



user manual

I.View Manual for Wheel Loader



3B6®

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1.1 Use of the System

The following directions should enable the person responsible for the system, and the person who actually uses the instrument, to anticipate and avoid operational hazards.

The person responsible for the instrument must ensure that all users understand these directions and adhere to them.

1.1.1 Permitted use

The permitted uses of the system is the following:

- Weigh indication of the load in the machine bucket.

1.1.2 Prohibited uses

- Using the system without instruction
- Using outside the stated limits
- Opening of the equipment by using tools (screwdrivers etc.)
- Carrying out modification or conversion of the product
- Use after misappropriation
- Use of accessories from other manufacturers without the express approval of 3B6
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, power lines)
- Use of the device indications to avoid contacts with power lines, gas or oil pipes and so on.

WARNING:

The chance of injury, malfunctions and damage to the equipment if not used as specified. The owner has to inform the user of the hazards in use, protective and counter measures to take.

1.2 Limit To Use**Environment:**

The display unit is suitable for use inside of the cabin of a mobile machine.

The sensors and cables can be mounted on booms.

1.3 Areas of Responsibility**1.3.1 User responsibilities****WARNING:**

The person responsible for the instrument must ensure that the equipment is used in accordance with the instructions. This person is also accountable for the deployment of personnel and for their training and for the safety of the equipment when in use.

The Person in charge of the instrument has the following duties:

- To understand the safety instructions on the product and the instructions in the User Manual.
- To be familiar with local safety regulations relating to accident prevention.
- To inform 3B6 immediately if the equipment becomes unsafe.

1.4 Checks the user must perform

To ensure continuous and safe operations of the system the following checks must be performed regularly by the user.

The system do not require recalibrations.

Before to start to work with the system, following checks should be made:

- Cable integrity and connectors tightening
- Angle Sensors integrity and tightening
- Laser catcher integrity and cleaning.
- Display Unit welcome screen sensor failure messages.

1.5 Hazards in Use**Important hazards in Use****WARNING:**

The absence of instruction, or the inadequate imparting of instruction, can lead to incorrect or prohibited use, and can give rise to accidents with far-reaching human, material, financial and environmental consequences.

Precautions:

All users must follow the safety instructions given by the manufacturer and the directions of the person responsible for the instrument.

Maintaining the system

The system do not need particular maintenance. A cleaning with a soft cloth may be required for transparent window screen of the front panel or of the Laser catcher. Also may be sometime required, if necessary, to tight the knob on display unit arm mounting.

Because of use of static equipment with digital Can Bus data transmission (Main Unit, Sensors), adjustments are not required.

Re-calibration of boom or bucket parameters maybe will be required only after sensors or central unit replacements.

Control Measurements:

Verify the system tare with cold and average temperature machine.

Precautions:

Periodically perform control measurements comparing the truck total indicated by the display with a certified weighing bridge.

DANGER:

Working near electrical or other energy installations (e.g. power lines, electrical power railroads, gas and oil pipelines) may be extremely hazardous and life endangering.

WARNING :

Insufficient securing or marking of your measurement site could cause a dangerous situation on the public highway, building site, or in the factory etc.

Counter measures:

Keep a safe distance away from these installations. Should it be necessary to work near such installations, then the responsible authorities have to be informed and their instructions have to be followed.

1.6 Electromagnetic Acceptability

The term "Electromagnetic Acceptability" is taken to mean the capability of the product to function smoothly in an environment where electromagnetic radiation and electrostatic discharges are present, and without causing electromagnetic disturbances to other equipment.

WARNING :

Electromagnetic radiation can cause disturbances in other equipment. Although the product meets the strict regulations and standards which are in force in this respect, 3B6 cannot completely exclude the possibility that other equipment may be disturbed.

CAUTION:

Disturbances caused by electromagnetic radiation can result in the tolerance limits for measurements being exceeded. Although the product meets the strict regulations and standards which are in force in this connection, 3B6 cannot completely exclude the possibility that the product may be disturbed by very intense electromagnetic radiation, e.g. near radio transmitters, walkie-talkies, diesel generators, power cable. Check the plausibility of results obtained under these conditions.

1.7 FCC Statement (applicable in U.S.)**WARNING :**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

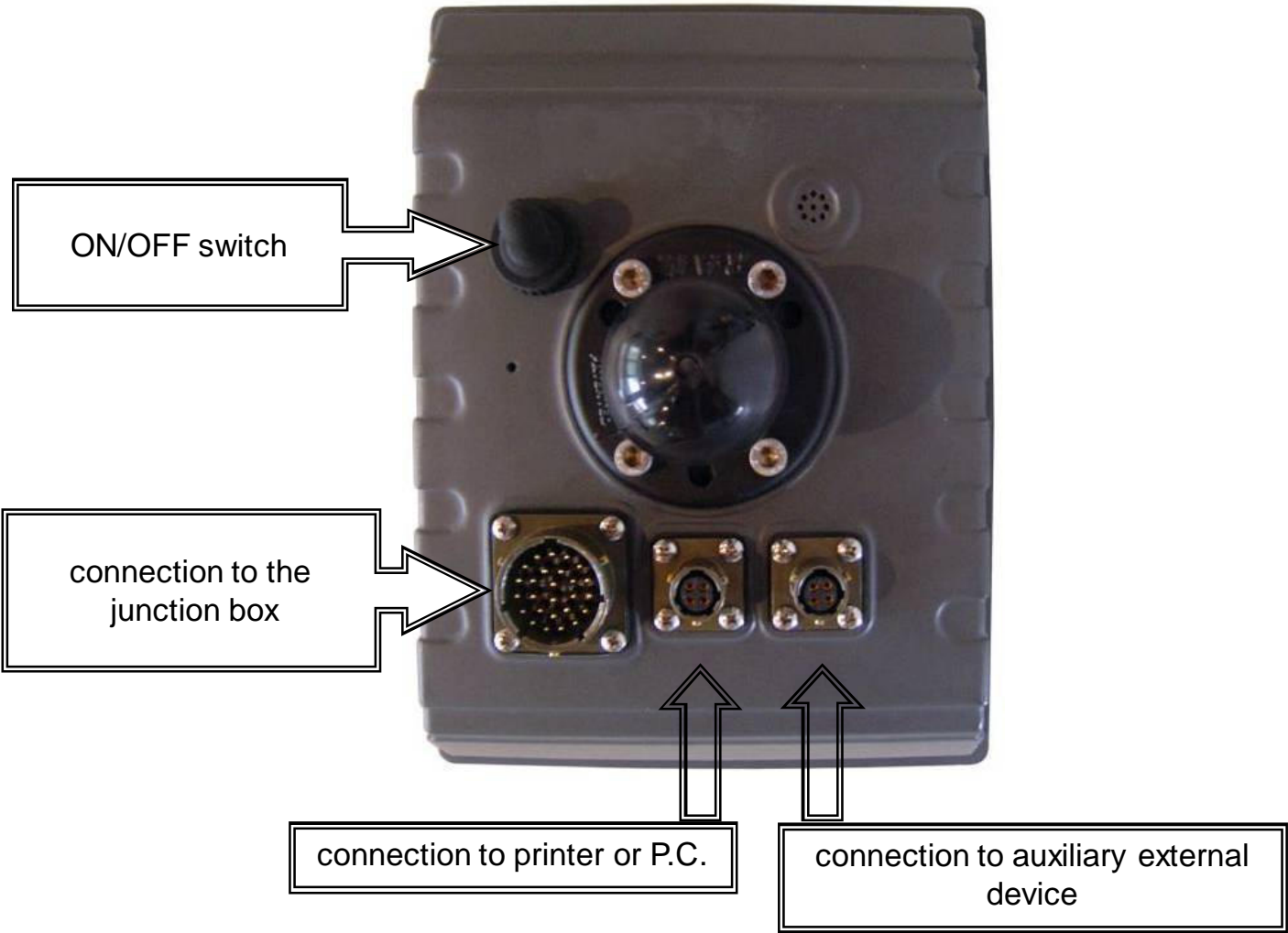
Increase the separation between the equipment and the receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

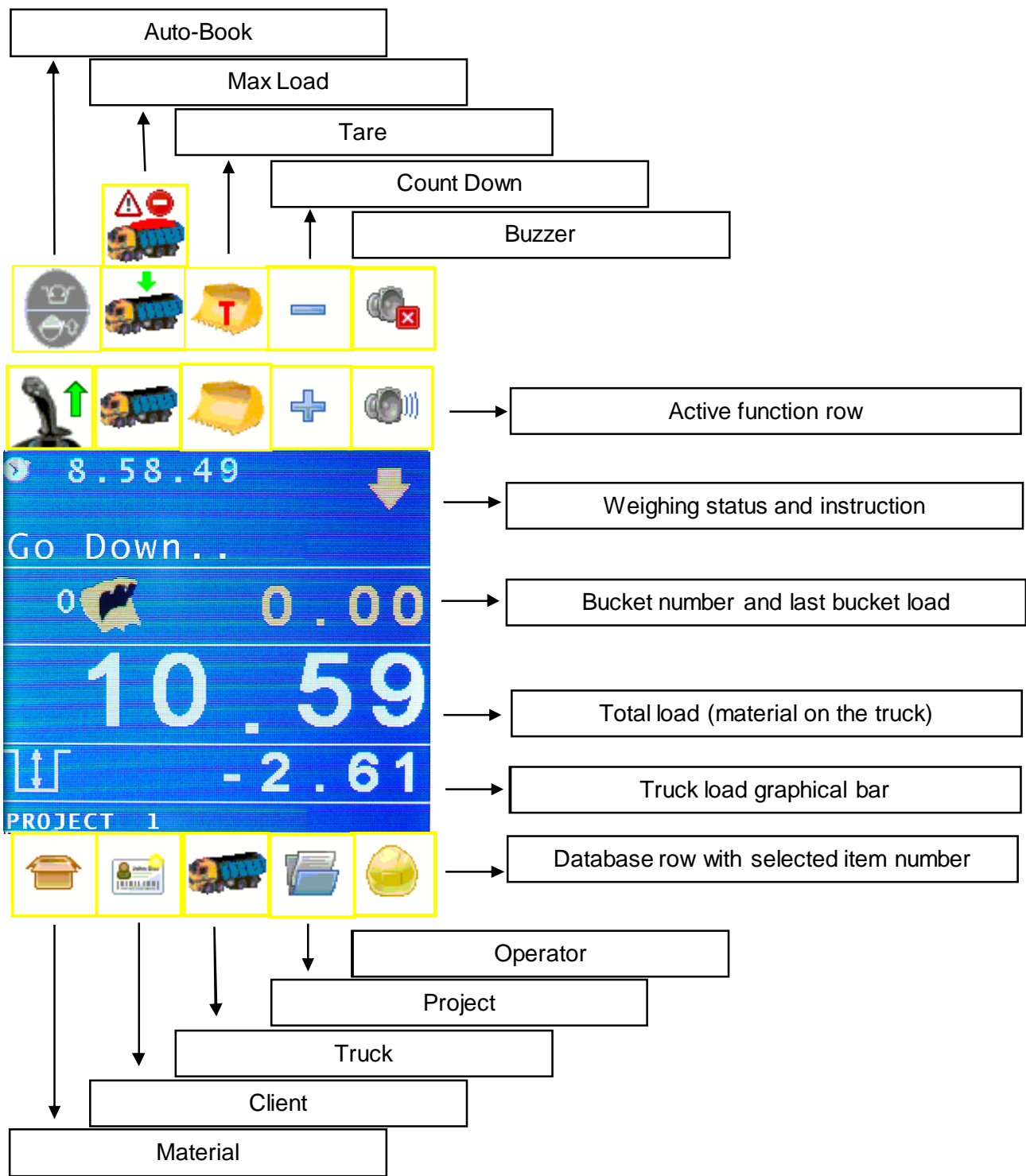
Consult the dealer or an experienced radio/TV technician for help.

WARNING:

Changes or modifications not expressly approved by 3B6 for compliance could void the user's authority to operate the equipment.



In the working screen is possible to check the truck load and all the active functions.






	Short press: option menu Long press: diagnostic and calibration
	Exit (back to previous menu page).
	Enable/disable the weighing system
	Tare
	Printer page and total visualization
	Zeroing page
	Enter in the menu indicated by the above icon
	Confirm the selected function / enter in the selected menu
	Cursor up/down in the text menu
	Value decrease/increase in text menu

The system is based on the measurement of the pressure of the lifting cylinder in the rising phase (by means of the pressure transducer) and the calculation of the up speed (with proximity switches or inclinometer).

How to Weigh

Press  to enable or disable the weighing system.

Follow the on-screen instruction.

If the boom is above the “start weigh” point, will be necessary to move down the boom.

When the boom will be in the correct position, with the indication “move up”, it’s possible to perform the weighing rising up the boom.

Overtaken the “start weigh” point there will be the on screen “Weighing...” indication and the control box buzzer will be ON.

During the weighing phase it’s necessary to:

- 1) **Don’t stop the movement (dynamic weighing!)**
- 2) **Keep a constant speed**
- 3) **Keep the machine on a levelled ground.**
- 4) **Don’t move the machine (no fast accelerations or heavy brakes)**
- 5) **The bucket should be completely closed when you start the weigh and can’t be manually moved during the weighing phase.**

If an error happens during the weighing phase there will be the relative message on the screen and the load will be not added to the total.

In a negative (or 0) load in the bucket will be computed, the value will be not added to the total.


If the weighing is correct the load in the bucket will be shown on the partial weight and the value will be also added to the total.

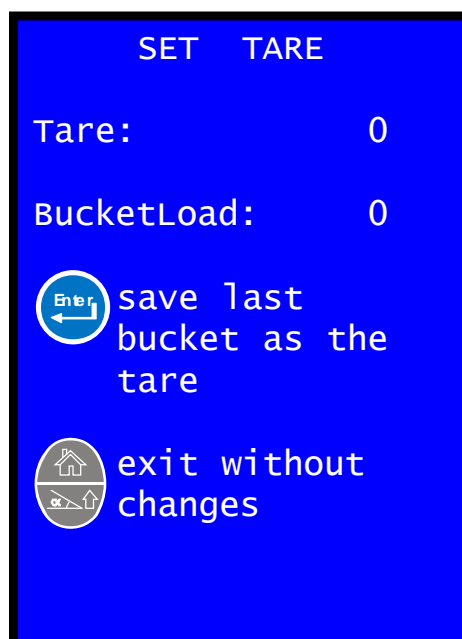
To keep the system accurate, it's necessary to perform a new tare acquisition in particular work conditions:

- The machine is cold (first movements of the day). Repeat the check when the oil temperature is stable.
- The bucket has been changed (smaller/bigger).
- Some material stays in the bucket (not possible to unload it).
- The hydraulic circuit oil has been changed..

Tare zeroing procedure:


Perform an empty bucket weigh.


Press  to enter in the following page:




Tare: shows the actual set tare.

BucketLoad: load of the last weigh (last bucket).

Press  to update the tare value with the last bucket load.

Press  to go back to the working screen.

Press  to delete the set tare.

Short press  from working screen.

Brightness

Display brightness settable from 0 to 100

Graphics

Menu to set the display item colours

Key Beep

OFF: no sound when a control box button is pressed

ON: sound when a control box button is pressed

Wait Beep

ON: the buzzer will flash in the ready to weigh phase (only if the inclinometer is in use).

OFF: function disabled.

Clock Settings

Time and date setting menu.

Alarm Clock

Alarm clock setting menu.

OnDemandSum

Wait for the user interaction to add the partial load (last bucket) to the total load (truck).

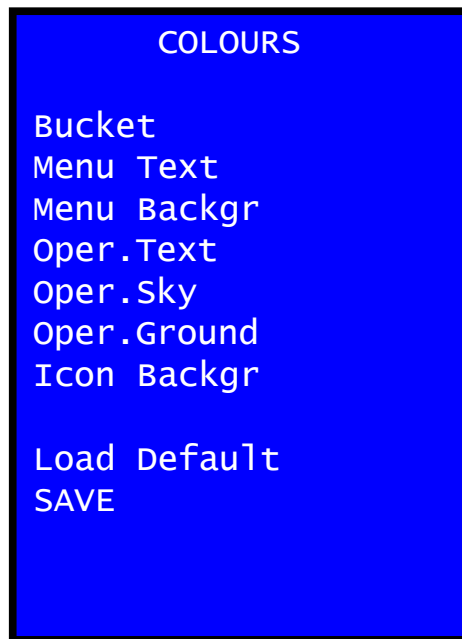
Countdown

Countdown function to weigh decreasing from the truck max load.



Machine N.



System can store up to 2 calibrations (same controlbox on 2 different machines). Select here the machine in use.


OPTIONS	
Brightness	100
Graphics	
Key Beep	OFF
wait Beep	OFF
Clock Settings	
Alarm Clock	
OnDemandSum	OFF
Countdown	OFF
Machine N.	1



Is possible to change the control box display item colours.

Press  or  to change the colour. The colour number is shown together with an example box.

Pressing  is possible to see the complete colours palette and select the desired colour using the arrows and then confirming it with .

It's necessary to press  over SAVE to keep the change the next time the system will be powered on.

OPTIONS	
Brightness	100
Graphics	
Key Beep	OFF
Wait Beep	OFF
Clock Settings	
Alarm Clock	
OnDemandSum	OFF
Countdown	OFF
Machine N.	1


Enable the Countdown function pressing  on the Countdown line.


ON: The initial value for the scalar counting is the value set as maximum load (to set the maximum load see the dedicated page in this manual).


On activating the Countdown function the maximum load value is shown on the display. Each partial is subtracted from the maximum load and the maximum load exceeded will be indicated on the screen with a warning when the load drops below zero.

OFF: function disabled. The partial load is added to the total load at every weighing.

OPTIONS	
Brightness	100
Graphics	
Key Beep	OFF
wait Beep	OFF
Clock Settings	
Alarm Clock	
OnDemandSum	OFF
Countdown	OFF
Machine N.	1

Enable the OnDemandSum function pressing  on the Countdown line.

ON: function enabled. After a weighing, the bucket load is computed and shown in the partial load value, but it's not automatically added to the total load and the bucket number it's not changed. To use and add this value the operator has to press the  key.

Note: with this function enabled the Booking switch quickly pressed on the Remote Control replicates the  key.

OFF: function disabled. The partial load is automatically added to the total load at every weighing.


CLOCK SETTING


Hour	:	HH
Minutes	:	MM
Seconds	:	SS
Day	:	DD
Month	:	MM
Year	:	YYYY

CONFIRM

Control box clock setting.

Set the desired value with ◀ or ▶

Press  over CONFIRM to save.

Press  to exit without changes.

CLOCK SETTI	OFF
Hour :	0
Minutes:	0
Day :	0
Month :	0
Year :	2009
CLOCK SETTI	OFF
Hour :	0
Minutes:	0
CLOCK SETTI	OFF
Hour :	0
Minutes:	0

Enable/disable (ON/OFF) the desired alarm clock with



Change the alarm clock time over the proper line with



Alarm clock 1 can be used to sound at a specified time.

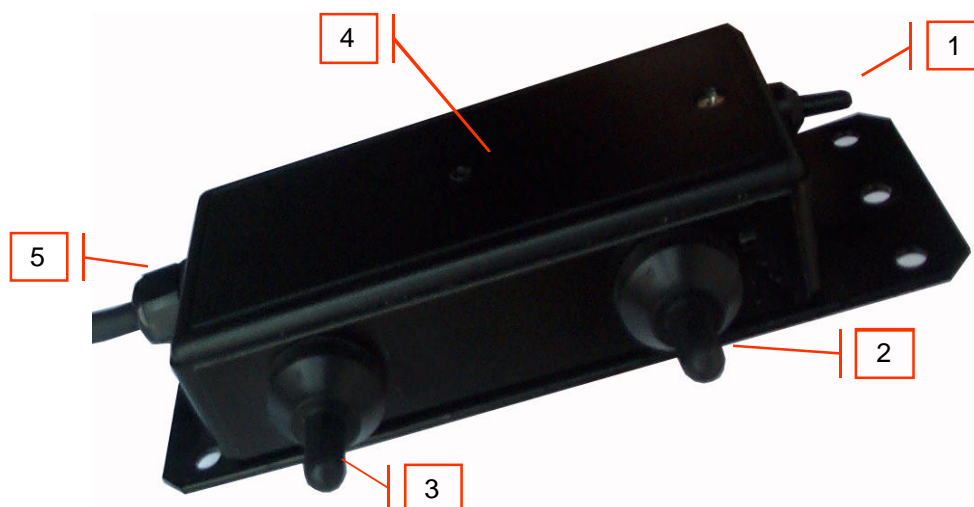
Alarm clock 2 and 3 are useful to sound always at the same time like start and end of the day.

When the alarm occurs, the buzzer will irregularly sound and the time indication in the working screen will become red.


Press

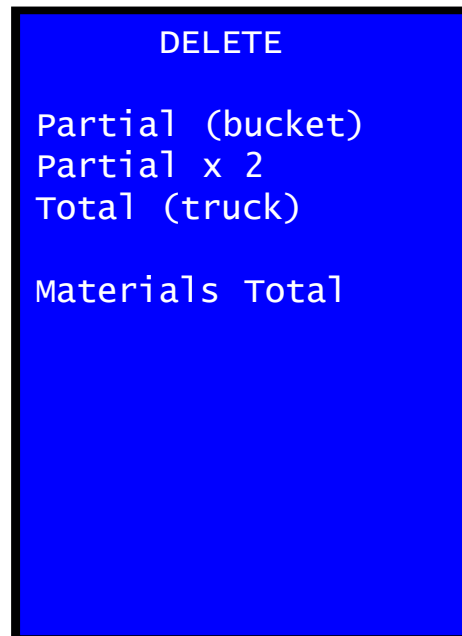


to disable the alarm.



1	Print the total (truck) ticket.
2	<p>Quick press:</p> <p>Partial value (last bucket) zeroing.</p> <p>Kept pressed for 5 seconds:</p> <p>Total value (truck) zeroing.</p>
3	<p>Quick press:</p> <p>If OnDemandSum function is OFF: Enable or disable the weighing system.</p> <p>If OnDemandSum function is ON: Add the partial weigh to the total weigh.</p> <p>Kept pressed for 5 seconds:</p> <p>Total value (truck) ticket print and total value (truck) zeroing.</p>
4	Buzzer.
5	Cable.

Press  from the working screen



Partial (bucket)

Delete the last bucket weighed. To be used if the bucket has been wrong or accidentally weighed and the material will not be putted on the truck.

Partial x 2

TRUCK FILL / RESIDUE MATERIAL: When the last bucket load did not empty completely, to find out the effective total quantity unloaded, weigh the material which has remained in the bucket and use the PARTIAL X 2 CANCEL function; this function will remove twice the last value weighed from the total so that you can find out the total value of material which has really been put into the truck.

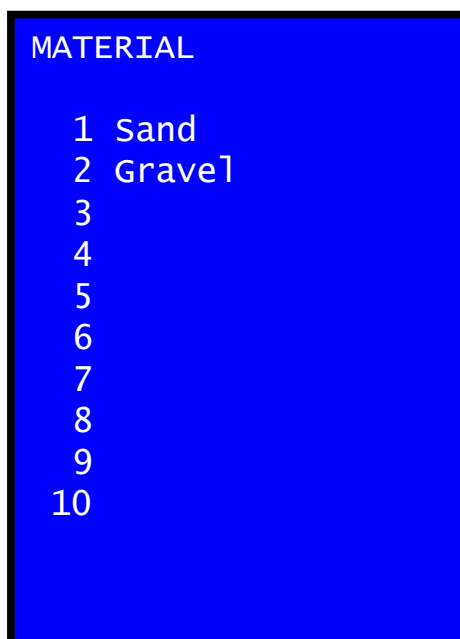
Total (truck)



To cancel the total load (before start a new truck loading).



Materials Total

To cancel the totals in the memory (example material summary totals).

Press **F1** from the working screen.



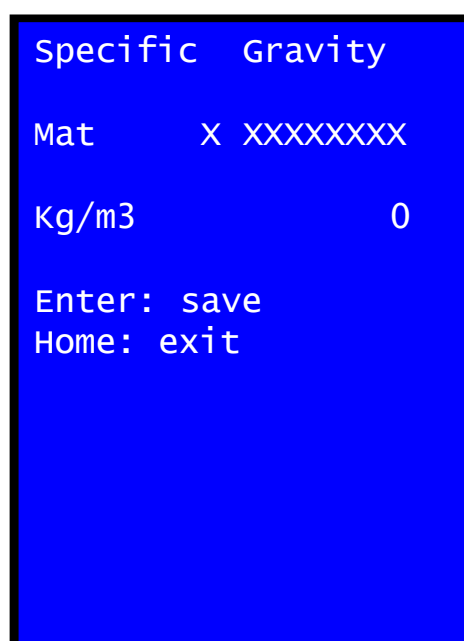
Use  or  to select the desired item.


Use  or  to quickly change from one page to another.

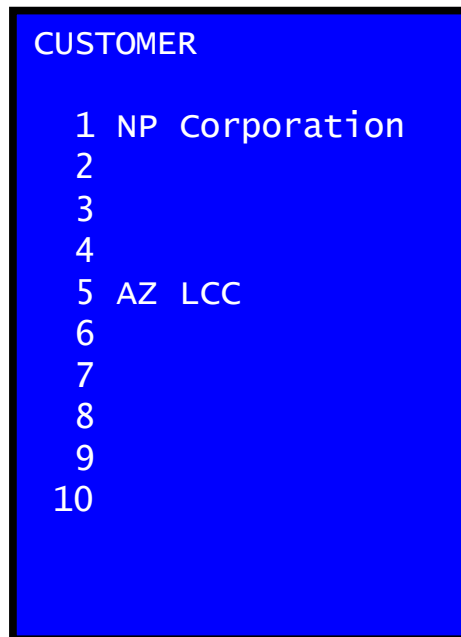
System can store up to 200 different materials, each with a name up to 16 characters long.



To set the name press **F5** over the desired number.



Press **F3** to set the material density (available only in Kg/m3).



Press  from the working screen.



Use  or  to select the desired item.



Use  or  to quickly change from one page to another.



System can store up to 1000 different customers, each with a name up to 8 lines of 16 characters long.

To set the name press  over the desired number.

Press **F3** from the working screen.

TRUCKS			
1	AA	000	AA
2			
3			
4			
5			
6			
7			
8			
9			
10			

Use  or  to select the desired item.

Use  or  to quickly change from one page to another.

System can store up to 500 different trucks, each with a name up to 8 lines of 16 characters long.

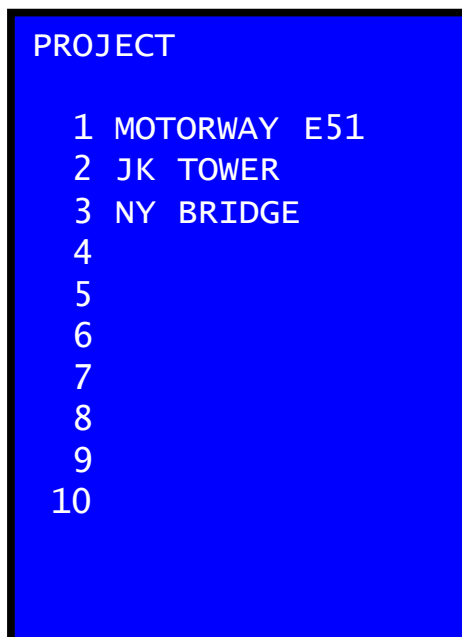
To set the name press **F5** over the desired number.



Press **F3** to set the max load that the truck can handle.



The following screen will appear:

	MAX	LOAD
Aut	1	AA 000 AA
Kg		0
Enter: save		
Home: exit		

Press  from the working screen.



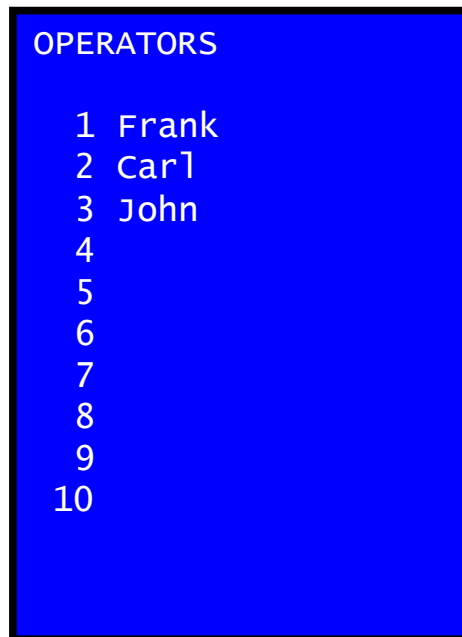
Use  or  to select the desired item.



Use  or  to quickly change from one page to another.



System can store up to 100 different projects, each with a name up to 8 lines of 16 characters long.

To set the name press  over the desired number.

Press  from the working screen.

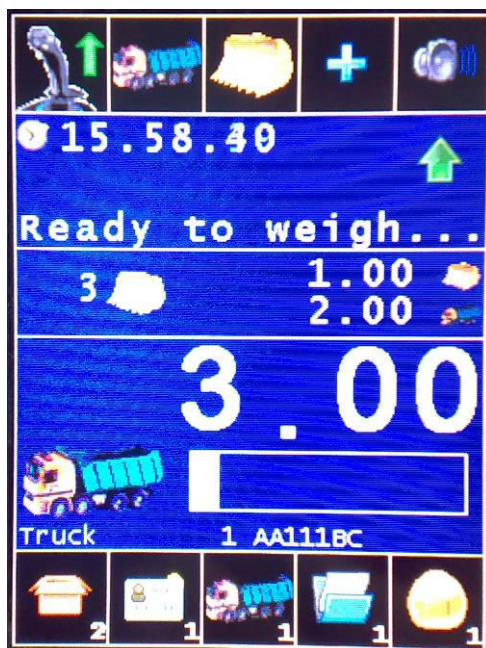


Use  or  to select the desired item.

Use  or  to quickly change from one page to another.

System can store up to 50 different operators, each with a name up to 16 characters long.

To set the name press  over the desired number.



If more materials are loaded on the same truck:

- last bucket
- total of the actually selected material that has been loaded on the truck
- total load of the truck (includes all the materials loaded)

The **Multi-Product** function enables the possibility to load up to 10 different products on the same truck.

The operator can load on the same truck different materials. See this example:


- 1) Select as usual the first material to load (GRAVEL) and start to fill the truck
- 2) After one or more buckets the operator is free to select another material (SAND) and start to load this material.
- 3) When the quantity of the second material is enough the operator can select a third material to load or return to the first (GRAVEL in this example) continuing from the previous value of load reached.

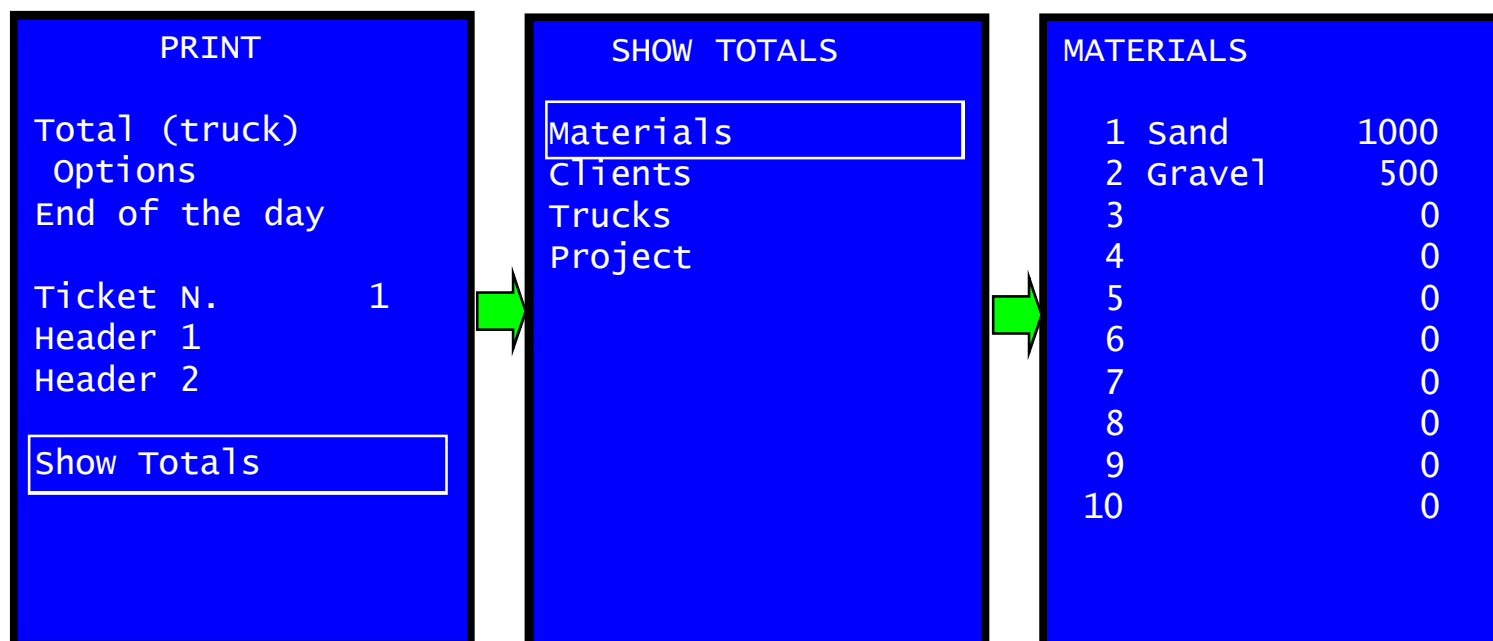
If you have used the Multi-Product function during the load of a truck you can see in the printer ticket the total truck load as usual and the single load of each material.

The system memorizes these data at the end of the truck load as usual ("delete total") keeping the correct load for every material.



The **Multi-Truck** function is always enabled and is completely transparent by the operator. Changing the truck selected during a load (Total Load > 0) system freezes in memory actual load and it starts again to load from 0. Then you can finish the second truck (usually with print total and delete total) and load again previous truck selecting it's code (previous values are restored on the display!).



NOTE: using Multi-Product and Multi-Truck all the partial values are lost switching off the system during a load !

Press  from the working screen.




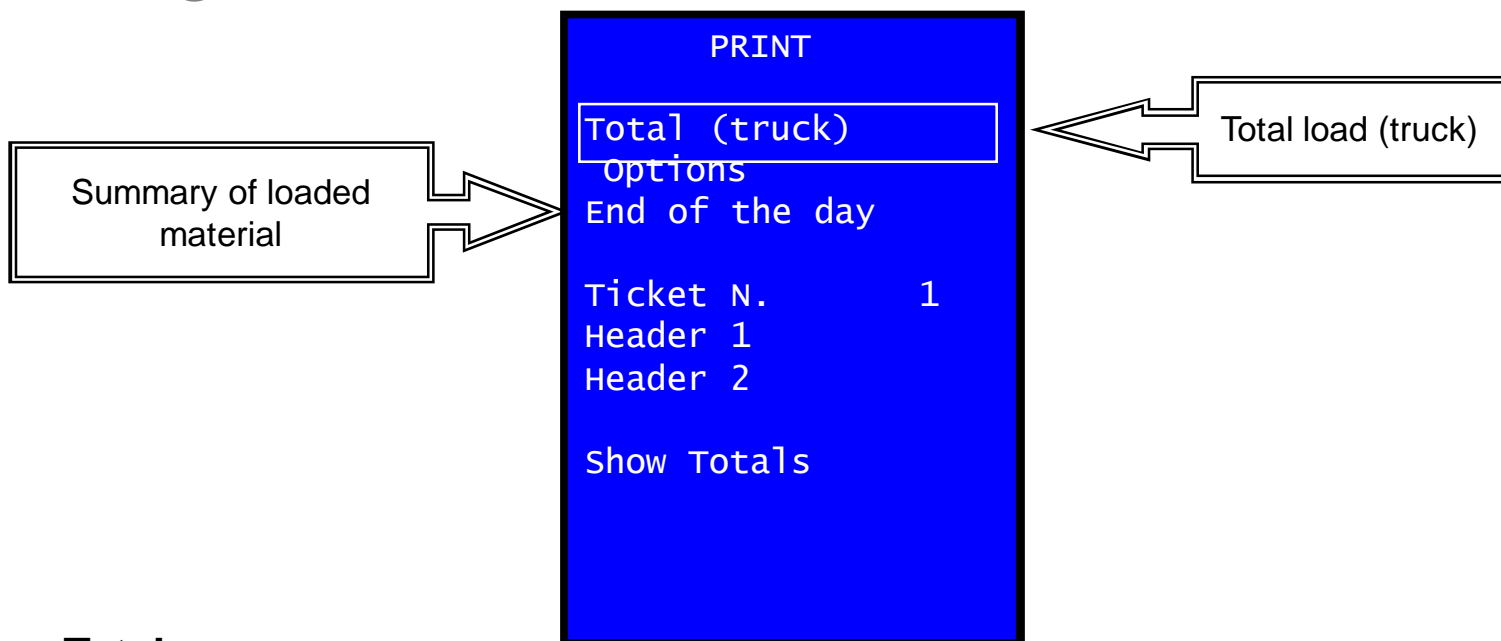
The complete list of the selected item with its total load is shown.

Use  or  arrow to quickly change the page.

Is possible to singularly zeroing the total of each material pressing  over it (confirm with ).

To zeroing all the totals summary use "Materials Total" in the "Delete" menu.

Press  from the working screen to access the PRINT page



Total

Print the total load of the actual truck.

The ticket has various additional information that can be enabled/disabled in the ticket options page.

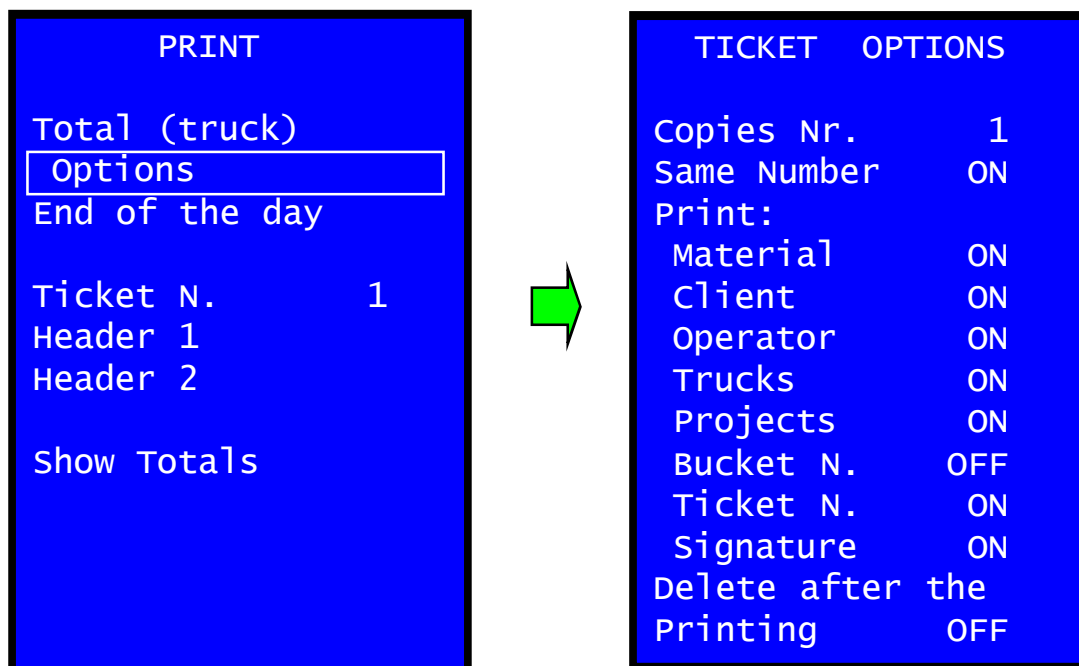
Full ticket content:

- Header 1
- Time & Date
- Header 2
- Ticket Number
- Code and Name of the selected material
- Code and Name of the selected customer
- Code and Name of the selected truck
- Code and Name of the selected project
- Code and Name of the selected operator
- Bucket number (bucket performed to load the truck)
- Signature (space for a sign on the ticket)
- Total load (load in the truck)

```

HEADER 1
19/05/2009
12:13
Ticket N.      4
HEADER 2
Material       1
Sand
Client         1
Carlos
Truck          1
AA111BC
Project        1
Continental
Operator       1
Frank
Bucket N.      3
Total
3.27 ton
    
```


Hint: press  from the working screen and  again from the PRINT page to immediately start the total print.



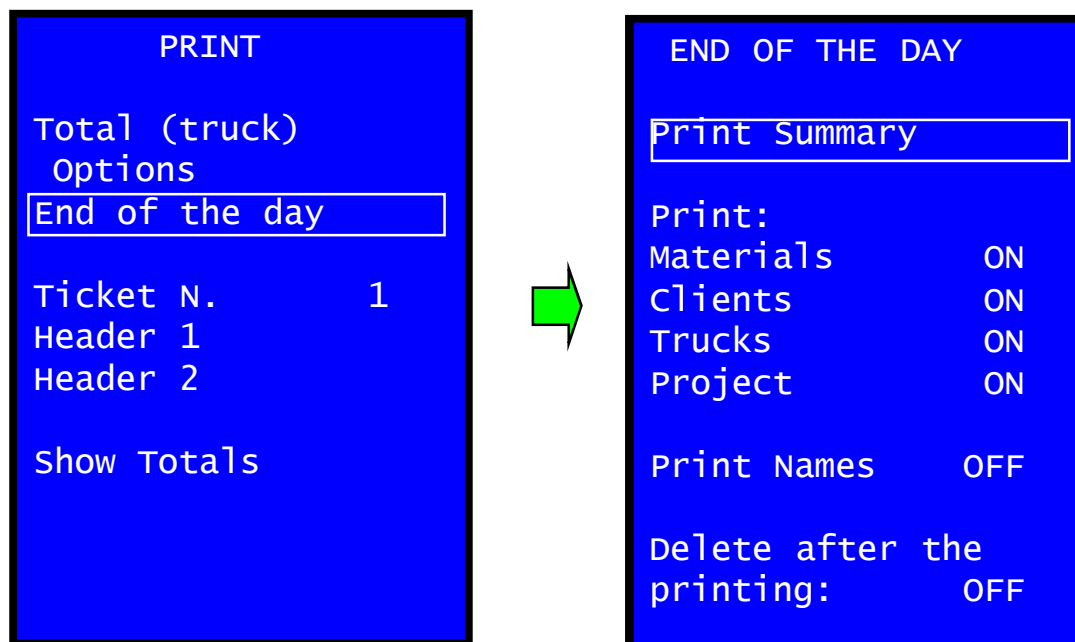
It's possible to customize the printer ticket in the **Options** page.

Copies Nr.: number of copies printed automatically.

Same Number: keep the same ticket number for all the copies printed automatically.

Print: press  over the item that has to be excluded (OFF) or included (ON) in the ticket.

Delete after the printing: zeroes the actual truck load automatically after the printing.



At the end of a truck load, when the “Delete Total” function is used, the total load shown on the display is added in a dedicated memory that creates the history (summary) of the loaded material called “**totals**” (end of the day summary).

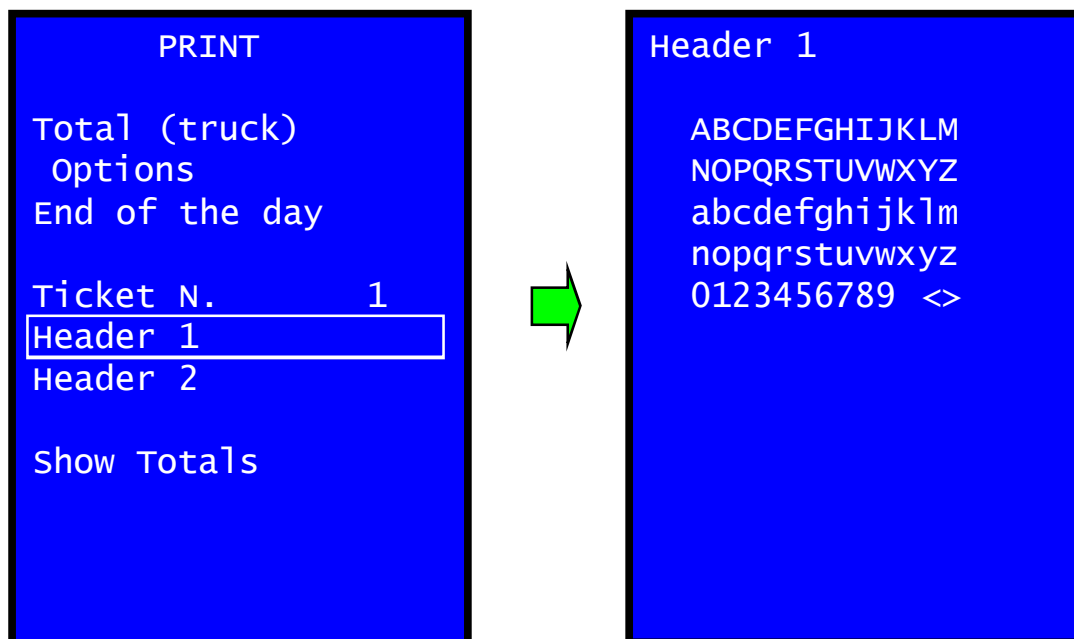
Is recorded all the material loaded separated by Materials, Clients, Trucks and Projects. Entering the page “End of the day” is possible to start immediately the print pressing again over “Print Summary” and will be printed the total of every item. Eventually it’s possible to choose what has to be printed (OFF/ON).



Delete after the printing:




ON: The totals database will be automatically deleted at the print end.

OFF: The totals database will stay in memory and incremented (in case of new loads) up to the use of the function “Materials Total” from the DELETE menu.



Ticket N.

Sequential number of the printer ticket automatically increased at every total (truck) print.


It can be manually modified/zeroed with   or 

Header 1 / Header 2


It's possible to customize the ticket header.

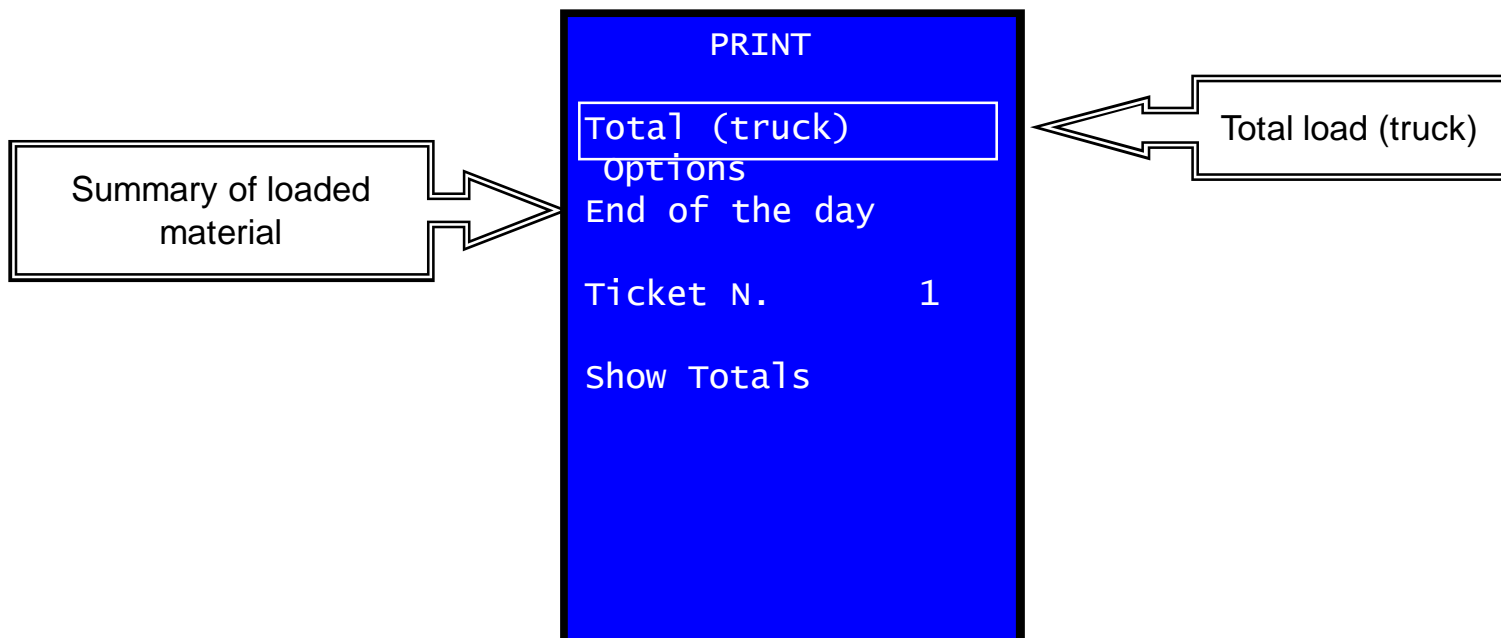
In the ticket header 1 it's possible to set 8 lines of 16 characters that will be printed at the beginning of the ticket.

In the ticket header 2 it's possible to set 8 lines of 16 characters that will be printed below the date and time.

To set a name select in the text matrix the desired character using the arrows and press  to add it to the text in creation.

It's possible to use the special character "<" and ">" to move the cursor in the text and change/correct a character.

Press  from the working screen.




Total

Print the total load of the actual truck.

The ticket has to be created based on the needed information and the space on the ticket paper.

Every information has it's proper command that has to be entered on the "option" menu.

To set the command string select in the text matrix the desired character using the arrows and press  to add it to the text in creation.

It's possible to use the special character "<" and ">" to move the cursor in the text and change/correct a character.

See next page for the command list.

Header 1

```

ABCDEFGHIJKLM
NOPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
0123456789 <>
    
```


A	Line Feed
B	Normal Character
C	Double Width Character
D	Double Height Character
E	Double Width and Height Character
F	Time and Date
G	Material Code
H	Material Name
I	Operator Code
J	Operator Name
K	Ticket Number
L	Total Load (truck)
M	Customer Code
N O P Q R S T U	Customer Name (each character is a name line – up to 8 lines)
V	Cubic Meters
W	Truck Code
X Y Z a b c d e	Truck Name – number plate (each character is a name line – up to 8 lines)
f	Project Code
g h i j k l m n	Project Name (each character is a name line – up to 8 lines)
o	Buckets Number

Command string example:

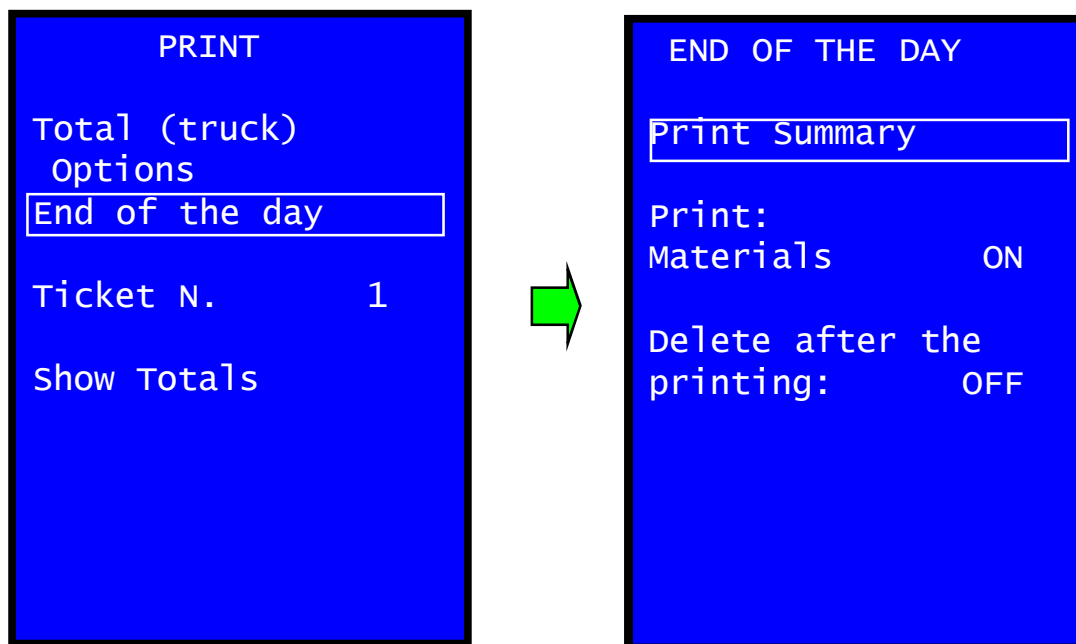
BAFAKALA

Will print the following information with text at standard height (“**B**” command):

Time and Date

Ticket Number

Total (truck load)



End of the day

At the end of a truck load, when the “Delete Total” function is used, the total load shown on the display is added in a dedicated memory that creates the history (summary) of the loaded material called “**totals**” (end of the day summary).

Is recorded all the material loaded separated by Materials.

Entering the page “End of the day” is possible to start immediately the print pressing again over “Print Summary” and will be printed the total of every item.



Eventually it’s possible to choose what has to be printed (OFF/ON).

Note: this printing can’t be customized so be careful about the paper size / quantity of data.

Delete after the printing:

ON: The totals database will be automatically deleted at the print end.

OFF: The totals database will stay in memory and incremented (in case of new loads) up to the use of the function “Materials Total” from the DELETE menu.

Ticket N.

Sequential number of the printer ticket automatically increased at every total (truck) print.

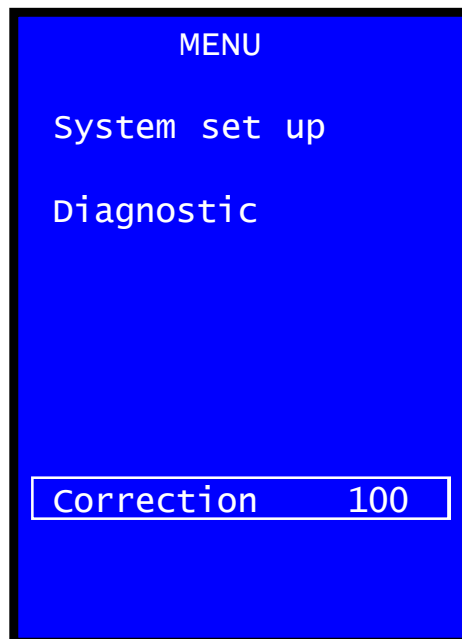
It can be manually modified/zeroed with



or



Keep pressed  from working screen.

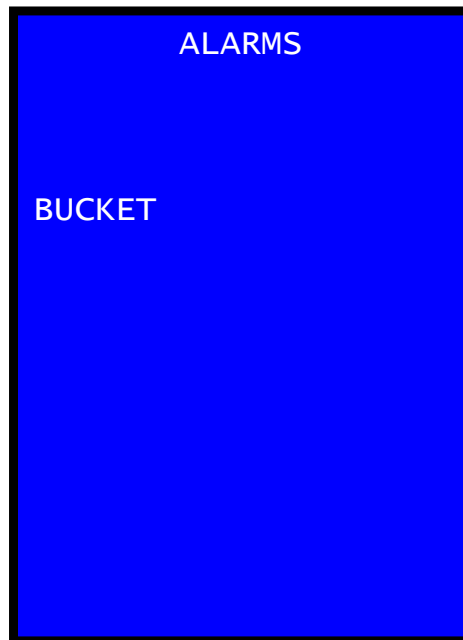


If the system weighs always heavier or lighter than the real load weighed (compared to a certified weigh bridge for example) it's possible to tune the accuracy using the correction function and adjust it with a % variation.

The correction must be the same as the found error.

Example : If the system weights 5% less than the real weight the value of correction must be increased of 5 percentage points.

If the system weights 5% more than the real weight the value of correction must be decreased of 5 percentage points.



During the normal work, if the control box doesn't receive a sensor, the alarm page will appear.

Please note that if the problem is a broken cable, all the sensor after the failure in the line will be in alarm.

It's also possible that if there's a short circuit in the line all the angular sensor will be in alarm.

The user can verify the status of the cables/connectors and restart the control box to see if the problem persist.

In this situation the system can't be used and it's only possible to enter in the system menu / diagnostic and eventually in the calibration section with the proper password.

The system is designed to use a machine to load trucks / dumpers.

Using the system for other reasons / work environment it's maybe possible to reach the system computation (max values shown) limits.

Please note that the “.” shown into the numbers below it's the decimal separator sign.

Value U.M.	Total load	Partial load	Bucket n°	Target Load	Display Totals max value x each material shown
Kg	999990	999990	1-999	1-999990	99999999
metric ton	999.99	999.99	1-999	0.01-999.99	99999999
pounds	999990	999990	1-999	1-999990	99999999
short ton	999.99	999.99	1-999	0.01-999.99	99999999
long ton	999.99	999.99	1-999	0.01-999.99	99999999

Environmental:

Work temperature:	from -20°C to 70°C
Storage temperature:	from -30°C to 80°C
Humidity:	+65°C / 92 %

System accuracy: $\leq \pm 1\%$ (referred to a truck load)

The system cannot be used to sell material (no fiscal printer use).

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