



On-Board Computer



Operator's Manual

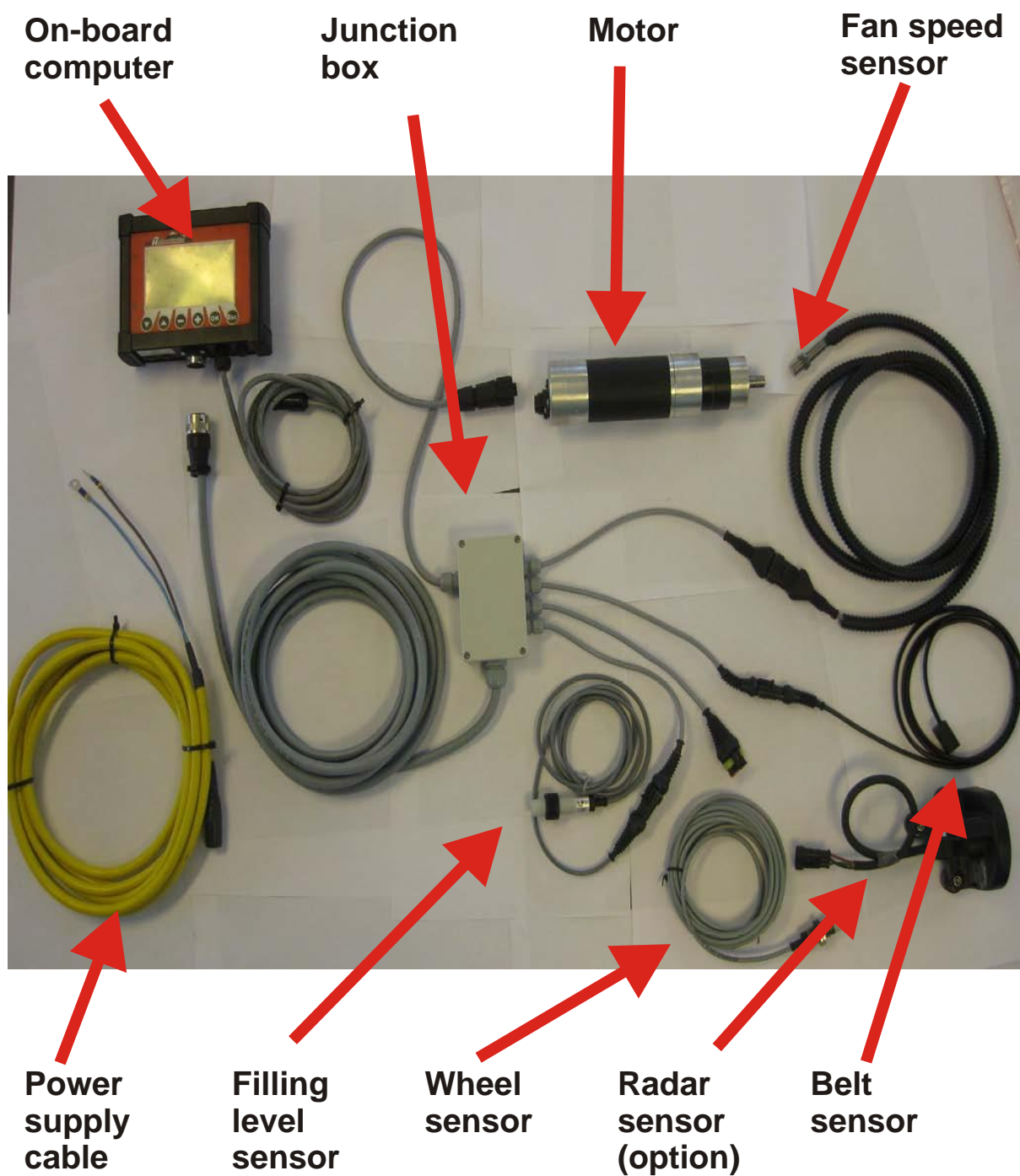
Rev. 1.00

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Overview

Hatzenbichler on-board computer with wiring loom and accessories for an Air 8 electric or Air 16 seed box.



Hatzenbichler On-Board Computer – Operator's Manual

This Operator's Manual covers the operation of the on-board computer which comes with the pneumatic seeders Air 8 (electronic) and Air 16.

You must have read and understood this manual before starting up the on-board computer.

The on-board computer is for controlling the motor of the metering roller based on pulses from a wheel-driven sensor or radar sensor.

The Hatzenbichler on-board computer allows the user to store different seed rates and assign to them names and the corresponding calibration quantity.

The on-board computer offers various checking and monitoring features, such as

- Speed display (in km/h)
- Actual seed rate



- Elapsed time



- Distance counter



- Hectare counter



- Used seed



- Filling level

- Belt
- Motor
- Speed control

The computer signals problems by means of an acoustic alarm signal and shows an error message on its display.

Controls



The „**UP**“ arrow lets you navigate to the menu items you want to work with.



The „**DOWN**“ arrow lets you navigate to the menu items you want to work with.



The „**-**“ key is for decrementing values.



The „**+**“ key is for incrementing values.



The „**OK**“ key stores any value or alteration made to the computer.

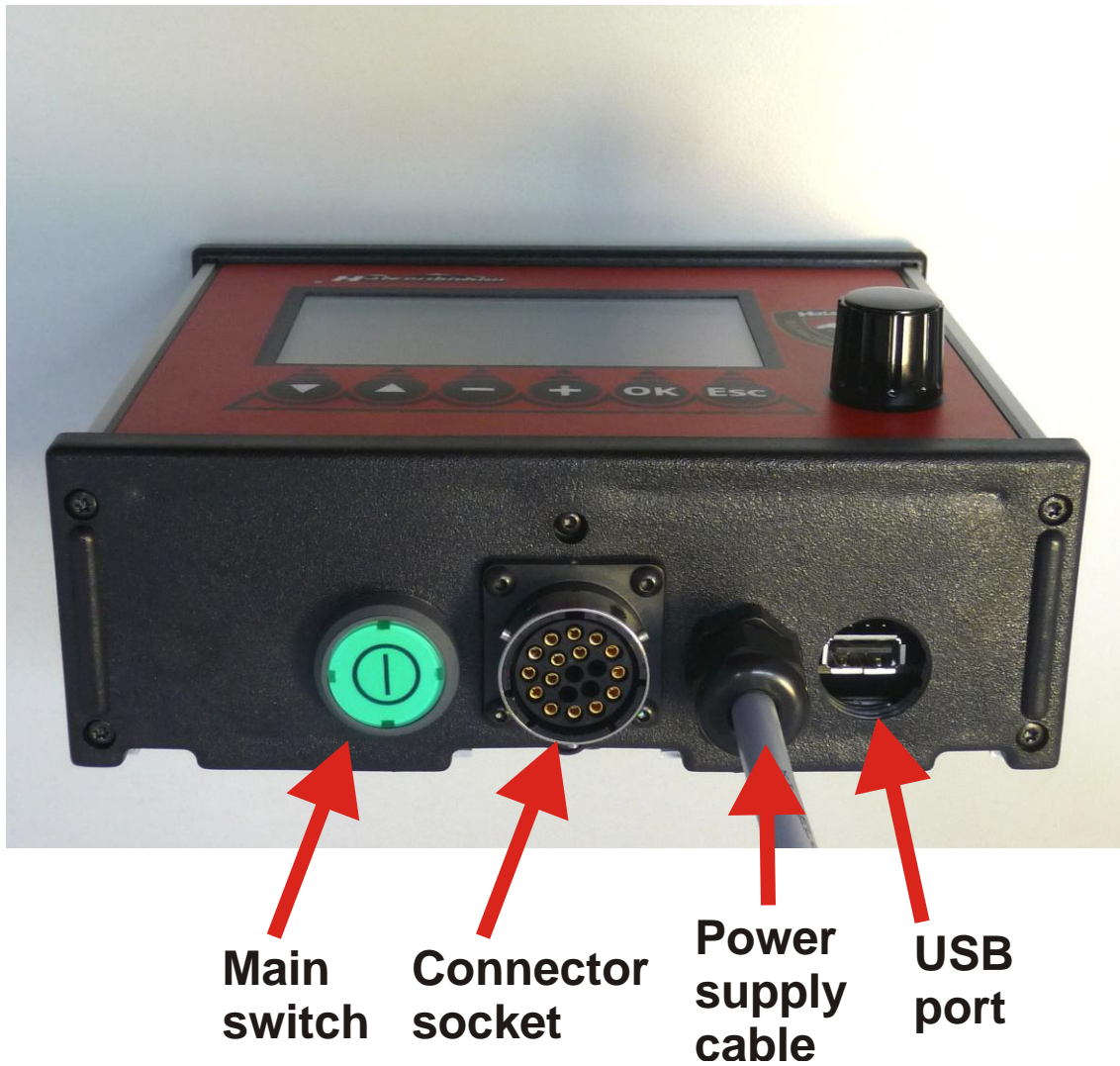


The „**ESC**“ key lets you exit the active window and takes you one step back.



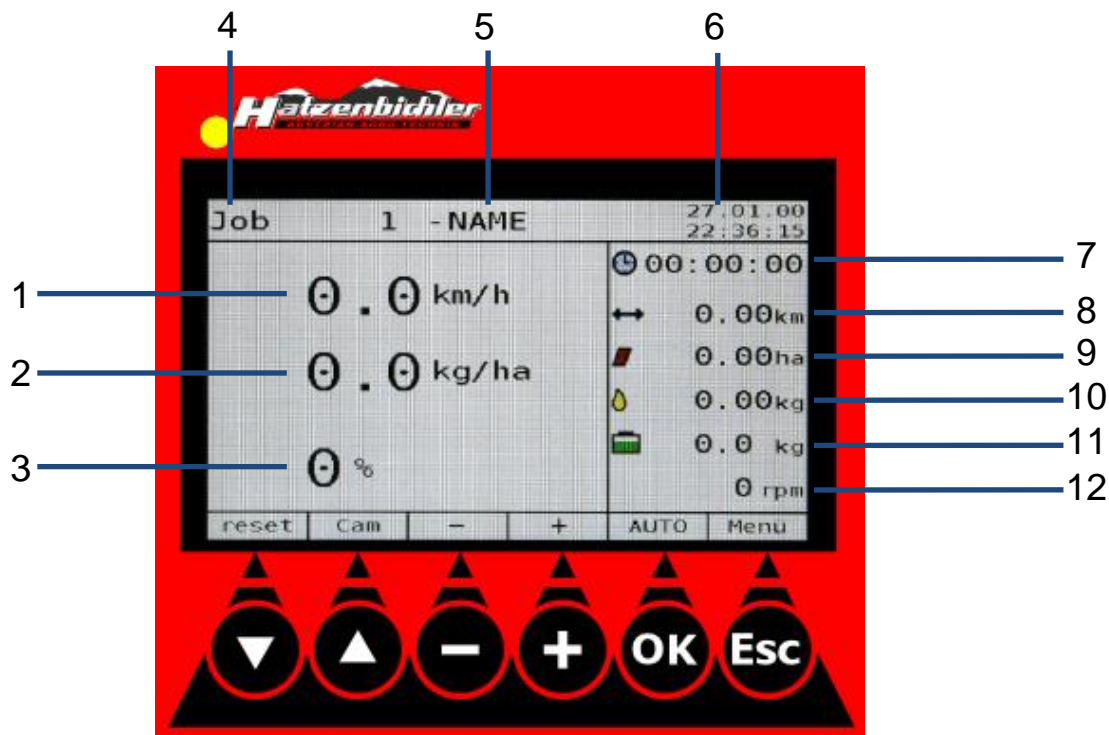
The „**DigiPot**“ lets you increment/decrement values to be entered by turning the knob CW/CCW.







Controls and Interfaces at the Bottom of the On-Board Computer



Main Screen (Job screen)

The main screen shows all information about the job in progress. In the following this screen is called "Job screen".



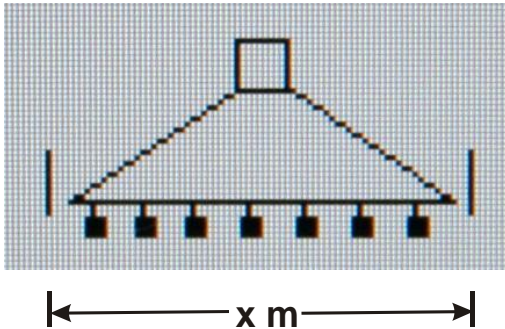
-  Camera
-  Reset for seed rate in %
-  Decrement value
-  Increment value
-  Second function for OK button
-  Second function to get into the menu

1	Travelling speed	7	Elapsed time
2	Actual seed rate in kg	8	Distance counter
3	Seed rate +% and -%	9	Hectare counter
4	Job	10	Used seed
5	Job number and name	11	Filling level
6	Date and time	12	Fan RPM

Important Settings

Before you start working, make the following settings:

1. Select **Language** (menu 4)
2. Check **Working width** (menu 1)



3. Check **Type of Sensor** (menu 4)
4. Check the pulse settings for wheel or radar sensor (menu 2)
 - Wheel: Dist. of pulses = 4.75
 - Radar: Dist. of pulses = 0.74

Getting Started

From calibration to seeding

Once the computer is energized by pressing the main switch at the bottom of the device and the boot loader has completed its routines, the start screen appears on the display.

After 5 seconds the Job screen is displayed.

Before you start, get familiar with the controls and the information on page 6.

Please note that two functions have been assigned to the keys "OK" and "Esc":



- "OK" + "AUTO"
 - "Esc" + "Menu"
- Press "Esc" to enter into the Main menu
 - Use the arrow keys  and  to navigate through the menu
 - Select "Input"
 - Press "OK"



Fig. 1

- Select "Working width"
- Press "OK"



Fig. 2

- Enter the working width by pressing "+" or "-" or by turning the DigiPot.
- Press "OK"



Fig. 3



- Use the arrow keys  and  to navigate to "Job"
- Press "OK"



Fig. 4


- Press "+" or "-" to select the job number (1 ... 30)
- Press the arrow key  to navigate to "Name". Here you can enter a descriptive name for the selected job.
- Press "OK"



Fig. 5

- Press "+" or "-" or use the DigiPot to navigate to the character/number you wish to enter. Confirm the selected letter by pressing "OK" or the DigiPot. Repeat this step until the name is complete.
- Press "Esc" to set the type of metering roller.



Fig. 6

- Press "+" or "-" to select the metering roller (coarse, fine, micro) installed in the seed box. This entry is for your information only and has no effect on the internal calculations made by the computer.
- Press "OK" to confirm your selection.



Fig. 7

- Enter the number of revolutions for the calibration process. This value should range between 10 ... 50 revolutions (depending on the type of seed).
- Remove the cover of the seed box
- Check the brush. The brush should slightly touch the metering roller. If this is not the case, adjust the lever.
- Check the metering roller (black / red / green).
- Install the calibration tray.
- Fill some seed (3 - 5 kg) into the tank.
- Select "Start" and press "OK".



Fig. 8



Fig. 9

The electric motor starts turning the metering roller and the seed trickles into the calibration tray. When this process is completed, remove the calibration tray and determine the weight of the seed in the tray.

- "Stop" is highlighted. When the above mentioned activities are completed the computer automatically switches to the screen where you can input the determined weight.
- Press "+" or "-" or turn the DigiPot to enter the weight resulting from calibration.



Fig. 10

- Press "OK" to go to "Input – Seed rate".
- Enter the seed rate by pressing "+" or "-" or by turning the DigiPot.



Fig. 11

- On the next screen information about seed rate, minimum and maximum driving speed is displayed.
- Press "OK" or "Esc" to return to the Job screen.

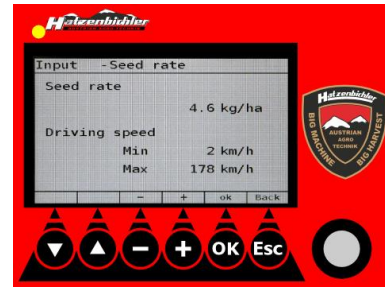


Fig. 12

- Press "OK" to enable the seeding process.

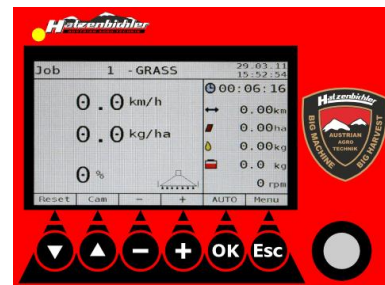
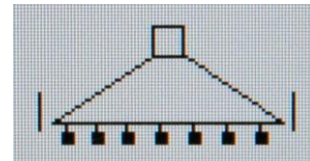
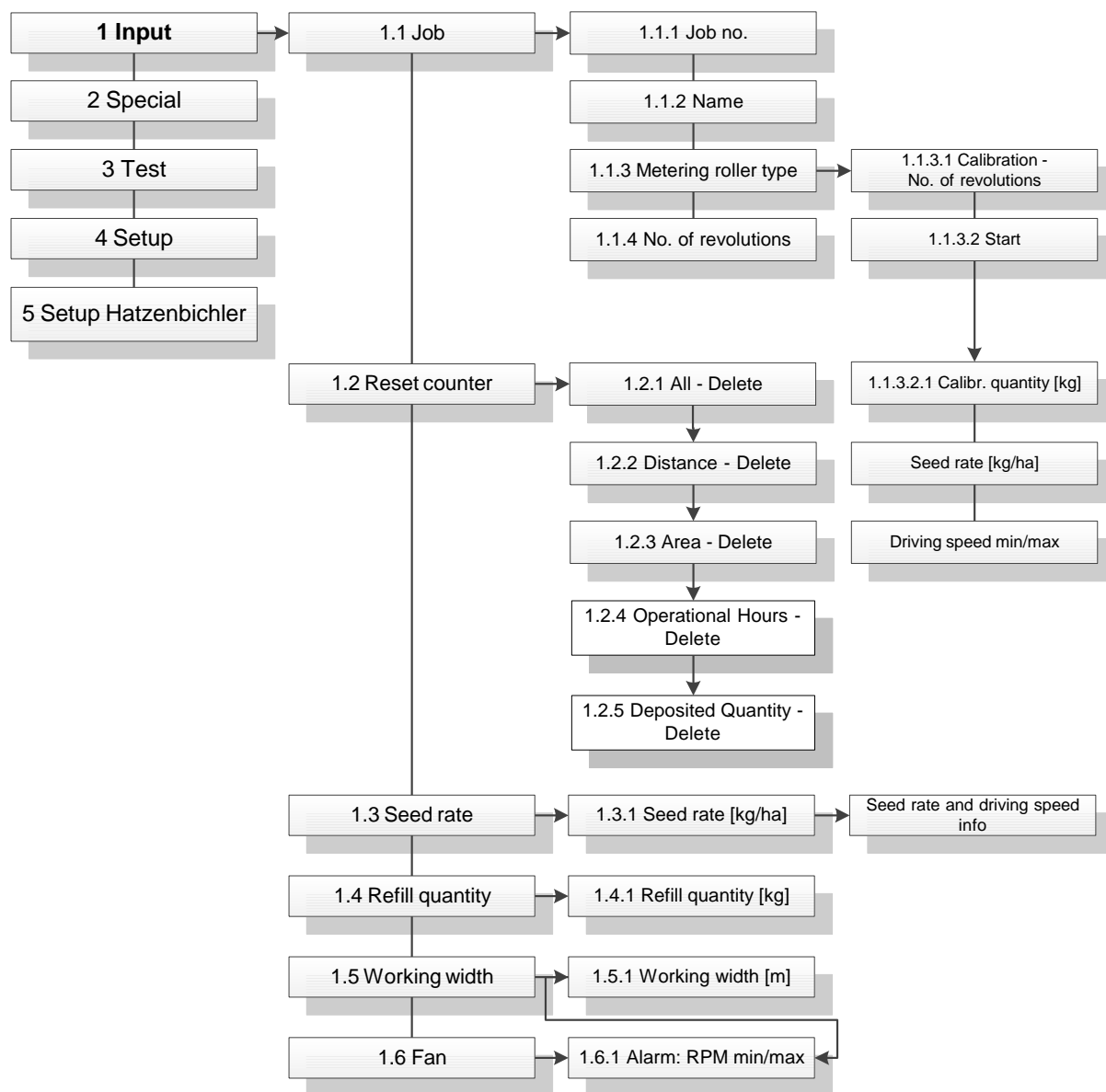


Fig. 13

A small seeder icon appears on the screen indicating that the machine is ready for seeding. During seeding the cover of the seeder must be hermetically sealed.



1 Input



1.1 Selecting a Job and Calibrating the Seed Box

When you have entered all important settings described on page 8 you can select a job and start calibration. You can choose from up to 30 different jobs. Jobs can be used to distinguish between different types of seed, calibration parameters, metering rollers and seed rates (kg/ha).

The Hatzenbichler seeder comes with two standard metering rollers (coarse and fine). For applications where these two roller types are not suitable, a superfine roller (micro) and a segmented roller with holes are available.

Standard



Coarse Fine Micro Segmented with holes

Fig. 14

- On the starting screen press "Esc" to activate the Main Menu.

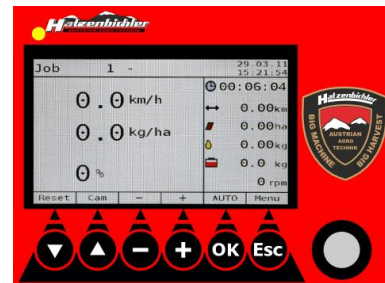


Fig. 15

- Press "OK" to select "Input".



Fig. 16

- Press "OK" to select "Job".



Fig. 17


- Enter the job number (1 ... 30) by pressing the key "+" or "-".
- Press the key  (Name) to enter a job name.
- Select the characters to be entered by pressing "+" or "-" or by turning the DigiPot. Press the DigiPot or "OK" to enter the selected character. Repeat these steps until you have entered all characters. Then, press "Esc" to enter the type of metering roller.



Fig. 18

- Press "+" or "-" to select the metering roller type installed in the seed box.
- Press "OK" to confirm your selection and to go to "Calibration".



Fig. 19

- Enter the number of revolutions by pressing "+" or "-" or by turning the DigiPot. Press "OK" to confirm your selection. Please make sure that the number of revolutions is not too high and corresponds to the type of seed. For example, for rape seed 30 ... 50 revolutions are adequate. Seed with coarse grains requires less revolutions (15 ... 25).



Fig. 20

Make sure that there is enough seed in the tank for calibration purposes. However, the filling level should not exceed the quantity needed for calibration in case you must exchange the metering roller.

- Install the calibration tray.
- Press "OK" to start calibration.
- Wait until the metering roller has completed the number of revolutions you have set before.



Fig. 21

- Determine the weight of the seed in the calibration tray.
- Enter the weight [kg] determined before by pressing "+" or "-".
- Press "OK".



Fig. 22

- Press "+" or "-" to set the seed rate.
- Press "OK"

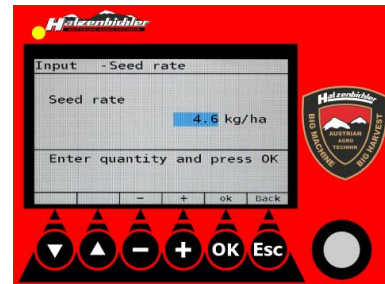



Fig. 23

Note on "Driving Speed" information:

If you don't get information about minimum or maximum driving speed, an error must have occurred. In this case, change the metering roller settings in menu 1.1 accordingly. Then, go to "Input/Job" and press the key  (Calib.). This will trigger a new calibration process.

- Press "OK" to confirm the settings.
- Press "Esc" to return to the Job screen.

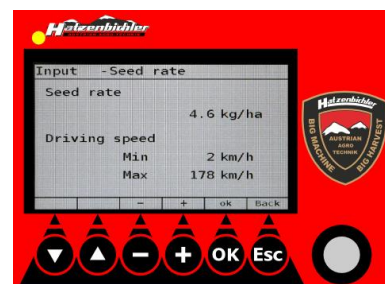


Fig. 24

1.2 Resetting Counter Values

Menu item 1.2 "Reset counter" is for deleting individual or all counter values of the active job.


- Starting from the Job screen, press "Esc" to go to "Main menu/Input". Then, press "OK".
- Press  to select "Reset counter". Press "OK".



Fig. 25



- Press  or  to select the desired function.
- Press "OK" to execute this function.
- Once the function has been executed, the computer returns "Deleted".
- Press "Esc" three times to return to the Job screen.



Fig. 26

1.3 Setting the Seed Rate

Menu item 1.3 "Seed rate" is for setting the seed rate value of the active job.


- Starting from the Job screen, press "Esc" to go to "Main menu/Input". Then, press "OK".
- Press  twice to select "Seed rate".



Fig. 27

- Press "+" or "-" or turn the DigiPot to enter the seed rate [kg/ha].
- Press "OK" to confirm.
 On the next screen, minimum and maximum driving speed values are displayed for your information.
- Press "OK" to return to the Job screen.



Fig. 28

1.4 Setting the Refill Quantity

Menu item 1.4 "Refill quantity" is for setting the quantity that has been filled into the tank. Based on this information, the computer is able to calculate the remaining quantity.


- Starting from the Job screen, press "Esc" to go to "Main menu/Input". Then, press "OK".
- Press  three times to select "Refill quantity".
- Press "OK".



Fig. 29

- Press "+" or "-" or turn the DigiPot to enter the refill quantity [kg].
- Press "OK" to confirm and to return to the menu.
- Press "Esc" twice to return to the Job screen.

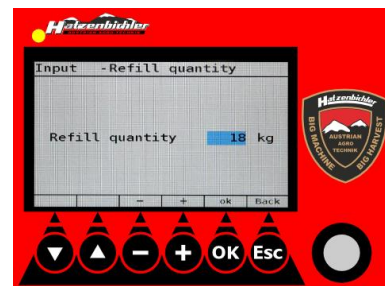


Fig. 30

1.5 Setting the Working Width

Menu item 1.5 "Working width" is for setting the width of the machine on which your seed box is installed.


- Starting from the Job screen, press "Esc" to go to "Main menu/Input". Then, press "OK".
- Press  four times to select "Working width".
- Press "OK".



Fig. 31

- Press "+" or "-" or turn the DigiPot to enter the working width [m].
- Press "OK" to confirm and to return to the menu.
- Press "Esc" twice to return to the Job screen.



Fig. 32

1.6 Setting the Limits for Fan RPM Alarm

Menu item 1.6 "Fan" is for setting the minimum and maximum RPM values of the fan. If the fan of your seeder is equipped with an RPM sensor, you can set here the thresholds for RPM alarm.


- Starting from the Job screen, press "Esc" to go to "Main menu/Input". Then, press "OK".
- Press  to select "Fan".
- Press "OK".



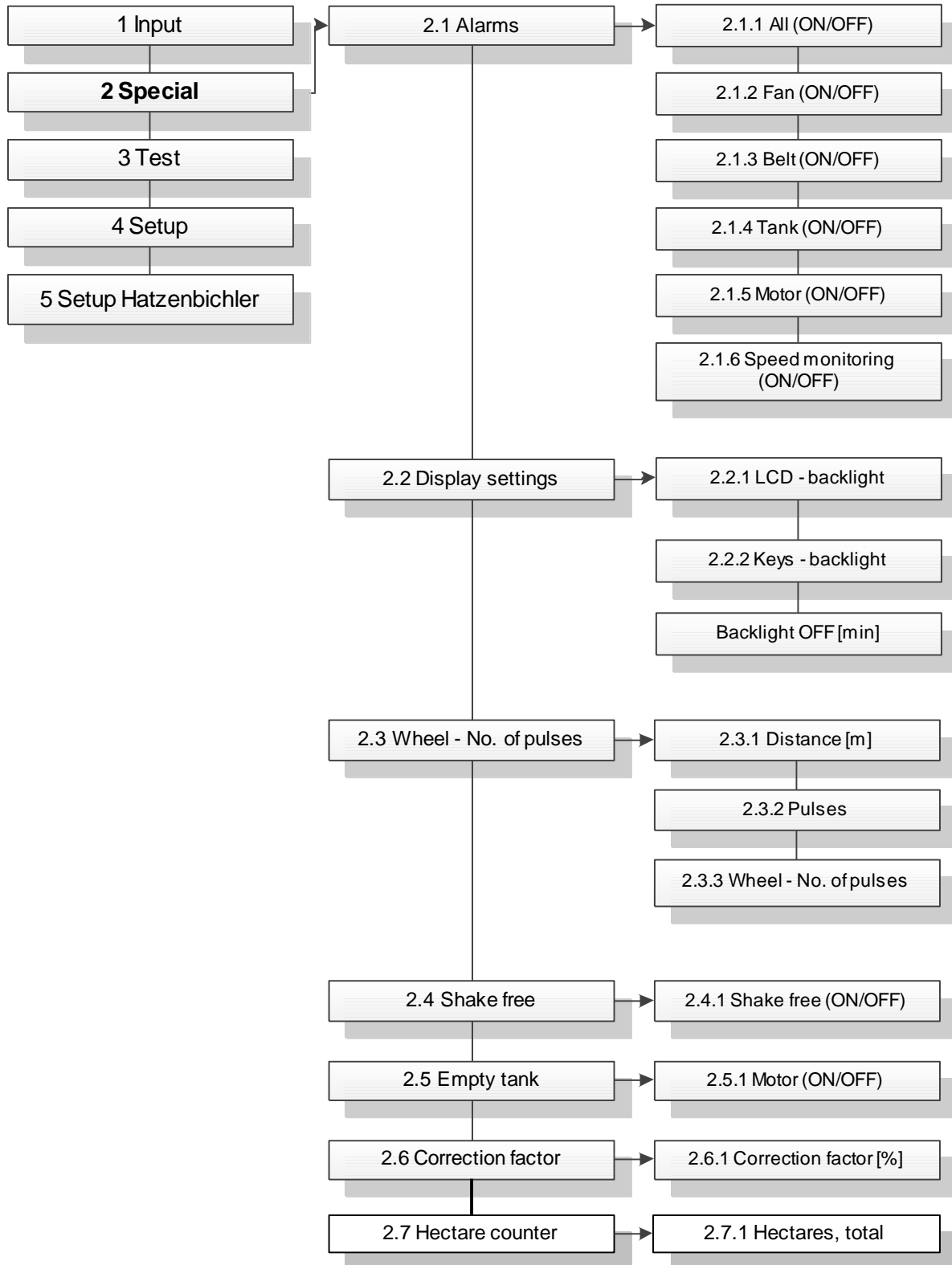
Fig. 33

- Press "+" or "-" or turn the DigiPot to enter the minimum RPM threshold. Press "OK".
- Press "+" or "-" or turn the DigiPot to enter the maximum RPM threshold.
- Press "Esc" three times to return to the Job screen.



Fig. 34

2 Special



2.1 Alarms

Menu item 2.1 "Alarms" is for enabling or disabling acoustic (buzzer) and visual (display) alarms for components/functions of the seeder, such as fan, belt, tank, motor, speed monitoring.

You can enable/disable acoustic and visual alarms as a whole or for each component/function individually. In case you need a visual alarm only, you can disable the buzzer separately. If you disable an alarm, the buzzer is disabled automatically.

- Starting from the Job menu press "Esc" to go to the Main menu.



Fig. 35




- Press  to select "Special", then press "OK" twice to go to "Alarms".



Fig. 36

- Press  or  to select the alarm you wish to enable or disable.
- Press "+" or "-" to toggle between ON and OFF.
- Press "Esc" to return to the menu.

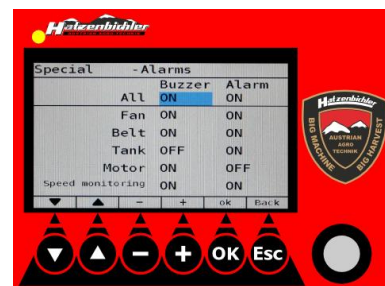


Fig. 37

2.2 Display Settings

Menu item 2.2 "Display settings" allows you to customize the backlight settings of the monitor screen and the keys. You can also set the timer to switch the backlight automatically off.

- Navigate to menu item "Display settings".
- Press "OK" to enter the menu and customize the backlight settings.



Fig. 38



- Press  or  to select the setting you wish to change.
- Press "+" or "-" change the corresponding value. You can keep the keys pressed to keep increasing/decreasing the value.
- Press "Esc" to go back.



Fig. 39

2.3 Wheel - Pulses per Revolution

Menu item 2.3 "Wheel – no. of pulses" is for calibrating the sensor wheel. Here you can enter how many pulses you get when you travel a distance of 100 m. The factory setting is 4.75. You only have to change this setting if you don't use the original sensor wheel by Hatzenbichler.

Preparatory work: Mark a distance of exactly 100 meters.

- Navigate to menu item "Wheel – no. of pulses".
- Press "OK" to enter into the menu.



Fig. 40

- Press "OK" to start the calibration.

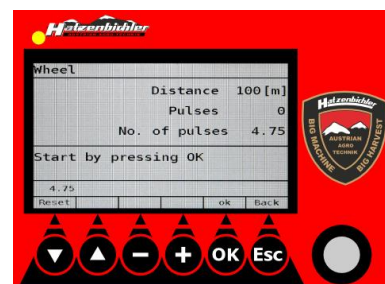


Fig. 41

- Travel the distance of 100 m.



Fig. 42


- Press "OK" to confirm the new value.
- If you don't want to save the new value, press  (Reset) and start again or press "Esc" to go back to the Job screen..



Fig. 43

2.4 Shake Free Mode

Menu item 2.4 "Shake free" is for releasing the metering roller in case it has stalled. If this function is activated, the motor rotates for a short time in clockwise and counter-clockwise direction to remove the object blocking the roller.

- Navigate to menu item "Shake free".
- Press "OK" to enter into the menu.



Fig. 44

- Press "OK" to activate this function.
- Once the object has been removed, press "OK" to stop this function.
- Press "Esc" to exit this menu item.

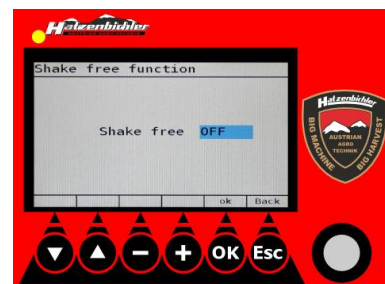


Fig. 45

2.5 Emptying the Hopper

Menu item 2.5 "Empty tank" is for discharging the hopper, for example if you wish to clean it.

- Navigate to menu item "Empty tank".
- Press "OK" to enter into the menu.



Fig. 46

- The "OK" key toggles between motor OFF and ON.
- Press "OK" to activate this function
- Once the tank is empty, press "OK" to switch the motor off.
- "Esc" to exit this menu item.

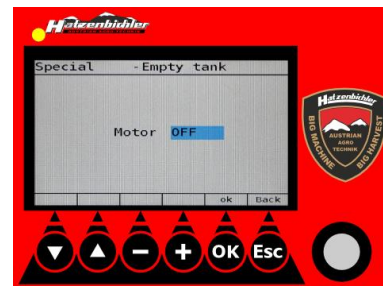


Fig. 47

2.6 Correction Factor

Menu item 2.6 "Correction factor" is for entering a correction factor to the seed rate. This factor must be calculated by the user considering various factors, such as grain size of the seed. The value showing the actually deposited quantity is not affected by the correction factor.

- Navigate to menu item "Correction factor".
- Press "OK" to enter into the menu.



Fig. 48

- Press "OK" to enter into the menu.
- Enter the correction factor in % by pressing "+" or "-" or by turning the DigiPot.
- Press "OK" to confirm the value entered.
- Press "Esc" to exit this menu item.



Fig. 49

2.7 Hectare Counter

Menu item 2.7 "Hectare counter" displays the total amount of area cultivated (in hectares).

- Navigate to menu item "Hectare counter".
- Press "OK" to enter into the menu.



Fig. 50

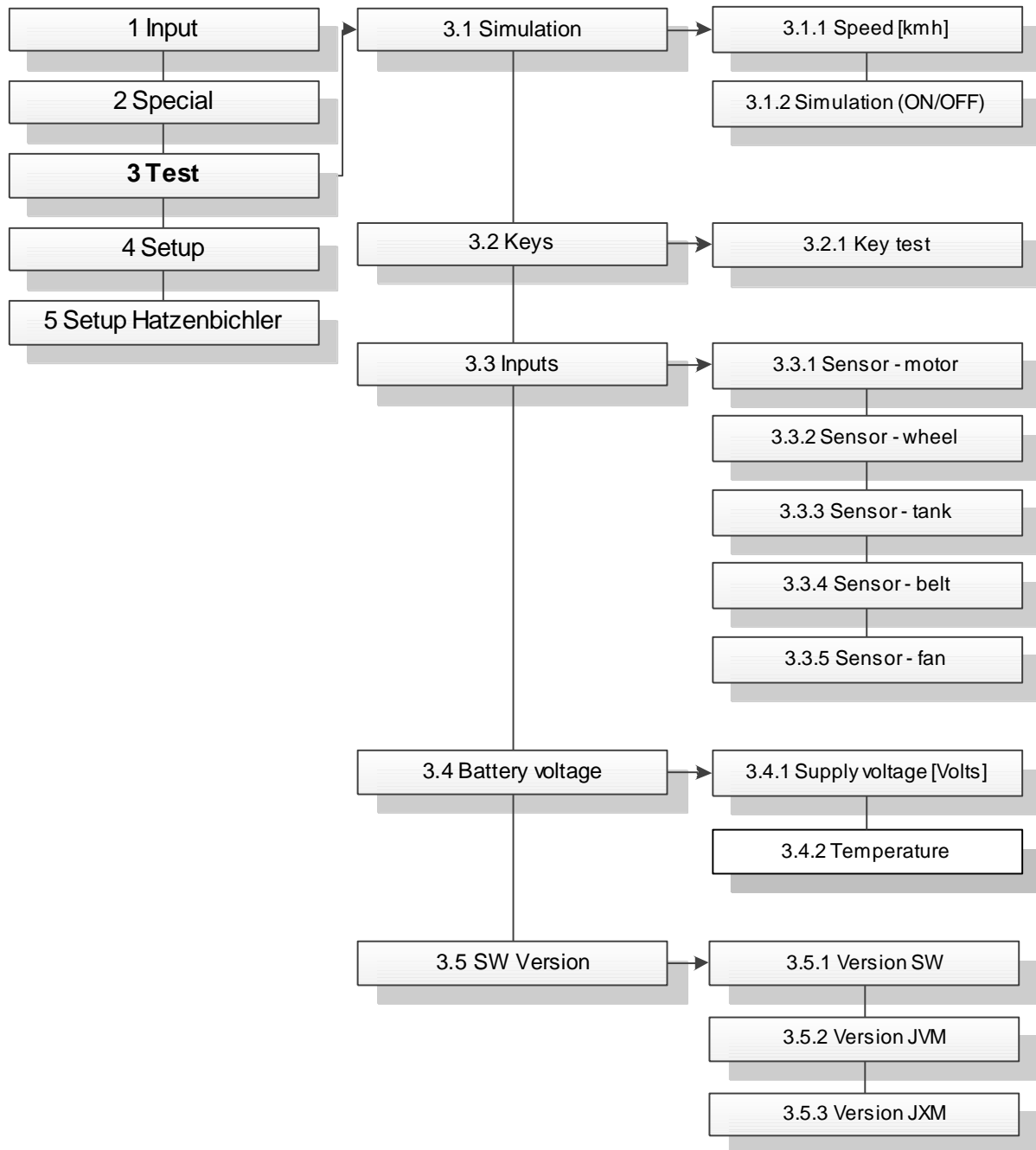
- The total area cultivated in hectares is displayed.



Fig. 51

- To reset this value press the keys , "-", and "OK" simultaneously.

3 Test



3.1 Simulation

Menu item 3.1 "Simulation" is for carrying out tests. Motor and metering roller are operated independently of the machine. To be able to use this feature complete the following steps first:

- Set the working width
 - Create a job
 - Calibrate the seeder
- Navigate to menu item "Simulation".
 - Press "OK" to enter into the menu.
-
- Set speed by pressing "+" or "-" or by turning the DigiPot.
 - Press "OK" to toggle between simulation "OFF" and "ON".
 - Press "Esc" to return to the Job screen
-
- On the Job screen "TEST" is displayed to indicate that the test mode has been activated.
 - Press "OK" [AUTO] to start the simulation.
 - To stop the simulation navigate back to menu item "Simulation" and press "OK".
 - Press "Esc" to return to the Job screen.



Fig. 52

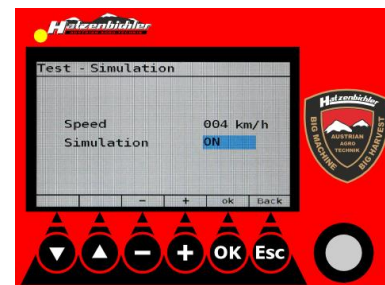


Fig. 53



Fig. 54

3.2 Keys

Menu item 3.2 "Keys" allows you to check the keys for proper functioning.

- Navigate to menu item "Keys".
- Press "OK" to enter into the menu.



Fig. 55

- On the screen "Test – Keys" the state of the six keys is displayed.
- Press any key to test it for proper functioning.
- As long as you press the key, "Pressed" is displayed and a beep comes from the loudspeaker.
- Press "Esc" to exit this menu item.



Fig. 56

3.3 Input

Menu item 3.3 "Inputs" allows you to check the sensors for proper functioning.

- Navigate to menu item "Inputs".
- Press "OK" to enter into the menu.



Fig. 57

- The screen "Test – Inputs" shows the state of the different sensor inputs.
The sensors are by default negative switching, i.e. "0" means "active". If no sensor is installed, "1" is displayed (or vice versa if the sensor is + switching).
You can check the sensor for proper functioning if you turn the wheel, cover up the filling level sensor or turn the metering roller.
- Press "Esc" to exit this menu item.

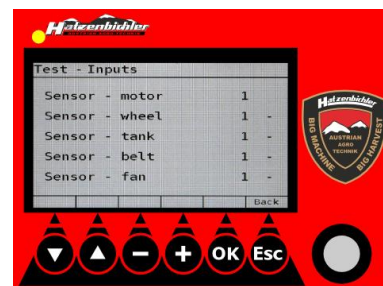


Fig. 58

3.4 Battery voltage

Menu item 3.4 "Battery voltage" allows you to check the supply voltage coming from the tractor.

The battery voltage should be between 10 ... 15 volts. If the voltage is below 10 V DC, check the tractor battery. This menu item lets you also check the device temperature.

- Navigate to menu item "Battery voltage".
- Press "OK" to enter into the menu.

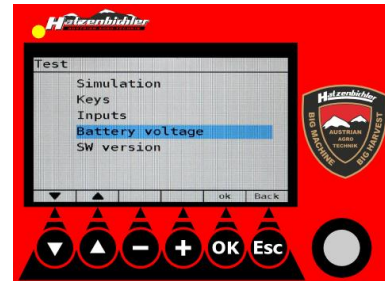


Fig. 59

- Check the supply voltage and the device temperature.
- Press "Esc" three times to return to the Job screen.

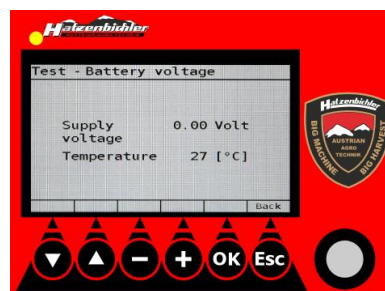


Fig. 60

3.5 Software Versions

Menu item 3.5 "SW version" shows the version numbers of the installed operating system and application software. You will need this information if you intend to update the software.

- Navigate to menu item "SW version".
- Press "OK" to enter into the menu.



Fig. 61

- Press "Esc" to exit this menu item.

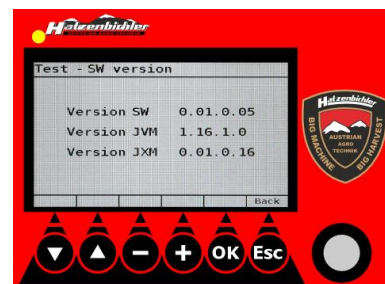
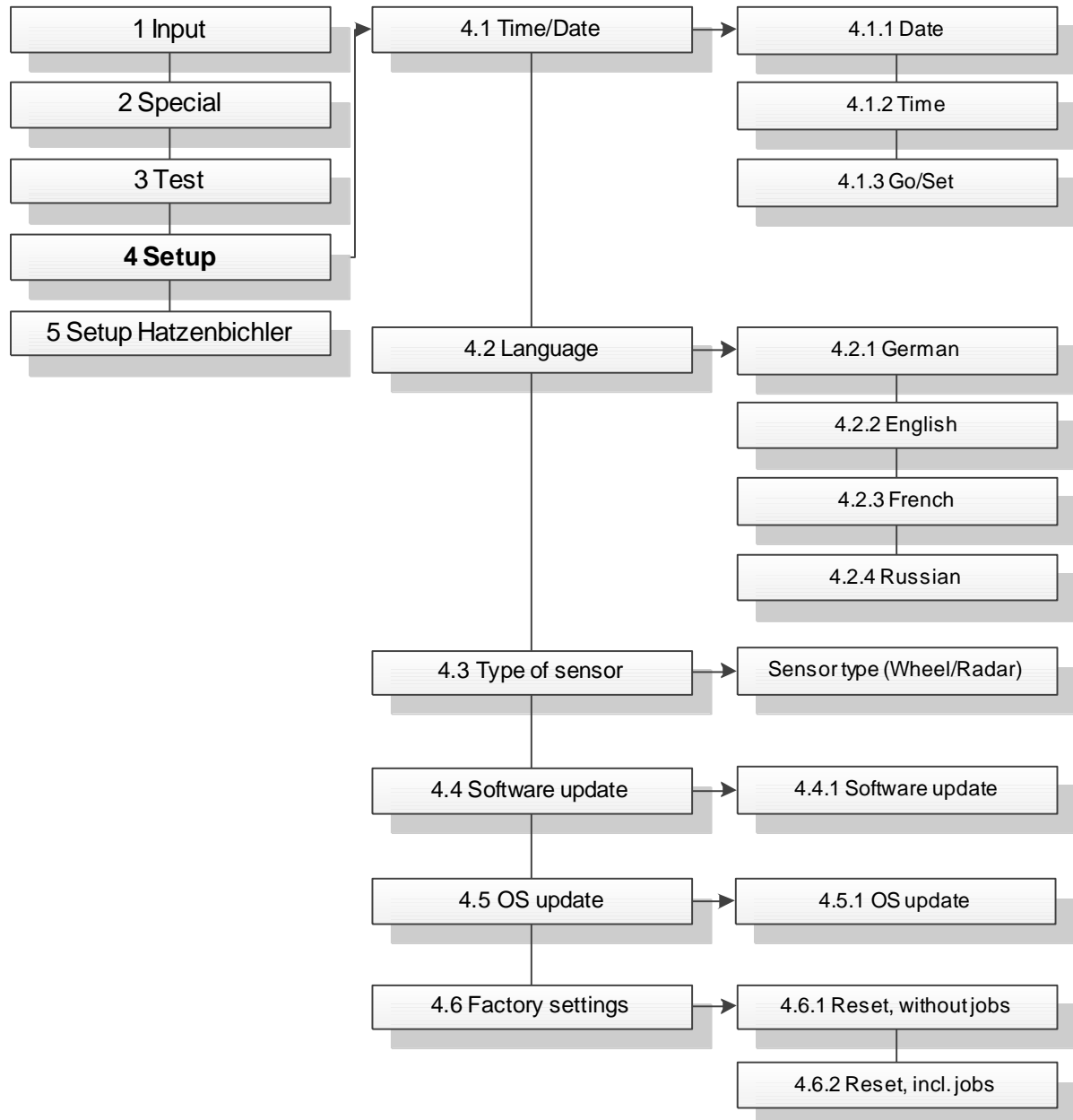


Fig. 62

4 Setup



4.1 Time/Date

Menu item 4.1 "Time/Date" is for setting the time and date. The date format is "DD.MM.YY".

- Navigate to menu item "Time/Date".
- Press "OK" to enter into the menu.



Fig. 63

- To set the time and date press "+" or "-" to switch from "Go" to "Set".

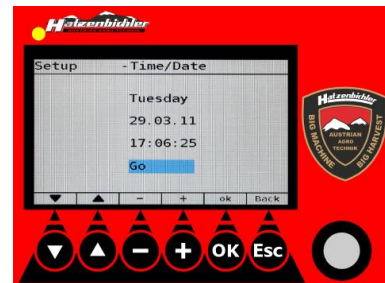


Fig. 64

- Press "OK".

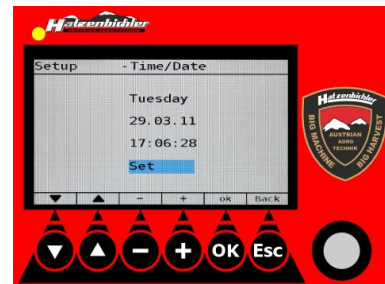




Fig. 65

- Press "+" or "-" or turn the DigiPot to change the highlighted value.
 - Press "OK" to confirm and jump to the next value.
- You can also navigate through the values by pressing the arrow keys  or .

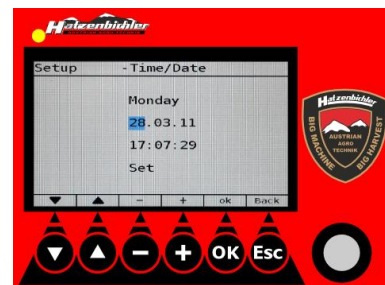


Fig. 66

- Make all necessary adjustments and go to the field "Set".
- Press "+" or "-" to switch the value to "Go".
- Press "Esc" to exit this menu item.

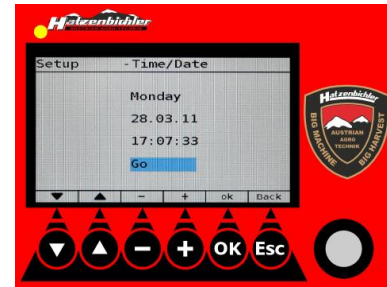


Fig. 67

4.2 Language

Menu item 4.2 "Language" is for selecting the language of the user interface. The user may select one of the following languages:

- German
 - Englisch
 - French
 - Russian
- Navigate to menu item "Language".
 - Press "OK" to enter into the menu.



Fig. 68



- Press  or  to select the language.
- Press "OK" to confirm your selection.



Fig. 69

4.3 Type of Sensor

Menu item 4.3 "Type of sensor" lets you select the type of sensor used on the seed box, i.e. radar sensor or wheel-driven sensor.

- Navigate to menu item "Type of sensor".
- Press "OK" to enter into the menu.



Fig. 70

- Press "+" or "-" to select the sensor type.
- Press "OK" to confirm your selection and to exit this menu item.

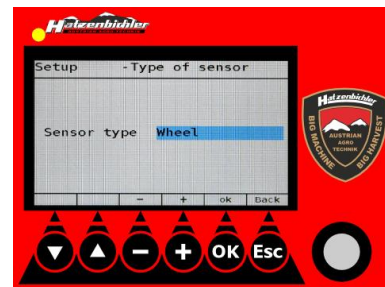


Fig. 71

4.4 Software Update

Menu item 4.4 "Software update" lets you update the application software of your computer.

- Navigate to menu item "Software update".
- Press "OK" to enter into this menu item.



Fig. 72

- Plug a USB stick into the USB port at the bottom of the on-board computer.



Fig. 73

- Follow the instructions on the screen.

Key assignment: ▼ = F1; "-" = F3.

Note:

Make sure that the USB stick is plugged in until the following message appears "Update successful, reboot system".

Make sure that during update process the power supply is not interrupted.



Fig. 74

4.5 OS Update

Menu item 4.5 "OS update" lets you update the operating system of your computer.

- Plug in the USB stick with the new OS.
- Navigate to menu item "OS update".
- Press "OK" to enter into this menu item.



Fig. 75

- The message "Ready" appears on the screen.
- Press "OK" to start OS download.
- The bar on the screen shows the progress of the download. Under it the progress is shown in percent format.
- When the message "Ready" appears on the screen, the update process has finished.
- Check the new version under 3.5. "SW version".



Fig. 76

Note:

Make sure that the USB stick is plugged in until the following message appears "Update successful, reboot system".

Make sure that during update process the power supply is not interrupted.

4.6 Factory Settings

Menu item 4.6 "Factory settings" lets you reset your computer to its as-delivered settings. You may choose between two options:

- Full reset including all job settings
 - Reset without deleting the job settings
- Navigate to menu item "Factory settings".
 - Press "OK" to enter into this menu item.



Fig. 77


- Press  to select an option.
- Press "OK" to confirm your selection and to exit this menu and return to the Job screen.



Fig. 78

5 Setup Hatzenbichler

This menu is for service purposes only and is not accessible to the user.

Wiring Diagram

Description	PIN	WIRE Nr.
Motor -	A	1
Motor -	B	2
Motor +	C	3
Motor +	D	4
Grd - Sensors	E	5
+ 12v DC	F	6
Motor Sensor	G	7
Speed Sensor	H	8
Tank Sensor	J	9
Fan Sensor	K	10
Agitator Sensor	L	11
Motor -	M	12
Motor -	N	13
Motor +	P	14
Motor +	R	15/PE
	S	
	T	
	U	
	V	

