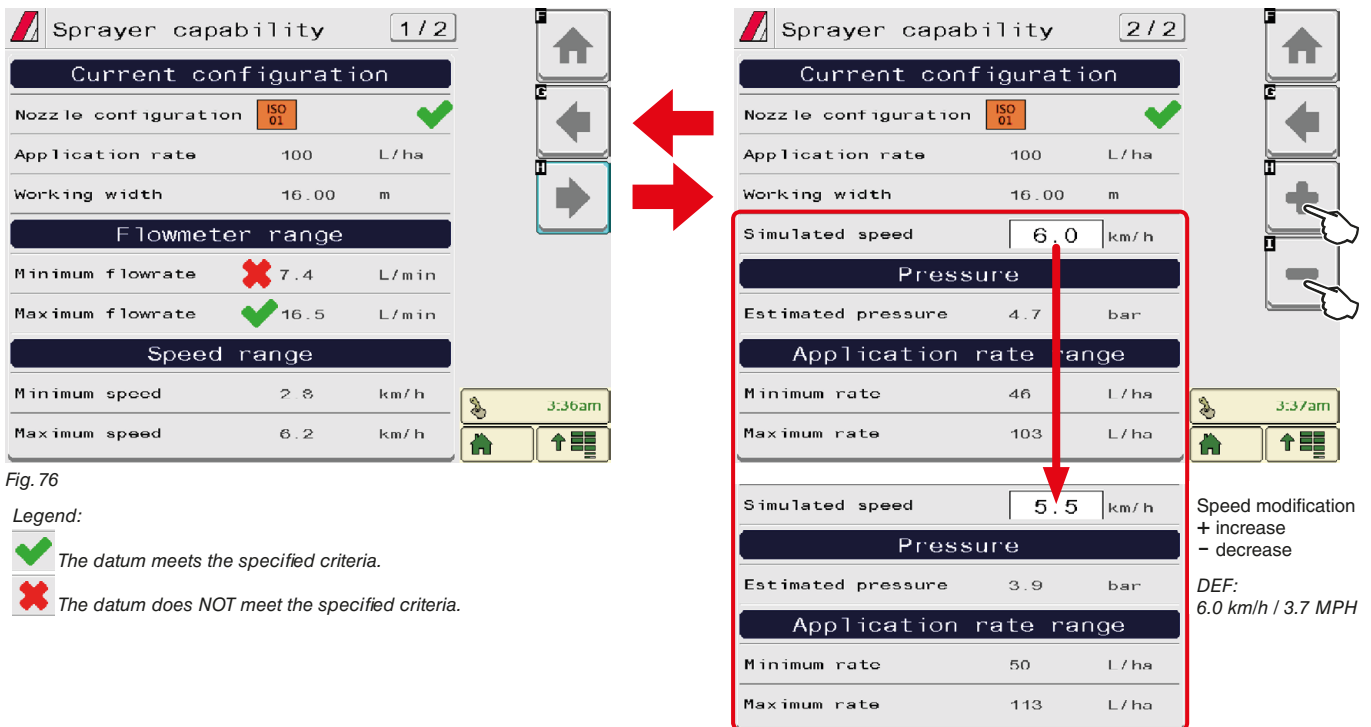


Fig. 76

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm



12.7 System status

Allows checking the correct operation of the system. Groups several categories.



Displayed items are READ-ONLY.

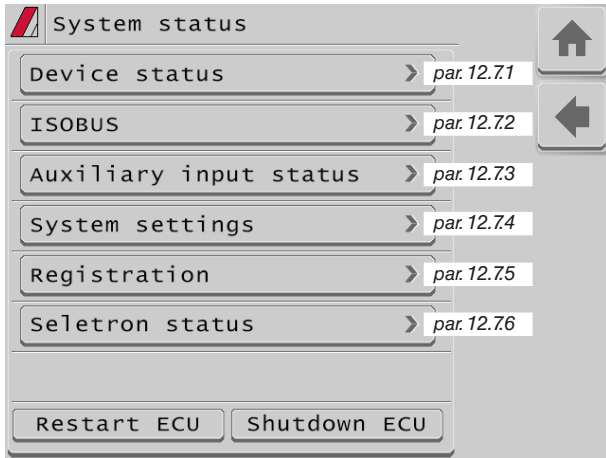


Fig. 77

12.7.1 Device status

Displays system information.

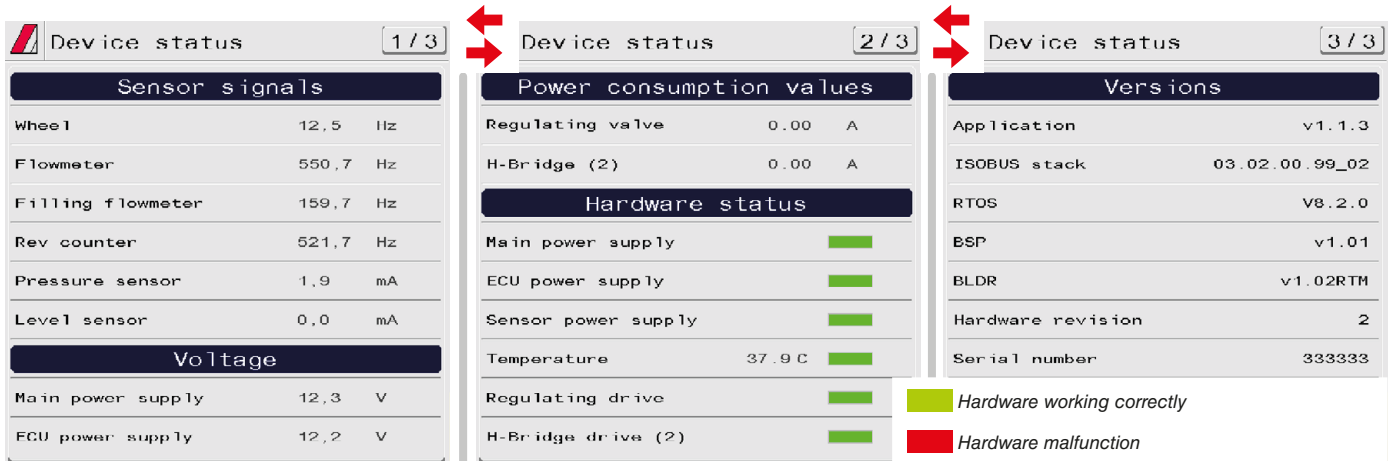


Fig. 78

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

12.7.2 ISOBUS

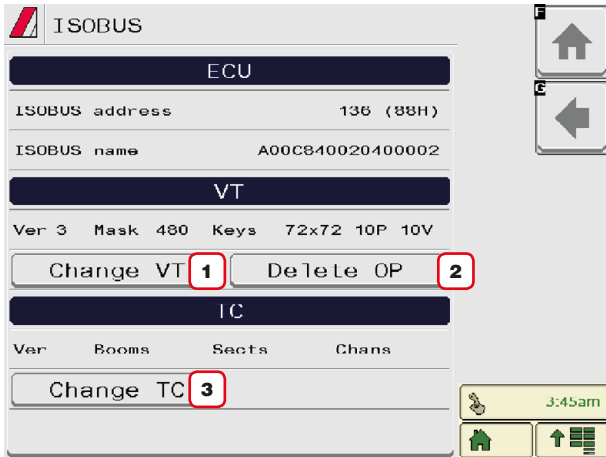


Fig. 79

Displays information on ISOBUS protocol.

1 Allows displaying the OP on another VT, if any, present on the ISOBUS line.

2 Allows deleting and reloading the ECU OP.

3 Allows reloading the TC.

12.7.3 Auxiliary input status

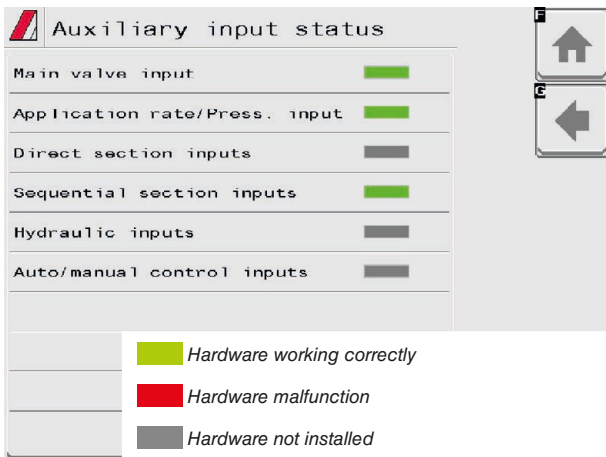


Fig. 80

Checks the connection of the Auxiliary Input.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

12.7.4 System settings



Fig. 81

**1** This function acts on OP job screen loading mode, so as to make its displaying easier. Take into account that screen loading differs based on the used VT.

**- Function OFF**

After having connected the ECU to tractor, main screen loading is started only when the special VT key\* is pressed.

**- Function ON**

After having connected the ECU to tractor, main screen is pre-loaded on system: as soon as the special VT key\* is pressed, loading has already been completed and screen is displayed without any waiting time.

\* Key used to display ISOBUS sprayer management application.

**2** Enables/disables simulation mode (mainly used for demonstrative purposes, training, etc.)

12.7.5 Registration

Should it be necessary to re-enter the registration code supplied with the ECU, proceed as follows.

**REGISTRATION**

**1** Press to enter registration code.

**2** Type in the code and confirm with key **3**.

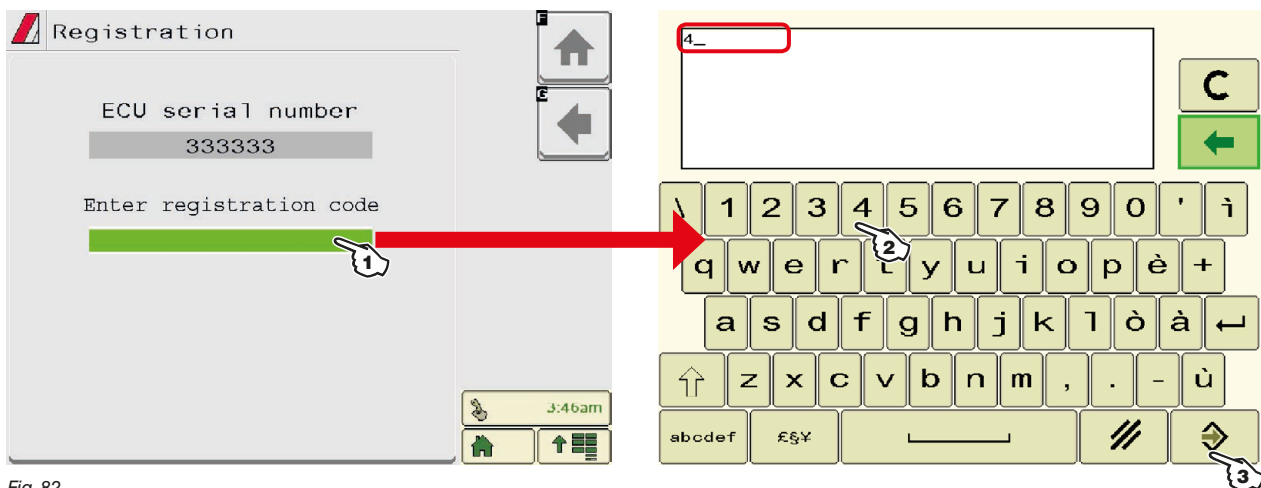











Fig. 82

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

12.76 Seletron status

This menu has two main functions:

• **INSTALLATION**

Allows to display the progress during Seletron's pairing procedure (*chap. 13 Seletron connection*).

• **DIAGNOSTICS**

Allows to check the connection of each single Seletron.



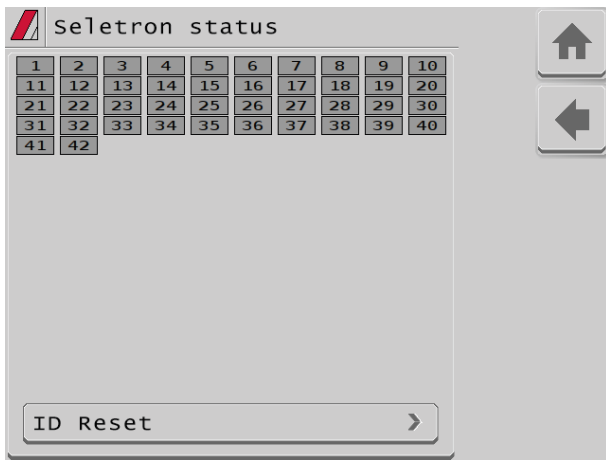
**CARRY OUT both procedures with RUNNING ENGINE.**

**SELETRON CONNECTION DIAGNOSTICS**

**Color legend:**

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

The screen in *Fig. 83* shows the corresponding number.



**If necessary, you can repeat the pairing procedure for each Seletron device: BEFORE STARTING A NEW PAIRING PROCEDURE, YOU MUST RESET THE PREVIOUSLY ALLOCATED IDENTIFICATION NUMBERS. Use the function ID Reset (*par. 13.1*).**

Fig. 83

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

12.8 User preferences

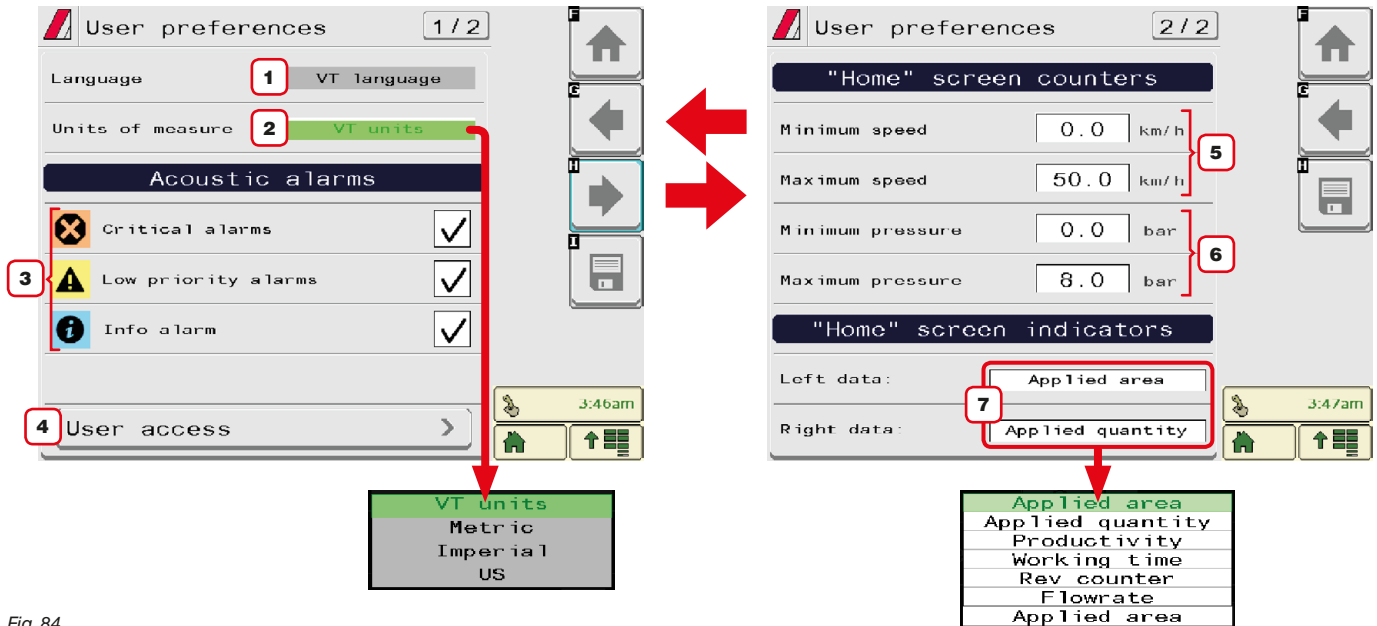


Fig. 84

1 Displays the OP use language source. To change language, edit the VT settings.

2 Set OP units of measurement.

You can select the measurement system or infer it from the VT settings.

**ACOUSTIC ALARMS**

3 The OP features an **Info and alarms** menu. This page displays all active notifications for the operator (par. 12.3).

These notifications are rated by importance as **Critical alarms**, **Low priority alarms** and **Info**.

From this screen it is possible to enable / disable acoustic alarms for each notification.

**USER ACCESS**

4 Set OP access level.

• **Operator**: the use at this level inhibits any kind of setting. The operator only carries out the treatment.

• **Manager**: the use at this level inhibits machine feature setting, but allows treatment configuration.

You can set an access PIN code.

• **Technician**: the use at this level allows the configuration of both machine features and treatment.

You can set an access PIN code.

• **Arg-Tech**: for ARAG staff, only.

**"HOME" SCREEN COUNTERS**

5 Set speed range end-value ("**HOME**" screen, par. 14.1).

6 pressure range end-value ("**HOME**" screen, par. 14.1).

**"HOME" SCREEN INDICATORS**

7 Select job data displayed on the **RIGHT / LEFT** side of the screen ("**HOME**" screen, par. 14.1).

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

13 SELETRON CONNECTION

PLEASE CAREFULLY FOLLOW THE INSTRUCTIONS PROVIDED IN THIS CHAPTER. ANY MISTAKES DURING SELETRON PAIRING/REPLACEMENT MAY LEAD TO SYSTEM OPERATION FAILURE.

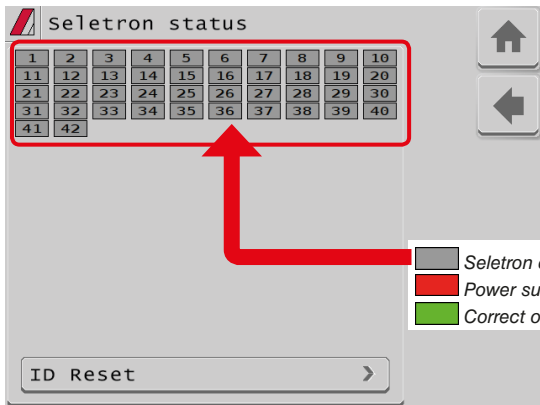



Fig. 85

**BEFORE PROCEEDING, MAKE SURE YOU ARE ABLE TO HEAR THE ACOUSTIC SIGNALS COMING FROM THE MONITOR LOCATED IN THE CABIN (DOORS OPEN, ETC.).**

- Access the menu (par. 12.76)  
**Data and settings > System status > Seletron status**
- Make sure that ALL SELETRON DEVICES ARE DISCONNECTED: they must be shown on the display only with the symbols , as shown in Fig. 85.

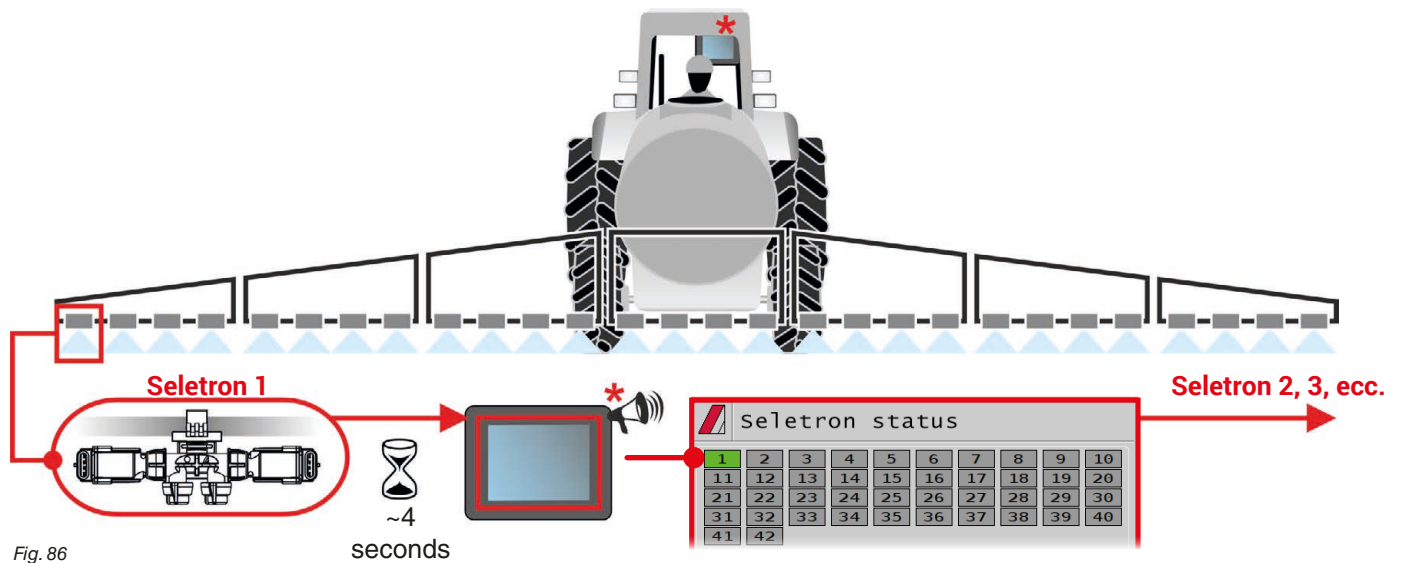



Fig. 86

**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 (ID Reset, PAR. 13.1).**

- Connect the first Seletron.  
Seletron no. 1 is the first on the left, when looking at the boom from behind (Fig. 86).

**WAIT FOR THE ACOUSTIC SIGNAL BY THE MONITOR.  
WAIT FOR THE MONITOR TO DISPLAY THE GREEN SYMBOL FOR THE CONNECTED SELETRON (FIG. 86).**

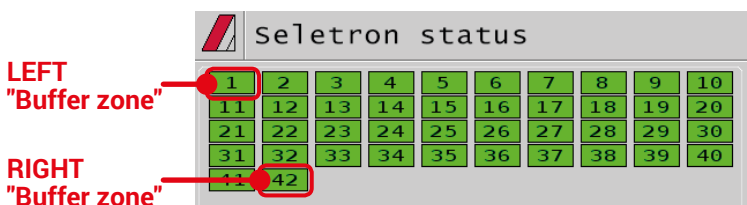
**ONLY NOW IS IT POSSIBLE TO PROCEED WITH THE INSTALLATION OF THE FOLLOWING SELETRON.**

**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 if end nozzles are present (par. 15.6):

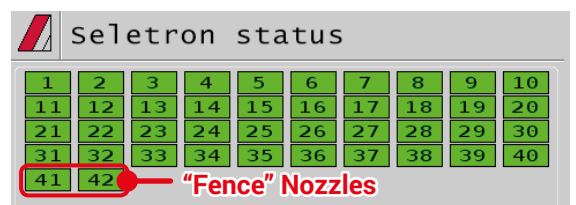
**NOZZLES FOR "Buffer zone"**

Start by connecting Seletron for "Buffer zone" located at the left end of the boom, then connect all the "normal" Seletrons from left to right, and lastly connect Seletron for "Buffer zone" located on the right end of the boom.



**"Fence" NOZZLES**

Start by connecting all the "normal" Seletrons from left to right, then connect the "Fence" Seletron located on the left end of the boom and lastly connect the "Fence" Seletron located on the right end of the boom.



CONTINUES >>>

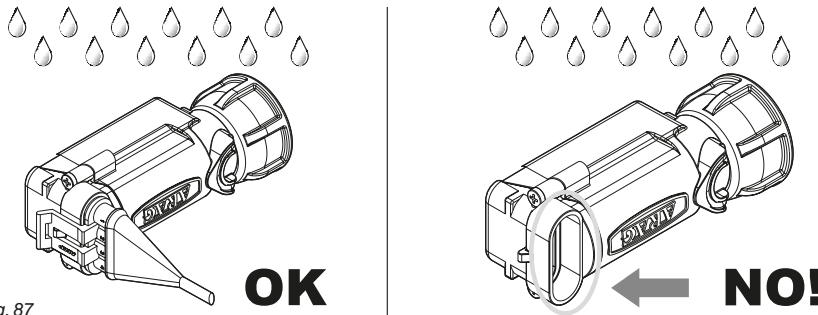


Fig. 87

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.

**CONNECTION SEQUENCE FOR SINGLE AND TWIN SELETRON DEVICES**

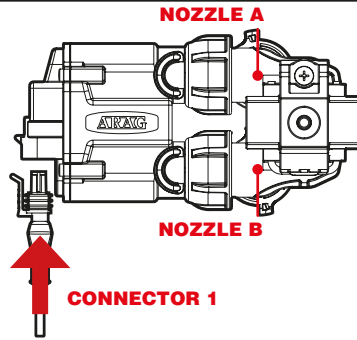


Fig. 88

Connect all Seletron devices in sequence, from left to right until the end of the boom.

**CONNECTION SEQUENCE FOR FOURFOLD SELETRON DEVICES**

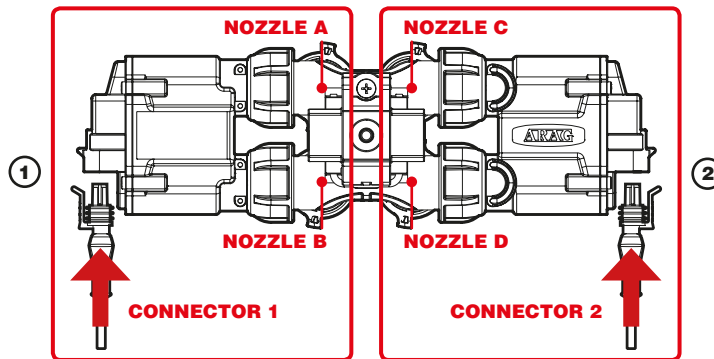


Fig. 89

- 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. 89).
- 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**).

**13.1 ID Reset**

Allows to reset the identification numbers of all saved Seletrons, before repeating the pairing procedure (chap. 13).

**TO PREVENT SYSTEM MALFUNCTIONS, THIS OPERATION MUST BE CARRIED OUT ONLY IF STRICTLY NECESSARY**

seletron status

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
41	42								

ID Reset

↑

←

Press key **1** to delete identification numbers.  
 Press key **2** to confirm.

**At the end of the reset procedure, DISCONNECT ALL SELETRONS and start a new pairing procedure (chap. 13).**

Confirmation

Confirm reset of Seletron ID

✖

✔

Fig. 90



13.2 SELETRON REPLACEMENT

13.2.1 Preliminary Operations

**⚠ TO AVOID ACCIDENTS, EMPTY THE TANK AND MAKE SURE THAT THE ENTIRE SYSTEM IS COMPLETELY FREE FROM CHEMICALS.**

**IMPORTANT**

Activate the controls of main valve and sections (ON position), and carry out the indicated settings:

Main control ON + Open sections + Enabled nozzles + MANUAL nozzle selection settings + MANUAL section management settings.

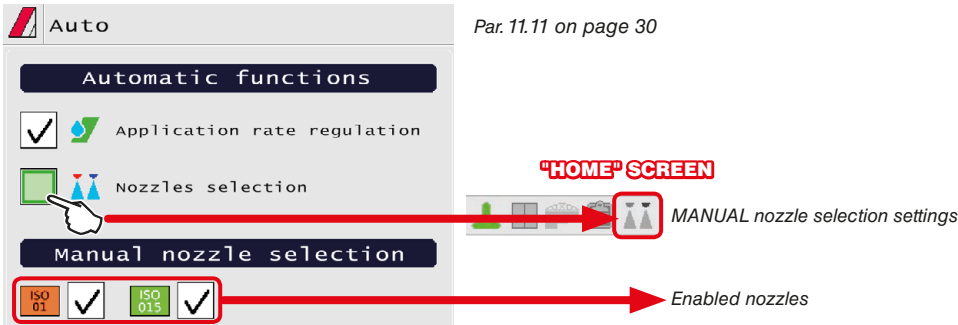


Fig. 91

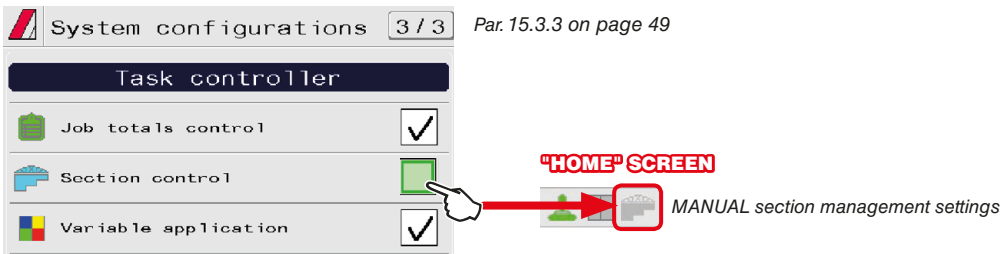


Fig. 92

13.2.2 Replacement procedure

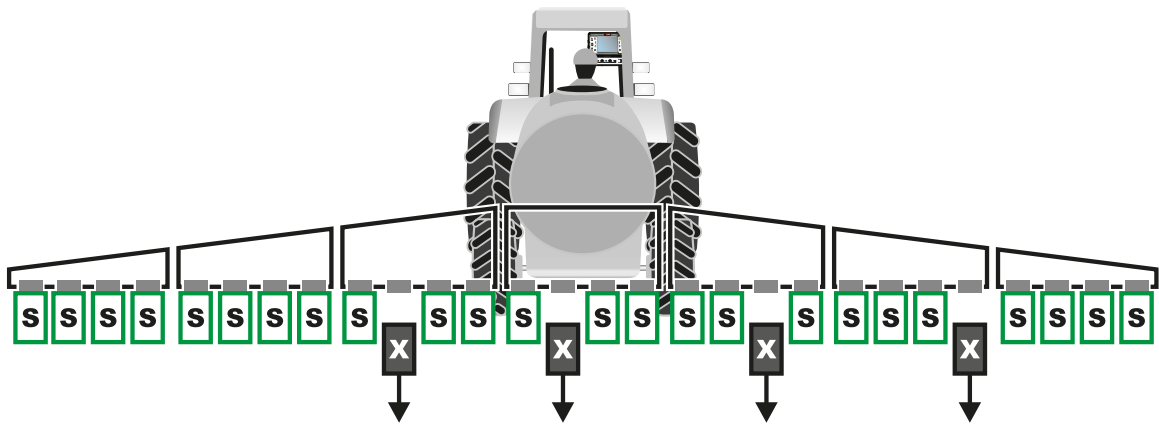
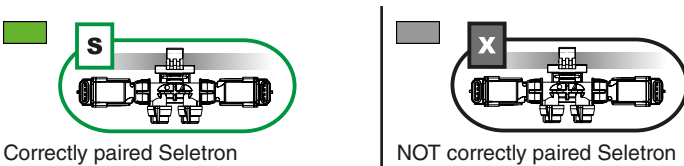



Fig. 93



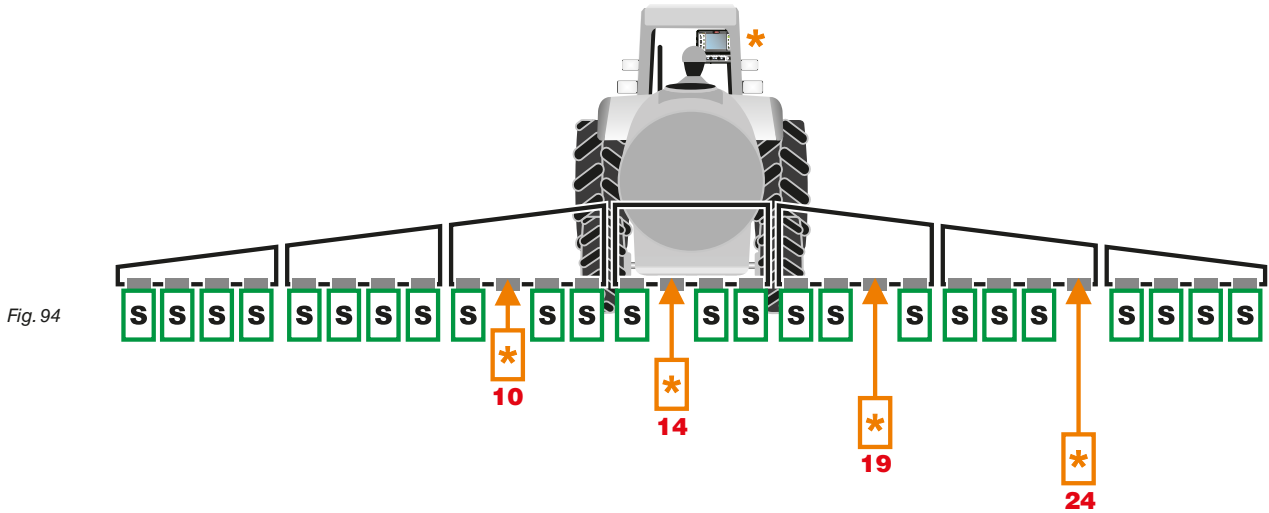
- ONLY DISCONNECT THE SELETRON DEVICES THAT WERE NOT CORRECTLY PAIRED (  Fig. 93).

Connect the new Seletron devices: \* Fig. 94, IN A SEQUENCE FROM LEFT TO RIGHT (when looking at the boom from behind).

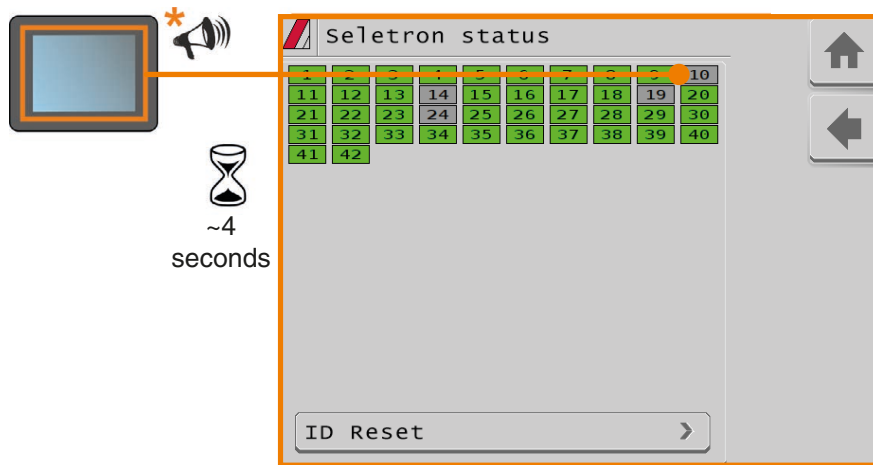
 AFTER CONNECTING THE SELETRON, WAIT FOR APPROX. 4 SECONDS, THE MONITOR MAKES AN ACOUSTIC SIGNAL AND DISPLAYS THE GREEN SYMBOL OF THE CONNECTED SELETRON. **ONLY NOW** is it possible to proceed with the installation of the following Seletron.

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.



**SELETRON CONNECTION SEQUENCE: 10, 14, 19 AND 24.**



14 USE

14.1 "HOME" main screen

MENU SELECTION BUTTONS

**A** Change spray rate (*par. 15.1*)  
**F** Data and settings (*chap. 12*)  
**G** Displays job information / alarms (*par. 15.2*)  
**H** Automatic functions (*par. 15.3*)  
**I** Tank filling management (*par. 15.4*)  
**J** Main control ON ON / OFF (*par. 15.5*)

OP selection page  
 VT "Home" screen

DISPLAY ITEMS

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

Enabled alarm (*par. 15.3*)

Speed

Speed range end-value

Boom width (*par. 11.1*)

Job datum - LEFT side

Spraying boom (*par. 15.5*)

Instant output

Target spray rate

ON/OFF Auxiliary Input (*par. 11.11*)

Automatic nozzle selection ON/OFF (*par. 15.3.3*)

ON/OFF Automatic adjustment (*par. 15.3.1*)

**Task Controller function status (*par. 11.11*):**  
 Check of ON / OFF job counters  
 ON/OFF section automatic management  
 ON/OFF variable application

Pressure

Pressure range end-value


Job preset / used nozzle (*par. 12.1*)

Tank level (text and graphic), alternated with range on surface

Job datum - RIGHT side

15 JOB FUNCTIONS

15.1 Output temporary increase and decrease - Change target rate

From "Home" screen, press .

Change the spray rate value for the job.

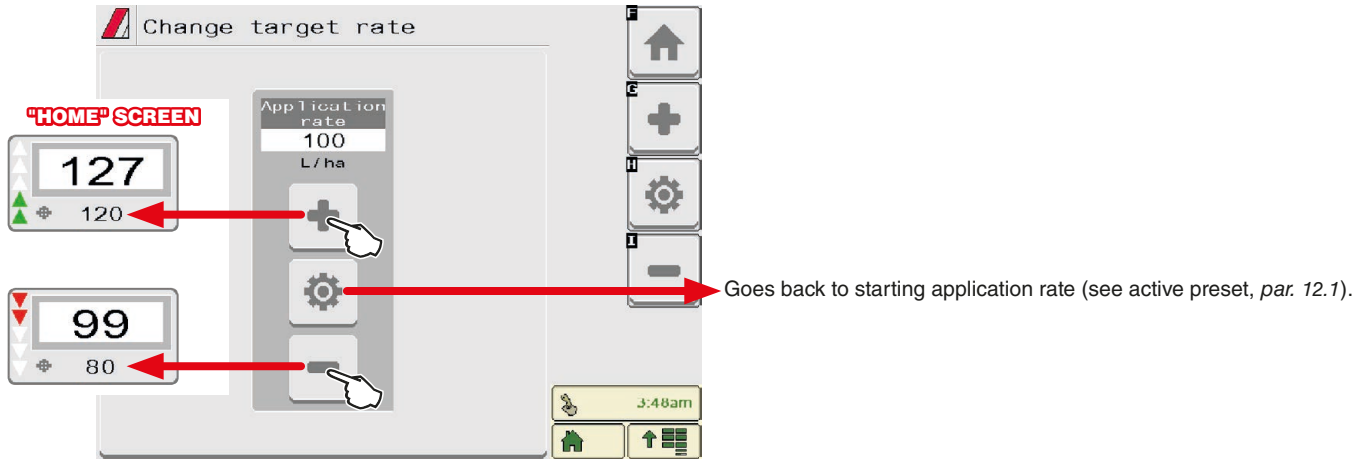



Fig. 95

15.2 Alarms

From "Home" screen, press .

This screen summarizes the alarm notifications active for the operators or the just-solved alarms.

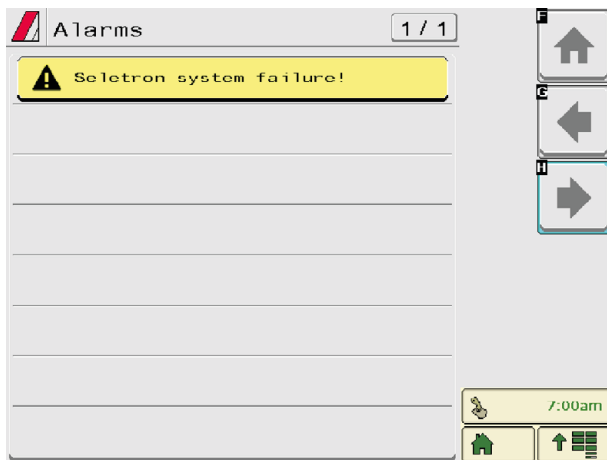












Fig. 96

 For the procedure to be followed when an alarm occurs, please refer to par. 16.3.

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

15.3 Automatic functions

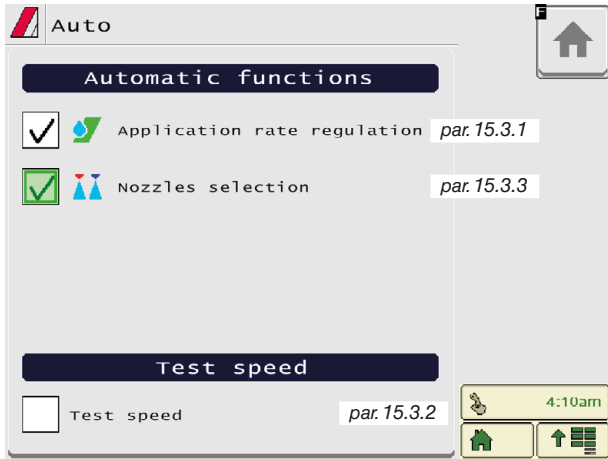


Fig. 97

From "Home" screen, press

15.3.1 Application rate regulation

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

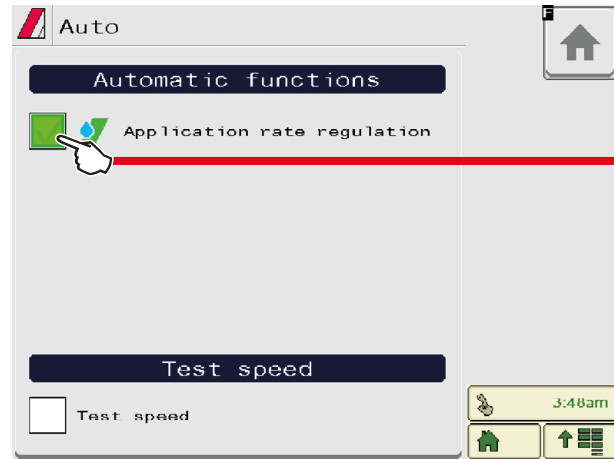
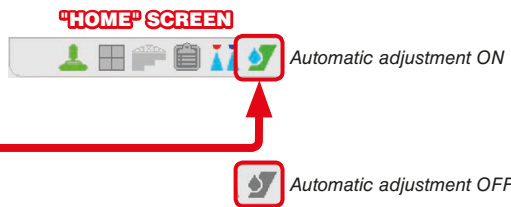


Fig. 98



**AUTOMATIC ADJUSTMENT ON**  
 The VT keeps the set application rate constant regardless of the changes in speed and boom section status.  
 In this case the spray rate can be set with the proper functions **Manage presets** (par. 72.1) - **Change target rate** (par. 15.1), or by uploading a prescription map from TC.

If necessary, during spraying, it is possible to operate the output control (Auxiliary Input) to adjust output to crop conditions, increasing or decreasing momentarily the application rate up to  $\pm 50\%$ .

**AUTOMATIC ADJUSTMENT OFF (MANUAL)**  
 Rate manual regulation shall be carried out using the proper control (Auxiliary Input).

15.3.2 Test speed

Allows enabling / disabling speed simulation (DEFAULT: OFF).

The simulation allows carrying out regulation tests with stopped machine (default presetting at 6 km/h - 3.7 MPH).

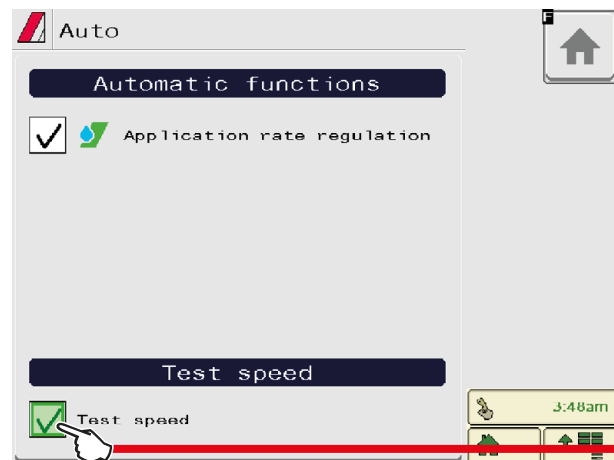
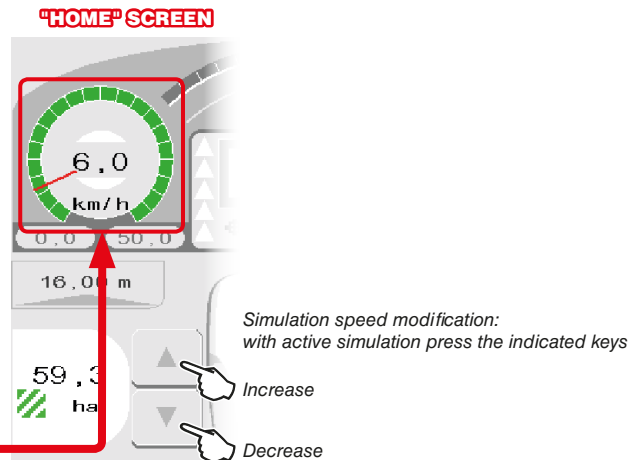


Fig. 99



	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

15.3.3 Nozzles selection

Enables / disables automatic nozzle selection on all spraying points (DEFAULT: ON).

**AUTOMATIC NOZZLE SELECTION**

Upon spraying starting (main control set to ON), the VT automatically checks the flowrates: if the required conditions are not met, the VT will signal it through the screen shown in Fig. 102.

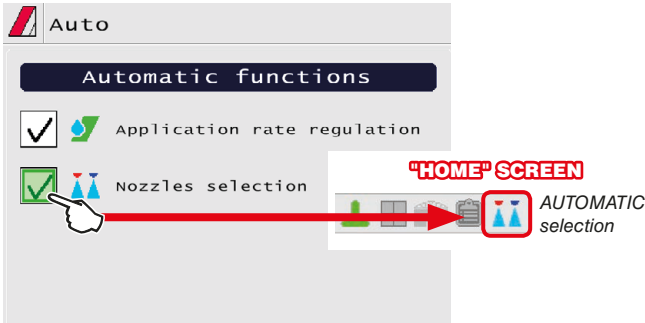


Fig. 100

**MANUAL NOZZLE SELECTION**

Allows to select manually nozzles in use on the spraying points. The number of nozzles displayed will vary according to the spraying point setting (chap. 10). Press the button next to the nozzle to enable or disable the corresponding nozzle.

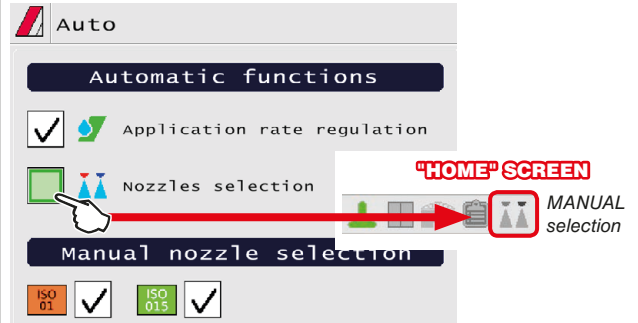


Fig. 101

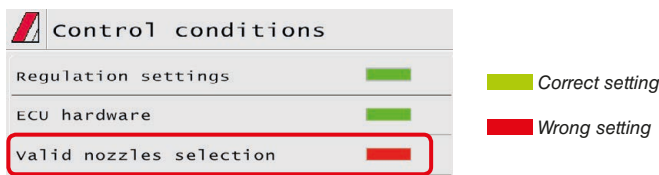


Fig. 102

**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 VT (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.

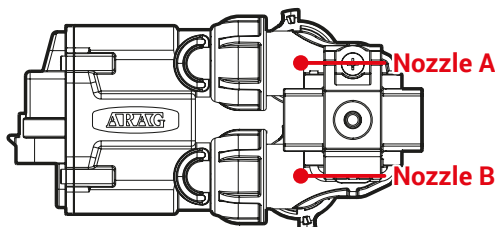


Fig. 103

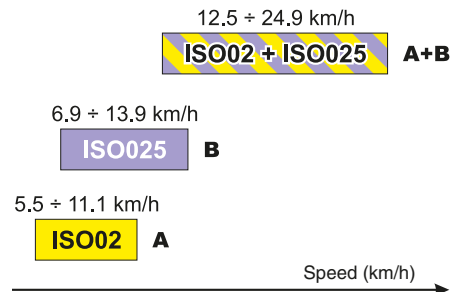


Fig. 104

- According to the set data and those detected by the sensors, the monitor will select the suitable nozzle configuration, constantly checking that:
- spraying pressure remains within the range selected for each single nozzle at all times
  - if more than one nozzle configuration is possible, the configuration where working pressure is as close as possible to the working range of the nozzle is selected
  - nozzle replacement is significantly reduced

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

For example:

• **Compatible nozzles:** the rate at 1 bar of the ISO025 nozzle is LOWER than the rate at 5 bars of the ISO02 nozzle (Fig. 105).

• **NON compatible nozzles:** the rate at 1 bar of the ISO05 nozzle is HIGHER than the rate at 5 bars of the ISO02 nozzle (Fig. 106).

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.

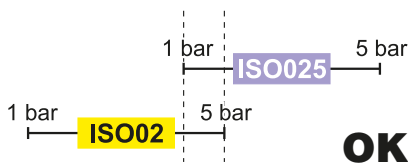


Fig. 105

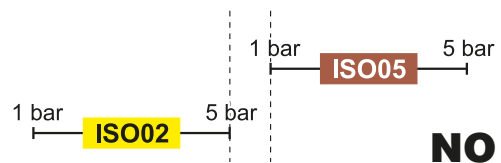


Fig. 106

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

15.4 Tank

Manages tank filling. The management mode will change according to the device set for the tank level reading (chap. 10).

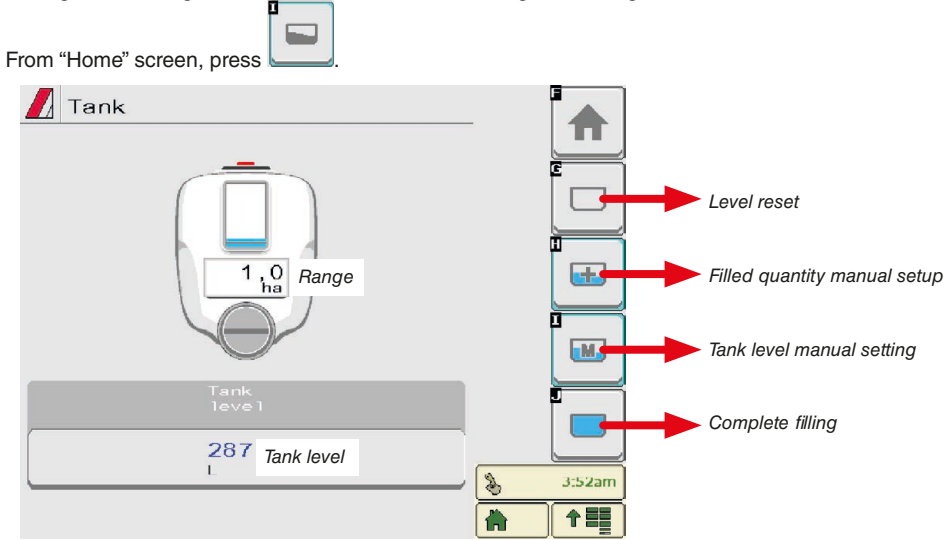


Fig. 107

•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 to enable several manual procedures:

- Level reset.
- Filled quantity manual setup.
- Tank level manual setting.
- Complete filling, according to the tank capacity.

LEVEL RESET

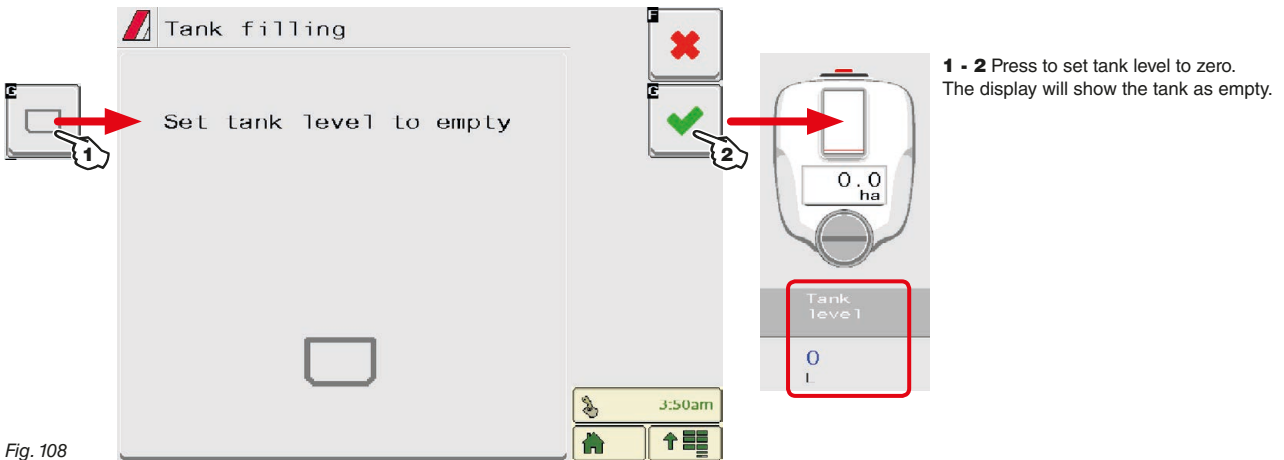


Fig. 108

FILLED QUANTITY MANUAL SETUP

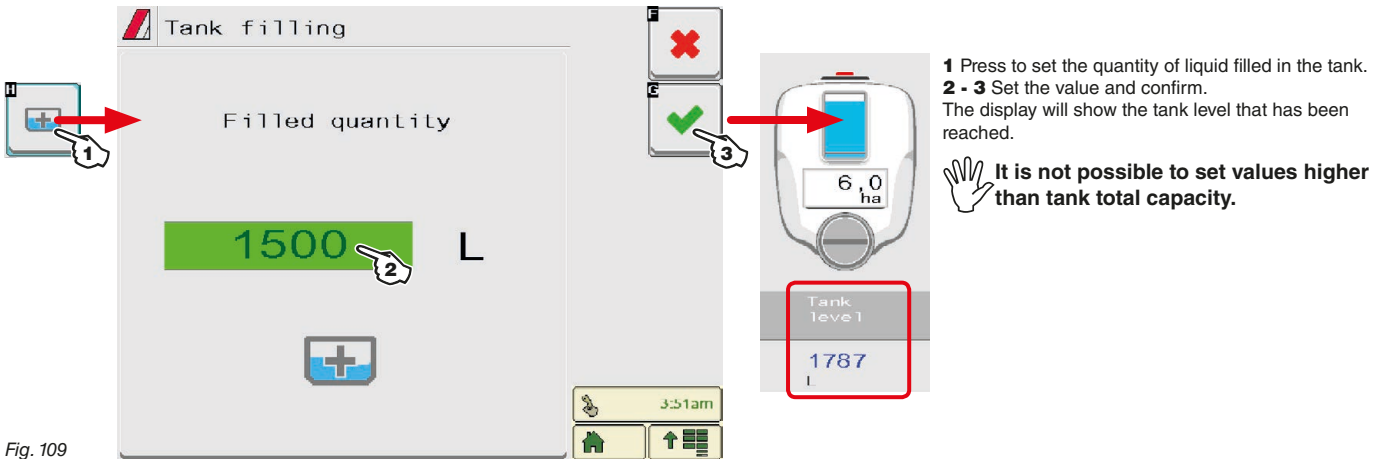


Fig. 109

CONTINUES



TANK LEVEL MANUAL SETTING

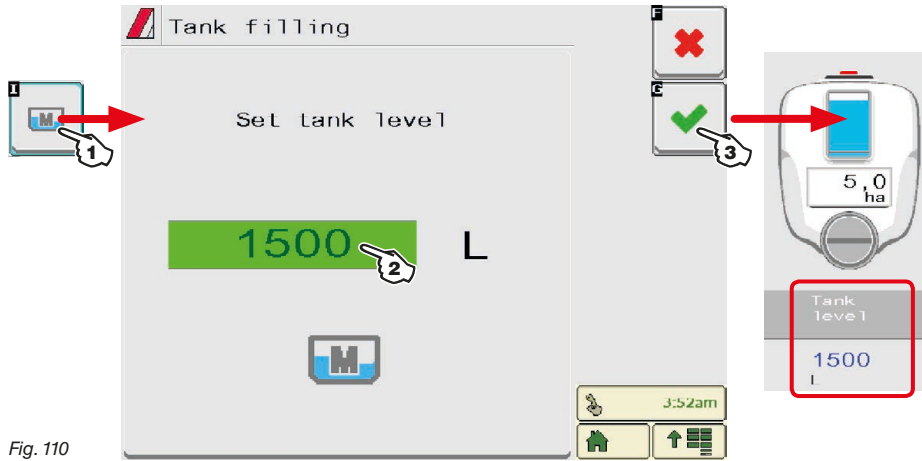


Fig. 110

**1** Press to set the quantity of liquid present in the tank.  
**2 - 3** 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.**

TANK FILLING

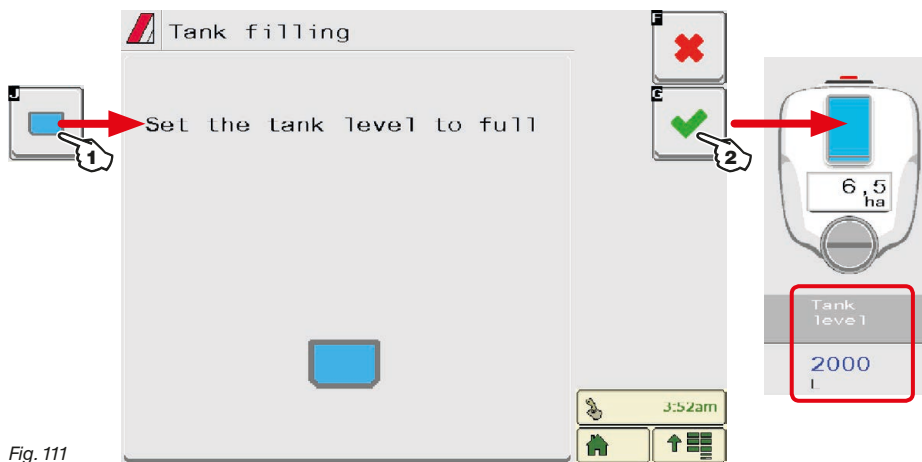


Fig. 111

**1 - 2** Press 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. 11.8).

	Goes back to Main screen		Goes back to previous menu, or scrolls the pages of a menu (previous page)		Quits without confirming the changes		Delete
	Saves the changes to current page		Scrolls the pages of a menu (next page)		Saves the changes		Quit
							Confirm

15.5 Main control and section management

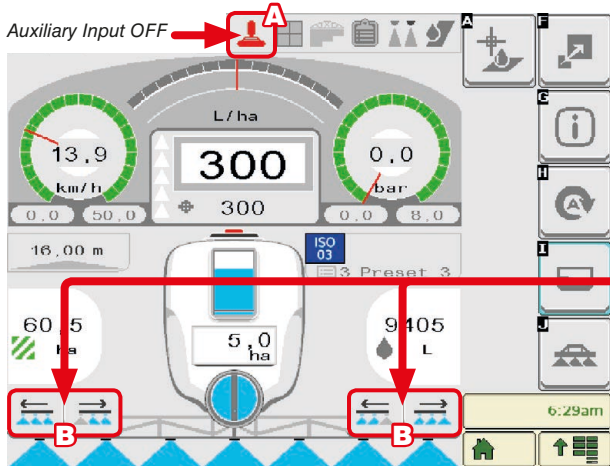
15.5.1 Controls WITH Auxiliary Input

Refer to the user's manual supplied with the device.



The ARAG Auxiliary Input command system is not compulsory on all systems, therefore it must be ordered separately. Some VT allow commanding the section valves directly from the touch screen.

15.5.2 Controls WITHOUT Auxiliary Input

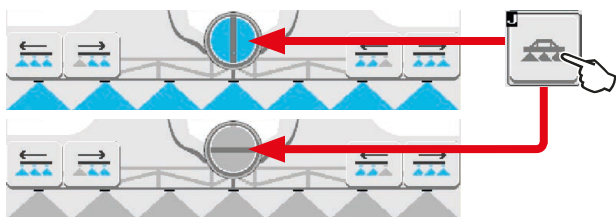


If no Auxiliary Input is present (indication **A**), the valves are controlled (control unit and/or hydraulic valves) directly through the monitor touch-screen panel (keys **B**).

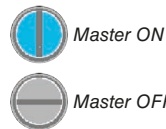
To display the necessary controls on the touch-screen panel, the desired auxiliary control must nevertheless be set (par. 11.11).

Arag "Seq." switches
Arag "Direct" switches
Arag "Direct" switches + hyd
Arag "Seq." switches
Arag "Seq." switches + hyd
Arag joystick
User "Direct" switches
User "Direct" switches + hyd
User "Seq." switches
User "Seq." switches + hyd
User joystick

MAIN CONTROL FROM TOUCH-SCREEN PANEL

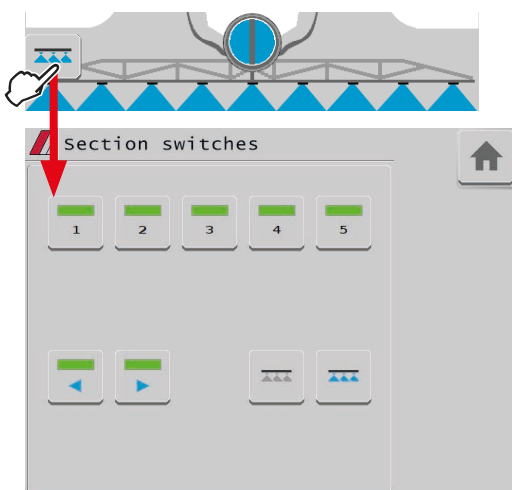


Press to enable or disable the main command.

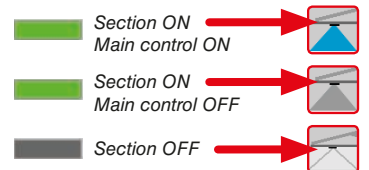
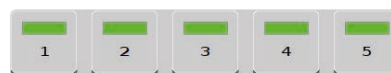


COMMANDS TO SECTION VALVES FROM TOUCH-SCREEN PANEL

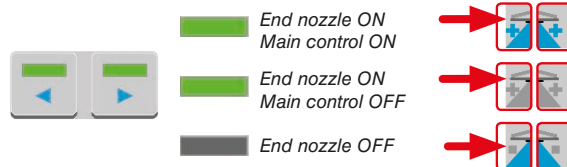
Press button to display the **Section switches** page



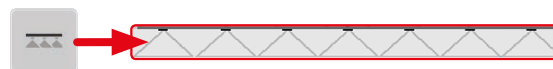
- Press to open/close the relevant section



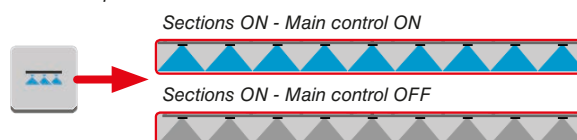
- Press to open/close the relevant end nozzle



- Press to close all boom sections

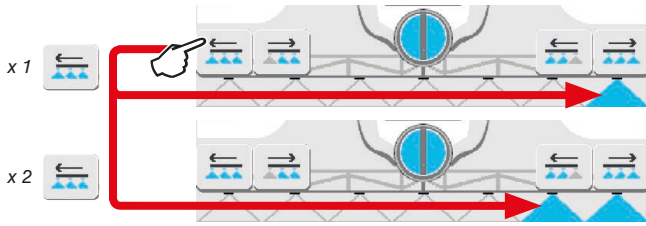


- Press to open all boom sections

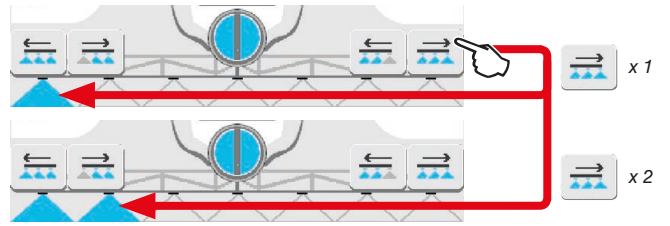


**SECTION SEQUENTIAL CONTROL FROM TOUCH-SCREEN PANEL**

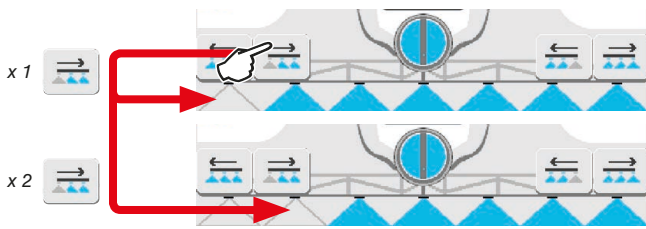
Press to open the sections to the left, starting from the first available on the right.



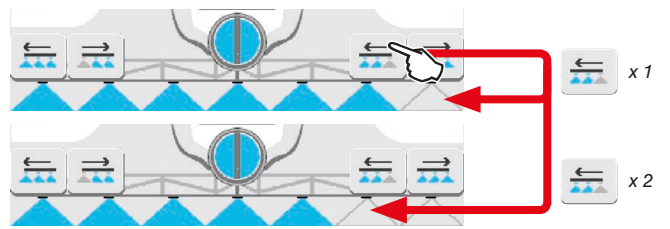
Press to open the sections to the right, starting from the first available on the left.



Press to close the sections to the right, starting from the first available on the left.

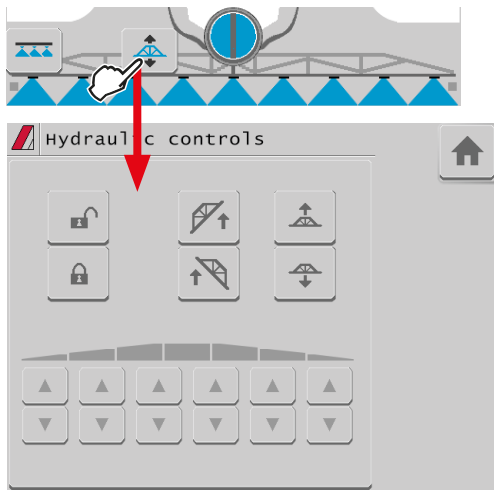










Press to close the sections to the left, starting from the first available on the right.



**HYDRAULIC CONTROLS FROM TOUCH-SCREEN PANEL**

Press button to display the **Hydraulic controls** page



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

15.6 End nozzles - FOR SYSTEMS WITH SELETRON, ONLY

**"BUFFER ZONE" FUNCTION ENABLED**

Some spraying jobs provide for zones called "Buffer zone", where spraying must be reduced or shut off. Further to the nozzles usually used, it is necessary to install special nozzles (e.g.: ASJ AOC), able to reduce the spray or drift, as terminal nozzles on boom. The connection procedure of "Buffer" nozzles is as follows:  
 Left "Buffer" nozzle (boom view from behind), 1st boom nozzle, 2nd boom nozzle, ---> Boom nozzle no., Right "Buffer" nozzle (boom view from behind).

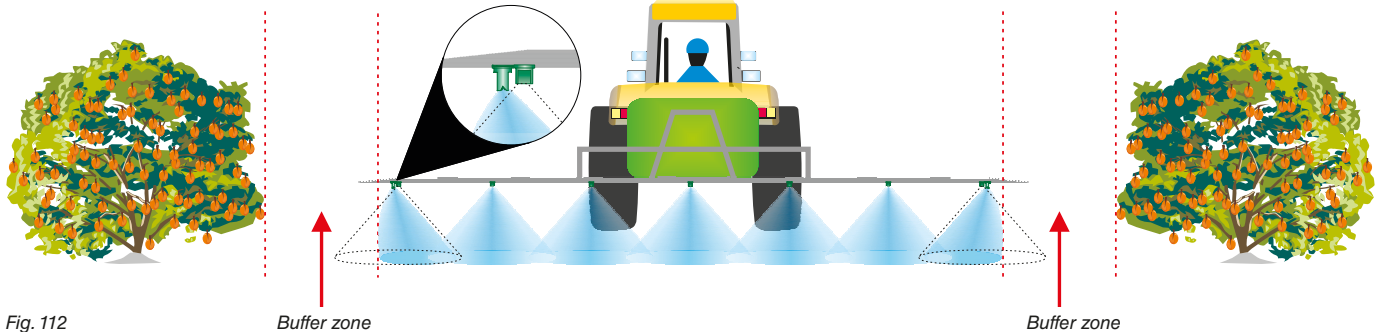
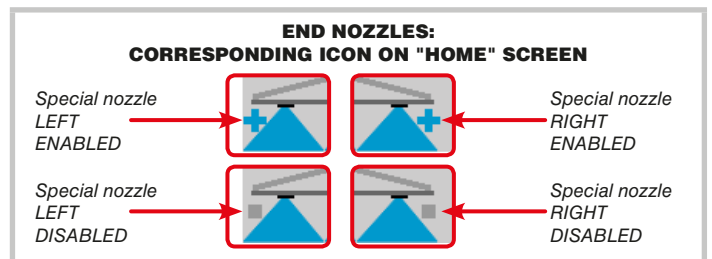


Fig. 112

If this function is enabled under implement basic settings (chap. 10) it is possible to alternatively select standard or special nozzles. Nozzle selection modes are variable (they vary based on the Auxiliary Input connected to the VT). Following are some examples.



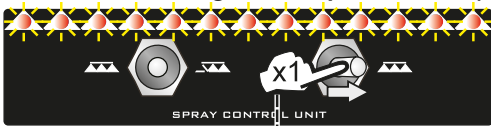
**EXAMPLE OF NOZZLE SELECTION WITH SWITCH PANEL**

• Activation of the left-hand special nozzle (when looking at the boom from behind)



Press switch once to the left to activate the left-hand nozzle for "Buffer zone" and close the standard nozzle. The LH LED blinks.

• Activation of the right-hand special nozzle (when looking at the boom from behind)



Press switch once to the right to activate the right-hand nozzle for "Buffer zone" and close the standard nozzle. The RH LED blinks.

• Deactivation of the left-hand special nozzle (when looking at the boom from behind)



Press switch once to the right to deactivate the left-hand nozzle for "Buffer zone" and open the standard nozzle. The LH LED stops blinking and will stay on steadily.

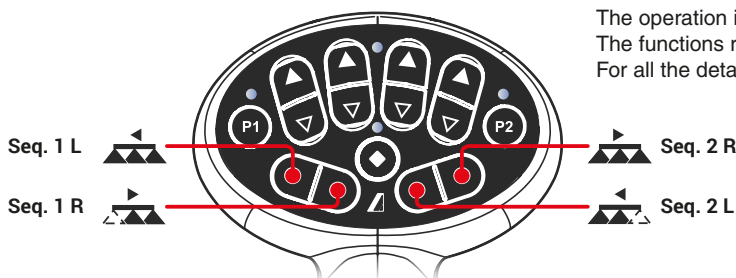
• Deactivation of the right-hand special nozzle (when looking at the boom from behind)



Press switch once to the left to deactivate the right-hand nozzle for "Buffer zone" and open the standard nozzle. The RH LED stops blinking and will stay on steadily.

**EXAMPLE OF NOZZLE SELECTION WITH JOYSTICK**

The operation is similar to the one of the sequential switch panel just described. The functions related to the activation of nozzles are in the "Main" page. For all the details about use, refer to the instructions supplied with the joystick.



**"FENCE NOZZLE" FUNCTION ENABLED**

This function provides for the installation of specific nozzles at the end of the boom, which allow spraying of areas that traditional nozzles cannot reach because of the boom dimensions (e.g. Fences). The activation does not interrupt the supply of the other boom nozzles. The procedure for connection as well as detection of Seletrons and "Fence" nozzles is carried out as follows: first connect all the boom nozzles, then the left "Fence" nozzle and the right "Fence" nozzle. By setting reference pressure and flowrate for the "Fence" nozzle, it is possible to check the supply of all the nozzles according to the set application rate. The spraying range of the "Fence" nozzle is not included in the calculation of the applied area.

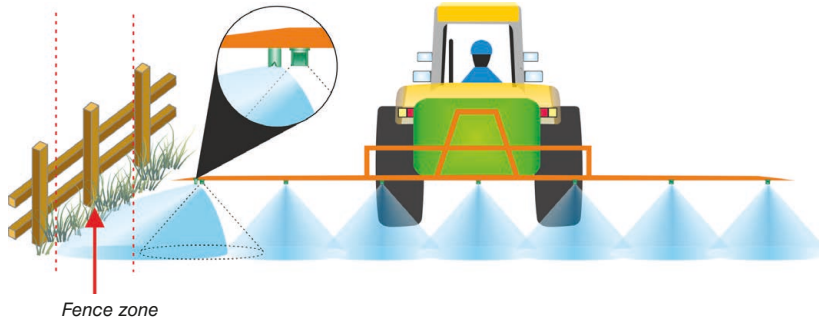
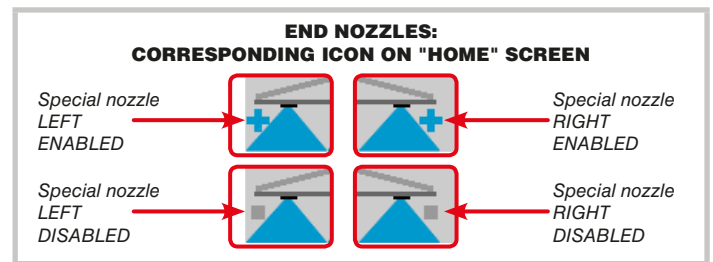


Fig. 113

Fence zone

If this function is enabled under implement basic settings (*chap. 10*) it is possible to select standard or special nozzles: the activation of "Fence" nozzles does not interrupt the supply of the other boom nozzles. Nozzle selection modes are variable (they vary based on the Auxiliary Input connected to the VT). Following are some examples.



**EXAMPLE OF NOZZLE SELECTION WITH SWITCH PANEL**

- Activation of the left-hand special nozzle (when looking at the boom from behind)



Press switch once to the left, the left "Fence" nozzle activates. The LH LED blinks.

- Activation of the right-hand special nozzle (when looking at the boom from behind)



Press switch once to the right, the right "Fence" nozzle activates. The RH LED blinks.

- Deactivation of the left-hand special nozzle (when looking at the boom from behind)



Press switch once to the right, the left "Fence" nozzle deactivates. The LH LED stops blinking and will stay on steadily.

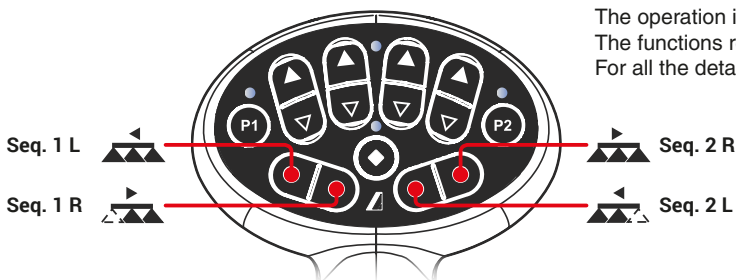
- Deactivation of the right-hand special nozzle (when looking at the boom from behind)



Press switch once to the left, the right "Fence" nozzle deactivates. The RH LED stops blinking and will stay on steadily.

**EXAMPLE OF NOZZLE SELECTION WITH JOYSTICK**

The operation is similar to the one of the sequential switch panel just described. The functions related to the activation of nozzles are in the "Main" page. For all the details about use refer to the instructions supplied with the joystick.



**16 MAINTENANCE / DIAGNOSTICS / REPAIRS**

**16.1 Cleaning rules**

- Clean only with a soft wet cloth.
- DO NOT use aggressive detergents or products.
- DO NOT aim water jets directly at the control unit cleaning.

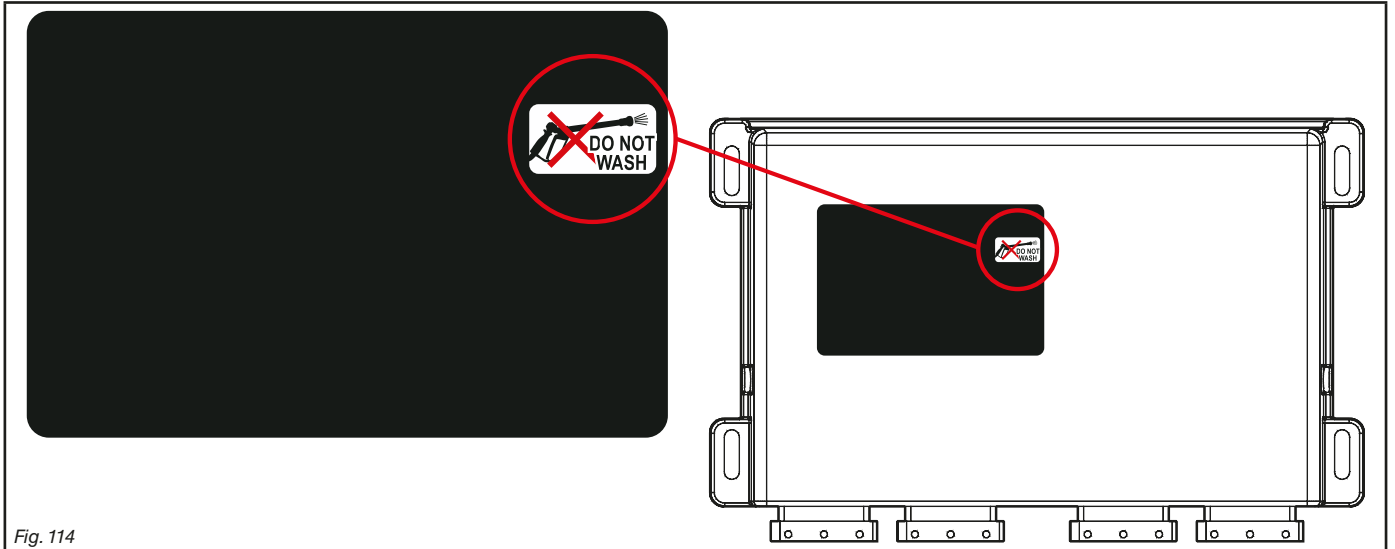
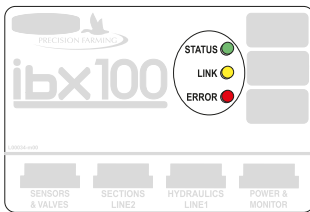


Fig. 114

**16.2 Key to LED status**



COLORE	
STATUS	● verde
LINK	● giallo
ERROR	● rosso

- **consistent flashing** = constant flashing
- **periodical flashing** = set of several flashes separated by a pause

**Switch on** Upon start, the control unit switches the LEDs on in the following sequence:  
**1 green LED - 2 yellow LED - 3 red LED**  
 Sequence overall duration: 2 seconds

**STATUS** ●

- **off**: unit not powered
- **steady on**: control unit powered, software not present or serious error
- **1 periodical blink**: control unit initialization
- **2 periodical blinks**: the control unit has been correctly initialized and is waiting for connection with Virtual Terminal and loading of Object Pool
- **3 periodical blinks**: ERROR - OP loading on VT failed
- **4 periodical blinks**: SEVERE ERROR - internal flash drive formatting in progress
- **consistent blinks**: control unit operating

**LINK** ●

- **steady on**: CAN-Bus communication operating properly
- **1 periodical blink**: error on CAN ISOBUS line
- **2 periodical blinks**: error on CAN LINE 1 (Seletron)
- **3 periodical blinks**: error on CAN LINE 2 (Seletron)

**ERROR** ●

- **off**: no error
- **1 periodical blink**: high temperature
- **2 periodical blinks**: power voltage out of range
- **3 periodical blinks**: short-circuit or high power input on BUS 1 (LINE 1)
- **4 periodical blinks**: short-circuit or high power input on BUS 2 (LINE 2)
- **5 periodical blinks**: short-circuit or high power input on hydraulic circuit
- **6 periodical blinks**: short-circuit or high power input on control valves
- **7 periodical blinks**: short-circuit or high power input on section valves
- **8 periodical blinks**: analog sensor connection fault



16.3 Error messages

MESSAGE ON DISPLAY	CAUSE	REMEDY	JOB MODE
Disable main valve switch	Main switch ON upon switching on	• Disable the main control (OFF).	--
Drive! Machine stationary	Main control ON with machine stopped.	• Start the machine. • Disable the main control (OFF).	Master ON + Automatic adjustment ON 
Hyd-ECU not detected!	Communication problems between VT and hydraulic control unit (Hyd-ECU).	• Check condition of connection cables (and connectors).	--
	The cables are damaged.	• Replace the cable.	--
Activate pump! Missing flowrate	Main control ON but rate at zero.	• Start the pump and move the machine.	Master ON + Automatic adjustment ON 
Minimum tank level reached!	Tank level is lower than the set reserve value.	• Fill the tank	Master ON
	Minimum value was not set correctly.	• Check set reserve value.	
Maximum tank level reached!	Tank level reached set maximum value.	• Stop filling the tank.	--
Low pressure! Regulation stopped	Pressure does not reach set value.	• Increase driving speed.	Master ON + Automatic adjustment ON 
	Limit was not set correctly.	• Check set limit.	
Decelerate! High pressure	The pressure exceeds the maximum level allowed for the nozzle being used.	• Decrease driving speed. • Adjust the operating pressure so as to respect the previously set limits for nozzles in use. • Check set maximum pressure for nozzles in use.	Master ON
Accelerate! Low pressure	The pressure does not reach the minimum value for the nozzle in use.	• Increase driving speed • Adjust the operating pressure so as to respect the previously set limits for nozzles in use. • Check set minimum pressure for nozzle in use.	Master ON
Flowmeter out of max value Flowmeter out of min value Flowrate out of range (Max) Flowrate out of range (Min)	Rate out of the limits allowed by flowmeter.	• Modify working conditions to suit flowmeter limits (speed, pressure, etc.) • Make sure that flowmeter parameters are set correctly.	Master ON
Decelerate! Too low flowrate	Flowrate does not reach the value requested for output.	• Decrease driving speed. • Make sure that flowmeter parameters are set correctly.	Master ON + Automatic adjustment ON 
Accelerate! Too high flowrate	The flowrate exceeds the value required for output.	• Increase driving speed. • Make sure that settings in the <b>Implement settings</b> menu (boom width, flowmeter, etc.) are set correctly.	Master ON + Automatic adjustment ON 
Reduce rotation speed!	RPM exceeds the maximum set value.	• Decrease the rotation speed of the moving part. • Check the constant set for the rev counter.	--
Increase rotation speed!	RPM does not reach the minimum value.	• Increase the rotation speed of the moving part. • Check the constant set for the rev counter.	Master ON
Nozzle wear check	Difference between measured and calculated flowrate (according to selected nozzle data) higher than set value.	• Check that the set nozzle coincides with the one installed on the boom. • Replace nozzles.	Master ON + Automatic adjustment ON 
Seletron system failure!	One or more spraying points do not respond.	• Identify the unrecognized spraying point. • Check that the corresponding spraying point is connected correctly. • Check condition of harness on the corresponding spraying point.	--
Seletron system error!	Low supply voltage on one or more spraying points.	• Check battery voltage level. • Identify the unrecognized spraying point. • Check condition of harness on the corresponding spraying point.	--



16.4 Troubleshooting

FAULT	CAUSE	REMEDY
Valve controls take no effect	Valves not connected	<ul style="list-style-type: none"> <li>• Connect the IN-CAB cable and the connection cable to the valves.</li> </ul>
One valve does not open	No power supply to valve	<ul style="list-style-type: none"> <li>• Check valve electric connection and operation.</li> </ul>
The display no longer shows the speed	Wrong setup	<ul style="list-style-type: none"> <li>• Check the setup of the wheel constant.</li> </ul>
	No signal coming from the speed sensor	<ul style="list-style-type: none"> <li>• Check connections to speed sensor.</li> </ul>
The displayed speed is not precise	Wrong setup	<ul style="list-style-type: none"> <li>• Check the setup of the wheel constant.</li> </ul>
Output volume readout inaccurate	Wrong setup	<ul style="list-style-type: none"> <li>• Check boom width setting.</li> <li>• Check the setup of the flowmeter constant.</li> <li>• Check the setup of the wheel constant.</li> <li>• Check the setup of the section valve type.</li> <li>• Check connections to speed sensor.</li> </ul>
Sprayed surface displayed does not match actual sprayed surface	Wrong setup	<ul style="list-style-type: none"> <li>• Check boom width setting.</li> <li>• Check the setup of the wheel constant.</li> <li>• Check connections to speed sensor.</li> </ul>
	Covered area count not reset	<ul style="list-style-type: none"> <li>• Reset counter.</li> </ul>
Distance traveled count displayed does not match actual distance covered	Wrong setup	<ul style="list-style-type: none"> <li>• Check the setup of the wheel constant.</li> <li>• Check connections to speed sensor.</li> </ul>
	Distance travelled count not reset	<ul style="list-style-type: none"> <li>• Reset counter.</li> </ul>
Sprayed fluid count displayed does not match litres/gpm actually sprayed	Wrong setup	<ul style="list-style-type: none"> <li>• Check the setup of the flowmeter constant.</li> <li>• Check the setup of the section valve type.</li> </ul>
	Distance travelled count not reset	<ul style="list-style-type: none"> <li>• Reset counter.</li> </ul>
	Three-way section valves in use, but no backflow calibration	<ul style="list-style-type: none"> <li>• Perform calibration.</li> </ul>
Time count displayed does not match actual time worked	Work time count not reset	<ul style="list-style-type: none"> <li>• Reset counter.</li> </ul>
Spray volume set for automatic operation cannot be achieved	Wrong setup	<ul style="list-style-type: none"> <li>• Check spray rate setup.</li> <li>• Check boom width setting.</li> </ul>
	System not adequately sized to provide required rate	<ul style="list-style-type: none"> <li>• Check maximum pressure valve setting.</li> <li>• Make sure control valve is adequate for specific system.</li> </ul>
	Control valve malfunction	<ul style="list-style-type: none"> <li>• Check valve operation.</li> </ul>
Instantaneous pressure readout inaccurate	Wrong setup	<ul style="list-style-type: none"> <li>• Check pressure sensor full scale setting.</li> </ul>
	Pressure sensor not calibrated	<ul style="list-style-type: none"> <li>• Perform calibration.</li> </ul>
	Pressure sensor improperly installed	<ul style="list-style-type: none"> <li>• Check connections to pressure sensor.</li> </ul>
Instantaneous pressure not displayed	Wrong setup	<ul style="list-style-type: none"> <li>• Check pressure sensor setting.</li> </ul>
	IBX100 receives no signals from speed sensor	<ul style="list-style-type: none"> <li>• Check connections to pressure sensor.</li> </ul>
	Pressure sensor improperly installed	<ul style="list-style-type: none"> <li>• Check connections to pressure sensor.</li> </ul>
RPM readout inaccurate	Wrong setup	<ul style="list-style-type: none"> <li>• Check RPM sensor constant setting.</li> </ul>
RPM not displayed	IBX100 receives no signals from RPM sensor	<ul style="list-style-type: none"> <li>• Check connections to RPM sensor.</li> </ul>
	RPM sensor improperly installed	<ul style="list-style-type: none"> <li>• Check connections to RPM sensor.</li> </ul>

## 17 TECHNICAL DATA

DESCRIPTION	IBX100
Power supply	9 ÷ 16 Vdc
Working Temperature	-40 °C ÷ +60 °C -40 °F ÷ +140 °F
Storage temperature	-40 °C ÷ +85 °C -40 °F ÷ +185 °F
Weight (without cables)	1213 g
Digital inputs	For sensors Open collector
Analogue inputs	4-20 mA
Digital outputs (valves)	High active (max 200 mA)
Hydraulic valve power outputs	High active (max 2,5 A)
Seletron line power outputs	High active (max 15 A per line)
Protection against polarity inversion	•
Protection against short-circuit	•
Protection class	IP65

## 18 DISPOSAL AT THE END OF SERVICE

Dispose of the system in compliance with the established legislation in the country of use.

## 19 GUARANTEE TERMS

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

## 20 EU CONFORMITY DECLARATION

The declaration of conformity is available at [www.aragnet.com](http://www.aragnet.com), in the relevant section.

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*Only use original ARAG accessories and spare parts, to maintain safety conditions foreseen by the constructor. Always refer to the ARAG spare parts catalogue.*

D20354\_GB-m01 03/2018



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