



Complementary instructions



**Please read carefully
before using the
machine!**

Keep for future use

This operator's and assembly manual is an integral part of the machine. Suppliers of new and second-hand machines are required to document in writing that the operator's and assembly manual was delivered with the machine and handed over to the customer.

AERO 32.1 ISOBUS

from version 3.10.00

5903182-e-en-0126

Original instructions

Dear customer,

By purchasing the machine control unit AERO 32.1 ISOBUS for the AERO 32.1 mineral fertilizer spreader, you have shown confidence in our product. Thank you very much! We want to justify this confidence. You have purchased a powerful and reliable machine control unit.

However, in case unexpected problems arise, our customer service department is always there for you.



Please read this operator's manual as well as the operator's manual for the machine carefully before using the machine, and follow the advice given.

This manual may also describe equipment that is not included in your machine control unit.



Note the serial number of the machine control unit and of the machine

The machine control unit AERO 32.1 ISOBUS has been calibrated at the factory for the fertilizer spreader with which it was supplied. It cannot be connected to another machine without new calibration.

Please enter the serial number of the machine control unit and of the machine here. When connecting the machine control unit to the machine, these numbers must be checked.

Serial number of electronic machine control unit:

Machine serial number:

Machine year of manufacture:

Technical improvements

We continuously strive to improve our products. For this reason, we reserve the right to make any improvements and changes to our machine that we consider necessary without notice. We do not accept any obligation to make such improvements or changes on machines that have already been sold.

We will be pleased to answer any other questions that you might have.

Yours sincerely

RAUCH Landmaschinenfabrik GmbH

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1 User instructions

1.1 About this operator's manual

This operator's manual is an **integral part** of the machine control unit.

The operator's manual contains important instructions for **safe, proper**, and economic **use** and **maintenance** of the machine control unit. Compliance with its stipulations helps to **avoid risks**, reduce repair costs and downtime, and to increase the reliability and service life of the machine controlled with it.

The operator's manual must be kept in an easily accessible location close to where the control unit is operated (such as in the tractor).

The operator's manual does not replace your **own responsibility** as operator and operational staff of the machine control unit.

1.2 Meaning of warnings

The warnings in the operator's manual are classified according to the severity of the risk and the probability of its occurrence.

The warning symbols draw attention to the residual risks to which users of the machine are exposed. The warnings used are structured as follows:

Symbol + **signal word**

Explanation

Level of danger of warnings

The level of danger is indicated in the signal word. The levels of danger are classified as follows:

DANGER!

Type and source of danger

This warning warns of a danger posing an immediate threat to the health and life of people.

Ignoring these warnings will result in severe injury or death.

- ▶ Always observe the measures described to prevent this danger.

WARNING!

Type and source of danger

This warning warns of a potentially dangerous situation for personal health.

Ignoring these warnings leads to severe injury.

- ▶ Always observe the measures described to prevent this danger.

⚠ CAUTION!

Type and source of danger

This warning warns of a potentially dangerous situation for personal health.

Ignoring these warnings leads to injury.

- ▶ Always observe the measures described to prevent this danger.

NOTICE!

Type and source of danger

This warning warns of material and environmental damage.

Ignoring these warnings will result in damage to the machine and to the environment.

- ▶ Always observe the measures described to prevent this danger.



This is an instruction:

General instructions contain tips for the operation and information that is particularly useful, but no warnings about hazards.

1.3 Notes on text descriptions

1.3.1 Instructions and procedures

Steps that must be performed by operating staff are displayed as follows

- ▶ Instructions step 1
- ▶ Instructions step 2

1.3.2 Lists

Lists without a specific sequence are shown as lists with bullet points:

- Property A
- Property B

1.3.3 References

References to other sections in the document are shown with paragraph number, header text and/or page number:

- **Example:** Please also note 2 *Layout and function*

References to other documents are shown as information or instructions without the exact chapter or page number:

- **Example:** Follow the instructions in the operator's manual of the universal drive shaft manufacturer.

1.3.4 Menu hierarchy, keys and navigation

Menus are the entries listed in the **main menu** window.

The menus list **submenus and/or menu items** where settings can be made (selection lists, text or number entries, starting a function).

The various menus and buttons of the machine control unit are illustrated **in bold letters**.

The hierarchy and the path to the requested menu item are marked with an > (arrow) between menu and/or menu item(s):

- System / Test > System / Test > Test/diagnosis means that you can reach the menu item Voltage via the menu item System / Test and the menu item Test/diagnosis.
 - The arrow > corresponds to the operation of the **scroll wheel** and/or the button at the screen (touchscreen).

2 Layout and function



This chapter is limited to the description of the functionality of the electronic machine controller; it does not specify any particular ISOBUS terminal.

- The instructions for the operation of the ISOBUS terminal can be found in the relevant operator's manual.

2.1 Display

The display shows the current status information as well as the selection and input options for the electronic machine control unit.

The most important information concerning the operation of the machine is displayed in the **working screen**.

2.1.1 Description of the working screen



The exact representation of the working screen depends on the actual settings selected and on the machine type.

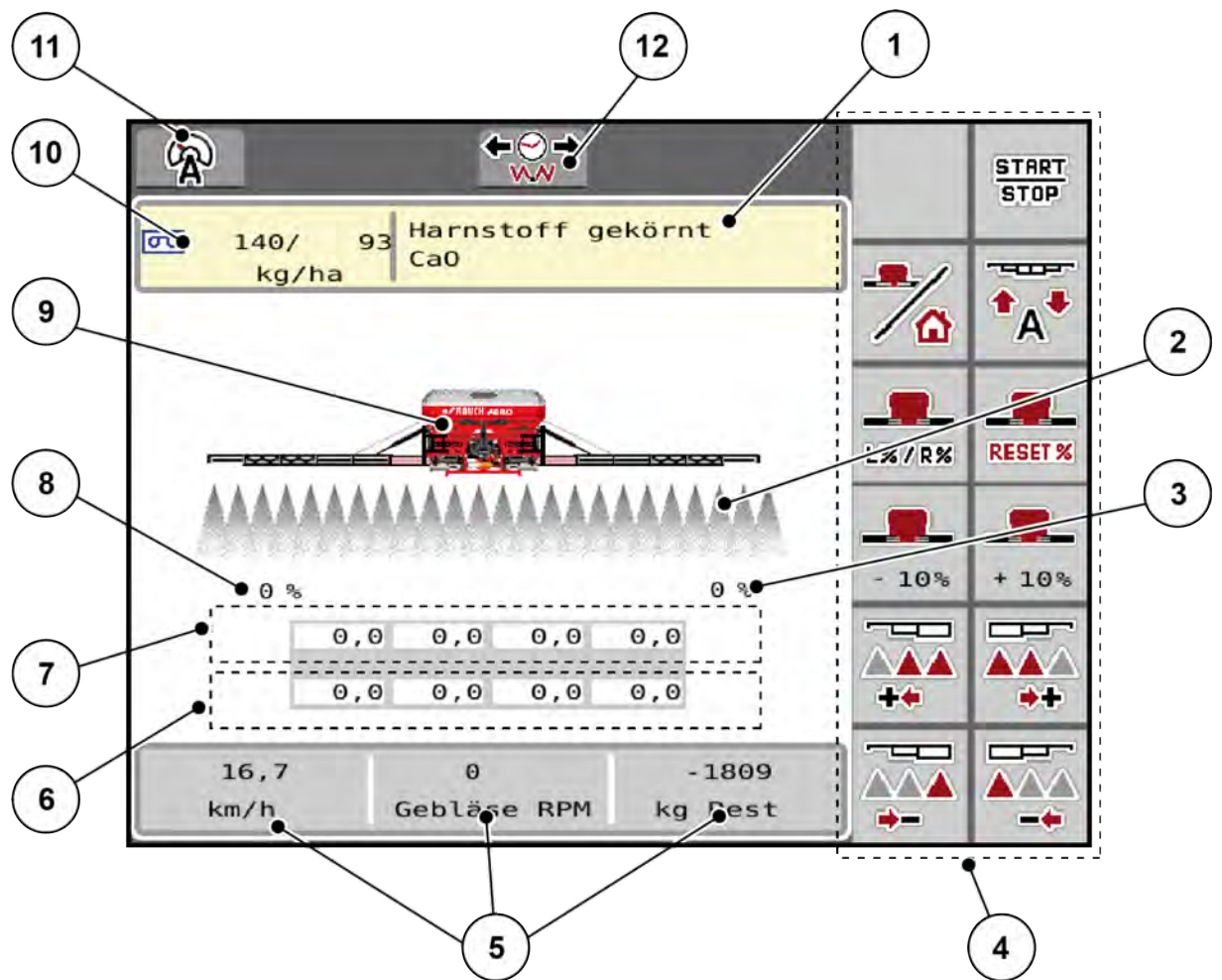


Fig. 1: Machine control unit display

- | | |
|--|--|
| [1] Display of fertilizer information (fertilizer designation and composition)
Button: Adjustment in the fertilizer chart | [8] Rate change for the left boom side |
| [2] Display of sections and individual fertilizer output | [9] Display of boom-type mineral fertilizer spreader |
| [3] Rate change for the right boom side | [10] Current application rates (left, right) from the fertilizer settings or the task controller
Button: direct entry of the application rate |
| [4] Function keys | [11] Selected operating mode |
| [5] Freely definable display fields | [12] Automatic tensioning (only displayed when AUTOkm/h is set) |
| [6] Actual speed of metering units | |
| [7] Target speed of metering units | |

2.1.2 Display fields

The three display fields in the working screen can be individually adjusted and assigned the following values as desired:

- Forward speed
- Turns/kg
- ha trip
- kg trip
- m trip
- kg left
- m left
- ha left
- Blower RPM
- Oil temperature

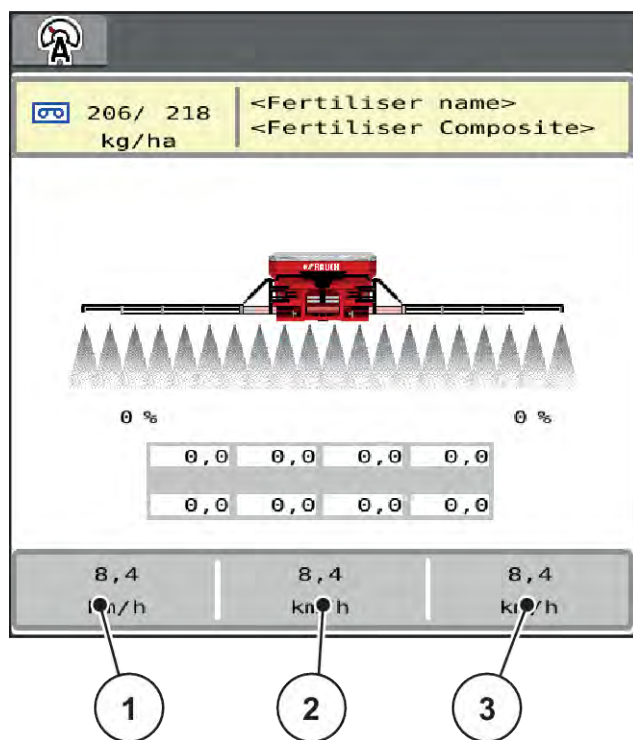


Fig. 2: Display fields

- [1] Display field 1
[2] Display field 2

- [3] Display field 3

Select display

- ▶ Press the corresponding display field in the touch screen.
The available options are displayed in a list.
- ▶ Select the new value to be assigned to the display field.
- ▶ Press the OK button.
The operating screen is displayed.

The respective display field displays the new value.

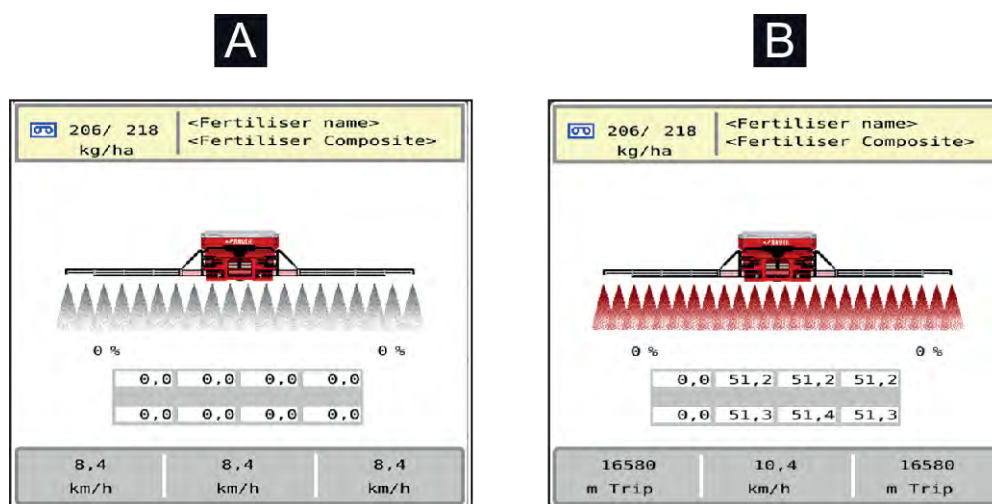
2.1.3 Spreading operation status display

Fig. 3: Spreading operation status display

[A] Spreading operation inactive (STOP)

[B] Machine in spreading operation (START)

2.1.4 Display of sections

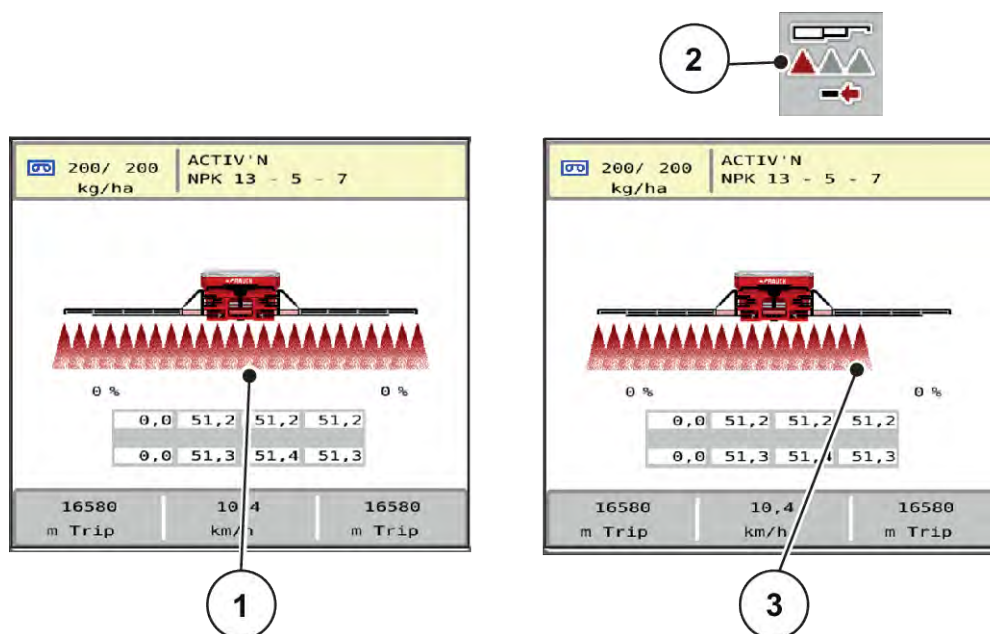


Fig. 4: Display of the section states







[1] Activated sections on entire working width
[2] Reduce right section button

[3] Right section is reduced by several partial sections






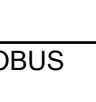
Further display and setting options are explained in chapter 4 *Operation*.




2.2 Library of icons used

2.2.1 Navigation












Symbol	Meaning
	Go to the left; previous page
	Go to the right; next page
	Back to the previous menu
	Switch from a menu window directly to the main menu
	Switch between working screen and menu window
	Cancellation, closing the dialog window


2.2.2 Menus

Icon	Meaning
	Switch from a menu window directly to the main menu
	Switch between working screen and menu window
	SpreadLight operating lights
	Working screen
	Fertilizer settings
	Machine settings


Icon	Meaning
	System/Test
	Information
	Weighing/Trip counter









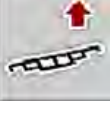


2.2.3 Working screen icons



Icon	Meaning
	Start spreading and control of application rate
	The spreading operation has started; stop the application rate regulation
	Reset the quantity adjustment to the pre-set application rate
	Switch between working screen and menu window
	Working mode AUTO km/h
	Working mode AUTO km/h + static kg
	Operating mode MAN km/h
	Automatic tensioning (only visible when AUTOkm/h is set)
	Selection of the surplus/shortage quantity on the left, right or both spreading sides (%)
	Quantity adjustment + (plus)
	Quantity adjustment - (minus)

Icon	Meaning
	Quantity adjustment, left + (plus)
	Quantity adjustment, left - (minus)
	Quantity adjustment, right + (plus)
	Quantity adjustment, right - (minus)
	Increase left sections (plus)
	Reduce left sections (minus)
	Increase right sections (plus)
	Reduce right sections (minus)
	If the speed drops below, the symbol flashes.
	If the speed is exceeded, the symbol flashes.
	The current rotational speed is saved.

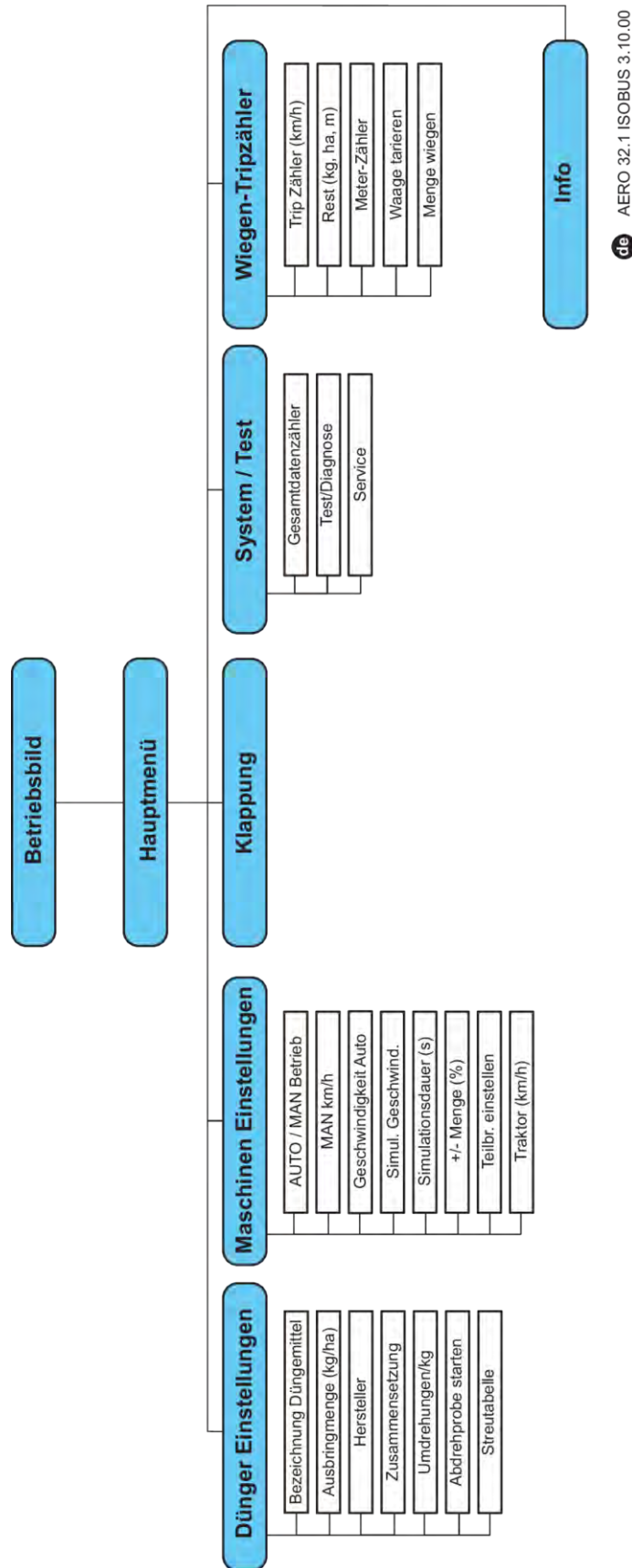
2.2.4 Other icons

Symbol	Meaning
	Fold in start sections and central sections 1 of the boom

Symbol	Meaning
	Fold out start sections and central sections 1 of the boom
	Fold in central section 2 of the boom
	Fold out central section 2 of the boom
	Fold in end sections of the boom
	Fold out end sections of the boom
	Lift boom into V-position
	Lower boom into working position
	Inclination of boom, lift left
	Inclination of boom, lift right
	Activate left border spreading function
	Left border spreading function active

Symbol	Meaning
	Activate the right border spreading function
	Right border spreading function active

2.3 Structural menu overview



de AERO 32.1 ISOBUS 3.10.00

3 Attachment and installation

3.1 Tractor requirements

Before installing the machine control unit, ensure that the tractor satisfies the following requirements:

- A minimum voltage of **11 V** must **always** be guaranteed, even when several consumers are connected concurrently (e.g. air conditioning system, lights)
- Oil supply to the metering units: at least 30 l/min per p = 180 bar, single-acting or double-acting valve (depending on equipment),
- The PTO speed must be set to 1,000 rpm and be maintained (basic requirement for a correct metering and transverse distribution).



On tractors without load-switchable transmission, the forward speed must be selected by using the correct gear ratio in such a way that it corresponds to a PTO speed of **1,000 rpm**.

- 9-pin socket (ISO 11783) located at the rear of the tractor, for connecting the machine control unit to the ISOBUS
- 9-pin terminal plug (ISO 11783) for connecting an ISOBUS terminal to the ISOBUS

The power supply of the machine control unit is implemented via the 9-pin ISOBUS socket at the rear of the tractor.



If the tractor is not equipped with a 9-pin socket at the rear, a tractor assembly set including a 9-pin socket for the tractor (ISO 11783) and a forward speed sensor may be purchased additionally as special equipment.

- The tractor has to provide the speed signal to the ISOBUS.



Check that the tractor has the necessary plugs and sockets available.

- Due to the many different configurations of tractor/machine/terminal, please contact the dealer when selecting the correct connection.

3.2 Connections, sockets

3.2.1 Power supply

The power supply of the machine control unit is implemented via the 9-pin socket at the rear of the tractor.

4 Operation

⚠ CAUTION!

Risk of injury due to discharged fertilizer

In the case of a fault, it is possible that the metering slide unexpectedly opens during road transport to the spreading location. There is a risk of slipping and personal injury due to ejected fertilizer.

- ▶ **Before leaving for the spreading location**, always switch off the electronic machine control unit.

4.1 Switching on the machine control unit

Requirements:

- The machine control unit is correctly connected to the machine and the tractor.
- The minimum voltage of **11 V** is guaranteed.



- ▶ Start the machine control unit.
- ▶ The **Start screen** of the machine control unit appears.
- ▶ Note any warning message and acknowledge it with the Enter key.
- ▶ Subsequently, the machine control unit displays the **activation menu** for a few seconds.

The working screen then appears.

4.2 Navigation within the menus



Refer to chapter 1.3.4 *Menu hierarchy, keys and navigation* for important notes regarding the display and navigation between menus.

The techniques for accessing menus and menu entries **by touching the touch screen or pressing the function keys** by touching the touch screen or pressing the function keys are described below.

- Refer to the operator's manual of the terminal that is used.

■ **Accessing the main menu**

- ▶ Press the **Working screen/main menu** function key. See 2.2.2 *Menus*.

The main menu is displayed.



■ **Accessing the sub-menu via the touch screen**

- ▶ Press the button of the desired sub-menu.

Windows appear with prompts for various actions.

- Text input
- Value input
- Settings made in further sub-menus



Not all parameters are displayed simultaneously on one screen. Use the **left/right arrow** keys to skip to the next or previous menu windows (tabs).

■ **Exiting menus**

- ▶ Confirm settings by pressing the **Return** key.



*You will return to the **previous menu**.*



- ▶ Press the **Working screen/main menu** key.

*You will return to the **working screen**.*



- ▶ Press **ESC**.

*The **previous settings** are retained.*

*You will return to the **previous menu**.*

4.3 Main menu

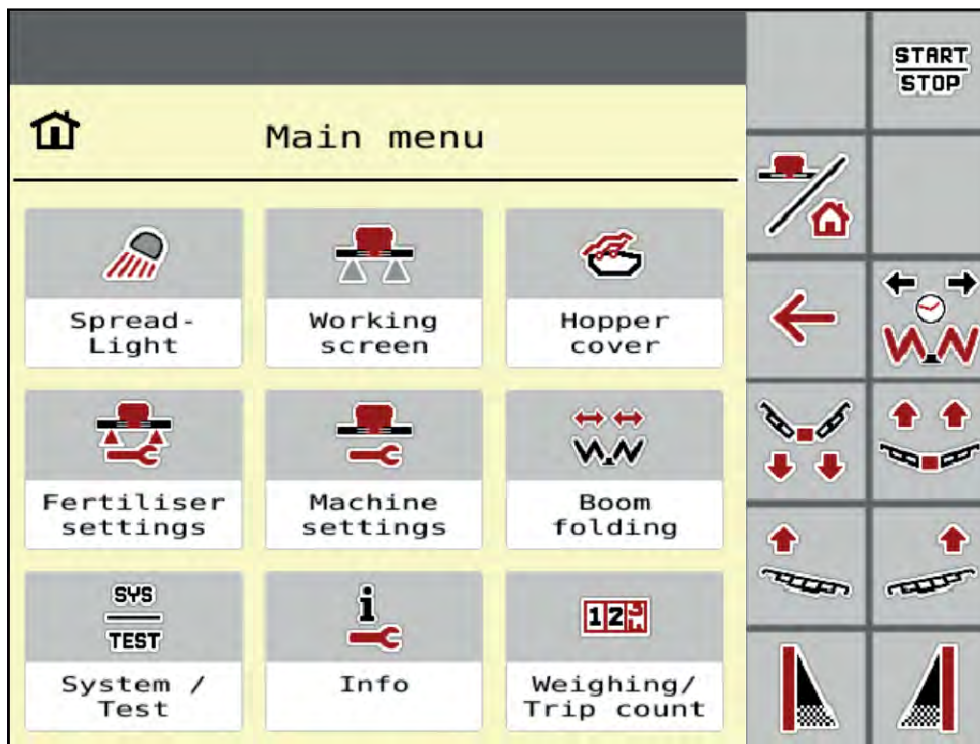


Fig. 5: Main menu with sub-menus

Sub-menu	Meaning	Description
SpreadLight SpreadLight	Activation/deactivation of operating lights	4.10 Operating lights (SpreadLight)
Working screen Working screen	Switches to the working screen	
Hopper cover Hopper cover	Opening/closing the hopper cover	4.11 Hopper cover
Fertiliser settings Fertiliser settings	Fertilizer and spreading operation settings	4.4 Fertilizer settings
Machine settings Machine settings	Tractor and machine settings	4.5 Machine settings
Boom folding	Folding the boom in/out	4.6 Folding the boom in/out
System/Test System / Test	Settings and diagnosis of the machine control unit	4.8 System/Test
Info Info	Machine configuration display	4.8.4 Info

Sub-menu	Meaning	Description
Weighing / Trip count Weighing/Trip count.	Values regarding spreading work performed and functions for weighing operation	4.9 <i>Weighing/Trip counter</i>

In the main menu you can select function keys in addition to the sub-menus.

- The function keys **Raise/Lower** (in the headlands) and **Tilt to the left/to the right** are visible only when the boom is fully swung out.
 - See 4.7 *Manual adjustment of the boom*
 - See 5.7 *Driving into the headlands*
- Activating the border spreading function on the left hand side, on the right hand side or on both sides.
 - See 5.1.1 *Spreading operation with one section and in boundary spreading mode*

4.4 Fertilizer settings



In this menu, the fertilizer and spreading settings can be changed.

- ▶ Access the menu Main menu > Fertiliser settings.



Not all parameters are displayed simultaneously on one screen. You can switch to the next or previous menu windows (tabs) using the **left/right arrow** keys.

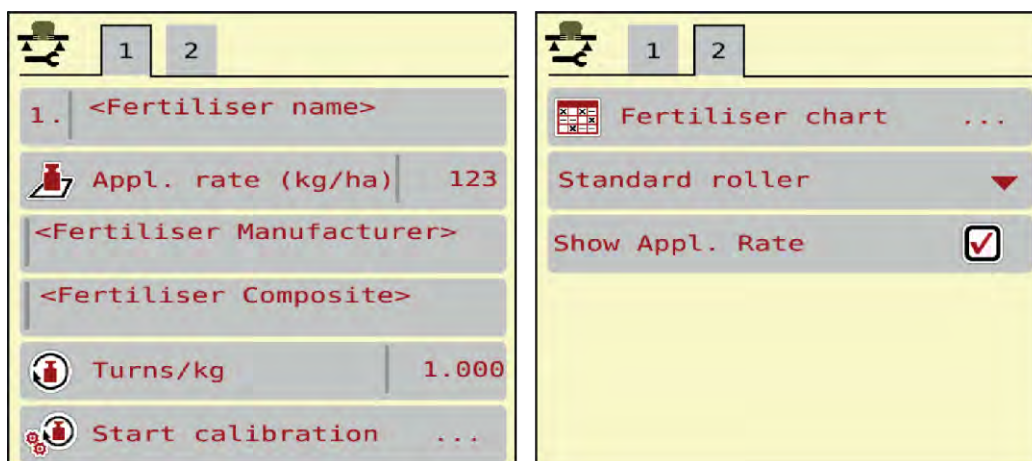


Fig. 6: Fertiliser settings menu, tab 1 and 2

Sub-menu	Meaning	Description
Fertiliser name Fertiliser name	Fertilizer selected from the fertilizer chart	4.4.4 Fertilizer charts
Application rate Appl. rate (kg/ha)	Inputting the set application rate in kg/ha	4.4.1 Application rate
Manufacturer Manufacturer	Fertilizer manufacturer input	
Composition Composition	Percentage of the chemical composition	
Turns/kg	Calibration factor for the revolutions of the metering rollers per kilogram. Is determined by means of a calibration.	4.4.2 Turns pro kg
Start calibration Start calibration	Accessing the sub-menu for executing the calibration	4.4.3 Calibration test
Fertiliser chart Fertiliser chart	Management of fertilizer charts	4.4.4 Fertilizer charts
Roller type	Changing the roller type	4.4.5 Roller types
Application rate display	Switchover display operating screen.	4.4.6 Displace of the application rate

4.4.1 Application rate



In this menu, the target value for the desired application rate can be set.

Enter the application rate:

- ▶ Call up the Fertiliser settings > Appl. rate (kg/ha) menu.
*The **currently applied** application rate is displayed.*
- ▶ Enter the new value in the input field.
- ▶ Press **OK**.

The new value is saved in the machine control unit.

You can also enter or adjust the application rate directly via the working screen.

4.4.3 Calibration test

⚠ WARNING!

Risk of injury during calibration

Rotating machine parts and discharged fertilizer could cause injury.

- ▶ Before starting the calibration, ensure that all requirements have been met.
- ▶ Do not reach into the metering unit.

⚠ WARNING!

Risk of injury due to chemicals

Escaping fertilizer may lead to injury to eyes and nasal mucous membranes.

- ▶ Wear safety goggles during calibration.
- ▶ Follow the manufacturer's warnings when handling chemicals. Wear the recommended personal protective equipment (PPE).
- ▶ Before running the calibration test, ensure that all people leave the hazard zone of the machine.

Perform the calibration test to calibrate the exact amount of fertilizer. Fertilizer must be filled into the hopper. Calibrations for up to 30 types of fertilizers can be stored.

Requirements:

- The metering unit is disconnected.
- The machine control (ISOBUS terminal) is ready for operation.
- An adequately sized tray for collecting the fertilizer is located under the metering unit (minimum capacity 25 kg).
- The hydraulic system of the tractor is switched on (minimum oil flow rate 60 l/min).

Run the calibration test:

- before spreading for the first time
- If the fertilizer quality has changed significantly (moisture, high dust content, granulate damage)
- If a new fertilizer type is used



- ▶ Call up the Fertiliser settings > Start calibration menu.
- ▶ Enter the average working speed.

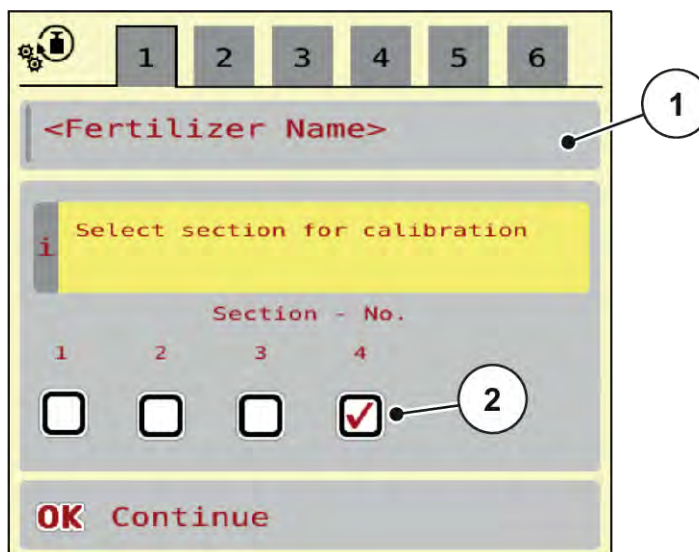


Fig. 8: Calibration menu, page 1

- [1] Fertilizer designation
- [2] Selecting the section over which the calibration test is to be performed. You can select more than one unit at the same time.

- ▶ Enter the new designation in the input field Fertiliser name.
- ▶ Select the desired section for the calibration test.



Depending on the machine configuration you can replace the cam discs with solid discs. Always perform the calibration test over a section for which the cam discs are installed.

- ▷ To do this, check the box under the section number.
The default procedure is to select the 4th section.
- ▶ Press the **OK** button.

Page 2 appears.

During the course of the process the calibration time can if necessary be configured to suit and the step of pre-filling the metering trays can be skipped (OK Continue without filling)

- ▶ Enter the average working speed.

! WARNING!

Risk of injury during calibration test

Rotating machine parts and discharged fertilizer could cause injury.

- ▶ Before starting the calibration, ensure that all requirements have been met.
- ▶ Observe the calibration chapter in the operator's manual for the machine.

- ▶ Press the **OK** button.

The new value is saved in the machine control unit.

The display switches to page 3.

The metering roller now fills the spreader tank and automatically stops after 5 s.

The display switches to page 4.

- ▶ Empty the fertilizer collection tray and then place it back under the metering unit.

- ▶ Press the **OK** button.

Page 5 is displayed and the calibration test is started automatically.

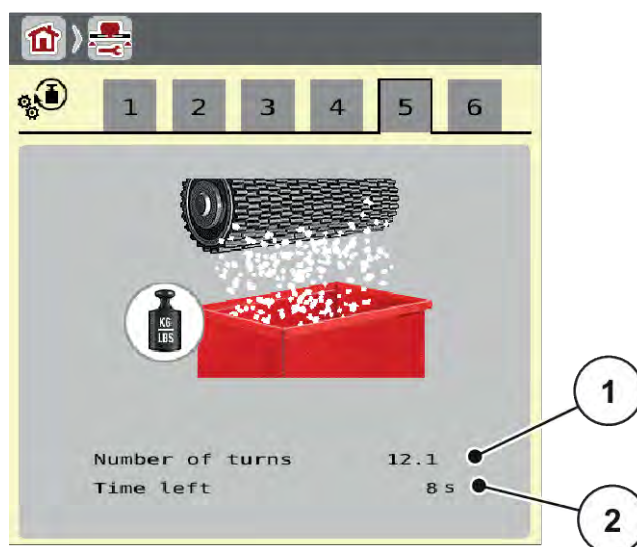


Fig. 9: Calibration menu, page 5

- ▶ The calibration procedure now runs automatically until metering switches off independently after 60 s.
- ▶ The display switches to page 6.
 - ▷ The calibration quantity can be entered in the fields for the calibrated quantity.

- ▶ Weigh the collected fertilizer quantity again.

- ▶ Enter the collected fertilizer quantity.

The machine control unit uses the data to calculate the new value of revolutions/kg.

- ▶ Press the **OK** button.

The newly calculated revolutions/kg have been adopted.

Revert back to the Fertiliser settings menu.

The calibration test has been performed and is therefore complete.

4.4.4 Fertilizer charts



The fertilizer charts are created and managed in this menu.



Selecting a fertilizer chart affects the machine, fertilizer settings and the machine control unit. The set application rate is overwritten by the stored value from the fertilizer chart.

Creating a new fertilizer chart

Up to 30 fertilizer charts can be created in the electronic machine control unit.

- ▶ Call up the Fertiliser settings > Fertiliser charts menu.

- ▶ Select an empty fertilizer chart.

The name field consists of the fertilizer name and composition, amongst other things.

The display shows the selection window.

- ▶ Press the option Open and back to fertiliser settings.

The Fertiliser settings menu is displayed and the selected element is loaded into the fertilizer settings as the active fertilizer chart.

- ▶ Call up the Fertiliser name menu item.
- ▶ Enter a name for the fertilizer chart.
- ▶ Edit the parameters of the fertilizer chart. See 4.4 Fertilizer settings.

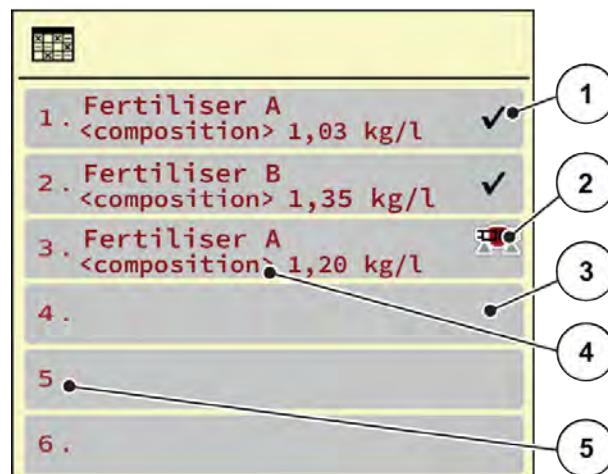


Fig. 10: Menu Fertiliser charts

- | | |
|---|---------------------------------|
| [1] Indicates a fertilizer chart filled with values | [3] Empty fertilizer chart |
| [2] Indicates an active fertilizer chart | [4] Fertilizer chart name field |
| | [5] Chart number |



We recommend naming the fertilizer chart after the fertilizer. A specific fertilizer can thus more easily be assigned to a fertilizer chart.

Selecting a fertilizer chart

- ▶ Access the menu Fertiliser settings > Open and back to fertiliser settings.
- ▶ Select the desired fertilizer chart.
The display shows the selection window.
- ▶ Select the option Open and back to spreading mat. settings.

The Fertiliser settings menu is displayed and the selected element is loaded into the fertilizer settings as the active fertilizer chart.



When selecting an existing fertilizer chart, all values in the Fertiliser settings menu will be overwritten with the stored values obtained from the selected fertilizer chart, including the application rate and the calibration factor "revolutions/kg".

■ **Copying an existing fertilizer chart**

- ▶ Select the desired fertilizer chart.
The display shows the selection window.
- ▶ Select the option Copy element.

A copy of the fertilizer chart is now in the first free position on the list.

■ **Deleting an existing fertilizer chart**

- ▶ Select the desired fertilizer chart.
The display shows the selection window.



The active fertilizer chart cannot be deleted.

- ▶ Select the option Delete element.

The fertilizer chart is deleted from the list.

■ **Managing the selected fertilizer chart via the working screen**

You can also manage the fertilizer chart directly via the operating screen

4.4.5 Roller types

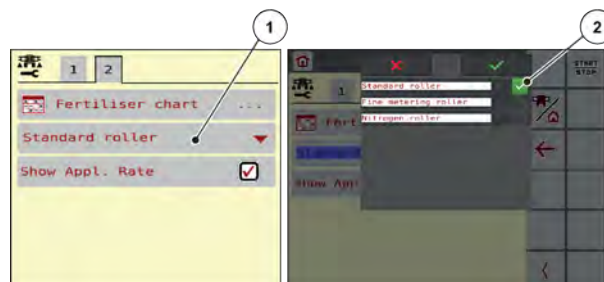
In this menu, you can select the metering rollers.



The selection of the metering roller affects the minimum and maximum application rate.

Selecting the metering roller

- ▶ On the touchscreen, select the second menu item [1] (here: standard roller).
- ▶ Select the installed roller [2].



Depending on the roller type fitted, the calibration test value for AERO 32.1 is now set to the following start values when the roller type is changed in the fertilizer settings:

Roller type	Hydraulic	Electric
Standard	1 rev./kg	6 rev./kg
Fine	15 rev./kg	90 rev./kg
Nitrogen	5 rev./kg	30 rev./kg

Tab. 1: Starting values when changing the roller type



The current calibration test value is overwritten!

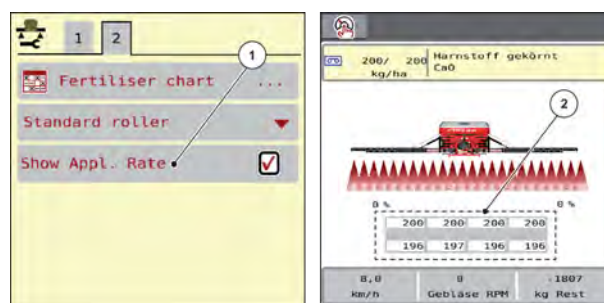
4.4.6 Displace of the application rate

Setting the “Display application rate” check mark causes the application rates to be displayed in the operating screen instead of the speeds.

Displaying the application rate

- ▶ On the touchscreen, set checkmark on the “Display application rate” button [1].

The field [2] changes in the operating screen.



4.5 Machine settings



In this menu, you can enter settings for the tractor and the machine.

- ▶ Call up the menu Machine settings.

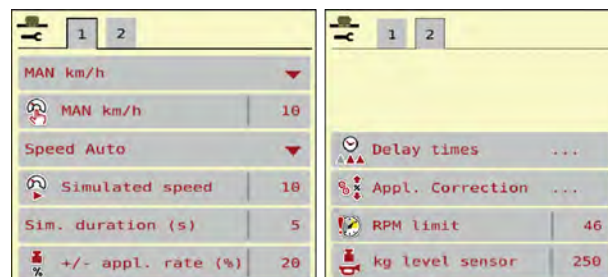


Fig. 12: Menu Machine settings



Not all parameters are displayed simultaneously on the one screen. Use the **left/right arrow** keys to skip to the next or previous menu window (tab).

Sub-menu	Meaning	Description
AUTO/MAN mode AUTO/MAN mode	Specifying automatic or manual operating mode	4.5.1 <i>AUTO/MAN mode</i>
MAN km/h MAN km/h	Setting the manual speed. (only influences the respective operating mode)	To be entered in a separate input window.
Speed signal source Speed/signal source	Selection/limitation of the speed signal <ul style="list-style-type: none"> • Speed AUTO (automated selection of either transmission or radar/GPS¹⁾) • GPS J1939¹⁾ • NMEA 2000 	
Simulated speed Simulated speed	Pre-configuration for spreading with simulated speed in order to spread directly from the edge of the field The simulated speed is active until the actual driving speed has been reached or after the simulation time that has been entered has elapsed.	To be entered in a separate input window

¹⁾ The manufacturer does not assume any liability in the event of a loss of the GPS signal.

Sub-menu	Meaning	Description
Simulation duration Sim. duration (s)	Input of the maximum duration of the simulated speed in seconds	To be entered in a separate input window
+/- appl. rate (%) +/- appl. rate (%)	Presetting for the change of quantity	To be entered in a separate input window
Delay times Delay times	Optimizing the delay times for the sections	To be entered in a separate input window.
Appl. rate correction Application rate correction	Efficiency	Quantity differences between the metering units can be compensated.
RPM Limit	Rotational speed limit	The current limit can be viewed and changed.
kg level sensor kg level sensor	Input of the remaining quantity to trigger an alarm message via the weigh cells	

4.5.1 AUTO/MAN mode

The machine control unit automatically adjusts the metering quantity according to the speed signal. This adjustment is influenced by the application rate, working width, and flow factor.

By default, the unit is operated in the **automatic** mode.

You only work in **manual** mode in the following cases:

- If there is no speed signal (radar or wheel sensor not available or defective)
- Application of slug pellets or seeds (fine seeds)



For uniform spreading of the material to be spread, a **constant forward speed** must be selected in manual working mode.



Spreading in the different working modes is described in *5 Spreading operation*.

Menu	Meaning	Description
AUTO km/h + static kg	Selecting automatic mode with static weighing	Page 62
AUTO km/h	Selecting automatic mode	Page 61
MAN km/h	Adjustment of forward speed for manual mode	Page 63

Working mode selection

- ▶ Start the machine control unit.
 - ▶ Access the menu Machine settings > AUTO/MAN mode.
 - ▶ Select the desired menu item from the list.
 - ▶ Press OK.
 - ▶ Follow the instructions on the screen.
- Important information on the use of working modes for spreading operations is provided in chapter 5 *Spreading operation*.

■ Working mode AUTO km/h + static kg

NOTICE!

When taring or weighing back the residual quantity, the rod linkage must be in the working position.

For smaller application rates and for the fine metering shaft, a calibration test must be carried out.

A calibration test must be carried out after every change.

The minimum quantity is 100 kg/ha, depending on the spreading material.



In this working mode the **calibration factor revolutions/kg** is determined by means of the load cells.

- ▶ Switch on the machine control unit.
- ▶ Fill the hopper with fertilizer.
- ▶ Access the menu Machine settings > AUTO/MAN mode.
- ▶ Call up the selection window.
- ▶ Select the working mode AUTO km/h + static kg
- ▶ Press OK.

The Weigh quantity window is displayed.

- ▶ Exit the Weigh quantity window by selecting the values New fertiliser or Refill.

Selecting New fertiliser resets the calibration factor to 1.0 revolutions/kg. Selecting Refill retains the previous calibration factor as revolutions/kg.

The machine control unit switches to the working screen.

4.5.2 +/- quantity



In this menu, you can set the percentage increment of the **application rate change** for normal spreading.

The preset value of the metering rollers serves as a basis (100%).



During operation, the Quantity +/ Quantity - function keys can be used to adjust the application rate by the +/- Quantity factor at any time. The pre-configuration can be reset with the C 100 % key.

Specifying the application rate reduction:

- ▶ Call up the Machine settings > +/- appl. rate (%) menu.
- ▶ Enter the percentage by which the application rate is to be changed.
- ▶ Press OK.

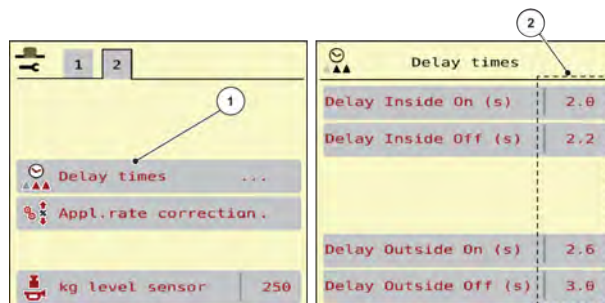
4.5.3 Delay times

In this menu, you can optimize the delay times [1] in the section widths.



The standard delay times [2] for AERO 32.1 are:

- Delay time inside on: 2.0 s
- Delay time inside off: 2.2 s
- Delay time outside on: 2.6 s
- Delay time outside off: 3.0 s



Calculating delay time based on an example

- ▶ Example: 2 m overlap when switching on.
- ▶ Ground speed 9 km/h (9 km/h / 3.6 = 2.5 m/s)

2 m / 2.5 m/s = 0.8 s too large. Reduce the switch-on delay by 0.8 s!



The delay times vary slightly depending on the fertilizer and fan speed.

Delay time	Gap	Overlap
Switching on	Increase switch-on delay	Decrease switch-on delay
Switching off	Decrease switch-off delay	Increase switch-off delay

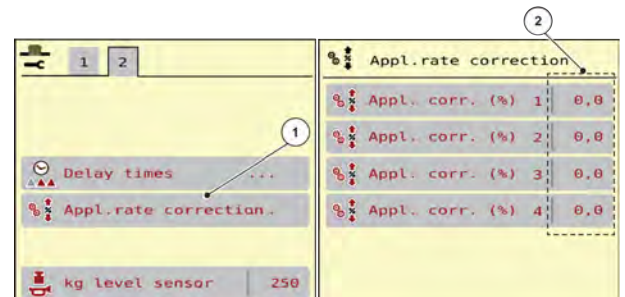


Restart of the job computer required.

4.5.4 Efficiency

In this menu, tolerance-related and wear-related quantity differences between the metering units can be compensated. The setting can be found in the “Machine settings” under the menu item “Appl. Correction” [1].

- The metering rollers then rotate slower or faster according to the set value [2].



4.6 Folding the boom in/out

4.6.1 Pivoting frame locking

The locking of the pivoting frames in the working position is monitored by sensors mounted on both sides. It is only possible to fold out the booms when the pivoting frames are locked in the working position. It is not possible to fold out the booms without the pivoting frames being locked in the working position, and a warning/information message Alarm 120 appears.



Fig. 13: Alarm message, pivoting frame locking



The locking of the pivoting frames in the transport position is **not** monitored. There is no display or error message if the pivoting frames are not locked in the transport position or are incorrectly locked.

4.6.2 Folding out the boom

CAUTION!

Risk of collision while the boom packages are swinging in and out

The boom packages can injure people while they are swinging in and out.

- ▶ Ensure that nobody is present in the hazard zone.

NOTICE!

Risk of property damage when the boom packages are swinging in and out

If the boom packages are extended while the swivel frame is in the transport position or is not locked, the machine could be damaged.

- ▶ Do not start the swinging procedure until the swivel frame is in the operating position and locked on the left and right.
- ▶ Only swing the boom in or out when the attached spreader is at a standstill.
- ▶ Only operate the boom if there is enough free space around the spreader.



Always check the boom while folding.

The machine is equipped with hydraulically swinging boom sections.

You can continuously adjust the boom electronically in the inclination to the ground by hand.

Requirements:

- The machine must be standing as horizontal as possible.
- The tractor hydraulic control unit must be started.
- The swivel frame is locked in the transport position. *Chapter 4.6.1 - Pivoting frame locking - Page 37*



- ▶ Access the menu Main menu > Boom folding.

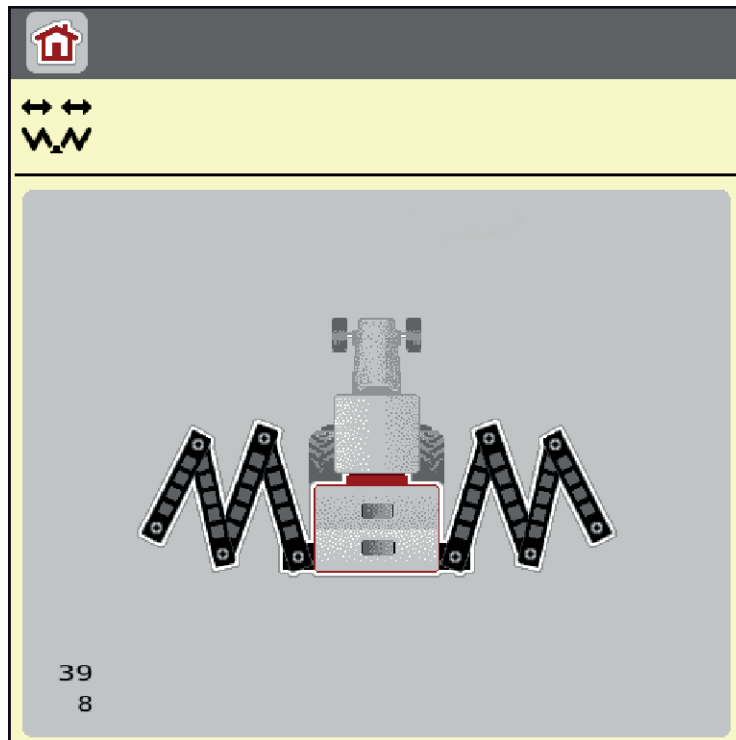


Fig. 14: Menu Boom folding



- ▶ Press the **Swing out first sections and central sections 1** function key until the boom first sections and central sections are fully swung out **and** the timer on the screen has expired.

The first sections and central sections 1 are fully swung out on both sides.

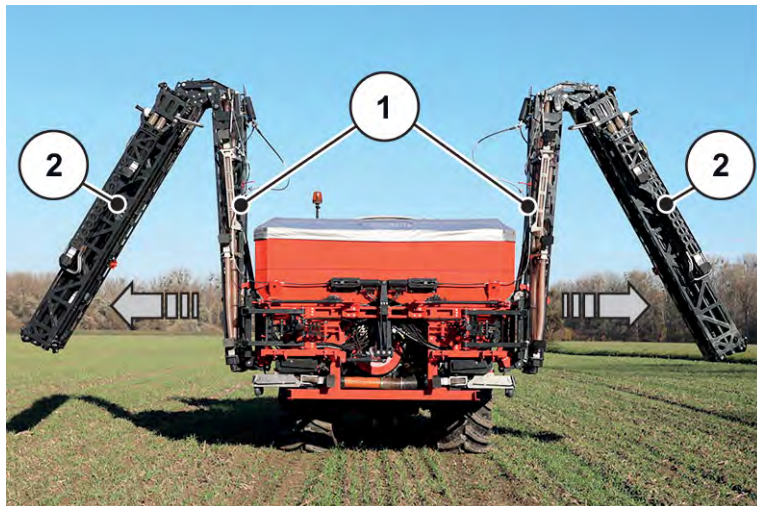


Fig. 15: Swinging out the start sections and central sections 1



Look at the boom to check whether the first sections and central sections 1 are fully swung out and are relatively level.

- The cylinders of the start side must extend completely.
- The cylinders are extended, the wire rope is under tension.



- ▶ Press the **Central sections 2** function key until the boom central sections 2 are fully swung out **and** the timer on the screen has expired.

The central sections 2 are fully swung out on both sides.

The timer on the screen counts down to 0.



- ▶ Press the **Swing out end sections** function key until the boom end sections are fully swung out **and** the timer on the screen has expired.

The machine is ready for spreading.

The timer on the screen counts down to 0.

4.6.3

Folding in the boom

⚠ CAUTION!

Risk of collision while the boom packages are swinging in and out

The boom packages can injure people while they are swinging in and out.

- ▶ Ensure that nobody is present in the hazard zone.

NOTICE!**Risk of property damage when the boom packages are swinging in and out**

If the boom packages are extended while the swivel frame is in the transport position or is not locked, the machine could be damaged.

- ▶ Do not start the swinging procedure until the swivel frame is in the operating position and locked on the left and right.
- ▶ Only swing the boom in or out when the attached spreader is at a standstill.
- ▶ Only operate the boom if there is enough free space around the spreader.



Whilst swinging the boom in or out, always watch it closely.



- ▶ Press the **Swing in the end sections** function key until the end sections are fully swung in on both sides **and** the timer on the screen has expired.



- ▶ Press the **Swing in the central sections 2** function key until the central sections 2 are fully swung in **and** the timer on the screen has expired.



- ▶ Press the **Swing in the first sections and central sections 1** function key until the first sections and central sections 1 are fully swung in **and** the timer on the screen has expired.

4.7 Manual adjustment of the boom

The **DistanceControl** function (special equipment) automatically adjusts the height and the inclination. If the **DistanceControl** function is deactivated or not available, manual adjustments can be performed.

The corresponding keys are available in the main menu.

Adjusting the inclination of the boom



- ▶ Switch from the working screen to the **main menu**.
- ▶ Use the function keys [1] on the left or right side to increase the inclination of the boom for the slope.

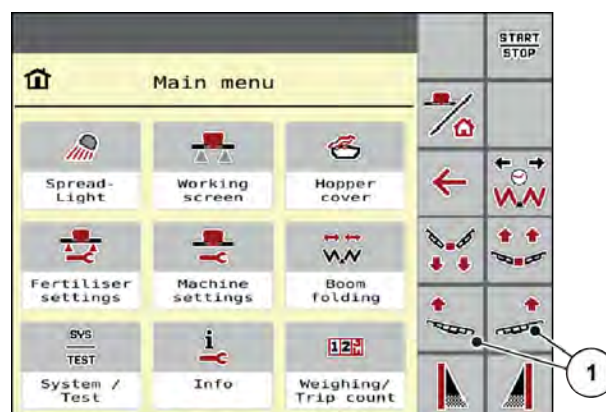


Fig. 16: Function keys for adjusting the boom inclination

4.8 System/Test



In this menu, the system and test settings for the machine control unit can be configured.

- Call up the Main menu > System / Test menu.

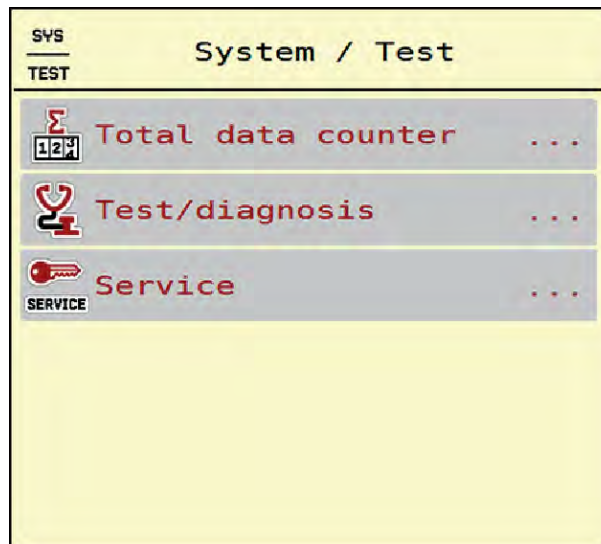


Fig. 17: System / Test - System / Test menu

Sub-menu	Meaning	Description
Total data counter Total data counter	Display list <ul style="list-style-type: none"> • spread quantity in kg • spread area in ha • spread time in h • distance traveled in km 	4.8.1 Total data counter
Test/diagnosis Test/diagnosis	Checking of actuators and sensors	4.8.2 Test/diagnosis
Service Service	Service settings	Password-protected; only accessible for service personnel

4.8.1 Total data counter



In this menu, all of the spreader's counter readings are displayed.



This menu is for information purposes only.

- kg calculated - kg calculated: spread quantity in kg
- ha - ha: spread area in ha
- hours - hours: spread time in h
- km - km: distance traveled in km

Σ Total data counter	
kg calculated	712168
ha	1902.4
hours	93
km	673

Fig. 18: Total data counter - Total data counter menu

4.8.2 Test/diagnosis



The Test/diagnosis menu allows the functions of all actuators and sensors to be checked.



This menu is for information purposes only.

The list of sensors depends on the equipment of the machine.

⚠ CAUTION!

Risk of injury due to moving machine parts

During the tests, machine parts may move automatically.

- ▶ Check that there are no personnel anywhere near the machine.

Sub-menu	Meaning	Description
Voltage Voltage	Checking the operating voltage	
Metering RPM		Page 44
Distance Control		
Level sensors Level sensor	Checking the level sensors	
Blower		
Spread- Light	Checking of the Spread- Light	

Sub-menu	Meaning	Description
LIN bus	Checking of the LIN bus participants	
MultiRate	MultiRate	
Weigh cells Weigh cell	Checking the sensors	
Spreading limiter	Spreading limiter	Page 46
Hopper cover	Hopper cover	

■ Example of a level sensor

- ▶ Call up the Test/diagnosis > Level sensor menu.

The status of the sensors/actuators is displayed.

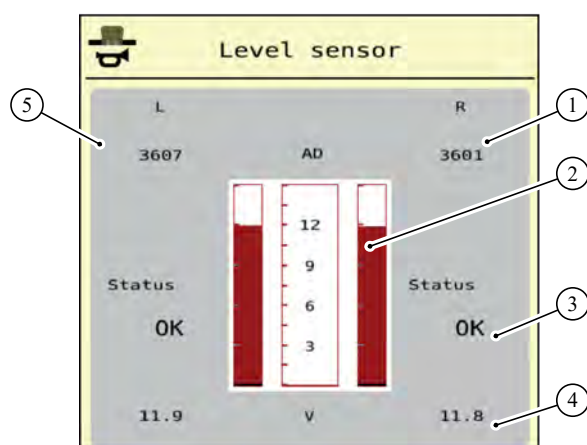


Fig. 19: Test/diagnosis; example: Level sensor

- [1] Display of the status information of the level sensor in the right hopper
- [2] Bar with status of hopper filling level: Hopper is full (values in percent)
- [3] Status of level sensor
- [4] Status voltage level on signal input
- [5] Status information of the level sensor in the left hopper

■ Example Metering RPM

- ▶ Call up the Test/diagnosis > Metering RPM menu.
- ▶ The metering module version [5] must display at least 20308.

The display shows the status of the metering units.

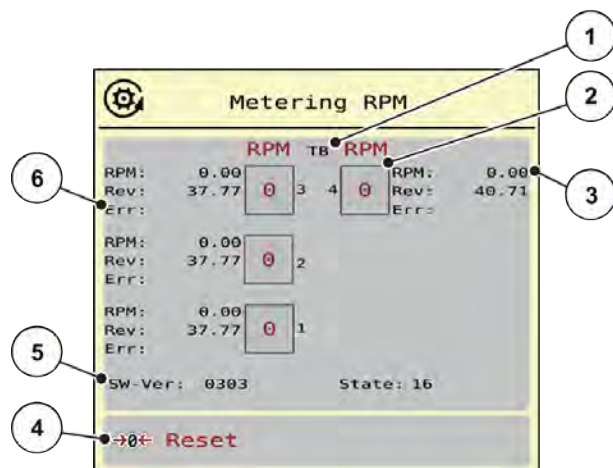


Fig. 20: Test/diagnosis; Example: Metering RPM

- [1] Number of sections/metering units
- [2] Display of the target speed that has been entered
- [3] Display of the actual speed
- [4] Resetting the revolution counter units
- [5] Metering module version
- [6] Error display via status bits



If the version is not correct, contact your dealer or specialist workshop.

The error/status bits are displayed in line Err [6] for each metering unit. If no error is present and no calibration is executed, the line is blank. Several errors can be displayed at the same time. The various states are described in the table below.

Status bit	Description	Possible cause
1	No speed signal	<ul style="list-style-type: none"> • Hydraulics off • Motor is not rotating. • Speed sensor not connected or defective • Broken cable or short circuit
2	Defect on an proportional valve	<ul style="list-style-type: none"> • Proportional magnet coil not connected • Cable breakage • Coil defective

Status bit	Description	Possible cause
3	Speed cannot be adjusted	<ul style="list-style-type: none"> • Problem on hydraulics • Constant current/PowerBeyond mixed up • Incorrect setting on LS pressure regulation switching valve • Oil too cold • Pump not enough output, ...
4	Metering valve rotates without being actuated.	<ul style="list-style-type: none"> • Problem on hydraulics/electrical system • Back-pressure in the system • Short circuit
5	Maximum speed not reached during calibration	<p>Metering valve did not reach 100 rpm.</p> <ul style="list-style-type: none"> • Mostly in conjunction with bit 3
6	reserved	Contact Customer Services or your specialist workshop.
7	Metering unit not calibrated	Contact Customer Services or your specialist workshop to perform the calibration.
8	Calibration in progress	The system is currently being calibrated.



Check to make sure that all cables and other leads (sensors, etc.) are connected correctly and are in good condition. For any other source of error, contact Customer Services and tell them the error code.

Resetting the revolutions:

- ▶ Press the Reset button.

The revolution counters for the sections "Rev" are set to zero.

■ *Example, spreading limiter (GSE)*

- Call up the Test/diagnosis > Spreading limiter menu.

The display shows the status of the spreading limiter.

Left BSU		Right BSU
0000	Position	0000
0000	Target position	0000
0	Status Bits 1	0
0	Status Bits 2	0
0000	DutyCycle [%]	0000
0000	Temp [°C]	0000

Fig. 21: Test/diagnosis; example: Spreading limiter

- [1] Display, status information of the spreading limiter. The AD values are displayed.

4.8.3 Service



An input code is required to configure the settings in the Service menu. These settings can only be modified by authorized service personnel.

4.8.4 Info



The Info menu provides information on the machine control unit.



This menu provides information on the configuration of the machine.

The information list depends on the equipment of the machine.

4.9 Weighing/Trip counter



This menu provides values regarding spreading work performed and functions for the weighing operation.

- Call up the Main menu > Weighing/Trip count. menu.

The Weighing/Trip count. menu appears.

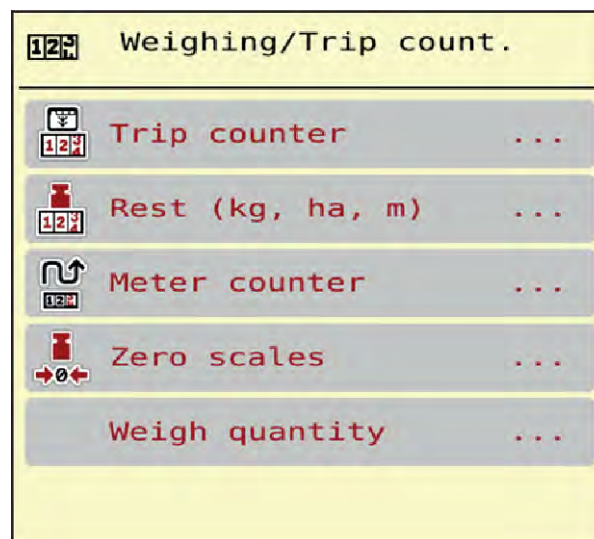


Fig. 22: Menu Weighing/Trip count.

Sub-menu	Meaning	Description
Trip counter Trip counter	Display of the fertilizer quantity spread, area spread, and spread distance	4.9.1 Trip counter
Rest (kg, ha, m) Rest (kg, ha, m)	For weighing spreaders only: Display of the quantity remaining in the machine hopper	4.9.2 Rest (kg, ha, m)
Meter counter Meter counter	Display of the distance traveled since the last reset of the meter counter	Reset (zeroing) by pressing the C 100% key
Zero scales Zero scales	Only with weigh cells (W): Weighing value for empty scales is set to "0 kg"	4.9.3 Zero scales
Weigh quantity Weigh quantity	Weigh out the hopper and calculate a new calibration factor only visible when AUTO Km/h+ Stat.kg is active	Chapter 4.9.4 - Weigh quantity - Page 51

4.9.1 Trip counter



In this menu, the values of the spreading work performed can be interrogated, the remaining spreading quantity can be monitored and the trip counter can be reset by deleting the value.

- Call up the Weighing/ Trip count> Trip counter menu.

The Trip counter menu appears.

During spreading you can switch to the trip counter menu and read the current values there.



For continuous monitoring of the values during spreading, the values kg trip, ha trip or m trip can be assigned to the freely selectable display fields in the working screen, see 2.1.2 *Display fields*.

Clear down the trip counter

- ▶ Access the sub-menu Weighing/Trip count.
> Trip counter.

The values for spread quantity, area, and distance calculated since the last deletion are displayed.

- ▶ Press the Delete trip counter button.

All values of the trip counter are reset to 0.

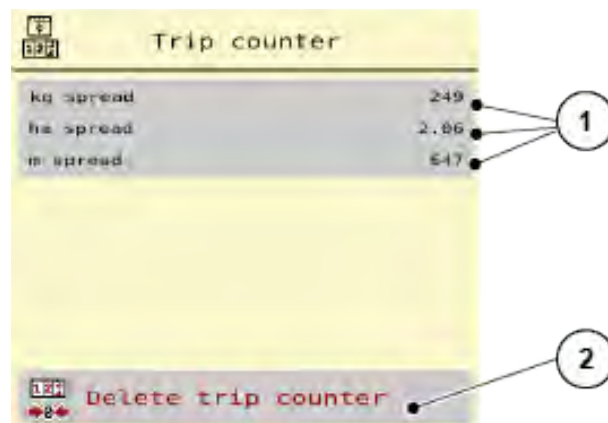


Fig. 23: Menu Trip counter

- [1] Spread quantity, [2] Delete trip counter area and distance display fields

4.9.2 Rest (kg, ha, m)



The Rest (kg, ha, m) menu can be interrogated to check the quantity remaining in the hopper. The menu indicates the possible area (ha) and distance (m) which can still be spread with the remaining fertilizer quantity.



The current fill weight **in the weighing spreader can only be determined by weigh cells (W)**. In all other spreaders, the remaining fertilizer quantity is calculated from the fertilizer and machine settings as well as from the drive signal, and the filling quantity must be entered manually (see below). The Application rate and Working width values cannot be changed in this menu. They are for information purposes only.

- ▶ Call up the Weighing/Trip count. > Rest (kg, ha, m) menu.

The Rest (kg, ha, m) menu appears.

- [1] kg rest - kg left input field
- [2] Appl. rate (kg/ha) - Application rate, Working width (m) - Working width display fields, and the available spread area and distance

Fig. 24: Rest (kg, ha, m) - Rest (kg, ha, m) menu

For machines without weigh cells

- ▶ Fill the hopper.
- ▶ In the Rest (kg) area, enter the total weight of the fertilizer left in the hopper.

The unit calculates the values for the possible spread area and distance.

4.9.3 Zero scales

■ For weighing spreaders only

NOTICE!

When taring or weighing back the residual quantity, the rod linkage must be in the working position.

For smaller application rates and for the fine metering shaft, a calibration test must be carried out.

A calibration test must be carried out after every change.

The minimum quantity is 100 kg/ha, depending on the spreading material.



In this menu, set the weighing value for the empty hopper to 0 kg.

For taring the scales, the following requirements have to be fulfilled:

- the hopper is empty,
- the machine is at a standstill,
- the PTO is switched off,
- the machine is in a horizontal position and off the ground,
- the tractor is at a standstill.

Zero scales:

- ▶ Access the menu Weighing/Trip count. > Zero scales.
- ▶ Press the Zero scales button.

The weighing value for the empty scales is now set to 0 kg.



Tare the scales before each use in order to ensure problem-free calculation of the remaining quantity.

4.9.4 Weigh quantity

When the machine control unit is started or when the hopper is being filled, this menu offers a choice between filling with the previous fertilizer or filling with different fertilizer. If the selection was made in advance and at least 150 kg has been spread since the selection was made, the Weigh remain. quant. function allows a new calibration factor "revolutions/kg" to be calculated and loaded.

The Weigh quantity menu

- is active only when the menu AUTO km/h + static kg has been selected.
- is displayed automatically when the machine control unit is started or the hopper is being filled.
- can be opened from the Weigh Trip Counter menu.

- [1] Quantity weighed from the hopper
- [2] Type of filling
- [3] Function Weigh remain. quant.

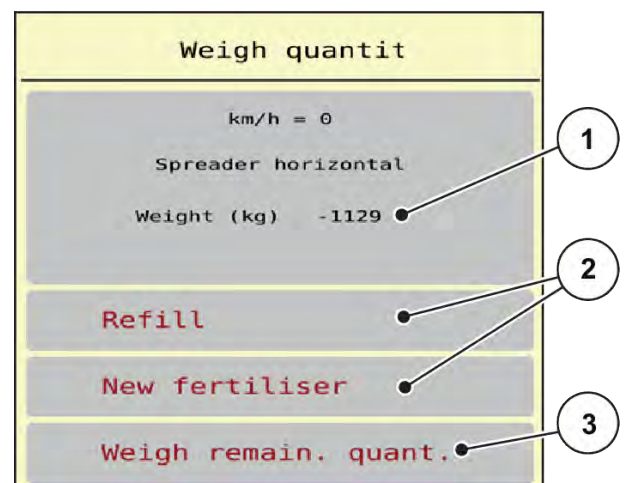


Fig. 25: Menu Weigh quantity

NOTICE!

If the menu is quit by pressing ESC, this either fails to trigger calculation of the calibration factor, or triggers an incorrect calculation of the calibration factor.

Do not press the ESC button. This may trigger an incorrect calculation of the calibration factor revolutions/kg.

- ▶ For confirmation of the weighing function, **always** select the type of filling.

Selecting the type of filling:

- ▶ Press the Refill button or New fertiliser button.
 - ▷ Refill: Continuing to spread the same fertilizer. The saved calibration factor (revolutions/kg) is retained.
 - ▷ New fertiliser: The calibration factor is set to 1.0 revolutions/kg. If required, the desired calibration factor can be entered retrospectively.

Calculating a new calibration factor using the Weigh Residual Quantity function:



You can execute the Weigh remain. quant. function **only** if you have made the selection between New fertiliser or Refill and at least 150 kg has been spread since the selection was made. The software compares the quantity that was distributed against the actual residual quantity remaining in the hopper, and recalculates the calibration factor on that basis.

For weighing the residual quantity remaining in the hopper, the following requirements must be fulfilled

- The machine is in a horizontal position and off the ground,
 - The tractor is at a standstill.
 - The machine control unit is switched on.
- ▶ Call up the Weighing/Trip count. > Weigh quantity menu.
 - ▶ Press the Weigh Residual Quantity button.

The calibration factor will now be recalculated. The old and new calibration factors will be displayed in the Calculation menu.



Check the calculated value for plausibility. If the new value deviates too far from the old value, a working error may have occurred. If in doubt, perform a calibration test.

- ▶ Loading the new calibration factor or discarding it.
 - ▷ Press the “OK” button: The new value for revolutions/kg will be entered as the new calibration factor.
 - ▷ Press the “back” arrow or switch to the main menu: The new value for revolutions/kg will be discarded. The machine will continue to use the old value for revolutions/kg.

Calculation	
Turns/kg old	0.000
Turns/kg new	0.000
OK Confirm	

Fig. 26: Menu Calculation

4.10 Operating lights (SpreadLight)



In this menu, you can activate the SpreadLight function to monitor the spreading pattern, even in night mode.

The working headlights can be switched on and off via the machine control unit in automatic and/or manual mode.

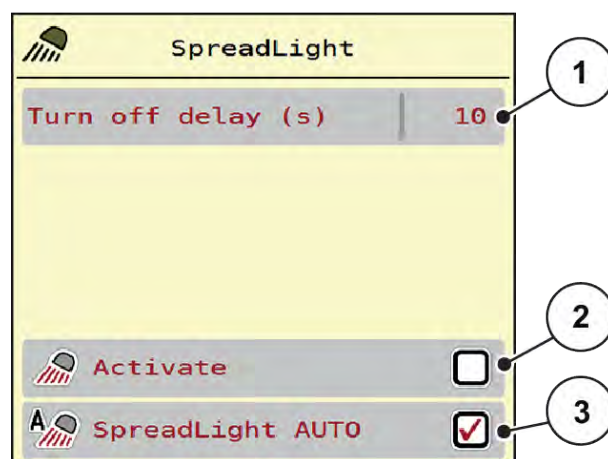


Fig. 27: Menu SpreadLight

- | | |
|---|-----------------------------|
| [1] Turn off delay (s) | [3] Activate automatic mode |
| [2] Manual mode: Switch on the working headlights | |



Automatic mode:

In automatic mode, the working headlights are switched on as soon as the Start/Stop button has been pressed and the spreading process has started.

- ▶ Call up the Main menu > SpreadLight menu.
- ▶ Put a check mark in the menu item SpreadLight AUTO [3].

The working headlights are switched on when the spreading process starts.

- ▶ Enter a turn off duration [1] in seconds.

Once the spreading process has ended, the working headlights will switch off at the end of the time that was entered.

Range from 0 to 100 seconds.

- ▶ Remove the check mark in the menu item SpreadLight AUTO [3].

The automatic mode is deactivated.



Manual mode:

In the manual mode, the working lights can be switched on and off.

- ▶ Call up the Main menu > SpreadLight menu.
- ▶ Put a check mark against the menu item Activate [2].

The working lights are activated and remain on until you remove the check mark or leave the menu.

4.11 Hopper cover

! WARNING!

Danger of crushing and shearing due to externally-actuated components

The hopper cover will move without warning and can cause personal injury.

- ▶ Ensure that nobody is present in the hazard zone.

The AERO 32.1 machine is equipped with an electrically operated hopper cover. Using the control unit and an electrical drive, the hopper cover can be opened and closed during the refilling process at the end of the field.



The menu is only used for operating the actuators which open or close the hopper cover. The AERO 32.1 ISOBUS control unit does not detect the exact position of the hopper cover.

- Monitor the movement of the hopper cover.

- [1] Open the hopper cover.
- [2] Stop the process.
- [3] Close the cover tarpaulin.
- [4] Display the opening process.

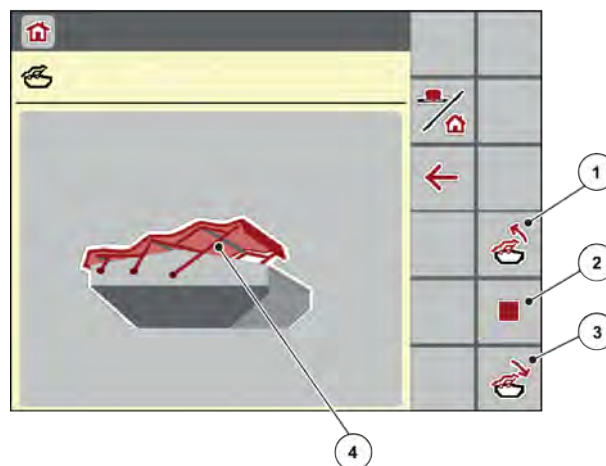


Fig. 28: Hopper cover menu

! CAUTION!

Material damage due to insufficient clearance

To allow the hopper cover to be opened and closed, it requires a sufficient clearance above the hopper. If the clearance is insufficient, the hopper cover may tear. The lever of the hopper cover may be broken and the hopper cover may damage the environment.

- ▶ Ensure that the hopper cover has sufficient clearance.

Moving the hopper cover

- ▶ Press the **Menu** key.
- ▶ Call up the menu Hopper cover.



- ▶ Press the **Open hopper cover** key.

*During the movement, an arrow appears which indicates the **OPEN** direction.*

The hopper cover will open fully.

- ▶ Pour in fertilizer.



- ▶ Press the **Close hopper cover** key.

*During the movement, an arrow appears which indicates the **CLOSE** direction.*

The hopper cover will be closed.



If required, the movement of the hopper cover can be stopped by pressing the Stop key. The hopper cover then remains in the intermediate position until it is completely closed or opened.

4.12 Using the joystick

A joystick may also be used as an alternative to the settings in the working screen of the ISOBUS terminal.



Contact your dealer if you wish to set up the use of a joystick.

- Please refer to the instructions in the operator's manual of the ISOBUS terminal.

4.12.1 CCI A3 joystick



Fig. 29: CCI A3 Joystick, front and rear

- | | |
|-------------------------|--------------------------------|
| [1] Light sensor | [3] Plastic grid (replaceable) |
| [2] Display/touch panel | [4] Shift key |

4.12.2 CCI A3 Joysticks operating levels

You can switch between three operating levels with the shift key. The plane that is active in each case is indicated by the position of an illuminated bar at the lower edge of the display.

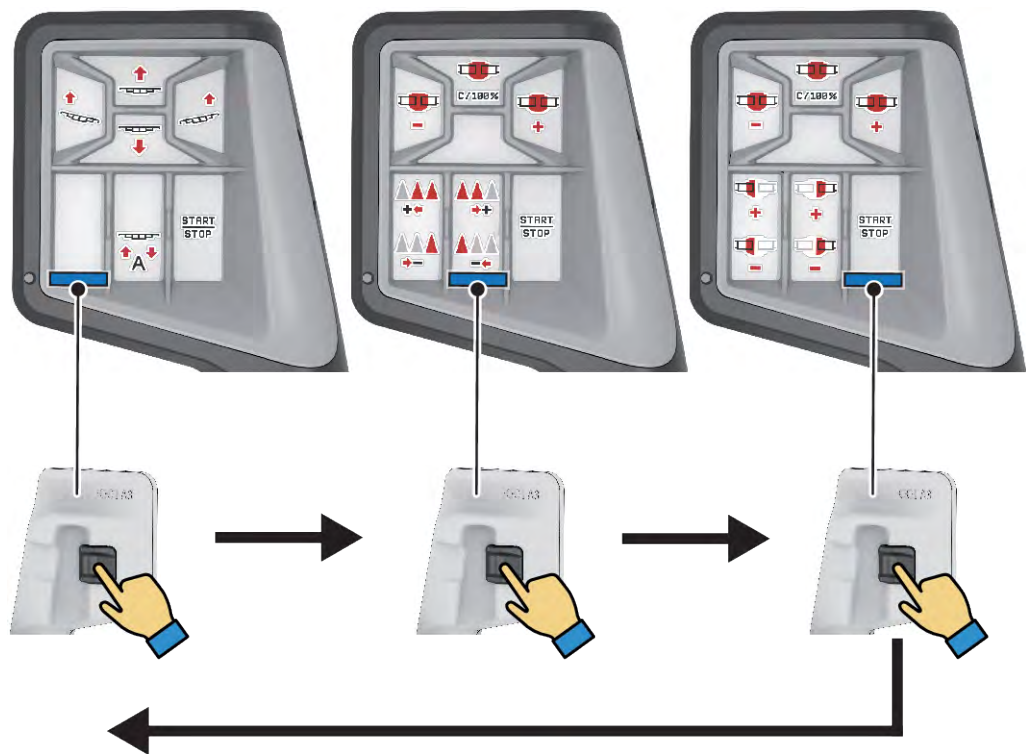


Fig. 30: CCI A3 joystick, operating level display

[1] Level 1 active

[3] Level 3 active

[2] Level 2 active

4.12.3 CCI A3 joystick button functions

The joystick offered is pre-programmed with specific functions at the factory.



The meaning and function of the icons can be found in Chapter 2.2 *Library of icons used*.

Please note that the functions of the buttons vary depending on machine type.



Fig. 31: Button functions Level 1



Fig. 32: Button functions Level 2







Fig. 33: Button functions Level 3

5 Spreading operation

The machine control unit helps you to enter the machine settings before starting work. During spreading, functions of the machine control unit are also active in the background. This allows you to monitor the quality of the fertilizer spreading.

5.1 Working with sections

You can adjust the working width when activating or deactivating the sections. These settings can be configured directly in the working screen. You can use these to optimally adapt them to the field requirements during spreading operation.

Button	Spreading type
	Switching off the section from the left to the center
	Activating the section from the center to the left
	Switching off the section from the right to the center
	Activating the section from the center to the right

- ▶ Press the function key several times until the desired working width is displayed.

5.1.1 Spreading operation with one section and in boundary spreading mode

During spreading operation, the sections can be changed step by step and limited border spreading can be activated or deactivated. The figure below shows the working screen with border spreading activated and sections activated.

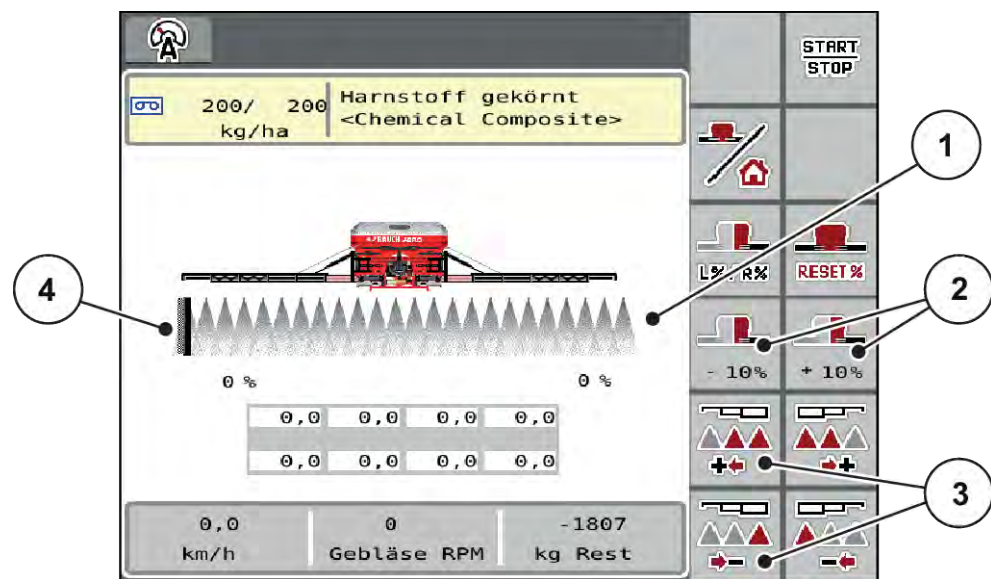


Fig. 34: Working screen with sections activated and left hand border spreading

- | | |
|--|---|
| [1] Adjustable right-hand section | [3] Reduce or increase left section |
| [2] Changing the application rate of the right-hand section (plus/minus) | [4] Spreading side on the left in limited border spreading mode |



- The application rate on the right is set to the full working width. All sections are activated.
- The **Limited border spreading on the left** function button of the main menu has been pressed, border spreading is activated and the boundary bar flashes while the spreading limiter is moving or in the event of a fault.
- Press the **Reduce the right-hand spreading width** function key to reduce the spreading width on the far right.
- Press the **C/100 %** function key. The settings for increased or reduced quantities are reset.
- Pressing the Left hand border spreading function key deactivates the border spreading.

5.2 Spreading with the AUTO km/h operating mode



This working mode is applied by default for machines that lack a weighing system.

Requirements for spreading:

- The AUTO km/h working mode is active (see 4.5.1 AUTO/MAN mode).
- The fertilizer settings are defined:
 - Application rate (kg/ha),
 - Turns/kg

- ▶ Fill the hopper with fertilizer.



In order to achieve an optimum spreading result in the AUTO km/h working mode, a calibration should be carried out before starting spreading.

- ▶ Execute a calibration in order to determine the revolutions/kg of the metering rollers or enter the value manually.

- ▶ Press Start/Stop.



The spreading starts.

5.3 Spreading with the AUTO km/h + static kg working mode



In this working mode the **calibration factor revolutions/kg** is determined by means of the weigh cells.

- ▶ Switch on the machine control unit.
- ▶ Weighing the fertilizer quantity by either Refill or New fertiliser.
See 4.9.4 Weigh quantity
- ▶ Configure the fertilizer settings:
 - ▷ Application rate (kg/ha)
- ▶ Pour in fertilizer. This operation is omitted if the hopper had already been filled in advance with fertilizer.
The Weigh quantity window is displayed.
- ▶ Select the desired type of filling. This operation is omitted if the hopper had already been filled in advance with fertilizer.
 - ▷ Refill: Continuing to spread the same fertilizer. All the saved calibration values (revolutions/kg) are retained.
 - ▷ New fertiliser: The calibration factor is set to 1.0 revolutions/kg. If required, the desired calibration factor can be entered retrospectively.



- ▶ Press Start/Stop.

The spreading starts.

- ▶ After at least 150 kg fertilizer has been spread, press Start/Stop
- ▶ Stop the tractor on level ground.
The machine must remain horizontal.



- ▶ Access the menu Weighing/Trip count. > Weigh quantity.
- ▶ Press the Weigh remain. quant. selection field.

The software compares the quantity that was distributed against the actual residual quantity remaining in the hopper.

The software recalculates the calibration factor on that basis.

- ▶ Specifying the calibration factor.
 - ▷ Press Confirm to load the newly calculated calibration factor.
 - ▷ Press back or switch to the main menu to load the calibration factor that was previously saved.



If you have made a change to the fertilizer spreading settings, before starting spreading, with the machine at a standstill call up the Weighing/Trip count. > Weigh quantity menu.

5.4 Spreading with the MAN km/h operating mode



If there is no speed signal, the MAN km/h operating mode is active.

- ▶ Access the menu Machine settings > AUTO/MAN mode.
- ▶ Select the MAN km/h menu item.

The display shows the input window Forward speed.
- ▶ Enter the value for the forward speed during spreading.
- ▶ Press OK.
- ▶ Configure the fertilizer settings:
 - ▷ Application rate (kg/ha)
 - ▷ Turns/kg
- ▶ Fill the hopper with fertilizer.



In order to achieve an optimum spreading result in the MAN km/h operating mode, a calibration is to be carried out before starting the spreading.

- ▶ Carry out a calibration in order to determine the revolutions/kg of the metering rollers or enter the value manually.

- ▶ Pressing Start/Stop



The spreading starts.



Always observe the set forward speed during spreading.

5.5 Automatic re-tensioning of the boom



During spreading, the tension of the boom cylinders decreases due to the vibrations. This is why regular re-tensioning is required. This is done automatically via the **AUTO re-tensioning** function.

Requirement:

- The boom is folded out. See *Chapter 4.6.2 - Folding out the boom - Page 38*

- ▶ Press the AUTO re-tensioning function key in the main menu.

Re-tensioning is active.

All boom cylinders are re-tensioned every 120 seconds for 5 seconds.

5.6 DistanceControl

■ *Optional equipment*



Contact your dealer to activate the function.

5.7 Driving into the headlands

When you are driving into the headlands at the end of the field, you can move the boom to the turning position. This helps you to prevent damage due to potential obstacles at the field boundary or due to uneven terrain.

- ▶ Driving into the headland track.
- ▶ Stop spreading using the machine control. When the Task control/Section control function is selected, the machine stops automatically in the headland.



- ▶ Press the **Lift boom** button on the machine control.

The boom moves to the V-position.



- ▶ Drive along the headland to reach the next track.

- ▶ Press the **Lower boom** button on the machine control.

The boom is in the operating position.





▶ Restart spreading.

6 Alarm messages and possible causes

6.1 Meaning of the alarm messages

Various alarm messages can be displayed on the ISOBUS terminal display.

No.	Message in display	Meaning and possible cause
4	Hopper left empty!	The filling level sensor on the left reports "empty." <ul style="list-style-type: none"> The left hopper is empty.
5	Hopper right empty!	The filling level sensor on the right reports "empty." <ul style="list-style-type: none"> The right hopper is empty.
21	Spreader overloaded!	For weighing spreaders only: The fertilizer spreader is overloaded. <ul style="list-style-type: none"> Too much fertilizer in the hopper
32	Externally controlled parts can be moved. Risk of injury through squeezing and shearing! - Direct ALL persons out of the danger zone - Read the instruction manual Confirm with ENTER	If the machine control unit is activated, components may move unexpectedly. <ul style="list-style-type: none"> Follow the displayed instructions only if all risks have been eliminated.
51	Hopper empty!	The entered value is undercut.
51	Hopper empty!	The kg level sensor reports "empty."
81	Low oil level!	Insufficient oil level in the hydraulic circuit. <ul style="list-style-type: none"> Stop the machine and refill oil.
83	Reduce oil temp.	The oil temperature of the blower drive has reached the alarm limit that has been set and the radiator does not start. <ul style="list-style-type: none"> Does the radiator have power? Check the power supply and plug connections and replace them, if necessary.

No.	Message in display	Meaning and possible cause
95	Blower RPM	Blower not running when starting the spreading process <ul style="list-style-type: none"> • Blower speed not reached. A minimum of 3000 rpm is required for this.
97	Set metering RPM not reached at Section(s)	<ul style="list-style-type: none"> • Blockage • Target speed too high. Enter a value lower than 120 rpm. • Not enough oil in the oil reservoir • Oil too cold
109	Forward speed or application rate too low	Minimum application rate alarm that has been set has been reached. or Minimum speed that has been set has been reached.
115	Forward speed or application rate too high	Maximum application rate alarm that has been set has been reached. or Maximum speed that has been set has been reached.
119	Boom folding	To prevent damage to the boom, the rod linkage cannot be folded in or out while driving!
120	Pivoting frame not locked. The pivoting frame must be locked before folding out.	<ul style="list-style-type: none"> • Pivoting frame not locked • Sensor not working
121	Connection to the spreading limiter lost.	At least one spreading limiter is not connected, cable break in signal line or no power supply.
122	The spreading limiter cannot reach target position!	<ul style="list-style-type: none"> • Blockage • Overcurrent • Mechanical defect • Not calibrated • No connection to the spreading limiter
127	Charging voltage too low. Defect on the battery or generator.	<ul style="list-style-type: none"> • Battery or generator defective • Cable to the battery or generator defective • Fuse in the battery pack defective
128	No connection to the MCU	The machine has lost the connection to one or more of the 4 MCUs.

6.2 Fault/alarm

An alarm message is displayed with a yellow or red frame and with a warning symbol.

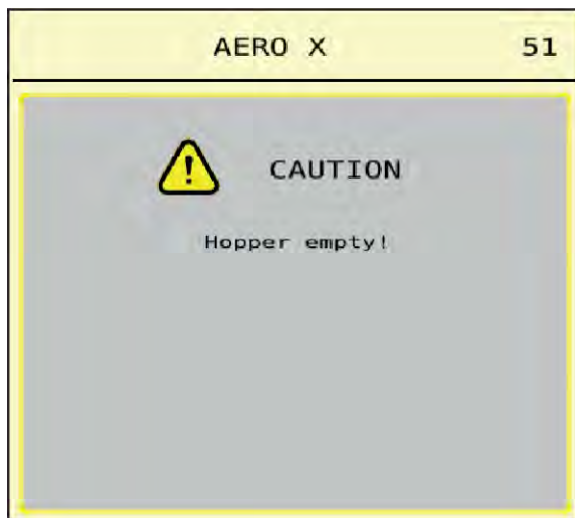


Fig. 35: Alarm message (example)

6.2.1 Acknowledging an alarm message

Acknowledging an alarm message:


- ▶ Rectify the cause of the alarm message.
Refer to the operator's manual for your mineral fertilizer spreader.
See also 6.1 *Meaning of the alarm messages*.
- ▶ Acknowledge the alarm message by selecting the green check icon.
- ▶ Use various keys to acknowledge the other messages with a yellow frame:
 - ▷ Enter
 - ▷ Start/Stop
- ▶ Follow the instructions on the screen.



The acknowledgment of alarm messages may differ on different ISOBUS terminals.

7 Special equipment

Illustration	Designation
 <p>A cylindrical level sensor with a black cable and a connector at the end.</p>	Level sensor
 <p>A joystick controller with a grey top and black base. It features several buttons with red and blue symbols, including a 'START STOP' button.</p>	CCI A3 joystick
 <p>A blue sensor component next to its white packaging. The packaging is labeled 'RAUCH' and 'MIC-3400/MERLU'.</p>	DistanceControl

Illustration	Designation
 A technical illustration of a spreading limiter, which is a mechanical device used to control the width of material being spread. It consists of a long, dark-colored metal frame with several circular cutouts. A white, adjustable arm is mounted on top of the frame, and a black roller is visible at the bottom left end.	Spreading limiter (inactive)

8 Guarantee and warranty

RAUCH devices are manufactured using modern production methods and with the greatest of professional care, and are subjected to numerous inspections.

This is why RAUCH is offering a 12 month warranty if the following conditions are met:

- The warranty starts on the date of purchase.
- The warranty covers material or manufacturing defects. We are liable for third-party products (hydraulics, electronics) only to the extent of the relevant manufacturer. During the warranty period, manufacturing and material defects will be rectified free of charge with the replacement or repair of the affected parts. Other rights extending beyond the above, such as claims for conversion, reduction, or replacement for reasons of damage not suffered by the supplied product are explicitly excluded. Warranty services are provided by authorized workshops, by RAUCH factory representatives or the factory itself.
- Consequences of natural wear, dirt, corrosion, and all defects caused by improper use as well as external influences shall be excluded from the warranty. Any unauthorized repairs or changes to the original condition will void the warranty. The warranty is voided if any spare parts other than genuine RAUCH spare parts were used. Therefore, the directions in the operating manual must be observed. Please contact our company representatives of the parent company if you have any questions or doubts. Warranty claims must be submitted to the company within 30 days at the latest after the damage has occurred. The date of purchase and the machine number must be indicated. If repairs under the warranty are required, they must be carried out by the authorized workshop only after consultation with RAUCH or the company's appointed representatives. The warranty period will not be extended by warranty work. Transport damage is not a factory defect and is therefore not covered by the manufacturer's warranty manufacturer.
- Claims for damage other than to the RAUCH devices will not be accepted. This also means that no liability will be accepted for damage resulting from spreading errors. Unauthorized modifications of the RAUCH devices may result in consequential damage, for which the manufacturer will not accept any liability. The manufacturer's exclusion from liability will not apply in the case of willful intent or gross negligence by the owner or a senior employee, and in cases where – according to the product liability law – there is liability for personal injury or material damage to privately used objects in the event of defects in the supplied product. The exclusion from liability will also not apply if characteristics are missing that are explicitly guaranteed, if the purpose of their guarantee was to protect the purchaser against damage not suffered by the supplied product itself.

RAUCH Streutabellen
RAUCH Fertilizer Chart
Tableaux d'épandage RAUCH
Tabele wysiewu RAUCH
RAUCH Strooitabellen
RAUCH Tabella di spargimento
RAUCH Spredetabellen
RAUCH Levitystaulukot
RAUCH Spridningstabellen
RAUCH Tablas de abonado



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