

LOADTRONIC 3E

Operating Manual



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Table of Contents

- CHAPTER 1 Description of LOADTRONIC 3E 5
 - 1.1 Sensors 5
 - 1.2 Main unit 5
 - 1.3 Calibration switch 5
 - 1.4 Printer (optional) 6
 - 1.5 Remote wireless communication (optional) 6
- CHAPTER 2 Operator display and menu 7
 - 2.1 Menu layout 8
- CHAPTER 3 Operating LOADTRONIC 3E 10
 - 3.1 Start –normal operation 10
 - 3.2 Weighing 10
 - 3.2.1 Operation tips and best weighing results 12
 - 3.3 Recording 12
 - 3.3.1 Job record 13
 - 3.3.2 Unspecified recording 13
 - 3.3.3 Specified recording 15
 - 3.3.4 Selecting a pre-defined job record 17
 - 3.3.5 Multiple active jobs 17
 - 3.3.6 Remote job request using LOADTRONIC 3 PC-Link 18
 - 3.4 Automatic weighing 19
 - 3.5 Manual weighing 20
 - 3.6 Changing and deleting attachment 20
 - 3.7 Zeropoint adjustment 22
 - 3.8 Re-weighing and adjusting the weight 25
 - 3.9 Shakeoff functions 25
 - 3.9.1 Shakeoff to heap 25
 - 3.9.2 Shakeoff to truck 26
 - 3.10 Cancelling/dumping last bucket 26
 - 3.11 Pause mode 27
 - 3.11.1 Auto weighing mode and set boom angle 27
 - 3.11.2 Adjusting the display backlight 27
 - 3.11.3 Display volume of load 28
 - 3.11.4 Other functions in pause mode 28
 - 3.12 System messages 28
- CHAPTER 4 Library and reports 29

4.1 Library of customers, materials, trucks and locations	29
4.1.1 Search the library for a customer, truck etc.....	29
4.1.2 Special characters	30
4.1.3 Enter job details from the job list	30
4.1.4 Enter job details from the text editor	33
4.2 Reports	39
4.2.1 Report header.....	40
4.2.2 Total load report	40
4.2.3 Specified report.....	42
4.2.4 Copy of receipt	44
CHAPTER 5 Maintenance	46
5.1 Load list, event list and error list	47
5.2 Backup and restore log files, database and system files	48
5.3 Copy calibration details	50
5.4 System information	51

CHAPTER 1 Description of LOADTRONIC 3E

LOADTRONIC 3E is a dynamic weighing system for mono boom excavators. Weighing is done automatically or manually (press a button) while the machine is operated normally.

1.1 Sensors

LOADTRONIC 3E has two pressure sensors fitted to the boom lifting hydraulics of the machine. These sensors measure the forces applied when lifting the boom, refer LOADTRONIC 3E Installation Guide.

The system also has three angle sensors and one rotation sensor. The angle sensors measure the position of the boom, arm, as well as the machine angle, and the rotation sensor measures the machine rotation.

In addition, the system is connected to a button on the handling stick which can invoke weighing manually.

1.2 Main unit

The Main unit is a combined operator's display and a computer unit. The Main unit is typically mounted on the right hand side of the cabin, and has the following functions:

- To read sensor signals.
- To compute and analyze measured data.
- 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 3E.



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 machine and a remote location.

CHAPTER 2 Operator display and menu



Figure 2-1 LOADTRONIC 3E display.

LOADTRONIC 3E 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 3E display unit has a keypad below the display; the keypad holds digits and other typical characters.

2.1 Menu layout

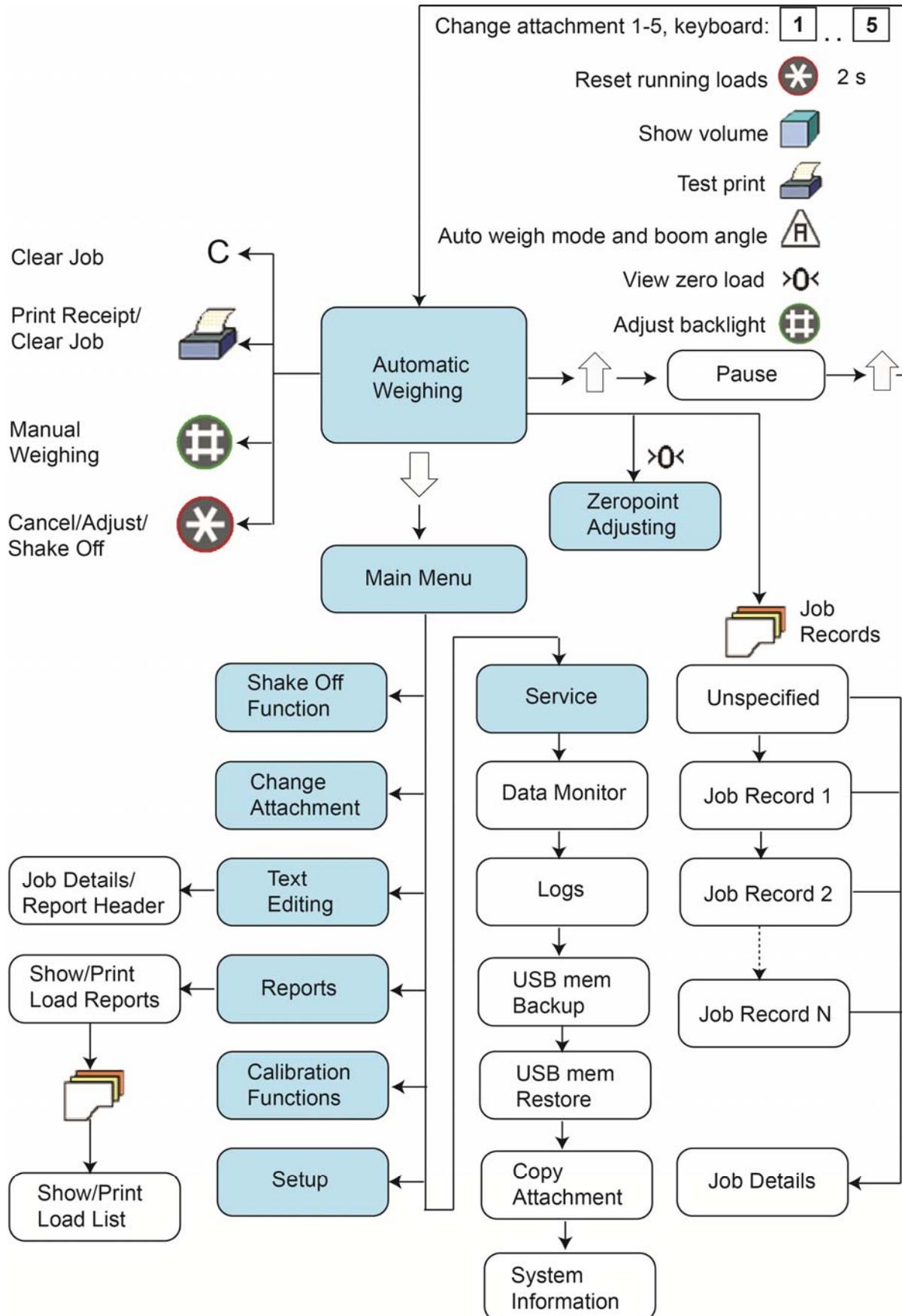


Figure 2-2 Illustration of the LOADTRONIC 3E menu.

The LOADTRONIC 3E starts up in 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 weighing mode without performing any changes to the settings.

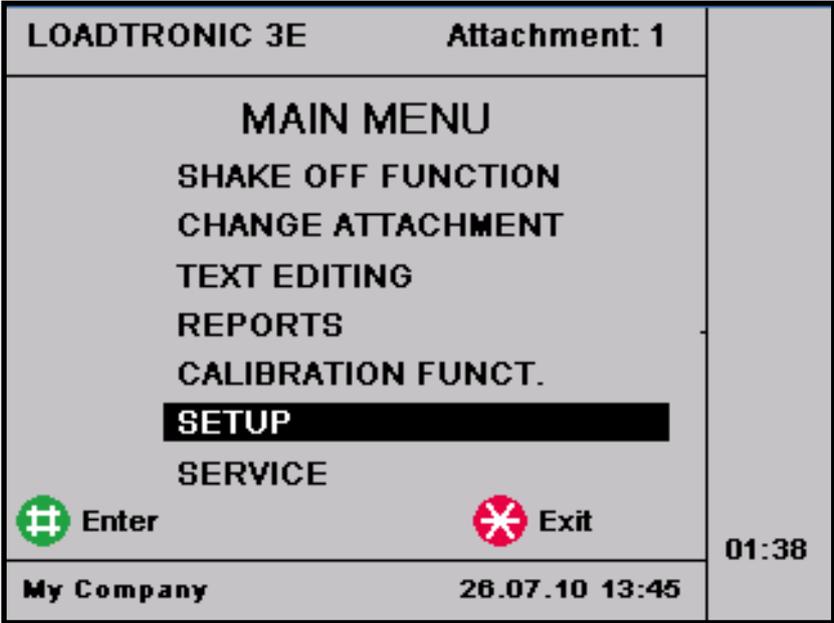


Figure 2-3 Main menu as shown in the operator’s display.

CHAPTER 3 Operating LOADTRONIC 3E

3.1 Start –normal operation

LOADTRONIC 3E 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 weighing mode.

LOADTRONIC 3E is now ready for 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 machine has been idle for more than 2 hours, LOADTRONIC 3E will block weighing, and request the operator to carry out a manual zeropoint adjustment, refer chapter 3.7.

3.2 Weighing

Normally the LOADTRONIC 3E is in weighing mode.

Required parameters for weighing:

- The boom must be lifted into and at least 5 deg within the weighing interval.
- The machine tilt must be $\leq 10\%$ (5.7deg).
- The arm must be within -20deg to +60deg.

During normal operation the weighing sequence is activated automatically, refer chapter 3.4, or when the operator presses a) the trigger button on the handling stick, or b) # on the main unit, after filling the bucket.

The weighing then begins as soon as the boom has moved into the weighing interval, providing that other weighing parameters are acceptable.

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

During weighing the display unit shows, refer Figure 3-1:

- **Load** of the current bucket (material weight), e.g. 1.45 t.
- **Rest** (remaining material to be loaded (the required final weight - (minus) total load so far).
- Running **Total** weight loaded so far, e.g. 4.15 t.
- Number of buckets loaded so far, e.g. 3.
- Attachment: ID number of the current attachment.
- Number of Active Jobs.
- Open Job (details).

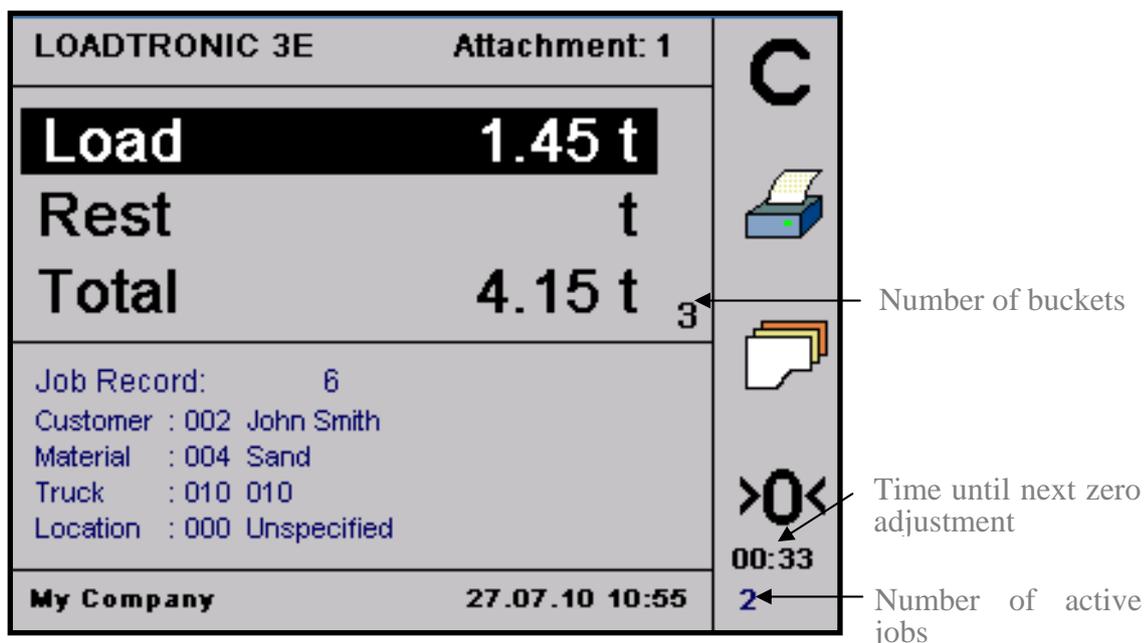


Figure 3-1 Operator's display during weighing.

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 3-5 and LOADTRONIC 3E 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 receipt). The load is then added to the loadlist.

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 Operation tips and best weighing results

- Use correct attachment number for the actual bucket. Ensure good data during calibration, refer Installation Guide.
- Adjust calibration if necessary, refer Installation Guide.
- Place the machine on level ground (maximum machine tilt is 10 %, 5.7deg).
- Automatic weighing using rotation: weighing is started when you have rotated more than 1deg.
- Automatic weighing using boom angle: weighing is started when you lift the boom **into** the preset boom angle. Keep lifting for at least 5deg or until the weight is shown on screen.
- Avoid losing material during operating the machine.
- Adjust the bucket to the same position as during taring/calibration.
- Perform a zeropoint adjustment in each new work position.
- Lift the boom and rotate the machine with even speed.
- Cancel the current weight and re-weigh the load if necessary, refer chapter 3.8 and 3.10. If you empty the bucket, remember also to cancel the bucket. At manual activation a new weighing sequence starts immediately.

3.3 Recording

LOADTRONIC 3E records each operation when the system is active (LOADTRONIC 3E is not active in pause mode, refer chapter 3.11). The recording is linked to a specific *job record*. Data are stored internally in the

Main unit; data can be inspected and printed for a customer receipt. Job details and record number for the open job are shown in the lower part of the display.

3.3.1 Job record

The LOADTRONIC 3E 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.

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 3E 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 3E Installation Guide.

3.3.2 Unspecified recording

LOADTRONIC 3E 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 3-3.

After each weighing LOADTRONIC 3E will display the weight of the current bucket, the running total weight and the remaining weight to be loaded, refer Figure 3-2.

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 3E		Attachment: 1	    00:17
Load		t	
Rest	10.00	t	
Total	0.00	t	
Job Record:	0		
Customer :	000 Unspecified		
Material :	000 Unspecified		
Truck :	000 Unspecified		
Location :	000 Unspecified		
My Company	27.07.10 11:11		

Figure 3-2 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 3-3.

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*/ \uparrow 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*/ \ast to abort the operation. LOADTRONIC 3E returns to 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 receipt), refer chapter 4.2 for more detail about customer reports.

LOADTRONIC 3E	Attachment: 1	
JOB RECORD NO.: 0		
Customer : 0000 Unspecified		
Material : 000 Unspecified		
Truck : 000 Unspecified		
Location : 000 Unspecified		
Driver : 000 Unspecified		
Extra2 :		
Load : 10.00 t		
 Select	 Next	 Cancel
My Company	25.08.11 14:57	00:17

Figure 3-3 Setting the target load.

3.3.3 Specified recording

LOADTRONIC 3E allows the operator to assign job details in the job record: details about customer, material, truck, location and 1 or 2 user defined details. 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 3-4.

LOADTRONIC 3E	Attachment: 1	C
Load	1.45 t	
Rest	t	
Total	4.15 t	>0<
Job Record: 6		00:33
Customer : 002 John Smith		2
Material : 004 Sand		
Truck : 010 010		
Location : 000 Unspecified		
My Company	27.07.10 10:55	

Figure 3-4 Job details.

Procedure to specify job details for a job record:

1. Press a *job record* number directly using the keypad; **Note! 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 3E returns to weighing mode.

When the job is complete, the operator can press *Print/F2* for a customer receipt (requires a printer), or *C/F1* (no receipt) to clear and 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 3E returns to weighing mode.

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

3.3.5 Multiple active jobs

LOADTRONIC 3E 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 3-5 and LOADTRONIC 3E Installation Guide.

Job records 1-40 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 (1-40) on the keypad.

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

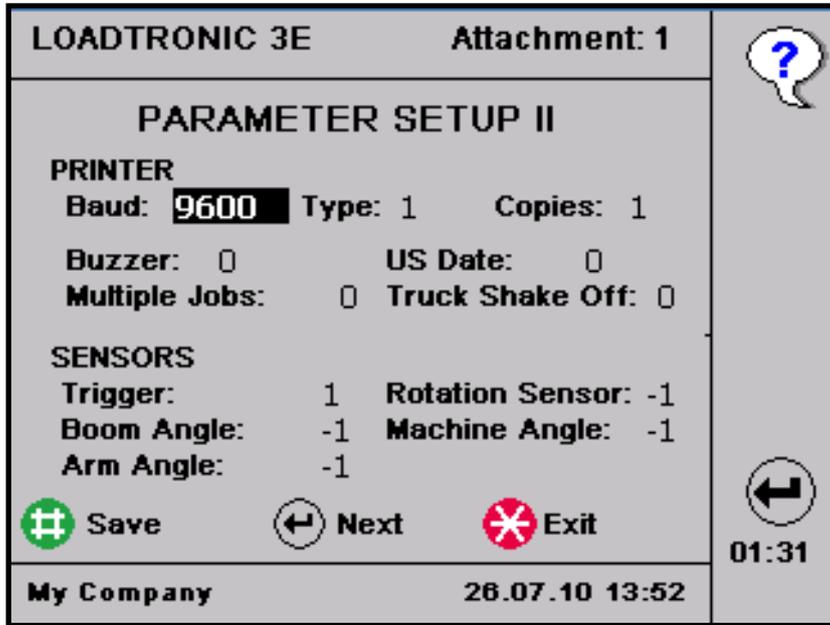


Figure 3-5 Open *Main Menu – Setup – Parameter Setup II* to set the maximum number of multiple jobs.

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 machine. The LOADTRONIC 3E 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 3-6 (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 3E Installation Guide.

Accepted wireless job requests are stored in the machine 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.

LOADTRONIC 3E		Attachment: 1	C
Load		t	
Rest	10.00	t	
Total	0.00	t	
Job Record:	900		
Customer :	002 John Smith		
Material :	002 0-32		
Truck :	000 Unspecified		
Location :	000 Unspecified		
			>0<
			01:31
My Company	27.07.10	12:47	1

Figure 3-6 A remote job request has been accepted.

Procedure to open a requested job from LOADTRONIC 3E 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 3E operating manual.
- Press *F1/Clear* or *F2/Print* to clear the job when complete.

3.4 Automatic weighing

Enter *Pause* mode and Press *F3*. Set Auto Weighing mode by pressing the *up- or down arrows*. Select:

- *Off* for manual weighing. Press the trigger button or the # button on the Main Unit to start each weighing, refer chapter 3.5.
- *Rotation* to start weighing when rotating the machine.
- *Boom* to start weighing when lifting the boom above a preset angle. Press # then move the boom to the desired angle and press # to store. To change the boom angle later, start *Pause* mode and press *F3*; You can now set and store the boom angle. Press *F4/Mode* to change weighing mode.

Note! Shortcut to set a new boom angle: Move the boom to the correct angle. Enter Pause mode. Press and hold F3 for 2 seconds.

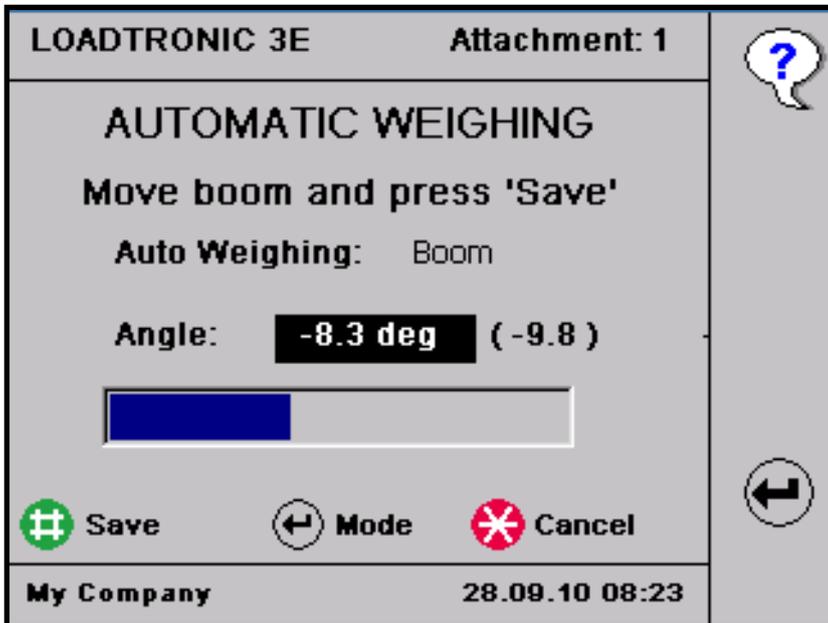


Figure 3-7 Set boom angle for weighing start.

3.5 Manual weighing

Weighing can be activated manually from the display or using the button on the handling stick:

- Press # to activate manual weighing, or press the button on the handling stick.
- Raise the bucket evenly. The load is now weighed and added to the running total.

3.6 Changing and deleting attachment

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

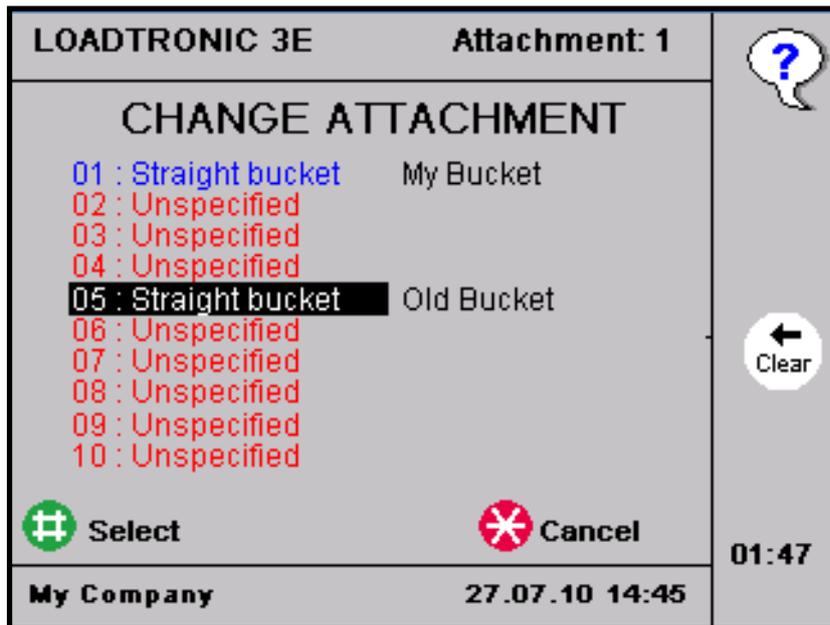


Figure 3-8 Changing attachment.

The attachments that are listed in blue color font have been calibrated on the machine and are available, refer LOADTRONIC 3E Installation Guide. Attachments that are not calibrated on the machine 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 3E, refer LOADTRONIC 3E 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 weighing mode without changing the setting).
4. Ensure that the attachment is empty.

LOADTRONIC 3E requires a zeropoint adjustment, refer chapter 3.7.

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.*

Short cut for changing the attachment:

1. Enter Pause mode.
2. Press correct attachment number, 1-5, using the keyboard.

This short cut is intended for users having different calibration data for the very same attachment due to handling of very different types of materials.

Hurtigskifte av redskap er tilpasset brukere som har flere kalibreringsdata for samme redskap pga levering av svært ulikt material med samme skuffe.

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).

3.7 Zeropoint adjustment

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

The LOADTRONIC 3E 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. Press $>0</F4$ to enter the zero point adjustment sub menu.
3. Set the boom horizontal, and set the arm to the angle given in parentheses.
4. **Note! Adjust the bucket to operating position.**
5. Press *Start/#* to start the adjustment.
6. Operate the boom at a slow and even speed according to the instructions on the display: *Lower – Lift – Lower*, refer Figure 3-10.

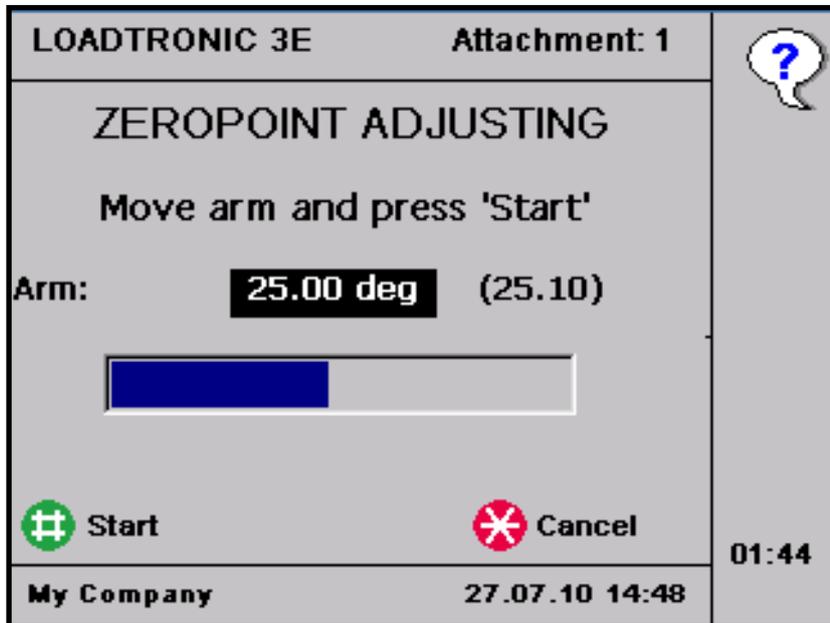


Figure 3-9 Zeropoint adjustment: set the arm angle

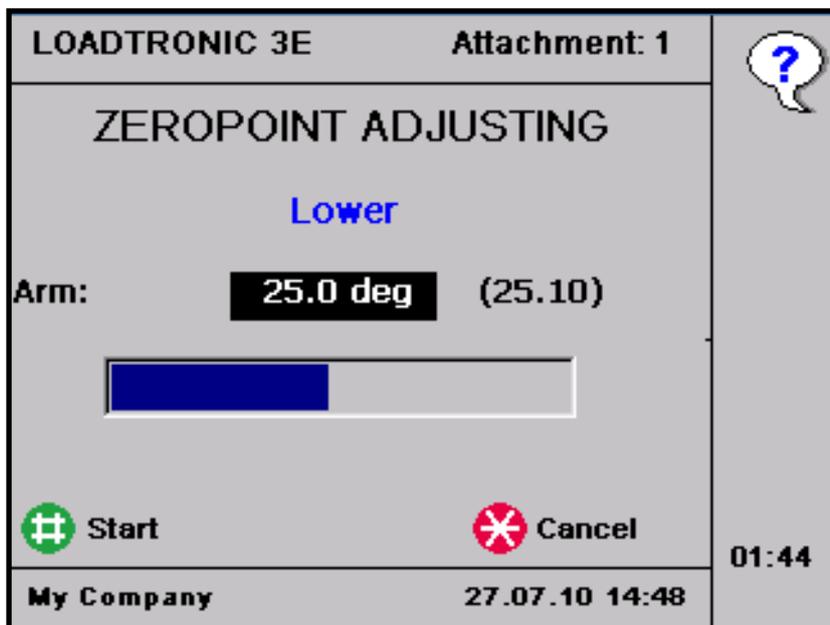


Figure 3-10 Operate the boom during zeropoint adjustment.

When the zeropoint adjusting is OK and completed, the LOADTRONIC 3E automatically returns to weighing mode after showing the adjustment in kg, refer Figure 3-11. Accumulated load will be continued.

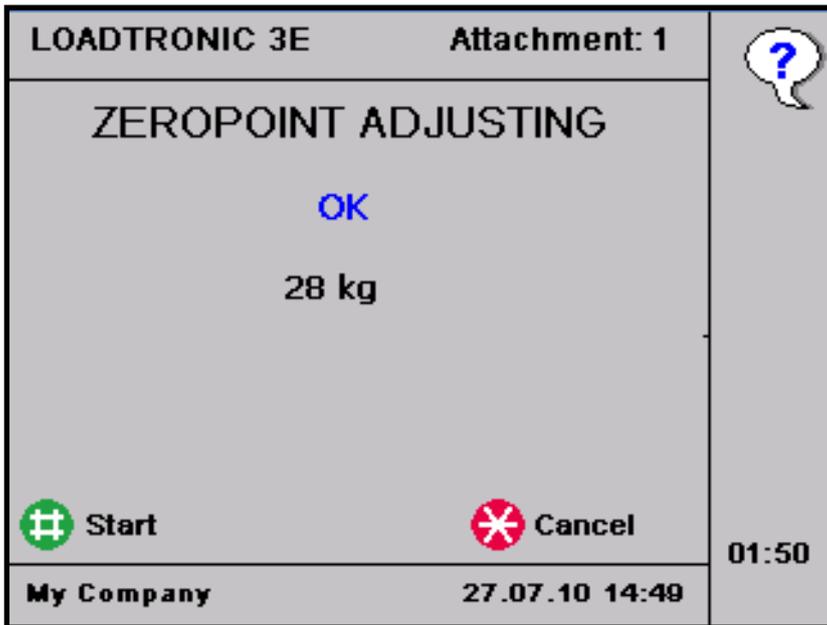


Figure 3-11 Zeropoint adjustment OK.

When the zeropoint adjusting is not OK an error message appears in the display.

Probable cause:

- Uneven movements of the boom 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 attachment number is correct for the actual bucket.
- 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 3E main unit OFF then back ON). Follow the instructions given on screen. Repeat zeropoint adjustment.
- If zeropoint adjustment still fails, contact service personnel.

3.8 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** the trigger button on the handling stick to invoke weighing.
2. Raise the bucket. The load is now re-weighed.

3.9 Shakeoff functions

With the LOADTRONIC 3E system, the operator can select between shake off to truck or heap. The default setting is configured in *Parameter Setup II*, refer Figure 3-5. 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.

3.9.1 Shakeoff to heap

If *Truck shake off* is set to 0 in *Parameter Setup II*, refer Figure 3-5, 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. Shake off surplus material back to the heap until the display shows the approximate desired weight.

Note: The weight shown is slightly different from the actual weight, since the bucket is not in the correct position.

3. Retract the bucket to the correct position and lower the boom when complete.
4. Press **# or** the trigger button on the operator stick to initiate weighing.

5. Raise the boom evenly. The load is now re-weighed.

3.9.2 Shakeoff to truck

If shakeoff to truck has been set in *Parameter Setup II*, refer Figure 3-5, 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 in the correct position.

3. Retract the bucket to the correct position, and lower the boom when complete.
4. Press # or the trigger button on the handling stick to start weighing.
5. Raise the boom evenly. 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.

3.10 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.

3.11 Pause mode

LOADTRONIC 3E can be set in pause mode.

Pause is selected by:

1. Pressing the *up-arrow*/ \uparrow from weighing mode. When the LOADTRONIC 3E is in the pause mode no buckets will be weighed or recorded. The display will show a row of ‘-‘ signs, refer Figure 3-12.

The pause mode is ended by:

2. Pressing *up-arrow*/ \uparrow (in pause mode). The LOADTRONIC 3E returns to weighing mode.

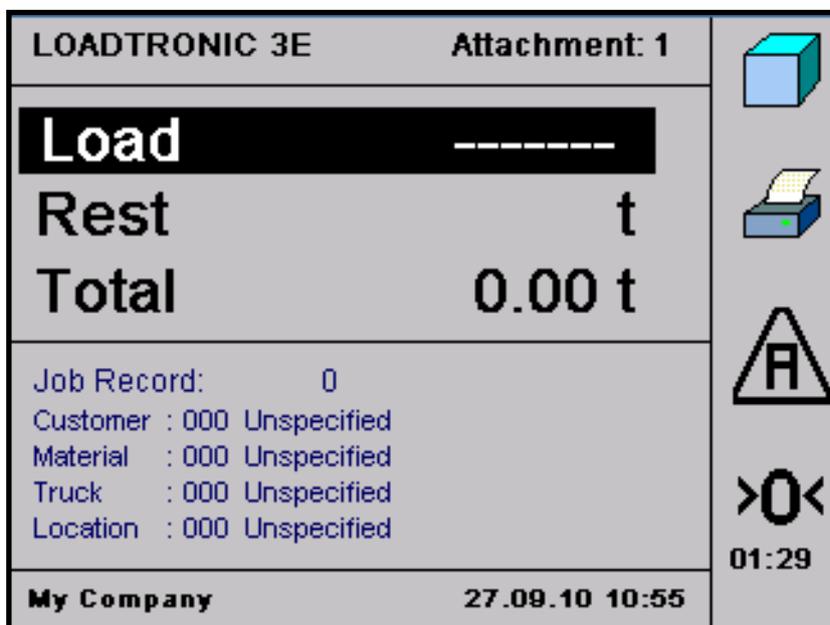


Figure 3-12 Pause mode.

3.11.1 Auto weighing mode and set boom angle

Change auto weighing mode and set the boom angle to start weighing, refer chapter 3.4.

3.11.2 Adjusting the display backlight

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

3.11.3 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.

3.11.4 Other functions in pause mode

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

- Get a test print to verify the printer. Enter pause mode and press F2.
- Set start angle for automatic weighing. Enter pause mode and press F3. Position the boom and press # to save.
- View the zero load value from the last zeropoint adjustment. Enter pause mode and press F4.
- Quick change attachment number, refer chapter 3.6.

3.12 System messages

In case of a fault/error LOADTRONIC 3E displays a message in red text font in the top line, refer Figure 3-13.

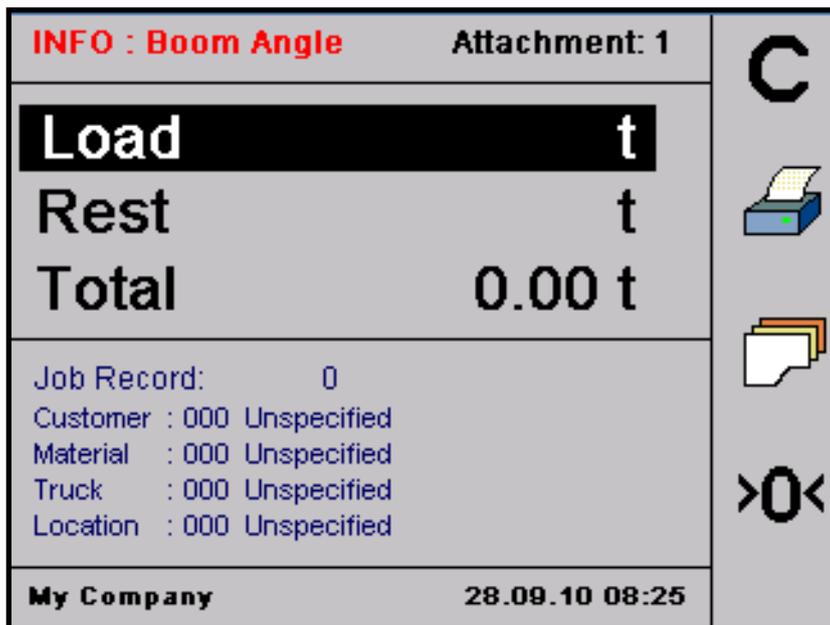


Figure 3-13 Example of an error message.

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 3E 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 4.1.3
- Add customers, materials, locations etc. independently of the job list, refer chapter 4.1.4.

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.

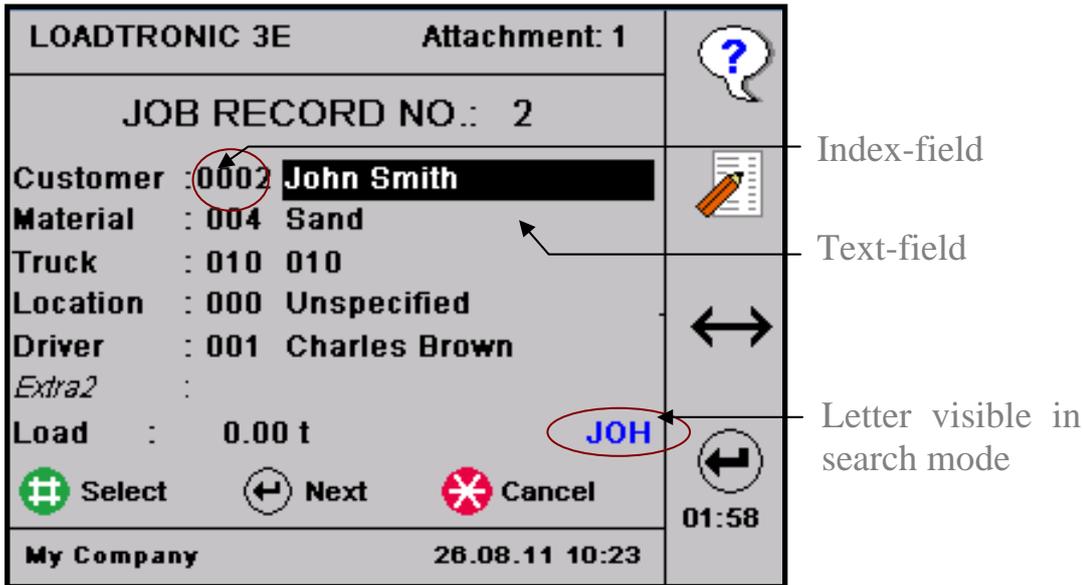


Figure 4-1 Search for customer.

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.

4.1.2 Special characters

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.

4.1.3 Enter job details from the job list

Press *job record/F3* to enter the job list from the weighing mode. By default, the open 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 3E		Attachment: 1	
JOB RECORD NO.: 2			
Customer	: 0002	John Smith	
Material	: 004	Sand	
Truck	: 010	010	
Location	: 000	Unspecified	
Driver	: 001	Charles Brown	
Extra2	:		
Load	:	20.00 t	
	Select		Next
			Cancel
My Company		26.08.11 10:34	01:47

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.

4.1.4 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.

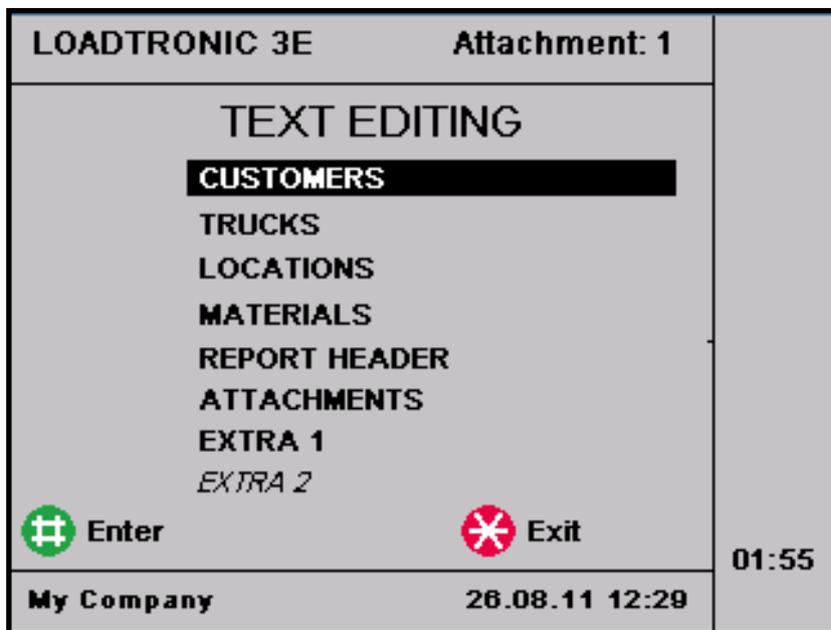


Figure 4-3 Text editing menu.

The text editor menu consists of 8 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 34 to page 39 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 3E		Attachment: 1		?	
CUSTOMERS					
No.:	0002				
Text:	John Smith_				
Customer No.:	0				
Save		Exit		a+ Clear	
				a← Clr All	
My Company		26.08.11 12:41		01:43	

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.

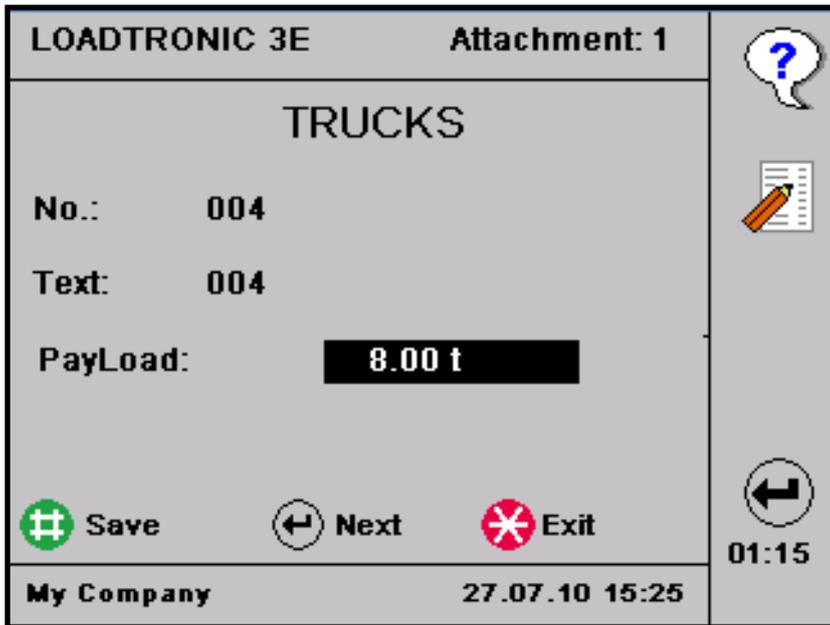


Figure 4-6 Edit the trucks description and PayLoad.

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 3E	Attachment: 1	
LOCATIONS		
No.:	003	
Text:	Bergen	
Project No.:	558963	
 Save	 Exit	00:34
My Company	26.08.11 13:50	

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 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.

LOADTRONIC 3E		Attachment: 1		?
MATERIALS				
No.:	004			✎
Text:	Sand			
Density:	2000	[kg/qm]		
# Save	↩ Next	* Exit		↩
My Company		27.07.10 15:28		01:14

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 3E		Attachment: 1		?	
EXTRA 1					
Driver					
No.:	001				
Text:	Charles Brown_				
Save		Exit		Aa	
				a← Clear	
				a← Clr All	
				00:33	
My Company		26.08.11 13:51			

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 3E 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.

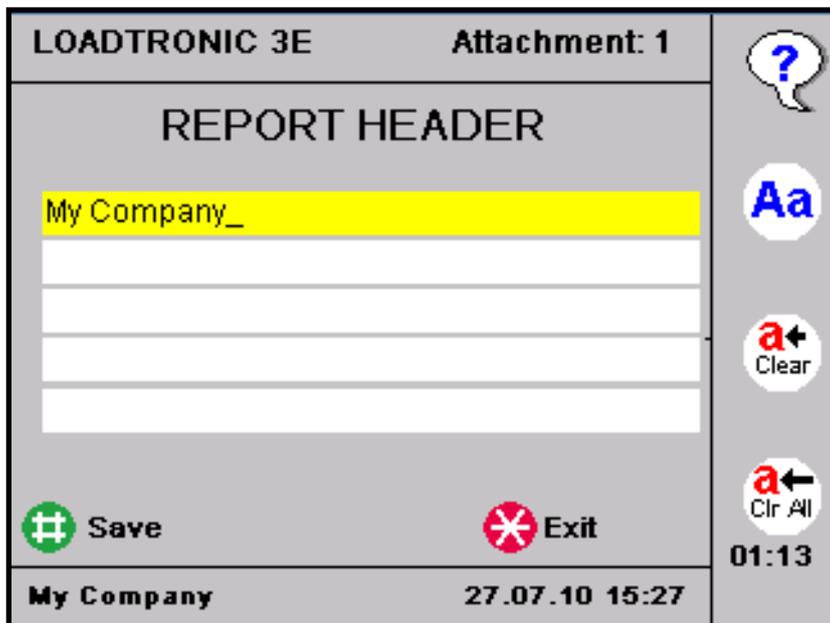


Figure 4-10 Edit the report header.

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 Customers, Material, Truck or Location. An example of such a report is given in Figure 4-11.

```
TOTAL TRANSPORTED BY LOADER
DATE FROM: 26.08.11  TIME: 00:00
DATE TO:   26.08.11  TIME: 14:08

My Company

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

TOTAL  :    51.00 t (9)
```

Figure 4-11 Example of the total load delivered by the machine.

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 'From' time. 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).

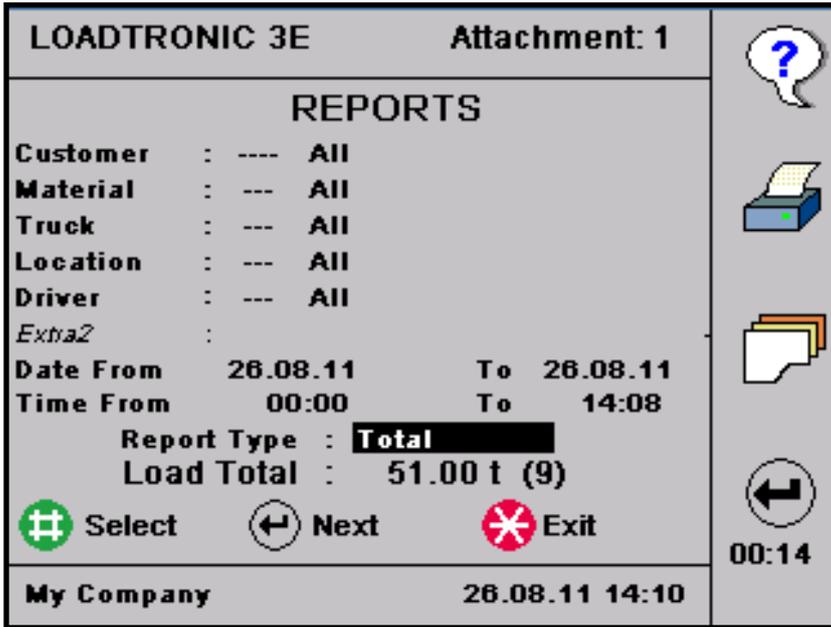


Figure 4-12 Generate the report shown in Figure 4-11.

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 3 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.

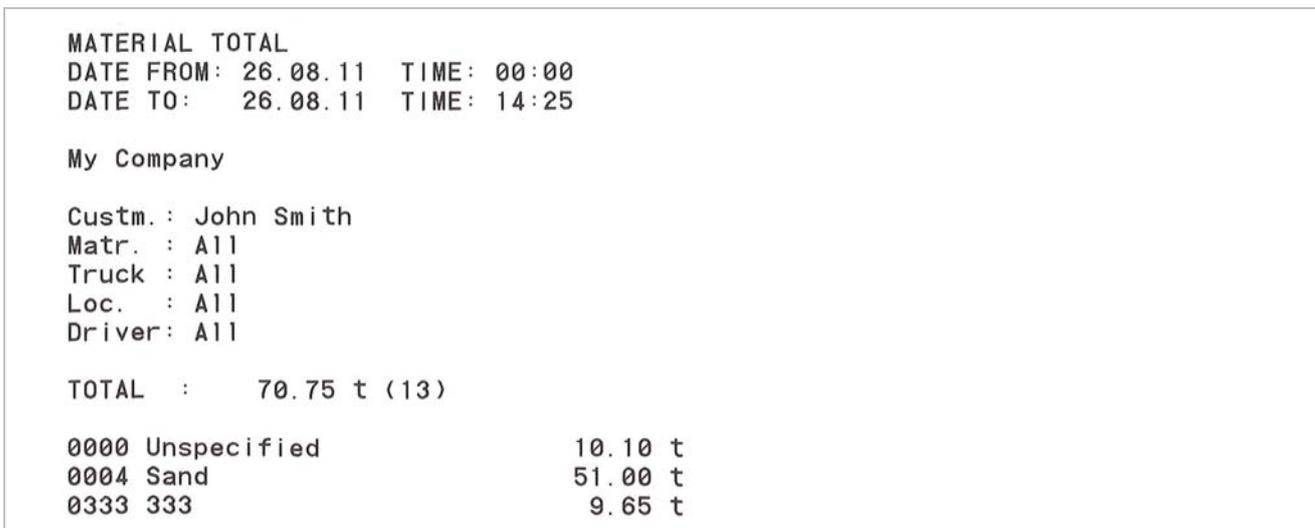


Figure 4-13 Specified report of the material delivered to customer John Smith.

```
CUSTOMER TOTAL
DATE FROM: 26.08.11  TIME: 00:00
DATE TO:   26.08.11  TIME: 14:29

My Company

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

TOTAL   :    70.75 t (13)

0002 John Smith           70.75 t
      000010023
```

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).

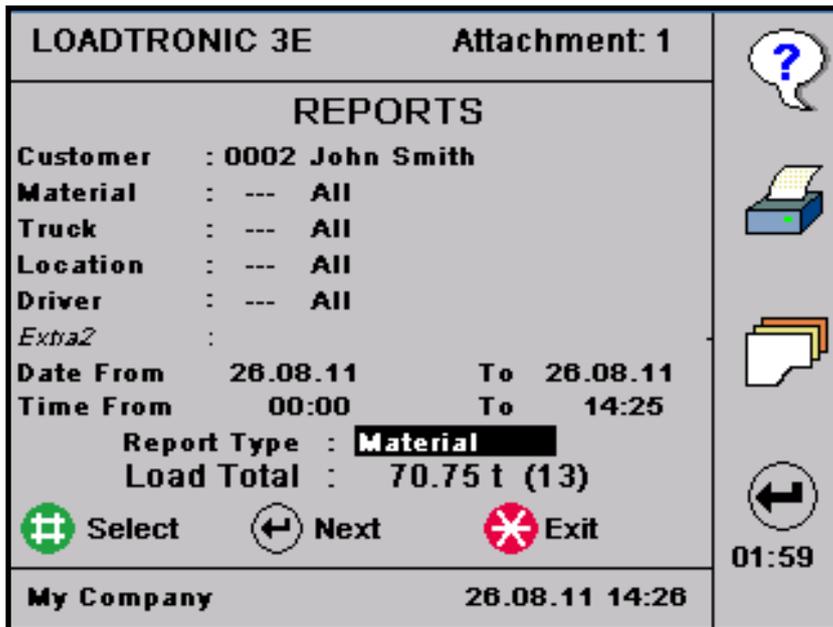


Figure 4-15 Build the specified report as presented in Figure 4-13.

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.

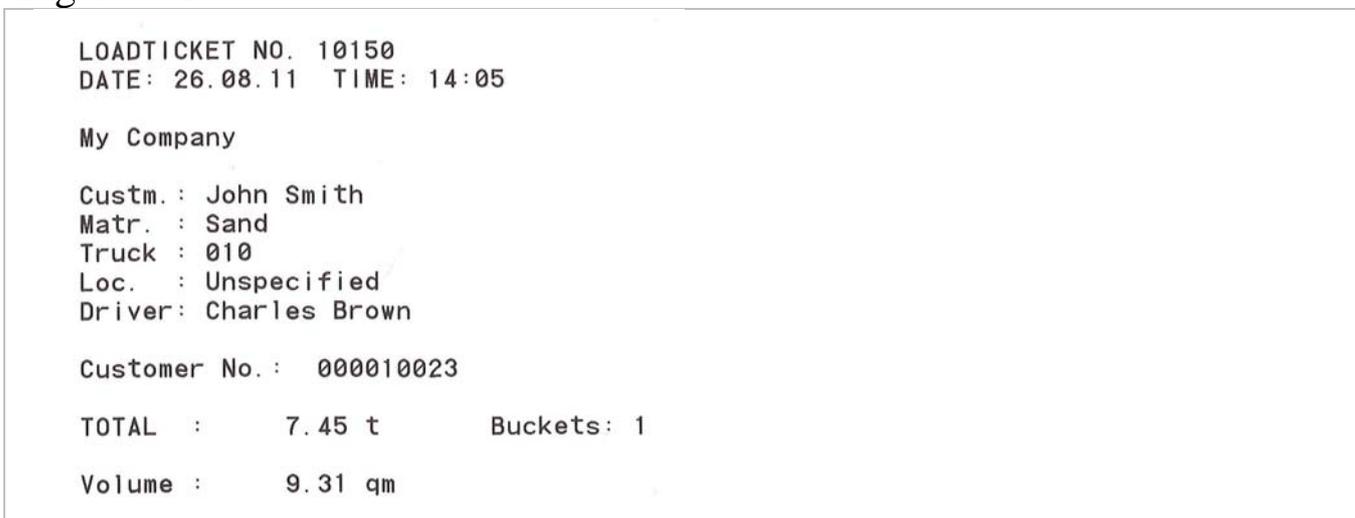


Figure 4-16 Copy of receipt.

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 for an example. 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 3E		Attachment: 1		    01:48
LOAD NO. : 10150				
Customer	:	0002 John Smith		
Material	:	004 Sand		
Truck	:	010 010		
Location	:	000 Unspecified		
Driver	:	001 Charles Brown		
Extra2	:			
Date	:	26.08.11	Time 14:05	
	:	Buckets : 1	Load Total : 7.45 t	
 OK	 Next Day	 Exit		
My Company		26.08.11 14:37		

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.

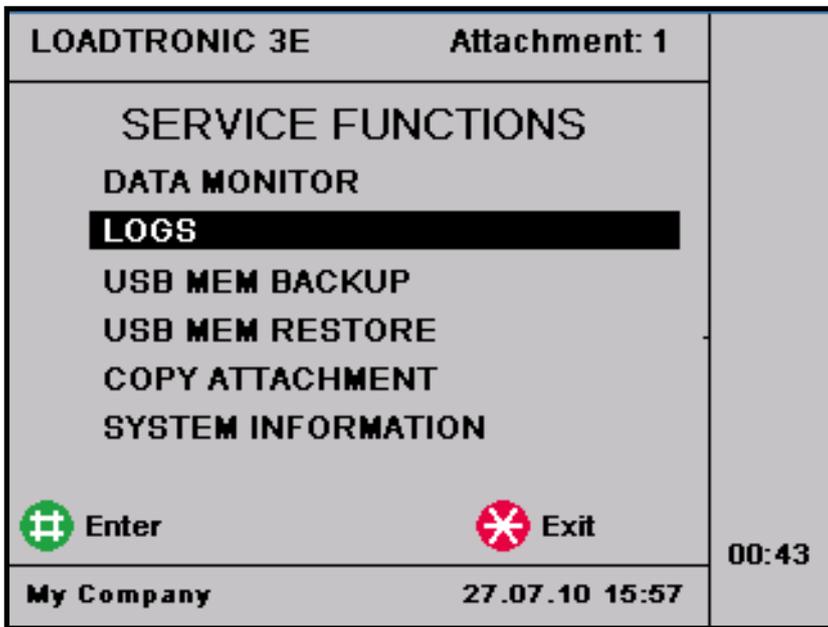


Figure 5-1 Service functions.

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

Logs holds a complete history of the LOADTRONIC 3E 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 3E gives a warning in the top line at system start up when the Loadlist is more than 95% full, refer chapter 3.12 and chapter 4.2.

LOADTRONIC 3E		Attachment: 1		
LOAD LIST				
REC: 001	1000 kg	1	27/07 11:08	
REC: 006	4150 kg	3	27/07 11:08	
REC: 000	2700 kg	2	27/07 10:47	
REC: 000	3830 kg	3	27/07 10:33	
REC: 000	6050 kg	1	23/07 13:45	
REC: 000	29040 kg	6	23/07 12:36	
REC: 000	10790 kg	2	23/07 12:31	
REC: 000	4510 kg	1	23/07 12:29	
REC: 000	1360 kg	1	23/07 10:19	
REC: 000	3320 kg	2	22/07 15:24	
My Company		27.07.10 15:59		00:41

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 3E		Attachment: 1	
EVENT LIST			
CALIBRATE	NO ERRORS	1	27/07 10:31
CALIBRATE	NO ERRORS	1	27/07 10:22
TARE	DATA MISSI...	Unspec	27/07 10:01
TARE	DATA MISSI...	Unspec	27/07 09:58
TARE	NO ERRORS	1	27/07 09:38
ZEROPOINT	NO ERRORS	-4	27/07 09:06
SW UPDATE	NO ERRORS	OK	26/07 14:32
SW UPDATE	NO ERRORS	OK	26/07 14:30
SW UPDATE	NO ERRORS	OK	26/07 14:28
ZEROPOINT	NO ERRORS	176	26/07 13:33
My Company		27.07.10 16:01	

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 USB 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 3E, the same USB MEM device can be used to backup several LOADTRONIC 3E 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 3E 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.

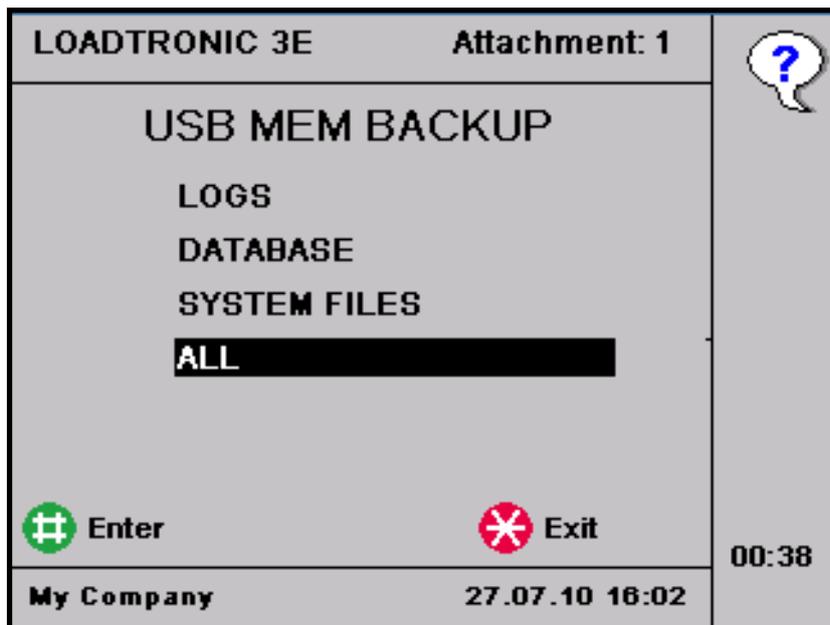


Figure 5-4 Backup.

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.

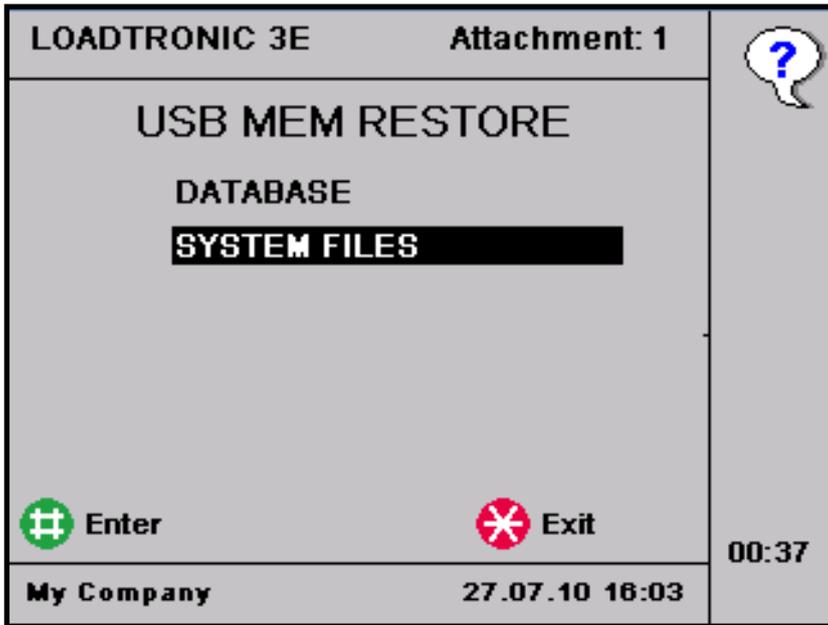


Figure 5-5 Restore.

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.

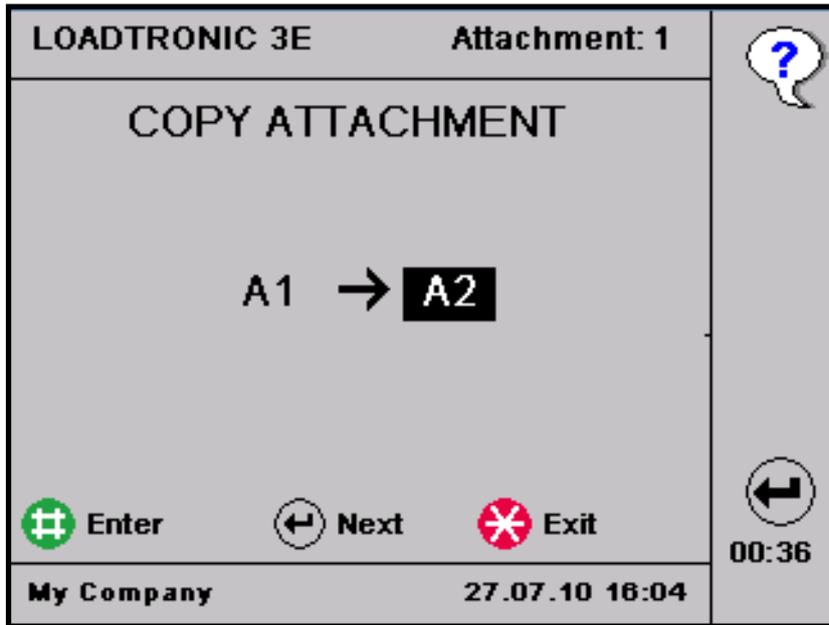


Figure 5-6 Copy attachment.

5.4 System information

System information holds two pages displaying information about software version, Main unit serial number, 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.

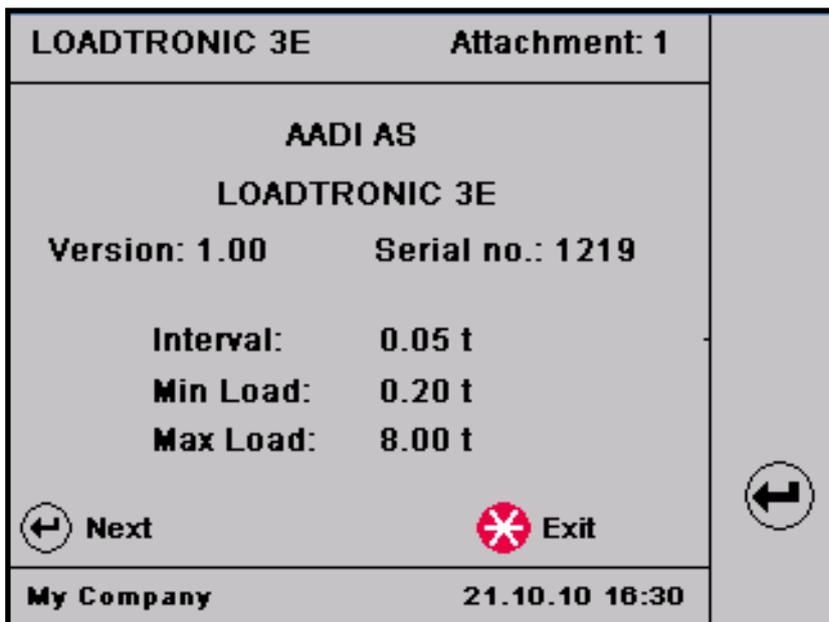


Figure 5-7 System information, page 1.

LOADTRONIC 3E		Attachment: 1
Supply: 24(18-36) VDC		
Pressure: 600 bar / 60 MPa		
Temperature: -25 to +50 grC		
CE Version: 0809		MSP Version: 32
Legal Data	Checksum	Date
Program	CFAA	2010-10-21
Configuration	1C86	2010-10-21
Calibration	B062	2010-10-21
 Next	 Exit	
My Company	21.10.10 16:31	

Figure 5-8 System information, page 2.