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ROPA

Innovative technology
for harvesting beets

Translation of the original operating manual for the optional weighing machine

(CAN bus design)

Extension to the euro-Maus3 and euro-BunkerMaus3 operating manuals

Version 1

Printed in Germany 08/2008

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Individual illustrations may contain slight deviations from the machine actually delivered. This does not have an effect on function or operation.

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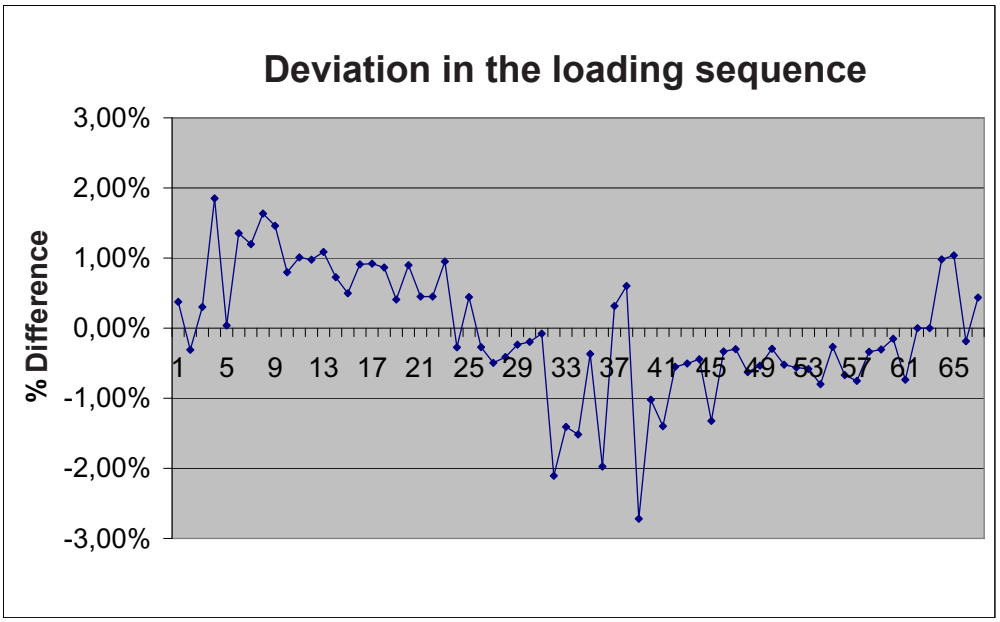
Table of Contents

1. Preface

This operating manual is an extension to the **euro-Maus3** and **euro-BunkerMaus3** operating manuals. It is only valid together with the operating manuals already mentioned. The safety information in those operating manuals applies fully to this document also.

Your machine is equipped with an electronic weighing machine. This uses highly sensitive electronic weighing cells to weigh the payload with the proportion of dirt (referred to in general here as sugar beets) being transferred from the conveyor belt to the removal truck. The precision of any individual weighing process is primarily influenced by proper operation of the weighing machine and is no longer within the manufacturer‘s sphere of influence.



67 deliveries in a row were evaluated

In addition to proper operation, the following factors also have a decisive effect on the precision of the weighing:

- soil quality,
- amount of dirt on the sugar beets,
- amount of dirt on the weighing rollers and the rollers immediately in front of and behind the weighing rollers,
- he loader’s angle of slope.

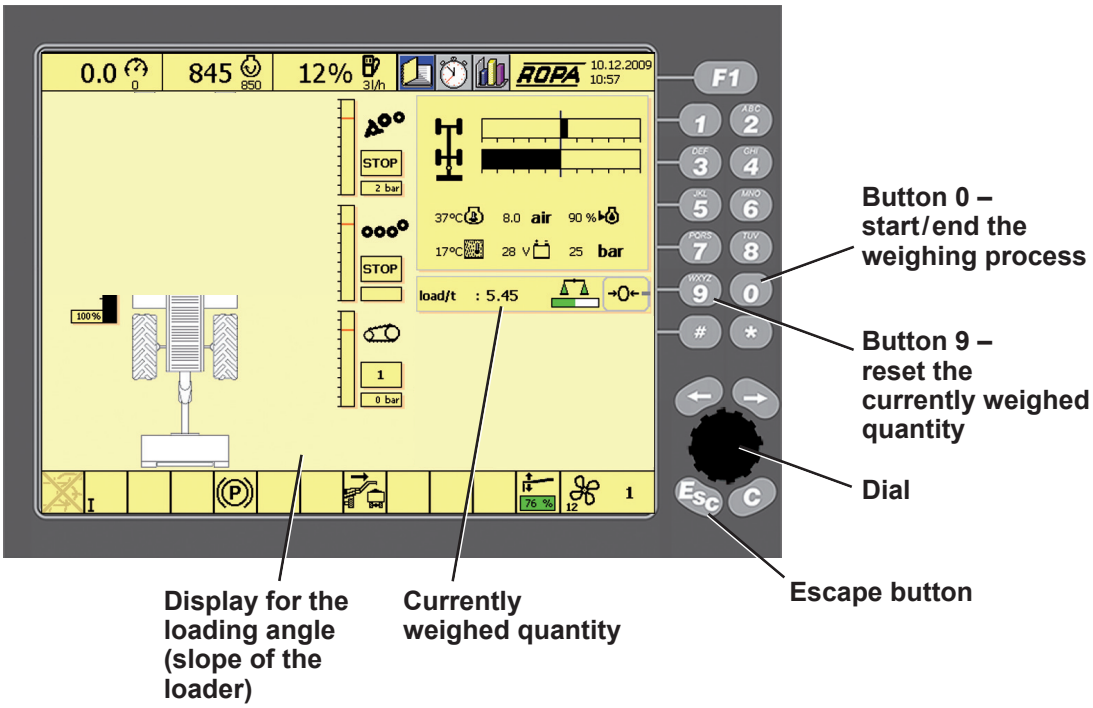
2. Mechanical setup

*Speed sensor (**1**) in the loader's hydraulic motor*

*Weighing cell (**2**) on the frame of the loader*

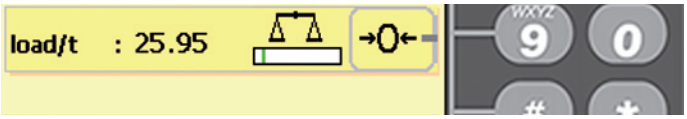
*Computer (**3**) for the weighing machine*

Tilt sensor (4) beside the computer for the weighing machine

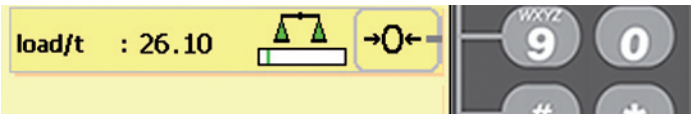


3. Start/end weighing process

Press the 0 button on the coloured terminal to start the weighing process.
Press the 0 button on the coloured terminal to end the weighing process.



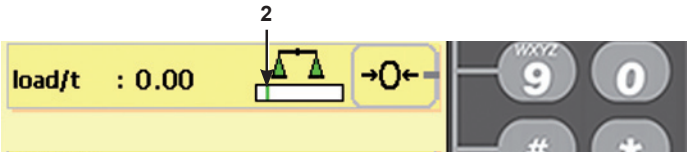
Weighing process has ended or been interrupted, yellow weighing symbol



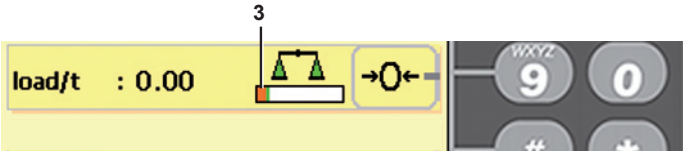
Weighing process has started: green weighing symbol

3.1 Summing threshold

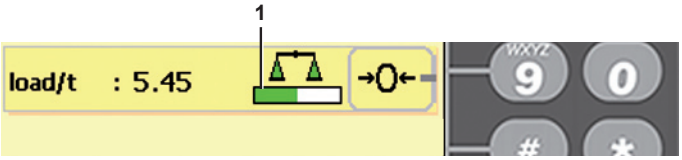
The bar graph (**1**) shows the load on the weighing cells.
The summing threshold (green mark (**2**)) is the value from which the throughput on the conveyor belt is measured. This value is fixed by Ropa Service.
If the throughput on the conveyor belt is below the summing threshold, the bar graph is shown in orange (**3**).



Summing threshold



Summing threshold has not been reached



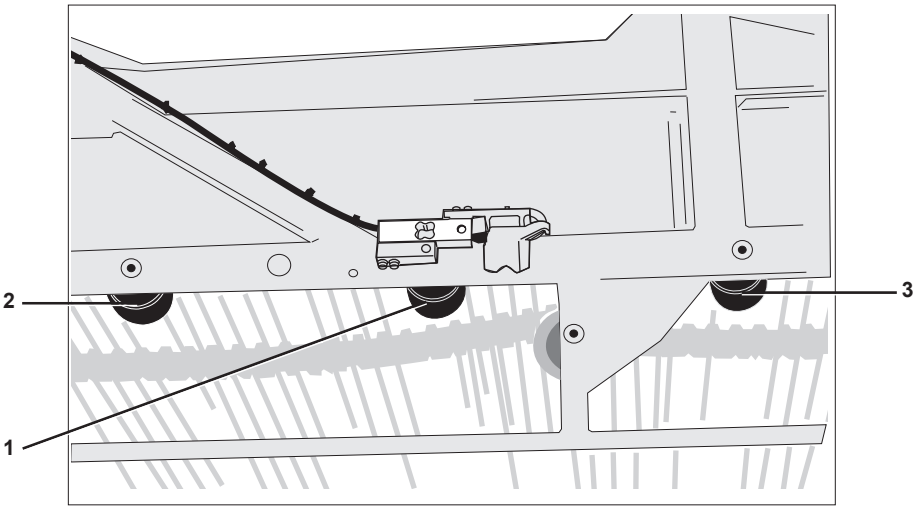
Ongoing weighing process, the summing threshold has been exceeded

When changing the removal truck, the weighing display in the terminal can be set to "0.00" by pressing the 9 button.

4. Operation

Please note the following points in order to achieve the best possible weighing result:

- The conveyor belt tension should be as low as possible.
- Regularly clean the rollers at the weighing cells (**1**) and the rollers in front (**2**) and behind (**3**). Cleaning may even be required several times a day given certain soil conditions.



- The loader should only be moved slowly and with as little jolting as possible during the weighing process.
- Keep the loader's angle of slope as constant as possible during the weighing process.
- If possible, do not position the loader too steeply. The angle of slope displayed on the terminal should be green if possible. If it changes to orange, there may be a possibility of incorrect weighing results.
- Soiling on the conveyor belt has a very high impact on the weighing result. Therefore, zero adjustments should be carried out regularly (see Page 9). If beets are heavily soiled or the soil is very sticky, we recommend carrying out this zero adjustment each time the removal truck is changed. A zero adjustment is required as the proportion of dirt sticking to the conveyor belt will be routinely included in the weighing calculations otherwise.
  When the level of dirt on the conveyor belt changes, a new zero adjustment is required. The same applies to EACH resetting of the machine.
  We have found from experience that zero adjustments being carried out too infrequently is the primary cause of incorrect weighing results.
- If there are still incorrect weighing results in spite of regular zero adjustments, the weighing machine should be recalibrated (see Page 11).

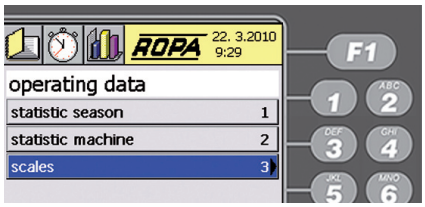
4.1 Initial commissioning of the weighing machine

The weighing machine must be calibrated when used by you for the first time. A calibration may also be necessary if weighing cells or the computer on the weighing machine are replaced.
The calibration consists of two steps which must be carried out in the sequence described below each time.

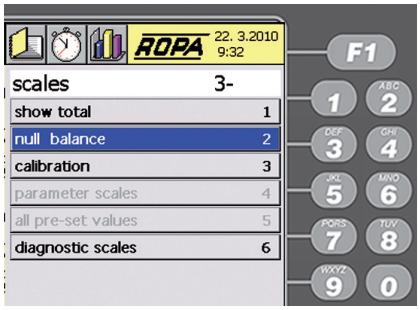
4.2 Carrying out a zero adjustment

Select the “operating data” function. To do this, place the blue field with the dial on the desired „operating data“ function (see illustration) and confirm by pressing the centre of the dial.

Select the “weighing machine” menu and confirm as explained above.



Select “zero adjustment”.



The software will guide you step-by-step through the entire zero adjustment.

Turn on the machine drive and deactivate the additional cleaner. Set the conveyor speed (=speed of the diesel engine) and the loader‘s angle of slope to the values with which you normally load.

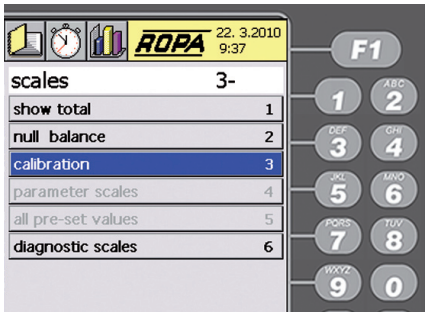
Activate the “start” button when “START activate !” appears on the terminal.

Wait until “value saved” appears in the display on the terminal. The zero adjustment has then finished.

The programme displays both the value before the zero adjustment and the value after it for your information.
You can end the process by pressing the “close” button to leave the menu or by pressing the Esc button.

4.3 Calibrating the weighing machine

Clean the rollers on the weighing cells and the rollers before and after.
Carry out a zero adjustment, as described on Page 9.
Set the weight display of the weighing machine to “0.00” and weigh the first load. Note this value.
Use a calibrated weighing machine at the customer to determine the actual weight of this load. This is the only way to also take into account the weight loss from the fuel consumption of the removal truck to the customer. Once you have this precise value, proceed as follows:
Set the weight display on the terminal to “0.00”.
Press the 9 button for this. Select “calibration” from the ”weighing machine” menu and confirm the selection.



Enter the weight you determined and read from the coloured terminal when loading the first load.
Enter the actual weight determined for this load with the customer's external calibrated weighing machine and confirm the input.

The system now determines the new calibration value and shows both the previous and new calibration values.
Activate the "save" button.

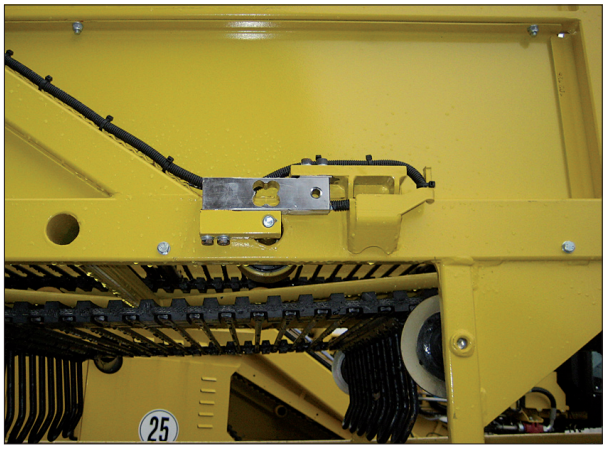
Now load at least five loads with the same soil and loading conditions. A zero adjustment (as described on Page 9) should be carried out before each load. The build-up of dirt on the conveyor belt should not significantly change over the course of these weighing processes. Sum up the weighing results for the individual loads.

Weigh these loads again externally on the customer's calibrated weighing machine and add the results determined for these loads. Once you have the result from the external weighing, select the "calibration" menu item again. Enter both weights here again.

After completion of this calibration process, check the precision of the weighing machine with another loading process as already described. If this control result is satisfactory, calibration is concluded. If the desired weighing precision has not yet been achieved, repeat the calibration always with at least five loads) as already described.

4.4 Operation

Start the weighing process by pressing the button on the terminal.
Please note the information on Page 7 in relation to this.
Carry out regular zero adjustments.
Check the precision of the weighing machine regularly. You should also compare the weight of the load shown by the weighing machine with the weight determined by the customer's external calibrated weighing machine. The weighing machine should be immediately recalibrated if there are large deviations. Ensure to keep the rollers at the weighing cells free of dirt.



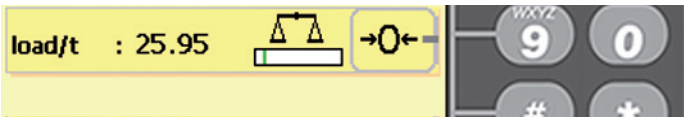
Weighing cell on the frame

Note

Note! The weighing precision depends on the user's care. Regular zero adjustments, careful calibration and the least possible build-up of dirt on the conveyor belt will all have a positive effect on weighing precision.

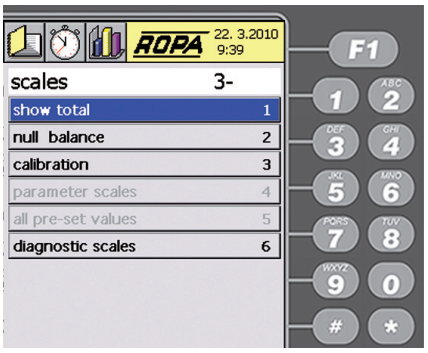
4.5 Unit counter

If you wish to delete the unit counter, the weighing process should be completed first before deleting. Press the 0 button on the main screen on the coloured terminal to do this.

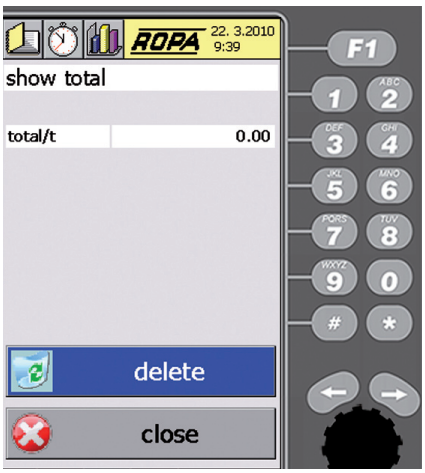


Weighing process completed: yellow weighing symbol

Select “show total” from the ”weighing machine” menu and confirm the selection.



Confirm the “delete” selection. The unit counter is then deleted. Or leave the menu by pressing the “close” button.

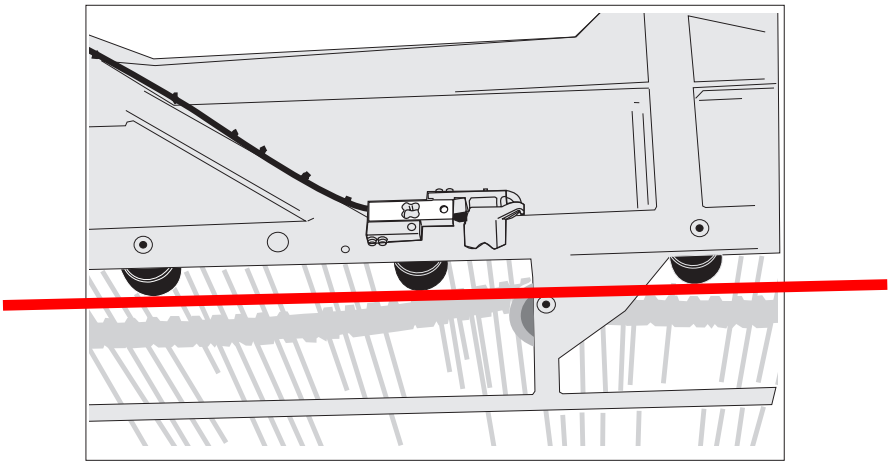


5. Maintenance and upkeep

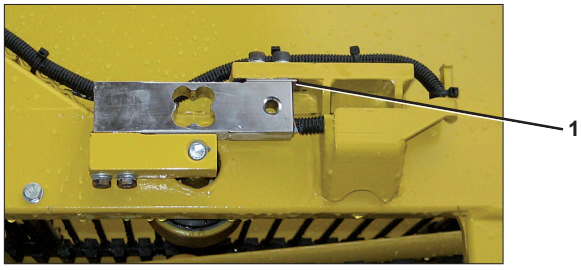
Note

Note! *The weighing cells' attachment screws (M16) and associated rollers should never be loosened with an impact wrench as this would destroy the weighing cells. This also applies to larger forces from spanners.*

If a roller on a weighing cell needs to be changed, the roller on the second weighing cell should also be replaced. In addition to this, one roller before and after each weighing cell should also be replaced (as the same diameter is required). When installing these rollers, ensure that the three rollers are exactly in a straight line (see drawing – red line).



Place a spirit level or similar over the three rollers when installing them or stretch a plumb line. Align these rollers at the same height. Spacer plates (1) may also be used where necessary. These can be obtained under Ropa item number 102051.

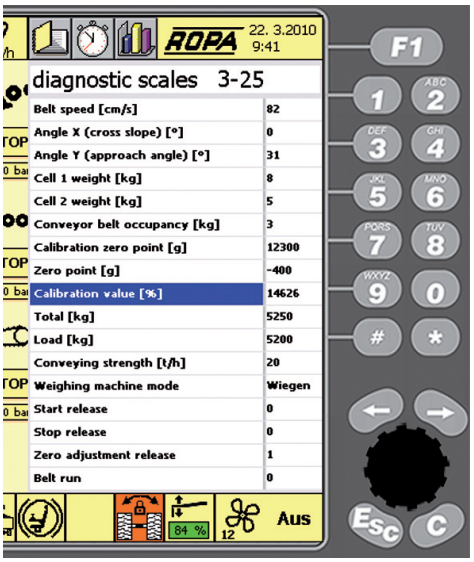


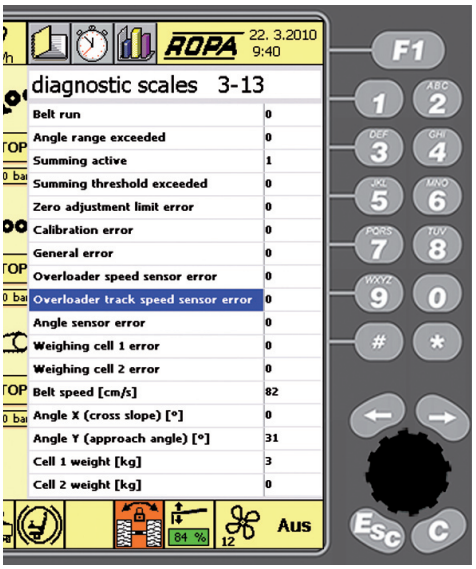
If one of the weighing cells needs to be replaced, this should only be done by authorised service personnel.

6. Diagnosis

The diagnosis menus are used to communicate with ROPA Service. Use the dial to scroll through the display.

Select “diagnose weighing machine” from the ”weighing machine” menu and confirm the selection.





Notes