Electro-Magnetic Compatibility (EMC)

CE

This product complies with Council Directive 89/336/EEC when installed and used in accordance with the relevant instructions.

Service and Technical Support

PLEASE CONTACT YOUR LOCAL DISTRIBUTOR

If unknown then fax: 44 (0) 1453 733311

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User Guide

Loadlog 4

Operation and Calibration

Software Ref: UDM 433-8

Contents

Features

Loadlog 4 measures, displays and records net weights lifted, based on sensing the lift system, hydraulic pressure. It is intended for use primarily with industrial loading shovels, but is suitable for use on all types of loader.

It has an illuminated 4 digit LCD display, 3 front panel switches plus an external pushbutton, to control all functions. The instrument is normally powered on via the ignition circuit and recalls the function selected when last used.

Functions include audible alarm confirmation of Tare, Load entered or bucket overload, Sub-total (lorry load) and Accumulated total (daily / weekly).

Normal Operation

SET TARE

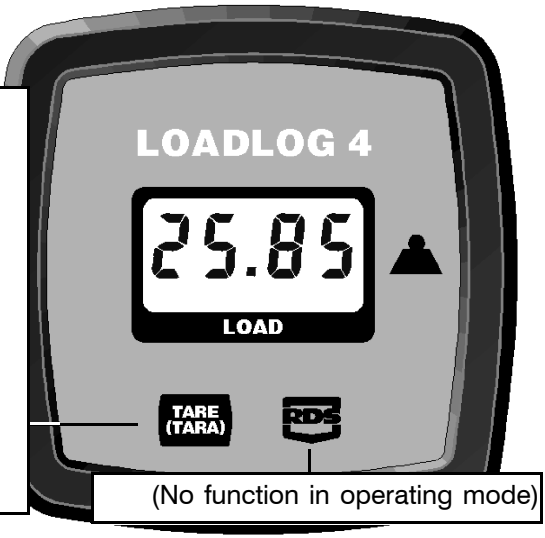
(i) Hold for 5 seconds.

Display flashes zeros

(ii) Press Remote Enter button.

Alarm beeps once.
Display reads zero.

(iii) Lift empty, following correct weighing procedure. If reading more than ±0.03 (30kg) then reset tare.



2 - Weighing procedure

Maintaining accuracy

A comprehensive calibration procedure is done on installation. Daily checks include tare as part of the normal operating routine, and comparing at least one truckload against a weighbridge reading. With careful operation, system accuracy can be as good as ±1% of full load, although 2-3% is more common in practice.

Loadlog 4 **readings are not suitable as a legal basis for the sale of goods.**

Machine requirements

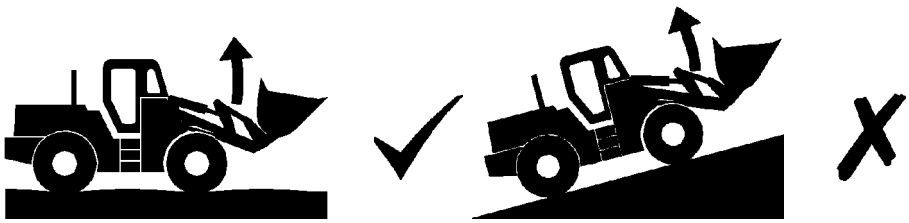
To get consistent results with improved accuracy, observe the following;

Temperature

Allow engine/hydraulics to reach a steady operating temperature.

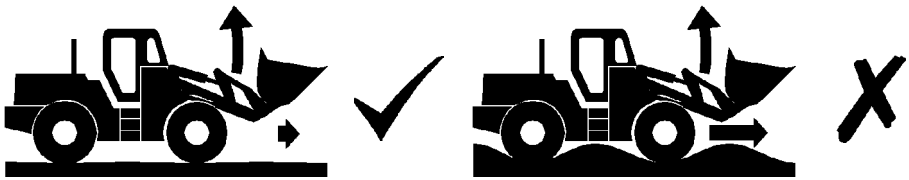
Level ground

Avoid readings when on inclines or side slopes.



Minimise vehicle movement

Unless on very smooth ground, take readings when stationary.



Calibrate system

Check tare regularly as part of a normal loading routine.

Check weighing mode.

If readings are consistently higher or lower than the actual load, or if a different loading attachment is fitted, check and re-calibrate as necessary.

Regular maintenance

- In accordance with the machine handbook.
- The *Loadlog* system is normally maintenance free. However if the hydraulic oil level is too low, air may get trapped in the load sensor or sensor hose. If so,

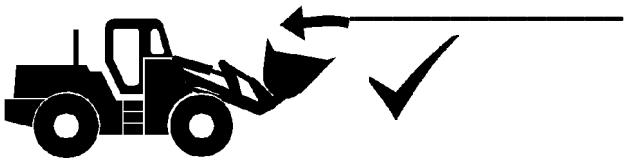
1 Raise the loading mechanism **slightly** off the ground.

2 Slacken the hydraulic connection between the sensor and the adaptor to release any trapped air.

Note if air returns frequently. This may indicate a problem with the hydraulic pump.

Correct lifting procedure

1 Fully crowd the bucket.



2 With engine idling, apply full lift.

3 Open throttle to a fixed operating speed (a mechanical footstop adjacent to the throttle pedal, or engine tachometer can assist).

4 Maintain a smooth steady lift speed.

WEIGHING METHODS

This section describes the weighing modes, when they are used and how they affect the loading cycle.

There are two ways of taking a weight reading - either in Dynamic or Static weighing mode.

The weighing mode is determined by the settings in the calibration menu. These are normally set up on installation. Whichever mode is in effect the instrument will automatically switch to '*last-bucket*' *static weighing mode* when the bucket weight is greater than required to make up the target load.

There are two possible weighing methods.

In both cases, the load is measured when the magnet on the loader arm (or fork lift) is between two position sensors (reference position), and indicated by an audible alarm.

Dynamic weighing is recommended for maximum convenience to the operator. The load is automatically measured during an uninterrupted lift,

Static weighing is recommended in situations where the last load needs adjusting to meet a desired total. The load is held at the reference position until the 'live' reading settles to a steady figure. (A static load reading may decrease for a short time, an effect common to hydraulic lift systems).

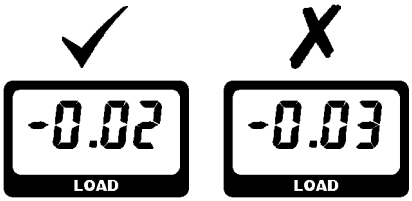
Dynamic weighing mode

In Dynamic weighing mode the load is lifted without any interruption. Weighing can be fully automatic and quick. Speed compensation is in effect so lift speed is unimportant but should be *smooth* and *constant,* (and faster than the slow lift recorded as part of the calibration routine). As the loader arms pass the Reference and Direction sensor the bucket weight is displayed on the screen.

In Dynamic weighing mode, you have the option of selecting 'AUTO ENTER', where the weight reading is *automatically* stored in memory as the arms pass the reference position.
If 'MANUAL ENTER' is selected, the weight reading will be logged and stored *only* when the LOAD ENTER button is pressed.

2 - Weighing procedure

Dynamic weighing



1 Check tare = 0 ±0.02.
Set if required 

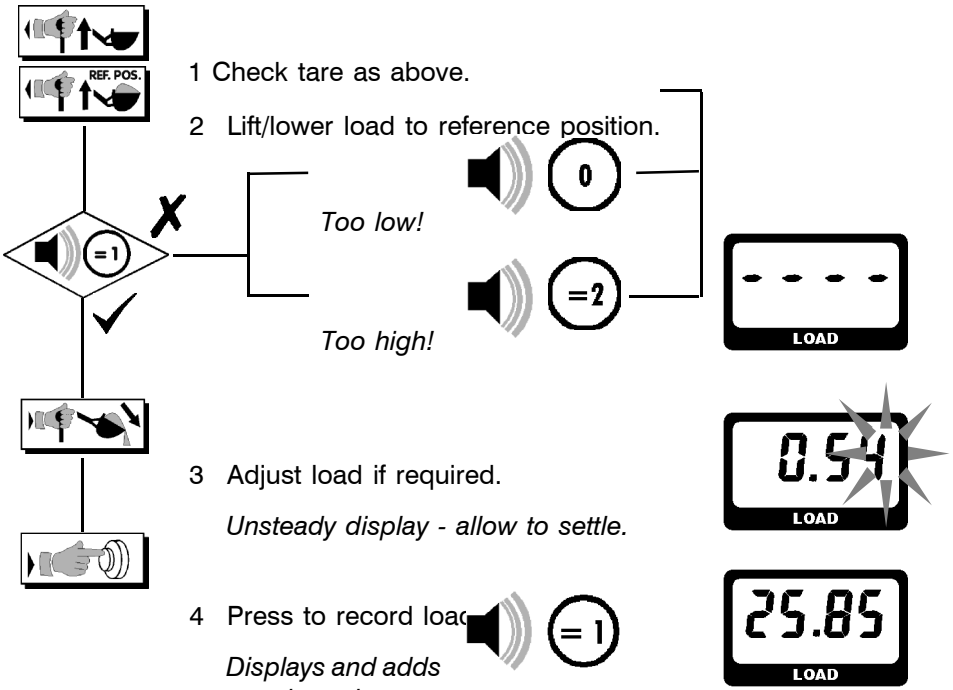
2 Lift load **through** reference position.

Displays weight until lowered below reference position.

3 Press to record load.

Adds to and displays sub-total

Static weighing



1 Check tare as above.

2 Lift/lower load to reference position.

Too low!

Too high!

3 Adjust load if required.

Unsteady display - allow to settle.

4 Press to record load

Displays and adds to sub-total

Sub-total (Lorry Load)

Each time a bucket load is entered, the instrument re-calculates and displays the Sub-total.

To reset the Sub-total,

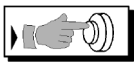
Press and hold.

The instrument will bleep and the display will return to zero.

Accumulated total

Each load entered is also added to an accumulated total, enabling the operator to keep a daily or weekly total. It stores up to a maximum 9999 (tonnes), after which it automatically returns to zero.

To display Accumulated total



After resetting the sub-total, press and hold for a further 5 seconds

The display reverts to the current sub-total after several seconds.

The accumulated total can be reset to zero from the calibration mode.

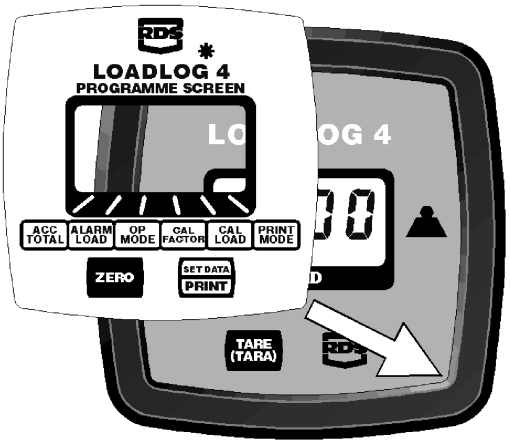
Alarm load

The instrument can be set to alarm if the load exceeds a preset value. The alarm sounds continuously until the bucket is lowered out of the reference position.

The alarm load can be reset to zero from the calibration mode.

4 - Programming

Place Programme Screen



To enter Programme mode

Press and hold for about 6 seconds

To select programme function

Press and release to move one position to the right.

(If released for more than 5 seconds the instrument returns to Operating mode).

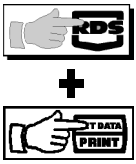
Change programme settings

With ✱ held;

PRESS SET DATA PRINT to SELECT a digit or decimal point - 0.200 0.200 0.200 0.200 0.200

HOLD SET DATA PRINT to CHANGE value or decimal place - 0.201 0.202 0.203 0.204

Reset Accumulated total [ACC TOTAL]



Press and hold until the total is displayed, then...

...hold until the display goes to zero. 

Releasing the switches returns the instrument to operating mode. The current sub-total is not affected.

Set Alarm Load [ALARM LOAD]

Default setting = 0.00 (tonne). If the alarm is not required then set at zero.

To change setting, see 

Select Static or Dynamic operating mode [OP MODE]

To change setting, see 

The display shows '**dyn**' *for dynamic or* '**stat**' *for Static weighing.*

Once selected, calibration and operation must follow the guidelines for the selected mode.

Load calibration [CAL FACTOR] [CAL LOAD]

1 Initially programme an approximate Cal Factor = bucket capacity (tonnes)

Default = 1.00 (tonne)

Select the [CAL FACTOR] channel and enter the value. 

A known load must be entered lifted in accordance with the weighing guidelines.

In addition to the tare routine, a calibration factor must be programmed for each of channels 1 to 5. This number relates a signal from the hydraulic pressure sensor to the load lifted, enabling the instrument to calculate and display an accurate reading. It is specific to each machine and possibly varies between different loading attachments*. *16

Estimating initial calibration factor

The instrument display can be read as metric tonnes or interpreted as lbs x 100, depending on the cal. factor set.

Any calibration factor must initially be estimated as follows;

For metric measure,

Inital Cal. factor = maximum load capacity (tonnes)

e.g. for a 1 tonne load, Cal. factor = 01.00
for a 1.75 tonne load " " = 01.75

For Imperial measure,

Initial Cal. factor = maximum load capacity (lbs x 100)

e.g. for a 2000 lb load, Cal. factor = 20.00
for a 3500 lb load, " " = 35.00

Display and programme calibration factor

1 Select **1** **2** **3** **4** **5**

2 Hold continuously.

Display changes from '**dyn**'/'**stAt**'
to calibration factor and 1st digit flashes.

3 Hold to cycle to the desired digit, then release, otherwise press once.

Next digit flashes.

4 Repeat step 3 for remaining digits.
If an digit is programmed in error, simply repeat the whole sequence.

Calculate calibration factor

1 Programme estimated calibration factor, or if fine tuning the system, note the existing factor.

2 Set tare.

3 Make a full, well distributed load either of known weight (i.e. filled bags or other measured commodities), or which can be determined using a weighbridge. Lift several times, noting each time the displayed weight.

Observe all the recommendations in Section 2 for maintaining accuracy, since errors at this stage will affect all subsequent weighings.

4 Calculate the average of displayed readings.

5 If not already known, determine the actual weight lifted, via a weighbridge.

6 Calculate the new calibration factor,

$$\text{New cal. factor} = \text{Existing factor} \times \frac{\text{Known weight}}{\text{Average displayed weight}}$$

Example 1: Capacity 1.5 tonnes

Estimated factor = 1.5
Known weight = 1250 kg (or 1.25 tonnes)
Displayed weight = 1.65 (tonnes)

$$\text{Cal. factor} = 1.5 \times \frac{1.25}{1.65} = \mathbf{1.136}$$

Example 2: Capacity 3500 lbs

Estimated factor = 35
Known weight = 3000 lbs
Displayed weight = 36.50 (3650 lbs)

$$\text{Cal. factor} = 35 \times \frac{30.00}{36.50} = \mathbf{28.77}$$

7 Programme new factor.

8 Set tare.

9 Lift the same load again several times to confirm if the displayed weight is correct. If not, then repeat this procedure from step 6.

10 Record your final settings below.

	Attachment/Trailer/Commodity	Mode	Cal. factor
Channel 1		Stat / Dyn	
Channel 2		Stat / Dyn	
Channel 3		Stat / Dyn	
Channel 4		Stat / Dyn	
Channel 5		Stat / Dyn	

Total reset

If for some reason the data in the instrument is corrupted or the display shows '**PrOg**' then the instrument must be totally reset.

1 Switch power off.

2 Press and hold all three control switches.

3 Switch power on

4 Release all switches.

All instrument settings should be returned to the factory-set values. If the display shows '**PrOg**' again, the instrument may be faulty and must be returned to the manufacturer for inspection and repair.

Error display

If the display shows '**Err**', then no signal is received from the load sensor. Check all wiring connections.

Appendix

If the load centre of an alternative loading attachment is significantly different, the hydraulic system load-pressure relationship will alter.

If after changing the loading attachment and setting the tare to zero, the readings are consistently higher or lower than the actual load, then the above is the possible cause and the calibration factor would need adjusting.