Operating Manual

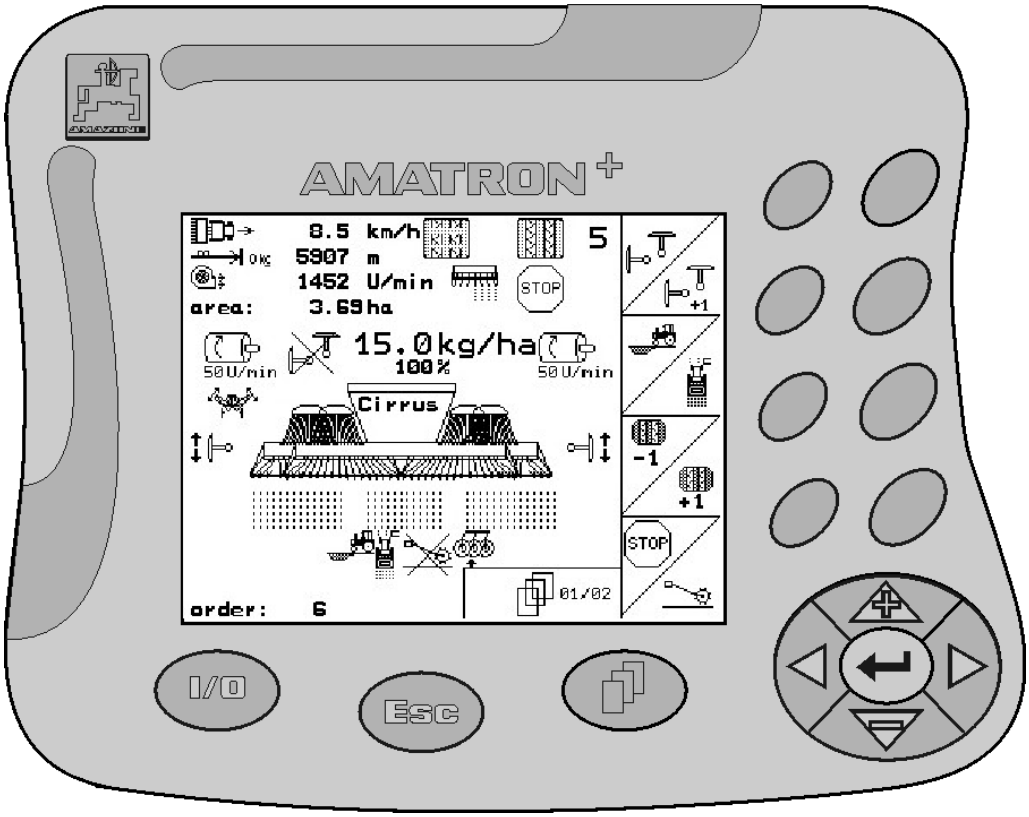
AMAZONE

AMATRON+

for

Cirrus **and** **Citan**

on board computer



MG 1763
BAG0045.0 01.07
Printed in Germany

Please read this operating manual before first commissioning.
Keep it in a safe place for future use.

GB

READING THE INSTRUCTION

manual and adhering to it should not appear to be inconvenient and superfluous as it is not enough to hear from others and to realise that a machine is good, to buy it and to believe that now everything should work by itself. The person concerned would not only harm himself but also make the mistake of blaming the machine for the reason of a possible failure instead of himself. In order to ensure good success one should go into the mind of a thing, make himself familiar with every part of the machine and to get acquainted with its handling. Only in this way would you be satisfied both with the machine as also with yourself. To achieve this is the purpose of this instruction manual.

Leipzig-Plagwitz 1872. Rud. Sark.

Identification data

Enter the machine identification data here. You will find the identification data on the type plate.

Machine identification number:
(ten-digit) _____

Type: Amatron+

Year of manufacture: _____

Basic weight (kg): _____

Approved total weight (kg): _____

Maximum load (kg): _____

Manufacturer's address

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Online spare parts catalogue: www.amazone.de

When ordering spare parts, always specify the (ten-digit) machine identification number.

Formalities of the operating manual

Document number: MG 1763

Compilation date: 01.07

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER GmbH & Co. KG. We thank you for your confidence in our products.

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Using the delivery note, check that the machine was delivered in full including the ordered special equipment. Damage can only be rectified if problems are signalled immediately!

Before first commissioning, read and understand this operating manual, and particularly the safety information. Only after careful reading will you be able to benefit from the full scope of your newly purchased machine.

Please ensure that all the machine operators have read this operating manual before commissioning the machine.

Should you have problems or queries, please consult this operating manual or give us a call.

Regular maintenance and timely replacement of worn or damaged parts increases the lifespan of your machine.

User evaluation

Dear Reader,

We update our operating manuals regularly. Your suggestions for improvement help us to create ever more user-friendly manuals. Send us your suggestions by fax.

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1 User Information

The User Information section supplies information on use of the operating manual.

1.1 Purpose of the document

This operating manual

- Describes the operation and maintenance of the machine.
- Provides important information on safe and efficient handling of the machine.
- Is a component part of the machine and should always be kept with the machine or the traction vehicle.
- Keep it in a safe place for future use.

1.2 Locations in the operating manual

All the directions specified in the operating manual are always seen from the direction of travel.

1.3 Diagrams used

Handling instructions and reactions

Activities to be carried out by the user are given as numbered instructions. Always keep to the order of the handling instructions. The reaction to the handling instructions is given by an arrow.

Example:

1. Handling instruction 1

Reaction of the machine to handling instruction 1

2. Handling instruction 2

Lists

Lists without an essential order are shown as a list with bullets.

Example:

- Point 1
- Point 2

Number items in diagrams

Numbers in round brackets refer to the item numbers in the diagrams. The first number refers to the diagram and the second number to the item in the figure.

Example: (Fig. 3/6)

- Figure 3
- Item 6

2 General Safety Instructions

Comply with the instructions in the operating manual

Knowledge of the basic safety information and safety regulations is a basic requirement for safe handling and fault-free machine operation.

The operation manual

- Must always be kept at the place at which the machine is operated.
- Must always be easily accessible for the user and maintenance personnel.

Check all the available safety equipment regularly.

2.1 Representation of safety symbols

Safety instructions are indicated by the triangular safety symbol and the highlighted signal word. The signal word (DANGER, WARNING, CAUTION) describes the gravity of the risk and has the following significance:

DANGER

Indicates an immediate high risk which will result in death or serious physical injury (loss of body parts or long term damage) if not avoided.
If the instructions are not followed, then this will result in immediate death or serious physical injury.

WARNING

Indicates a medium risk, which could result in death or (serious) physical injury if not avoided.
If the instructions are not followed, then this may result in death or serious physical injury.

CAUTION

Indicates a low risk which could incur minor or medium level physical injury or damage to property if not avoided.

IMPORTANT

Indicates an obligation to special behaviour or an activity required for proper machine handling.
Non-compliance with these instructions can cause faults on the machine or in the environment.

NOTE

Indicates handling tips and particularly useful information.
These instructions will help you to use all the functions of your machine to the optimum.

3 Installation instructions

3.1 Securing the terminal

The tractor basic equipment (Fig. 1/1) (console with distributor) must be installed to the right of the driver in the cabin, within visual range and easy to access, vibration-free and electrically connected. The distance from the radio unit or aerial must be at least 1 m.

Fig. 1

Ensure that the computer housing has an electrical connection via the console to the tractor chassis!

For the installation, the paint must be removed from the installation points in order to prevent electrostatic charge.

The terminal must be equipped with the counter piece (Fig. 2/1) of the console, inserted into the console and secured with a thumb bolt (Fig. 2/2).

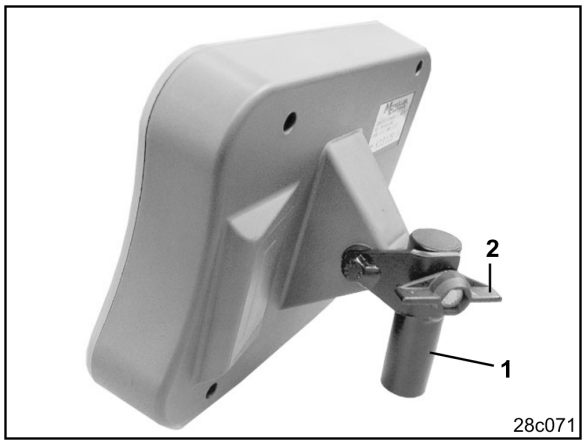


Fig. 2

3.2 Plug-in connections

The terminal (Fig. 3/2) is an all-purpose unit and can be connected to all **AMAZONE** machines with an **AMATRON+** job computer.

Connect the terminal (Fig. 3/2) and the console (Fig. 3/1) as follows:

1. Connect the seed drill via the implement plug (Fig. 3/3).
2. Connect the battery cable (Fig. 3/4) to the tractor battery.
   Information on power supply, see section 3.3
3. Connect connecting cable (Fig. 3/5) to terminal (Fig. 3/2).

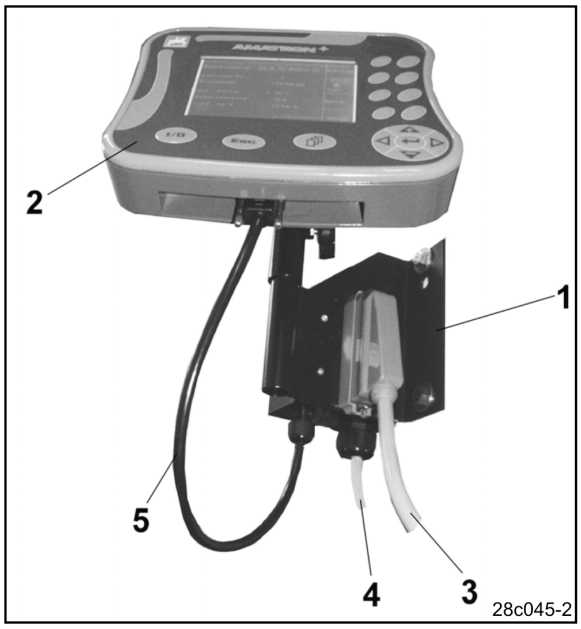


Fig. 3

4. Insert the connector of the connecting cable (Fig. 3/5) into the middle 9-pin Sub-D-bushing (Fig. 4/1)

The serial interface (Fig. 4/2) allows connection of a GPS terminal.

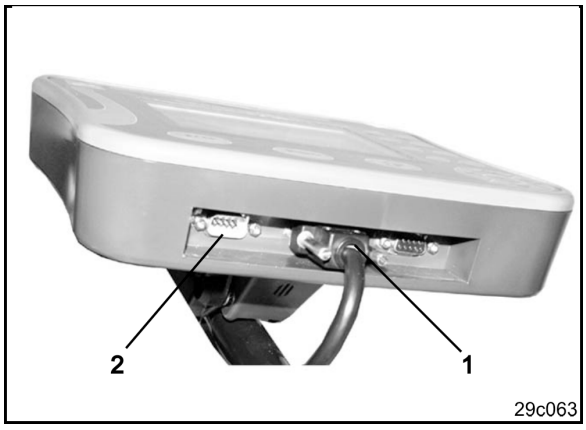


Fig. 4

3.3 Battery cable

The required operating voltage is 12 V and must taken directly from the battery.

Before connecting the **AMATRON+** to a tractor with several batteries, it must be clarified, by referring to the tractor operating instructions or by asking the tractor manufacturer, which battery the computer must be connected to!

1. Install and secure the battery cable from the tractor cab to the tractor battery. When installing the battery cable, make sure there are no kinks.
2. Shorten the battery cable to the appropriate length.
3. Strip the cable end (Fig. 5) approx. 250 to 300 mm.

→ Strip the cable ends (Fig. 5) individually 5 mm.

4. Insert the blue cable core (earth) into loose ring lug (Fig. 6/1).
5. Pass pinch through with pliers.
6. Insert brown cable core (+ 12 volts) into free end of connector (Fig. 6/2).
7. Pass pinch through with pliers.
8. Shrink-fit connector (Fig. 6/2) with heat source (lighter or hairdryer) until the adhesive emerges.
9. Connect the battery cable to the tractor battery:
   - o Brown cable core to **+**.
   - o Blue cable core to **-**.

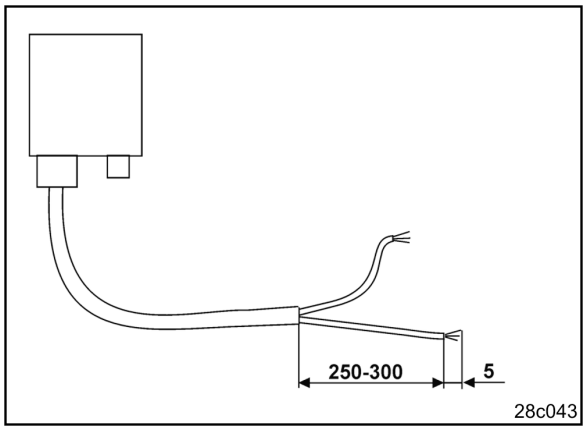


Fig. 5

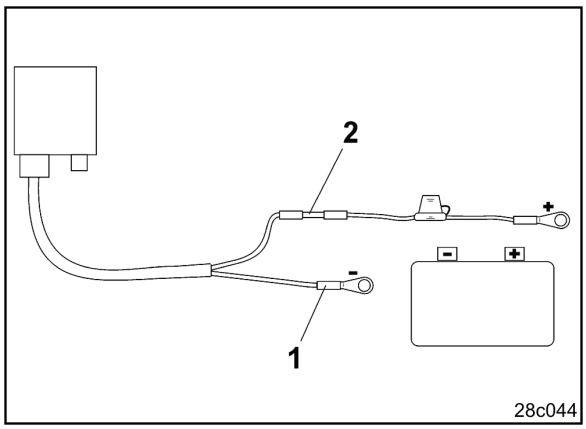


Fig. 6

4 Product description

With the **AMATRON+** the **AMAZONE** machines

- **Cirrus**
- **Citan**

can be conveniently monitored and operated.

The **AMATRON+** consists of the terminal (Fig. 7), the basic equipment (fastening material) and the job computer on the machine.

Any operational faults are indicated visually and/or acoustically.

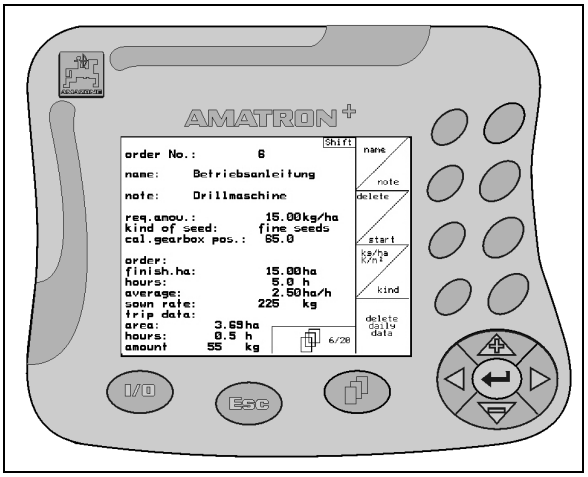


Fig. 7

This operating manual is valid from software version:

Machine	MHX-Version:	2.13
Terminal:	IOP version:	3.2.1
	BIN version:	3.4.1

4.1 Description of keys

The functions indicated at the right display edge by a function field (box Fig. 8/1 or diagonally divided box Fig. 8/2) are controlled via the two rows of keys to the right of the display.

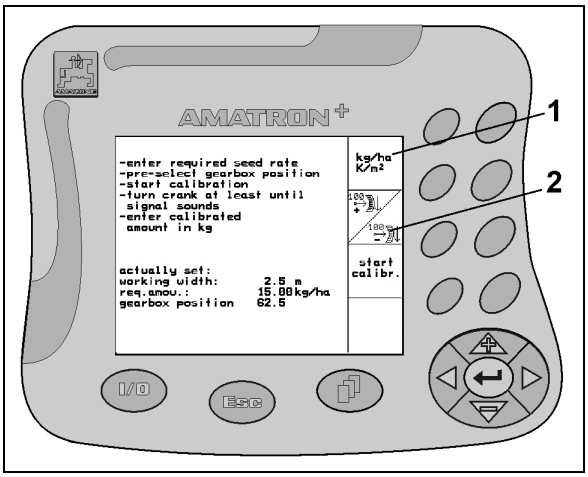


Fig. 8

If the boxes are diagonally divided:

- the left key is assigned to the top left function field (Fig. 9/1).
- the right key is assigned to the bottom right function field (Fig. 9/2).

If boxes appear on the display, only the right key is assigned to the function field (Fig. 9/3).

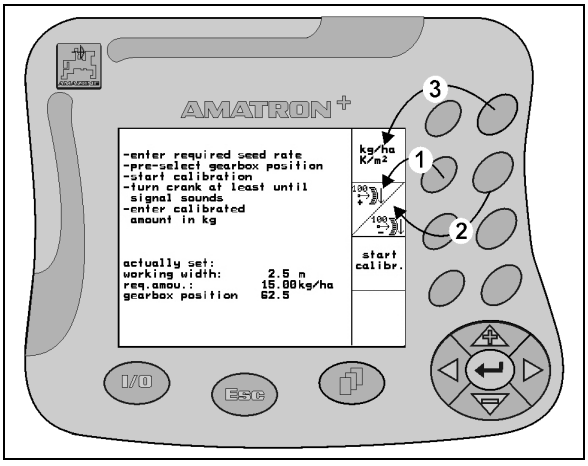


Fig. 9

I/O	On / Off (Always switch off the **AMATRON+** when driving on public roads).
Esc	• Return to last menu • Switch between work menu - main menu • Cancel entry • To work menu (hold down key at least 1 second)
	• Scroll to other menu pages (only possible if (Fig. 10/1) appears in display) • Help menu only possible from main menu
	• Move cursor right in display
	• Move cursor left in display
	• Take over selected numbers and letters • Confirm critical alarm • 100% quantity in work menu
	• Move cursor up in display • Increase sowing rate during sowing by percentage application rate increase (e.g.:+10%) (Adjusting percentage application rate increase, see section 5.3)
	• Move cursor down in display • Reduce sowing rate during sowing by percentage application rate increase (e.g.:-10%) (Adjusting percentage application rate increase, see section 5.3)

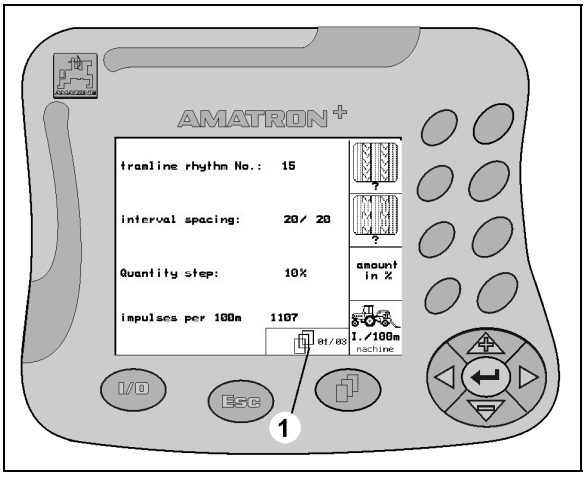


Fig. 10

4.2 Shift key

The shift key is located on the back of the unit (Fig. 11/1).

- **In the work menu:**

If the shift key  on the rear of the unit (Fig. 11/1) is pressed, further function fields (Fig. 12) appear in the work / job menu and the assignment of the function keys changes accordingly. (Only possible if shift (Fig. 13/1) appears in the display.

- **In the job menu:**

If the shift-key  (Fig. 11/1) on the rear of the unit is pressed, the function keys  and  appear in the job menu for scrolling the jobs backwards and forwards.

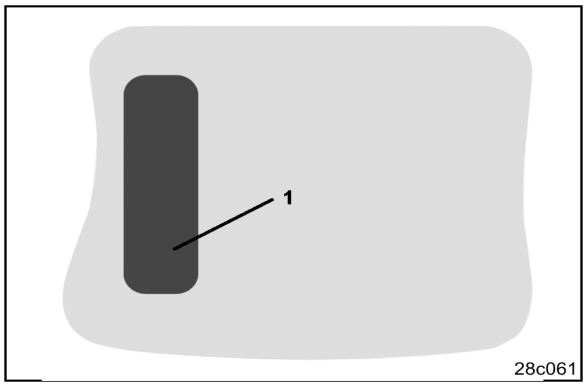


Fig. 11

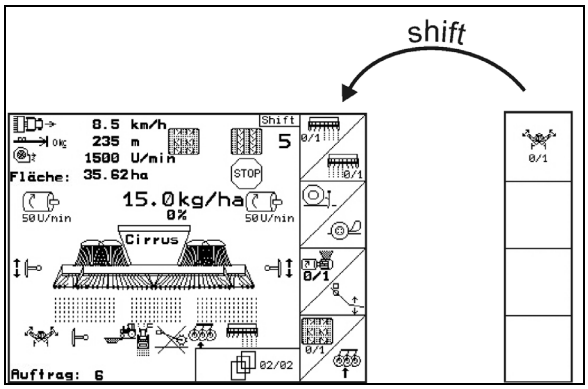


Fig. 12

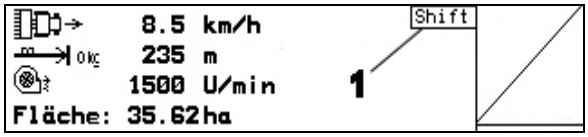
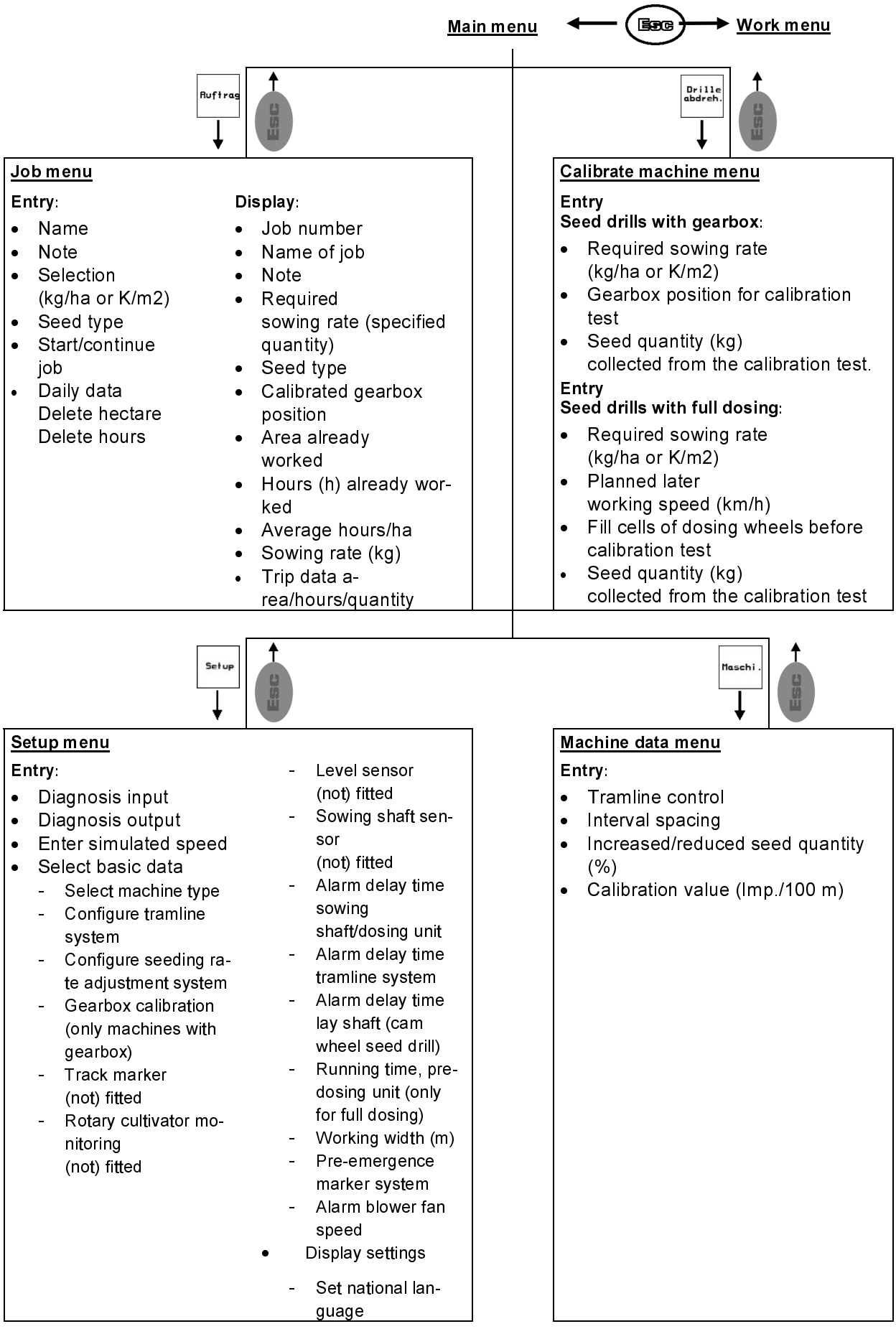


Fig. 13

4.3 Hierarchy of the AMATRON+



4.4 Entries on AMATRON+

For operation of the **AMATRON+**, the function fields appear in this operating manual in order to make clear that the key for the respective function field must be pressed.

Example:

- Function field  .

Description in the operating manual:

 Set the gearbox to a lower gearbox position.

Action:

The operator presses the key (Fig. 14/2) assigned to the function field  (Fig. 14/1) in order to reduce the gearbox position.

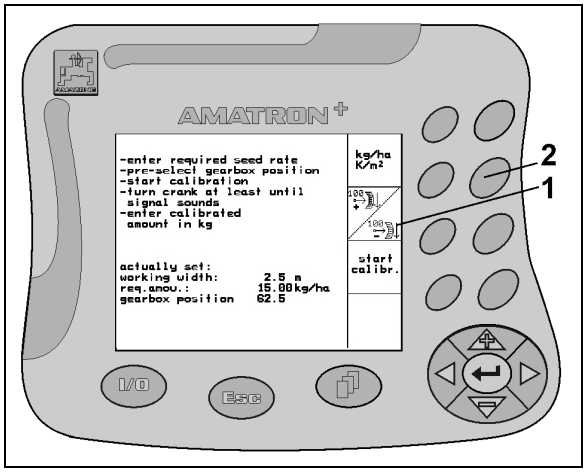
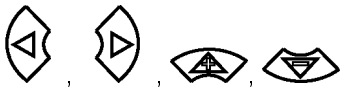


Fig. 14

4.5 Entering texts and numbers

If it is necessary to enter texts or numbers on the **AMATRON+**, the input menu (Fig. 15) appears.

In the lower part of the display, a selection field (Fig. 15/1) appears with letters, numbers and arrows from which the input line (Fig. 15/2) is formed (text or numbers).

 Selection of letters or numbers in the selection field (Fig. 15/3).

-  Take over the selection (Fig. 15/3).
-  Delete the input line.
-  Alternate between capitals/small letters.
-  After completing the input line, confirm.

The arrows ←→ in the selection field (Fig. 15/4) allow movement in the text line.

The arrow ← in the selection field (Fig. 15/4) deletes the last entry.

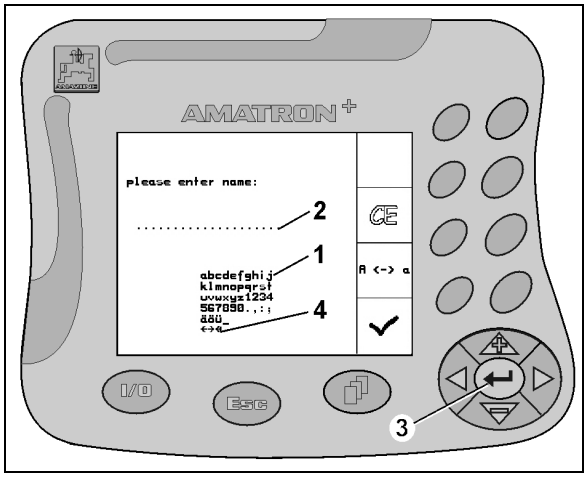


Fig. 15

4.5.1 Selection of options

- Position the selection arrow (Fig. 16/1) with and .
- Take over the selection (Fig. 16/2).

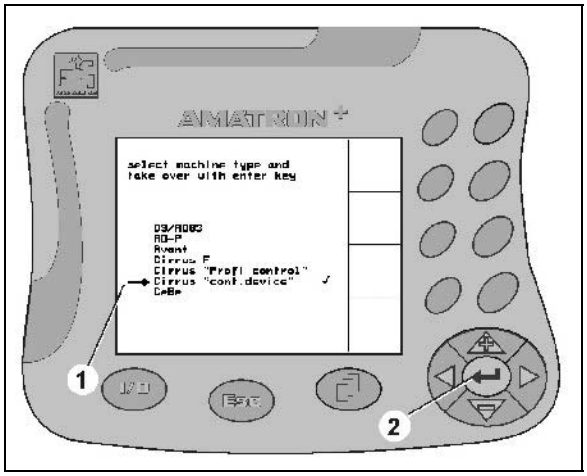


Fig. 16

4.5.2 Toggle function

Switching functions on/off, e.g. level sensor yes/no:

- Press function key (Fig. 17/2) once

→ Function **yes** (Fig. 17/1).

- Again press function key

→ Function **no**.

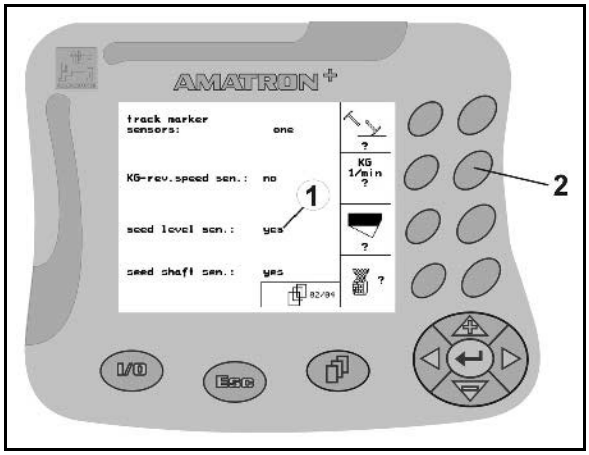


Fig. 17

5 Commissioning

5.1 Start screen

After the **AMATRON+** is switched on with machine computer connected, the start menu (Fig. 18) appears and indicates the terminal software version number.

After approx. 2 seconds the **AMATRON+** automatically goes to the main menu.

If after the **AMATRON+** is switched on data are loaded from the machine computer, e.g. in event of

- use of a new machine computer
- use of a new **AMATRON+** terminal
- after RESET of the **AMATRON+** terminal

this is indicated on the start screen (Fig. 18).

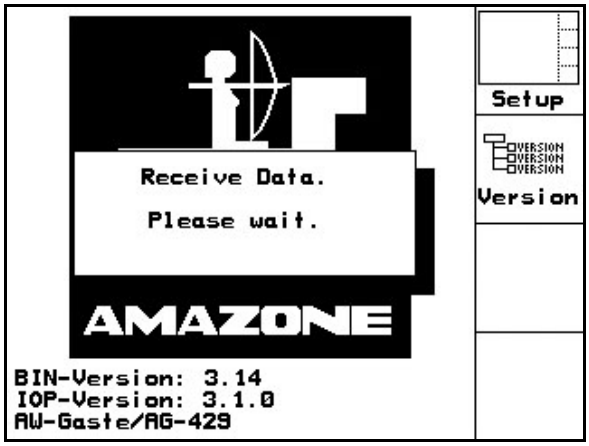


Fig. 18

5.2 Main menu

Order	Job menu: Entry of data for a job. Before commencement of sowing, start the job (see on page 25).
drill calibr.	Seed drill calibration menu: Carry out calibration test before starting sowing (see on page 27).
machine	Machine data menu: Entry of machine-specific or individual data (see on page 19).
Setup	Setup menu: Entry and readout of data for customer service in event of maintenance or fault (see on page 31).

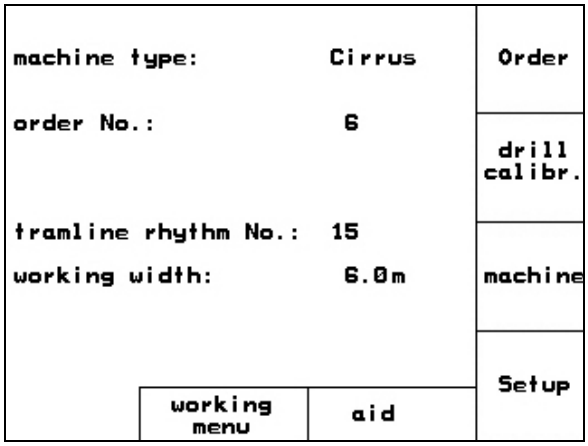


Fig. 19

5.3 Machine data entry

machine Select "Machine data" in main menu!

Page 1 01/03 in machine data menu (Fig. 20):

- Enter the required tramline rhythm (see tables Fig. 21, Fig. 22).
- Enter the interval tramline control (see on page 22).
- Menge in % Enter the percentage application rate increase in % (value for percentage sowing rate change during work with ,).
- I./100m Maschine Calibrate the distance sensor (see on page 23).

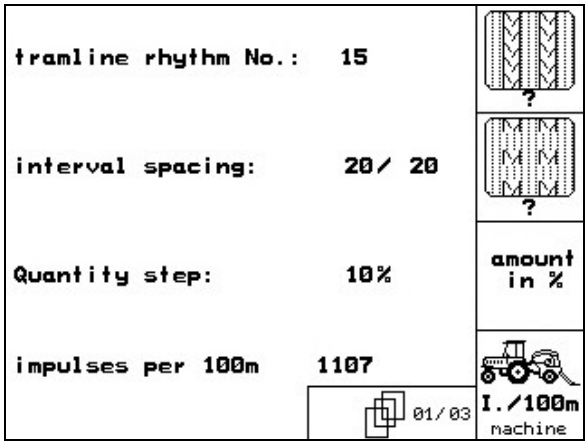


Fig. 20

Tramline rhythm

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Tramline counter	0	0	0	0	0	0	0	0	0	1	1	0	0	0
	1	0	1	1	1	1	1	1	1	2	0	1	1	1
		1	2	2	2	2	2	2	2	3	3	2	2	2
		2		3	3	3	3	3	3	0	4	3	3	3
					4	4	4	4	4	5	5	4	4	4
						5	5	5	5	6	6	5	5	5
							6	6	6	0	7	6	6	6
								7	7	8	8	7	7	7
									8	9	0	8	8	8
										10	10	9	9	9
												10	10	10
												11	11	11
													12	12
														13

	15	16	17	20	21	22	23	26	32					
Tramline counter	1	0	0	0	0	0	0	0	0					
	Switching 15 starts no tramlines.	1	1	1	0	0	0	1	0					
		2	2	2	1	1	1	2	1					
		3	3	3	2	2	2	3	2					
		4	4	4	3	3	3	4	3					
		5	5	5	4	4	4	5	4					
		6	6	6		5	5	6	5					
		7	7	7		6	6	7	6					
		8	8	8			7	8	7					
		9	9	9			8	9	8					
		10	10					10	9					
		11	11						10					
		12	12											
		13	13											
		14	14											
		15	15											
			16											

Fig. 21

Double tramline control																				
	18 left	18 right	19 left	19 right	24 left	24 right	25 left	25 right	27 left	27 right	28 left	28 right	29 left	29 right	30 left	30 right	31 left	31 right	33 left	33 right
Tramline counter	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1
	2	2	2	2	2	0	2	0	2	0	2	2	2	0	0	2	2	2	2	2
	0	3	3	0	3	3	3	3	3	3	0	3			3	3	0	3	3	3
	4	4	4	4	0	4	4	4	4	4	0	4			4	4	4	4	4	4
	5	5	5	5	5	5	5	5	0	5	5	5			5	0			0	5
	6	6	6	6	6	6	0	6	0	6	6	0			6	6			6	6
	7	0	0	7	0	7	7	7	7	7									7	7
	8	8	8	8	8	8	8	8	8	8									8	8
	9	9	9	9	9	0	0	9	9	0									9	9
	10	10	10	10	10	10	10	10	10	10									10	10
	11	11	11	11			11	11												
	12	0	0	12			12	12												
	13	13	13	13			13	0												
	14	14	14	14			14	14												
	15	15	15	15																
	0	16	16	0																
	17	17	17	17																
	18	18	18	18																

Fig. 22

Page 2 02/03 in machine data menu (Fig. 23):

- Prog. Adopt the current fan speed (rpm) during operation as the speed to be monitored.
- n Enter the fan speed (rpm) that is to be monitored.
- kg Enter the current fill level (kg) in the hopper.
- kg Enter the refill quantity (kg).
- Alarm Enter the remaining quantity level (kg) in the seed box at which the level alarm should be triggered.
- The **AMATRON+** triggers an alarm when
  - the theoretically calculated remaining quantity is achieved or
  - the level sensor (optional) is no longer covered with seed.

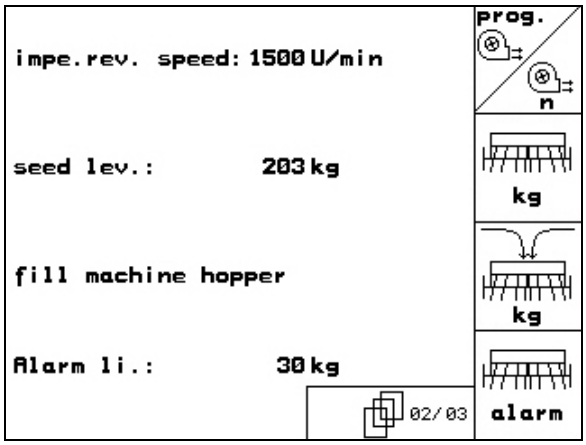


Fig. 23

Page 3 03/03 in the machine data menu (Fig. 24)

- -% Enter the seed volume reduction (in %) when starting a tramline (see table Fig. 25, only necessary for machines without seed return to hopper).
- Enter the control factor for the diesel engines.

  Standard value: 1

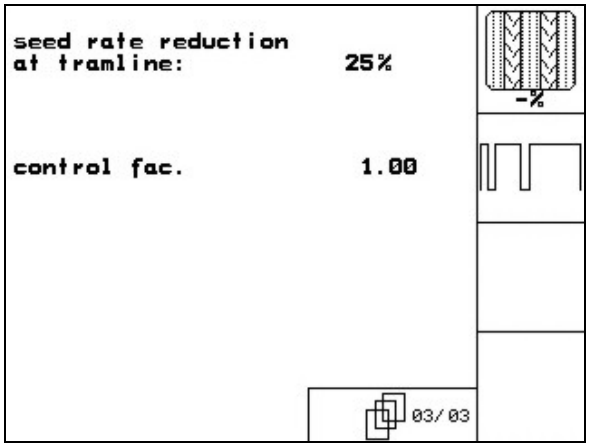


Fig. 24

Working width	Number of sowing coulters	Number of tramline hoses	Recommended percentage seed volume reduction for starting tramlines
3.0 m	24	4	17%
	30	4	13%
	24	6	25%
	30	6	20%
4.0 m	32	4	12%
	40	4	10%
	32	6	19%
	40	6	15%
4.5 m	36	4	11%
	44	4	9%
	36	6	17%
	44	6	14%
6.0m	48	4	8%
	48	6	12%
8.0m	64	4	6%
	64	6	9%
9.0m	72	4	6%
	72	6	8%
12.0 m	96	4	4%
	96	6	6%

Fig. 25

5.3.1 Entering interval tramline control (machine data 01/03)

- Enter the seeded distance (m) with interval tramline control activated.
- Enter the unseeded distance (m) with interval tramline control activated.

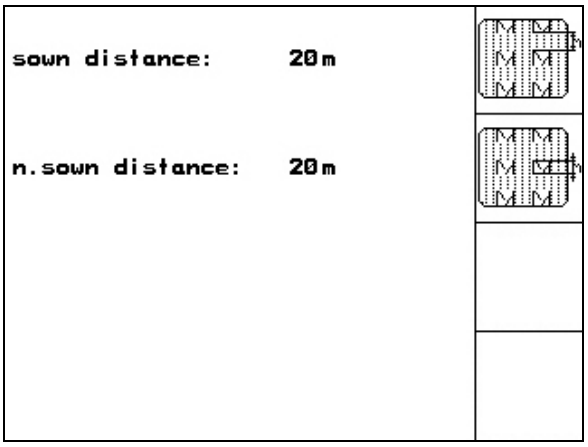


Fig. 26

5.3.2 Calibrating distance sensor (machine 01/03)

To set the seed rate calibration value and to record the area cultivated or to determine the forward speed, the **AMATRON+** needs the impulses of the seed drill wheel over a calibration distance of 100 m.

The value Imp./100m is the number of impulses received by the **AMATRON+** during the measuring travel of the seed drill drive wheel.

The slippage of the seed drill drive wheel may change during work on a different soil (e.g. from heavy to light soil), which also results in a change of the value Imp./100m.

The value Imp./100m must be determined:

- before initial use
- in event of different soils (wheel slippage)
- in event of deviation between the seed quantity determined in the calibration test and the seed quantity output in the field
- in event of deviation between the indicated and the actually cultivated area.

The determined value Imp./100m can be entered during subsequent work in the same box in the table (Fig. 29).

The calibration value Imp./100m must not be less than 250, otherwise **AMATRON+** does not function properly.

There are 2 possibilities for entering Imp./100m:

- manual Entry The value is known (see Fig. 29) and is entered manually on the **AMATRON+**.
- Start The value is not known and is determined by travelling a calibration distance of 100 m.

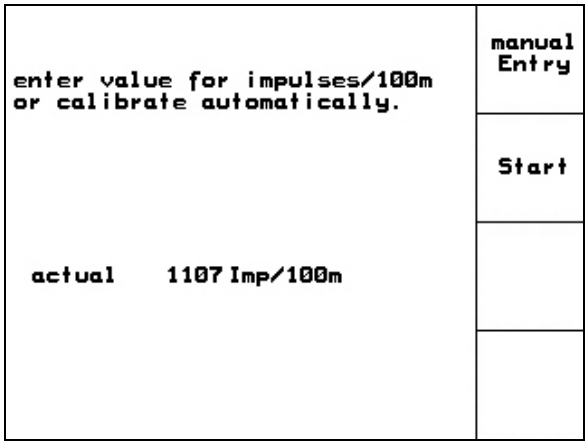


Fig. 27

Determine calibration value by travelling a calibration distance:

- On the field, measure a calibration distance of exactly 100 m. Mark the start and end point of the calibration distance (Fig. 28).
- Start Start the calibration.
- Travel the calibration distance exactly from start to end point (upon starting, the counter goes to 0). On the display the continuously determined impulses are indicated.
- Stop after 100 m. On the display the number of determined impulses are now indicated.
- Adopt value Imp./100m.
- Esc Reject value Imp./100m.

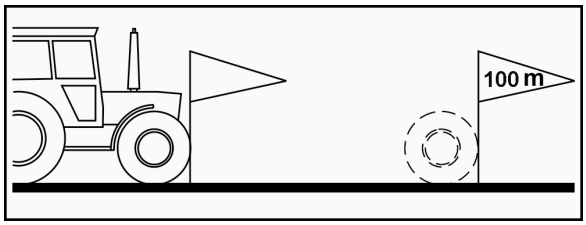


Fig. 28

The calibration value "Imp./100m" is dependent on the seed drill type and the soil.	**Cirrus / Citan with gearbox**	**Cirrus / Citan with full dosing**
	Calibration value "Imp./100 m"	**Calibration value "Imp./100 m"**
Theoretical value	1187	742
Field 1		
Field 2		

Fig. 29

5.4 Starting a job

Order Select "Job" in main menu!

When the job menu is opened, the last job started appears.

A maximum of 20 jobs can be stored.

To start a new job, select a job number (Fig. 30/1).

- Name Enter name.
- Note Enter note.
- delete All data for this job are deleted.
- start Start the job so that data can be stored with this job.
- kg/ha K/m² Enter the specified quantity.
- kind Call up seed type submenu:
  - Select seed type.
  - Enter the 1000 grain weight.
  - Quantity display in kg / ha or grains / m^2.
- Delete the data of day Delete daily data:
  - Cultivated surface (ha/day).
  - Seed volume output (quantity/day).
  - Work time (hours/day).

Already stored jobs can be called up with and restarted with starten.

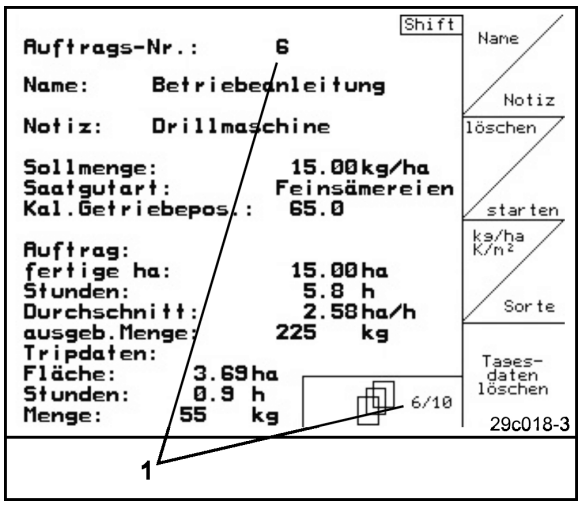


Fig. 30

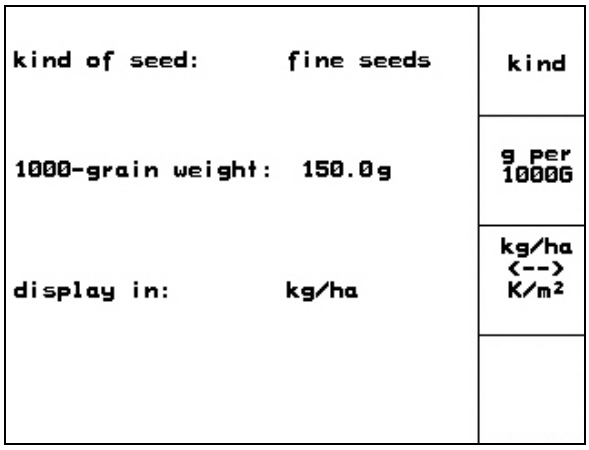


Fig. 31

Pressed shift key  (Fig. 32):

- 

Scroll forward.
- 

Scroll backward.

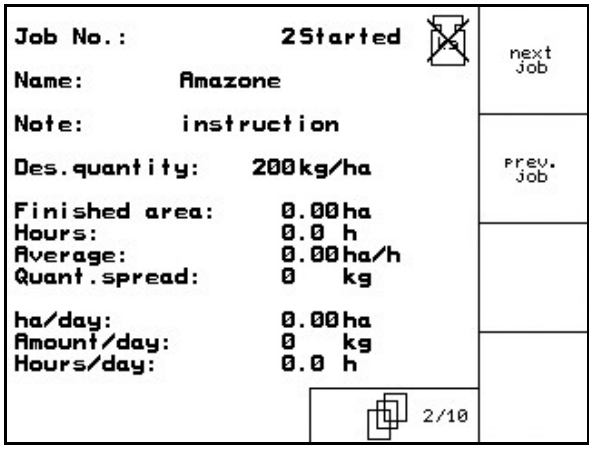


Fig. 32

5.4.1 External job

An external job can be given to the **AMATRON+** and started via a PDA computer.

This job is always given the job number 21.

The data is transferred via the serial interface.

- 

End external job (data of external job are deleted).

→ Transfer data back to PDA beforehand.

- 

Enter the specified quantity.

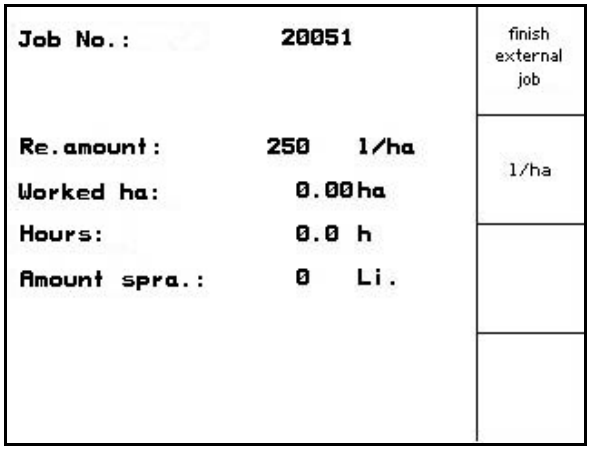


Fig. 33

5.5 Calibration test

The calibration test checks whether the sowing rate is correct during later sowing.

The calibration test must always be carried out

- when the seed type is changed
- if the seed type is identical, but size grain, grain shape, specific weight and dressing are different
- when the dosing roller is changed
- if there are any differences between the calibration test and actual sowing rates.

drill calibr. Select "Calibrate seed drill" in main menu!

5.5.1 Calibrating machines with seed rate remote control

1. Prepare calibration test in accordance with the seed drill operating manual!
2. kind Call up seed type submenu:
   - o Select seed type.
   - o Enter the 1000 grain weight.
   - o Quantity display in kg / ha or grains / m^2.
3. kg/ha K/m² Test/enter desired sowing rate.

This value can also be entered in the job menu (see on page 25).

4. , Set gearbox lever to

- **Gearbox setting 50:**

→ Coarse dosing roller

→ Medium dosing roller

- **Gearbox setting 15:**

→ Fine dosing roller

The gearbox setting displayed on the **AMATRON+** must correspond to the setting indicated on the scale. Otherwise the gearbox must be calibrated (see on page 63)

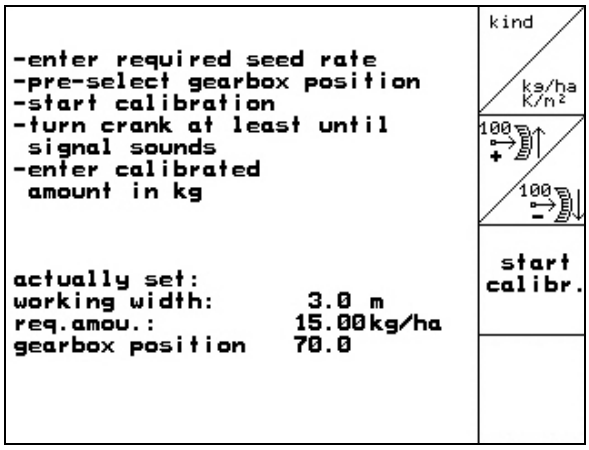
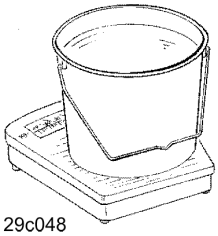


Fig. 34

5. Rotate the star wheel with the calibration crank as described in the seed drill operating manual in the direction of travel until all the chambers of the dosing wheels are filled with seed and an even flow of seed to the collection bucket(s) is achieved.
6. Check whether the correct dosing roller is fitted (coarse, medium, fine).
7. Empty the collection bucket.
8. 

Start the calibration test.
9. Turn the drive wheel with the crank, as described in the seed drill operating manual, until the acoustic signal is sounded. Further rotations after the acoustic signal are taken into consideration by the **AMATRON+** for its calculation.
10.  Terminate the calibration process.
11. Weigh the seed caught in the collection bucket(s) (take hopper weight into consideration) and enter the weight (kg) in the terminal.

The scales must weigh accurately. Inaccuracies may cause deviations in the actual sowing rate!


29c048

The **AMATRON+** calculates and sets the required gearbox position using the data entered from the calibration test.

Repeat the calibration process to check the correct setting.

When repeating the calibration, use the newly determined gearbox setting (do not go to gearbox position 15 or 50)!

5.5.2 Calibrating machines with electric full dosing

1. Prepare calibration test in accordance with the seed drill operating manual!
2. 

Call up seed type submenu.
   - o Select seed type.
   - o Enter the 1000 grain weight.
   - o Quantity display in kg / ha or grains / m^2.
3. 

Test/enter desired sowing rate.


This value can also be entered in the job menu (see on page 25).

4. 

Enter planned subsequent working speed (km/h).
5. 

Set the calibration factor before the first calibration to 1.00 or an experience value.
6. 

Fill the cells of the dosing roller with the predosing. The running time is adjustable (see on page 34).
7. Check whether the correct dosing roller is fitted (coarse, medium, fine).
8. Empty the collection bucket.
9. 

Start the calibration test.

→ The electric motor doses the calibration quantity to the collection bucket until the acoustic signal is sounded.

10. 
Terminate the calibration process
11. Weigh the seed caught in the collection bucket(s) (take hopper weight into consideration) and enter the weight (kg) in the terminal.

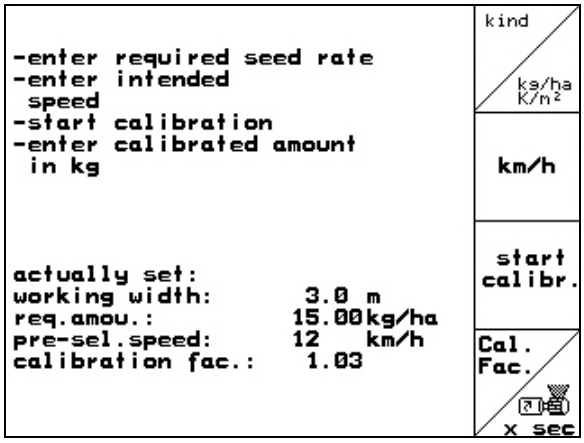
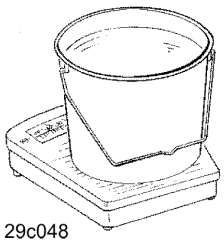


Fig. 35

The scales must weigh accurately. Inaccuracies may cause deviations in the actual sowing rate!


29c048

The **AMATRON+** calculates the required calibration factor on the basis of the data entered from the calibration test and sets the electric motor to the correct speed.

Repeat the calibration process to check the correct setting.

5.6 Setup menu

In the setup menu

- Diagnosis data for the customer service for maintenance or malfunctions are input/output
- The settings for the display are changed
- Machine basic data are selected and entered or special optional equipment is switched on and off (only for customer service).

The settings in the setup menu is a workshop operation and must be carried out only by qualified personnel!

Select "Setup" in the main menu!

Page 1 

of the setup menu (Fig. 36):

- 

Diagnosis computer input (only for customer service).
- 

Diagnosis computer output (only for customer service).
- 

Enter simulated speed for continued working with defective distance sensor (see on page 66).
- 

Terminal Setup (see on page 37).
- 
Enter basic data.

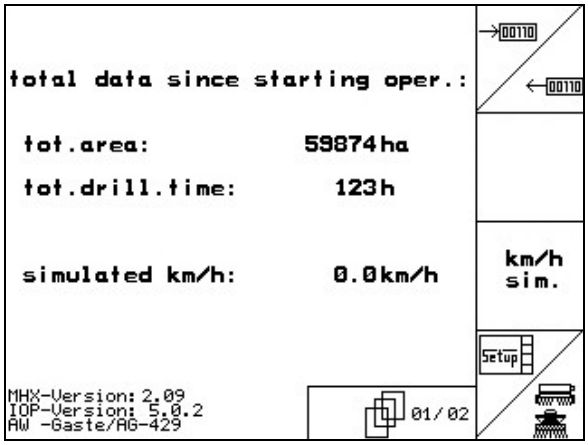


Fig. 36

Page 1 01/05 **Basic data (Fig. 37):**

-  Selecting machine type.

-  Configure tramline system.

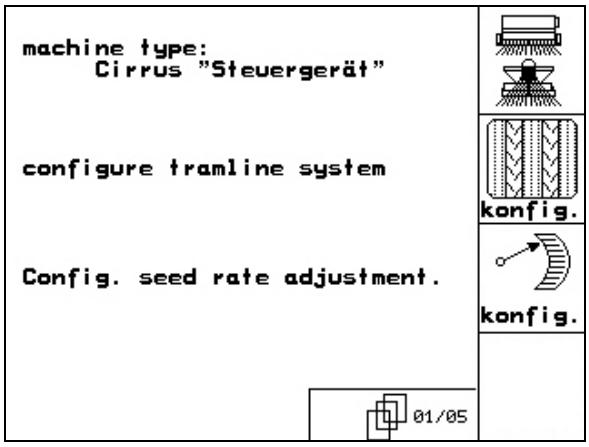


Fig. 37

Tramline submenu

o  Single or double tramline

- actuated by a tramline motor,
- actuated by two tramline motors.

o  Time after raising to shifting up the tramline number.

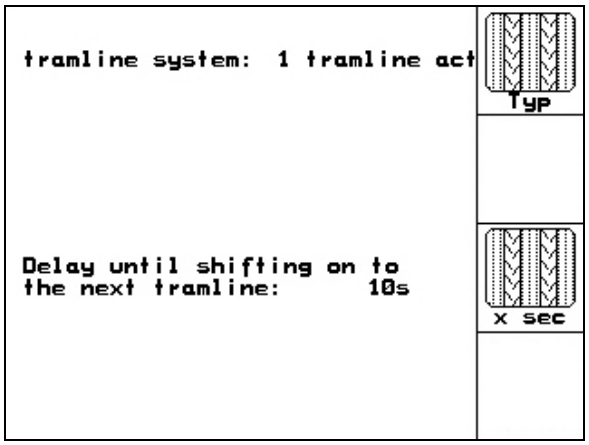


Fig. 38

-  Configure seed rate remote control.

Setting seed rate submenu

o  Select seed rate remote control:

- no seed rate remote control.
- with Vario gearbox.
- electric full dosing.

→ The last value displayed is stored.

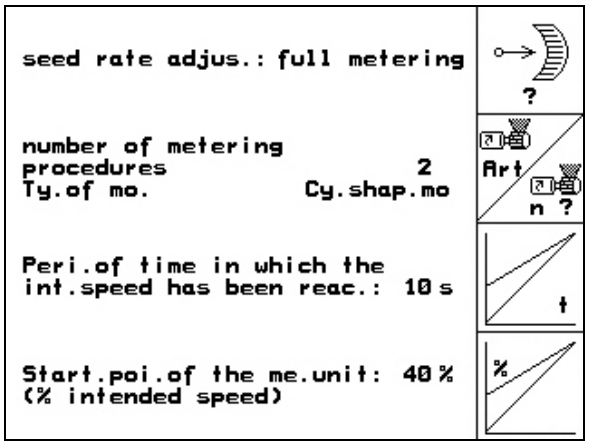


Fig. 39

Electric full dosing:

- 

Enter number of dosing units.
- 

Enter type of motor.

  - Longitudinal motor (standard).
  - Disc-type motor.
- 

Entry of time from end of headlands to reaching the planned working speed (see calibration test menu).
- 

Start speed in % of planned working speed.

Vario gearbox:

- 

Calibrate the gearbox (see on page 63).

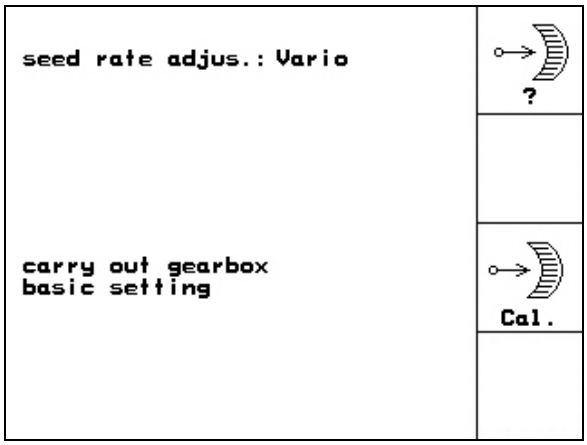


Fig. 40

Page 2 02/05 Basic data (Fig. 41):

-  Number of track marker sensors.
  - o None (entry for Cirrus / Citan).
-  Function not for Cirrus / Citan.
-  Level sensor in seed box yes / no.
-  Monitoring the dosing wheels.
  - o One dosing unit.
  - o Two dosing units.
  - o No monitoring.

→ The last value displayed is stored.

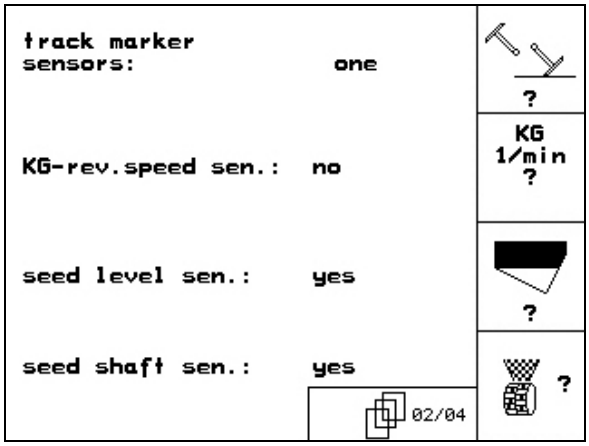


Fig. 41

Page 3 03/05 Basic data (Fig. 42):

-  Entry of dosing wheel alarm delay time.
-  Entry of tramline system alarm delay time.
-  Function not for Cirrus / Citan.
-  Entry of running time (seconds) of pre-dosing.

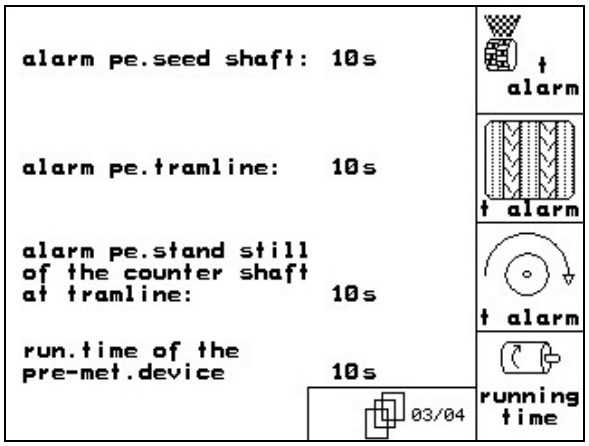


Fig. 42

Page 4 04/05 Basic data (Fig. 43):

-  Entry of working width (m).
-  Selection of pre-emergence marker:
  - o None.
  - o Hydraulically actuated.
  - o Electrically actuated.

→ The last value displayed is stored.

-  Triggering of the alarm if the blower fan speed differs from the setpoint (in %).
-  Wheel mark eradicator provided (yes / no).

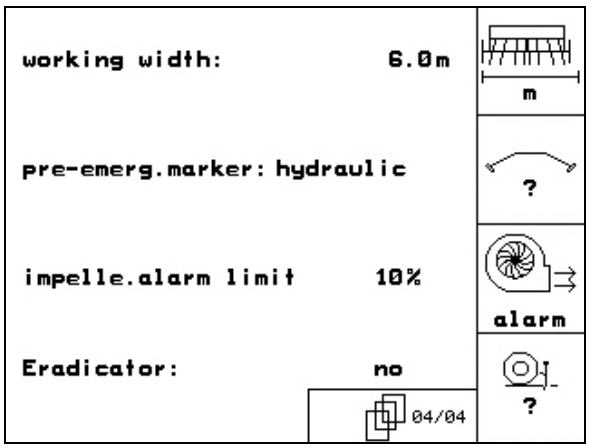


Fig. 43

Page 5 05/05 Basic data (Fig. 44):

-  Turn at headlands on all wheels (yes / no).

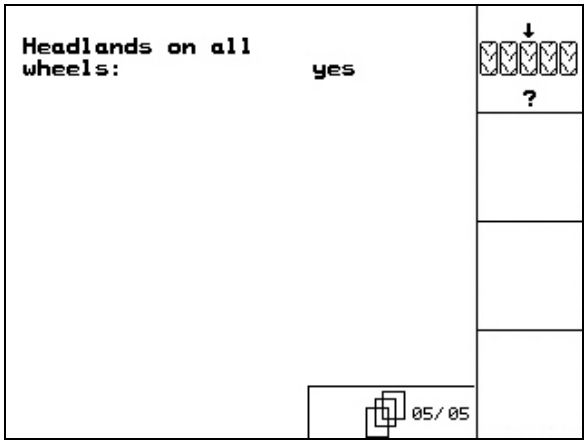


Fig. 44

Page 2 of the setup menu (Fig. 45):

- RESET job computer Reset machine data to factory settings. All entered and accumulated data, e.g. jobs, calibration values and setup data are lost.

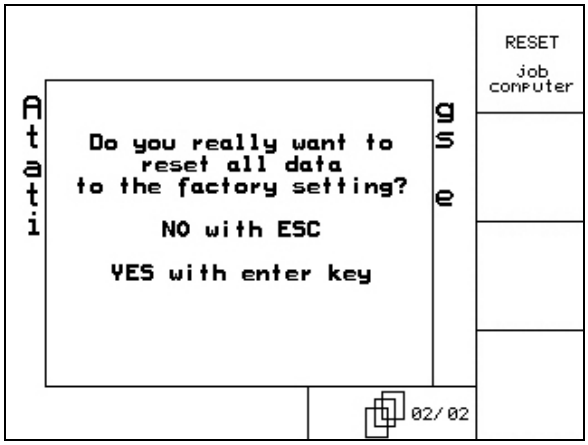


Fig. 45

5.6.1 Terminal setup

In the setup menu:

- In order to change the display settings, actuate the following keys simultaneously:
  - o  Scroll and
  - o  Shift key.
- Via the function field  , call up the entry "Display settings".
-  Display the units located on the bus.

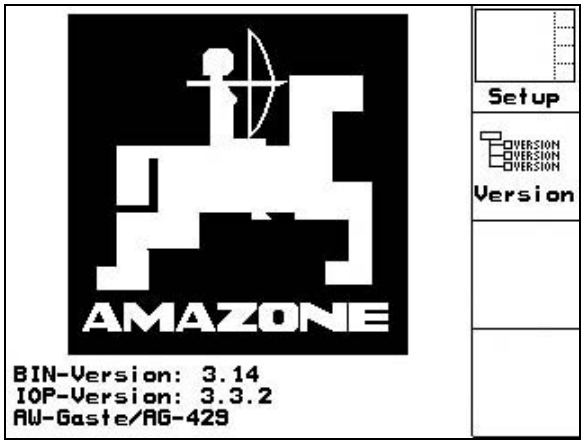
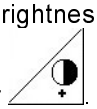


Fig. 46

 **Page 1**  **of Terminal setup**

- Set the contrast via the function fields  or  .
- Set the brightness via the function fields  or  .
- Invert the display black ← → white  .
-  Key for sound on/off
- Delete the stored data via the function field  . (See on page 36).
- Set the language of the user interface via the function field  .
-  Exit Terminal setup menu.

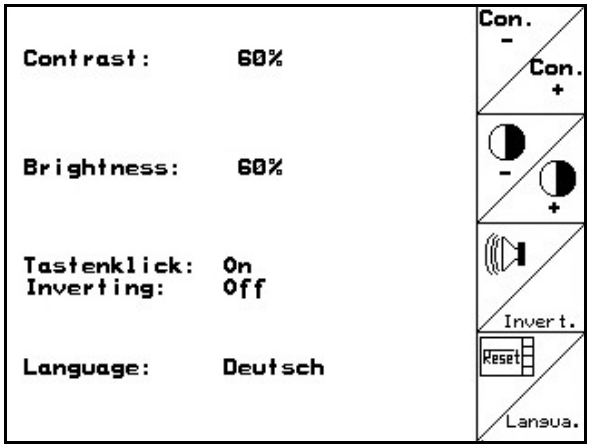


Fig. 47

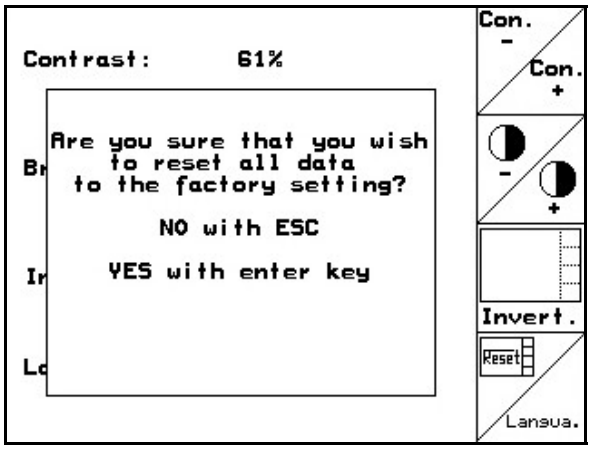


Fig. 48

The Terminal reset function resets all data of the terminal to the factory settings. No machine data are lost.

Page 2 02/03 of Terminal setup

- Entry of time.
- Entry of date.
- RS232 Entry of data transfer speed.

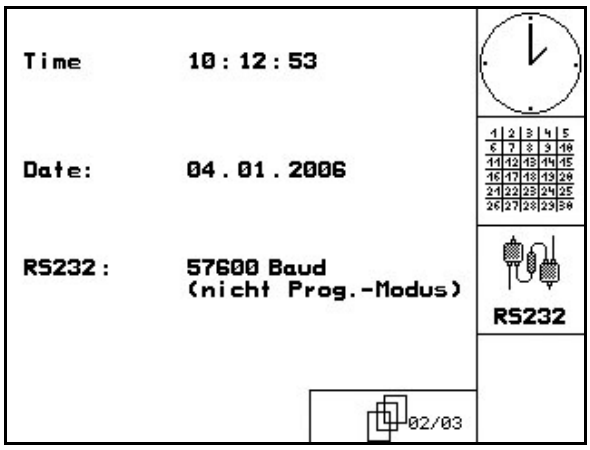


Fig. 49

Page 3 03/03 of Terminal setup

- Delete program:

1. , Select program.
2. löschen Delete program.

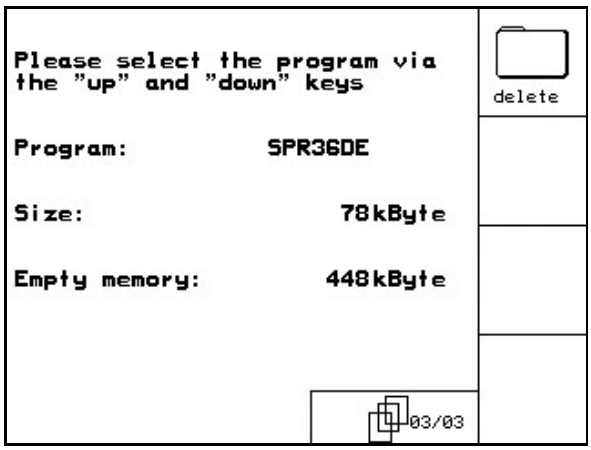


Fig. 50

6 Use on the field

CAUTION

During travel to the field and on public roads, the AMATRON+ should always be switched off!

Incorrect use leads to the risk of accidents!

Before starting the sowing, the AMATRON+ must have received the following data:

- Job data (see on page 25)
- Machine data (see on page 19)
- Calibration test data (see on page 27).

6.1 Specified quantity adjustment

The sowing rate can be changed at will during the work at the press of a key.

Each press of the key increases the sowing rate by the rate increase (on page 19) (e.g.:+10%).

Reset sowing rate to 100%.

Each press of the key decreases the sowing rate by the rate increase (on page 19) (e.g.:-10%).

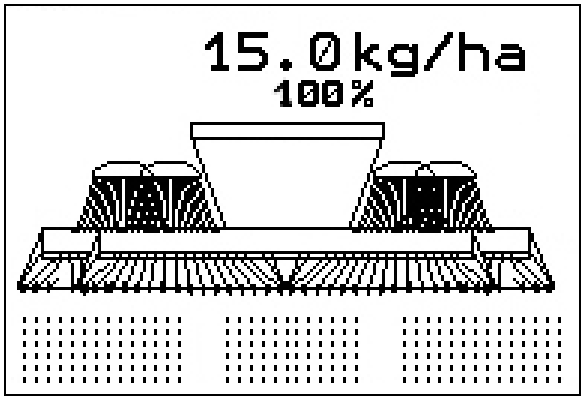


Fig. 51

The changed specified value is indicated in the work menu in kg/ha and per cent (Fig. 51)!

6.2 Preselection for hydraulic functions

1. Preselect a hydraulic function via a function key.
2. Operate tractor control unit.

→ The preselected hydraulic function is carried out.

The hydraulic preselection functions (Fig. 52/1) are displayed in the work menu.

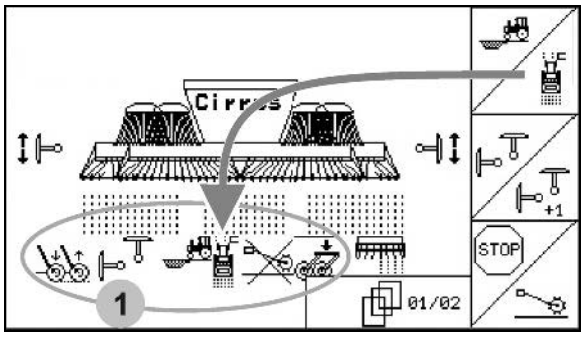


Fig. 52

Options which

- are switched off in the setup menu
- do not belong to the machine equipment (options)
- are not indicated in the work menu (function fields are not assigned).

6.3 Displaying work menu

1. Tramline system active
2. Interval tramline system active
3. Tramline counter
4. Interrupt tramline rhythm/ STOP shifting on of tramline

Speed-
Distance to refill-
Blower fan speed-
Worked area-

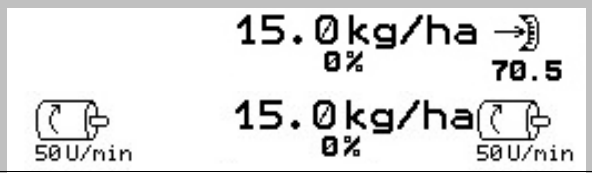
Specified quantity:

Machines

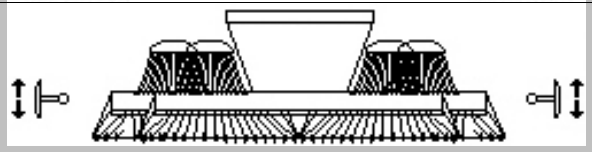
- with Vario gearbox
- with electric full dosing

In addition to the specified quantity in kg/ha and in per cent

- the current gearbox position is indicated.
- the speed of the electric motors is indicated.



Track marker left active -



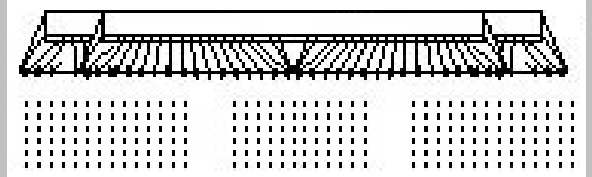
- Track marker right active

Work modes:

1. Machine receives no impulses from the distance sensor.

Dosing unit not running.

2. Machine receives impulses from the distance sensor.



Dosing unit running, machine in operational position

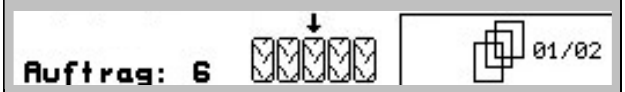
3. Machine receives impulses from the distance sensor.

Dosing unit not running, machine is raised.

Seed drill raised

Preselection of hydraulic functions

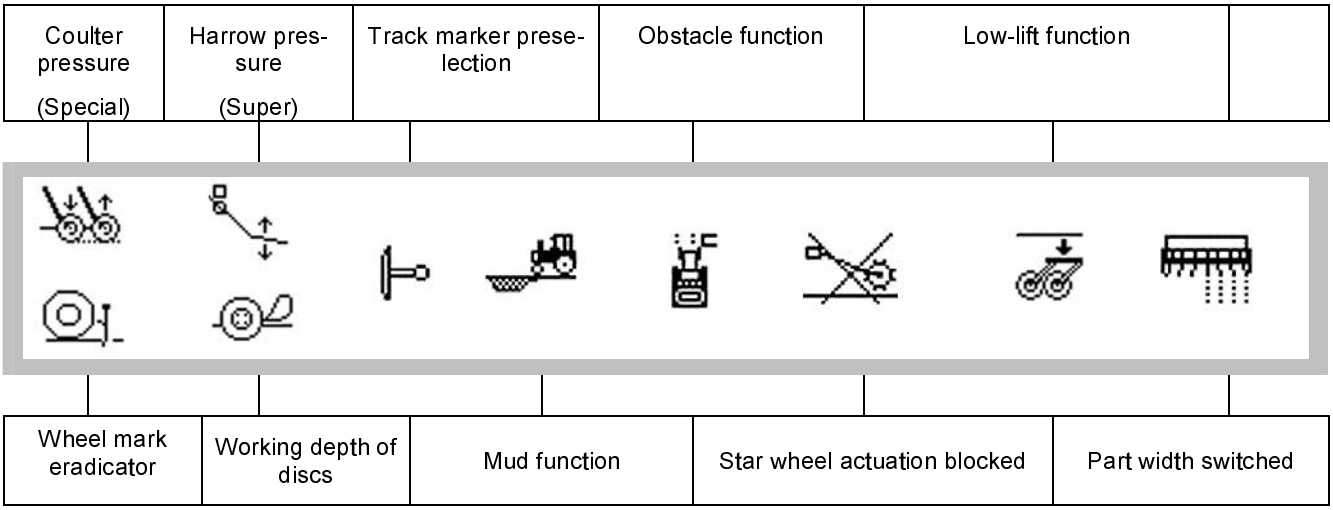
Current job -



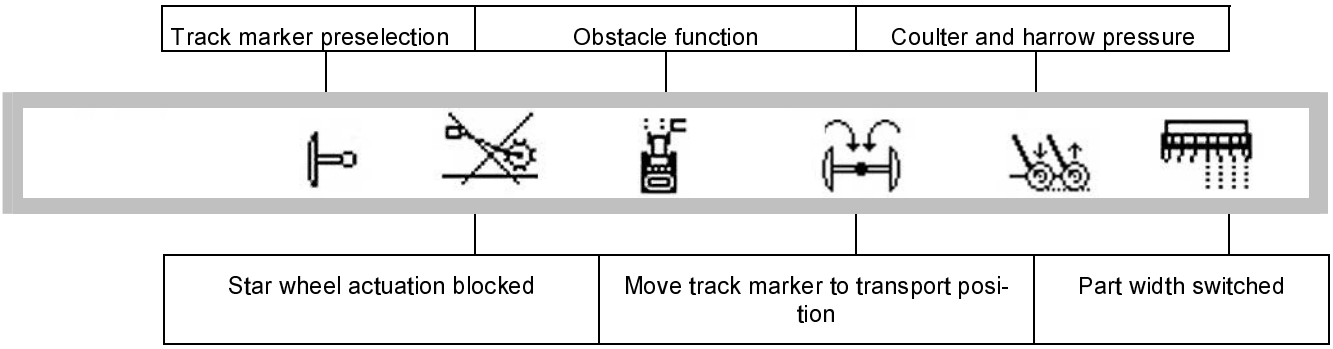
- Open page in work menu.

Headland on all wheels
(only Cirrus Special / Super)

Preselection of hydraulic functions **Cirrus**:

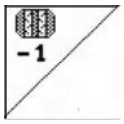
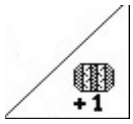


Preselection of hydraulic functions **Citan**:



6.4 Functions in work menu

6.4.1 Tramline control

	**Switch back tramline counter**
	**Switch forward tramline counter**

The tramline counter switches when the machine is raised.

Fig. 53/...

(1) Tramline system display switched on

(2) Current tramline number display

(3) Display of tramline counter shift suppressed

(4) Display of interval tramline control switched on

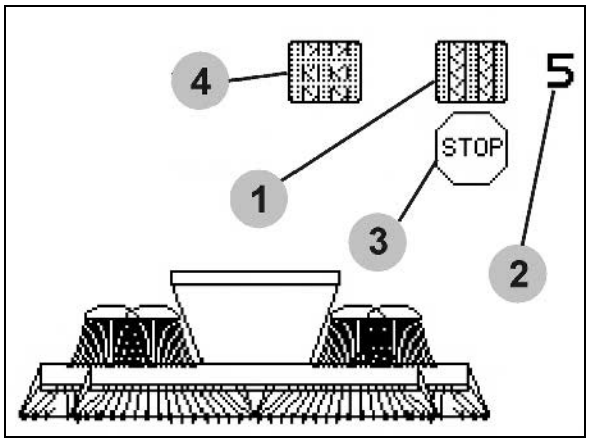
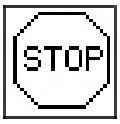


Fig. 53

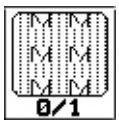
	**Suppress shift on of tramline counter**

1.  Stop tramline counter.

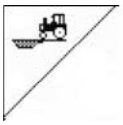
→ When the machine is raised, the tramline counter does not shift on.

2.  Cancel tramline counter stop.

→ The tramline counter switches when the machine is raised.

	**Activating and deactivating interval tramline control**

6.4.2 Mud function (only for Cirrus)



Allows working on fields with mud holes.

1.  Preselect mud function (Fig. 54).
2. Operate tractor control unit 1.

→ Raise tools.

3. Pass through mud areas.

Machines with working width of 3 metres:

Running gear is extended in order to raise coulter and disc array and to reduce traction resistance.

Machines with working width greater than 3 metres:

Disc array and coulter are raised in order to reduce traction resistance.

4. Operate tractor control unit 1.

→ Lower tools.

5.  Cancel preselection.

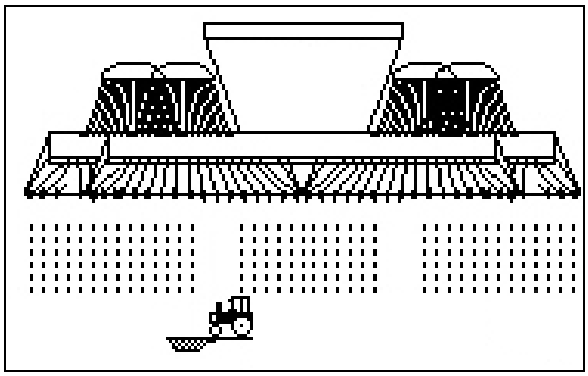


Fig. 54

6.4.3 Markers

For raising / lowering the machine, the preselected track marker is automatically actuated.

Manual track marker preselection

Track marker preselection:

Always left track marker

Always right track marker

Always both track markers

No track marker

Alternating mode left / right

(Active track marker automatically changes at headlands)

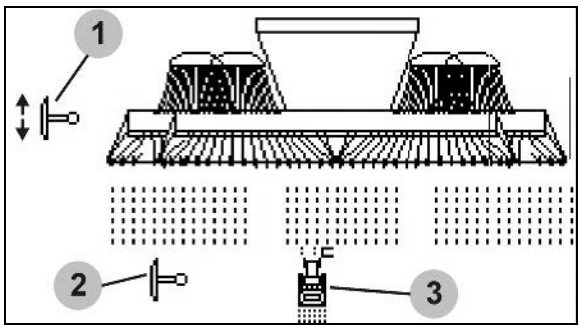
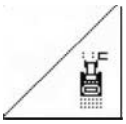


Fig. 55

- Display of active track marker (Fig. 55/1)
- Display of track marker preselection (Fig. 55/2)

Track marker shifting on in alternating mode

The track marker shifting allows the changing of the active track marker from left to right and vice versa.



Track marker obstacle switching

For passing obstacles on the field.

1.  Preselect obstacle switching (Fig. 55/3).
2. Operate tractor control unit 1.

→ Raise track marker.

3. Pass obstacle.
4. Operate tractor control unit 1.

→ Lower track marker.

5.  Cancel preselection.

Fold track marker to transport position (Option for Citan)

Allows folding in of the track markers to transport position.

1.  Preselect complete folding in (Fig. 56).

→ When the machine is raised, the track markers fold in to transport position.

2.  Cancel preselection.

→ When the machine is raised, the track markers fold to vertical position.

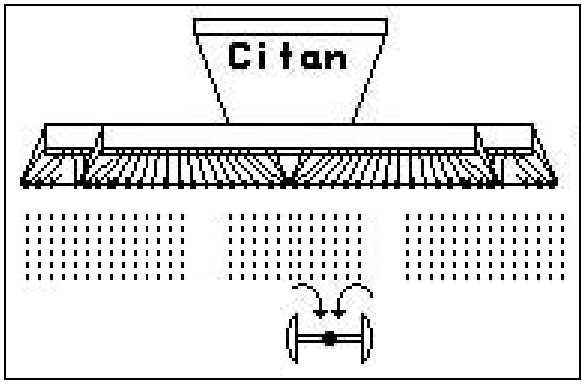
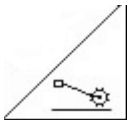


Fig. 56

The function "Folding both track markers to transport position" can be combined with the obstacle function.

Before the obstacle, both track markers are then folded to transport position. After the obstacle, the active track marker is folded out.

6.4.4 Blocking the star wheel

	**Block star wheel lowering**

- **Cirrus: Only soil working, no sowing.**
- **No full dosing: For machine calibration.**

1.  Preselect Block star wheel (Fig. 57).

- When the machine is lowered, the star wheel is kept raised.

2.  Cancel preselection.

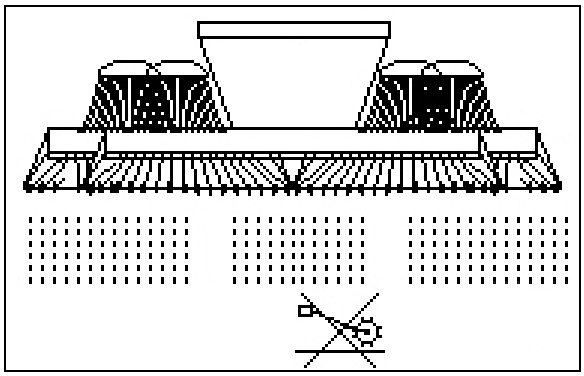
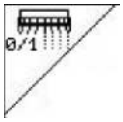
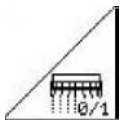


Fig. 57

6.4.5 Switching part widths (only electric full dosing)

	**Part width left**	**Switch on/off**
	**Part width right**	**Switch on/off**

	Part width section control not possible with **Cirrus 3001 / 4001**.

For sowing on half a working width, one part width can be switched off.

Fig. 58: Display: left part width switched off.

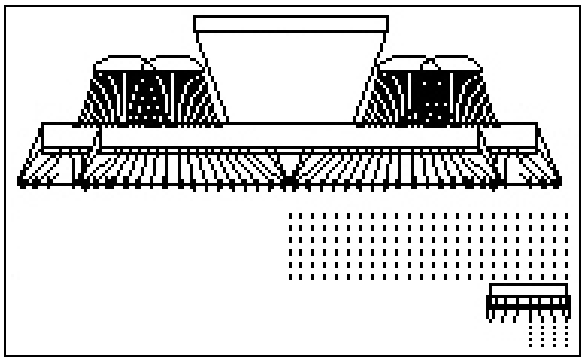
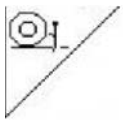


Fig. 58

6.4.6 Wheel mark eradicator (Cirrus 8001 / 9001)

	**Activate wheel mark eradicator**

1.  Preselect wheel mark eradicator (Fig. 59).
2. Operate tractor control unit 2.

→ Lower / raise wheel mark eradicator.

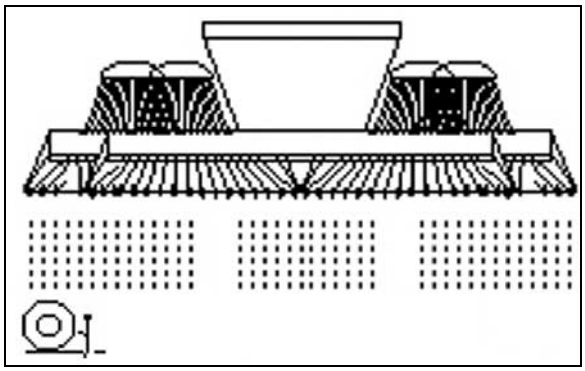
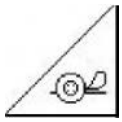


Fig. 59

6.4.7 Disc array working depth (Cirrus)

	**Set the working depth of the disc array**

1.  Preselect disc array (Fig. 60).
2. Operate tractor control unit 2.

→ Increase / reduce working depth.

→ The scale on the disc array serves as a check

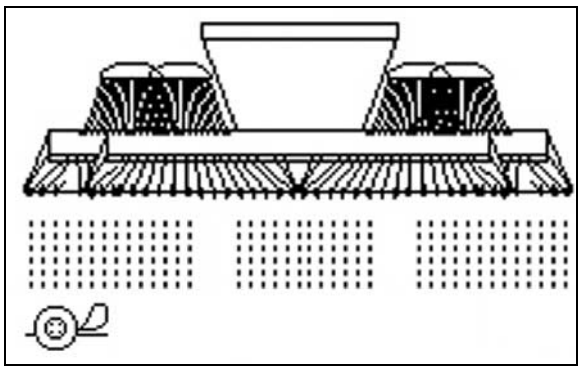
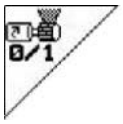


Fig. 60

6.4.8 Electric full dosing

	**Start / stop predosing**

- At the start of sowing: When starting from standstill, activate full dosing in order to ensure sufficient seed discharge over the first metres.
- To fill the seed wheels before calibration.

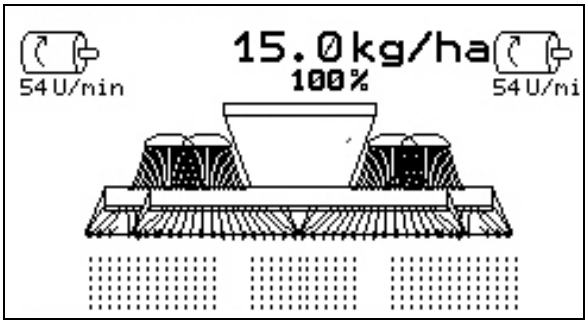
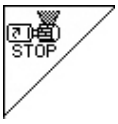


Fig. 61

1.  Start predosing.

→ The predosing provides the coulter with seed for a specified running period (Fig. 61).

	**Electric full dosing: Keep dosing unit switched off**

In order to prevent unintended starting of the dosing unit, it can be switched off.

This may be useful, as even just minor rotations of the star wheel may cause the dosing unit to start.

Display: Dosing unit switched off (Fig. 62)

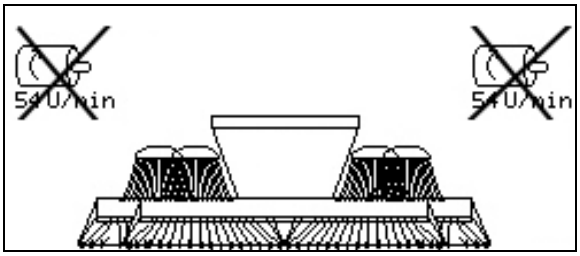
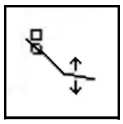


Fig. 62

6.4.9 Harrow pressure (**Cirrus Super**)

	**Set increased / reduced harrow pressure**

1.  Preselect harrow pressure (Fig. 63).
2. Operate tractor control unit 2.

→ Set increased pressure.

→ Set reduced pressure.

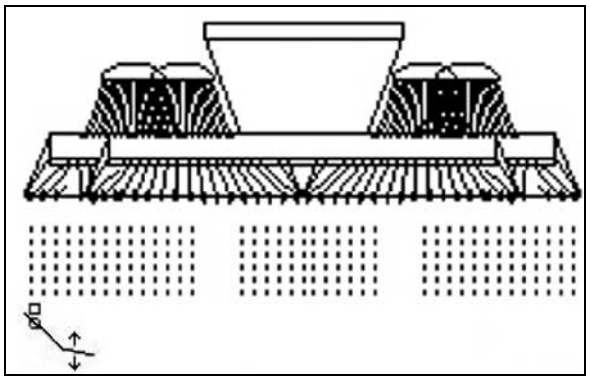
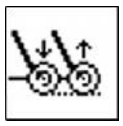


Fig. 63

6.4.10 Coulter pressure and harrow pressure (**Cirrus Special / Citan**)

	**Set increased / reduced coulter and harrow pressure**

1.  Preselect coulter/harrow pressure (Fig. 64).
2. Operate tractor control unit 2.

→ Set increased pressure.

→ Set reduced pressure.

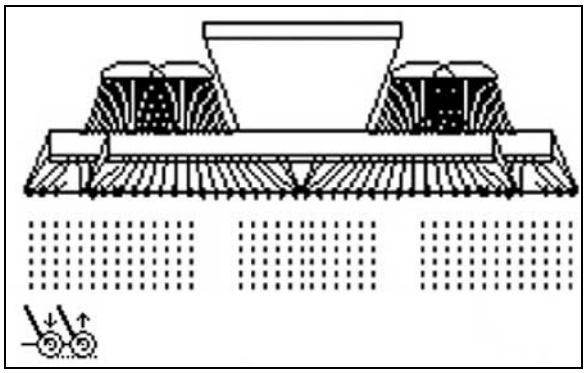
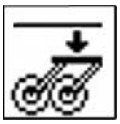


Fig. 64

6.4.11 Low-lift function (**Cirrus Super**)

	**Low-lift function**

With the low-lift function, when the machine is raised at headlands, the coulter frame is not raised.

This allows rapid raising of the machine.

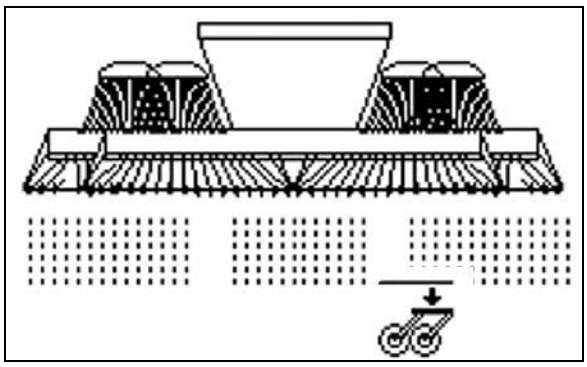


Fig. 65

1.  Select low-lift function (Fig. 65).
2. Operate tractor control unit 1.

→ The machine is raised.

→ Raising of the coulter frame is blocked.

3.  Cancel preselection.

→ During the next raising, the complete machine is again raised.

The low-lift function cannot be combined with the  headlands on all wheels function.

CAUTION

The low-lift function is prohibited during road transport, as the coulter frame has to be completely raised.
Risk of accident!

CAUTION

Reversing with the low-lift function may result in coulter damage from ground contact.

6.4.12 Folding the machine (Cirrus)

	**Fold the machine in / out**

-  Change to Folding submenu (Fig. 66).

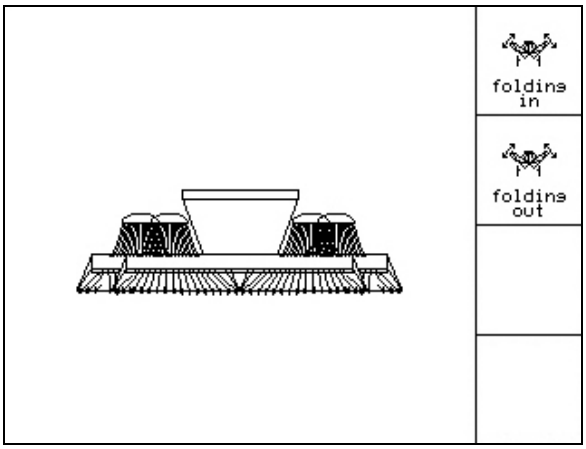


Fig. 66

Folding out

1. 
Folding out
Preselect Folding out.

Important! Before carrying out this procedure, raise the machine.

2. Operate control unit 1.

→ Raise the machine.

3.  Confirm.
4. Operate tractor control unit 2.

→ Extension arms fold out.

5. 

Back to work menu.

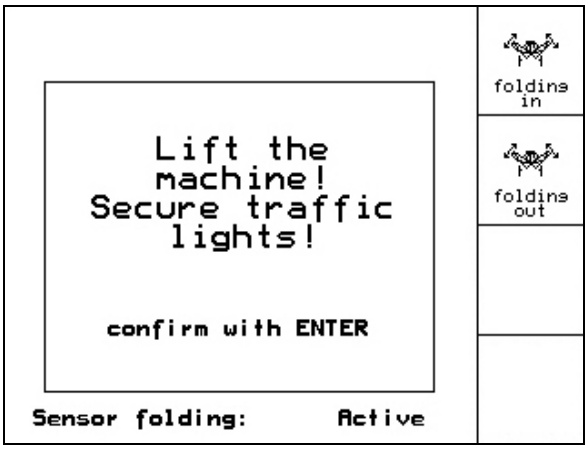


Fig. 67

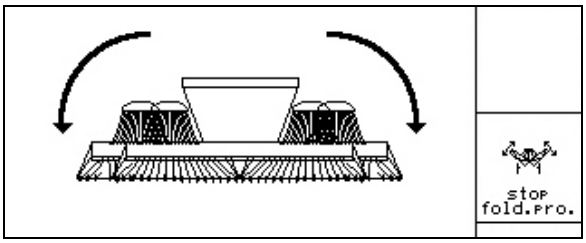


Fig. 68

Folding in

1. 
Folding in
Preselect Folding in.

Important! Before carrying out this procedure, raise the machine.

2. Operate control unit 1.

→ Raise the machine.

3.  Confirm.
4. Operate control unit 2.

→. Fold in the machine.

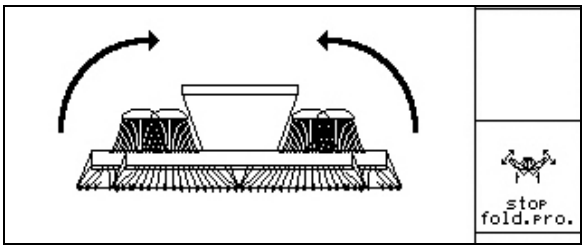


Fig. 69

Important: Move machine to transport width (swivel in the coulter).

5. Operate control unit 1.

→ Swivel in the coulter.

6.  Confirm.

7.  Back to work menu.

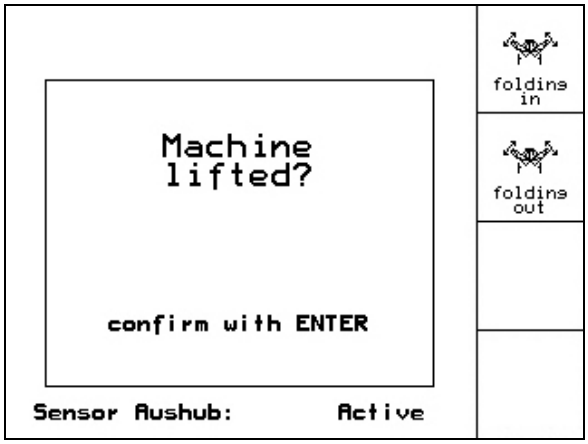
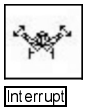


Fig. 70

Interrupt folding

-  Interrupt folding

To interrupt the folding procedure

→ Further, see Folding in / Folding out

WARNING

To move the machine from the transport position to the working position and vice versa, it is essential to refer to the machine operating manual!

6.4.13 Folding the machine (Cirrus)

	**Fold the machine in / out**

-  Change to Folding submenu (Fig. 71).

Folding out

1.  Preselect Folding out.


2. Operate tractor control unit 1.

→ Lift extension arm from transportation hook.

3. Operate tractor control unit 2.

→ Extension arms fold out

4. Operate tractor control unit 1.

→ Lower of the coulter frame.

5.  Back to work menu.

Folding in

1.  Preselect Folding in.


Important! Before carrying out this procedure, move the track marker to the transport position (Fig. 73).

2. Operate tractor control unit 1.

→ Fold both track markers to the transport position.

3.  Confirm.
4. Operate tractor control unit 2.

→ Fold in the machine.

5. Operate tractor control unit 1.

→ Place the extension arm in the transportation hook.

6.  Back to work menu.

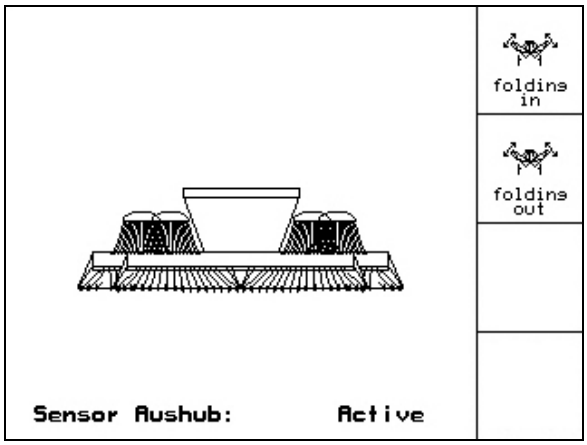


Fig. 71

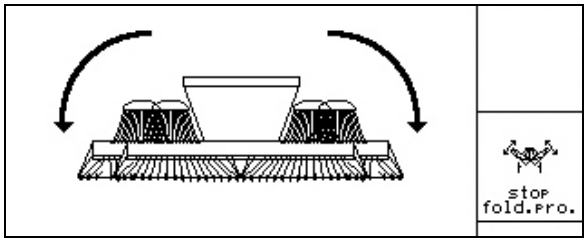


Fig. 72

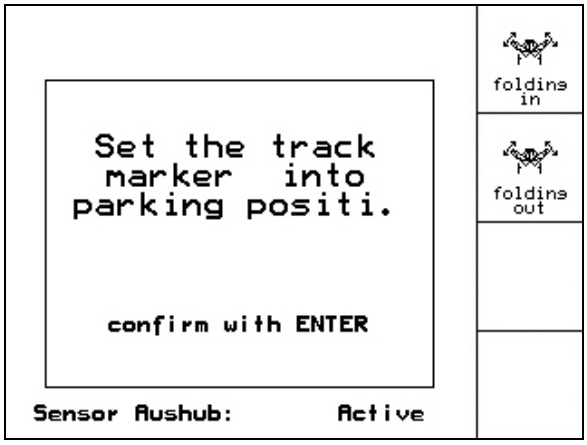


Fig. 73

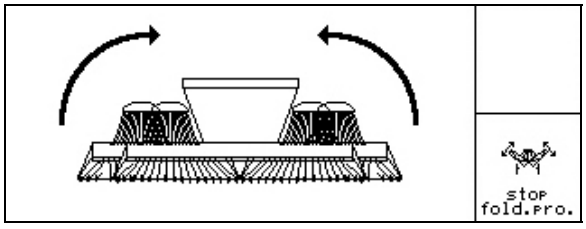


Fig. 74

Interrupt folding

- 

Interrupt folding

  Interrupt the folding procedure → Further, see Folding in / Folding out.

WARNING

To move the machine from the transport position to the working position and vice versa, it is essential to refer to the machine operating manual!

6.4.14 Headland on all wheels (Cirrus Special / Super)

Turn at headlands on all wheels.

For soft soils:

When being raised at headlands, the machine is supported on all four wheels.

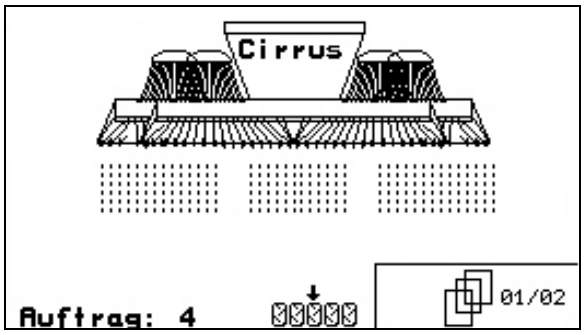


Fig. 75

1.  Preselect Headland on all four wheels (Fig. 75).
2. Operate tractor control unit 1.
   - o The machine is raised.
   - o All wheels remain on the ground.
3.  Cancel preselection.

→ During the next raising, only the running gear wheels remain on the ground.

The headlands on all wheels function cannot be combined with the low-lift function  .

6.5 Cirrus

6.5.1 Procedure for use

1.  Switch on the **AMATRON+**.
2. Select the desired job in the main menu and check the settings.
3.  Start the job.
4.  Select the work menu.

3 tractor control units are available to operate the hydraulic functions:

- **Operate tractor control unit 1** (hose marking yellow):
  - Lower the machine
  - Move the star wheel to the operational position
  - Move the preselected track marker to the operational position

or:

  - Hydraulic preselection functions

  (Obstacle function, keeping star wheel up, low-lift function, mud function, headlands on all wheels)
- Operate **tractor control unit 2** (hose marking green):
  - Hydraulic preselection functions

  (Folding machine extension arms, working depth of discs, wheel mark eradicator in operational position, coulter/harrow pressure)
- Operate **tractor control unit 3** (hose marking red):
  - Switch blower fan on/off.

5. Check the displayed tramline counter for the first field run and correct as necessary.
6. Start the sowing.

- Electric full dosing:

  As soon as the star wheel is lowered to the operational position, automatic predosing begins.

  - With  the predosing can be ended prematurely.

7. After approx. 30 m, stop and check
   - work intensity of the disc cultivator
   - depositing depth of the seed
   - working intensity of the exact harrow
- During the sowing, the **AMATRON+** shows the work menu. From here, all functions relevant to the sowing procedure can be actuated.

→ The data determined are stored for the started job.

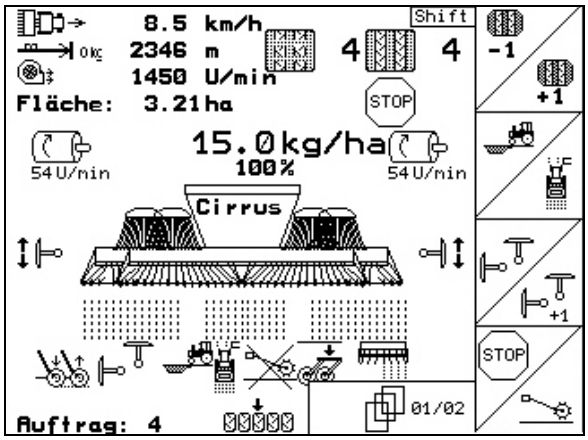
After use:

1. Check the job data (if required).
2. Activate the control units as required.
3.  Switch off the **AMATRON+**.

6.5.2 Key assignment in work menu **Cirrus**

 **Page 1:**

Description of the function fields:

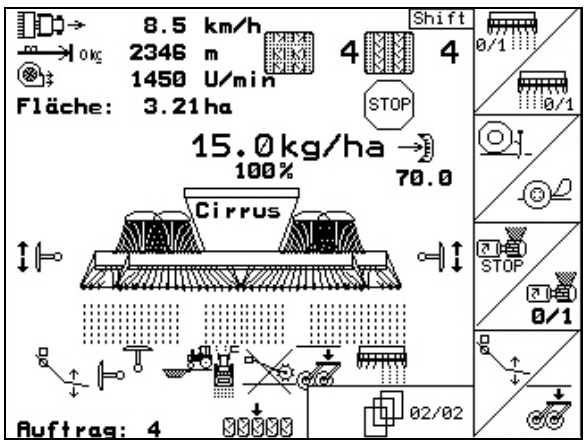


See section

6.4.1	6.4.1
6.4.2	6.4.3
6.4.3	6.4.3
6.4.1	6.4.4

 **Page 2:**

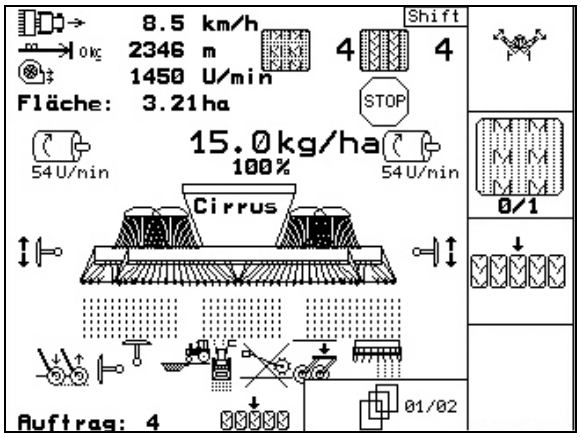
Description of the function fields:



See section

6.4.5	6.4.5
6.4.6	6.4.7
6.4.8	6.4.8
6.4.9 6.4.10	6.4.11

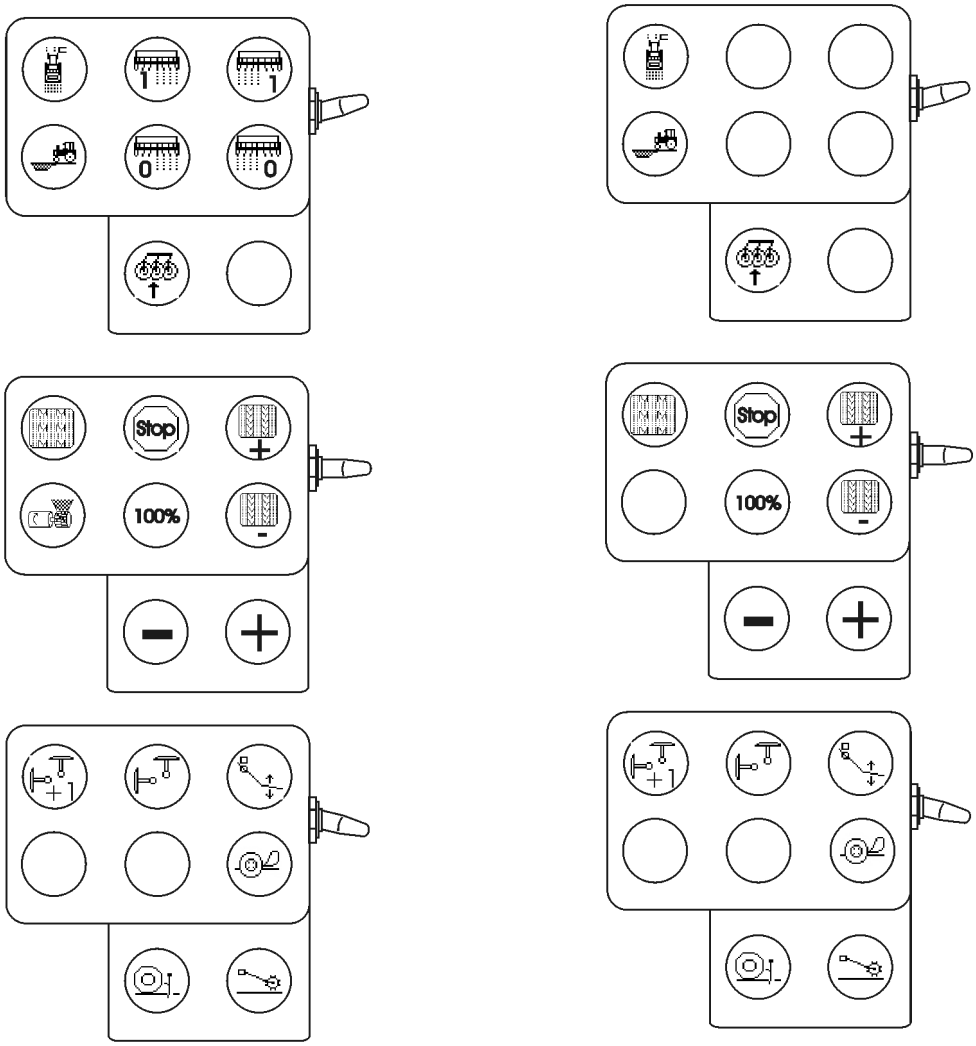
Shift key pressed:



Description of the function fields:

See section
6.4.12
6.4.1
6.4.14

6.5.3 Assignment of multi-function stick Cirrus



6.6 Citan

6.6.1 Procedure for use

1.  Switch on the **AMATRON+**.
2. Select the desired job in the main menu and check the settings.
3.  Start the job.
4.  Select the work menu.

3 tractor control units are available to operate the hydraulic functions:

- Operate **tractor control unit 1** (hose marking yellow):

→ lowering of the machine

→ Move the star wheel to the operational position

→ Move the preselected track marker to the operational position

or:

→ Hydraulic preselection functions (obstacle function, keeping star wheel up)

- Operate **tractor control unit 2** (hose marking green):

→ Hydraulic preselection functions

(Folding machine extension arms, coulter/harrow pressure)

- Operate **tractor control unit 3** (hose marking red):

→ Switch the blower fan on/off.

5. Check the displayed tramline counter for the first field run and correct as necessary.
6. Start the sowing.

- Electric full dosing:

As soon as the star wheel is lowered to the operational position, automatic predosing begins.

→ With  the predosing can be ended prematurely.

7. After approx. 30 m, stop and check:
   - o depositing depth of the seed
   - o working intensity of the exact harrow.

- During the sowing, the **AMATRON+** shows the work menu. From here, all functions relevant to the sowing procedure can be actuated.

→ The data determined are stored for the started job.

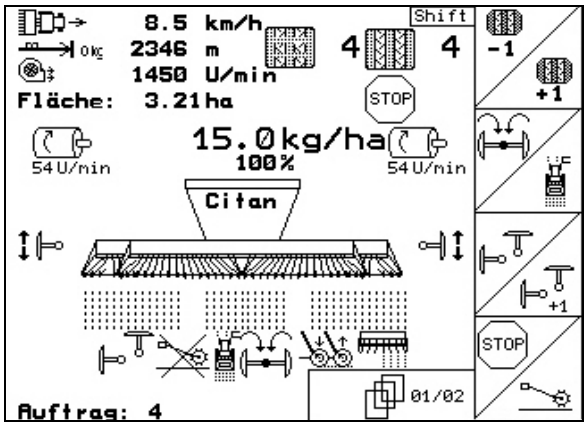
After use:

1. Check the job data (if required).
2. Activate the control units as required.
3. I/O Switch off the **AMATRON+**.

6.6.2 Key assignment in work menu **Citan**

Page 1:

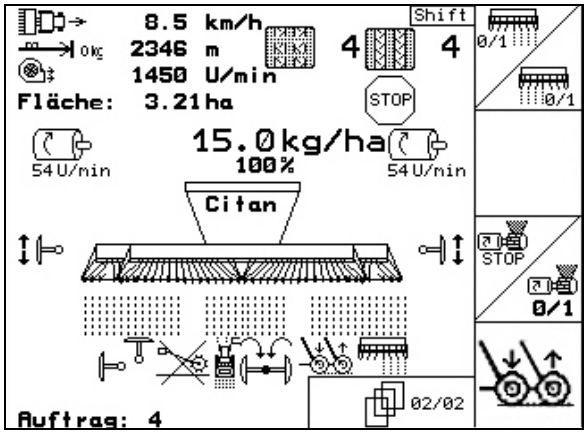
Description of the function fields:



See section
6.4.1 / 6.4.1
6.4.2 / 6.4.3
6.4.3 / 6.4.3
6.4.1 / 6.4.4

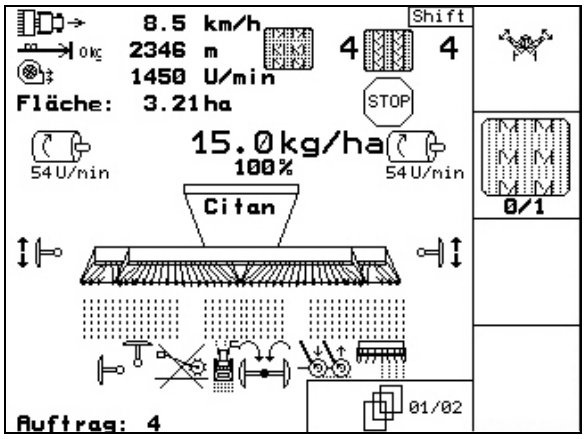
Page 2:

Description of the function fields:



See section
6.4.5 / 6.4.5
6.4.8 / 6.4.8
6.4.10

Shift key pressed:



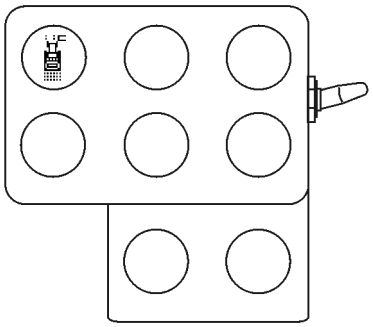
Description of the function fields:

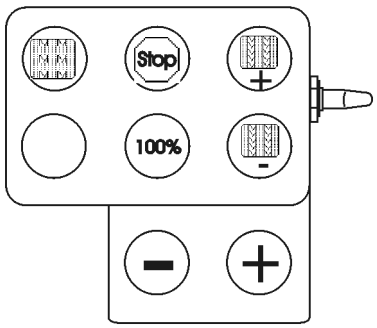
See section

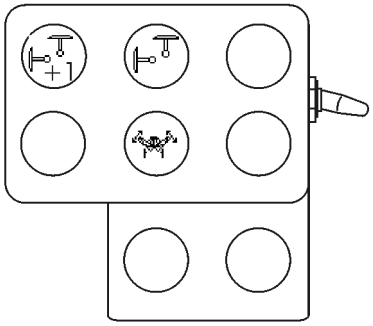
6.4.13
6.4.1

6.6.3 Assignment of multi-function stick

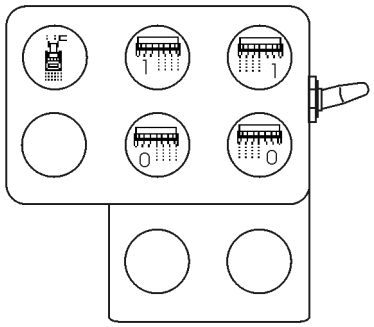
Citan with gearbox

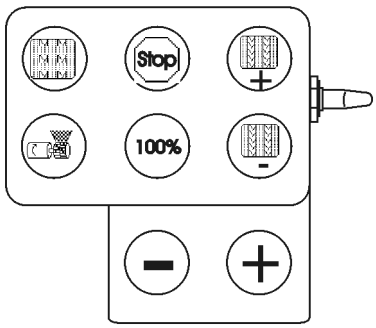


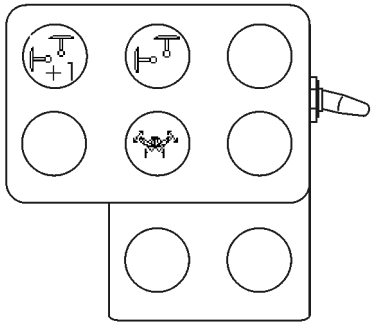




Citan with full dosing







7 Multi-function stick

7.1 Installation

The multi-function stick (Fig. 76/1) is attached with 4 screws at a convenient location in the tractor cab.

To connect, insert the connector of the basic equipment into the 9-pin Sub-D-bushing of the multi-function stick (Fig. 76/2).

Insert the connector (Fig. 76/3) of the multi-function stick into the centre Sub-D-bushing of the **AMATRON+**.

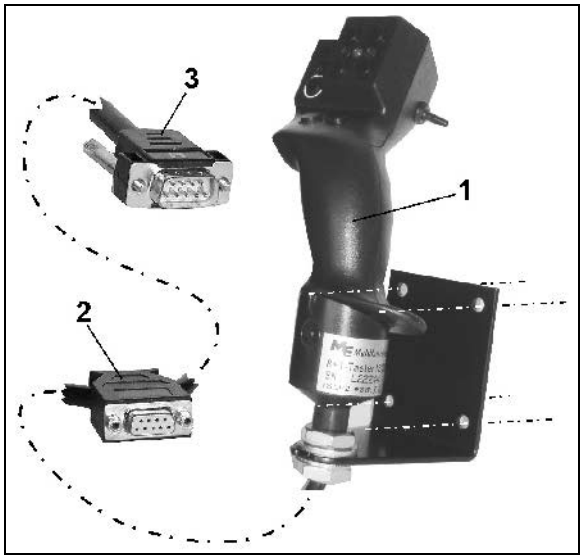


Fig. 76

7.2 Function

The multi-function stick only functions in the work menu of the **AMATRON+**. It allows blind operation of the **AMATRON+** in use on the field.

For operation of the **AMATRON+**, the multi-function stick (Fig. 77) has 8 keys (1 - 8) available. In addition, the assignment of the keys can be changed 3-fold by means of a switch (Fig. 78/2).

The switch default position is

- central position (Fig. 77/A) and can be pressed
- up (Fig. 77/B) or
- down (Fig. 77/C)

The position of the switch is indicated by an LED lamp (Fig. 77/1).

- LED display yellow
- LED display red
- LED display green

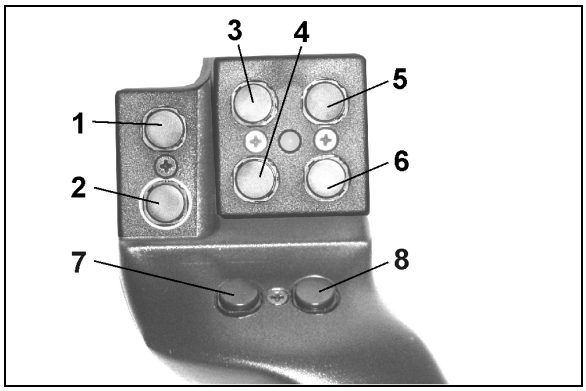


Fig. 77

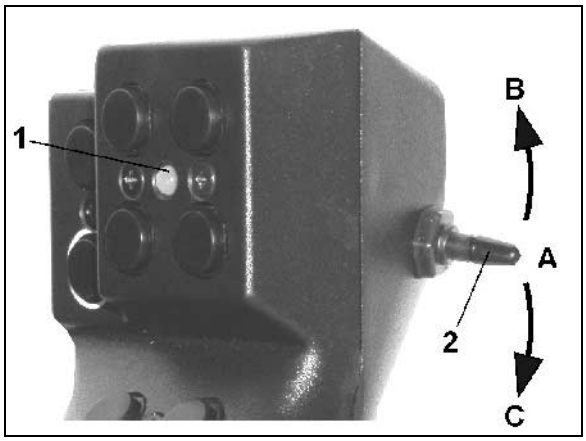


Fig. 78

7.3 Key assignment

	Cirrus Gearbox	Cirrus Full dosing	Citan Gearbox	Citan Full dosing
1	Track marker obstacle function			
2	Mud function			—
3		Switch on left part width		Switch on left part width
4		Switch off left part width		Switch off left part width
5		Switch on right part width		Switch on right part width
6		Switch off right part width		Switch off right part width
7	Low-lift function			
8				
1	Switch interval tramline control on/off			
2		Start predosing		Start predosing
3	Switch tramline counter on/off (Stop button)			
4	Quantity 100%			
5	Shift tramline on (+1)			
6	Shift tramline back (-1)			
7	- Quantity [%]			
8	+ Quantity [%]			
1	Track marker shifting in alternating mode, left / right			
2				
3	Preselection of track marker actuation			
4			Fold extension arm in/out	
5	Preselection of harrow pressure			
6	Preselection of disc working depth			
7	Preselection of wheel mark eradicator actuation			
8	Preselection of star wheel block			

8 Maintenance

8.1 Gearbox calibration

Not required for machines with full dosing

The seed drills fitted with a gearbox must be calibrated

- before initial use, if the **AMATRON+** is not delivered with the machine from the factory, but is installed subsequently.
- in event of deviations between the display in the terminal and the gearbox scale.

Page 1 of the setup menu

Calibrate gearbox:

-  Move the gearbox lever in the direction of the scale 0 reading until the LED on the electric motor lights up.
-  Move the gearbox to a scale value greater than 80.
-  Confirm the settings and enter the scale value indicated by the gearbox lever on the scale in the menu window that opens (Fig. 80).


Always read off the scale value from directly in front to avoid errors!

After the calibration procedure, move the gearbox to another scale value. The displayed value should correspond to the scale value.

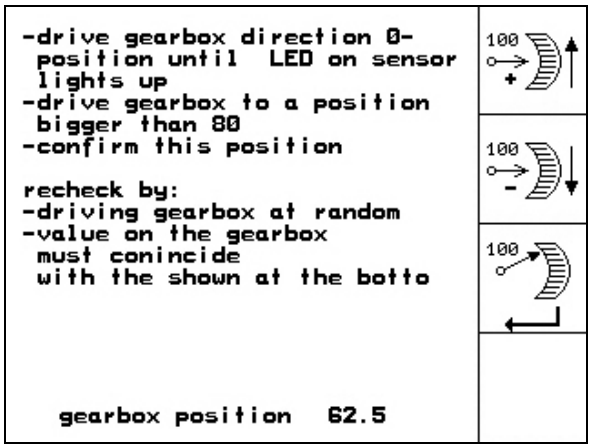


Fig. 79

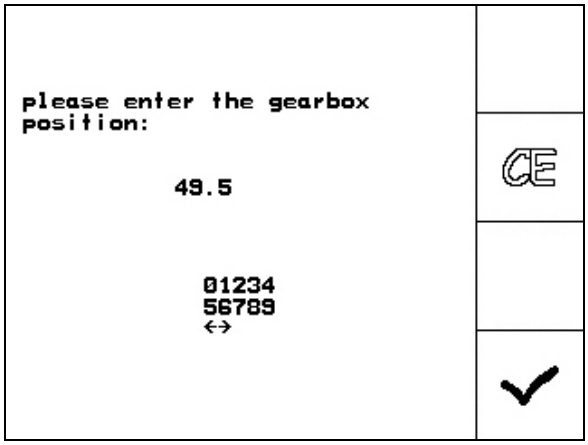


Fig. 80

9 Help menu

Start the help menu (Fig. 81) from the main menu:

Help menu:

- 1 Help on operation
- 2 Help on fault messages
- 3 Help on creating tramlines

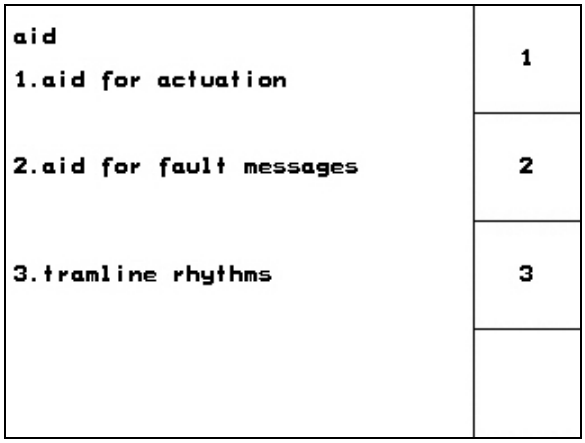


Fig. 81

10 Malfunction

10.1 Alarm

Uncritical alarm:

A fault message (Fig. 82) appears at the bottom of the display and an acoustic alarm sounds three times.

→ Rectify the fault if possible.

Example:

- Hopper seed level too low.

→ Remedy: Refill seed hopper.

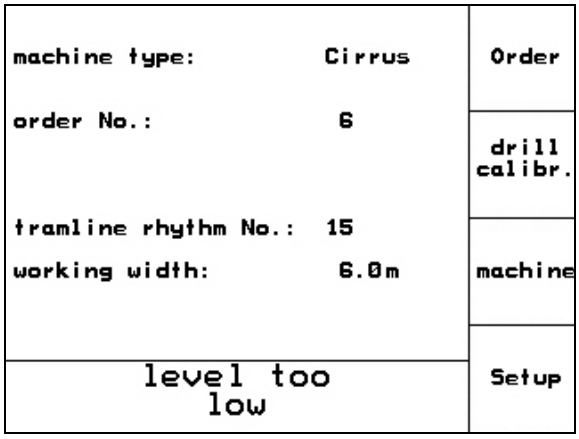


Fig. 82

Critical alarm:

A warning message (Fig. 83) appears in the middle of the display and an acoustic alarm is given.

1. Read the warning message on the display.
2.  Call up the help text.
3.  Confirm the warning message.

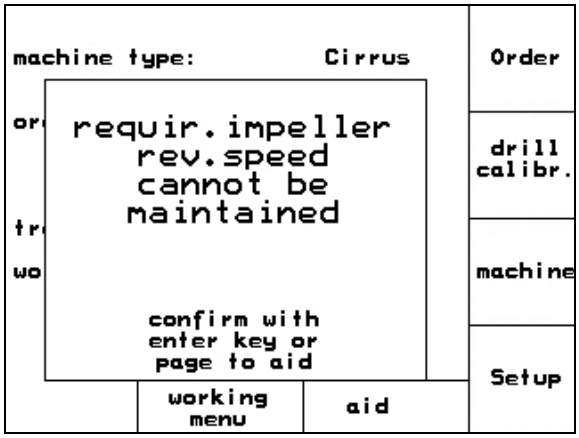


Fig. 83

10.2 Failure of the distance sensor

In event of failure of the distance sensor (Imp./100m), which is fitted to the gearbox or, with full dosing, to the star wheel, operation can be continued after the entry of a simulated working speed.

Failure of the distance sensor is indicated by the message "Seed drill raised".

In order to avoid sowing errors, the defective sensor must be replaced.

If a new sensor is not immediately available, the work can be continued as follows:

- Disconnect the signal cable of the defective distance sensor from the job computer.

1. 

Actuate from the main menu.
2. 

Enter a simulated speed.

- During the work, the simulated speed entered must be maintained.
- As soon as impulses are registered by the distance sensor, the computer switches to the actual speed of the distance sensor!

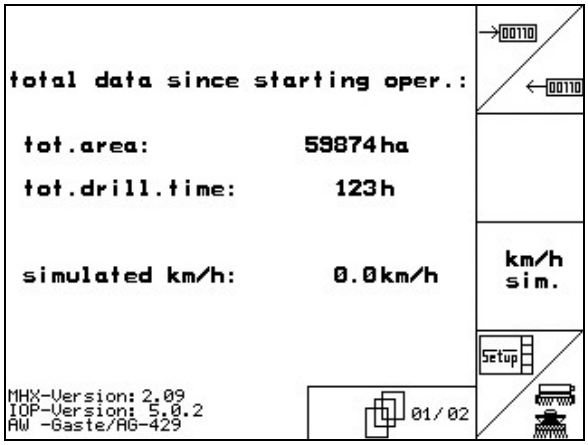


Fig. 84

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