Loadmaster Alpha 100

On-Board Weighing System

Operation

RDS Part No.:	S/DC/500-10-721
Document Issue:	01 : 10.7.13

Electromagnetic Compatibility (EMC)

$C \, \epsilon$

This product complies with Council Directive 2004/108/EC when installed and used in accordance with the relevant instructions.

Service and Technical Support

PLEASE CONTACT YOUR NEAREST DISTRIBUTOR

If unknown then fax +44 (0) 1453 733311 for further information.

Our policy is one of continuous improvement and the information in this document is subject to change without notice.
Check that the software reference matches that displayed by the instrument.

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Software Reference:

iSOCAN:	IS253000 rev05
Loadmaster:	IS100001 rev00
Database:	DBIS100000 rev13
Weighing Module:	LX100000 rev29

1   Overview

The Loadmaster Alpha 100 is a CAN-based system that measures, displays and records the net weight lifted, based on sensing the lift system hydraulic pressure. The pressure signals are captured and filtered through a 'weighing arc' provided by inclinometer sensors measuring the angle of the main boom.

All signals are processed in a separate Weighing Module, and the resultant weight calculation is sent via CANBus to the head unit.

The head unit is designed to be dustproof only and is only suitable for in-cab use. The weighing module however, is weatherproof.

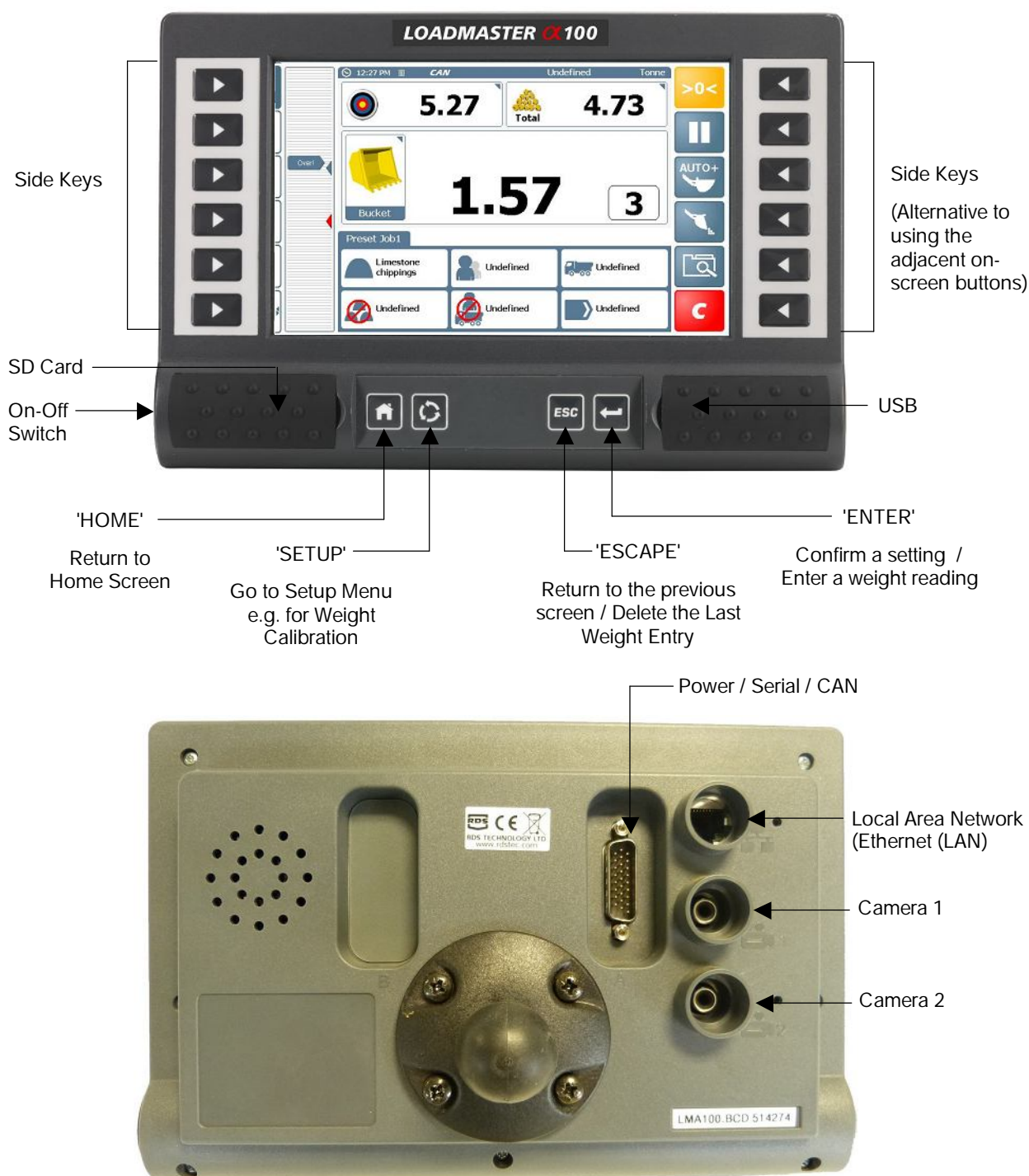## Certification for Trade Approved Weighing

The system has been designed for both Trade Approved weighing (Measuring Instruments Directive 2004/22/EC), and non-approved weighing.

NOTE: Currently, the system is not homologated and therefore cannot be certified for Trade Approved weighing. Certification by a Trading Standards Officer will become possible on existing installations, once homologation has been obtained.

Features and Benefits

• Target Load	Set individual Product target weight to ensure correct loading of vehicles.
• GPS Product Recognition	Automatic product selection.
• Reversing Camera Input	Single display with automatic switching in reverse gear.
• Adjustable Weighing Height	Flexible operation according to specific applications.
• Oil Temperature and Angle Compensation	Accurate weigh information within normal operating temperatures, and on sloping or uneven terrain.
• Calibration for up to 10 Attachments	Easy setup when switching attachments e.g. buckets, forks etc.
• Preset Tare	Net weighing for pallets and containers.
• Live Last Bucket 'Tip-off' at any position	At the pile or above the truck.
• SQL Database	Ease of use and interfacing with ERP systems.
• Stores, multiple job and Blend capability with advanced job memory search and Job Report generation	Accurate record keeping, traceability and stock management.
• 5 quick, job pre-selections for repeat job setup	Multiple active job capability.
• GPRS and Wi-Fi connectivity	1-way or 2-way communication with office.
• Static and Dynamic weighing modes for 'weighing on the lift'	Faster operation.
• Split loading (Trailers)	Truck and up to 2 trailers.
• Multi-channel and Grand Total summary	Load accumulation for up to 10 attachments e.g. buckets, forks etc.
• XML data output via RS232, Ethernet and USB memory stick	Safe and efficient data handling.
• Printing with configurable output	Hard copy of load summaries and job totals.
• Calibration 'Nudge'	Quick and easy calibration adjustment to match site reference e.g. weighbridge.
• Internal Audible Alarm	Set to alarm at overload threshold (90% and 100% of max. load)
• System 'Pause' mode	Disable weighing mode during non-weighing tasks.

1.1 Features and Controls

Side Keys

Side Keys

(Alternative to using the adjacent on-screen buttons)

SD Card

On-Off Switch

USB

'HOME'

Return to Home Screen

'SETUP'

Go to Setup Menu e.g. for Weight Calibration

'ESCAPE'

Return to the previous screen / Delete the Last Weight Entry

'ENTER'

Confirm a setting / Enter a weight reading

Power / Serial / CAN

Local Area Network (Ethernet (LAN)

Camera 1

Camera 2

Power On

Both the Head Unit and the Weighing Module are permanently powered to avoid unnecessary delay when the machine is switched off and then restarted. The On-Off switch on the Head unit switches the system into a hibernation mode.
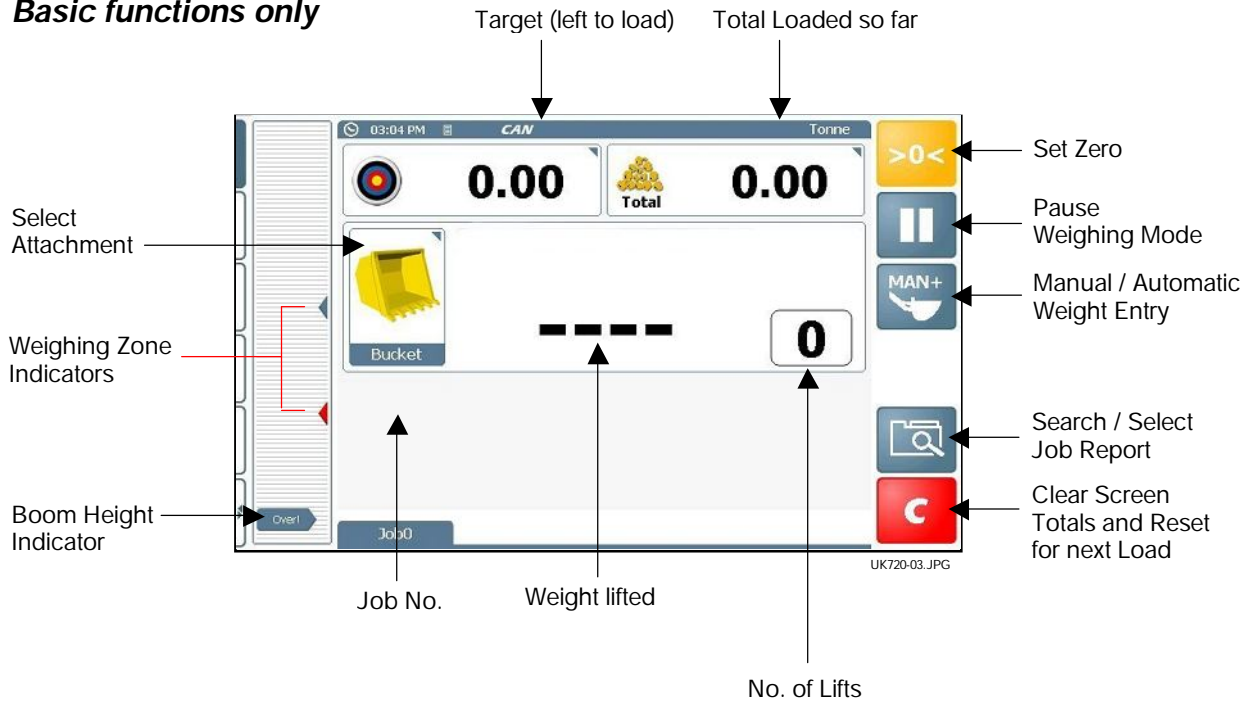
If the power supply is interrupted (e.g. for maintenance purposes), the system will take approximately 60 seconds to reboot into the normal operating mode.

NOTE: *The system will not boot into the weighing mode unless the SD card containing the Loadmaster Database is in place.*

1.2 The Home Screen

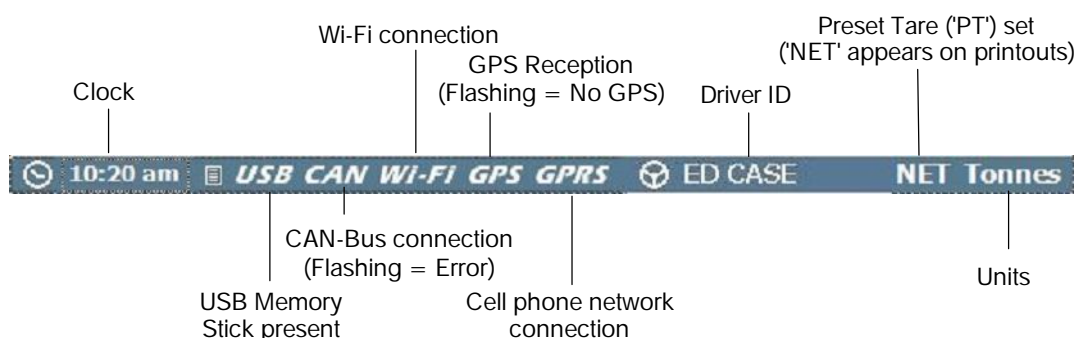The functions displayed on the Home Screen depends on which are enabled via the 'Home Screen Functions Setup' menu.

Basic functions only

- Target (left to load)
- Total Loaded so far
- Set Zero
- Pause Weighing Mode
- Manual / Automatic Weight Entry
- Search / Select Job Report
- Clear Screen Totals and Reset for next Load
- Select Attachment
- Weighing Zone Indicators
- Boom Height Indicator
- Job No.
- Weight lifted
- No. of Lifts

UK720-03.JPG

All functions enabled

- Preset Tare
- Split Loading (up to 2 Trailers)
- Driver ID
- Reversing Camera
- Pre-defined job selection / job list
- Print Load Summary / Reset for next load
- 'Live Static' Tip-off mode

UK720-06.JPG

Up to 8 Reference Stores : i.e. for Product, Customer, Truck, Haulier, Location, Destination, Notes, Mix (Mixture of more than one product)

The Status Bar

Clock

Wi-Fi connection

GPS Reception
(Flashing = No GPS)

Driver ID

Preset Tare ('PT') set
('NET' appears on printouts)

10:20 am USB CAN Wi-Fi GPS GPRS ED CASE NET Tonnes

CAN-Bus connection
(Flashing = Error)

USB Memory
Stick present

Cell phone network
connection

Units

Touchscreen

The instrument has a 5-wire resistive touch screen. 5-wire technology offers superior life and reliability without requiring re-calibration. However, it consists of a polyester film outer layer that must be treated with respect, compared to a non-touch display with toughened instrument glass. Therefore, pleas observe the following,

DO NOT use a sharp-pointed object - the screen will be damaged beyond repair!

Do NOT wipe or otherwise attempt to clean using any kind of solvent cleaner!.

Do NOT wipe using a dirty cloth or gloves. Use only computer screen wipes designed for the purpose!.

You <u>may</u> use a blunt, <u>smooth-ended</u> plastic object (e.g. a pen body / cap) as a stylus, if found necessary!

2. Operator Settings

2.1 Checklist

Depending on the instrument setup and the type of job, some or all of the following steps may be necessary before you start a weighing job.

- Select Attachment

- Set Zero

- Set Target Rate

- Select Automatic / Manual entry Mode

- Programme Preset tare

- Select Load References (Reference Stores), or a Pre-defined Job.

- Driver No. etc

2.2 Attachments

Each attachment is configured for the weighing mode, e.g. 'Dynamic', 'Static ON', 'Static OFF' or 'Constantly Live Static'. On selection, the instrument is automatically updated to the weight calibration settings and weighing mode for that attachment.

UK721-01.JPG
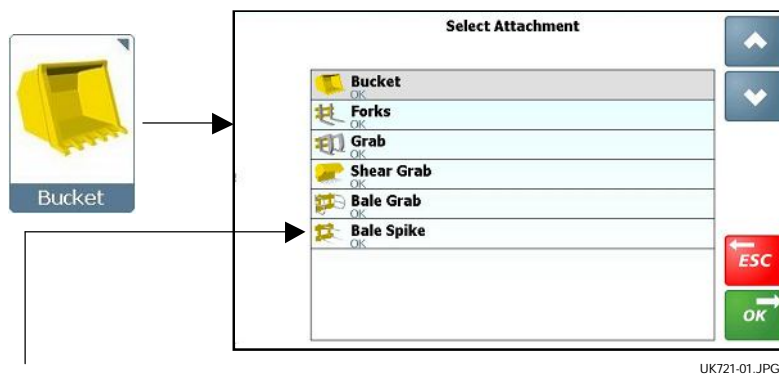
'**OK**' - Attachment has been calibrated

'**X**' - Attachment has not been calibrated

Weighing Modes

'**OFF**'	The attachment is disabled and will not be listed on the 'Select Attachment' screen.
'**Dynamic**'	Dynamic weighing - Lift through weighing position.
'**Live Static Off**'	Static Weighing - 'Auto-kickout' operates at the preset weighing position.
	After 'Static Delay' and 'Static Sample Time' periods, the weight is displayed.
	The weight display remains fixed while at the weighing position.
'**Live Static On**'	Static Weighing - 'Auto-kickout' operates at the preset weighing position.
	After 'Static Delay' and 'Static Sample Time' periods, the weight is displayed.
	NOTE: The weight display is "live" and may change as the 'Static Auto Lock' factor automatically compensates for the effect of pressure loss over time, while at the weighing position.
'**Constantly Live Static**'	Static Weighing - There is no preset weighing position. A 'live' weight is displayed at any boom position.
	NOTE: This mode will not be as accurate as 'Live Static OFF' or 'Live Static ON' weighing modes

2.3   Set Zero

The zero weight reading may drift during regular use. To help ensure accurate weight readings, the zero routine should be done on a regular basis.

Press >0< and follow the on-screen instructions.

Trade-approved weighing systems:

The system is setup so that the zero routine is automated.

'**ZERO SYSTEM >0.00<**' displays if the system has been switched off, or has not recognised any lifts for more than 15 minutes. The '**ZERO SYSTEM >0.00<**' routine must be repeated every 15 minutes.

The system will countdown 60 seconds before '**ZERO SYSTEM >0.00<**' must be repeated. Weighing is then inhibited until you press >0< and follow the on-screen instructions.

2.4   Target Weight (Weight left to load)
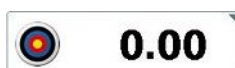
Press and enter the weight required in the truck / trailer.

As you commence the loading cycle, the figure will decrease to show how much is left to load.

2.5   Automatic or Manual Weight Entry Mode

Dynamic Mode:

The weight is entered automatically after the bucket is lifted through the weighing position.

Static Mode:

The weight is entered automatically after a set period at the kickout position.

NOTE: *Automatic Weight Entry is not possible if the attachment is configured for "Live Static ON" weighing mode, or "Constantly Live Static" weighing mode.*

Dynamic / Static Mode:

The weight is entered manually, either by pressing the ⬅ key,

or the Remote Enter Switch (optional).

UK721-09.JPG

2.6 Driver ID / Login

The instrument may be programmed with driver names. The current driver is selected from the list and a password entered to confirm.

The driver ID is included in the load data for each completed loading job.

A Job Report can be generated for a specific driver, using the 'Job Search' function (   ).

Normally when the instrument is powered on, the driver ID will default to '**Undefined**'. The instrument can however, be setup so the driver must be selected and their password entered on power up, before the instrument will display the Home screen.

NOTE: The driver ID is displayed in the status bar.   If the current job was selected from the job list, and that job was created by another driver, or uploaded prior to you logging on, then their name will be displayed in the status bar.

You can edit the driver ID for a job to your own ID, via the Jobs List (ref. section 2.9).
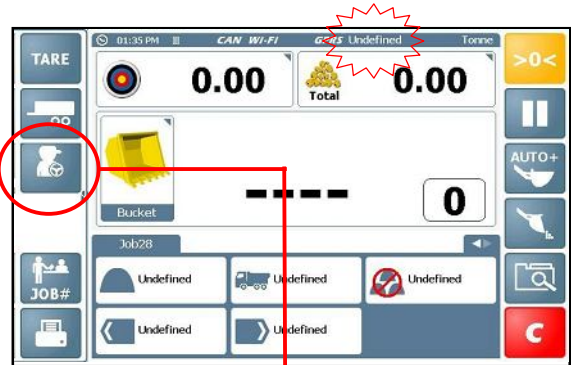
UK721-44.JPG

Edit / Print / Delete Driver ID / Password

Icon	Description
+	- Add Driver ID
⚙	- Add / Edit Driver Password
🗑	- Delete Driver ID
🖨 ALL	- Print Driver ID List
TOTAL	- View / Print Load Totals for selected driver
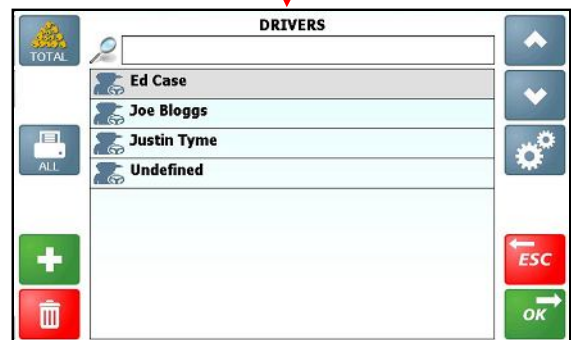
UK721-43.JPG

2.7 Preset Tare ('PT')

This facility is used to display the net weight of a product within a lifted container. The normal gross weight is taken, from which the weight of the empty container is automatically subtracted.

When a Tare is set, it is displayed on the weighing screen as a 'PT' figure. Printouts will show 'NET' and the Preset Tare.

$$PT = 0.10$$

$$+ \quad = 1.00 \qquad = 0.90$$

The Preset Tare can be entered manually or by lifting the empty container.

Setting/ Deleting the Tare - Manual Entry

Press [TARE] and then key-in the empty container weight.
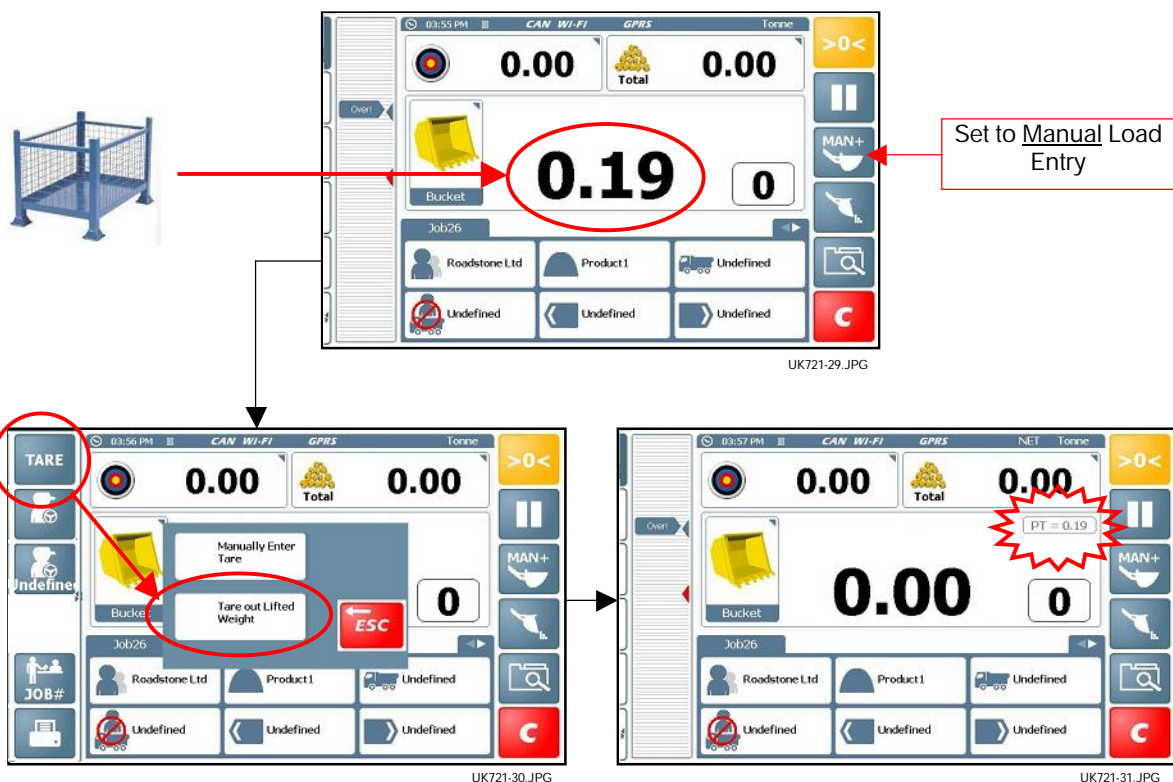
Press ENTER to confirm.

To delete the Tare, set to zero and press ENTER to confirm.

UK721-28.JPG

Setting the Tare by Lifting

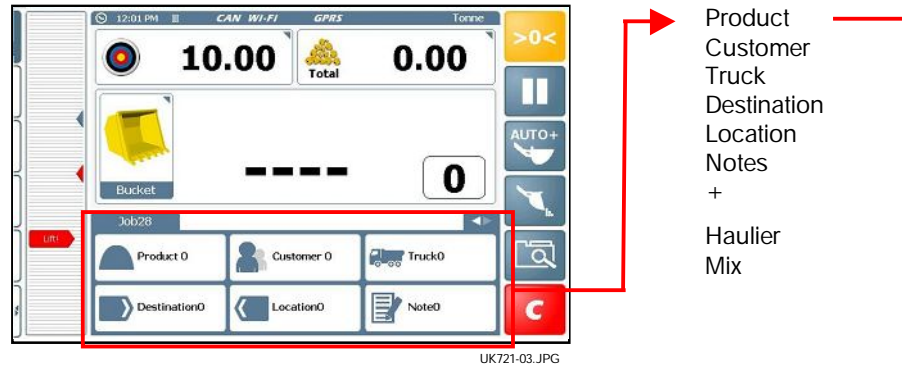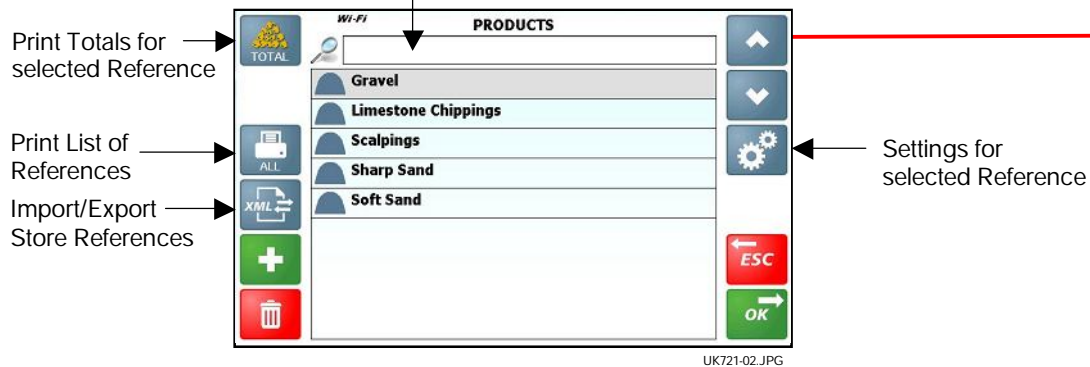Select Manual Load Entry, lift the empty container, press [TARE] and then select **'Tare Out Lifted Weight'**.

Set to <u>Manual</u> Load Entry

UK721-29.JPG

UK721-30.JPG

UK721-31.JPG

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2.8 Reference Stores

Select / Search a Reference Store(s)

If more than 6 stores are enabled, then press the [◄ ►] *tab to reveal the extra stores.*

Product
Customer
Truck
Destination
Location
Notes
+
Haulier
Mix

UK721-03.JPG

Search Box - Type first letters or keyword of required Reference

Print Totals for selected Reference

Print List of References

Import/Export Store References

Settings for selected Reference

UK721-02.JPG

The screen layout is similar for other Reference Stores except for 'Haulier' and 'Mix'.

Import / Export Reference Stores

Store References (and the load data linked with them), are stored in the database on the SD card. The data can be updated by importing .XML data edited in PC software, or likewise exported in .XML format for administration purposes.

Press [XML] for the Import / Export options available. Each Reference Store has these options. You are prompted to enter a suitable filename.

UK721-24.JPG
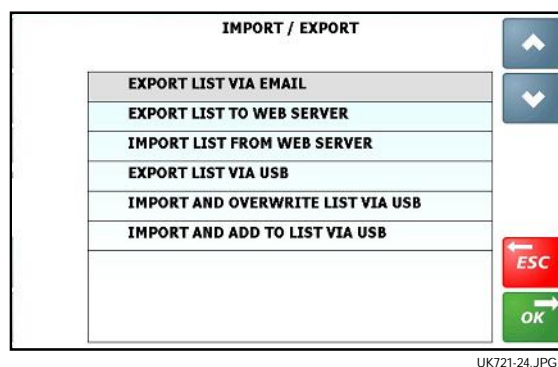
NOTE: Not all the options may appear as shown, depending on your setup.

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Enable the 'Haulier' Reference Store

The 'Haulier' Reference store functionality is slightly different, in that it is linked to the 'Truck ' Reference store.

'Truck' references can be associated with 'Haulier' references. In doing so, when the operator selects a specific haulier reference, only the trucks associated with that haulier will appear in the truck reference list.

Haulier 0		Truck 0
		Truck 1

Haulier 1		Truck 2
		Truck 7
		Truck 8

Haulier 2		Truck 3
		Truck 5
		Truck 6
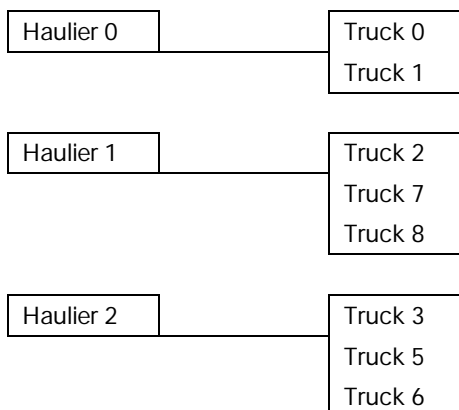
By default, the 'Haulier' Reference store is disabled, and all truck references in the 'Truck' Store are available for selection.

To associate particular trucks with a haulier, select [icon] and then select the trucks from the truck list.

UK721-12.JPG

UK721-13.JPG

14
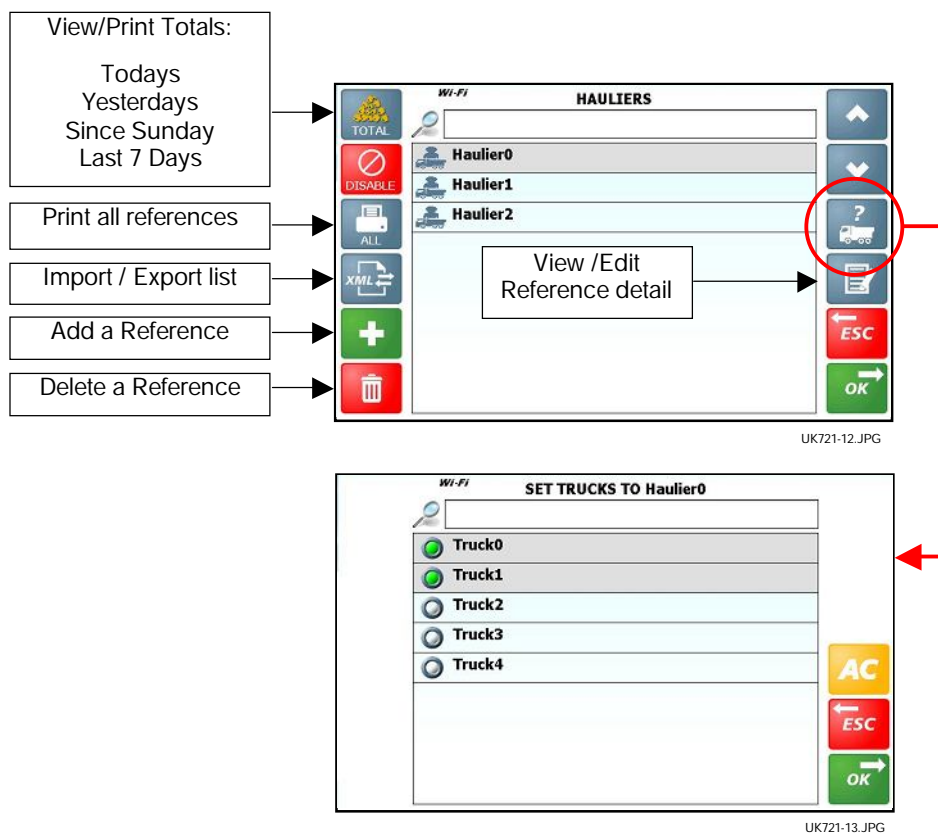
Enable the Blend ("Mix") Reference Store

You can create and store any no. of 'Blends'. A blend is a combination of different products and their proportions that make up a 'mix'.

By default, the 'Mix' Reference store is disabled.

Press [⊘ Undefined] to switch Blend ("Mix") mode on.

When Blend ("Mix") mode is on, the normal Product Reference list is not available.

UK721-20.JPG

Touching the Product icon on the 'Home' screen, lists the individual ingredients of the Mix and their calculated weights, based on the target weight entered.

It is possible to exit the Blend ("Mix") mode (e.g. to perform an interim loading task) at any stage of blending, and then return to the blending task later (ref. 2.9 - Jobs List).
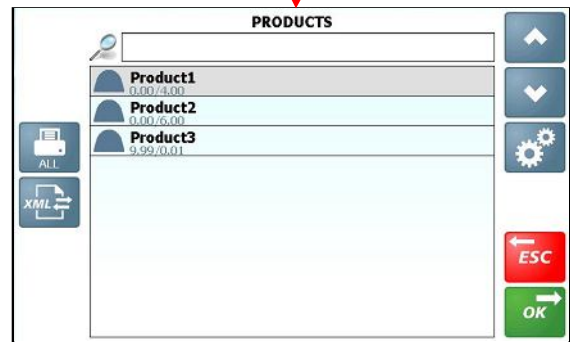
UK721-19.JPG

Create / Edit a Blend ("Mix") Reference

1. Press [+] to create a new Mix Reference and enter a name.

NOTE: Press [icon] to re-edit a Reference name if required.

View/Print Mix Totals:

Print all Mix references

Import / Export list

Add a Mix Reference

Delete a Mix Reference

Edit Reference Name
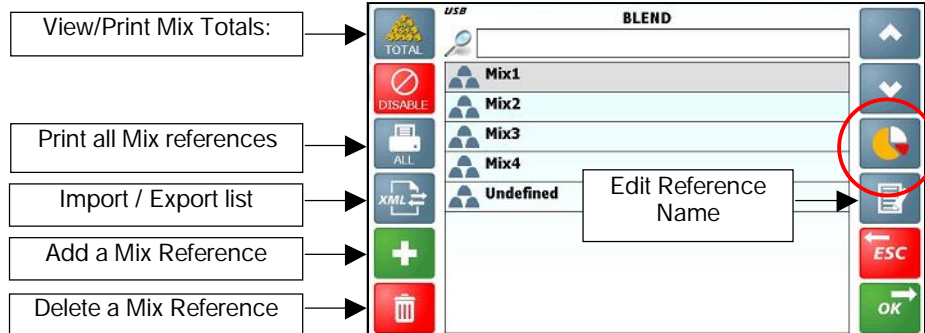
UK721-14.JPG

2. To edit the mix ingredients, select the desired Mix Reference and press [icon] to display the product list.

3. For each ingredient of the mix, press [icon] to enter the proportion.

It is the PART RATIO that is important - not the actual weight.

e.g. for a concrete dry mix you would enter 1 part Cement :2 parts Sand :4 parts Aggregate.

The instrument automatically calculates the actual weight of each ingredient, according to the target weight you enter on the Home screen.

Enter the proportion for each product in the mix

UK721-15.JPG

15
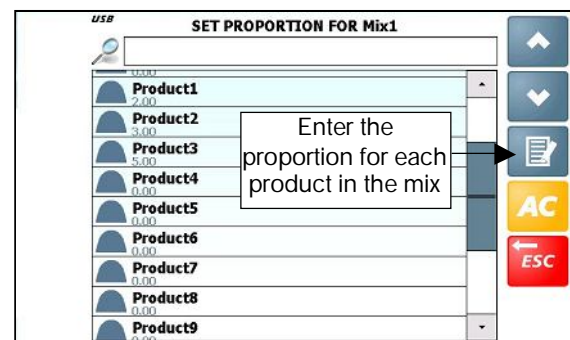
2.9 'Jobs' List

If you have particular jobs that are done repeatedly with the same Store references, like the preset channels on a radio, you can quickly select a preset 'job' from the list without having to keep manually selecting the Store references.

Selecting and Setting up a Preset Job

— Permanent 'presets': ("Preset Job #"): - These 5 presets will always appear at the top of the 'jobs' list.

Preset Job 1
Preset Job 2
Preset Job 3
Preset Job 4
Preset Job 5

Current Job Name
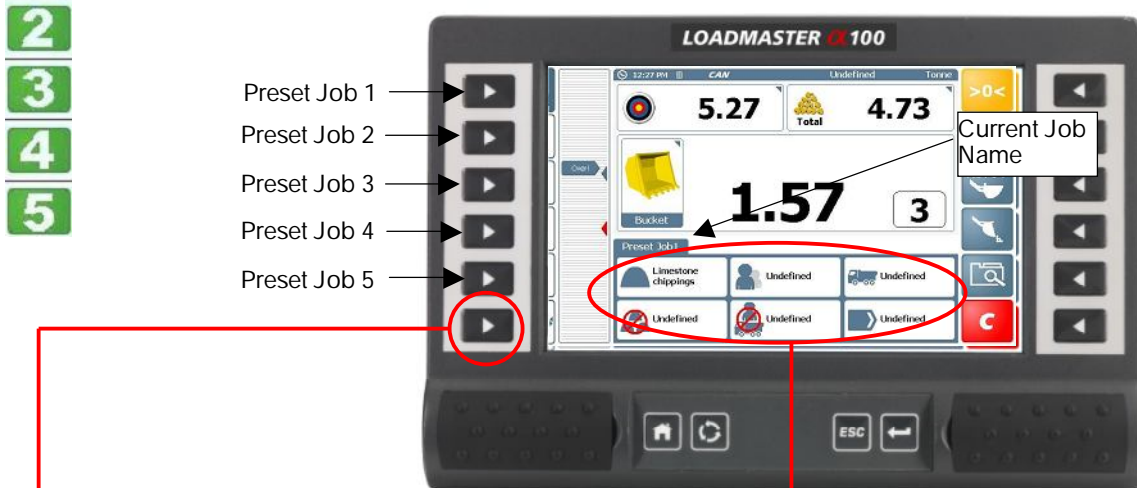
1. Select 'Preset 1'.

2. Select the required references.

3. Set the Target Weight and start to load (ref. section 3).

To start another job in another preset, simply press another reset and continue as above.

When the job is cleared, the store references will be retained*, the target weight reset, and the total reset to zero, ready for another repeated job.

*	Unless the setting 'Clear to Undefined' is enabled in 'Database Setup' in the 'Technician' menu.

Selecting a Job from the Jobs List

— Jobs to do / Active jobs list ("Job #"): - A list of jobs do be done, or jobs in progress.

In addition to the permanent 'presets', a job list can be created in .XML format and uploaded via USB memory stick or web server. The operator can select these jobs in any order.

Once selected, a job does not have to be completed and cleared before starting another job. This enables the operator to perform and log multiple loading tasks e.g. in a busy environment.

For example, by selecting [JOB#] to access the job list, the operator could switch from loading a truck to adding more material to a crusher, and likewise switch back again to finish loading the truck.

Active Job

Permanent 'presets'

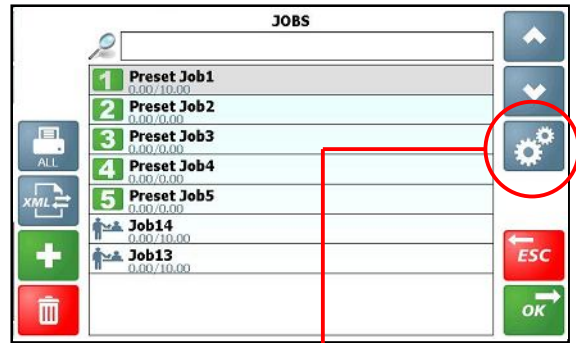'Jobs to do' / Active Jobs

UK721-09.JPG
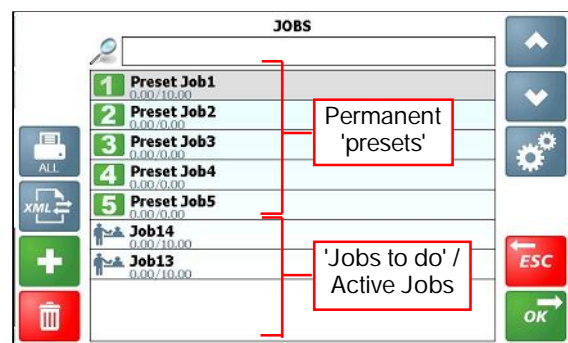
UK720-60.JPG

Edit Preset Jobs / 'Jobs to Do'

You can programme the Store References, Driver name and Job Name for each 'Preset job' / 'Job to Do'.

1. From the '**Jobs**' screen, press [icon] to select the Edit screen.
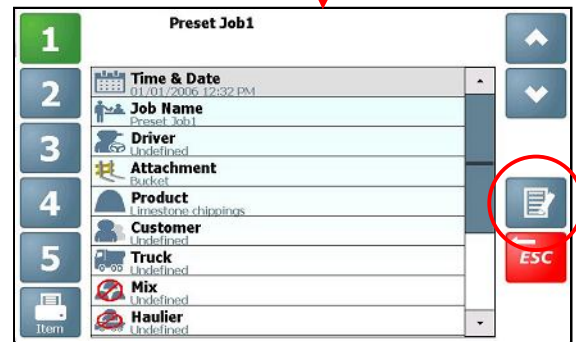

UK720-60.JPG

2. Select the information line to edit.

3. Press [icon] to select the required Store information.

   For example,

   If selecting 'Customer', the Customer Store list will be displayed, from which you can select the required customer reference.
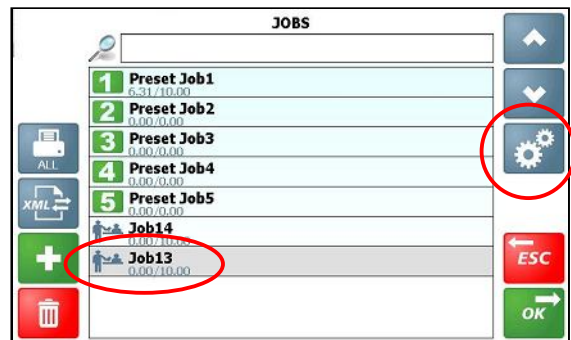

UK721-53.JPG

Re-allocating a job to Preset 1 to 5

Any job in the job list can be assigned to one of the 5 preset positions. Likewise, the preset jobs can be re-arranged in a different order if desired.

For example: Assigning a job (Job 13) to Preset 5.

1. Select the job to re-assign and press [icon].

UK721-65.JPG

2. Select the preset to assign the job to.

3. Press ESC to return to the Home screen.

UK721-66.JPG

17
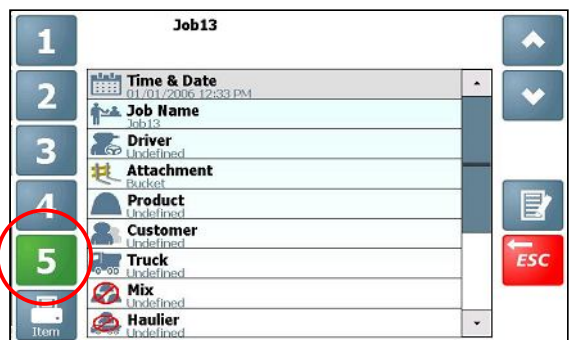
The jobs switch places. Job 13 is now Preset 5, and the job that was previously Preset 5 is moved down to the job list.
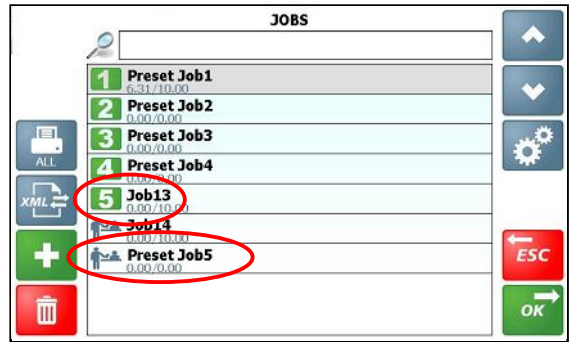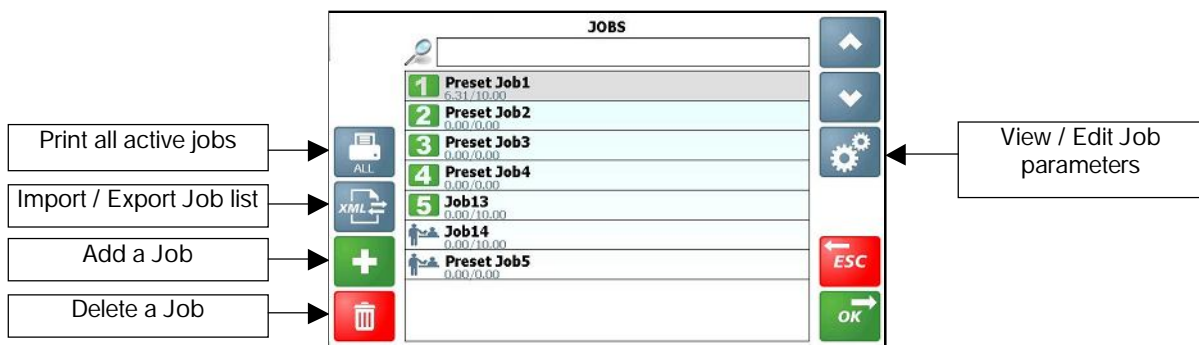

UK721-67.JPG

Job Count

When a Preset Job is completed and cleared, the instrument resets to the same Preset unless another is selected. Depending on the setting in 'Database Setup' in the Technician menu, the Store References will either default to those of the previous job, or to '**Undefined**'.

When a job from the Job list (i.e. not a Preset Job) is completed and cleared, a new, sequentially-numbered job is automatically created and added to the job list.

Until a 'job' is completed and the load is cleared, it remains on the job list (also showing the amount left to load and the target weight).

Add / Delete / Print Jobs

Print all active jobs

Import / Export Job list

Add a Job

Delete a Job

View / Edit Job parameters

UK721-67.JPG

Import/Export Jobs List

The Jobs list is stored in the database on the SD card. The data can also be updated by importing .XML data edited in PC software, or likewise exported in .XML format for administration purposes.

Press [XML] for the Import / Export options available.   You are prompted to enter a suitable filename.

UK721-24.JPG

Set Product Density / Price per Unit

If a volumetric unit (m^3 or yd^3) is selected, then the DENSITY of the product must be entered on the Product Store Information screen.

Press [Undefined] to select the Product Reference store. Select the reference to edit then press [⚙]

UK721-25.JPG
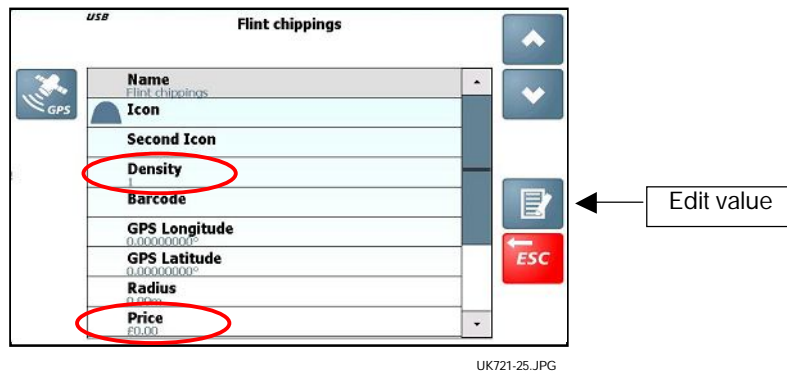
NOTE: *If weighing volumetrically, failure to programme the product density will result in incorrect weight measurement and memory totals !*

3   The Loading Cycle

3.1   Machine Requirements

The accuracy of the system depends to some extent on the following :

1. **Operating Temperature :** Always allow the machine and the hydraulics to warm up to the normal operating temperature before commencing weighing.

2. **Weighing on level ground :** The chassis angle sensor provides automatic correction if weighing on a slope.

3. **Boom lift and vehicle movement :** Anti-bounce compensation and filtering help to maximise weighing accuracy especially if weighing whilst moving. Best results however, are still obtained when weighing while the vehicle is stationary.

4. **Maintenance :** Keep your machine maintained in good condition. Things like excessively worn bushings, pivot pins and slideways, as well as lack of lubrication to these areas can have an adverse effect on weighing accuracy. After any major servicing particularly if you have replaced worn components or carried out welding repairs, you should re-calibrate the weighing system. If the hydraulic system has been drained and re-filled, you should also check for any air that may have become trapped at the pressure sensor(s).

3.2   Lifting Procedure

The correct lifting procedure is especially important for dynamic weighing. The load should be lifted smoothly and consistently through the weighing position. The best procedure is as follows :

1. Having picked up the load, crowd (roll) the bucket right back as far as it will go.

2. Pull the lift lever right back with the engine at idle.

3. Increase engine revs to the "weighing speed" and lift smoothly without bouncing or jerking.

    In Dynamic Weighing mode, the system has lift speed compensation and will alert the operator in the event the lift speed is too fast or too slow.

    In Static Weighing mode, the system has automatic compensation and filtering when the load is stationary at the weighing position.

NOTE: 'Live Static ON' mode only.

3.3   Dynamic Weighing Mode

With dynamic weighing, the load is lifted without any interruption. Weighing can be fully automatic and quick, and weighing 'on the move' is possible.

1. Make sure the machine is at normal operating temperature.
    Trade-approved weighing systems: Weighing will be inhibited until normal operating temperature is reached.

2. Select any required load references (product, customer, truck etc).

    If GPS Product recognition is enabled (ref. section 4), then the Product reference is automatically set when the loader comes within range of the product location, and reverse gear is selected.

3. Zero the bucket. Follow the routine on the screen.
    Trade-approved weighing systems: The system is setup so that the zero routine is automated.

4. Fill the bucket as normal and crowd it right back.

5   Hold the lift lever <u>fully</u> back. Lift the boom smoothly at a constant speed through the indicated weighing "zone", keeping the loader as steady as possible while the weight is taken.
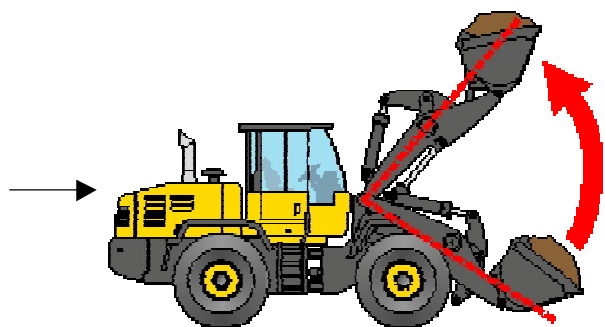
Once the weighing zone is passed, the lifted weight is displayed.

If the Overload audible alarm is enabled,

At 90% of maximum load = intermittent tone
At 100% of maximum load = continuous tone

UK721-05.JPG

If AUTO ENTER ( ) is set , the weight is automatically added to the load total.

If MANUAL ENTER ( ) is set, then PRESS the key (or the Remote Enter Switch), to add to the load total.

The target weight ( ) will decrease by the calculated weight to show how much is left to load.

The figure then indicates the total of all bucket weights entered so far.

Continue loading until you get to the last bucketful. If the bucket weight exceeds the target required, the bucket weight turns **RED** in colour.

With Auto Entry ( ) enabled, the amount will still add to the total. However, there are several methods for "Last Bucket" weighing (ref. section 3.4)

Press **c** to reset for the next loading job.

UK721-06.JPG

A 'Job Record' that includes the Load Data and Store references, is saved automatically to the database on the SD card, and printed out (if setup to do so).

A new Job Name is then created. Depending on the setting in the 'Setup', menu, the Store References will either default to those of the previous job, or to '**Undefined**'.

The "Target Load" will revert to the last figure entered, and will need to be changed only if the next truck requires a different weight.

NOTE: Once started, a job does not have to be completed and cleared before starting another job. This enables the operator to perform and log multiple loading tasks e.g. in a busy environment (ref. 2.9 - 'Jobs List').

3.4   Last Bucket Weighing

If the bucket weight exceeds the target required, the bucket weight turns **RED** in colour. With Auto Entry ( ) enabled, the amount will still add to the total. However there are several ways to meet the Target weight with the last bucket load.

"Undo last Lift"

If the last added lift is too much, the operator may wish to simply cancel the last lift, tip off some material back onto the pile, and weigh again.

1. Press the **ESC** key, and select "**Undo Last Lift**". This will subtract the last lift from the weighing screen and the Store totals.

2. Tip out some material and then lift again through the weighing zone, until the required amount has been weighed and added again to the total.

"Reweigh the Remainder"

In some cases where the truck also has it's own on-board weighing system, the operator may tip a partial amount off the last bucket load to "top-off" the truckload, as directed by the truck driver.

The "re-weigh" function enables the weight of the material remaining in the bucket to be re-weighed and subtracted from the truck total, ensuring the recorded total matches the actual weight loaded into the truck.

1. Press the **ESC** key, and select "**Reweigh the Remainder**".

2. Lift again through the weighing zone. The weight of material remaining in the bucket is subtracted from the truck total.

Live Static "Tip-off" Mode

"**Undo last Lift**" and "**Reweigh the Remainder**" last bucket weighing are trial and error methods. To assist in measuring the amount required for the last dynamic weighing, the "Live Static Tip Off" feature may be used.

1. Lift the arms up to any suitable height, and then press the ⬚ button. The "live" calculated weight, and button icon are then shown in **GREEN**. The weight shown is now live.

2. Crowd the bucket fully back & allow the live display to settle down before checking the true weight.

   "Live Static Tip Off" can be configured to operate in either of two ways,

3(a) Tip off material back onto the pile ("Pile Tip Off" configuration). The instrument displays the weight remaining in the bucket as you tip the surplus material back onto the pile.

3(b) Tip off material into the truck ("Truck Tip off" configuration). The instrument displays the weight tipped off the bucket into the truck (to match the 'weight left to load' display).

   To enter the 'Live Tip-off' weight, de-select the ⬚ key, lower the boom, and then lift dynamically through the weighing zone. The weighed amount is then added to the total, either automatically or manually as selected.

NOTE 1: "Live Static Tip-off Mode" is configured from the 'Sensor Sampling and Setup' screen ('Factory' calibration menu)

3.5   Static Weighing Mode

This normally uses the loader's auto-kickout system to automatically stop the lift arms in the reference position, before sampling the weight.

1. Make sure the machine is at normal operating temperature.
   Trade-approved weighing systems: Weighing will be inhibited until normal operating temperature is reached.

2. Select any required load references (product, customer, truck etc).

   If GPS Product recognition is enabled (ref. Section 4), then the Product reference is automatically set when the loader comes within range of the product location, and reverse gear is selected.

3. Zero the bucket. Follow the routine on the screen.
   Trade-approved weighing systems: The system is setup so that the zero routine is automated.

4. Fill the bucket as normal and crowd it right back.

5. Hold the lift lever <u>fully</u> back. Lift the load up to the weighing position. The alarm will sound one beep and the "live" weight will be displayed. Keep the loader as steady as possible while the weight is taken.
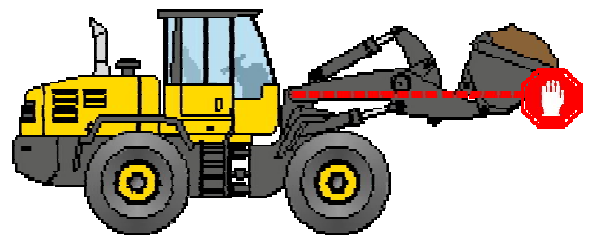
The instrument will display ![stop] indicating that the weight is being sampled, and the bucket weight is then displayed.

If the Overload audible alarm is enabled,

At 90% of maximum load = intermittent tone
At 100% of maximum load = continuous tone

UK721-07.JPG

6. If AUTO ENTER (![AUTO+]) is set , the weight is automatically added to the load total.

*Automatic Weight Entry is not possible if the attachment is configured for "Live Static ON" weighing mode, or "Constantly Live Static" weighing mode.*

If MANUAL ENTER (![MAN+]) is set, then press the ![arrow] key (or the Remote Enter Switch), to add to the load total.

The target weight (![target]) will decrease by the calculated weight to show how much is left to load.

The ![pile] figure then indicates the total of all bucket weights entered so far.

7. Continue loading until you get to the last bucketful. If the bucket weight exceeds the target required, the bucket weight turns **RED** in colour. The amount will still add to the total.

With Auto Entry (![AUTO+]) enabled, the amount will still add to the total. However, there are several methods for "Last Bucket" weighing (ref. section 3.4).
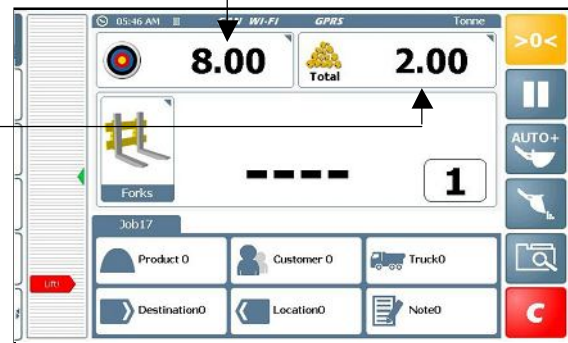
UK721-08.JPG

8. Press ![C] to reset for the next loading job.

A 'Job Record' that includes the Load Data and Store references, is saved automatically to the database on the SD card, and printed out (if setup to do so).

A new Job Name is then created. Depending on the setting in the 'Setup', menu, the Store References will either default to those of the previous job, or to '**Undefined**'.

The "Target Load" will revert to the last figure entered, and will need to be changed only if the next truck requires a different weight.

NOTE: *Once started, a job does not have to be completed and cleared before starting another job. This enables the operator to perform and log multiple loading tasks e.g. in a busy environment (ref. 2.9 - 'Jobs List').*

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3.6   Static Weighing - 'Constantly Live Static' Mode

If the weighing mode for a selected attachment is set to 'Constantly Live Static', the loaders 'auto-kickout' system is not active and the live weight is displayed at any boom position.

Weighing in this mode will not be as accurate as with other weighing modes. However, to get the best accuracy possible, it is recommended to always enter the weight reading at the same boom position every time. This position should ideally be the same position at which the attachment was calibrated.

1. Make sure the machine is at normal operating temperature

2. Select any required load references (product, customer, truck etc).

If GPS Product recognition is enabled (ref. Section 4), then the Product reference is automatically set when the loader comes within range of the product location, and reverse gear is selected.

3. Fill the bucket as normal and crowd it right back.

NOTE: *There are no weighing zone indicators displayed.*

4. Lift the load and the "live" weight will be displayed. Keep the loader as steady as possible while the weight is taken.

    If the Overload audible alarm is enabled,

    At 90% of maximum load = intermittent tone
    At 100% of maximum load = continuous tone

5. Press the ⬅ key (or the Remote Enter Switch), to add to the load total.

NOTE: *Automatic Weight Entry is not possible.*

6. Press **c** to reset for the next loading job.
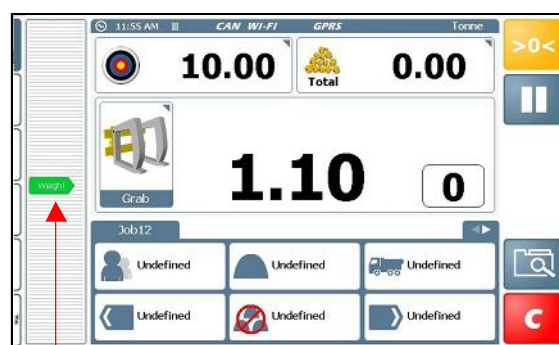
Boom position Indicator only

UK721-23.JPG

3.7   Split Loading (Trailers)

This function enables you to load a truck-trailer combination with up to 2 trailers, <u>as a single job</u>.   From the lefthand side menu, press [icon] and create a 'Trailer 1' (or enter your own description if required).

Repeat to create a 'Trailer 2' if required. A tab is displayed for each 'trailer'.

Load Total for selected vehicle

Active Job No.
(First load e.g. Truck)

Combined Load Total
- Truck and Trailer(s)

2nd load
(e.g. 1st Trailer)

3rd load
(e.g. 2nd Trailer)

UK721-22.JPG
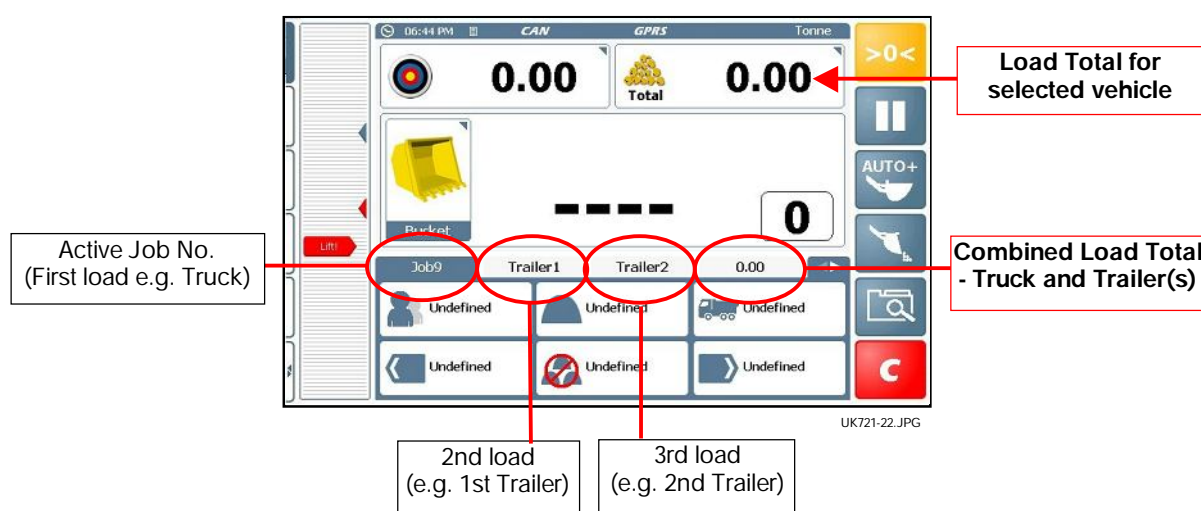
Select the appropriate tab to load each vehicle in turn. The reference stores and target weight can be set independently for each vehicle. You may switch between vehicles as required.

NOTE: *Once started, a job does not have to be completed and cleared before starting another job. This enables the operator to perform and log multiple loading tasks e.g. in a busy environment (ref. 2.9 - 'Jobs List').*

3.8   Blend ('Mix') Weighing Mode

You can choose to weigh dynamically or statically in this mode.

Select a "Mix", and enter a target weight for batch mixing. The instrument automatically calculates the target weight for each ingredient of the "recipe". Then simply weigh following the target weight ("Left to Load") display for each product in turn.

Products can be selected and weighed in any order.

1. Press [Undefined icon] to switch Blend ("Mix") mode on.

2. Confirm the Mix selection from the list.

   Example: "Mix 1" has the following ratio of ingredients;

   Product 1 = 2.00 parts
   Product 2 = 3.00 parts
   Product 3 = 5.00 parts

3. Enter the Target Weight.

NOTE: *The target weights for the individual products are* <u>*automatically*</u> *recalculated.*

   Example: For blending 20 tonnes of 'Mix 1' above, the individual Target weights will become;

   Product 1 = 4.00t
   Product 2 = 6.00t
   Product 3 = 10.00t

4. Load the first product to match the target weight.

5. Select the next product (the target weight is <u>automatically</u> set).

6. Repeat loading for the remaining products.

7. Press [C] to reset for the next loading job.

NOTE: "Blend ("Mix") Mode) is automatically disabled after pressing [C] and the instrument returns to the normal (i.e. single product) weighing mode.

UK721-18.JPG

UK721-20.JPG
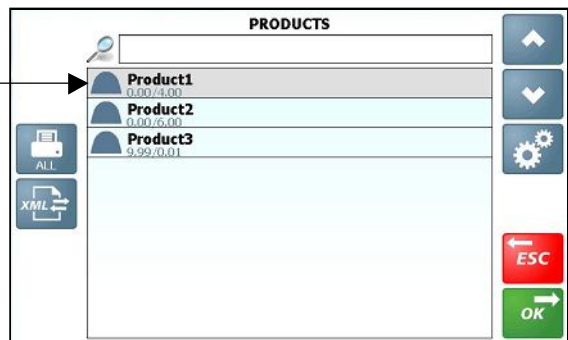
UK721-19.JPG

A 'Job Record' that includes the Load Data and Store references, is saved automatically to the database on the SD card, and printed out (if setup to do so).

A new Job Name is then created. Depending on the setting in the 'Setup', menu, the Store References will either default to those of the previous job, or to '**Undefined**'

The "Target Load" will revert to the last figure entered, and will need to be changed only if the next truck requires a different weight.

NOTE: *Once started, a job does not have to be completed and cleared before starting another job. This enables the operator to perform and log multiple loading tasks e.g. in a busy environment (ref. 2.9 - 'Jobs List').*

3.9   Reset for next Job

There are two options,

(i). Press [C] to reset for the next loading job.

A print summary will be automatically generated if the instrument is setup to do so in the 'Setup' menu ('Printer and Serial Port Setup).

(ii). Alternatively, press [icon] to print a Job summary and clear the job total.

NOTE: *When a Job Total cleared, the load data for that job is automatically save to the database on the SD card.*

UK721-50.JPG

3.10   'Nudge' - Adjusting Weight Calibration

NOTE: <u>Trade-approved weighing systems:</u> This function is <u>not</u> available in the normal operating mode.

<u>Non-approved weighing systems:</u>   This function <u>may be</u> available in normal operating mode depending on your setup.

After performing the initial weight calibration and loading a few trucks, you may find that the load readings from the instrument are consistently different from weighbridge (weighscale) readings. This situation can also occur after maintenance or repair to the loading shovel e.g. changing a bucket.

Nudge by Weight

1. Load a truck and note the weighbridge total against the instrument total for that load, e.g.

Instrument reading ('Measured')   23.96 tonnes
Scale reading ('Actual'):   24.78 tonnes

2a. Press [icon] and select 'Cal Nudge' from the Setup menu.

[icon] Enter the instrument reading ('**Measured'**).

[icon] Enter the weighscale reading ('**Actual'**)

The % correction is displayed.

3. Press [OK] to accept.

UK720-28.JPG

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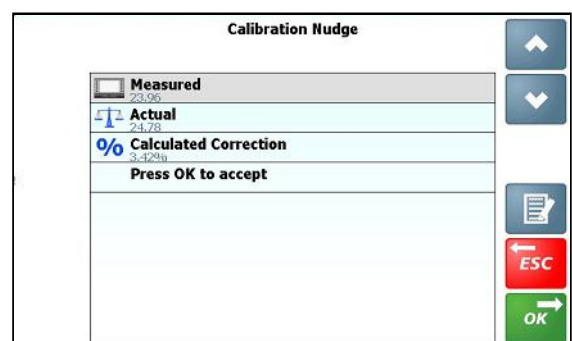
Nudge by %

Alternatively, to manually adjust the cal factors by trial and error,

2b. Set '**Measured**' and '**Actual'** to the <u>same value</u> e.g. '1'.

Select '**% Calculated Correction**'.

📝 Enter a + / - percentage change.

💡 Enter a plus value if the instrument reading is less than the weighbridge weight.

Enter a minus value if the instrument reading is more than the weighbridge weight.
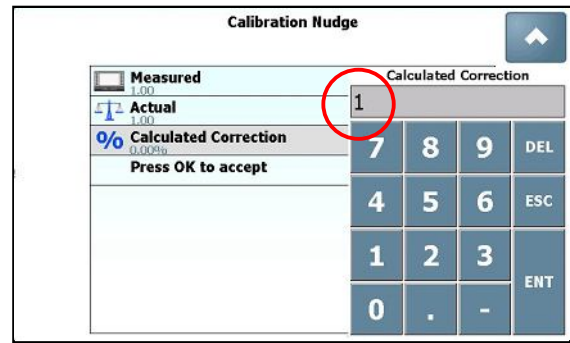
UK720-30.JPG

3. Press [OK] to accept.

4. Press [🏠] to return to the 'Home' screen.

3.11 Pause / Resume Weighing Mode

If you wish to use the loader for non-weighing tasks, then simply press [⏸] to de-activate the weighing mode.

💡 'Pause' may be activated during a 'job', e.g. if you need to temporarily perform a non-weighing task.

Press [▶] to resume weighing.

UK721-22.JPG

3.12 Reversing Camera Input

The Loadmaster can also function as a video monitor for a reversing camera. The display will switch automatically from the 'Home' screen to camera view when reverse gear is selected.

If two cameras are connected, then press [📷] to select between Camera 1 input and Camera 2 input.

NOTE: *The Camera function is enabled from the 'Home Screen Setup' page in the 'Setup' menu.*

UK721-45.JPG

4.   Location Services

'Product', 'Destination' and 'Location' Store references can include latitude and longitude co-ordinates, and a 'Radius' setting.

When enabled with a GPS receiver and mobile Internet connection, and the product co-ordinates and radius have been setup, the system will automatically select the product reference as the loader comes within range (the radius) of the pile.

A moving map (Google Map) can be displayed via the 'Diagnostics' screen in the 'Setup' menu, which shows:-

- LOCATIONS (《 ⬛) - where the material originates e.g. a worksite, or location within a worksite.
- DESTINATIONS (⬛ 》) - where the material is sent e.g another location on the worksite, or to another worksite.
- PRODUCTS - Locations of products on the worksite.

4.1   GPS Product Recognition

To display the map,

1. Press [GPS icon] on the 'Diagnostics' screen.
2. Press [map icon] .
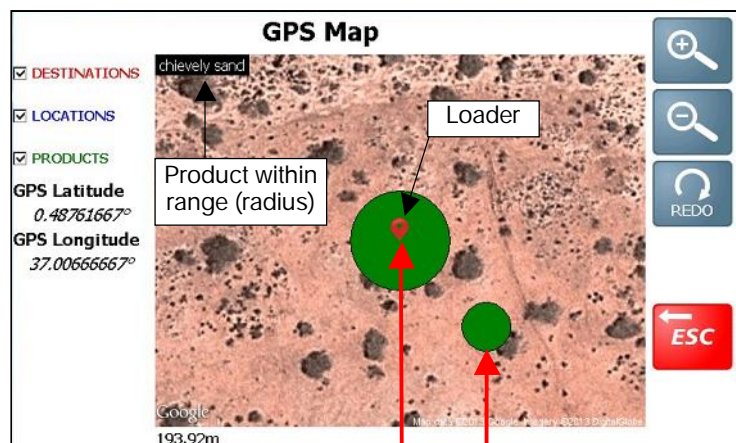
UK721-46.JPG

Set Product Co-ordinates and Radius

Using the examples shown,

1. Select the product reference (e.g. 'Chievely Sand'), and then move close to the pile.
2. Press [GPS icon] to enter the co-ordinates.
3. Select '**Radius**' and enter the required value.

NOTE: Where products are close to each other e.g. a row of storage bays, then do not set a large radius.
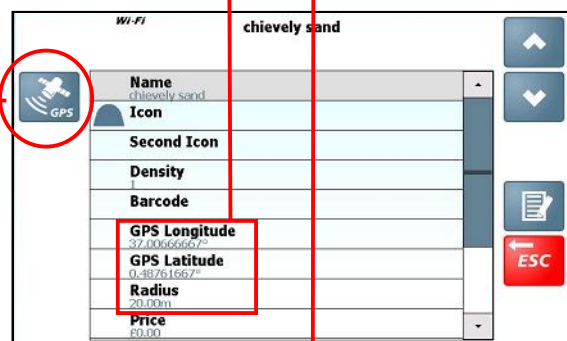
UK721-48.JPG

4. Repeat for each product.

In normal operation, the instrument displays the 'Home' screen. As you move within the product radius, the product reference is automatically set.

If products are in close proximity and incorrect selection occurs often, then reduce the 'radius ' setting for the adjacent products.
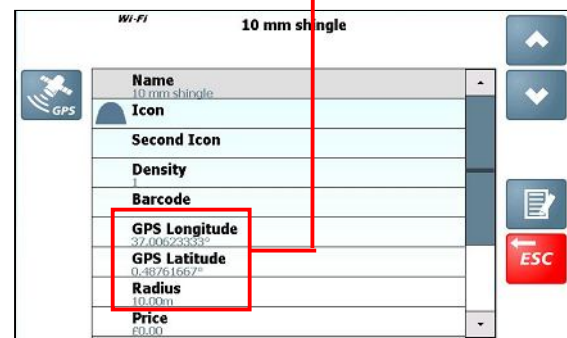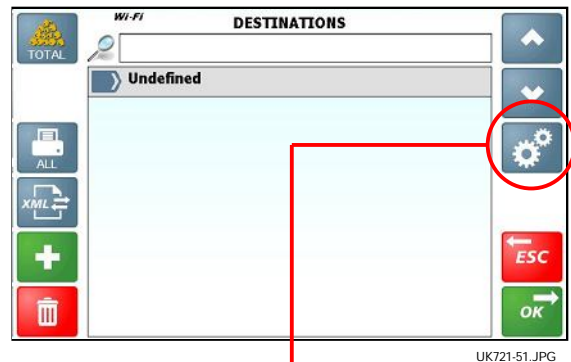

UK721-47.JPG

Set 'Destination' and 'Location' Co-ordinates

Both 'Destination' and 'Location' references may include GPS co-ordinates.

1. Select or add ([+]) the Destination ([>]) or Location ([<]) reference.

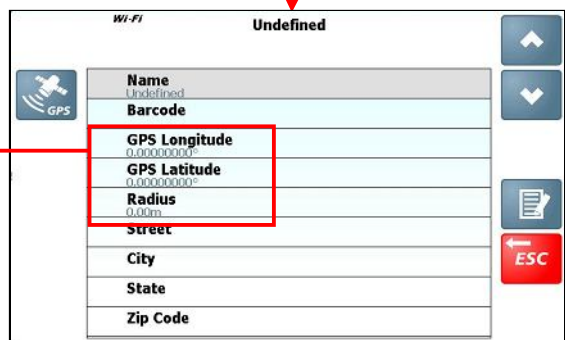2. Press [gear icon] to view the Reference settings.

UK721-51.JPG

3. If you are at the correct location, then press [GPS] to enter the co-ordinates.

[tip icon] If you are not at the selected Destination or Location, but you know the GPS co-ordinates, then select the appropriate line and press [edit icon] to enter them manually.

UK721-52.JPG

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5. *Printing, Data Logging and Transfer*

5.1 *Data Transfer Options*

NOTE: *Some options may not apply, depending on the setup of your system.*

TYPE	MODE	OPTION	
PRINTER	RS232 SERIAL (Normally COM 2)	OFF	No automatic printout after a load is cleared, but Job Records can be printed manually
		AUTOMATIC MODE	A Job Record ('Ticket') in one of 3 formats, is printed automatically after a load is cleared.
		'LOAD BY LOAD'	Ticket includes space for Name, Address and Signature of customer.
		'SHORT LOAD BY LOAD'	As above but excludes space for Name, Address and Signature of customer.
		'LIFT BY LIFT'	As above but also lists individual bucket weights.
DATA	USB (PEN)	EXPORT LIST VIA USB	Reference Stores, Jobs List, Job Records
		IMPORT AND OVERWRITE LIST VIA USB	Reference Stores, Jobs List
		IMPORT AND ADD LIST VIA USB	Reference Stores, Jobs List
	EMAIL (WI-FI)	EXPORT LIST TO EMAIL	Reference Stores, Jobs List, Job Records
	WEBSERVER (WI-FI)	EXPORT LIST TO WEBSERVER	Reference Stores, Jobs List, Job Records
		IMPORT LIST FROM WEBSERVER	Reference Stores, Jobs List
	RS232 SERIAL (Normally COM 1) e.g. RADIO MODEM DATALOGGER PC CABLE etc	.XML	Load data is saved normally in .XML format, to the database on the SD card. *(Import data from /Export data to PC via Com Port)*
		.CSV	Data output in .CSV format if compatibility with existing Loadmaster 8000 data is required. *(.CSV line sent to Com Port when load is cleared.)*

5.2 Reference Stores and Job Records

An incremental Job No. is created automatically for each new loading task. When the [c] button is pressed, A 'Job Record' that includes the Load Data and the Store references, is saved automatically to the database on the SD card, and printed out (if setup to do so).

NOTE: Each of the stores can have an unlimited no. of references. The programmable content of each Reference Store is shown in the table below.

'JOB RECORD'

Machine Name
Ticket No.
Job No.
Job Name
End Time and Date
Total weight
Price
Bucket Count
Preset Tare
Driver
Store References
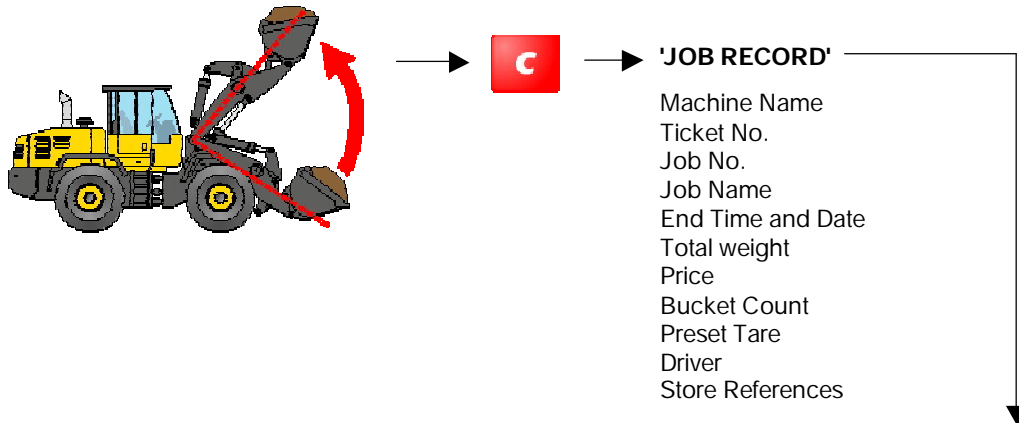
| Programmable Content	DATABASE on SD Card - Reference Stores (excluding the 'Mix' store)						
	Product	Customer	Destination	Location	Truck	Haulier	Note
Name / Text	■	■	■	■	■	■	■
Weight					■		
Target					■		
Icon 1	■						
Icon 2 [2]	■						
Density	■						
Barcode	■		■	■	■		■
GPS Long.	■		■	■			
GPS Lat.	■		■	■			
Radius	■		■	■			
Price	■						
Description 1	■						
Description 2	■						
Description 3	■						
Description 4	■						
Phone No.		■				■	
Email		■				■	
Street		■	■	■		■	
City		■	■	■		■	
State		■	■	■		■	
Zip Code		■	■	■		■	
Serial Port Index [3]	■	■					

[1] The choice of Reference stores available on the Home Screen depends on which are enabled via the 'Home Screen Functions Setup' menu.

[2] Currently only a requirement for COPRO regulations (Belgium), for 'BENOR' and 'CE1137' to appear on printouts.

[3] 'Serial Port Index' - Only required if you are operating Loadmaster Alpha 100 and Loadmaster 8000 series instruments on the same site, and want compatibility with the .CSV data format exported from the Loadmaster 8000/8000i. The Serial Port Index entries would correspond to the Customer Nos. / Product Nos. stored in the Loadmaster 8000/8000i.

5.3   *Job Reports*

The database can be searched to create a 'Job Report' - a list of Job Records that meet your search criteria.
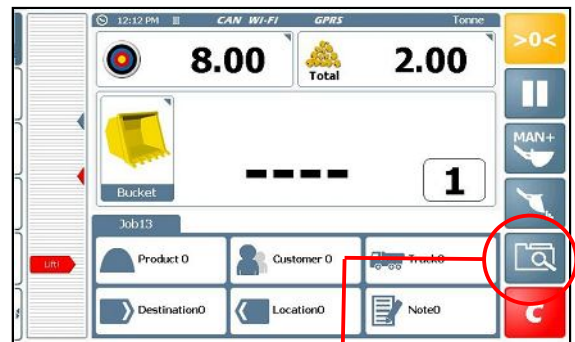
UK721-06.JPG

Search / Delete Job Records

Select the search criteria:-

Date, Store Reference, Driver No., etc.

  - Print the last Job record saved.

  - Reset search criteria to 'ALL' job records.

  - Delete the jobs listed by the search.

UK721-40.JPG

Print / Export Job Record(s)

  - Print the last Job record saved.

Summary Report

  - Print Summary Report

  Export options:-

> USB
>
> Webserver
>
> Email

You are prompted to enter a suitable filename.

Job Report

  - Print all Job Records listed

Warning! Be sure before you do this - it may be a very long printout!

To print a single Job Record, select the line and press , then press .
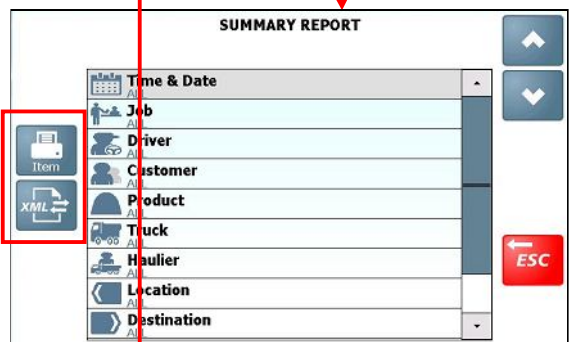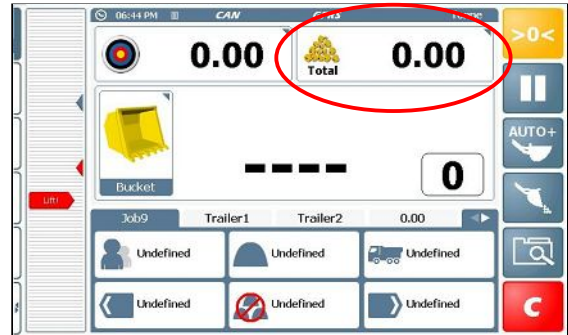
UK721-42.JPG

UK721-41.JPG

5.4 Totals

Grand Total

Press the [Total] area on the 'Home' Screen to view,

- Grand Total
- Lift Count
- Date

since the Grand Total was last reset.

Press [AC] to reset to zero

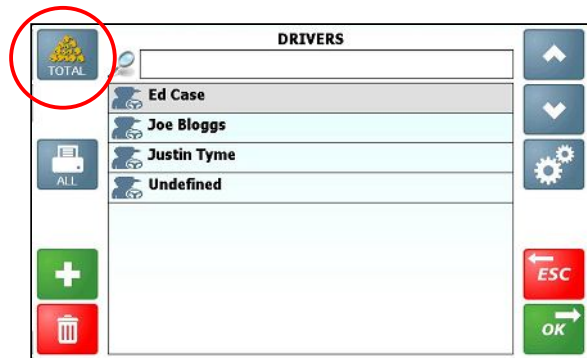UK721-22.JPG

Driver Totals

You can view (and print if enabled) a summary of the loads saved over the previous week.

From the 'Home' screen, press [Undefined] to select the driver list

Select the driver from the list and press [TOTAL] to view,

- Todays Total
- Yesterdays Total
- Total Since Sunday
- 7 Day Total

Press [Item] to print a summary of these totals.

UK721-43.JPG

Reference Store Totals

You can view (and print if enabled) a summary of the loads saved over the previous week.
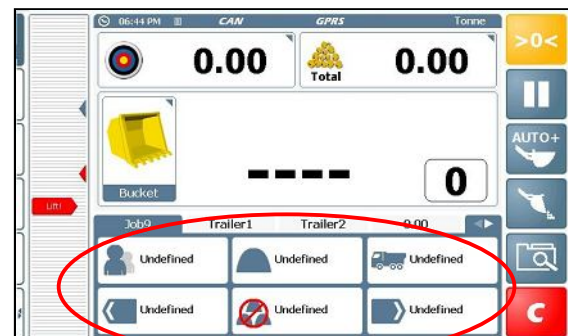
NOTE: *Applies to all Reference Stores*

Select the appropriate Reference Store.

Select the reference from the list and press [TOTAL] to view,

- Todays Total
- Yesterdays Total
- Total Since Sunday
- 7 Day Total

Press [Item] to print a summary of these totals.

UK721-22.JPG

Issue 01:   10.7.13   Original issue