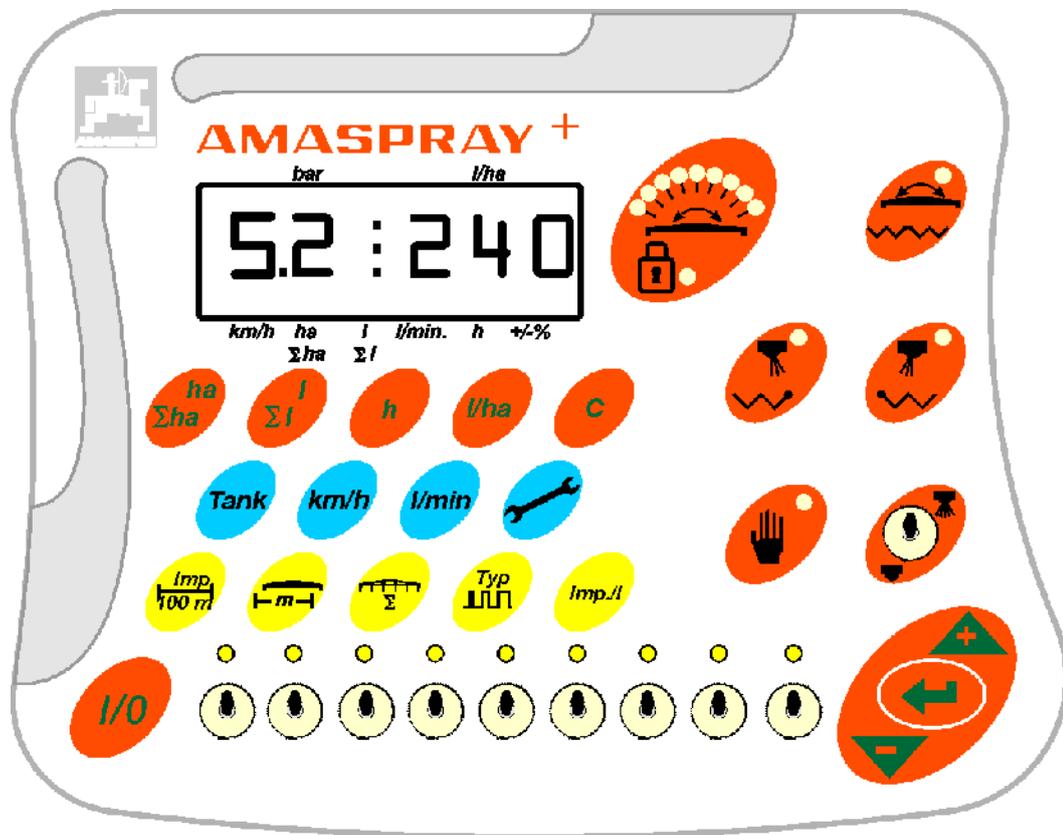


# Operator's Manual

## AMAZONE

### AMASPRAY+

On-board computer  
for the use in conjunction with  
Field Sprayers



MG2160  
BAG0017.9 02.22  
Printed in Germany

SmartLearning



Before starting operation  
carefully read and adhere to  
this operator's manual.  
Keep for other users!

en



# Reading the instruction

*manual and to adhere 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 would 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 a good success one should go into the mind of a thing or make himself familiar with every part of the machine and to get acquainted with its handling. Only this way, you would be satisfied both with the machine as also with yourself. To achieve this is the purpose of this operator's manual.*

---

*Leipzig-Plagwitz 1872. Rud. Stark.*



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**Identification data**

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Manufacturer: AMAZONEN-WERKE  
H. DREYER SE & Co. KG

Machine serial no.:

Type: AMASPRAY+

---

**Address of manufacturer**

---

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H. DREYER SE & Co. KG  
Postfach 51  
D-49202 Hasbergen  
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E-mail: amazone@amazone.de

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**Spare parts ordering**

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Spare parts lists are freely accessible in the spare parts portal at [www.amazone.de](http://www.amazone.de).  
Please send orders to your AMAZONE dealer.

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**Formal remarks to this operator's manual**

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Date of edition 02.22

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Reprint – even in extracts – requires the approval of  
AMAZONEN-WERKE H. DREYER SE & Co. KG.



## Preface

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## Preface

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Dear Customer,

You decided to purchase one of our high quality machines from the comprehensive range of farm machinery produced by AMAZONEN-WERKE, H. DREYER SE & Co. KG. Thank you for your confidence.

When receiving the machine, please check immediately that no damage has been caused in transit and that all parts are present. Please check whether all parts mentioned in the delivery note including the ordered optional equipment are present. Only the immediate reportage of damage will be considered for compensation.

Before the first operation, please read and adhere to this operator's manual and the safety advice. After having thoroughly read the operator's manual you can make fullest use of the advantages of your recently purchased machine.

Please ensure that this operator's manual is made available to any operator before he or she starts to operate the machine.

Should you have any questions or problems, please consult this operating manual or contact your local service partner.

Maintenance and in regular intervals and the exchange of worn or damaged parts in time increases the life expectancy of your machine.

## User's review

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Dear reader,

Our operator's manuals are regularly updated. With your suggestions for improvement you will help to create an always user friendly operator's manual.

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## 1 User advice

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The chapter "User advice" provides information for dealing with the operator's manual.

### 1.1 Purpose of the document

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The present operator's manual

- describes the operation and the maintenance for the machine.
- gives important hints for a safety conscious and efficient operation with the machine.
- is part of the implement and should be kept so that it is always to hand on the machine or in the towing vehicle.
- should be kept for future use.

### 1.2 Information about directions in this operator's manual

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All information about direction in this operator's manual are to be understood in direction of travel.

### 1.3 Illustrations used

---

#### Operational action and react

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The steps of operation to be carried out by the operational staff are described in a numbered list. Adhere to the sequence of the steps. The reactions on the individual operational step are marked with an arrow. Example:

1. Operational action step 1  
→ Reaction of the machine on operational action step 1
2. Operational action step 2

#### Enumerations

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Enumerations without indispensable sequence are described as a list with enumeration items. Example:

- Item 1
- Item 2

#### Position figures in illustrations

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Figures in round brackets refer to position figures in illustrations. The first figure refers to the illustration, the second figure refers to the item number in the illustration.

Example (Fig. 3/6)

- Figure 3
- Item 6

## 2 General safety advice

This chapter contains important hints for the safety conscious operation of the machine.

### 2.1 Obligations and liability

#### Observe the advice given in this operator's manual

The knowledge of the basic safety advice and safety regulations are the pre-condition for the safety conscious dealing with the machine and its trouble free operation.

### 2.2 Illustration of safety advice

The safety advice is identified by a symbol and a warning. The warning describes the seriousness of the threatened danger. The individual symbols have the following meaning:

	<p><b>DANGER</b></p> <p><u>Immediately</u> imminent danger for life and health of persons (severe injuries or death).</p> <p>Not adhering to this advice will cause severe damage to health up to life threatening injuries.</p>
	<p><b>WARNING</b></p> <p><u>Possibly</u> danger for life and health of persons.</p> <p>Not adhering to these hints may cause severe adverse health effects up to life threatening injuries.</p>
	<p><b>CAUTION</b></p> <p><u>Possibly</u> dangerous situation (slight injuries, material damage).</p> <p>Not adhering to these hints may cause slight injuries or material damage.</p>
	<p><b>IMPORTANT</b></p> <p>Obligation of particular behaviour or action for the appropriate handling of the machine.</p> <p>Not adhering to these hints may cause trouble on the machine or the environment.</p>
	<p><b>HINT</b></p> <p>Hint for use and particularly useful information.</p> <p>These hints will help you to optimally make use of the functions on your machine.</p>

## 2.3 Organising measures



### The operator's manual

- should always be kept at the place where the machine is operated!
- should always be available for the operator and the servicing staff!

**Regularly check all existing safety devices!**

## 2.4 Safety advice for the operator

### 2.4.1 Electric outfit

- When working on the electric system always disconnect the battery (negative pole).
- Use prescribed fuses only. When using too strong fuses the electric circuit may be damaged - danger of fire.
- Make sure the polarity is correctly fitted. First connect positive pole and then negative pole. - When disconnecting vice versa.
- Always provide plus pole with supplied cover. At accidental earth contact there is danger of explosion!
- Danger of explosion! Avoid sparks and open fire near the battery!
- The function of the implements' electronic components and parts may be affected by the electro magnetic transmittance of other devices. Such affects may endanger third parties when the following safety advice has not been adhered to:
  - When retrofitting electric and electronic devices and/or components to the implement with a connection to the tractor's on-board electric circuit, the onus is on the user to ensure that the installation will not cause any disturbance to either the tractor's electronics or other components.
  - Special attention must be paid that the retrofitted electric and electronic parts correspond to the EMV-guideline 2004/108/EC in the relevant valid edition and that they bear the CE-mark.

### 3 Description of product

This chapter

- provides you with a comprehensive survey about the design of the **AMASPRAY<sup>+</sup>**.
- provides the descriptions of the individual components and parts.

It is beneficial to read this chapter whilst with the machine. In this way you will get optimally acquainted with the machine.

#### 3.1 Overview



Fig. 1

Keys and switches are provided for the operation of AMASPRAY<sup>+</sup>.

Some keys and switches are provided with a light to indicate the switch function or to confirm those keys are operational.

AMASPRAY<sup>+</sup> features a 6 digit display.

Optional equipment:

- Border nozzle control.
- One side folding right and left hand
- Switching between: Tilt adjustment / boom folding.

### 3.2 Software version

---

This operating manual is valid for software version 14.03.03. The software version is briefly displayed after the AMASPRAY+ is switched on.

### 3.3 Designated use of the machine

---

AMASPRAY+

- is designed as indicating, monitoring and control device for AMAZONE field sprayers with equal pressure valve chest.

The declined use also includes:

- The designated use also includes:
- observing all hints in this operator's manual.
- adhering the service and maintenance work.
- the exclusive use of AMAZONE original - spare parts.

Other use than that stipulated is prohibited and is no longer considered as designed use.

For damage resulting from not designed use

- the operator himself will carry the full risk,
- the manufacturer will not accept any responsibility.

## 4 Assembly and function

The following chapter informs you about the assembly of AMASPRAY<sup>+</sup> and the functions of the individual components.

### 4.1 Function

The AMASPRAY<sup>+</sup> can be used on the field boom sprayer as a fully automatic controlling device. The unit allows an area related control of the application rate in dependence of the actual forward speed and working width.

The actual application rate, forward speed, worked area, sprayed quantity as well as total spray rate, operating time and the travelled distance are permanently determined.

### 4.2 Display

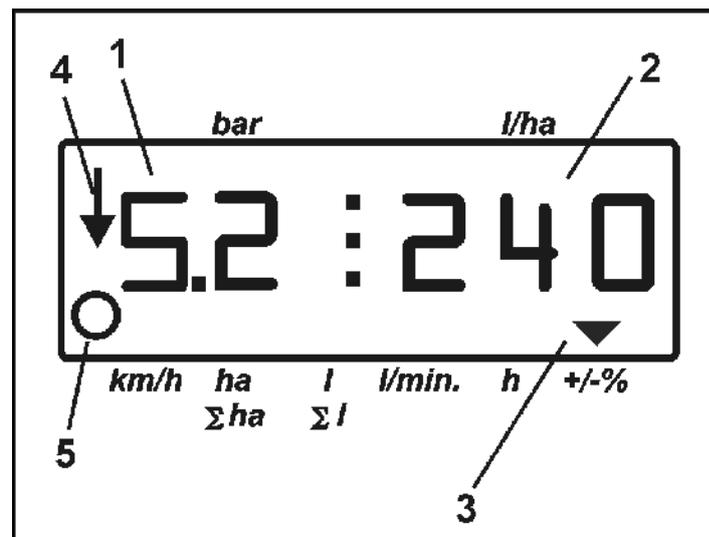


Fig. 2

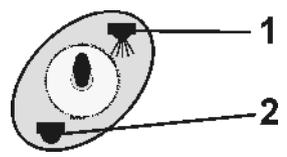
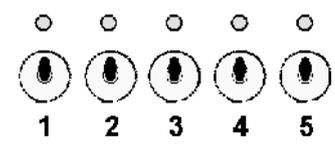
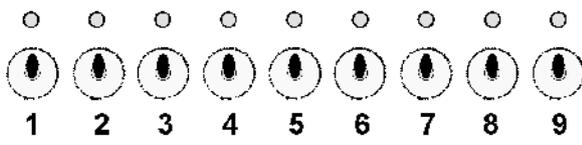
AMASPRAY<sup>+</sup> features a numerical display. During the operational procedure the current spray pressure (Fig. 2/1) [bar] and the application rate (Fig. 2/2) [l/ha] can be read.

At the press of a key the display shows the working data and indicates this with an arrow (Fig. 2/3).

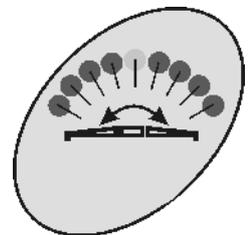
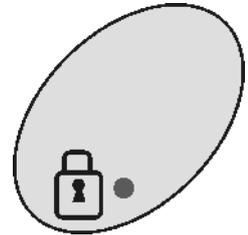
Display Fig. 2/4: Machine in operational position (spraying switched on).

Display Fig. 2/5: Machine travels along the distance (AMASPRAY<sup>+</sup> receives signals from the wheel sensor).

### 4.3 Description of the switches

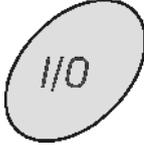
<ul style="list-style-type: none"> <li>Switching on / off the switch spraying operation             <ul style="list-style-type: none"> <li>Opening (1), closing (2) all boom part width sections (2).</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>5 Part width section control</li> </ul> <p>or</p>	
<ul style="list-style-type: none"> <li>9 Part width section control</li> </ul>	
<ul style="list-style-type: none"> <li>Opening (1), closing (2) all boom part width sections.              One boom part-width section switch is available for every boom spray section. A light indicates when a boom part width section is switched on.              In cases where more switches than boom part-width sections are available, the right hand switches are not extended (for example: field sprayer with 7 boom part-width sections, 9 boom part-width section switches → 2 boom part width section switches right hand not extended).</li> <li>Switch 1– boom part-width section outermost left hand side off / on..</li> <li>Switch 5 (9) – boom part-width section outermost right hand side off / on.</li> </ul>	

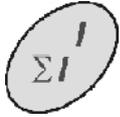
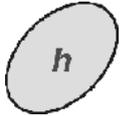
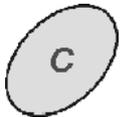
### 4.4 Description of the Indications

<ul style="list-style-type: none"> <li>Indication tilt adjustment             <ul style="list-style-type: none"> <li>The boom tilting is indicated with the aid of a red light.</li> <li>The central position is shown in green.</li> <li>When the tilt adjustment is switched off, the lamp goes out.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>Indication locking of pendulum compensation             <ul style="list-style-type: none"> <li>The light indicates that the pendulum compensation is locked.</li> </ul> </li> </ul>	

## 4.5 Description of the keys

### Orange keys for the operation of the sprayer:

<ul style="list-style-type: none"> <li>• On / OFF</li> </ul> <p>Switching on and off the AMASPRAY<sup>+</sup></p> <p>After switching on the operational display appears and the AMASPRAY<sup>+</sup> is ready for operation.</p>	
<ul style="list-style-type: none"> <li>• Keys optional equipment:                             <ul style="list-style-type: none"> <li>○ Key 1 for left machine side.</li> <li>○ Key 2 for right machine side.</li> </ul> </li> </ul> <p>These keys are available for one of the following 3 functions:</p> <ul style="list-style-type: none"> <li>○ Electric boundary nozzles switching When the end nozzle switching is switched on (green indicator light) the outer nozzle is switched off and the electric boundary nozzles switching is switched on.</li> <li>○ One side folding When the boom is folded down the one side folding can be switched on.  Control lamp illuminates: Boom side is blocked. Control lamp does not illuminate: Boom side can be folded.</li> <li>○ Key not covered.</li> </ul>	
<ul style="list-style-type: none"> <li>• Key hydraulic changeover folding of the boom – tilt adjustment</li> </ul> <p>For coupling the hydraulic functions connect tilt adjustment and folding to a double acting control valve on the tractor.</p> <p>The light indicates when the tilt adjustment is active.</p>	

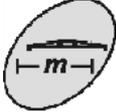
<p>Spraying can be carried out in automatic mode or in hand mode. The light indicates hand mode.</p> <p><b>Automatic mode:</b></p> <ul style="list-style-type: none"> <li>The entered required amount [l/ha] is regulated.</li> <li>Via the keys ,  the required amount can be changed by 10 % per key pressure.</li> </ul> <p><b>Hand mode:</b></p> <ul style="list-style-type: none"> <li>The spray rate is set via the spray pressure (only for maintenance work)</li> <li>Via the keys ,  the spray pressure can be changed infinitely variable.</li> </ul>	
<ul style="list-style-type: none"> <li>Increasing the input values on the display.</li> <li>Increasing the application rate</li> </ul>	
<ul style="list-style-type: none"> <li>Reduction of input values on the display.</li> <li>Reduction of application rate.</li> </ul>	
<ul style="list-style-type: none"> <li>Confirmation of input</li> <li>Spray rate returned to 100%.</li> </ul>	
<ul style="list-style-type: none"> <li>Displays the worked area for the current job. (00,00 ha) If boom part-width sections are switched off, this is automatically taken into consideration.</li> <li>Second key press: Displays the worked area for all jobs (00,00 ha)..</li> </ul>	
<ul style="list-style-type: none"> <li>Displays the sprayed amount for the current job. (0000 l).</li> <li>Second key press: Displays the sprayed amount for all jobs (0000 x100 l).</li> </ul>	
<p>Displays the working hours for the current job.</p>	
<p>Input of the desired application rate in l/ha for the indicated job number.</p>	
<ul style="list-style-type: none"> <li>Deletion of input.</li> <li>Return to display job.</li> <li>Return to operational display.</li> </ul>	

**Keys blue – machine data:**

Display of the actual tank contents (litres).	
Display of the actual forward speed (km/h).	
Display of the application rate (l/min).	
<ol style="list-style-type: none"> <li>1. Selecting the tank filling level curve .</li> <li>2. Alarm limit for residual amount in the tank.</li> <li>3. Alarm limit minimum spray pressure.</li> <li>4. Alarm limit maximum spray pressure.</li> <li>5. Calibrating the fill level indicator.</li> <li>6. Display digital-value for fill level (for service staff only).</li> <li>7. Calibration factor for A/D-transducer (for service staff only).</li> <li>8. Driving simulator.</li> <li>9. Transfer rate of serial interface.</li> <li>10. Pilot factor for the part width section control</li> <li>11. Number of part width section switches</li> </ol>	

## Assembly and function

### Yellow keys for the initial data input for the sprayer:

Input or determination of impulses per 100 m	 <p>The icon shows the text "Imp." above "100 m" inside an oval.</p>
Input of working width	 <p>The icon shows a horizontal line with arrows at both ends and the letter "m" below it, all inside an oval.</p>
Input of boom part-width sections and number of nozzles per boom part-width section.	 <p>The icon shows a horizontal line with several vertical tick marks above it and the Greek letter sigma (Σ) below it, all inside an oval.</p>
<ol style="list-style-type: none"> <li>1. Input of valve chest type</li> <li>2. Input of spray regulation constant</li> </ol>	 <p>The icon shows the text "Typ" above a series of four vertical bars of varying heights, all inside an oval.</p>
Input or determination of impulses per litre at the flow meter	 <p>The icon shows the text "Imp./l" inside an oval.</p>

## 5 Putting into operation

In this chapter you will find information for putting your machine into operation.



### DANGER

- **Before putting the machine into operation ensure that the operator has read and understood the operator's manual.**
- Please also refer to the operator's manual for the field sprayer!

### 5.1 AMASPRAY+ connection

Connect the machine that is either mounted to the tractor or trailed via the machine plug (Fig. 3/1).

Connecting the forward speed signal cable from the tractor signal socket or from the Sensor X (Fig. 3/2) to AMASPRAY+ (only UF01).

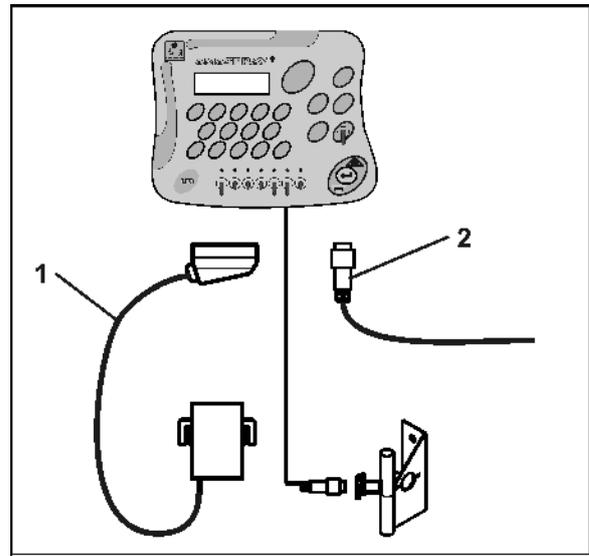


Fig. 3

## 5.2 Determination of impulses per 100m



- The **AMASPRAY+** requires the calibration value "Impulses per 100m" to determine the
  - actual forward speed [k.p.h].
  - actually worked area.
- If the calibration value is accurately known you can manually enter the calibration value "Impulses per 100m" into the **AMASPRAY+**.
- If the calibration value is not known the calibration value "Impulses per 100m" has to be determined via a calibration run.



- As a matter of principle determine the accurate calibration value "Impulses per 100m" via a calibration run:
  - before the first operation.
  - when using another tractor or after changing the tractor tyre size.
  - in case of deviations between the determined and the actual forward speed / travelled distance.
  - in case of deviations between the determined and the actually worked area.
  - when different soil conditions prevail.
- Determine the calibration value "Impulses per 100m" in relation to the prevailing operational conditions in the field. When the spraying operation is carried out with the all wheel drive actuated, switch over to the calibration value determined for the all wheel drive.

### Determination of impulses per 100m:

1. Accurately measure out in the field a calibration distance of 100m.
2. Mark the start and the finish points (Fig. 4).

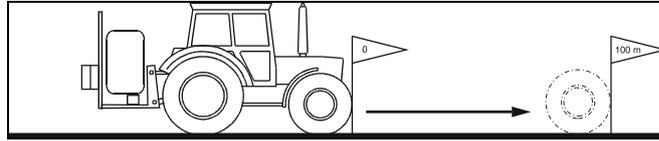


Fig. 4

3. Simultaneously actuate the keys  and .
4. Drive down the measure distance of exactly 100m and stop.
5. Confirm the determined value with key .

### Input of impulses per 100m:

1. Actuate key .
- the actual value is indicated.
2. Enter the value with the keys  or .
3. Confirm with key .

## 5.3 Input of working width (pre-set by the factory)

1. Actuate key .
- the actual value is indicated.
2. Enter the value with the keys  or .
3. Confirm with key .

## 5.4 Input of nozzles per boom part-width section (pre-set by the factory)

Fig. 5/...

- (1) Part width
- (2) Number of nozzles per part width

1. Actuate key  .  
 → the actual number of nozzles for the first boom part-width section is shown.
2. Enter the value with the keys  or  .  
 3. Confirm with key  .  
 → the actual value for the second boom part-width section is shown.
4. Enter the number of nozzles for all boom part-width sections following to points 1 to 3.
5. When the number of nozzles for the last boom part-width section **n** (for example: 7) has been entered the boom part width section **n+1** (for example: 8) appears in the display.  
 → Here enter zero.
6. Confirm with key  .

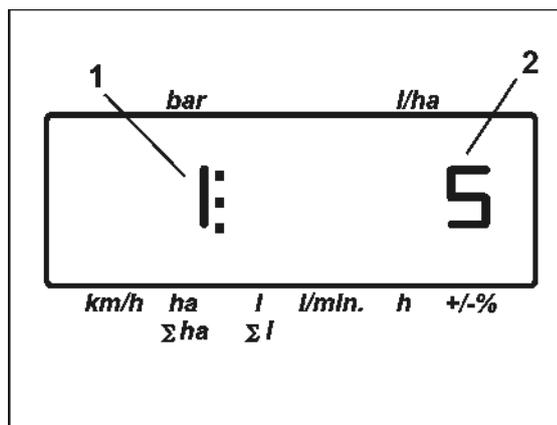


Fig. 5



**Numbering of the boom part-width sections is from left to right as seen in driving direction.**

## 5.5 Input of valve chest type, pressure regulation constant (pre-set by the factory)

1. Actuate key  .
- Display **1:** valve chest type 0, 1 or 2.
2. Enter the value with the keys  or  .
  - o 0 – Equal pressure valve chest without return flow measuring
  - o 1 – Valve chest without equal pressure function
  - o 2 – Equal pressure valve chest with return flow measuring
3. Confirm input with key  .
4. Actuate key  .
- Display **2:** Pressure regulation constant.
5. Enter the value with the keys  or  .
  - o Standard value for pressure regulating constant: 2,5
6. Confirm input with key  .

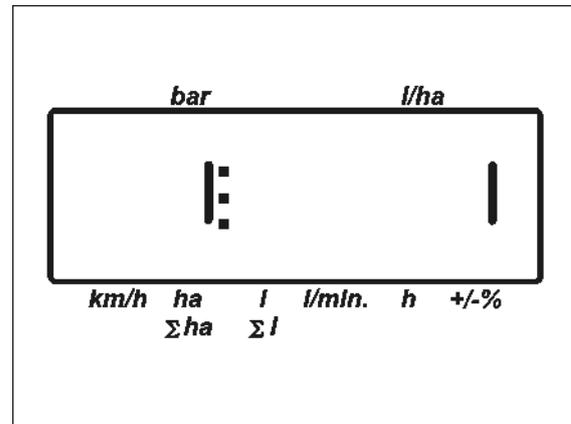


Fig. 6

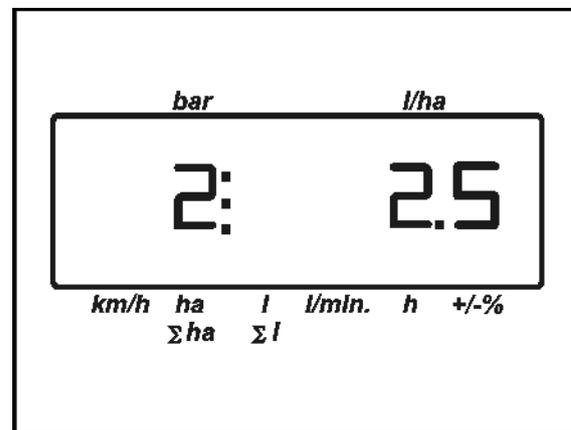


Fig. 7

## 5.6 Determination of impulses per litre of the flow meter (pre-set by the factory)



- The **AMASPRAY+** requires the calibration value "Impulses per litre" for the flow meter
  - for determination and control of the spray rate [l/ha].
  - for the determination of the daily and total amount of the sprayed spray cocktail [l].
- In case the calibration figure is not known you have to determine the calibration value "Impulses per litre" via a calibration of the flow meter /return flow meter.
- If the calibration figure is exactly known you can manually enter the calibration value "Impulses per litre" for the flow meter / return flow meter into the **AMASPRAY+** .



- For the accurate conversion of the spray rate in [l/ha] it is necessary to determine the calibration value "Impulses per litre" of the flow meter at least one a year.
- As a matter of principle determine the calibration value "Impulses per litre" of the flow meter:
  - after removal of the flow meter.
  - after a prolonged period of operation as there may be deposits of spray agent residue may in the flow meter.
  - in case of deviations between the required and the actually applied spray rate [l/ha].

### Input of impulses per litre:

---

1. Actuate key  .  
→ the actual value is indicated.
2. Enter the value with keys  or  .
3. Confirm input with key  .

### Determination of impulses per litre:

---

1. Fill the tank with water and weigh the machine.
    - and determine quantity of water added or
    - weigh the machine afterwards.
  2. Simultaneously actuate the keys  and  .
  3.  Switch on with the field sprayer stationary and spray out several hundred of litres (the computer then counts the impulses at the flow meter).
-  Do not press any other buttons while determining and entering the pulses. Otherwise, the procedure will be aborted.
4. Determine the sprayed amount (re-weigh the machine).
  5. Enter the value for the sprayed amount with the keys  or  .
  6. Confirm input with key  .  
→ AMASPRAY+ has determined and stored the value "Impulses / Litres" .



**The impulse number of the flow meter has to be checked several times over the year, especially prior to every season.**

## 5.7 Input of spraying data (pre-set by the factory)

### Parameterliste:

- (1) Tank fill level curve (tank capacity)
- (2) Alarm limit for residual amount
- (3) Alarm limit min. spray pressure
- (4) Alarm limit max. spray pressure
- (5) Calibrate fill-level indicator (only for customer service)
- (6) Digital value of fill-level (only for customer service)
- (7) Calibration factor for A/D converter (only for customer service)
- (8) Driving simulator in event of defective wheel sensor
- (9) Transfer rate of serial interface
- (10) Pilot factor for the part width section control
- (11) Number of part width section switches

Fig. 8: Parameter

1. Actuate key  repeatedly until the desired parameter (1 to 9) is displayed.  
→ Display  to .
2. With key  or 
  - enter desired value or
  - make desired selection.
3. With key  confirm determined value.
4. Actuate key  and select next parameter, or  
→ With key  exit menu.

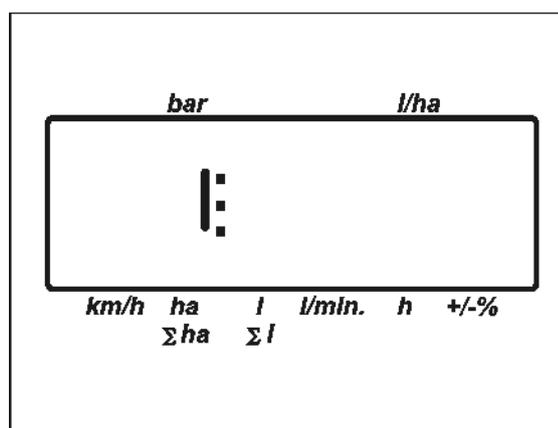


Fig. 8

Parameter 1 → display **1** :

---

Actual fill level curve is indicated by indication of the tank volume.



**Selection 0:**

Learnable fill-level curve selected (Record fill-level curve via "Learn fill-level curve")!

**Selection - - - -:**

Level sensor deactivated! For example in event of using an additional front tank, → add tank content manually, see page 27.

Parameter 2 → display **2** :

---

Enter alarm limit for residue in tank.

Parameter 3 → display **3** :

---

Enter alarm limit for minimum spraying pressure.

Parameter 4 → display **4** :

---

Enter alarm limit for maximum spraying pressure.



Menu items **5**, **6**, **7**: only for maintenance / service staff!

Parameter 8 → display **8** :

---

Switch driving simulator on or off.

- Enter simulated forward speed.
- Entry 0.0, driving simulator switched off.



When using the driving simulator, withdraw the connection for the wheel sensor or the signal socket.

As soon as the AMASPRAY+ receives signals from the wheel sensor or from the signal socket, the driving simulator is switched off.

Parameter 9 → display **9** :

---

Select transfer rate of serial interface.

Enter 19200 or 57600 baud.

Parameter 10 → Display **10**:

---

Pilot time for adapting the quantities when operating the boom part width sections.

Default value: 1

Reasonable setting range: 0.5 to 1.5

Parameter 11 → Display **11**:

---

Enter the number of installed part width section switches on the AMASPRAY+.

Enter 5 for 5 part width section switches, or 9 for 9 part width section switches.

### 5.7.1 Entering tank capacity manually



Manual entry of the tank capacity is necessary,

- if no correct entry of the tank capacity (Parameter 1) is possible (for example in event of using a front tank).
- if the level sensor is defective.



#### **Selection - - - -:**

Level sensor deactivated! For example in event of using an additional front tank, → add tank content manually, see on page 27.

1. Switch off the level sensor. (Basic setting, Parameter 1, see page 25).

2. Press keys  and  simultaneously.

3. Enter tank capacity with keys  or .

4. With key  confirm determined value.

## 6 Operation of the machine



### DANGER

- When starting to operate the machine observe the operator's manual for the field sprayer.
- When operating the machine observe the chapter "Safety advice for the operator", Seite 8.

### 6.1 Creating jobs

Max 10 jobs ( 0-9) can be created.

Actuate key .

→ The last worked order will appear on the display.

An order consists of the order number (Fig. 9/1) and the corresponding required spray rate – litres (Fig. 9/2).

(Fig. 9/3) Display order.

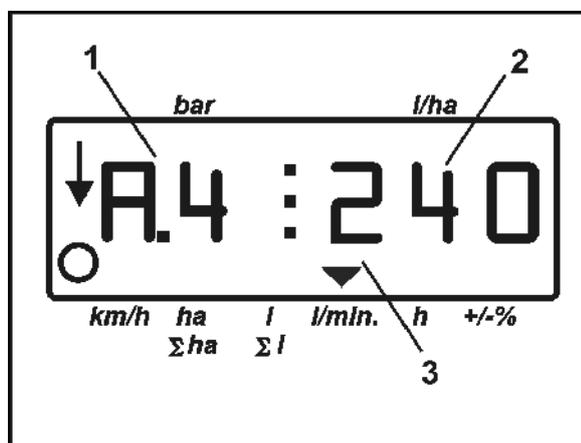


Fig. 9

1. Actuate key  to select an order (0 to 9).
2. Check / enter the required application rate via the keys  or .
3. Confirm with key .
4. Press key  to leave the menu.



During spraying operation incoming data to the actual job is stored and can be displayed.

### 6.1.1 Spray rate greater than 1000 l/ha

Only 3 places are available for showing the spread rate in the work display.

However, spread rates greater than 1000 l/ha can be entered and applied.

The display for spread rates greater than 1000 l/ha then appears as follows:

- The lower point in the display is not shown.
- Only the last 3 places of the spread rate are shown

Fig. 10 – Example of display for entered spread rate 1040 l/ha.

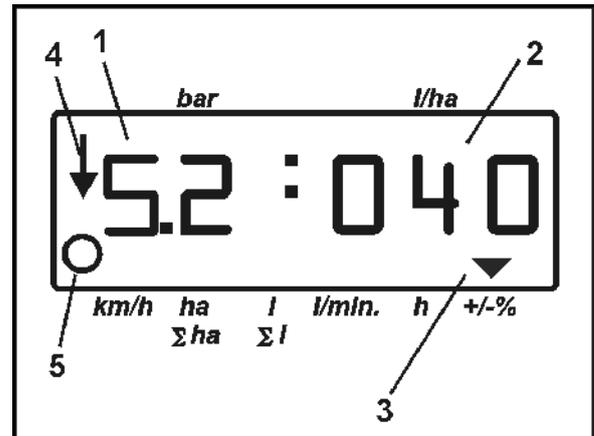


Fig. 10

### 6.1.2 Deletion of job data

The data stored for one job can be deleted individually.

1. Actuate key .
  - The last job worked will appear on the display.
2. Actuate key  (possibly several times) and select the desired job.
3. Actuate the key  and thus confirm the job.
4. Deletion of data:
  - Simultaneously actuate the keys  and .
    - The value for the area worked is deleted.
  - Simultaneously actuate the keys  and .
    - The value for the amount sprayed is deleted.
  - Simultaneously actuate the keys  and .
    - The value for the hours worked is deleted.
5. Press key  to leave the menu.

### 6.1.3 External j (ASD)

An external job can be given to the AMASPRAY+ via a PDA computer.

This job is always given the job designation AE.

The data is transferred via the serial interface.

- For this purpose, set the transfer rate of the serial interface to 19200 or 57600 Baud (Parameter 9).
- For this purpose, the Y-cable is necessary.

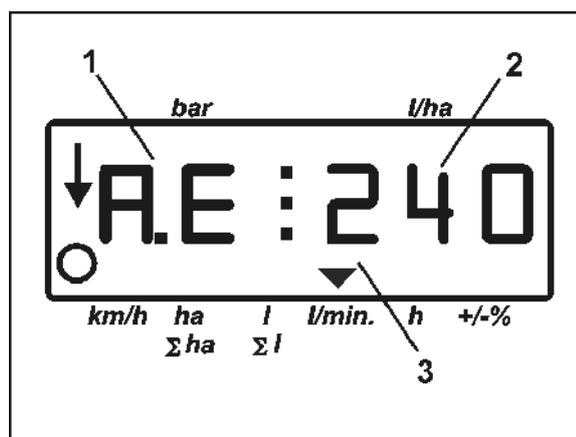


Fig. 11

Fig. 12/...

- (1) Connection for PDA computer
- (2) Connection of signal socket or sensor for impulses per minute (for UF01).
- (3) Connection to AMASPRAY+.

The external job is started and ended via the connected computer.

Emergency termination on AMASPRAY+ :

Actuate keys  and  simultaneously.

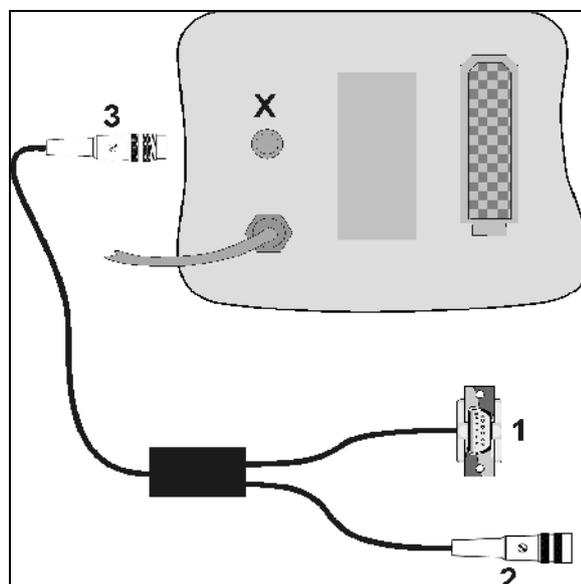


Fig. 12

## 6.2 Procedure during operation

1. Set the reversing taps on the control panel to spraying.

2. Switch on  AMASPRAY+.

3.  Select the order and check / enter the required amount.

4.  Start the job.

5.  Back to work menu.

6. Lifting the sprayer boom until the transport securing device unlocks via the tractor control valve (hose mark yellow).

7. Folding down the sprayer boom via the tractor control valve (hose mark 2 x green).

8.  Beforehand actuate the selection switch if applicable.

8. Pendulum compensation has to unlock,

light  goes out.

9. Setting the spraying height via tractor control valve (hose mark yellow).

10.  Adjusting the boom tilting via the tractor control valve (hose mark natural).

10.  Beforehand, If necessary, actuate the select switch.

11.  Switch on the boom, start driving with the tractor and spray the area.

- During the spraying operation the operational display is shown. Fig. 13/...
  - Spray pressure (1)
  - Actual application rate (2)
  - Machine in operational position (4)
  - Machine travels along the distance (5)
- During the spraying operation the display manual change of the required amount via  or  (3) in 10% increments.

- Press  to re-set the required spray rate to 100 %.

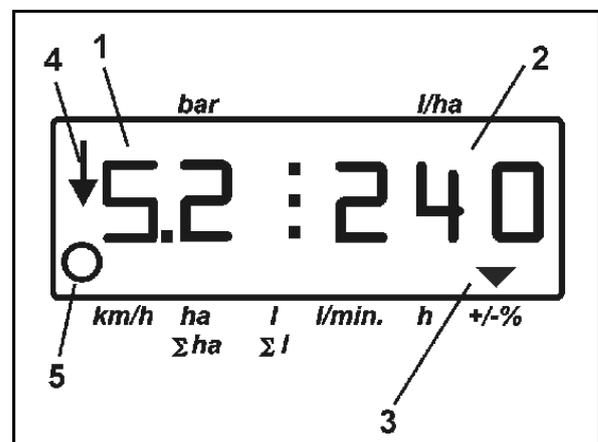


Fig. 13

## Operation of the machine

---

12.  Switching off spraying operation.
13. Align the sprayer boom horizontally (hose mark natural) and fold in (hose mark green) via control valve on the tractor.



**The pendulum compensation has to lock for the folding procedure, light  lights up.**

14. Via control valve on the tractor (hose mark yellow) lower the sprayer boom until the transport securing device locks.

## 7 Faults

Fault	Cause	Remedy
Spray rate is not correct	Pressure meter is defective	Contact an authorised workshop
	Pressure regulation valve defective	Contact an authorised workshop
	Nozzles are worn	Exchange the nozzles
Spray pressure adjustment is not possible	Power supply is interrupted	Check the power supply
	Pressure regulation valve defective	Contact an authorised workshop
Switching boom part width sections is not possible	Power supply is interrupted	Check the power supply
	Boom part width section valve defective	Exchange the boom part width section valve
No correct switching electric boundary nozzles switching	Motor valves dirty / defect	Exchange motor valves
<ul style="list-style-type: none"> <li>one side folding</li> <li>changing over from folding to tilt adjustment</li> </ul>	Hydraulic valves are dirty / defective	Exchange hydraulic valves

### 7.1 Alarm messages

Alarm messages	Cause	Remedy
<b>A:1</b> Required value alarm	Spray rate not correct	<ul style="list-style-type: none"> <li>Wrong forward speed.</li> <li>Wrong spray nozzles.</li> </ul>
<b>A:2</b> Fill level alarm	The fill level drops below the entered alarm limit	<ul style="list-style-type: none"> <li>Refill the tank.</li> </ul>
<b>A:3</b> Pressure alarm	Spray pressure below / over the entered alarm limit	<ul style="list-style-type: none"> <li>Univ. joint shaft speed too low / too high.</li> </ul>

## 8 Maintenance, repair and care

### 8.1 Calculating the fill level curve

**With empty tank the fill level indication must show 0 +/-10 litres. If this is not the case calibrate the fill level indicator.**

1. Fill an exactly defined quantity of water(min. 200 litres) into the tank.
2. Select the tank curve (0 must **not** be selected, see page 24).
3. Actuate key  5 times.
- Display **5** : Tank contents.
4. With the keys  or  enter the value for the tank contents.
5. Confirm the input with key .
6. Press key  to leave the menu.



Menu items **5** ; **6** ; **7** : only for service staff!

### 8.2 Calibrating the fill level indicator

In case the theoretical fill level does not correspond to the actual fill level AMASPRAY+ can calculate the fill level curve with the help of 20 check points.

1. Select the tank curve 0 (see page 24).
2. Simultaneously actuate the keys  and .
- Indication check point 1.



- **Ensure that the tank is completely empty.**
- **Take the values for the tank contents from Fehler! Verweisquelle konnte nicht gefunden werden. as measuring points.**

3. With the keys  or  enter the value 0 for the empty tank.
4. Confirm the input with key .
- Indication check point 2.
5. Fill the measured amount of water into the tank.
6. With the keys  or  enter the value for the tank contents.



Enter the value for the tank contents and not for the added amount of water.

7. Confirm the input with key .
- Indication check point 3.
8. Proceed until all 20 check points have been registered.
9. Press key  to leave the menu.



In case the tank is nearly empty or nearly full select smaller check point spacings than at a medium fill level.

The learned measuring points can be

- o Displayed for documentary reasons (see Seite 37),
- o Manually entered after the exchange or reset of AMASPRAY\* (see Seite 37).

#### Values for tank contents for measuring points of the learnable fill level curve

Values	Fill level <b>UF01</b> [Litre]				Fill level <b>UF02</b> [Litre]			
	901	1201	1501	1801	1000	1300	1600	2000
01	0	0	0	0	0	0	0	0
02	25	25	50	50	25	25	50	50
03	50	50	100	100	50	50	100	100
04	75	75	150	150	75	75	150	150
05	100	100	200	200	100	100	200	200
06	125	125	250	250	150	150	300	300
07	150	150	300	300	200	200	400	400
08	200	200	350	350	250	250	500	500
09	300	300	400	400	300	300	600	600
10	400	400	450	450	350	400	700	700
11	500	500	500	500	400	500	800	800
12	600	600	750	750	500	600	900	900
13	700	700	1000	1000	600	700	1000	1000
14	800	850	1250	1250	700	800	1100	1100
15	850	1000	1500	1500	800	900	1200	1200
16	900	1150	1550	1800	850	1000	1300	1400
17	950	1200	1600	1850	900	1100	1400	1600
18	1000	1250	1650	1900	950	1200	1500	1800
19	1050	1300	1700	1950	1000	1300	1600	2000
20	1100	1350	1750	2000	1050	1350	1650	2050

Tabelle 1

Values	Fill level <b>UG</b> [Litre]			Fill level <b>UX</b> [Litre]		
	<b>2200</b>	<b>3000</b>	<b>4500</b>	<b>3200</b>	<b>4200</b>	<b>5200</b>
01	0	0	0	0	0	0
02	50	50	50	25	25	25
03	75	100	75	50	50	50
04	100	150	100	75	75	75
05	125	200	125	100	100	100
06	150	250	150	125	125	125
07	400	600	175	150	150	150
08	650	950	200	500	500	500
09	900	1300	700	1150	1000	1000
10	1150	1650	1300	1800	2000	1500
11	1400	2000	1900	2450	3000	2000
12	1650	2350	2500	3100	4000	2500
13	1900	2700	3100	3250	4300	3000
14	2150	2800	3700	3300	4350	3500
15	2175	2850	4300	3350	4400	4000
16	2200	2900	4450	3400	4450	4500
17	2225	2950	4475	3450	4500	5000
18	2250	3000	4500	3500	4550	5500
19	2275	3050	4525	3550	4600	5525
20	2300	3100	4600	3575	4669	5525

**Tabelle 2**

### 8.3 Service Menü



- Eingänge anzeigen
- Ausgänge anzeigen
- Behältermesspunkte anzeigen / eingeben!

1. Simultaneously actuate the keys  and .
2. Actuate key  1 - 10 times  
→ Display of inlets E1 to E10.
3. Actuate key  1 - 4 times.  
→ Display of outlets A1 to A4.
4. With key  actuate 1 - 20.  
→ Display of tank measuring points C1 to C20.



- **Initially the tank measuring point is shown as tank contents in litres and after actuation of the key  as voltage value - volt.**
- **Input of tank measuring points accordingly Table 2 after exchange or reset of AMASPRAY<sup>+</sup>.**

5. If desired: Via the keys  or  enter the value for **the tank contents - litres** and confirm input via key.
6. Confirm via key .
7. If desired: Via the keys  or  enter the value for **voltage value - volt** and confirm input via key .
8. Confirm via key .
9. Leave the menu via key .

## Maintenance, repair and care

Fig. 14 - Display tank measuring point C1

- Arrow (Fig. 14/1) appears: Tank measuring point - litres.
- Arrow (Fig. 14/1) has gone out: Tank measuring point as voltage value – volt.

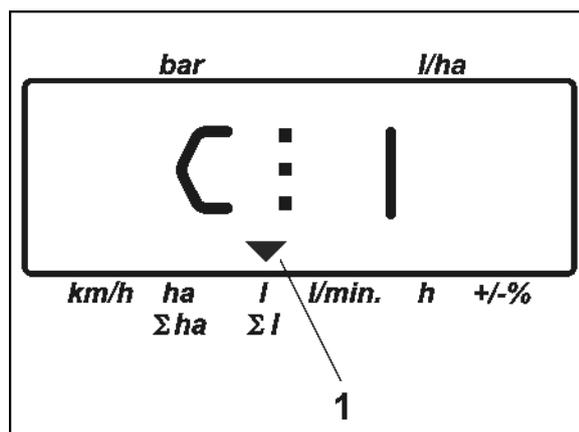


Fig. 14

Enter the measuring points for the fill level curve here:

Measuring point	Fill level	Voltage	Measuring point	Fill level	Voltage
C 1			C 11		
C 2			C 12		
C 3			C 13		
C 4			C 14		
C 5			C 15		
C 6			C 16		
C 7			C 17		
C 8			C 18		
C 9			C 19		
C 10			C 20		

Table 2

## 8.4 Determination of impulses per litre of the flow meter



The impulse number of the flow meter has to be checked several times over the year, especially prior to every season.

See page 22.

## 9 Fitting instruction

### 9.1 Console and computer



Fit the console (Fig. 15/1) within reach and sight to the right hand side of the operator. It must be installed in the tractor cab free from vibrations and electrical conductivity. The distance from a radio transmitter or an antenna should at least be 1 m.

Attach the bracket for the computer (Fig. 15/2) on to the tube of the console.

Fix the bushing (Fig. 15/3) of the battery cable on the console.

Pivot the computer until the best angle of view is achieved.

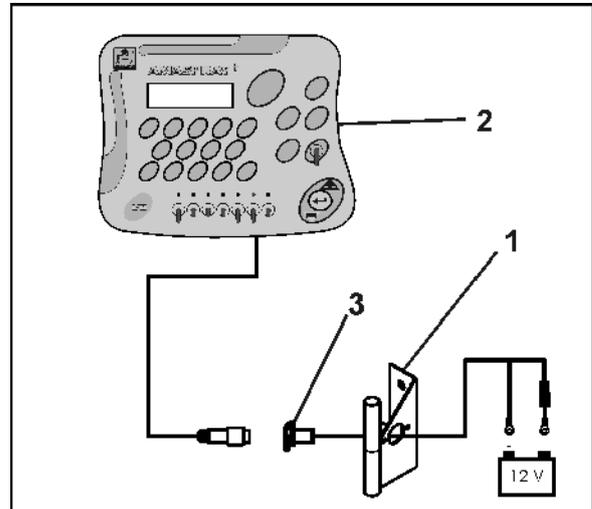


Fig. 15

### 9.2 Battery connecting cable

The required power supply of **12 V** should be provided directly from the battery or from the 12V starter motor.

1. Route the battery connecting cable from the tractor cab to the tractor battery and secure. Ensure that the battery connecting cable cannot be trapped.
2. Shorten the battery connecting cable as necessary.
3. Strip the cable end by approx. 250 to 300mm.
4. Individually remove the insulation from the cable ends by 5 mm.

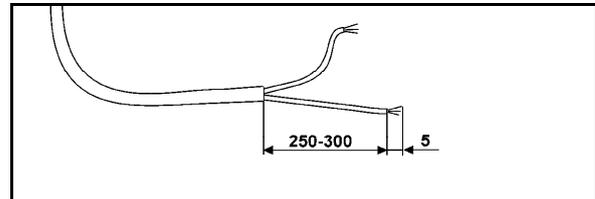


Fig. 16

## Fitting instruction

5. Insert the blue cable (earth cable) into the loose ring tongue (Fig. 17/1).
6. Use crimping pliers to secure the joint.
7. Insert the brown cable (+ 12 Volt) into a free butt joint (Fig. 17/2).
8. Use crimping pliers to secure the joint.
9. Shrink the casing over the butt joint (Fig. 17/2) by using a heat source (lighter or hair dryer) until the adhesive escapes.
10. Connect battery cable to tractor battery:
  - o Brown cable with + of tractor battery.
  - o Blue cable with - of tractor battery.

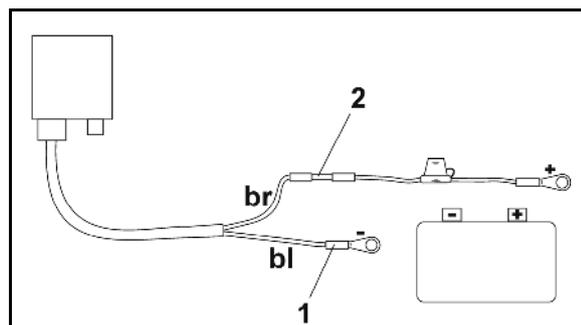


Fig. 17



**Before connecting AMASPRAY+ with a tractor that is equipped with several batteries, please refer to either the tractor's manual to ascertain the battery to which the computer should be connected, or ask the tractor manufacturer!**



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