BARTEC

PETRO 3003

Measurement System

TIGER A1, A3 / COMP / CHEM / LPG / LUBOIL

Operating Instructions

Software version pair 1.20.X

BA 170412

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EU-Declaration of conformity	We,BARTEC BENKE GmbH, Schulstraße 30, D-94239 Gotteszell,hereby declare, that this product is in compliance with the essential requirements of the relevant EU-Directives The EU-Declaration of conformity for this product can be obtained from BARTEC BENKE GmbH, Schulstraße 30, D-94239 Gotteszell, info@bartec-benke.de

Waste disposal	Make sure that the product described here is disposed of in an environmentally sound manner. Observe the national and local safety regulations.

1 About this manual

The operating instructions are part of the product and must be kept in the immediate vicinity of the measuring system. The personnel for assembly, operation and maintenance must have access to it at all times.
Following the instructions in this manual is important for correct functioning of the measuring system during operation.

The illustrations in this manual are intended to illustrate the information and descriptions. They cannot always be transferred unchanged and may differ slightly from the actual design of the device.
BARTEC GmbH reserves the right to make technical changes at any time.
BARTEC GmbH is under no circumstances responsible or liable for any indirect or consequential damages resulting from the use, operation or application of this manual.

Please read the Operating Instructions carefully before using the product.

This document must be kept by the user for the entire life of the product.

Signs and symbols

The following characters and symbols are used in this manual to highlight passages that need special attention.

Notes
This arrow indicates special features to be observed during operation.

Warning
This symbol draws your attention to passages that, if not followed or followed inaccurately, may result in damage to or destruction of parts of the system or loss of data.

Danger!
This symbol marks passages that, if not followed, endanger the health or life of humans.

General information within the text is marked with a frame.

2 Safety precautions

The operator of the system is responsible for observing all the regulations in force for the storage, transportation and loading/unloading of combustible liquids.

For safe installation and commissioning, the knowledge of the safety instructions and warnings in this service manual and their strict compliance are essential.

Careful handling and consistent adherence to instructions can help to prevent accidents, injuries and property damage.

Regulations and provisions lose none of their validity when the system is operated with PETRO 3003 units.

PETRO 3003 units are built with due consideration to the regulations currently in force and left the factory in perfect condition. Their installation and maintenance are to be entrusted to properly trained specialists only.

- Make sure that the data and operating conditions specified by BARTEC BENKE are observed.
- Follow the instructions for operating and servicing the units.
- If you discover any signs of damage or breakage on any parts of the system or if the system's safe operation cannot be guaranteed for any other reason, do not start the system or, if already in operation, shut down the system immediately.
  Notify your maintenance department.
- Get in touch with our service specialists if you discover any faults or defects during operation or if you have cause to doubt that the units are working properly.
- PETRO 3003 units are not a replacement for a tanker vehicle's safety equipment or for a user's own safety measures (e.g. overfill protection).

The measuring system may only be operated for applications that are subject to legal metrological control in the respective EU member state if the nominal operating conditions specified in the EU type examination certificate are met.

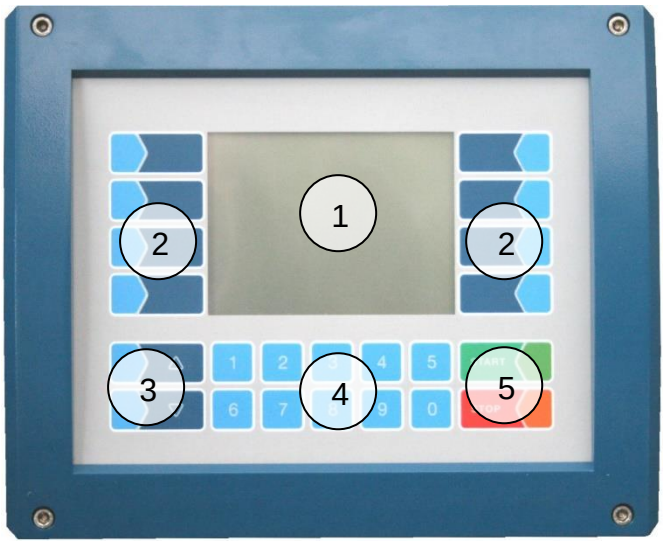
3 Basics

The PETRO 3003 system can be used to monitor, record and control all operations and operating processes for loading and unloading petroleum vehicles.
The TIGER 3003 version is used to control product deliveries and to record the data of this process. TIGER 3003 is used for products of hazard classes A1 and A3 with and without additives, liquid chemicals and aqueous urea solutions, pressurized liquefied gases and lubricating oils.

How to start up the system and to operate the vehicle equipment depends on the vehicle type and the therefore valid operating instructions.

3.1 Operating unit

The operating unit acts as the central control and information unit for the entire system.
The compact controller (in vehicles with "TIGER A3") or the HMI (in vehicles with „TIGER A1“, „COMP“, „LPG“ or „LUBOIL“) is used as the operating unit. Both operating units are possible for the "CHEM" variant.
The operation is the same for both devices.



Compact-Controller Typ 6942-10 (A3)

HMI Typ 6922-10/11 (A1)

1 Display
2 Softkeys
3 Selection keys
4 Numerical keys
5 Operating keys

3.1.1 Keypad

The system can be operated using the touch-sensitive keys on the operating unit (touch screen with numerical keys, selection keys, softkeys and operating keys) as well as key functions that are shown on the display depending on the situation. The functions of the softkeys are controlled by the software according to the current operating status.

3.1.2 Display

A graphical screen designed as a touch screen is used to display all information. The liquid crystal display is clearly visible in the dark and even in bright sunlight.

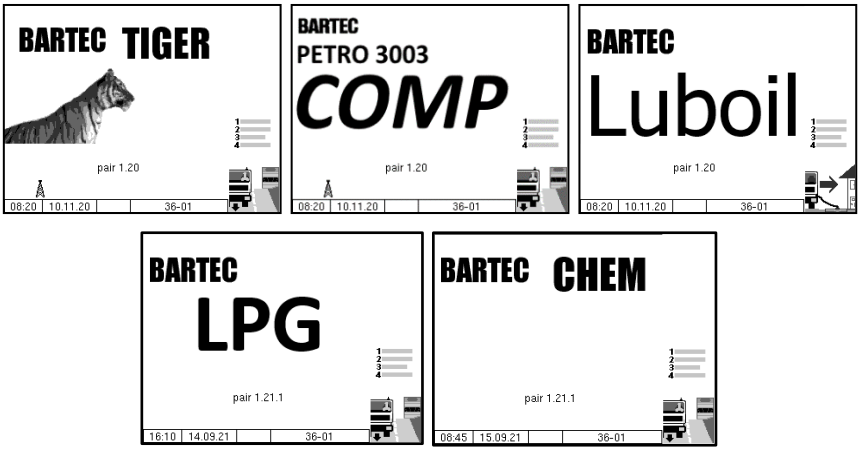
3.2 Operating concept

3.2.1 The software user interface

Due to differences between software releases and/or configurations, the displays illustrated in this document may differ slightly from the displays on your system.

When the system is started up, the main menu appears on the display.

The start screen of the main menu is different in the various operating modes:



You can access the various displays or operating modes using the softkeys to the left and right of the display.

Open Diagnostics menu
(see Configuration manual)

Open event display (section 3.2.5)
Print screen (section 3.2.6)

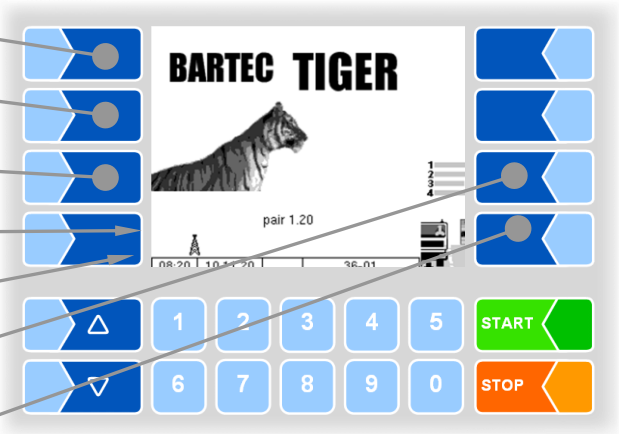
Open Administration menu (chapter 8)

Data handling icons (section 3.2.3)

Info line (section 3.2.4)

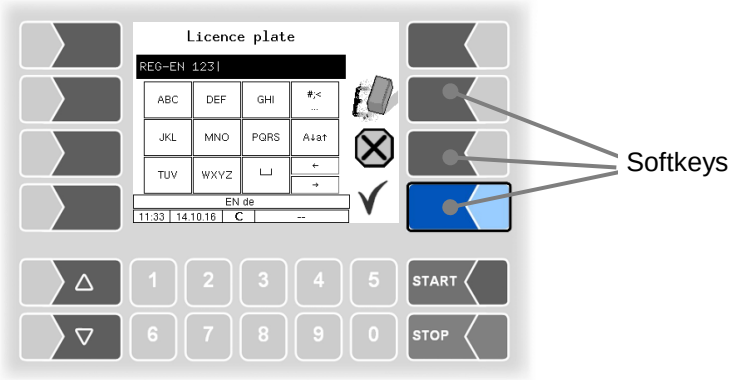
Open Additional Functions menu
(chapter 9)

Start tour/order (section 4.2)



3.2.2 Softkeys

The softkeys can be assigned various functions, the current meaning of which is indicated by symbols. All keys are touch-sensitive, meaning that you don't need to press them but simply have to touch them.



Symbol	Meaning	Effect
	Confirm / Accept	A selected menu is opened. A selected parameter setting is confirmed.
	Close menu	The menu that is currently open is closed and the system switches to the next menu up in the hierarchy.
	Abort	The menu that is currently open is closed and the system switches to the next menu up in the hierarchy. Any settings or entries that have been made are discarded. A running process is aborted.
	Edit	An entry or selection dialog is opened for the selected parameter or the alternative setting is selected (Toggle function).
	Correct	The character to the left of the cursor in an entry dialog is deleted.
	Accept, save	The menu that is currently open is closed. All settings/entries that have been made (including those in lower level menus) are accepted and saved. **All changes are only saved if you exit the menu or entry dialog using this softkey!**
	Save	End delivery / save delivery data
	End order, print	The current delivery order is ended and the delivery note or invoice is printed.
	Process abort, print	The current operation is aborted without delivery, a blank delivery note is printed.

Symbol	Meaning	Effect
	Start residue removing	If residue removing is not started automatically you can start it manually.
	Start delivery	The delivery process is started, the system is filled.
	unmeasured delivery	Opens the dialog for unmeasured delivery of products.
	Enter password	Opens the dialog for entering the password (driver-, user- or service password) .
	Change user password	The user password (configuration level 2) can be changed.
	Start download	The software download from the BARTEC server is started (Service menu).
	Cancel download	The software download from the BARTEC server is cancelled (Service menu).
	Additional functions menu	The Additional Functions menu is opened.
	Start tour	A tour is started (with active tour handling)
	Start order	The menu for starting orders is opened (Tour handling is not active)
->2	Select page	If a window has multiple pages, you can display the corresponding page.
?	Show Information	Information about missing SAFE components will be displayed. *(when using dry hose delivery with Ex-TIGER)*
	Bypass	SAFE components are bypassed. *(when using dry hose delivery with Ex-TIGER)*
	Venting	The measuring system is vented (LUBOIL)

Depending on the current operating state, further softkeys can be available. These may then labelled for the respective function in the plain text.

3.2.3 Data handling icons

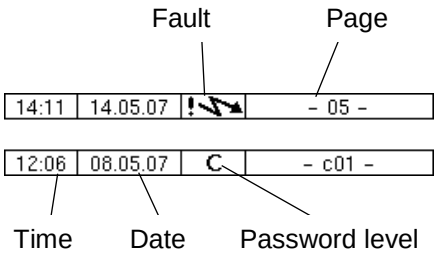
The following icons are used to monitor the data handling and are displayed on the display above the info line.

Symbol	Meaning
	Response data is provided for transmitting
	Modem is switched on
	Modem is switched on, connection has been established
	Receiving data
	Sending data
	Online Service connection via FTP server is active
	Bluetooth interface is active
	Bluetooth connection established

3.2.4 Info line

The info line shows the date and time, information about the operating status and the software page number.

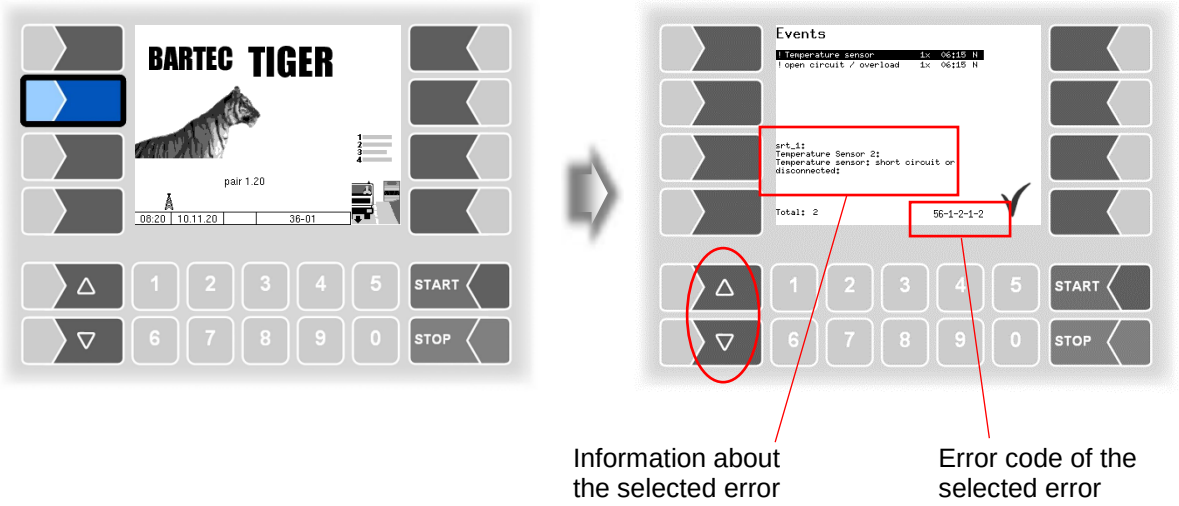
Examples:



3.2.5 Event display

Important error messages are displayed directly in the display if the calibration switch is closed.
You can open the event display with the 2nd softkey left of the display. All operating states and faults will be displayed in this windows.

You use the softkey ✓ to acknowledge messages that are displayed.
The “Event display” is automatically closed after 20 seconds.
Error messages are not deleted until the cause of the error has been removed. The fault symbol is displayed in the info line during this time.



Maybe in the event display more than one error are displayed.

Use the arrow-keys to select the individual messages.

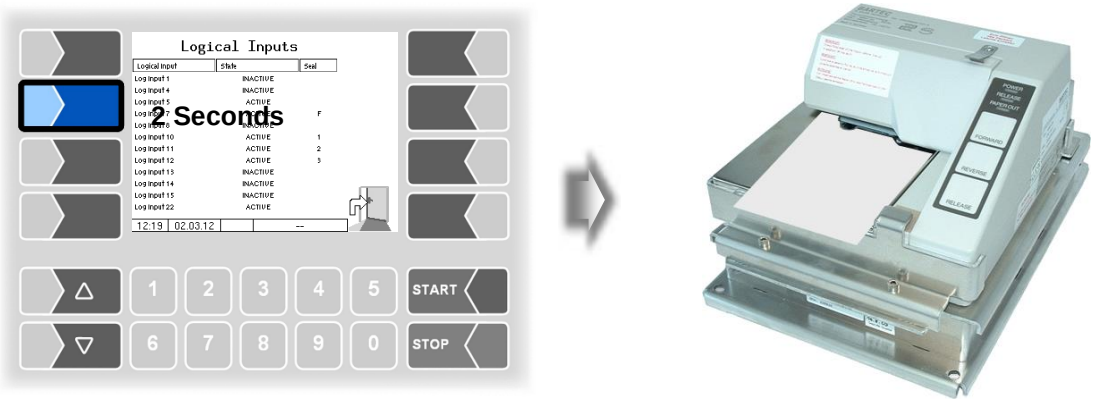
For the currently selected error, more information and an error code are displayed (see also section 10, page 75).

3.2.6 Print screen

When you touch the second softkey from the top left of the display at least for two seconds, the current screen will be printed.

The slip printer (EPSON TM) must be installed for this function. If a different printer type or no printer is installed, a screenshot is saved on the system. You can access the screenshot via the "3003 Service Tool".

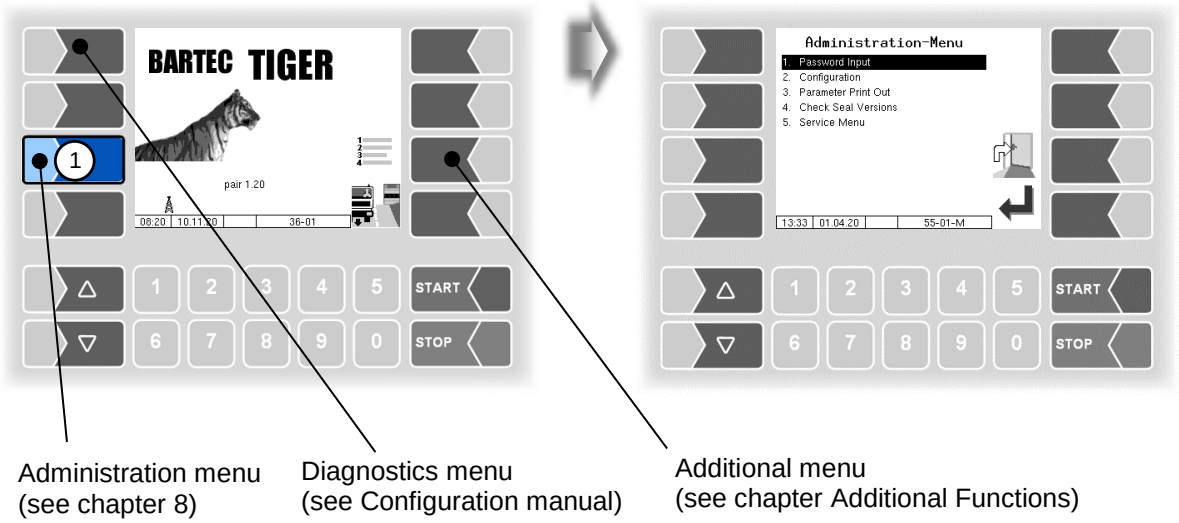
There is a separate manual for the software “3003-Service Tool”.



3.3 Operating the menus

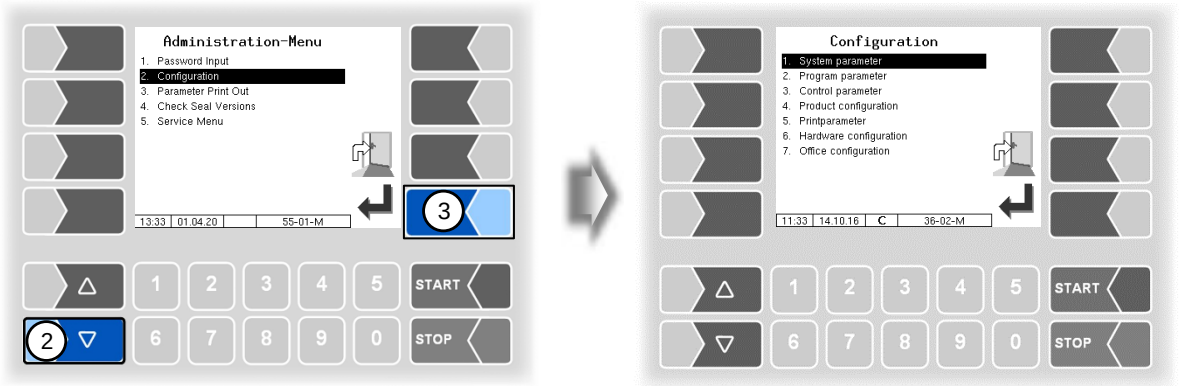
3.3.1 Opening a menu

1. Touch the corresponding softkey to open the desired menu.



2. Use the selection keys ▽ and △ to select the menu you wish to open. The selected menu is highlighted with a black bar.
3. Touch the “Confirm” softkey to open the menu.

You can also open the desired menu directly using the corresponding numerical key

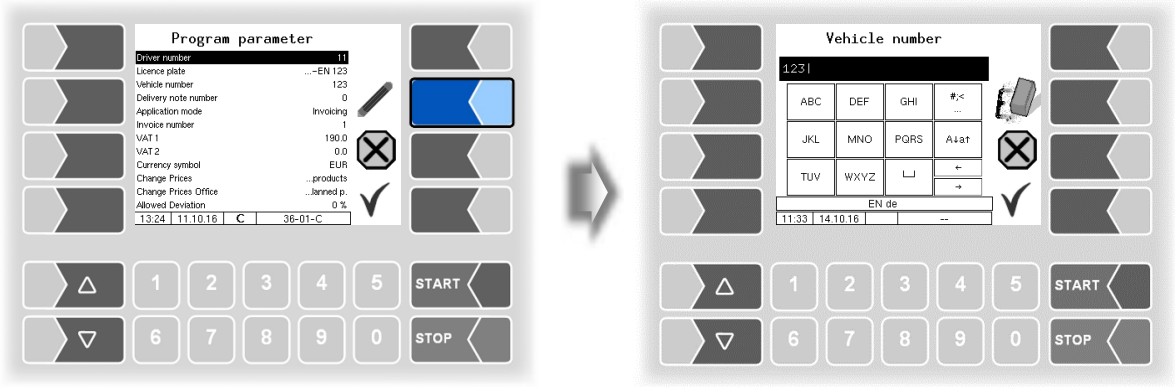


If the menu contains further submenus, you can open the required submenu in the same way.

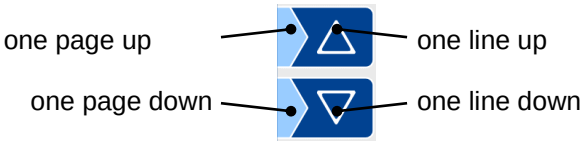
3.3.2 Editing parameters

4. Use the selection keys ▽ and △ to select the parameters you wish to edit. The selected parameter is highlighted with a black bar.
5. Touch the “Edit” softkey to open the edit window (entry or selection dialog).

The “Edit” softkey is only available if you are authorised to edit the selected parameter in the current password-protected configuration level (see chapter 8)

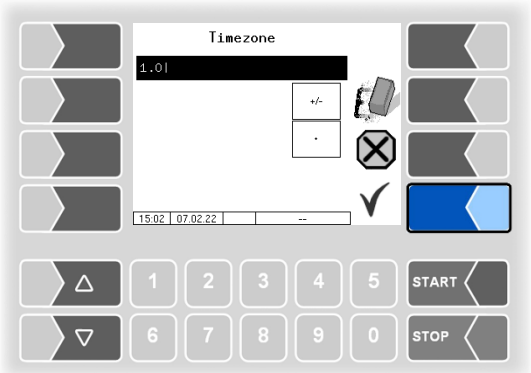


If not all entries in menus or lists can be displayed in the screen, you can use the selection keys to scroll lines or pages.



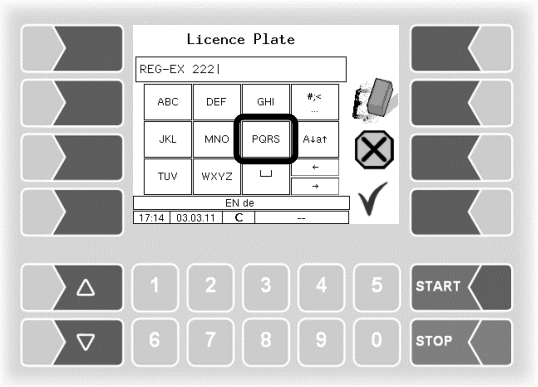
Numerical entries

Numerical entries are entered using the keys below the display.
If you need to make any corrections, you can use the softkey with the rubber symbol. When you touch this softkey, the character to the left of the cursor is deleted.
If a parameter must be entered with a positive or negative value, you can use the +/- softkey or the dot softkey.
Confirm your entry using the “Confirm” softkey“.



Alphanumerical entries

Letters are entered using the keys that are shown on the display. To enter a letter, simply touch the corresponding key. The keys are assigned up to four characters. You determine which character appears in the input line by pressing the key the appropriate number of times in quick succession.
You can enter a blank with the ␣ key.

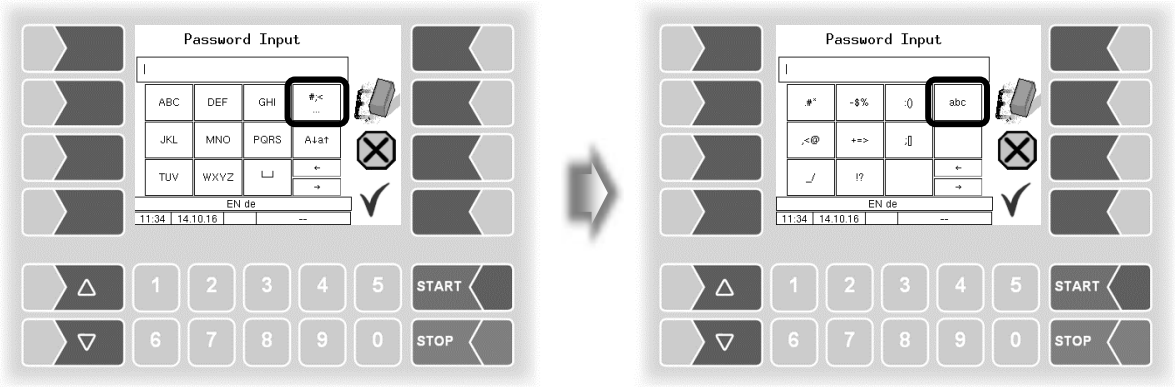


Shift key

You can use the A↓a↑ key to switch from upper case to lower case letters and vice versa.

Special characters

If special characters need to be entered, you can use the #;< key to switch the key assignment to the special character level. You can switch back to letters using the same key, which is now labelled abc .

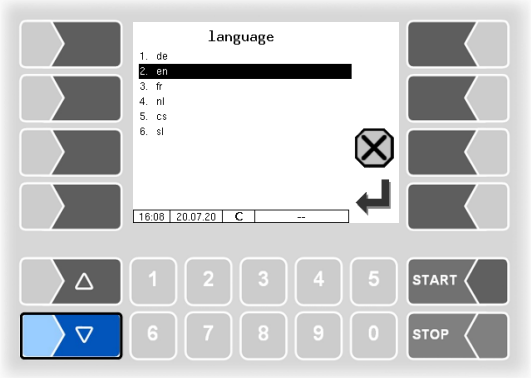


Once you have finished making your entry, touch the “Confirm” softkey.

Selection lists

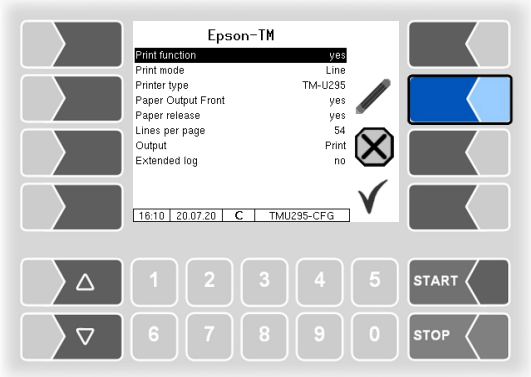
Selection lists are available for certain parameter settings.
Select the required setting using the selection keys [▽] and [△]. The selected setting is highlighted with a black bar.
Confirm your selection using the “Confirm” softkey.

You can also select the desired setting directly using the corresponding numerical key.



Alternatives

In the case of parameters for which only two alternative settings are possible, e.g. yes/no or on/off, the settings are switched when you touch the “Edit” softkey or a numerical key.



After changing the selected parameter, the next line is automatically highlighted

4 Delivery mode

4.1 General information on Operation of the measuring system

4.1.1 Overvill prevention

The handling of the overfill preventions as well as the operation via a hand terminal are described in the operating instructions of the overfill preventions. Here, only the start of deliveries is shown.

Follow the operating instructions, which are listed in the instructions for the overfill preventions!

For vehicles equipped with the BARTEC TIGER measuring system, the following basic procedure is recommended.

- Turn off the engine after arrival at the customer.
  In automatic vehicles with radio remote control, switch the ignition back on and then switch on the power take off.
- Make the hose connection to the customer tank and open the pump nozzle.
- Plug the overfill protection into the customer tank and switch it on.
- To do this, press the START button. The LED „Radio active“ flashes.

Type 6728-70

Type 6952-10

If the overfill protection is ready for operation (heated), the LED "Tank not full" shines. Now you can release the dispensing valve by pressing the START button again.

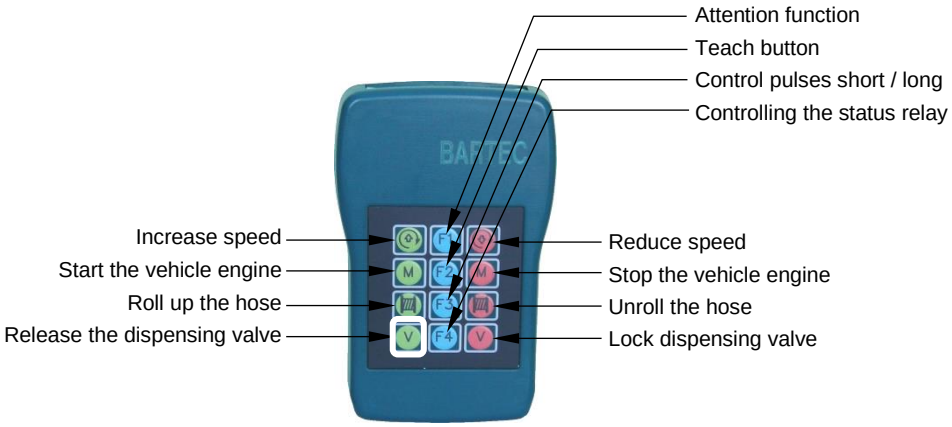
- Open the bottom valve of the desired compartment on the vehicle.
- Start the delivery on the controller according to section 4.2.
- Wait for the end of the filling process.
- If the filling process has not yet been completed after approx. 20 seconds, start the engine and switch on the power take off. When starting the engine in automatic vehicles via remote control, the power take off is also activated.

The filling process generally runs "cleaner" with the pump standing still. It should be carried out only this way, if possible. Only special situations (e.g., a nearly empty compartment with a high up installed measuring system) may require assistance from the pump.

4.1.2 Hand terminal

Optionally, you can also control deliveries via the handheld terminal.

Type 6728-71
To release the dispensing valve you must press the green key [V] .

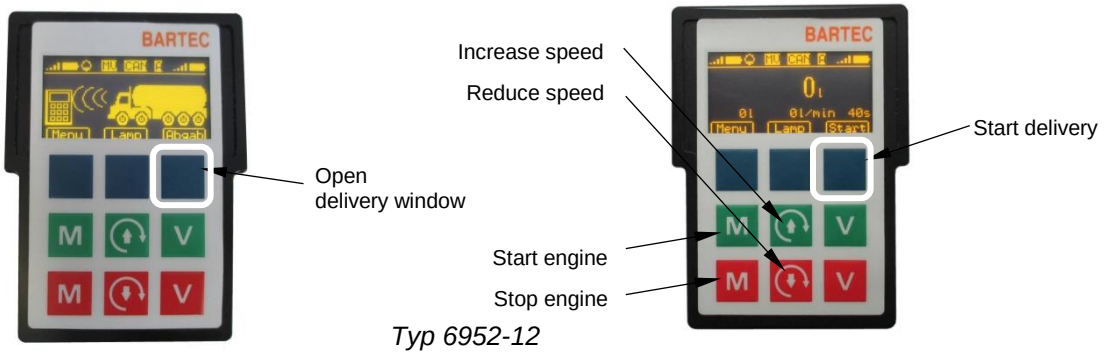


Type 6728-71

Type 6952-12

With the hand-held terminal type 6952-12, you must first switch to the delivery window (middle or right softkey, depending on configured assignment).

In the delivery window, start delivery with the [Start] softkey.
To release the dispensing valve you must press the green key [V] .



Typ 6952-12

If the delivery has already been started on the controller and there is a flow rate > 0, the hand-held terminal automatically switches to the delivery window.

4.1.3 Delivery from trailer

(Only with appropriately equipped vehicles)

- Turn off the engine after arrival at the customer.
  In automatic vehicles with radio remote control, switch the ignition back on and then switch on the power take off.
- Make the hose connection to the customer tank and open the pump nozzle.
- Plug the overfill protection into the customer tank and switch it on.
- To do this, press the START button. The LED „Radio active“ flashes.
- If the overfill protection is ready for operation (heated), the LED "Tank not full" shines. Now you can release the dispensing valve by pressing the START button again.
- If the vehicle is equipped with a remote control you can enable the delivery also this way (green key V).
- Make the hose connection to the trailer.
- Open the bottom valve of the desired compartment on the trailer.
- Release the trailer suction line on the motor vehicle.
- Start the delivery on the controller according to section 4.2.
- Wait for the end of the filling process.
- If the filling process has not yet been completed after approx. 20 seconds, start the engine and switch on the power take off. When starting the engine in automatic vehicles via remote control, the power take off is also activated.
- If the trailer hose is empty and has not been vented, one or more stops may occur (see Note below).

Due to an already filled pump, the air of an empty trailer suction line may not escape during the filling process. If necessary, several venting operations are necessary at the start of delivery.

To avoid this, the trailer suction line can be vented or filled before starting a delivery by short pumping (self-filling) from the trailer into a compartment of the motor vehicle, as follows:

- When the trailer is full, pull the first delivery out of the motor vehicle to make room there.
- Before the next delivery, fill the trailer lines with a short pumping (self-filling) from the trailer into the partially emptied compartment of the motor vehicle.
- Perform the delivery from the trailer.

The pumping operation is also recommended if a compartment and the lines of the trailer run empty during the delivery and consequently the system is switched off by air break-in.

Proceed as follows:

- Close the bottom valve of the empty compartment and open the bottom valve of a filled compartment.
- Set the motor vehicle to self-filling and open an empty (partially filled) compartment.
- Pump over from trailer to the motor vehicle approx.. 15…20 seconds.
- Close the bottom valve of the compartment in the motor vehicle and switch back to pumped delivery.
- Press the START key at the controller to continue the delivery to the customer.

The operating steps necessary before a product delivery depend on the configuration of the office parameters in the TIGER measuring system.

4.2 Procedure for product delivery

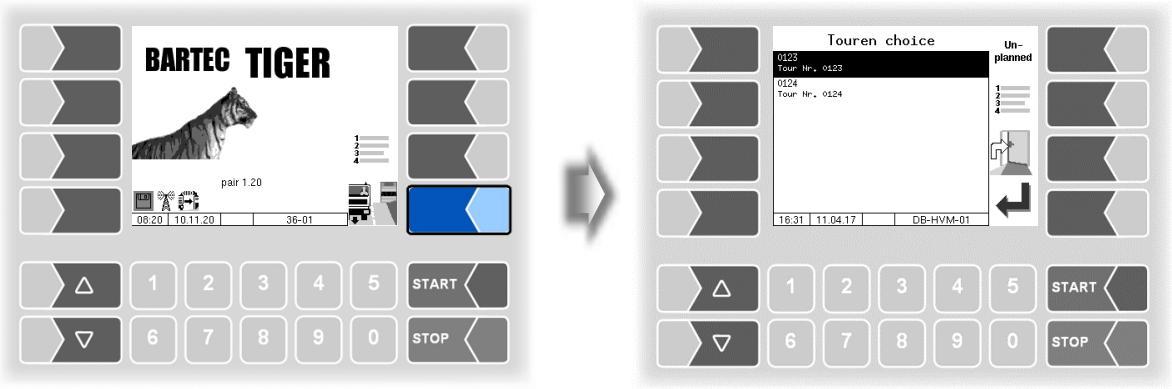
4.2.1 Starting a tour

If you use the tour handling, you must first start a tour
(*Configuration: Office configuration / Office parameter / Tourhandling: Yes)*.

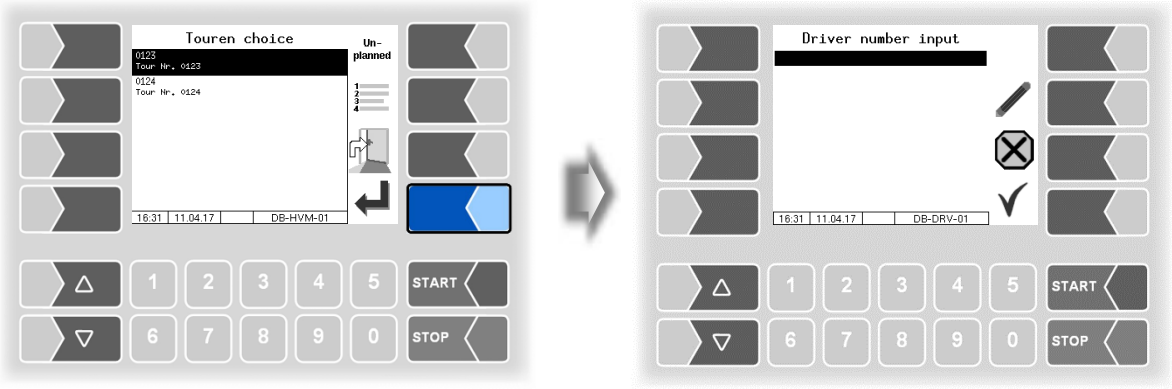
- Touch the “Start tour” softkey.
- From the list, select the tour to be driven or start an unplanned tour.

Already processed tours are marked with a check mark.

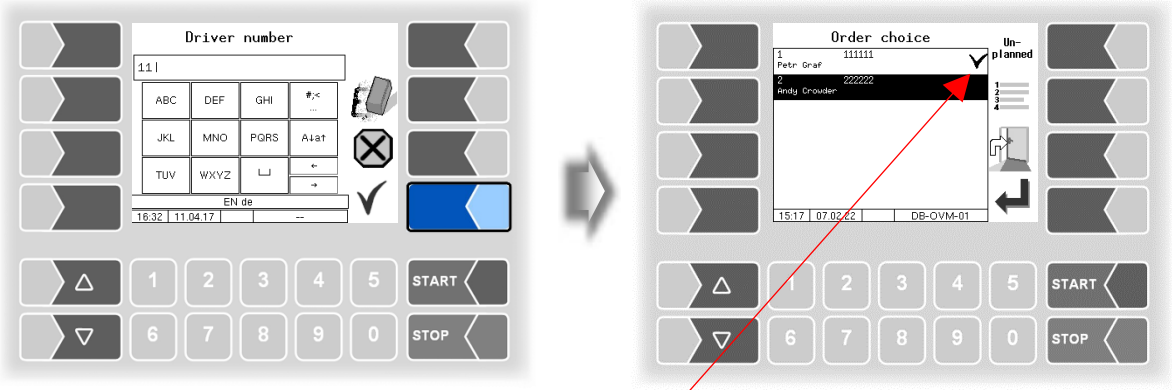
If no tour schedule data is stored, you can only start an unplanned tour (see section 4.4).



You are then prompted to enter the driver number configuration-dependent.
(Configuration: Office configuration/Office parameter/Driver number: Yes).



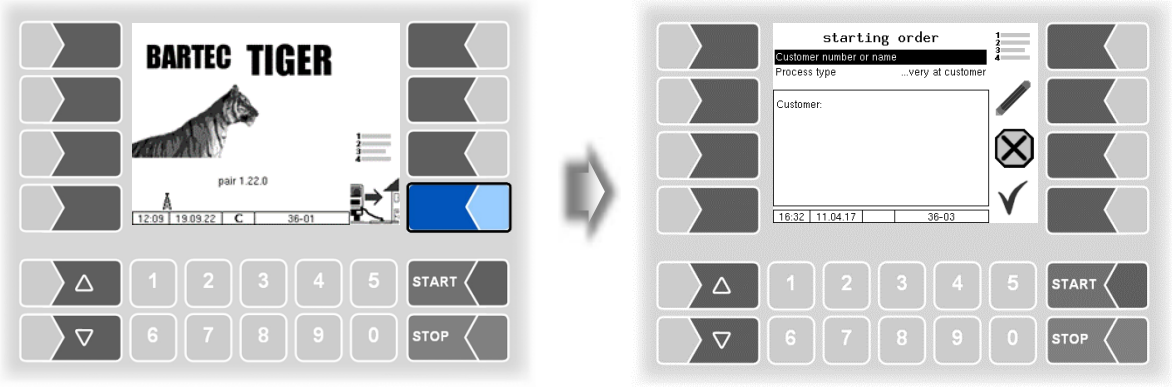
Enter the driver number. The "Order choice" window appears.



Orders that have already been processed are marked with a check mark.

Processing without tour handling

If the tour handling and the office connection are disabled in the configuration of the system, the start of a tour is omitted.
The “Order choice” window appears only if there exist data for several orders.
If no order data is stored the “starting order” window promptly appears

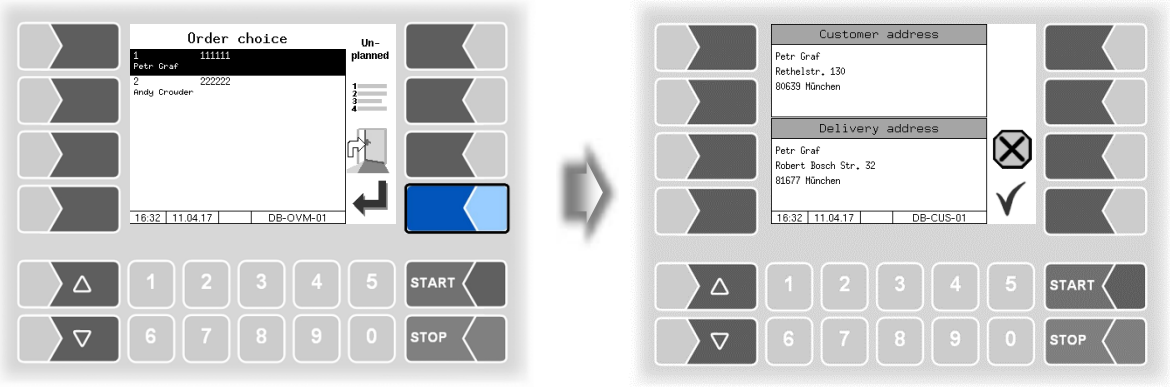


4.2.2 Order choice

- From the list, select the order to be processed.

If no order data is stored, you can only start an unplanned order (see section 4.5).

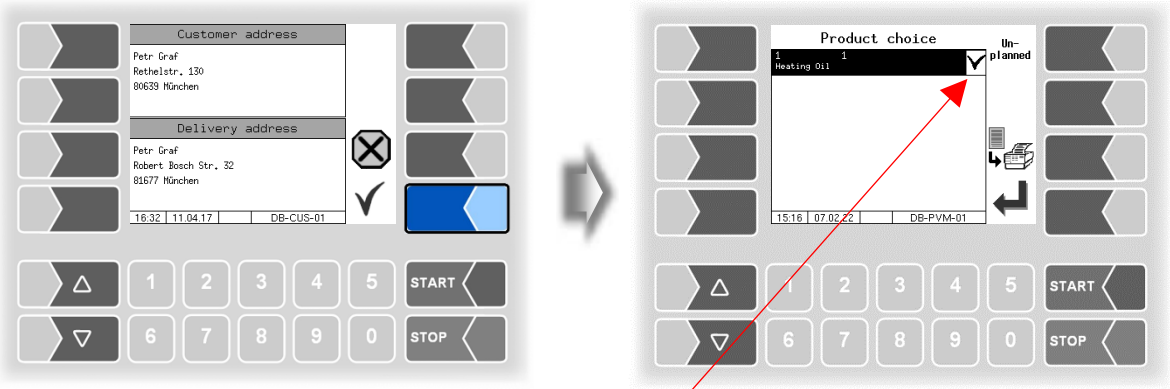
- Confirm the selected order. The customer's address and the delivery address are displayed.



4.2.3 Selecting the product

- Confirm the customer data when you are at the specified destination. The “Product choice” window appears.
  If the order contains several products, select the product that you want to deliver next.

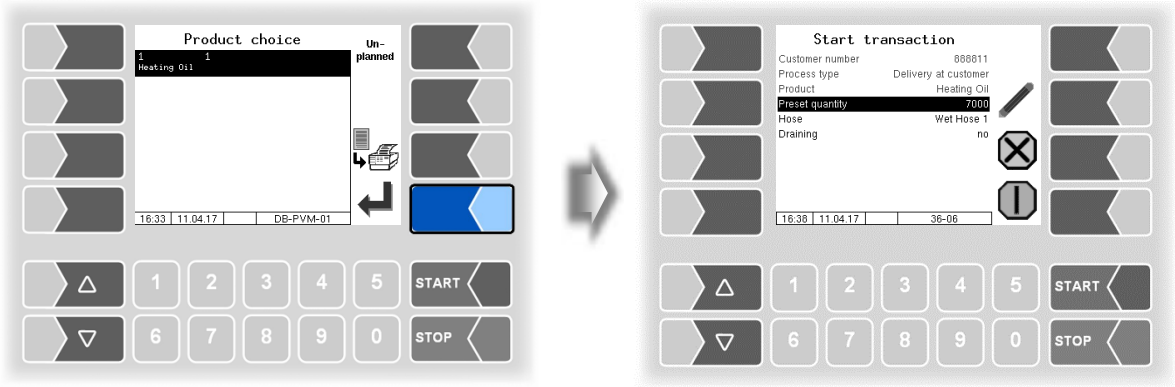
If no product data is stored for the order, you can start an unplanned product delivery (see section 4.6).



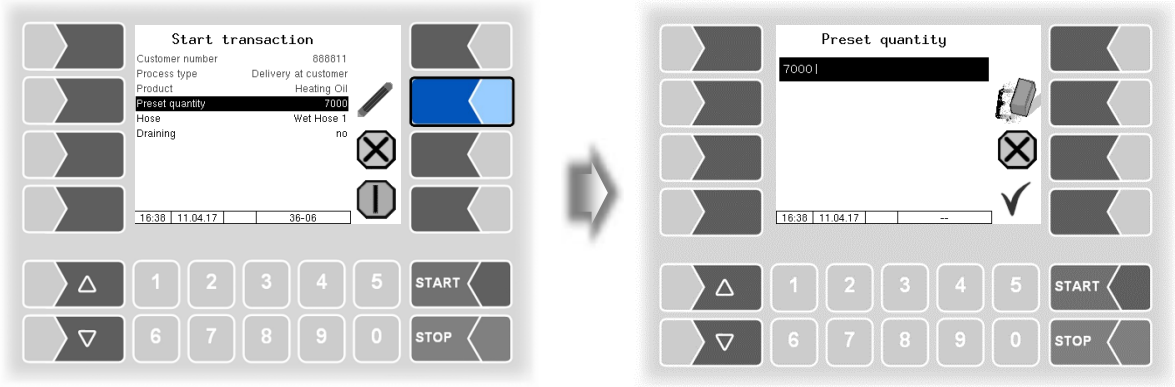
Already delivered products are marked with a check mark.

4.2.4 Choosing delivery options

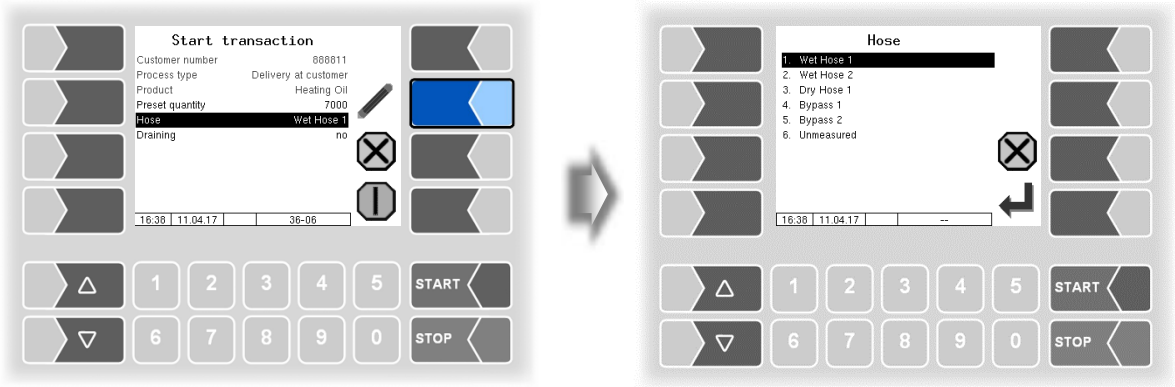
- Confirm the selected product. The "Start transaction" window appears.



- You can enter a preset quantity.
  Configuration dependend, the input of a preset quantity may also be obligatory. *(Configuration: Control parameter/Preset).*



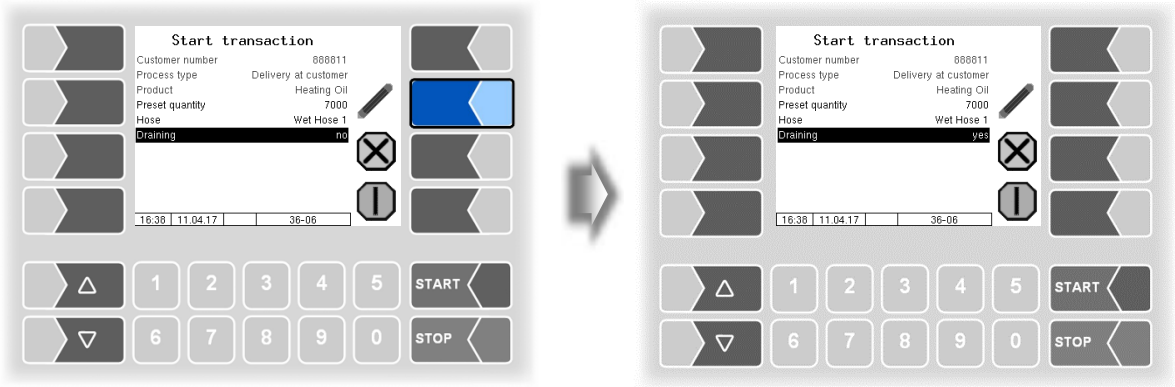
- Select the hose for the delivery.



The hose selection available depends on the vehicle equipment.

When selecting "Unmeasured", you can deliver a product without being measured by the volume counter.

- Specify whether to automatically remove residual after delivering. This option is only displayed when "Draining" is available **and** if for this delivery a preset quantity was entered!



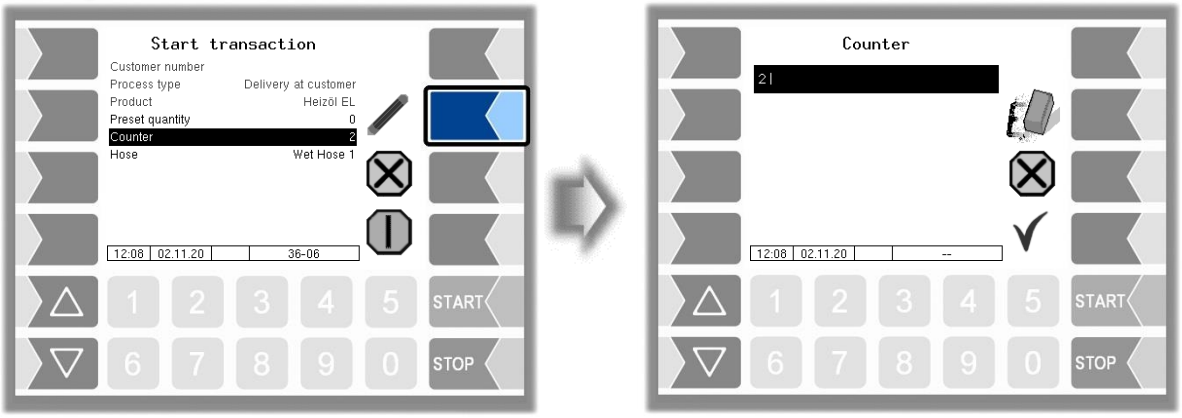
4.2.5 Counter selection

In vehicles that have multiple counters, you can select the counter that is to be used for the subsequent delivery.

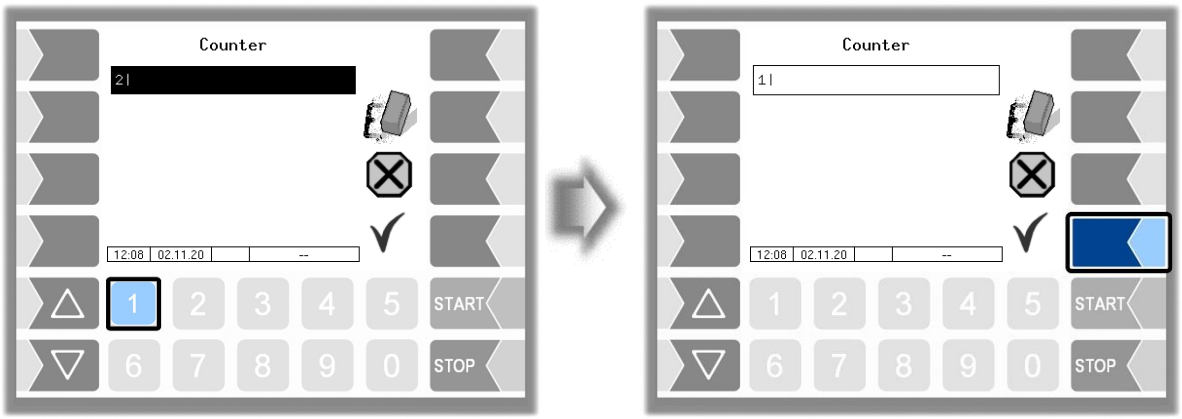
- Select the "Counter" line in the "Start transaction" window.
- touch the "Edit" softkey.

Counter selection available for COMP and Luboil.

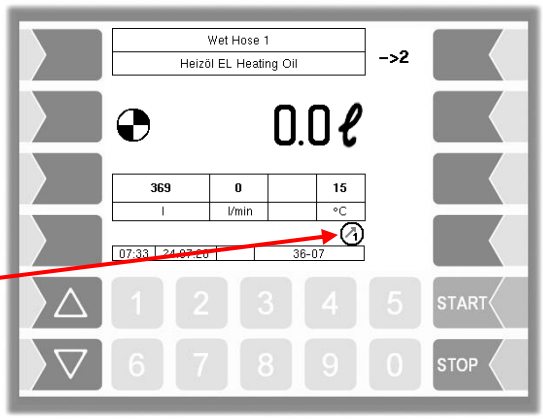
If a fixed allocation of product to counter is configured, no counter selection appears.
(Configuration: Product configuration/Metrological products/Meter no)



- Touch the number key that corresponds to the counter that is to be used for the subsequent delivery.
- Confirm the selected counter.



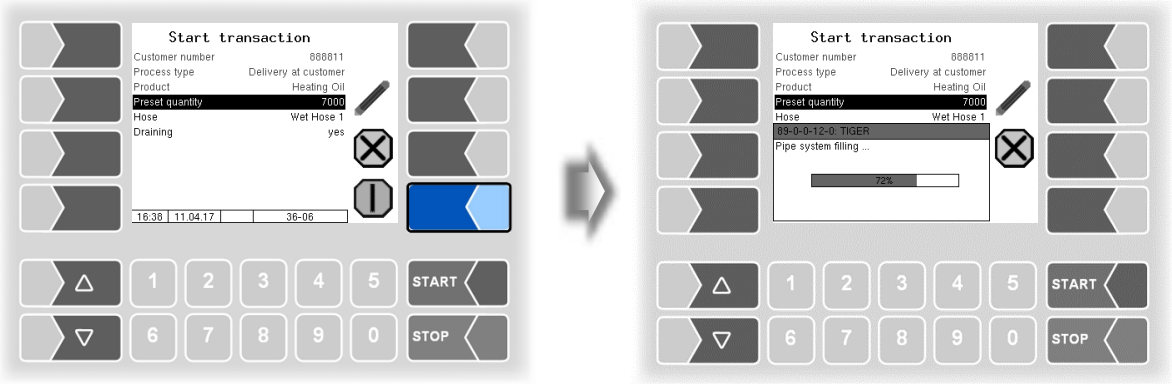
The selected counter is displayed during product delivery.



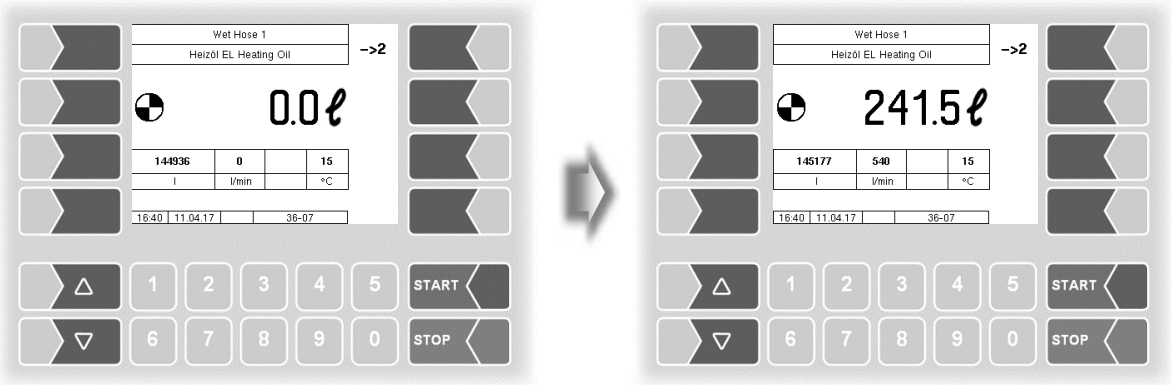
4.2.6 Delivering the product

- Start the delivering process when all necessary conditions are met.
  Wait until the pipe system is filled (start-filling-process).

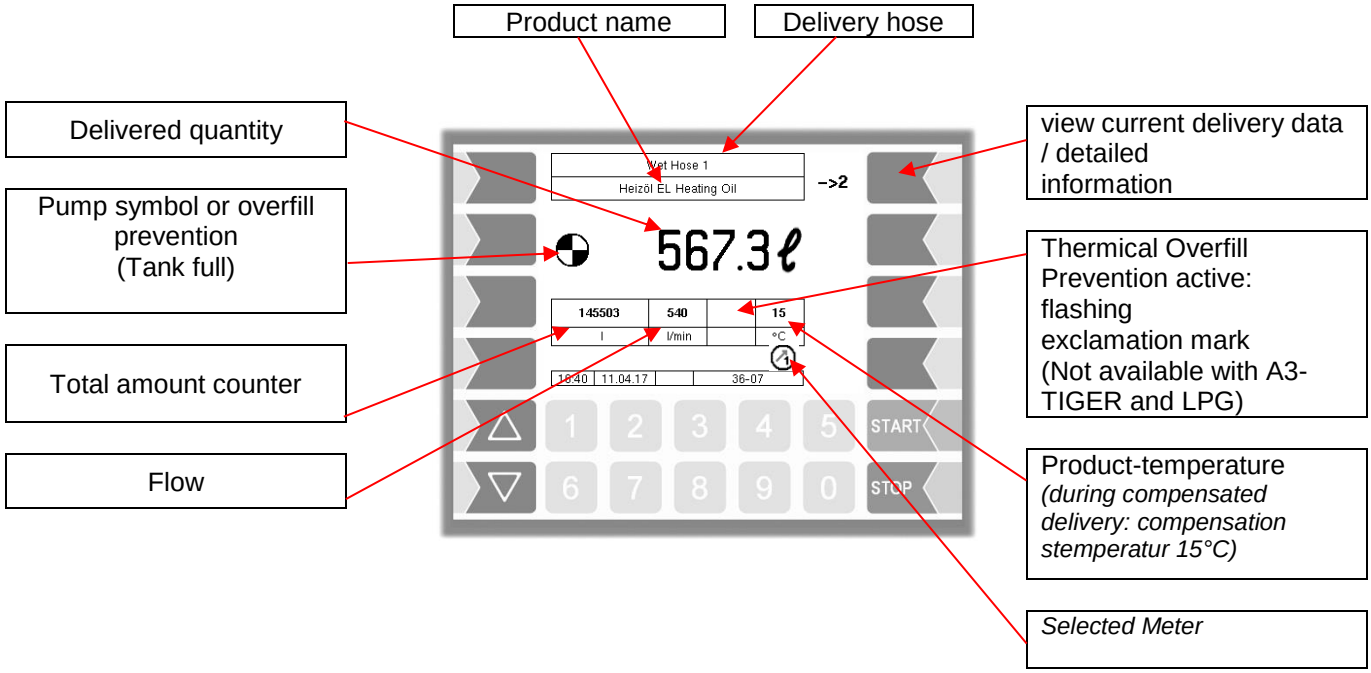
Start filling process only with TIGER, Ex-TIGER and CHEM



- When all conditions for delivery are met the pump is automatically released and the delivery starts.

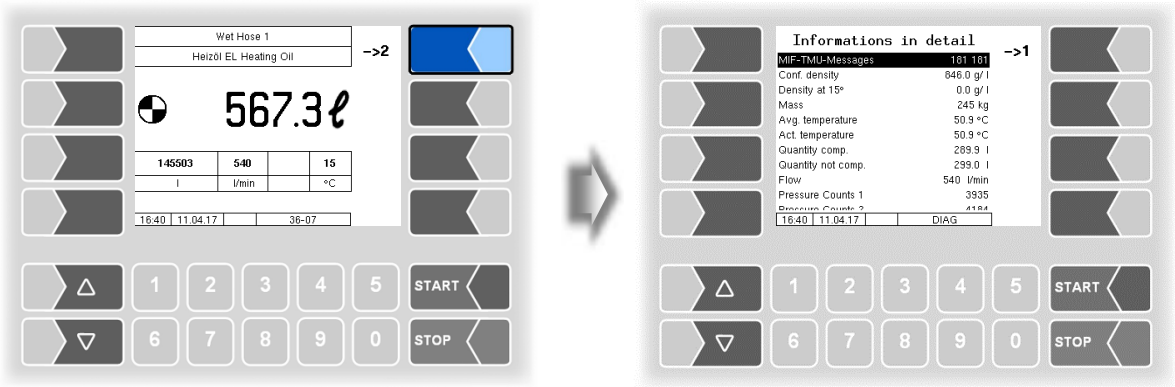


The following information is displayed during delivery:

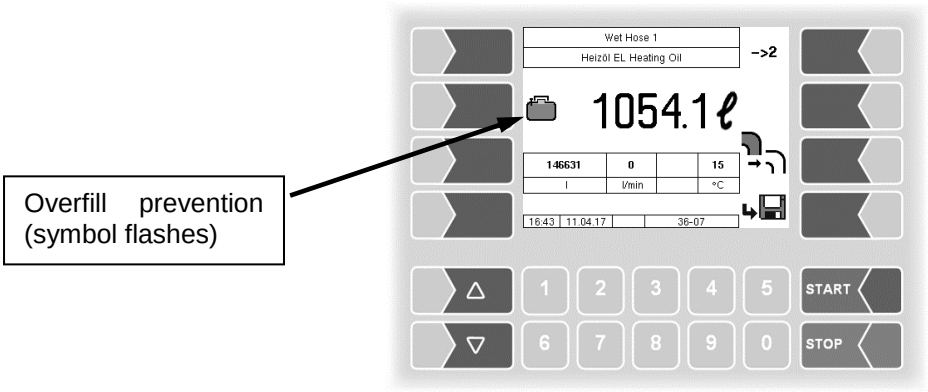


You can stop the current delivery at any time with the STOP key and resume by pressing the START key

Use the softkey at the top right to switch to page 2 of the delivery display for detailed information about the current delivery.
To switch back to page 1, use the same softkey.



If the customer tank is equipped with an wireless overfill prevention, this is indicated by a tank-symbol in the display. This Symbol flashes as long as the overfill prevention has not released (no sensor connected or tank full).

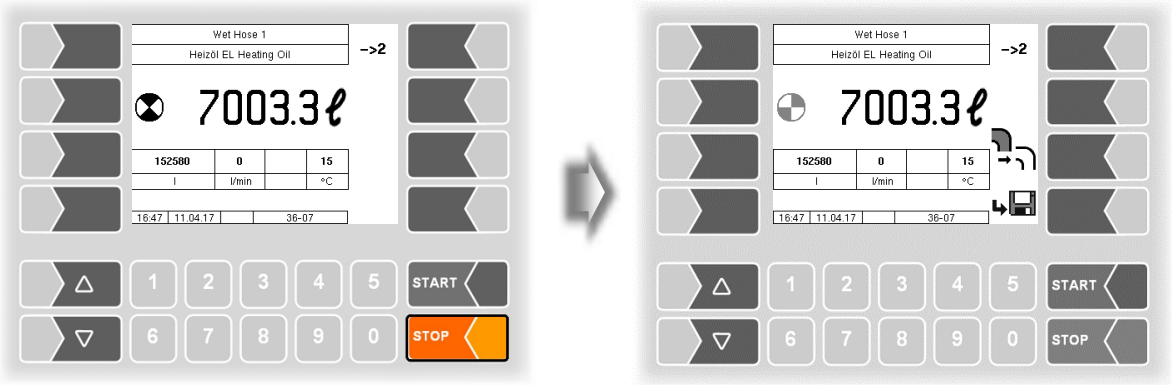


Product change

To prevent product mixing in the delivery hose during a product change, you must remove the residual before delivering the new product.

- Within a tour call the special functions (see section 4.9).
- Select the special function „Draining the measuring system“ (see section 4.9.4).

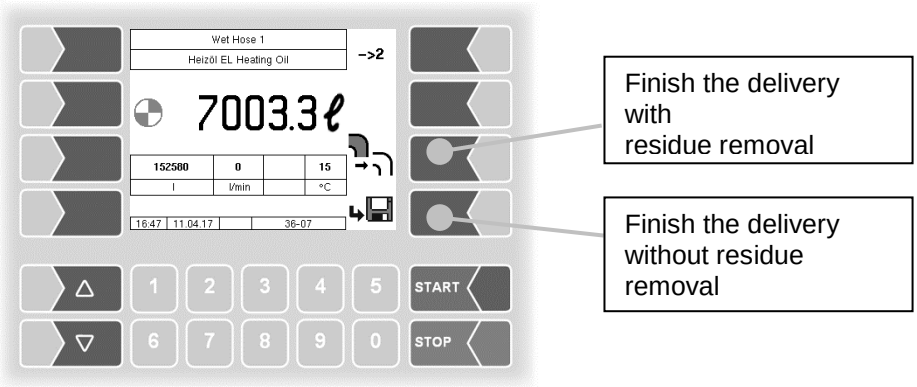
- Stop the delivery when the scheduled quantity was delivered. When a preset quantity had been entered, the delivery stops automatically.



If you want to continue the delivery, you can enter a new preset quantity.
(Configuration: Control parameter/Preset).

In the configuration can also be specified that the delivery can only be continued after entering a new preset quantity.

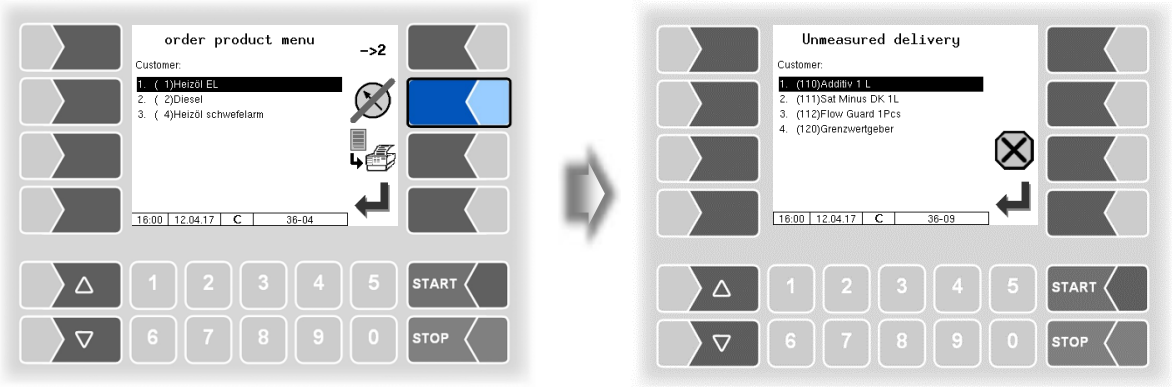
If automatically remove residual after delivering is not performed, you can choose to end the delivery process by manually starting the residual removing or by terminating the dispensing without residual removing.



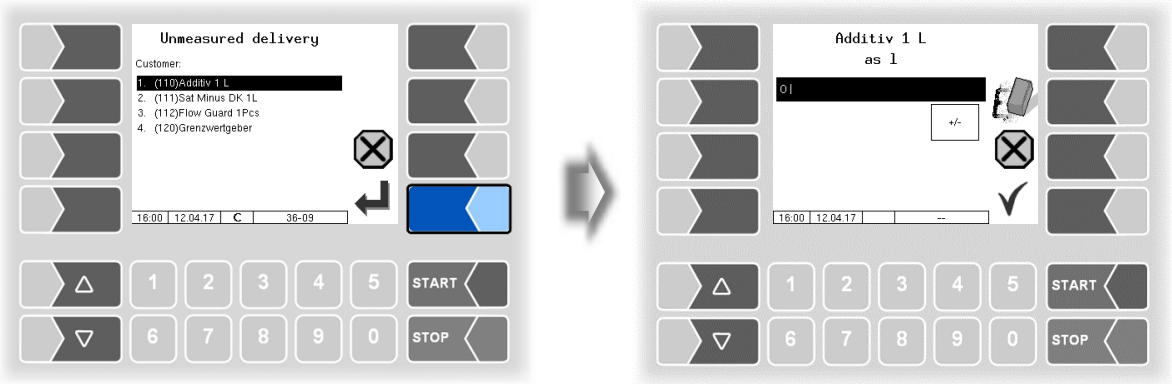
4.3 Delivery of unmeasured products

Products which can not be counted on the meter will be delivered as unmeasured products.
This includes products that are delivered in packages, fixed-price products as well as surcharges imposed on the delivery of other products (see also Surcharges section 4.7.1).
If at least one unmeasured product is configured, the "Unmeasured delivery" softkey is available.

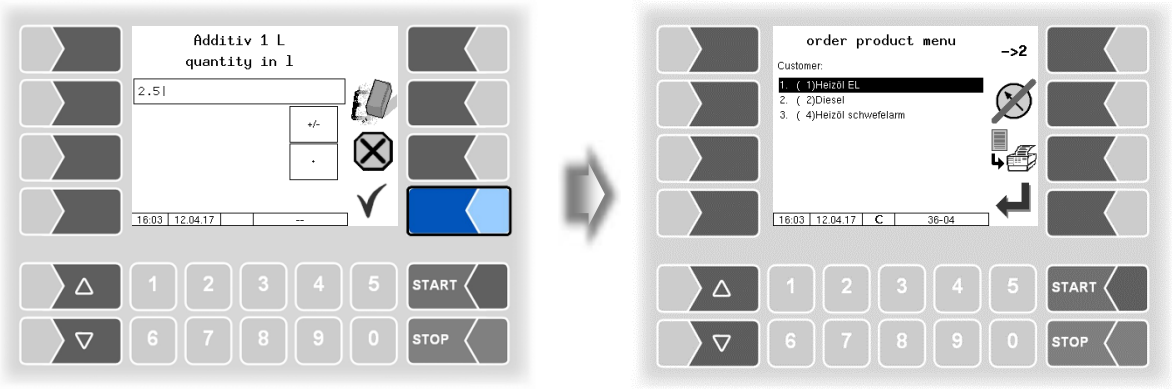
- Touch the "Unmeasured delivery" softkey.



- From the list of configured unmeasured products select the product for delivery.

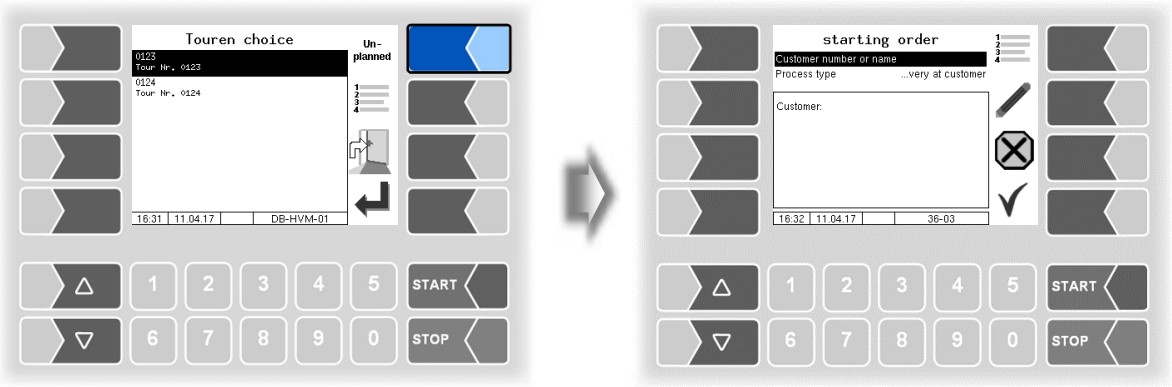


- Enter the quantity or number of products / packages that are to deliver.



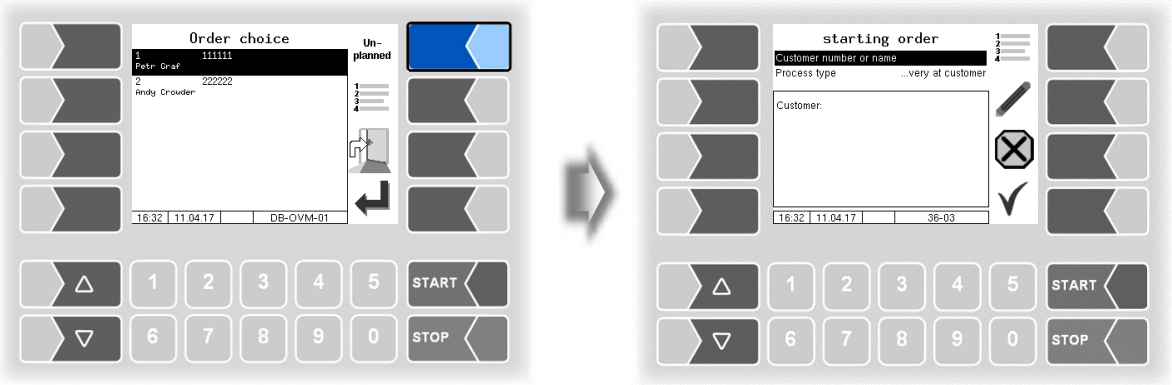
4.4 Unplanned tour

If you do not want to start any of the scheduled tours, or if there is no tour schedule data, you can start an unplanned tour.
Subsequently you can start an unplanned order.



4.5 Unplanned order

If you do not want to start any of the scheduled orders or if there is no order schedule data, you can start an unplanned order.

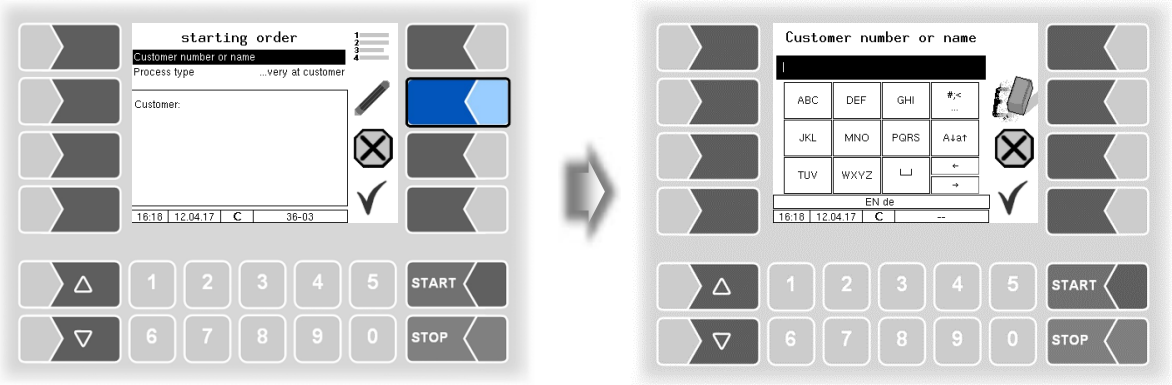


4.5.1 Customer selection

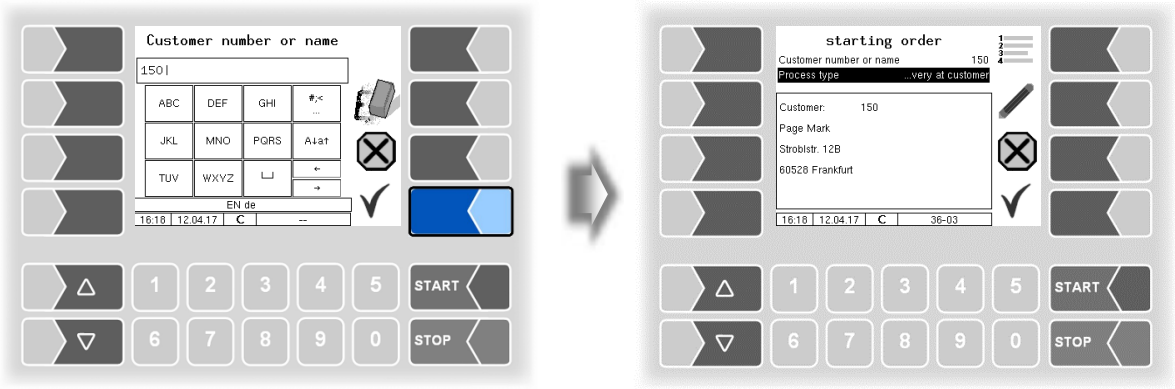
If a customer database is available, you can use it to select the customer.
You can either enter the customer number or the name.

If no customer data is available or a customer is not registered in the database, you can then enter a name. This name appears on the delivery document at the customer number position.

(Configuration: Print parameter / Ticket System Language / Ticket List-Layout selection /Customer number)

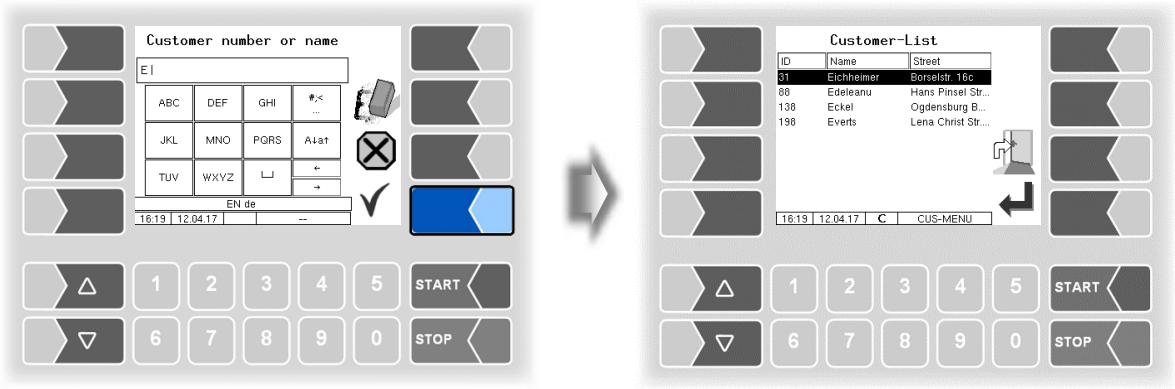


- After entering the customer number, the customer address is displayed.

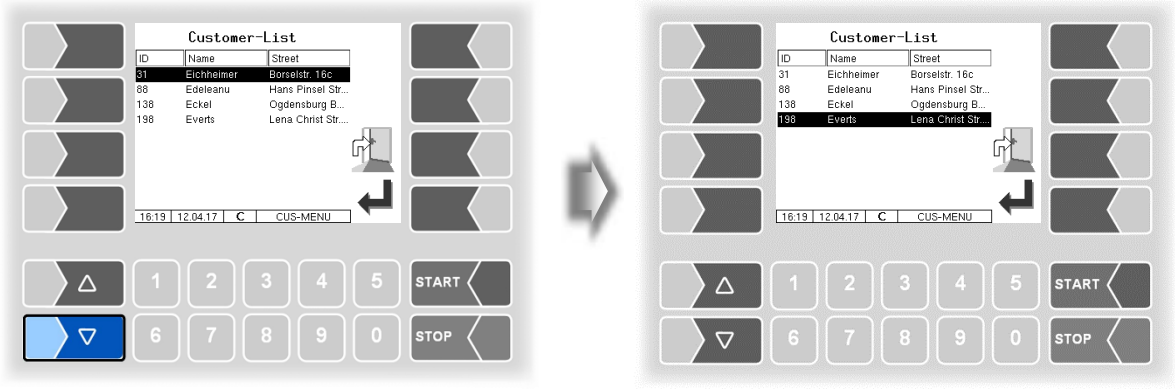


When entering the customer name, you can simplify the search in the customer data.

- Enter one or more characters of the customer name.
- The data of the customers starting with the entered string are displayed.



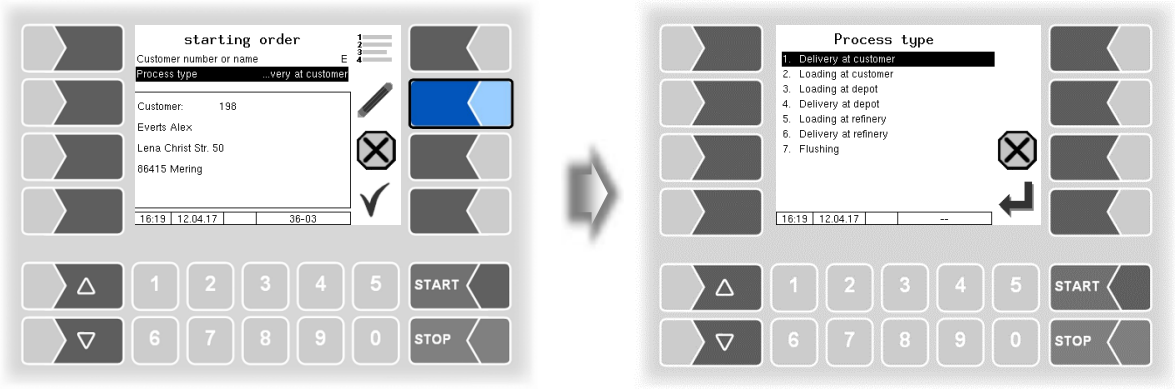
- Use the arrow keys to select the desired customer.



- After confirmation of the selected customer the customer address is displayed.

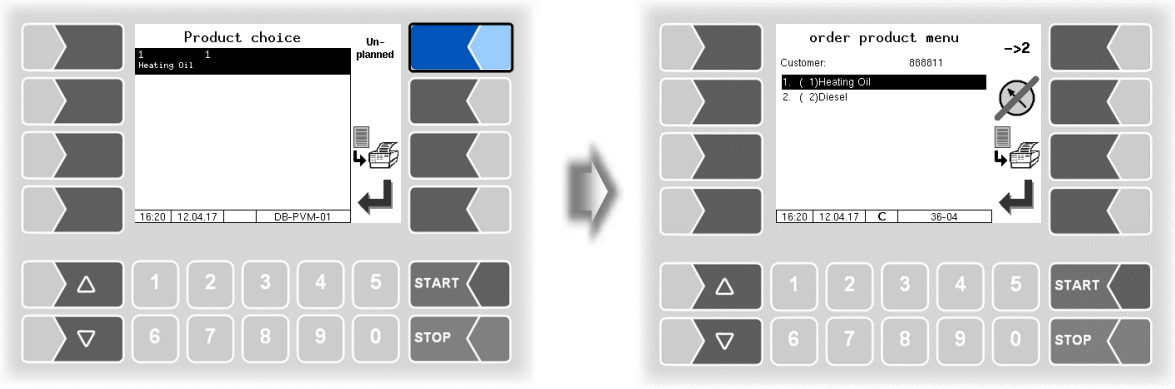
4.5.2 Selecting the process type

For the customer you have selected, you can change the process type if necessary.



4.6 Unplanned product

If there is no product data for the order, or if you want to deliver a product that is not in the order data, you can start an unplanned product delivery.



- From the list of configured products select the product you want to deliver.

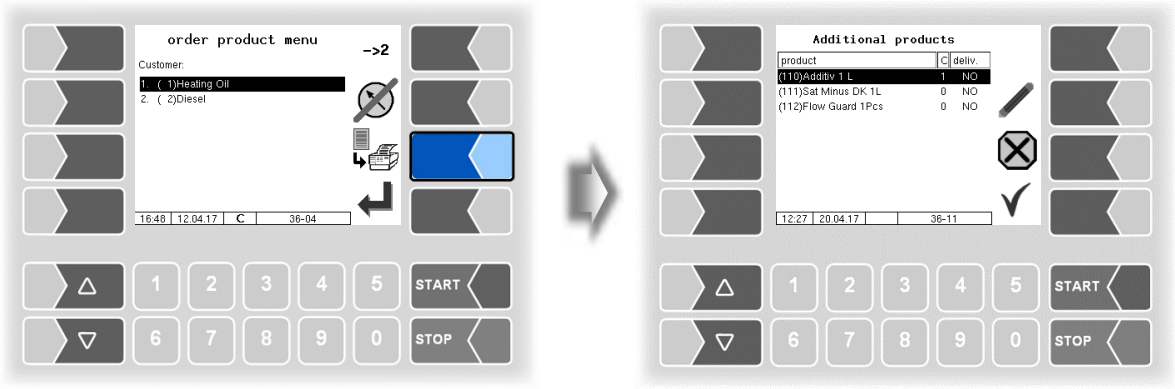
4.7 Finishing the order, print receipt

- To end the order, touch the "End order, “print receipt" softkey.

4.7.1 Surcharges

An overview of the configured surcharges is displayed (unmeasured “Additional products” that are proposed as a surcharge). Use the "Edit" softkey to confirm the currently selected surcharge ("YES") or not to use for the current order ("NO").
If a surcharge has already been applied during the order, the column "C" contains a 1.

(Configuration: Product configuration/Measured products/Additional product;
and
Configuration: Product configuration/Unmeasured products/Additional prod.)



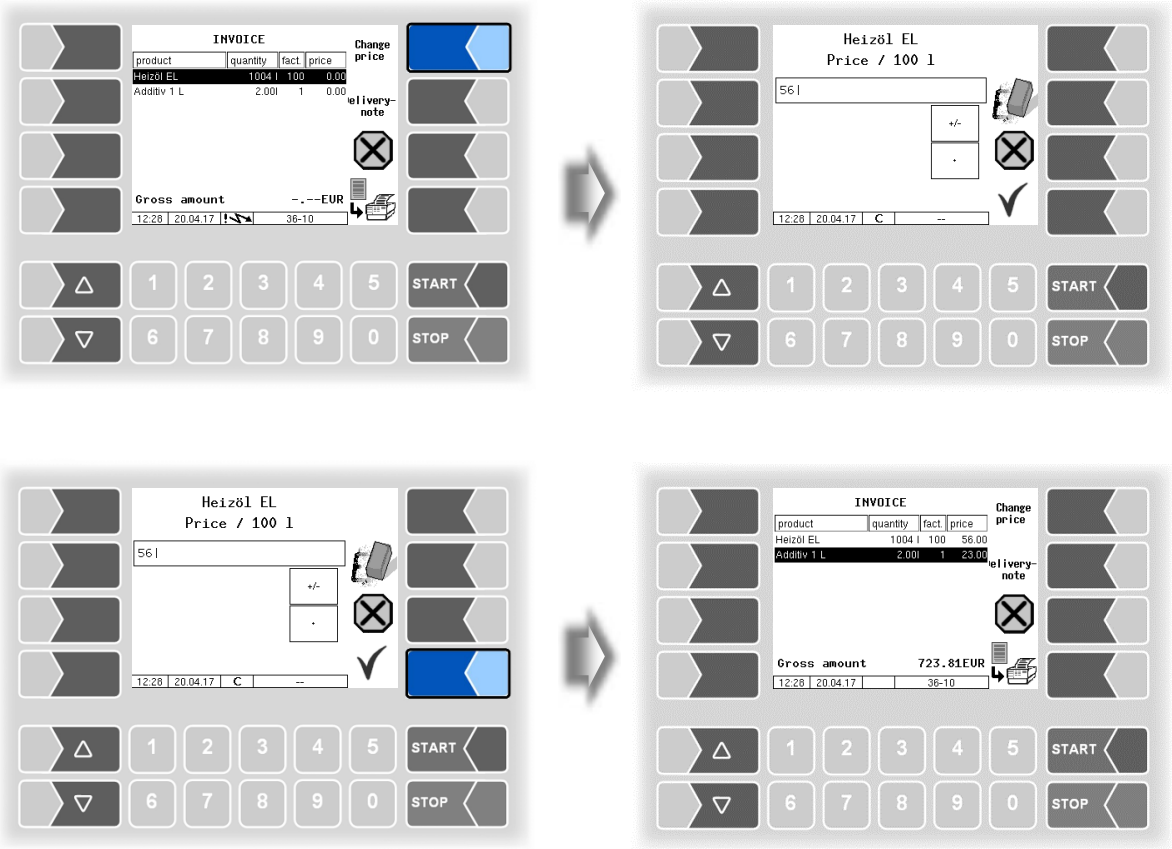
After confirming the selection of measured and unmeasured products and the surcharges, the invoice overview is displayed.

There are different ways to transfer surcharges with the scheduled data to the vehicle and to connect with the delivery of products.

4.7.2 Price input

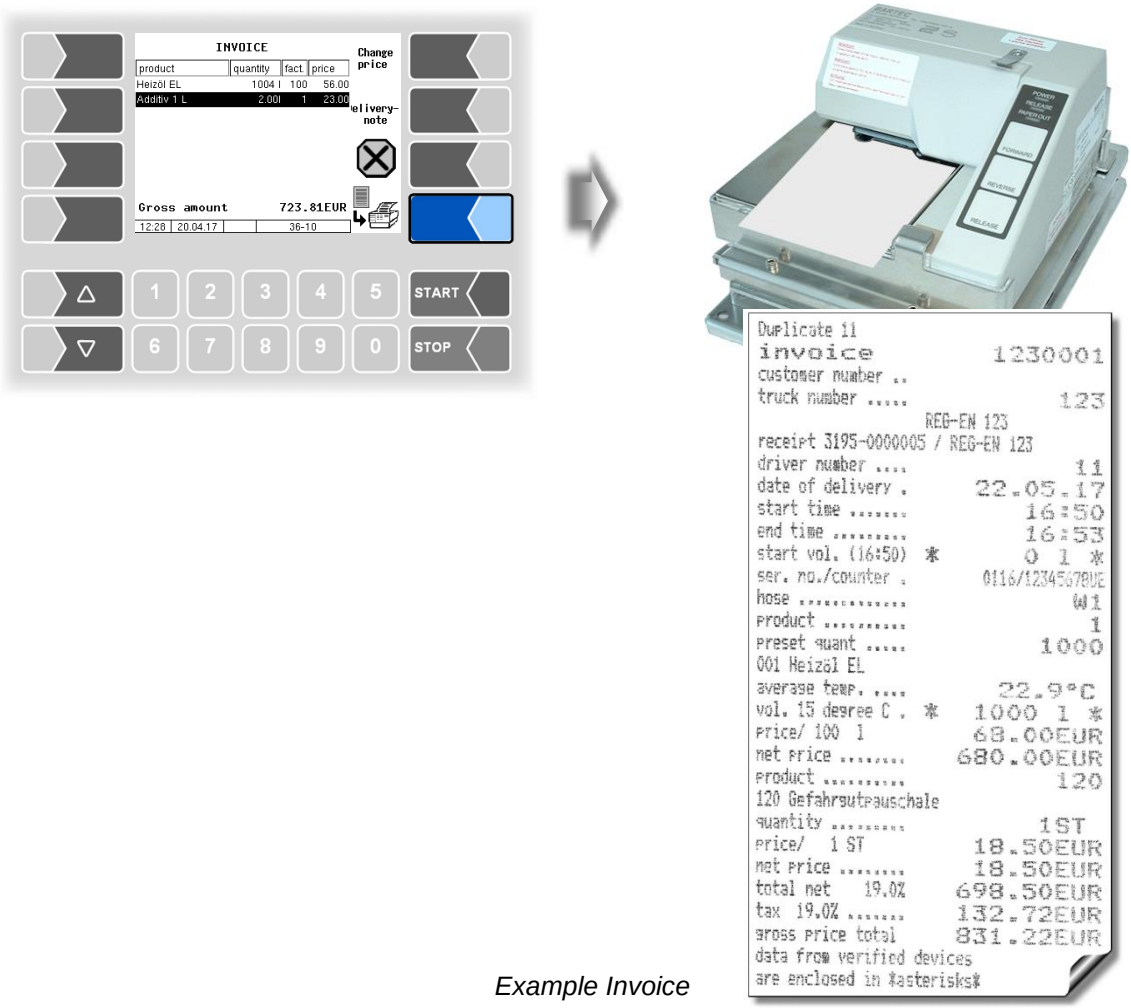
If the configuration allows you to change prices, you can enter the price or price change here.
(Configuration: Program parameter / Change Prices;
and
Configuration: Program parameter / Change Prices Office)

- Select the product whose price you want to enter or change and touch the "Change Price" softkey.
- Enter the current price of the product.



4.7.3 Print invoice

- Start printing the invoice when all the invoice items are complete.



Example Invoice

(This example of an invoice does not correspond to the data shown here on the display!)

4.7.4 Delivery note

Touch the "Delivery note" softkey if a delivery note is to be printed instead of the invoice. The delivery note contains all items, but no prices.

If the "Invoicing" application mode is not configured in the program parameters, the delivery note is always printed after selecting and confirming possible surcharges.
(Configuration: Program parameter / Application mode: Invoicing)

4.7.5 Duplicates

If necessary, you can print as many duplicates of the document as long as no new order has been started (see section 9.4).
Duplicates of documents from older orders can be printed out in the *long-term storage* within a certain period of time (usually three months) (see section 9.3).

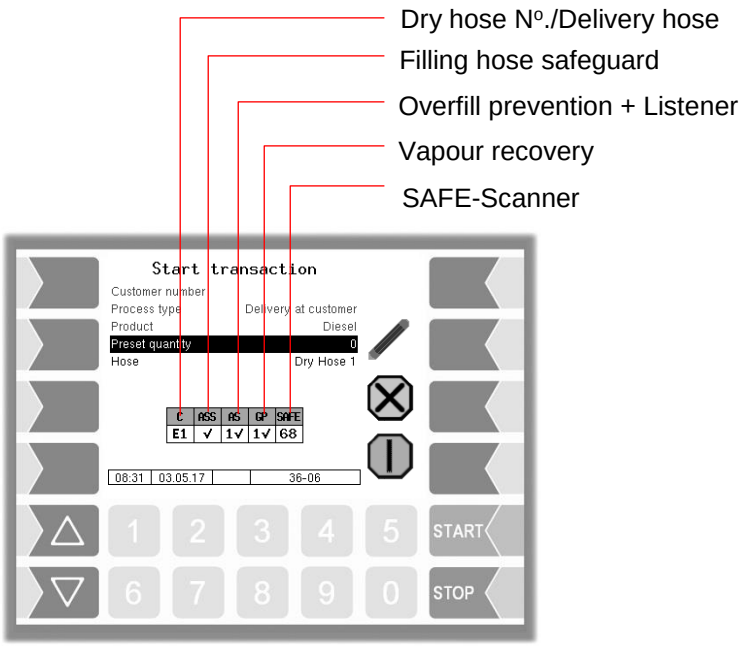
4.8 Product delivery with „Ex-TIGER“

The product delivery with "Ex-TIGER" is basically not different from the product release with "TIGER".

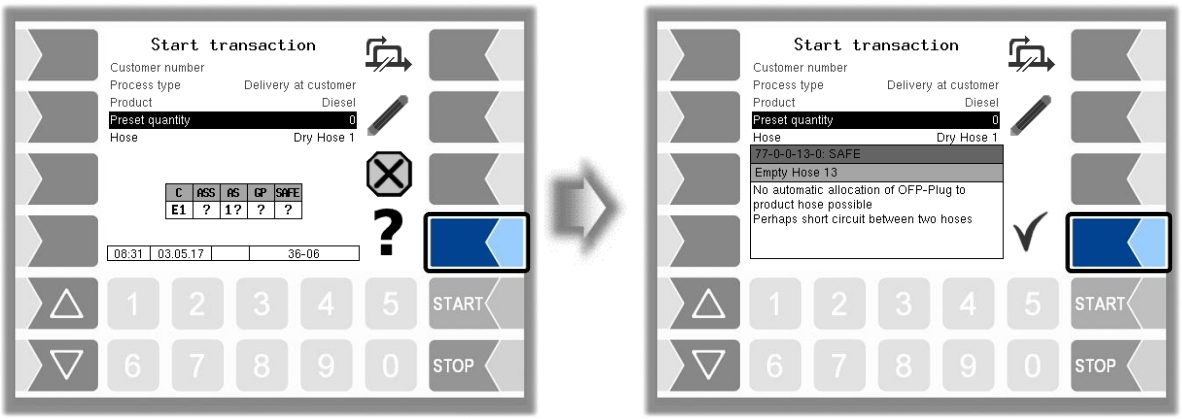
4.8.1 Special feature: delivery via empty hose

When delivering via a dry hose, e.g. for the supply of filling stations, the product delivery is monitored with safety components, provided the system is equipped with the "SAFE" function.

In the delivery window, the detected safety components are indicated by a checkmark.



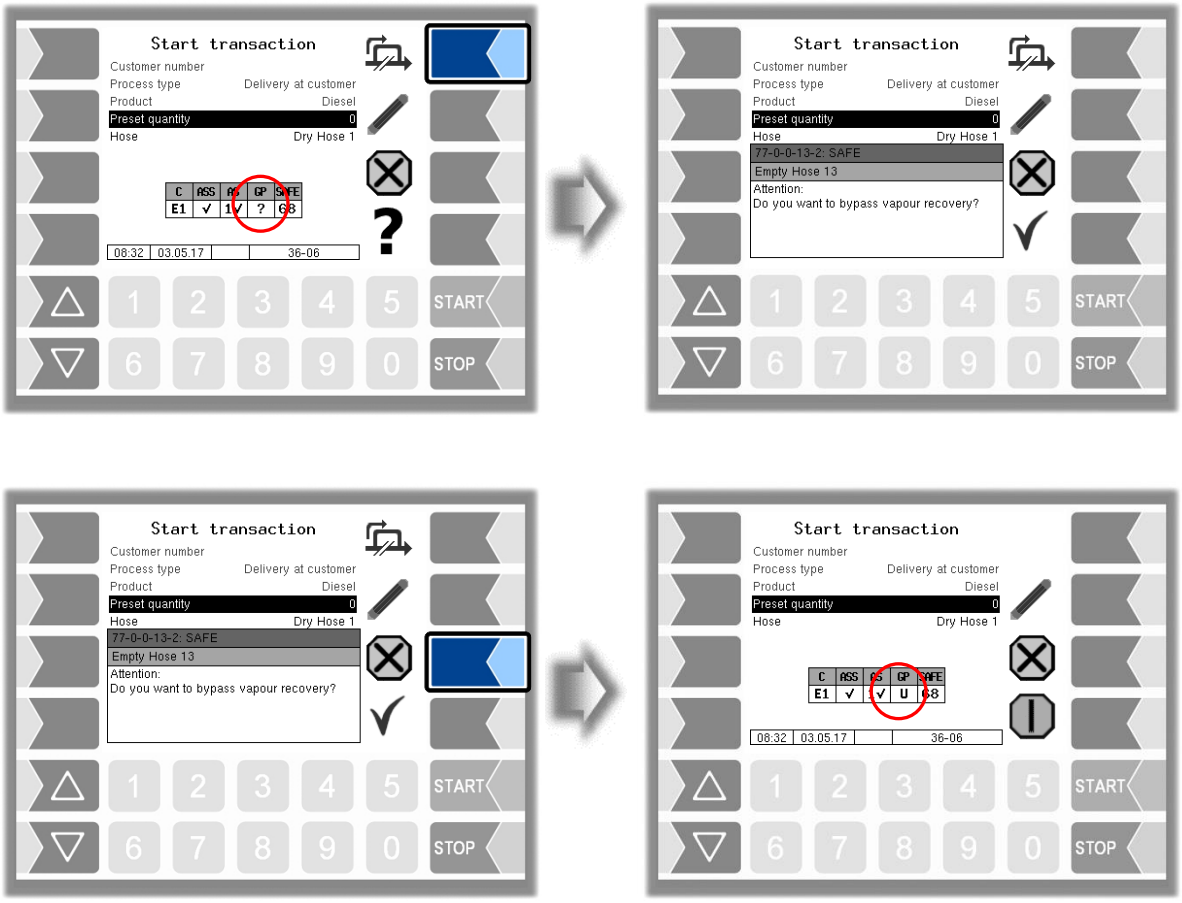
If a safety components is not detected, a question mark is displayed instead of the check mark and the [?] softkey appears.
Use this softkey to display information about the missing SAFE components. After confirmation of the message, the next message is displayed, if present.



4.8.2 Bypassing of SAFE components

If SAFE components are missing, delivery is possible only by bypassing these components.

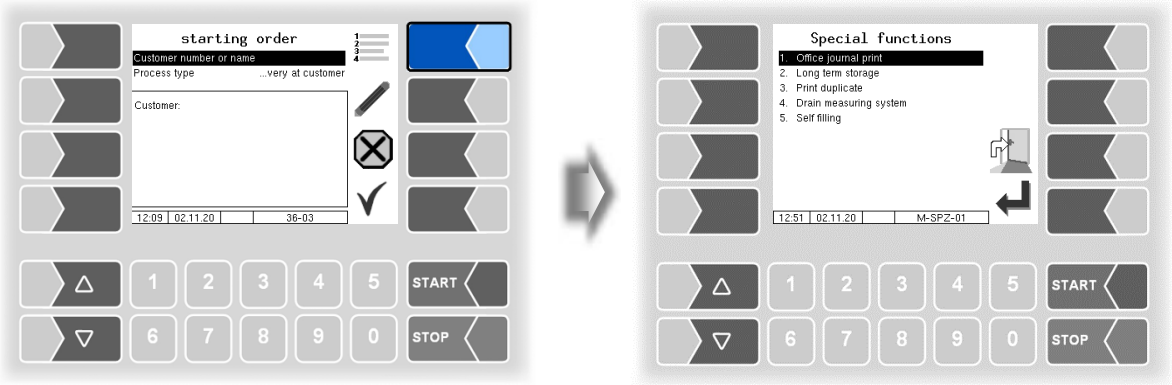
If one or more components of the quality safe system are not detected when starting a delivery, you can start the delivery by bypassing this components if this is allowed by configuration. Each bypassing is logged.
In the following example, there is no vapour recovery.



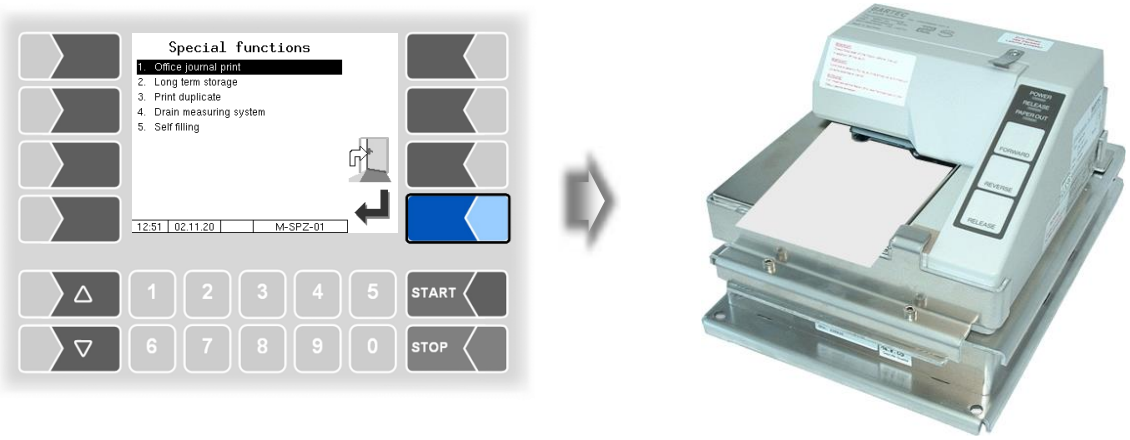
After confirming a bypassing, this is indicated by a "U" in the corresponding place in the table.

4.9 Special functions in the tour

Within a tour, you can use this softkey to call up special functions.

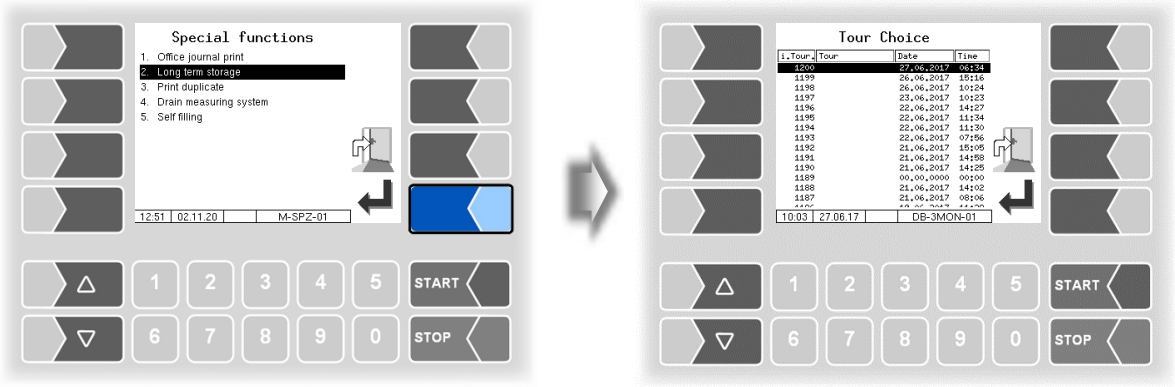


4.9.1 Office journal print



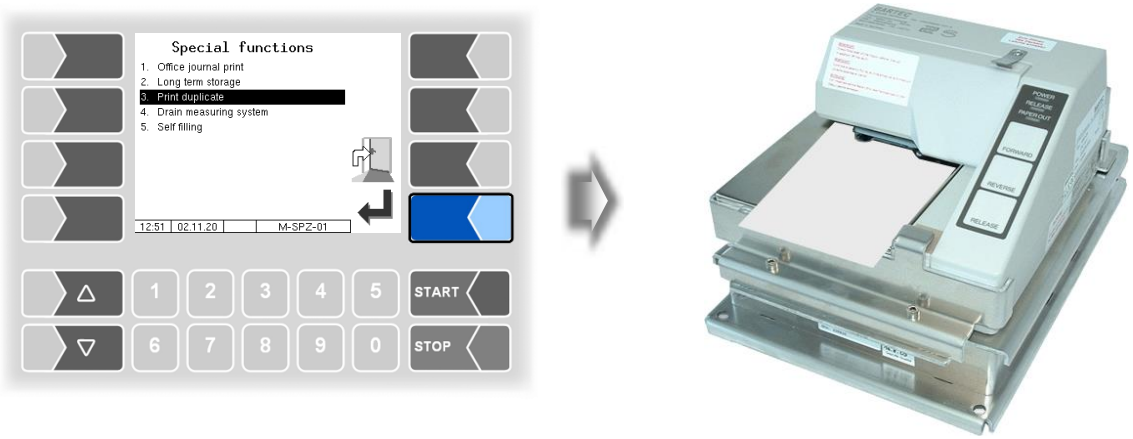
The scheduled data of the current tour, generated by the office, is printed.

4.9.2 Long term storage



The tour data is stored in the long-term memory for a certain period of time (usually three months). Within this time, you can view or print duplicates of the documents (see section 9.3).

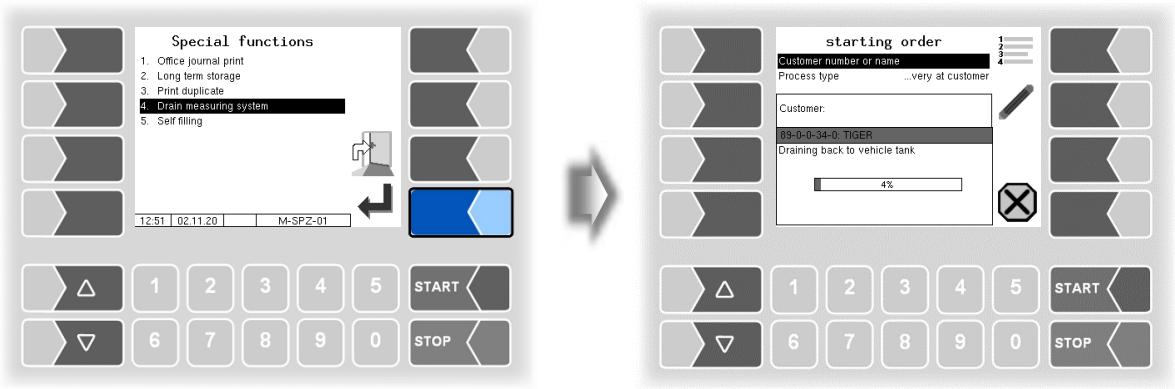
4.9.3 Print duplicate



As long as no new order has been started, you can print any number of duplicates of the last document (delivery note, invoice) (see also section 9.4).

4.9.4 Draining the measuring system

To prevent product mixing during a product change, you must remove residual from the system before delivering the new product.



The residuals of the most recently delivered product are pressed back from the system into the tank. They are not measured.

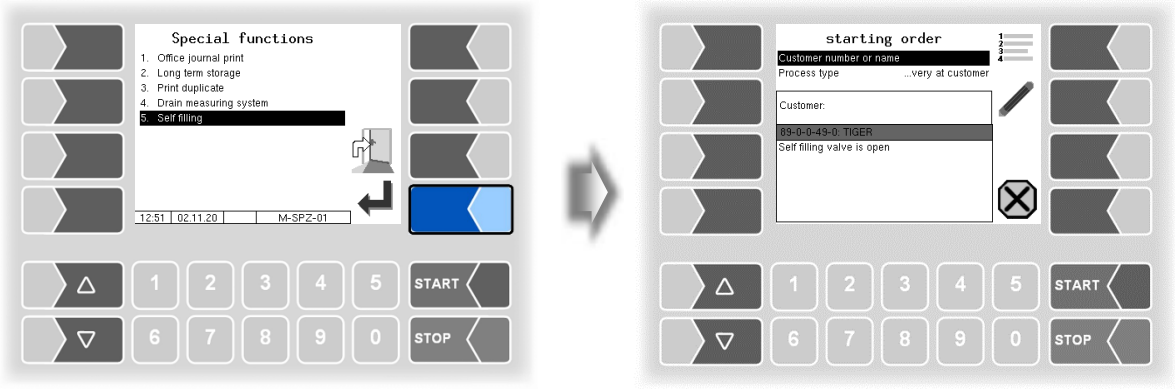
The function "Drain measuring system" is only available if the system is equipped accordingly.
Operating instructions from the superstructure manufacturer must be followed!

4.9.5 Self-filling

When the special function "self-filling" is called up, output log. 43 is activated.

Which process is triggered via this output depends on the type of technical superstructure of the vehicle. Follow the manufacturer's applicable operating instructions.

The process is ended with the "Abort" softkey.



5 Liquid chemicals and aqueous urea solutions

When dispensing liquid chemicals and aqueous urea solutions, e.g. of the AdBlue® product, the quantity is recorded via the MID.
Product selection, input of a default quantity, hose selection and product dispensing take place as described for dispensing other products.

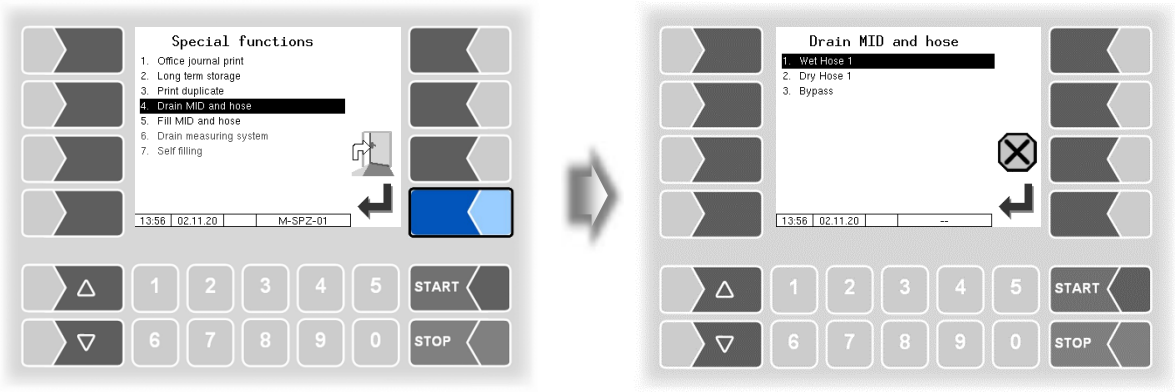
5.1 Special functions

In vehicles for liquid chemicals and aqueous urea solutions, two other special functions are available in addition to the special functions described in section 4.9.

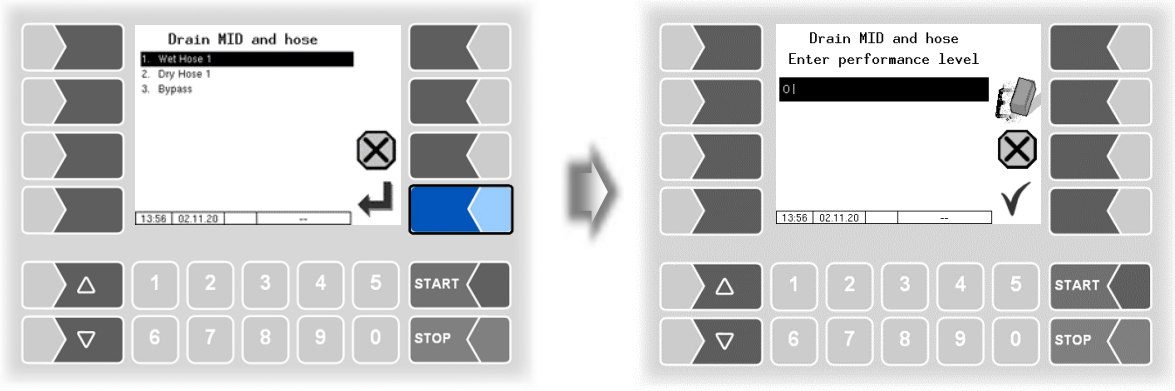
5.1.1 Draining MID and hose

It may be necessary to empty the system, e.g. B. when there is a risk of product freezing.

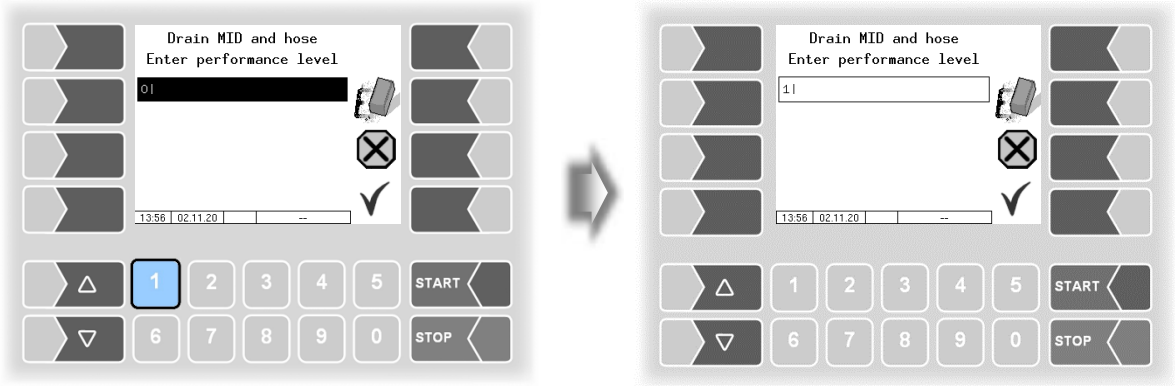
- Confirm the special function „Drain MID and hose“.



- Select a hose if multiple delivery hoses are available.

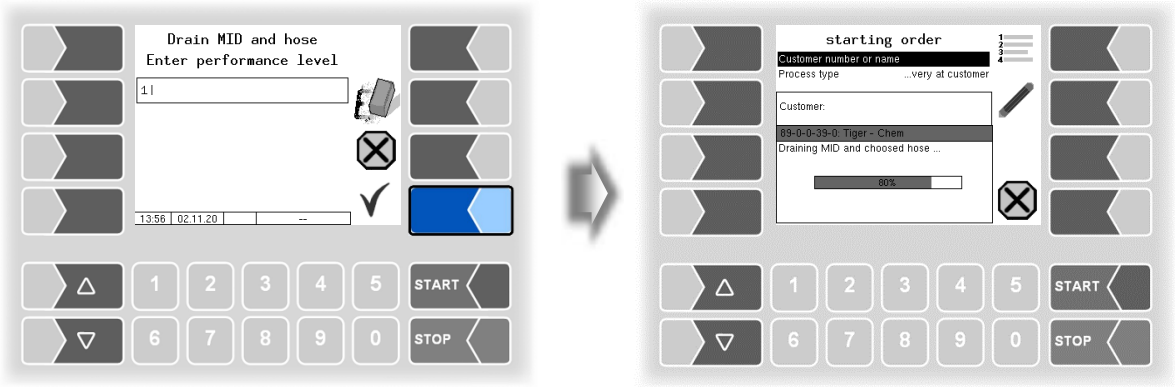


- Select a delivery level if outputs are configured for different delivery levels.



The delivery levels depends on the type of technical superstructure of the vehicle. Follow the manufacturer's applicable operating instructions.

- Confirm the selected delivery level. The pump is switched on and the hose valve is opened.



- End the process with the softkey ⊗ ("Abort") when the MID and the hose are completely emptied.

The emptying is recorded in the log file. There is no printout because no measurement is made during this process.

If the emptying takes place via a wet hose, a filling must be carried out before the next delivery.
Emptying via the dry hose does not require filling before the next delivery.

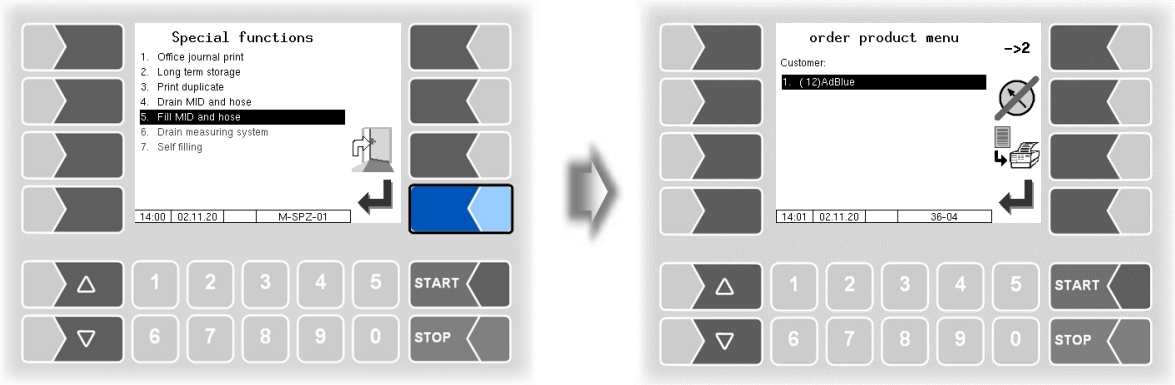
5.1.2 Filling MID and hose

When the MID and the delivery hose are empty, they can be filled with this special function.

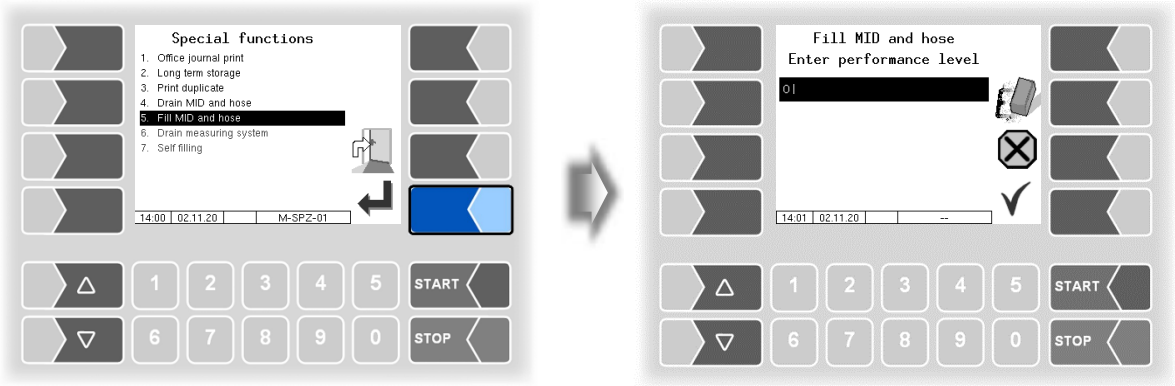
If the emptying has previously taken place via a wet hose, the filling must take place before the next delivery. No delivery is possible without filling!

A corresponding message appears when you start a delivery.

- Open the “Special functions” menu and confirm the special function "Fill MID and hose". The filling takes place via the wet hose.

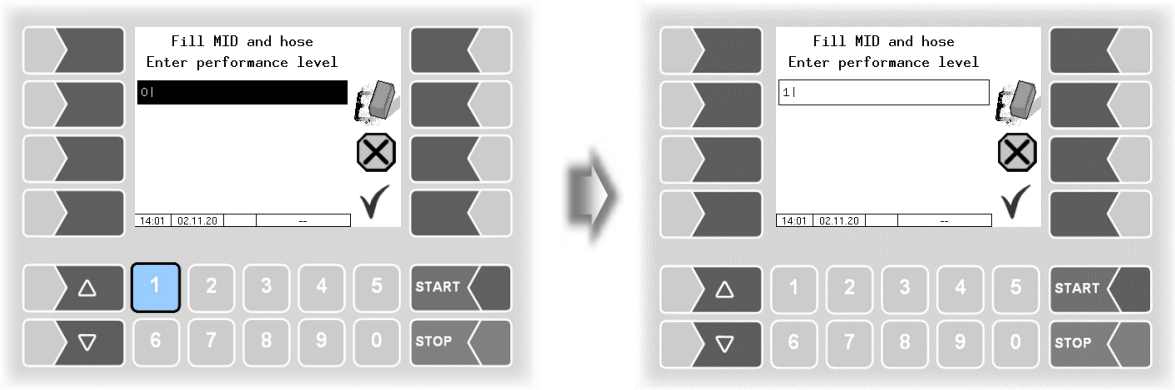


- Confirm the product with which the MID and hose are to be filled.

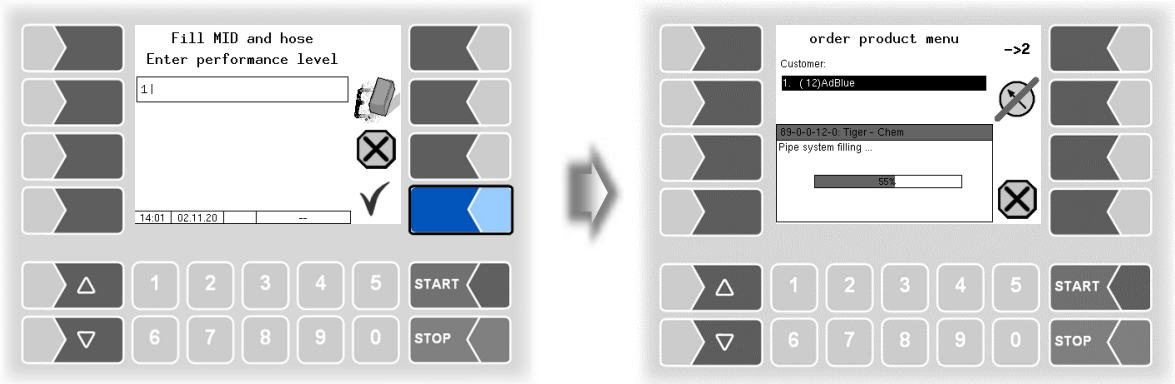


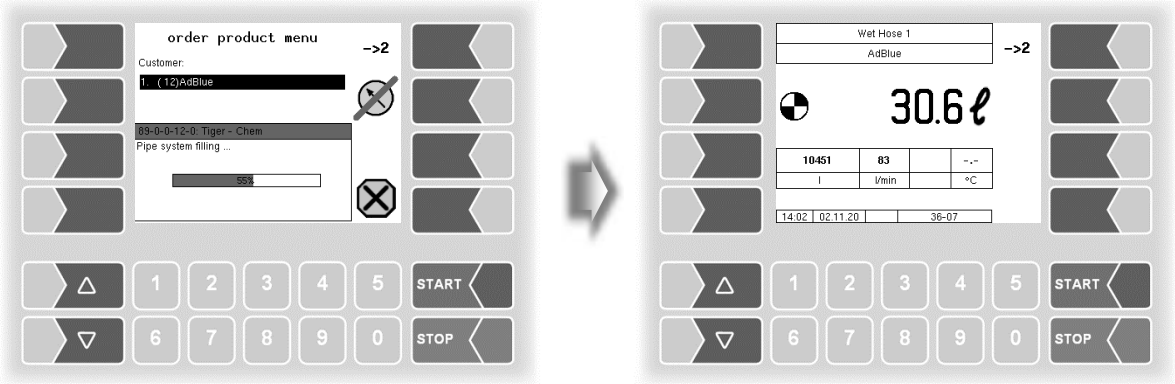
- Select a delivery level if outputs are configured for different delivery levels.

The delivery levels depends on the type of technical superstructure of the vehicle. Follow the manufacturer's applicable operating instructions.

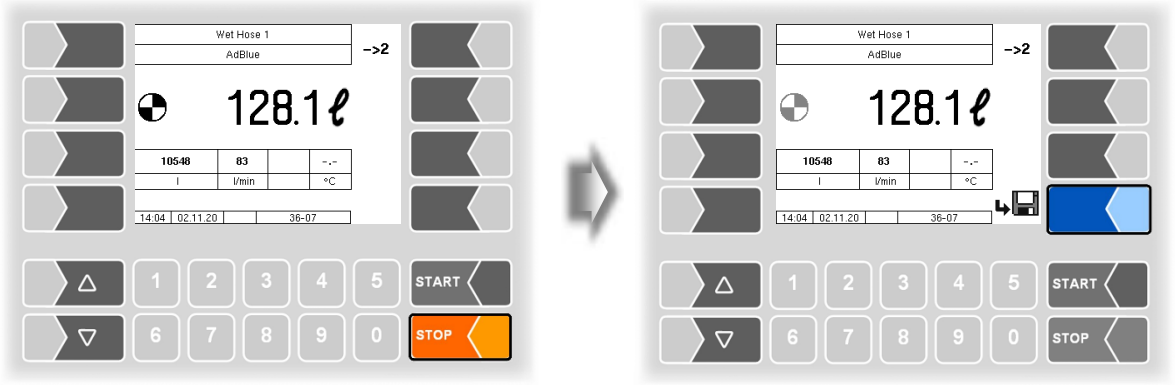


- Confirm the delivery level. Filling starts.





- Stop filling when the configured minimum quantity (default: 100 l) has been measured. (*Configuration: CHEM control parameter / Filling quantity*).



There is no printout for the filling process.

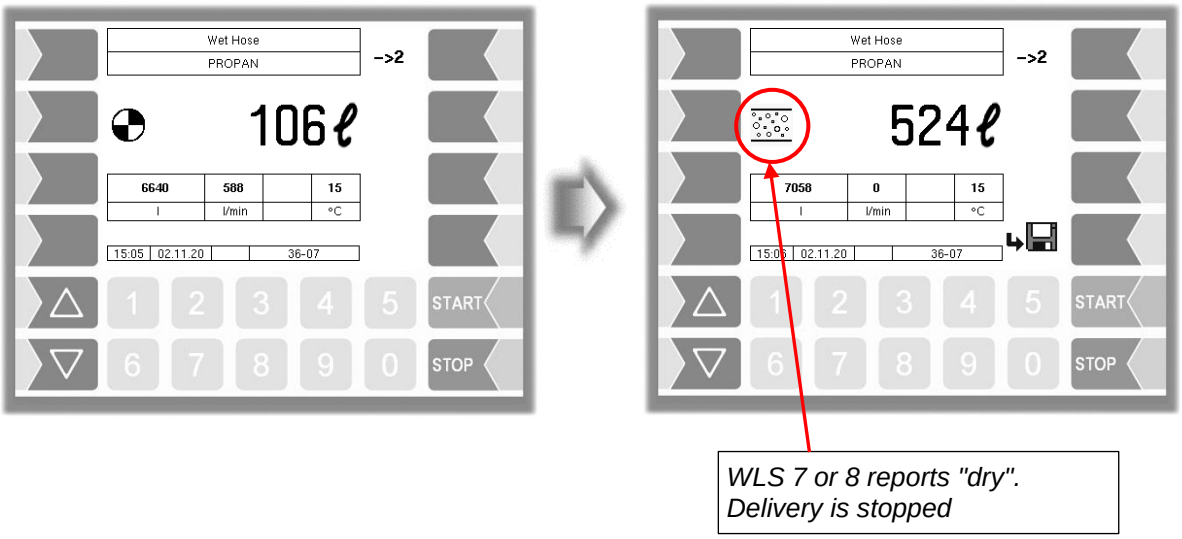
6 Pressurized liquefied gases

For vehicles that transport and deliver pressurized liquefied gases e.g. LPG, corresponding functions are also available. The basic process of product delivery takes place, depending on the configuration (program parameters, process parameters, office parameters), as described in 4.1 to 4.7.

6.1 Special features

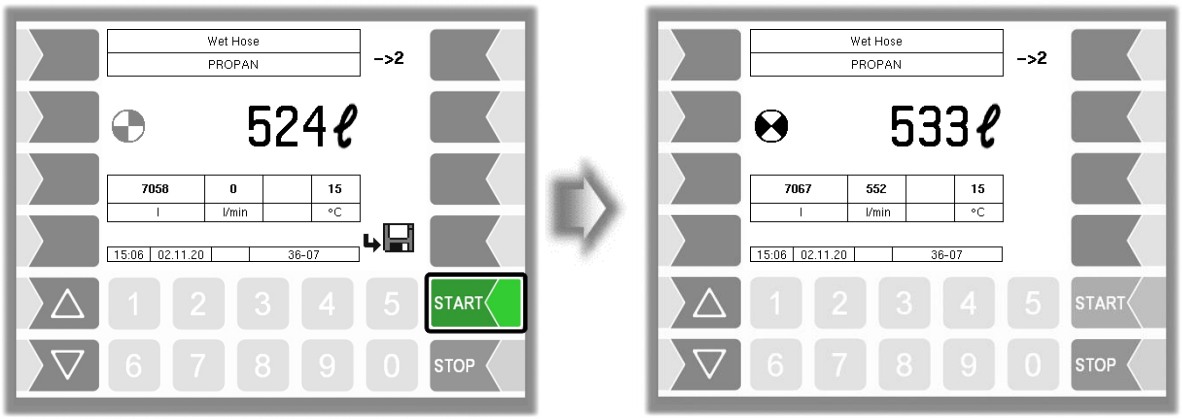
6.1.1 Delivery interruption when the measuring section is dry

The wetleg sensors log. 7 and log. 8 are installed in the measuring section, depend on type of technical superstructure of the vehicle and respond if no product is detected there.
If the wetleg sensor log. 7 or log. 8 reports "dry", the current delivery is stopped and instead of the pump symbol the air symbol is displayed.



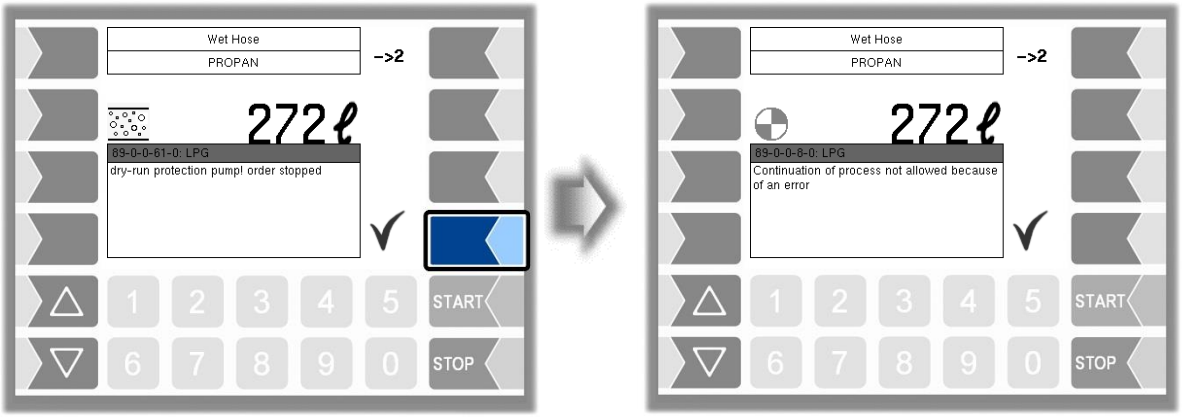
When <u>both</u> wetleg sensors report "wet" again, you can continue the delivery with the START button.

If the parameter *"LPG control parameter/Autostart after air stop"* was configures to *"Yes"*, delivery will start automatically after the wetleg sensor reports "wet".



6.1.2 Dispensing stop at dry run protection

The wetleg sensor log. 19 is installed to protect the pump from running dry. If the wetleg sensor log. 19 reports "dry", all valves are closed and the pump is stopped



The delivery cannot be continued. End the delivery.

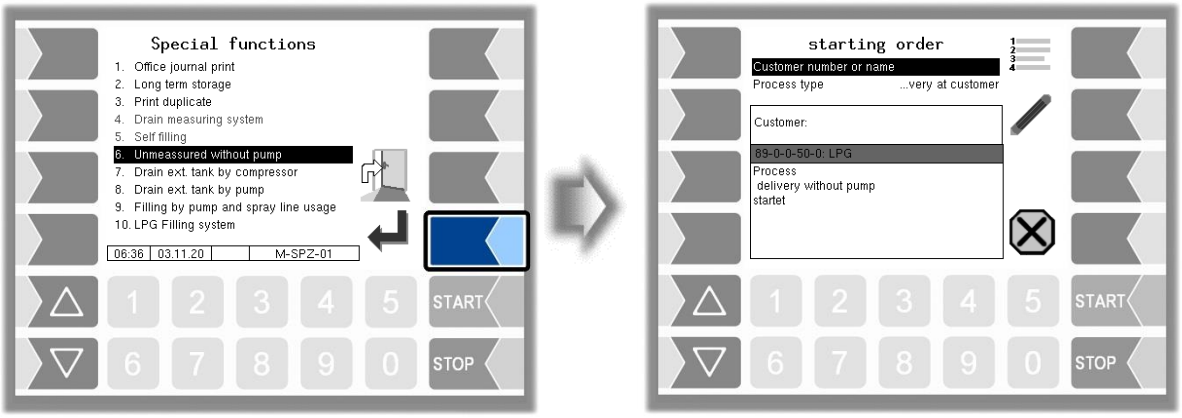
When the system is filled with product again in accordance with the regulations that apply to the vehicle, you can start a new delivery.

6.2 Special functions in vehicles for pressurized liquefied gases

In vehicles for pressurized liquefied gases, additional special functions are available in addition to the special functions described in section 4.9.

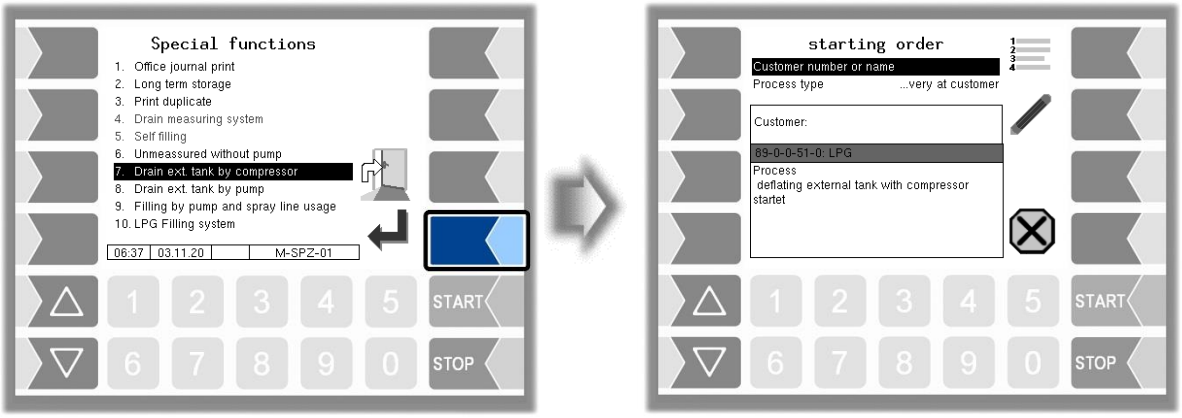
The operation of these special functions depends on the type of technical superstructure of the vehicle. Follow the manufacturer's applicable operating instructions.

6.2.1 Unmeasured delivery (without pump)



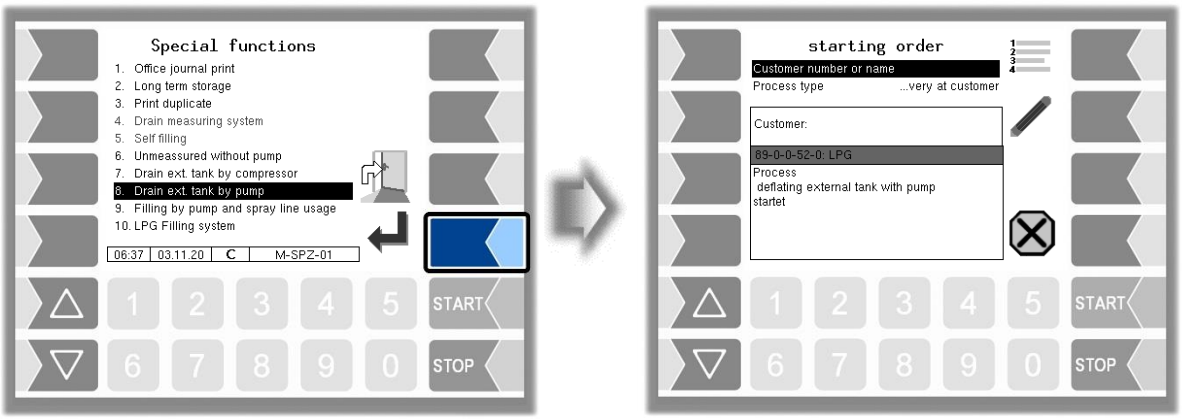
Output log. 45 is enabled and remains active until the process is terminated with the "Cancel" softkey.

6.2.2 Emptying external containers using a compressor



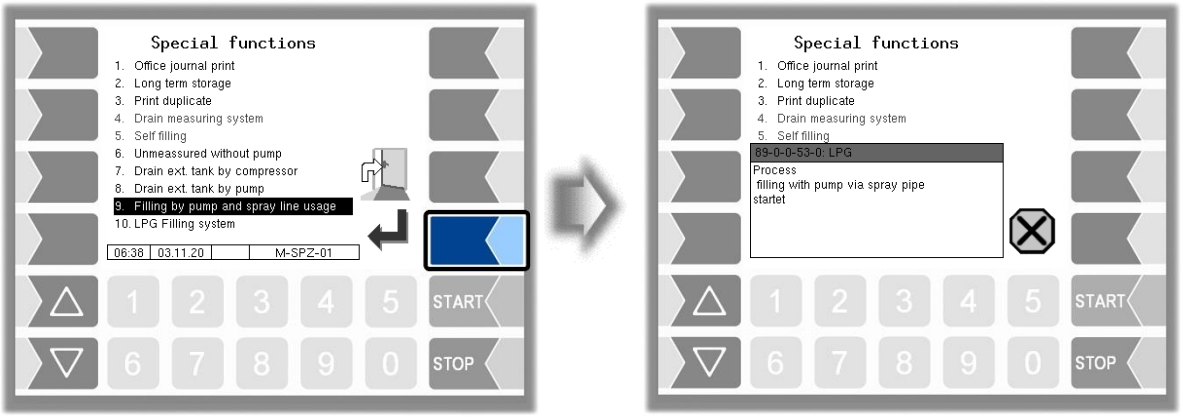
The Outputs log. 1, 2, 45, 46 and 44 are enabled and remain active until the process is terminated with the "Cancel" softkey.

6.2.3 Emptying external containers by pump



The outputs log. 1, 2, 45 and 46 are enabled and remain active until the process is terminated with the "Cancel" softkey.

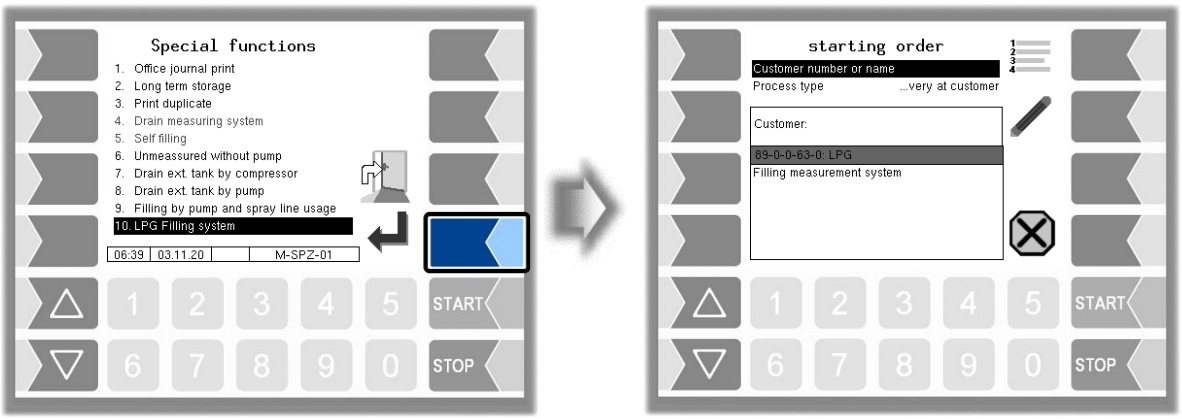
6.2.4 Filling by pump and spray line usage



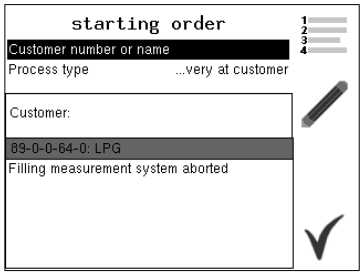
Output log. 45 is enabled and remains active until the process is terminated with the "Cancel" softkey.

6.2.5 Filling the LPG system

(available from version pair 1.19.5)



The outputs log. 1, 2 and 44 are enabled and the message „Filling measurement system“ is displayed.



Both wet leg sensors log. 7 and log. 8 must report being “wet” within 10 seconds and then remain “wet” for at least 10 seconds.

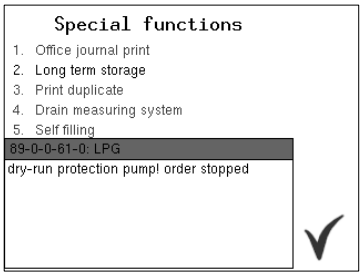
When changing from “dry” to “wet”, the filling time starts.

If the wet leg sensors report “dry” during the filling time, the filling time starts from the beginning.

The filling is aborted after three fails filling attempts.

If both wet leg sensors log. 7 and log. 8 report “wet” for the entire filling time, the filling is ended without any further message.

Dry run protection



<u>At the functions</u>:

Drain ext. tank by pump, ***Filling by pump and spray line usage, LPG Filling System,*** **is additionally continuously WLS log. 19 monitored.**

If the WLS log. 19 reports "dry", the output log. 79 is enabled and all other valves are closed prematurely.
After confirming the message „*dry-run protection pump! order stopped*“, the output log. 79 is disabled.

7 LUBOIL

7.1 Procedure for product delivery

The delivery of lubricating oil products is basically the same as the delivery of mineral oil products (see section 4.2).

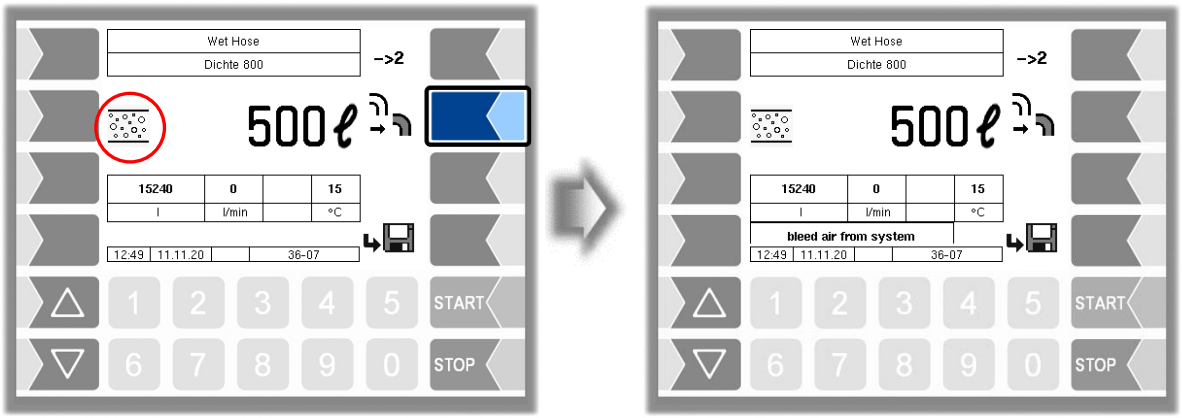
You can choose from up to 6 meters for delivery (see section4.2.5).

Only one wet hose is available for delivery.

7.2 Delivery interruption when the measuring section is dry

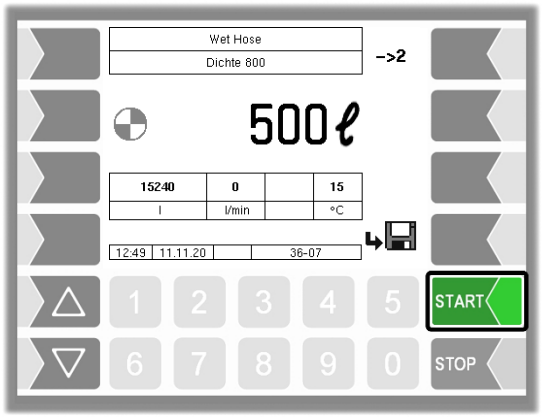
If the internal wetleg sensor reports "dry", the current delivery is stopped. Instead of the pump symbol the air symbol is displayed and the "Vent" softkey is available. If both LMS (internal and external) are configured, delivery stops when one of the two LMS reports “dry”.

- Touch the "Vent" softkey“.



The outputs “vent” and “pump” are enabled for the selected meter and the message “bleed air from system” is displayed.

If the measuring system has been vented (the internal wetleg sensor reports “wetted”), the pump symbol reappears



- Continue the delivery with the START key.

7.3 External low level sensor

If the external empty signal sensor reports "dry", the throttle output is set until it reports "wet" again or the delivery is ended.

8 Administration menu

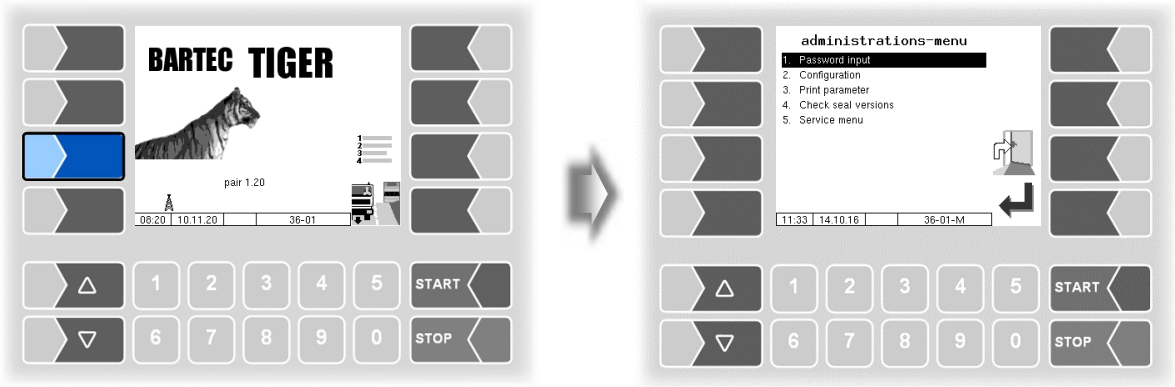
The Administration menu contains submenus which can be used to configure the system and access various functions.
The configuration menu and the service menu are read-only protected with passwords.

Only the menus and functions are described here, to which you have access without entering a password or after entering the driver password.

The submenus of the "Configuration" menu, you can open without entering a password, but not make any changes.

Opening the administration menu

- Use the third softkey down, to the left of the display to open the Administration menu.



8.1 Entering the driver password

The driver password is the sum of the day, month and hour (as shown on the display).

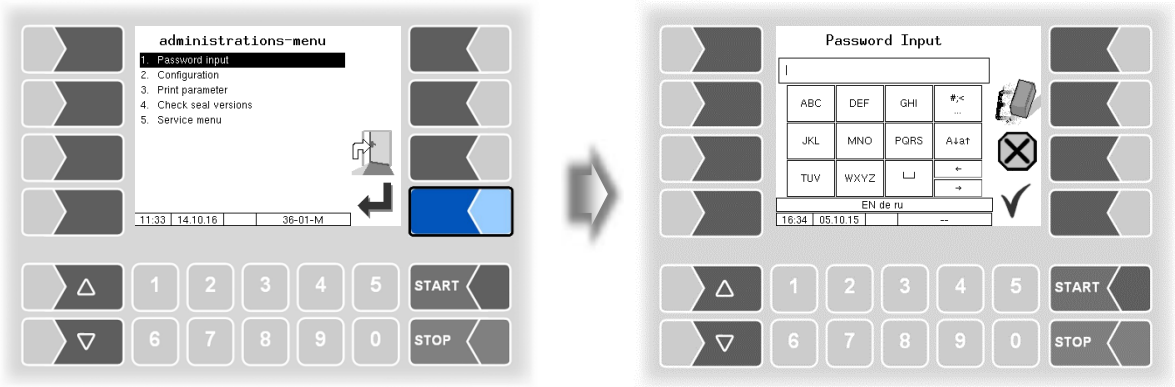
Driver password = day + month + hour

Example

*Date: **21**. **03**. 2020, **07**:28 h*
*Driver password = 21 +3 +7 = **31***

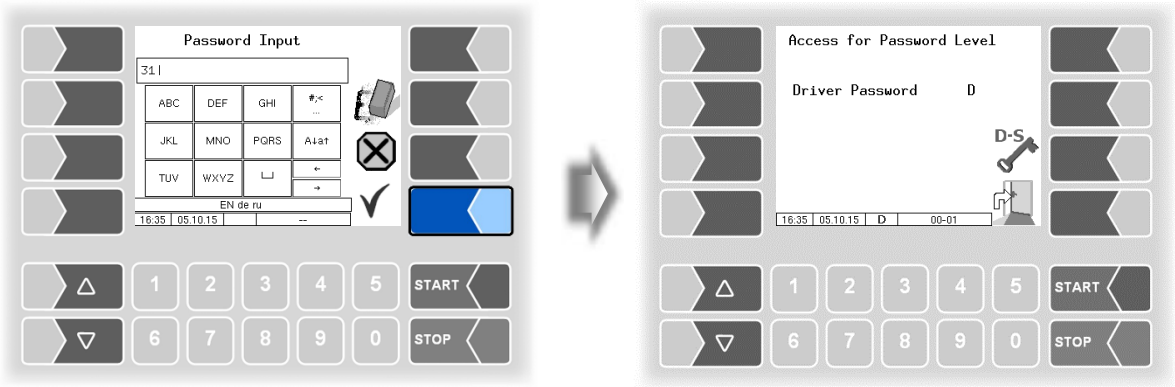
- Confirm the „Password Input“ item from the Administration menu“.

You can enter the password in the following window. Numerical entries are entered using the keys below the display.
If you need to make any corrections, you can use the softkey with the rubber symbol. When you touch this softkey, the character to the left of the cursor is deleted.



- Once you have entered the full password, touch the “Accept / save” softkey.

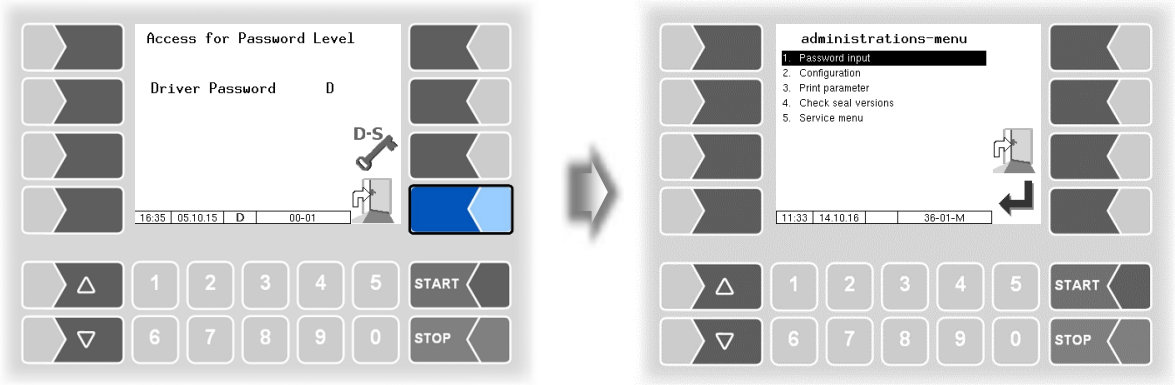
The system then shows the password level that you can access (D).



The softkey

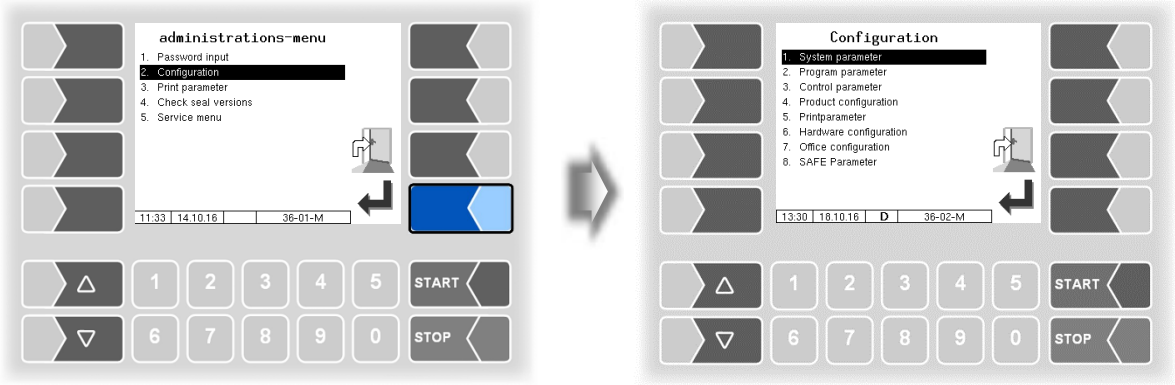
opens the window for entering the password (Driver-, User- or Service-Password) again.

- Touch the softkey to return to the menu selection.

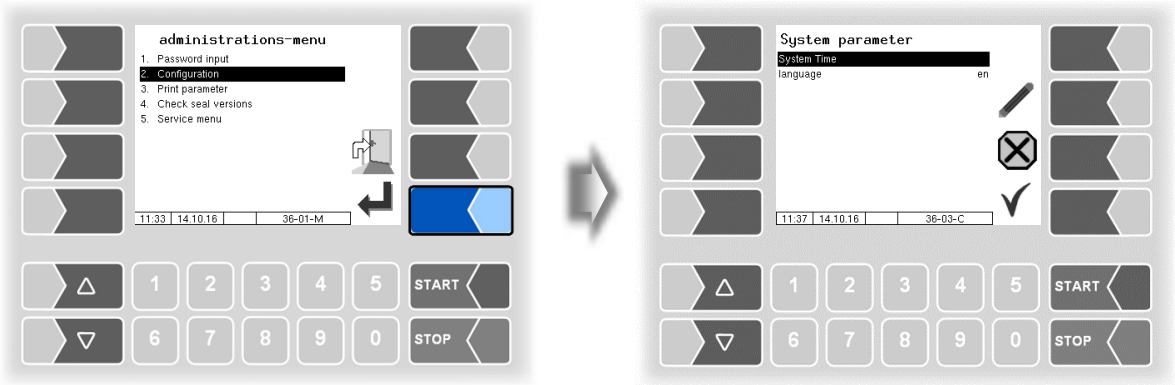


8.2 Setting the language

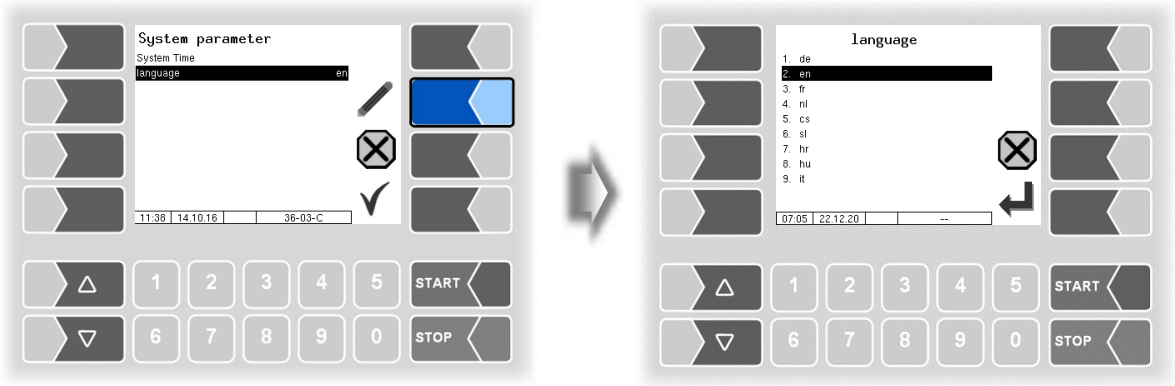
- Open the “Configuration” menu.



- Open the submenu “System parameter”.



- To edit, open the submenu “Language”.



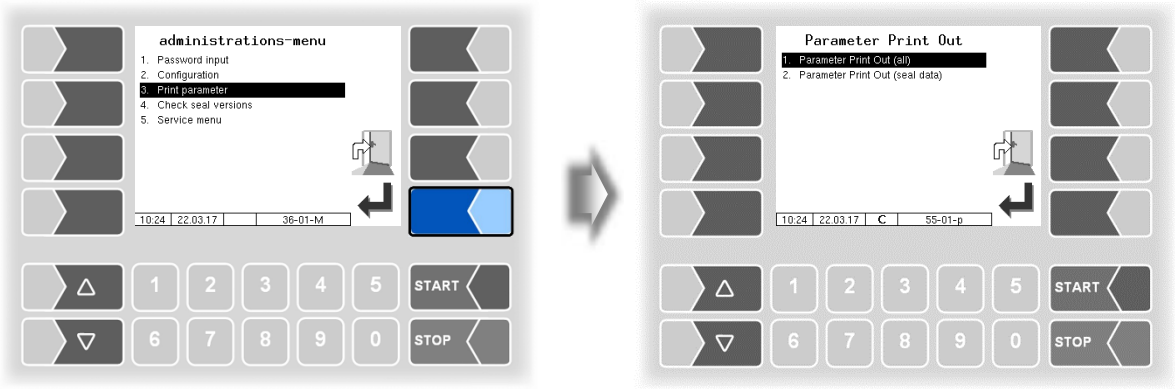
- Select the desired language and confirm the selection with the “Accept / save” softkey.

Language			
	D	Language	Select the display language de (German) en (English) fr (French) nl (Dutch) cs (Chech) sl (Slovenian) hr (Croatian) hu (Hungarian) it (Italian) sr (Serbian) pl (Polish) bg (Bulgarian) ro (Romanian) et (Estonian)

If you change the language setting, will the system automatic be rebooted.

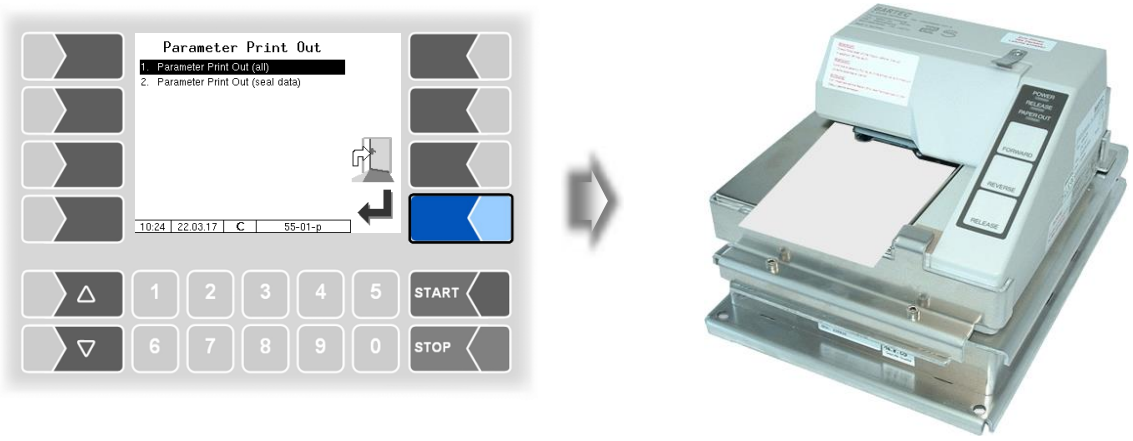
8.3 Print parameter

- Select the “Print Parameter” menu from the administration menu.



- Select whether to print the parameters completely or only the calibration relevant data.

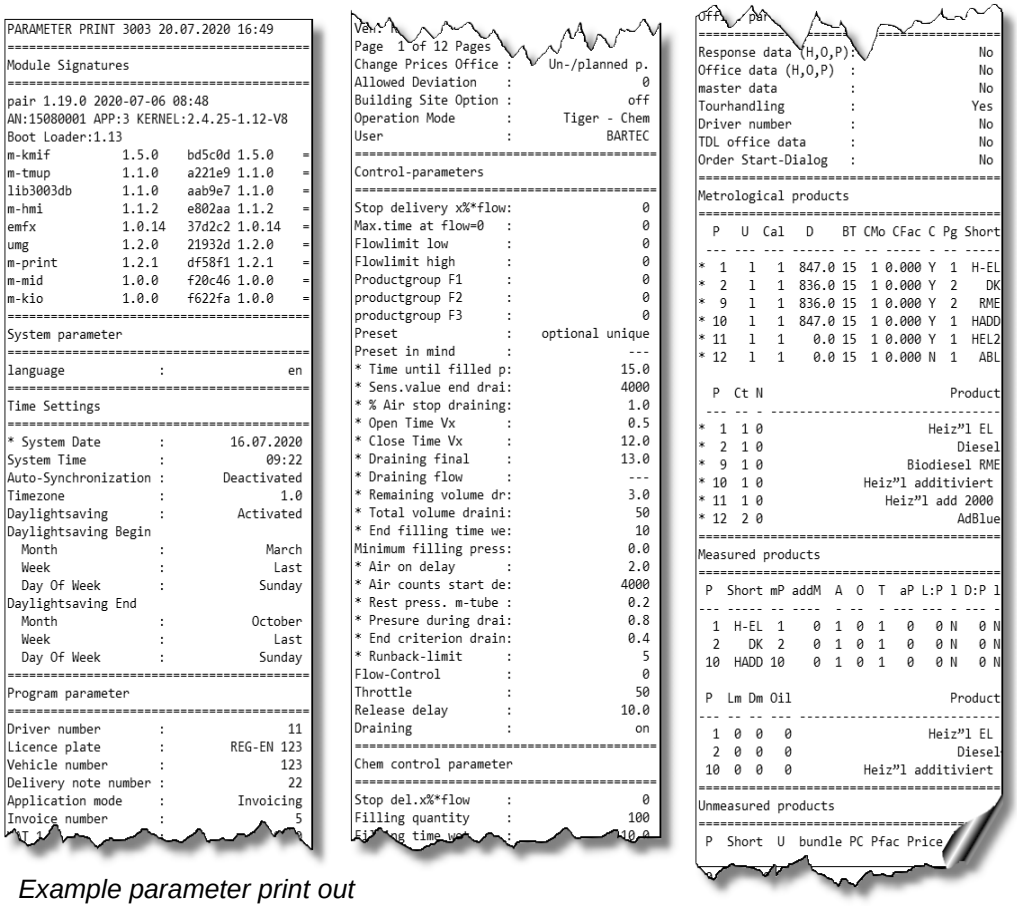
The current settings for the configuration parameters are output to the configured printer.



Meaning of the abbreviations for the product configuration on the parameter print

P	Product number
U	Unit
Cal	Calibration factor
D	Density
BT	Basic temperature
CMo	Compensation mode
CFac	Compensation factor
C	Product compensated
Ct	Counter type
N	Counter No.
Pg	Product group
Short	Shortcut
SW-L	Floater depth
Product	Product name
mP	Allocation for metrological product
addM	Additive mixing ratio
A	Additive pump used
O	log. output for compartment switching for additivation
T	Tax
aP	Additional product
L:P	Load PID
I	Load PID leaded
D:P	Discharge PID
I	PID- Discharge leaded
Lm	Load magnet
Dm	Discharge magnet
Oil	Oil company
bundle	Packaging content
Pc	Price code
Pfac	Price factor
Price	Price
T	VAT rate
Y	Yes
N	No

1 : Heating oil/diesel/gasoline
2 : lubricating oils
3 : liquid gas
4 : linear
5: GTL



```
PARAMETER PRINT 3003 20.07.2020 16:49
==========================================
Module Signatures
==========================================
pair 1.19.0 2020-07-06 08:48
AN:15080001 APP:3 KERNEL:2.4.25-1.12-V8
Boot Loader:1.13
m-kmif          1.5.0    bd5c0d 1.5.0    =
m-tmup          1.1.0    a221e9 1.1.0    =
lib3003db       1.1.0    aab9e7 1.1.0    =
m-hmi           1.1.2    e802aa 1.1.2    =
emfx            1.0.14   37d2c2 1.0.14   =
umg             1.2.0    21932d 1.2.0    =
m-print         1.2.1    df58f1 1.2.1    =
m-mid           1.0.0    f20c46 1.0.0    =
m-kio           1.0.0    f622fa 1.0.0    =
==========================================
System parameter
==========================================
language              :                  en
==========================================
Time Settings
==========================================
* System Date         :          16.07.2020
System Time           :               09:22
Auto-Synchronization  :         Deactivated
Timezone              :                 1.0
Daylightsaving        :           Activated
Daylightsaving Begin
  Month               :               March
  Week                :                Last
  Day Of Week         :              Sunday
Daylightsaving End
  Month               :             October
  Week                :                Last
  Day Of Week         :              Sunday
==========================================
Program parameter
==========================================
Driver number         :                  11
Licence plate         :         REG-EN 123
Vehicle number        :                 123
Delivery note number  :                  22
Application mode      :           Invoicing
Invoice number        :                   5
```

```
Ver: 1
Page  1 of 12 Pages
Change Prices Office :    Un-/planned p.
Allowed Deviation    :                0
Building Site Option :              off
Operation Mode       :      Tiger - Chem
User                 :           BARTEC
==========================================
Control-parameters
==========================================
Stop delivery x%*flow:                0
Max.time at flow=0   :                0
Flowlimit low        :                0
Flowlimit high       :                0
Productgroup F1      :                0
productgroup F2      :                0
productgroup F3      :                0
Preset               :   optional unique
Preset in mind       :              ---
* Time until filled p:             15.0
* Sens.value end drai:             4000
* % Air stop draining:              1.0
* Open Time Vx        :              0.5
* Close Time Vx       :             12.0
* Draining final      :             13.0
* Draining flow       :              ---
* Remaining volume dr:              3.0
* Total volume draini:               50
* End filling time we:               10
Minimum filling press:              0.0
* Air on delay        :              2.0
* Air counts start de:             4000
* Rest press. m-tube  :              0.2
* Presure during drai:              0.8
* End criterion drain:              0.4
* Runback-limit       :                5
Flow-Control         :                0
Throttle             :               50
Release delay        :             10.0
Draining             :               on
==========================================
Chem control parameter
==========================================
Stop del.x%*flow     :                0
Filling quantity     :              100
Filling time wet     :            10.0
```

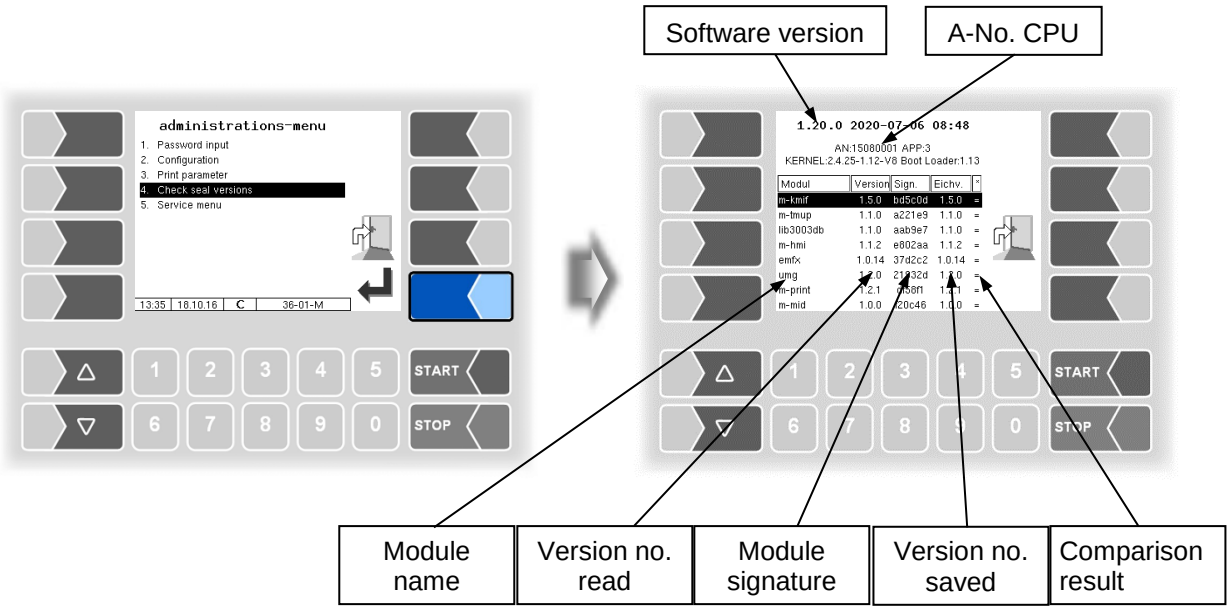
```
Offi... par
==========  ==========  ==========
Response data (H,O,P):                  No
Office data (H,O,P)  :                  No
master data          :                  No
Tourhandling         :                 Yes
Driver number        :                  No
TDL office data      :                  No
Order Start-Dialog   :                  No
==========================================
Metrological products
==========================================
  P   U  Cal   D    BT CMo CFac C Pg Short
 --- --- --- ------ -- -- ----- - -- -----
*  1   1   1  847.0 15  1 0.000 Y  1  H-EL
*  2   1   1  836.0 15  1 0.000 Y  2    DK
*  9   1   1  836.0 15  1 0.000 Y  2   RME
* 10   1   1  847.0 15  1 0.000 Y  1  HADD
* 11   1   1    0.0 15  1 0.000 Y  1  HEL2
* 12   1   1    0.0 15  1 0.000 N  1   ABL

  P  Ct N                          Product
 --- -- - ------------------------------
*  1  1 0                      Heiz"l EL
*  2  1 0                         Diesel
*  9  1 0                   Biodiesel RME
* 10  1 0              Heiz"l additiviert
* 11  1 0                Heiz"l add 2000
* 12  2 0                         AdBlue
==========================================
Measured products
==========================================
 P  Short mP addM  A  O  T  aP L:P 1 D:P 1
--- ----- -- ----  - --  - --- --- - --- -
  1  H-EL  1    0  1  0  1   0   0 N   0 N
  2    DK  2    0  1  0  1   0   0 N   0 N
 10  HADD 10   0  1  0  1   0   0 N   0 N

 P  Lm Dm Oil                     Product
--- -- -- --- ------------------------------
  1  0  0   0                   Heiz"l EL
  2  0  0   0                      Diesel
 10  0  0   0          Heiz"l additiviert
==========================================
Unmeasured products
==========================================
 P  Short  U  bundle PC Pfac Price
```

Example parameter print out

8.4 Check seal versions

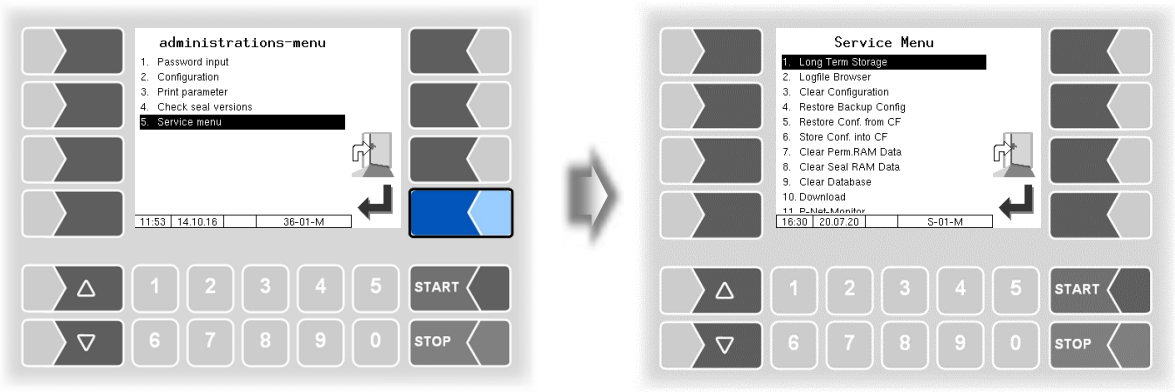
(Service funktion)

This menu shows the data that is relevant for calibration:
- Software version
- Serial no. of the CPU, application type, kernel no.
- Version comparison of the software modules subject to calibration.



You can find more information about the "Check seal versions" function in the configuration manual.

8.5 Service menu



The service password or an open calibration switch is sometimes required to access the functions in the service menu.

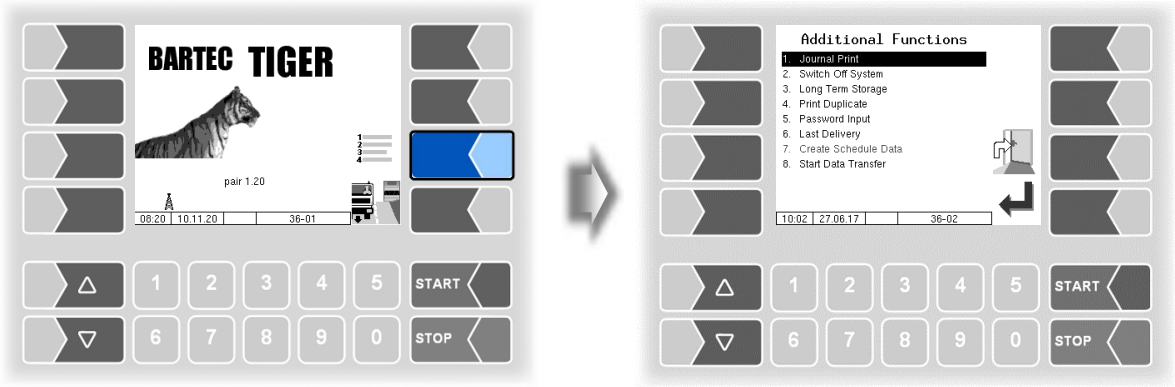
Without entering a password
- Long Term Storage,
- Logfile-Browser,
- Temperature Compensation,
- Parameter Print Out Service,
- Activate Online-Service,
- Bluetooth ON,
- Totalizer

With entering a service password
- Restore Backup Config,
- Restore Config from CF
- Store Configuration into CF
- Clear Permanent RAM date
- Download
- P-Net-Monitor
- Block P-Net
- Clean Up Filesystem
- Test Interface

Only the calibration switch is open:
- Clear Seal RAM Data,
- Clear Database,

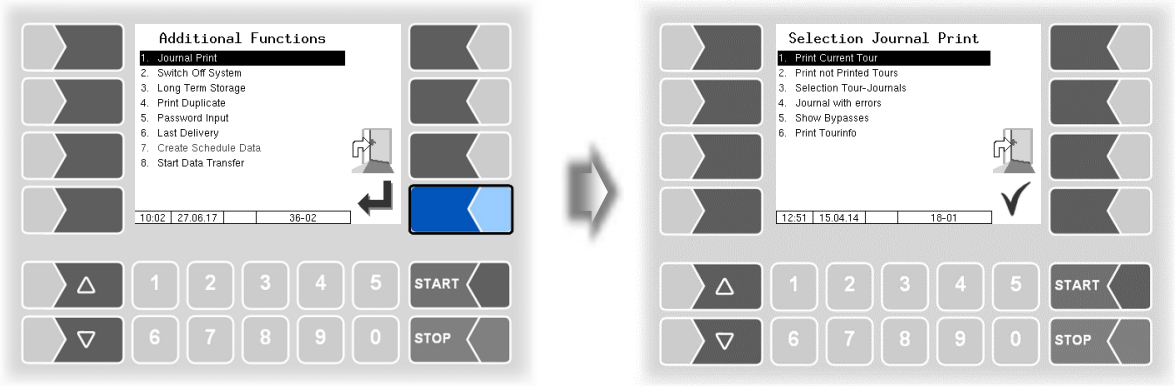
A description of the functions in the service menu can be found in the configuration manual.

9 Additional Functions



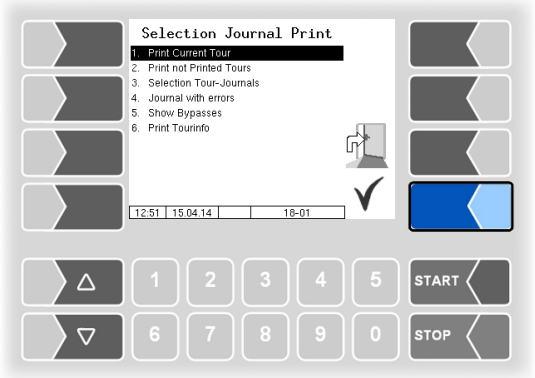
9.1 Journal Print

The journal print function allows you to print out the stored tour data.



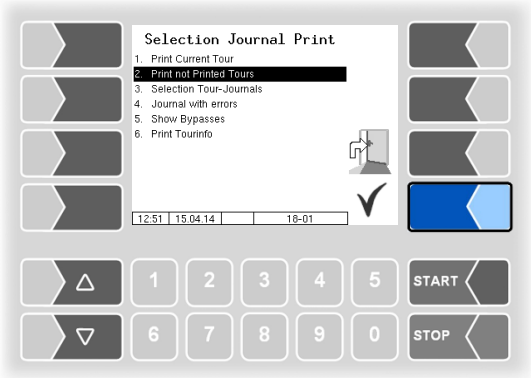
Further selections are possible in the journal print submenu.

9.1.1 Print Current Tour



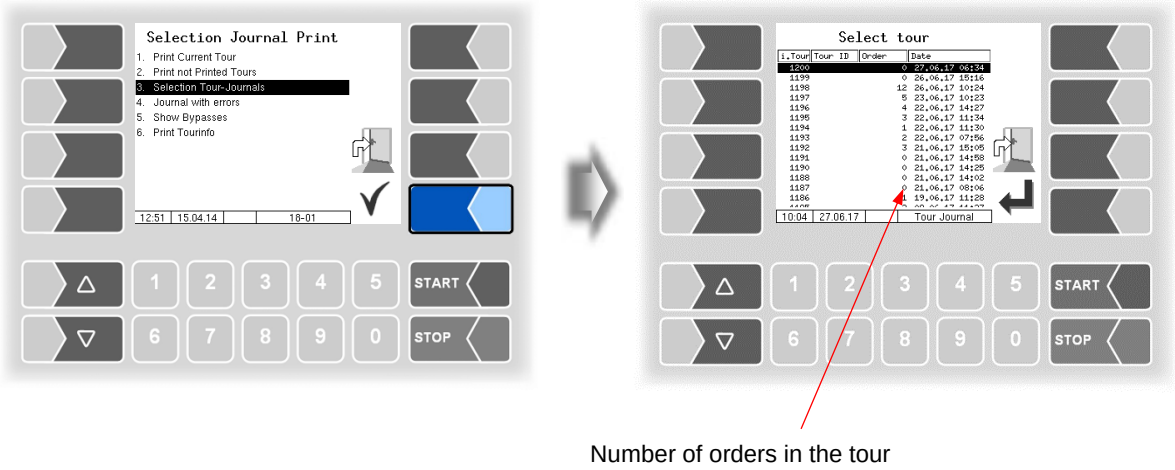
The data for the current (last) tour is printed.

9.1.2 Print not Printed Tours

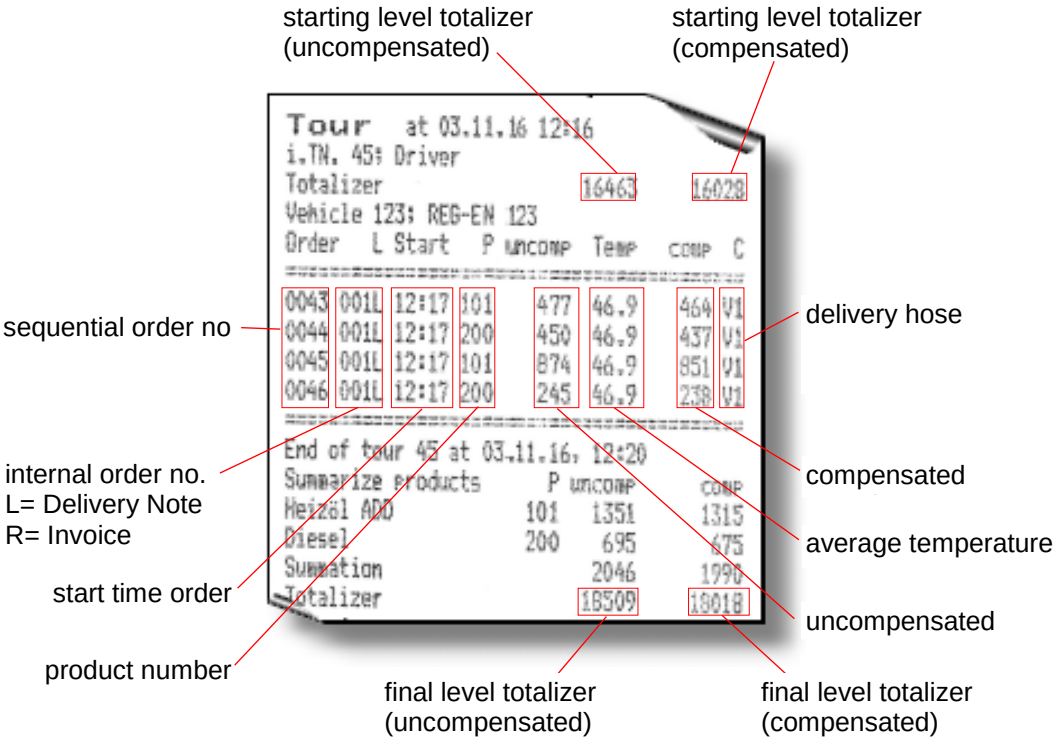


All saved tours that have not yet been printed are printed out.

9.1.3 Selection Tour-Journals



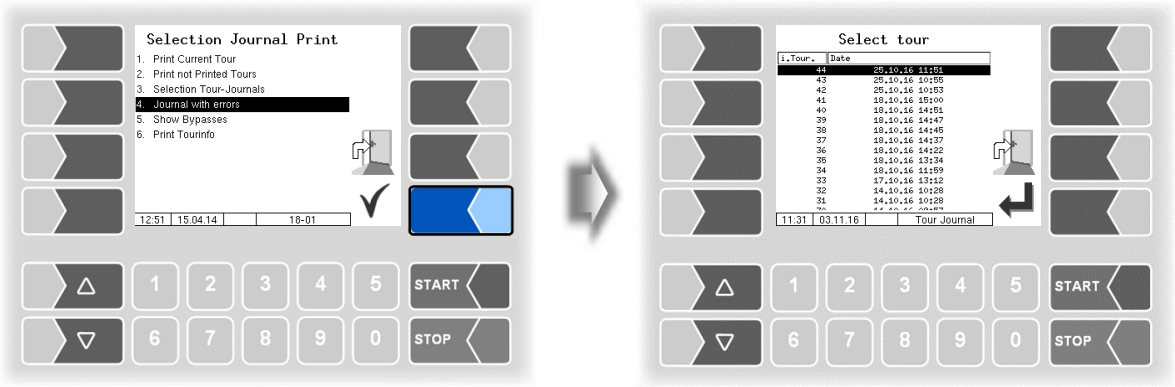
You can use the date and the tour start time to select the tour for which you want to print data.



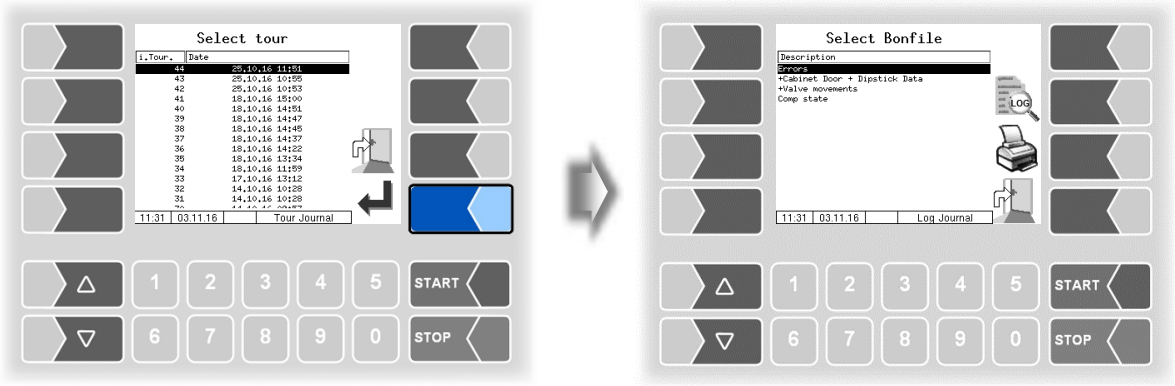
Example Journal Print

9.1.4 Journal with errors

In this menu you can select from the stored log journals. The log-journals also contain all recorded errors. The number of days for which data is stored depends depends on the configuration. (*Configuration: Office configuration / FTL conditions / LOG Period*) (Default setting: 20 days).



- First select the tour from which a log journal shall be displayed or printed.



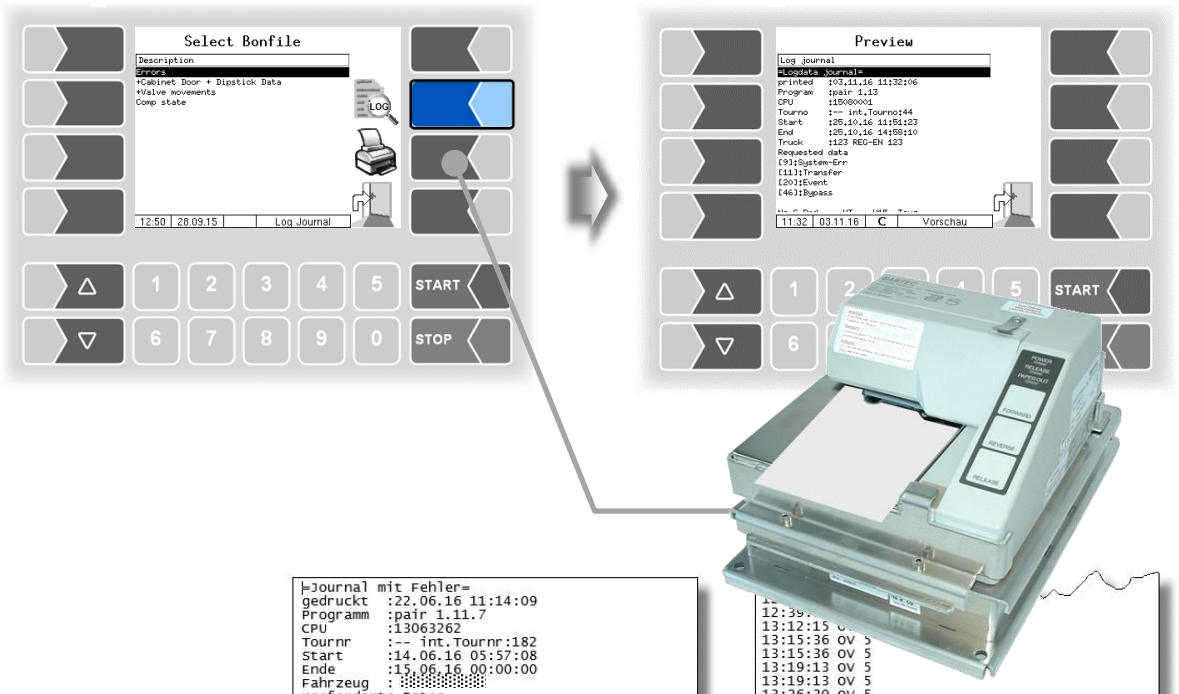
- Then select the contents of the log journal based on the bonfile.

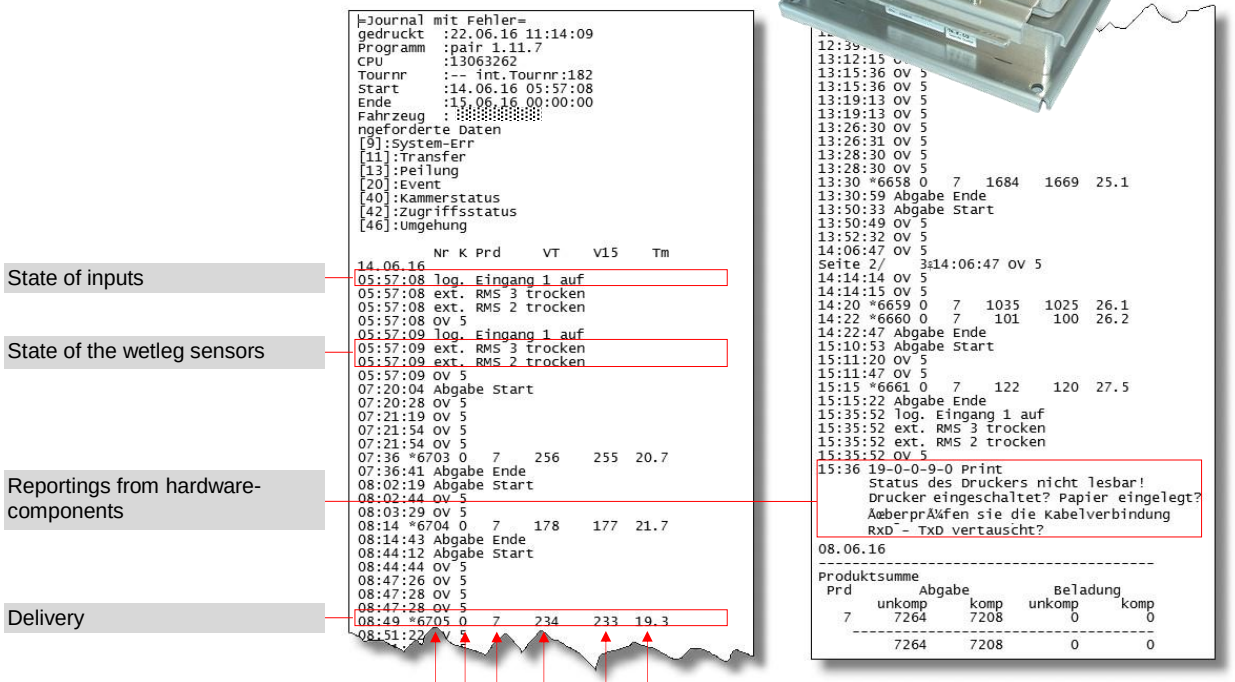
Bonfile	*Content*
Errors	Log journal with recorded errors
+Cabinet Door +Dipstick Data	Log journal with recorded errors + movements of the cabinet doors and dipstick data (bearings)
+Valve movements	Log journal with recorded errors + movements of the cabinet doors and dipstick data + valve movements
Comp. state	recorded compartment states (Compartment History)

In software "pair" without function.

* *If there is GPS data, it will only print from here.*

- By touching the “Print Preview” softkey you can view the selected log data on the display. Use the arrow keys to scroll the screen
- By pressing the “Print” Softkey is the log journal printed on the configured printer.





State of inputs

State of the wetleg sensors

Reportings from hardware-components

Delivery

Tm: average temperature

V15: quantity compensated

VT: quantity uncompensated

Prd: Product number

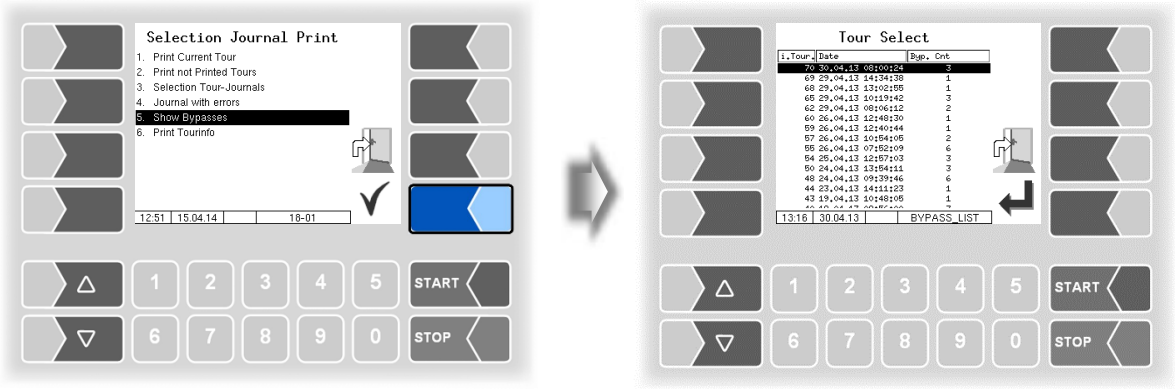
C: compartment number *(in software “pair“ not relevant)*

Nr: seq. no. of delivery

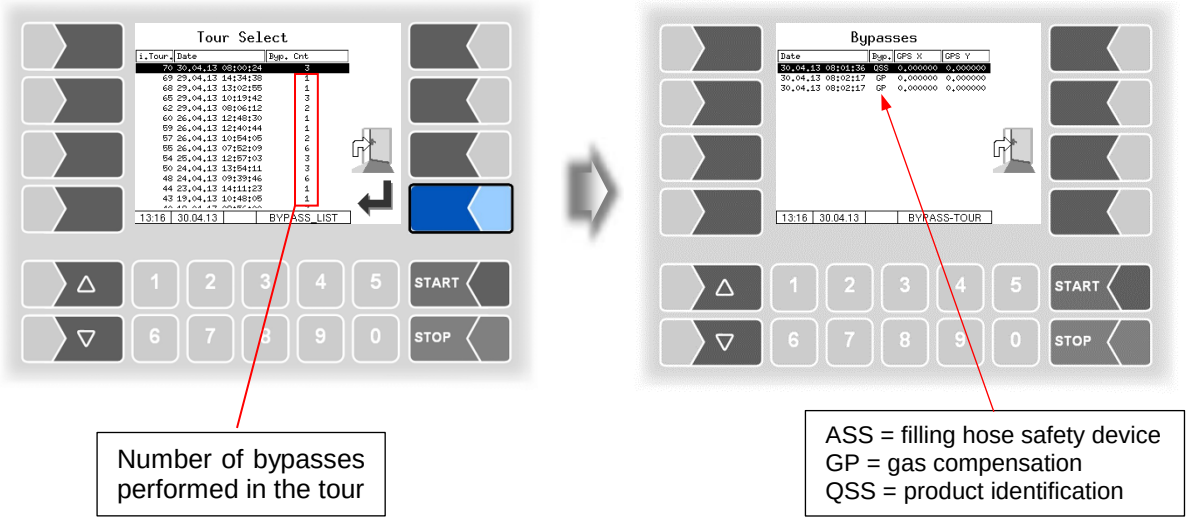
Example
Journal with errors
(German)

9.1.5 Show Bypasses

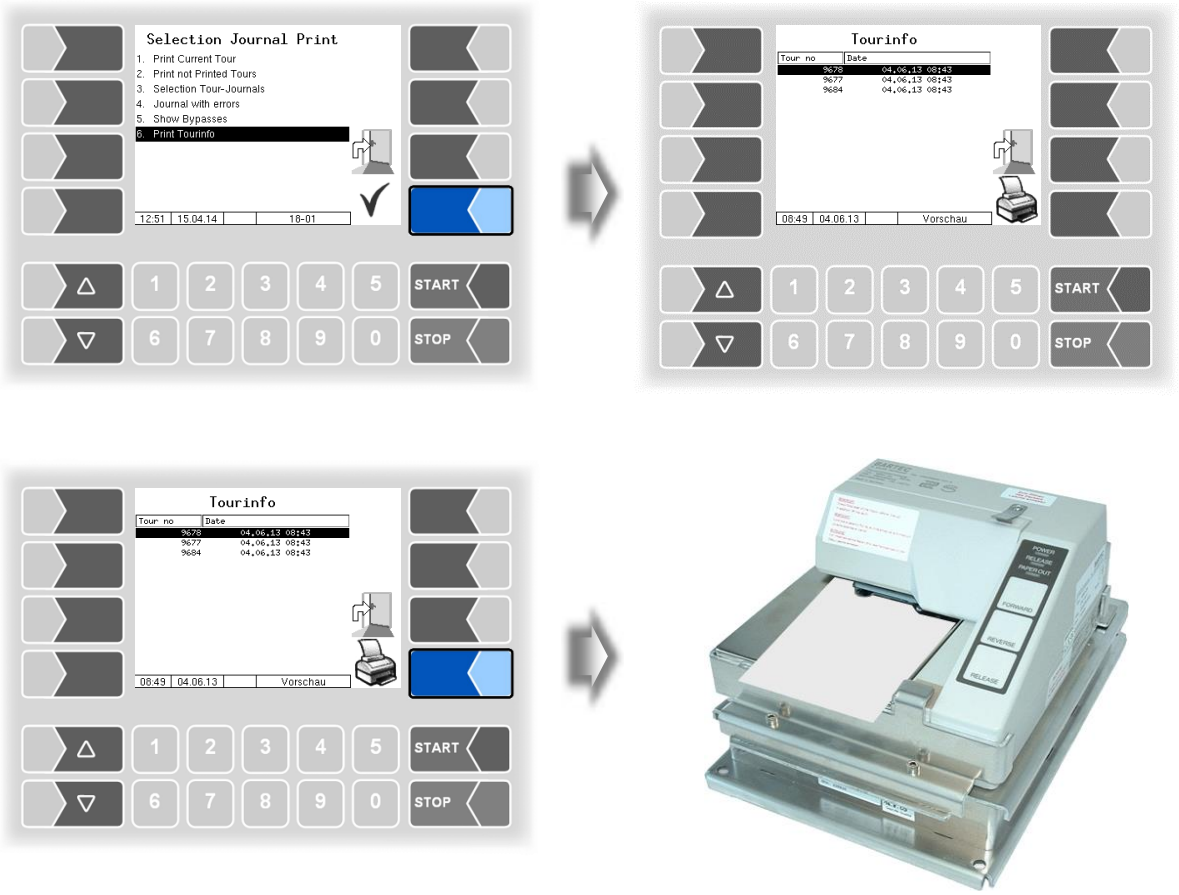
Use this menu item to display the performed bypassings of the quality safe system.



Select and confirm a tour. Details of the bypassing during this tour are displayed: Date, time, component of the quality safe system which was bypassed. If a GPS module is installed, additionally the corresponding position data is displayed.



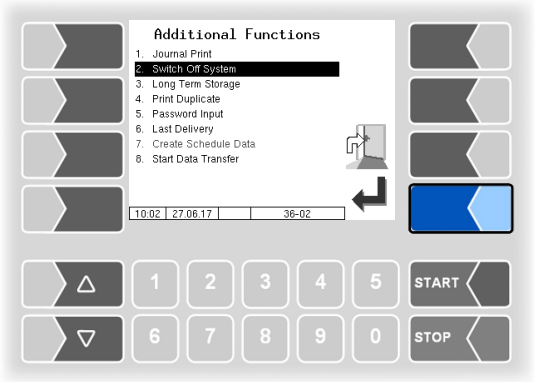
9.1.6 Print Tourinfo



When working with office connection, the tour data of the last 7 days is stored. You can select a tour here and output the information, produced by the office about this tour, on the printer.

9.2 Switch off System

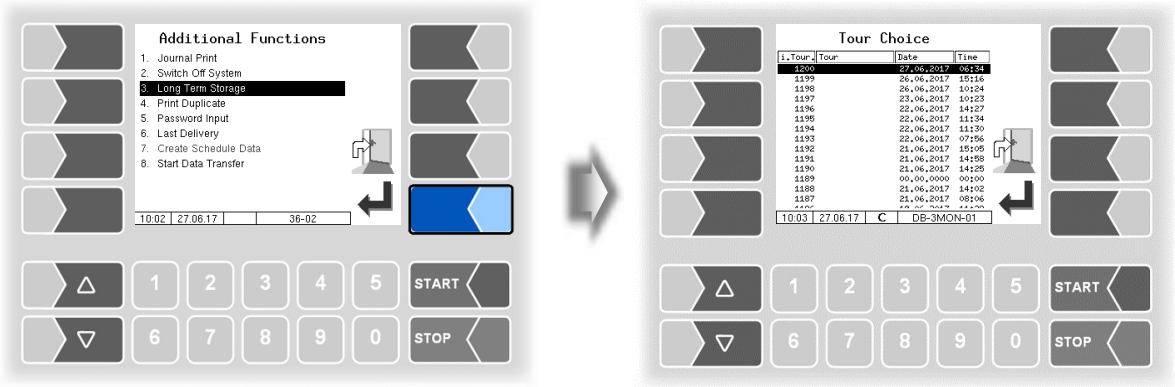
- Select the “Switch off System” menu from the Additional Functions menu. The system is switched off properly, shutting down all modules.



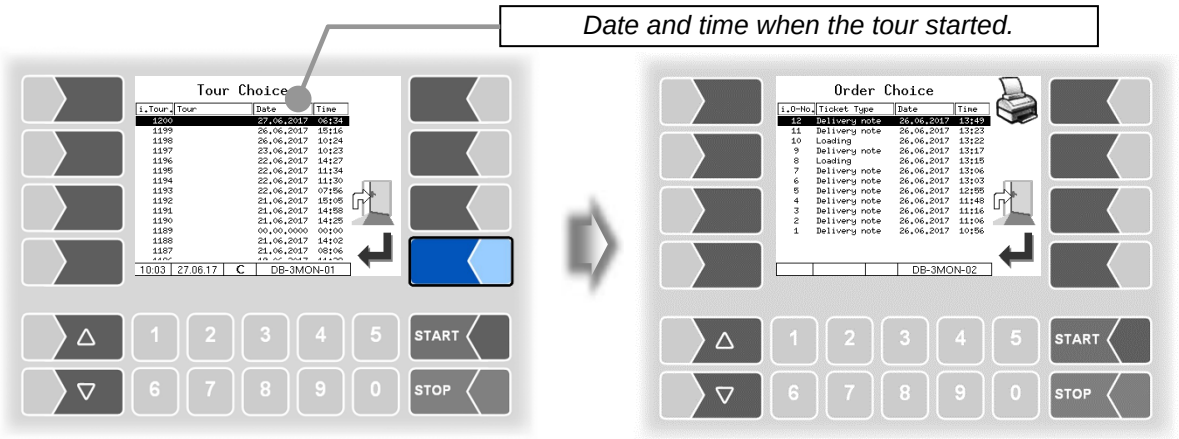
The main switch may not be switched off until the system has been fully shut down properly**!**

9.3 Long Term Storage

The tour data is stored in the long-term memory for a certain period of time (usually three months). Within this time, you can view or print duplicates of the documents.

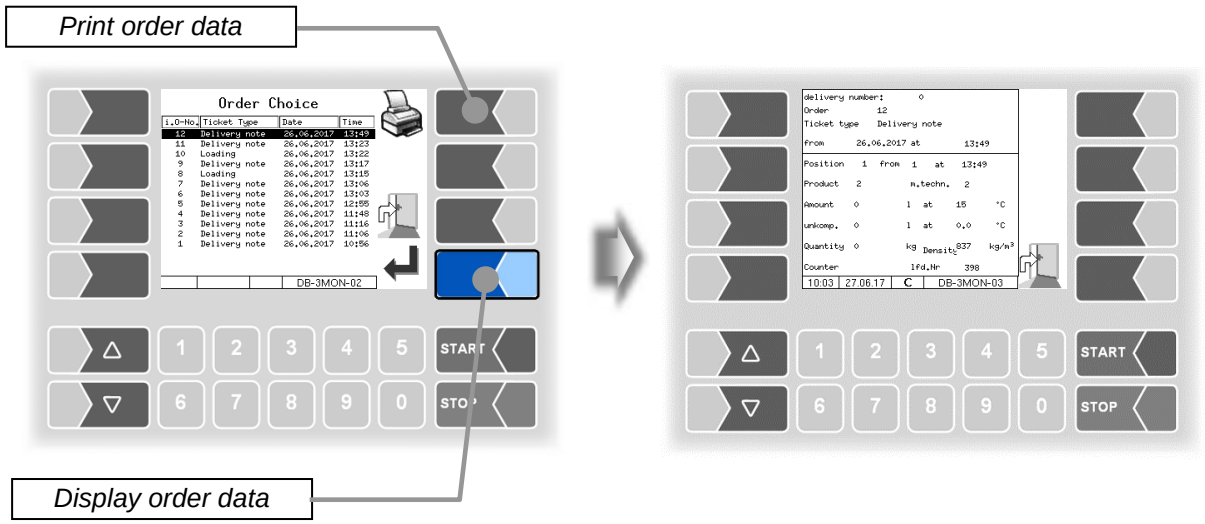


- Select a tour.



- Select an order within the tour.

You can print the order or display it on the screen.

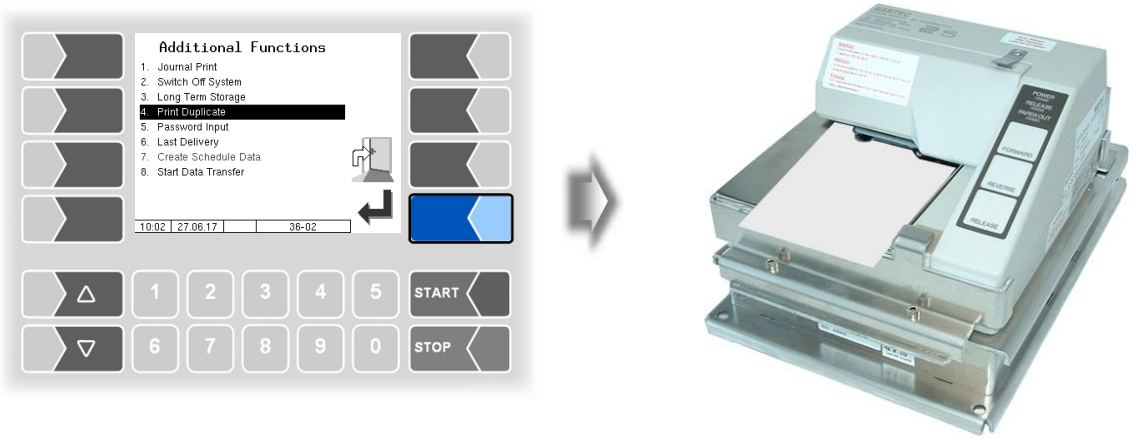


If the order contains more than two items, you can select the required item using the ▽ and △ keys.

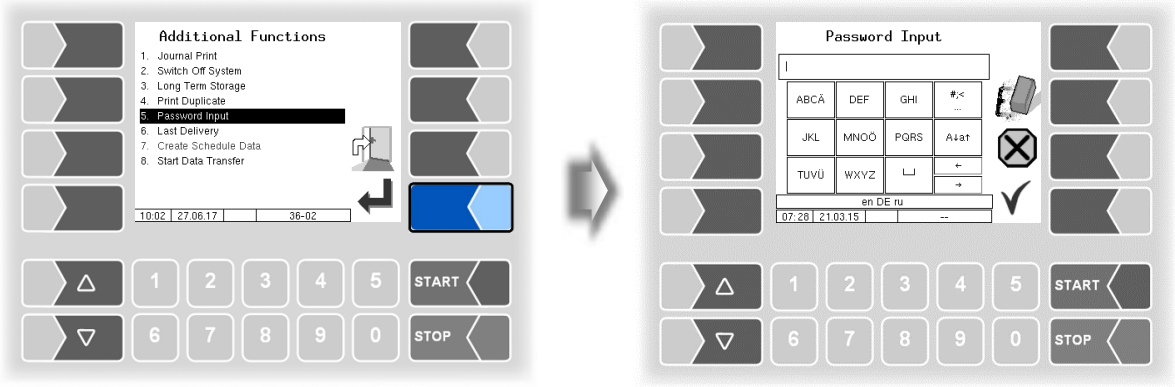
The printout is a duplicate of the original ticket.

9.4 Print Duplicate

You can print as many duplicates of the delivery note as you like for the last order. The duplicate differs from the original only in that the word “Duplicate” and the duplicate's sequential number are output at the start of the printout.
You can print duplicates of older orders using the long-term memory (see section 9.3).



9.5 Password Input

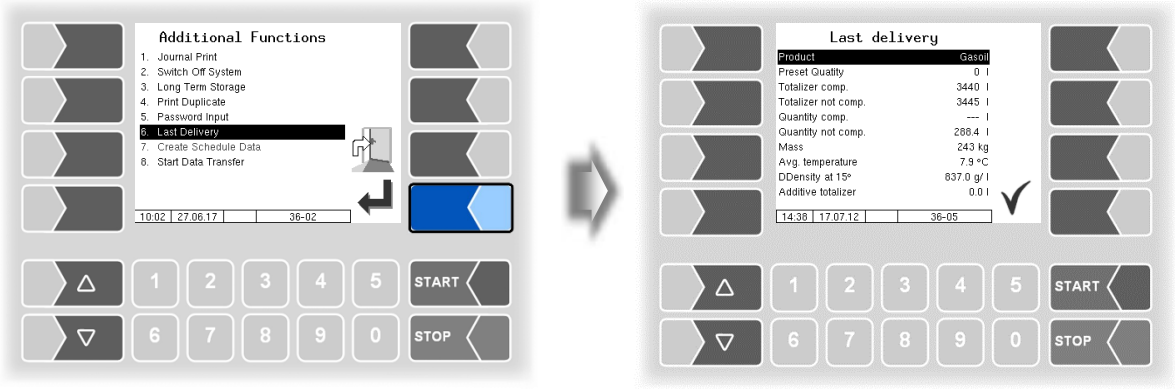


Entering a service password allows you to open the delivery menu once if an error occurs.

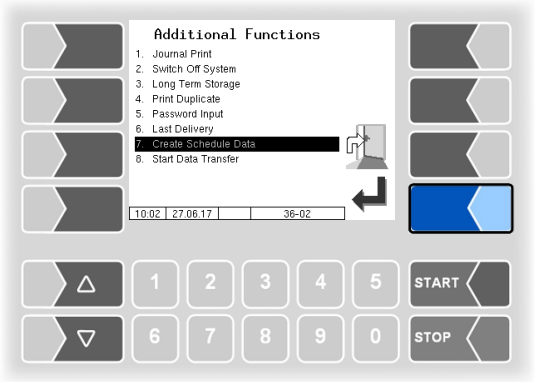
In software version *pair 1.20.X* without function.

9.6 Last delivery

The detailed information of the last delivery is shown on the display.



9.7 Create Schedule Data (Only with office connection)

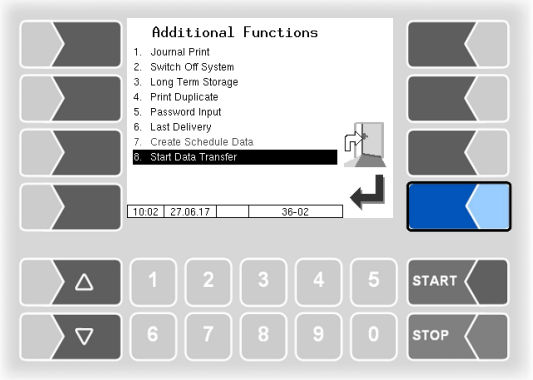


When confirming this menu item, response data will be generated and made available for transmission to the Office or transferred to the FTP server.

After response data has been transmitted, new schedule data, if available, will be fetches from the FTP server.

The response data can be generated only once. After that, the menu item grayed and is no longer available.
If new response data is available on the system (e.g. after a delivery), the menu item is available again.

9.8 Start Data Transfer (Only with office connection)



You can use this menu item to start the data transfer in order to receive scheduled data from the server, if any are available.
If response data is still available for transmission, it is transmitted to the server.

10 System monitoring

The measuring system is constantly monitored for reliability and fulfilment of the quality criteria.

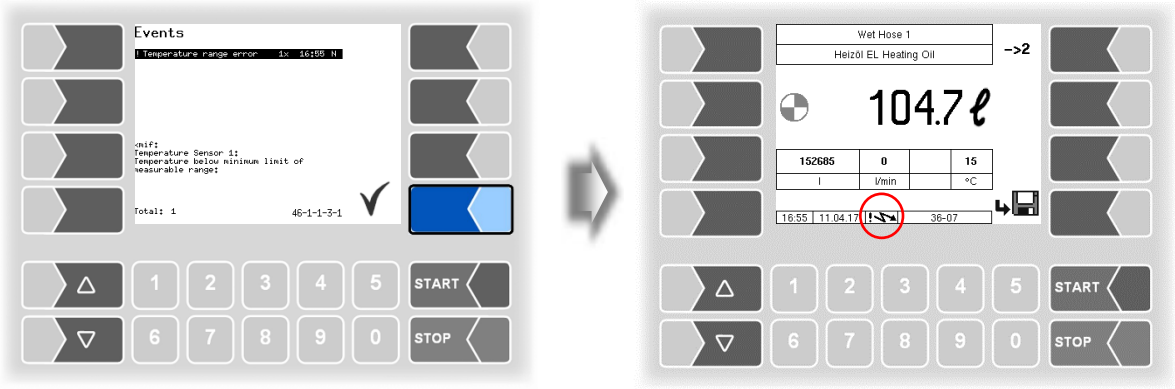
Display of malfunctions

All operating statuses and results that are connected to safety and product quality are shown on the display in plain text and must be acknowledged by the operator.

If an error occurs during a running delivery, causing this delivery to be interrupted, the event display window containing the relevant error message appears for 20 seconds.

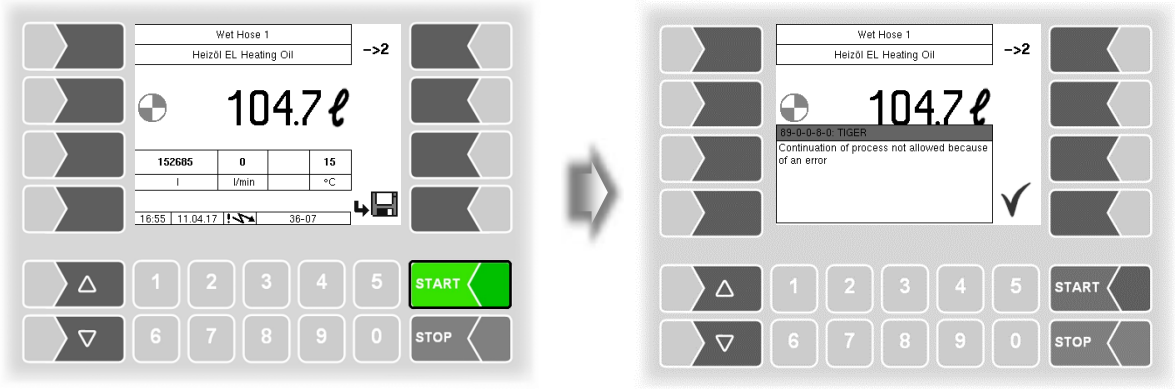
You use the ✓ softkey to acknowledge messages that are displayed in this window.
If you do not acknowledge the message, the "Events" window will automatically close after 20 seconds

The error symbol is then displayed in the information line as long as the error is still present.



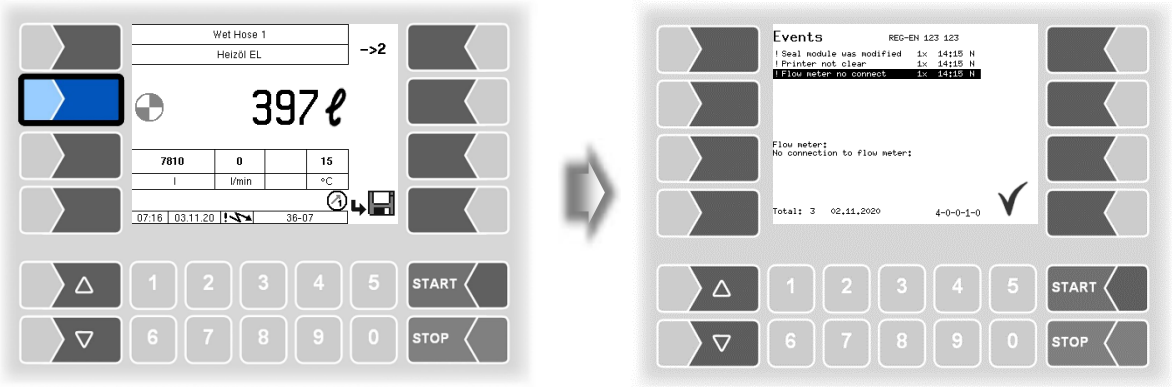
Stop the delivery.

If you try to continue the delivery a message is displayed. When you confirm this message, the delivery will be finished.



If errors occur that do not affect the calibrated measurement, the error symbol appears in the info line.

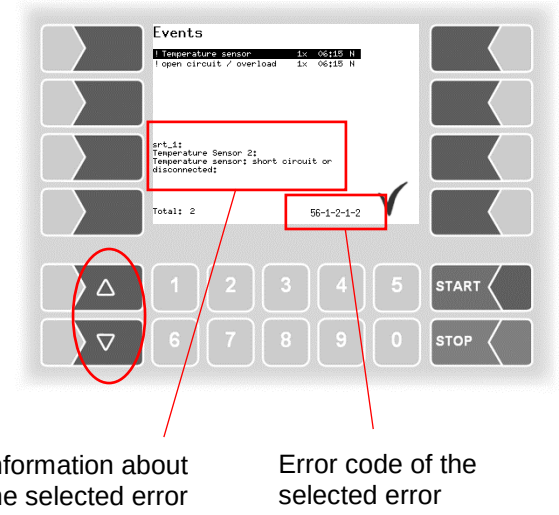
For more information on the error, open the event display (second softkey from the top, left of the display).



Acknowledge the error with the softkey „ ✓ “.

Error messages are not cleared until the cause of the error has been removed.
As long as the error is still active, an exclamation mark is displayed next to the error message.

Maybe in the event display more than one error are displayed.
Use the arrow-keys to select the individual messages.



If you request help from your service centre in the event of an error, provide the complete wording of the error message and the error code. These help the service center to pinpoint the error.

Use the arrow-keys to select the individual messages. So you can note the several error codes.

If the seal switch is open, the event display does not appear for 20 seconds if an error occurs. In this case, you must open the event display manually.

***