



ibx100
SPRAYER ISOBUS



IBX100 ECU CONTROL UNIT

CE

4679004

Object Pool rel. 3.1.X

INSTALLATION, USE AND MAINTENANCE

	= Generic danger
	= Warning
ECU	= IBX100 remote control unit
VT	= Virtual Terminal
OP	= Object Pool
TC	= 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 EMC - 2014/30/EU 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

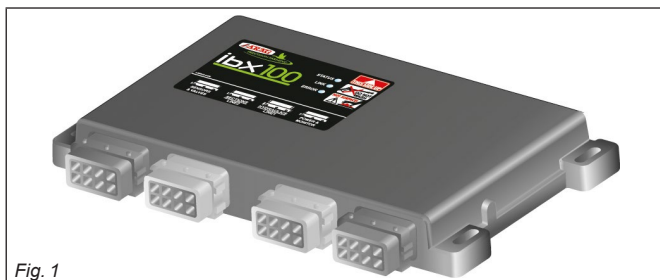


Fig. 1

- 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 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)

**INSTALLATION DIAGRAM
VERSION FOR SELETRON AND HYDRAULIC CONTROLS**

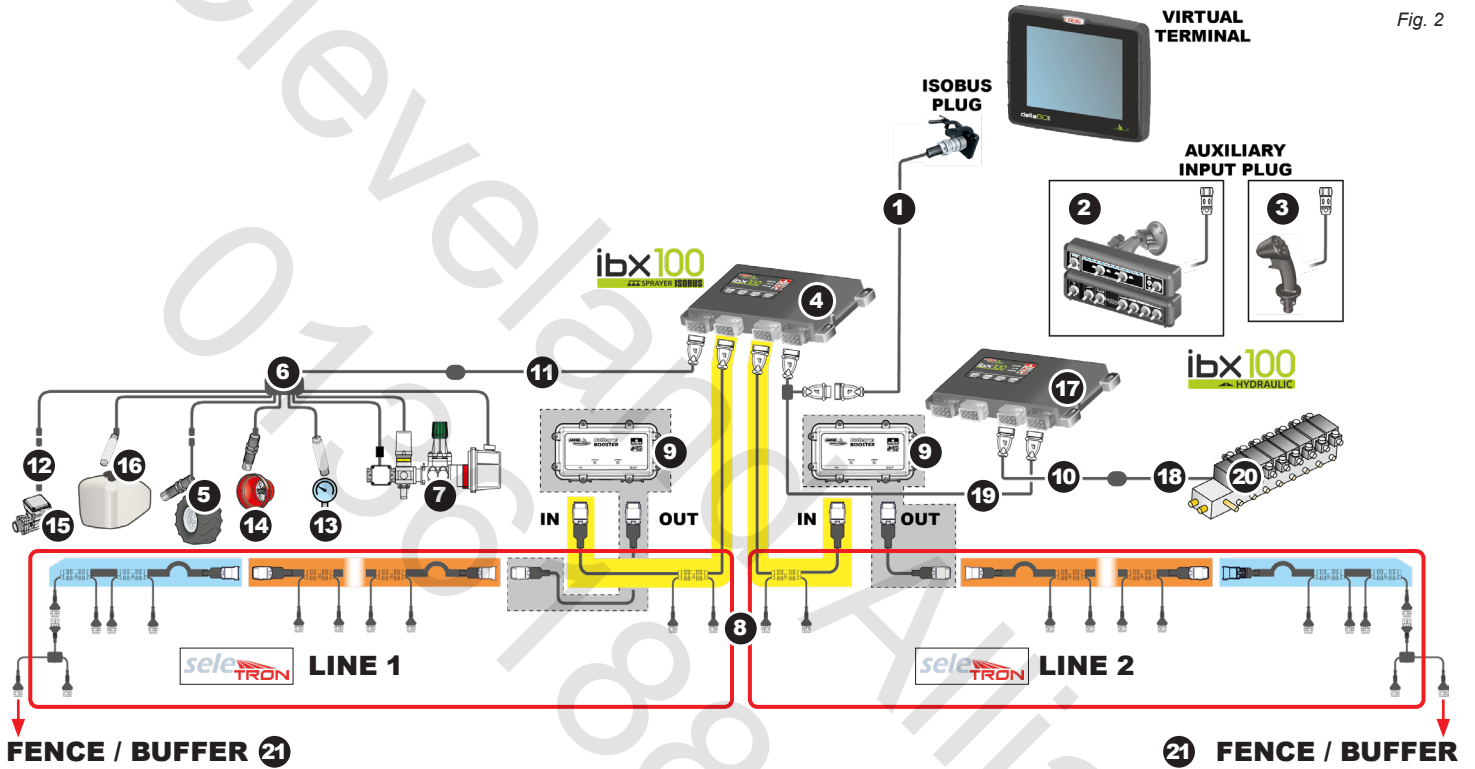


Fig. 2

Legend:

- 1 ISOBUS standard connector (ISOBUS PLUG) - length 3m / 6 m / 10 m / 14 m
- 2 Switch panels with cable - length 0.8 m
- 3 Explorer joystick with cable - length 0.8 m
- 4 IBX100 Sprayer ISOBUS control unit
- 5 Inductive speed sensor with cable - length 5 m
- 6 3m long sensor cable + main valve + regulating valve
- 7 Control unit with flowmeter
- 8 Seletron cables:
 - central cables
 - intermediate cables
 - end cables
- 9 Battery Booster
- 10 Connection cable extension - length 3 m / 6 m
- 11 Connection cable extension - length 3 m / 6 m
- 12 Extension for sensors - length 3 m / 5 m
- 13 Pressure sensor
- 14 RPM sensor
- 15 Filling flowmeter
- 16 Level sensor
- 17 IBX100 Hydraulic ISOBUS control unit
- 18 Connection cable for hydraulic valves 7 / 9 oil functions - length 3 m
- 19 Connection cable for IBX100 control unit (hydraulic function) - length 1 m
- 20 Hydraulic control unit
- 21 Seletron for Fence / Buffer end nozzles

⚠ Without Battery Booster, correct operation cannot be ensured, because the features of the power source to the ISOBUS socket are unknown.

Maximum number of Seletron devices that can be connected with the Battery Booster:

Single / dual Seletron devices: 128

Quadruple Seletron devices: 72

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

**INSTALLATION DIAGRAM
SECTION VALVE VERSION AND HYDRAULIC CONTROLS**

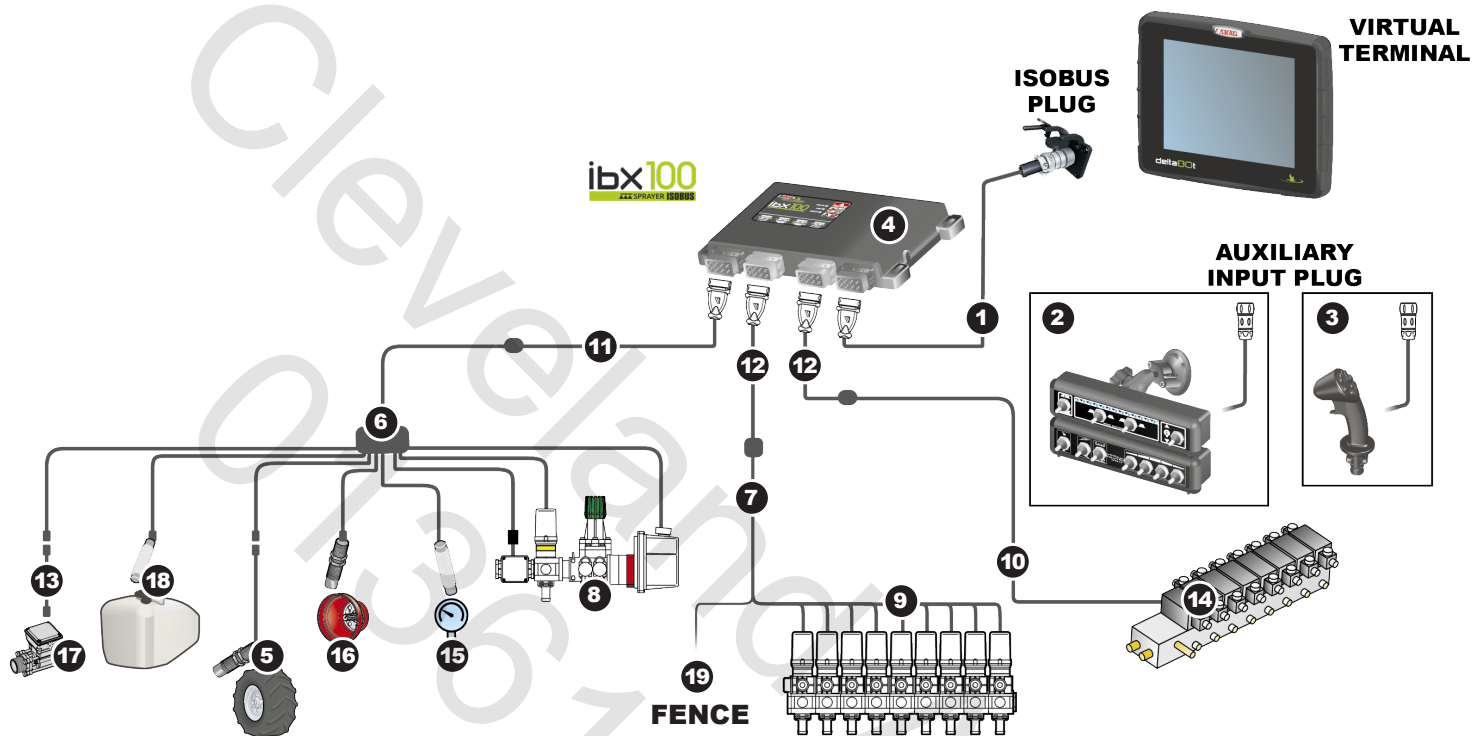


Fig. 3

Legend:

- 1 ISOBUS standard connector (ISOBUS PLUG) - length 3m / 6 m / 10 m / 14 m
- 2 Switch panels with cable - length 0.8 m
- 3 Explorer joystick with cable - length 0.8 m
- 4 IBX100 Sprayer ISOBUS control unit
- 5 Inductive speed sensor with cable - length 5 m
- 6 3m long sensor cable + main valve + regulating valve
- 7 Water valve connection cable - length 3 m
- 8 Control unit with flowmeter
- 9 Control unit (section valves)
- 10 Connection cable for hydraulic valves 7 / 9 oil functions - length 3 m
- 11 Connection cable extension - length 3 m / 6 m
- 12 Connection cable extension - length 3 m / 6 m
- 13 Extension for sensors - length 3 m / 5 m
- 14 Hydraulic control unit
- 15 Pressure sensor
- 16 RPM sensor
- 17 Filling flowmeter
- 18 Level sensor
- 19 Customized Seletron connector for Fence end nozzles

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

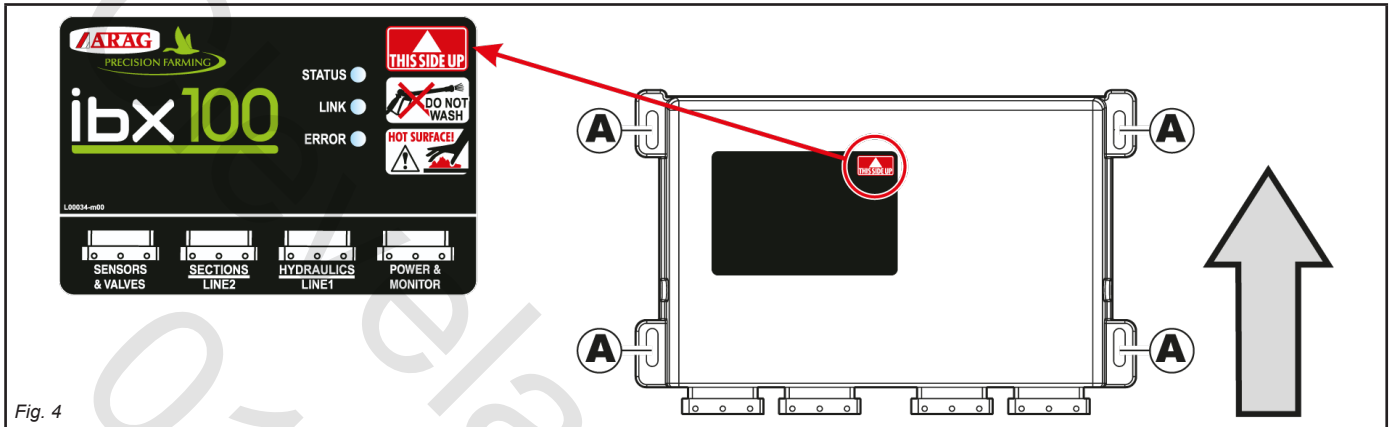


Fig. 4

OVERALL DIMENSIONS

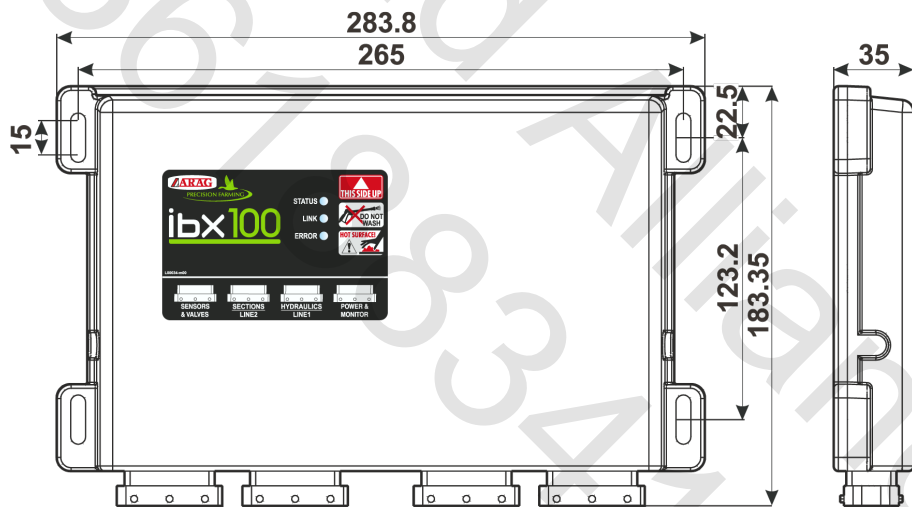


Fig. 5

Unit of measure: mm

5.3 Wiring connections

IBX100 SPRAYER

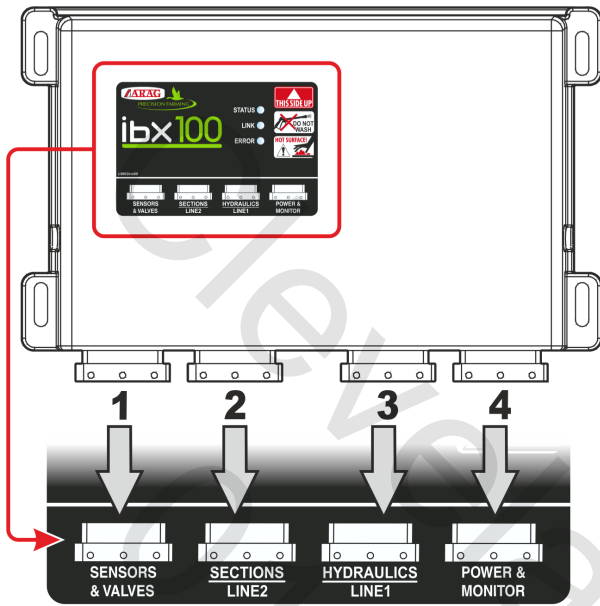


Fig. 6

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

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

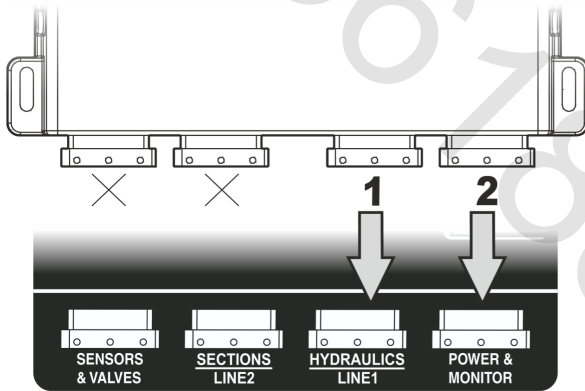


Fig. 7

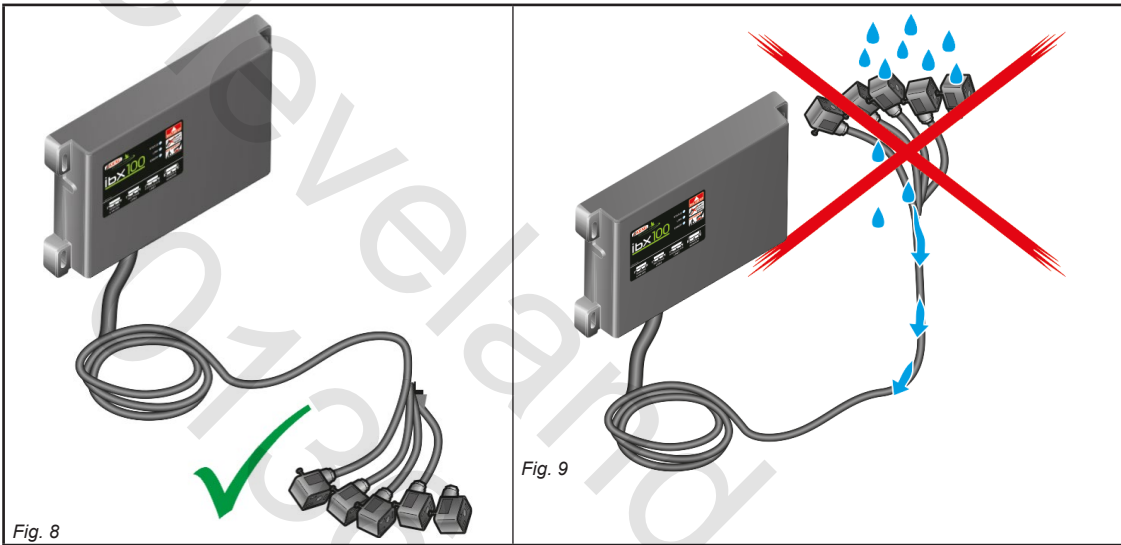
NUM	CONNECTION POINTS
1	Hydraulic unit
2	ECU IBX100 Sprayer

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.

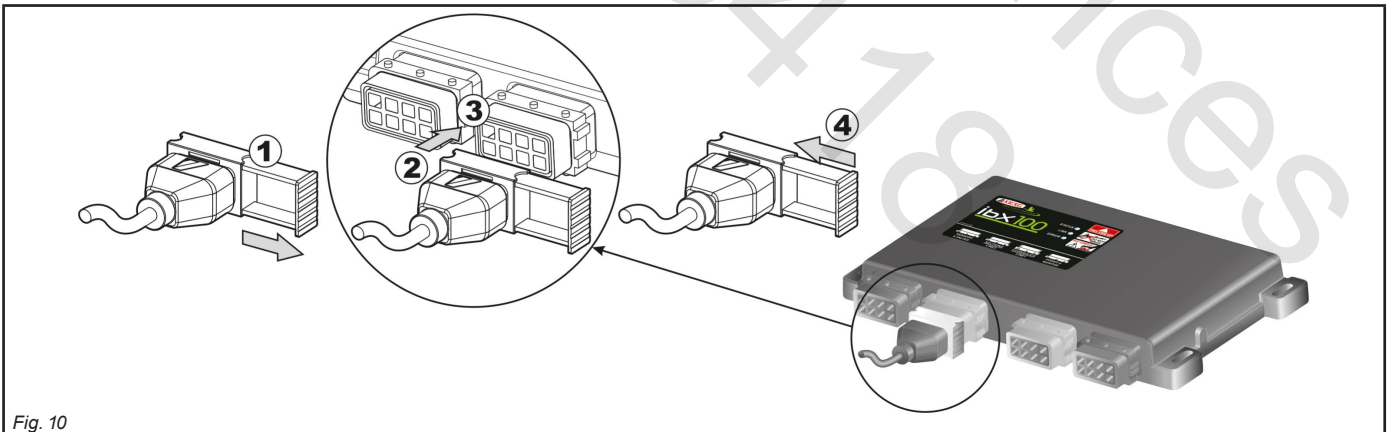
 Use ONLY the cables and accessories indicated in the catalog, having technical features suitable for the use to be made of them.

6.2 Control unit (ECU) connection

 **WARNING: DO NOT CONNECT THE ISOBUS CONNECTOR (Fig. 6 on page 8). 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 44).

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.**

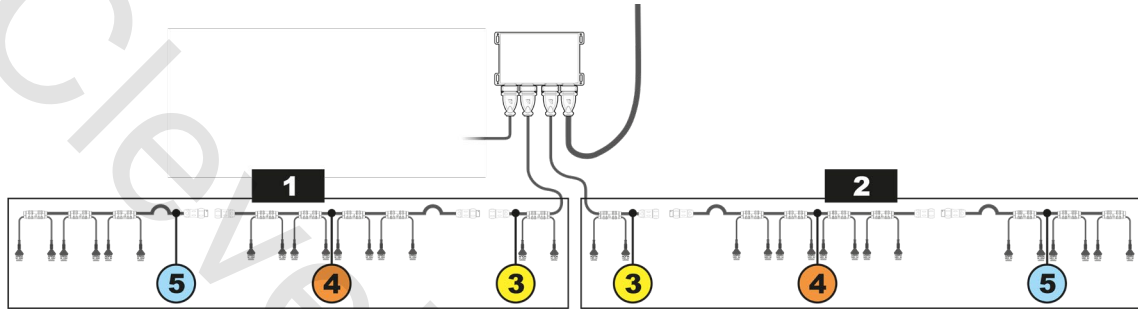


Fig. 11

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.

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.

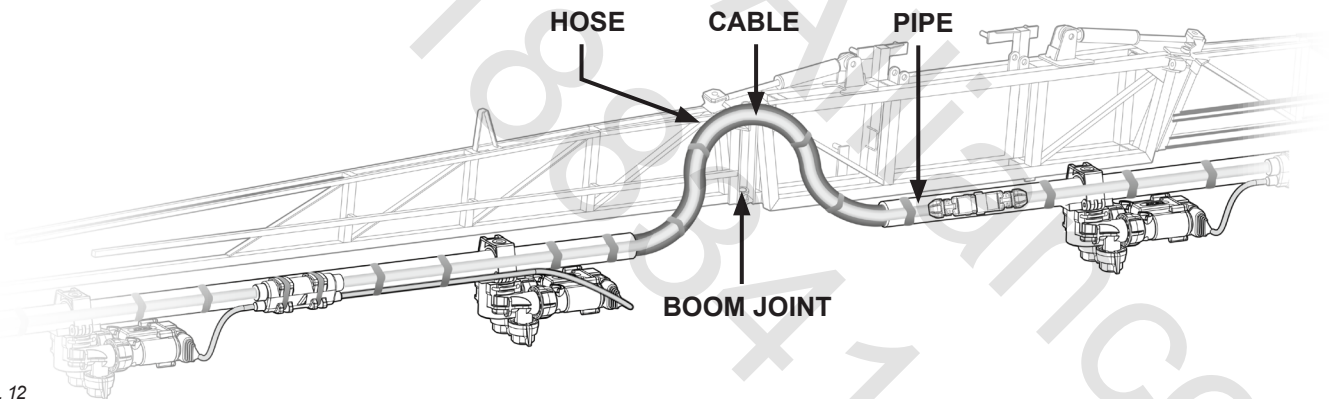


Fig. 12

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.

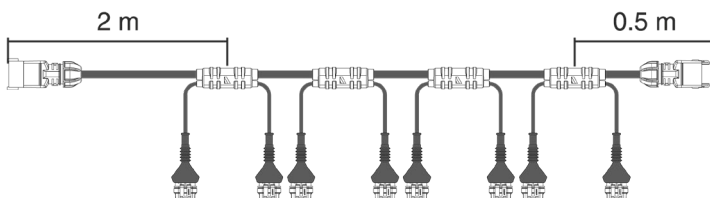


Fig. 13

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.

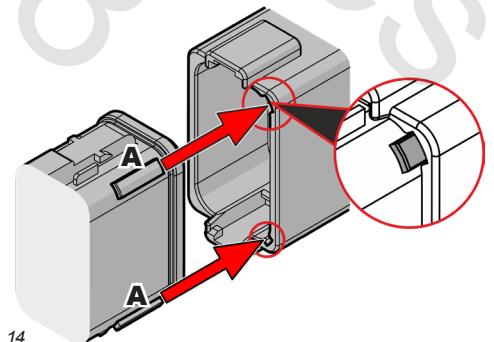


Fig. 14

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

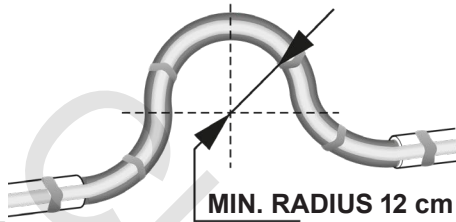
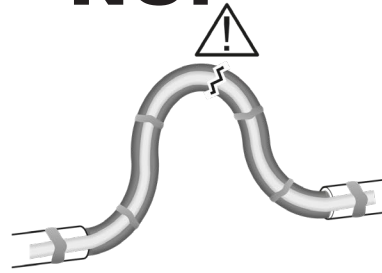


Fig. 15

NO!



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

NO!

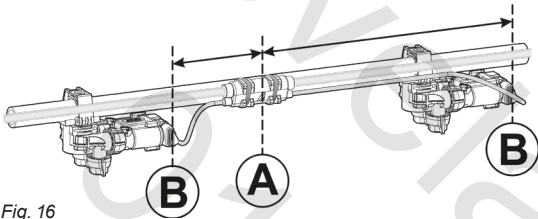
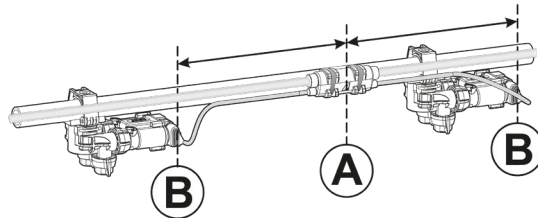


Fig. 16

OK



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

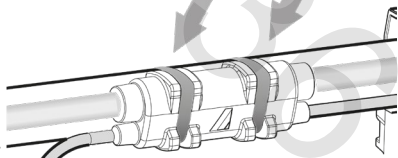


Fig. 17

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

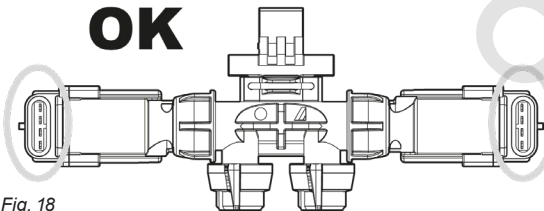
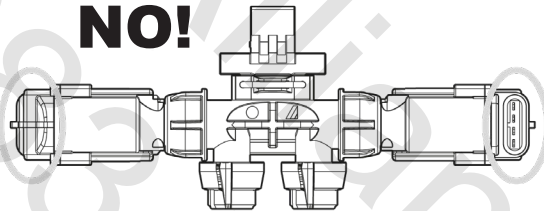


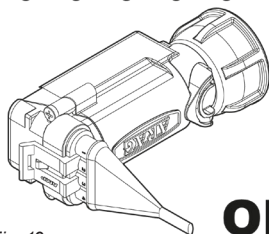
Fig. 18

NO!



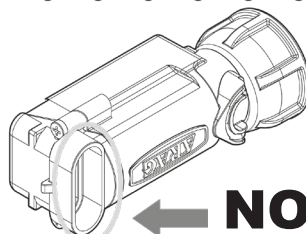
For special needs it is possible to install two nozzles on boom ends that can work instead of the standard outer nozzles.

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.



OK

Fig. 19



NO!

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 44).

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



- 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. 20).
- Make sure the seals are correctly fitted to avoid water infiltration when using the control unit.

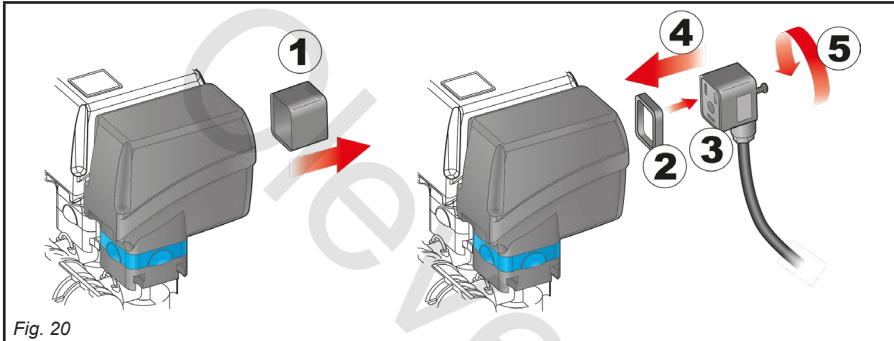


Fig. 20

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. 20) 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.

SECTION VALVES WITH CLASSIC INSTALLATION

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. 21).**

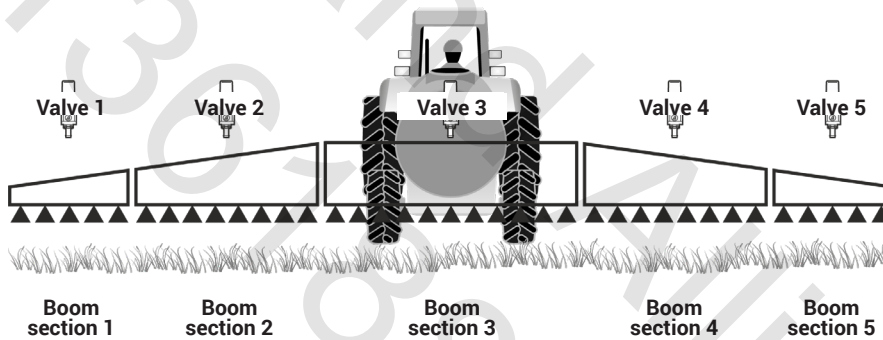


Fig. 21

SECTION VALVES WITH DUAL BOOM

This installation allows piloting 2 booms with different nozzles independently and choosing the nozzle or nozzle combination automatically (A, B, A+B) based on the set pressure and application rate parameters.

The connectors from 1 to 7 must be connected to the section valves of the first nozzle holding boom (A), while those from 8 to 14 must be connected to the section valves of the second boom (B).

For all the booms with a number of sections lower than 7, Fig. 22) the connector 8 must ALWAYS pilot the valve connected to the section 1 of the second boom (B): The boom section 1 is the furthest from the machine on the left, looking at the machine from the rear side

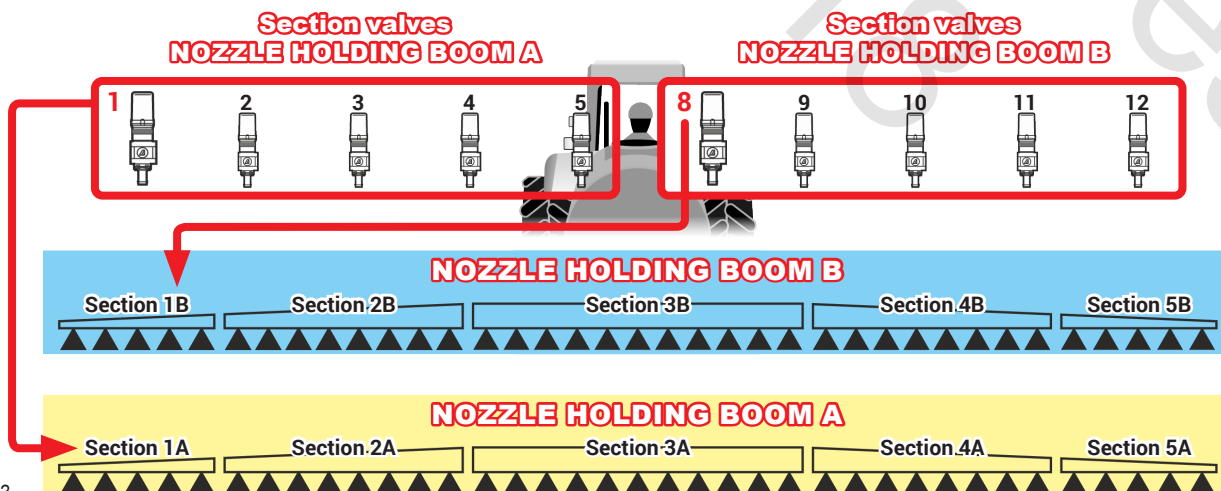


Fig. 22

6.5 FENCE NOZZLE connection - Installation with section valves - Fig. 3

The system allows connecting two Seletron valves to control "Fence" nozzles. Valves must be connected by means of an adapter cable.

6.6 FENCE / BUFFER NOZZLE connection - Installation with Seletron system - Fig. 2

The system allows connecting two additional Seletron valves to control "Fence" or "Buffer" nozzles.

• FENCE NOZZLE:

The Seletron installed must be of the single type, regardless of the devices installed on the rest of the boom.

• BUFFER NOZZLE:

The Seletron and the nozzles installed must be of the same type as the devices installed on the rest of the boom; in particular, end nozzles must be installed in the same positions of the other nozzles and use the same flowrate values.

Connect Seletron nozzle holders to the ends of the boom with the suitable splitter cable (21 Fig. 2), using the last connectors on the right and on the left of the main wiring.

6.7 Hydraulic valve connection

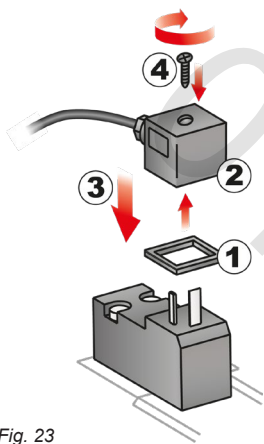


Fig. 23

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
<p>Section movement</p> <p>1 - 2 - 3 - 4 - 5 - 6</p>	Opening	↑	1 ÷ 6 A
	Closing	↓	1 ÷ 6 C
<p>Boom height</p>	Opening	↑	AA
	Closing	↓	AC
<p>Boom lock</p>	Opening	↑	BA
	Closing	↓	BC
<p>Boom leveling</p>	Opening	↑	CA
	Closing	↓	CC

6.8 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
F	Flowmeter
L	Level sensor
M	Pressure sensor
S	Speed sensor
T	Filling flowmeter
X	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. 24



Fig. 25

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. 26

7.1 In-cab cable connection

Use the cable provided with the Auxiliary Input* package.

Connection: fit the (**in-cab connection** connectors in Fig. 26), 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

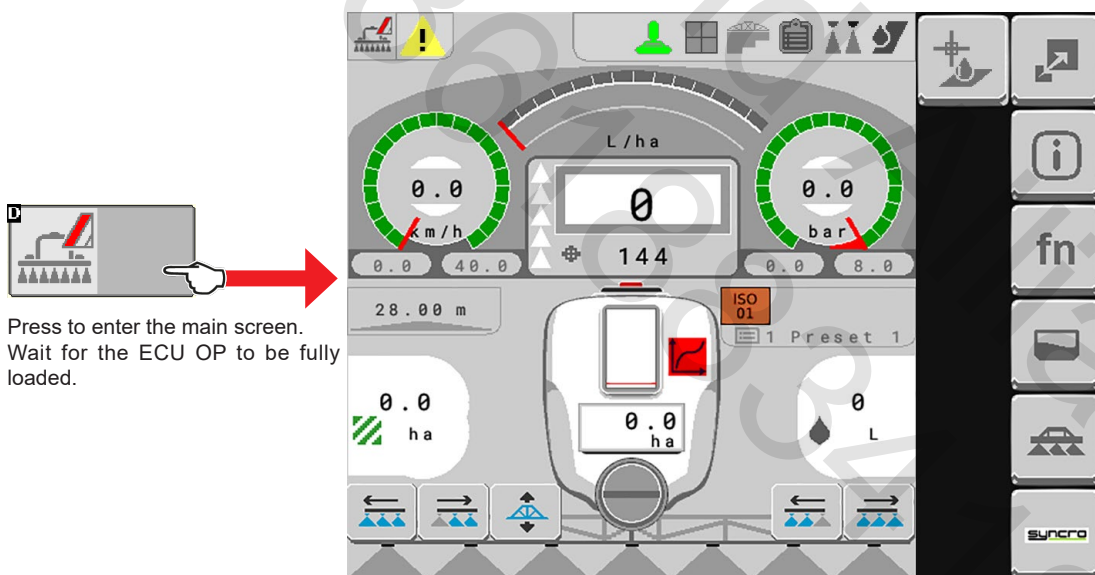
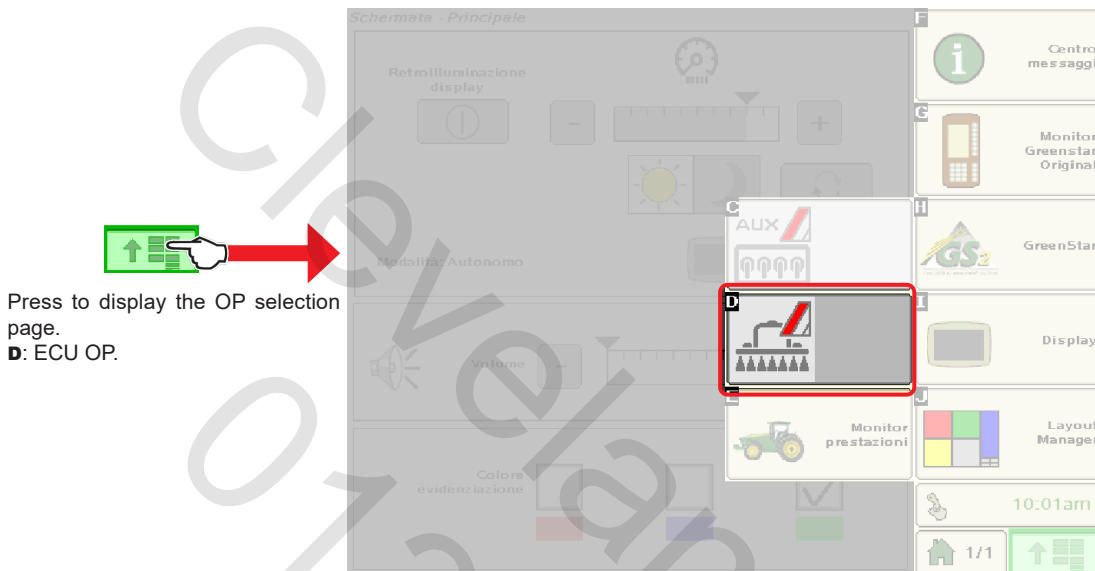
Use the cable **1** (Fig. 2 / Fig. 3, par. 5.1 System recommended composition).

Connection: fix (**ISOBUS connection** connectors in Fig. 26); 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





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

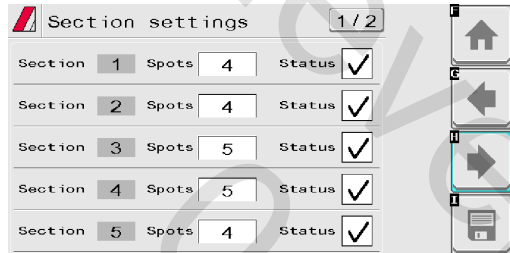






Fig. 27

-  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

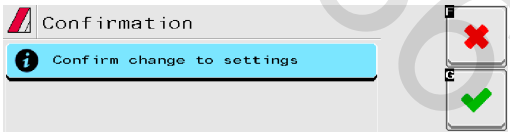




Fig. 28

-  Quits without confirming the changes
-  Saves the changes

ENTERING A NUMERIC VALUE

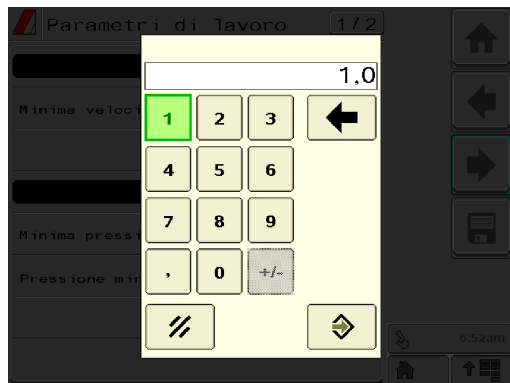





Fig. 29

-  Delete
-  Quit
-  Confirm

10 IMPLEMENT SETTINGS > BASIC SETTINGS

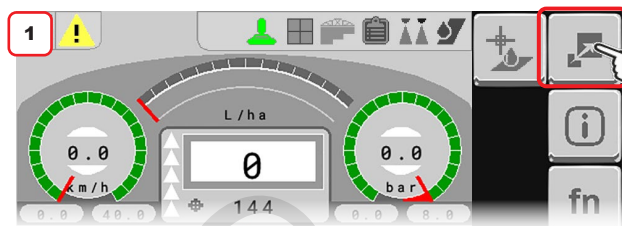


Fig. 30

Upon first switching on, run the device basic settings.

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

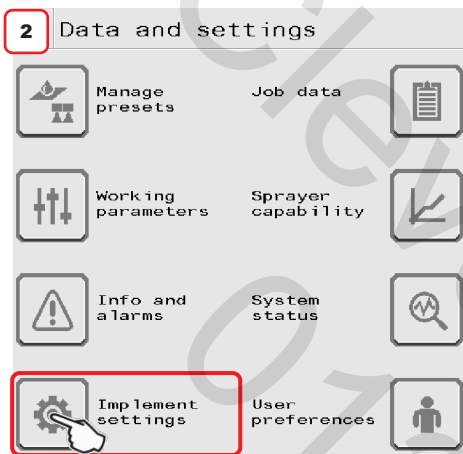


Fig. 31



Fig. 32



Fig. 33

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).

• **Regulation valve type:** type of regulating valve installed on the control unit .

Standard (7 s) / Fast (3.5 s) / Ultra Fast (2 s).

• **Boom settings:** type of nozzle holding boom (system with section valves).

Single (single boom) / **Dual** (dual boom).

• **Spraying spot type:** Seletron type. (system with Seletron).

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

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

Flowmeter the measured flowrate is used to regulate the application rate.

Pressure sensor: measured pressure is used to regulate the application rate.

Both: the application rate is regulated by means of the flowmeter, when the working flowrate is within the flowmeter's reading range; outside of this range, the installed pressure sensor is used.

• **Terminal nozzle type**

None

Buffer zone: allows enabling the use of nozzles in the "Buffer zone" see par. (FOR SELETRON SYSTEM ONLY)

"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: RETURN TO THE HOME PAGE TO RESTART THE SYSTEM AUTOMATICALLY. 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. 35.

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

ACCESS TO IMPLEMENT SETTINGS MENU

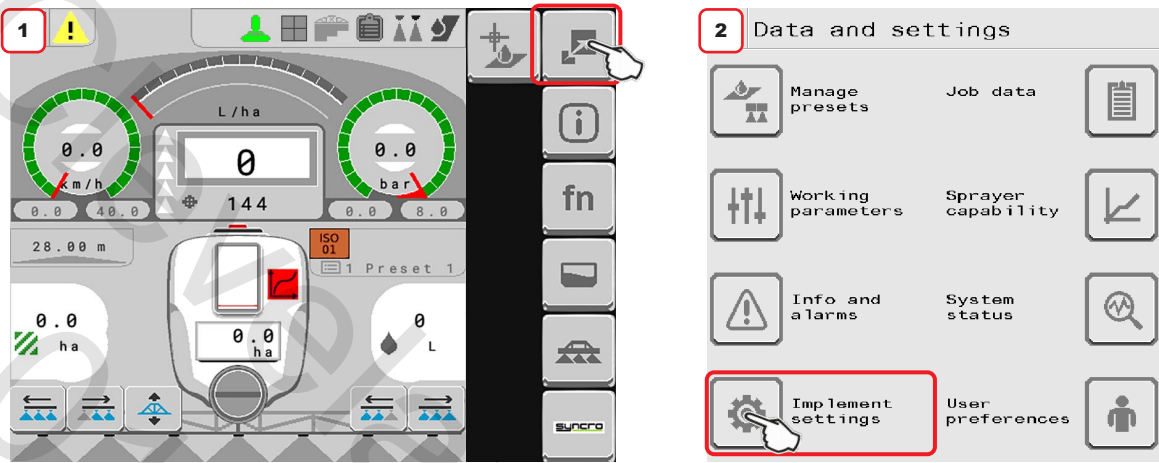


Fig. 34

IMPLEMENT SETTINGS - MENU STRUCTURE



Fig. 35



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. 37).
 - 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).

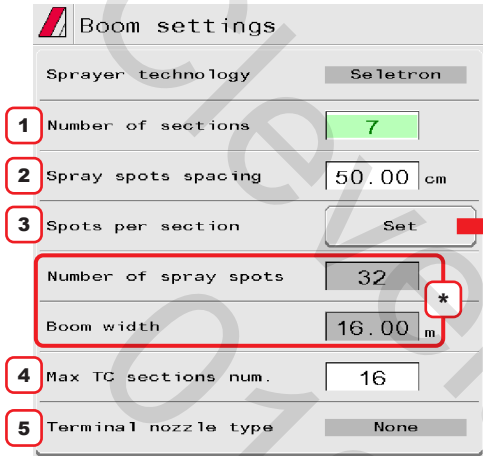


Fig. 36

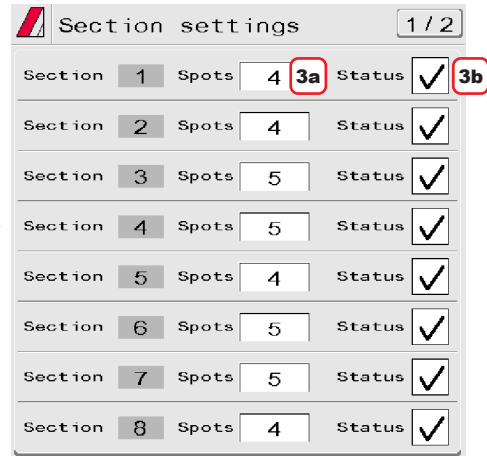


Fig. 37

* Depending on the selected settings, the total number of spraying points as well as the value of the boom width, displayed in Fig. 36, will change.

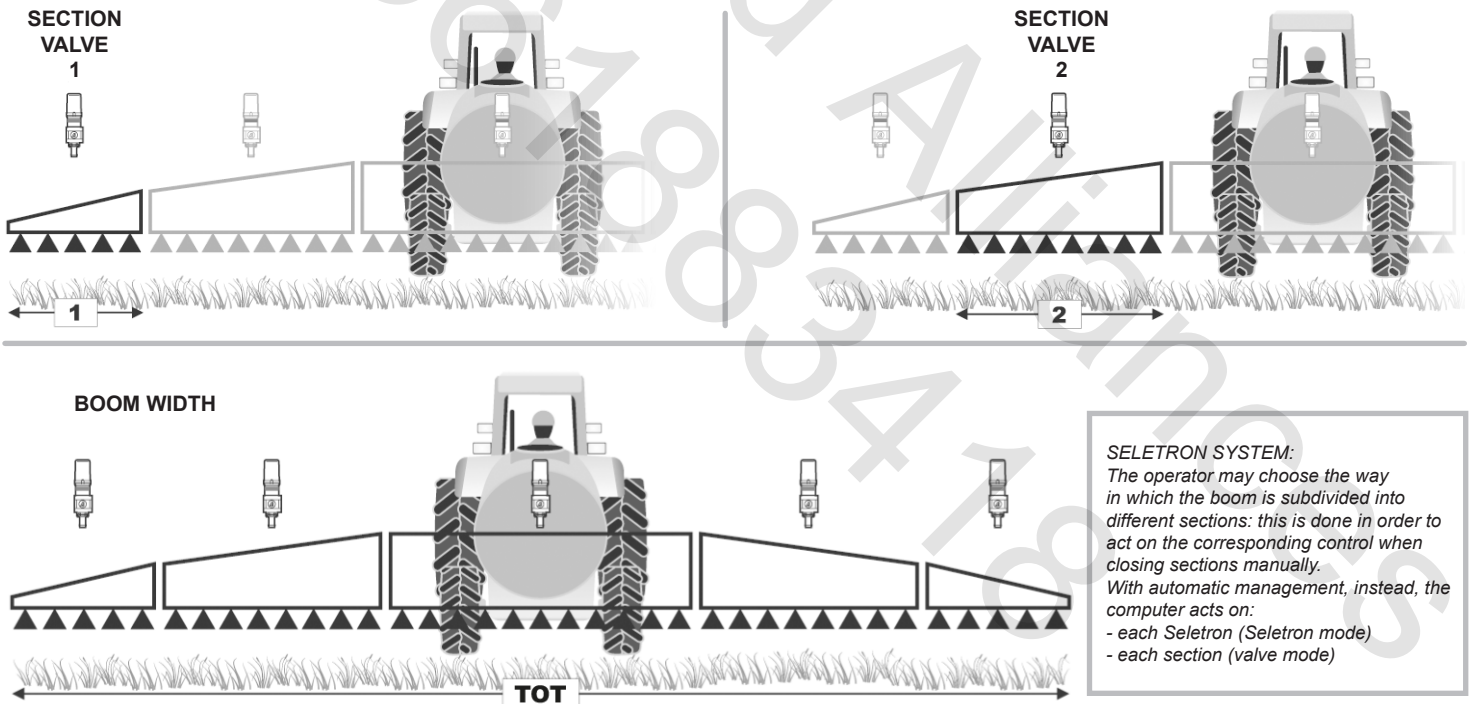



Fig. 38

	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. 40 (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. 39) and **Filling flowmeter** (Fig. 41).

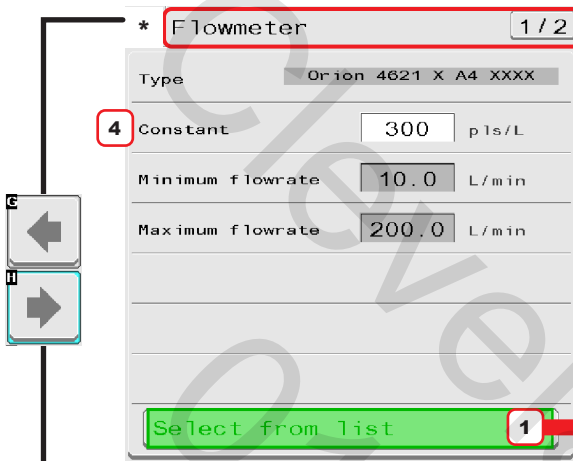


Fig. 39

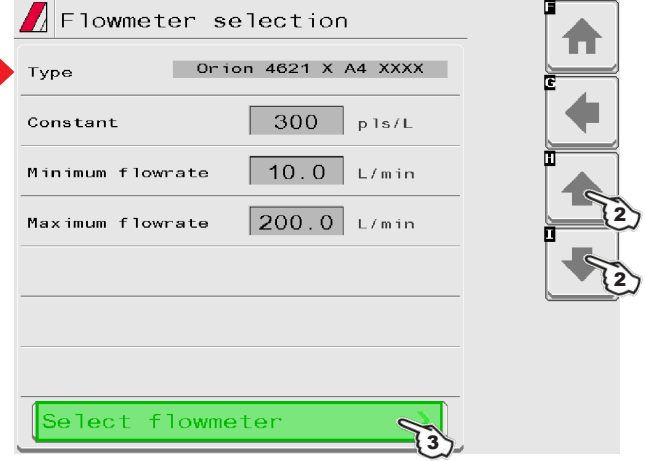


Fig. 40

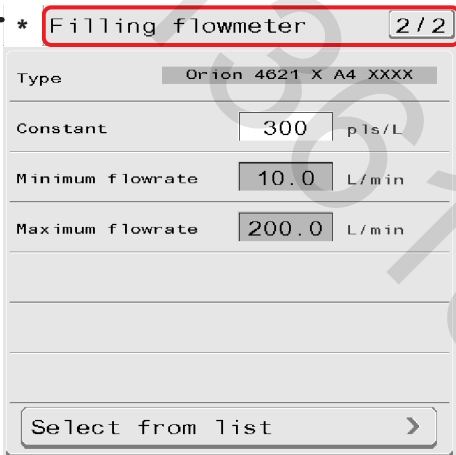











Fig. 41

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
Other	625	2366	10	2,60	200	52,8

WOLF FLOWMETERS						
Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
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. 43 (use keys 2 to scroll items, and key 3 to confirm).
- The relevant configuration data will be automatically loaded (Fig. 42).
- 4 Activate pressure sensor.



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

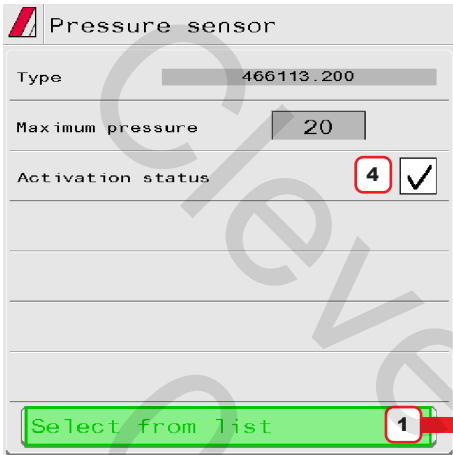


Fig. 42

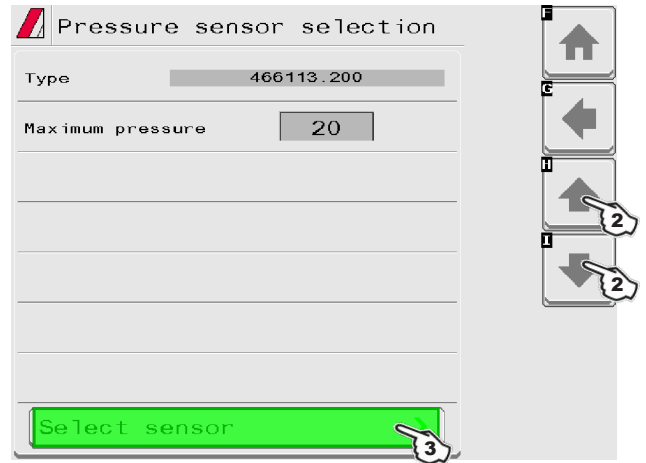


Fig. 43

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.

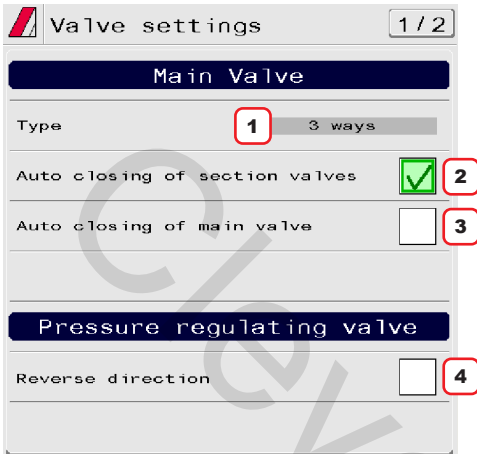


Fig. 44

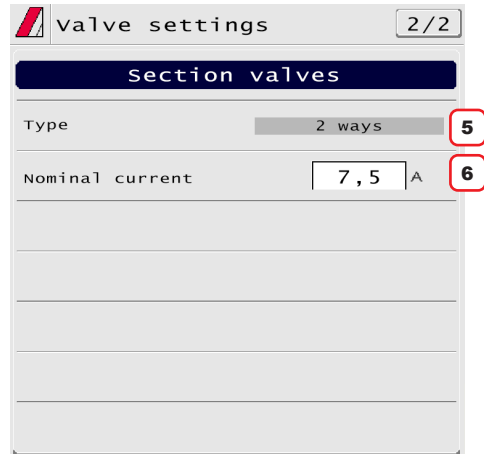


Fig. 45

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

section valves are opened or closed by acting on the main control valve depending on the way the controls of the single section valves are set, i.e.:
 -if the controls of the sections are set to OFF, and the main control is operated, the sections will remain closed;
 -if the control of one or more section valves is ON, by closing or opening the main valve, also the section valves will be closed or opened.

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

the section valves are controlled independently.
 Control functions on the main valve do not affect section valve opening or closing.

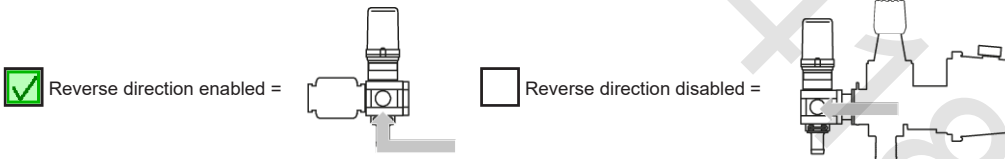
3 Main Valve > Auto closing of main valve

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).

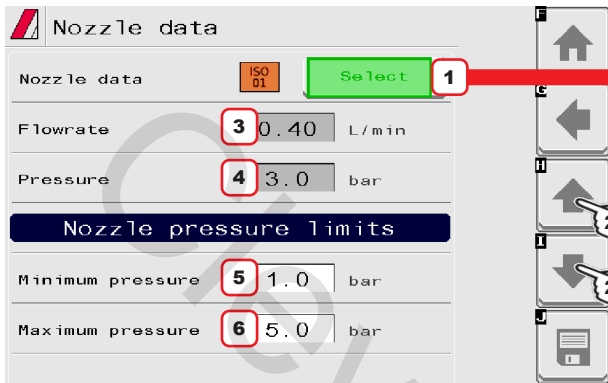


Fig. 46

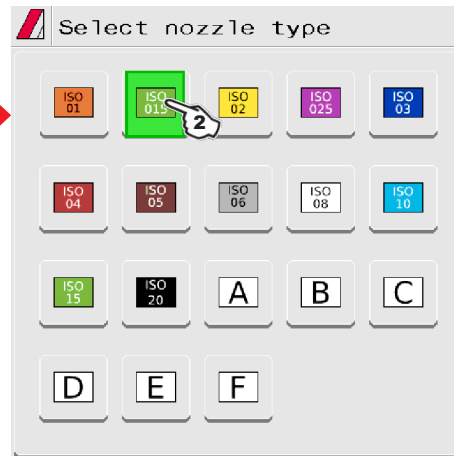


Fig. 47

- 1 - 2 Select the nozzle you wish to set up (Fig. 46 / Fig. 47); enter the relevant features (Fig. 46).
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.

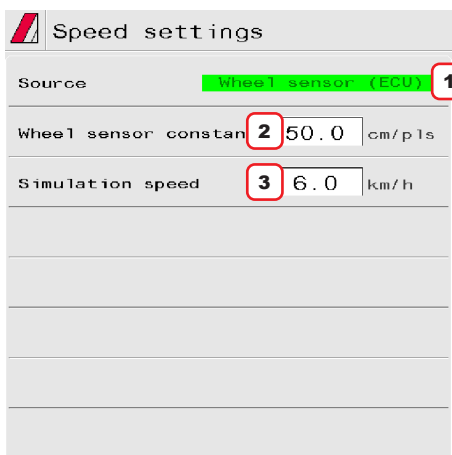
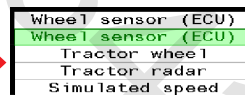


Fig. 48



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

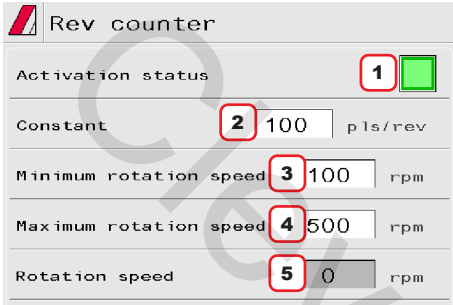
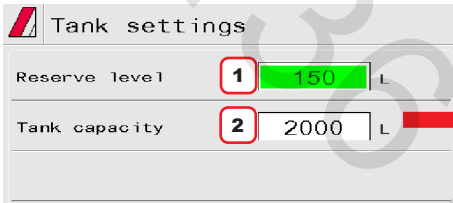


Fig. 49

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.



1874.6 NON-EDITABLE tank capacity:
in this case the level sensor is installed and a tank profile is present in the IBX100.

Fig. 50

	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.

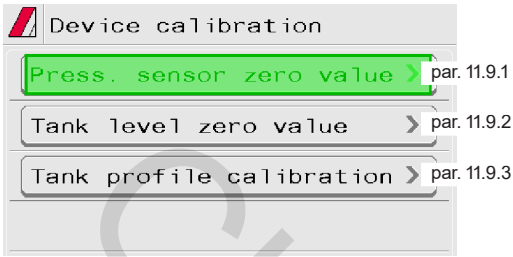


Fig. 51

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.

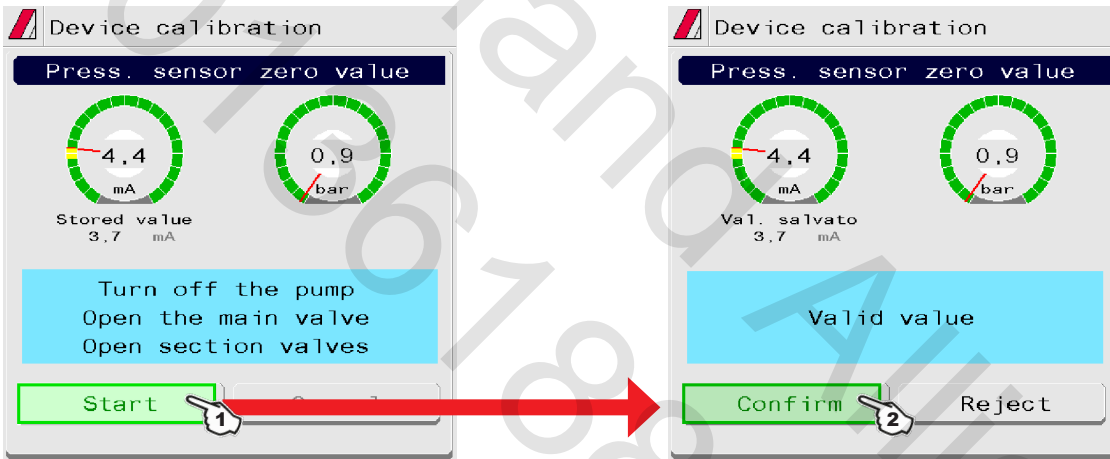


Fig. 52

**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.

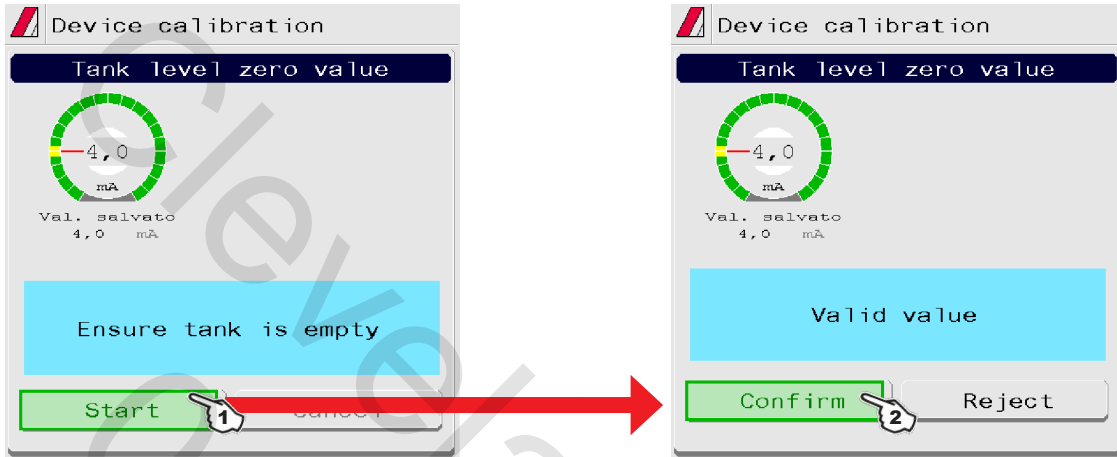


Fig. 53

**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.

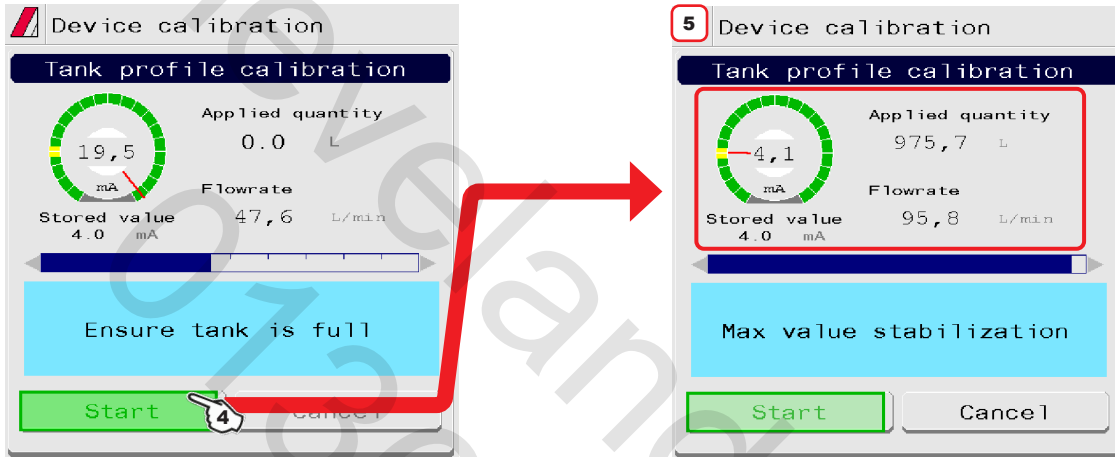


Fig. 54

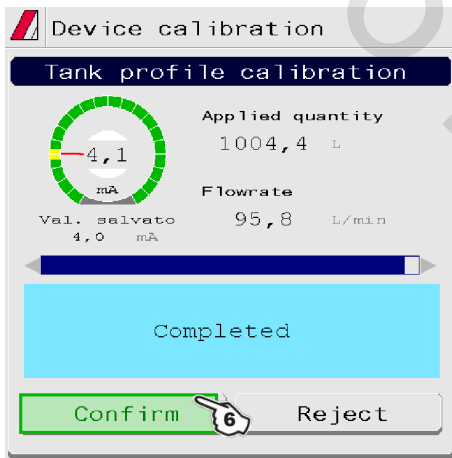


Fig. 55

Alliances

	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.

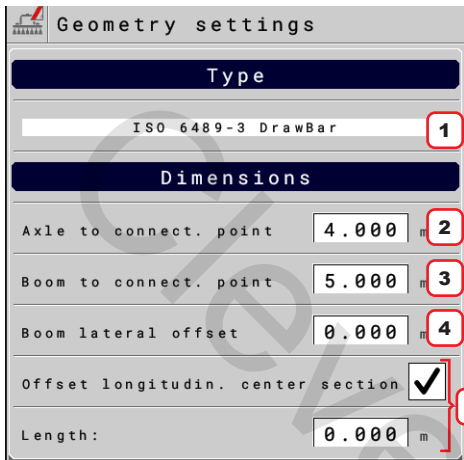


Fig. 56

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.

Axle to connect. point

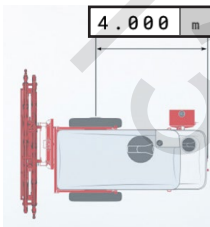


Fig. 57

Boom to connect. point

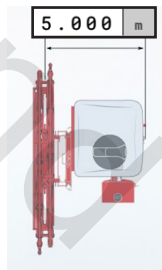


Fig. 58

Boom lateral offset

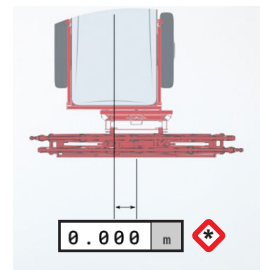
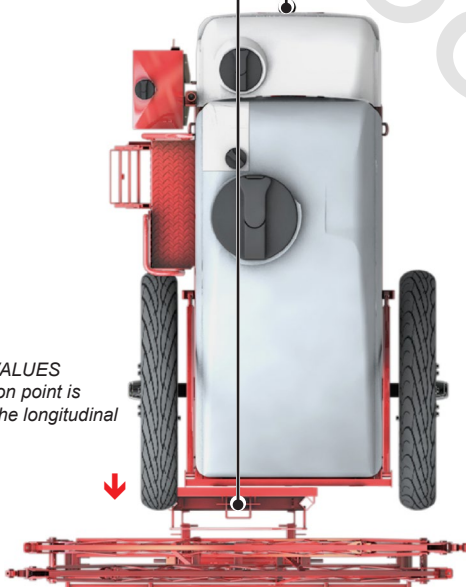


Fig. 59

Boom lateral offset

- 1.50 m Application point Longitudinal axle



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

Fig. 60

Longitudinal axle + 1.50 m Application point



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

Fig. 61

	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.

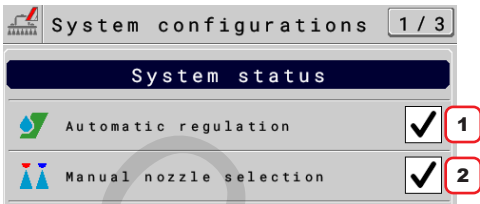


Fig. 62

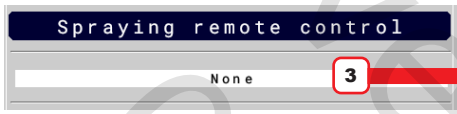


Fig. 63



Fig. 64

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. 15.3.2 Nozzles selection.

SPRAYING REMOTE CONTROL

3 Select the type of spraying remote control connected to the VT.

None (DEFAULT)

Spraying disabled (ECU)

Allows managing the external main control connected to the IBX100.

- MAIN CONTROL ON: Open contact
- MAIN CONTROL OFF: Closed contact

Spraying enabled (ECU)

Allows managing the external main control connected to the IBX100.

- MAIN CONTROL ON: Closed contact
- MAIN CONTROL OFF: Open contact

Spraying enabled (Arag-Tecu)

allows managing the external main control through the Arag-Tech device (ref. relevant instruction manual).

REMOTE DEVICES

4 The VT can access the functions of the connected device (ref. relevant instruction manual).

None (DEFAULT)

Visio-Isobus

The VT displays in real time the tank filling (par. 15.4) performed with the suitable ISOBUS Visio connected.

Available Visio functions:

- Filling check with flowmeter.
- Filling check with level sensor.

Allows transferring a backup of the system and of the tank profile from IBX100 to USB pendrive or vice versa.

Syncro-Isobus

The user can manage Syncro functions remotely from the dedicated page (par. 15.7).

	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

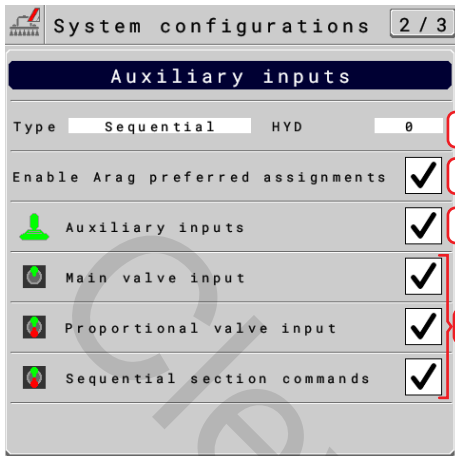


Fig. 65

AUXILIARY INPUTS

5 Select the type of auxiliary control and the number of hydraulic commands of the Auxiliary Input connected to the VT.

Type:	HYD:
Direct	0
Sequential	7
Joystick	9

6 Enable / disable the automatic function assignment for the Auxiliary Input connected.

7 Enable/ disable the auxiliary control selected in point **5**.

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

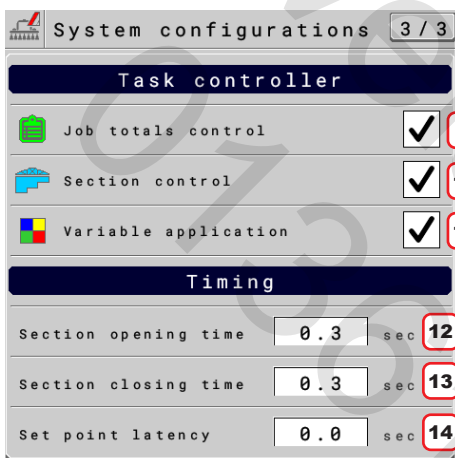


Fig. 66

TASK CONTROLLER

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

9 Enable / disable the job total counter control.

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

11 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.

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

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

14 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.

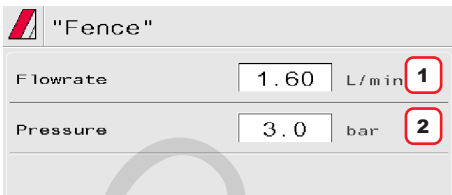


Fig. 67

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

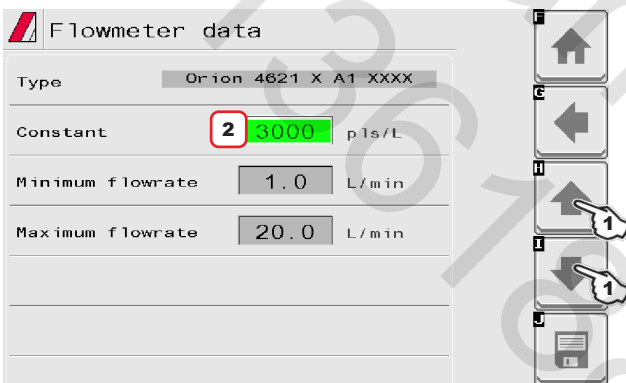


Fig. 68

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.

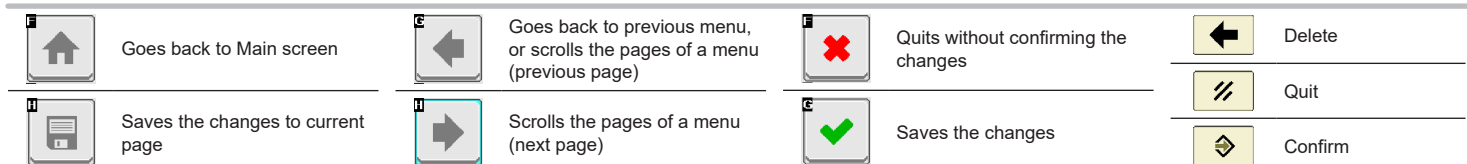
List of available flowmeters and preset data:

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
Other	625	2366	10	2,60	200	52,8

WOLF FLOWMETERS

Type	Constant		Minimum flowrate		Maximum flowrate	
	pls/l	pls/gal	l/min	GPM	l/min	GPM
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



12 DATA AND SETTINGS

12.1 Manage presets

This menu allows:

- Setting 20 different treatment configurations: **PRESET SETTING**, Fig. 69.
- Setting 2 different nozzles configurations depending on the type of valves installed:
 - VALVES WITH GEARMOTOR (SINGLE BOOM), Fig. 71.
 - VALVES WITH GEARMOTOR (DUAL BOOM) OR SELETRON VALVES on page 34.
- Activating one configuration among the preset ones: PRESET ACTIVATION on page 35.
- Consulting the job data of the selected treatment: Totals - Averages on page 35.

PRESET SETTING

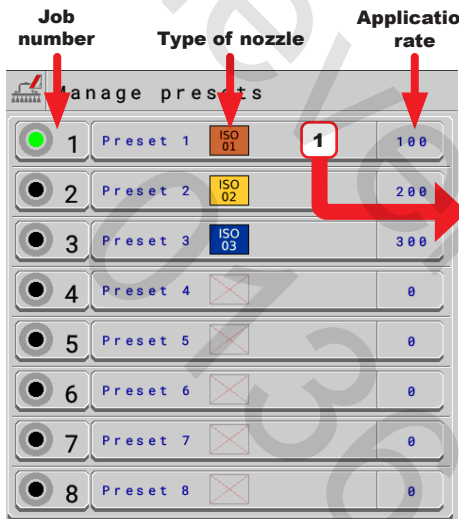


Fig. 69

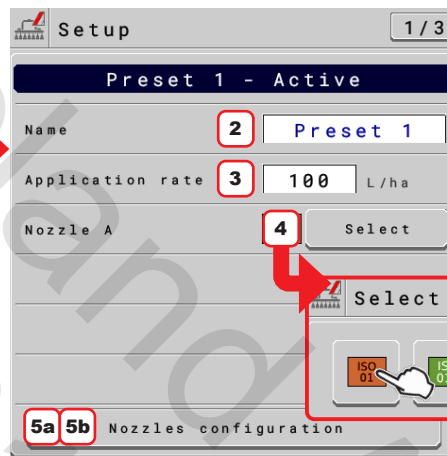


Fig. 70

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).

5a Nozzles configuration:

VALVES WITH GEARMOTOR (SINGLE BOOM)

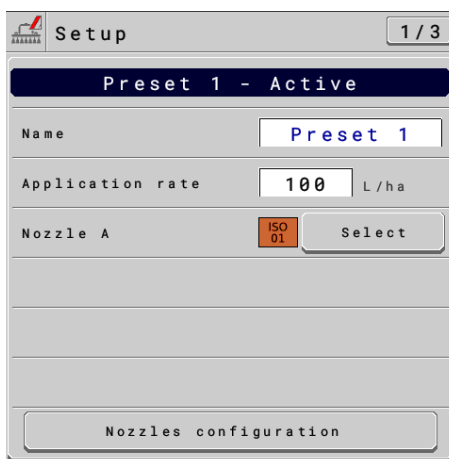


Fig. 71

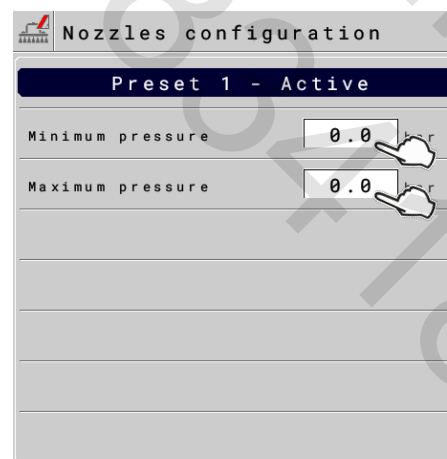


Fig. 72

Set the pressure limits for the selected nozzle: enable the proper function in the menu **Alarms** if you want the system to trigger an alarm when the nozzle is outside the set limit range.

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

5b Nozzles configuration:

VALVES WITH GEARMOTOR (DUAL BOOM) OR SELETRON VALVES

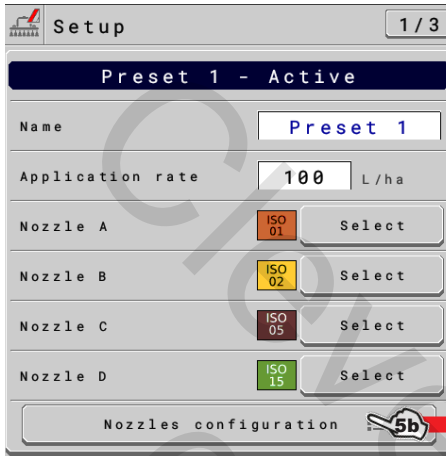


Fig. 73

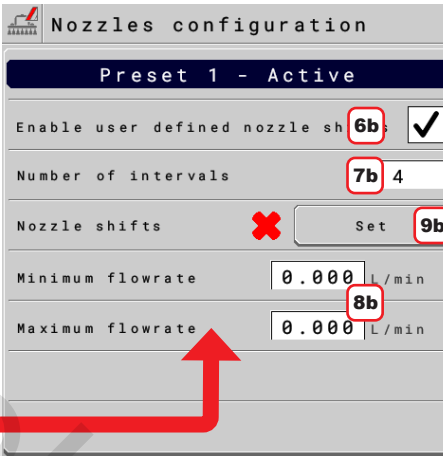


Fig. 74

6b Enable the menu to configure it:

Menu enabled for Preset 1

Menu disabled

7b Indicate the number of customized ranges

8b Set the maximum and minimum regulation flowrate

9b Select the menu **Nozzle shifts** to program nozzle combinations

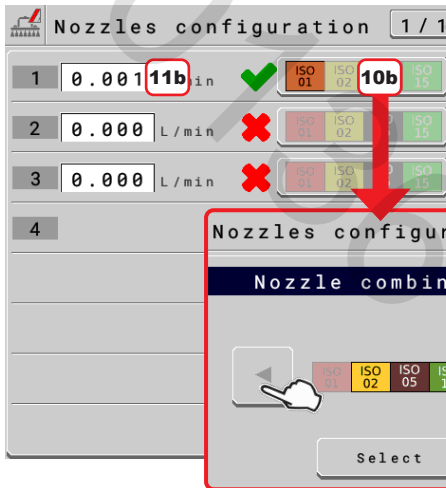


Fig. 75

Nozzle shifts

Optimizes nozzle automatic selection: it allows setting up a nozzle combination, using ONLY SOME nozzles in relation to a flowrate range. Each range has a specific nozzle combination and an exchange flowrate that, once exceeded, will make the computer use the combination of the next range:

10b Select the nozzles to be used among the those suggested for each range: should you need to disable one or more nozzles, select them using arrow keys (one at a time)

11b Program the flowrate limit of the corresponding range. Set all ranges.

	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

PRESET ACTIVATION

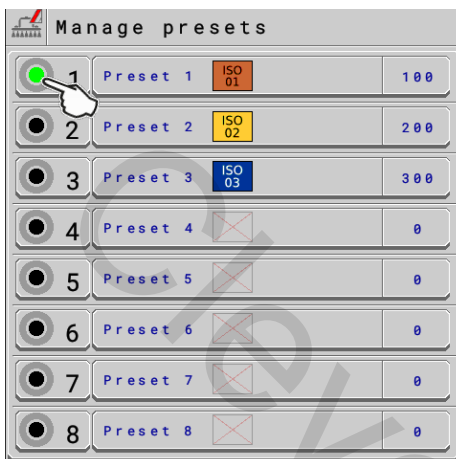


Fig. 76

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.**

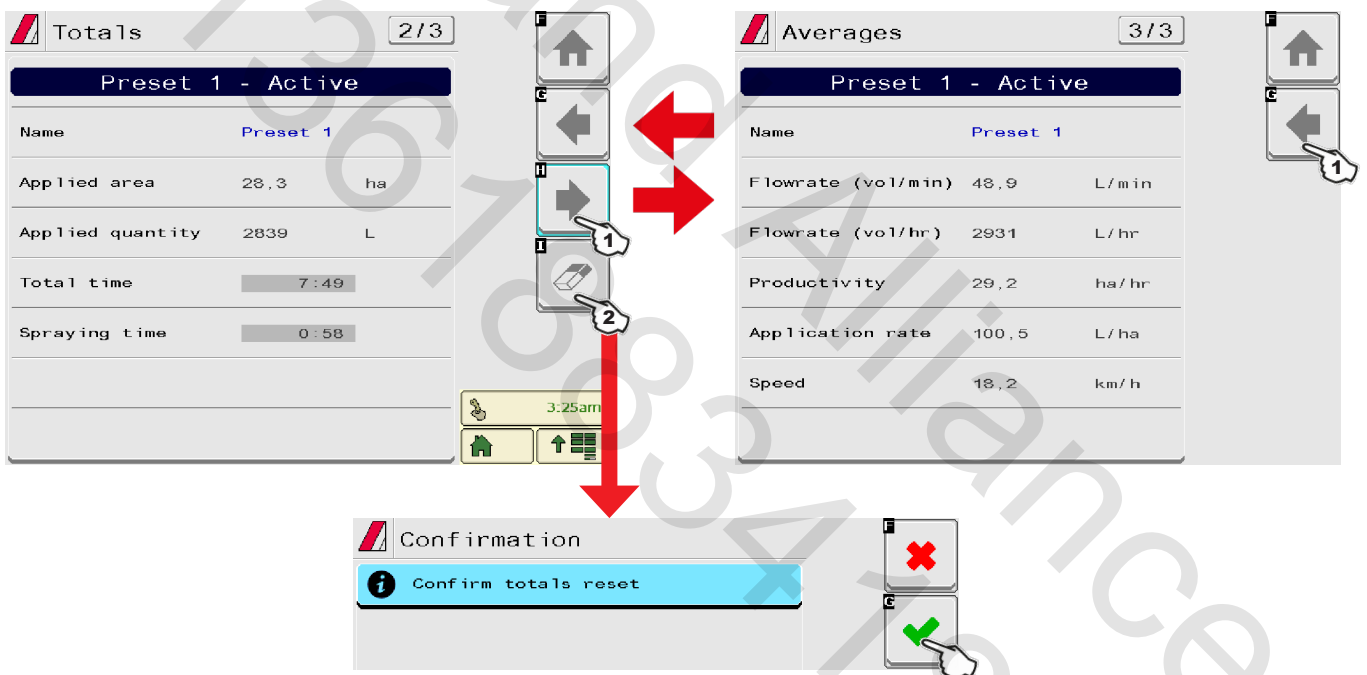


Fig. 77

	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.

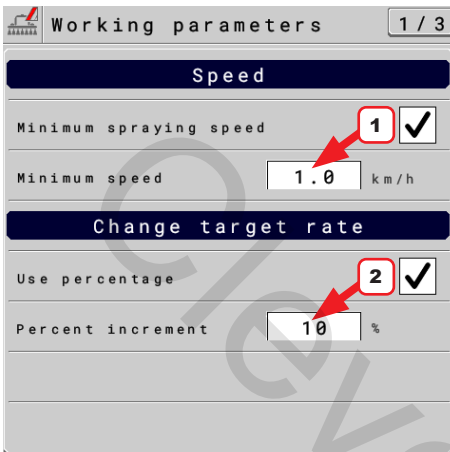


Fig. 78

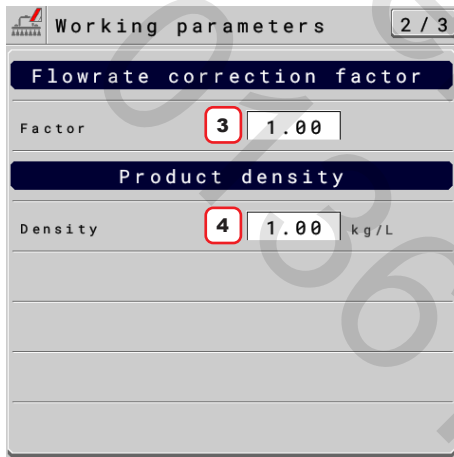


Fig. 79

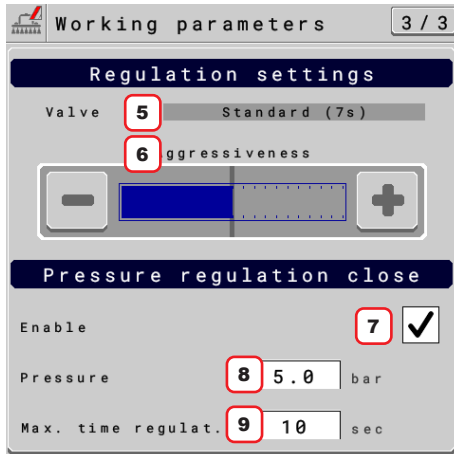


Fig. 80

SPEED

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.

CHANGE TARGET RATE

2 Set the change target rate mode and the increment value.

ENABLED: percent increment

DISABLED: Rate increment in l/ha

The target range is changed with the operating function described in par. 15.1.

FLOWRATE CORRECTION FACTOR

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.

CHANGE TARGET RATE

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.**

REGULATION SETTINGS

5 Displays the type of selected regulating valve.

6 Checks the power applied by the selected valve to regulate the system flow.

- It reduces aggressiveness.

+ It increases aggressiveness.

The ideal calibration is achieved when the application rate remains constant even with minor variations in driving speed.

PRESSURE REGULATION CLOSE

7 Regulating valve function during the closure

ENABLED: the system regulates the valve to reach the set pressure for the maximum required time. If the pressure is not reached, the system closes the valve.

DISABLED

8 Set the pressure value to be reached when the sections are closed.

9 Maximum time required by the regulating valve to bring the boom to the set pressure.

	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.

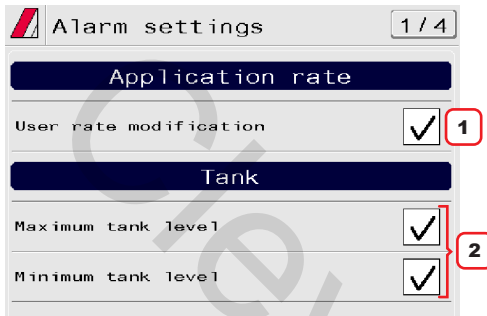


Fig. 81

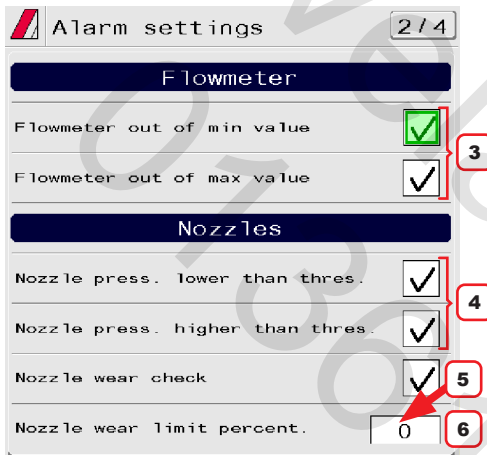


Fig. 82

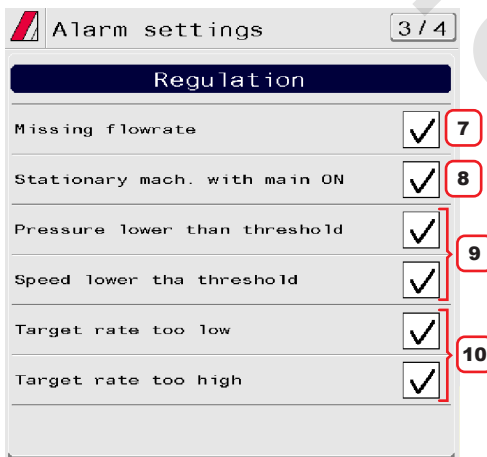


Fig. 83

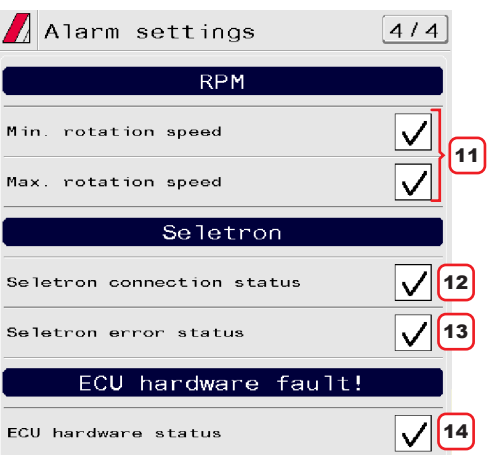


Fig. 84

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).

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.

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. 12.4).

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

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.

Job data		
User controlled job		
Name	Preset 1	
Applied area	76,8	ha
Applied quantity	14271	L
Total time	27:08	
Spraying time	2:41	
Spray efficiency	22,2	ha/hr
Flowrate	110,1	L/min
Calculated area	0,0	ha
Productivity	0,2	ha/hr

Fig. 85

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.

Sprayer capability 1 / 2		
Current configuration		
Nozzle configuration	ISO 01	✓
Application rate	100	L/ha
Working width	16.00	m
Flowmeter range		
Minimum flowrate	✗ 7.4	L/min
Maximum flowrate	✓ 16.5	L/min
Speed range		
Minimum speed	2.8	km/h
Maximum speed	6.2	km/h

Sprayer capability 2 / 2		
Current configuration		
Nozzle configuration	ISO 01	✓
Application rate	100	L/ha
Working width	16.00	m
Simulated speed	6.0	km/h
Pressure		
Estimated pressure	4.7	bar
Application rate range		
Minimum rate	46	L/ha
Maximum rate	103	L/ha
Simulated speed	5.5	km/h
Pressure		
Estimated pressure	3.9	bar
Application rate range		
Minimum rate	50	L/ha
Maximum rate	113	L/ha



Speed modification
+ increase
- decrease
DEF:
6.0 km/h / 3.7 MPH

Fig. 86

Legend:



The datum meets the specified criteria.



The datum does NOT meet the specified criteria.

	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.

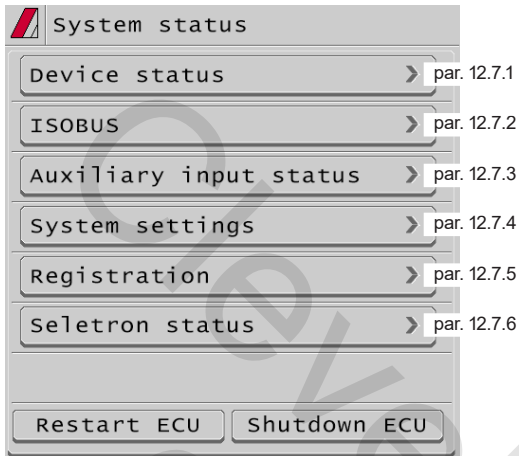
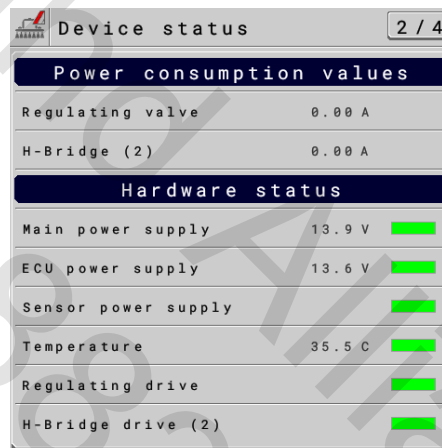
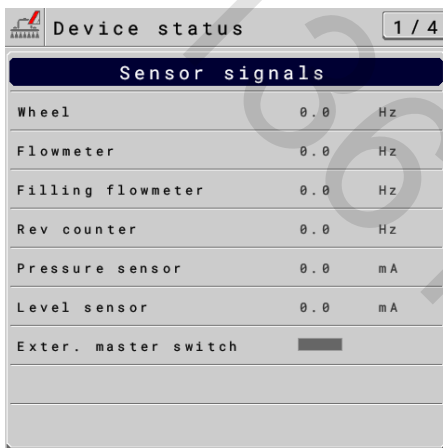


Fig. 87

12.7.1 Device status

Displays system information.



■ Correct operation
■ Malfunction
■ No connection

Fig. 88

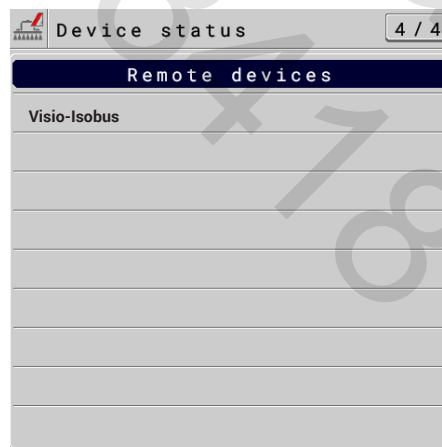
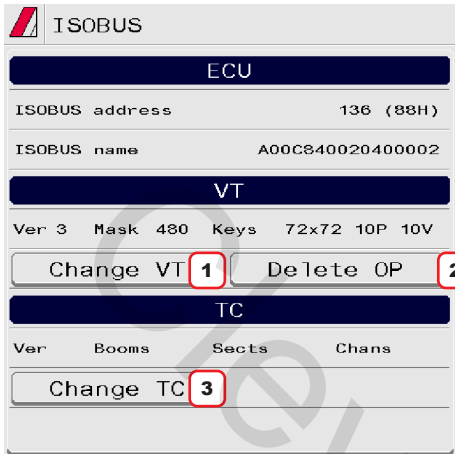


Fig. 89

	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



Displays information on ISOBUS protocol.

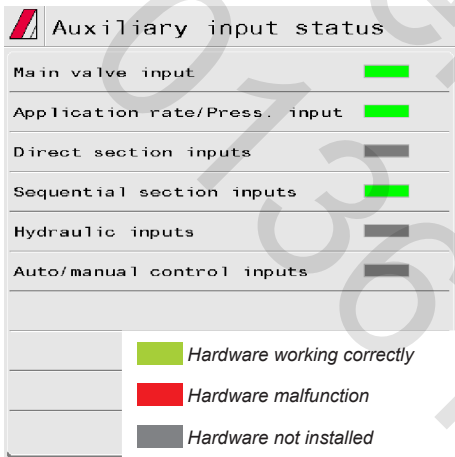
1 Allows displaying the OP on another VT, if any, present on the ISOBUS line, and opens the pre-set ISOBUS device page.

2 Allows deleting and reloading the ECU OP.

3 Allows reloading the TC.

Fig. 90

12.7.3 Auxiliary input status

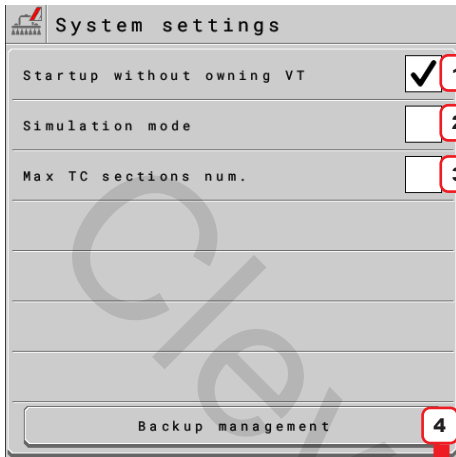


Checks the connection of the Auxiliary Input.

Fig. 91

	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



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.

2 - **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.)

3 Maximum number of TC sections.

4 Allows managing the backup and restoring system settings.

Fig. 92



5

5 Allows saving a backup of the settings in the device memory.

6

6 Allows loading a backup of the settings from the device memory.

7

7 Allows loading a backup of the settings saved with the suitable ISOBUS VISIO device in the IBX100 memory: for information on the specific backup phases, refer to the ISOBUS VISIO manual (download area of the website "www.aragnet.com").

8

8 Restores factory default settings of the device.

Fig. 93

	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

12.7.5 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.

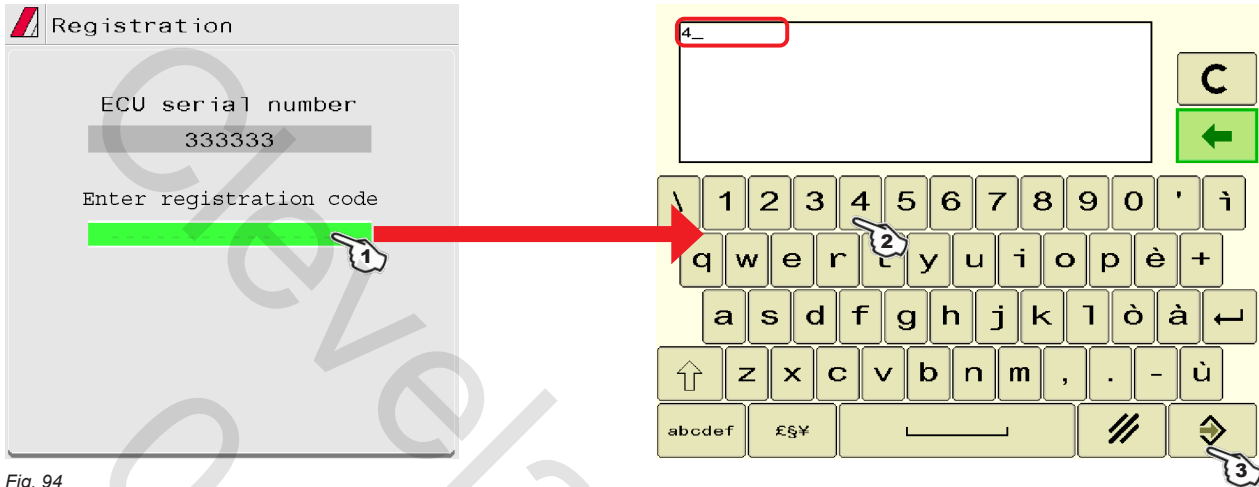


Fig. 94

12.7.6 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. 95 shows the corresponding number.

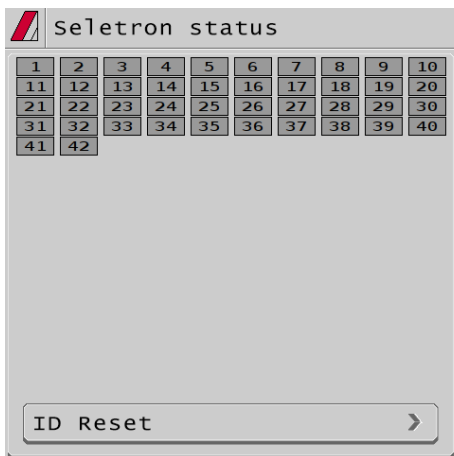


Fig. 95

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).

	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

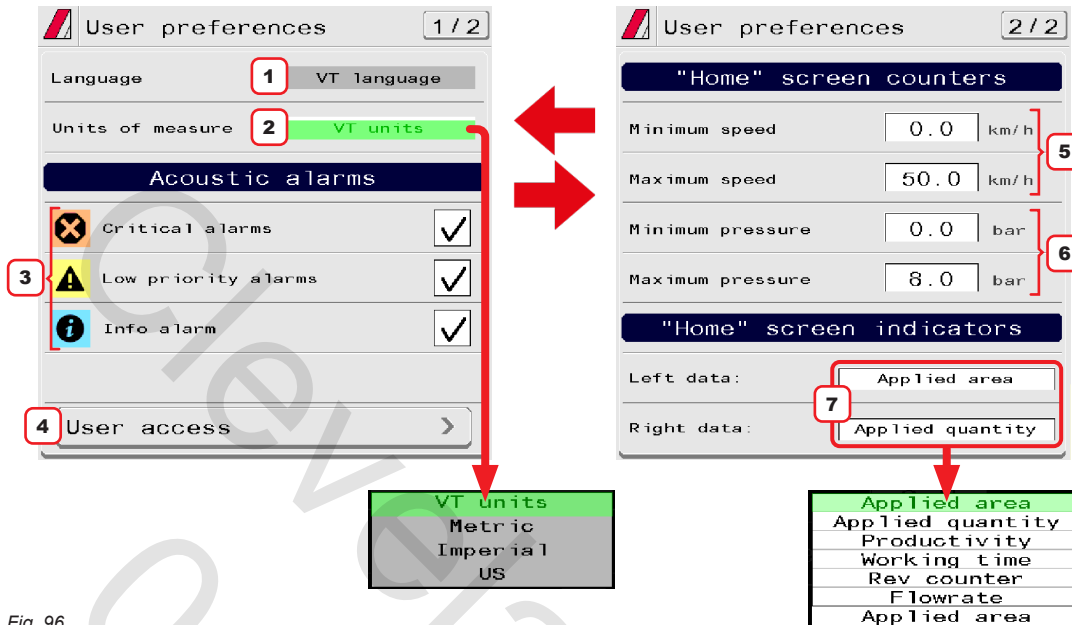


Fig. 96

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.
- **Arag-Tech:** for ARAG staff, only.

"HOME" SCREEN COUNTERS

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

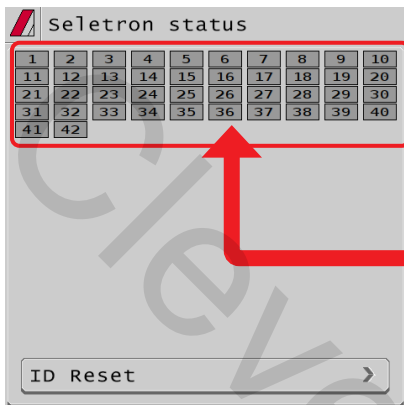
6 pressure range end-value ("HOME" screen, par. 14.1).

"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

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



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

• Access the menu (par. 12.7.6)
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. 97.




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

Fig. 97

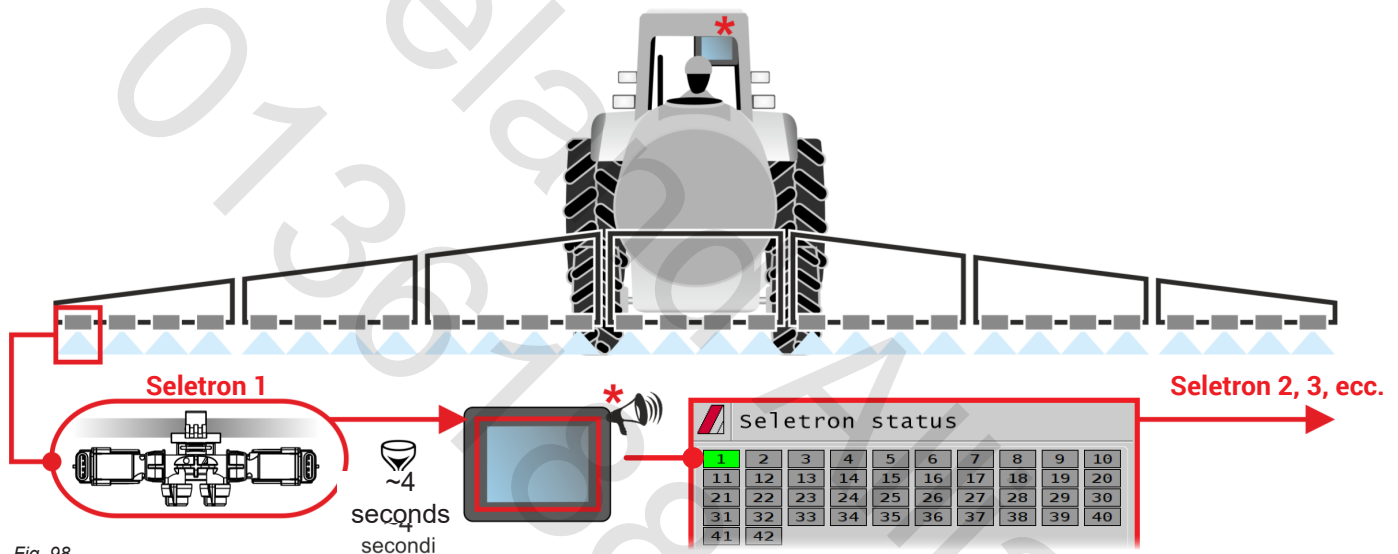



Fig. 98



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. 98).



WAIT FOR THE ACOUSTIC SIGNAL BY THE MONITOR.

WAIT FOR THE MONITOR TO DISPLAY THE GREEN SYMBOL FOR THE CONNECTED SELETRON (Fig. 98).

• 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).

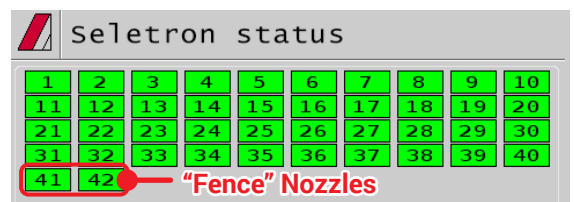
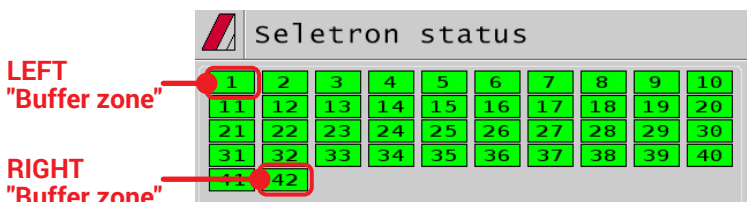
- Repeat the above steps, connecting all remaining Seletron devices from left to right until the end of the boom.
- Connection sequence if end nozzles are present (par. 15.6):

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

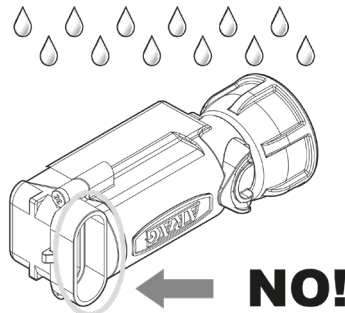
Start by connecting all the "normal" Seletrons from left to right, then connect the "Fence" Seletron located on the left end of the boom and lastly connect the "Fence" Seletron located on the right end of the boom.



CONTINUES >>>



Fig. 99



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

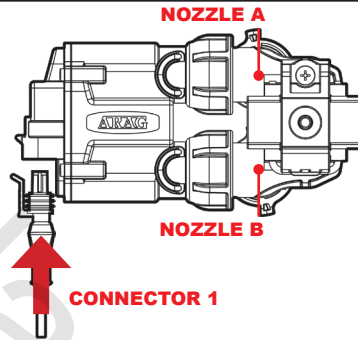


Fig. 100

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

CONNECTION SEQUENCE FOR FOURFOLD SELETRON DEVICES

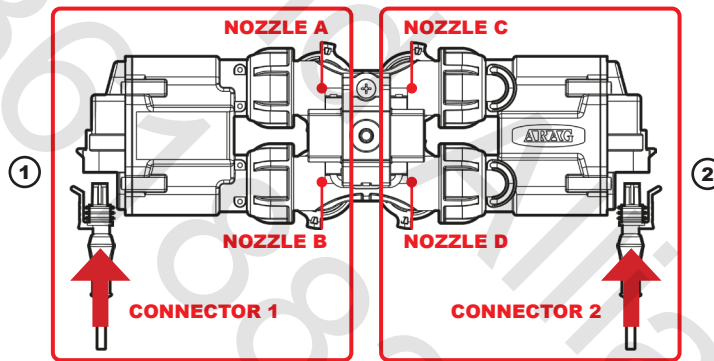


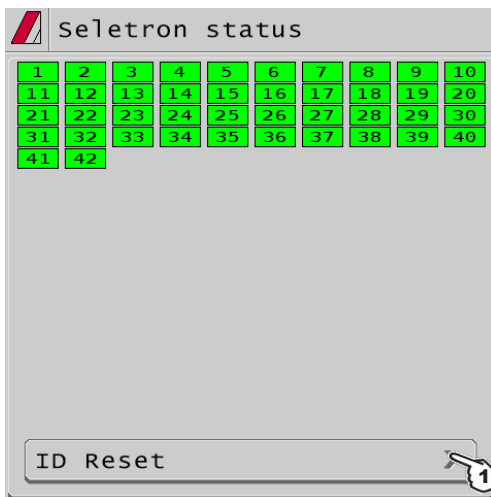
Fig. 101

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. 101).
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



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).



Fig. 102

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 (ON position) + Enabled nozzles + MANUAL nozzle selection settings + MANUAL section management settings.

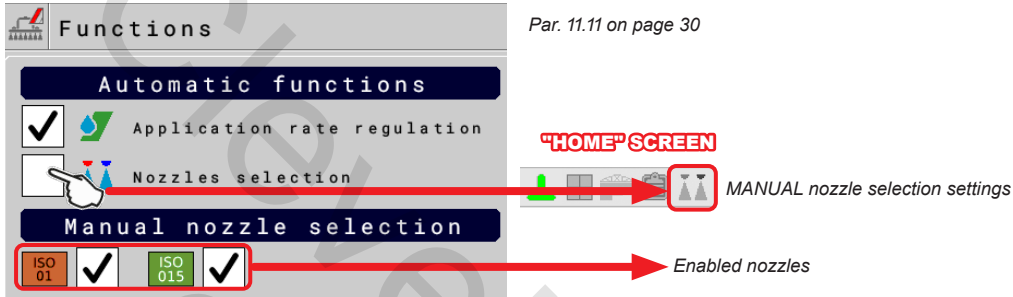


Fig. 103

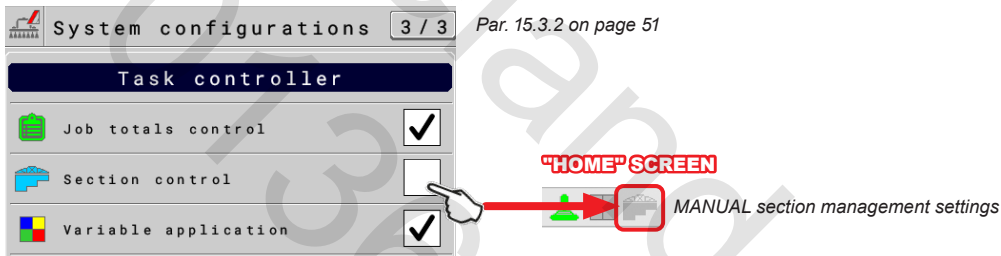


Fig. 104

13.2.2 Replacement procedure

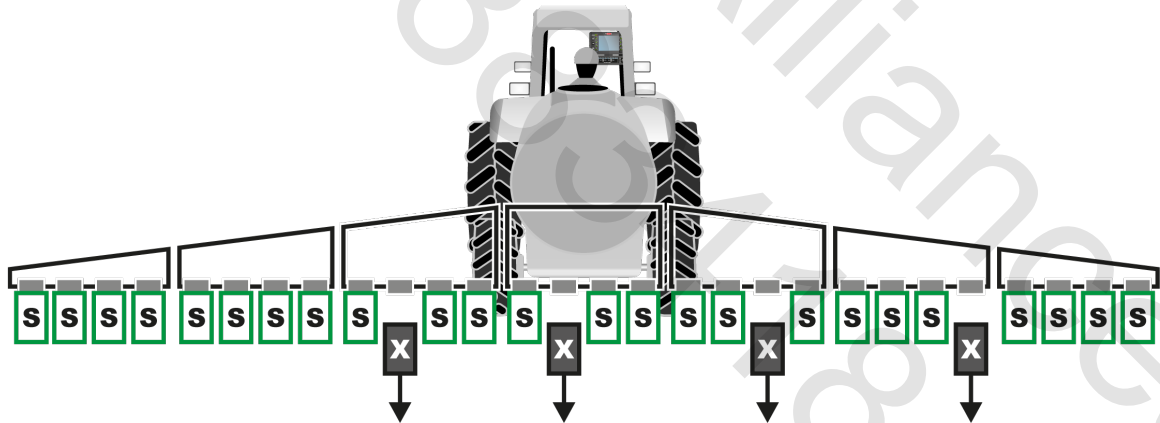
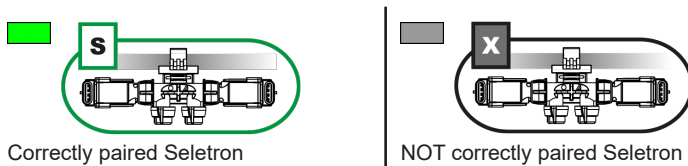


Fig. 105



- ONLY DISCONNECT THE SELETRON DEVICES THAT WERE NOT CORRECTLY PAIRED (■ Fig. 105).

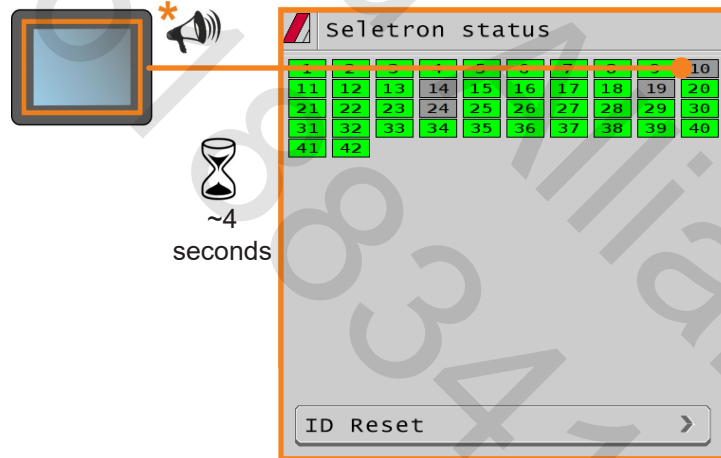
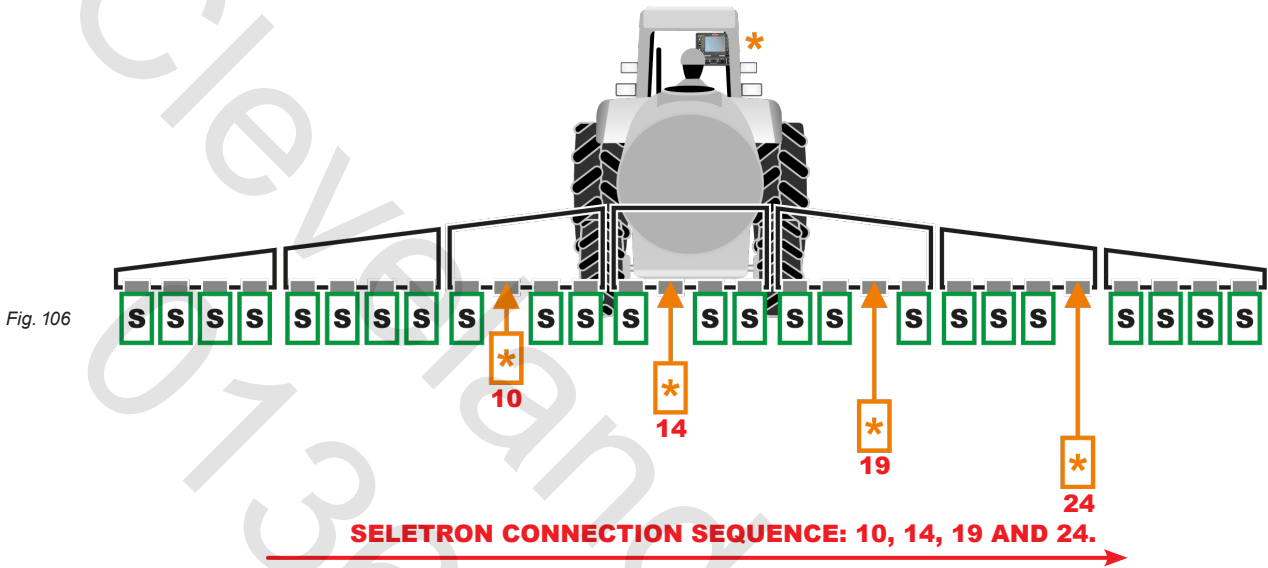
CONTINUES >>>

Connect the new Seletron devices: * Fig. 106, 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.

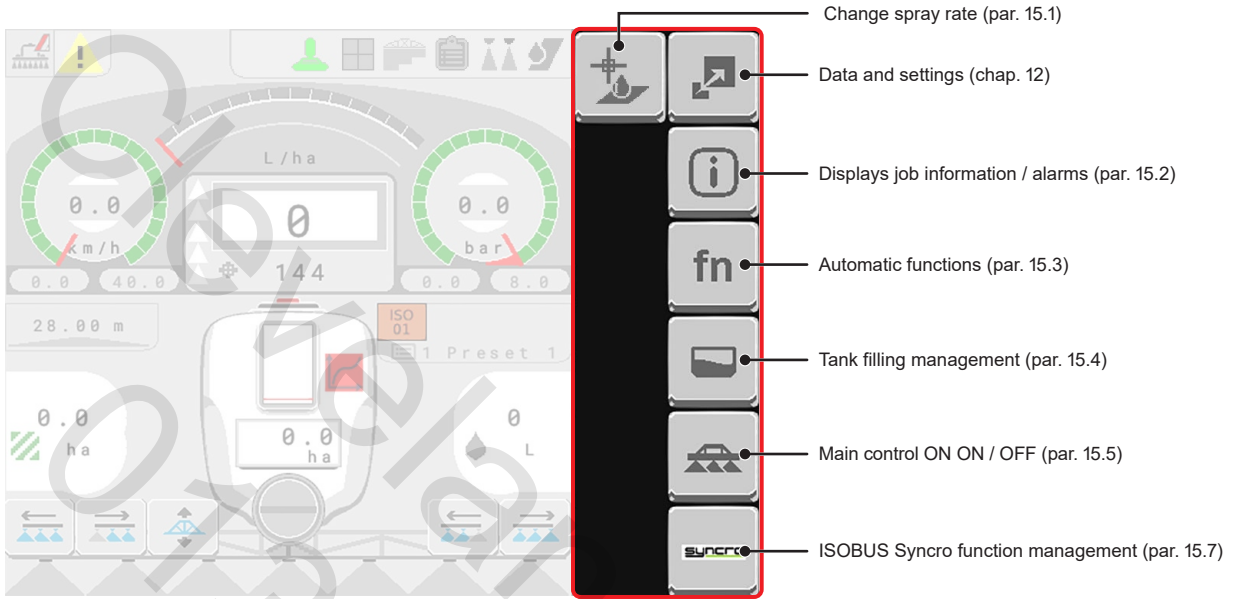
ARAG IS NOT LIABLE FOR ANY DAMAGE OR MALFUNCTION CAUSED BY THE USE OF TOOLS DIFFERENT FROM THE ONES INDICATED.



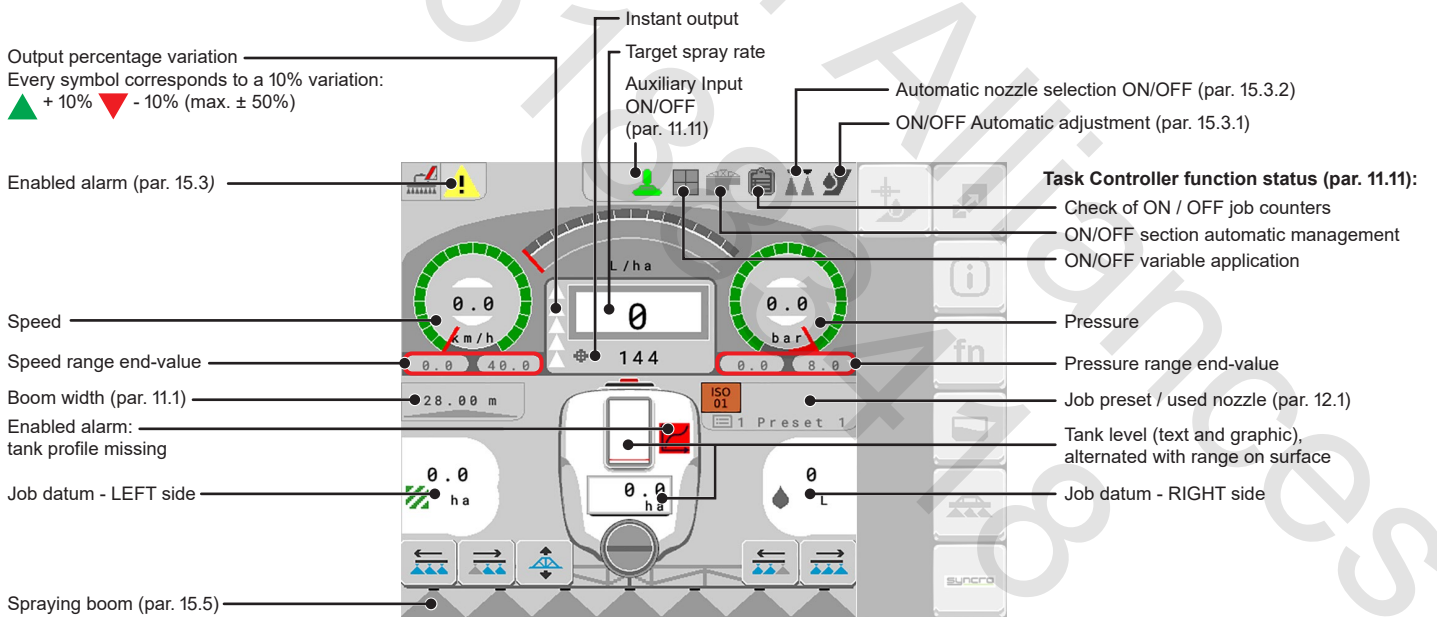
14 USE

14.1 "HOME" main screen

MENU SELECTION BUTTONS




DISPLAY ITEMS



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.

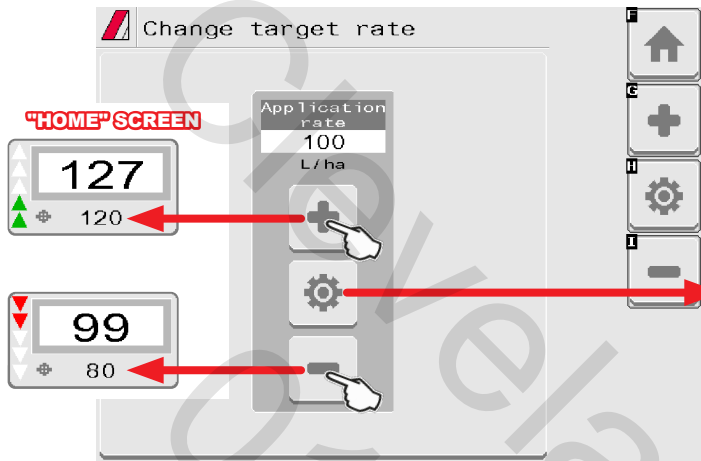



Fig. 107

15.2 Alarms

From "Home" screen, press .

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

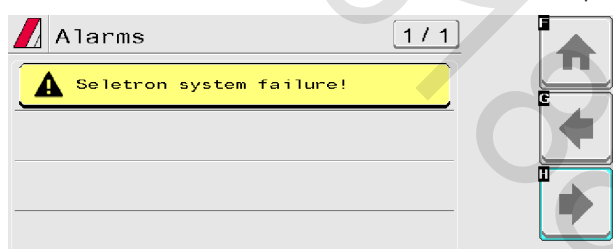











Fig. 108

	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

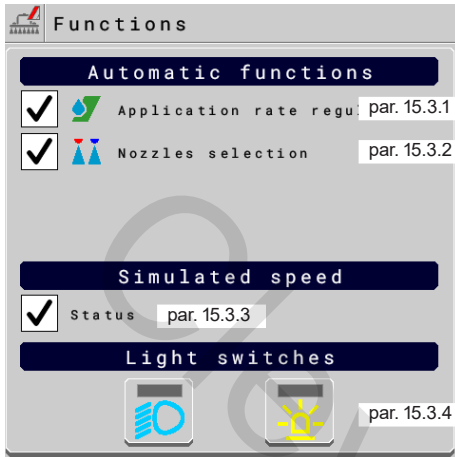


Fig. 109

From "Home" screen, press



15.3.1 Application rate regulation

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

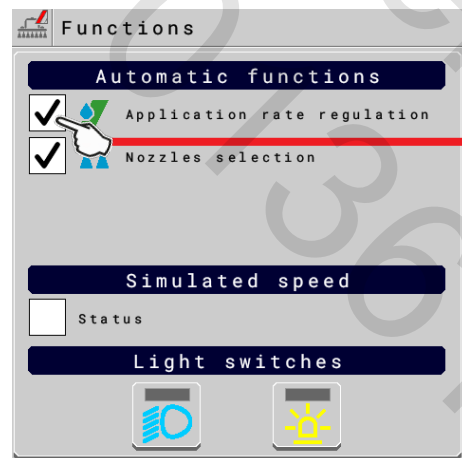
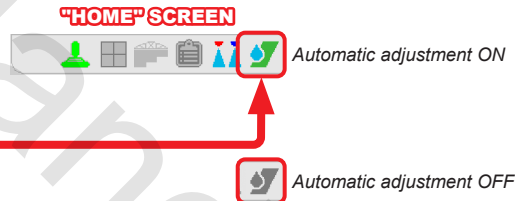


Fig. 110



AUTOMATIC ADJUSTMENT ON
 IBX100 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. 12.1) - **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).

	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

15.3.2 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. 113.

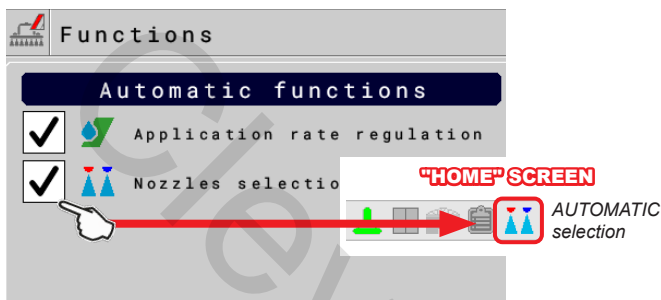


Fig. 111

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.

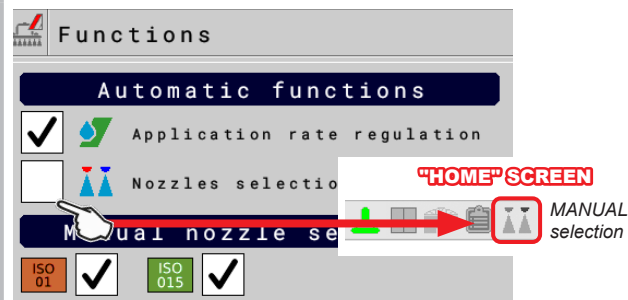


Fig. 112

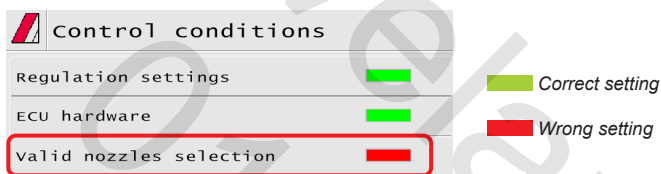


Fig. 113

HOW THE AUTOMATIC NOZZLE SELECTION WORKS (SELETRON SYSTEM AND DUAL BOOM)

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.

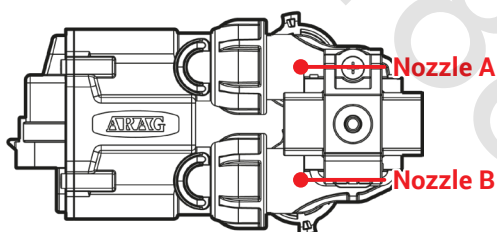


Fig. 114

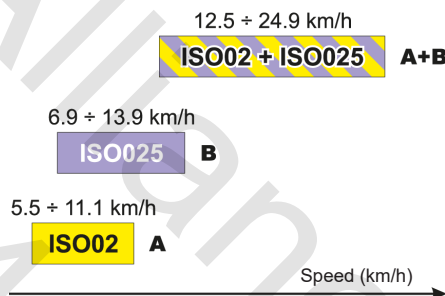


Fig. 115

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. 116).

• **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. 117).

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.

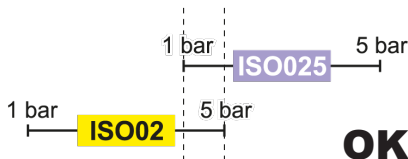


Fig. 116

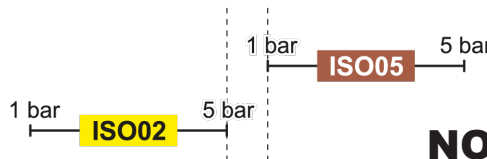


Fig. 117

	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 Simulated 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).

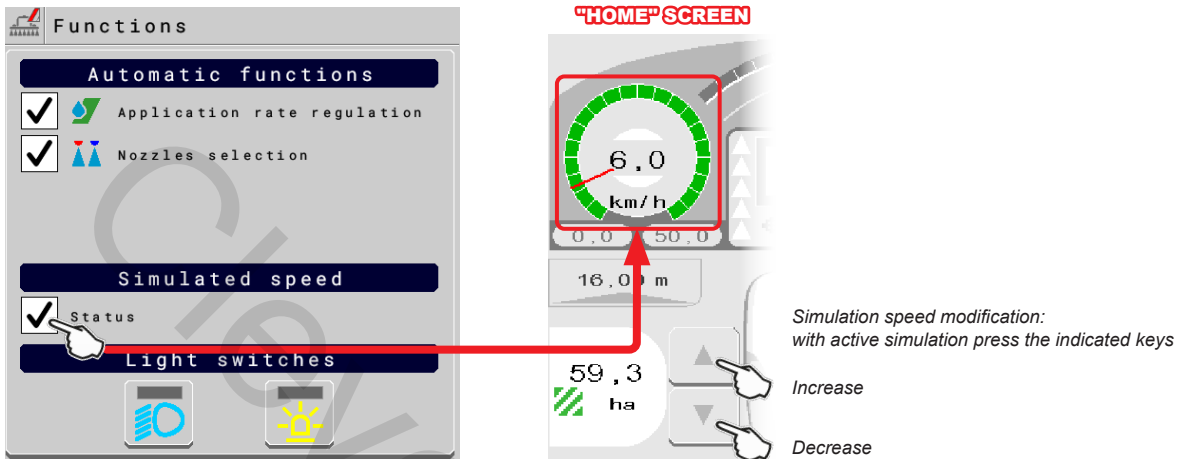


Fig. 118

15.3.4 Light switches

Allows switching on / off the installed light switches (DEFAULT: OFF).

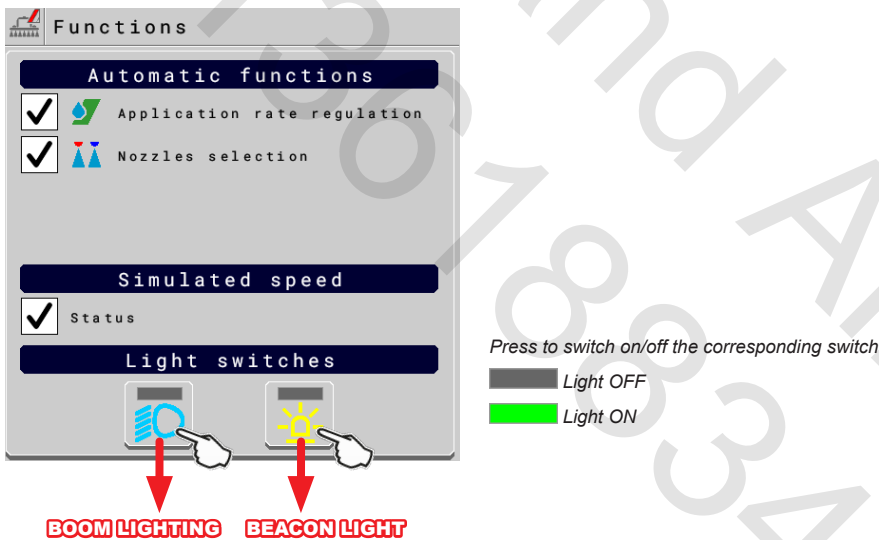


Fig. 119

	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).

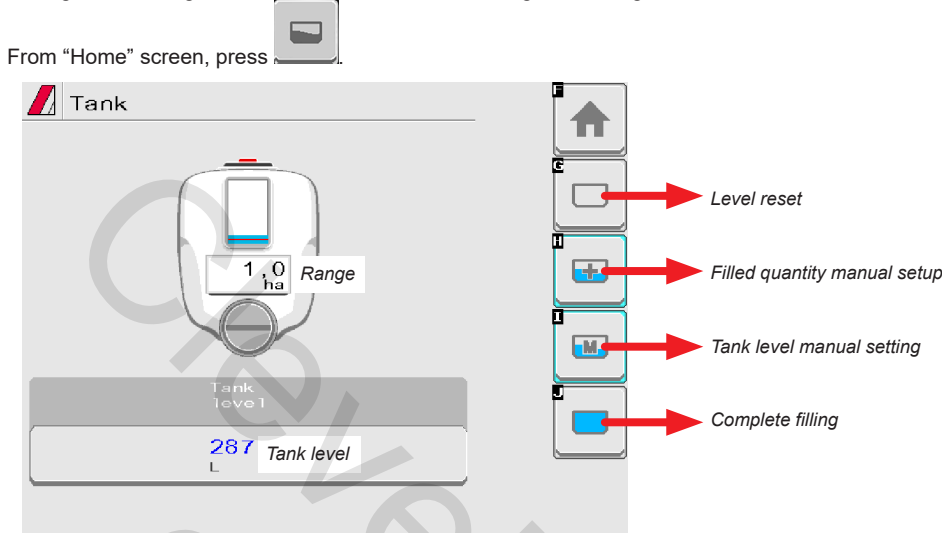


Fig. 120

• **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

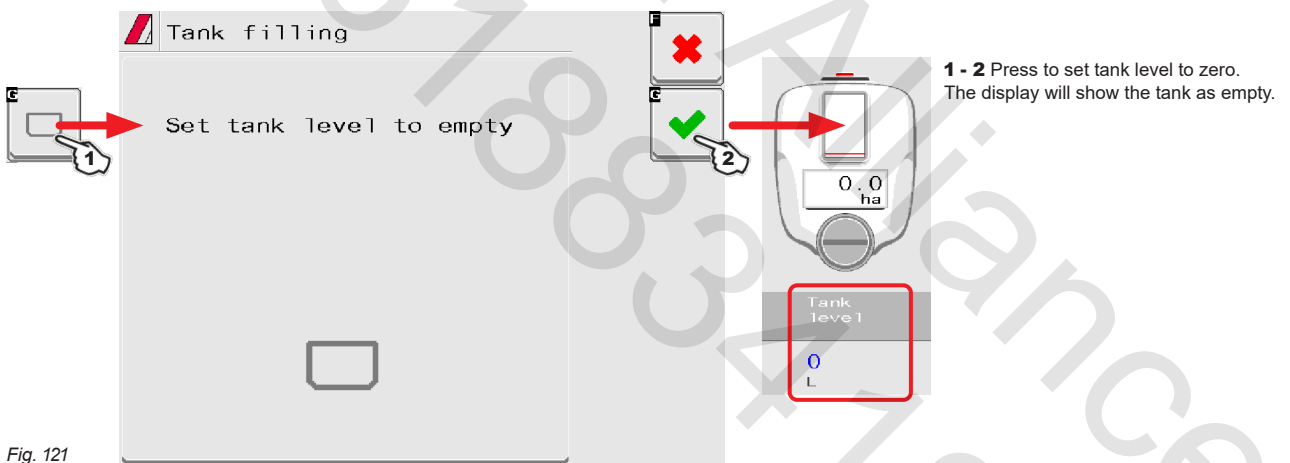


Fig. 121

FILLED QUANTITY MANUAL SETUP

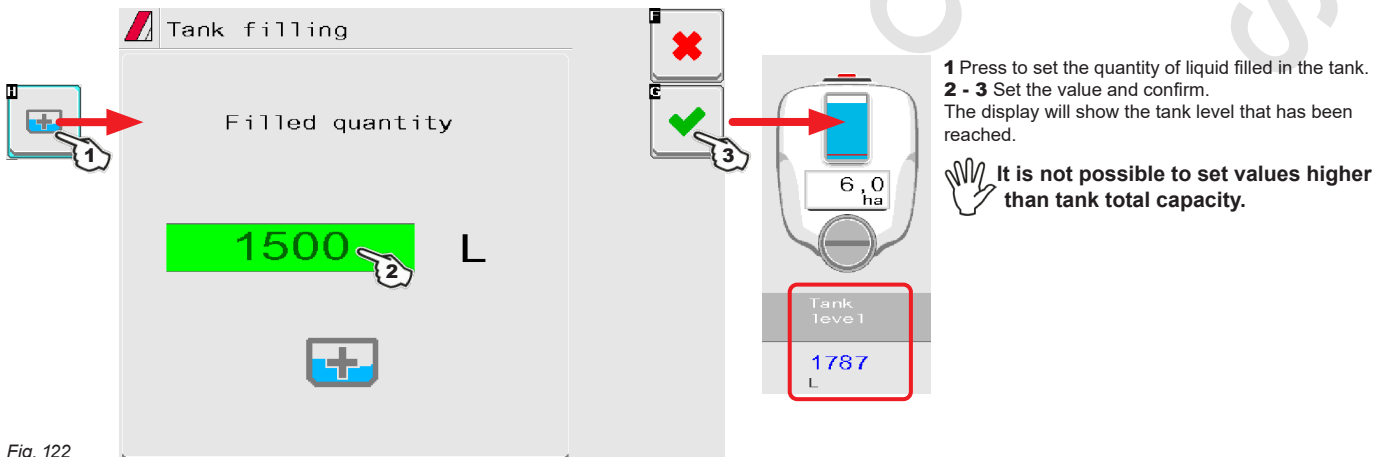


Fig. 122

CONTINUES

TANK LEVEL MANUAL SETTING

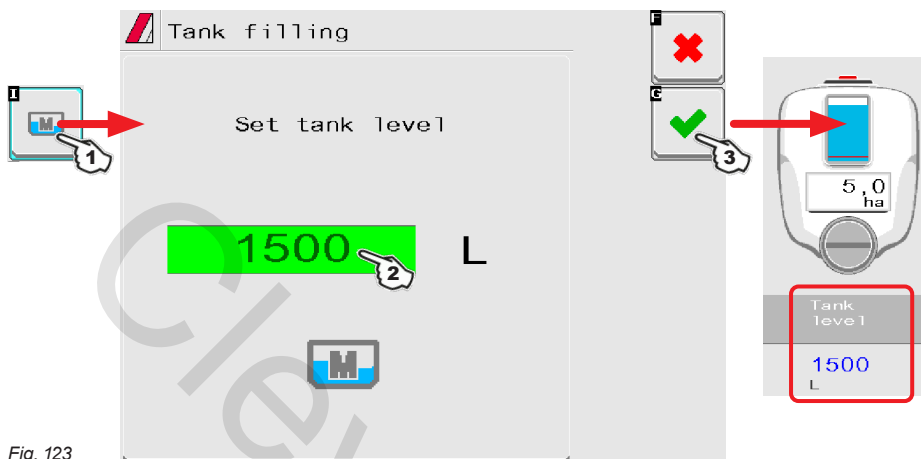


Fig. 123

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

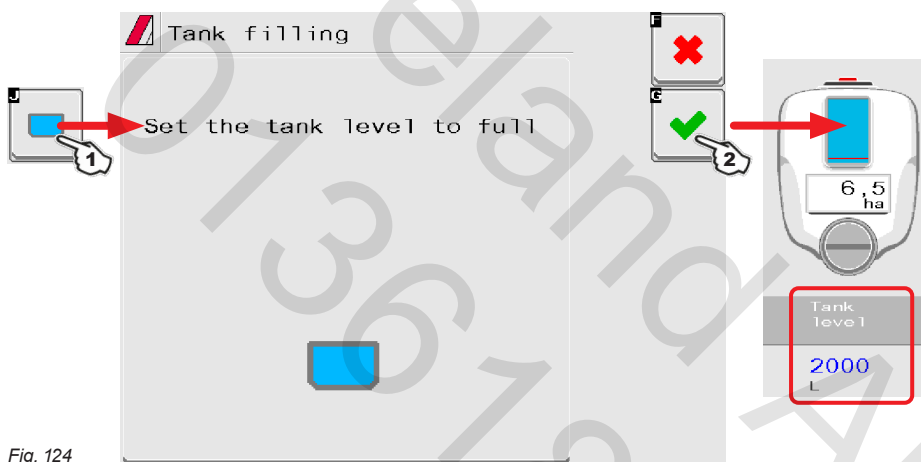


Fig. 124

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

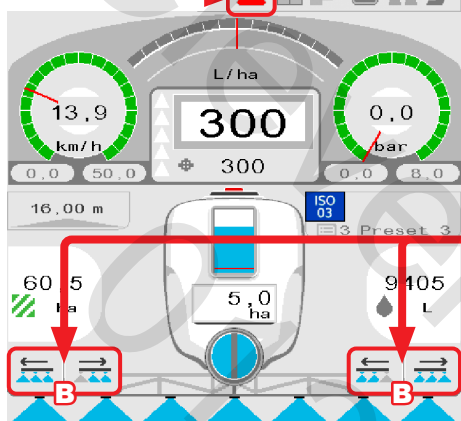
15.5.1 Controls WITH Auxiliary Input

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).

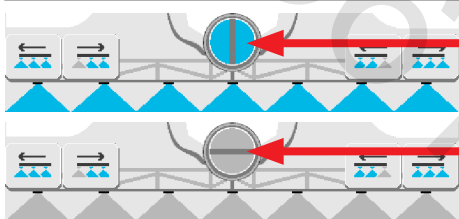
Type:

- Direct
- Sequential
- Joystick

HYD:

-
-
-

MAIN CONTROL FROM TOUCH-SCREEN PANEL

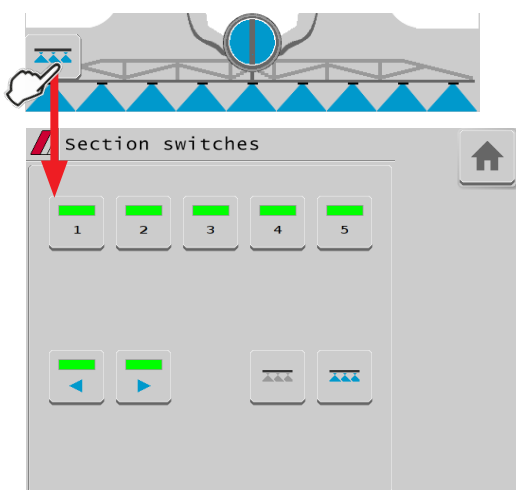


Press to enable or disable the main command.



SECTION DIRECT CONTROL FROM TOUCH-SCREEN PANEL

Press button to display the Section switches page



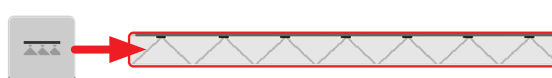
- Press to open/close the relevant section

- Section ON Main control ON
- Section ON Main control OFF
- Section OFF

- Press to open/close the relevant end nozzle

- End nozzle ON Main control ON
- End nozzle ON Main control OFF
- End nozzle OFF

- Press to close all boom sections

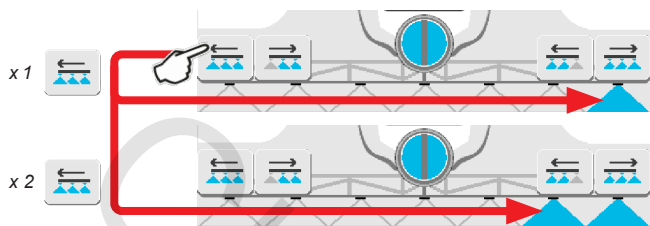


- Press to open all boom sections

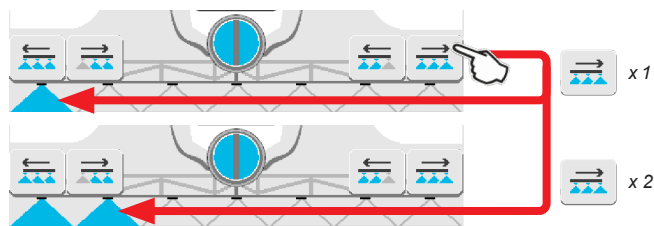
- Sections ON - Main control ON
- Sections ON - Main control OFF

SECTION SEQUENTIAL CONTROL FROM TOUCH-SCREEN PANEL

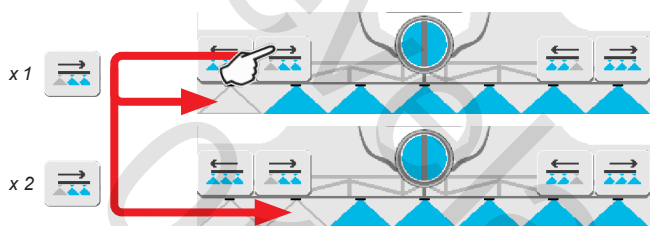
Press to open the sections to the left, starting from the first available on the right.



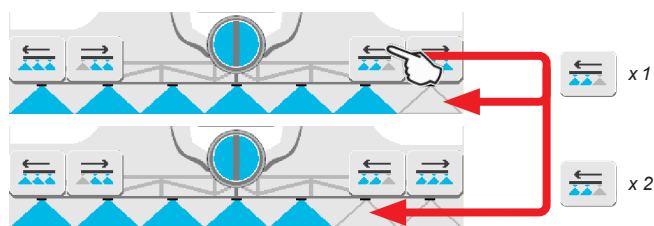
Press to open the sections to the right, starting from the first available on the left.



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

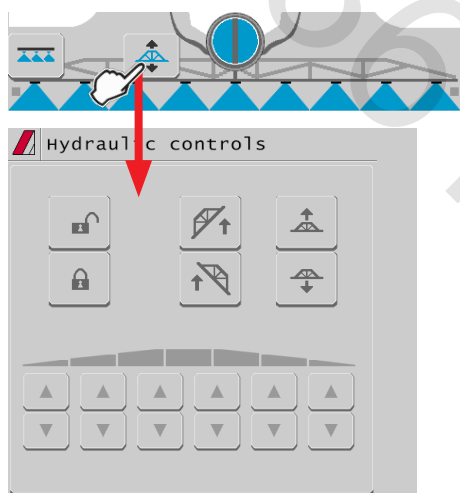


Press to close the sections to the left, starting from the first available on the right.



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

"BUFFER ZONE" FUNCTION ENABLED - FOR SELETRON SYSTEM ONLY

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).

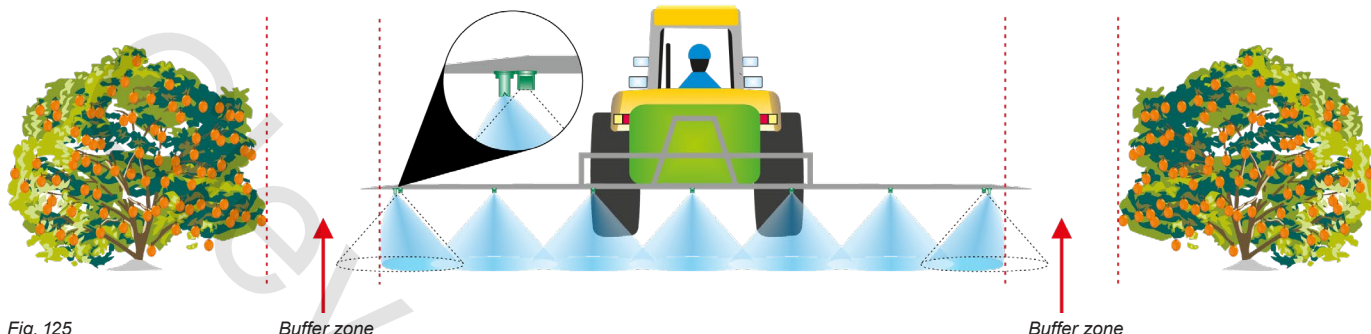


Fig. 125

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.

**END NOZZLES:
CORRESPONDING ICON ON "HOME" SCREEN**

Special nozzle LEFT ENABLED			Special nozzle RIGHT ENABLED
Special nozzle LEFT DISABLED			Special nozzle RIGHT DISABLED

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

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

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.

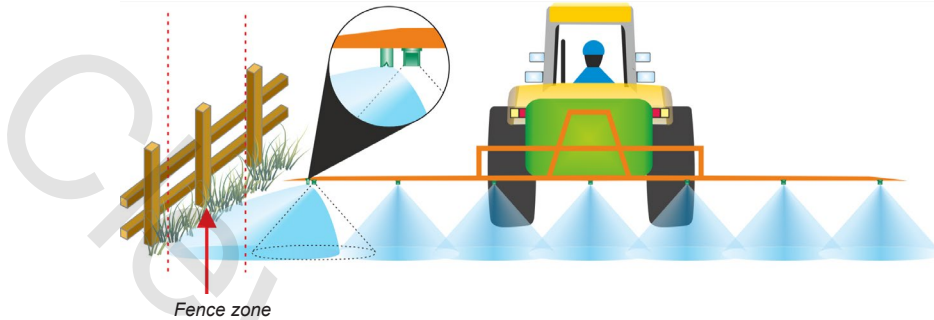
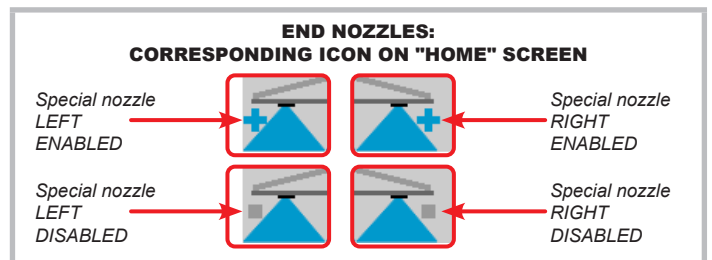


Fig. 126

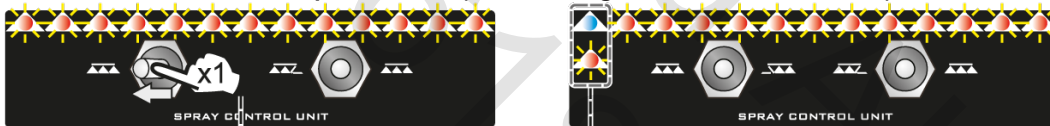
Fence zone

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.



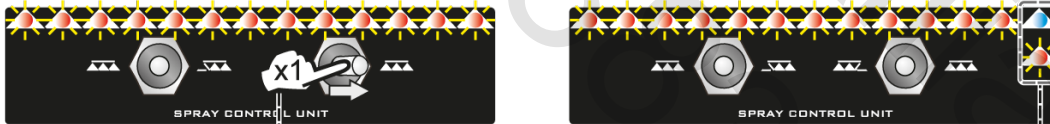
EXAMPLE OF NOZZLE SELECTION WITH SWITCH PANEL

- 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)



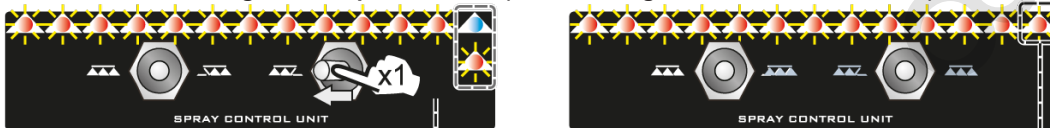
Press switch once to the right, the right "Fence" nozzle activates. The RH LED blinks.

- 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.

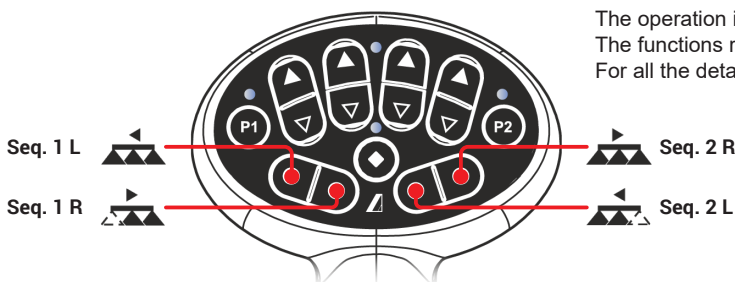
- Deactivation of the right-hand special nozzle (when looking at the boom from behind)



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.

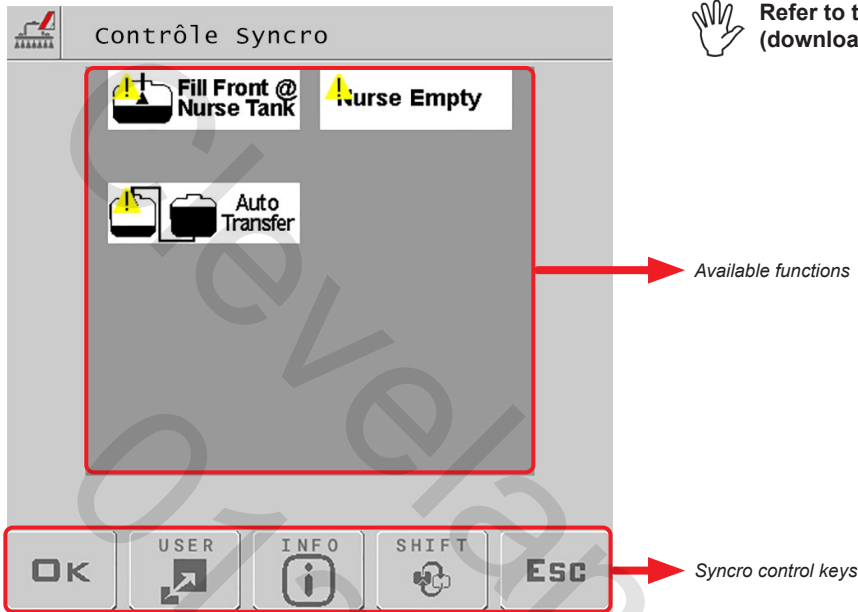


15.7 Syncro control

The user can access the functions of the connected ISOBUS Syncro: perform the available commands, display info and alarms.

The user CANNOT program the Syncro.

From the "Home" page press 













 Refer to the relevant instruction manual (download area of the website "www.aragnet.com").

Fig. 127

 **This page is not available to the remote connection. ALARM DISPLAYED WHEN A COMMAND CANNOT BE ACCESSED BY VT: USE ISOBUS SYNCRO.**

	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

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.

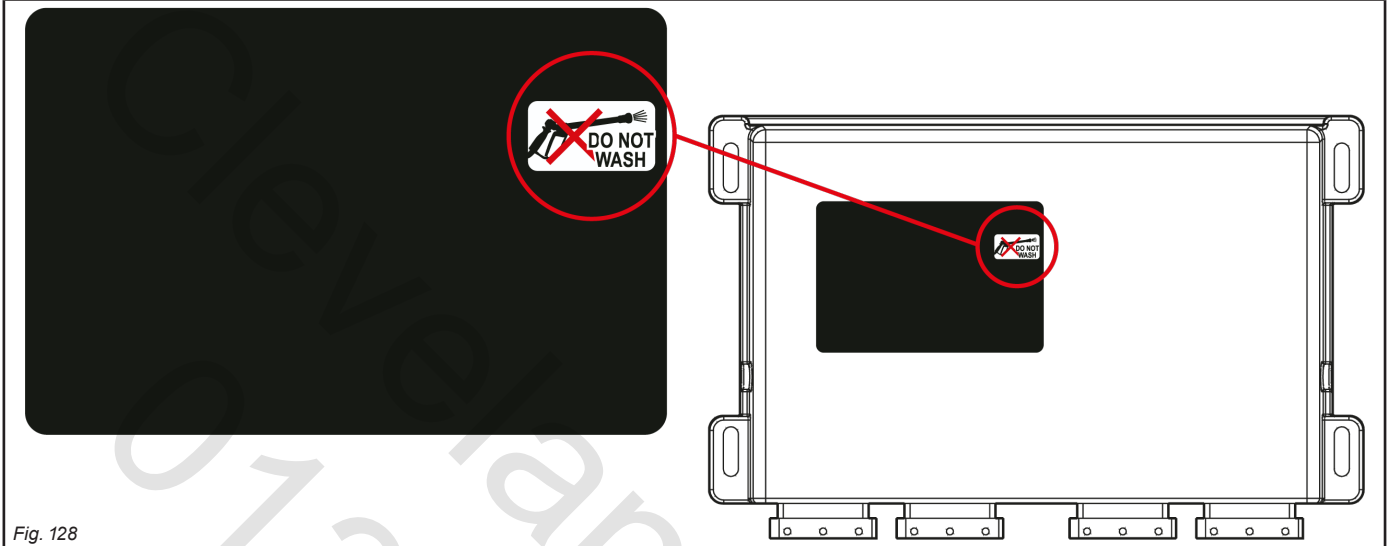
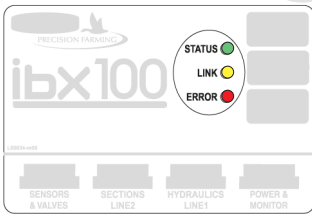


Fig. 128

16.2 Key to LED status



COLOR	
STATUS	green
LINK	yellow
ERROR	red

- **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**: operating control unit
 - **1 periodical blink**: control unit initialization
 - **2 periodical blinks**: the control unit has been correctly initialized, waiting for connection with the Virtual Terminal
 - **3 periodical blinks**: OP loading
 - **4 periodical blinks**: ERROR - OP loading on Virtual Terminal failed
 - **5 regular blinks**: SEVERE ERROR - internal flash drive formatting in progress

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 Implement settings 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	• Connect the IN-CAB cable and the connection cable to the valves.
One valve does not open	No power supply to valve	• Check valve electric connection and operation.
The display no longer shows the speed	Wrong setup	• Check the setup of the wheel constant.
	No signal coming from the speed sensor	• Check connections to speed sensor.
The displayed speed is not precise	Wrong setup	• Check the setup of the wheel constant.
Output volume readout inaccurate	Wrong setup	• Check boom width setting. • Check the setup of the flowmeter constant. • Check the setup of the wheel constant. • Check the setup of the section valve type. • Check connections to speed sensor.
Sprayed surface displayed does not match actual sprayed surface	Wrong setup	• Check boom width setting. • Check the setup of the wheel constant. • Check connections to speed sensor.
	Covered area count not reset	• Reset counter.
Distance traveled count displayed does not match actual distance covered	Wrong setup	• Check the setup of the wheel constant. • Check connections to speed sensor.
	Distance travelled count not reset	• Reset counter.
Sprayed fluid count displayed does not match litres/gpm actually sprayed	Wrong setup	• Check the setup of the flowmeter constant. • Check the setup of the section valve type.
	Distance travelled count not reset	• Reset counter.
	Three-way section valves in use, but no backflow calibration	• Perform calibration.
Time count displayed does not match actual time worked	Work time count not reset	• Reset counter.
Spray volume set for automatic operation cannot be achieved	Wrong setup	• Check spray rate setup. • Check boom width setting.
	System not adequately sized to provide required rate	• Check maximum pressure valve setting. • Make sure control valve is adequate for specific system.
	Control valve malfunction	• Check valve operation.
Instantaneous pressure readout inaccurate	Wrong setup	• Check pressure sensor full scale setting.
	Pressure sensor not calibrated	• Perform calibration.
	Pressure sensor improperly installed	• Check connections to pressure sensor.
Instantaneous pressure not displayed	Wrong setup	• Check pressure sensor setting.
	IBX100 receives no signals from speed sensor	• Check connections to pressure sensor.
	Pressure sensor improperly installed	• Check connections to pressure sensor.
RPM readout inaccurate	Wrong setup	• Check RPM sensor constant setting.
RPM not displayed	IBX100 receives no signals from RPM sensor	• Check connections to RPM sensor.
	RPM sensor improperly installed	• Check connections to RPM sensor.

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: Max frequency 2000 Hz
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, in the relevant section.

Only use original ARAG accessories and spare parts, to maintain safety conditions foreseen by the constructor. Always refer to the internet address www.aragnet.com

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