TP-Turbo-Jet Super 12
TP1230IN

OPERATING INSTRUCTION

*Translation
from original*

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Serial no.: _____

Version 01/11

CONTANT:

Mounting the suitable seed roll:

There are different seed rolls. The seed rolls can vary depending on the desired application amount in kg/ha, the driven speed or the working width. (Have a look at the chart below!)

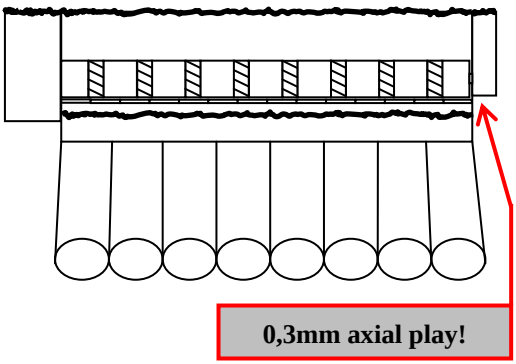
		 Standard seed roll (mustard)		 Grass seed roll (wheat)	
Working width	Km/h	Min. Kg/ha	Max. Kg/ha	Min. Kg/ha	Max. Kg/ha
3m	5	35,00	253,00	35,00	624,00
	10	19,00	126,00	29,00	310,00
	15	12,00	85,00	20,00	208,00
4m	5	20,00	143,00	24,00	469,00
	10	13,00	82,00	20,00	202,00
	15	8,00	42,00	15,00	156,00
6m	5	15,00	126,00	21,00	312,00
	10	9,00	63,00	17,00	155,00
	15	6,00	43,00	13,00	101,00

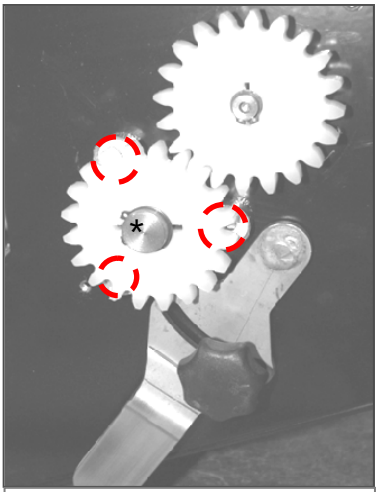
These are approximate calculated figures and vary due to the different conditions of the seed!

Errors and omissions excepted!

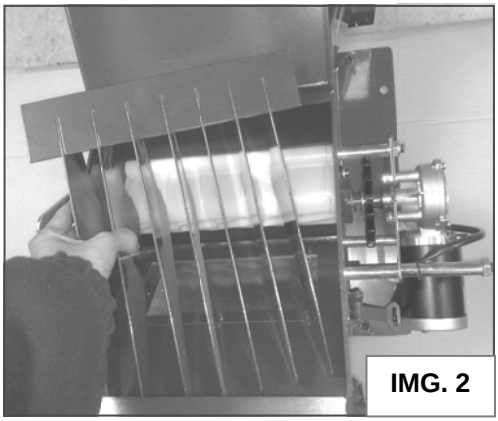
Seed roll change:

- Disconnect the power supply and put on your personal safety clothes
- Remove the protector for agitator!
- Knock out the roll pin of the seed roll gear and remove the gear wheel! (IMG. 1)
- Remove the bearing bracket.
- Remove the 3 screws (as marked on IMG.1)!
- Open the flaps and put out the lamella (IMG.2)!
- Pull out the seed wheel/metal seed roll from underneath und put in the desired seed wheel/metal seed roll from outside.
- Please note that you have an axial play of 0,3mm, especially when you mount the seed roll for small amounts: (IMG.3)

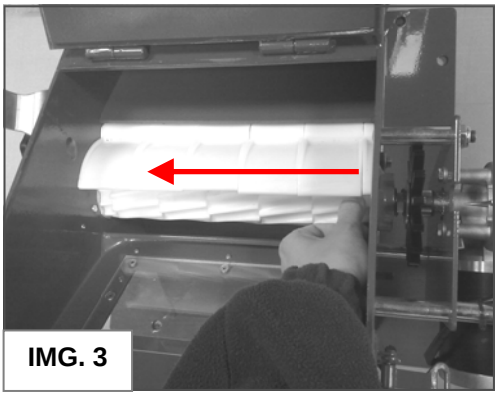




IMG. 1: Knock out roll pin*!



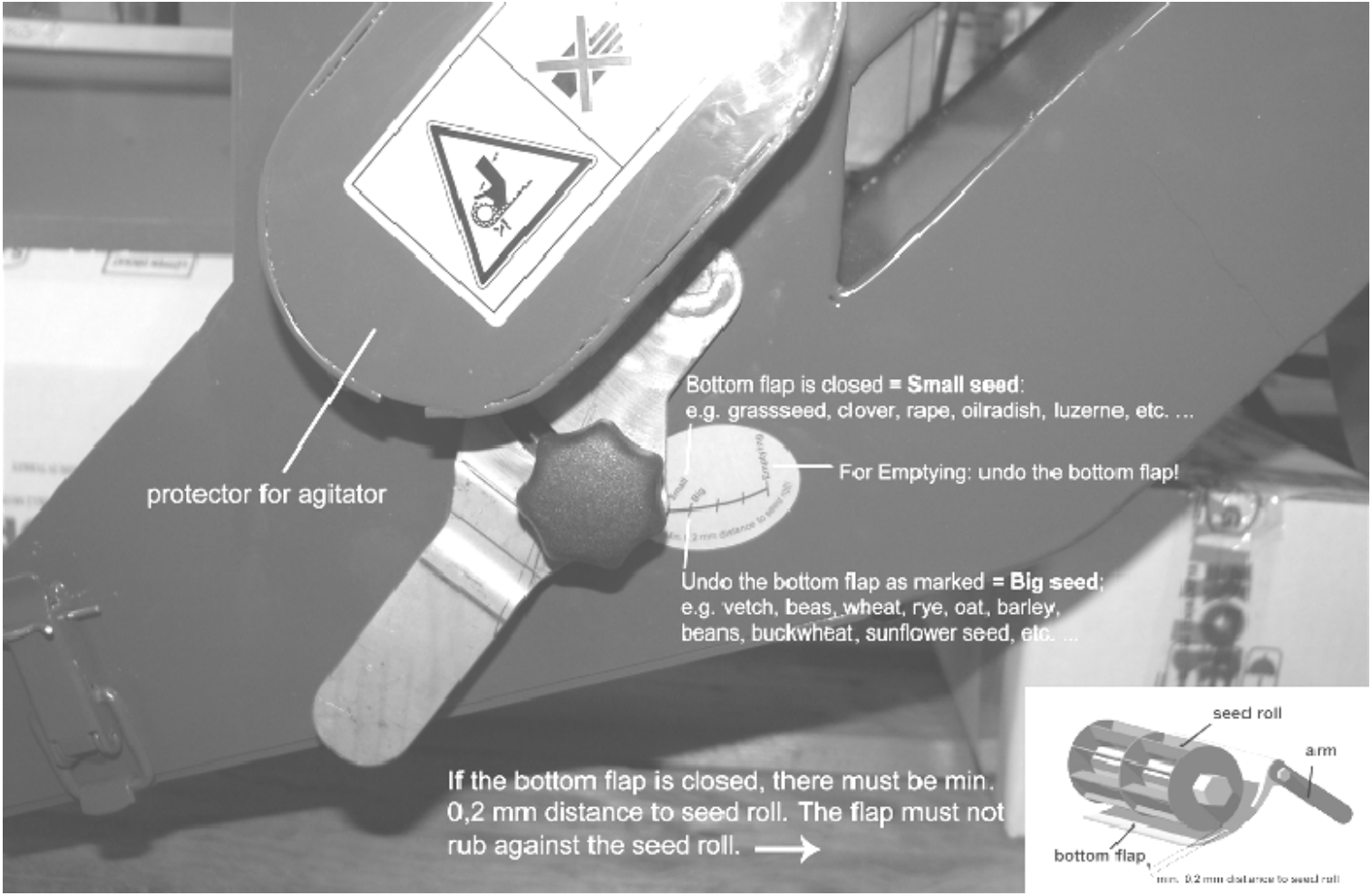
IMG. 2



IMG. 3

- Tighten the bearing bracket .
- Put on the gear wheel and knock in the spin ring of seed roll gear.
- Mount the protector for agitator
- Check the screws and the spin ring after a short time!

Flaps:


protector for agitator
Bottom flap is closed = **Small seed**:
e.g. grassseed, clover, rape, oilradish, luzerne, etc. ...
For Emptying: undo the bottom flap!
Undo the bottom flap as marked = **Big seed**;
e.g. vetch, beas, wheat, rye, oat, barley,
beans, buckwheat, sunflower seed, etc. ...
If the bottom flap is closed, there must be min.
0,2 mm distance to seed roll. The flap must not
rub against the seed roll.
seed roll
arm
bottom flap
mm 0,2 mm distance to seed roll

Programming of Multifunctional control unit:

We offer for different operations special seed rolls. For seeding grass, respectively voluminous seed or big output amount we advise to mount the delivered grass seed roll. For mustard, oilradish, clover, Phacelia you can use the standard seed roll and for small seed we have a special seed roll with different breadth 5mm, 10mm or 15mm (optional).
It is necessary to make a calibration to get the right adjustment.

1. DISPLAY:

1.1.Values

The display is capable of showing four different types of values:

kg/ha:	This is the value of how much you want to put out of the seeder. The value is in kilogram by hectare, with one decimal.
Kg total:	The total weight that has been put out. Value is in kilogram, with one decimal. This value can be cleared by pressing RESET for 2 seconds.
Ha:	The driven area in hectare, with one decimal. This value can be cleared by pressing RESET for 2 seconds.
Km/h:	Current speed, kilometre by hour, with one decimal.

The current value to show on the display is selected by pressing either ***up-arrow***  or ***down-arrow***  . A led tells you which value that is currently displayed.

1.2 Area switch (seed roll ON-OFF):

The display also indicates either the area-switch is on or off. When the area-switch is activated a colon is flashing in the display.

1.3 Hidden value:

Ha total: The total driven area in hectare.

1. Press **up-arrow**  and **down-arrow**  at the same time for about 3 seconds.
2. The **ha** led will start flash, and the ha total value will be displayed.
3. Press RESET button for 2 seconds for clearing this value.
4. Press SET for return to **ha**.

2. CONTROLLING FAN and SEED OUTPUT:

The two switches controllers the fan and the seed output.
Pulling the switch named ***fan*** up activates the fan. A led is indicating the state of the fan. The led is on if the fan is on and off when the fan is off.
Pulling the switch down deactivates the fan.
The state of the fan is memorised in the program and is started in that state when system is started.
The second switch if for controlling the seed output. There are three positions for this switch, ***ON***, ***OFF*** and ***AUTO***.

ON: The switch is in up position and the seeder is always controlled.

OFF: Switch is in middle position, none controlling of the seeder.

AUTO: Switch is in down position and the seeder is controlled if area-switch input is not activated .

When the sensor has a contact the seed roll is OFF. The seeder will only be controlled when the fan is on. If you set the control-switch to on while the fan is off, error E 05 will be shown in the display.

3. SETTINGS:

3.1 Kilogram-by-hectare [kg/ha]:

Kilogram-by-hectare is putted in kg/ha with one decimal.
Example: 20 kg/ha for outputted seed, the display value should be 20.0.

1. Set the displayed value to kg/ha.
2. Press SET button for 2 seconds.
3. The Kilogram-by-hectare value will be displayed, and the display will start to flash.
4. The value can now by changed by pressing up-arrow or down-arrow.
5. Press SET button to accept the new value (The display will stop flashing).
6. By pressing RESET button the value is not accepted and you are leaving the setup-routine, the value is not changed.

3.2 Workingwidth (cm):

Working-width is put in cm. Example: 6 metres working-width, the display value should be 600 (no decimal)

1. Set the displayed value to ha.
2. Press SET button for 2 seconds.
3. The working-width value will be displayed, and the display will start to flash.
4. The value can now by changed by pressing up-arrow or down-arrow.
5. Press SET button to accept the new value (The display will stop flashing).
6. By pressing RESET button the value is not accepted and you are leaving the setup-routine, the value is not changed.

4. ADVANCED SETTINGS:

There are three settings:
Two regulator parameters can be changed (PI-regulator) and the polarity of the area-switch. Default values for the parameters are:

Parameter 1: 250 (Gain, P-factor) *
Parameter 2: 50 (Integration, I-factor)**
Parameter 3: 0 (Polarity area-switch, 0 or 1)***

Changing the parameters are done by holding both SET button and RESET button down for 2 seconds when the ***kg/ha*** value is displayed. The RESET button must be released before the SET button for activating the changing procedure.
The first regulator parameter is displayed and the display is flashing. Press UP or DOWN for changing the value.
By pressing SET the value is accepted and saved and the second regulator parameter is displayed. Press UP or DOWN for changing this value.
Press SET and the value is accepted and saved and the third parameter is displayed to change the polarity of the area-switch. Press UP or DOWN for changing this value.
By pressing SET again this value is accepted and saved, and the display will go back for displaying the ***kg/ha*** value.
Pressing RESET will abort the current settings if it is not accepted with SET.

** If parameter 1 is set to high the seed output starts to oscillate. If oscillation occurs then reduce parameter 1.*
*** If parameter 2 is set to high the seeder output can be unstable. If the seeder output is unstable try to reduce parameter 2. If the amount from the seeder output is not correct according to driven area try to increase parameter 2.*
**** If parameter 3 is set to 0 the machine is active when the area-switch input signal is high. When parameter 3 is set to 1 the machine is active when the area-switch input signal is low.*

5. CALIBRATIONS:

Calibrations for speed-sensor and motor-sensor have to be done before the system can work correctly.

5.1 Speed-sensor

Calibration value for the speed sensor is in mm per pulse.
Example: If you have 430 mm between two pulses, the display value for the calibration-value should be 430 (no decimal) but minimaly 1!!

1. Set the display value to *km/h*.
2. Press the SET button for 2 seconds, this will activate the calibration function.
3. The display is now showing the calibration value (the display is flashing). The calibration value is millimetre/speed-pulse [mm/speed-pulse] from impulse to impulse or from bolt head to bolt head (e.g. 430mm way = 430 enter; maximum 500mm – but minimally 1 !!).

   Calculate the way as follows:

   You have, f.e., a wheel with a diameter of 2m. The wheel amplitude ($A_{mplitude}=D_{iameter}$ x 3,14 => A=6,28) is 6,28m=6280mm. The maximum distance from Impulse to Impulse has to be under 500mm driven way. As a fact of this (6280/500=12,56) you need MINIMUM 13 signals. Better to use about 20 signals. It doesn´t matter if the signals are mounted with a distance of 30mm (near the middle of the wheel) or 300mm (more outside the wheel). You have to mount 20 signals.
   The value you put now into the control unit is the estimated driven way from signal to signal. In this case put in (6280/20=314) 314mm=314.

4. Press SET and drive a known length, example 100 metres, the display will show you how far you have driven with the current calibration value in metres *[m]*.

5. If the display is showing you the wrong driven length, change the length by pressing up or down. It will show you the length in metres, with one decimal.
6. Press SET when the value is the same as the length you have driven.
6. The current and changed calibration value will be displayed.
7. Accept this value by pressing SET button again, this will finish the calibration procedure.
9. You can always abort a current calibration by pressing the RESET button.

5.2 Motor-sensor:

1. Set the display value to *kg tot*.
2. Press the SET button for 2 seconds, this will activate the calibration function.
3. The display is now showing the calibration value (the display is flashing). The calibration value is in gram-by-pulse [set gram/motor pulse to 1,00].
4. Press SET and to activate the motor feeding.
5. *Note! The ON/Auto-switch must be in off-mode when entering this new state, else the ON-led will flash telling you to turn of the switch.*
6. The motor can now be turn on by switching the motor-switch to ON.
7. Feed out seed for measurement, the display will show you the value of the outputted seed with the current calibration value in kilograms *[kg]*.
8. Measure the seed you have put out, and adjust the value on the display with the up and down button. The value is showed in kilogram, with three decimal.
9. Accept this value by pressing SET button.
10. The now corrected calibration value will be displayed. Press SET to accept this value, this will finish the calibration procedure.
11. You can always abort a current calibration by pressing the RESET button.

6. ERROR MESSAGES:

The display can show different error messages:

---- VCC error. Supply voltage is below 10 voltages.
Check the power-cable.

E00 Calibration value error. One or many calibration values are either zero or greater than 9999.
Pressing RESET button turns this error message off. Check all calibration values and regulator-parameters

E01 Memory error. All saved values in memory is set to default values .
Pressing RESET button turns this error message off. New calibrations has to be done before the unit will work correctly.

E02 Minimum output on motor. With the current kg/ha or the current speed, the motor is going to slow for correct regulation.
Possibilities:
- Select a higher kg/ha-value
- Raise your current speed
- Mount seed roll for small amount (optional)

E03 Maximum output on motor. With the current kg/ha or the current speed, the motor is going to fast for correct regulation. This error can also occur if there's an error on the motor sensor or the motor axle.
- Select a lower kg/ha-value or reduce your current speed.
- Check signal on motor sensor.
- Check the rotation on the motoraxle.

E04 Motor error. The motor is going to fast or is not responding to regulation. This error will occur when the divergence or the kg/ha has been more than 10% for over 5 seconds.
Check power signal to motor.

E05 Fan not activated. The ON/OFF/AUTO switch is in ON or AUTO but the fan is not on.
Activate the fan by pulling the fan-switch to ON.

E06 Tank level too low.
Check tank level, check signal form levelsensor.

Seed shaft do not work for calibration:
Sensor motor plate no contact, wire damaged or no connection in the plug.

Hektarcounter and seedmotor not working:
Groundspeed sensor damaged or no connection to plug.

Note. No errors, apart from VCC error, can deactivate the head-relay. When an error occurs it is up to the user to turn of the motor and the fan. The motor can by turned off by setting the ON/OFF/AUTO switch to OFF position.

Short step programming of multifunctional control unit

Before starting read the whole manual to the multifunctional control unit!

Make sure that the electric power supply is correct and safety before starting with the calibration!

CALIBRATION:

With the arrow key you can choose between kg/ha, kg total, ha, km/h after each calibration

1. programming kg/ha:
The diode **kg/ha** has to flash green.

1. Press **SET-**button for 2 seconds.
2. The Kilogram-by-hectare value will be displayed, and the display will start to flash. (e.g. 10 kg = 10,0 enter)
3. The value can now be changed by pressing up-arrow or down-arrow .
4. Press SET button to accept the new value (The display will stop flashing).
5. By pressing RESET button the value is not accepted and you are leaving the setup-routine, the value is not changed .

2. programming of motor-sensor and magnetwheel
The diode **kg total** has to flash green.

1. Press the SET button for 2 seconds, this will activate the calibration function .
2. The display is now showing the calibration value (the display is flashing). The calibration value is in gram-by-pulse [set gramm/ motor pulse to 1,00]..
3. Press SET to activate the motor feeding.
   Note! The ON/Auto-switch must be in off-mode when entering this new state, else the ON-led will flash telling you to turn of the switch.
4. The motor can now be turn on by switching the motor-switch to ON .
5. Feed out seed for measurement, the display will show you the value of the outputted seed with the current calibration value in kilograms *[kg]*
6. Measure the seed you have put out, and adjust the value on the display with the up and down button. The value is showed in kilogram, with three decimal .
7. Accept this value by pressing SET button.
8. The now corrected calibration value will be displayed. Press SET to accept this value, this will finish the calibration procedure.
9. You can always abort a current calibration by pressing the RESET button .

3. programming of the working width:

The diode **ha** has to flash green.

1. Press the **SET**-button for 2 seconds.
2. The working-width value will be displayed, and the display will start to flash. (e.g. 6 meter = 600 enter)
3. The value can now be changed by pressing up-arrow or down-arrow.
4. Press SET button to accept the new value (The display will stop flashing).
5. By pressing RESET button the value is not accepted and you are leaving the setup-routine, the value is not changed.

4. programming of speed sensor:

The diode **km/h** has to flash green.

1. Press the SET button for 2 seconds, this will activate the calibration function .

2. The display is now showing the calibration value (the display is flashing). The calibration value is millimetre/speed-pulse *[mm/ speed-pulse]* from impulse to impulse or from bolt head to bolt head (e.g. 430mm way = 430 enter; maximum 500mm – but minimally 1 !!).

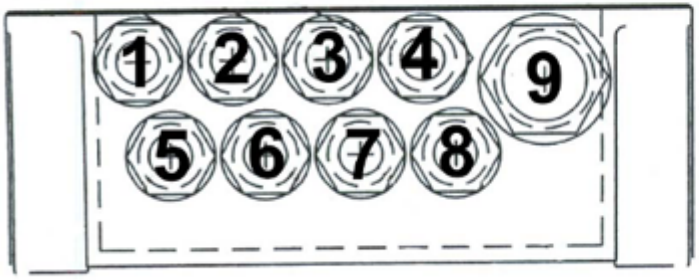
   Calculate the way as follows:

   You have, f.e., a wheel with a diameter of 2m. The wheel amplitude (Amplitude=Diameter x 3,14 => A=6,28) is 6,28m=6280mm. The maximum distance from Impulse to Impulse has to be under 500mm. As a fact of this (6280/500=12,56) you need MINIMUM 13 signals. Better to use about 20 signals. It doesn´t matter if the signals are mounted with a distance of 30mm (near the middle of the wheel) or 300mm (more outside the wheel). You have to mount 20 signals.

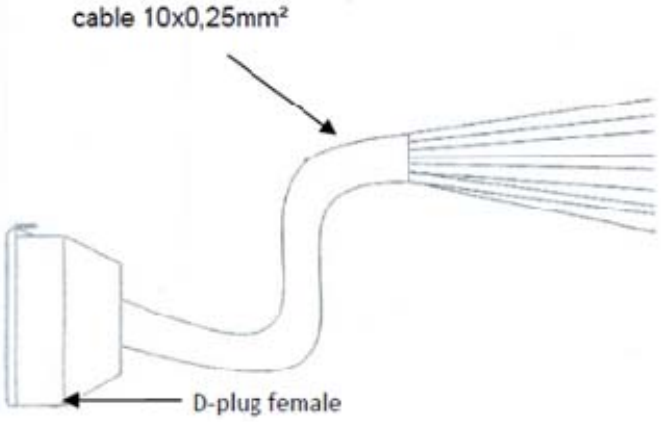
   The value you put now into the control unit is the estimated driven way from signal to signal. In this case put in (6280/20=314) 314mm=314.

3. Press SET and drive a known length, example 100 metres, the display will show you how far you have driven with the current calibration value in metres *[m]*.
4. If the display is showing you the wrong driven length, change the length by pressing up or down. It will show you the length in metres, with one decimal.
5. Press SET when the value is the same as the length you have driven.
6. The current and changed calibration value will be displayed .
7. Accept this value by pressing SET button again, this will finish the calibration procedure .
8. You can always abort a current calibration by pressing the RESET button .
9. The programming is now finished .
10. Press the rocker switch in position „AUTO“ and the seeding machine will be driven automatically .

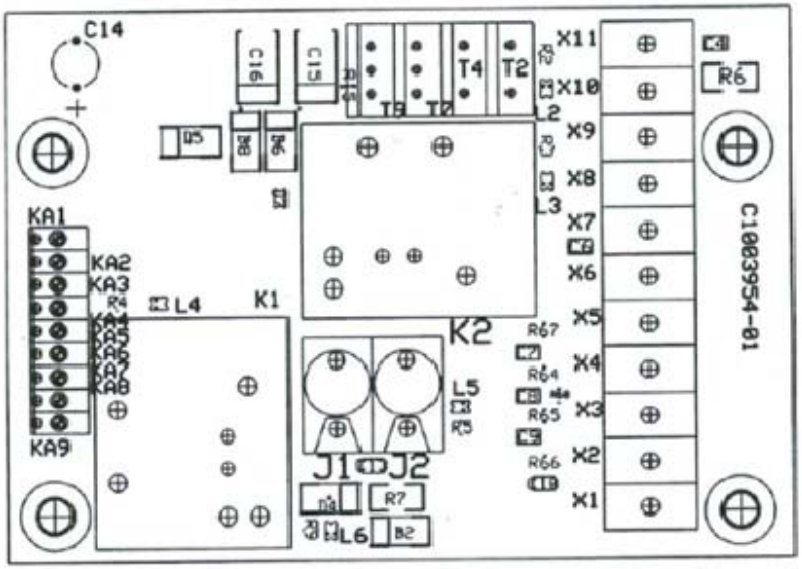
Control box:



1. battery cable for double fan
2. cable ON/OFF-sensor
3. cable speed sensor
4. battery cable for seed roll motor
5. data cable to multifunctional control box
6. free
7. cable for seed roll control-sensor
8. battery cable to relais
9. cable to battery (2 x 4 mm²)

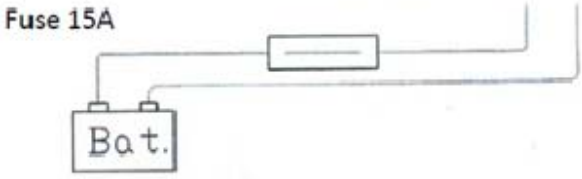


Ka1 green
Ka2 brown
Ka3 grey
Ka4 blue
Ka5 red
Ka6 pink
Ka7 black
Ka8 white
Ka9 yellow



X11 seed roll motor -
X10 seed roll motor +
X9 double fan +
X8 double fan –

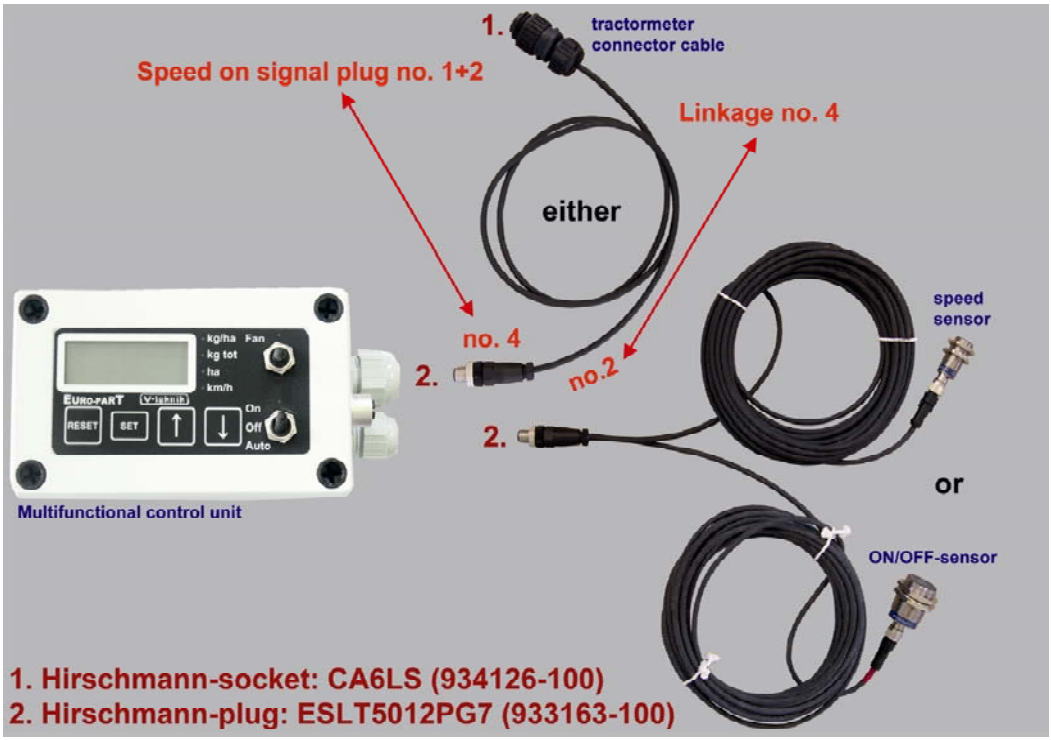
X7 sensors –
(blue cable from sensor)
X6 sensors +
(brown cable from sensor)
X5 signal: ON/OFF-sensor
(black cable from sensor)
X4 signal: seed roll control-sensor
(black cable from sensor)
X3 speed sensor
(black cable from sensor)
X2 free
X1 sensor- (blue cable from sensor)



J1 = battery plus +
J2 = battery minus -

(The negative side (-) from the sensor can be connected by X1 or/and also by X7!)

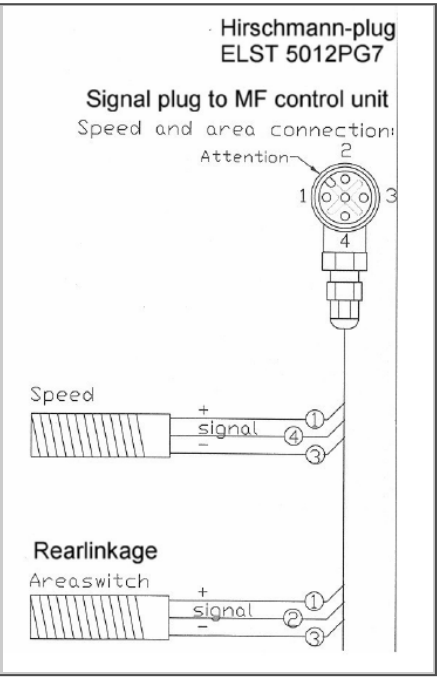
Connection to tractor unit:



ATTENTION!!!

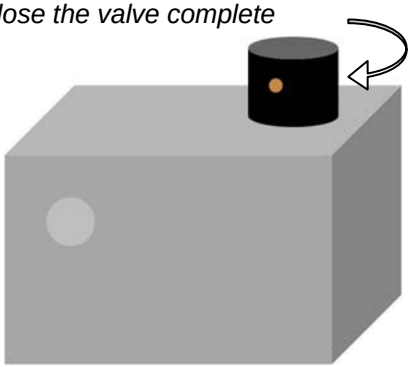
For tractors with a higher voltage (14V - new large tractors) the control unit can be damaged or may not work exactly any more. In this case it is necessary to install a 12V-relay for voltage limitation.

For new tractors (f.ex. Claas) with 7-pin socket (signal-plugs) no signal is send to number 1 and number 2. According to the speed the voltage is lowered or increased. We recommend for this tractors to connect the speed signal directly at the plug of radar sensor cable or at gearbox sensor cable (see instructions).



Hydraulic fan drive

1. *Close the valve complete*



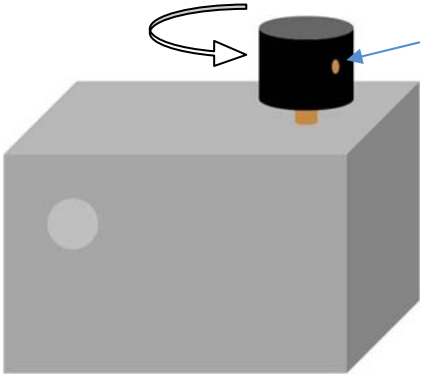
For oil pressure transfer use only single-acting control unit (system max. 50lit./min., motor max. 24lit./ min.). Return absolutely free into The hydraulic (Not on double-acting control unit!)

Attention:

The hydraulic motor provides ca. 4000U/min. when valve is fully opened (may damage fan wheel).

2. *Open the valve with 2,5 turns*

The motor also has enough strength in a lower speed to bring enough air power. Please open the valve only with 1,5-2 turns on the adjusting knob (ca. 2500 rpm when oil has a operation temperature from 50°-60°). Otherwise there may be damage!



3. *Fix this bolt!*

Attention: The screw has to be tightened close to avoid a self-adjusting of the oil amount.

Working on the field:

Before you begin to work:

Please take the effort to calibrate the machine. Make notes of all the details for future. Notice the driven speed for the positioning if you work with Profi-control unit. When start working, make sure that the correct speed is driven.

After the calibration drive a short way and – **STOP**

CONTROL …

… that seed or granule is distributed even.
… that seed quantity seems to be correct.
… that the required quantity has left the hopper.

REPEAT …

… the above checks in certain intervals until you are sure the job is correct .

PLEASE …

... clean the machine every day after finishing work. The bottom of the machine must be cleaned by a brush (not hands). Wear your personal safety clothes (gloves, …). Don´t spray wash with water !

ATTENTION!

! The seed shaft can catch fingers, hair and loose clothes. The motor has so much power, that it cannot be stopped. (only switched OFF).

NOTE!

! In the process of operation the fan wheel should always run. Switch only the seed roll motor on or off! Otherwise the hoses can be blocked .

Cleaning and service:

All details, for hydraulic systems only apply to EURO-TURBO-JET SUPER with hydraulic fan drive:

- Before every service: pull down the basic unit, disconnect the seeder from the battery, make hydraulic system unpressurised, disconnect mechanical connections (f.e.: Power take off, …), take off ignition key from tractor respectively separate the basic unit from the tractor.
- Use only original spare parts. We cannot prevent the machine from occurring damages or errors because of reproduction parts.
- Clean the fan daily respectively after every operation with compressed air (The wheel can get unbalanced because of dust and can get damaged).
- Control every 40 operation hours that bolts and fittings are tight fixed, hydraulic hoses and cables are not rubbed through, hydraulic system is leak proof, machine has no rust damages (especially the fitting flaps on the machine and the spreader plates), seeding hoses have no gap and are fitted thigh, the electrical connection is okay (no distant wires, a proper isolation).
- Don´t clean the machine with the high-pressure-cleaner and don´t clean with too much water. The electric system, hydraulic system and bearings can get damaged after some time (oxidation, rusting, and friction).
- Defect hydraulic hoses or cables (f.e.: rubbed, leaked) have to be replaced immediately .

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EG-KONFORMITÄTSERKLÄRUNG

im Sinne der EG-Richtlinie Maschinen 2006/42/EG, Anhang II A

Hiermit erklären wir, daß die Bauart von

TP1230IN

in der gelieferten Ausführung folgenden einschlägigen Bestimmungen entspricht:
2006/42/EG

Angewendete harmonisierte Normen, insbesondere:

Angewendete nationale technische Spezifikationen, insbesondere:

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Mureck, 14.01.2010
Ort und Datum der Ausstellung

Unterschrift (Firmenchef Josef Großauer)