Order-Nr. 9900.01.36GB01
SW: WZ304-001 rev.3
03.2006

Operating instructions

RABE drilling machine control system Wizard C for Ceria

GB

Electromagnetic Compatibility (EMC)

This product complies with Council Directive 89/336/EEC when installed and used in accordance with the relevant instructions.

Service and Technical Support

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Check that the software reference matches that displayed by the instrument.

S/DC/500-10-266 : Issue 2d : 9/8/02

\UK266-2d.DOC : Software Issue WZ304-001 rev.3

F

Compatibilité Electromagnétique (EMC)

Cet instrument est en respect avec la directive européenne 89/336/EEC, quand installé et utilisé en accord avec les instructions.

Support Technique

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Référence: S/DC/500-10-266 : Edition 2d : 9/8/02

\FR266-2d.DOC : Logiciel WZ304-001 rev.3

D

Elektromagnetische Kompatibilität

Dieses Produkt stimmt mit den EWG-Bestimmungen 89/336 überein, wenn es den jeweiligen Anleitungen gemäß installiert und benutzt wird.

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Dokumentnummer: S/DC/500-10-266 : Ausgabe 2d : 9/8/02

\GM266-2d.DOC : Software WZ304-001 rev.3

1. Overview

The Wizard multi-function control unit for our drilling machines is used to monitor machine functions and for the regulation of tramline clutch operation. The device is supplied with a backlit screen, which can display numbers of up to four figures, plus six display and/or warning functions for drive speed, tramline clutch operation and the sowing-mechanism shaft. Turning speed and surface dimensions can be displayed in metric or imperial units. The following information can be displayed:

Driving speed (with message to warn of excessively low speed)

Sub-section and complete field

Current lane and preset tramline

Speed of sowing-mechanism shaft (with message to warn of excessively low speed)

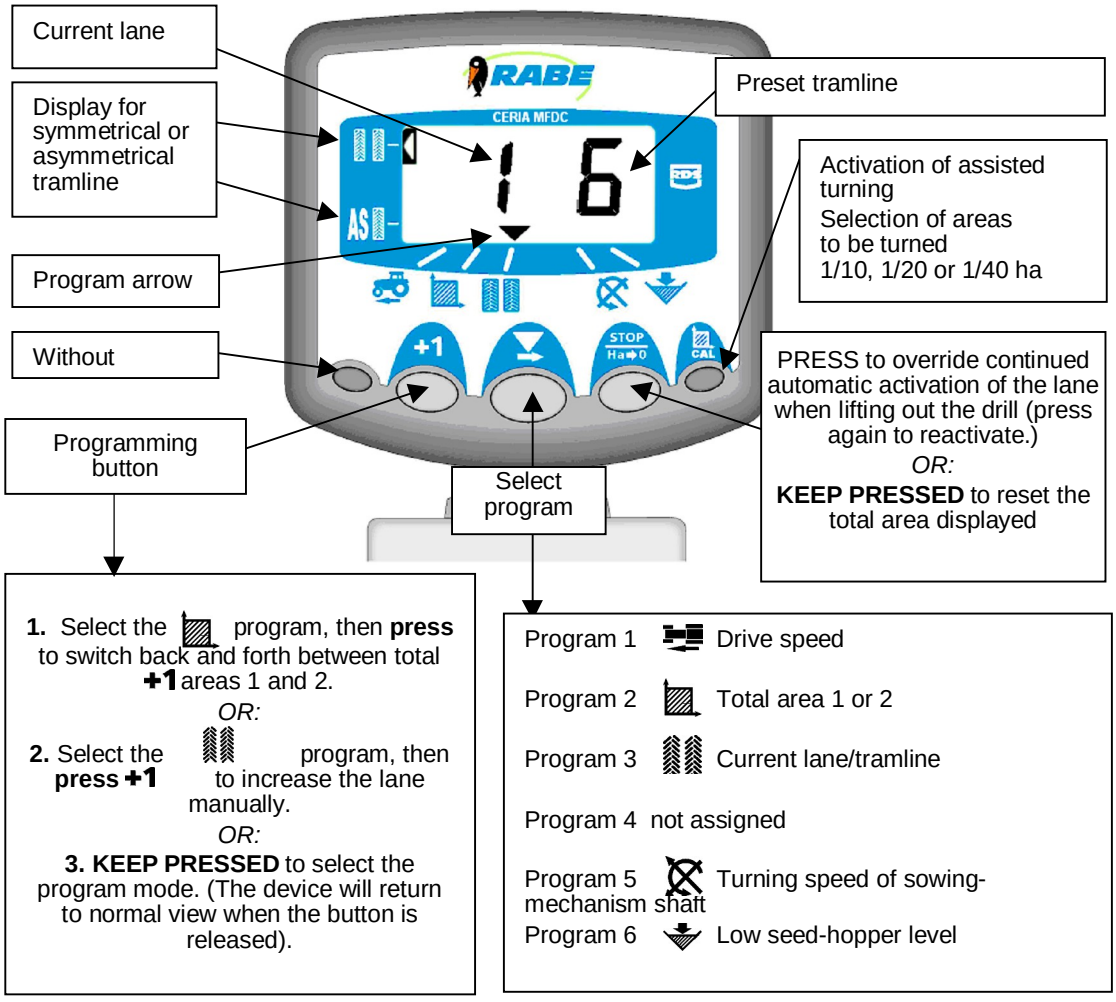
Low seed-hopper level

Display for symmetric and asymmetric tramline

Tramline clutch operation always has priority for display purposes. After ten seconds in another function, the device always switches back automatically to tramline clutch operation (outer area). There are two storage locations for the area being worked (total 1 and total 2), where each total area is added up accordingly. When the device is switched off, the readings for the total area and all calibration data are automatically saved to RAM. The device is to be calibrated with respect to the drilling machine before being used for the first time. The default adjustment settings can be altered using three programming routines. However, most settings do not require alteration for normal operation.

2. Control buttons

The device is fitted with three control buttons. These are used singly or in combination to program, adjust, reset or select a function. Of the two small buttons, only the right-hand one is assigned a function.



2.1 Program arrow

The arrow ▼ indicates the program associated with the value currently displayed.

2.2 Normal view

Six operating programs are displayed in normal view. To select a working program, press the button once or several times.
During operation, the selected program will be displayed for ten seconds before the device returns by default to display of the tramline (program). When stationary, the display switches over between drive speed and tramline. If tramline is disabled, the device goes automatically into the drive speed program.

2.3 Programming modes

There are three programming modes, with various calibration factors and default settings. Many of these settings are entered during installation, and are then not normally altered unless the device is transferred to a different drilling machine. The adjustment settings are listed in the appendix at the back of this handbook. The driver does not normally need to access these items.

2.4 Measurement units

The device can be set to operate with **metric** or **imperial** units. In order to display the selected measurement unit, select either the ñDrive speedò ( ) or ñAreaò ( ) program. Then press the +1 button, and keep it pushed for about five seconds.
The selected measurement units will then briefly be displayed at the upper or lower edge of the screen.

3. Drive speed

3.1 Drive-speed display

Press the button to select the program.
The drive speed will now be displayed for about ten seconds, before the device returns to tramline display.

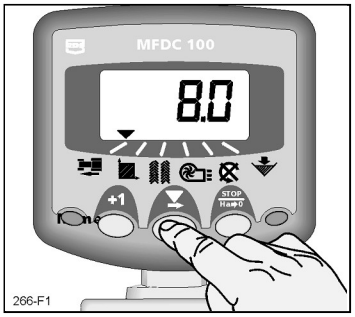


Fig. 1: Drive-speed display

3.2 Drive-speed warning message

If the drilling machine is stopped during operation, or if drive speed drops to below 2.0 km/h, a beeper sounds twice and the display alternates between the current program and the program for drive speed.
This remains so until speed is increased to above 2.0 km/h.

NOTE: The drive-speed warning can be disabled in program mode 2.

3.3 Calibration of the speed-control sensor

The magnetic drive-speed sensor detects the revolutions of the tail wheel. The device must be correctly calibrated, with the so-called SSF factor, and programmed for the correct display of speed and total area. This indicates the total length between the two signals picked up by the drive-speed sensor.
This SSF factor can theoretically be calculated and then programmed manually. Or the device setting can be calculated automatically using the ñAutocalòfunction.

3.4 Manual calibration of drive speed

The theoretical calibration factor corresponds to the circumference of the tail wheel (diameter x 3.142) in either inches or metres, depending on the device settings.
Default setting = 2.000 m (78.78 inches)
Setting for Ceria = 0.240 m

NOTE: The ñAutocalòfunction delivers more accurate results in practice.

1. Press the button to select the program.
2. The button +1 HOLD (approx. 5 sec.) to activate program no. 1. The selected measurement unit appears briefly at the top or bottom of the display, followed by the calibration factor. Keep the button pressed and
3. Press the button to select and alter a figure or the decimal point.
4. Keep the button PRESSED to alter the selected figure (or displace the decimal point).
5. The button RELEASE to select the next figure and repeat the procedure as described above. To end, just release both buttons. The device will then return to normal display mode, and the settings will be saved automatically.

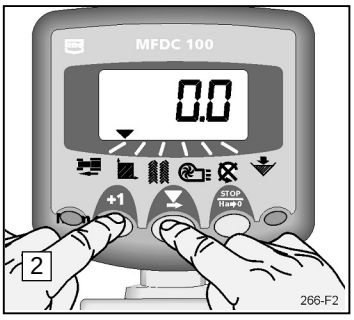


Fig. 2: Entry of cal. mode 1 (S.S.F)

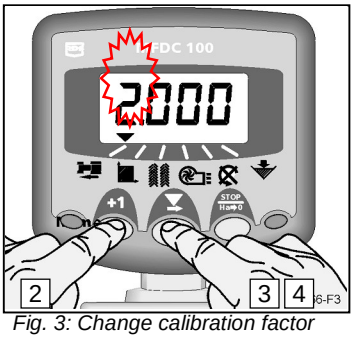


Fig. 3: Change calibration factor

3.5 óAutocalô

This function offers automatic calibration in the field for maximum accuracy.

1. To do so, place two markers at a distance of 100 m from each other. Select a suitable measuring point on the tractor/device, and line this point up with the first marker.
2. Select the program.
3. Keep the +1 button pressed to display the calibration factor.
4. Keep the button pressed and push STOP Ha➔0 .
   ñAutoòwill flash on the display. The device is now ready for calibration.
5. Line up the measuring point on the vehicle with the second marker.
   The device begins counting, and displays the sensor signals that are emitted as the measuring length is traversed.
6. To exit the ñAutocalòfunction, press the STOP Ha➔0 button. (Fig. 6).
   The calibration factor is calculated and saved automatically.

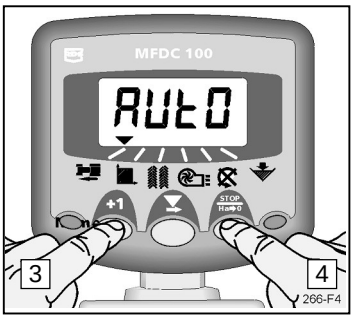


Fig. 4: Start the Autocal function

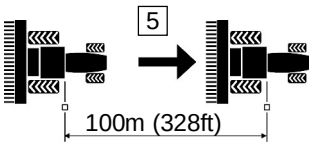


Fig. 5: Autocal calibration section

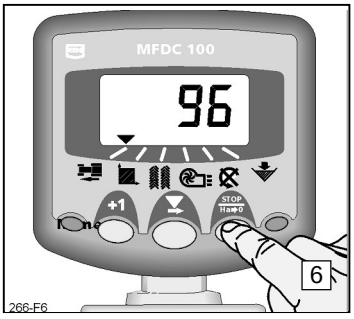


Fig. 6: Exit Autocal

4. Total area / device width

The area calculation is based on drive speed and preset device-width. This value is added to total 1 or 2.

Surface coverage is only displayed while the drill is in operation, i.e. while the device detects a drive speed.

Each of the two total-area readings can be reset to zero independently of the other.

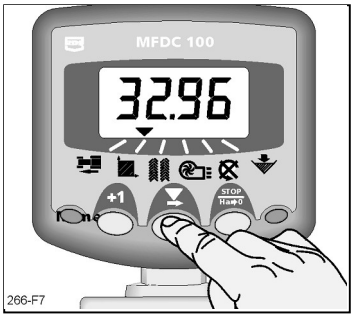


Fig. 7: Total area display

4.1 Display total area

1. Press the ▼ button to select the ▨ program (fig. 7).
2. Press the +1 button to switch back and forth between the two total-area readings. (Fig. 8).

   The display then shows tot.1 or tot.2 before the total area is displayed, referring to the area covered since the last reset.

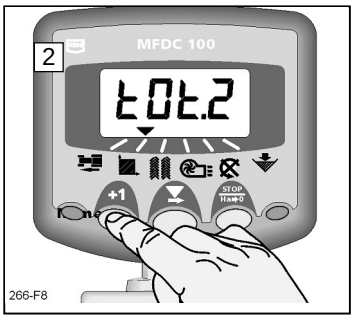


Fig. 8: Selection of total 1 or total 2

4.2 Reset total values

1. Press the ▼ button to select the ▨ program.
2. Press the +1 button to switch back and forth between the two total-area readings. (Fig. 8).
3. To carry out a general reset, keep the STOP Ha→0 button pressed for ten seconds. (Fig. 9-3).

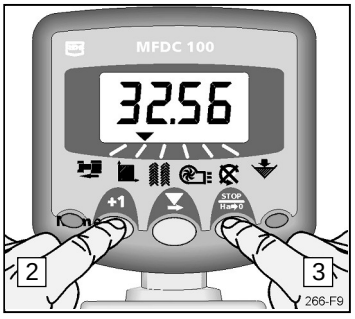


Fig. 9: General reset

4.3 Enter device width

The operating width of the drilling machine must be entered so that the device can detect the total area correctly. The dimensions are entered in either **inches** or **metres**, depending on the device settings.

1. Press the ▼ button to select the ▨ program.
2. Keep the +1 button pressed (for approx. 5 sec.) to activate program mode no. 1.
   The measurement units appear briefly at the top or bottom of the display, followed by the calibration factor.
   Keep the button pressed and, at the same time,
3. press the ▼ button to select a figure or displace the decimal point.
4. The button ▼ Press to alter the selected figure (or displace the decimal point).
5. The button ▼ RELEASE to select the next figure and repeat the procedure as described above. Otherwise, just release both buttons. The device will then return to normal display mode.

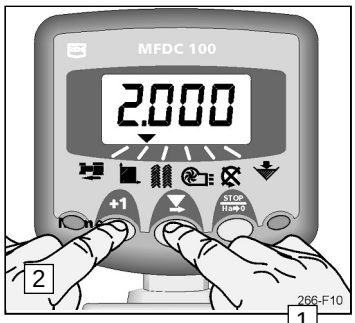


Fig. 10: Device width display

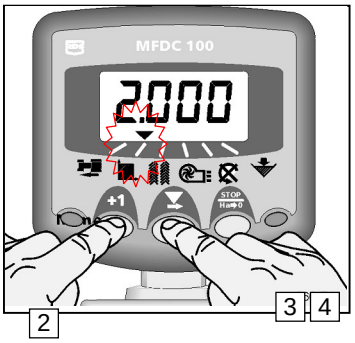


Fig. 11: Adjusting the device width

5. Tramline clutch operation

After ten seconds, the display will automatically switch over to the tramline clutching program (unless ñtotal areaòhas been selected).
Three different tramline clutching modes are available (symmetric, asymmetric and special asymmetric clutch operation). The tramline itself can be programmed from 1 to 15 (symmetrical and asymmetrical).
Asymmetrical clutch operation is displayed with a decimal point between the current lane (left) and tramline (right).

NOTE: The tramline function can also be shut down completely in programming mode.

5.1 Manual heightening of lane

To heighten the current lane by 1, press **+1** .

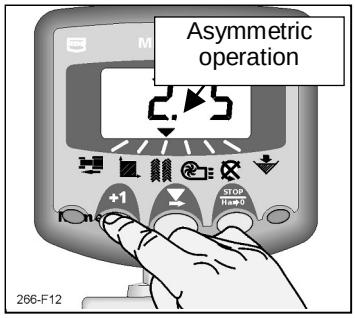


Fig. 12: Widening the lane

5.2 Retain the number of lanes

To retain the current lane when raising the drill, press STOP .

ñ**STOP**òwill flash on the display.

Press STOP again to return to normal clutch operation.

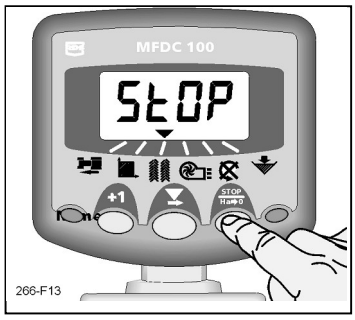
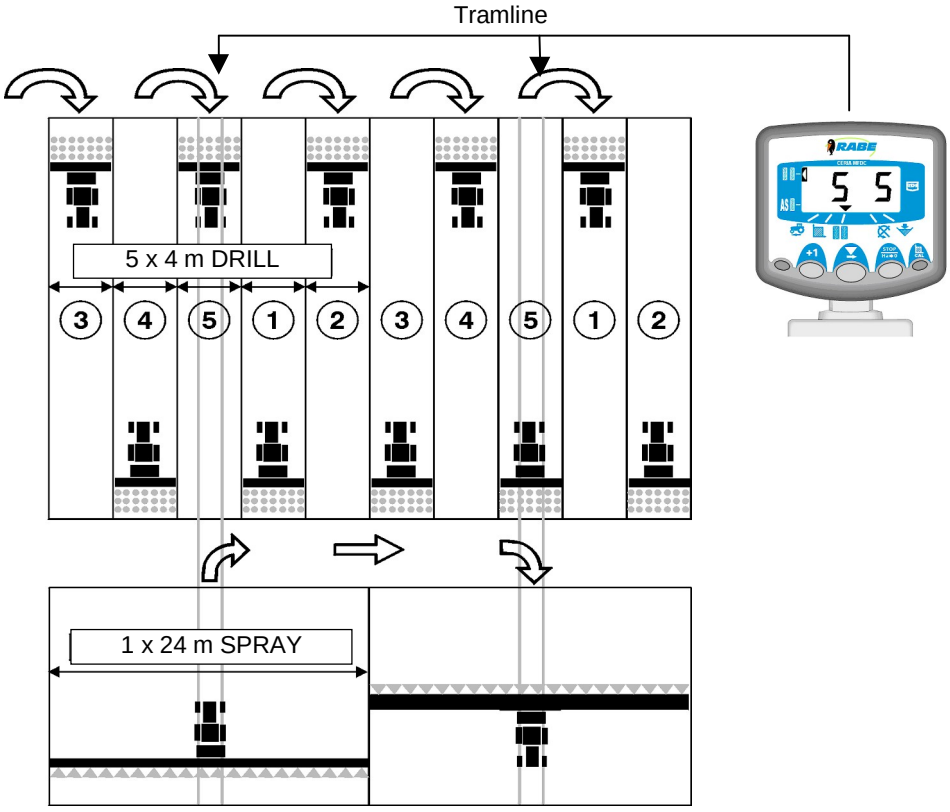


Fig. 13: Retain current lane

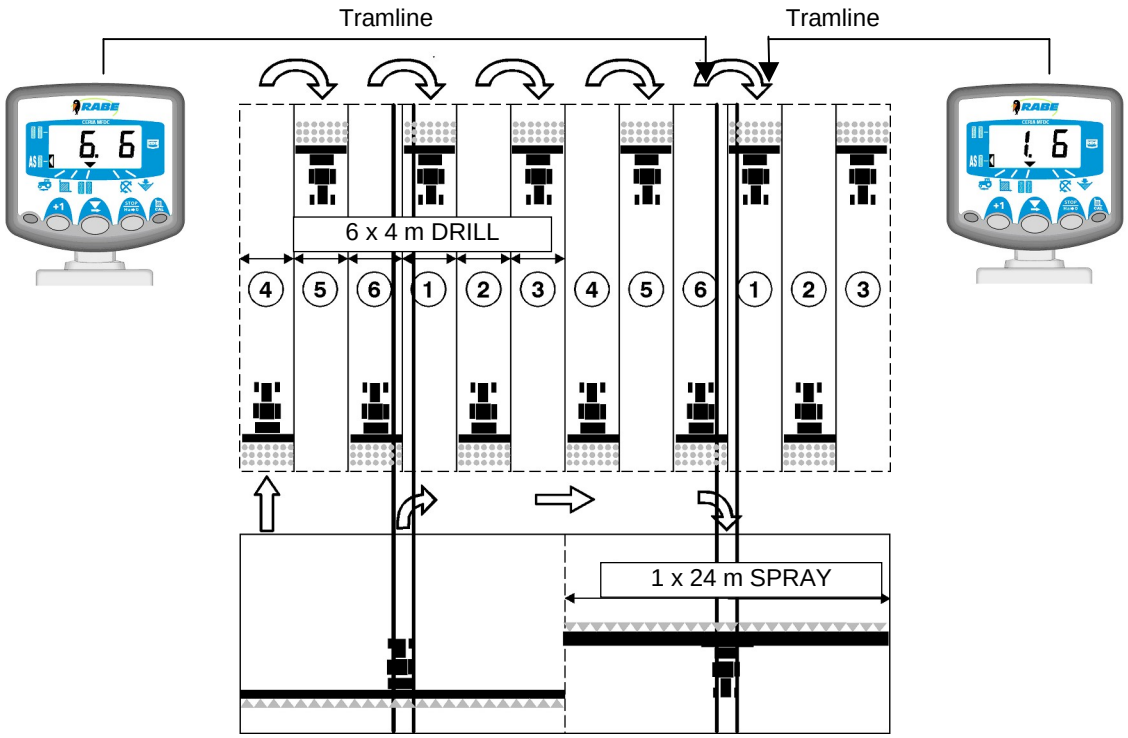
5.3 Symmetric tramline clutch operation

2+2 seed outlets are disabled during the tramline traverse only.
The device beeper sounds once at the start of the tramline, and the display flashes as soon as the tramline is finished.



5.4 Asymmetric tramline clutch operation, right

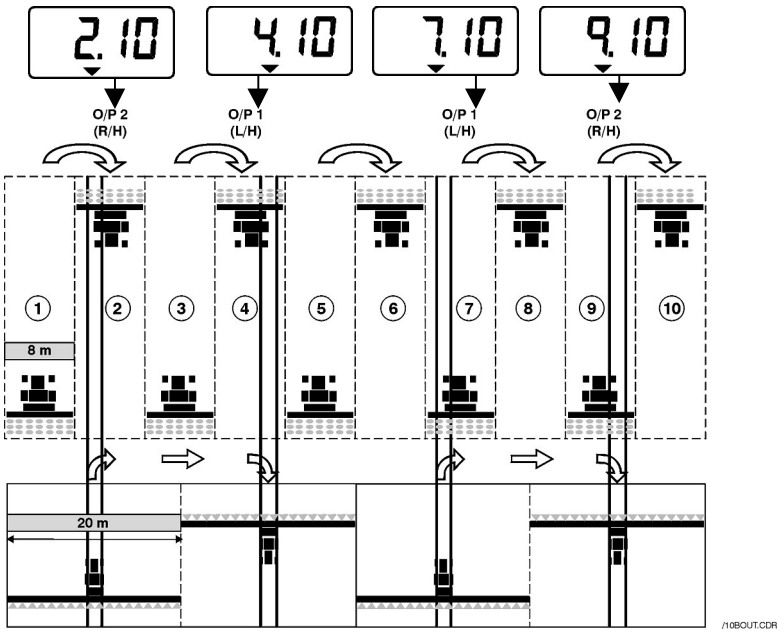
Two seed outlets are disabled on the **right-hand** side of the machine during the tramline traverse.
The device beeper sounds once at the start of each tramline, and the display flashes as soon as the tramline is finished.



5.5 10-row tramline clutch operation

For 4 m-wide drilling machines and 10 m-wide field sprayer or 8 m-wide drill and 20 m-wide spray combinations. (In lanes 4 and 7, 2 x 2 seed outlets are disabled on the left-hand side of the machine; in lanes 2 and 9, 2 x 2 seed outlets are disabled on the right-hand side of the machine). A right-hand turn must be carried out at the end of the new lane 1.

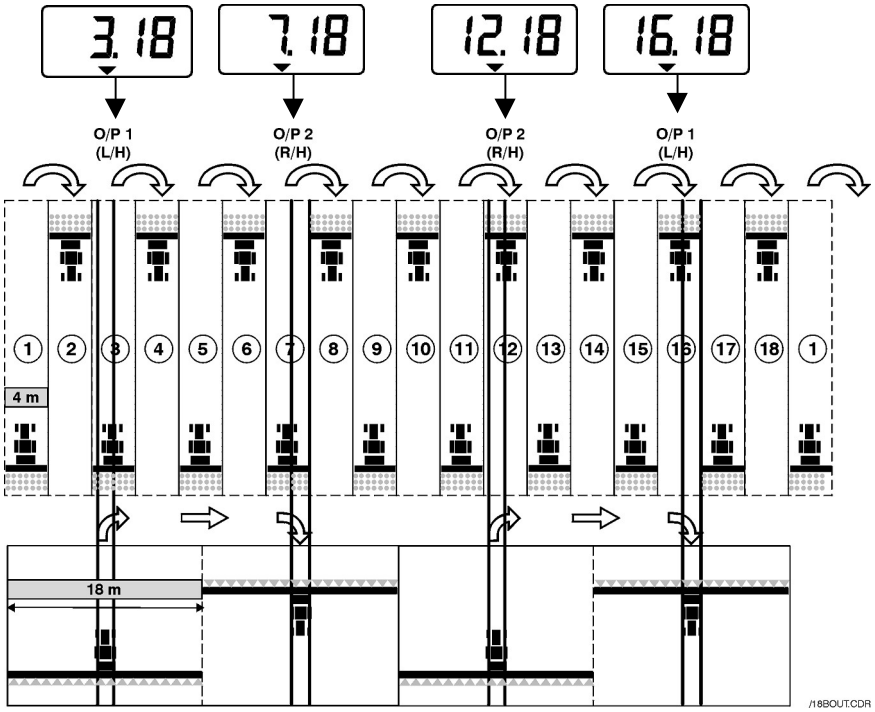
NOTE: In order to be able to turn left at the end of lane 1, set the tramline to 6 before starting to drill.



5.6 18-row tramline clutch operation

For 4 m-wide drilling machines and 18 m-wide field sprayers. (In lanes 3 and 16, 2 x 2 seed outlets are disabled. In lanes 7 and 12, 2 x 2 seed outlets are disabled on the right-hand side). In order to start with lane 1, a RIGHT-HAND turn must be carried out at the end of the first lane.

NOTE: In order to be able to turn LEFT at the end of the first lane, set the lane number to 10 before starting to drill.



5.7 Selection of tramline clutches

1. Select the program.

2. Keep the +1 button pressed (for approx. 5 sec.) to activate program mode no. 1.

   After about five seconds, the first two letters will begin to flash, displaying the current tramline clutch program:
   SY = symmetric
   AS = asymmetric
   SA = special asymmetric clutch operations (6 variants), e.g. 10 lanes and 18 lanes

3. To select the desired clutch configuration, push the +1 button and button at the same time, and keep both buttons pressed.

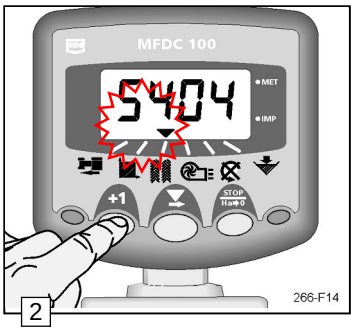


Fig. 14: Tramline clutch adjustment

5.8 Configuring the tramline

4. To switch back and forth between displaying the tramline clutches and tramline number, press and then release the button.

   The third and fourth digits will flash to indicate the currently configured tramline.

5. To adjust the tramline to a setting of between 1 and 15, press and hold the button.

NOTE: If asymmetric clutch operation is selected, the impulse used to disable the seed outlets for the lane after the target line (i.e. lane 1) is also activated.

If special clutch operation **SA** is selected, sequences A to G can also be selected as tramlines. (see table)

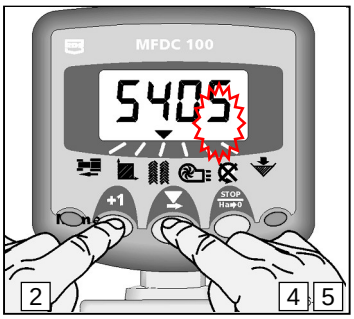


Fig. 15: Enter tramline

Sequence	Drill	Spray	Wizard
8 pass	3m	8m	SA. A
	4.5m	12m	
10 pass	3m	10m	SA. b
	4.5m	15m	
10 pass	4m	10m	SA. c
14 pass	3m	14m	SA. d
	4.5m	21m	
16 pass	3m	16m	SA. E
	4.5m	24m	
18 pass	4m	10m	SA. F
22 pass	3m	22m	SA. g
	4.5m	33m	

*Fig. 16: Adjustment possibilities for special clutch operation **SA***

6. Speed of sowing-mechanism shaft

6.1 Sowing-mechanism shaft speed display

Select the program.
The turning speed of the sowing-mechanism shaft is displayed for ten seconds, before the device returns to the tramline display.

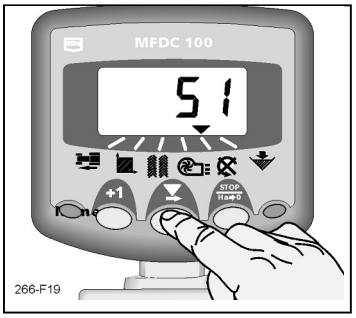


Fig. 19: Turning speed of sowing-mechanism shaft

6.2 Warning message: sowing-mechanism shaft speed

The device is configured to beep five times whenever the sowing-mechanism shaft lies idle for longer than 40 seconds. It then goes automatically into the program. The warning tone continues to sound at 30-second intervals until the situation is dealt with.

NOTE: To stop the warning tone sounding, either change the turning speed or switch the device off and then on again.

No alarm is triggered if the drive speed is below 2 km/h.

6.2.1 Programming in the warning message limit value for sowing-mechanism shaft speed

1. Press the button to select the program.
2. Button +1 HOLD (approx. 5 sec.) to activate program mode no. 1.
   The alarm-trigger limit value is displayed after five seconds.
   Keep the button pressed and
3. push the button to select the digit that is to be changed.
4. Press the button to change the selected digit.
5. Release the button to select the next figure and repeat the procedure as described above. Otherwise, just release both buttons. The device will then return to normal display mode.

6.2.2 *Disabling the sowing-mechanism shaft warning message*

You can also stop the alarm, with the shaft speed program selected, by keeping the STOP button pressed for five seconds. If this program is selected, ñOFFò is displayed. The alarm function remains disabled until the device is switched off and then on again.

6.2.3 *Configuration of alarm delay*

The yield rate for certain crops, above all oilseed rape (canola), is very low. The turning speed of the sowing-mechanism shaft is correspondingly low. This can lead to a false low-speed alarm. The delay setting stops a false alarm being generated in these situations.

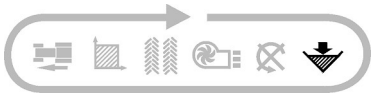
With a higher yield rate or larger grain type, a long delay is likewise not desired. In these cases, the delay can be programmed for a shorter period.

Low sowing-mechanism shaft speed = longer delay;
High sowing-mechanism shaft speed = short delay

Preset delay = 40 sec.
Minimum delay = 5 sec.

1. When switching on the device, keep the +1 button pressed to access program mode no. 2.
2. Press the +1 button and select the program.
3. Press the button to select the digit that is to be changed.
4. Button Press the button to change the selected digit.
5. Button RELEASE to select the next figure and repeat the procedure as described above. Otherwise, switch the device off and then on again to return the display to normal mode.

7. *Seed-hopper level*



If the filling level in the seed hopper drops to below the level of the sensor fitted to the side-wall, the device jumps automatically into this program mode and emits five beeper tones.

NOTE: The beeper only sounds if drive speed is above 2 km/h, otherwise only an optical warning is generated

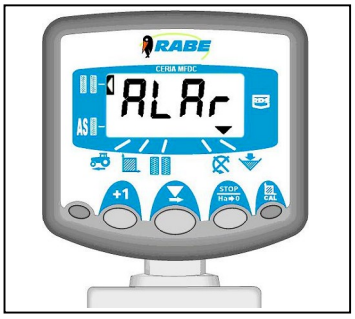


Fig. 20: Seed-hopper level alarm

7.1 *Level indicator alarm ON/OFF*

1. Press the +1 button to select the program.
2. Keep the +1 button pressed to change to program mode no. 1.
   Keep the button pressed and
3. Press the button to toggle 0 (OFF) / 1 (ON).
   The display remains blank in this program after shutdown of the warning function.
4. Release both buttons. The device will then return to normal display mode.

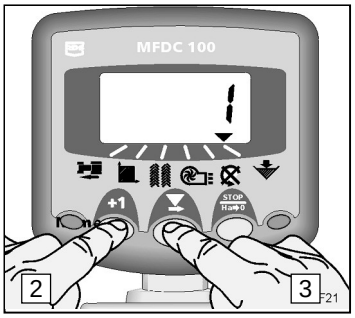


Fig. 21: Disabling the alarm

8. Assisted turning

The assisted turning feature is an auxiliary program for seed turning tests.
It calculates the number of turns of the crank, and shows them on the display and also confirms the number of turns of the crank during the turning test.

8.1 Activate assisted turning

1. Button CAL Press for approx. 5 sec. until CAL appears on the display
2. Button CAL RELEASE .
   The number 0.050 (1/20 ha) is displayed
3. Press the CAL button again to select the area to be turned
   Press the button again to change between the display 0.100, 0.050 and 0.025 (1/10, 1/20 and 1/40 ha).
4. .Release the CAL button after selecting the area.
   Starting the turning procedure

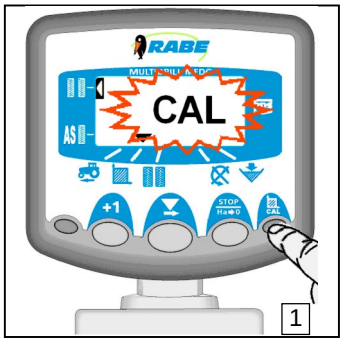


Fig. 22: Activate assisted turning

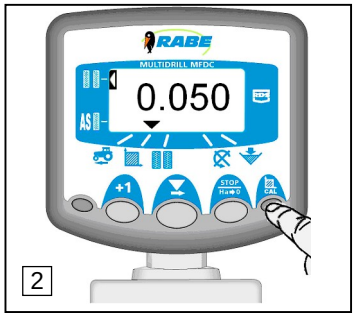


Fig. 22: Selecting the area

The sowing monitor now counts the number of turns of the crank, counting down from the value displayed. It thus always shows how many turns of the crank remain to be carried out. The final five turns of the crank are also accompanied by an acoustic signal in order to warn the operator to prepare for the end of the turning procedure. Once a counter value of <0> is reached, a continuous tone is emitted, indicating to the operator that the turning procedure is to end immediately.

The display resets five seconds after the end of the turning operation. A further turning operation can now be carried out without reactivating the assisted turning function.

The assisted turning function can be stopped at any time by pressing any other button.

9. Programming modes 1- 3

Most adjustment settings do not need to be changed in normal operating mode unless the device is transferred to a different tractor or drill. Default settings are shown in [square brackets].

9.1 Calibration table

	Mode 1	Mode 2	Mode 3
Activate mode	In normal display mode, select the program and keep the +1 button pressed	When switching on the device, keep the +1 button pushed	When switching on the device, keep the STOP button pushed
Program selection	As above	Press the +1 button	Press the STOP Ha→0 button
Program 1	Factor for speed control sensor [2.000] ***See section 3.4***	Drive speed alarm ON (1) / OFF (0) [1]	No function
Program 2	Width of working device [2 m] ***See section 4.3***	Selection of measurement unit [Metric] ***See 9.2***	Display total area coverage (cannot be reset)
Program 3	Tramline clutch / lane [SY04] ***See section 5.8 /5.9***	Tramline clutch operation ON (1) / OFF (0) [1]	Tramline signal Reaction time 0.5 ï 5 sec [3]
Program 4	Not assigned	Not assigned	Not assigned
Program 5	Sowing-mechanism shaft turning speed alarm [0] ***See 7.2.1***	Sowing-mechanism shaft alarm delay [40 sec.] ***See 7.2.4***	Sensor sowing-mechanism shaft speed - impulses per turn Reset to 0 to block the program [1.000]
Program 6	Seed-hopper level alarm ON (1) / OFF (0) [1] ***See 8.1***	No function	No function

9.2 Establishing measurement units

1. When switching on the device, keep the +1 button pressed to access program mode no. 2.

2. Press the +1 button and select the program.

3. Press the button to toggle back and forth between measurement units.
The selected units appear at the top or bottom of the display. Metric units are displayed in the bottom line.

4. Switch the device off and then on again to return the display to normal mode.

Function	Metric	Imperial
Drive speed	km/h	mph
Surface	ha	acres
Width/S.S.F.	m	inches

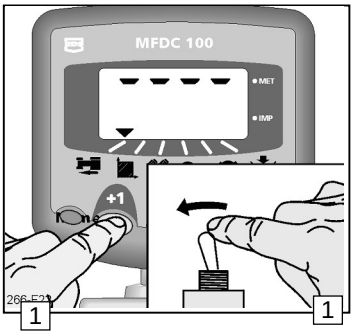


Fig. 22: Enter Calô mode 2

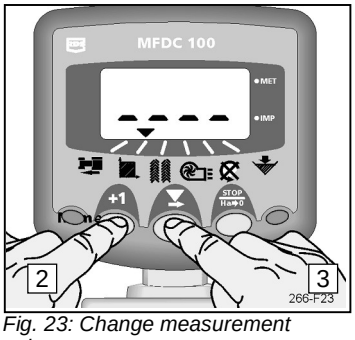


Fig. 23: Change measurement units