

# LOADTRONIC 3

Approved according to MID-006/OIML R51  
**Operating Manual**



**AADI Document      W150      H70 001**  
1<sup>st</sup> Edition 14<sup>th</sup> September 2007      Preliminary Edition  
2<sup>nd</sup> Edition 11<sup>th</sup> January 2008  
3<sup>rd</sup> Edition 05<sup>th</sup> December 2008  
4<sup>th</sup> Edition 13<sup>th</sup> July 2009  
5<sup>th</sup> Edition 18<sup>th</sup> January 2010  
6<sup>th</sup> Edition 30 September 2011

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**Contact information:**

Fairbanks Scales  
821 Locust  
Kansas City, MO 64106

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## CHAPTER 1 Description of LOADTRONIC 3

LOADTRONIC 3 is an automatic and dynamic weighing system for wheel loaders. It is automatic in the respect that the load in the bucket is weighed without any involvement from the operator and dynamic as the weighing is done while the machine operates normally without any interruption for weighing.

LOADTRONIC 3 is type approved as Automatic Catchweigher according to MID-directive MI-006 and OIML R51.

### 1.1 Sensors

LOADTRONIC 3 has two pressure sensors fitted to the hydraulics of the wheel loader. These sensors measure the forces applied to the lifting arm system, refer LOADTRONIC 3 Installation Guide.

There are two more sensors in the system:

- One angular sensor (inclinometer) which measures the position of the lifting arms.
- One acceleration sensor which measures the movement (acceleration, retardation and the inclination of the machine).

There is one switch in the system:

- One bucket position switch to signal when the bucket is fully retracted.
- In addition, the system is connected to the reverse signal of the machine.

### 1.2 Main unit

The Main unit is a combined operator's display and a computer unit. The main unit is mounted on the right corner post in the cabin, and has the following functions:

- To read sensor signals.
- To compute and analyze measured data.
- To control the automatic weighing function.
- To record and report the weighing results.

- To carry out calibration and similar functions when the calibration switch is set to the enabled position.
- To present measurement results on the LCD display.
- To receive commands from the operator through a keypad and a set of function keys.

### 1.3 Calibration switch

The calibration switch is placed underneath the main unit, refer Figure 1-1. Calibration is enabled when the switch is in the rightmost position. Ensure that the switch is in the leftmost position (calibration disabled) during normal operation of the LOADTRONIC 3.



Figure 1-1 The Calibration Switch is placed underneath the Main Unit.

### 1.4 Printer (optional)

The printer is connected to the main unit and positioned as required.

The printer has the following functions:

- Print a load receipt for each truck load.
- Print reports about customer, truck, material, location and load list.

If a printer is connected, you can print a load receipt by pressing the function key next to the printer symbol (F2). *Print/F2* will automatically cancel/zero the running accumulated total for the current active job.

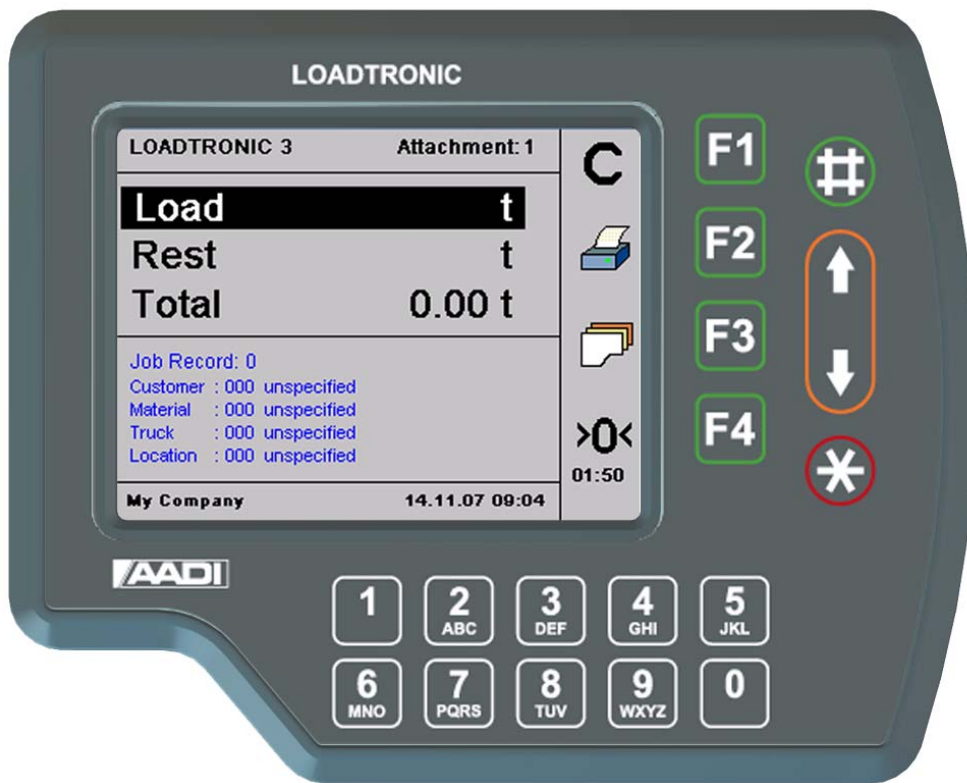
### 1.5 Remote wireless communication (optional)

Wireless communication is used for up- and downloading data between the wheel loader and a remote location.

### 1.6 Certified technical data

Accuracy class	Y(b)
Verification scale interval	$e \geq 0.02t$
Number of verification scale interval	$n \leq 200$
Maximum capacity	Max $\geq 100e$ Max $\leq 200e$
Minimum load	Min $\geq 10e$
Temperature range	-25°C to +50°C
Power supply	18 - 36 VDC

## CHAPTER 2 Operator display and menu



**Figure 2-1** LOADTRONIC 3 Display.

LOADTRONIC 3 has a set of function keys, **F1**, **F2**, **F3**, **F4**, **#**, **↑**, **↓**, and **\*** on the display unit, refer Figure 2-1 and Figure 2-2. The functionality differs depending on which sub menu is currently open; a symbolic representation is shown inside the display, in the rightmost column (next to the function keys).

The LOADTRONIC 3 display unit has a keypad below the display; the keypad holds digits and other typical characters; the layout is similar to the one used in mobile phones.



## 2.1 Menu Layout

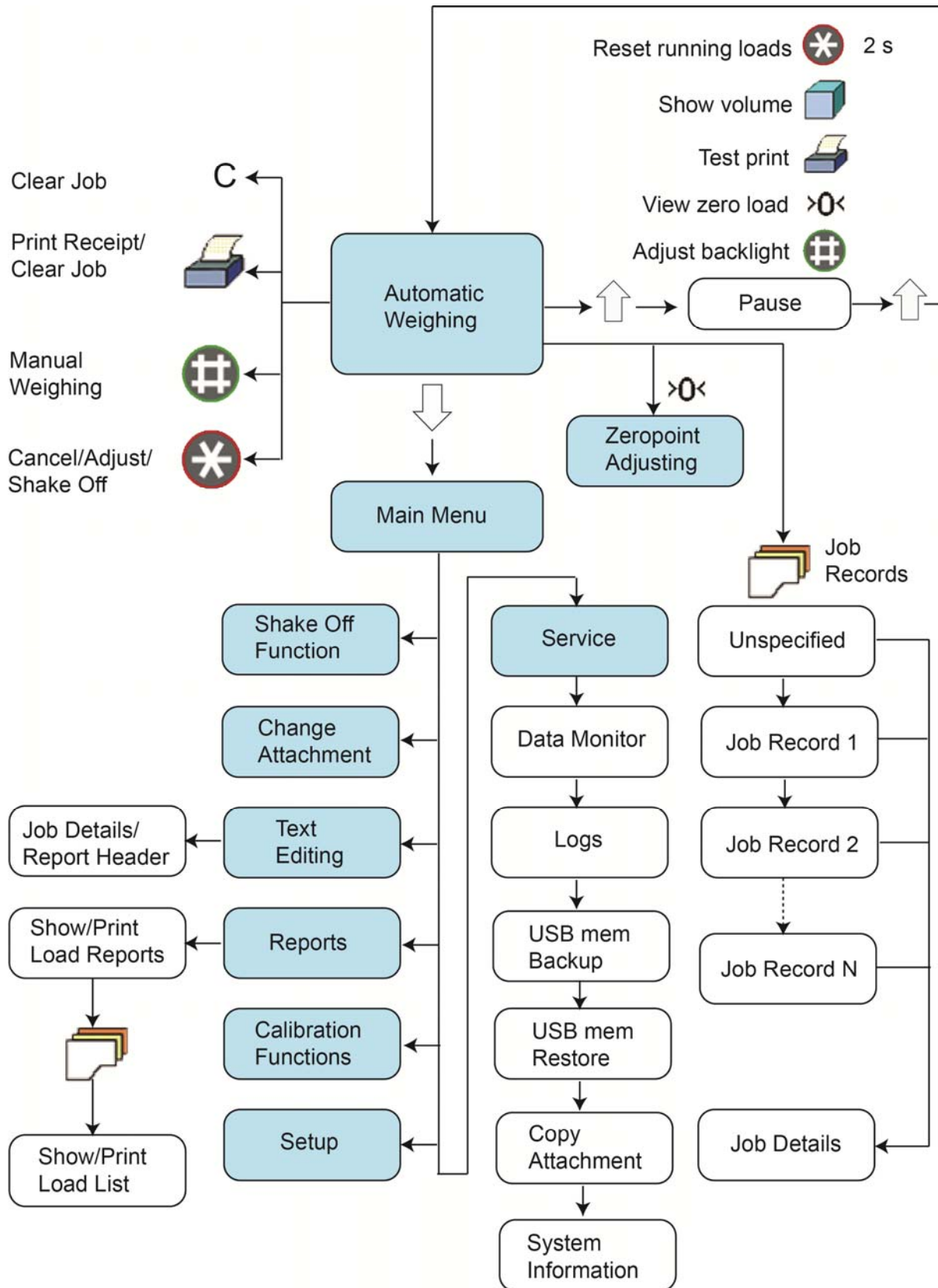


Figure 2-2 Illustration of the LOADTRONIC 3 menu.

The LOADTRONIC 3 starts up in automatic weighing mode. Press the down arrow to open the main menu; press the down- or up arrow to highlight the sub menus, refer Figure 2-2. Press Enter/# to open the highlighted sub menu, and Cancel/Exit/\* to return to automatic weighing mode without performing any changes to the settings.

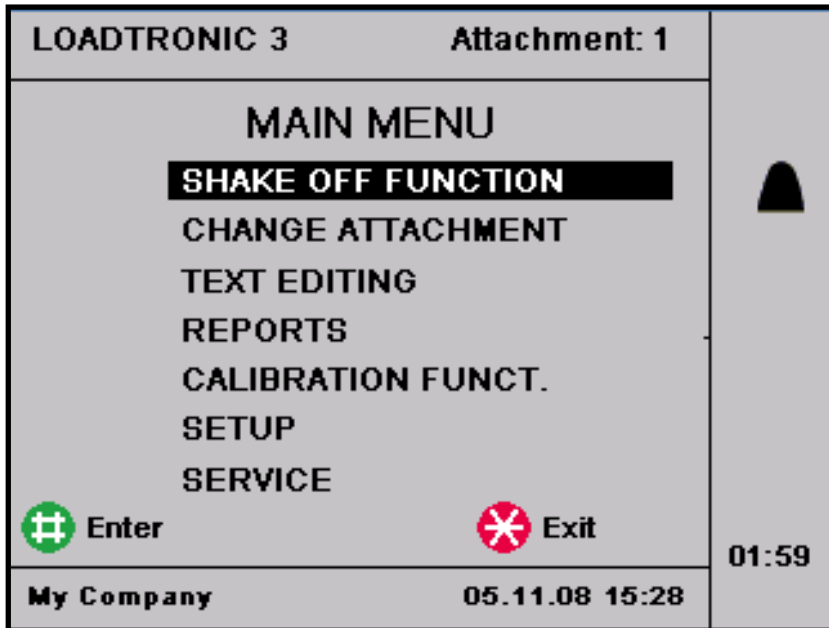


Figure 2-3 Main menu as shown in the operator's display.

## CHAPTER 3 Operating LOADTRONIC 3

### 3.1 Start –normal operation

LOADTRONIC 3 starts up as the machine's ignition key is set in position 1 (running position) and the power switch at the rear of the main unit is switched ON/1. After a few seconds a start up window is shown in the display; next the system enters automatic weighing mode.

LOADTRONIC 3 is now ready for automatic weighing, refer chapter 3.2. The currently active *job record* is shown in the lower part of the display; if all records have been cleared (no active record) job record 0 '*Unspecified Recording*' is displayed.

#### *Note:*

*If the instrument is directly connected to the machine battery (optional, refer the LOADTRONIC 3 Installation Guide), the activation time is less than 1 seconds if the engine is stalled; normally activation time is approximately 10 seconds. The direct connection to the battery will also provide power to the thermostat controlled heating element (optional) for operations in very cold locations.*

*If the machine has been idle for more than two hours, LOADTRONIC 3 will block weighing, and request the operator to carry out a manual zeropoint adjustment, refer chapter 3.6.*

### 3.2 Automatic weighing

Normally the LOADTRONIC 3 is in the mode for automatic weighing.

Automatic weighing means that the operator can operate as usual; during normal operation the weighing sequence is activated automatically when the wheel loader is reversed out from the material heap after filling the bucket. Refer Figure 3-1 for an illustration.

The weighing begins as soon as the lifting arms have moved within the weighing range, providing that other sensor signals are acceptable.

The weight of the bucket is automatically added to the running total weight.

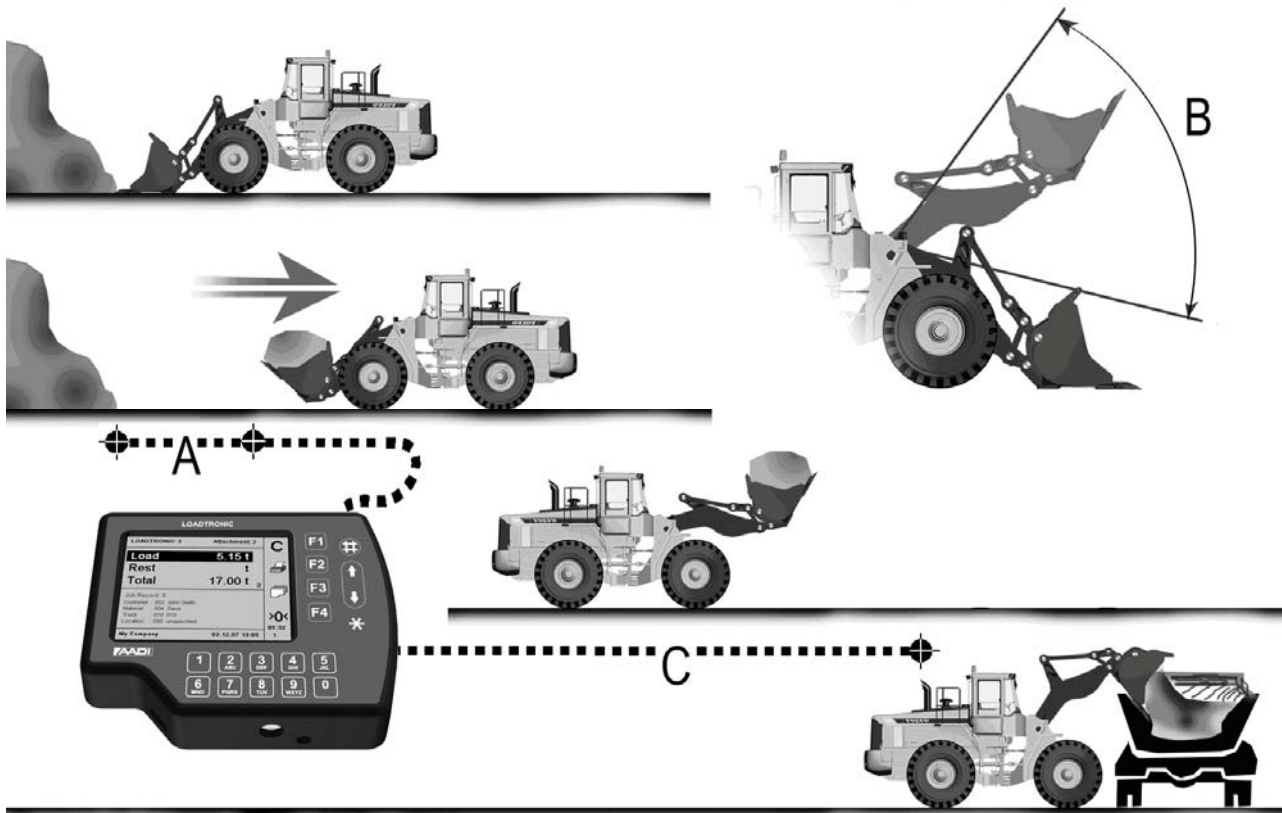


Figure 3-1 Automatic Weighing is connected to the normal working cycle.

A: 2 seconds. B: measurement area  $-20^{\circ}$  to  $+20^{\circ}$ . C: weighing.

**During automatic weighing the display unit shows, refer Figure 3-2:**

- **Load** of the current bucket (Material weight), e.g. 5.15 t.
- **Rest** (Remaining material to be loaded (the required final weight - (minus) total load so far).
- Running **Total** weight loaded so far, e.g. 17.00 t.
- Number of buckets loaded so far, e.g. 3.
- Attachment: ID number of the current attachment.
- Number of Active Jobs.
- Active Job (details).

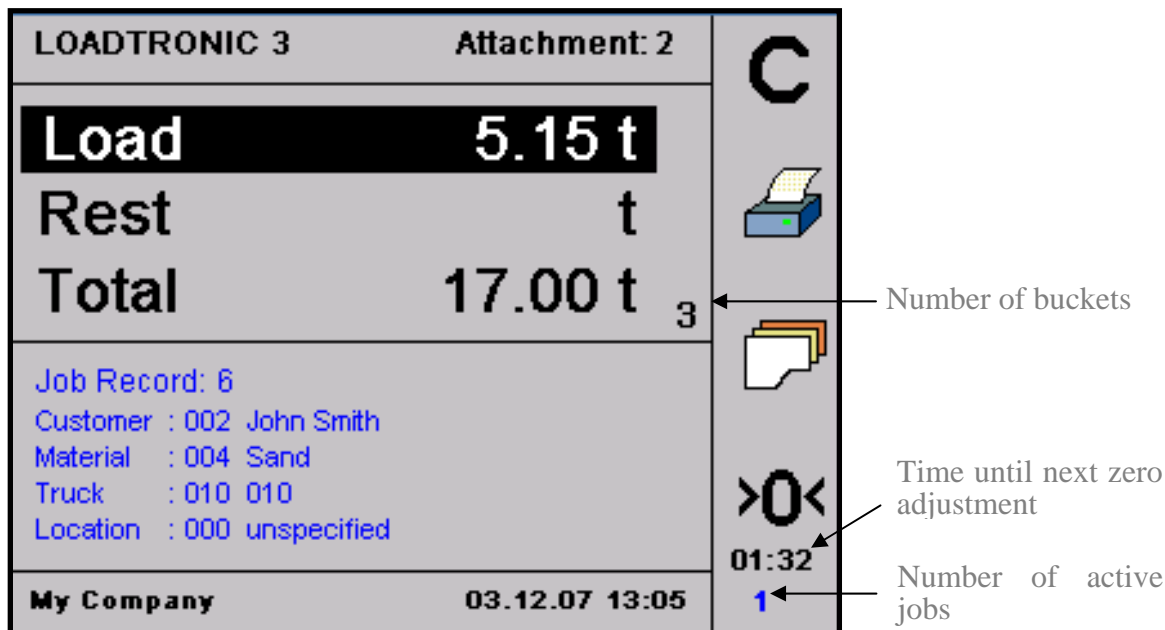


Figure 3-2 Operator’s display during automatic weighing.

**Note:** *If the bucket is not fully tilted rearward, the message: ‘BUCKET’ will be shown in place of the bucket weight (no weighing performed).*

Comments:

- When weighing begins, the Load-field starts to flash, and the value is updated.
- Weighing is completed when the weight of the current load is added to the running total. The buzzer will give a sound signal if activated in Parameter Setup II, refer Figure 3-6 and LOADTRONIC 3 Installation Guide.
- The total weight and the rest weight to be loaded will be updated.
- The weight of the last bucket remains displayed until the load has been dumped.
- The running total of loads delivered is shown on screen if activated in *Parameter Setup III*. To reset counter: Start *Pause mode*. Press and hold \* for 2 seconds.
- Press *Print/F2* to clear the job and print a receipt (if a printer has been installed), or press *C/F1* to clear the job (no report).

**Note!** *You can clear the current job after delivering the last bucket by Press and hold the Trigger button for 2 seconds.*

### 3.2.1 Tips for best results when weighing

Maximum function and accuracy is achieved by avoiding substantial deviations from the usual work cycle, while at the same time noting the following points:

- The LOADTRONIC 3 is activated/made ready for weighing 2 seconds after the gear selector has been moved into reverse. During this time the bucket should be pulled out from the material heap so that no friction forces between the heap and the bucket will affect the weighing result. This particularly applies if the bucket has been raised fairly high while filling it.
- The lifting arms must be moving upward to initiate the weighing.
- If it should happen that the LOADTRONIC 3 does not become activated / begin weighing, it is possible to activate manual weighing by pressing #, refer chapter 3.4.
- The bucket must be tilted rearward to its end-stop when weighing, otherwise the message 'BUCKET' will appear on the display.
- The lifting arms must be lifted into the measurement area, refer Figure 3-1.
- The lifting arms must not touch against the front frame or the machine body when the weighing begins. This could cause false readings. This means that:
  - It is possible to control at which point in the work cycle the weighing should be done by awaiting raising the lifting arms until the machine has reached a suitable destination.
  - When loading, transporting and dumping the load at a low height, e.g. down a slope, it is necessary to raise the bucket before emptying it to allow weighing to take place.
- When weighing on ground which is inclined more than 5 %, it is recommended that weighing should be avoided at low lifting angles particularly when the machine is pointing downhill. The system will only weigh when the tilt is less than 10 %.
- If the operator wants to weigh the load under controlled conditions, he can cancel the current weight and re-weigh the load, refer chapter 3.7 and 3.9. If the bucket has been emptied, the cancel function must be used. At manual activation a new weighing sequence starts immediately. When canceling before dumping, the system must also be activated for a renewed weighing by moving the gear selector from forward or neutral to reverse.

### 3.3 Recording

LOADTRONIC 3 records each operation when the system is active (LOADTRONIC 3 is not active in pause mode, refer chapter 3.10). The recording is linked to a specific *job record*, with or without reference to a specific type of truck, material, customer or location. Data are stored internally in the main unit; data can be inspected and printed for a customer receipt. The current active job record is shown in the lower part of the display.

#### 3.3.1 Job record

The LOADTRONIC 3 system can hold job details for as many as 999 job records. A specific job record can be activated by e.g. pressing the job record number directly on the keypad. The operator can receive a set of job records to perform prior to the working day, and/or the operator can assign details during the day.

Job record 0 is for unspecified recordings. The operator can temporarily type/set job details for job identification in the records list for reporting etc, but the details are not stored in job record 0 for later use; the job details are unspecified the next time job record 0 is opened.

Job records 1 to 999 are for specified recordings. The job details that are assigned to a specific job record are stored until changed by the operator.

***Note! Job records 900 to 909 are used differently for LOADTRONIC 3 systems using the optional feature Remote Job Request, refer chapter 3.3.6.***

A job record is active until the operator:

- Press *Print/F2* to print a load receipt.
- Press *C/F1* to clear (no load receipt).

Refer chapter 4.1 for a description of managing a library of job details (customers, materials, trucks, locations, and two user defined details). The user can add and define 1 or 2 more job details in *Parameter Setup III*, refer LOADTRONIC 3 Installation Guide.

### 3.3.2 Unspecified recording

LOADTRONIC 3 allows the operator to perform an unspecified recording; a recording of material weight without any specification of job details, like the material type, truck, customer, location etc.

The operator can specify the target load before the job starts; either to set the maximum permitted load limit for the truck or hauler, or to set a pre-defined amount of material requested by the customer, refer Figure 3-4.

After each weighing LOADTRONIC 3 will display the weight of the current bucket, the running total weight and the remaining weight to be loaded, refer Figure 3-3.

If the operator does not specify the target load for the job, the field for the remaining weight will be blank. The current weight of the bucket and the running total weight will be displayed.




LOADTRONIC 3		Attachment: 2	C
<b>Load</b>		<b>t</b>	
Rest	30.00	t	
Total	0.00	t	
Job Record: 0			
Customer : 000 unspecified			01:25
Material : 000 unspecified			
Truck : 000 unspecified			
Location : 000 unspecified			
<b>My Company</b>		03.12.07 11:06	

Figure 3-3 Job record with specified target load.

**Note!** The 4 standard job details are shown in the main window. The 2 extra fields defined by the user are not shown here; they are shown in each job record, refer Figure 3-4.



**Procedure to start an unspecified job record with a specified target load:**

1. Press *0* on the keypad to open job record no. 0.
2. Press *job record/F3* to set the target load (recommended):
  - Press *F2* once, or press *Next/F4* repeatedly to highlight the Load-field at the end.
  - Type the target load using the keypad, **or** press the *up arrow/↑* to adjust the load in step of 0.01t. Press and hold the arrow to adjust the load in step of 0.1t.
3. Press *Enter/#* to activate the job, or press *Cancel/\** to abort the operation. LOADTRONIC 3 returns to automatic weighing mode.

When the job is complete, the operator can press *Print/F2* for a customer receipt (requires a printer), or simply *C/F1*(no report), refer chapter 4.2 for more detail about customer reports.







LOADTRONIC 3	Attachment: 1	
JOB RECORD NO.: 0		
Customer : 0000 Unspecified		
Material : 000 Unspecified		
Truck : 000 Unspecified		
Location : 000 Unspecified		
Driver : 000 Unspecified		
Extra2 :		
Load : 30.00 t		
 Select	 Next	 Cancel
My Company	19.09.11 15:42	 01:05

Figure 3-4 Setting the target load. Note! Driver and Extra2 are user defined details.

### 3.3.3 Specified recording

LOADTRONIC 3 allows the operator to assign job details in the job record: details about customer, material, truck and/or location. By adding job details the operator can easily identify a specific job record later. The job details are printed on the load receipt. The job details of the current job are shown in the display, refer e.g. Figure 3-5.





LOADTRONIC 3	Attachment: 2	
<b>Load</b>	<b>5.15 t</b>	
Rest	t	
<b>Total</b>	<b>17.00 t</b>	
Job Record: 6 Customer : 002 John Smith Material : 004 Sand Truck : 010 010 Location : 000 unspecified		01:32
<b>My Company</b>	03.12.07 13:05	1

Figure 3-5 Job details.

#### Procedure to specify job details for a job record:

1. Press a *job record* number directly using the keypad; job record 0 will not store the details for later use.
2. Press *job record/F3* to edit the job record; you may also change the job record number in the job list: press the keypad directly, or press the *up- or down arrows*.
3. Press *Next/F4* to highlight the Customer-field. Search for/type customer details, refer chapter 4.1 for a description about searching for a description/typing a description. Press *Next/F4* to enter material details and other job details until the job has been specified according to your requirements.
4. Press *Next/F4* to highlight the Load-field. Type the target load using the keypad, **or** press the *up arrow/↑* to adjust the load in step of 0.01t. Press and hold the arrow to adjust the load in step of 0.1t.

5. Press *Enter/#* to activate the job, or press *Cancel/\** to abort the operation. LOADTRONIC 3 returns to automatic weighing mode.

When the job is complete, the operator can press *Print/F2* for a customer receipt (requires a printer), or *C/F1* (no report) to start a new unspecified job, refer chapter 4.2 for more detail about customer reports.

The current job record will remain on screen only if *Keep Job* has been activated (set to *On*) in *Parameter Setup III*.

### 3.3.4 Selecting a pre-defined job record

If the operator has a set of pre-defined jobs to perform, the assigned job record including details can be selected from the job record.

Press the job record number directly from the keypad, or open the job list:

1. Press *job record/F3*.
2. Press the *up- and down arrows* to set the desired job record number, or type the number directly on the keypad.
3. Press *Enter/#* to activate the job, or press *Cancel/\** to abort the operation. LOADTRONIC 3 returns to automatic weighing mode.

When the job is complete, the operator can press *Print/F2* for a customer receipt (requires a printer), or *C/F1* (no report), refer chapter 4.2 for more detail about customer reports.

### 3.3.5 Multiple jobs

LOADTRONIC 3 can manage multiple active jobs. The operator can maintain multiple active jobs by selecting a new job record without clearing the current record; the operator can switch between different jobs in the same time period. All active jobs will be handled individually regarding running total, number of buckets and the remaining weight to be loaded.

The number of active jobs is shown in the lower right corner of the display. The operator can keep up to 40 active jobs at a time; the maximum number

of allowed active jobs can be set in *Parameter Setup II*, refer Figure 3-6 and LOADTRONIC 3 Installation Guide.

Job records 1-9 can be active jobs. A job becomes active once the first bucket of material is delivered; the operator can easily see that a job is active since the running total is different from zero.

An active job is accessed by pressing the job record number (1-9) on the keypad.

**Note!** A job is active until the operator presses the function key *Print/F2*, or *C/F1*.

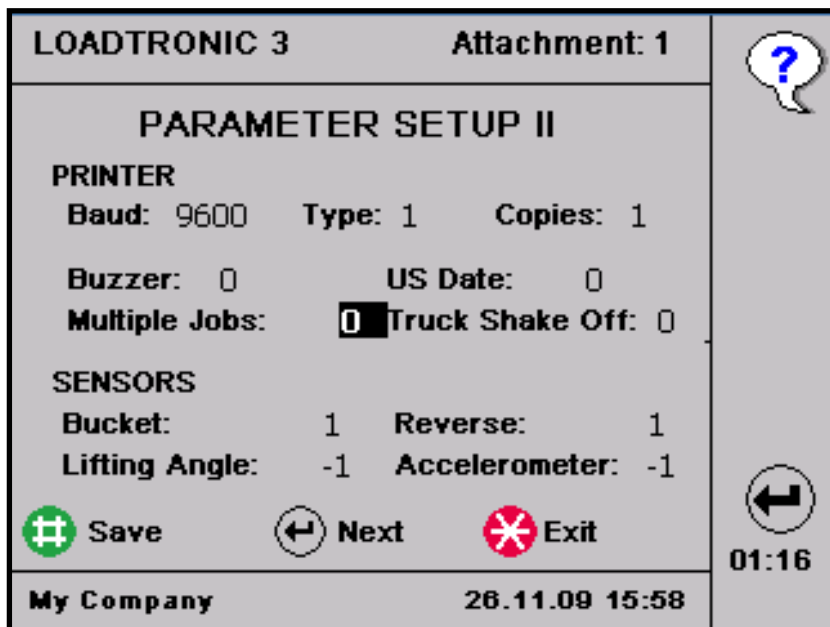


Figure 3-6 Open *Main Menu – Setup – Parameter Setup II* to set the maximum number of active jobs.

### 3.3.6 Remote job request using LOADTRONIC 3 PC-Link

A job request can be sent wireless from an office PC using LOADTRONIC 3 PC-Link and a modem connection to a loader. The LOADTRONIC 3 main unit will accept or turn down the request, refer LOADTRONIC 3 PC-Link Operating Manual.

If the request is accepted, a red font number will flash in the lower right corner of the display, refer Figure 3-7 (next to the number of active jobs, and

below the time left to adjust zero point). The number shows how many requests (left to perform) the system has accepted; the maximum number is 10. The number is updated when the operator completes a requested job.

A job request is notified with the alarm buzzer. Open *Main Menu – Setup – Parameter Setup II*, and set the *buzzer* value to either 2 or 3 to engage an alarm when a request is accepted, refer LOADTRONIC 3 Installation Guide.

Accepted wireless job requests are stored in the loaders job records list, from record number 900 to 909. A job request is stored in the assigned record number until the job is complete. When the job is finished, the job details are set to unspecified and the record number is available for new requests.

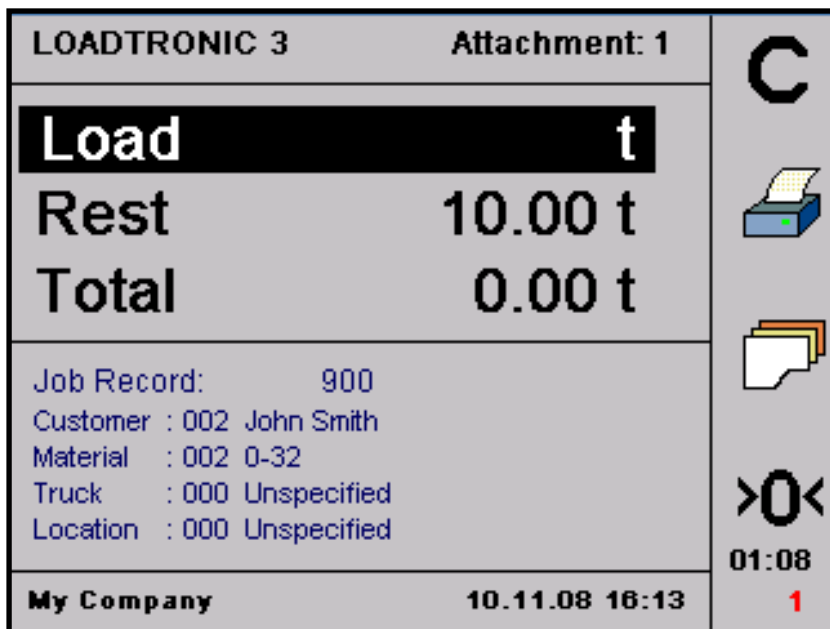


Figure 3-7 A remote job request has been accepted.

**Procedure to open a requested job from LOADTRONIC 3 Main unit:**

- Press *F1/Clear* to complete the current job; the job request stored in the job record with lowest number, e.g. job record 900, will automatically show in the display. Press *F3* and next the arrows to select another request or type the job record directly using the number keys below the display.
- Perform the job according the procedure described in the LOADTRONIC 3 operating manual.
- Press *F1/Clear* or *F2/Print* to clear the job when complete.

### 3.4 Manual weighing

Weighing can be activated manually:

- Press # to activate manual weighing. The machine does not have to be moved.
- Raise the bucket evenly from below the horizontal level. The load is now weighed.
- The running total weigh is updated as the bucket is dumped.

### 3.5 Changing and deleting attachment

10 different attachments can be used with LOADTRONIC 3. The current attachments ID number (1-10) is shown in the upper right corner of the display, refer Figure 3-8.

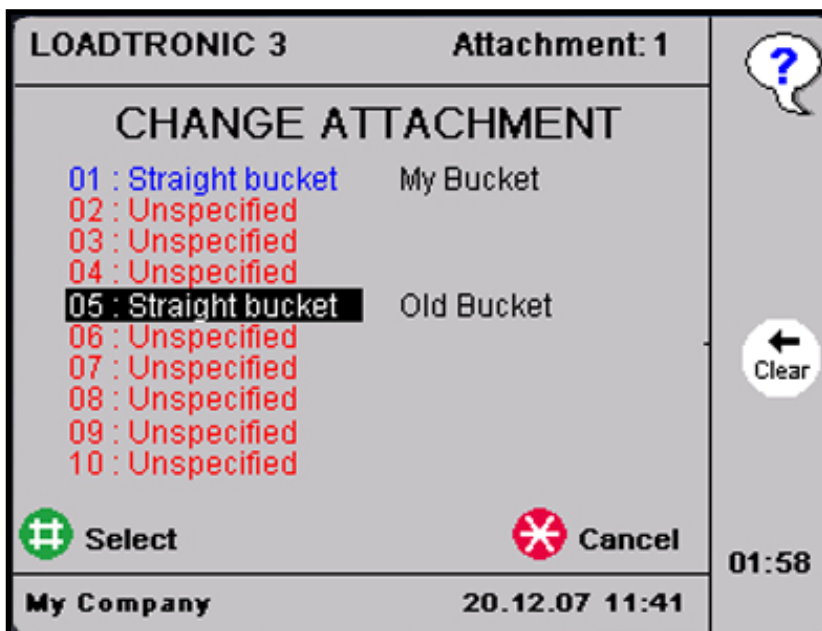


Figure 3-8 Changing Attachment.

The attachments that are listed in blue color have been calibrated on the wheel loader and are available, refer LOADTRONIC 3 Installation Guide. Attachments that are not calibrated on the wheel loader are listed in red color; you can not select the attachment before it has been calibrated.

Taring and basic calibration must be performed for every attachment to be used with LOADTRONIC 3, refer LOADTRONIC 3 Installation Guide.

**Procedure for changing attachment:**

1. Fit the attachment to the machine.
2. Open *Main Menu - Change Attachment*, refer chapter 2.1.
3. Press the *arrows* to highlight the attachment identification number and description. Press *Select/#* to select the correct attachment (or press *Cancel/\** to return to automatic weighing mode without changing the setting).
4. Ensure that the attachment is empty.

LOADTRONIC 3 requires a zeropoint adjustment, refer chapter 3.6.

***Note! The system will block the automatic weighing function and indicate the requirement with the message ‘Adjust Zeropoint’ until the zeropoint adjustment has been performed.***

**Procedure for deleting attachment calibration data:**

- Enable the calibration switch, refer Figure 1-1.
- Open *Main Menu - Change Attachment*, refer chapter 2.1.
- Highlight the correct attachment. ***Note! You can not delete the active attachment.***
- Press and hold *Clear/F3* for 3 seconds; the entry will change to “*Unspecified*” (red font).

### **3.6 Zeropoint adjustment**

A zeropoint adjustment must be carried out each time the machine has been idle for a while, or at least every 2 hour. During normal operation, the zeropoint can be adjusted up to  $\pm 4\%$  of max load.

The LOADTRONIC 3 display shows a request for the operator to perform a new zero point adjustment 10 minutes before the system is blocked (the load will show ‘\*\*\*\*’ when the system is blocked).

**Procedure for a zeropoint adjustment:**

1. Ensure that the attachment is empty.
2. Position the machine on level ground. The attachment must be fully retracted.
3. Press  $>0</math>/ $F4$  to enter the zero point adjustment sub menu.$
4. Press *Start*/ $\#$  to start the adjustment.

*Note! If the bucket is not fully retracted, an error message appears on the screen: 'Bucket', refer Figure 3-9. Retract the bucket and press Start.*

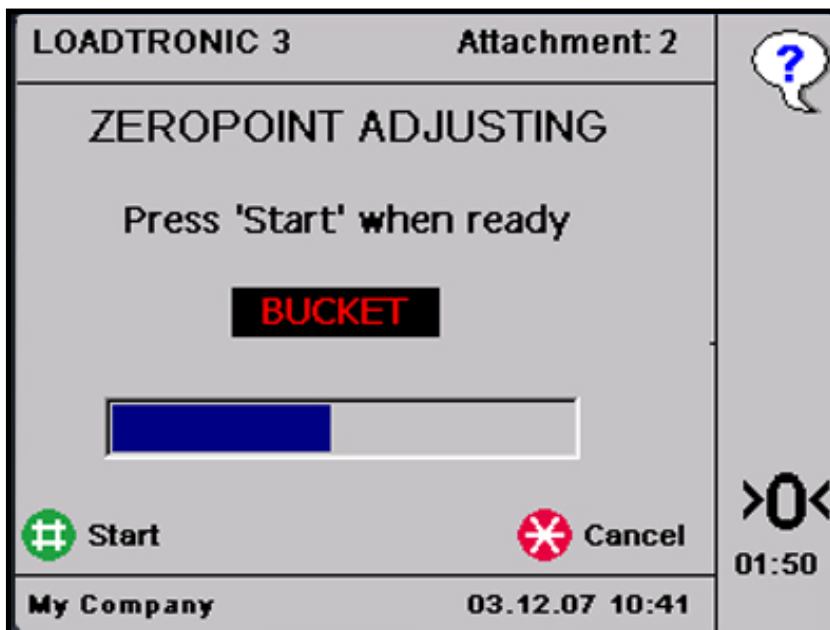


Figure 3-9 Retract the bucket before a zeropoint adjustment.



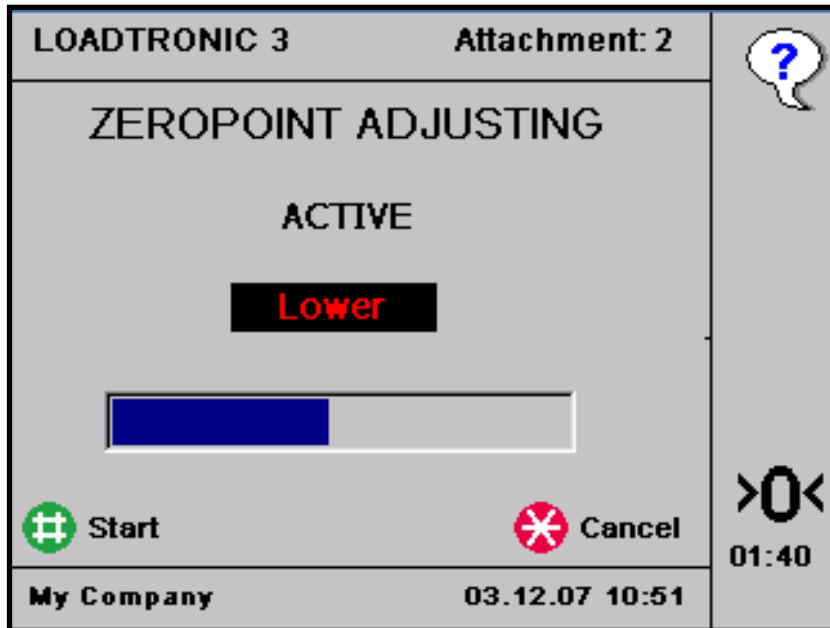


Figure 3-10 Zeropoint adjustment.

5. Operate the lifting arm at a slow and even speed according to the instructions on the display: *Lower – Lift – Lower*, refer Figure 3-11.

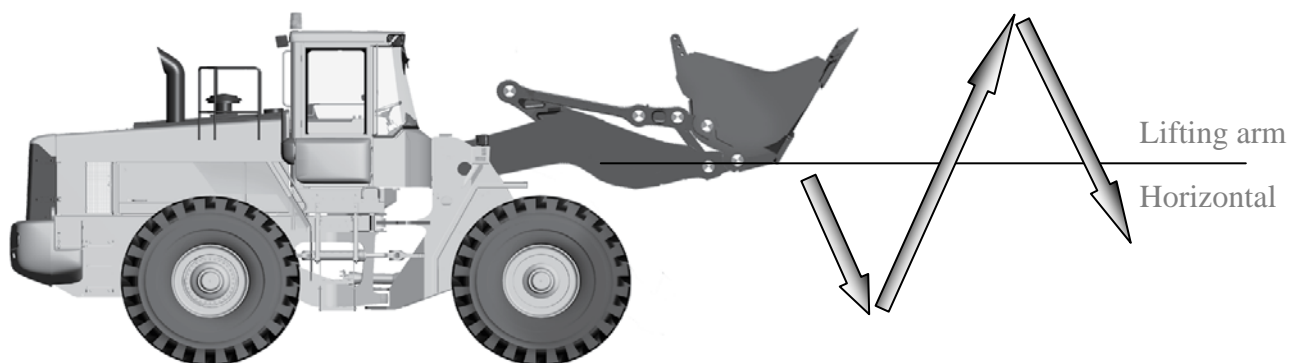


Figure 3-11 Operation of the lifting arms during zeropoint adjustment.

6. **When the zeropoint adjusting is OK and completed, the LOADTRONIC 3 automatically returns to automatic weighing after showing the adjustment in kg. Accumulated load will be continued. When the zeropoint adjusting is not OK an error message appears in the display, refer Figure 3-12.**

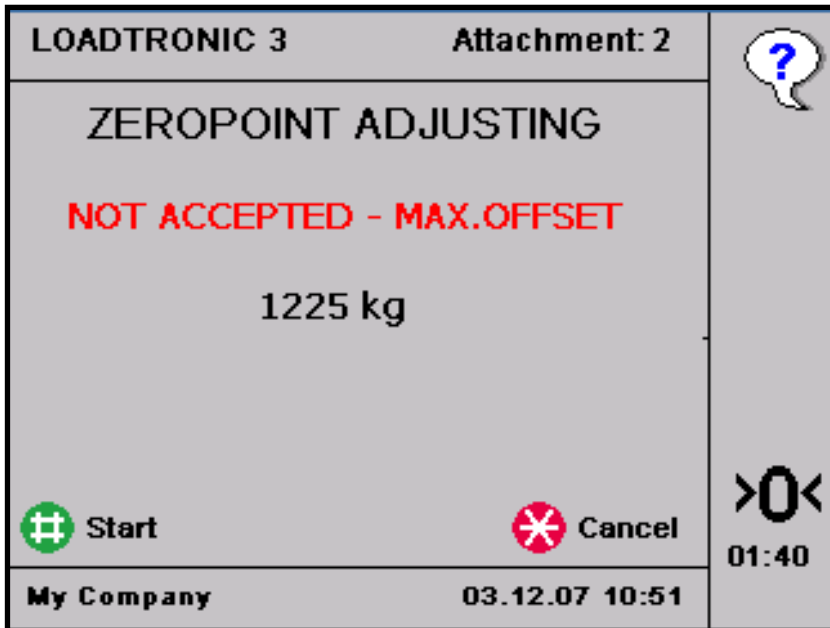


Figure 3-12 Error message when the zero point adjustment has failed.

Probable cause:

- Uneven movements of the lifting arm mechanism during taring.
- The adjustment was more than  $\pm 4\%$  of max load. The information indicates that the zero point of the sensors have moved significantly relative to the tare curve.

This can happen if the machine has not been used for a while, if the machine has been given maintenance recently, or if the bucket is not completely empty due to material build-up, presence of ice etc.

- There is a mismatch between the actual attachment mounted to the machine, and the selected calibration data.

Necessary action:

- Ensure that the selected calibration data are valid for the actual attachment; select the correct calibration data/attachment.
- The zeropoint adjustment can be initiated (allowing adjustment up to  $\pm 20\%$  of max load) by pressing  $>0</F4$  twice after a system restart (switch the LOADTRONIC main unit OFF then back ON). Follow the instructions given on screen, refer Figure 3-12. Repeat the zeropoint adjustment.
- If the zeropoint adjustment still fails, contact service personnel.

### 3.7 Re-weighing and adjusting the weight

The operator can easily re-weigh the material in the bucket; this is typically necessary if

- Part of the load falls off while moving the machine.
- The operator must adjust (remove) the loaded amount of material.

#### **Procedure to re-weigh the material in the bucket:**

1. Press # or move the gear selector to forward drive and then back to reverse to initiate the weighing. The machine does not have to be moved.
2. Raise the bucket evenly from below the horizontal level. The load is now re-weighed.

### 3.8 Shakeoff functions

With the LOADTRONIC 3 system, the operator can select between shake off to truck or heap. The default setting is configured in *Parameter Setup II*, refer Figure 3-6. Press *F2* to toggle between the two functions in the main menu. The currently selected shake off function is shown with a symbol of a heap or a truck, refer Figure 2-3. Press *F1/Clear* or *F2/Print* to clear the job when complete, the shake off function is set to default.

#### 3.8.1 Shakeoff to heap

If *Truck shake off* is set to 0 in *Parameter Setup II*, refer Figure 3-6, the operator can shake off part of the load back to the heap. The remaining material in the bucket is reweighed.

#### **Procedure to adjust the material in the bucket:**

1. Press and hold \* for at least 1 second to cancel the bucket weight from the running total weight. The current approximate weight is shown in the display.
2. Move the machine to a place where the surplus material can be dumped.

3. Shake off the material until the display shows the approximate desired weight.

***Note: The weight shown is slightly different from the actual weight, since the bucket is not tilted rearward.***

4. Retract the bucket and lower the arm when complete.
5. Press # **or** move the gear selector to forward drive and then back to reverse to initiate the weighing. The machine does not have to be moved.
6. Raise the bucket evenly from below the horizontal level. The load is now re-weighed.

### **3.8.2 Shakeoff to truck**

If shakeoff to truck has been set in *Parameter Setup II*, refer Figure 3-6, the operator can shake off part of the load onto the truck; the material delivered to the truck is added to the running total.

#### **Procedure for shakeoff to truck:**

1. Press and hold \* for at least 1 second to cancel the bucket weight from the running total weight. The current weight of the material delivered to the truck is 0 kg.
2. Shake off material until the display shows the approximate desired weight delivered to the truck.

***Note: The weight shown is slightly different from the actual weight, since the bucket is not tilted rearward.***

3. Retract the bucket and lower the arm when complete.
4. Press # **or** move the gear selector to forward drive and then back to reverse to initiate the weighing. The machine does not have to be moved.
5. Raise the bucket evenly from below the horizontal level. The remaining load in the bucket is weighed, and the weight of the load delivered to the truck is displayed in the Load-field.

***Note! The weight of the remaining load must be equal or greater than the Min Load specified in Parameter Setup I.***

Repeat the procedure until the correct weight has been shaken off to the truck.

### 3.9 Cancelling/dumping last bucket

The operator can easily cancel the last weighing if the load in the bucket has been dumped back to the material bank:

- Empty the bucket. Press and hold *Cancel*/\* for at least 1 second.

*Note: The weight is subtracted from the total weight.*

### 3.10 Pause mode

LOADTRONIC 3 can be set in pause mode when the machine performs actions that are not to be recorded, e.g. tidying the work place.

Pause is selected by:

1. Pressing the *up-arrow*/↑ from automatic weighing mode. When the LOADTRONIC 3 is in the pause mode no buckets will be weighed or recorded. The display will show a row of ‘-’ signs, refer Figure 3-13.

The pause mode is ended by:

2. Pressing *up-arrow*/↑ (in pause mode). The LOADTRONIC 3 returns to automatic weighing.

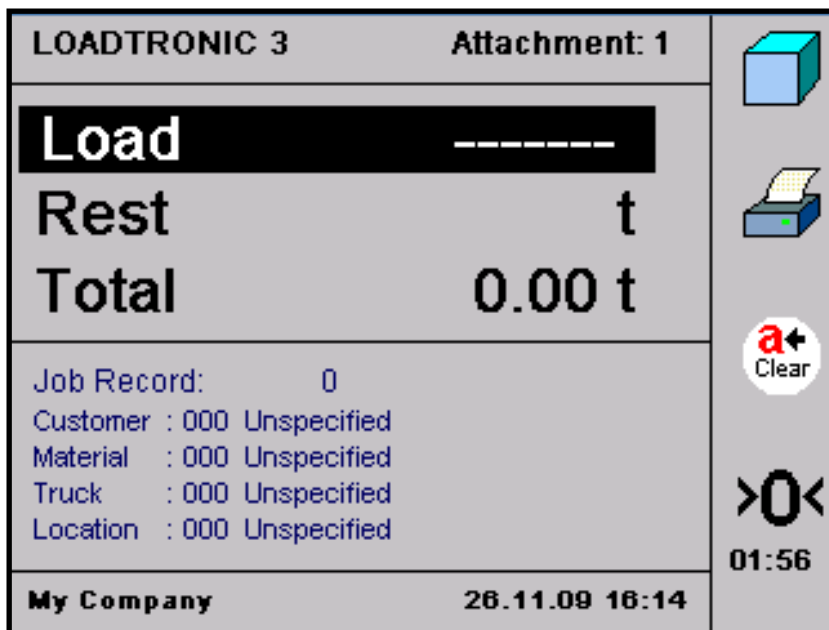


Figure 3-13 Pause mode.

### 3.10.1 Adjusting the display backlight

When LOADTRONIC 3 is in pause mode, the intensity of the background light of the display can be adjusted by pressing # once or several times.

### 3.10.2 Display volume of load

The volume of the load can be displayed if the density of the material has been specified, refer chapter 4.1. Enter pause mode and press *Volume/F1* to display the volume of the total material delivered.

### 3.10.3 Other functions in pause mode

When LOADTRONIC 3 is in pause mode, you can also:

- Get a test print to verify the printer. Enter pause mode and press F2.
- Clear all active jobs. Enter pause mode and press F3.
- View the zero load to verify the last zeropoint adjustment. Enter pause mode and press F4.

## 3.11 System information

In case of a fault/error LOADTRONIC 3 displays a message in red text font in the top line, refer Figure 3-14.

If serious faults arise during start up, LOADTRONIC 3 will not start the automatic weighing mode; the main menu will be opened.

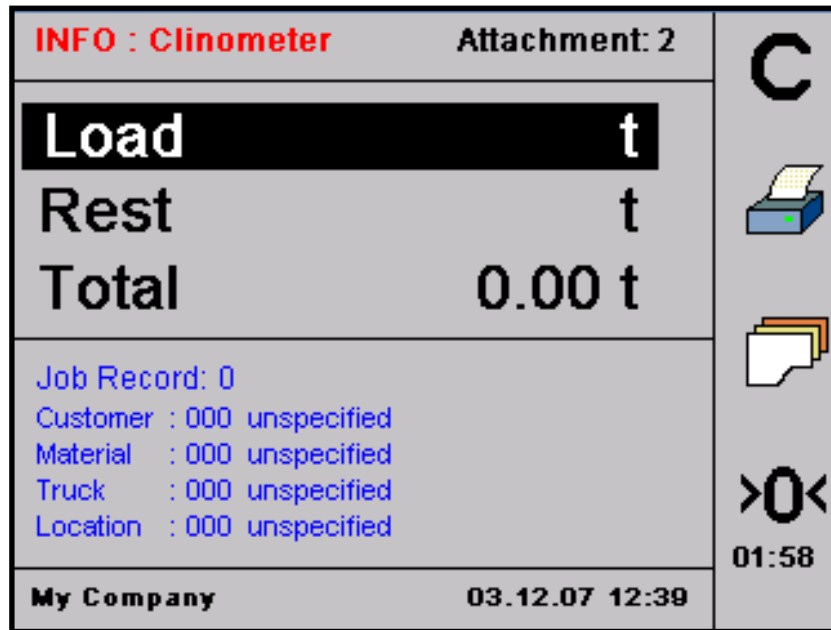


Figure 3-14 Example of an error message.

## CHAPTER 4 Library and reports

This chapter describes how to add job details like e.g. customers, materials etc. in a library for repeated use (refer chapter 4.1), and how to print reports based on specifications of job details (refer chapter 4.2).

### 4.1 Library of customers, materials, trucks and locations

LOADTRONIC 3 allows you to build a library of job details for repeated use; Customers has up to 3000 entries, the other categories have up to 1000 entries. The field entry can be described with a 30 character text string, refer Figure 4-2.

There are two ways of adding new details to the library:

- Specify job details for a job record. The details are stored in the library for later use, refer chapter 4.1.2
- Add customers, materials, locations etc. independently of the job list, refer chapter 4.1.3.

An ID number that has been described with a customized text string will hold its description until the text is changed by the operator.

Job details are job record number, Customer name and number, type and density of the Material, type of Truck, truck PayLoad, operating Location and a project number.

#### 4.1.1 Search the library for a customer, truck etc.

Use the keypad to search for a customer name, truck- and material description, and locations that have been entered into the library:

1. Open *job record/F3*.
2. Highlight the text field of the customer/truck/material/location.
3. Press the number-keys holding the characters of your search description repeatedly until the character is visible in the display, refer Figure 4-1. The search string can be up to 5 characters long.



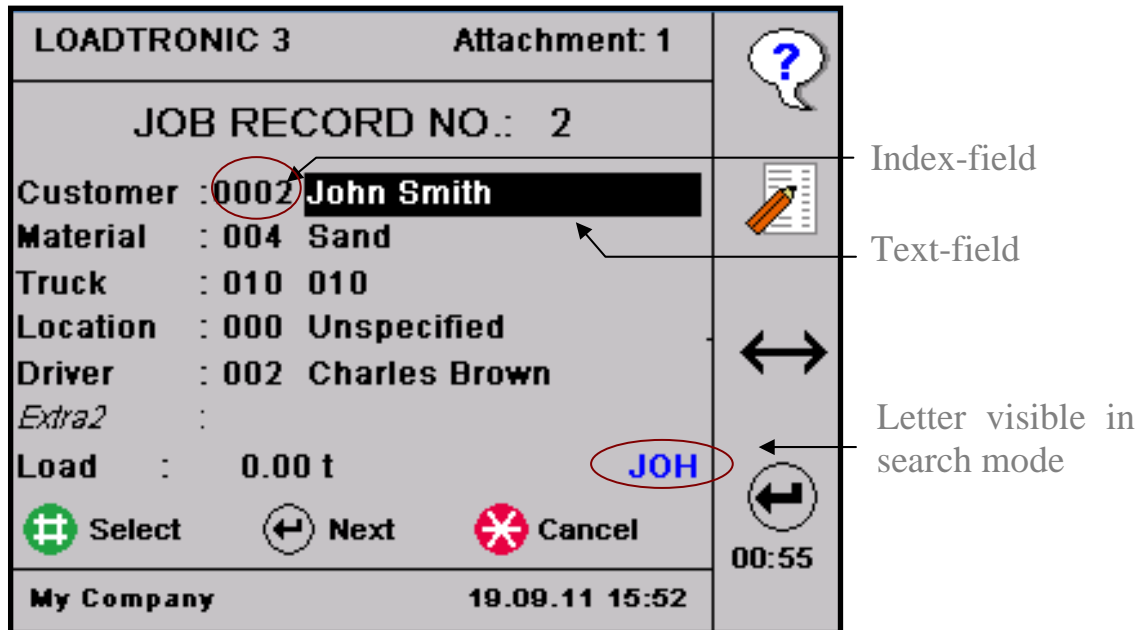


Figure 4-1 Search for customer.

4. If the library contains a description starting with these characters, the description is shown in the Description-field. Press the *up arrow* to view more descriptions starting with the same character(s).
5. Press \* to exit search mode or to delete last entry.

It is also possible to search for job records containing the highlighted field by pressing 0 until the wanted job record is found.

The keypad also holds special characters similar to the mobile phone. Punctuation, commas, explanation mark etc are found by pressing digit 1, other characters are found by pressing the other digits 2-9 repeatedly. The digit 0 does not hold any special characters.

#### 4.1.2 Enter job details from the job list

Press *job record/F3* to enter the job list from the automatic weighing mode. By default, the active job record is visible on the screen. Press the job record number directly using the keypad, or use the *arrows* to specify a desired job number.







LOADTRONIC 3	Attachment: 1	
JOB RECORD NO.: 2		
Customer : 0002 John Smith		
Material : 004 Sand		
Truck : 010 010		
Location : 000 Unspecified		
Driver : 002 Charles Brown		
Extra2 :		
Load : 20.00 t		
 Select	 Next	 Cancel
My Company	19.09.11 15:54	00:53

Figure 4-2 Example of a job record.

### Customer description:

Press *job record/F3* and open the correct record number. Press *Next/F4* until the Customer ID/description is highlighted.

Press the arrows repeatedly to open the desired customer number. If the number is assigned to a customer, the customer name will show in the text field else the text reads 'unspecified'. Press  $\leftrightarrow$ /*F3* to toggle between the index field and the text field. Press *Edit/F2* to edit the name. Use the keypad to type the customer name.

- Press *F2* to toggle between capital and small letters.
- Press *F3* to clear the last letter.
- Press *F4* to clear all letters.

Press *Save/#* to store the customer name with the customer number in the library.

### Material description:

Press *job record/F3* and open the correct record number. Press *Next/F4* until the Material ID/description is highlighted.

Press the arrows repeatedly to open the desired material number. If the number is assigned to a specific material, the material description will show in the text field else the text reads 'unspecified'. Press  $\leftrightarrow$ /*F3* to toggle between the index field and the text field. Press *Edit/F2* to edit the description. Use the keypad to type the material description.

- Press *F2* to toggle between capital and small letters.
- Press *F3* to clear the last letter.
- Press *F4* to clear all letters.

Press *Save/#* to store the material description with the material number in the library.

### **Truck description:**

Press *job record/F3* and open the correct record number. Press *Next/F4* until the Truck ID/description is highlighted.

Press the arrows repeatedly to open the desired truck number. If the number is assigned to a specific truck, the truck description will show in the text field else the text reads 'unspecified'. Press  $\leftrightarrow$ /*F3* to toggle between the index field and the text field. Press *Edit/F2* to edit the description. Use the keypad to type the truck description.

- Press *F2* to toggle between capital and small letters.
- Press *F3* to clear the last letter.
- Press *F4* to clear all letters.

Press *Save/#* to store the truck description with the truck number in the library.

### **Location details**

Press *job record/F3* and open the correct record number. Press *Next/F4* until the Location ID/description is highlighted.

Press the arrows repeatedly to open the desired location number. If the number is assigned to a specific location, the place will show in the text field else the text reads 'unspecified'. Press  $\leftrightarrow$ /*F3* to toggle between the index field and the text field. Press *Edit/F2* to edit the location. Use the keypad to type the location.

- Press *F2* to toggle between capital and small letters.
- Press *F3* to clear the last letter.
- Press *F4* to clear all letters.

Press *Save/#* to store the location with the location number in the library.

### Extra1, Extra2 description:

Similar to e.g. the customer description.

### 4.1.3 Enter job details from the text editor

Job details can be entered from the text editor: Open *Main Menu - Text Editing*, refer chapter 2.1.

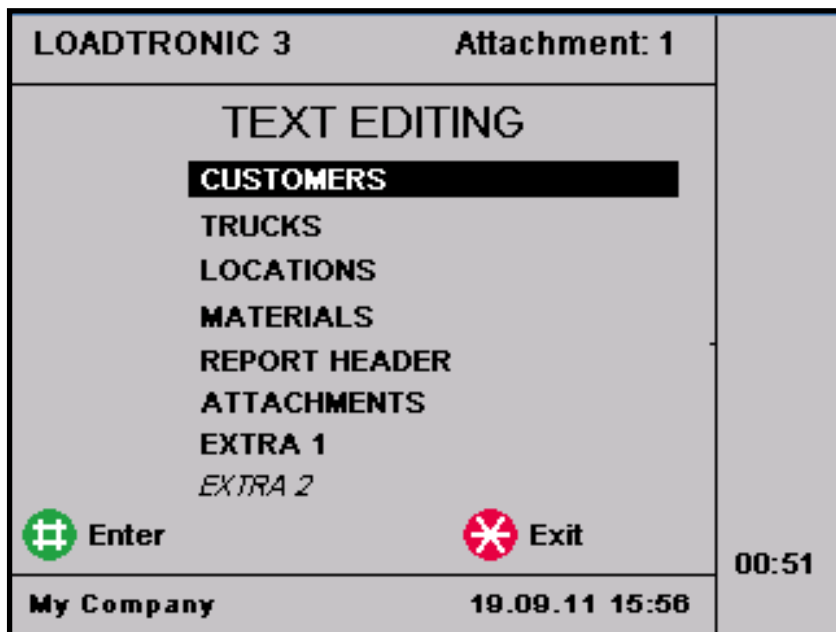


Figure 4-3 Text editing menu.

The text editor menu consists of 6 sub menus: *Customers*, *Trucks*, *Locations*, *Materials*, *Report Header*, *Attachments*, *Extra1* and *Extra2*, refer Figure 4-3.

Press the arrows repeatedly to highlight each sub menu; press *Enter/#* to open the sub menu.

Refer page 37 to page 42 for a description of editing a customer, a truck, a material, a location, and an attachment.

### Edit the customer:

1. Open *Main Menu - Text Editing – Customers*, refer chapter 2.1.
2. Type the *Customer ID number* directly using the keypad, or set the number by pressing the arrows repeatedly.
3. Press *Next/F4* to highlight the text field, refer Figure 4-4.
4. Press *Edit/F2* to edit the text description, refer Figure 4-5. Use the keypad to type the description.
  - Press *F2* to toggle between capital and small letters.
  - Press *F3* to clear the last letter.
  - Press *F4* to clear all letters.
5. Press *Next/F4* to highlight the customer number field. Press *Edit/F2* to enter a customer number.
6. Press *Save/#* to store the description with the identification number in the library.
7. Press *Exit/\** to return to the *Text Editing* menu.

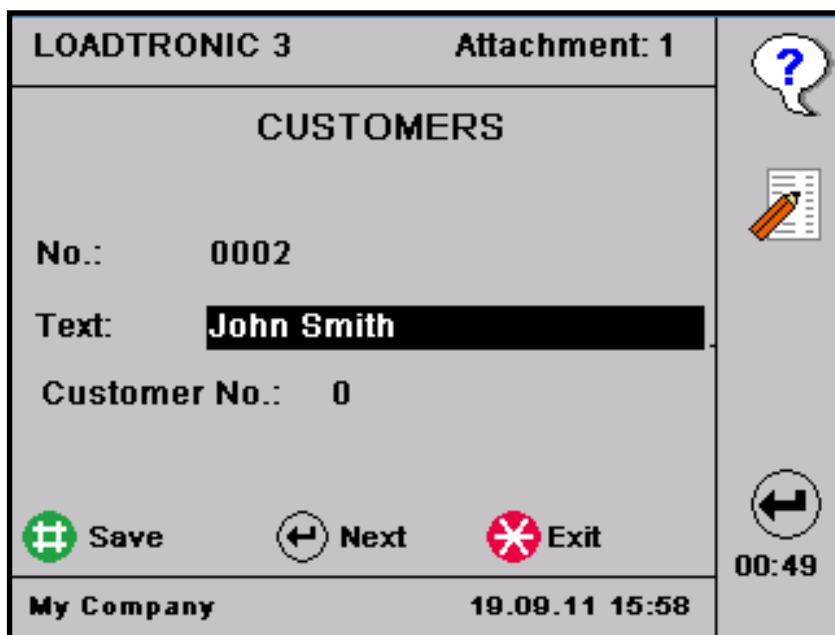


Figure 4-4 Edit the customer description







LOADTRONIC 3		Attachment: 1		    00:47
CUSTOMERS				
No.:	0002			
Text:	John Smith_			
Customer No.:	0			
 Save	 Exit			
My Company		19.09.11 16:00		

Figure 4-5 Type the customer description.

### Edit the truck:

1. Open *Main Menu - Text Editing – Truck*, refer chapter 2.1.
2. Type the Truck ID *number* directly using the keypad, or set the number by pressing the arrows repeatedly.
3. Press *Next/F4* to highlight the text field.
4. Press *Edit/F2* to edit the text description. Use the keypad to type the description.
  - Press *F2* to toggle between capital and small letters.
  - Press *F3* to clear the last letter.
  - Press *F4* to clear all letters.
5. Set the PayLoad, refer Figure 4-6:
  - Press *Next/F4* to highlight the PayLoad-field.
  - Press *Edit/F2* to edit the value.
  - Type the weight using the keypad or adjust the weight in steps using the arrows. Press *Exit/\** to clear the field.
6. Press *Save/#* to store the description with the identification number in the library.
7. Press *Exit/\** to return to the *Text Editing* menu.

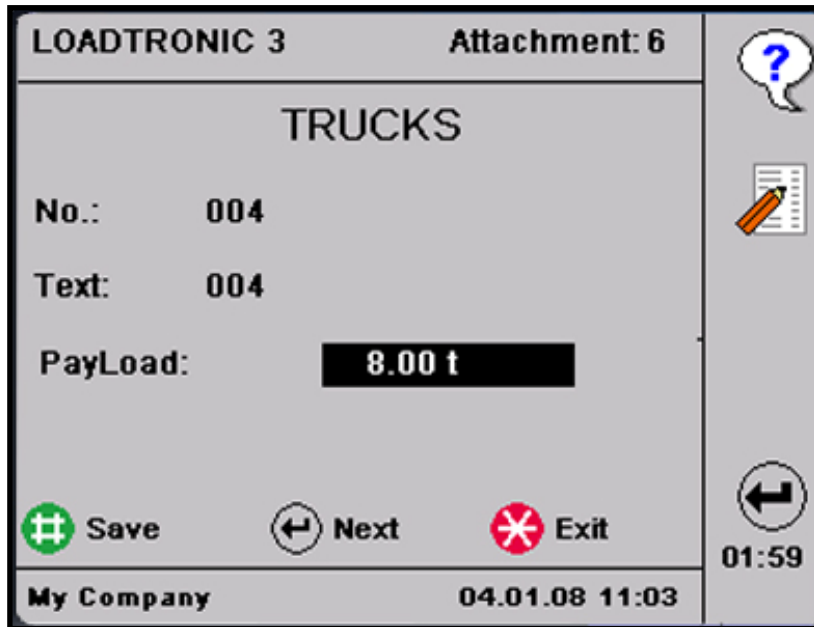


Figure 4-6 Edit the trucks description and PayLoad.

### Edit location:

1. Open *Main Menu - Text Editing – Location*, refer chapter 2.1.
2. Type the Location ID *number* directly using the keypad, or set the number by pressing the arrows repeatedly.
3. Press *Next/F4* to highlight the text field.
4. Press *Edit/F2* to edit the text description. Use the keypad to type the description.
  - Press *F2* to toggle between capital and small letters.
  - Press *F3* to clear the last letter.
  - Press *F4* to clear all letters.
5. Press *Next/F4* to highlight the project number. Press *Edit/F2* to enter the project number.
6. Press *Save/#* to store the description with the identification number in the library.
7. Press *Exit/\** to return to the *Text Editing* menu.



LOADTRONIC 3		Attachment: 1	
LOCATIONS			
No.:	003		
Text:	Bergen		
Project No.:	558963		
 Save		 Exit	
My Company		19.09.11 16:04	
			00:43

Figure 4-7 Edit the Location and project number.

### Edit the material:

1. Open *Main Menu - Text Editing – Materials*, refer chapter 2.1.
2. Type the Material ID *number* directly using the keypad or set the number by pressing the arrows repeatedly.
3. Press *Next/F4* to highlight the text field.
4. Press *Edit/F2* to edit the text description. Use the keypad to type the description.
  - Press *F2* to toggle between capital and small letters.
  - Press *F3* to clear the last letter.
  - Press *F4* to clear all letters.
5. Set the material *Density*, refer Figure 4-8:
  - Press *Next/F4* to highlight the Density-field.
  - Press *Edit/F2* to edit the value.
  - Type the density using the keypad or adjust the weight in steps using the arrows. Press *Exit/\** to clear the field.
6. Press *Save/#* to store the description with the identification number in the library.
7. Press *Exit/\** to return to the *Text Editing* menu.





Figure 4-8 Edit the material description and density.

### Edit Extra1, Extra2:

1. Open *Main Menu - Text Editing – Extra 1/ Extra 2*, refer chapter 2.1.
2. Type the *ID number* directly using the keypad or set the number by pressing the arrows repeatedly.
3. Press *Next/F4* to highlight the text field.
4. Press *Edit/F2* to edit the text description. Use the keypad to type the description.
  - Press *F2* to toggle between capital and small letters.
  - Press *F3* to clear the last letter.
  - Press *F4* to clear all letters.
5. Press *Save/#* to store the description with the identification number in the library.
6. Press *Exit/\** to return to the *Text Editing* menu.



LOADTRONIC 3		Attachment: 1		?
EXTRA 1				
Driver				Aa
No.:	002			a← Clear
Text:	Charles Brown_			a← Clr All
 Save	 Exit		00:41	
My Company		19.09.11 16:06		

Figure 4-9 Edit Extra1, Extra2.

**Edit the attachment:**

1. Open *Main Menu - Text Editing – Attachment*, refer chapter 2.1.
2. Type the Attachment ID *number* directly using the keypad, or set the number by pressing the arrows repeatedly.
3. Press *Next/F4* to highlight the text field.
4. Press *Edit/F2* to edit the text description. Use the keypad to type the description.
  - Press *F2* to toggle between capital and small letters.
  - Press *F3* to clear the last letter.
  - Press *F4* to clear all letters.
5. Press *Save/#* to store the description with the identification number in the library.
6. Press *Exit/\** to return to the *Text Editing* menu.

**4.2 Reports**

LOADTRONIC 3 keeps track of the latest 10000 jobs. The oldest jobs will be overwritten by the latest jobs as the number of jobs pasts 10000; refer chapter 5.2 for backup of the loadlist. You can ask for a report for jobs that has been performed in a specific time period. You can build up the report to provide a single value of the total weight loaded, the total weight delivered

to a specific customer, the total load of a specific material delivered to a specific customer etc, or simply to make a copy of a single job. Refer chapters 4.2.2, 4.2.3 and 4.2.4 for description of how to specify your report.

### 4.2.1 Report header

The report header, e.g. your company details, is added from the *Text Editing* menu; open *Main Menu - Text Editing - Report Header*, refer chapter 2.1.

5 lines can be edited, refer Figure 4-10; the text in the first line will show in the lower left corner of the display.

Highlight a line, press *Edit/F2* to enter text editing. Type your text using the keypad.

- Press *F2* to toggle between capital and small letters.
- Press *F3* to clear the last letter.
- Press *F4* to clear all letters.

Press *Save/#* to store the text.

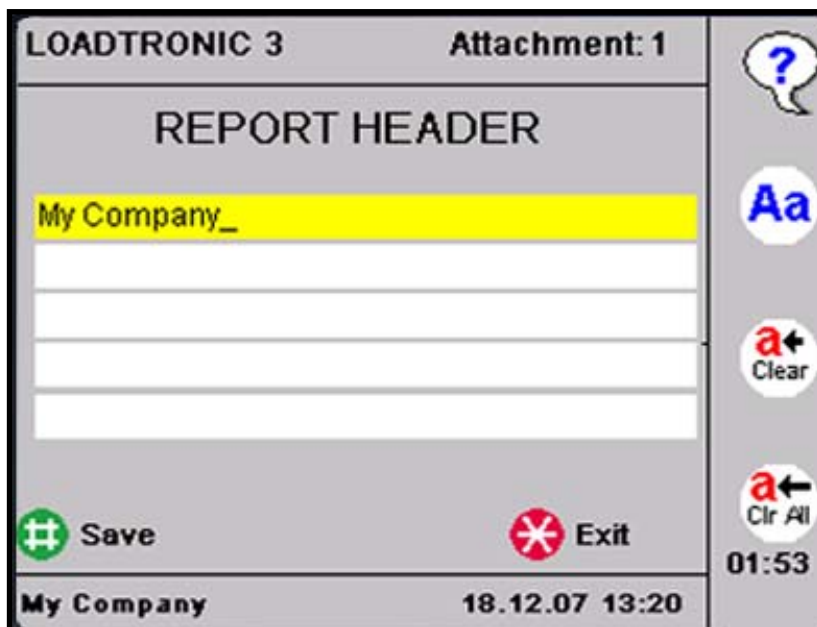
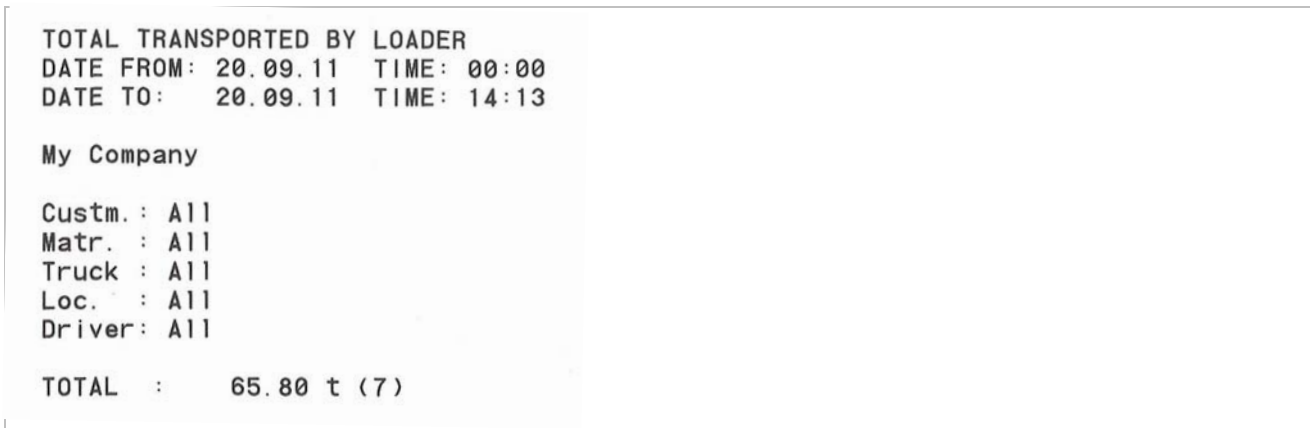


Figure 4-10 Edit the report header.

## 4.2.2 Total load report

The default setting is to make a report of the total weight loaded during a certain time period without specifying details like Customers, Material, Truck, Location etc. An example of such a report is given in Figure 4-11.



**Figure 4-11 Example of the total load delivered by the wheel loader.**

### Procedure to build a total load report:

1. Open *Main Menu - Reports*, refer chapter 2.1.
2. Set the date: The default date is the current date in both the 'Date From'-field and the To-field. Press the arrows to set the 'From' date. Press and hold the arrow to step one month at a time. Press *Next/F4* to highlight the 'To' date, and the arrows to set the correct date.
3. The default time is midnight to current time. Press the arrows to set the 'Time From'-field. Press and hold the arrow to step one hour at a time. Press *Next/F4* to highlight the 'To'-field, and the arrows to set the correct time.
4. The default report type is Total. Press *Select/#* to view the total weight loaded, refer Figure 4-12. The number in parentheses shows the number of loads that are delivered.
5. Press *Print/F2* to print the report (requires a printer).

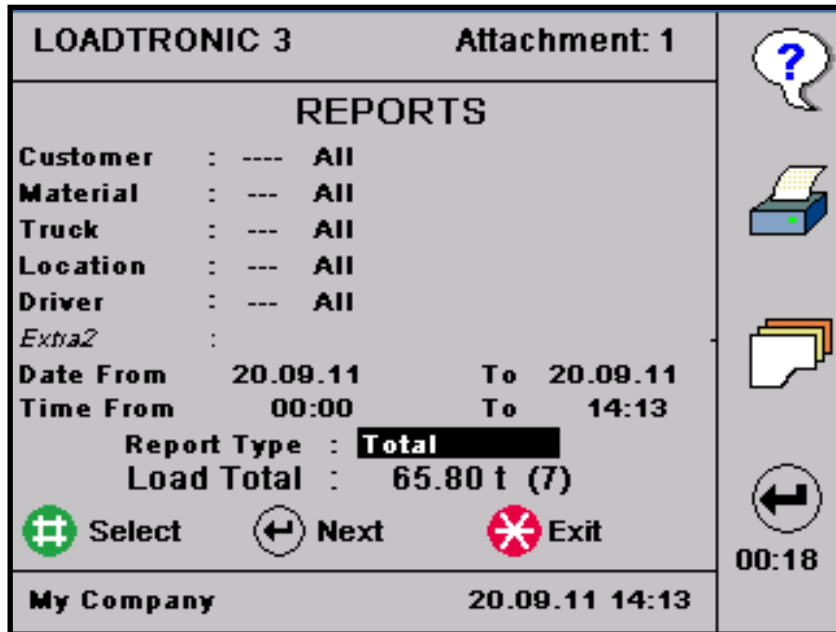


Figure 4-12 Generate the report shown in Figure 4-11.

### 4.2.3 Specified report

You can specify the report based on one or more of the job details: customer, material etc. An example of such a report is given in Figure 4-13, illustrating that customer John Smith has received 2 different types of material. The report also presents the weight of the material, and the total weight delivered based on the specification. The number of loads delivered is given in parenthesis next to the total weight.

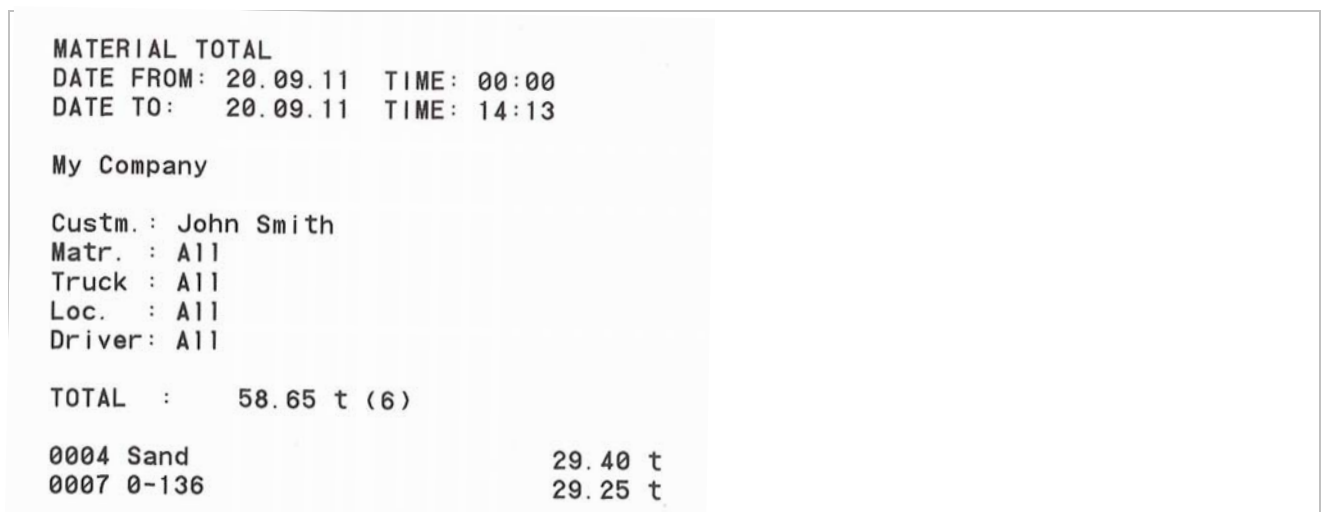


Figure 4-13 Specified report of the material delivered to customer John Smith.

```

CUSTOMER TOTAL
DATE FROM: 20.09.11  TIME: 00:00
DATE TO:   20.09.11  TIME: 14:13

My Company

Custm. : All
Matr.  : All
Truck  : All
Loc.   : All
Driver: All

TOTAL   :    65.80 t (7)

0002 John Smith           58.65 t
      001234567
0006 Rich Cunniff        7.15 t
      000031543

```

**Figure 4-14 Specified report including customer number.**

### **Procedure to build a specified report:**

1. Open *Main Menu - Reports*, refer chapter 2.1.
2. Set the time period: The default date is the current date in both the 'Date From'-field and the To-field. Press the arrows to set the 'From' date. Press and hold the arrow to step one month at a time. Press *Next/F4* to highlight the 'To' date, and the arrows to set the correct date.
3. The default report type is Total. Press the arrows to specify the report on either of the job details: customer, material etc. Press *Select/#* to view the total weight loaded. The number of loads delivered is given in parenthesis next to the total weight.
4. Optionally, you can specify the report even more detailed by selecting Customer and/or Material and/or Truck etc, refer Figure 4-13 and Figure 4-15:
  - Press *Next/F4* to highlight the Customer-field in the upper part of the screen.
  - Either:
    - a. Press the customer ID number from the keypad.
    - b. Press the arrows to set the number.
  - Press *Next/F4* to highlight the Description-field and specify the customer by e.g. pressing the arrows or search the name: Press the number-keys holding the characters of your search description repeatedly until the character is visible in the display, refer Figure 4-1. The search string can be up to 5 characters long.

Press the *up arrow* to view more descriptions starting with the same character(s).

Press \* to exit search mode.

Perform similar for the other fields to set all your criteria.

5. Press *Print/F2* to print the report (requires a printer).

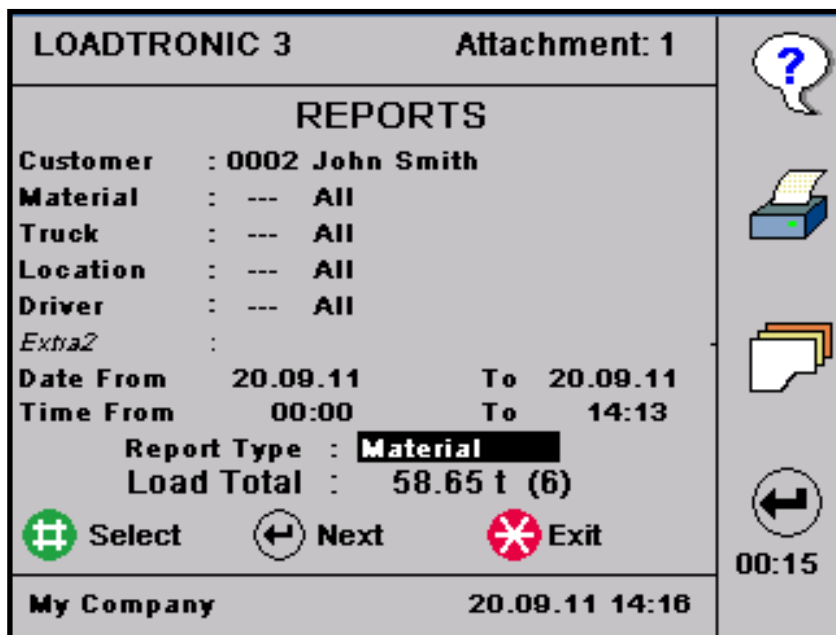


Figure 4-15 Build the specified report as presented in Figure 4-13.

### 4.2.4 Copy of receipt

You can build a report to get a copy of a job record performed earlier, refer Figure 4-16.

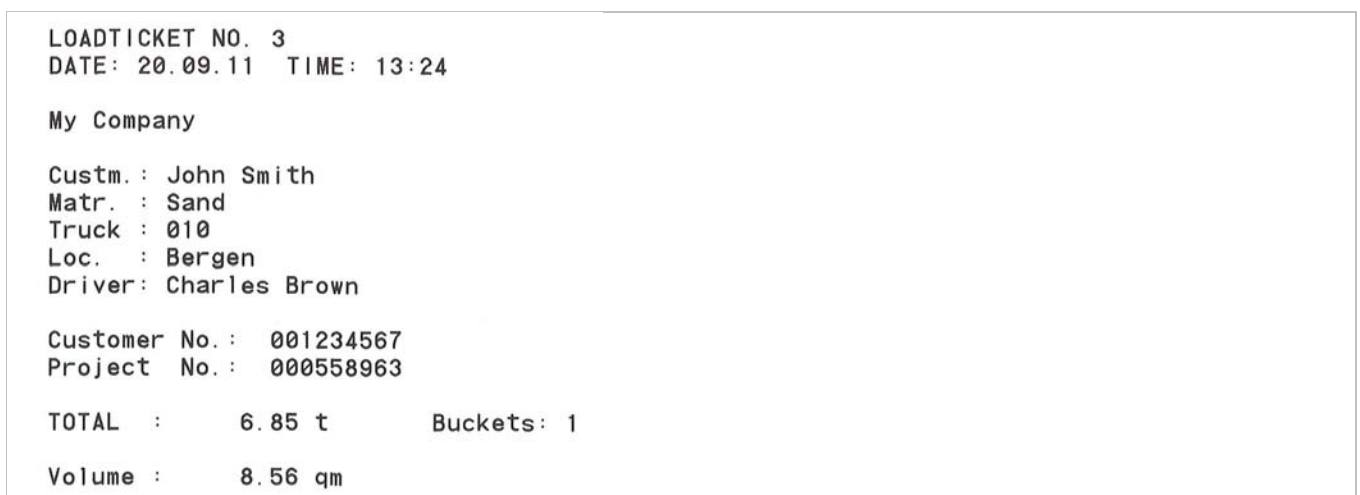


Figure 4-16 Copy of receipt.

**Procedure to make a copy of a receipt:**

1. Open *Main Menu - Reports*, refer chapter 2.1.
2. Specify the report, refer chapter 4.2.3. Press *Select/#* to update the total load weight.
3. Press *job record/F3* to view the load lists of the jobs according to your specification. Press *Next Day/F4* to view the next record.
4. Press *Print/F2* to print a copy of the job record shown on the screen.

In the *Reports* sub menu, you can press *job record/F3* to view the load list, refer Figure 4-17. Press *Next Day/F4* or the *arrows* to see job details, number of buckets and the weight of the total load for each job. You can also see the time and date for when the job was complete.








LOADTRONIC 3		Attachment: 1			
<b>LOAD NO. : 3</b>					
<b>Customer</b>	: 0002 John Smith			    00:10	
<b>Material</b>	: 004 Sand				
<b>Truck</b>	: 010 010				
<b>Location</b>	: 003 Bergen				
<b>Driver</b>	: 002 Charles Brown				
<b>Extra2</b>	:				
<b>Date</b>	20.09.11	<b>Time</b>	13:24		
<b>Buckets : 1</b>					
<b>Load Total : 6.85 t</b>					
 <b>OK</b>	 <b>Next Day</b>	 <b>Exit</b>			
<b>My Company</b>		20.09.11 14:21			

Figure 4-17 Example of Load List.



## CHAPTER 5 Maintenance

Open *Main Menu – Service*, refer chapter 2.1.

*Service Functions* holds submenus for sensor test, log files, backup and restore log files/database, copy attachment calibration, and system information.

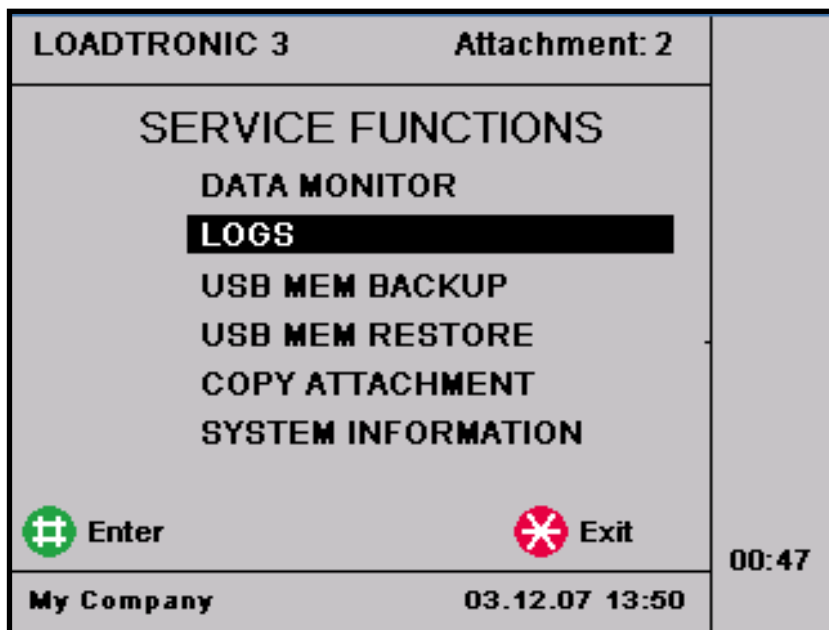


Figure 5-1 Service functions.

*Data Monitor* is for sensor test after e.g. installation and service. Data monitor and sensor readings are described in the LOADTRONIC 3 Installation Guide.

*Logs* holds a complete history of the LOADTRONIC 3 operations: LoadList, Event list, Error list, and a combined list of these three lists. These files are used for e.g. analysis of system errors.

*USB MEM Backup* is used to store backup of logs, database, calibration details and other system files.

*USB MEM Restore* is used for retrieving logs, database, calibration details and other system files after service and software upgrade of the system.

*Copy Attachment* is used to copy calibration details between attachments. *System Information* holds information about e.g. software versions and legal system files.

## 5.1 Load list, event list and error list

There are 4 lists available: Loadlist, Event list, Error list and a Combined list of these three lists. Press *Next/F4* to toggle between the lists. Press  $\wedge$ /*F2* and  $\vee$ /*F3* to page up and -down in the list. Press the *up- and down arrows* to move up and down a single entry. Errors/failures are listed in a red font. For backup of the logfiles, refer chapter 5.2.

The *Loadlist* is a list of each recording, holding information about the total load, number of buckets delivered, and date/time of the recording, refer Figure 5-2. Loadlist is a compressed list of the information given in the customer report, refer chapter 4.2.2.

LOADTRONIC 3 gives a warning in the top line at system start up when the Loadlist is more than 95% full, refer chapter 3.11 and chapter 4.2.





LOADTRONIC 3		Attachment: 2		
<b>LOADLIST</b>				
REC: 006	17000 kg	3	03/12 13:32	
REC: 000	1000 kg	1	30/11 16:21	
REC: 000	5400 kg	1	30/11 16:21	
REC: 000	6700 kg	1	30/11 16:10	
REC: 000	10650 kg	2	30/11 16:03	
REC: 000	9850 kg	2	30/11 16:01	
REC: 000	10050 kg	2	30/11 15:28	
REC: 000	9950 kg	2	30/11 15:06	
REC: 000	6300 kg	1	30/11 10:35	
REC: 000	6140 kg	1	30/11 09:38	
<b>My Company</b>				<b>00:37</b>
			<b>03.12.07 14:00</b>	

Figure 5-2 Loadlist.

The *Event list* holds information about every event performed by the system: calibration, backup, changing of legal system parameters etc.

The *Error list* states system error, e.g. missing sensor, zeropoint failure etc.

LOADTRONIC 3		Attachment: 2		
<b>EVENT LIST</b>				?
ZEROPOINT	MAX. OFFSET	1225	03/12 10:53	
CALIBRATE	NO ERRORS	2	03/12 10:32	^
TARE	NO ERRORS	2	03/12 10:31	
CALIBRATE	NO ERRORS	1	03/12 08:37	
CALIBRATE	NO ERRORS	1	03/12 08:20	
CALIBRATE	ZERO DATA	Unspec	03/12 08:20	v
TARE	NO ERRORS	1	03/12 08:18	
ATTACHMENT	NO ERRORS	1	03/12 08:15	
TARE	NO ERRORS	2	03/12 08:09	
TARE	NO ERRORS	2	30/11 16:00	←
<b>My Company</b>		<b>03.12.07 14:02</b>		<b>00:35</b>

Figure 5-3 Event List.

## 5.2 Backup and restore log files, database and system files

We recommend that you perform a backup of log files (refer chapter 5.1), database (all editable text fields) and system files (calibration and configuration details) regularly, and that you store a backup after a calibration of the attachment. The database and system files can be retrieved using the restore function. The function is useful for e.g. retrieving the original calibration after a service/software upgrade of the system.

When performing backup to a USM MEM device files will be copied to a directory called \Loadtronic\ID\_nnnn; nnnn is the LOADTRONIC ID number given in Parameter Setup I. If the LOADTRONIC ID number is 0001 (default number), the directory name will be \Loadtronic\ID\_0001.

By using different ID numbers for each LOADTRONIC 3, the same USB MEM device can be used to backup several LOADTRONIC 3 systems without losing data.

The Restore function will only copy files from the USB MEM device with the corresponding directory name, hence backup from a LOADTRONIC 3 device with ID number 0001 will only restore files from the \Loadtronic \ID\_0001 directory.

### Perform a backup:

1. Open *Main Menu – Service – USB MEM Backup*, refer chapter 2.1.
2. Select which files to backup: Logs, Database and/or System files, refer Figure 5-4.
3. Press *Enter/#* to perform the backup.

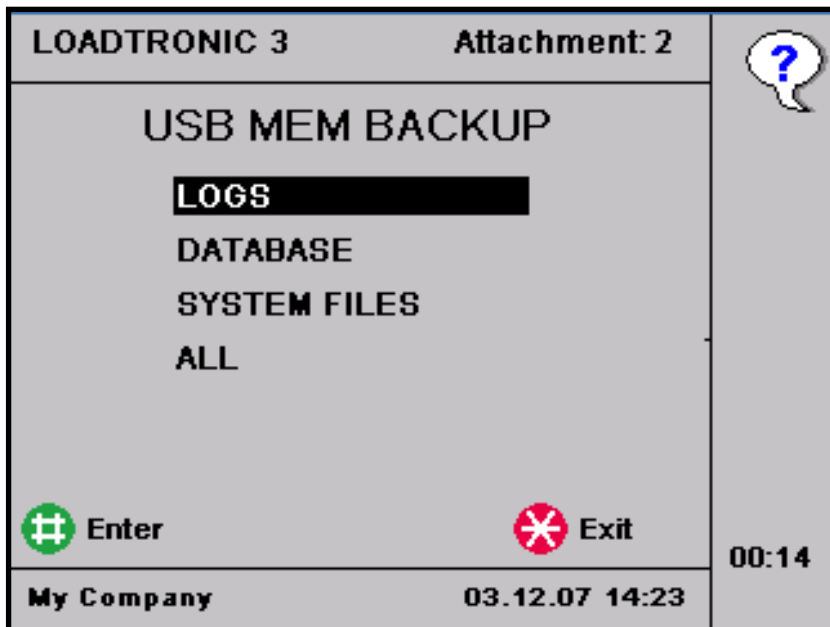


Figure 5-4 Backup.

### Retrieve details:

1. Open *Main Menu – Service – USB MEM Restore*, refer chapter 2.1.
2. Select which files to restore: Database or System Files, refer Figure 5-5.

**Note!** To restore calibration data, enable the calibration switch, refer Figure 1-1.

3. Press *Enter/#* to perform the restore function.

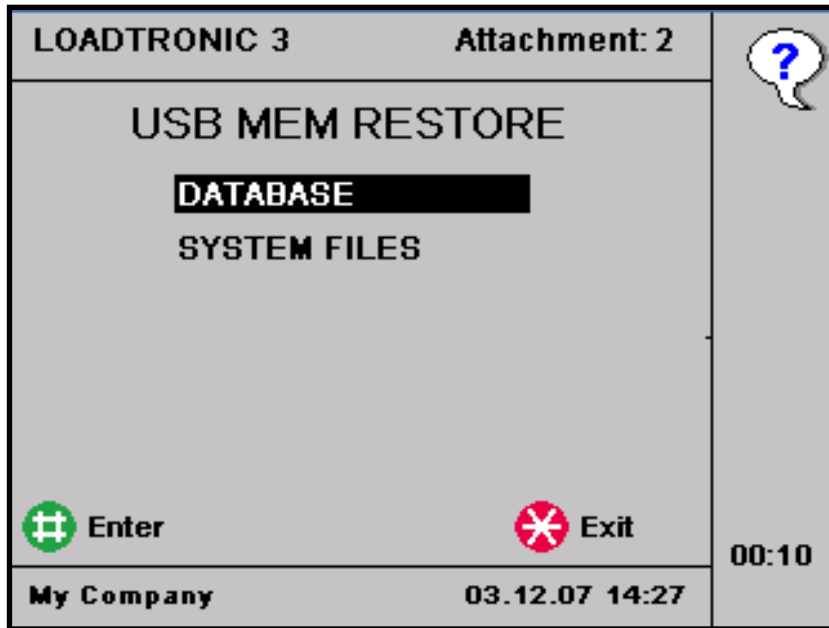


Figure 5-5 Restore.

### 5.3 Copy calibration details

The attachment descriptions are stored in ID number 1 to 10; calibration details are stored in corresponding A1 to A10. Calibration details stored in e.g. A1 can be copied to e.g. A2 for backup, refer Figure 5-6.

#### Procedure for copying attachment:

1. Open *Main Menu – Service – Copy Attachment*, refer chapter 2.1.
2. Use the *up- and down arrows* to select the desired attachment ID from which calibration details are copied from.
3. Press *Next/F4* to toggle between the attachment source and destination
4. Use the *up- and down arrows* to select the desired attachment ID to which calibration details are copied to.
5. Press *Enter/#* to copy. The calibration switch must be enabled, refer Figure 1-1.

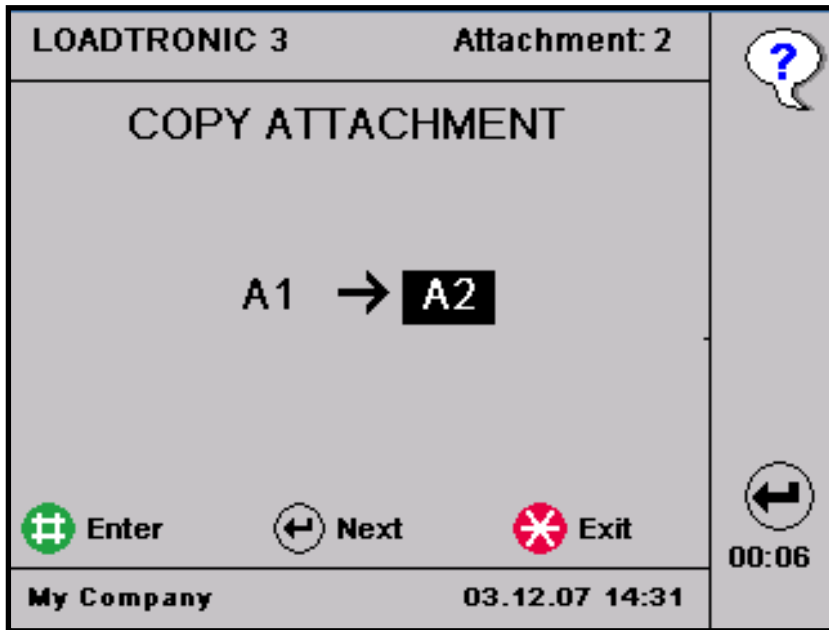


Figure 5-6 Copy attachment.

## 5.4 System information

System information holds two pages displaying information about software version, main unit serial number, OIML requirements, power supply, operating ranges, and checksum information on legal system files, refer Figure 5-7 and Figure 5-8. Press *Next/F4* to toggle between the two pages.

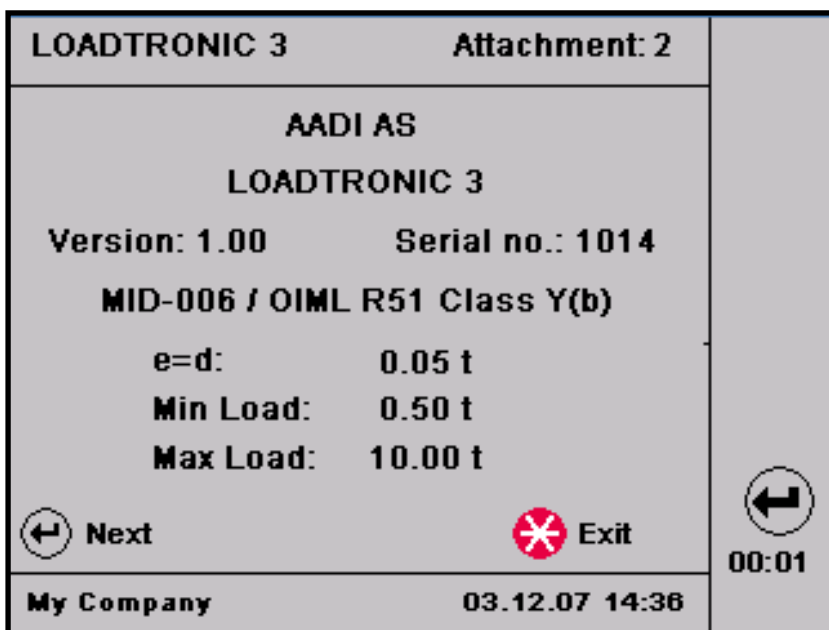


Figure 5-7 System Information, page 1.




<b>LOADTRONIC 3</b>		<b>Attachment: 2</b>	
<b>Supply: 24(18-36) VDC</b> <b>Pressure: 400 bar / 40 MPa</b> <b>Temperature: -25 to +50 grC</b> <b>CE Version: 0703    MSP Version: 32</b>			
<b>Legal Data:</b>	<b>Checksum</b>	<b>Date</b>	
<b>Program</b>	<b>FD67</b>	<b>2007-11-29</b>	
<b>Configuration</b>	<b>145A</b>	<b>2007-11-30</b>	
<b>Calibration</b>	<b>9E19</b>	<b>2007-12-03</b>	
 <b>Next</b>	 <b>Exit</b>		<b>00:01</b>
<b>My Company</b>		<b>03.12.07 14:36</b>	

Figure 5-8 System Information, page 2.