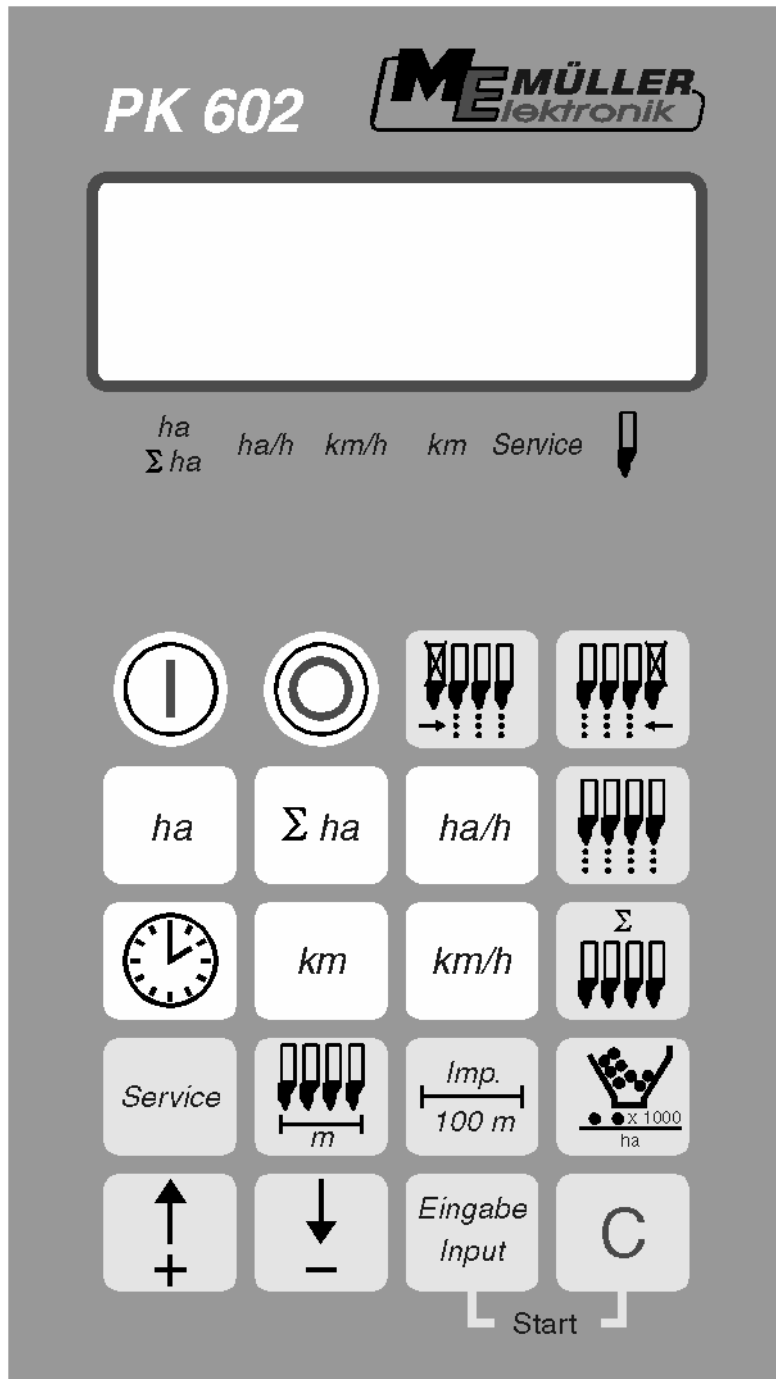


# Installation and User's Guide

## Gaspardo - PK602

Stand: December 1994



Please read carefully before operate !

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# 1 SYSTEM DESCRIPTION

## 1.1 System Description

There are 2 functions in the PK602

- Controlling unit for single seed planter (max. 12 units) with single seed counter (opto sensor).
- Area counter for all other units

The PK602 consist mainly of:

- The computer (installed in the driver's cab of the tractor) which is used to type in data and to control the connected units. Optical and accustical alarm is given in case of problems.
- The distribution box (installed on the single seed planter) with the connection cable and the plug to the computer.
- The opto sensors. Each installed at the hose of the sowing units with the cable to the distribution box and to the reed sensors.
- The magnetic sensor for the distance (cable A).
- The magnetic sensor monitoring the power shaft (cable C)

## 1.2 The PK602

is used:

### 1.2.1 Workmode Single Seed Planter with Opto Sensor (Seedcounter)

- to control the sowing units  
The falling cornseeds are detected by the opto sensors (infrared optical scanning). Every seed triggers an impulse to the computer. The latter checks every row against a required value. If the rate rises above or falls below 15% of this required value the computer starts the optical and the accustical alarm. The display shows the number of the unit that triggered this alarm and the number of seeds per ha (x 1000). The triangle above the sowing unit blinks.
- to compute the area worked on per order.
- to compute the entire area per season.
- to display the current speed.
- to compute the working hours.
- to display the area performance.
- to compute the distance.
- with the keys "shut-off sowing units starting from left side" or "..right side", you can temporarily shut off the controlling for one or more units.

### 1.2.2 Workmode Area Counter

- to compute the area worked on and the overall area depending on the working mode.
- to display the speed
- to compute the working hours
- to display the area performance
- to compute the distance
- with adaption of partial width

The workmode is being selected by the key "Number of seeds/ha".

## **2 MOUNTING INSTRUCTIONS - Single Seed Planter**

### **2.1 Computer**

You should mount the console within reach and view of the driver. Fasten the computer to the pipe and secure it with the thumb screw. With the three-pole plug you connect it to the power supply. The distance to radiating devices and antennas should be more than 1m.

### **2.2 Connecting the 12V Plug to the Battery**

For the power supply of the Uni-Check (computer and actuators) the 12 V plug is supposed to be connected to the battery of the trac. You must not connect another device to this plug. The plug should be secured against shorts with 16 A melting fuse which is already installed in the connectors in the brown line.

Colors of the lines:

- brown + 12 V
- blue - ground

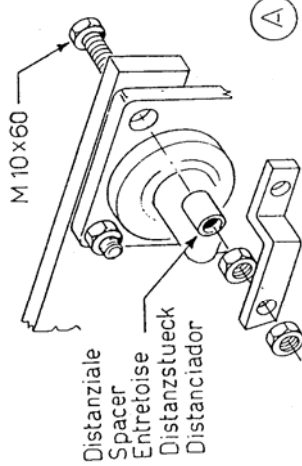
The minus terminal of the battery should be always connected to ground (i.e. chassis or frame of the trac).

### **2.3 Signal Distributor of the Machine**

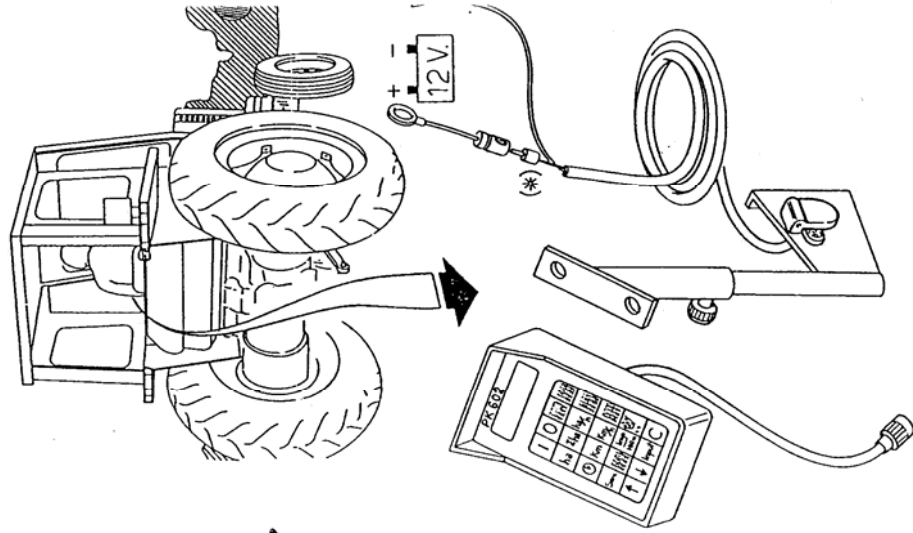
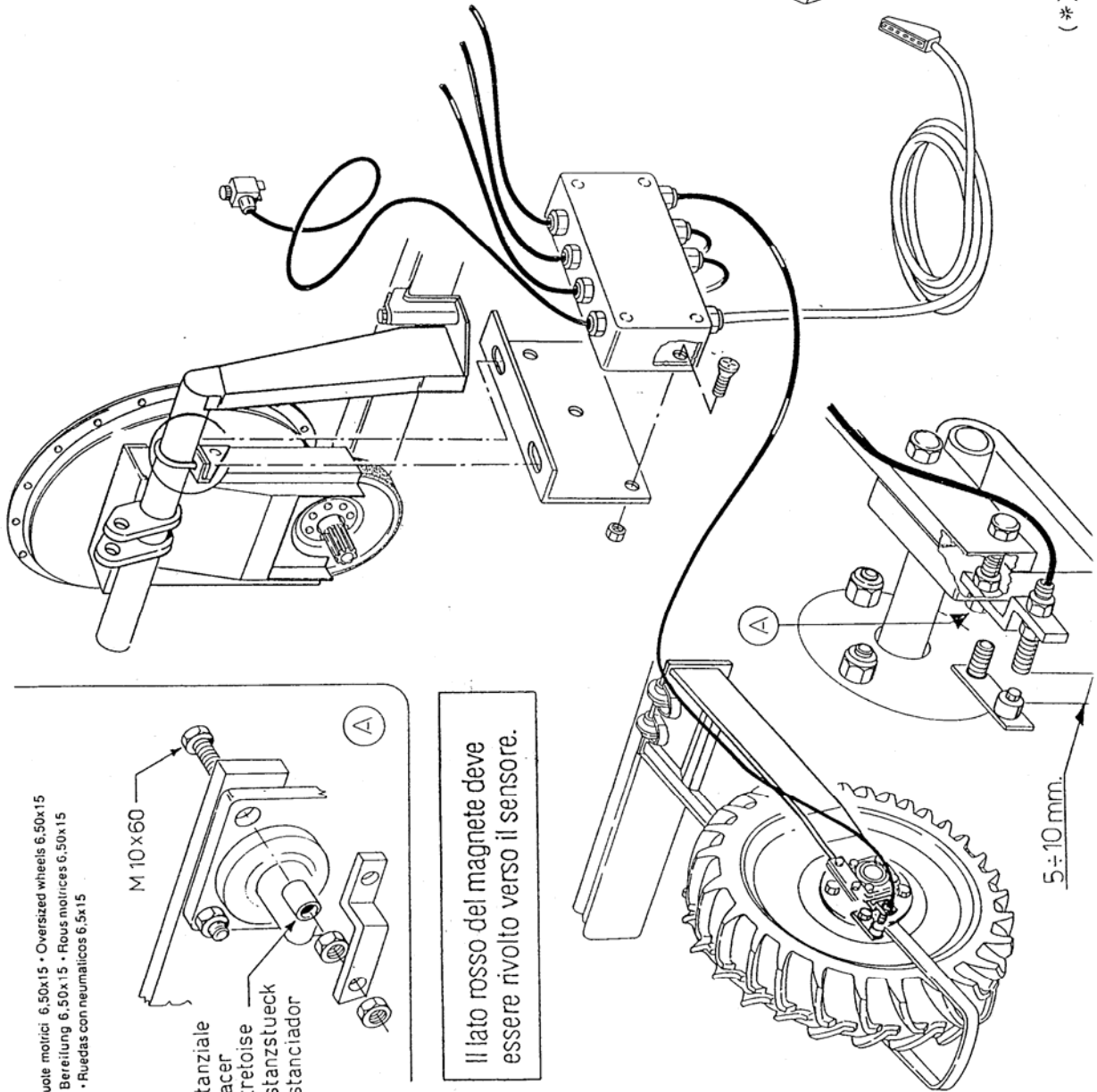
The PK602 is being delivered with the signal distributor already mounted.

Additionally see the following page.

Ruote moirici 6.50x15 • Oversized wheels 6.50x15  
 • Bereifung 6.50x15 • Roues moiriciques 6.50x15  
 • Ruedas con neumáticos 6.5x15



Il lato rosso del magnete deve essere rivolto verso il sensore.



(\*) Montare spinotto e strozzare

## 2.4 Opto Sensor

The opto-sensors are already mounted to the sowing units.  
Additionally see the following page.

The cable must be secured against contusion and other damages.

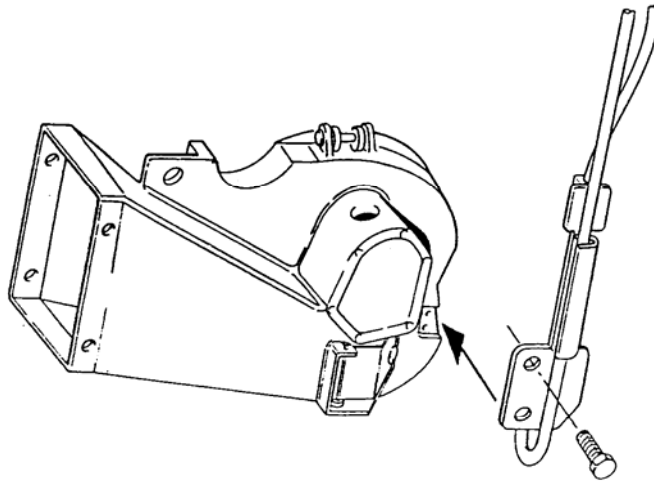
The leftmost unit starts with number 1.

Colors of the lines:	ws	= white	(ground)
	br	= brown	(+ 12 V)
	gn	= green	(signal)

## 2.5 Magnetic Sensor for the Distance (cable A)

The magnetic sensor should be mounted to the crankshaft by using the enclosed M5 x 30 -V4A screw. The sensor (cable A) should be mounted to the fitting and must have 10 to 20mm distance to the magnet. You will find connection terminals for each unit sensor and sensor C in the distribution box.

SP 530



Fotocellula - Montaggio  
Photo cell - Installation  
Photocellule - Montage  
Optogebær - Montage  
Fotocélula - Montaje

SP 520

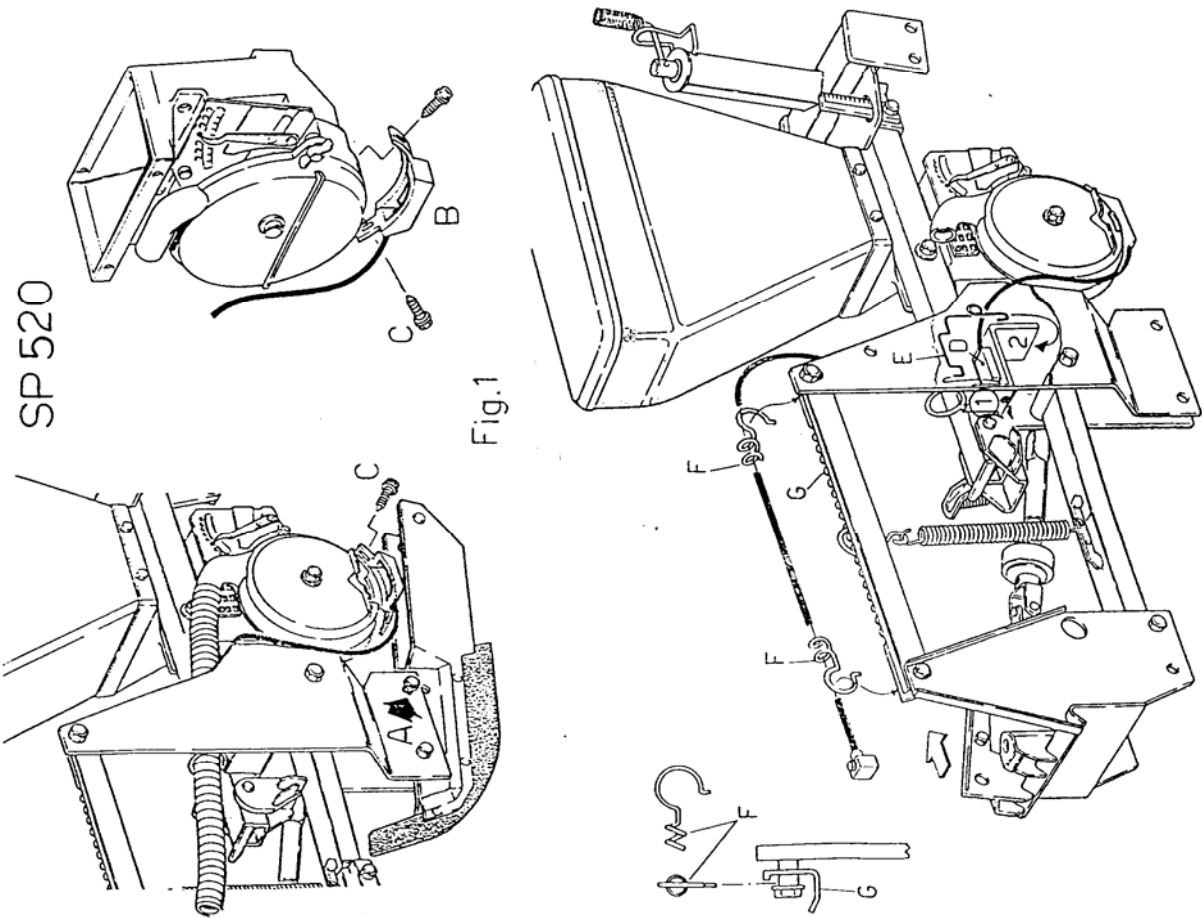


Fig. 1

Fig. 2



## **3 Safety**

### **3.1 Disclaimer**

The PK602 is to be used only in an agricultural environment. Any use outside this environment is regarded as improper use. We do not take over any responsibility if PK602 is used outside this environment.

We disclaim any responsibility for damages to persons and properties resulting from improper use. The user takes over any such responsibility.

The correct and timely maintenance is part of the proper use.

The directions to avoid accidents in the different areas must be obeyed.

We disclaim any responsibility if the PK602 has been altered by the user.

### **3.2 Security Instructions**

Disconnect the battery before you work with the wiring.

The same applies to any weldings on the tractor.

## 4 OPERATING INSTRUCTIONS

### 4.1 System Start

When switched on, the system performs a selftest. After this, the function that was selected before the shut-off, will be displayed.

If the selftest was not successfully, the display shows:

HALP 00                      or                      HALP88.

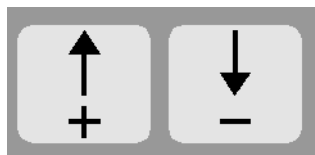
You should return such computers because they are in desperate need of repairs that can only be done at the manufacturer's site.

### 4.2 Layout of the Input Keys

The keys show three colors:

White keys = function keys (display of the computed data)

Grey keys = input keys (input of the unit data)  
and control keys (ON/OFF-switching of the control functions).

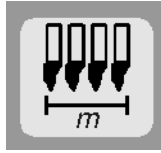


#### 4.2.1 Adjustment keys +/-

Pressing this key once increases or decreases the displayed value.

By pressing it again you can increase/decrease the displayed value continuously.

To work properly, the computer needs the following data: Impulses/100m, working width, number of sowing units, required speed (fan etc.) and the required number of seeds/ha.

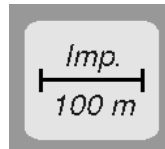


### 4.2.2 Key "Working Width"

With this key you can enter the real working width:

- press the key "working width" once
- select requested value with +/- keys
- press "Enter" (Input)-key (=)

After you typed in the working width, you can check the value by pressing the key "working width" again.



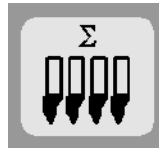
### 4.2.3 Key "Impulses per 100m"

By pressing this key, you can enter the number of impulses per 100m that sensor A gives to the computer.

Two possible procedures:

1. The value (impulses/100m) has already been determined for this tractor
  - press key "impulses/100m"
  - select value with the +/- keys
  - press "Enter" (Input)-key (=)
2. The value (impulses/100m) is unknown
  - measure exactly 100m on your field or on a road
  - move trac into starting position
  - press key "impulses/100m" and "C" simultaneously
  - drive the 100m
  - press "Enter" (Input)-key (=)

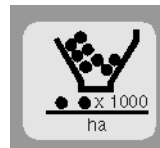
#### 4.2.4 Key "Number of Sowing Units"



You may enter 1 to 12 sowing units.

- press key "number of sowing units"
- select face value with the +/- keys
- press key "Enter" (Input) (=)
- check the entered value by pressing key "number of sowing Aggregate" again.

#### 4.2.5 Key "Number of Seeds per ha"



The workmode is selected with this key.

- \* Workmode opto sensor (seed counting) for Multicorn.  
In this case you enter the number of seeds per ha/1000 (i.e in case of 95000 seeds/ha you enter 95)
- \* Workmode area counter.  
Enter a 0 to select this mode. The control of the sowing units is now switched off.

Procedure:

- press key "number of seeds per ha"
- select value using the +/- keys.
- press "Enter" (Input) (=)

#### 4.2.6 Key "Service"



By pressing this key, the service function is selected.

If you interrupt the light beam of the optical sensor, the computer shows the number of the sowing unit and the horn sounds once.

## 4.3 Layout of the Function Keys

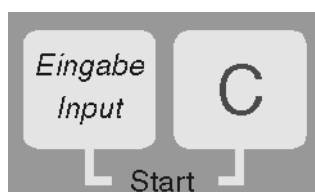
### 4.3.1 Unit On/Off



The Unit is switched on with the (I)-key.  
It is switched off with the (O)-key.

If the power supply falls below 9V (i.e you start the tractor) the unit is switched off automatically. You can start the unit again with the (I)-key.

### 4.3.2 Starting the system



You start the system by pressing the keys "Enter" and "C" simultaneously. To the system this means, that the memory for the area, the time and the distance will be cleared.

The time is restarted again.

This function should be performed before you start your work.

### 4.3.3 Key "Time"

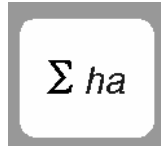


You can display the elapsed time from the last starting function by pressing this key. If the tractor is parked and the system is not powered, the time stands still. After switching on the unit again, the time starts also. You can stop the time during your work by pressing the "time"-key twice. Pressing it once more starts the time again (toggle function).



#### 4.3.4 Key "ha" (area)

The area worked on is displayed with this function. The measurement is stopped if there are no impulses from the wheel. In the workmode = 0 (area counter) you need the sensor Y (working position).



#### 4.3.5 Key "Σ ha" (total area)

The total area of one season is displayed. Before the season starts you can clear this value by pressing the key "total area" and "C" simultaneously.



#### 4.3.6 Key "ha/h" (temporary area performance)

The temporary area performance is displayed.



#### 4.3.7 Key "km" (distance)

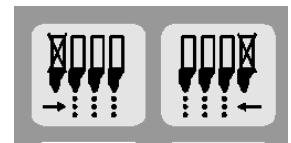
The odometer reading from the time the starting function has been performed is displayed.



#### 4.3.8 Key "km/h" (speed)

The current speed is displayed if you enter this key.

(1.) (2.)



## 4.4 Layout of the Control Keys

### 4.4.1 The Keys to Switch Off the Control of Single Sowing Units



(3.)

During your work you can switch on and off the control of each sowing unit.

Pressing the key (1) or (2) switches off one sowing unit.  
Pressing it twice switches off two units etc.

The key (1) starts from the left side and the key (2) from the right side.

Key (3) switches on the entire control again.

The control is switched on automatically at the end of the field.

## 4.5 Operating Procedure

After the data for the machine has been entered (4.2), you only have to perform the starting functions (4.3.2)

During your work the current number of seeds and the sowing unit number is displayed automatically. After five seconds the display switches to the next unit.

If the computer detects any problem, the sowing unit number is displayed and, in addition, the horn blows.

Also the powershaft is monitored. If it stops, the triangle above the revolution symbol flashes and the horn blows.

Pressing a function key alters the display and shows the requested value for about 5 seconds. After this time it turns back to display the number of seeds and the sowing unit number.

After your work is done you can display all stored and computed values and jot them down.

## **5 Maintenance**

### **5.1 Computer**

The Computer does not need any maintenance. During the winter it should be stored in a well temperatured area.

### **5.2 Sensors**

Dirty sensors should be cleaned with a dry and soft brush. If you can't clean it dry, you can use some water with some dishwashing liquid. After cleaning, dry it with soft, grease-free rug or towel.

The cleaning concerns the innner parts of the opto sensors (infra red diode and foto transistors).

The magnetic sensor for the speed is free of maintenance.



## 6 Trouble shooting

Problem	Probable cause	Fix
<b>6.1 You are unable to switch on the computer</b>	Power supply leads are mixed up	Check polarity
	Power supply is disrupted	Check battery terminals and cable for any damage; check fuse
	Total damage	Return computer to manufacturer for fixing
<b>6.1.1 The computer displays HALP00 or HALP88</b>	Memory problems	Return computer to manufacturer or distributor for fixing.
<b>6.2 There is no speed displayed</b>	Impulses/100m is missing	Enter impulses/100m (4.2.3.)
	No impulses from speed sensor (A). Ring on display does not blink.	Distance sensor to magnet has to be fixed between 5 to 10mm.
		Red side of the magnet must point to the sensor
		Fix the magnet with a non-magnetic serew.
		Check cable and connection in the distribution box green = gn = signal brown = br = + 12 Volt white = ws = + Volt
		Damage of the sensor, change it
		Damage of the computer, change it
Damage of the distribution box, change it		
<b>6.3 Area is not computed</b>	Input working width is missing	Enter working width
	No impulses from speed sensor. Ring on display does not blink.	Check sensor A. Check cable to sensor for any damage, change sensors if needed.

Problem	Probable cause	Fix
<b>6.4 The selected application rate is not displayed. The horn sounds</b>	No impulses to computer from the optical sensors	sowing unit out of order or bin empty
		Dirty opto sensors, clean opto sensors carefully. Refer 5.2.
		Check cable and connection in the distribution box green = gn = signal brown = br = + 12 Volt white = ws = + Volt
		Damage of the sensor, change it
		Damage of the computer, change it
		Damage of the distribution box, change it
<b>6.4.1 The seeds/ha readout varies very much</b>	The opto sensors deliver unstable impulses	Sowing units are not tuned up properly  Dirty opto sensors, clean opto sensors carefully. Refer 5.2.
<b>6.5 The computer i.g. displays 4 number of sowing units instead of 8.</b>	Wrong number of sowing units keyed in.	Enter the number of sowing units (4.2.4.)
<b>6.6 No alert, although a sowing unit is out of order</b>	Wrong number of sowing units keyed in.	Enter the number of sowing units (4.2.4.)
	The desired rate of seeds/ha is missing	Enter the selected application rate (4.2.5.)